



King County

Office of Emergency Management

KING COUNTY REGIONAL HAZARD MITIGATION PLAN UPDATE

Volume 2: Planning Partner Annexes

Part 2a—King County, Algona, Auburn, Beaux Arts Village,
Bothell, Burien, Carnation, Clyde Hill, Duvall

Agency Review Submittal

July 2014



TETRA TECH

King County
REGIONAL HAZARD MITIGATION PLAN UPDATE
VOLUME 2: PLANNING PARTNER ANNEXES

AGENCY REVIEW SUBMITTAL

JULY 2014

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Project #103S2548

King County
**Regional Hazard Mitigation Plan Update;
Volume 2—Planning Partner Annexes**

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INTRODUCTION

BACKGROUND

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

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

For the King County Regional Hazard Mitigation Plan Update, a Planning Partnership was formed to leverage resources and to meet requirements of the federal Disaster Mitigation Act (DMA) for as many eligible local governments in King 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 that participated in this process, with distinct needs and capabilities:

- Incorporated municipalities (cities and the County)
- Special purpose districts.

Each participating planning partner has prepared a jurisdiction-specific annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume. This volume also includes brief profiles of the two Native American tribes that have land within King County. The tribes are independent, sovereign nations and were not official Planning Partners in this effort. However, they are important stakeholders in the region, and the King County Planning Partnership recognizes that tribal-level plans can support or enhance hazard mitigation in the planning area.

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 kickoff meeting was held on January 24, 2013 at King County Office of Emergency Management in Renton to identify potential stakeholders and planning partners for this process. The purpose of the meeting was to introduce the planning process to jurisdictions in the County that could have a stake in the outcome of the planning effort. All eligible local governments within the planning area were invited to attend. Various agency and citizen stakeholders were also invited to this meeting. 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 King County plan update work plan.
- Describe the benefits of multi-jurisdictional planning.
- Outline planning partner expectations.
- 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 59 planning partners by the planning team, and the King County Planning Partnership was formed.

Maps for each participating city are provided in the individual annex for that city in Parts 2a through 2c of this volume. Maps showing the location of participating special purpose districts by district type are provided at the beginning of Part 2d, which includes the special purpose district annexes. 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 January 24, 2013:

- 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 update. 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 update development activities such as:
 - Steering Committee meetings
 - Public meetings or open houses
 - Workshops and planning partner training sessions
 - 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 complete its normal pre-adoption process prior to submitting the plan to its governing body for adoption. For example, if it is the community's normal process to submit a planning document to a Planning Commission prior to submittal to council for adoption, then that process must be followed for the adoption of this plan.
- 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 regional plan update may comply with DMA requirements by linking to this plan following the procedures outlined in Appendix B.

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. Templates available for the planning partners' use were specific as to whether the partner is a municipality or a special purpose district and whether the annex is an update to a previous hazard mitigation plan or a first-time hazard plan. 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 Appendix C to this volume of the Regional Hazard Mitigation Plan Update.

Workshop

Workshops were held for Planning Partners to learn about the templates and the overall planning process. Topics included the following:

- DMA
- King County plan background
- The templates

- Risk ranking
- Developing your action plan
- Cost/benefit review.

Separate sessions were held for special purpose districts and municipalities, in order to better 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 92-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 risk assessment results developed for this plan
- 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
- Copies of partners’ prior annexes, if applicable.

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.

Analysis of Mitigation Initiatives

Each planning partner reviewed its recommended initiatives to classify each initiative based on the hazard it addresses and the type of mitigation it involves. Mitigation types used for this categorization are as follows:

- **Prevention**—Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.

- **Property Protection**—Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
- **Public Education and Awareness**—Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
- **Natural Resource Protection**—Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Emergency Services**—Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
- **Structural Projects**—Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

COMPATIBILITY WITH PREVIOUS APPROVED PLANS

Of the 59 committed planning partners, 22 were covered by prior plans approved by FEMA. This does not include local governments covered under the initial 2004 Regional Plan that did not perform and update to that plan in 2009. Table 1 lists those communities, the status of those plans, and the role this regional plan will play in achieving compliance and the CRS status if applicable. These 22 plans identified over 280 initiatives. The progress made on these initiatives has been reviewed in the progress report included in Appendix B of Volume 1 of this plan update.

FINAL COVERAGE UNDER THE PLAN

Of the 59 committed planning partners, 54 fully met the participation requirements specified by the Steering Committee. The principal requirement not met by the other partners was the completion of the jurisdictional annex template following the workshops. All 54 partners that attended the workshop subsequently submitted completed templates. Only those 54 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 2 lists the jurisdictions that submitted letters of intent and their ultimate status in this plan.

**TABLE 1.
PRIOR PLAN STATUS**

Jurisdiction	FEMA Approval Date	Will Be Replaced by King County Regional Hazard Mitigation Plan? (Yes/No)	CRS Community (Yes/No)	King County Regional Hazard Mitigation Plan Will Become CRS Plan of Record?(Yes/No)
City of Auburn	12/2/2009	Yes	Yes	Yes
City of Bothell	6/17/2010	Yes	No	N/A
City of Federal Way	12/2/2009	Yes	No	N/A
City of Issaquah	1/28/2010	Yes	Yes	Yes
City of Kent (including annex for Kent Fire Department/King County Fire District 37)	1/27/2005	Yes	Yes	Yes
City of Mercer Island	6/16/2011	Yes	No	N/A
City of Pacific	12/2/2009	Yes	No	N/A
City of Redmond	1/8/2010	Yes	No	N/A
City of Renton	4/19/2012	Yes	Yes	Yes
City of Shoreline (including annex for Shoreline Fire Department /King County Fire District 4)	12/2/2009	Yes	No	n/a
City of Snoqualmie	4/20/2010	Yes	Yes	Yes
City of Tukwila	2/16/2011	Yes	No	N/A
City of Woodinville (an annex to the North King and South Snohomish Counties Regional Mitigation Plan for Natural Hazards)	11/29/2010	Yes	No	N/A
King County (Unincorporated)	1/28/2010	Yes	Yes	No ^a
Covington Water District	1/28/2010	Yes	N/A	N/A
Highline Water District	12/2/2009	Yes	N/A	N/A
King County Water District 19	12/28/2010	Yes	N/A	N/A
King County Water District 111	4/20/2010	Yes	N/A	N/A
North City Water District (known as Shoreline Water District at the time of the previous hazard mitigation plan')	N/A ^b	Yes	N/A	N/A
Soos Creek Water District	3/18/2010	Yes	N/A	N/A
Sammamish Plateau Water and Sewer District	12/2/2009	Yes	N/A	N/A
Southwest Suburban Sewer District	1/28/2010	Yes	N/A	N/A
South King Fire and Rescue	12/2/2009	No	N/A	N/A
<p>a. For unincorporated King County, the CRS plan of record is the <i>2013 King County Flood Hazard Management Plan Update and Progress Report</i>.</p> <p>b. The 2010 Shoreline Water District Hazard Mitigation Plan was not submitted to FEMA for approval.</p>				

**TABLE 2.
PLANNING PARTNER STATUS**

Jurisdiction	Letter of Intent Date	Attended Workshop?	Completed Template?	Covered by This Plan?
Municipalities				
King County	N/A	Yes	Yes	Yes
City of Algona	1/29/2013	Yes	Yes	Yes
City of Auburn	2/13/2013	Yes	Yes	Yes
City of Bellevue	2/22/2013	No ^a	No	No
City of Bothell	2/12/2013	Yes	Yes	Yes
City of Burien	2/13/2013	Yes	Yes	Yes
City of Carnation	2/11/2013	Yes	Yes	Yes
City of Covington	2/12/2013	No ^a	No	No
City of Clyde Hill	2/21/2013	Yes	Yes	Yes
City of Duvall	2/13/2013	Yes	Yes	Yes
City of Federal Way	1/31/2013	Yes	Yes	Yes
City of Issaquah	1/33/2013	Yes	Yes	Yes
City of Kent	2/21/2013	Yes	Yes	Yes
City of Kirkland	2/21/2013	Yes	Yes	Yes
City of Maple Valley	1/30/2013	Yes	Yes	Yes
City of Medina	2/11/2013	Yes	Yes	Yes
City of Mercer Island	2/21/2013	Yes	Yes	Yes
City of North Bend	2/22/2013	Yes	Yes	Yes
City of Pacific	3/15/2013	Yes	Yes	Yes
City of Redmond	2/19/2013	Yes	Yes	Yes
City of Renton	2/22/2013	Yes	Yes	Yes
City of SeaTac	2/7/2013	Yes	Yes	Yes
City of Shoreline	2/15/2013	Yes	Yes	Yes
City of Snoqualmie	3/14/2013	Yes	Yes	Yes
City of Tukwila	3/1/2013	Yes	Yes	Yes
City of Woodinville	2/28/2013	Yes	Yes	Yes
Town of Beaux Arts Village	2/14/2013	Yes	Yes	Yes
Town of Hunts Point	2/23/2013	Yes	Yes	Yes
Town of Skykomish	3/15/2013	Yes	Yes	Yes
Fire Districts				
Burien Fire (King County Fire District #2)	1/24/2013	Yes	Yes	Yes
Duvall Fire (King County Fire District #45)	2/15/2013	Yes	Yes	Yes
Kent Fire	2/21/2013	Yes	Yes	Yes
Shoreline Fire	2/13/2013	Yes	Yes	Yes

**TABLE 2.
PLANNING PARTNER STATUS**

Jurisdiction	Letter of Intent Date	Attended Workshop?	Completed Template?	Covered by This Plan?
Valley Regional Fire Authority	1/29/2013	Yes	Yes	Yes
South King Co. Fire and Rescue	2/13/2013	No	No	No
Vashon Island Fire & Rescue	1/31/2013	Yes	Yes	Yes
School and Hospital Districts				
Kent School District	2/14/2013	Yes	Yes	Yes
Lake Washington School District	3/15/2013	No	No	No
Riverview School District	1/30/2013	Yes	Yes	Yes
Evergreen Health (Public Hospital District #2)	2/5/2013	Yes	Yes	Yes
Snoqualmie Hospital	2/25/2013	No	No	No
Valley Medical (Public Hospital District #1)	2/21/2013	Yes	Yes	Yes
Water, Sewer and Utility Districts				
Covington Water District	2/12/2013	Yes	Yes	Yes
Highline Water District	2/21/2013	Yes	Yes	Yes
King County Water District 19	2/21/2013	Yes	Yes	Yes
King County Water District 20	2/20/2013	Yes	Yes	Yes
King County Water District 90	2/12/2013	Yes	Yes	Yes
King County Water District 111	2/25/2013	Yes	Yes	Yes
King County Water District 125	2/21/2013	Yes	Yes	Yes
North City Water District (formerly Shoreline Water District)	2/26/2013	Yes	Yes	Yes
Coal Creek Utility District	1/30/2013	Yes	Yes	Yes
Sammamish Plateau Water & Sewer District	2/26/2013	Yes	Yes	Yes
Skyway Water & Sewer District	3/12/2013	Yes	Yes	Yes
Soos Creek Water & Sewer District	2/27/2013	Yes	Yes	Yes
Midway Sewer District	2/21/2013	Yes	Yes	Yes
Ronald Wastewater District	2/13/2013	Yes	Yes	Yes
Southwest Suburban Sewer District	2/21/2013	Yes	Yes	Yes
Valley View Sewer District	2/21/2013	Yes	Yes	Yes
Woodinville Water District	2/20/2013	Yes	Yes	Yes

a. Cities of Bellevue and Covington decided to maintain their own plans after submitting letter of intent

KING COUNTY TRIBAL STAKEHOLDERS

FEMA's Tribal Multi-Hazard Mitigation Planning Guidance

FEMA's 2010 *Tribal Multi-Hazard Mitigation Planning Guidance* assists Indian tribal governments and other tribal entities in identifying and assessing their risk to natural hazards. The document offers the following types of assistance (44 CFR 201.7):

- It helps Indian tribal governments identify their risks from natural hazards and protect their members and other resources.
- It helps Indian tribal governments develop and adopt new mitigation plans, or revise or update existing mitigation plans, to meet the requirements of 44 CFR 201.7.
- It helps plan reviewers evaluate mitigation plans from different Indian Tribal governments in a fair and consistent manner.
- It helps Indian tribal governments exercise flexibility and apply for assistance as either a grantee or subgrantee under FEMA grant programs with a single plan type.
- It provides guidance and culturally relevant examples to other tribal entities that comply with similar planning requirements under 44 CFR 201.6 as a local government.

Indian tribal governments with an approved tribal mitigation plan in accordance with 44 CFR 201.7 may apply for assistance from FEMA as a grantee. If the Indian tribal government coordinates with the state for review of the tribal mitigation plan, then the Indian tribal government also has the option to apply as a subgrantee through a state or another tribe. A grantee is an entity such as a state, territory, or Indian tribal government to which a grant is awarded and that is accountable for the funds provided. A subgrantee is an entity—such as a community, local or Indian tribal government, state-recognized tribe, or private nonprofit organization—to which a subgrant is awarded and that is accountable to the grantee for use of the funds provided.

If the Indian tribal government is eligible as a grantee or subgrantee because it has an approved tribal mitigation plan and has coordinated with the state for review, it can decide which option it wants to take on a case-by-case basis with respect to each federal disaster declaration, and for each grant program under a declaration, but not on a project-by-project basis within a grant program. For example, an Indian tribal government can participate as a subgrantee for public assistance, but as a grantee for the Hazard Mitigation Grant Program under the same declaration. However, the Indian tribal government would not be able to request grantee status under HMGP for one HMGP project, then request subgrantee status for another HMGP project under the same declaration.

By acknowledging the tribes as stakeholders, the King County regional planning partnership recognizes tribal level plans as existing and potential mechanisms that could support or enhance hazard mitigation in King County. This is a requirement of 44 CFR 201.6.b.3. While the King County regional planning effort and those of the tribal governments are separate and autonomous efforts, tribal plans offer an opportunity to partner and share information that may lead help to leverage resources in the planning area.

The Muckleshoot Indian Tribe

Brief Profile

This section is excerpted from the City of Auburn's 2013 Annex to the King County Regional Hazard Mitigation Plan (<http://www.auburnwa.gov/Assets/EM/AuburnWA/Docs/hazmit2013.pdf>) and the Muckleshoot Indian Tribe website (<http://www.muckleshoot.nsn.us/about-us/overview.aspx>)

The Muckleshoot Indian Tribe is a federally recognized Indian tribe whose membership is composed of descendants of the Duwamish and Upper Puyallup people who inhabited Central Puget Sound for thousands of years before non-Indian settlement. The Tribe's name is derived from the native name for the prairie on which the Muckleshoot Reservation was established. Following the Reservation's establishment in 1857, the Tribe and its members came to be known as Muckleshoot, rather than by the historical tribal names of their Duwamish and Upper Puyallup ancestors. Today, the United States recognizes the Muckleshoot Tribe as a tribal successor to the Duwamish and Upper Puyallup bands from which the Tribe's membership descends.

The Muckleshoot Reservation consists of six sections situated diagonally, has 20 miles of boundaries, and encompasses 6 square-miles. Three sections (3 square miles) are within the municipal limits of the City of Auburn. The Muckleshoot Tribe is one of Washington's largest tribes, with a membership of about 3,300. Through the Indian Reorganization Act, the Tribe adopted its constitution in 1936. It provides a nine-member council with advice and input of the General Council, consisting of all community members, and it provides a full range of governance services to tribal members and tribal properties in the reservation.

Status of Approved Plan

The Muckleshoot Tribe does not currently have a FEMA-approved, state-level, multi-hazard mitigation plan; however, the Tribe is currently pursuing plan development.

The Snoqualmie Indian Tribe

Brief Profile

The following information is excerpted from the 2011 Snoqualmie Tribe Hazard Mitigation Plan (http://www.snoqualmietribe.us/sites/default/files/linkedfiles/snoqualmie_tribe_hmp_final_11.1.11.pdf).

The people known today as the Snoqualmie Tribe have lived in the Puget Sound region of Washington State since time immemorial, long before the early explorers came to the Northwest. They hunted deer, elk, and other game animals, fished for salmon and gathered berries and wild plants for food and medicinal purposes.

The Snoqualmie Tribe currently has approximately 650 members. Historically, tribal members lived in an area of East King and Snohomish Counties that now contains the communities of Monroe, Carnation, Fall City, Snoqualmie, North Bend, Mercer Island and Issaquah. Tribal members continue to live in each of these communities.

In 1855, Snoqualmie signed the Point Elliott Treaty creating a government-to-government relationship between the United States and the Snoqualmie Tribe. The Tribe ceded to the U.S. government all of its land between Snoqualmie Pass and Marysville. The Tribe lost federal recognition in 1953 when federal policies limited recognition to tribes having reservations.

In October 1999, After 46 years of petitioning, the Bureau of Indian Affairs notified the Tribe's Fall City headquarters that the U.S. government had re-recognized the Snoqualmie Tribe and granted Snoqualmie Nation tribal status based on evidence that the Tribe had maintained a continuous community from historical times to the present. Recognition gave the Tribe the right to acquire its initial reservation land and to develop a casino to help fund tribal governance, administration and services to its members.

In the decade since re-recognition, the Tribe has worked to develop programs and provide services to meet the needs of its members. The Tribe has developed a government, created medical clinics, and promoted economic development, social and health services, and housing programs.

On March 2, 2006 the Snoqualmie Reservation site was officially put into trust status. The Snoqualmie Casino (which opened in 2009) was built on the reservation and is used to pursue economic development and increase the financial resources of the Tribe for government operations.

Status of Approved Plan

The Snoqualmie Tribe has a FEMA-approved, state-level, multi-hazard mitigation plan effective October 2011 through October 11, 2016.

Hazards of Concern

The 2011 plan addressed the following hazards of concern:

- Earthquake
- Flood
- Landslide/mass movement
- Epidemic/pandemic
- Hazardous materials.
- Severe weather
- Wildfire
- Dam failure
- Abandoned mines

ACRONYMS AND ABBREVIATIONS

The following terms are used in the planning partner annexes:

- ATC—Applied Technology Council
- CED—Community and Economic Development (city department)
- CEMP—Comprehensive Emergency Management Plan
- CERT—Citizens Emergency Response Training
- CFR—Code of Federal Regulations
- cfs—cubic feet per second
- CIP—Capital Improvement Plan
- CRS—Community Rating System
- DCD—Department of Community Development
- DI—Ductile iron
- DMA—Disaster Mitigation Act
- DNRP—Department of Natural Resources and Parks (King County)
- DOT—Department of Transportation (King County)
- DPER—Department of Permitting and Environmental Review (King County)
- EOC—Emergency Operations Center
- EPA—U.S. Environmental Protection Agency
- FEMA—Federal Emergency Management Agency
- GIS—Geographic Information System
- GMA—Growth Management Act (Washington State)
- gpm—gallons per minute
- Hazus-MH—Hazards, United States-Multi Hazard
- HDPE—High-density polyethylene
- HMGP—Hazard Mitigation Grant Program
- IBC—International Building Code
- IRC—International Residential Code
- KCFD—King County Fire District
- KCSO—King County Sheriff's Office
- KCWD—King County Water District
- mgd—million gallons per day
- NFIP—National Flood Insurance Program
- NOAA—National Oceanic and Atmospheric Administration
- NPDES—National Pollutant Discharge Elimination System

- OEM—Office of Emergency Management (King County)
- OFM—Office of Financial Management (Washington State)
- PDM—Pre-Disaster Mitigation Grant Program
- PRV—Pressure-reducing valve
- RCW—Revised Code of Washington
- SCADA—Supervisory Control and Data Acquisition
- SPU—Seattle Public Utilities
- USGS—U.S. Geological Survey
- WSDOT—Washington State Department of Transportation
- WTD—Wastewater Treatment Division (a division of King County Department of Natural Resources and Parks)

CHAPTER 1.

UPDATE ANNEX FOR KING COUNTY REGIONAL SERVICE PROVIDERS AND UNINCORPORATED AREAS

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Janice Rahman, Hazard Mitigation Program
Manager
3511 NE 2nd Street
Renton, WA 98056
Telephone: (206) 205-4061
e-mail Address: Janice.Rahman@KingCounty.gov

Alternate Point of Contact

Walt Hubbard, Director of Office of Emergency
Management
3511 NE 2nd Street
Renton, WA 98056
Telephone: (206) 205-4060
e-mail Address: Walt.Hubbard@KingCounty.gov

1.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—December 22, 1852
- **Current Population**—253,100 as of 2013 estimates (unincorporated area only)
- **Population Growth**—The population of King County as a whole grew by 3.9 percent between April 1, 2010 and July 1, 2012. However, the population living in unincorporated areas decreased dramatically due to annexations. In 2010, four major annexations reduced the total unincorporated population from 325,002 to approximately 253,100.
- **Location and Description**—Unincorporated King County consists of both rural and urban areas outside of city limits. Rural unincorporated areas are outside the Urban Growth Area and are designated as Rural, Agriculture or Forest Resources by the King County Comprehensive Plan. Rural unincorporated areas include central and eastern King County and Vashon Island. Rural and Resource areas, which encompass the majority of King County’s land area, cannot be annexed into a city. Unincorporated urban areas are located in western King County. Most of these are designated as “Potential Annexation Areas” and represent more than half of the unincorporated population.
- **Brief History**—The Native American peoples inhabiting the area of present-day King County were first encountered by Euro-American explorers beginning in the late 18th century and by traders in the first half of the 19th century. With the influx of American settlers, pressures increased on the U.S. government to solve the problem of land tenure for the new arrivals. The solution, following the federal policies used to acquire territories across the continent, was to negotiate treaties ceding Indian lands to the federal government in exchange for limited reservation parcels, some services, and compensation. Despite the many difficulties affecting tribal organizations and reservations in the region, most groups are seeking to maintain their language, culture, and traditions.

The federal Oregon Donation Land Act of 1850 encouraged settlement in the Oregon Territory. As desirable tracts were claimed south of the Columbia River, a number of pioneering settlers turned their attention northward to the Puget Sound region. In December of 1852, the Oregon Provisional Legislature established boundaries for King County.

Lumber played a major role in King County’s early economy, due to the abundance of large and easily harvested timber and spurred by the arrival of the Great Northern Railroad through Stevens Pass in 1893. The industry largely peaked in the late 1920s.

Some of the biggest changes to local industry came during World War II, as King County saw a massive expansion in its aerospace and shipbuilding capacity. The population increased rapidly as people moved to the area to meet the demand for workers. Following wartime production, labor demand dropped sharply, but the aerospace industry continued to develop at a reduced pace.

The 1960s saw significant change to the environment and transportation systems in King County. Major improvements in water quality and sewage treatment practices helped to clean up Lake Washington, a water body contaminated by dumping and sewage. In 1962, the Howard Hanson Dam project was completed to provide flood control in the Green River Valley. Protection from periodic flooding made valley properties more attractive to developers, marking the acceleration of industrial and suburban expansion into the valley. The 1960s brought the Interstate highway system to the County, further facilitating socio-economic growth. The completion of Interstate 5, Interstate 405 on the east side, and State Highway 167 in the Green River Valley defined the region’s transportation infrastructure as it has persisted to this day. In 1964, stronger building codes were created following an earthquake, and King County implemented its first Comprehensive Plan to guide growth and development.

- **Climate**—King County enjoys a mild Pacific maritime climate. About two-thirds of Pacific Northwest precipitation occurs from October through March, with much of it captured in the mountains. King County receives an average of 38 inches of precipitation annually, which feeds a robust watershed of 760 lakes and reservoirs, 975 wetlands, and six major river systems that ultimately flow out along 100 miles of marine coastline. Precipitation declines from late spring to early fall, with high pressure systems to the west keeping the region fairly dry with pleasant summertime temperatures. River system flow peaks twice a year, fed by melting snowpack in the spring and heavier precipitation in the winter.

As the climate continues changing globally, specific impacts on King County are likely to bring dramatic changes to the region’s watershed system.

- **Governing Body Format**—King County operates under a Home Rule Charter adopted by a vote of its citizens in 1968 and is organized under the council-executive form of government. Elected executive positions are the County Executive, the nine-member Metropolitan King County Council, the Prosecuting Attorney, the County Assessor, and the Director of Elections. Elected judicial positions are 51 Superior Court judges, 21 District Court judges, and the County Sheriff.

The King County Executive is the chief executive officer of King County government, elected to a four-year term. The County Executive supervises executive departments, enforces all ordinances and state statutes within the County, presents an annual statement of governmental affairs to the Council, prepares and presents the proposed budget and budget message, prepares and presents comprehensive plans to the Council, including capital improvement plans for present and future development within the County, and nominates members of County boards and commissions.

Each member of the County Council represents a specific geographic region known as a Council District. The County Council adopts and enacts ordinances, resolutions and motions, levies taxes, appropriates revenue, and adopts budgets. Council members are elected to staggered four-year terms.

Regional services provided by the King County government include prosecution, courts, jails, medical examiner services, voter registration, elections, recording, licensing, property assessment, tax collection, historic preservation, public transit, solid waste, potable and waste water treatment, public health, veteran assistance programs, flood control, emergency/disaster coordination, and enhanced 911. King County also operates and maintains the King County International Airport (Boeing Field). In addition, the County contracts with several cities to provide local services such as law enforcement. In unincorporated communities, the County is responsible for providing local services such as building and land use development, fire code enforcement, law enforcement, emergency coordination, road construction and maintenance, fire investigation, parks, and animal control.

The King County Council assumes responsibility for the adoption of this plan; the Office of Emergency Management will oversee its implementation.

- **Development Trends**—King County’s comprehensive land-use planning dates back to the 1960s. The Growth Management Act, passed in successive sessions of the Washington State Legislature in 1990 and 1991, seeks to protect and enhance the quality of life in King County and the Pacific Northwest. The first King County Comprehensive Plan was adopted in 1994.

Before the adoption of the King County Comprehensive Plan, more than a third of annual residential development was occurring in unincorporated areas. Since December 1994, five new cities incorporated and numerous annexations occurred, shifting more than 220,000 people into city limits. The unincorporated population has decreased by 239,000 since the adoption of the comprehensive plan, largely through the incorporation of new cities. The unincorporated population within the Urban Growth Area continues to dwindle as annexations take place. However, the population of rural areas has grown slowly since about 1994. Unincorporated King County is home to 253,000 people, representing 13 percent of the County’s population and 81 percent of its land area.

1.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 1-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 1-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 1-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 1-4. Classifications under various community mitigation programs are presented in Table 1-5.

**TABLE 1-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	Yes	Yes	King County Code Title 16: Building and Construction Standards. Updated 2013, (adopts International Building Code)
Zoning	Yes	No	No	No	King County Code Title 21A: Zoning. Updated 2013
Subdivisions	Yes	No	No	No	King County Code Title 19A: Land Segregation. Updated 2013
Stormwater Management	Yes	No	No	No	King County Code Title 9: Surface Water Management. Updated 2013
Post Disaster Recovery	No	No	No	No	Ongoing development of regional recovery plan began 2013.
Real Estate Disclosure	Yes	No	Yes	Yes	Revised Code of Washington 42.56 Public Records Act. Updated 2012.
Growth Management	Yes	No	Yes	Yes	State Growth Management Act. Enacted 1990 King County Comprehensive Plan. Updated 2012
Site Plan Review	Yes	No	Yes	Yes	King County Code Titles 16, 19A and 21A all require Site Plan Review. State Growth Management Act. Enacted 1990
Public Health and Safety	Yes	No	No	Yes	Code of the King County Board of Health. Updated 2013 King County Code Title 12: Public Peace, Safety, and Morals. Updated 2013
Environmental Protection	Yes	No	Yes	Yes	King County Comprehensive Plan. Updated 2012 King County Code Title 9: Surface Water Management, Title 13: Water and Sewer Systems, Title 18: Environmental Sustainability Program. Updated 2013
Equity and Social Justice	Yes	No	No	No	Fair and Just Ordinance 16948. Adopted October 11, 2010 King County Equity and Social Justice Annual Report. October 2013
Planning Documents					
General or Comprehensive Plan	Yes	No	Yes	Yes	King County Comprehensive Plan. Updated 2012
<i>Is the plan equipped to provide linkage to this mitigation plan?</i> Yes					
Floodplain or Basin Plan	Yes	No	Yes	Yes	King County Flood Hazard Management Plan. Updated 2013
Stormwater Plan	Yes	No	Yes	Yes	State Growth Management Act. Enacted 1990 King County Stormwater Management Program. Updated 2013

**TABLE 1-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Strategic Plan	Yes	No	No	No	King County Strategic Plan, 2010-2014: Working Together for One King County. Adopted July 26, 2010
Climate Action Plan	Yes	No	No	No	King County Strategic Climate Action Plan. Published December 2012
Capital Improvement Plan	Yes	No	No	Yes	State Growth Management Act. Enacted 1990. King County Budget, Capital Improvement Program. Updated 2013
<i>What types of capital facilities does the plan address?</i>			Airport, ferry districts, information technology, transit, open space, parks, road services, solid waste, waste water, flood district, other King County government administrative facilities.		
<i>How often is the plan revised/updated?</i>			Annually, as a function of budget.		
Habitat Conservation Plan	Yes	No	No	No	King County Critical Areas Ordinance, sections: Wetlands, Aquatic Areas, and Wildlife Habitat Conservation Areas. Updated 2009
Economic Development Plan	Yes	No	No	No	King County Comprehensive Plan Chapter 9: Economic Development. Updated 2012
Shoreline Management Plan	Yes	No	No	Yes	King County Comprehensive Plan Chapter 5: Shoreline Master Program. Updated 2012
Community Wildfire Protection Plan	Yes	No	No	No	Community Wildfire Protection Plans, Tolt (2005), East Hobart Area (2012)
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Yes	No	Yes	King County Comprehensive Emergency Management Plan. Updated 2013
Threat and Hazard Identification and Risk Assessment	No	No	No	No	
Terrorism Plan	No	No	No	No	
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	Yes	No	No	No	King County Continuity of Operations Plan. Updated January 2013
Public Health Plans	Yes	No	No	No	King County Public Health Operational Master Plan. Approved 2007 Emergency Support Function 8 of Comprehensive Emergency Management Plan (CEMP) Basic Plan: Health, Medical, and Mortuary Services. Updated 2012

TABLE 1-2. 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 (sewer only)
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	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 1-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Department of Permitting and Environmental Review
Engineers or professionals trained in building or infrastructure construction practices	Yes	Department of Permitting and Environmental Review
Planners or engineers with an understanding of natural hazards	Yes	Department of Emergency Management, Department of Permitting and Environmental Review, Department of Natural Resources and Parks
Staff with training in benefit/cost analysis	Yes	Finance and Business Operations Division
Surveyors	Yes	Department of Transportation, Roads Survey Unit
Personnel skilled or trained in GIS applications	Yes	Department of Information Technology, Department of Natural Resources and Parks
Scientist familiar with natural hazards in local area	Yes	Department of Natural Resources and Parks
Emergency manager	Yes	Each department has a someone designated to handle emergency management, organized into the Emergency Management Coordination Council
Grant writers	Yes	Not specific to any one department

**TABLE 1-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	King County Water and Land Resources Division/River and Floodplain Management Section
Who is your community's floodplain administrator? (department/position)	Steve Bleifuhs, Section Manager, Water and Land Resources Division/River and Floodplain Management Section
Do you have any certified floodplain managers on staff in your community?	Yes
What is the date of adoption of your flood damage prevention ordinance?	January 16, 2007
When was the most recent Community Assistance Visit or Community Assistance Contact?	Last visit was in 2009, verification approved May 2012
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	<p>Yes, with the following limitations:</p> <ol style="list-style-type: none"> 1. Best available information developed in 2007 is not being used by FEMA and some jurisdictions because of delays related to the levee mapping policy. 2. Use of the 1% annual flood event does not recognize areas of residual risk. Risk of higher magnitude events is not communicated to the public. 3. Where levees are accredited or recognized as accredited, residual risk in the levee-protected area is not communicated clearly to the public. 4. FEMA maps do not reflect future buildout conditions, nor do they reflect recent analyses of climate change impacts. <p>Many maps for smaller streams in urban or urbanizing areas of the county are based on old data and should be updated.</p>
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	<p>Yes:</p> <ol style="list-style-type: none"> 1. CRS and NFIP training are needed in the coming year to help us understand and apply the new manual, and build awareness among jurisdictions in our community. 2. Swiftwater safety training for field staff who perform levee inspections and participate in flood patrols. 3. Professional license/certification continuing education for engineers, geologists, ecologists, and certified floodplain managers. 4. Software training for new hydraulic modeling tools.
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	<p>Yes, King County is a Class 2 community.</p> <p>No, King County is not currently seeking to improve its CRS Classification.</p>

TABLE 1-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	Yes	2	10/01/1991
Building Code Effectiveness Grading Schedule	Yes	3	Not available
Public Protection			
Fire Districts 14, 39	Yes	2	Not available
Fire Districts 4, 11, 18, 26, 36, 42	Yes	3	Not available
Fire Districts 2, 5, 16, 21, 24, 34, 37, 40, 41	Yes	4	Not available
Fire Districts 1, 10, 17, 20, 25, 27, 35, 43, 44, 45, 46	Yes	5	Not available
Fire Districts 13, 28, 38	Yes	6	Not available
Fire Districts 49, 51	Yes	7	Not available
Fire Districts 47, 50	Yes	8	Not available
StormReady	Yes	StormReady	Not available
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

- Number of FEMA-Identified Repetitive Loss Properties: 108
- Number of FEMA-Identified Severe Repetitive Loss Properties: unknown
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: 3

1.5 HAZARD RISK RANKING

Table 1-7 presents the ranking of the hazards of concern. Hazard area extent and location maps for the County are included in Volume 1 of this plan. These maps are based on the best available data at the time of the preparation of this plan, and are adequate for planning purposes.

**TABLE 1-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood	DR-50	2/25/1956	No information available
Floods	DR-70	3/6/1957	No information available
Severe storms	DR-137	10/20/1962	No information available
Floods	DR-146	3/2/1963	No information available
Heavy rains & flooding	DR-185	12/29/1964	No information available
Earthquake	DR-196	5/11/1965	No information available
Heavy rains & flooding	DR-328	3/24/1972	No information available
Severe storms & flooding	DR-492	12/13/1975	No information available
Severe storms, mudslides, & flooding	DR-545	12/10/1977	No information available
Storms, high tides, mudslides & flooding	DR-612	12/31/1979	No information available
Volcanic eruption, Mt. St. Helens	DR-623	5/21/1980	No information available
Severe storms & flooding	DR-757	1/16/1986	No information available
Severe storms & flooding	DR-784	11/22/1986	No information available
Severe storms & flooding	DR-852	1/6/1990	\$5,246,411
Severe storms & flooding	DR-883	11/9/1990	\$3,694,824
Severe storms & high tides	DR-896	12/20/1990	\$477,737
Severe storms & high wind	DR-981	1/20/1993	\$1,927,837
Severe storms, high wind, and flooding	DR-1079	11/7/1995	\$3,031,519
High winds, severe storms and flooding	DR-1100	1/26/1996	\$4,226,719
Severe winter storms, land & mudslides, flooding	DR-1159	1/15/1997	\$3,576,309
Heavy rains, snow melt, flooding, land & mud slides	DR-1172	3/18/1997	\$1,266,446
Earthquake	DR-1361	2/28/2001	\$1,700,000
Severe storms and flooding	DR-1499	10/15/2003	\$4,400,000
Hurricane Katrina evacuation	EM-3227	8/29/2005	
Severe storms, flooding, landslides, and mudslides	DR-1671	11/2/2006	\$3,838,894
Severe winter storm, landslides, and mudslides	DR-1682	12/14/2006	\$2,334,800
Severe storms, flooding, landslides, and mudslides	DR-1734	12/1/2007	\$661,999
Severe winter storm, landslides, mudslides, and flooding	DR-1817	1/6/2009	\$7,767,260
Severe winter storm and record and near record snow	DR-1825	12/12/2008	\$1,730,190
Severe winter storm, flooding, landslides, and mudslides	DR-1963	1/11/2011	No information available
Severe winter storm, flooding, landslides, and mudslides	DR-4056	1/14/2012	\$2,200,000

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	51
3	Severe Winter Weather	51
4	Flood	24
5	Wildfire	24
6	Landslide	18
7	Dam Failure	9
8	Avalanche	9
9	Volcano	7
10	Tsunami	3

1.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 1-8 summarizes the initiatives that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

1.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-9 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-10 identifies the priority for each initiative. Table 1-11 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 1-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
KCSO-1			✓	Current budget constraints make it unlikely this action will occur.
SWD-1	✓			Project completed in 2009.
SWD-2	✓			Project completed in 2009.
SWD-3	✓			Project completed in 2009.
SWD-4	✓			Project completed in 2009.
SWD-5	✓			Project completed in 2009.
PH-1		✓		See PH-6 in Table 1-9.
PH-2	✓			Project completed in 2013.
PH-3		✓		See PH-7 in Table 1-9.
PH-4		✓		See PH-8 in Table 1-9.
PH-5		✓		See PH-9 in Table 1-9.
PH-6a		✓		Carried over; incorporated as part of FMD-1.
PH-6b		✓		Carried over; incorporated as part of FMD-2.
PH-7	✓			Project completed in 2010.
PH-8		✓		See PH-10 in Table 1-9.
ITS-1		✓		A portion of action is completed and some aspects are carried over. See KCIT-1 and KCIT-3 in Table 1-9.
MKCT-1	✓			Project completed in 2010.
MKCT-2		✓		See DOT-4 in Table 1-9.
FMD-1	✓			Project completed in 2005.
FMD-2	✓			Project completed in 2005.
FMD-3	✓			Project completed in 2005.
FMD-4	✓			Project completed in 2005.
FMD-5			✓	This space is no longer occupied by Elections and action is no longer necessary.
FMO-1		✓		See DPER-1 in Table 1-9.
FMO-2		✓		See DPER-2 in Table 1-9.
FMO-3			✓	Ongoing outreach is not currently in the business plan; website provides some information
FMO-4		✓		See DPER-3 in Table 1-9.
DNRP-1	✓			Project completed in 2006.
DNRP-2			✓	Feasibility study by Army Corps of Engineers determined project to be unfeasible.
DNRP-3		✓		See DNRP-WLR-5 in Table 1-9.
DNRP-4		✓		See DNRP-WLR-6 in Table 1-9.
DNRP-5		✓		See DNRP-WLR-7 in Table 1-9.
DNRP-6		✓		See DNRP-WLR-8 in Table 1-9.
DNRP-7	✓			Project completed in 2006.
DNRP-8		✓		See DNRP-WLR-10 in Table 1-9.
DNRP-9		✓		See DNRP-WLR-9 in Table 1-9.

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
DNRP-SWD-1—Seismic Design Standards. Continue to design and build facilities to meet or exceed seismic standards, including redundant essential equipment. Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment.							
New and Existing	Earthquake	1, 2, 4	SWD	Low	Capital budget, HMGP, PDM	Ongoing	No
DNRP-SWD-2—Vulnerability Assessment of Cedar Hills Landfill Structures. Conduct a vulnerability assessment of buildings at the Cedar Hills Landfill to ascertain readiness.							
Existing	Flood, Earthquake, Severe Weather, Severe Winter Weather, Hazard Materials Spills	1, 2, 4, 5, 9	SWD	Low	Capital budget	Ongoing	No
DNRP-WLR-1—Flood Insurance Program. Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: <ul style="list-style-type: none"> Enforcing the adopted flood damage prevention ordinance Participating in floodplain identification and mapping updates Providing public assistance and information on floodplain requirements and impacts. 							
New and Existing	Flood	2,4,10,12	DNRP	Low	General Fund	Long Term	No
DNRP-WLR-2—Landslide Hazard Coordination. Form an interdepartmental landslide hazard committee that includes DNRP, DPER, DOT and OEM. The committee will address broad policy issues, including capital projects, communication, code changes, etc.							
New and Existing	Landslide, Flood	2,4,7,10	DNRP	Low	Varied	Short Term	No
DNRP-WLR-3—Proposed Hazard Mapping Phase I. Update the current landslide hazard map with information that has been collected to date.							
New and Existing	Landslide, Flood	2,4	DNRP/DPER	High	TBD	Short Term	No
DNRP –WLR-4—Proposed Hazard Mapping Phase II. Create a geo-database with detailed information on landslide types, run out, landslide dams, etc. Database will be searchable and updatable as new information is acquired.							
New and Existing	Landslide, Flood	2,4	DNRP/DPER	High	TBD	Short Term	No
DNRP-WLR-5—Flood Protection Facility Maintenance. Maintain and repair damaged structural elements of King County’s extensive inventory of flood protection facilities.							
New and Existing	Flood	10,12	DNRP	High	TBD	Long Term	Yes

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
DNRP-WLR-6—River Corridor Restoration. Remove, slope back or set back County-owned flood protection facilities and other structural features to allow for improved riparian habitat, greater channel diversity and migration, reclaimed flood storage and enhanced open space or recreational/-interpretive uses.							
New and Existing	Flood	4, 5, 6, 11, 12	DNRP	High	TBD	Long Term	Yes
DNRP-WLR-7—Flood Hazard Mitigation. Acquire repetitively damaged homes, purchase underdeveloped land to prevent future development in flood prone areas, and, where cost-effective and feasible, elevate residential homes that sustain recurring deep, low-velocity flooding.							
New and Existing	Flood	2,4,5,8,9	DNRP	Low	Flood Control District, Flood Mitigation Assistance	Long Term	Yes
DNRP-WLR-8—Critical Facility Retrofit. Retrofit the Black River Pump Station by updating the fuel pumps to meet seismic requirements. Currently, the fuel supply tanks for King County flood facilities cannot withstand a moderate to major quake.							
New and Existing	Flood, Earthquake	1, 4, 9	DNRP	Medium	HMGP, PDM, General Funds	Short Term	Yes
DNRP-WLR-9—Flood Hazard Reduction Programs. Conduct activities that are vital to the mitigation of the natural hazards impacting King County, such as hazard identification, warning, information dissemination and public outreach.							
New and Existing	Flood, Earthquake, Landslide	3, 4, 6, 7, 11, 15	DNRP	Low	General Funds	Ongoing	Yes
DNRP-WLR-10—Critical Facility Upgrade. Continue to update flood warning telemetry and gauging, computers, software applications, emergency power and other response facilities.							
Existing	Earthquake, Flood, Landslide, Severe Weather, Severe Winter Weather	1, 3, 4	DNRP	Low	General Funds	Ongoing	Yes
DNRP-WTD-1—Seismic Design Standards. Continue to design and build facilities to meet or exceed seismic standards, including redundant essential equipment. Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment							
New and existing	Earthquake	1, 2, 4	WTD	Low	Capital budget	Ongoing	No

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
<p>DNRP-WTD-2—Vulnerability Assessments. Conduct vulnerability assessments of WTD treatment plant facilities and conveyance system structures for flooding, earthquakes, large-scale power outages, and hazardous material spills into the conveyance system (accidental or deliberate, i.e. terrorist action). The assessments should include the following:</p> <ul style="list-style-type: none"> • Review existing earthquake vulnerability assessments and identify facilities and structures that need further assessments. • Review existing emergency power generation capacities at treatment plants, offsite facilities and interceptors (pipelines) to identify vulnerabilities and response & restoration protocol enhancements. • Review existing spill response procedures and protocols for hazardous materials spills (both accidental and intentional releases) that impact flows into the WTD system. Update and coordinate emergency procedures with key fire departments and the Office of Emergency Management. 							
Existing	Flood, Earthquake, Hazard Materials Spills	1, 2, 4, 5, 9	WTD	Medium	Operating budget	Ongoing	No
<p>DNRP-WTD-3—Modifications to Existing Facilities. Use the data gathered by the earthquake vulnerability assessments to identify capital projects that increase the resistance of the division’s structures and conveyances to damage or that allow a rapid recovery from damage. Projects may include seismic bracing of equipment and piping, removal of z-beam structures, access road reinforcement for the West Point Treatment Plant, or seismic upgrade of underwater interceptors.</p>							
New and Existing	Earthquake	1, 9	WTD	Medium	Capital budget	Ongoing	No
<p>DNRP-WTD-4—Sea Level Rise Vulnerability Assessments. Implement cost-effective measures to address, through capital improvement and asset management programs, the vulnerability of 20 facilities at risk of saltwater inflow. The facilities were identified by a WTD analysis of the wastewater system to identify facilities at risk for saltwater inflow from future sea level rise, existing and predicted high tides, and storm surges.</p>							
New and existing	Sea Level Rise, Flood	1, 2, 3	WTD	Low	Capital and Operating budget	Long Term (completion of capital projects by 2030)	No
<p>DNRP-WTD-5—Control System/Cyber Security Vulnerability Assessment and Procedure Audit. Implement the Ovation project—a multi-year, multi-million dollar upgrade of the Wastewater Treatment Division’s legacy control systems. WTD is in the process of updating its control systems. Vulnerability assessments are designed into the Ovation project. When the system is operational, a security audit would be conducted to ensure that policies and procedures are in place protect the system.</p>							
New and existing	Cyber attack	1, 3	WTD	Medium	Operating budget	Long Term	No

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
<p>DNRP-WTD-6—Emergency Communications Vulnerability Assessment. Perform an assessment to determine the number of radios necessary to support operational readiness in the event of a widespread telecommunications failure. Currently all key operational facilities and offsite operation and maintenance vehicles are equipped with 800 MHz radios, constituting WTD’s core emergency communications method. The analog equipment currently deployed is first generation and is being sunsetted as the system is converted to a digital format. All of the division’s analog radios will need to be replaced in the next 3 to 5 years. Perform a further assessment of the reliability and deployment of other communications devices: cell phones, smart phones, iPads, text messaging and the emergency notification system (MyState/AlertSense).</p>							
Existing	All Hazards	1, 3	WTD	Low	Operating budget	Short Term (2014/15)	No
<p>DNRP-WTD-7—GIS Emergency Response Mapping and Real-time Flow Data. Update the WTD/DNRP Emergency Response map with the current priority roads, bridges, earthquake liquefaction, inundation and landslide zones and gas/petroleum pipelines, under-laid with WTD facilities and conveyance lines and emergency outfalls to facilitate emergency response and continuity of operations. Make this information available through a password-protected website for select users. Explore connecting the map to real-time flow data.</p>							
Existing	All Hazards	1, 2, 3, 4	WTD	Low	Operating budget	Short Term (2014)	No
<p>DNRP-WTD-8—Emergency Event Management System. Determine the best method for WTD to manage and share emergency response and continuity of operations activities across the division’s five treatment plants and the division headquarters in the King Street Center. Determine if the Regional Information System can fulfill this function and, if not, what alternative systems are available (WebEOC, CodeRed, etc.)</p>							
Existing	All Hazards	1, 3	WTD	Low	Operating Budget	Short Term (2014/15)	No
<p>DNRP WTD-9—Emergency Response/Damage Assessment/FEMA Cost Tracking. To ensure maximum FEMA reimbursement for disaster repair/mitigation, implement a system to capture and track emergency response activities and expenses from the beginning of incidents through damage assessment and restoration. Use this tracking system for all out-of-the-ordinary emergency events. Include labor, equipment, mileage, supplies, expendables and outside contracting associated with response and repair.</p>							
Existing	All hazards	1, 4, 5	WTD	Low	Operating Budget	Short Term/ Ongoing (2014/15)	No

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
<p>DNRP-WTD-10—Emergency and Disaster Response Staff Training. Identify and train WTD staff that will be called upon to respond to emergencies and perform post-disaster recovery work. This training is required by Occupational Safety and Health Administration/Washington Industrial Safety and Health Act (OSHA/WISHA) for employees who perform work responding to emergencies or at disaster sites after the initial emergency response has been performed.</p> <ul style="list-style-type: none"> • OSHA/WISHA Emergency Response Training (WAC 296-840) • Earthquake and Flood Response—Applied Technology Council ATC-20, Post-Earthquake Safety Evaluation of Buildings; and ATC-45, Safety Evaluation of Buildings after Windstorms and Floods. • OSHA/WISHA Disaster Site Worker Training—Required for workers who perform work at disaster sites after the initial emergency response is completed. 							
New	All hazards	1, 3, 15	WTD	Low	Operating Budget	Ongoing (2015)	No
<p>DOT-1—Update response plans to address terrorism preparedness, including the following:</p> <ul style="list-style-type: none"> • Improve existing systems to address new technologies that are available for early weapons-of-mass-destruction detection • Leverage existing resources and partnerships (Securitas, King County Sheriff’s Office, Seattle Police Department, Seattle Fire Department) to train and exercise together for continuity during real-world events. 							
Existing	Terrorism	1, 3, 4, 7, 8, 11	DOT- Emergency Services	Low	Grant	Long Term	No
<p>DOT-2—Update messaging, response plans and procedures to address winter weather, including the following:</p> <ul style="list-style-type: none"> • Outreach to vulnerable and at-risk populations for transportation for individuals who need to get to life-saving medical appointments (dialysis, chemotherapy) • Coordination with healthcare and transportation partners to ensure access to medical care 							
Existing	Severe Weather, Severe Winter Weather	3, 6, 8, 15	DOT- Preparedness	Low	General Fund	Long Term	No
<p>DOT-3—Update and improve plans to address continuity of transportation services, provision of medical care, and infrastructure resiliency, including the following:</p> <ul style="list-style-type: none"> • Plans and procedures for workforce continuity and service provision • Coordination with local partners on evacuation and responder routes, lifeline routes, and transportation routes • Technical systems and IT infrastructure (e.g., computer programs, SCADA systems) 							
Existing	Earthquake	1, 3, 4, 8, 11, 15	DOT- Preparedness	Low	General Fund	Long Term	No
<p>DOT-4—Install security cameras on public buses to deter crime associated with civil unrest and terrorist acts.</p>							
New and existing	Terrorism	3, 7	DOT – Metro	Low	General Fund	Ongoing	Yes
<p>DPER-1—Continue inspection of existing and new construction.</p>							
New and existing	All Hazards	1, 2, 4, 7, 10	DPER	Low	Operating Budget	Ongoing	Yes

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
DPER-2 —Provide plan reviews for noted construction.							
New	All Hazards	1, 2, 4, 7, 10	DPER	Low	Operating Budget	Ongoing	Yes
DPER-3 —Work with schools and fire service public educators to deliver public safety messages.							
Existing	All Hazards	1, 2, 4, 7, 10	DPER	Low	Operating Budget	Ongoing	Yes
FMD-1 —Replace Alder Tower, Alder Wing and Youth Detention Facility with a new modern juvenile justice center meeting all seismic standards. Planning is underway for the new, voter-approved \$210 million Children and Family Justice Center. Completion of the new facility is expected in 2018.							
New	Earthquake	1, 2	FMD	Low	Dedicated Bond	Short Term (2018)	Partly
FMD-2 —Mitigate structural damage at King County Facilities. This initiative also involves training to determine structural damage during and after hazard events.							
New and Existing	All	1, 5, 9, 11, 15	FMD	Medium	General Fund, HMGP, PDM	Ongoing	Partly
FMD-3 —Mitigate non-structural facility damage at King County facilities. This initiative also involves training to determine non-structural damage during and after hazard events.							
Existing	All	1, 5, 9, 11, 15	FMD	Medium	General Fund	Ongoing	No
KCIT-1 — Enterprise Server Optimization Project. Implement a standard virtual environment at the King County Data Center to set the foundation for the King County Public Cloud Services to expand infrastructure service offerings.							
New Existing	All Hazards	1, 3	KCIT	Low	General Fund	Short-Term	Yes
KCIT-2 — King County TV High-Definition Upgrade. Replace obsolete station infrastructure with industry standard high-definition and digital equipment, allowing for delivery of the highest level of service to the citizens of King County.							
New Existing	All Hazards	1, 3, 11	King County Council	Low	General Fund	Short-Term	No
KCIT-3 — Countywide Telephone System Replacement. Replace obsolete telephony infrastructure and telephone systems with a modern and feature-rich unified communications solution.							
New Existing	Earthquake, Flood, Severe Weather, Severe Winter Weather	1, 3	KCIT	Low	General Fund	Short-Term	Yes

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
KCIT-4—Business Empowerment and User Mobility. Improve the King County wide area network to meet business requirements and provide a solid foundation for growth within a resilient and stable network.							
New and Existing	Earthquake, Flood, Winter Storm, Volcano	1, 3	KCIT	Low	General Fund	Short-Term	No
KCIT-5—Administration Building Rewire. Upgrade network cabling in the King County Administration Building to meet infrastructure standards, provide a more robust network connectivity to the services provided at the facility, and take advantage of technological advancements.							
New and Existing	Earthquake, Winter Storm, Volcano	1, 3	KCIT	Low	General Fund	Short-Term	No
KCIT-6—Distributed Antenna Network Phase II. Install a distributed antenna network in the King County Department of Adult and Juvenile Detention’s King County Correction Facility, which has experienced radio communication dead spots. Distributed Antenna Network Phase I mitigated this problem for Floors 1-3. Phase II will mitigate the problem for floors 4-12.							
New Existing	Earthquake, Severe Winter Weather, Volcano	1, 3, 8	KCIT	Low	General Fund	Short-Term	No
KCIT-7—GIS Aerial Mapping. Implement a regional initiative, led by King County, to provide high-quality aerial photography and related GIS data to participating parties at a reduced cost. Enable seamless sharing of data across all participating parties; (approx. 100 counties, small and large cities, tribes and utilities.)							
New Existing	All Hazards	1, 3, 4, 5, 15	KCIT	Low	General Fund	Short-Term	No
KCIT-8—Puget Sound Emergency Radio Network. Implement a P25 Phase II standards-based voice radio network to provide increased coverage with enhanced capabilities and improve reliability for public safety users in the Central Puget Sound service region.							
New Existing	All Hazards	1, 3, 15	King County	High	Ballot Measure	Long-Term	No
PH-1—Inform the public on risk-reduction techniques for a communicable disease event. “Stop Germs, Stay Healthy” public education campaign increases awareness of healthy behaviors, including hand washing and “cover your cough.”							
N/A	Pandemic Influenza	6, 8, 11	PH- Preparedness	Medium	Grant	Long term	No

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
<p>PH-2—Update response plans to address pandemic preparedness, including the following:</p> <ul style="list-style-type: none"> • The allocation of resources (antivirals, vaccine, personal protective equipment) from the strategic national stockpile • Improvements to surveillance systems to address new technologies that may be available during the pandemic • Leveraging existing private and public partnerships (CBO, healthcare, pharmacies) to serve as medication centers and increasing access to medications for hard-to-reach communities • Risk communications and messaging, including use of social media 							
N/A	Pandemic Influenza	4, 6, 8,11, 15	PH- Preparedness	Medium	Grant	Long Term	No
<p>PH-3—Update response plans and procedures to address winter weather, including the following:</p> <ul style="list-style-type: none"> • Outreach to vulnerable and at-risk populations for carbon monoxide poisoning prevention • Transportation for individuals who need to get to life-saving medical appointments (dialysis, chemotherapy) • Coordination with healthcare providers and NW Healthcare Response Network to ensure access to medical care • Coordination with shelter providers for first aid teams and access for people to re-charge medical equipment 							
N/A	Severe Weather, Severe Winter Weather	6, 8, 15	PH- Preparedness	Low	Grant	Long Term	No
<p>PH-4—Update and improve plans to address continuity of public health services, provision of medical care and infrastructure resiliency, including the following:</p> <ul style="list-style-type: none"> • Plans and procedures for workforce continuity and service provision • Coordination with NW Healthcare Response Network and healthcare providers regarding equipment (e.g., generators) • Coordination with healthcare providers on patient movement and surge strategies (e.g., alternate care facilities) • Technical and IT infrastructure (e.g., computer programs, electronic health records) • Environmental health impacts (e.g., sewer, water, food safety) 							
N/A	Earthquake	1, 3, 4, 8, 11, 15	PH- Preparedness	High	Grant	Long Term	No
<p>PH-5—Develop plans and procedures to incorporate impacts of climate change:</p> <ul style="list-style-type: none"> • Assess available research regarding climate change impacts on Pacific Northwest • Develop messaging and coordinate public information regarding public health impacts of climate change (e.g., increase in animal-to-human diseases, increased heat, and impacts on vulnerable communities) • Outreach to vulnerable and at-risk populations • Environmental health impacts (e.g., bugs and air quality) • Update of winter weather and extreme heat procedures 							
N/A	All Hazards	2, 3,4, 6, 8, 13, 15	PH- Preparedness	High	Grant	Long Term	No
<p>PH-6—Support the general public’s health and safety by educating Public Health staff in emergency and disaster response.</p>							
N/A	All Hazards	1, 2, 7, 8	PH	Medium	General Funds	Ongoing	Yes

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
PH-7 —Develop an infectious disease outbreak response team program.							
N/A	Pandemic	3, 7	PH	Low	General Funds	Short Term	Yes
PH-8 —Educate the public in disaster response activities.							
N/A	All Hazards	4, 5, 6, 7, 8, 11	PH	Low	General Funds	Ongoing	Yes
PH-9 —Support and enhance first responder disaster reporting and regional emergency electronic data collection.							
N/A	All Hazards	3, 4, 6, 7	PH	Medium	General Funds	Ongoing	Yes
PH-10 —Enhance environmental health response programs for terrorist acts involving chemical and radioactive events, threats to food and water supply, and airborne illnesses.							
N/A	Terrorism	3, 7, 12	PH	Low	General Funds	Ongoing	Yes
OEM-1 —Inform the public on personal and community preparedness actions they can take to lessen their need for immediate response following a disaster. “Take Winter by Storm” and “What to Do to Make It Through” are two outreach campaigns designed to get the message across to the whole community. These campaigns include trainings, presentations, and tools to facilitate increased community preparedness.							
Existing	All hazards	6,8,11	OEM	Low	Grant	Long-term	No
OEM-2 —Create a program to facilitate training for small businesses to increase their resilience to all hazards. Training content would include employee preparedness, business continuity, and recovery planning. Methods of training would include workshops, tools, and one-on-one help.							
New and existing	All hazards	6,7,11,15	OEM	Low	Grant	Long-term	No
OEM-3 —Manage and facilitate the Resilient King County initiative, a countywide planning process for crafting a comprehensive long-term recovery strategy following an earthquake or major catastrophe. Develop the Resilient King County final report and the long-term recovery plan.							
Existing	All hazards	1, 2, 4, 5, 7, 8, 9, 10, 11, 13, 15	OEM	Low	Grant	Short-term	No
OEM-4 —Take advantage of technological and procedural improvements in regional alert and warning systems to provide the most effective, efficient, and cost-effective messaging to residents, businesses, and government, especially during emergencies.							
Existing	All hazards	3, 8	OEM	Low	Grant	Long-term	No
OEM-5 —Continue to update and improve the Comprehensive Emergency Management Plan (CEMP) and the Continuity of Operations Plan.							
Existing	All hazards	2, 3, 7, 15,	OEM	Low	General Funds	Short-term	No
OEM-6 —Integrate the hazard mitigation plan into other plans, ordinances or programs to dictate land uses within the jurisdiction.							
New and Existing	All hazards	1, 2, 4, 7, 9, 10, 11, 12	OEM	Low	General Funds	Ongoing	No

**TABLE 1-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
OEM-7 —Continue to support the countywide initiatives in this plan.							
New and Existing	All hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	OEM	Low	General Funds	Ongoing	No
OEM-8 —Coordinate and actively participate in the plan maintenance strategy of this plan.							
New and Existing	All hazards	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	OEM	Low	General Funds	Ongoing	No
OEM-9 —Continue to encourage community participation in incentive-based programs such as CRS, Firewise and StormReady.							
New and existing	Dam failure, Earthquake, Flood, Landslide, Severe Weather, Severe Winter	4, 6, 7, 8, 11, 12	OEM, DNRP	Low	General Funds	Ongoing	No
OEM-10 —Use the recommendations captured in the 2014 budget proviso report, <i>Limited English Proficiency Proviso Response Report</i> , to ensure that the whole community is informed about the hazards and risks in King County.							
New and Existing	All hazards	6, 8, 11	OEM	Low	Grant	Ongoing	No

**TABLE 1-10.
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
DNRP-SWD-1	3	Medium	Low	Yes	Yes	Yes	High
DNRP-SWD-2	5	Low	Low	Yes	No	Yes	High
DNRP-WLR-1	4	Medium	Low	Yes	No	Yes	High
DNRP-WLR-2	4	Medium	Low	Yes	No	Yes	High
DNRP-WLR-3	2	Medium	High	No	Yes	Possibly	Low
DNRP –WLR-4	2	Medium	High	No	Yes	Possibly	Low
DNRP-WLR-5	2	High	High	Yes	Possibly	Possibly	Medium
DNRP-WLR-6	5	High	High	Yes	Yes	Possibly	Medium
DNRP-WLR-7	5	High	Low	Yes	Yes	Yes	High
DNRP-WLR-8	3	High	Medium	Yes	Yes	Yes	High
DNRP-WLR-9	6	High	Low	Yes	No	Yes	High
DNRP-WLR-10	3	High	Low	Yes	Yes	Yes	High
DNRP-WTD-1	3	Medium	Low	Yes	Yes	Yes	High
DNRP-WTD-2	5	Medium	Medium	Yes	No	Yes	High
DNRP-WTD-3	2	High	Medium	Yes	Yes	Yes	High
DNRP-WTD-4	3	Medium	Low	Yes	Yes	Yes	High
DNRP-WTD-5	2	High	Medium	Yes	No	Yes	High
DNRP-WTD-6	2	High	Low	Yes	No	Yes	High
DNRP-WTD-7	4	High	Low	Yes	No	Yes	High
DNRP-WTD-8	2	Low	Low	Yes	No	Yes	High
DNRP WTD-9	3	Low	Low	Yes	No	Yes	High
DNRP WTD-10	3	High	Low	Yes	No	Yes	High
DOT-1	6	Medium	Low	Yes	No	No	High
DOT-2	4	High	Low	Yes	No	Yes	High
DOT-3	6	High	Low	Yes	No	Yes	High
DOT-4	2	Low	Low	Yes	No	Yes	High
DPER-1	5	High	Low	Yes	No	Yes	High
DPER-2	5	Medium	Low	Yes	No	Yes	High
DPER-3	5	Medium	Low	Yes	No	Yes	High
FMD-1	2	Medium	Low	Yes	No	Yes	High
FMD-2	5	Medium	Medium	Yes	Yes	Yes	High
FMD-3	5	Medium	Medium	Yes	Yes	Yes	High
KCIT-1	2	Low	Low	Yes	No	Yes	High
KCIT-2	3	Low	Low	Yes	No	Yes	High

**TABLE 1-10.
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
KCIT-3	2	Medium	Low	Yes	No	Yes	High
KCIT-4	2	Low	Low	Yes	No	Yes	High
KCIT-5	2	Low	Low	Yes	No	Yes	High
KCIT-6	3	High	Low	Yes	No	Yes	High
KCIT-7	5	Medium	Low	Yes	No	Yes	High
KCIT-8	3	High	High	Yes	No	No	Medium
PH-1	3	Medium	Medium	Yes	No	No	Medium
PH-2	5	Medium	Medium	Yes	No	No	Medium
PH-3	3	High	Low	Yes	No	No	Medium
PH-4	6	Medium	High	No	No	No	Medium
PH-5	7	Medium	High	No	No	No	Low
PH-6	7	Medium	Medium	Yes	No	Yes	High
PH-7	2	High	Low	Yes	No	Yes	High
PH-8	6	Low	Low	Yes	No	Yes	High
PH-9	4	Low	Medium	No	No	Yes	Medium
PH-10	3	Medium	Low	Yes	No	Yes	High
OEM-1	3	Medium	Low	Yes	No	No	Medium
OEM-2	4	Medium	Low	Yes	No	No	Medium
OEM-3	15	Medium	Low	Yes	No	Yes	High
OEM-4	2	High	Low	Yes	No	No	Medium
OEM-5	4	Medium	Low	Yes	No	Yes	High
OEM-6	8	Medium	Low	Yes	No	Yes	High
OEM-7	15	Medium	Low	Yes	No	Yes	High
OEM-8	15	Low	Low	Yes	No	Yes	High
OEM-9	6	Medium	Low	Yes	No	Yes	High
OEM-10	3	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 1-11.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	DPER-1, KCIT-7, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	OEM-2	DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-10		WTD-6, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	
Earthquake	DOT-3, DPER-1, DPER-2, KCIT-4, KCIT-7, PH-4, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	SWD-1, SWD-2, WLR-8, WTD-1, WTD-2, WTD-3, FMD-1, FMD-2, FMD-3, KCIT-3, KCIT-5, OEM-2	WLR-9, WLR-10, DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-10	PH-4	WLR-9, WLR-10, WTD-6, WTD-7, WTD-8, WTD-9, WTD-10, DOT-3, FMD-2, FMD-3, KCIT-1, KCIT-2, KCIT-3, KCIT-5, KCIT-6, KCIT-8, PH-4, PH-6, PH-9, OEM-4, OEM-5	
Flood	WLR-1, WLR-2, WLR-7, DPER-1, DPER-2, KCIT-4, KCIT-7, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	SWD-2, WLR-2, WLR-3, WLR-7, WLR-8, WTD-2, WTD-4, KCIT-3, OEM-2	WLR-1, WLR-6, WLR-9, WLR-10, DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-10	WLR-1, WLR-3, WLR-6, WLR-7	WLR-9, WLR-10, WTD-6, WTD-7, WTD-8, WTD-9, WTD-10, KCIT-1, KCIT-2, KCIT-3, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	WLR-5
Landslide	WLR-2, WLR-4, DPER-1, DPER-2, KCIT-7, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	WLR-2, WLR-3, OEM-2	WLR-3, WLR-4, WLR-9, WLR-10, DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-10	WLR-3, WLR-4	WLR-9, WLR-10, WTD-6, WTD-7, WTD-8, WTD-9, WTD-10, KCIT-1, KCIT-2, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	
Severe Weather	DPER-1, DPER-2, KCIT-4, KCIT-7, PH-3, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	SWD-2, KCIT-3, KCIT-5, OEM-2, OEM-9	WLR-10, DOT-2, DPER-3, PH-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-9, OEM-10		WLR-10, WTD-6, WTD-7, WTD-8, WTD-9, WTD-10, DOT-2, KCIT-1, KCIT-2, KCIT-3, KCIT-5, KCIT-6, KCIT-8, PH-3, PH-6, PH-9, OEM-4, OEM-5	
Severe Winter Weather	DPER-1, DPER-2, KCIT-4, KCIT-7, PH-3, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	SWD-2, KCIT-3, KCIT-5, OEM-2, OEM-9	WLR-10, DOT-2, DPER-3, PH-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-9, OEM-10		WLR-10, WTD-6, WTD-7, WTD-8, WTD-9, WTD-10, DOT-2, KCIT-1, KCIT-2, KCIT-3, KCIT-5, KCIT-6, KCIT-8, PH-3, PH-6, PH-9, OEM-4, OEM-5	

**TABLE 1-11.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Tsunami	DPER-1, DPER-2, KCIT-7, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	OEM-2, OEM-9	DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-9, OEM-10		WTD-7, WTD-8, WTD-9, WTD-10, KCIT-1, KCIT-2, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	
Volcano	DPER-1, DPER-2, KCIT-4, KCIT-7, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	KCIT-5, OEM-2, OEM-9	DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-9, OEM-10		WTD-7, WTD-8, WTD-9, WTD-10, KCIT-1, KCIT-2, KCIT-5, KCIT-6, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	
Wildfire	DPER-1, DPER-2, PH-5, OEM-3, OEM-5, OEM-6, OEM-7, OEM-8	OEM-2, OEM-9	DPER-3, PH-5, PH-8, OEM-1, OEM-2, OEM-3, OEM-9, OEM-10		WTD-7, WTD-8, WTD-9, WTD-10, KCIT-1, KCIT-2, KCIT-8, PH-6, PH-9, OEM-4, OEM-5	

a. See Introduction for explanation of mitigation types.

CHAPTER 2. CITY OF ALGONA ANNEX

2.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Lee Gaskill, Police Chief
402 Warde Street
Algona, WA 98001
Telephone: 253-833-2743
e-mail Address: policechief@algonawa.gov

Alternate Point of Contact

James Schrimpsher, Police Sergeant
402 Warde Street
Algona, WA 98001
Telephone: 253-833-2743
e-mail Address: james@algonawa.gov

2.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—August 22, 1955
- **Current Population**—3,075 as of April 1, 2013 (WA Office of Financial Management)
- **Population Growth**—The population of Algona increased by 22 percent from 2,451 in 2000 to 3,014 in 2010.
- **Location and Description**—The City of Algona is located in South King County. Neighboring municipalities include Auburn to the north and east, Pacific to the south and unincorporated King County to the west. The City is 1.29 square miles and is largely composed of residential areas. The population density is about 2,336 individuals per square mile. In addition to residences the City has a small commercial area and a large Boeing Company plant is located in the easternmost portion of the City.
- **Brief History**—The area that was to become Algona was platted in 1906 in 40 foot by 200 foot lots. In 1907 the town, then called Valley City, sent a letter to Washington D.C. requesting permit for a post office. The return letter indicated that the residents would need to choose a different name for the city as there was already a Valley City located in eastern Washington. A resident suggested the City be named “Algoma,” which is an Indian name meaning “Valley of Flowers.” The name was submitted, but somehow the name Algona was substituted.

The town grew substantially from the early 1900s to its incorporation in 1955. Local stores were popular and there was dancing and picture shows shown in town several nights a week. In 1965 work started at the General Services Administration Depot in Auburn, a Boeing Company Fabrication Plant. This brought many changes to the town with a population at that time of 1,228. Since 1965 the town population has more than doubled as growth and new businesses have continued to enter the area.

- **Climate**—The climate is similar to that of other areas in the Puget Sound Lowlands. Temperatures are generally mild with an annual average high around 60 degrees and an average annual low of about 45 degrees. Average annual precipitation is about 38 inches, with most occurring as rain in the winter months.

- **Governing Body Format**—Algona is a non-charter city governed by 35A of the RCW. The Mayor-Council form of government consists of an elected mayor, who serves as the City’s Chief Administrative Officer, and five-member council elected at large. The City Council assumes responsibility for the adoption of this plan; the Police Chief will oversee its implementation.
- **Development Trends**—Based on projected growth trends, anticipated development trends for Algona are low, consisting primarily of residential development.

2.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 2-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 2-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 2-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 2-4. Classifications under various community mitigation programs are presented in Table 2-5.

TABLE 2-1. 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	Chapter 15.04, December 2004
Zoning	Yes	No	No	No	Chapter 22.08, May 2005
Subdivisions	Yes	No	No	No	Chapter 19.20, December 2008
Stormwater Management	Yes	No	No	Yes	Chapter 13.46 April 2010
Post Disaster Recovery	Yes	No	No	No	Chapter 2.82, February 2009
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	No	Yes	RCW 36.70A
Site Plan Review	Yes	No	No	Yes	Chapter 14.04, March 1997
Public Health and Safety	Yes	No	No	No	Chapter 8.04, June 1997
Environmental Protection	Yes	No	No	Yes	Chapter 16.04, November 1994
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	Chapter 14.08, December 2005
<i>Is the plan equipped to provide linkage to this mitigation plan?</i> Yes					
Floodplain or Basin Plan	No	No	Yes	No	King County Flood Control District Plan
Stormwater Plan	Yes	No	No	No	Chapter 13.46, August 2010

**TABLE 2-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Capital Improvement Plan	No	No	No	No	
					<i>What types of capital facilities does the plan address?</i> NA <i>How often is the plan revised/updated?</i> NA
Habitat Conservation Plan	Yes	No	No	No	Chapter 16.18, 1992
Economic Development Plan	No	No	No	No	
Shoreline Management Plan	No	No	No	No	
Community Wildfire Protection Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	No	Chapter 2.82, February 2009
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	King County Zone 3
Terrorism Plan	No	No	Yes	No	King County Zone 3
Post-Disaster Recovery Plan	Yes	No	No	No	Chapter 2.82, February 2009
Continuity of Operations Plan	Yes	No	No	No	Chapter 2.82, February 2009.
Public Health Plans	Yes	No	No	No	Chapter 2.82, February 2009

TABLE 2-2. 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	No
Incur Debt through Special Tax Bonds	No
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	No
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 2-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Contract services with Grey and Osborn-engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contract services with Grey and Osborn-engineer
Planners or engineers with an understanding of natural hazards	Yes	Contract services with Grey and Osborn-engineer
Staff with training in benefit/cost analysis	Yes	City Administrator
Surveyors	Yes	Contract services with Grey and Osborn-engineer
Personnel skilled or trained in GIS applications	No	
Scientist familiar with natural hazards in local area	Yes	Jones and Stokes-contracted services
Emergency manager	Yes	Chief of Police
Grant writers	Yes	City-wide

TABLE 2-4. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your community?	Public Works
Who is your community’s floodplain administrator? (department/position)	Public Works/Jimmy Griess
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	1996
When was the most recent Community Assistance Visit or Community Assistance Contact?	N/A
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes – the City of Algona is not in a flood plain and has no areas of flooding.
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No

TABLE 2-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	2	Not available
Public Protection	Yes	4	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	N/A	N/A	N/A

2.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 2-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: None
- Number of FEMA-Identified Severe Repetitive Loss Properties: None
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: N/A

**TABLE 2-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm	4056	2012	No information available
Severe Winter Storm	1963	2011	No information available
Severe Winter Storm	1817	2009	No information available
Severe Winter Storm	1825	2008	No information available
Earthquake	1361	2001	No information available
Severe Winter Storms	1159	1997	No information available
Earthquake	196	1965	No information available

2.5 HAZARD RISK RANKING

Table 2-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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 2-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	51
3	Severe Winter Weather	51
4	Wildfire	20
5	Volcano	18
6	Flood	18
7	Landslide	18
8	Dam Failure	10
9	Avalanche	0
10	Tsunami	0

2.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 2-8 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 2-9 identifies the priority for each initiative. Table 2-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 2-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
AL-1 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 						
New and Existing	All Hazards	2,4,10,12	City Government	Low	General Fund	Ongoing
AL-2 —Identify critical facilities and update maps in support of the development of a Continuity of Operations Plan.						
New and Existing	All hazards	1,7,13,14	City Government	High	FEMA planning Grant, Local funds	Short-term
AL-3 —Identify volcano hazard zones and develop maps. Provide public outreach via community newsletter to develop evacuation plans.						
New and Existing	Volcano	2,4,6,15	City Government	Medium	FEMA planning Grant, Local funds	Short-term
AL-4 —Adopt policies for higher standards for new development near unstable areas. Provide additional public awareness during the permitting process.						
New	Landslide	2,4,6,15	City Government	Low	General Fund	Short-term
AL-5 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,7,9	City Government	High	FEMA Grant funding, local match	Long-term
AL-6 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New and Existing	All Hazards	2,4,10	City Government	Low	General Fund	Short term
AL-7 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City Government	Low	General Fund	Short term
AL-8 —Actively participates in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City Government	Low	General fund	Short term
AL-9 —Continue to pursue the development of a capital improvements program (CIP) for the City to fund future capital needs for the City						
New and existing	All hazards	1,4,9,12	City Government	High	General Fund	Long term

**TABLE 2-9.
MITIGATION STRATEGY PRIORITY SCHEDULE**

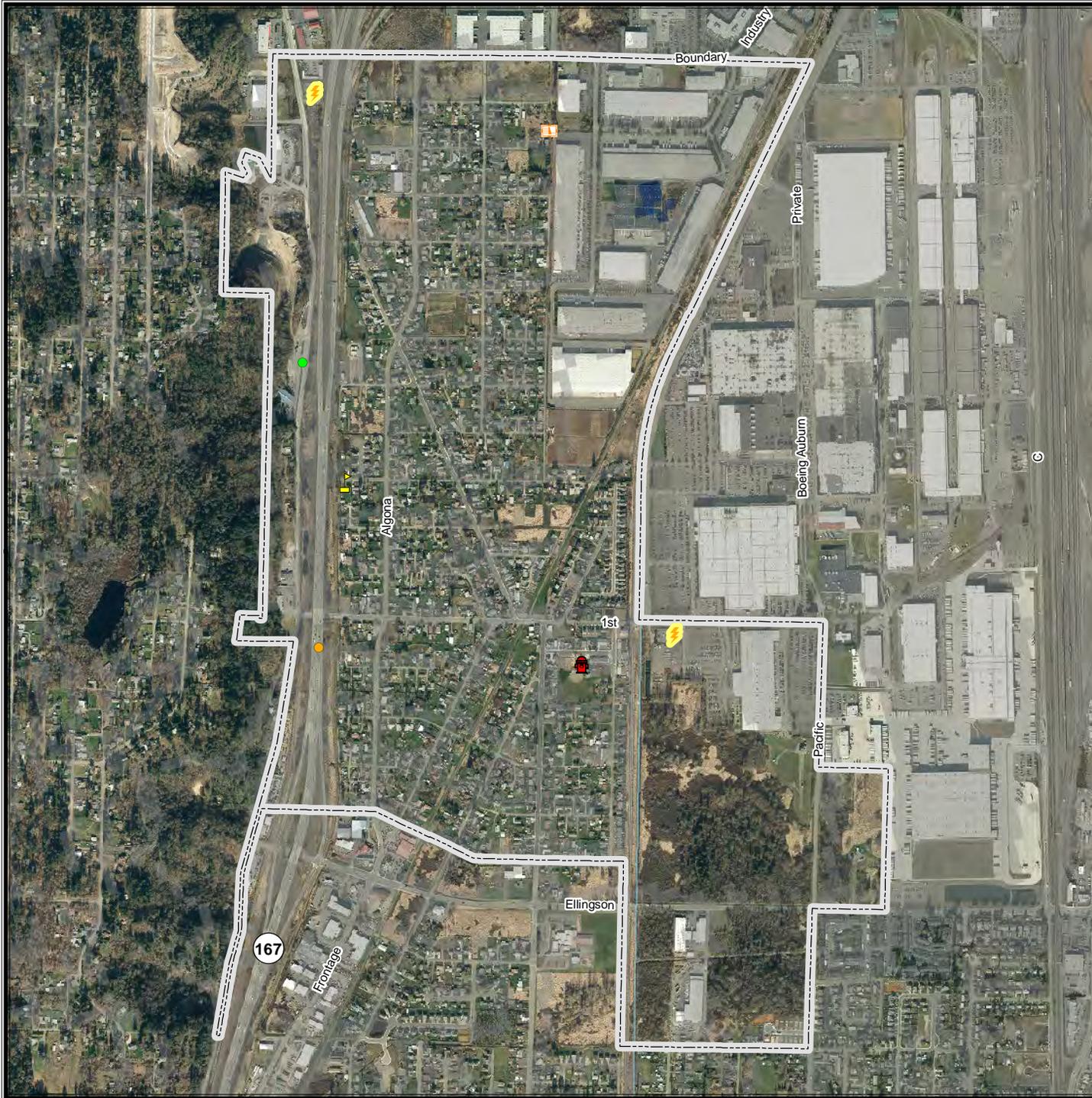
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority ^a
AL-1	4	Medium	Low	Yes	No	Yes	High
AL-2	4	High	High	Yes	Yes	Yes	High
AL-3	4	Medium	Medium	Yes	Yes	Yes	High
AL-4	4	Medium	Low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

a. See Introduction for explanation of priorities.

**TABLE 2-10.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Earthquake	2,6,7	5	7	7	2,7	9
Flood	1,2,6,7	1,5	1,7	1,7	1,2,7	9
Landslide	2,4,6,7	5	7	7	2,7	9
Severe Weather	2,6,7	5	7	7	2,7	9
Severe Winter Weather	2,6,7	5	7	7	2,7	9
Tsunami	--	--	--	--	--	--
Volcano	2,3,6,7	5	7	7	2,3,7	9
Wildfire	2,6,7	5	7	7	2,7	9

a. See Introduction for explanation of mitigation types.



CITY OF ALGONA

Critical Facilities and Infrastructure

Critical Facilities

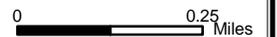
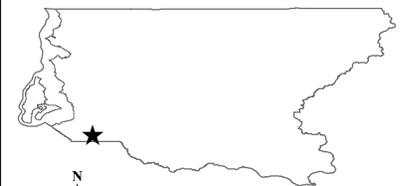
-  Government Function
-  HazMat
-  Medical Care
-  Protective Function
-  Schools
-  Other Facility

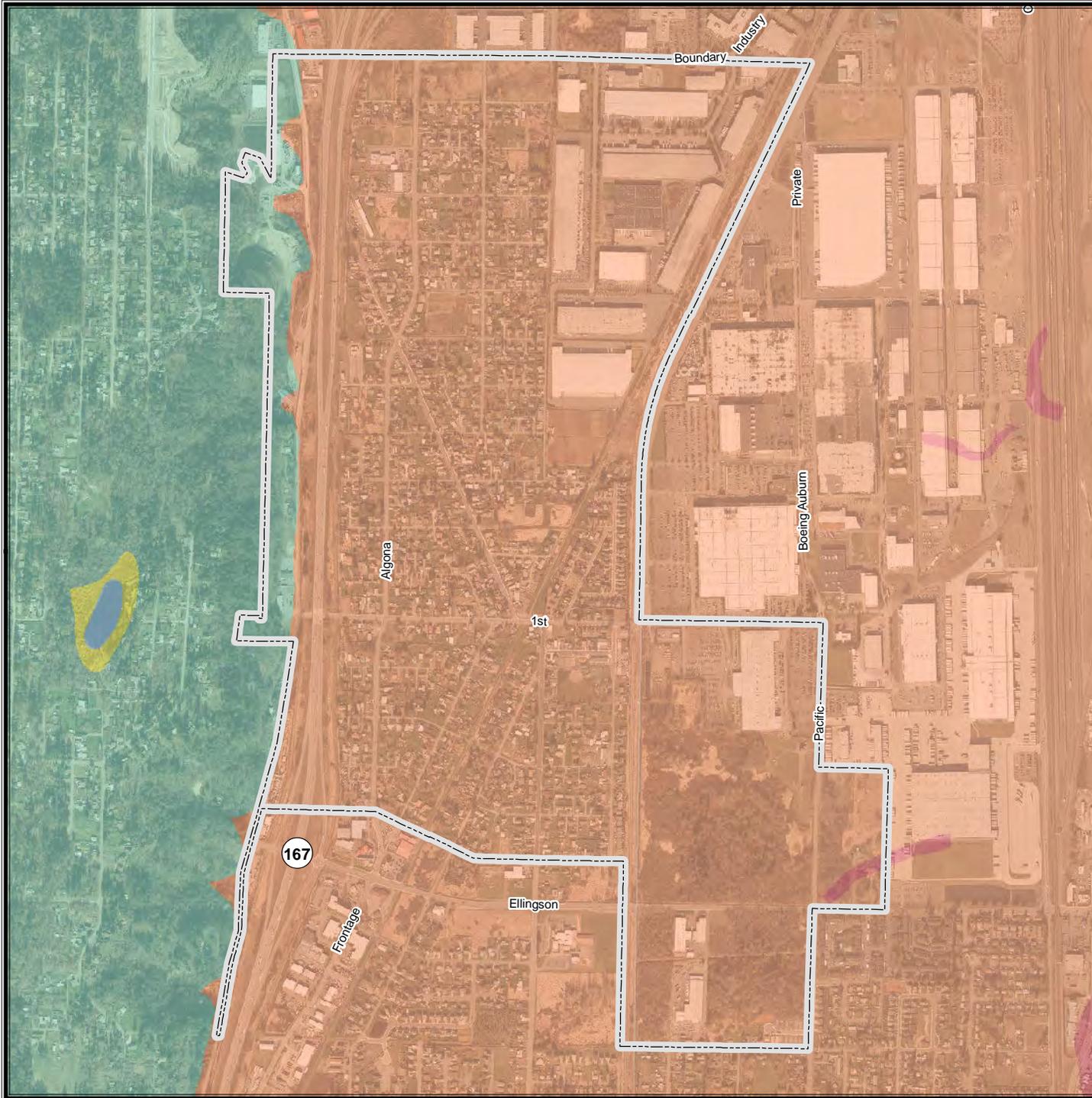
Critical Infrastructure

-  Bridges
-  Communications
-  Dams
-  Water Supply
-  Power
-  Transportation
-  Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF ALGONA

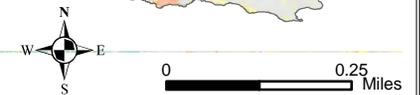
Liquefaction Susceptibility

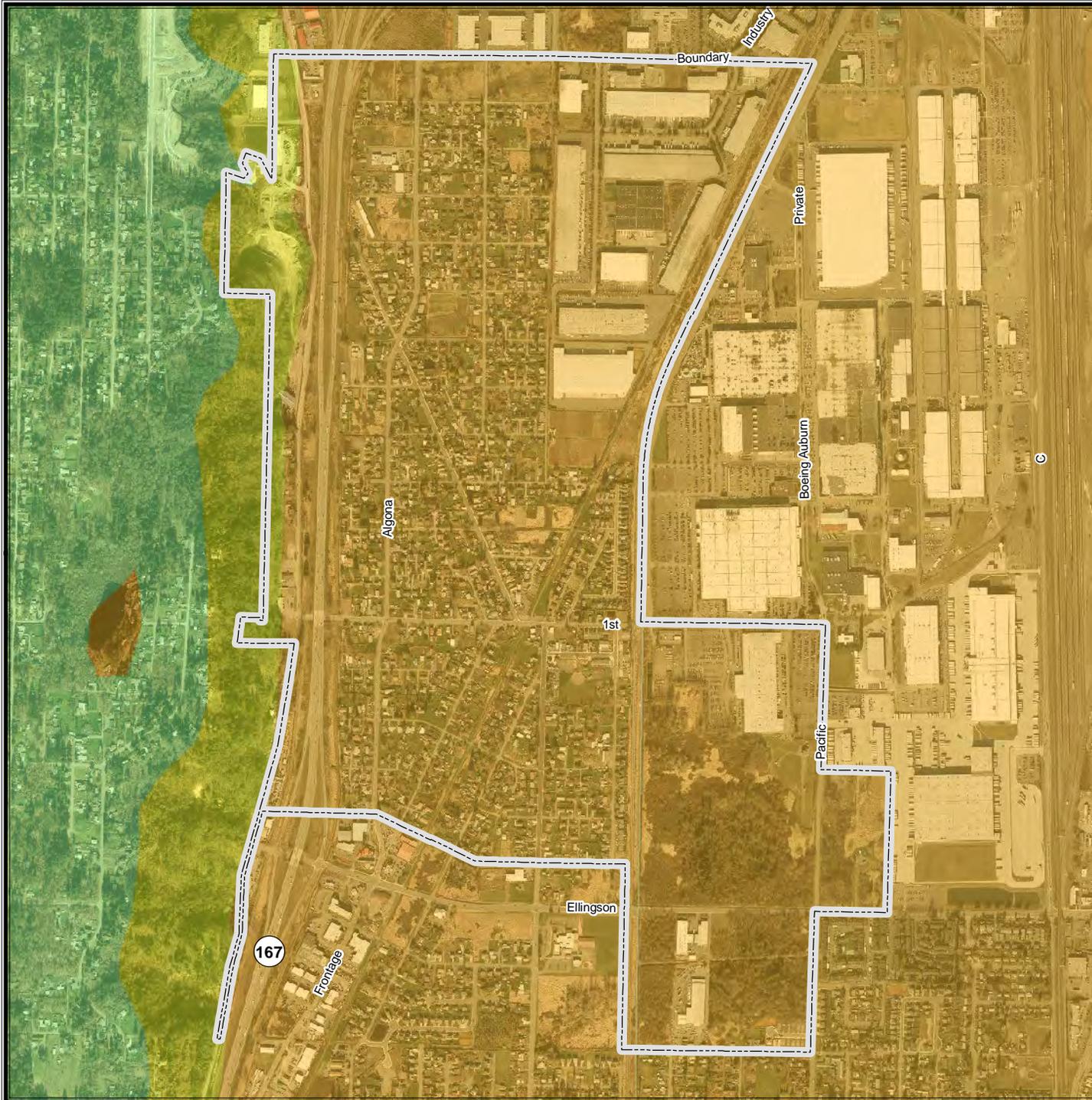
Susceptible		Not Susceptible	
High	Moderate to High	Bedrock	Peat
Moderate	Low to Moderate	Water	Ice
Low	Very Low to Low		
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF ALGONA

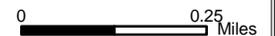
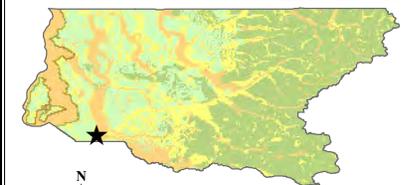
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

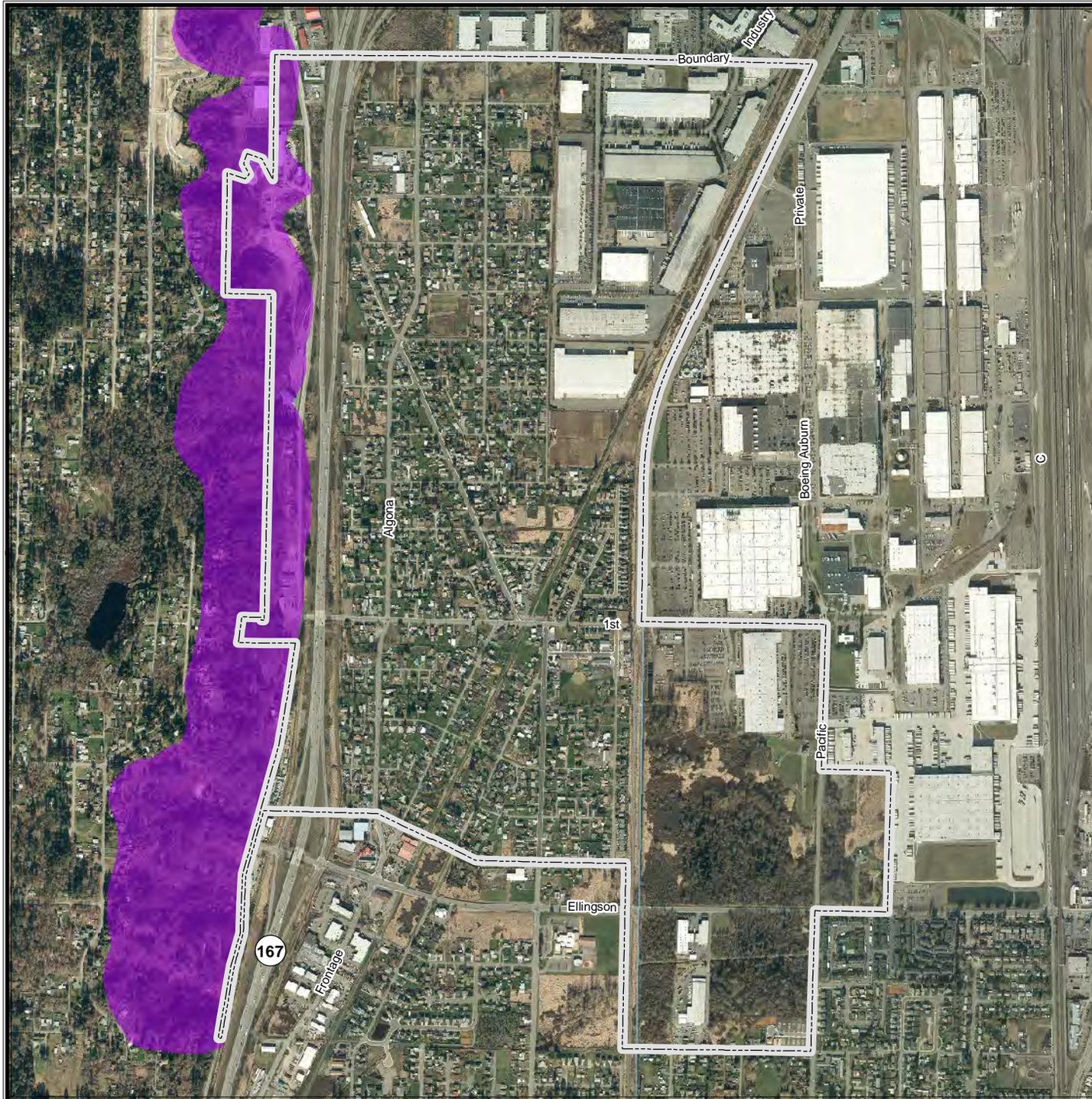
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF ALGONA

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

A. Any area with a combination of:

1. Slopes greater than 15 %
2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
3. Springs or groundwater seepage.

B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.

C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by wave action.

D. Any area that shows evidence of, or is at risk from, snow avalanches.

E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

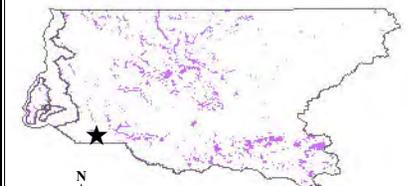
Slope/Soils Analysis:

1. Areas of slope greater than 40%. Slope determined using a DEM generated from 2002 LiDAR data. Slope data provided by King County DNR.

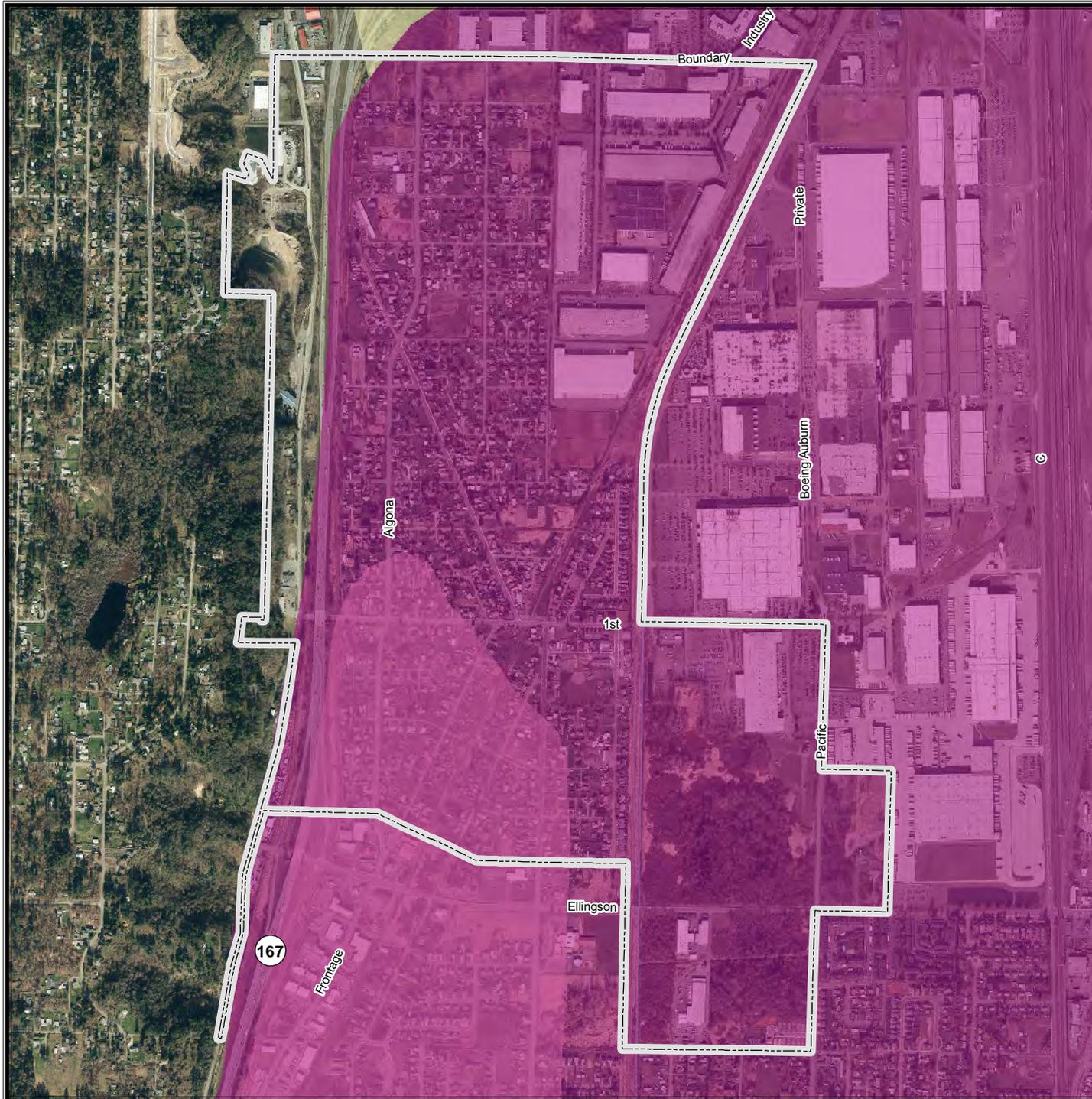
2. Areas of Qf (alluvial fans), Qls (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNR.

Base Map Data Sources:

King County, U.S. Geological Survey



0 0.25 Miles



CITY OF ALGONA

Lahar Hazards (Puyallup Valley)

- Case 1 - Large Lahars
- Case 2 - Moderate Lahars
- Post-Lahar Sedimentation

Lahar hazards data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. These data were produced as part of a project to estimate the potential economic losses from future eruptions of Mount Rainier.

Case 1 - Large Lahars (Recurrence Interval 500–1000 Years)

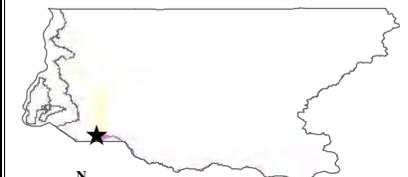
Shows areas that could be affected by cohesive lahars that originate as enormous avalanches of weak, chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The time interval between Case I lahars on Mount Rainier is about 500 to 1,000 years.

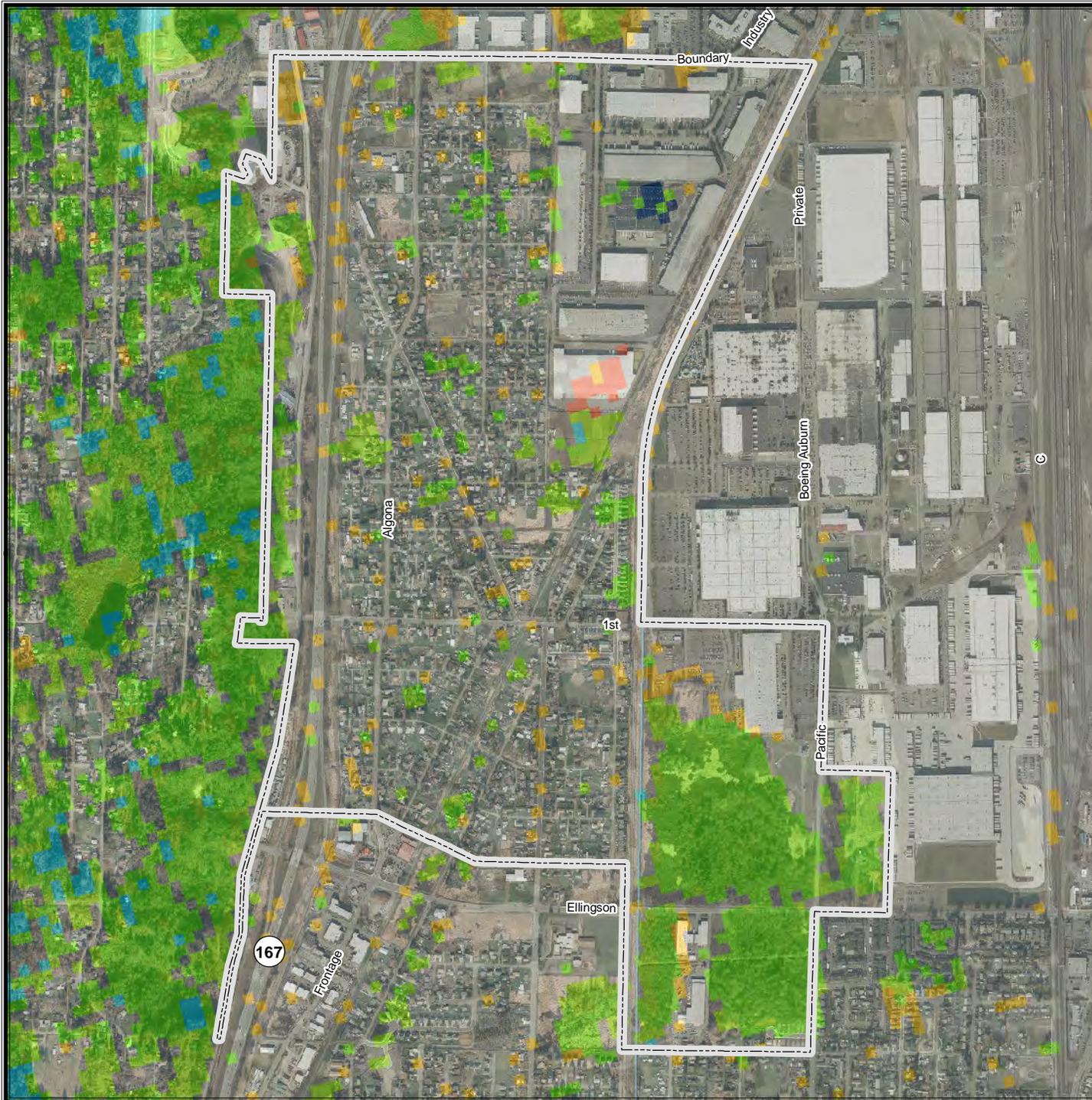
Case 2 - Moderate Lahars (Recurrence Interval 100–500 Years)

Shows areas that could be affected by relatively large noncohesive lahars, which are commonly caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but they can also have a noneruptive origin. The time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.

Post-Lahar Sedimentation Shows areas subject to post-lahar erosion and sedimentation and the ongoing potential for flooding.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF ALGONA

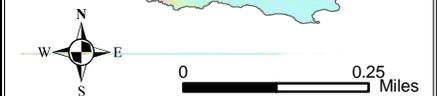
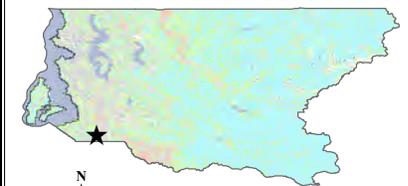
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (lf_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey



CHAPTER 3. CITY OF AUBURN UPDATE ANNEX

3.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Sarah Miller, Emergency Preparedness Manager
25 W Main Street
Auburn, WA 98001
Telephone: (253) 876-1909
e-mail Address: skmiller@auburnwa.gov

Alternate Point of Contact

Heather Kitchen, Emergency Management Assist.
25 W Main Street
Auburn, WA 98001
Telephone: (253) 875-1992
e-mail Address: hkitchen@auburnwa.gov

3.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—1891
- **Current Population**—70,180 as of 2010 (Washington State Office of Financial Management (OFM))
- **Population Growth**—Between 2000 and 2010 the population of Auburn increased 74.1 percent; however, a significant portion of this was the result of the annexation of Lea Hill and West Hill in 2008.
- **Location and Description**—The City of Auburn is located in the southern Puget Sound area of the State of Washington, approximately 20 miles south of Seattle. Auburn has an area of approximately 29.83 square miles, with approximately 28.17 square miles located in King County and approximately 1.66 square miles located in Pierce County. The City lies at the south end of State Road 18, at its intersection with State Road 167. Mount Rainier lies approximately 55 miles to the southeast of the City. The diverse geography presents a need for consideration in all hazard mitigation plan planning efforts and influences the probability of landslides, floods, earthquakes, and volcano/lahar events.

The topography includes the centrally located, north south Green River Valley, as well as the West Hill, East Hill, and Southeast plateaus. The City is part of two watersheds that flow to Puget Sound; the northern portion of the City occurs within the Green-Duwamish Watershed (Water Resource Inventory Area 9) and the southern portion lies within the Puyallup-White Watershed (Water Resource Inventory Area 10). The City boundaries include the Green and White Rivers, Bowman, Mill and Olson Creeks and as well as numerous small streams throughout the City.

The Muckleshoot Indian Tribe (MIT) is located both inside and outside the city limits of Auburn. The MIT was established in 1874, and is comprised of the descendants of the area's original Coast Salish peoples. The Muckleshoot Reservation consists of six sections situated diagonally, has 20 miles of boundaries, and encompasses six square-miles. Three sections (3 square miles) are within the municipal limits of the City of Auburn. Many of the landowners within the reservation boundaries are not tribal members over which the city has authority. The sections located outside the City are mostly surrounded by farms and rural areas, with

urbanization encroaching on the western portion. The Muckleshoot Tribe is one of Washington's largest tribes, with a membership of about 3,300.

- **Brief History**—The City of Auburn was home to some of the earliest settlers in King County. Nestled in a fertile river valley, Auburn has been both a farm community and a center of business and industry for more than 150 years. Auburn is located near the original confluence of the Green and White rivers, both of which contain runoff water from the Cascade Mountain range. The valley was originally the home of the Skopamish, Smalhkamish, and Stkamish Indian tribes. The first white men in the region were explorers and traders who arrived in the 1830s.

Settlers first came to the valley in the 1850s. On October 27, 1855, an Indian ambush killed nine people, including women and children. In November, a military unit led by Lieutenant William Slaughter camped near what is now present-day Auburn. On December 4, 1855, a group of Indians attacked, killing Lt. Slaughter and two other men.

A new treaty was written which provided the establishment of the Muckleshoot reservation, which is the only Indian reservation now within the boundaries of King County. The White River tribes collectively became known as the Muckleshoot tribe.

White settlers, the Neely and Ballard families began returning to the area. In 1891, the town of Slaughter incorporated. Although many older citizens considered the town's name a memorial, many newer residents understandably felt uncomfortable with it. Within two years, the town was renamed Auburn, taken from the first line of Oliver Goldsmith's poem, *The Deserted Village*: "Sweet Auburn! Loveliest village of the plain."

Auburn had been a bustling center for hop farming until 1890 when the crops were destroyed by aphids. After that, the farms were mostly dairy farms and berry farms. Nevertheless, flooding was still a problem for Auburn farmers up until the Howard Hanson Dam was built in 1962. The dam on the Green River, along with the Mud Mountain dam on the White River, provided controlled river management, which left the valley nearly flood free.

Another impetus to Auburn's growth was the railroad. The Northern Pacific Railroad put a rail line through town in 1883, but it was the Seattle-Tacoma Interurban line that allowed easy access to both cities starting in 1902. The Interurban allowed farmers to get their product to the markets within hours after harvest. The railroad, along with better roads, caused many new companies to set up business in Auburn, among them the Borden Condensery (which made Borden's Condensed Milk) and the Northern Clay Company.

Auburn grew through the twentieth century like many American towns. The 1920s were prosperous for citizens, but the Great Depression of the 1930s left many in need. World War II brought great hardship to many local Japanese farmers when they were moved to internment camps and their land taken from them. At the same time, local boys were sent to fight in the Pacific, and some died in battle.

The postwar era was prosperous to Auburn, bringing more businesses and a community college to the city. In 1963, The Boeing Company built a large facility to mill sheet metal skin for jet airliners. As time went on, many farms disappeared as the land was converted to industrial use. In the 1990s, a large super-mall was built in the valley, enticing consumers from all over the Puget Sound region.

Auburn has made the transition from small farms to large industries, but much of the city's history remains. A monument in the memory of Lieutenant Slaughter, erected in 1918, still stands in a local park. The Neely Mansion, built by the son of a pioneer in 1891, has been refurbished and is listed on the National Register of Historic Places. Auburn's downtown still

maintains a “Main Street U.S.A.” appearance. (Sources: Clarence B. Bagley, 1929 and Josephine Emmons Vine, 1990)

- **Climate**—Auburn’s average annual snowfall is 8.6 inches per year and the average annual rainfall is 38.48 inches per year. Temperatures range between an annual average high of 61.7 degrees and an average low of 44.2 degrees.
- **Governing Body Format**—The City of Auburn is a non-charter code city retaining the council;-mayor form of government, as provided in the Revised Code of Washington (RCW) 35A.02.030 of the Optional Municipal Code for the state. A Mayor and seven Council Members serve the City of Auburn. The City Council is responsible for setting City policies as well as reviewing and approving Auburn’s Hazard Mitigation Annex; Auburn Emergency Management will oversee the Plan’s implementation. The City is organized into the following departments: Administration, Finance, Human Resources, Risk and Property Management, Information Services, Legal, Parks, Arts and Recreation, Planning, and Development, Police, and Public Works.
- **Development Trends**—The City of Auburn established its land use pattern with adoption of the Comprehensive (Land Use) Plan in 1986. The Plan was amended to comply with the Growth Management Act (GMA) in April 1995 and is updated annually. The overall urban form of the City is heavily influenced by its location in a river valley surrounded by relatively steep hillsides. The organization of the land use pattern of the plan separates the City into three areas: the regional serving area (Western portion of Auburn) which is a concentration of employment base; the community serving area (Eastern Auburn) which contains a majority of the residential areas and locally oriented businesses; and the Downtown which uniquely serves both the region and local community. The western, eastern, and southern expansion of the city boundaries since 2004 has continued to add mainly residential areas. In 2004 Auburn’s downtown was designated an “Urban Center” pursuant to the King County Countywide Planning Policies. Urban Centers are areas with concentrated housing and employments, supported by high capacity transportation systems and retail, recreational, public facilities parks and open space. Much of the county’s growth in employment and a significant share of new housing are focused within urban centers.

The City’s development regulations, which include zoning, closely align with and implement the land use designations of the Comprehensive (Land Use) Plan. The zoning regulations are periodically updated. The City adopted its Critical Areas Ordinance in compliance with GMA in May 2005 (Ordinance No. 5894) to provide for the identification, regulation and protection of environmentally sensitive areas including wetlands, streams, wildlife habitat, geologic hazard areas, groundwater protection areas, and flood hazard areas. The city updated its floodplain regulations, Chapter 15.68 of the City code in 2008 (Ordinance No. 6161) and updated its Shoreline Management Program in April 2009 (Ordinance No. 6235) in compliance with the State Shoreline Management Action RCW 90.58. The Green and White Rivers are subject to the shoreline regulations

3.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 3-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 3-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 3-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 3-4. Classifications under various community mitigation programs are presented in Table 3-5.

TABLE 3-1. 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	International Codes Adoption – Ordinance #6469, July 1, 2013
Zoning	Yes	No	No	No	Major Sections Updated Ordinances #6433 & 6435, November 5, 2012
Subdivisions	Yes	No	Yes	Yes	Major update Ordinance # 6239, June 1, 2009
Stormwater Management	Yes	No	Yes	Yes	Revised to implement NPDES Ordinance #6283, December 21, 2009
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	No	Yes	Adoption of GMA compliant Comp. Plan, Ordinance #4788, September 5, 1995
Site Plan Review	Yes	No	No	No	Required by geographic area or type of development
Public Health and Safety	Yes	No	Yes	Yes	Public Health Depts.
Environmental Protection	Yes	No	Yes	Yes	Critical Area Regulations, Model Toxics Control Act, etc.
Planning Documents					
General or Comprehensive Plan	Yes	No	Yes	Yes	Updated annually, Ordinance #6489, December 2, 2013
	<i>Is the plan equipped to provide linkage to this mitigation plan?</i> Yes				
Floodplain or Basin Plan	No	No	Yes	No	King County Flood Control District Plan
Stormwater Plan	Yes	No	Yes	Yes	Revised to implement NPDES, Ordinance #6283, December 21, 2009
Capital Improvement Plan	Yes	No	Yes	Yes	Ordinance #6489, December 2, 2013
	<i>What types of capital facilities does the plan address?</i> Public and Critical				
	<i>How often is the plan revised/updated?</i> Every year				
Habitat Conservation Plan	No	No	Yes	No	City has not adopted
Economic Development Plan	Yes	No	No	No	(City has a 2005/2006 plan?)
Shoreline Management Plan	Yes	No	Yes	Yes	Ordinance #6235, April 20, 2009.
Community Wildfire Protection Plan	No	No	Yes	No	City has not adopted

TABLE 3-1. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	Yes	Yes	2009 CEMP Update with minor revisions in 2013
Threat and Hazard Identification and Risk Assessment	Yes	No	No	No	2013 Hazard Mitigation Plan Update
Terrorism Plan	No	No	Yes	No	Auburn Police Dept.
Post-Disaster Recovery Plan	No		Yes		Regional Recovery Plan
Continuity of Operations Plan	Yes	No	No	No	2009 CEMP
Public Health Plans	No	No	Yes	No	Public Health Depts.

TABLE 3-2. 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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 3-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/ Public Works
Engineers or professionals trained in building or infrastructure construction practices	Yes	Planning/ Public Works
Planners or engineers with an understanding of natural hazards	Yes	Planning/ Public Works
Staff with training in benefit/cost analysis	Yes	Finance/ Human Resources
Surveyors	Yes	Public Works
Personnel skilled or trained in GIS applications	Yes	Information Technology
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Emergency Management – Program Manager
Grant writers	Yes	Planning/ Public Works

TABLE 3-4. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your community?	Planning
Who is your community’s floodplain administrator? (department/position)	Planning/ Environmental Services Manager
Do you have any certified floodplain managers on staff in your community?	Yes
What is the date of adoption of your flood damage prevention ordinance?	March 31, 2010
When was the most recent Community Assistance Visit or Community Assistance Contact?	March 26, 2008
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	Yes

	Participating?	Classification	Date Classified
Community Rating System	Yes	5	05/01/2008
Building Code Effectiveness Grading Schedule	Yes	2	Not available
Public Protection	Yes	4	Not available
StormReady	Yes	Blue	Not available
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

3.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 3-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: 0
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: N/A

3.5 HAZARD RISK RANKING

Table 3-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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.

3.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 3-8 summarizes the initiatives that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

3.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 3-9 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 3-10 identifies the priority for each initiative. Table 3-11 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 3-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms/ Floods/ Landslides/ Mudslides	1671-DR-WA	Nov. 2-11, 2006	\$26,362
Severe Winter Storms/ Wind/ Landslides/ Mudslides	1682-DR-WA	Dec. 14-15, 2006	\$75,860
Windstorm/ Snowstorm/ Cold Weather	N/A	Jan. 5-16, 2007	No unusual expenses reported
Excessive Heat	N/A	July 9-11, 2007	No unusual expenses reported
Windstorm	N/A	Oct. 18, 2007	No unusual expenses reported
Severe Storms/ Flooding	1734-DR-WA	Dec. 1-7, 2007	\$3,289
Severe Winter Storm/ record and near-record snow	1825-DR-WA	Dec. 12, 2008 – Jan. 5, 2009	\$71,092
Severe Winter Storm/ Landslides/ Mudslides/ Flooding	1817-DR-WA	Jan. 6-16, 2009	Initial expenses = \$87,851 Ongoing expenses approx. \$4 million
Excessive Heat	N/A	July 28-31, 2009	No unusual expenses reported
Excessive Heat	N/A	July 8-9, 2010	No unusual expenses reported
Snowstorm	N/A	Nov. 22-23, 2010	No unusual expenses reported
Rain Event	N/A	Dec. 8-18, 2010	\$1,500
Severe Winter Storm/ Flooding/ Landslides/ Mudslides	1963-DR-WA	Jan. 11-21, 2011	\$93,954

**TABLE 3-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	45
2	Severe Winter Weather	45
3	Flood	27
4	Landslide	27
5	Earthquake	18
6	Volcano	16
7	Wildfire	10
8	Dam Failure	9
9	Tsunami	3
10	Avalanche	3

**TABLE 3-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
AU-1	Yes			Completion in 2013
AU-2			X	Program Assessment Undefined
AU-3	Yes			Completed
AU-4	Yes			Completed
AU-5			X	Program Assessment Undefined
AU-6			X	Program Assessment Undefined
AU-7			X	Program Assessment Undefined
AU-8			X	No longer managed by the City

**TABLE 3-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objective s Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
AU-1 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following:							
<ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 							
New and existing	Flood	2,4,10,12	Planning	Low	General Fund	Ongoing	No
AU-2 ----Retrofit Maintenance and Operations Facility to reduce susceptibility to earthquake damage							
Existing	Earthquake	1,4,9	Public Works	Medium	General Fund, FEMA Hazard Mitigation Grants	Ongoing	No
AU-3 —Installation of seismic protection valves on City reservoirs to provide for automatic shutoff in event of an earthquake.							
Existing	Earthquake	1,4,9	Public Works	Medium	General Fund, FEMA Hazard Mitigation Grants	Ongoing	No
AU-4 —Upgrade computer server racks throughout the City to reduce susceptibility to earthquake damage							
Existing	Earthquake	1,4,9	Information Services	Medium	General Fund	Ongoing	No

TABLE 3-9. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objective s Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
AU-5 —Purchase and implement software and hardware to comply with the State certification requirements for early destruction of source documents after digitization in compliance with the State of Washington Records Retention laws. This will safeguard records in case of disaster.							
New and Existing	Flood/ Earthquake	7,13,14	Information Services	Medium	General Fund	Ongoing	No
AU-6 —Expand and reconfigure stormwater detention ponds on West Hill along S. 296th St. to reduce wintertime flooding along the valley floor below.							
Existing	Flooding, Severe Weather	1,4,9	Public Works	High	General Fund, FEMA Hazard Mitigation Grants	Ongoing	No
AU-7 —Prepare and adopt a new optional Comprehensive Plan element for Natural Hazard Reduction.							
New and Existing	All	2,4,10,12	Planning	Low	General Fund	Short term	No
AU-8 —Measures to prevent acts of terrorism from occurring at key City facilities (Justice Center, EOC, City Hall, etc.)							
New and Existing	Other hazards of Interest	1,9,13	Police/EM	High	General Fund	Ongoing	No
AU-9 —Develop and adopt changes to City Code to limit tree removal within certain sloped or landslide hazard susceptible area							
New and Existing	Landslide	2,4,10	Planning	Low	General Fund	Ongoing	No
AU-10 —Create part or full-time FTE position to conduct disaster related public education throughout the City							
New and Existing	All Hazards	4,6,11,15	Emergency Management	Medium	General Fund	Ongoing	No
AU-11 —Enhance capability to produce City stats and data capability							
New and Existing	All Hazards	4,7	Emergency Management	Low	General Fund	Ongoing	No
AU-12 —Create, fund, and administer a grant or low interest loan program that allows homeowners to retrofit single family homes to protect against impacts from hazards of concern within the City.							
New and Existing	All Hazards	5,7,9	Human Services	High	General Fund, FEMA Hazard Mitigation Grants	Long-term	No
AU-13 —Conduct community education campaign to addresses pandemic flu issues (See Public Education also).							
New and Existing	Other hazards of Interest	4,6,13,15	Emergency Management	Medium	General Fund	Ongoing	No

**TABLE 3-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
AU-14 —Continue to support the county-wide initiatives identified in this plan.							
New and Existing	All Hazards	4,6,11,12, 13, 14, 15	City of Auburn	Low	General Fund	Short term	No
AU-15 —Actively participates in the plan maintenance strategy identified in this plan.							
New and Existing	All Hazards	4,6,11,12, 13, 14, 15	City of Auburn	Low	General fund	Short term	No

**TABLE 3-10.
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
AU-1	4	Medium	Low	Yes	No	Yes	High
AU-2	3	High	Medium	Yes	Yes	Yes	High
AU-3	3	High	Medium	Yes	Yes	Yes	High
AU-4	3	High	Medium	Yes	Yes	Yes	High
AU-5	3	Medium	Medium	Yes	No	Yes	High
AU-6	3	High	High	Yes	Yes	Yes	High
AU-7	4	Medium	Low	Yes	No	Yes	High
AU-8	3	High	High	Yes	No	Yes	High
AU-9	3	Medium	Low	Yes	No	Yes	High
AU-10	4	Medium	Medium	Yes	No	Yes	High
AU-11	2	Low	Low	Yes	No	Yes	High
AU-12	3	High	High	Yes	Yes	No	Medium
AU-13	4	Low	Low	Yes	No	Yes	High
AU-14	7	Medium	Low	Yes	Yes	Yes	High
AU-15	7	Medium	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 3-11.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	7,14,15	12	10,14		11	
Dam Failure	7,14,15	12	10,14		11	
Earthquake	5,7,14,15	2,3,4,12	10,14		11	
Flood	1,5,7,14,15	1,12	1,10,14	1	1,11	6
Landslide	7,9,14,15	12	10,14		11	
Severe Weather	7,14,15	12	10,14		11	6
Severe Winter Weather	7,14,15	12	10,14		11	
Tsunami	7,14,15	12	10,14		11	
Volcano	7,14,15	12	10,14		11	
Wildfire	7,14,15	12	10,14		11	
Other Hazards of Interest	14,15	8,12	10, 13,14		11	

a. See Introduction for explanation of mitigation types.

3.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

- **Objective 19.1** - To reduce potential hazards associated with flood plains without unduly restricting the benefits associated with the continued development of the Lower Green River Valley floor.
- **Objective 19.2** - To ensure that development is properly located and constructed with respect to the limitations of the underlying soils and subsurface drainage.
- **Objective 21.6** - Flood Hazard Reduction
- **Objective 19.3** - To reduce the risks associated with the transportation and storage of hazardous materials.

3.9 ADDITIONAL COMMENTS

Previously developed information related to City of Auburn boundaries and various hazards is presented in Figure 3-1 through Figure 3-7. Hazus-generated maps developed as part of this regional hazard mitigation plan update follow these figures.

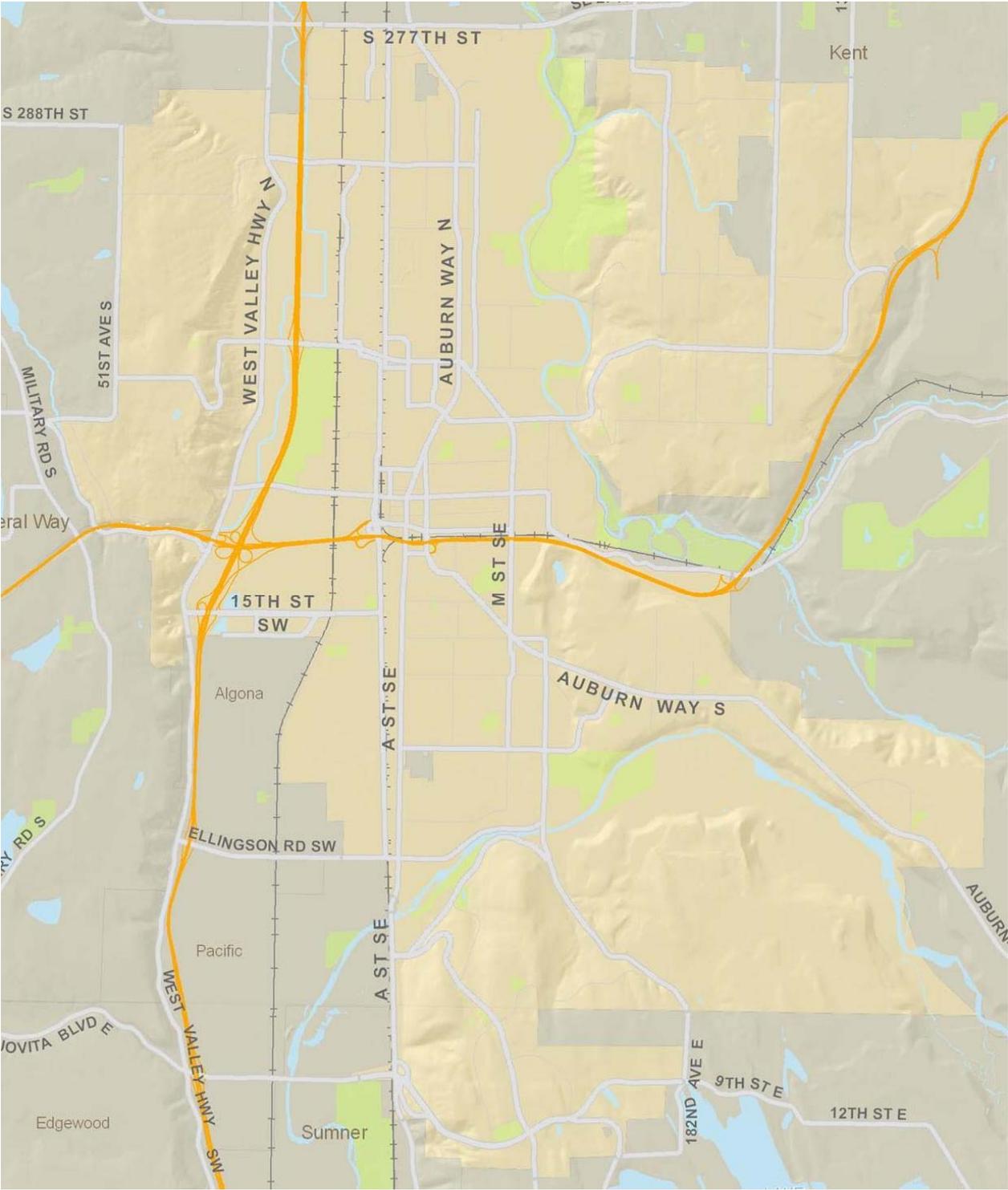


Figure 3-1. City of Auburn Map

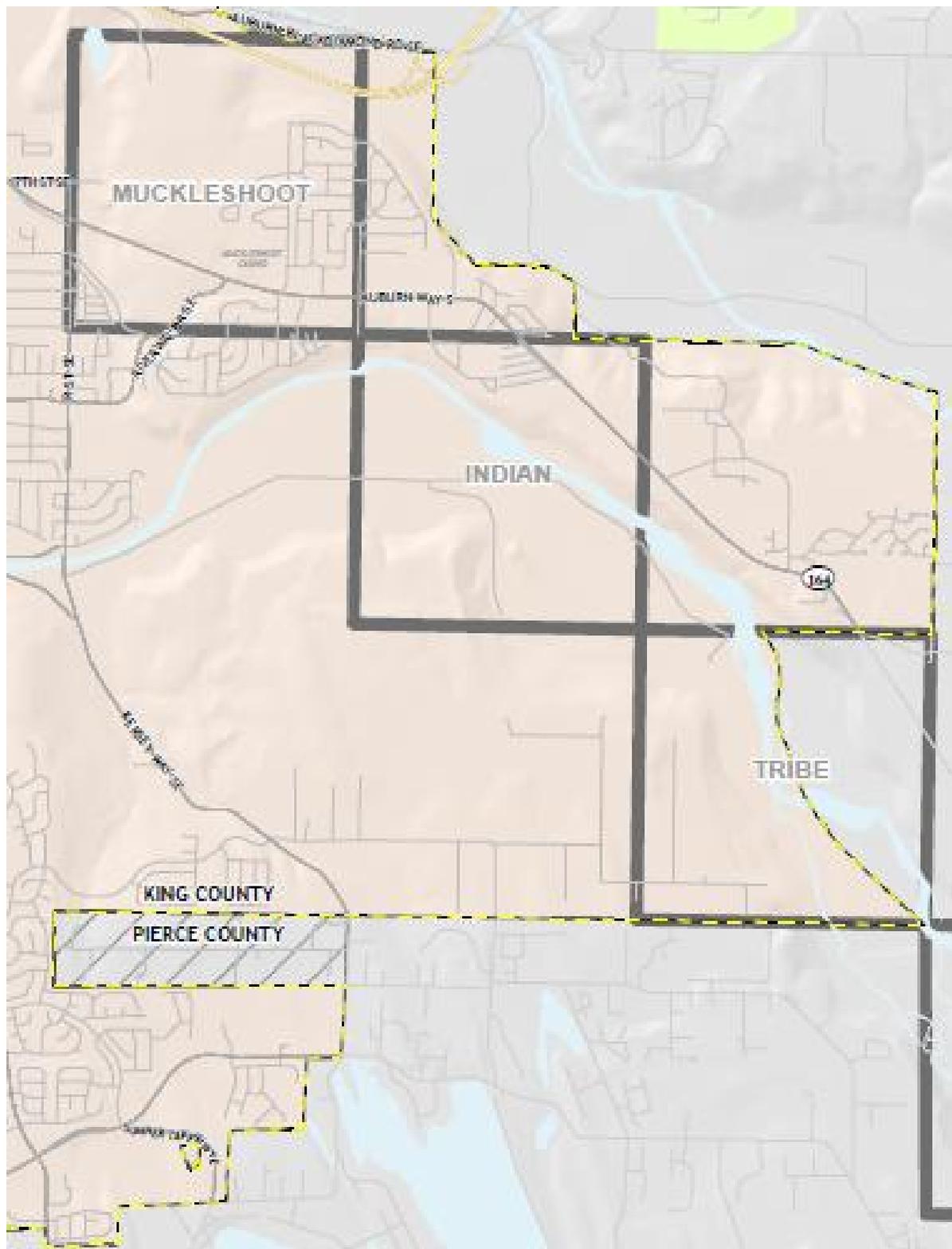


Figure 3-2. Muckleshoot Indian Tribe Land

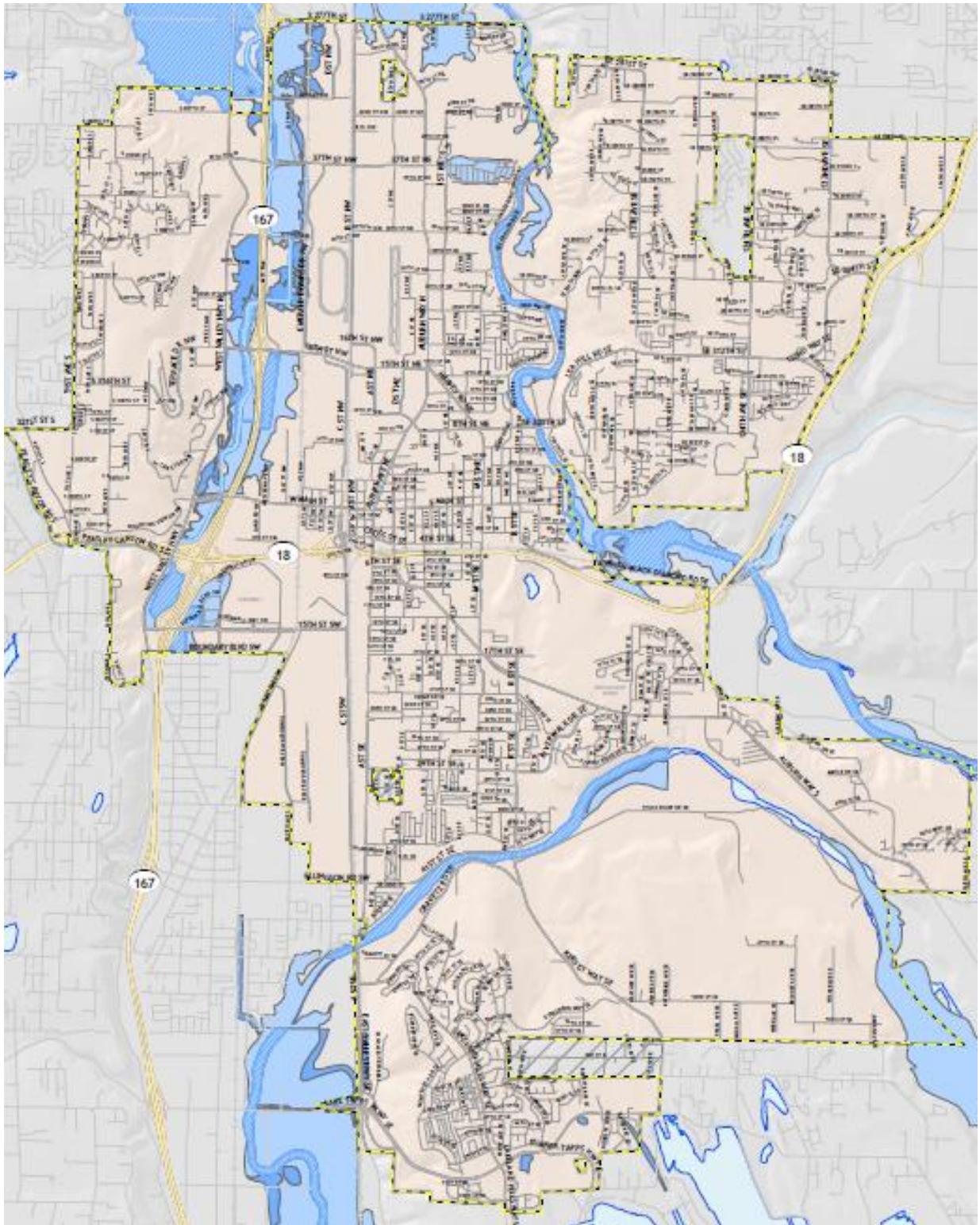


Figure 3-3. 1995 FEMA Floodplain Map

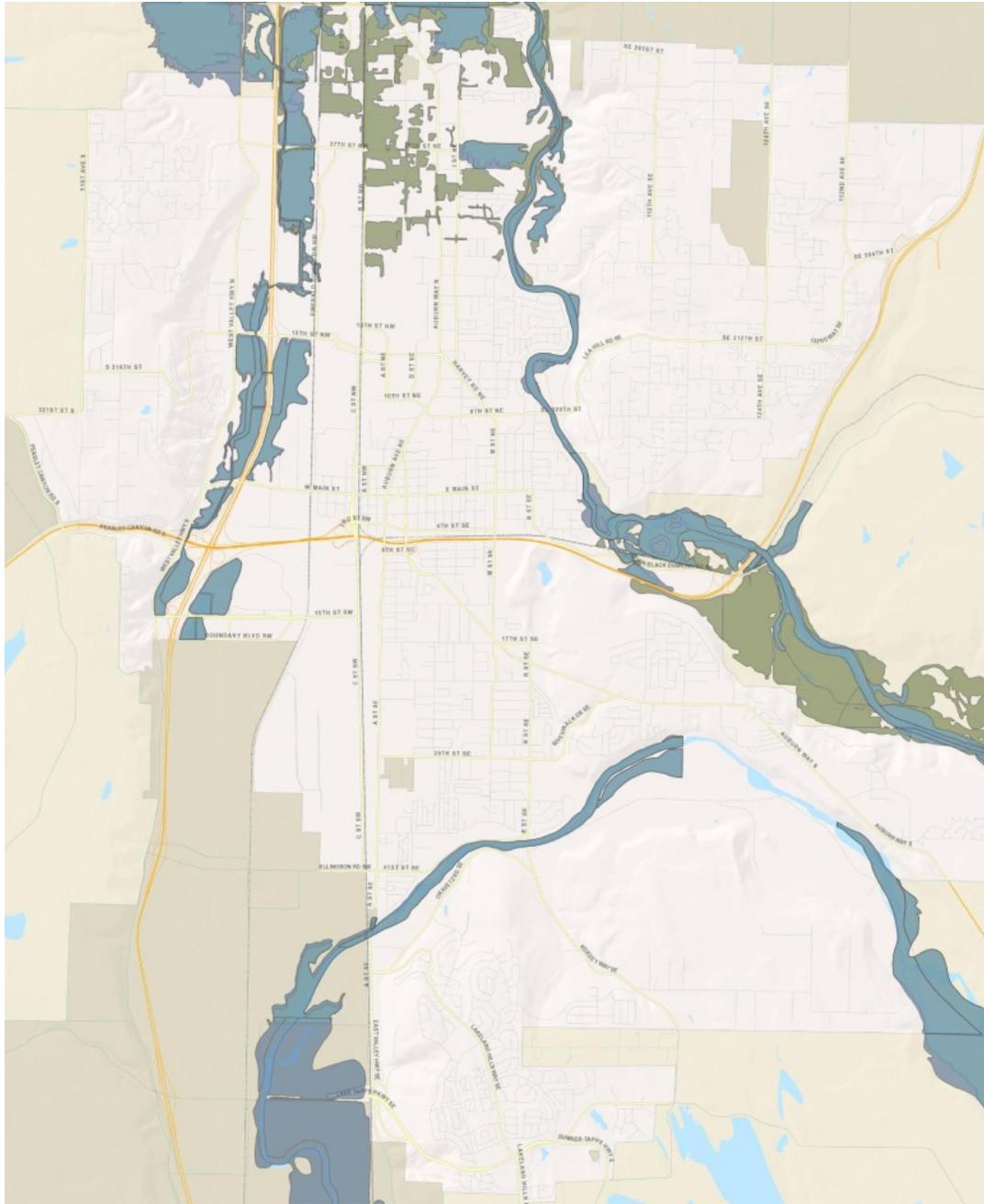


Figure 3-4. FEMA Special Flood Hazard Areas, Existing (blue) and Proposed (green)

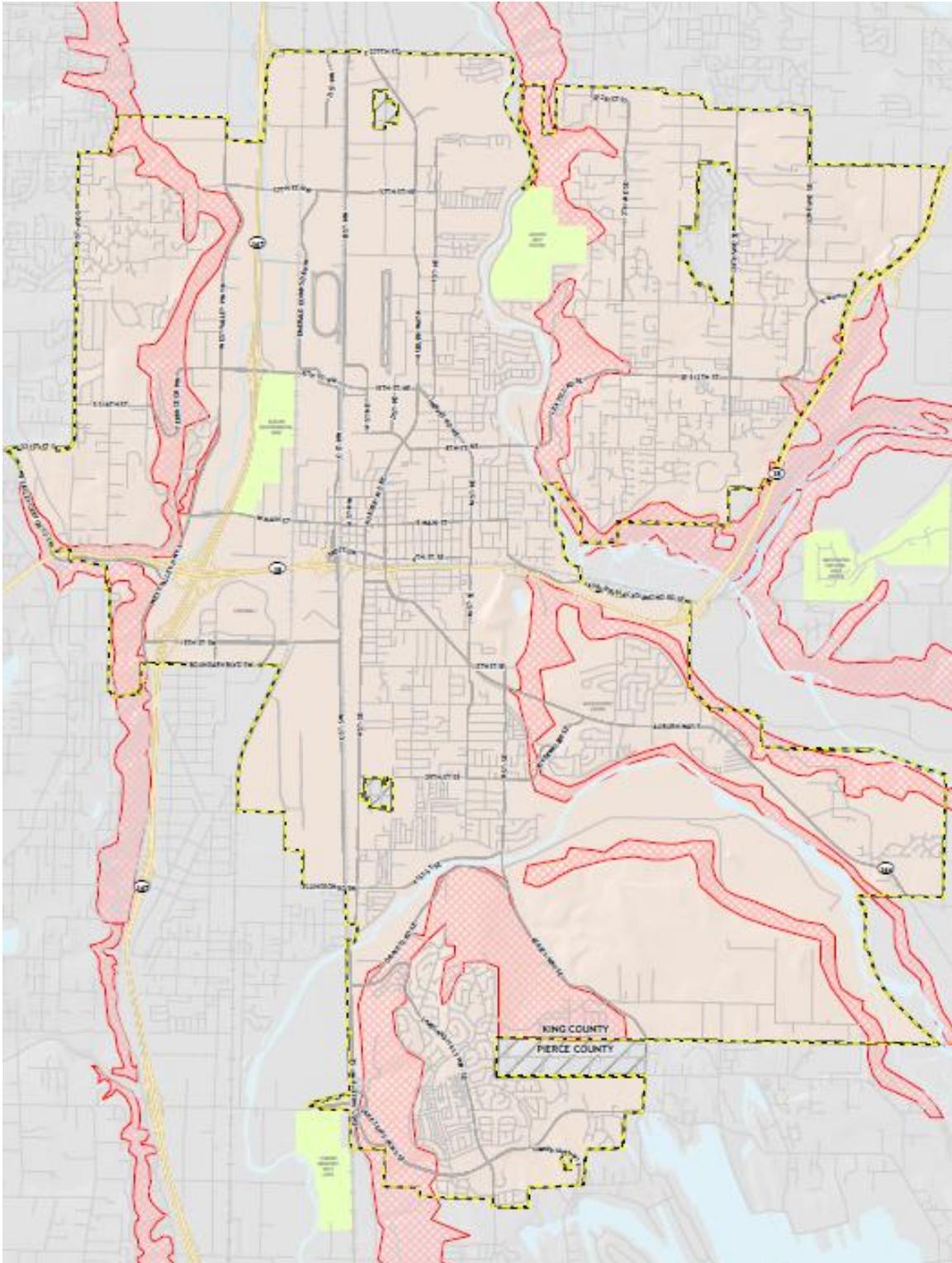


Figure 3-5. Landslide Hazard

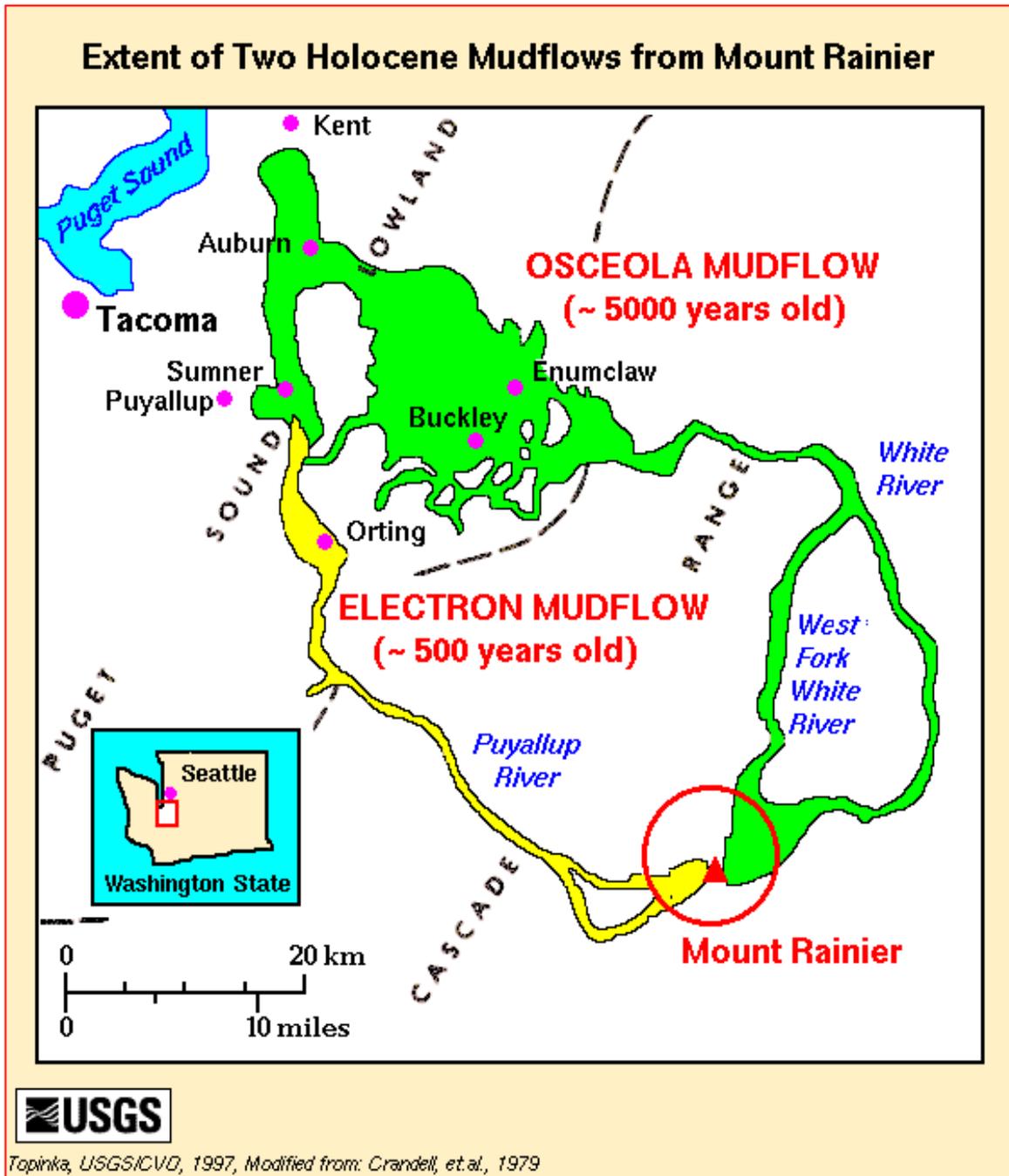


Figure 3-6. Historical Mudflows (Lahars)

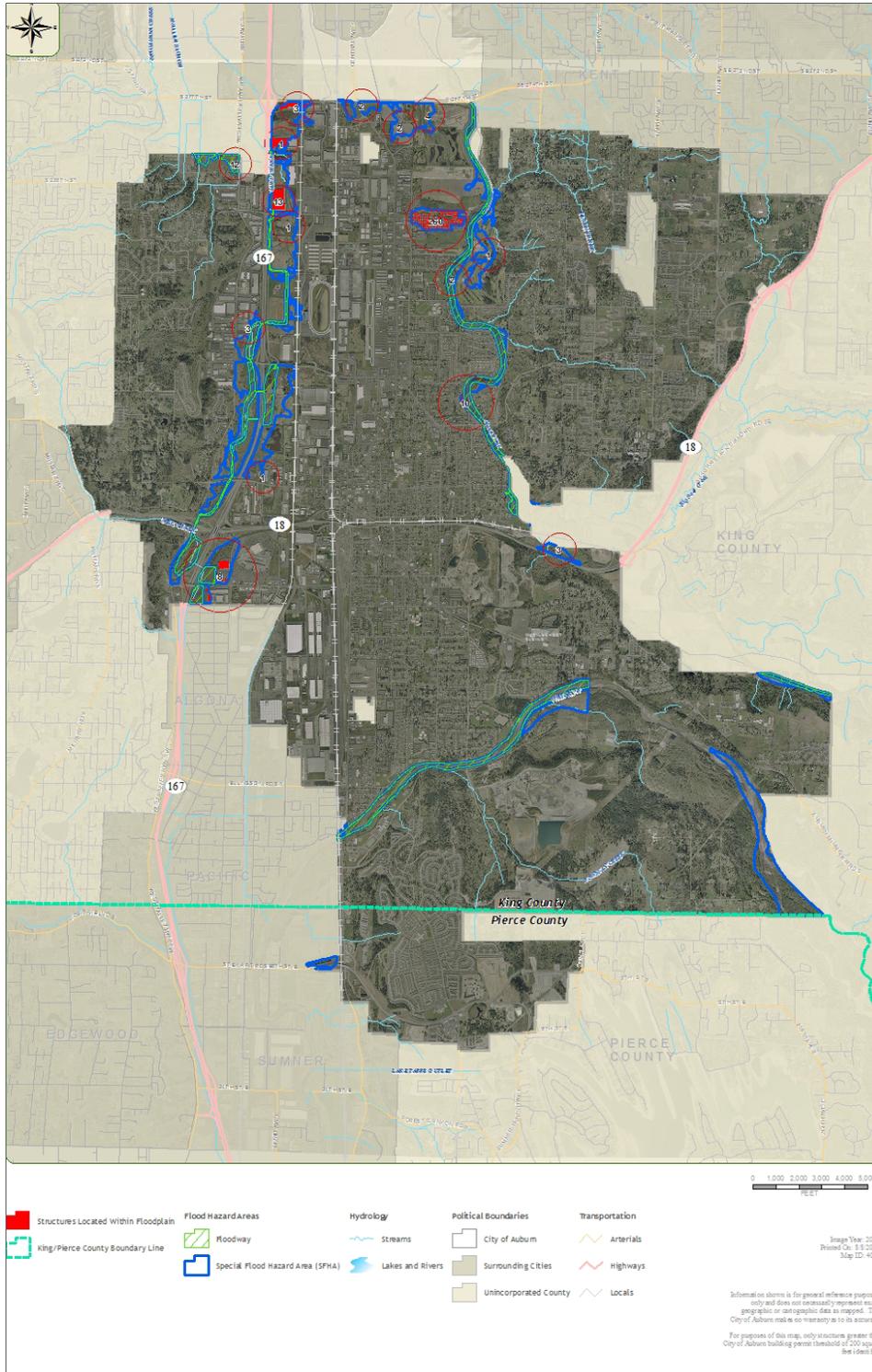
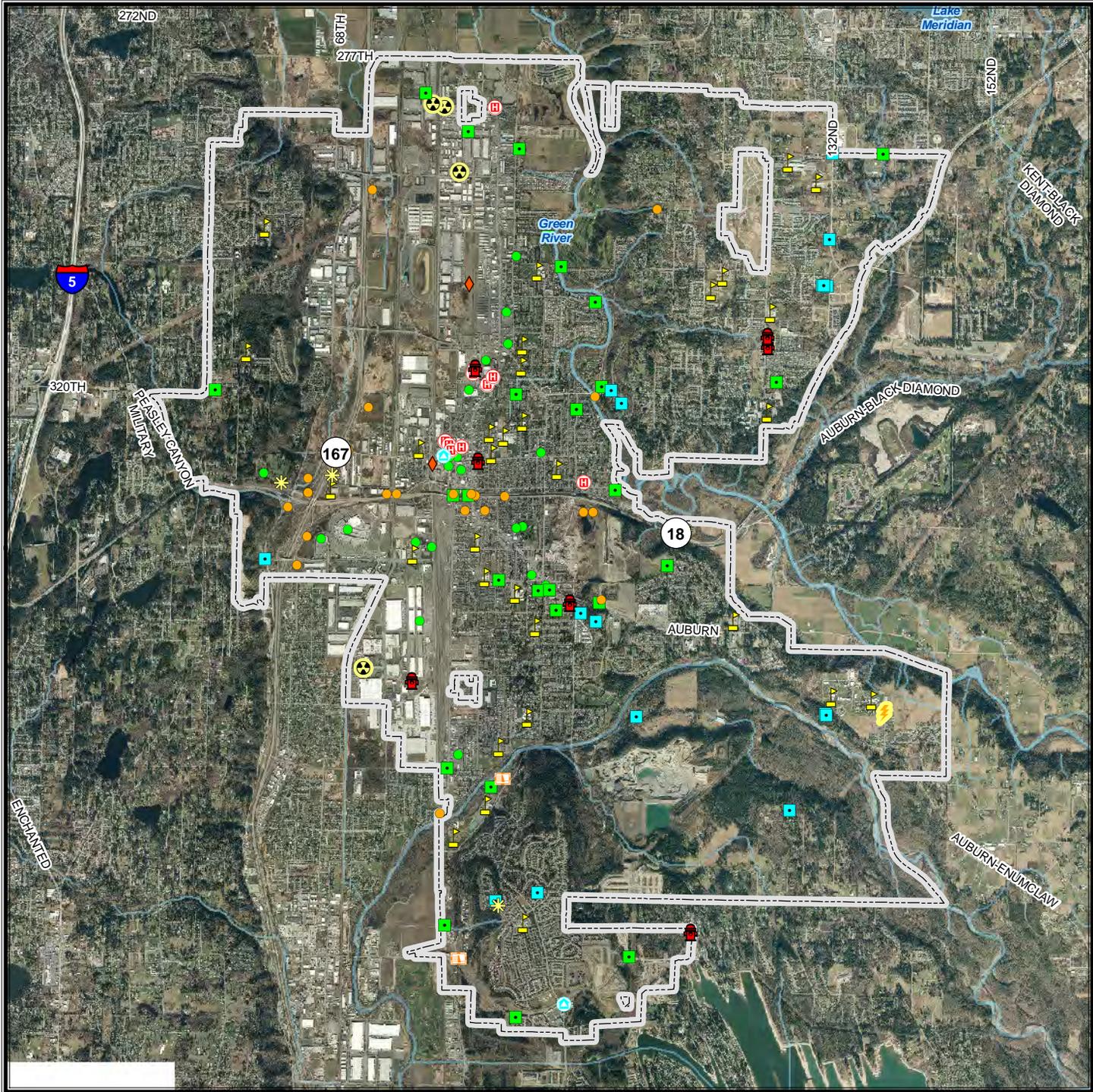


Figure 3-7. Structures Within Auburn Special Flood Hazard Areas

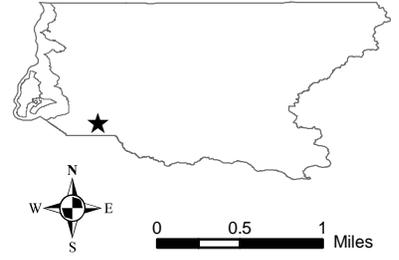


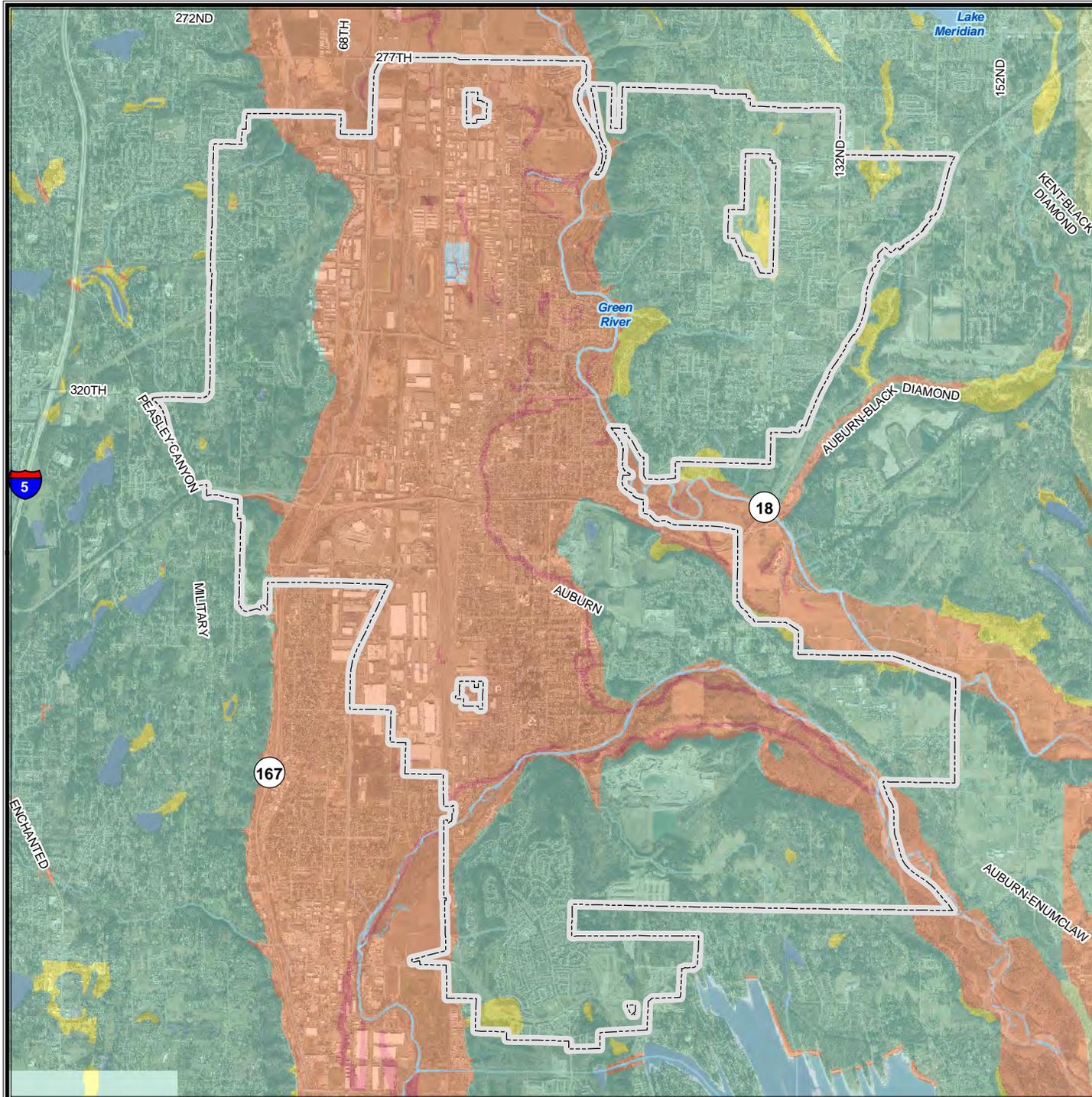
CITY OF AUBURN

Critical Facilities and Infrastructure

- Critical Facilities**
- Government Function
 - HazMat
 - Medical Care
 - Protective Function
 - Schools
 - Other Facility
- Critical Infrastructure**
- Bridges
 - Communications
 - Dams
 - Water Supply
 - Power
 - Transportation
 - Wastewater

Locations are approximate.
 Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

Liquefaction Susceptibility

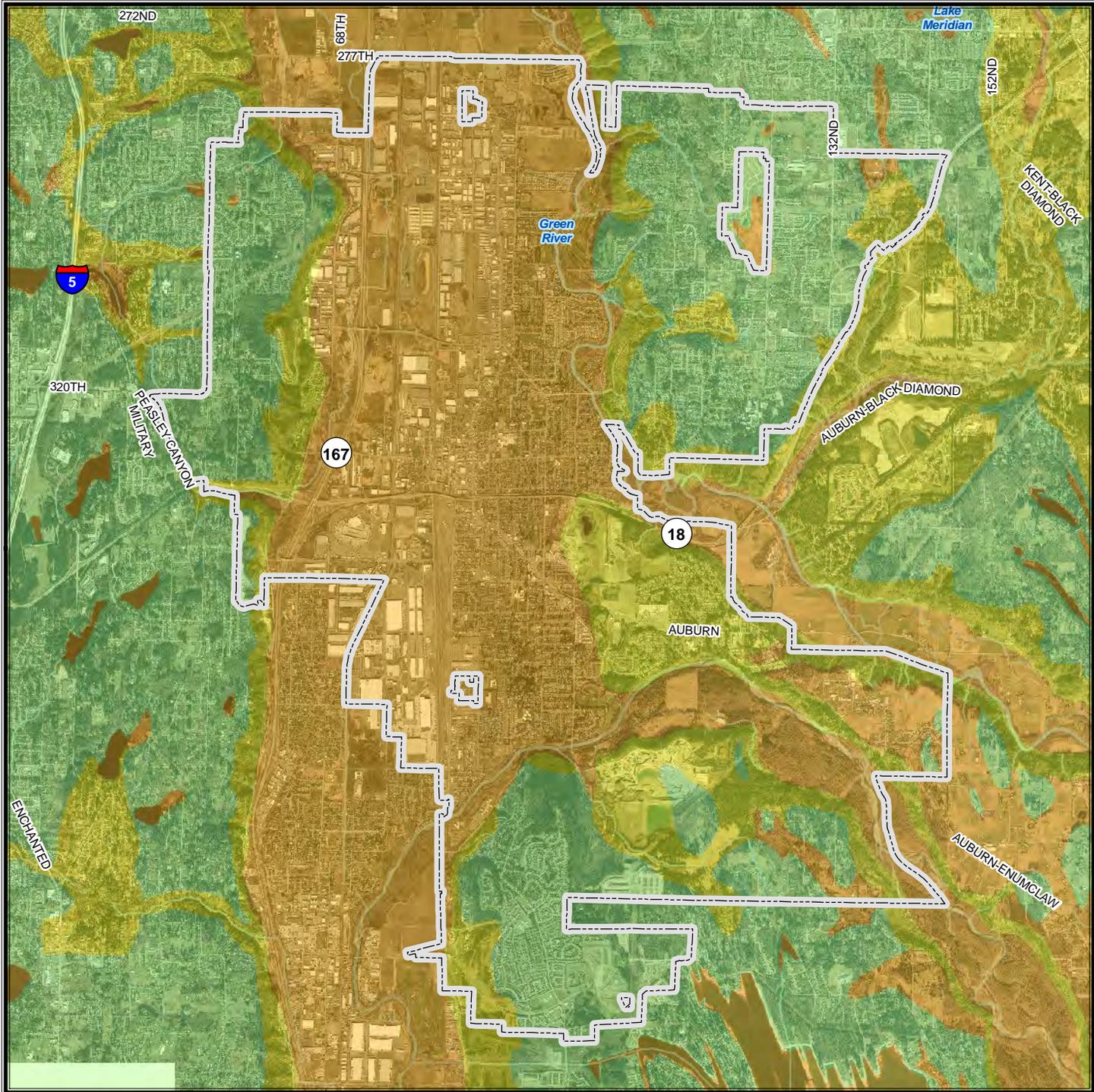
Susceptible		Not Susceptible	
High	Moderate to High	Bedrock	Peat
Moderate	Low to Moderate	Water	Ice
Low	Very Low to Low		
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

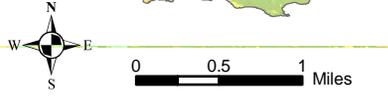
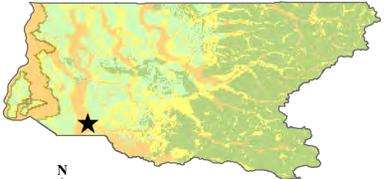
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

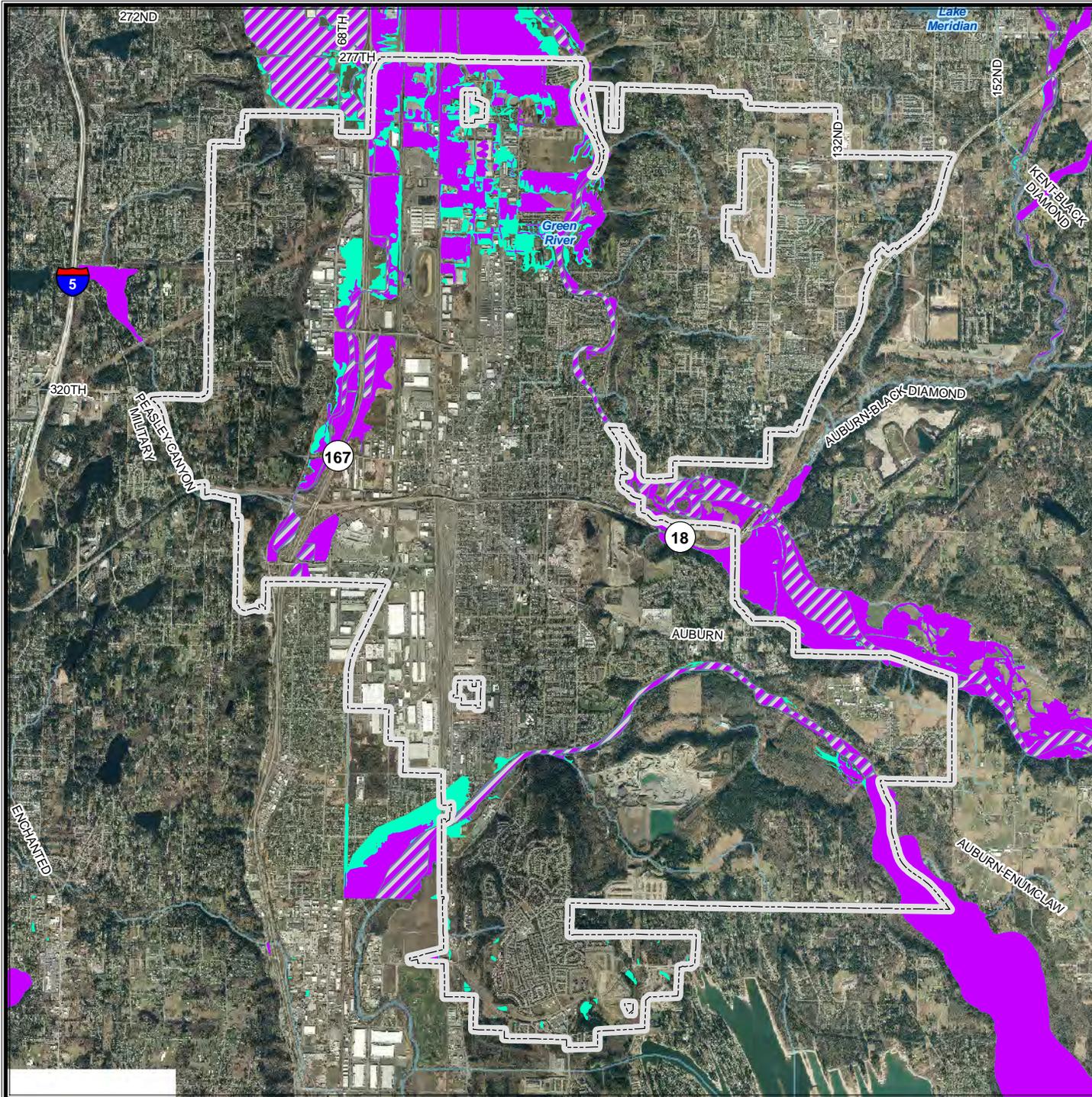
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

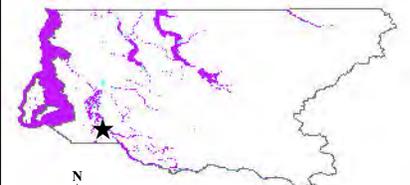
FEMA DFIRM Flood Hazard Areas

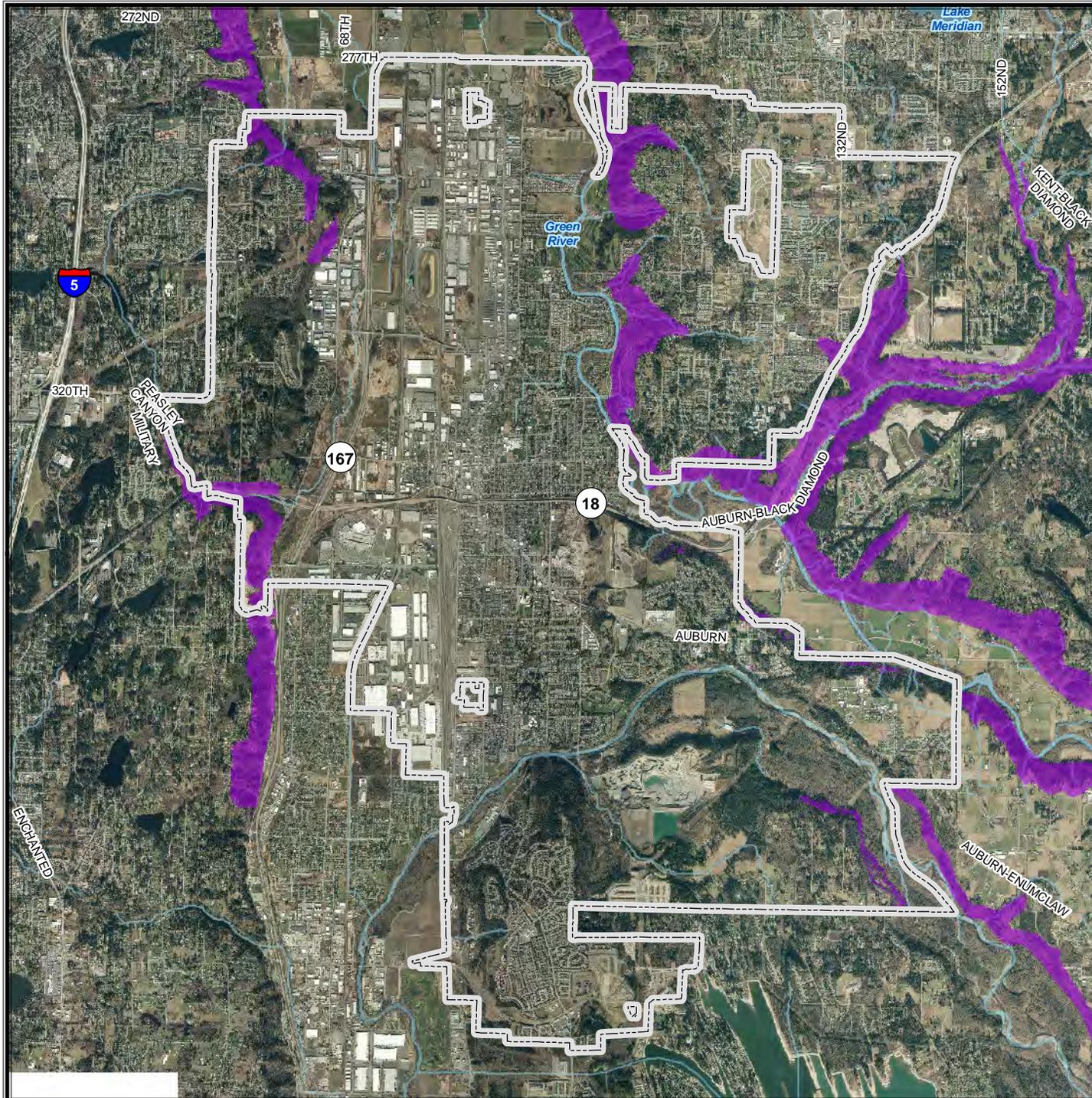
-  Floodway
-  1 Percent Annual Flood Hazard
-  0.2 Percent Annual Flood Hazard

Flood hazard areas as depicted on draft FEMA Digital Flood Insurance Rate Maps (DFIRM).

The 1 percent annual flood hazard is commonly referred to as the 100 year floodplain. The 0.2 percent annual flood hazard is commonly referred to as the 500 year floodplain.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

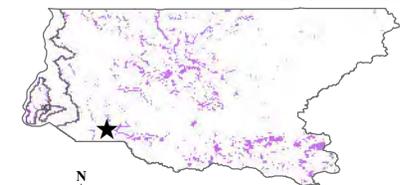
King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

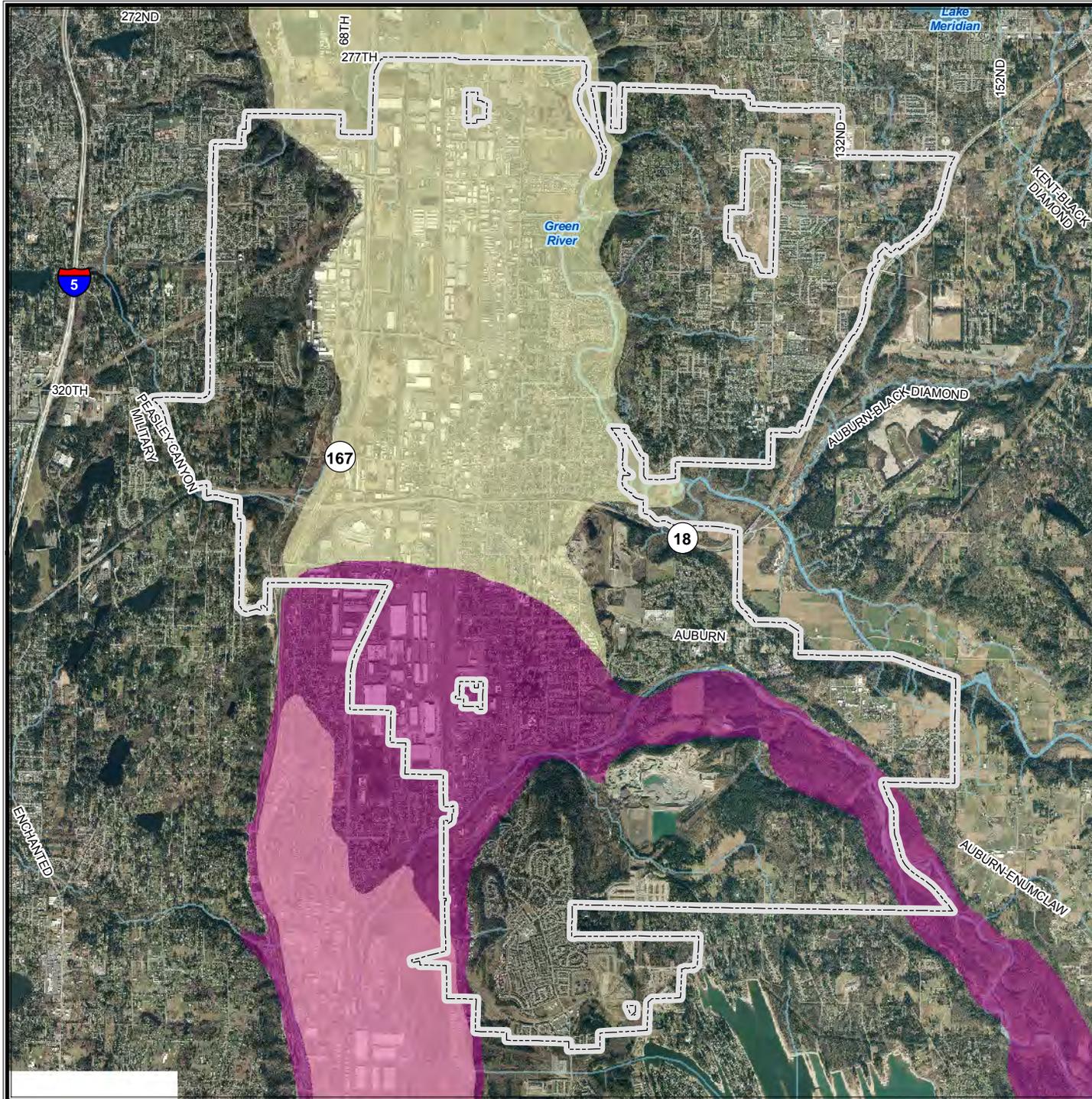
- A. Any area with a combination of:
1. Slopes greater than 15 %
 2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
 3. Springs or groundwater seepage.
- B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.
- C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion and undercutting by wave action.
- D. Any area that shows evidence of, or is at risk from, snow avalanches.
- E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

Slope/Soils Analysis:

1. Areas of slope greater than 40%. Slope determined using a DEM generated from 2002 LiDAR data. Slope data provided by King County DNRP.
2. Areas of Qf (alluvial fans), Qls (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNRP.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

Lahar Hazards (Puyallup Valley)

- Case 1 - Large Lahars
- Case 2 - Moderate Lahars
- Post-Lahar Sedimentation

Lahar hazards data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. These data were produced as part of a project to estimate the potential economic losses from future eruptions of Mount Rainier.

Case 1 - Large Lahars (Recurrence Interval 500–1000 Years)

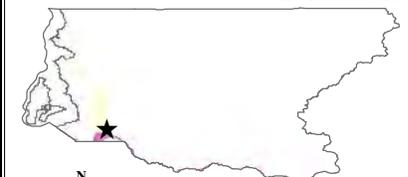
Shows areas that could be affected by cohesive lahars that originate as enormous avalanches of weak, chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The time interval between Case I lahars on Mount Rainier is about 500 to 1,000 years.

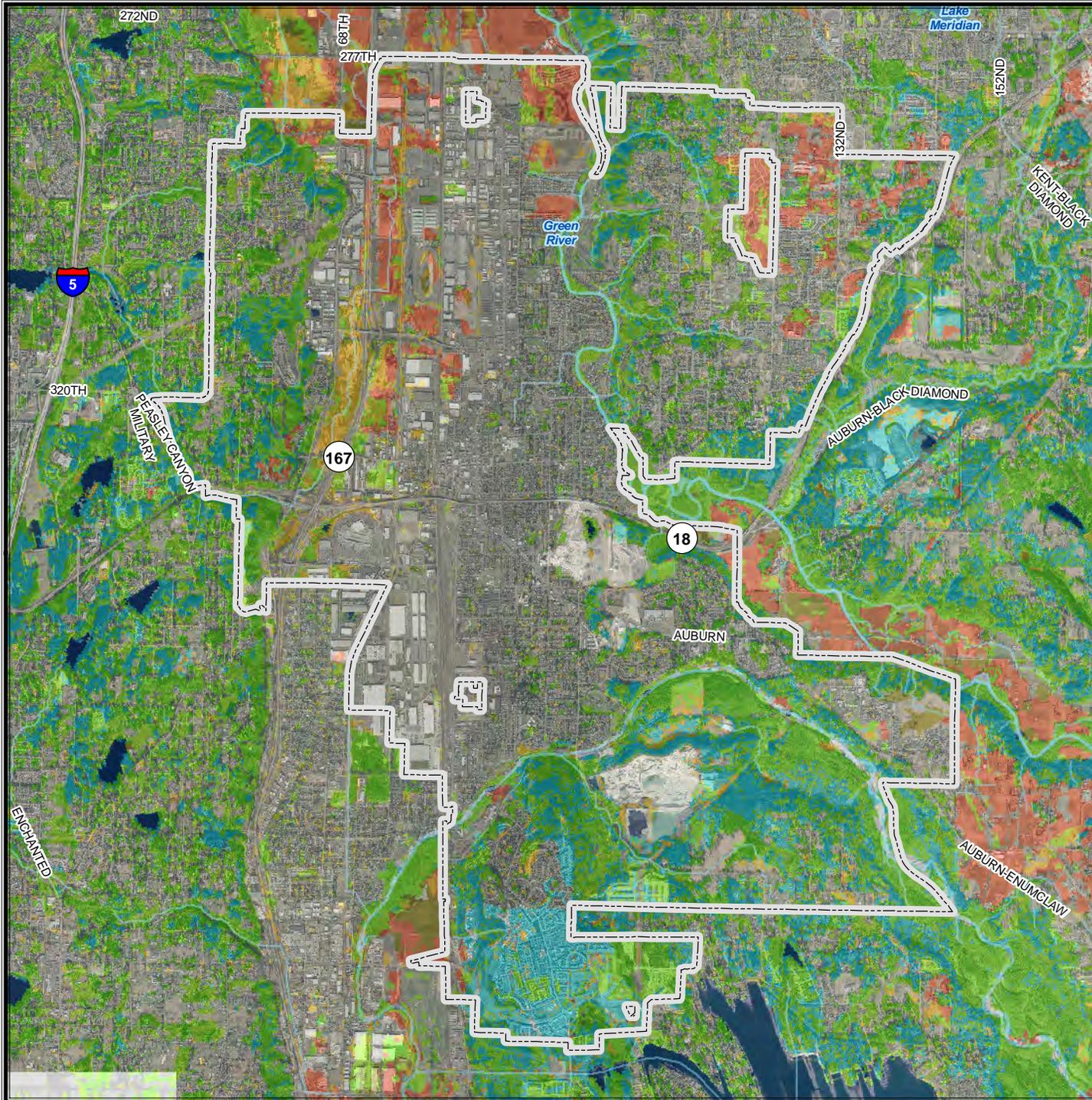
Case 2 - Moderate Lahars (Recurrence Interval 100–500 Years)

Shows areas that could be affected by relatively large noncohesive lahars, which are commonly caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but they can also have a noneruptive origin. The time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.

Post-Lahar Sedimentation Shows areas subject to post-lahar erosion and sedimentation and the ongoing potential for flooding.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF AUBURN

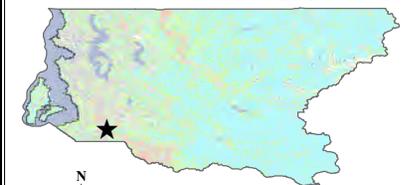
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable		Non-Burnable	
	FBFM1		Developed
	FBFM2		Agriculture
	FBFM3		Water
	FBFM5		Barren
	FBFM6		
	FBFM8		
	FBFM9		
	FBFM10		
	FBFM11		

Fuel Class data (LANDFIRE REFRESH 2008 (If_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology



CHAPTER 4.

TOWN OF BEAUX ARTS VILLAGE ANNEX

4.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Sue Ann Spens, Clerk-Treasurer
10550 SE 27th Street
Beaux Arts, WA 98004
Telephone: (425) 454-8580
e-mail Address: townhall@beauxarts-wa.gov

Alternate Point of Contact

Richard Leider, Mayor
10550 SE 27th Street
Beaux Arts, WA 98004
Telephone: (425) 454-8580
e-mail Address: mayor@beauxarts-wa.gov

4.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—1954
- **Current Population**—290 as of April 1, 2012 (Washington State Office of Financial Management estimate)
- **Population Growth**—The Town of Beaux Arts Village is a fully developed community with no real population growth. Population has hovered around 300 since the incorporation.
- **Location and Description**—The Town of Beaux Arts Village is a residential-only town covering 50 acres and sitting on the eastern shore of Lake Washington at longitude W122°12'7" and latitude N47°35'9" in King County, Washington. Downtown Bellevue is about 3 miles north and Downtown Seattle is less than 10 miles west. The Town is located conveniently near both Interstate 90 and Interstate 405.
- **Brief History**—The roots of Beaux Arts Village can be traced to the Society of Beaux Arts, a “school of every art and craft,” established “to develop art and its appreciation here in the Northwest.” Members of the Society dreamed of starting an art colony where they could live and work together. Three members of the Society, Frank Calvert, Alfred Renfro, and Finn Frolich, signed their names to the incorporation of the Western Academy of Beaux Arts in 1908 and purchased a 50-acre tract of forest land, setting aside ten acres in the center for sketching grounds, workshops, cricket, a tennis court, and healthful recreation by members of the Beaux Arts Society. The artist colony did not thrive, but its influence on the unique character of the Village can still be seen today. In 1954, Beaux Arts Village was incorporated as a fourth-class Town, largely so that residents would retain a voice in its further development and could preserve the Village’s unique character.
- **Climate**—The Town of Beaux Arts Village has a mild oceanic climate, experiencing generally warm, but not hot summers and cool, but not cold winters, with a relatively narrow annual temperature range. The annual average high is 60.2 degrees Fahrenheit, and the average annual low is 44.6 degrees Fahrenheit. Annual average precipitation is approximately 36 inches and is dispersed more evenly throughout the year with no real dry season in typical years.
- **Governing Body Format**—The Town of Beaux Arts Village is governed by a Mayor-Council form of government. The Town Council is the legislative and administrative body

and consists of a Mayor and five Councilmembers, all of whom are residents of the Town and elected at large. The Mayor and Councilmembers are volunteers who serve four-year terms and are eligible for re-election without term limits. The Town Council assumes responsibility for the adoption of this plan and will oversee its implementation.

- **Development Trends**—Current development trends range from restoring older homes of architectural significance to replacing smaller homes with larger homes, as is typical for this area of the Eastside. For all intent and purpose, the Town is fully built out; it includes only two or three lots that are large enough to be subdivided under current zoning rules.

4.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 4-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 4-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 4-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 4-4. Classifications under various community mitigation programs are presented in Table 4-5.

**TABLE 4-1.
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	BAV MC 15.05 (2010, 2013)
Zoning	Yes	No	No	No	BAV MC 18.10 (2009)
Subdivisions	Yes	No	No	No	BAV MC 17.05 (1999)
Stormwater Management	Yes	No	No	Yes	BAV MC 13.15 (1995)
Post Disaster Recovery	Yes	No	No	Yes	BAV MC 2.45 (2009)
Real Estate Disclosure	No	No	No	Yes	RCW 64.56
Growth Management	Yes	No	No	Yes	BAV MC 18.05 (2004)
Site Plan Review	Yes	No	No	No	BAV MC 15.05
Public Health and Safety	Yes	No	No	No	BAV MC Title 8
Environmental Protection	Yes	No	No	Yes	BAV MC Title 16
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	BAV MC 18.05 (2004) Under review in 2014-15.
					<i>Is the plan equipped to provide linkage to this mitigation plan?</i> No
Floodplain or Basin Plan	Yes	No	No	No	BAV MC 16.20 (2000)
Stormwater Plan	Yes	No	No	No	Not codified
Capital Improvement Plan	Yes	No	No	No	6-Year TIP, not codified
					<i>What types of capital facilities does the plan address?</i> Roads <i>How often is the plan revised/updated?</i> Annually
Habitat Conservation Plan	No	Yes	N	No	Washington State Bald Eagle Rules
Economic Development Plan	No	No	No	No	All SFR, no commercial activity
Shoreline Management Plan	Yes	No	No	Yes	BAV MC 16.10 (2013)
Community Wildfire Protection Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	Yes	CEMP not codified, Last updated 2013; pending State Review
Threat and Hazard Identification and Risk Assessment	No	No	No	No	
Terrorism Plan	No	No	No	No	
Post-Disaster Recovery Plan	Yes	No	No	No	CEMP, not codified
Continuity of Operations Plan	Yes	No	No	No	BAV MC 2.40 (2009)
Public Health Plans	No	No	No	No	

TABLE 4-2. 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	Yes
Other	Surface water utility fee; Real Estate Excise Tax; King County Flood Control District-Basin Opportunity Fund

TABLE 4-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Town Building Official and Town Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Town Building Official
Planners or engineers with an understanding of natural hazards	Yes	Town Planner
Staff with training in benefit/cost analysis	Yes	Clerk-Treasurer
Surveyors	Yes	By contract
Personnel skilled or trained in GIS applications	Yes	By contract
Scientist familiar with natural hazards in local area	Yes	By contract
Emergency manager	Yes	Assigned councilmember
Grant writers	Yes	By contract

TABLE 4-4. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your community?	Building Department
Who is your community’s floodplain administrator? (department/position)	None assigned
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	2000
When was the most recent Community Assistance Visit or Community Assistance Contact?	None
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	N/A
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Not at this time.
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	N/A

TABLE 4-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Public Protection	Yes	3	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

4.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 4-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: 0
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: N/A

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Wind		11/2013	No estimate available.
Severe Winter Storm, Ice Storm	DR-4056	01/2012	No estimate available. (Minimal costs for removal of debris from fallen tree limbs.)
Severe Winter Storm, Heavy Snow	DR-1825	12/2008	No estimate available. (Minimal costs for removal of debris from fallen tree limbs and removal of snow.)
High Wind	DR-1682	12/2006	\$18,400
Heavy Rain		1/2006	No estimate available.
Heavy Rain	DR-1499	10/2003	No estimate available.
Heavy Rain		11/2001	No estimate available.
Earthquake (Nisqually)	DR-1361	02/2001	No estimate available. (No measurable damage to Town structures or streets.)
High Wind	DR-981	1/1993	No estimate available. (Minimal costs for removal of debris from fallen tree limbs.)
Severe Winter Storm, Heavy Snow	DR-883	12/1990	No estimate available. (Minimal costs for removal of debris from fallen tree limbs and removal of snow.)
Earthquake		4/1965	No estimate available.
Wind	DR-196	10/1962	No estimate available.

4.5 HAZARD RISK RANKING

Table 4-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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.

4.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 4-8 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 4-9 identifies the priority for each initiative. Table 4-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	51
3	Severe Winter Weather	48
4	Wildfire	45
5	Flood	12
6	Volcano	6
7	Avalanche	0
8	Dam Failure	0
9	Landslide	0
10	Tsunami	0

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
<p>BAV-1—Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following:</p> <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 						
New and Existing	All Hazards	2,4,10,12	Town Council	Low	General Fund	Ongoing
<p>BAV-2—Continue to educate residents on how to prevent loss of life and property damage from earthquakes, storms, and urban wildfires.</p>						
New and existing	All Hazards	4, 6, 7	Town Council	Low	General Fund	Ongoing
<p>BAV-3—Develop a Stormwater Management Comprehensive Plan. This will be accomplished by using a 2009 survey of the Town’s existing stormwater facilities, determining the additional infrastructure needed to upgrade the existing system, and developing a comprehensive plan for implementing the upgrades.</p>						
New and existing	Flood, Severe Storm	1, 2, 4, 12	Town Council	Medium	General Fund, King County Flood Control District grants	Short Term

TABLE 4-8. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
BAV-4 —Partner with a neighboring city for snow removal. This will be accomplished by executing an Interlocal Agreement.						
Existing	Severe Winter Storm	1, 5, 7, 8	Town Council	Low	General Fund	Short Term
BAV-5 —Maintain the Town’s existing inventory of significant trees on Town property, including rights of way, and update as needed. This inventory has resulted in a watch list for monitoring and maintaining the health of trees on public property and minimizes the hazard of dead trees, tree limbs, and fires.						
New and existing	Wildfire, Severe Storm	2, 4, 5, 8, 10	Town Council	Low	General Fund, Wash. State Dept. of Natural Resources grants	Short Term
BAV-6 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New	All Hazards	2,4,8,10	Town Council	Low	General Fund	Short-term
BAV-7 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,9,13	Town Council	High	FEMA grants, Local sources for local Match	Long-term
BAV-8 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	Town Council	Low	General Fund	Ongoing
BAV-9 —Actively participates in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	King County OEM, Town Council	Low	General Fund	Ongoing

**TABLE 4-9.
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
BAV-1	4	Low	Low	Yes	No	Yes	High
BAV-2	3	Low	Low	Yes	No	Yes	High
BAV-3	4	Medium	Medium	Yes	Yes	Yes	High
BAV-4	4	Medium	Low	Yes	No	Yes	High
BAV-5	5	Medium	Low	Yes	Yes	Yes	Medium
BAV-6	4	Medium	Low	Yes	No	Yes	High
BAV-7	3	High	High	Yes	Yes	No	Medium
BAV-8	7	Medium	Low	Yes	No	Yes	High
BAV-9	7	Low	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 4-10.
ANALYSIS OF MITIGATION INITIATIVES**

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

a. See Introduction for explanation of mitigation types.

4.7 ADDITIONAL COMMENTS

While Earthquake ranks as the highest hazard risk in the Town of Beaux Arts Village, the 2001 Nisqually Earthquake did not compromise any public facilities, and damage to private homes was minimal; however it should be noted that this intraslab (or Benioff) earthquake measured M7.0 on the Richter Scale, and its epicenter was 30 miles beneath the surface and centered 100 miles from Beaux Arts Village. It is estimated that an earthquake involving the Cascadia Subduction Zone could measure M9.0 on the Richter Scale, and while the energy released from such a quake would be spread over a large area, the impact on communities throughout the Puget Sound would be considerable. Similarly, an M7.0 crustal earthquake along any of the faults in the Seattle area would have a similar impact, because the epicenter would be much shallower than a subduction or intraslab quake.

The Town has no historical incidences of flooding during Severe Storms, nor are there any flood zones identified within Town boundaries; however, the Town joined the National Flood Insurance Program (NFIP) in 2000 to allow residents to obtain flood insurance, if they felt such insurance was needed. Our geography is such that most stormwater flows through the existing stormwater conveyance system or down the steeper portions of our roads and drains into Lake Washington. In periods of heavy rain, stormwater can temporarily overwhelm this conveyance system, causing the excess water to flow along the unpaved portions of the rights of way and possibly damaging the rights of way or undermining the paved roadway. Stormwater can also flow from the roadway onto private property, causing local ponding in isolated areas. A Stormwater Management Comprehensive Plan will help the Town determine where the existing infrastructure needs improvement and will allow us to prioritize spending to complete these improvements.

Some of the Town's utilities, e.g. electricity, telephone, and cable, are above ground; water and sanitary sewer are underground. It is not uncommon for homes in Beaux Arts Village to lose power during a Severe Storm or Severe Winter Storm due to fallen branches. In addition, these fallen branches create debris on the roadways that must be cleared and disposed of. If the power outage affects the well pump serving the Beaux Arts Water Department, an emergency connection to water from the Bellevue Water Utility automatically opens, ensuring that water customers retain access to a water supply. However, the Water Department incurs a surcharge for the volume of water used that is significantly higher than the cost to deliver water through the normal distribution system.

During a Severe Winter Storm, unplowed snow can make travel on the roads dangerous. The Town has examined ways to address this problem locally, including stockpiling sand to spread on the most affected roads. A partnership with a nearby city to cooperatively remove accumulated snow from roadways will eliminate the hazard to motorists and private structures near the roadways.

Residents in the Town value trees and have enacted rules to protect them and guide their replacement. The Town has a mature urban forest, which may be vulnerable to wildfire, though no such event has occurred in the Town since its development. In 2006, the Town performed an inventory of significant trees on Town rights of way and has continued to update it periodically. Maintaining this inventory will continue to help us monitor the health of all public trees, especially those identified as needing to be watched. Removing dead or dying trees identified in the inventory or by other means will help us mitigate the danger of property damage due to falling limbs and wildfire. Education regarding the value of managing trees on private property will encourage similar stewardship among our residents.



TOWN OF BEAUX ARTS VILLAGE

Critical Facilities and Infrastructure

Critical Facilities

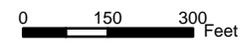
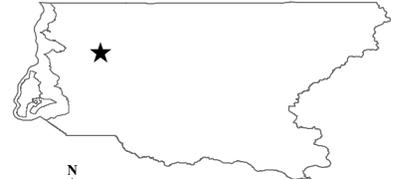
-  Government Function
-  HazMat
-  Medical Care
-  Protective Function
-  Schools
-  Other Facility

Critical Infrastructure

-  Bridges
-  Communications
-  Dams
-  Water Supply
-  Power
-  Transportation
-  Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





TOWN OF BEAUX ARTS VILLAGE

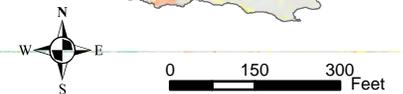
Liquefaction Susceptibility

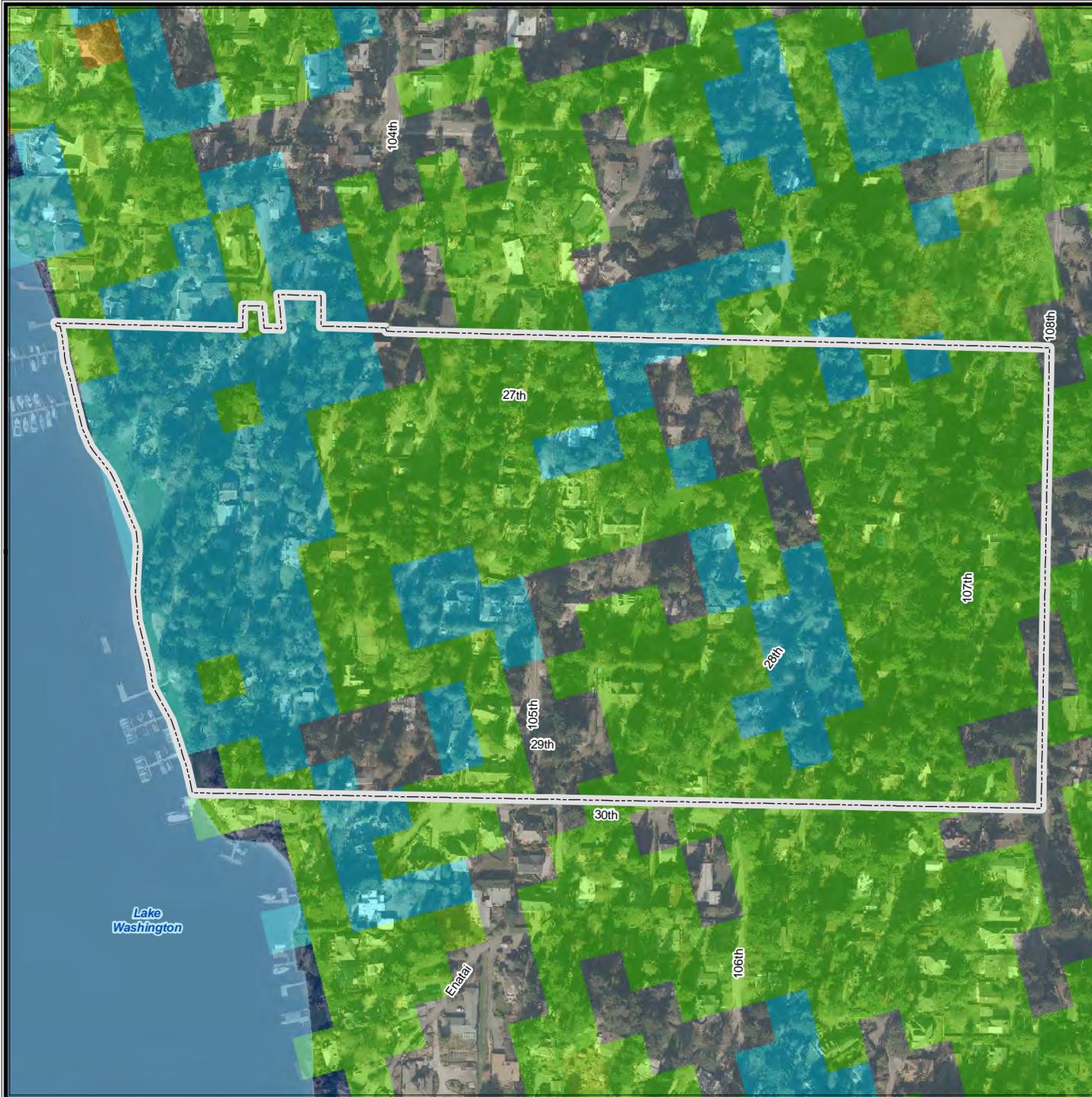
Susceptible		Not Susceptible	
High	Moderate to High	Bedrock	Peat
Moderate	Low to Moderate	Water	Ice
Low	Very Low to Low		
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
King County, U.S. Geological Survey





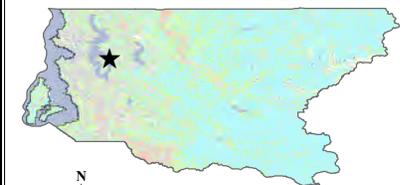
TOWN OF BEAU ARTS VILLAGE

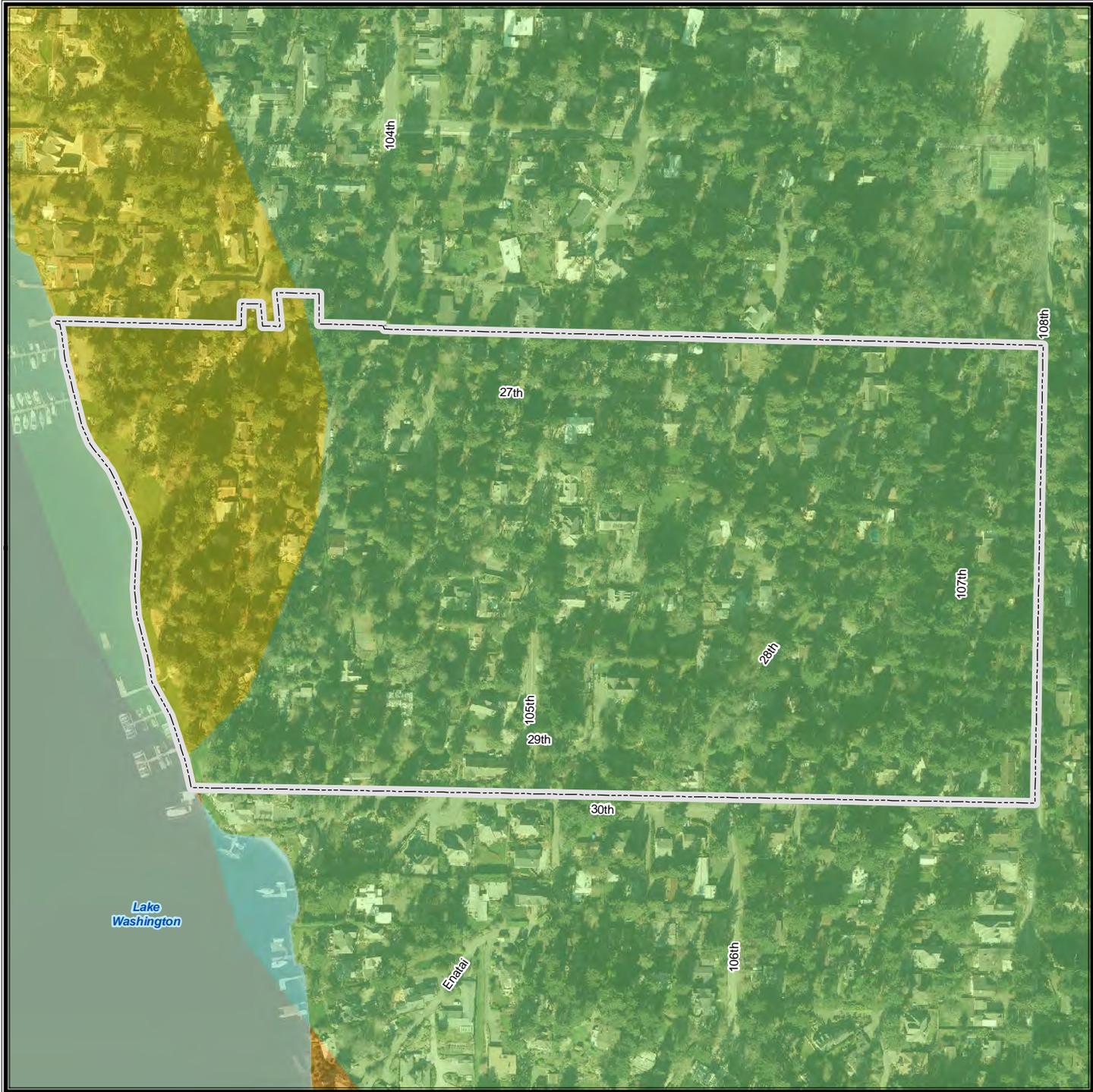
2008 LANDFIRE Fire Behavior Fuel Model Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (If_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey





TOWN OF BEAUX ARTS VILLAGE

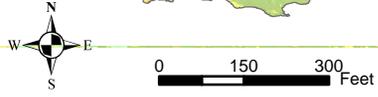
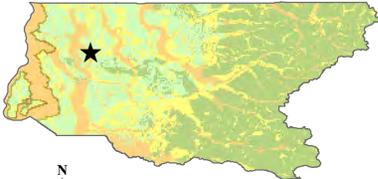
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey



CHAPTER 5. CITY OF BOTHELL UPDATE ANNEX

5.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Jennifer Warmke, Emergency Preparedness Coord.
10726 Beardslee Boulevard
Bothell, WA 98011
Telephone: (425) 486-1678
e-mail Address: jennifer.warmke@ci.bothell.wa.us

Alternate Point of Contact

Bob VanHorne, Fire Chief
10726 Beardslee Boulevard
Bothell, WA 98011
Telephone: (425) 486-1678
e-mail Address: bob.vanhorne@ci.bothell.wa.us

5.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—1909
- **Current Population**—34,460 as of 2013
- **Population Growth**—The City of Bothell population has historically grown at a rate of around 1 percent per year, except when annexations add large numbers of citizens to the City. This overall growth rate is expected to continue, although the planned simultaneous annexation of nine areas of unincorporated King County early in 2014 will add over 6,000 citizens, pushing Bothell’s population over 40,000.
- **Location and Description**—The City of Bothell is in the north central region of King County and the south central region of Snohomish County. It is located on I-405, 12 miles north of Seattle, Washington. The City shares its boundaries with the cities of Woodinville, Kenmore and unincorporated areas of King and Snohomish Counties.

The City of Bothell is unique in that it is located in two counties. The City’s land area is 13.75 square miles with approximately 53 percent in King County and 47 percent in Snohomish County.
- **Brief History**—The City of Bothell was incorporated in 1909. Since the first settlers arrived in the late 1800s, Bothell has evolved from a logging camp to an agricultural community to a bedroom suburb to a balanced city with well-established residential areas and thriving retail and employment centers. The historic downtown is the home of the Bothell City Hall, Bothell Police Department, Bothell Downtown Fire Station and other City administrative offices.
- **Climate**—Bothell has a similar climate to the general Puget Sound region. Occasionally it does experience a variety of weather conditions because of its location in a Convergence Zone. The temperature tends to hover around 40.8 F in January, and 65.2 F in July. Bothell receives 35.96 inches of rain each year.
- **Governing Body Format**—The basic structure of decision-making in the City consists of a seven-member elected City Council that will assume responsibility for adopting the Hazard Mitigation Plan. The Emergency Preparedness Coordinator assists the City departments in the development and implementation of the Hazard Mitigation Plan.

- Development Trends**—As of this 2014 update, Bothell is experiencing extensive detached single family residential development throughout the City, as well as substantial mixed-use and institutional redevelopment in and around downtown. This development is catalyzed by public roadway and other capital projects. The downtown redevelopment is expected to remain robust at least through 2016.

5.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 5-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 5-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 5-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 5-4. Classifications under various community mitigation programs are presented in Table 5-5.

TABLE 5-1. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	Yes	Yes	BMC Title 20, last updated by Ord. 2124 (7/16/2013)
Zoning	Yes	No	Yes	Yes	BMC Title 12, last updated by Ord. 2123 (7/16/2013)
Subdivisions	Yes	No	Yes	Yes	BMC Title 15, last updated by Ord. 2123 (7/16/2013)
Stormwater Management	Yes	No	Yes	Yes	BMC Title 18, last updated by Ord. 2023 (6/16/2009)
Post Disaster Recovery	Yes	No	No	No	In CEMP (see below)
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	Yes	Yes	BMC Titles 11 – 22, last updated by Ord. 2124 (7/16/2013)
Site Plan Review	Yes	No	Yes	Yes	BMC Title 12, last updated by Ord. 2123 (7/16/2013)
Public Health and Safety	No	No	Yes	Yes	Seattle-King County, RMC policy and procedure. Some state mandates on public safety.
Environmental Protection	Yes	No	Yes	Yes	BMC Title 14, last updated by Ord. 2102 (10/16/2012)
Planning Documents					
General or Comprehensive Plan	Yes	No	Yes	Yes	<i>Imagine Bothell</i> Comprehensive Plan, last updated by Ord. 2112 (3/19/2013)
	<i>Is the plan equipped to provide linkage to this mitigation plan?</i>				Yes
Floodplain or Basin Plan	No	No	Yes	No	King County Flood Control District Plan

**TABLE 5-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Stormwater Plan	Yes	No	Yes	Yes	Bothell Surface Water Management Plan, last updated 2012 (no Ord. or Res.)
Capital Improvement Plan	Yes	No	No	No	2013 – 19 Bothell Capital Facilities Plan, last updated by Res. 1292 (10/16/2012)
	<i>What types of capital facilities does the plan address?</i>				Facilities, Parks, Water, Sewer, Transportation, Storm
	<i>How often is the plan revised/updated?</i>				every 2 years
Habitat Conservation Plan	Yes	No	Yes	Yes	Natural Environment, Land Use and Shoreline Management elements of Comprehensive Plan, last updated by Ord. 2112 (3/19/2013)
Economic Development Plan	Yes	No	Yes	Yes	Economic Development Element of Comprehensive Plan, last updated by Ord. 1942 (12/27/2004)
Shoreline Management Plan	Yes	No	Yes	Yes	Shoreline Management Element of Comprehensive Plan, last updated by Ord. 2112 (3/19/2013)
Community Wildfire Protection Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	Yes	Resolution 1215 (4/1/08)
Threat and Hazard Identification and Risk Assessment	Yes	No	No	No	Hazard Mitigation Plan Resolution 1256 (6/1/10)
Terrorism Plan	Yes	No	No	No	Annex to current CEMP
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	No	No	No	No	Draft plan continues to evolve, not formally adopted by Council
Public Health Plans	No	No	Yes	No	Agreement with Seattle/King County. Have Emergency Support Function 8 of CEMP that addresses in part.

TABLE 5-2. 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 – Water & Sewer
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	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes

TABLE 5-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Community Development Department planners Public Works Department civil engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Department, Civil Engineers, Community Development Department building plans examiners and building inspectors
Planners or engineers with an understanding of natural hazards	Yes	Community Development Department planners Public Works Department civil engineers
Staff with training in benefit/cost analysis	Yes	Various Departments
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	Executive/Information Services/GIS Specialists
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire/Emergency Preparedness Coordinator
Grant writers	Yes	Various Departments

TABLE 5-4. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your community?	Public Works
Who is your community’s floodplain administrator? (department/position)	Public Works Director
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	Ordinance 1946 July, 2005.
When was the most recent Community Assistance Visit or Community Assistance Contact?	October 4, 2012
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No, not interested at this time

TABLE 5-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	2	Not available
Public Protection	Yes	3	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

5.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 5-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: None
- Number of FEMA-Identified Severe Repetitive Loss Properties: None
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: Not applicable

**TABLE 5-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Windstorm	1079	11/7/95	n/a
Winter Storm	1100	2/9/96	n/a
Y2K		1999-2000	n/a
Nisqually Quake	1361	2/28/01	n/a
Severe Weather	1682	12/14-15, 2006	\$73,808
Flooding	1734	12/1-17, 2007	\$187,750
Severe Weather	1825	12/12/08-1/5/09	\$361,000

5.5 HAZARD RISK RANKING

Table 5-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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 5-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	51
3	Severe Winter Weather	51
4	Flood	24
5	Landslide	20
6	Wildfire	9
7	Dam Failure	5
8	Volcano (Ash Fall)	3
9	Avalanche	0
10	Tsunami	0

Note: Hazard Risk Ranking for the City of Bothell was completed before the February 28, 2014 Annexation.

5.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 5-8 summarizes the initiatives that were recommended in the previous version of the hazard mitigation plan and their implementation status at the time this update was prepared.

**TABLE 5-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
BO-1		✓		BO-1
BO-2		✓		BO-2
BO-3		✓		BO-3
BO-4	✓			Project completed in 2009
BO-5		✓		Now BO-4
BO-6	✓			Project completed in February 2012
BO-7			✓	Action no longer considered but replaced with a new initiative to pursue inter-tie with adjacent Alderwood Water District.
BO-8	✓			Project completed in June 2012
BO-9			✓	Action no longer considered feasible due to lack of funding and City financial capacity to complete action.
BO-10			✓	Station was remodeled in 2009. No further action is to be taken on this.
BO-11		✓		Now BO-15
BO-12		✓		Now BO-5
BO-13		✓		Now BO-6
BO-14			✓	This initiative is related to improving safety along the existing shoulders of roadways and not truly a hazard mitigation plan initiative.
BO-15		✓		Now BO-7
BO-16		✓		Now BO-8
BO-17		✓		Now BO-9
BO-18		✓		Now BO-10
BO-19	✓			Project completed in 2007
BO-20	✓			Project completed in 2006
BO-21	✓			Project completed in 2010
BO-22	✓			Project completed in 2008
BO-23			✓	A new City Hall is being built and at this point no further action is to be taken on this.
BO-24		✓		Now BO-11
BO-25	✓			Built a new Public Works Operations Center in 2010.

5.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 5-9 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 5-10 identifies the priority for each initiative. Table 5-11 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 5-9. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
BO-1 —Provide seismic values, security barriers and improve notification and response to Morningside Reservoir and Booster Station							
Existing	Severe Weather, Power Failure	1,3,8	Public Works	Low	Utility	Ongoing	Yes
BO-2 —Rehabilitate City bridges for preservation and maintaining the existing integrity for safe use. Rehabs may include seismic and safety improvements.							
Existing	Flooding, Earthquake, Severe Weather	1,5	Public Works	Low	Street	Ongoing	Yes
BO-3 —Installation of backup power supply and alarm system at Maywood water pump station.							
Existing	Severe weather, Earthquake	1,5	Public Works	Low	Utility	2015	Yes
BO-4 —This project realigns SR 522 one block to the south to create a new streamlined “T” intersection at SR 527. SR 527 and 98th Avenue NE are extended south from Main Street to the new SR 522 realignment. The roadway provides two lanes in each direction with left turn lanes as necessary, sidewalks, intersection improvements, traffic signals, utilities, lightning, and landscaping. Completion of this project will aid the city in facilitating evacuation during hazards events as well as retrofitting critical infrastructure.							
Existing & new	Severe weather, earthquake	1, 2	Public Works	\$55 M High	Capital	2013	Yes
BO-5 —Provide disaster preparedness and awareness education to the general public and businesses within the community.							
Existing	All Hazard	8,11,13,14, 15	Fire	\$2,480 Low	General Budget	Ongoing	Yes
BO-6 —To provide funding for immediate action to address landslides, erosion, deterioration, vandalism and spot hazardous locations.							
Existing	Landslides, Earthquake	1,5	Public Works	Low	General Fund	Short Term	Yes
BO-7 —This project will provide capacity and safety improvements and include roadway widening to a five lane roadway with intermittent median landscaping, bicycle lanes, curb, gutter, and sidewalk.							
New & Existing	Severe weather, earthquake	1,2	Public Works	\$8.7 M	Capital	2013	Yes

**TABLE 5-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
BO-8 —Intersection improvements at SR 524 and widening the roadway in the southbound direction from two to three lanes from SR 524 to about 500 ft north of 220th St SE.							
Existing	Severe weather, earthquake	1,2	Public Works	\$6.8 M	Capital	Long Term	Yes
BO-9 —Intended to address the safety and access concerns on SR 524 between SR 527 and 39th Ave SE. Access improvements will be limited to roadway widening to provide for left turn pockets and improve sight distances.							
Existing	Severe weather, earthquake	1,2	Public Works	\$8.4 M	Capital	Long Term	Yes
BO-10 —The Multiway Boulevard will consist of four travel lanes, a left turn lane, two side landscape medians, two side lanes with parking and wide sidewalk.							
New & Existing	Severe weather, earthquake	1,2	Public Works	\$27 M	Capital	Long Term	Yes
BO-11 —Redevelopment of well field for primary self-sustaining source water, and provide seismic upgrades to tank located at well -field site.							
New & Existing	Earthquake	1, 2	Public Works	\$2.0 M	Utility	Short Term	Yes
BO-12 —Replace the existing Sammamish River Bridge over Sammamish River on 96th Ave NE							
New & Existing	Earthquake	1,2,5	Public Works	\$4.8 M	Capital	Short Term	No
BO-13 —Widen SR 522 segment newly annexed into the City of Bothell between current city limits and City of Kenmore to provide continuous Business Access and Transit lane in both direction, sidewalk on the north side of the highway and other related street improvements.							
New & Existing	Severe weather, earthquake	1,2	Public Works	\$45 M	Capital	Long Term	No
BO-14 —Upgrade an existing Horse Creek Pipeline in the downtown area with a hybrid open channel/ pipe system.							
New & Existing	Flooding	1,2	Public Works	\$15 M	Utility	2014	No
BO-15 - Consolidate four critical facilities into one facility that enhances the ability to better service the general public and businesses within the community.							
New	All hazards	1,3,9	Public Works	High	Capital	Short term	Yes

**TABLE 5-9.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
BO-16 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 							
New and existing	Flood	2,4,10,12	Public Works	Low	General Fund	Ongoing	No
BO-17 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.							
Existing	All Hazards	5,7,9	City of Bothell	High	FEMA Grant funding, local match	Long-term	No
BO-18 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.							
New and Existing	All Hazards	2,4,10	Planning	Low	General Fund	Short term	No
BO-19 —Continue to support the county-wide initiatives identified in this plan.							
New and Existing	All Hazards	4,6,11,12,1 3, 14, 15	City of Bothell	Low	General Fund	Short term	No
BO-20 —Actively participates in the plan maintenance strategy identified in this plan.							
New and Existing	All Hazards	4,6,11,12,1 3, 14, 15	City of Bothell	Low	General fund	Short term	No

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

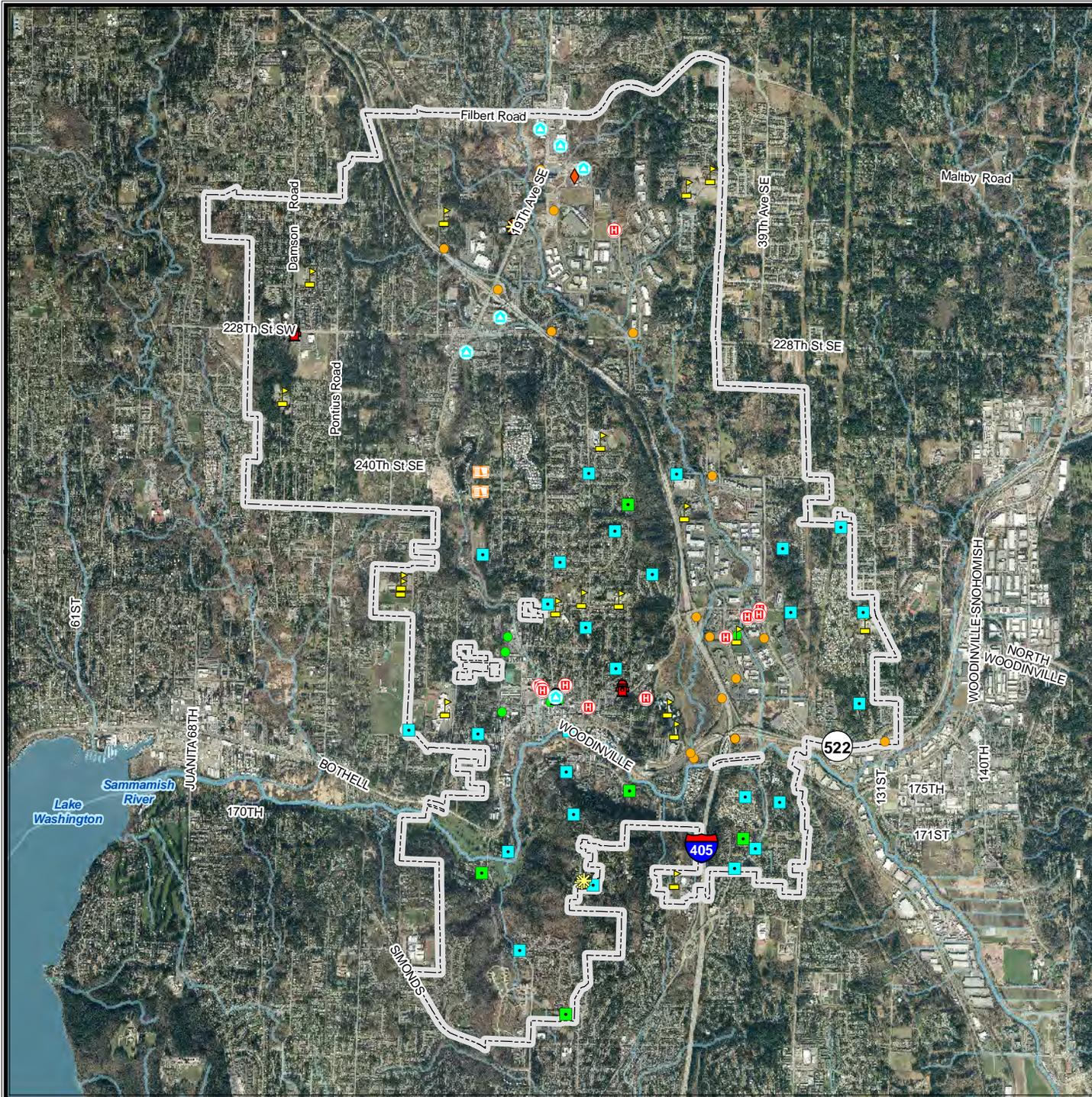
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority ^a
BO-1	3	High	Low	Yes	Yes	Yes	High
BO-2	2	High	Low	Yes	Yes	Yes	High
BO-3	2	High	Low	Yes	Yes	Yes	High
BO-4	2	High	High	Yes	Yes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

a. See Introduction for explanation of priorities.

**TABLE 5-11.
ANALYSIS OF MITIGATION INITIATIVES**

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

a. See Introduction for explanation of mitigation types.



CITY OF BOTHELL

Critical Facilities and Infrastructure

Critical Facilities

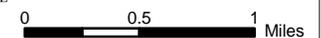
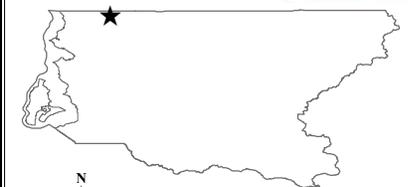
- Government Function
- HazMat
- Medical Care
- Protective Function
- Schools
- Other Facility

Critical Infrastructure

- Bridges
- Communications
- Dams
- Water Supply
- Power
- Transportation
- Wastewater

Locations are approximate.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology



CITY OF BOTHELL

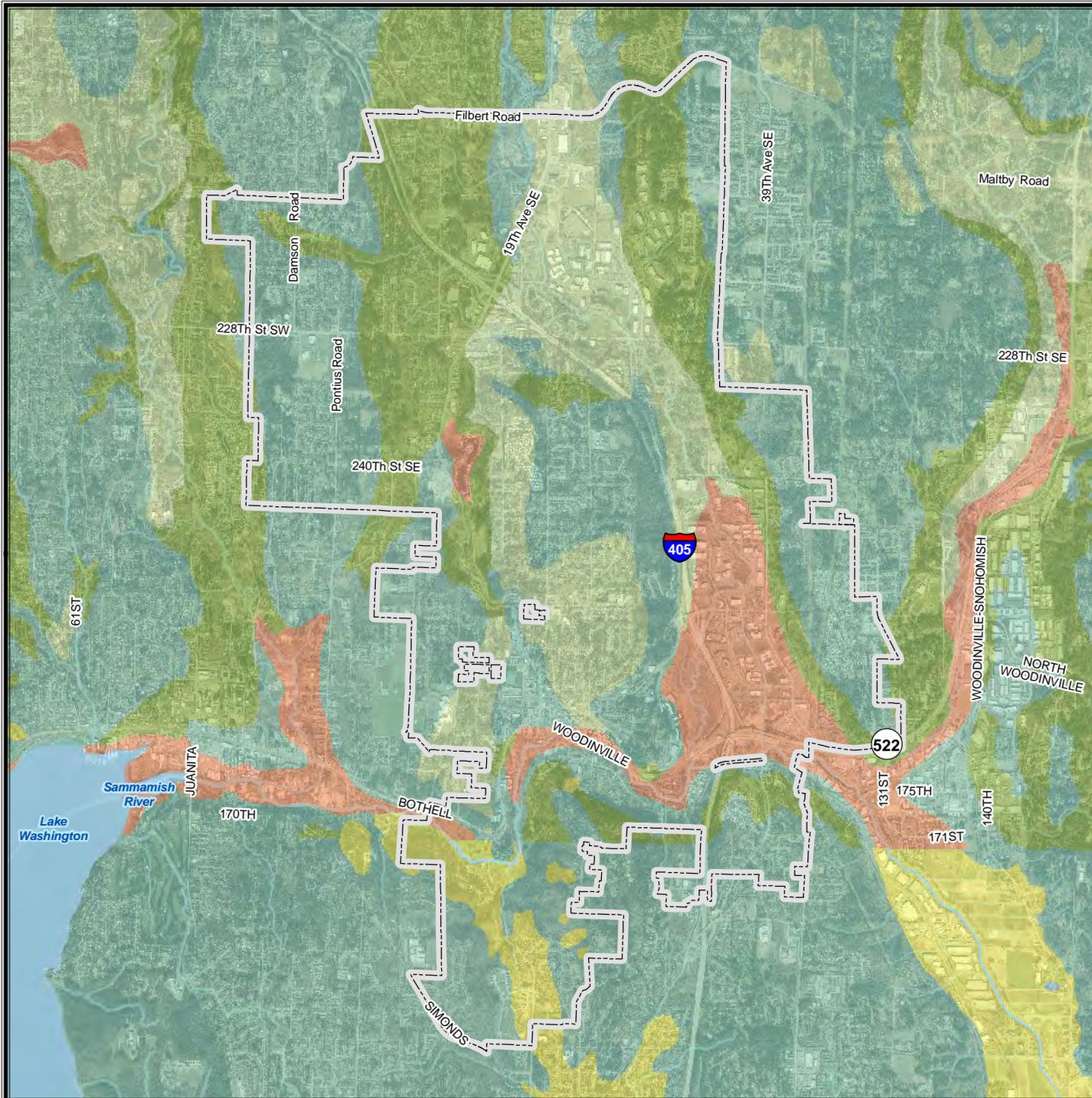
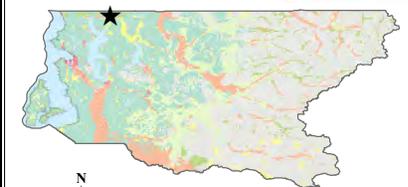
Liquefaction Susceptibility

Susceptible		Not Susceptible	
High	Moderate to High	Bedrock	Peat
Moderate	Low to Moderate	Water	Ice
Low	Very Low to Low		
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology



CITY OF BOTHELL

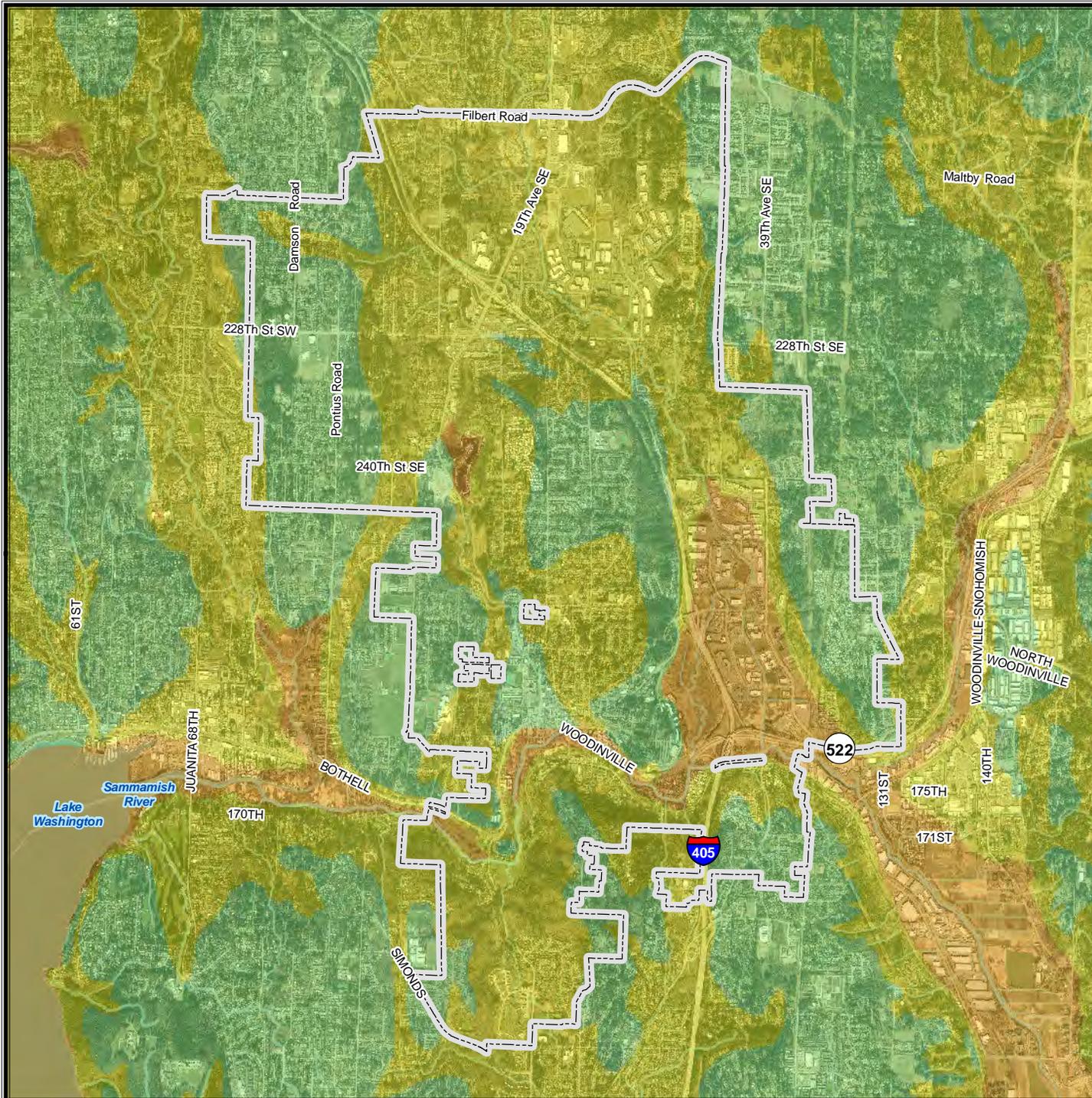
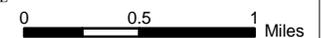
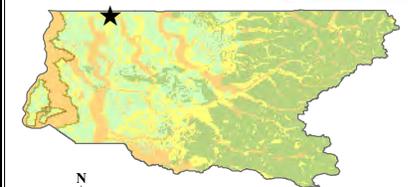
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

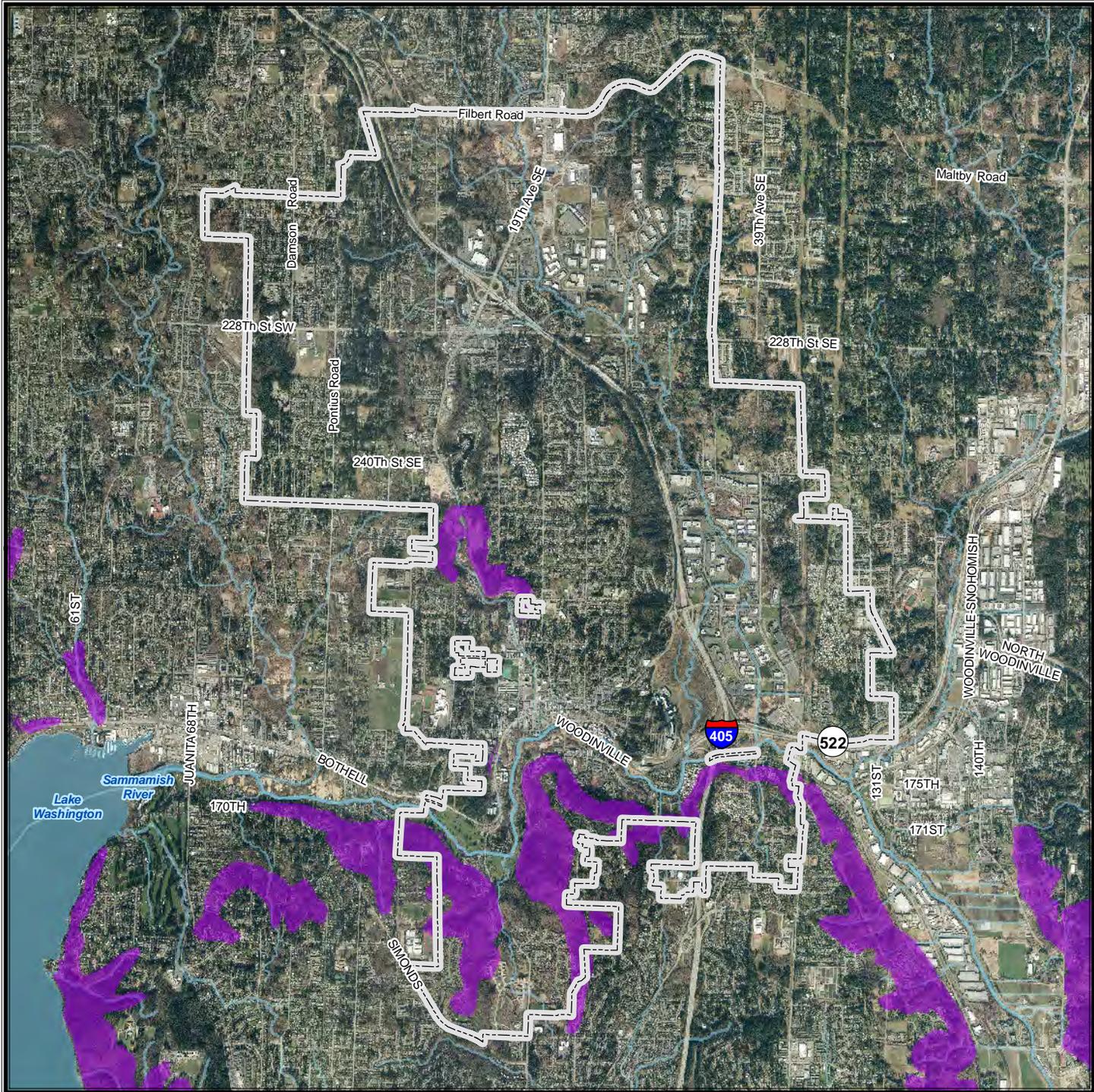
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF BOTHELL

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance:

A. Any area with a combination of:

1. Slopes greater than 15%
2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
3. Springs or groundwater seepage.

B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.

C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by wave action.

D. Any area that shows evidence of, or is at risk from, snow avalanches.

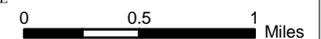
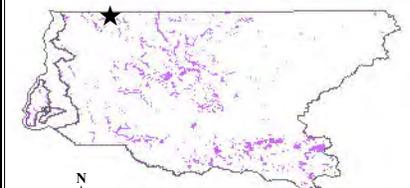
E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

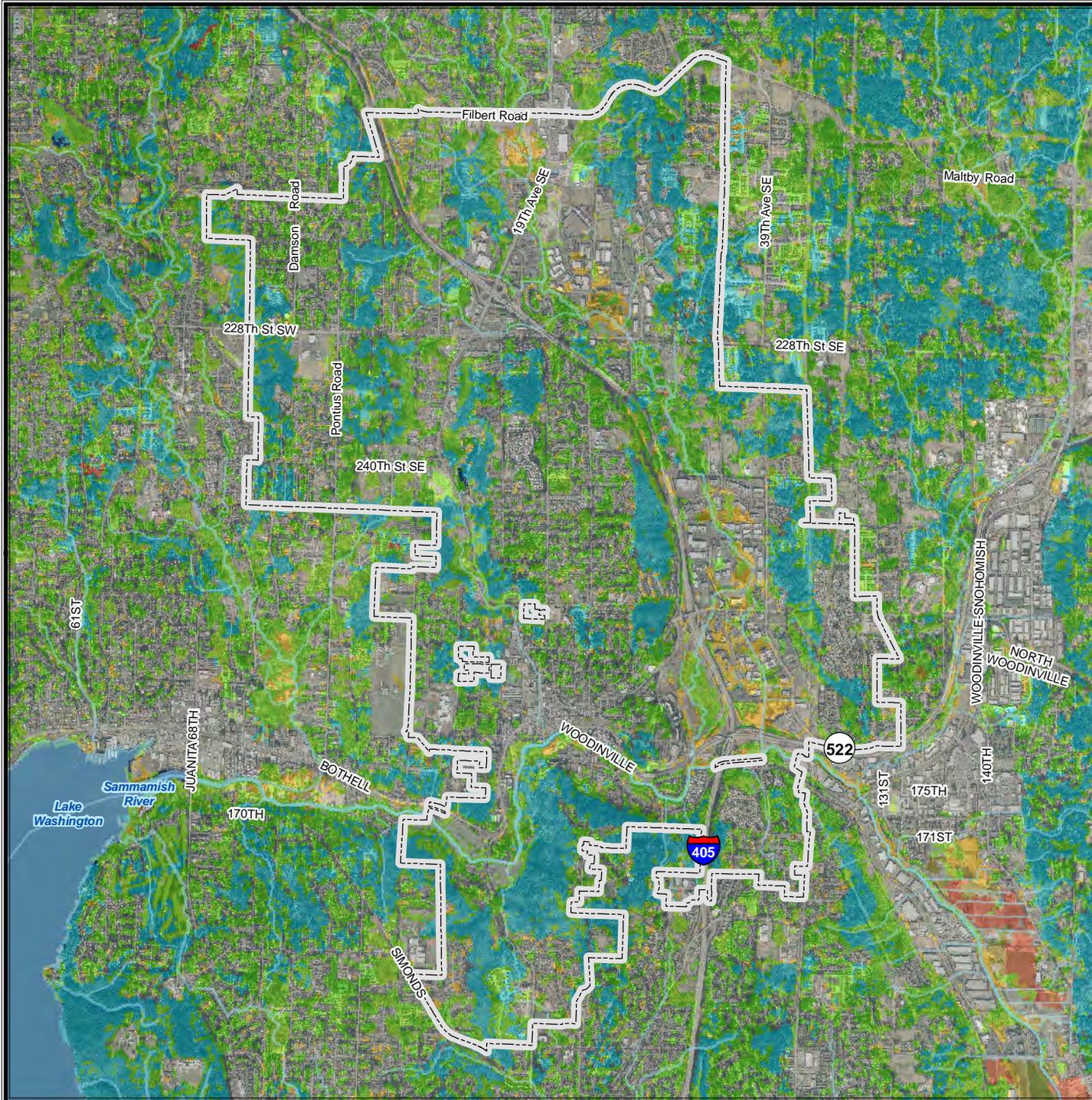
Slope/Soils Analysis:

1. Areas of slope greater than 40%. Slope determined using a DEM generated during the 2002 LiDAR data. Slope data provided by King County DNR.

2. Areas of Qf (alluvial fans), Ql (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNR.

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology





CITY OF BOTHELL

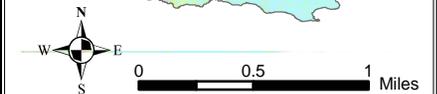
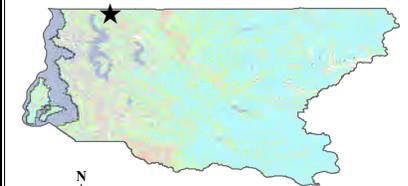
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (if 1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of

Base Map Data Sources: King County, U.S. Geological Survey, WA Department of Ecology



CHAPTER 6. CITY OF BURIEN ANNEX

6.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Nhan Nguyen, Management Analyst
400 SW 152nd Street, Suite 300
Burien, WA 98166
Telephone: 206-439-3165
e-mail Address: nhann@burienwa.gov

Alternate Point of Contact

Maiya Andrews, Public Works Director
400 SW 152nd Street, Suite 300
Burien, WA 98166
Telephone: 206-248-5514
e-mail Address: maiyaa@burienwa.gov

6.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—February 28, 1993
- **Current Population**—48,030 as of April, 2013
- **Population Growth**—Less than 1% the past couple years. We expect the same trend to continue for at least a few years.
- **Location and Description**—Burien is located south of West Seattle, north of City of Normandy Park, west of City of SeaTac and east of Vashon Island. It is a 100-year-old waterfront community with six miles of Puget Sound shoreline. Burien is located at the intersection of two major shipping and transportation routes, State Route 509 and State Route 518, and is also located immediately to the west of SeaTac International Airport. Primarily a residential community, a significant percentage of Burien’s housing is located on or adjacent to steep slopes overlooking the Puget Sound shoreline.
- **Brief History**—The City of Burien was incorporated in 1993 and consists of 6.4 square miles with a population of 31,881 according to the 2000 US Census. The City annexed the area known as north Burien in 2010 from the 2009 election vote, adding 2.6 square miles and approximately 14,000 people.
- **Climate**—Burien has a Mediterranean climate with dry warm summers and mild winters. Over the course of the year, the temperature typically varies from 36°F to 78°F and is rarely below 27°F or above 87°F. The warm season lasts from June 22 to September 12 and cold season last from November 13 to March 2.
- **Governing Body Format**—The City Council assumes the responsibility for the adoption of the plan; the City staff will oversee its implementation.
- **Development Trends**—Puget Sound Regional Council has designated Burien as one of 25 Regional Growth Centers that will experience focused urban growth in the decades ahead. Current businesses include numerous health care, auto dealer, restaurant, and other services that support a growing population.

6.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 6-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 6-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 6-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 6-4. Classifications under various community mitigation programs are presented in Table 6-5.

TABLE 6-1. 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	BMC 15, adopted 2010
Zoning	Yes	No	No	No	Yes BMC 19, adopted 2013
Subdivisions	Yes	No	No	No	Yes BMC 17, adopted 2013
Stormwater Management	Yes	No	No	Yes	Yes BMC 13, adopted 2013
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	No	Yes	Comprehensive Plan, adopted April 2013
Site Plan Review	Yes	No	No	No	BMC 17, adopted 2013
Public Health and Safety	Yes	No	No	No	Public health and safety component of Comprehensive plan, 2013
Environmental Protection	Yes	No	No	Yes	BMC 14 and 19, adopted 2013
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	Comp plan includes a Sustainability element will would provide good point for linkage to Hazard Mitigation Plan.
<i>Is the plan equipped to provide linkage to this mitigation plan?</i> Yes					
Floodplain or Basin Plan (PW)	No	No	Yes	No	King County Flood Control District Plan
Stormwater Plan (PW)	Yes	No	No	No	March 15, 2013
Capital Improvement Plan	Yes	No	No	No	CIP element in Comprehensive Plan
<i>What types of capital facilities does the plan address?</i> Transportation, Stormwater, Parks, Facilities					
<i>How often is the plan revised/updated?</i> Biennially					
Habitat Conservation Plan	No	No	No	No	

TABLE 6-1. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Economic Development Plan	Yes	No	No	No	Economic development element in Comp plan
Shoreline Management Plan	Yes	No	No	Yes	October 3, 2013
Community Wildfire Protection Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	No	
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	King County OEM
Terrorism Plan	No	No	Yes	No	King County OEM
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	Yes	No	No	No	
Public Health Plans	Yes	No	No	No	

TABLE 6-2. FISCAL CAPABILITY	
Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	No
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes
User Fees for Water, Sewer, Gas or Electric Service	No
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes
Incur Debt through Private Activity Bonds	No
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Yes (if mitigation is grant-eligible)
Development Impact Fees for Homebuyers or Developers	No
Other	Yes

**TABLE 6-3.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Public Works and Community Development/Planners and Engineers
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works and Community Development/Engineers and Building Inspectors
Planners or engineers with an understanding of natural hazards	Yes	Public Works and Community Development/Engineers and Planners
Staff with training in benefit/cost analysis	Yes	
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	
Scientist familiar with natural hazards in local area	Yes	Contractor support
Emergency manager	Yes	
Grant writers	Yes	

**TABLE 6-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	Community Development
Who is your community's floodplain administrator? (department/position)	Jan Vogee, Building Official
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	1993, updated 1999, 2003, 2004
When was the most recent Community Assistance Visit or Community Assistance Contact?	July 2, 2004
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	No
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	3	Not available
Public Protection	Yes	4	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

6.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

- Number of FEMA-Identified Repetitive Loss Properties: *Six (6)*
- Number of FEMA-Identified Severe Repetitive Loss Properties: *None*
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: *None*

6.5 HAZARD RISK RANKING

Table 6-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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.

6.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 6-8 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 6-9 identifies the priority for each initiative. Table 6-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 6-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm, Flood, Landslides, and Mudslides	4056	1/14-1/23 -2012	\$155,000
Severe Winter Storm and Near Record Snow	1825	3/2/2009	0
Severe Winter Storm, Landslides, Mudslides and Flooding	1817	1/30/2009	0
Severe Storms, Flooding, Landslides and Mudslides	1734	12/8/2007	\$174,611
Severe Winter Storm, Landslides and Mudslides	1682	2/14/2007	\$240,056
Severe Storms, Flooding, Landslides and Mudslides	1671	12/12/2006	0
Severe Storms, Flooding, Tidal Surge, Landslides and Mudslides	1641	5/17/2006	0
Severe Storms and Flooding	1499	11/7/2003	0
Earthquake	1361	3/1/2001	\$17,585
Flooding	1252	10/5/1998	0
Severe Storms, Flooding, Landslides, and Mudslides	1172	4/2/1997	0
Severe Winter Storms and Flooding	1159	1/17/1997	\$146,817
Ice and Snow Storms	1152	1/7/1997	0
Severe Storms and Flooding	1100	2/9/1996	\$291,094
Storms, High Winds and Floods	1079	1/3/1996	\$33,448
Severe Storm and High Winds	981	3/4/1993	No records

**TABLE 6-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	48
3	Severe Winter Weather	48
4	Flood	12
5	Landslide	12
6	Volcano	7
7	Tsunami	6
8	Wildfire	6
9	Avalanche	0
10	Dam Failure	0

**TABLE 6-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #BU-1 —Have a structural engineering firm evaluate Burien Community Center and make recommendation on necessary retrofits for continued functionality as an essential facility or replacement of the facility. The Community Center is a key component of the City infrastructure dedicated to coordinating response and recovery following a disaster. Loss of the Community Center would mean that government services would not be available and the building could not function as an emergency shelter and recovery services could not be offered at this location.						
New	Earthquake, High Winds and Winter Storms	1, 5, 8, 9, 12	Public Works	\$50,000 High	CIP, Grants	Short-term Ongoing
Initiative #BU-2 —Provide standby power generator sufficient to operate critical systems at Burien Community Center in event of loss of electrical power. During a power failure the Community Center would not be able to function. Government services would not be available and recovery services could not be provided at this location.						
New	All Hazards	1, 5, 8, 9, 12	City of Burien	\$100,000 High	General Fund, Department of Homeland Security/ FEMA grants	Short-term Ongoing
Initiative #BU-3 —Pursue the design and construction of a Public Works Maintenance Facility to include an Emergency Operations Center. Currently, the Public Works Maintenance staff is housed in a rental facility that has limited space; this restricts the speed at which staff can respond to emergencies. Having a facility that has space for material staging (including salt, sand, temporary asphalt and aggregates), space to house our Eductor truck (currently stored in the City of SeaTac), and other equipment with room to remove plows and prepare rigs for the environmental conditions will greatly improve the speed and efficiency of our crew during an emergency response. The cost for the facility (without land) is estimated to be between \$11 and \$16 million. A suitable site will have to be acquired as well.						
New	All Hazards	1, 5, 8, 9, 12	City of Burien	\$11-16 Million High	EOC Grants, CIP	Long-term
Initiative #BU-4 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,9,13	City of Burien	High	FEMA grants	Long-term
Initiative #BU-5 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New	All Hazards	2,4,8,10	Community Development	Low	General Fund	Short-term

**TABLE 6-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
Initiative #BU-6 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 						
New and Existing	Flood	2,4,10,12	Community Development	Low	General Fund	Ongoing
Initiative #BU-7 —Consider participation in incentive based programs such as the CRS, Firewise and StormReady						
New and Existing	Flood, Severe Weather, Firewise	2,3,4,6,10,13	Community Development	Low	General Fund	Long-term
Initiative #BU-8 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Burien	Low	General Fund	Ongoing
Initiative #BU-9 —Actively participate in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Burien	Low	General Fund	Ongoing

**TABLE 6-9.
MITIGATION STRATEGY PRIORITY SCHEDULE**

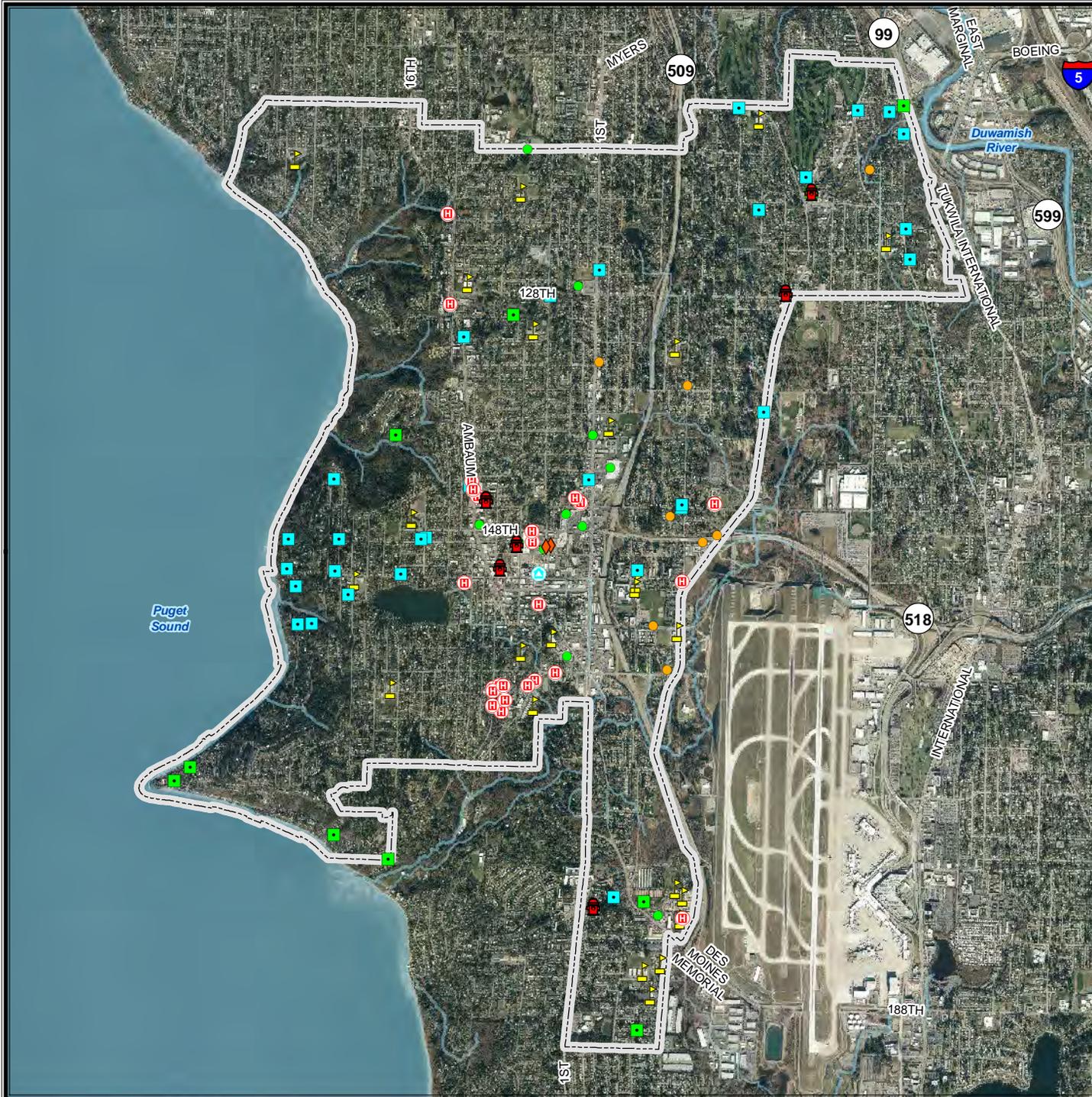
Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority ^a
BU-1	5	High	Low	Yes	Yes	No	Medium
BU-2	5	High	Medium	Yes	Yes	No	Medium
BU-3	5	High	High	Yes	Yes	No	Medium
BU-4	3	High	High	Yes	Yes	None	Medium
BU-5	4	Medium	Low	Yes	No	Yes	High
BU-6	4	Medium	Low	Yes	No	Yes	High
BU-7	6	Medium	Low	Yes	No	No	Medium
BU-8	7	High	Low	Yes	No	Yes	High
BU-9	7	Medium	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

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

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

a. See Introduction for explanation of mitigation types.



CITY OF BURIEN

Critical Facilities and Infrastructure

Critical Facilities

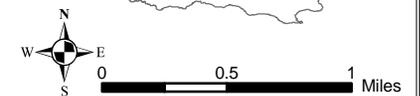
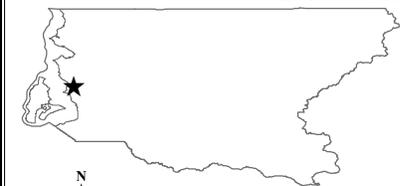
- Government Function
- HazMat
- Medical Care
- Protective Function
- Schools
- Other Facility

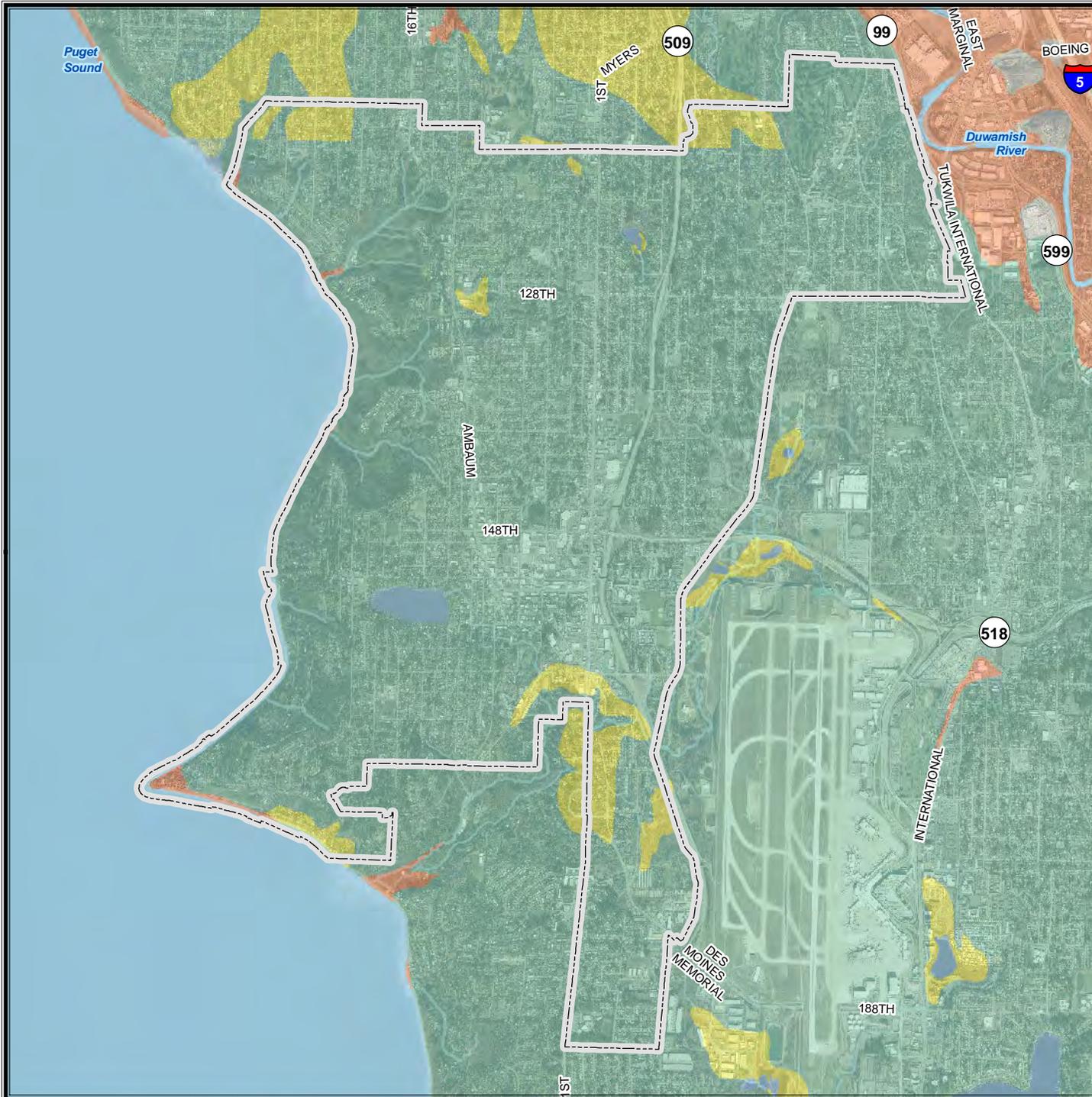
Critical Infrastructure

- Bridges
- Communications
- Dams
- Water Supply
- Power
- Transportation
- Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF BURIEN

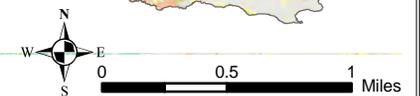
Liquefaction Susceptibility

Susceptible		Not Susceptible	
■ High	■ Bedrock	■ Peat	■ Water
■ Moderate to High		■ Ice	
■ Moderate			
■ Low to Moderate			
■ Low			
■ Very Low to Low			
■ Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF BURIEN

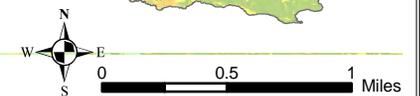
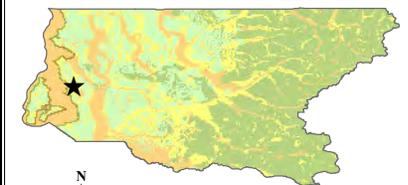
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

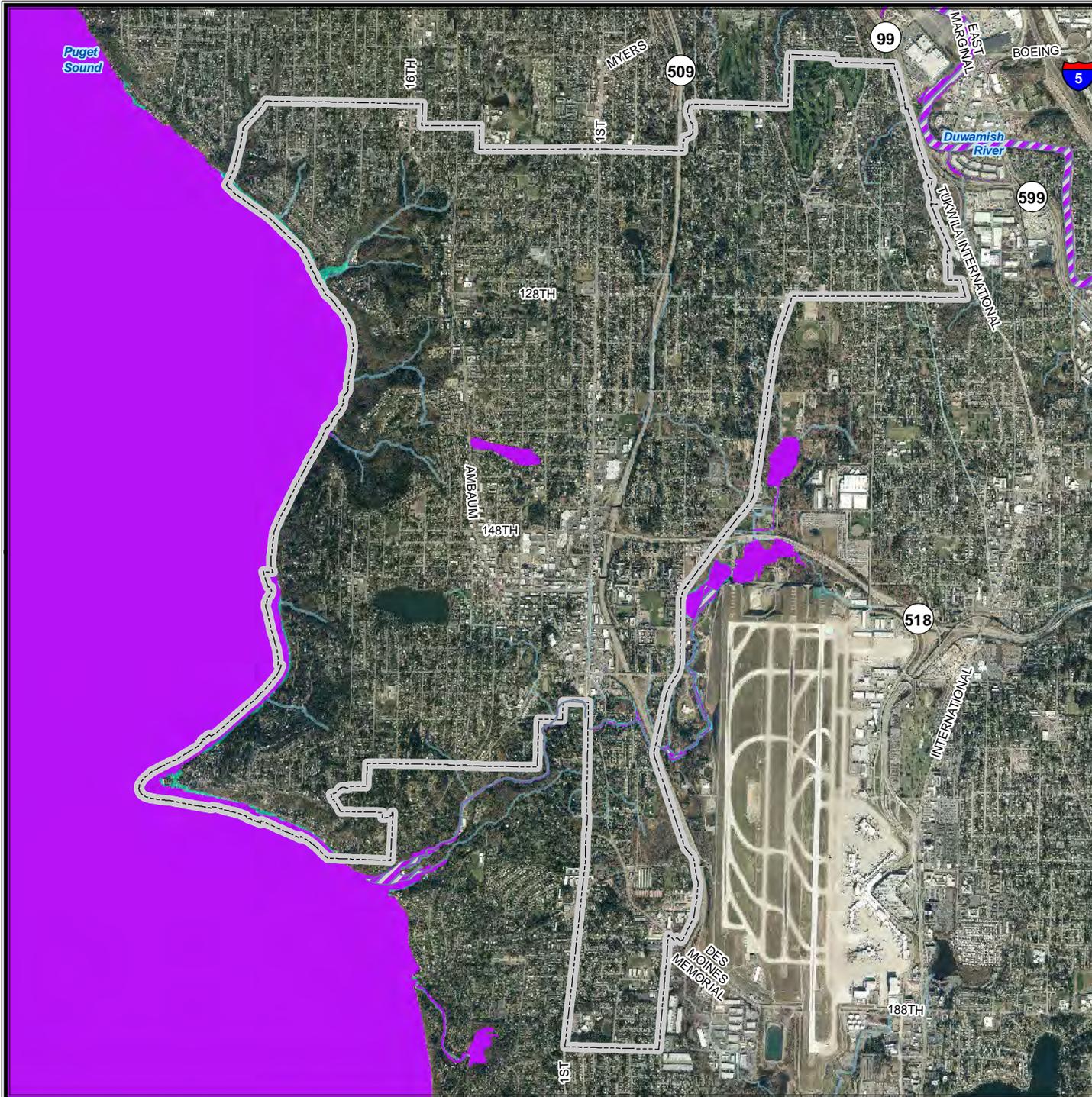
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF BURIEN

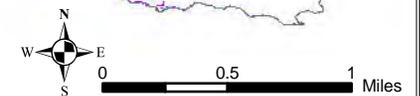
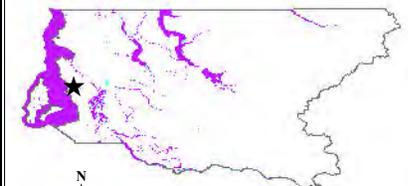
FEMA DFIRM Flood Hazard Areas

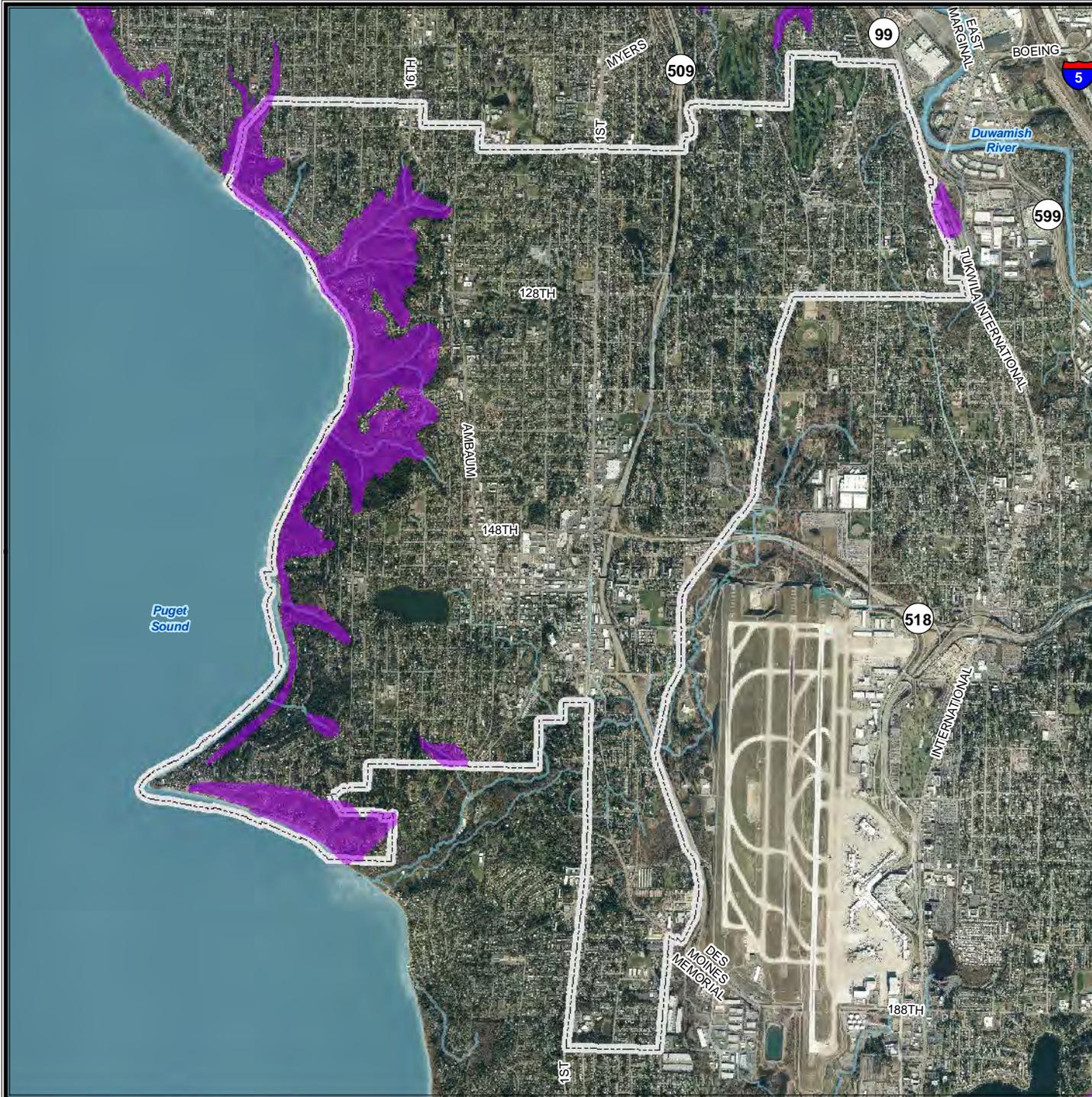
-  Floodway
-  1 Percent Annual Flood Hazard
-  0.2 Percent Annual Flood Hazard

Flood hazard areas as depicted on draft FEMA Digital Flood Insurance Rate Maps (DFIRM).

The 1 percent annual flood hazard is commonly referred to as the 100 year floodplain. The 0.2 percent annual flood hazard is commonly referred to as the 500 year floodplain.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF BURIEN

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

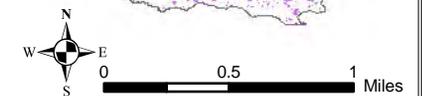
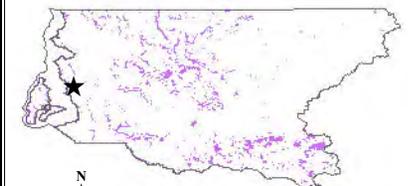
- A. Any area with a combination of:
 1. Slopes greater than 15 %
 2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
 3. Springs or groundwater seepage.
- B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.
- C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by wave action.
- D. Any area that shows evidence of, or is at risk from, snow avalanches.
- E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

Slope/Soils Analysis:

1. Areas of slope greater than 40%. Slope determined using a DEM generated from 2002 LiDAR data. Slope data provided by King County DNRP.
2. Areas of Qf (alluvial fans), Qls (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNRP.

Base Map Data Sources:

King County, U.S. Geological Survey





CITY OF BURIEN

Lahar Hazards (Puyallup Valley)

- Case 1 - Large Lahars
- Case 2 - Moderate Lahars
- Post-Lahar Sedimentation

Lahar hazards data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. These data were produced as part of a project to estimate the potential economic losses from future eruptions of Mount Rainier.

Case 1 - Large Lahars (Recurrence Interval 500–1000 Years)

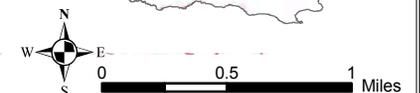
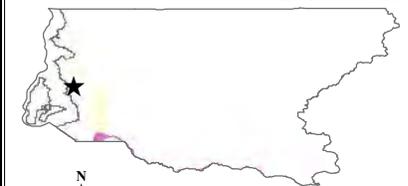
Shows areas that could be affected by cohesive lahars that originate as enormous avalanches of weak, chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The time interval between Case I lahars on Mount Rainier is about 500 to 1,000 years.

Case 2 - Moderate Lahars (Recurrence Interval 100–500 Years)

Shows areas that could be affected by relatively large noncohesive lahars, which are commonly caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but they can also have a noneruptive origin. The time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.

Post-Lahar Sedimentation Shows areas subject to post-lahar erosion and sedimentation and the ongoing potential for flooding.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF BURIEN

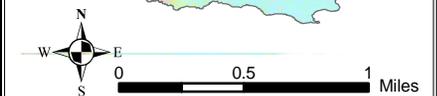
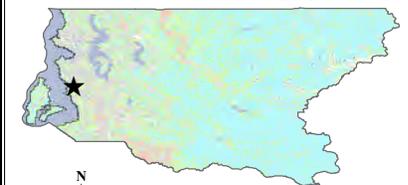
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (if_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey



CHAPTER 7. CITY OF CARNATION ANNEX

7.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Ken Carter, City Manager
PO Box 1238, 4621 Tolt Ave
Carnation, WA 98014
Telephone: 425-333-4192
e-mail Address: kenc@carnationwa.gov

Alternate Point of Contact

Mary Madole, City Clerk
PO Box 1238, 4621 Tolt Ave
Carnation, WA 98014
Telephone: 425-333-4192
e-mail Address: mary@carnationwa.gov

7.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—December 30, 1912
- **Current Population**—1,785 as of April 1, 2013 (WA OFM estimate)
- **Population Growth**—The population of Carnation decreased from 1,893 in 2000 to 1,786 in 2010. This represents a 5.7 percent decrease. Population has remained stable from 2010 to 2013.
- **Location and Description**—Carnation is approximately 1.25 square miles and is located in the northern Snoqualmie River Valley along State Route 203, nestled on the north side of the Tolt River and east of the Snoqualmie River.
- **Brief History**- Settled in 1865, Carnation was officially incorporated on December 30, 1912, as **Tolt**. The name was changed to Carnation in 1917, back to Tolt on May 3, 1928, and finally back to Carnation again on October 29, 1951. The name Carnation was chosen to honor a nearby research farm operated by the Carnation Milk Products Company
- **Climate**—Located on the eastside of the Puget Sound, Carnation boasts a generally mild climate. It supports organic farming and local dairy industry, averaging light rain throughout the year and mild winters.
- **Governing Body Format**—City of Carnation is governed by a five-member City Council who elect one of their members as Mayor. The City Council appoints a City Manager who is the Chief Executive Officer of the City.
- **Development Trends**—Population build-out for Carnation is estimated at approximately 4000 people. Infill development in small, platted areas will be the main source of this development.

7.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 7-1. The assessment of the jurisdiction's fiscal capabilities is presented in Table 7-2. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 7-3. Information on the community's National Flood Insurance Program (NFIP) compliance is presented in Table 7-4. Classifications under various community mitigation programs are presented in Table 7-5.

TABLE 7-1. 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	International Building Code Ordinance No 831 on June 18, 2013
Zoning	Y	N	N	Y	Title 15: Adopted in 1998 by Ordinance # 558 and as amended through Nov 2013
Subdivisions	Y	N	N	Y	Title 15
Stormwater Management	Y	N	N	Y	Title 15
Post Disaster Recovery	N	N	N	N	
Real Estate Disclosure	N	N	Y	Y	Washington State Disclosure Law (RCW 64.06)
Growth Management	Y	N	N	Y	GMA compliant Comprehensive Plan 2004 to 2015, as amended
Site Plan Review	Y	N	N	Y	Title 15
Public Health and Safety	Y	N	N	Y	Municipal Code Title 8
Environmental Protection	Y	N	N	Y	Municipal Code Title 14
Planning Documents					
General or Comprehensive Plan	Y	N	N	Y	Title 15
<i>Is the plan equipped to provide linkage to this mitigation plan?</i>					Yes
Floodplain or Basin Plan	N	N	N	N	
Stormwater Plan	Y	N	N	Y	DOE, W. Washington Stormwater Manual
Capital Improvement Plan	Y	N	N	Y	Included in Comprehensive Plan Amendments
<i>What types of capital facilities does the plan address? How often is the plan revised/updated?</i>					Infrastructure Annually
Habitat Conservation Plan	N	N	N	N	N/A
Economic Development Plan	Y	N	N	N	Included in Comprehensive Plan Amendments
Shoreline Management Plan	Y	N	N	Y	Shoreline Master Plan completed 2012
Community Wildfire Protection Plan	N	N	N	N	N/A

**TABLE 7-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Y	N	N	Y	Adopted by Resolution No. 314 August 2006
Threat and Hazard Identification and Risk Assessment	N	N	Y	N	King County OEM
Terrorism Plan	N	N	Y	N	King County OEM
Post-Disaster Recovery Plan	N	N	N	N	N/A
Continuity of Operations Plan	N	N	N	N	N/A
Public Health Plans	N	N	N	N	N/A

**TABLE 7-2.
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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Real Estate Excise Tax; King County Flood Control District-Basin Opportunity Fund

**TABLE 7-3.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	City Planner and contracted Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contracted Building Official services with City of Snoqualmie
Planners or engineers with an understanding of natural hazards	Yes	Contracted Engineers
Staff with training in benefit/cost analysis	Yes	Contracted on as-needed basis
Surveyors	Yes	Contracted on as-needed basis
Personnel skilled or trained in GIS applications	Yes	Contracted Engineers
Scientist familiar with natural hazards in local area	Yes	Contracted services
Emergency manager	Yes	City Manger
Grant writers	Yes	City staff and contracted services

**TABLE 7-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	Planning
Who is your community's floodplain administrator? (department/position)	Planning, City Planner
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	December 4, 2001
When was the most recent Community Assistance Visit or Community Assistance Contact?	2012
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Yes, better information concerning minor development in floodplain is needed from FEMA
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No, Yes

	Participating?	Classification	Date Classified
Community Rating System	No	--	--
Building Code Effectiveness Grading Schedule	Yes	2	--
Public Protection	Yes	5	--
StormReady	No	N/A	N/A
Firewise	Yes	Tolt Triangle Fire Council	2005
Tsunami Ready (if applicable)	N/A	N/A	N/A

7.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 7-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: None
- Number of FEMA-Identified Severe Repetitive Loss Properties: None
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: None

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding	FEMA-1817-DR-WA	Jan 6-16, 2009	\$1,8
Snow Storm	FEMA-1825-DR-WA	Dec 12, 2008 to Jan 5, 2009	\$10,884
Wind Storm	FEMA-DR-1682-WA	Dec 14-15, 2006	\$3,325
Nisqually Earthquake	FEMA-1361-DR-WA	Feb 28, 2001	Unknown

7.5 HAZARD RISK RANKING

Table 7-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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.

7.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 7-8 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 7-9 identifies the priority for each initiative. Table 7-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	48
1	Severe Winter Weather	48
3	Flood	42
4	Earthquake	32
5	Dam Failure	18
6	Landslide	12
7	Wildfire	9
8	Volcano	7
9	Avalanche	0
9	Tsunami	0

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CA-1 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following:						
<ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 						
New and Existing	All Hazards	2,4,10,12	Planning	Low	General Fund	Ongoing
CA-2 —Maintain and expand evacuation route signage. Annual distribution of Informational Brochure explaining the evacuation plan, and showing the evacuation route map to affected properties.						
Existing	Tolt Dam Failure, Flood	3,4,7,11,13	Seattle Public Utilities	\$250 Annually Low	General Fund	Ongoing
CA-3 —Continue to maintain compliance with and enforcement of current Building Codes and Standards						
New and Existing	All Hazards	3,10	City of Carnation	\$1000 Biennially Low	General Fund	Ongoing

**TABLE 7-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CA-4 —Storm drainage improvements. Existing storm drains are un-mapped, isolated and of unknown capacity. Need investigative equipment to determine size, location and blockages in existing systems. The existing drains do not terminate in the river, but are strictly infiltration systems. Issue arises with strong and sudden deluge of rainfall. Because the system relies on infiltration, ketch basins fill up and require cleanout on a regular basis. The City needs a storage tank to hold removed material, and funding for compliant disposal of this hazardous material.						
Existing	Flood, Severe Weather, Severe Winter Weather	1,2,5,12,13	City of Carnation	\$100,000 High	Department of Ecology/ EPA Grants	Long term
CA-5 —Negotiate an Interlocal Agreement with local School District to facilitate placement of a generator for local School District fuel storage tanks. These tanks would then be available during long-term power outages to provide fuel for other emergency generators and emergency vehicles.						
Existing	Severe Weather, Severe Winter Weather	1,3,5,7,8,13	City of Carnation/Riv erview School District	\$5,000	Partnership with School / General Fund	Short term
CA-6 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New	All Hazards	2,4,8,10	Planning	Low	General Fund	Short-term
CA-7 —Consider participation in incentive based programs such as the CRS, Firewise and StormReady						
New and Existing	Flood, Severe Weather, Wildfire	2,3,4,6,10,13	City of Carnation	Low	General Fund	Long-term
CA-8 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,9,13	City of Burien	High	FEMA grants	Long-term
CA-9 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Carnation	Low	General Fund	Ongoing
CA-10 —Actively participate in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Carnation	Low	General Fund	Ongoing

**TABLE 7-9.
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
CA-1	4	Medium	Low	Yes	No	Yes	High
CA-2	5	High	Medium	Yes	Yes	No	Medium
CA-3	2	High	Low	Yes	No	Yes	High
CA-4	5	Medium	High	No	Yes	No	Medium
CA-5	6	Medium	Medium	Yes	Yes	No	High
CA-6	4	Medium	Low	Yes	No	Yes	High
CA-7	6	Medium	Low	Yes	No	Yes	High
CA-8	3	High	High	Yes	Yes	No	Medium
CA-9	7	Medium	Low	Yes	No	Yes	High
CA-10	7	Medium	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 7-10.
ANALYSIS OF MITIGATION INITIATIVES**

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

a. See Introduction for explanation of mitigation types.



CITY OF CARNATION

Critical Facilities and Infrastructure

Critical Facilities

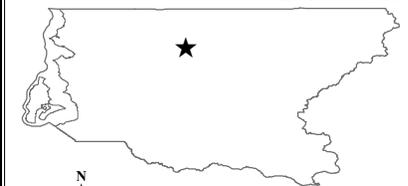
-  Government Function
-  HazMat
-  Medical Care
-  Protective Function
-  Schools
-  Other Facility

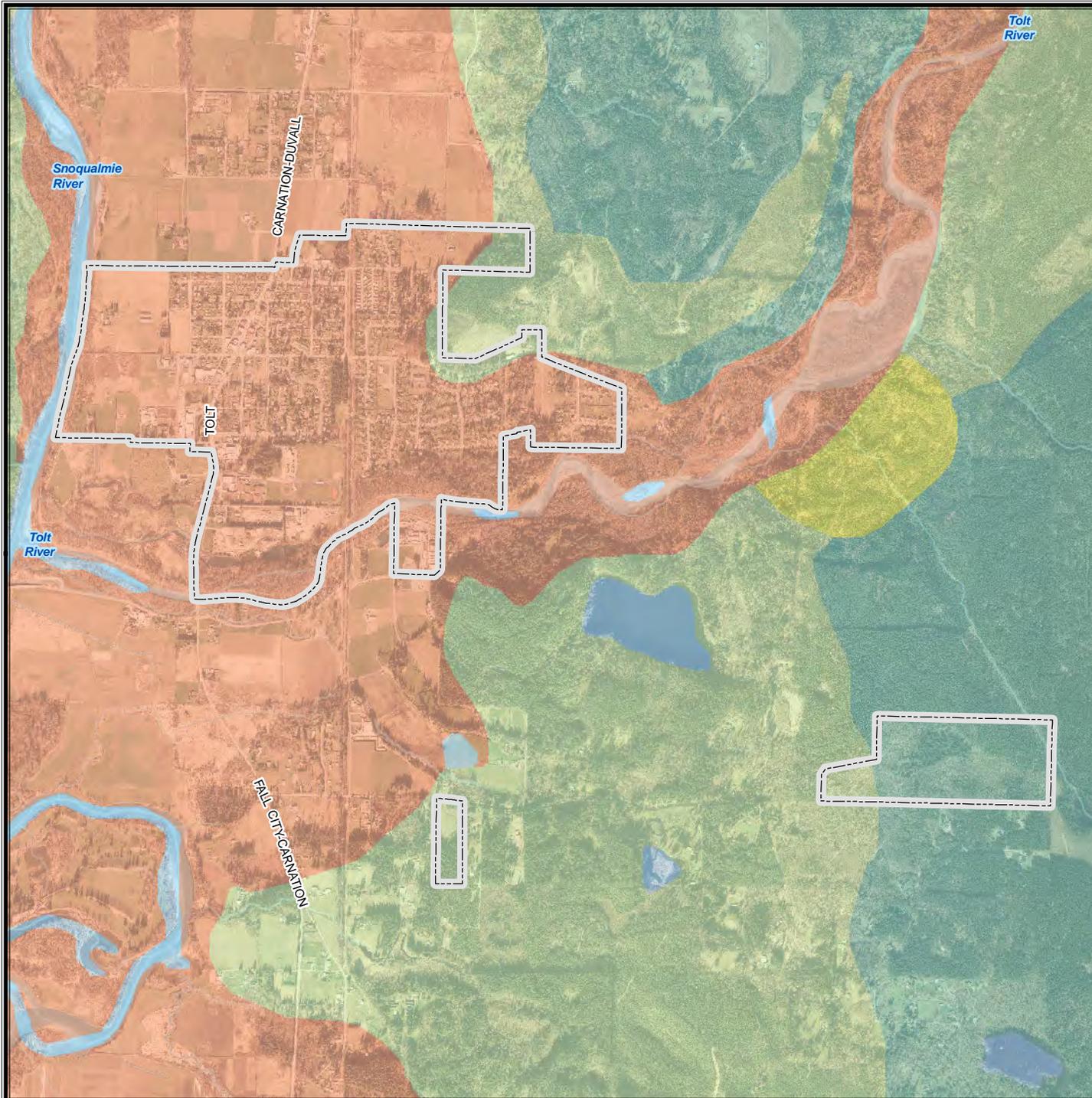
Critical Infrastructure

-  Bridges
-  Communications
-  Dams
-  Water Supply
-  Power
-  Transportation
-  Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF CARNATION

Liquefaction Susceptibility

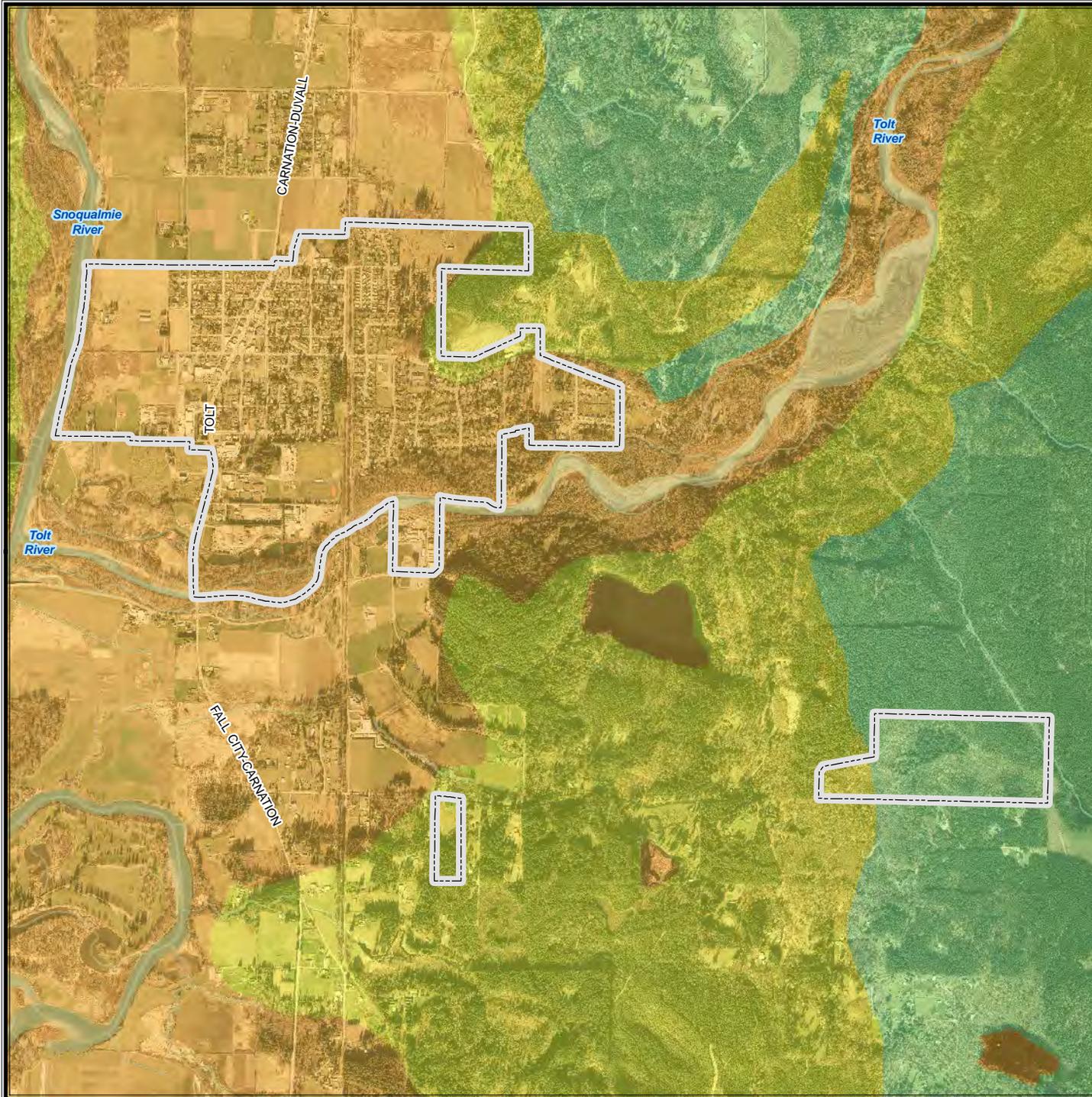
Susceptible		Not Susceptible	
High	Bedrock	Bedrock	Peat
Moderate to High	Peat	Water	Ice
Moderate	Water	Ice	
Low to Moderate			
Low			
Very Low to Low			
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
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CITY OF CARNATION

National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

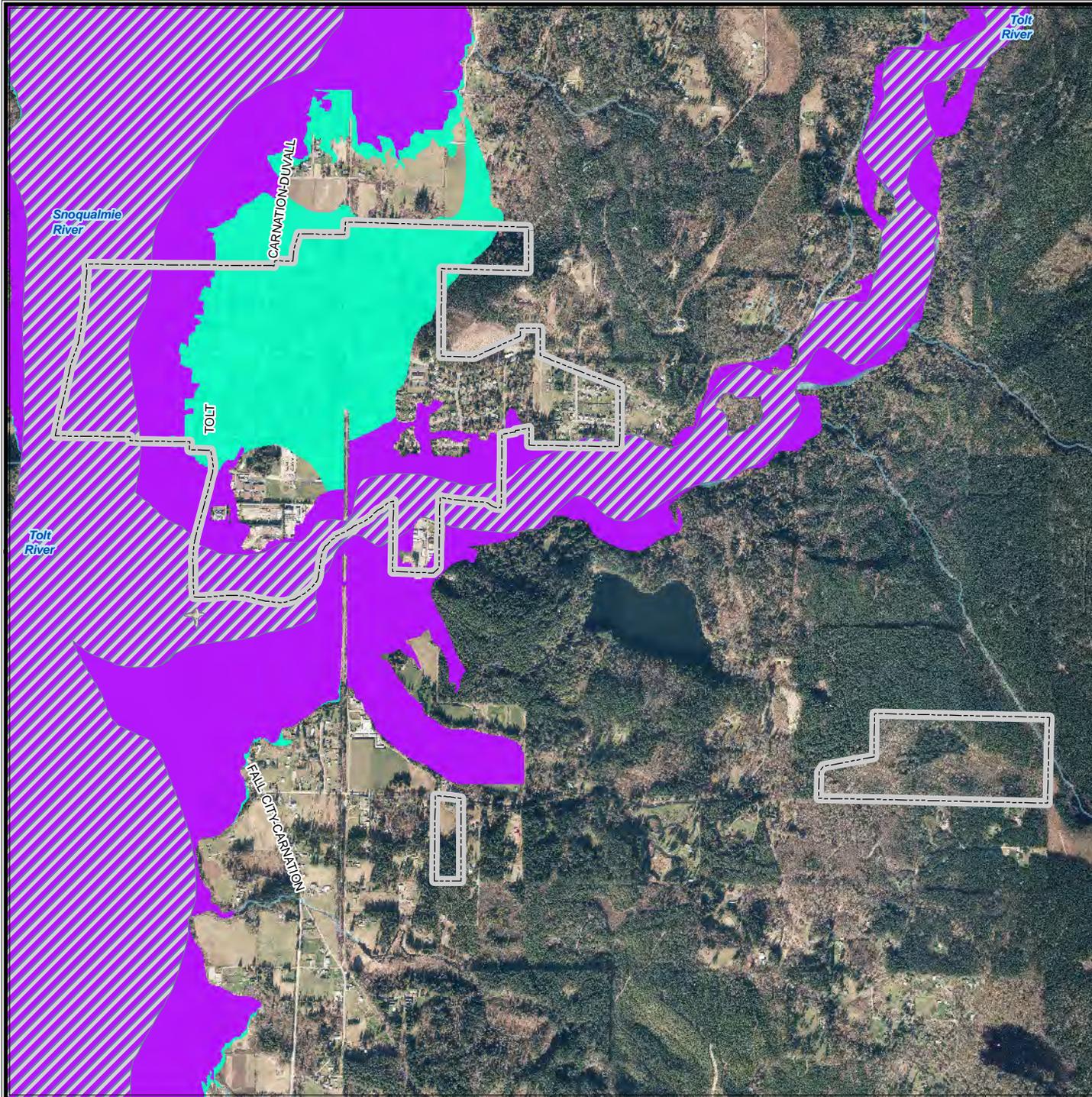
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The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF CARNATION

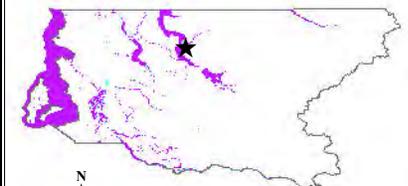
FEMA DFIRM Flood Hazard Areas

-  Floodway
-  1 Percent Annual Flood Hazard
-  0.2 Percent Annual Flood Hazard

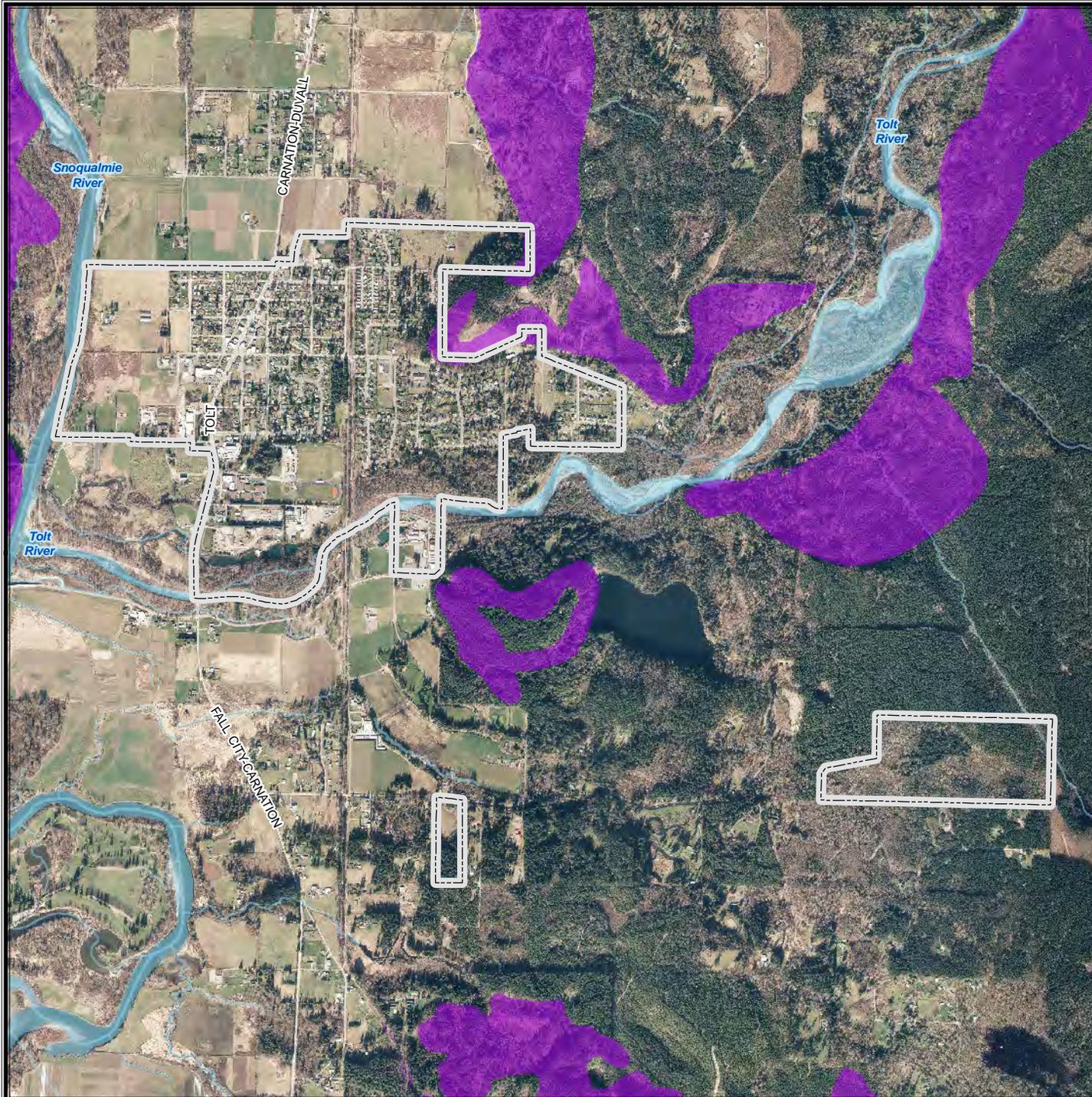
Flood hazard areas as depicted on draft FEMA Digital Flood Insurance Rate Maps (DFIRM).

The 1 percent annual flood hazard is commonly referred to as the 100 year floodplain. The 0.2 percent annual flood hazard is commonly referred to as the 500 year floodplain.

Base Map Data Sources:
King County, U.S. Geological Survey



0 0.25 0.5 Miles



CITY OF CARNATION

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

A. Any area with a combination of:

1. Slopes greater than 15 %
2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
3. Springs or groundwater seepage.

B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.

C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by wave action.

D. Any area that shows evidence of, or is at risk from, snow avalanches.

E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

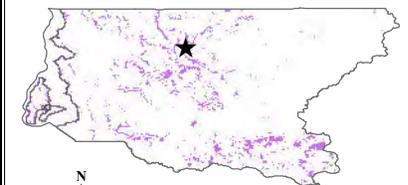
Slope/Soils Analysis:

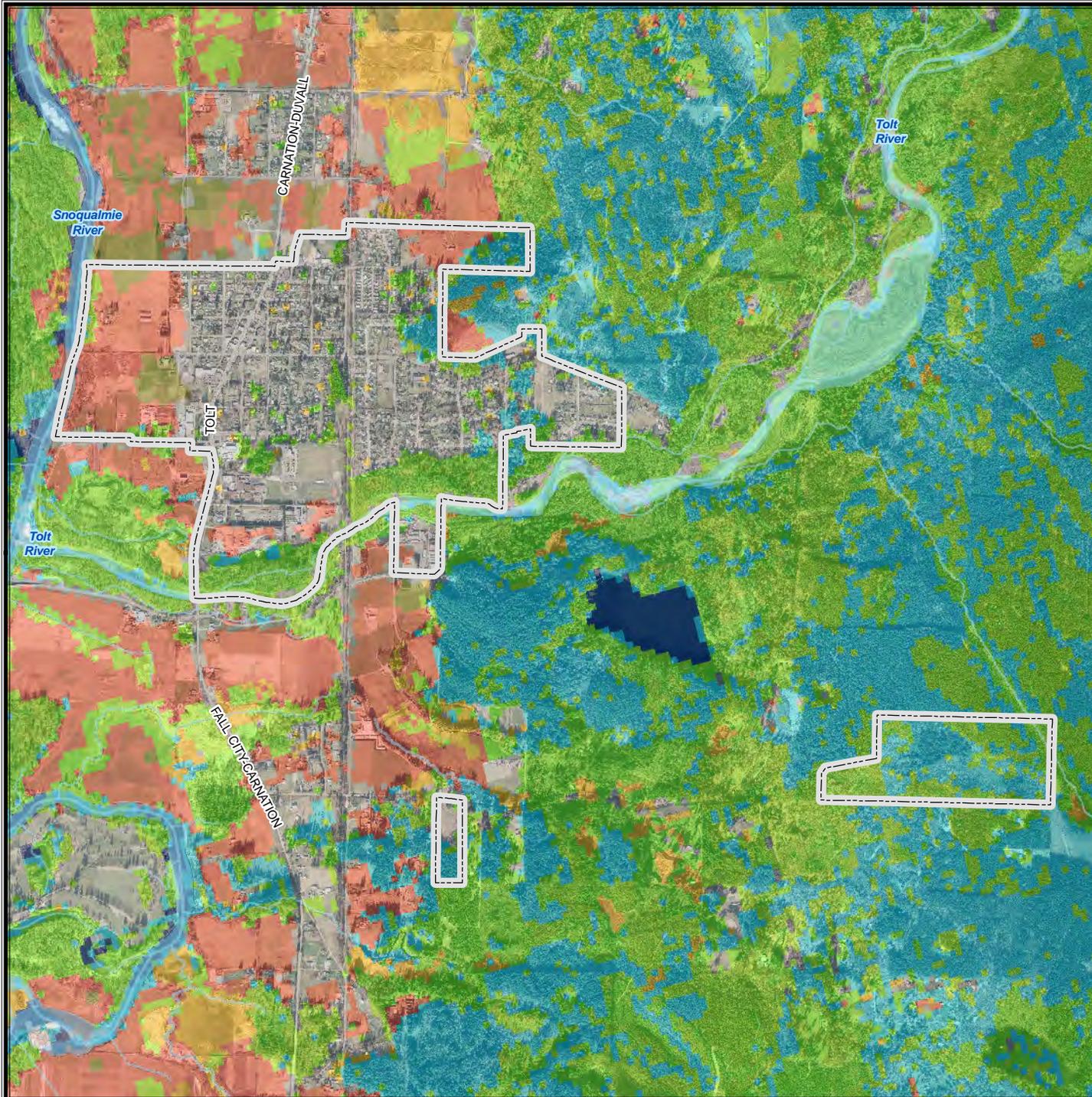
1. Areas of slope greater than 40%. Slope determined using a DEM generated from 2002 LIDAR data. Slope data provided by King County DNRP.

2. Areas of Qf (alluvial fans), Qls (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNRP.

Base Map Data Sources:

King County, U.S. Geological Survey





CITY OF CARNATION

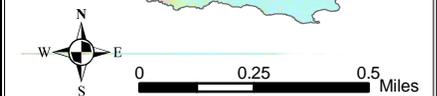
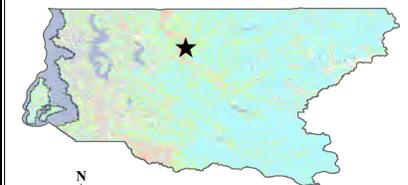
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (if_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey



CHAPTER 8. CITY OF CLYDE HILL ANNEX

8.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mitch Wasserman, City Administrator
9605 NE 24th Street
Clyde Hill, WA 98004
Telephone: 425.453.7800
e-mail Address: mitch@clydehill.org

Alternate Point of Contact

William Archer, Police Chief
9605 NE 24th Street
Clyde Hill, WA 98004
Telephone: 425.454.7187
e-mail Address: bill@clydehill.org

8.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—1953
- **Current Population**—2,980 (from 2013 Washington State Office of Financial Management)
- **Population Growth**—Due to development trends (the area is essentially built out) and the insignificant population growth since the 2010 Census was taken (<1%), no significant population changes are expected in the near future.
- **Location and Description**—The City of Clyde Hill, at about one square mile in size, is located east of the City of Seattle, separated by Lake Washington, and sits atop a hill with a maximum above sea-level elevation of 375 feet. State Route 520, a major, regional transportation corridor, borders the City to the north, partially intersecting the City’s northeast-most corner. The City is physically bordered by the Cities of Bellevue (east and south), Medina (west), Hunts Point (northwest), Yarrow Point (north), and Kirkland (northeast). No portion of the Puget Sound borders the City, but within its boundaries are two (2) small bodies of water (ponds), one of which is in the northeast region (the Aqua Vista Division) and one of which is in the southwest region (the Clyde Loch Division).
- **Brief History**—The area that is the City of Clyde Hill was settled by Irish immigrants in 1882 and was predominantly utilized for strawberries as well as lumber and other crops. By 1905, the area had grown by fifteen (15) families. By 1947 home-building accelerated and residents had built a community club. The result of this club was the eventually naming of the area “Clyde Hill” in reference to an area in Scotland. Incorporation occurred several years thereafter as a result of the community’s desire to control land use development. Initially incorporated as a town, Clyde Hill reorganized as a non-charter Code City in 1998.
- **Climate**—Clyde Hill’s climate is typical of most cities in the region. In place of snowfall (which it receives very little of (5”, as opposed to 25” nationally)), the City experiences a multitude of days during which it precipitates (150, as opposed to 100 nationally). Interestingly enough, however, its average rainfall (38”) is on-par with the national average (36”). Seasons are relatively mild; average temperatures are slightly lower than the national average (74°, as opposed to 86°, respectively) during the summer. Conversely, average temperatures are slightly higher than the national average (37°, as opposed to 20°,

respectively) during the winter. The City does, however, experience high winds somewhat frequently.

- **Governing Body Format**—The City of Clyde Hill is governed by a Mayor-Council form of government, with the Council composed of five (5) councilmembers. Excluding the Mayor, the City is comprised of four (4) departments: Police, Public Works, Finance, and City Administration (including a City Administrator). The City also employs the use of two (2) commissions and a board of adjustment. The Mayor and City Administrator assume responsibility for the adoption of this plan; the City Administrator will oversee its implementation.
- **Development Trends**—Two-thirds of the City is zoned Single Family Residential and is essentially built out. The City also has two (2) commercially-zoned properties, both of which are also built out (a coffee shop and a gas station). Excluding City Hall/Police Station and the adjacent fire station (contract services provided by the City of Bellevue), the only other major type of development in the City is school properties, which accounts for about a tenth of the City. The City has four (4) schools situated within its boundaries, one of which recently underwent redevelopment.

No other major development is expected in the foreseeable future, as the City's plan is to retain/maintain its low-density residential community. This plan is supported by the unavailability of an annexable property.

8.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 8-1. The assessment of the jurisdiction's fiscal capabilities is presented in Table 8-2. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 8-3. Information on the community's National Flood Insurance Program (NFIP) compliance is presented in Table 8-4. Classifications under various community mitigation programs are presented in Table 8-5.

**TABLE 8-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	Yes	Yes	Title 15, 2010
Zoning	Yes	No	Yes	No	Title 17, 1999
Subdivisions	Yes	No	Yes	No	Title 16, 2001
Stormwater Management	Yes	No	Yes	Yes	Title 13, 2009
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	Yes	Yes	Title 19, 2013
Site Plan Review	Yes	No	Yes	No	Title 15, 2010
Public Health and Safety	Yes	No	Yes	No	Title 8, 1993
Environmental Protection	Yes	No	Yes	Yes	Title 18, 1990
Planning Documents					
General or Comprehensive Plan	Yes	No	Yes	Yes	Ord. 803, 1999
<i>Is the plan equipped to provide linkage to this mitigation plan? Yes</i>					
Floodplain or Basin Plan	No	No	No	No	
Stormwater Plan	Yes	No	Yes	Yes	(Not formally adopted), 2012
Capital Improvement Plan	Yes	No	Yes	Yes	Ord. 921, 2012
<i>What types of capital facilities does the plan address? The Plan addresses the City's facilities, road system, stormwater system and parks.</i>					
<i>How often is the plan revised/updated? The Capital Improvements Plan is updated annually, during the budget process.</i>					
Habitat Conservation Plan	No	No	Yes	No	
Economic Development Plan	No	No	Yes	No	
Shoreline Management Plan	No	No	Yes	Yes	
Community Wildfire Protection Plan	No	No	Yes	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan	No	No	Yes	Yes	
Threat and Hazard Identification and Risk Assessment	No	No	Yes	No	
Terrorism Plan	No	No	Yes	No	
Post-Disaster Recovery Plan	No	No	Yes	No	
Continuity of Operations Plan	No	No	Yes	No	
Public Health Plans	No	No	Yes	No	

TABLE 8-2. 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	Yes
Other	Real Estate Excise Tax; King County Flood Control District-Basin Opportunity Fund

TABLE 8-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	City Administrator & Public Works Director/City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Director/City Engineer & Building Inspector
Planners or engineers with an understanding of natural hazards	Yes	City Administrator & Public Works Director/City Engineer
Staff with training in benefit/cost analysis	Yes	City Administrator & Finance Director
Surveyors	No	Not in-house
Personnel skilled or trained in GIS applications	Yes	By Contract: NW Geo Graphics
Scientist familiar with natural hazards in local area	No	Not in-house
Emergency manager	Yes	City Administrator & Police Chief
Grant writers	Yes	City Administrator, Finance Director & Public Works Director

TABLE 8-4. NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE	
What department is responsible for floodplain management in your community?	City Administration
Who is your community’s floodplain administrator? (department/position)	City Administrator
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	Ordinance #892 - 2008
When was the most recent Community Assistance Visit or Community Assistance Contact?	Community Assistance Contact -1/26/2012
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Yes - refresher and/or general courses. It has been five (5) years since the City joined.
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No Not at this time

TABLE 8-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	99/99	N/A
Public Protection	Yes	3	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

8.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 8-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: - 0 -
- Number of FEMA-Identified Severe Repetitive Loss Properties: - 0 -
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: - 0 -

**TABLE 8-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Wind		11/2013	No estimate available (Minimal costs for removal of debris from fallen tree limbs)
Severe Winter Storm, Ice Storm	DR-4056	01/2012	\$100,000 to \$250,000
Severe Winter Storm, Heavy Snow	DR-1825	12/2008	\$100,000 to \$250,000
High Wind	DR-1682	12/2006	\$100,000 to \$250,000
Heavy Rain		1/2006	No estimate available
Heavy Rain	DR-1499	10/2003	No estimate available
Heavy Rain		11/2001	No estimate available
Earthquake (Nisqually)	DR-1361	02/2001	No estimate available (No measurable damage to City structures or streets)
High Wind	DR-981	1/1993	No estimate available (Minimal costs for removal of debris from fallen tree limbs)
Severe Winter Storm, Heavy Snow	DR-883	12/1990	\$100,000 to \$250,000
Earthquake		4/1965	No estimate available
Wind	DR-196	10/1962	No estimate available

8.5 HAZARD RISK RANKING

Table 8-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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 8-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Winter Weather	27
2	Severe Weather	27
3	Stormwater Flooding	18
4	Wildfire	15
5	Volcano	11
6	Landslide	6
6	Dam Failure	6

8.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 8-8 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 8-9 identifies the priority for each initiative. Table 8-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 8-8. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CH-1 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP, which include the following: <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • Participating in floodplain identification and mapping updates, and • Providing public assistance/information on floodplain requirements and impacts 						
New and Existing	Urban Flooding	2,4,10,12	Admin	Low	General Fund	Ongoing
CH-2 —Continue to inform residents on how to prevent loss of life and property damage from earthquakes, storms, and urban wildfires. Promote 72-hour self-sufficiency throughout the community						
New d existing	All Hazards	4, 6, 7, 11	Admin	Low	General Fund Grants	Ongoing
CH-3 —Develop a Stormwater Management Comprehensive Plan. Update the City’s 1992 Plan by integrating recent surveying and mapping information of the City’s existing stormwater facilities, determining the additional infrastructure needed to upgrade the existing system, and developing a comprehensive plan for implementing the upgrades.						
New and Existing	Severe Storm	1, 2, 4, 5, 10, 12	Public Works	Medium	General Fund, King County Flood Control District, Grants	Short Term
CH-4 —Develop a City snow/ice management Plan. Update the City’s old plan by integrating the new methods and strategies used for managing winter storm events. Integrate a citizen communications element to the updated Plan.						
New and Existing	Severe Winter Storm	1, 3, 4, 5, 6, 7, 8, 11	Public Works	Low	General Fund	Short Term
CH-5 – Perform a seismic risk assessment of City Facilities. Determine vulnerabilities and the need to retrofit the City Hall and the Public Works facilities to withstand earthquakes.						
Existing	Earthquake	1, 3, 5, 9	Admin	Medium	Capital Fund, Grants	Short-term

<p align="center">TABLE 8-8. HAZARD MITIGATION ACTION PLAN MATRIX</p>						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CH-6 – Develop and improve a Communications Plan to keep residents informed of local conditions and matters of local importance to them. Investigate integrating a communications tool that can be used when power is out.						
New and Existing	All Hazards	3, 5, 6, 7, 11	Admin	Medium	General Fund, Grants	Ongoing
CH-7 – Develop a Post Disaster Action Plan that includes a debris removal component and building code related activity that supports the Building Department during the reconstruction process.						
New and Existing	All Hazards	1, 3, 7, 11, 12	Administrator Building Dept.	Low	General Fund	Short-term
CH-8 – Evaluate potential for damage and determine what can be done to strengthen the weir/outfalls from the two private lakes in the City. Determine specific at risk homes.						
Existing	Dam Failure, Flood	2, 3, 4, 5, 12	Administrator Public Works	Medium	General Fund	Short-term
CH-9 - Consider evaluation of the City’s building code enforcement program under the Building Code Effectiveness Grading Schedule, administered by the WA Survey and Rating Bureau.						
New	All Hazards	5,10	Building department	Low	General Fund	Short-term
CH-10 —Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New	All Hazards	2,4,8,10	Public Works	Low	General Fund	Short-term
CH-11 —Consider participation in incentive based programs such as the CRS, Firewise and StormReady						
New and existing	Flood, Severe Weather, Wildfire	2,3,4,6,10,13	City of Clyde Hill	Low	General Fund	Long-term
CH-12 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,9,13	City of Clyde Hill	High	FEMA grants	Long-term
CH-13 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Clyde Hill	Low	General Fund	Ongoing
CH-14 —Actively participate in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Clyde Hill	Low	General Fund	Ongoing

**TABLE 8-9.
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
CH-1	4	Medium	Low	Yes	No	Possible	High
CH-2	4	Medium	Low	Yes	Yes	Possible	High
CH-3	6	Medium	Medium	Yes	Yes	Possible	High
CH-4	8	Medium	Low	Yes	No	Possible	High
CH-5	4	Medium	Medium	Yes	Yes	Possible	High
CH-6	5	High	Medium	Yes	Yes	Possible	High
CH-7	5	Medium	Low	Yes	Yes	Possible	High
CH-8	5	Low	Medium	No	Yes	Possible	Medium
CH-9	2	Medium	Low	Yes	No	Yes	Medium
CH-10	4	Medium	Low	Yes	No	Yes	High
CH-11	6	Medium	Low	Yes	No	No	Medium
CH-12	3	High	High	Yes	Yes	No	Medium
CH-13	7	Medium	Low	Yes	No	Yes	High
CH-14	7	Low	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 8-10.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	2,3,8,9,10,14	3,7,8,12	2,3,6,7,8,13	8	13	3,8
Earthquake	9,10,14	2,5,7,12	2,6,7,13		5,13	5
Flood	1,2,3,9,10,11,14	1,3,7,11,12	1,2,3,6,7,11,13	3,11	11,13	3
Landslide	2,9,10,14	7,12	2,6,7,13		13	
Severe Weather	3,9,10,11,14	1,3,4,7,12	2,4,6,7,13	3	4,11,13	3
Severe Winter Weather	9,10,11,14	12	13		11,13	
Volcano	9,10,14	12	2,6,7,13		13	
Wildfire	2,9,10,11,14	7,11,12	2,6,7,11,13	5,11	11,13	

a. See Introduction for explanation of mitigation types.

8.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

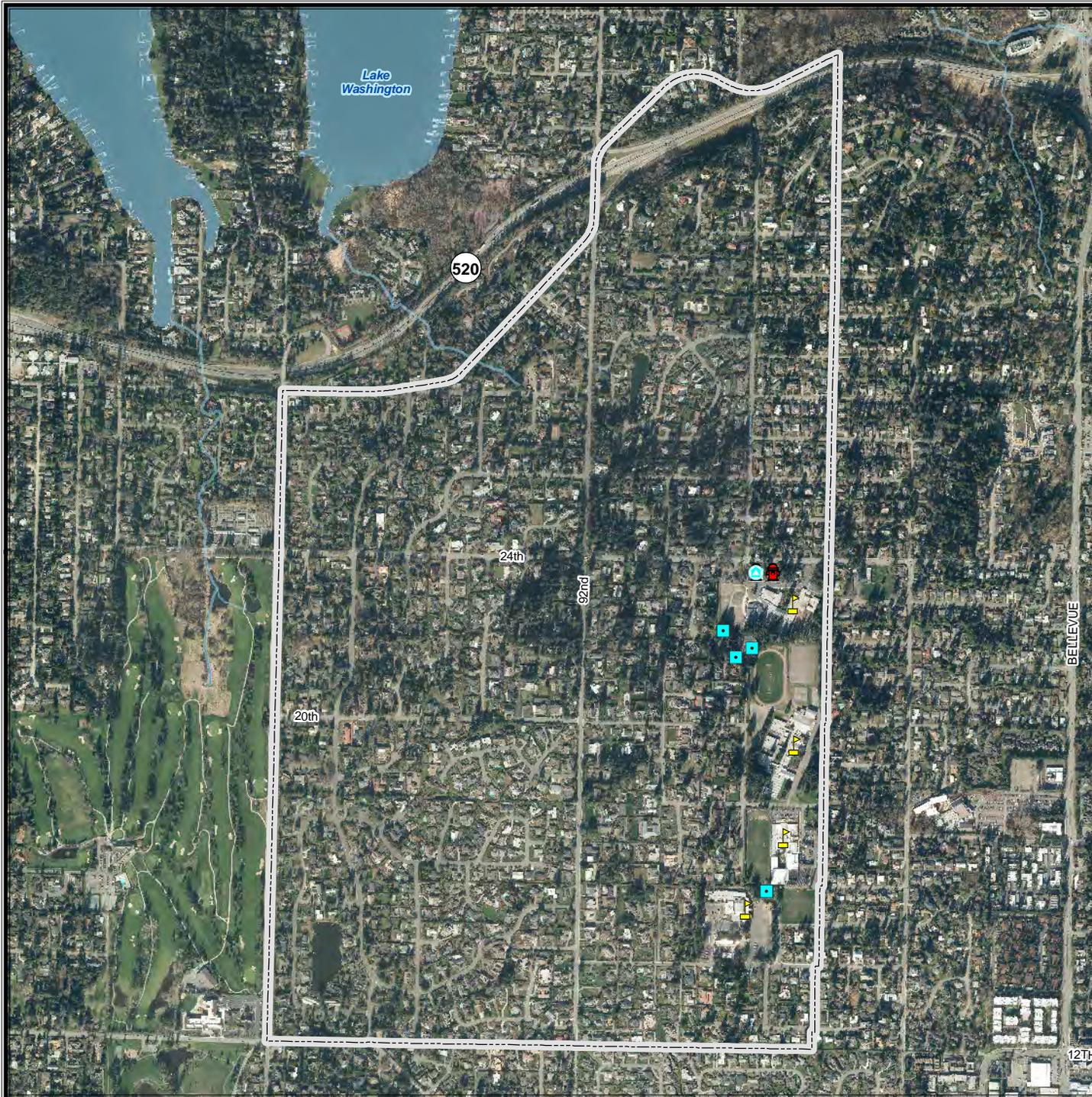
As the City's first Hazard Mitigation Plan, a number of action plan items are included in this plan that are necessary to assess, evaluate and determine risks for appropriate follow-up steps.

8.8 ADDITIONAL COMMENTS

Clyde Hill has already felt the sting from the top three hazards noted in the City's first Hazard Mitigation the Plan. The largest hazard potentially impacting Clyde Hill relates to earthquakes. Although the City escaped significant damage from the 2001 Nisqually Earthquake it is estimated that an earthquake involving the Cascadia Subduction Zone could measure M9.0 on the Richter Scale, and would have considerable impact on communities throughout the Puget Sound area. Similarly, an earthquake along any of the faults in the Seattle area would also extensively impact Clyde Hill.

Second on the list of potential hazards relate to severe weather episodes. Strong winds, ice and snow have already crippled the community for multiple days at a time. With the majority of the transportation network on a hill, the impacts from ice and snow are critically important to plan for and mitigate.

Also because the city is largely located on a hill, there are associated stormwater problems in the lower area of the community during severe storms. Performing an updated modeling analysis of the City's stormwater system will help to determine where the existing infrastructure can be improved and will allow the City to prioritize spending for future improvements.



CITY OF CLYDE HILL

Critical Facilities and Infrastructure

Critical Facilities

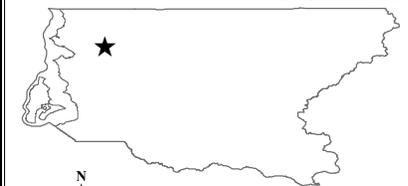
- Government Function
- HazMat
- Medical Care
- Protective Function
- Schools
- Other Facility

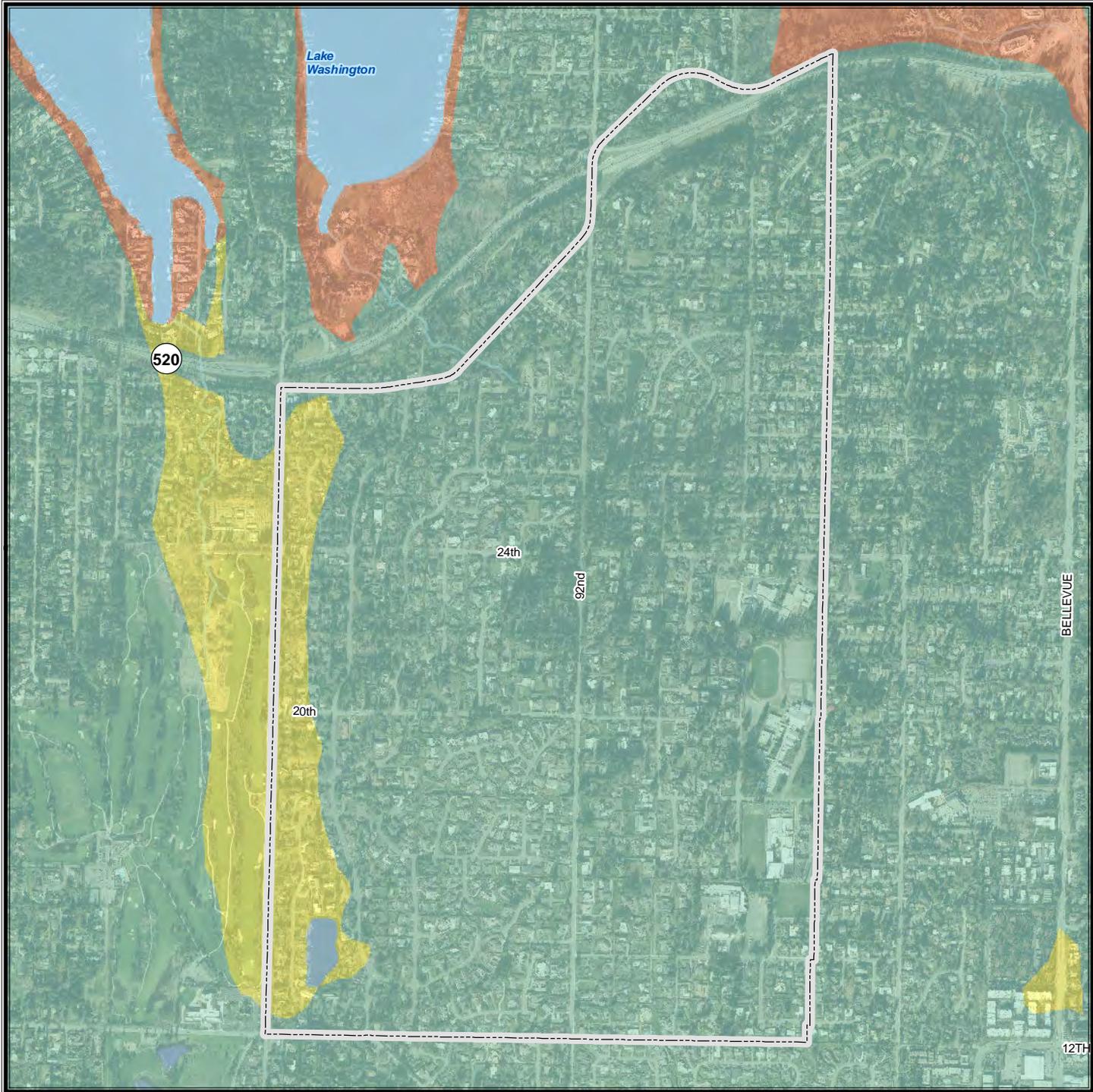
Critical Infrastructure

- Bridges
- Communications
- Dams
- Water Supply
- Power
- Transportation
- Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF CLYDE HILL

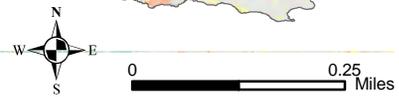
Liquefaction Susceptibility

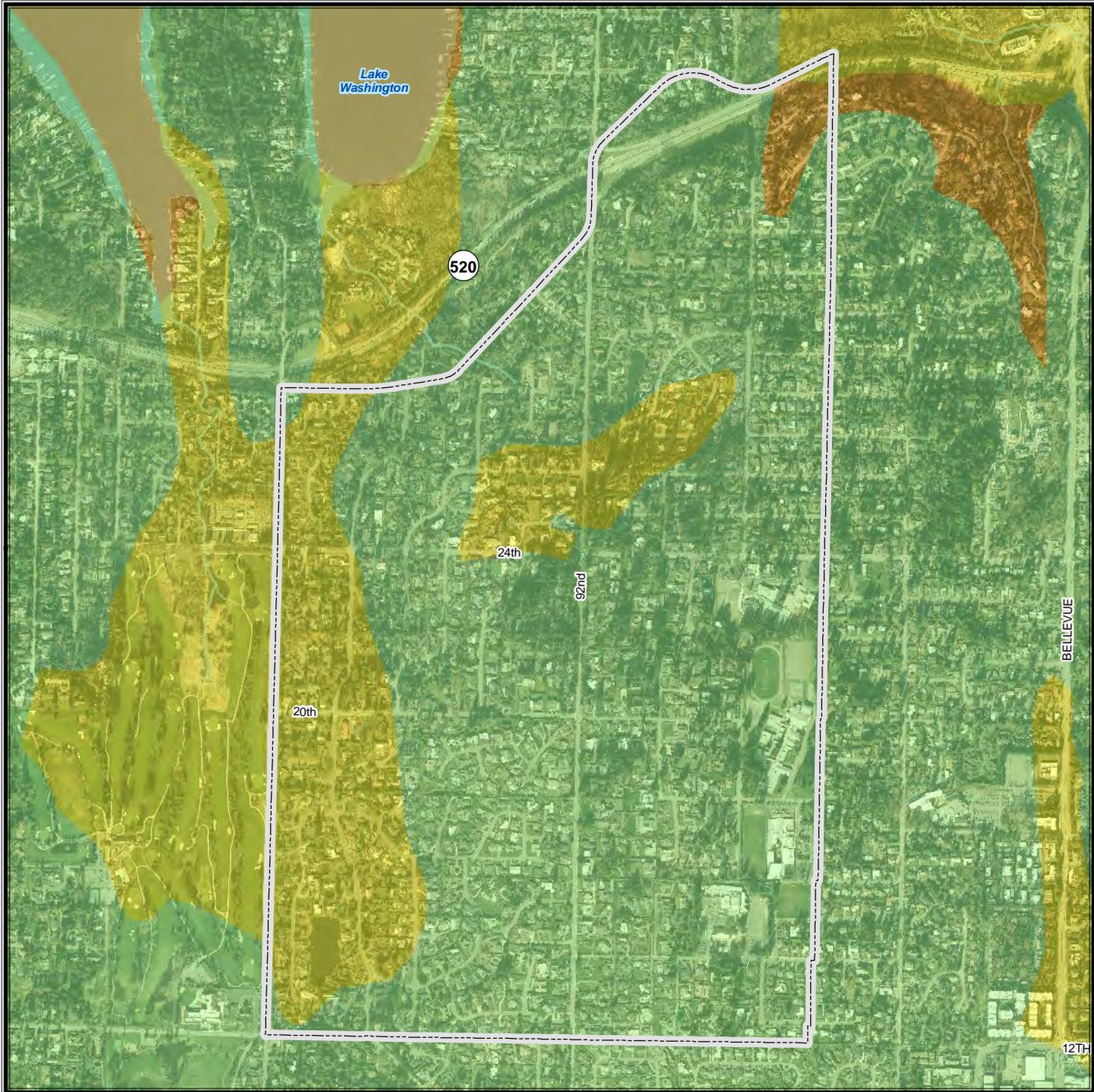
Susceptible		Not Susceptible	
High	Bedrock	Bedrock	
Moderate to High	Peat	Peat	
Moderate	Water	Water	
Low to Moderate	Ice	Ice	
Low			
Very Low to Low			
Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF CLYDE HILL

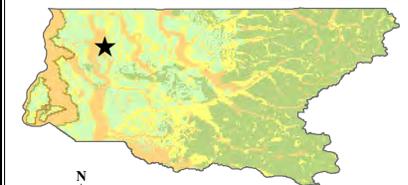
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

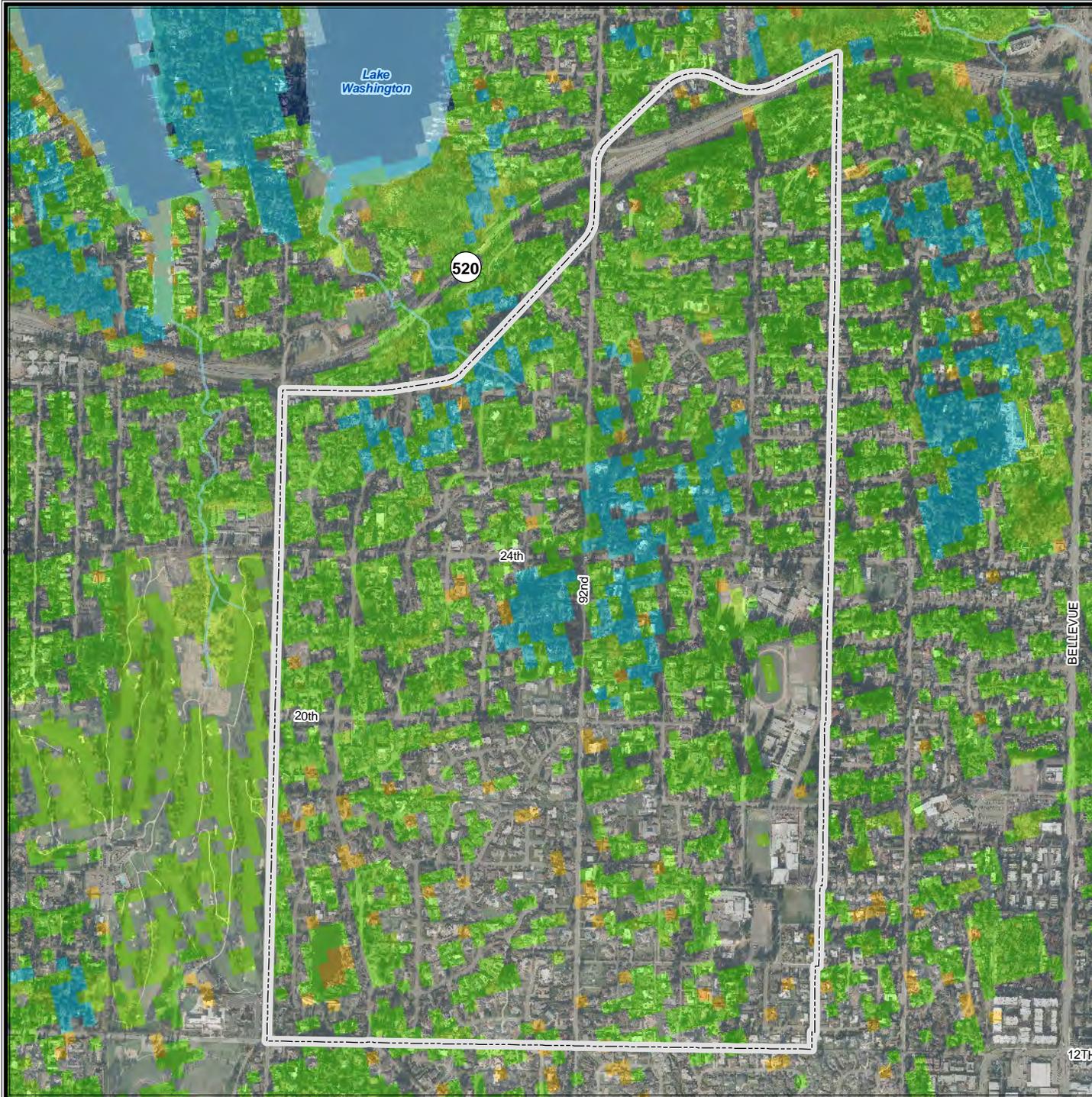
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF CLYDE HILL

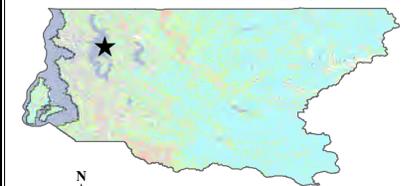
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

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FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (If_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey



CHAPTER 9. CITY OF DUVALL ANNEX

9.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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e-mail Address: boyd.benson@duvallwa.gov

Alternate Point of Contact

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9.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—January 6, 1913
- **Current Population**—7,120 as of April 2013 (Washington State Office of Financial Management)
- **Population Growth**—Based on the data tracked by the US Census Bureau and the Office of Financial Management, Duvall has experienced a high rate of growth. The overall population increased 45 percent from 2000 to 2010 with an annual increase of 3 percent during 2010 to 2013.
- **Location and Description**—Duvall is located near the Snoqualmie River on SR-203, approximately 25 miles northeast of Seattle, halfway between Monroe and Carnation. The City encompasses approximately 2.5 square miles on the east slope of the Snoqualmie Valley.
- **Brief History**—The area that has become known as Duvall was historically the home of the Snoqualmie Native American tribe. The present day town was located on a hillside originally homesteaded by loggers that arrived in 1871. At that time logging and farming were the driving economic forces in Duvall which utilized the Snoqualmie River and the railroad for transporting goods. Since the late 20th century the city's pastoral appeal has been drawing both residents who commute to jobs in aeronautics and technology in nearby cities and those who choose to conduct business in a small town setting.
- **Climate**—Duvall's weather is typical of the western Washington area, with wet rainy winters and mild summers. On average there are 154 sunny days per year. Annual average rainfall is 38 inches with 80% of that falling in the six-month period of November through April. The average daily July high is around 75 degrees and the January low is 34 degrees. The comfort index, which is based on humidity during the hot months, is 70 out of 100. Prevailing winds are from the southwest and average 11 mph.
- **Development Trends**—Anticipated development levels for Duvall continue to be high and consist primarily of new single family residential developments, each commonly including 20 to 100 units, in the undeveloped portions of the City. With the increased demand for housing, attached multi-family residential and mixed use/live-work units are anticipated within higher density zones. The City of Duvall adopted its Comprehensive Plan in December 2006 and is currently in the process of updating the Plan in the 2013 through 2015 timeframe. The plan

focuses on coordinated and planned growth of the City in accordance with the Growth Management goals.

- Governing Body Format**—Duvall has a non-partisan mayor/council form of government. The part-time Mayor and seven council members are elected directly by the people for staggered four-year terms, all representing the community at large. The Mayor provides leadership to the City departments to direct the many functions of city government, and implements the policies and ordinances of the City Council. The city consists of six departments: Finance, Planning, City Clerk, Police, Public Works, and Building. The City has four Boards and Commissions that report to the City Council.

The Mayor and City Council assume responsibility for the adoption of this plan; The Public Works Department will oversee its implementation.

9.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 9-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 9-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 9-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 9-4. Classifications under various community mitigation programs are presented in Table 9-5.

TABLE 9-1. LEGAL AND REGULATORY CAPABILITY					
	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	Yes	Yes	DMC Title 10, 9/26/13 (Ord.; 1154), WSDLI electrical
Zoning	Yes	No	No	Yes	DMC Title 14, 12/13/12 (Ord. 1143)
Subdivisions	Yes	No	No	Yes	DMC 14.66, 7/24/08 (Ord. 1073)
Stormwater Management	Yes	No	No	Yes	DMC 9.06, 8/13/09 (Ord. 1090)
Post Disaster Recovery	Yes	No	No	Yes	4/10/03, Ord. 973
Real Estate Disclosure	No	No	Yes	Yes	Washington State Disclosure Law (RCW 64.06)
Growth Management	Yes	No	No	Yes	2006 Comp Plan, DMC 14.72, 7/12/07 (Ord. 1056)
Site Plan Review	Yes	No	No	Yes	DMC 14.66, 7/24/08 (Ord. 1073)
Public Health and Safety	Yes	No	Yes	Yes	DMC Title 6, 1913 to 2011, Washington State Department of Health
Environmental Protection	Yes	No	Yes	Yes	DMC 14.42, 7/12/07 (Ord. 1056), Washington State Department of Ecology

**TABLE 9-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	Available on Website
	<i>Is the plan equipped to provide linkage to this mitigation plan? Yes. Currently links to: Hazard Identification and Vulnerability Analysis. August 2003. John Labadie, Emergency Management Consultant. Seattle, WA</i>				
Floodplain or Basin Plan	No	No	No	No	
Stormwater Plan	Yes	No	No	Yes	NPDES Phase II
Capital Improvement Plan (Water, roads, sewer, storm, parks, facilities)	Yes	No	No	Yes	Updated Annually
Habitat Conservation Plan	Yes	No	No	Yes	Addressed in DMC Critical Areas
Economic Development Plan	Yes	No	No	Yes	Available on Website
Shoreline Management Plan	Yes	No	No	Yes	DMC 14.78 (in progress), DOE Authority
Community Wildfire Protection Plan	No	No	No	No	
Response/Recovery Planning					
Comprehensive Emergency Management Plan (CEMP)	Yes	No	No	Yes	Updated 2014
Threat and Hazard Identification and Risk Assessment	Yes	No	No	Yes	See CEMP
Terrorism Plan	Yes	No	Yes	Yes	See CEMP
Post-Disaster Recovery Plan	Yes	No	No	Yes	See CEMP
Continuity of Operations Plan	Yes	No	No	Yes	See CEMP
Public Health Plans	NA	NA	NA	NA	Washington State Department of Health

TABLE 9-2. 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	Yes
Withhold Public Expenditures in Hazard-Prone Areas	NA
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes
Other	Real Estate Excise Tax; King County Flood Control District-Basin Opportunity Fund

TABLE 9-3. ADMINISTRATIVE AND TECHNICAL CAPABILITY		
Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning, Engineering, and Public Works Departments
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering and Public Works Departments
Planners or engineers with an understanding of natural hazards	Yes	Planning and Engineering Departments
Staff with training in benefit/cost analysis	Yes	Planning and Engineering Departments
Surveyors	No	Outside Consultant
Personnel skilled or trained in GIS applications	Yes	Planning and Engineering Departments
Scientist familiar with natural hazards in local area	Yes	Engineering Department
Emergency manager	Yes	Engineering and Public Works Departments
Grant writers	Yes	Planning, Engineering, and Public Works Departments

**TABLE 9-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	Planning Department
Who is your community’s floodplain administrator? (department/position)	Planning Director
Do you have any certified floodplain managers on staff in your community?	No (training in 2014)
What is the date of adoption of your flood damage prevention ordinance?	May 9, 2013
When was the most recent Community Assistance Visit or Community Assistance Contact?	Community Assistance Visit - 4/28/2005, Community Assistance Contact - 1/27/2012
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Certified floodplain manager training is needed
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No Maybe

**TABLE 9-5.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	4	Not available
Public Protection (WSRB 2013)	Yes	5	2013
StormReady	No	N/A	N/A
Firewise	Yes	Stillwater North	2011
Tsunami Ready (if applicable)	N/A	N/A	N/A

9.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 9-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: 0
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties Known to Have Been Mitigated: NA

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding	NA	11/24/90	Information Not Available
Snow	NA	12/18/90	Information Not Available
Storm (Inauguration Day)	NA	1/20/93	Information Not Available
Flooding	NA	02/09/96	Information Not Available
Snow/ice (Hanukkah Eve)	NA	12/26/1996	Information Not Available
Nisqually Earthquake	NA	2/28/2001	Information Not Available
Flooding	1499-DR	10/20/03	Information Not Available
Flooding	NA	12/11/04	Information Not Available
Flooding	NA	1/11/06	Information Not Available
Flooding	1671-DR	11/7/06	Information Not Available
Wind	1682-DR	12/14/06	Information Not Available
Flooding	NA	3/25/07	Information Not Available
Flooding	1734-DR	12/03/07	\$35,000
Flooding	NA	11/7/08	Information Not Available
Snow Event	1825-DR	12/18/08	\$45,941
Flooding	1817-DR	1/7/09	\$8,420
Flooding	NA	12/12/10	\$79,850
Flooding	NA	3/31/11	Information Not Available
Snow and Wind	4056-DR	1/17/12	\$63,000

9.5 HAZARD RISK RANKING

Table 9-7 presents the ranking of the hazards of concern. Hazard area extent and location maps 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.

9.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 9-8 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 9-9 identifies the priority for each initiative. Table 9-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 9-7.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	51
2	Severe Winter Weather	51
3	Earthquake	48
4	Wildfire	24
5	Flood	18
6	Landslide	16
7	Dam Failure	16
8	Volcano	7
9	Avalanche	0
10	Tsunami	0

**TABLE 9-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
DU-GF1 —Complete Structural evaluation and seismic retrofits of City buildings and facilities to improve resistance to earthquakes including, but not limited to, the following: <ul style="list-style-type: none"> • Upgrading computer server, racks, and facilities to improve IT system continuity. • Improve security measures and equipment including possible surveillance and duress buttons. 						
Existing	Earthquake, Weather	1,3,5,9	Duvall Public Works Department	Medium	Grants, General & Utility Funds	Short-term
DU-GF2 —Construct new earthquake resistant Public Works facility to support critical City functions including water and sewer utilities, equipment, facilities maintenance, and streets operation.						
New	Earthquake, Weather	1,3,5,9	Duvall Public Works Department	Medium	Grants, General & Utility Funds	Long-term
DU-GF3 —Construct a new earthquake resistant City Hall to support critical City functions including IT, Emergency Management, Continuity of Operations, and Emergency Management and Operations.						
New	Earthquake, Weather	1,3,5,9	City Administration	High	Grants, General & Utility Funds	Long-term
DU-GF4 —Install Emergency Vehicle fuel storage tanks at the Public Works Yard (diesel, gasoline) and Police Department (gasoline).						
New	All Hazards	1,5,9	Duvall Public Works Department	Low	Grants, Utility Fund	Short-term

**TABLE 9-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
DU-GF5 —Improve EOC communications including, but not limited to, the following: <ul style="list-style-type: none"> Improved radio communications (800/900 radios, City and Fire UHF/VHF radios). Radio Repeater and/or Low power radio transmitter for public information announcements. 						
New and Existing	All Hazards	1,3,5,7	Duvall Public Works Department	Low	Grants, General & Utility Funds	Short-term
DU-F1 —Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that, at a minimum, will meet the minimum requirements of the NFIP including the following: <ul style="list-style-type: none"> Enforcement of the adopted flood damage prevention ordinance, Participating in floodplain identification and mapping updates, and Providing public assistance/information on floodplain requirements and impacts. 						
New and Existing	Flood, Dam Failure	2,4,8,9,10	Duvall Planning Department	Low	Grants, General Fund	Ongoing
DU-F2 —Evaluate the City’s need or requirement to classify properties using the Community Rating System.						
New	Flood, Dam Failure	2,4,8,9,10	Duvall Planning Department	Low	Grants, General Fund	Short-term
DU-F3 —Support floodway restoration and hazard mitigation activities including bank protection at McCormick Park and other public properties and facilities.						
New and Existing	Flood, Dam Failure	2,5,9,12	Duvall Public Works Department	Medium	Grants, General Fund	Ongoing
DU-F4 —Continue to implement and improve the surface water utility programs related to flood hazard management which include the Capital Improvement Program, maintenance and operation program, NPDES program, and public education program.						
Existing	Flood, Dam Failure	1,2,4,5,9,12	Duvall Public Works Department	Low	Grants, Utility Fund	Ongoing
DU-F5 —Determine and implement mitigation measures including conveyance or stormwater facility improvements for locations with repetitive stormwater flooding and/or other hazards that impact property and/or roadways including, but not limited to, the following: <ul style="list-style-type: none"> Stormwater conveyance system at the intersection of NE Miller Street and 3rd Place NE to reduce flooding of adjacent residences and roadway. Ditch system at NE Big Rock Road west of 275th Ave NE to reduce roadway flooding. 						
New and Existing	Flood	1,2,5,9,12	Duvall Public Works Department	Medium	Grants, Utility Fund	Short-term
DU-F6 —Evaluate and mitigate landslides and landslide hazards within the Coe Clemons Creek drainage basin.						
New	Flood, Landslide	1,2,5,9,12	Duvall Public Works Department	Medium	Grants, General Fund	Long-term

**TABLE 9-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
DU-W1 —Complete structural evaluation and seismic retrofits of the Crestview Reservoir and the Big Rock Road Reservoir to increase earthquake resistance and water supply continuity. Include seismic protection valves and improved SCADA/Telemetry to provide automatic shut-off ability in the event of an earthquake (CIP Projects F2, F4, and F8).						
Existing	Earthquake, Wildfire	1,2,5,9	Duvall Public Works Department	High	Grants, Utility Fund	Short-term
DU-W2 —Upgrade approximately 2,900 feet of inadequate fragile 10-inch diameter asbestos-concrete water main at the Tolt 2 water connection to increase water supply reliability (CIP Project R4).						
Existing	Earthquake, Landslide, Flood, Fire	1,2,5,9	Duvall Public Works Department	High	Grants, Utility Fund	Short-term
DU-W3 —Install water main looping and system upgrades to improve resistance to earthquakes, fire flow and redundancy including, but not limited to, the following: <ul style="list-style-type: none"> • 272nd Ave NE loop from NE 144th Street to NE 143rd Place (450 Pressure Zone, CIP Project L1). • 3rd Ave NE loop from NE 143rd Place to NE Big Rock Road (450 Pressure Zone, CIP L2). • Batten Road NE from NE 140th Place to NE Big Rock Road (615 Pressure Zone, CIP L3). • 1st Ave NE from NE Virginia Street to NE Stephens Street (330 Pressure Zone, CIP L5). • 266th Place NE from NE 143rd Place to 266th Circle NE (450 Pressure Zone, CIP L6). 						
New	Earthquake, Wildfire	1,2,5,9	Duvall Public Works Department	High	Grants, Utility Fund	Short-term
DU-W4 —Evaluate backup water supplies including operational improvements at the existing Taylor Landing wellhead (CIP Project F1).						
Existing	Earthquake, Wildfire	1,2,5,9	Duvall Public Works Department	Low	Grants, Utility Fund	Short-term
DU-W5 —Enhance Physical Security detection and response capabilities for critical facilities including water (reservoirs, pump station, pressure reducing and relief stations) and sewer (wastewater treatment plant and pump stations) facilities.						
Existing	All Hazards	1,2,5,9	Duvall Public Works Department	Low	Grants, Utility Fund	Short-term
DU-S1 —Complete efficiency evaluation, redundancy improvements, and Wastewater Treatment Plant retrofits to increase earthquake resistance and provide continuity of operations following power supply disruption.						
Existing	Earthquake, Weather, Flood	1,2,5,9	Duvall Public Works Department	Medium	Grants, Utility Fund	Short-term
DU-S2 —Complete efficiency evaluation, redundancy improvements, and Sewer Lift Station retrofits to increase earthquake resistance and continuity of operation following power supply disruption including, but not limited to: <ul style="list-style-type: none"> • Emergency generator and pump backup improvements. • Crestview/Cedars Pump Station bypass and elimination. Includes installation of 1,000 feet of new main from existing pump station to Sierra (Evans Pond) subdivision and pump station abandonment. 						
Existing	Earthquake, Weather	1,2,5,9	Duvall Public Works Department	Medium	Grants, Utility Fund	Short-term

TABLE 9-8. HAZARD MITIGATION ACTION PLAN MATRIX						
New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
DU-S3 —Complete slip lining of existing inadequate concrete segmented sewer main to increase earthquake resistance.						
Existing	Earthquake	1,2,5,9	Duvall Public Works Department	Medium	Grants, Utility Fund	Ongoing
DU-P1 —Update the Comprehensive Emergency Management Plan in accordance with WAC 118-30 and RCW 38.52.						
Existing	All Hazards	2,3,4,5,6,7, 10	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P2 —Update the Hazard Mitigation Plan in conjunction with the King County Regional Hazard Mitigation Plan update project						
Existing	All Hazards	2,3,4,5,6,7, 10	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P3 —Continue coordination with Duvall (KCFD 45) Fire Department, Eastside Fire and Rescue, Riverview School District, Seattle Public Utilities, City of Carnation, and King County Office of Emergency Management.						
Existing	All Hazards	1,2,3,6,7, 11,13	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P4 —Evaluate and improve notification, evacuation, and response planning for areas within the Tolt Reservoir and the Culmback Reservoir potential inundation areas.						
Existing	All Hazards	1,3,4,7,11, 13,15	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P5 —Evaluate, map, and educate vulnerable populations within the City						
Existing	All Hazards	4,8	Duvall Public Works Department	Low	Grants, General Fund	Short-term
DU-P6 —Support and enhance first responder National Incident Management System and Incident Command System training, EOC preparedness, and electronic data collection (ATC-20, other).						
Existing	All Hazards	1,3,7,15	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P7 —Maintain personal supplies, consumables, and equipment to support 20 responders for seven days of emergency response activities.						
Existing	All Hazards	1,3	Duvall Public Works Department	Low	General & Utility Funds	Ongoing
DU-P8 —Complete undergrounding of overhead utilities where possible and support undergrounding development requirements to reduce potential for power outages and injuries from downed lines.						
Existing	Earthquake, Weather	1,2,5,8,9, 10	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing

**TABLE 9-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

New or Existing Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
DU-P9 —Evaluate and implement dedicated partial full time employee equivalents (FTE’s) for the emergency management program including Emergency Management and Public Information Officer partial FTE’s						
Existing	All Hazards	1,2,3,7	Duvall Public Works Department	Medium	Grants, General & Utility Funds	Short-term
DU-P10 —Support Public safety with disaster response education, training, and other activities. Coordinate with Riverview School District and Duvall (KCFD 45) Fire Department educators to deliver public safety messages including earthquake, pandemic, widespread loss of utilities and access, and other emergency management issues.						
Existing	All Hazards	3,4,6,7,8, 11,13,14,15	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P11 —Coordinate with local volunteer organizations including Carnation-Duvall Citizen Corps. Promote volunteer training activities, pre-certification, and the CERT and Map Your Neighborhood programs.						
Existing	All Hazards	3,4,7,11,13,14	Duvall Public Works Department	Low	Grants, General & Utility Funds	Ongoing
DU-P12 —Coordinate with local grocery, equipment, fuel supply, and contractors to provide materials, fuel, consumables, and services during emergencies.						
Existing	All Hazards	1,7,13,14, 15	Duvall Public Works Department	Low	General & Utility Funds	Ongoing

**TABLE 9-9.
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
DU-GF1	4	High	Medium	Yes	Yes	Possibly	Medium
DU-GF2	4	High	Medium	Yes	Yes	No	Medium
DU-GF3	4	High	Medium	Yes	Yes	No	Medium
DU-GF4	3	High	Low	Yes	Yes	Possibly	High
DU-GF5	4	High	Low	Yes	Yes	Yes	High
DU-F1	5	Medium	Low	Yes	Yes	Yes	High
DU-F2	5	Medium	Low	Yes	Yes	Yes	High
DU-F3	5	Medium	Medium	Yes	Yes	Possibly	Medium
DU-F4	6	Medium	Low	Yes	Yes	Yes	High
DU-F5	5	High	Medium	Yes	Yes	No	Medium
DU-F6	5	Medium	Medium	Yes	Yes	No	Medium
DU-W1	4	High	High	Yes	Yes	Yes	High
DU-W2	4	Medium	High	No	Yes	No	Low
DU-W3	4	High	High	Yes	Yes	Possibly	Medium
DU-W4	4	Medium	Low	Yes	Yes	Yes	High
DU-W5	4	Medium	Low	Yes	Yes	Yes	High
DU-S1	4	Medium	Medium	Yes	Yes	Possibly	Medium
DU-S2	4	Medium	Medium	Yes	Yes	Possibly	Medium
DU-S3	4	Medium	Medium	Yes	Yes	Yes	High
DU-P1	7	Medium	Low	Yes	Yes	Yes	High
DU-P2	7	Medium	Low	Yes	Yes	Yes	High
DU-P3	6	Medium	Low	Yes	Yes	Yes	High
DU-P4	7	Medium	Low	Yes	Yes	Yes	High
DU-P5	2	Medium	Low	Yes	Yes	Yes	High
DU-P6	4	Medium	Low	Yes	Yes	Yes	High
DU-P7	1	High	Low	Yes	No	Yes	High
DU-P8	6	Medium	Low	Yes	Yes	Possibly	Medium
DU-P9	4	Medium	Medium	Yes	Yes	Possibly	Medium
DU-P10	9	Medium	Low	Yes	Yes	Yes	High
DU-P11	6	Medium	Low	Yes	Yes	Yes	High
DU-P12	5	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

**TABLE 9-10.
ANALYSIS OF MITIGATION INITIATIVES**

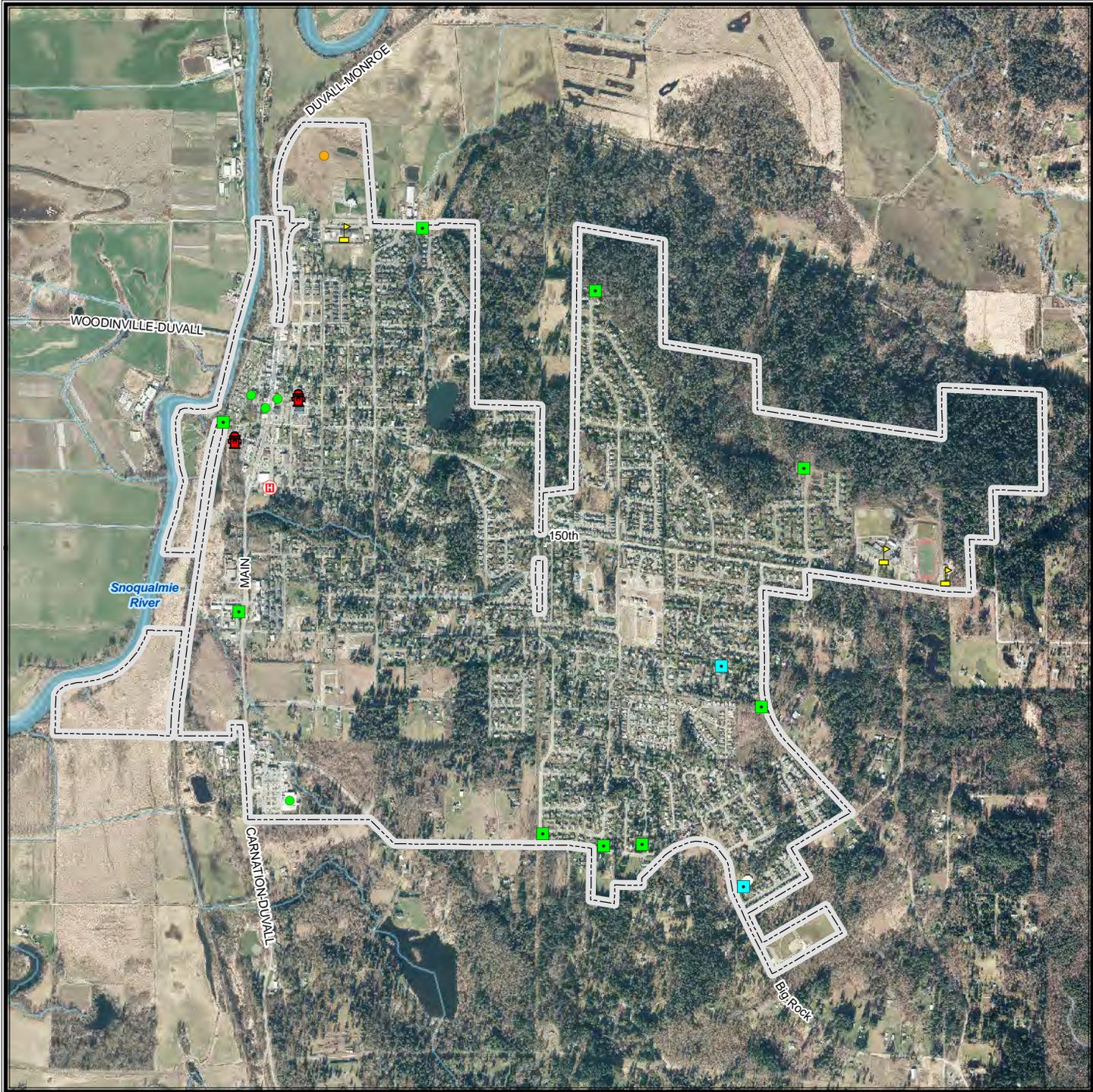
Initiative Addressing Hazard, by Mitigation Type ^a						
Hazard Type	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Dam Failure	F1, F2, F3, F4, P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, F2, F3, F4, W5	GF5, F1, F2, P1, P2, P10, P11	F1, F2, F3, F4	GF1, GF2, GF3, GF4, GF5, F1, W5, P1, P2, P3, P5, P6, P7, P9, P11, P12	F3, F4
Severe Winter Weather	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W5, S1, S2, S3, P8	GF5, P1, P2, P10, P11	S1, S2, S3	GF1, GF2, GF3, GF4, GF5, W5, S1, S2, S3, P1, P2, P3, P5, P6, P7, P8, P9, P11, P12	P8
Earthquake	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W1, W2, W3, W4, W5, S1, S2, S3, P8	GF5, P1, P2, P10, P11	W2, S1, S2, S3	GF1, GF2, GF3, GF4, GF5, W1, W2, W3, W4, W5, S1, S2, S3, P1, P2, P3, P5, P6, P7, P8, P9, P11, P12	W1, W2, W3, W4, P8
Flood	F1, F2, F3, F4, P1, P2, P3, P4, P6, P7	GF1, GF2, GF3, GF4, F1, F2, F3, F4, F5, F6, W5, S1, S2, S3	GF5, F1, F2, P1, P2, P4, P10, P11	F1, F2, F3, F4, F5, F6, S1, S2, S3	GF1, GF2, GF3, GF4, GF5, W5, S1, S2, S3, P1, P2, P3, P4, P5, P6, P7, P9, P11, P12	F3, F4, F5, F6
Landslide	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, F6, W2, W5	GF5, P1, P2, P10, P11	F6, W2, W6	GF1, GF2, GF3, GF4, GF5, W2, W5, P1, P2, P3, P5, P6, P7, P9, P11, P12	F6,
Severe Weather	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W5, S1, S2, S3, P8	GF5, P1, P2, P10, P11	S1, S2, S3	GF1, GF2, GF3, GF4, GF5, W5, S1, S2, S3, P1, P2, P3, P5, P6, P7, P8, P9, P11, P12	P8
Severe Winter Weather	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W5, S1, S2, S3, P8	GF5, P1, P2, P10, P11	S1, S2, S3	GF1, GF2, GF3, GF4, GF5, W5, S1, S2, S3, P1, P2, P3, P5, P6, P7, P8, P9, P11, P12	P8
Volcano	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W5	GF5, P1, P2, P10, P11		GF1, GF2, GF3, GF4, GF5, W5, P1, P2, P3, P5, P6, P7, P9, P11, P12	
Wildfire	P1, P2, P3, P6, P7	GF1, GF2, GF3, GF4, W1, W2, W3, W4, W5	GF5, P1, P2, P10, P11	W1, W2, W3	GF1, GF2, GF3, GF4, GF5, W1, W2, W3, W4, W5, P1, P2, P3, P5, P6, P7, P9, P11, P12	W1, W2, W3, W4

a. See Introduction for explanation of mitigation types.

9.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

The City of Duvall is relatively isolated with respect to road access, topography, and the Snoqualmie River. Historically, vehicle access to Duvall has been limited or lost during Snoqualmie River flooding events which often have included inundation of SR-203 and bridge approaches adjacent to the river. Road access to the City was severely limited during the week-long electricity outage that followed the December 2006 windstorm (1682-DR) and severe weather and flooding in 2009. The loss of access and electricity following these events resulted in lost work, personal and economic hardship, and scarce food and fuel supplies within the city limits. Effects similar to those experienced in 2006 and 2009 are probable during a large earthquake event, with potential for complete loss of road access and utility services (electricity, gas, communication).

Future evaluation is needed to understand the hazard to the community and economy of Duvall associated with prolonged (greater than three days) loss of access. The evaluation should consider availability of resources and outside assistance associated with flooding, earthquake, or other disaster events that would limit access to the City.



CITY OF DUVALL

Critical Facilities and Infrastructure

Critical Facilities

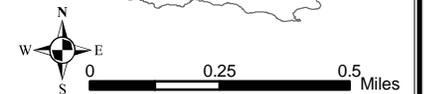
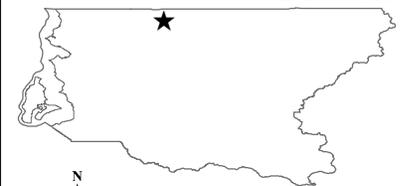
-  Government Function
-  HazMat
-  Medical Care
-  Protective Function
-  Schools
-  Other Facility

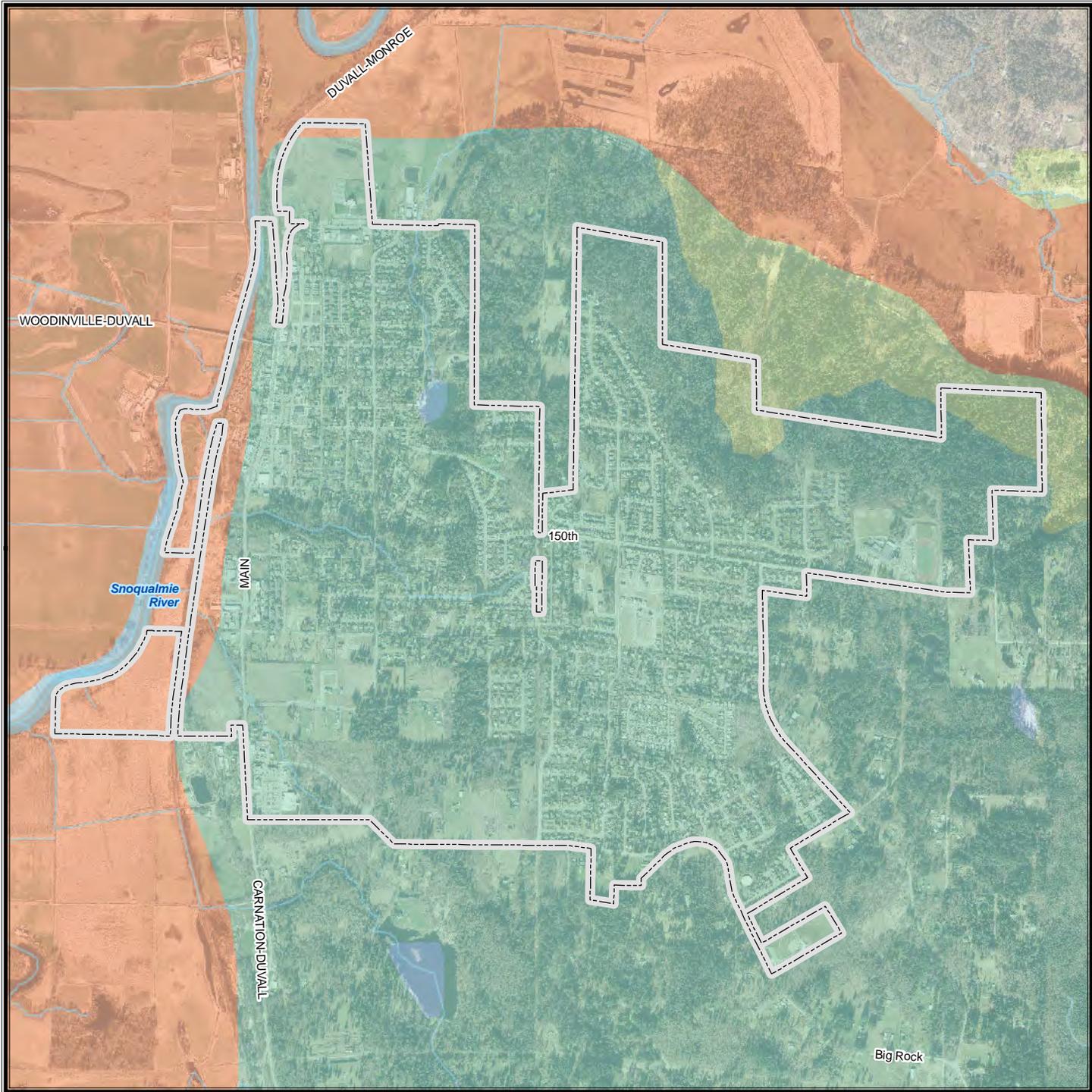
Critical Infrastructure

-  Bridges
-  Communications
-  Dams
-  Water Supply
-  Power
-  Transportation
-  Wastewater

Locations are approximate.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVALL

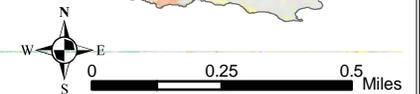
Liquefaction Susceptibility

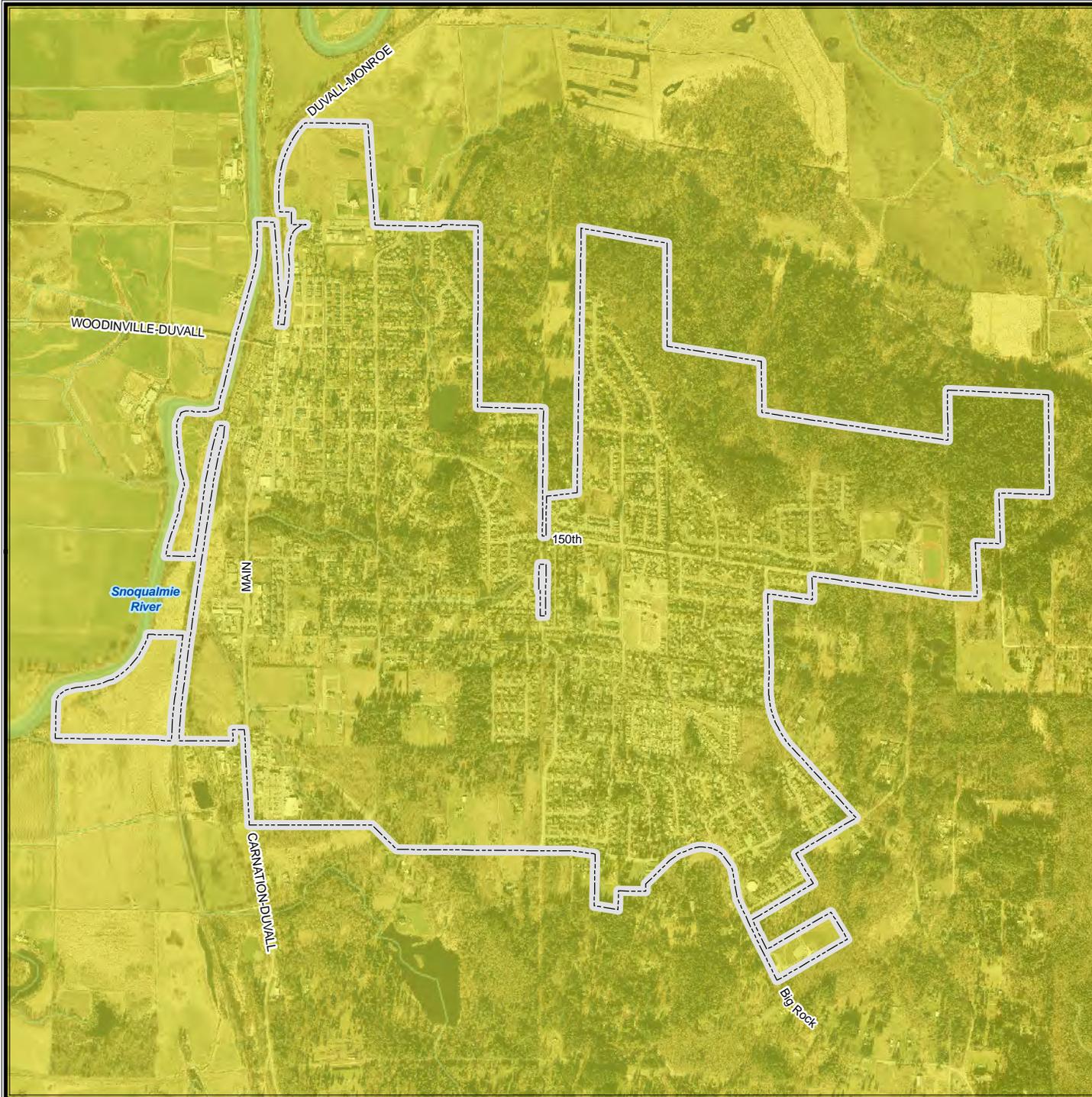
Susceptible		Not Susceptible	
■ High	■ Bedrock	■ Peat	■ Water
■ Moderate to High		■ Ice	
■ Moderate			
■ Low to Moderate			
■ Low			
■ Very Low to Low			
■ Very Low			

Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth materials are not liquefiable, although peat deposits may be subject to permanent ground deformation caused by earthquake shaking.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVALL

Seattle M7.2 Scenario Peak Ground Acceleration

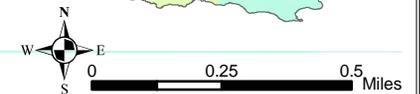
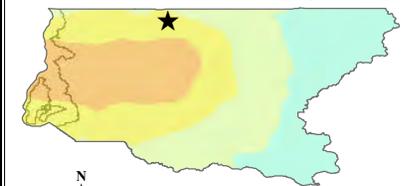
Mercalli Scale, Potential Shaking

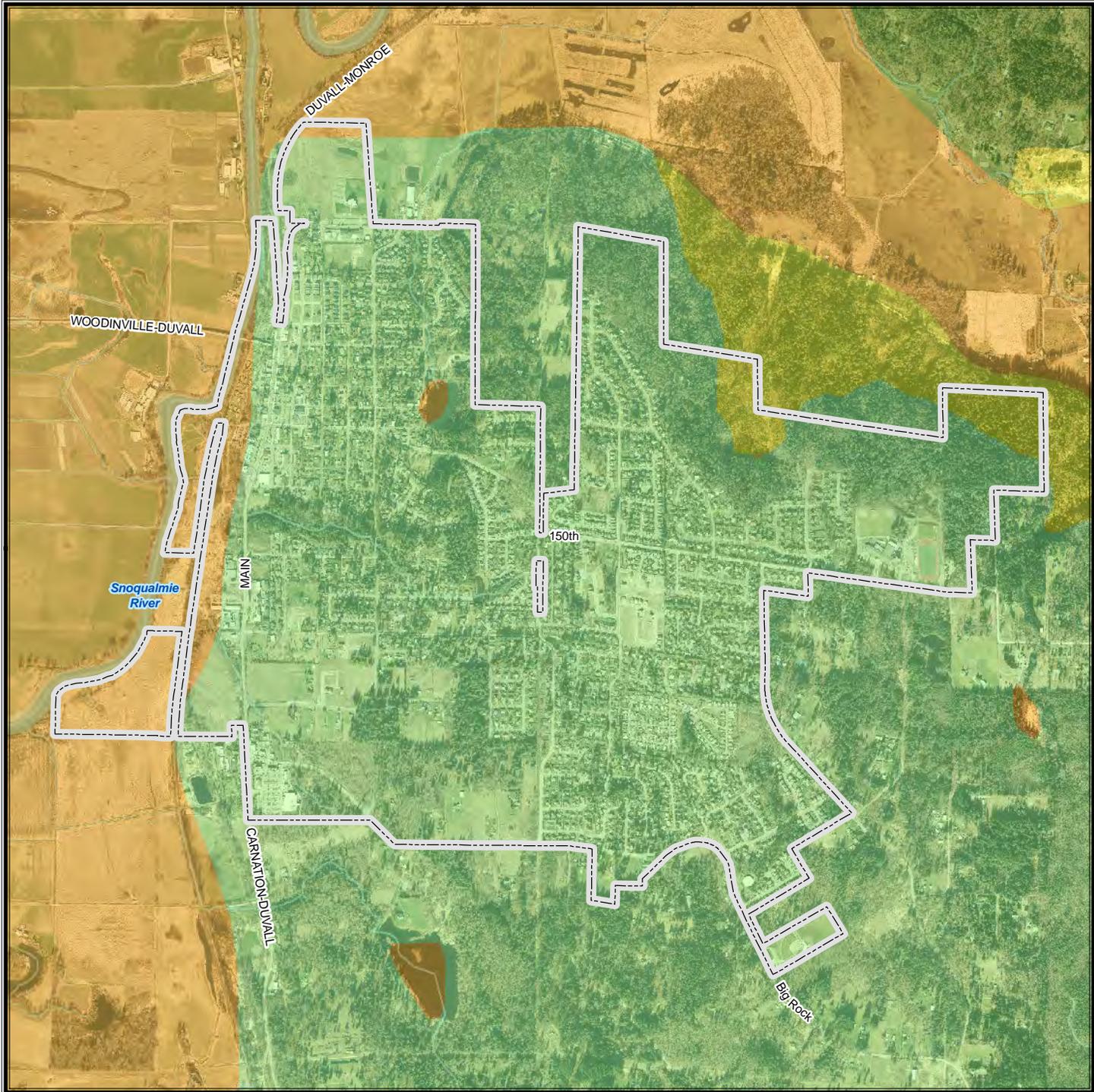
- I (Not Felt)
- II - III (Weak)
- IV (Light)
- V (Moderate)
- VI (Strong)
- VII (Very Strong)
- VIII (Severe)
- IX (Violent)
- X+ (Extreme)

Magnitude: 7.2
Epicenter: N47.52 W122.37

A ShakeMap is designed as a rapid response tool to portray the extent and variation of ground shaking throughout the affected region immediately following significant earthquakes. Ground motion and intensity maps are derived from peak ground motion amplitudes recorded on seismic sensors (accelerometers), with interpolation based on both estimated amplitudes where data are lacking, and site amplification corrections. Color-coded instrumental intensity maps are derived from empirical relations between peak ground motions and Modified Mercalli intensity.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVALL

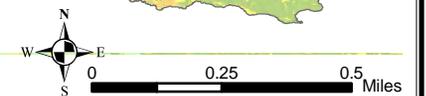
National Earthquake Hazard Reduction Program (NEHRP) Soil Classification

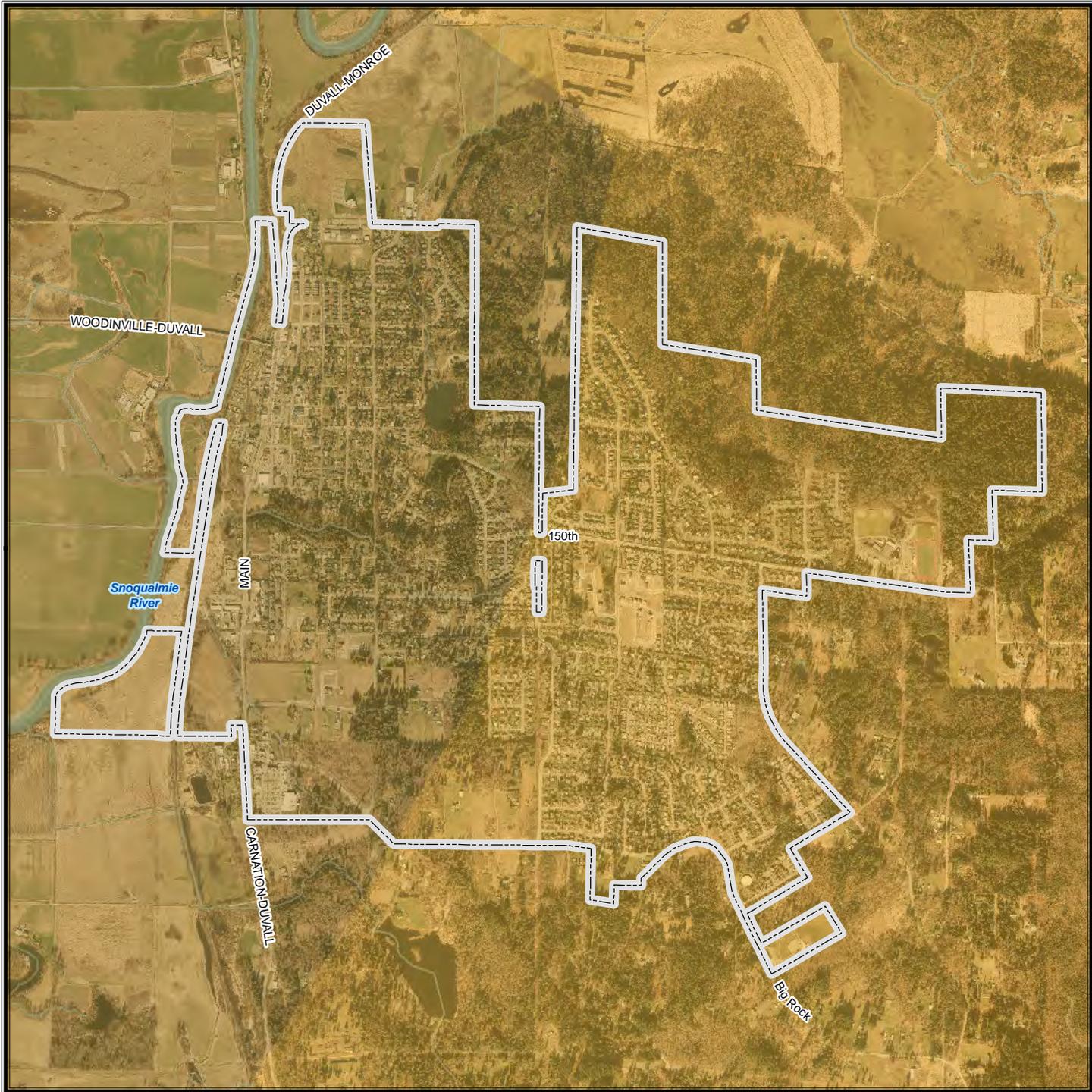
- Site Class B - Rock
- Site Class C - Very Dense Soil, Soft Rock
- Site Class D - Stiff Soil
- Site Class E - Soft Soil

Soil classification data provided by Washington State Department of Natural Resources, Geology and Earth Resources Division.

The dataset identifies site classes for approximately 33,000 polygons derived from the geologic map of Washington. The methodology chosen for developing the site class map required the construction of a database of shear wave velocity measurements. This database was created by compiling shear wave velocity data from published and unpublished sources, and through the collection of a large number of shear wave velocity measurements from seismic refraction surveys conducted for this project. All of these sources of data were then analyzed using the chosen methodologies to produce the statewide site class maps.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVALL

South Whidbey M7.4 Scenario Peak Ground Acceleration

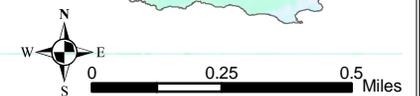
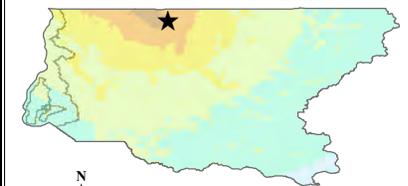
Mercalli Scale, Potential Shaking

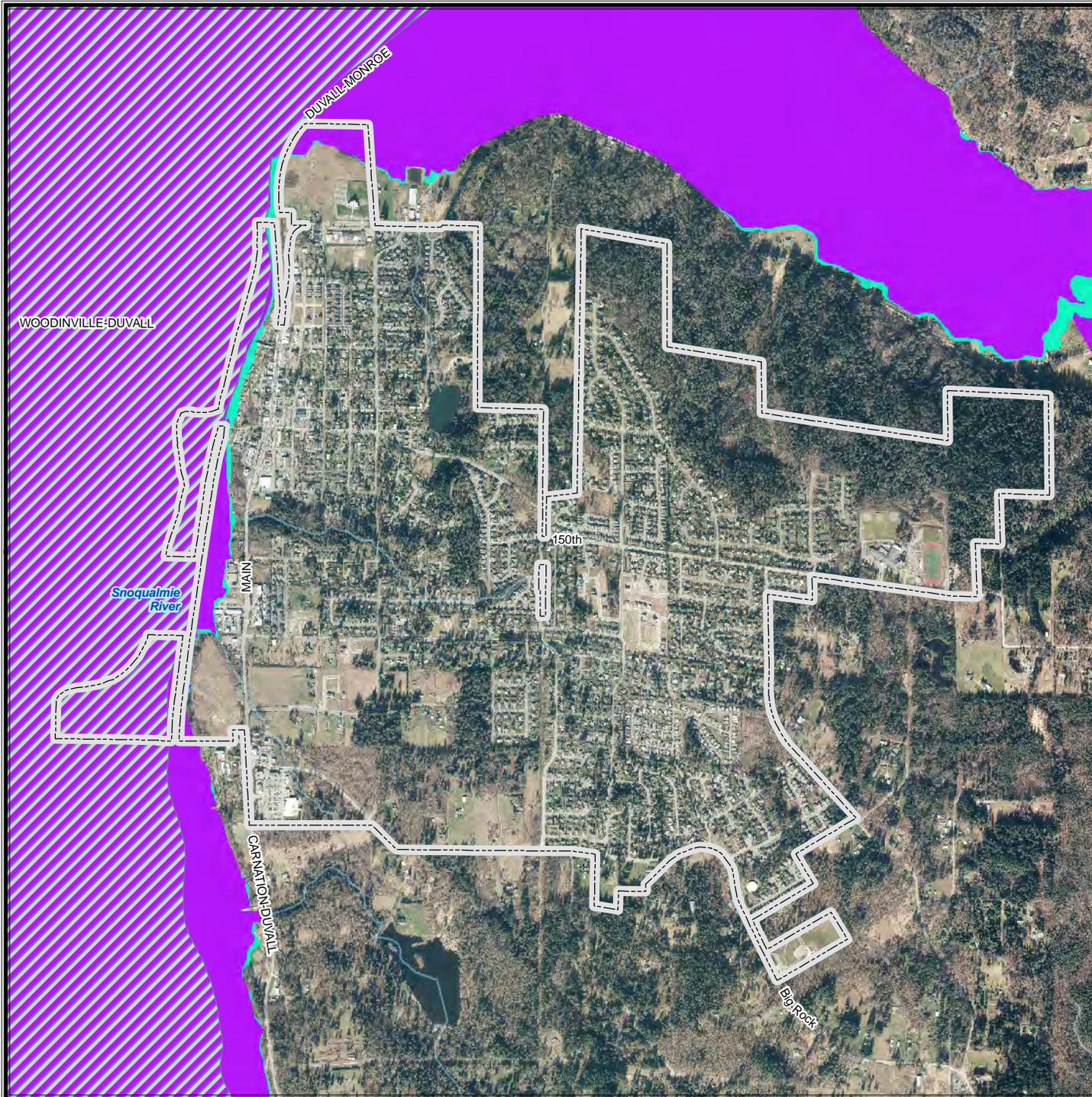
- I (Not Felt)
- II - III (Weak)
- IV (Light)
- V (Moderate)
- VI (Strong)
- VII (Very Strong)
- VIII (Severe)
- IX (Violent)
- X+ (Extreme)

Magnitude: 7.4
Epicenter: N48.05 W122.47

A ShakeMap is designed as a rapid response tool to portray the extent and variation of ground shaking throughout the affected region immediately following significant earthquakes. Ground motion and intensity maps are derived from peak ground motion amplitudes recorded on seismic sensors (accelerometers), with interpolation based on both estimated amplitudes where data are lacking, and site amplification corrections. Color-coded instrumental intensity maps are derived from empirical relations between peak ground motions and Modified Mercalli intensity.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVAL

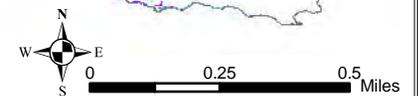
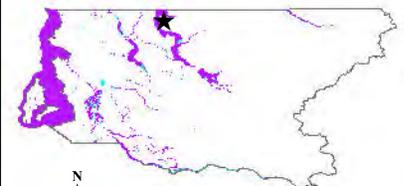
FEMA DFIRM Flood Hazard Areas

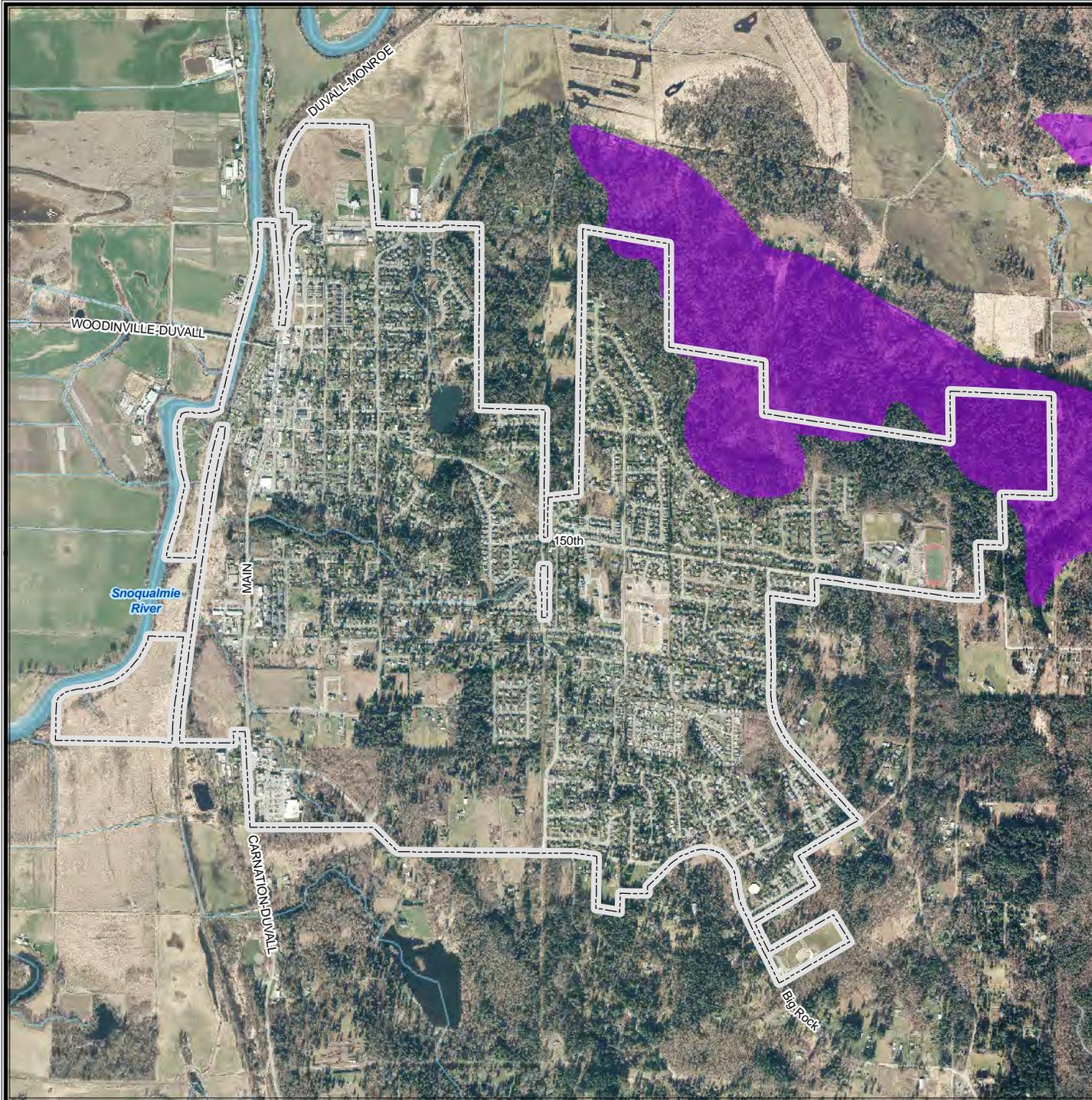
-  Floodway
-  1 Percent Annual Flood Hazard
-  0.2 Percent Annual Flood Hazard

Flood hazard areas as depicted on draft FEMA Digital Flood Insurance Rate Maps (DFIRM).

The 1 percent annual flood hazard is commonly referred to as the 100 year floodplain. The 0.2 percent annual flood hazard is commonly referred to as the 500 year floodplain.

Base Map Data Sources:
King County, U.S. Geological Survey





CITY OF DUVAL

Landslide Hazard Areas

■ All Hazard Areas

The landslide hazard areas shown have been merged from three assessments for use for planning purposes:

WA DNR Landslide Areas data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. This dataset contains 1:24,000-scale polygons defining the extent of mapped landslides in the state of Washington, compiled chiefly from pre-existing landslide databases created in different divisions of the Washington State Department of Natural Resources to meet a variety of purposes.

King County Slide Areas - Landslide areas are areas subject to severe landslide risk identified in the Sensitive Areas Ordinance as:

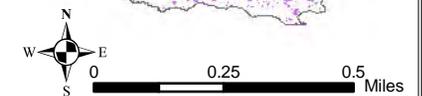
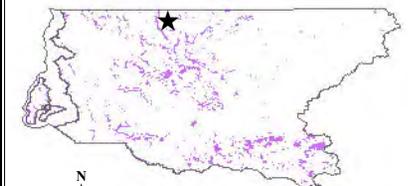
- A. Any area with a combination of:
 1. Slopes greater than 15 %
 2. Impermeable soils (typically silt and clay) frequently interbedded with granular soils (predominantly sand and gravel)
 3. Springs or groundwater seepage.
- B. Any area that has shown movement during the Holocene epoch (from 10,000 years ago to present), or that is underlain by mass wastage debris of that epoch.
- C. Any area potentially unstable as a result of rapid stream incision, stream bank erosion or undercutting by wave action.
- D. Any area that shows evidence of, or is at risk from, snow avalanches.
- E. Any area located on an alluvial fan, presently subject to or potentially subject to inundation by debris flows or deposition of stream-transported deposits.

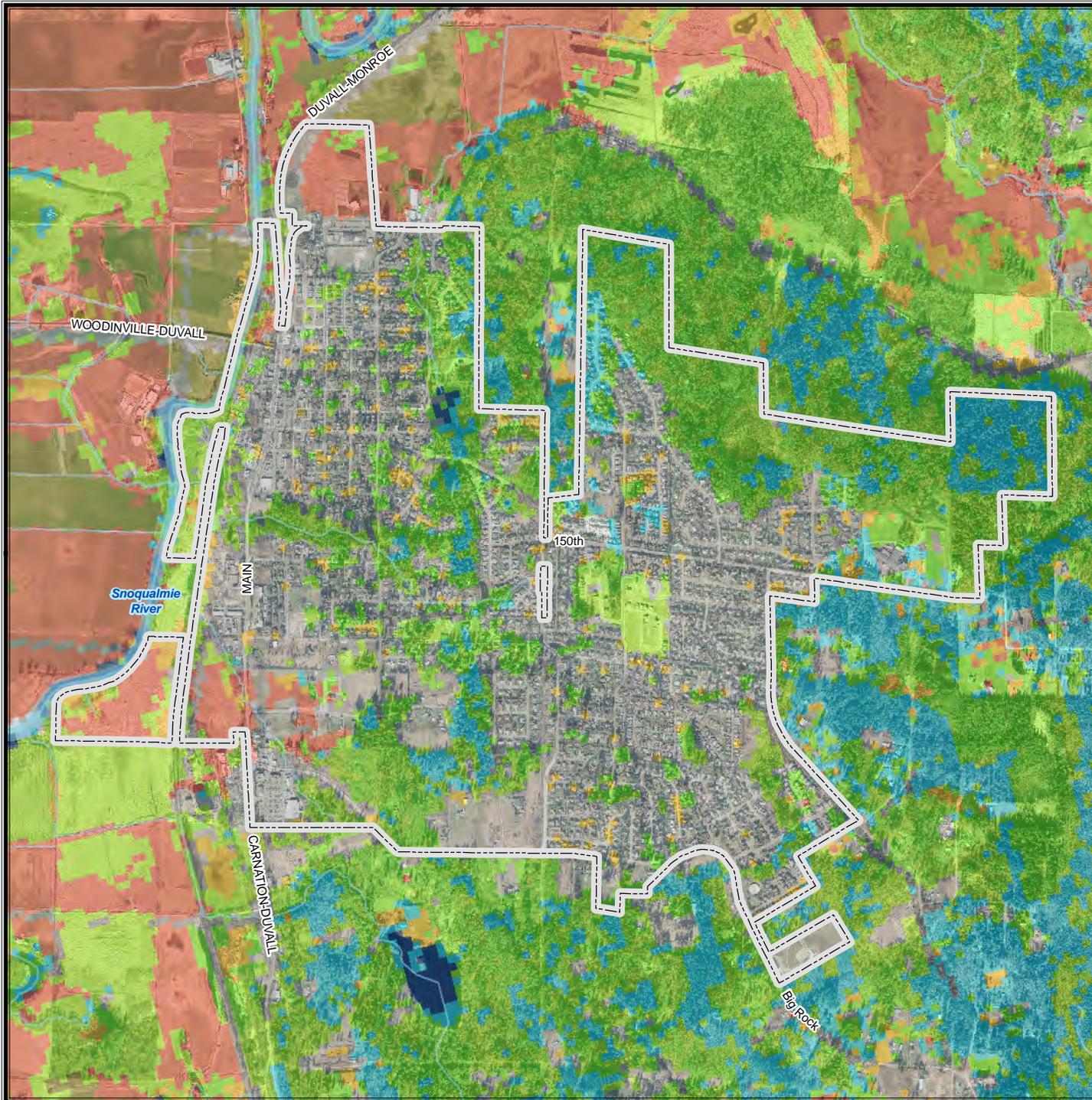
Slope/Soils Analysis:

1. Areas of slope greater than 40%. Slope determined using a DEM generated from 2002 LiDAR data. Slope data provided by King County DNRP.
2. Areas of Qf (alluvial fans), Qls (discrete landslides), and Qmw (colluvium and the cumulative debris from small indistinct landslides that accumulate on and at the base of unstable slopes) soils as identified in surface geology data provided by King County DNRP.

Base Map Data Sources:

King County, U.S. Geological Survey





CITY OF DUVALL

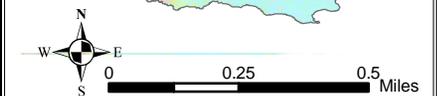
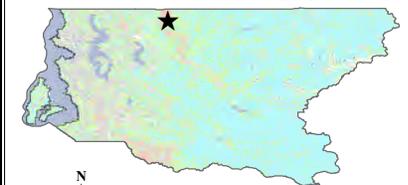
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

Burnable	Non-Burnable
FBFM1	Developed
FBFM2	Agriculture
FBFM3	Water
FBFM5	Barren
FBFM6	
FBFM8	
FBFM9	
FBFM10	
FBFM11	

Fuel Class data (LANDFIRE REFRESH 2008 (If_1.1.0)) provided by the Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey. The LANDFIRE fuel data describe the composition and characteristics of both surface fuel and canopy fuel. Thirteen typical surface fuel arrangements or "collections of fuel properties" (Anderson 1982) were described to serve as input for Rothermel's mathematical surface fire behavior and spread model (Rothermel 1972). These fire behavior fuel models represent distinct distributions of fuel loadings found among surface fuel components (live and dead), size classes and fuel types. The fuel models are described by the most common fire carrying fuel type (grass, brush, timber litter or slash), loading and surface area-to-volume ratio by size class and component, fuelbed depth and moisture of extinction.

Base Map Data Sources:
King County, U.S. Geological Survey



**APPENDIX A.
PLANNING PARTNER EXPECTATIONS**

APPENDIX A. PLANNING PARTNER EXPECTATIONS

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. There are several different groups who will be involved in this process at different levels. In order to provide clarity, the following is a general breakdown of those groups: the planning team, which is customarily the Tetra Tech Team and those actually responsible for the plan's written development; the Steering Committee, which represent members from the planning partnership that serve as the oversight body, assuming responsibility for many of the planning milestones prescribed for this process to help reduce the burden of time required by each planning partner; the planning partners are those jurisdictions or special purpose districts that are actually developing an annex to the regional plan; and the planning stakeholders, which are the individuals, groups, businesses, academia, etc., from which the planning team gains information to support the various elements of the plan.

DMA compliance requires that participation be defined in order to maintain eligibility with respect to meeting the requirements which allow a jurisdiction or special purpose district to develop an annex to the base plan. To achieve compliance for all partners, the plan must clearly document how each planning partner that is seeking linkage to the plan participated in the plan's development. The best way to do this is to clearly define "participation." For this planning process, "participation" is defined by the following criteria:

- **Estimated Level of Effort.** It is estimated that the total time commitment to meet these "participation" requirements for a planning partner not participating on the Steering Committee would be approximately 40 hours over the 12 to 14 month period. This time is reduced somewhat for special purpose districts.
- **Participate in the Process.** As indicated, it must be documented in the plan that each planning partner "participated" in the process to the best of your capabilities. There is flexibility in defining "participation," which can vary based on the type of planning partner (i.e.: City or County, vs. a Special Purpose District) involved. However, the level of participation must be defined at the on-set of the planning process, and we must demonstrate the extent to which this level of participation has been met for each partner. This planning process will utilize a Steering Committee that will assume responsibility for many of the planning milestones prescribed for this process to help reduce the burden of time required by each planning partner. This committee will be representative of the whole body and you as a planning partner will have input on its makeup. This committee will meet periodically (frequency to be determined by the committee) throughout the process and provide direction and guidance to the planning team. Steering Committee meetings are not mandatory meetings for all planning partners. If you are not on the committee, your attendance is not required; however, it is our hope that all planning partners will attempt to remain engaged with this process. Each committed planning partner will be notified of the date and time for all scheduled steering committee meetings. The planning team will also request support from the partnership during the public involvement phase of the planning process. Support could be in the form of providing venues for public meetings, attending these meetings as meeting participants, providing technical support, etc.
- **Duration of Planning Process.** This process is anticipated to take 12 to 14 months to complete. It will be easy to become disconnected with the process objectives if you do not participate in some of these meetings to some degree. The planning team will keep all

planning partners apprised of plan development milestones via informational bulletins that will be periodically distributed to the entire partnership.

- **Critical Facility Update.** All planning partners will be requested to update their critical facilities/infrastructure lists for use during the risk assessment. The CDMS extension to Hazaus will be used for this process, and guidance will be provided by the planning team. If the list is not updated, Hazus default data will be used. Updating this list provides a much more detailed analysis.
- **Capability Assessment.** All planning partners will be asked to identify their capabilities during this process. This assessment will look at the regulatory, technical, financial and floodplain management capabilities of each municipal partner. Special purpose districts will perform a different type of capability assessment. These capability assessments will require a review of existing plans, studies, ordinances and programs pertinent to each jurisdiction to identify policies or recommendations that can complement the hazard mitigation initiatives selected (e.g., comprehensive plans, basin plans or hazard-specific plans). This step is important because increasing a jurisdiction's capability is a viable mitigation action.
- **Action/Strategy Review.** All previous planning partners will be required to perform a review of the strategies from their respective prior action plan to: determine those that have been accomplished and how they were accomplished; and why those that have not been accomplished were not completed. The planning team will be available to assist with this task.
- **Action Plan Development.** Each planning partner must identify and prioritize an action plan that they will strive to implement to reduce the risks from hazards they have ranked that impact their jurisdiction.
- **Plan Adoption.** The 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 during our kick-off meeting. 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 (unless decided otherwise) 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 planning partner will be asked to aid this process by being prepared to develop its section of the plan. To be an eligible planning partner in this effort, each Planning Partner will be asked to provide the following:

- A "Letter of Intent to participate" or Resolution to participate to the Planning Team (see exhibit A).
- 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.
- Identify an un-burdened billing rate for this point of contact which will be used to calculate the in-kind match for the grant that is funding this project.

- Approve the Steering Committee.
- If requested, provide support in the form of mailing list, possible meeting space, and public information materials, such as newsletters, newspapers or direct mailed brochures, required to implement the public involvement strategy developed by the Steering Committee.
- Participate in the process. There will be many opportunities as this plan evolves to participate. Opportunities such as:
 - Steering Committee meetings
 - Public meetings or open houses
 - Workshops/ Planning Partner specific training sessions
 - 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.

- 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.
- After participation in the mandatory annex workshop, each partner will be required to complete their annex and provide it to the planning team in the time frame established by the Steering Committee. Technical assistance in the completion of these annexes will be available from the planning team. Failure to complete your annex in the required time frame may lead to disqualification from the partnership.
- Each partner will be asked to review the Risk Assessment and identify hazards and vulnerabilities specific to its jurisdiction. Contract resources will provide the jurisdiction specific mapping and technical consultation to aid in this task, but the determination of risk and vulnerability will be up to each partner (through a facilitated process during the mandatory workshop).
- 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 formally adopt the plan.

Planning tools and instructions to aid in the compilation of this information will be provided to all committed planning partners. Each partner will be asked to complete their annexes in a timely manner and according to the timeline specified by the Steering Committee.

**** Note**:** Once this plan is completed, and FEMA approval has been determined for each partner, maintaining that eligibility will be dependent upon each partner implementing the plan implementation-maintenance protocol identified in the plan.

Exhibit A
Example Letter of Intent to Participate

King County Hazard Mitigation Planning Partnership

C/O Tetra Tech, Inc.
19803 N. Creek Parkway
Bothell, WA 98011

Via email at: rob.flaner@tetrattech.com

Dear King County Planning Partnership,

Please be advised that the _____ (*insert City or district name*) is committed to participating in the update to the King County Regional Multi- Hazard Mitigation Plan. As the _____ (title, e.g., Chief Administrative Official) for this jurisdiction, I certify that I will commit all necessary resources in order to meet Partnership expectations as outlined in the “Planning Partners expectations” document provided by the planning team, in order to obtain Disaster Mitigation Act (DMA) compliance for our jurisdiction.

Mr./Ms. _____ will be our jurisdiction’s point of contact for this process and they can be reached at (*insert: address, phone number and e-mail address*). We understand that this designated point of contact’s time will be applied to the “in-kind” local match for the grant that is funding this project. To aid in the determination of this local match, we have determined that the fully burdened bill rate for our designated point of contact is \$ _____. The funding source for our point of contact’s position within our jurisdiction is _____ / is not _____ through federal funds. If it is through federal funds, what percentage of their salary is federally funded? _____%

Sincerely,

Exhibit B
(Current) Planning Team Contact information

Name	Representing	Address	Phone	e-mail
Janice Rahman	King County OEM	3511 NE 2nd Street Renton, WA 98056	(206) 205-4061	<u>Janice.Rahman@Kingcounty.gov</u>
Sam Ripley	King County OEM	3511 NE 2nd Street Renton, WA 98056	(206) 205-4072	<u>Sam.Ripley@kingcounty.gov</u>
Rob Flaner	Tetra Tech, Inc.	90 S. Blackwood Ave Eagle, ID 83616	(208) 939-4391	<u>Rob.flaner@tetrattech.com</u>

**APPENDIX B.
PROCEDURES FOR LINKING TO
THE REGIONAL HAZARD MITIGATION PLAN UPDATE**

APPENDIX B. PROCEDURES FOR LINKING TO THE REGIONAL HAZARD MITIGATION PLAN UPDATE

Not all eligible local governments in King County are included in the King County Regional Hazard Mitigation Plan Update. 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 (DMA). In addition, some current partners may not continue to meet eligibility requirements due to a lack of participation prescribed by the plan. The following “linkage” procedures define the requirements established by the Planning Team for dealing with an increase or decrease in the number of planning partners linked to this plan. No currently non-participating jurisdiction within the defined planning area is 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 Chapter 44 of the Code of Federal Regulations (44 CFR).

INCREASING THE PARTNERSHIP THROUGH LINKAGE

Eligible jurisdictions located in the planning area may link to this plan at any point during the plan’s performance period. It is expected that linking jurisdictions will complete the requirements outlined below and submit their completed template to the lead agency (King County Office of Emergency Management) for review within three months of beginning the linkage process:

- The eligible jurisdiction requests a “Linkage Package” by contacting the Point of Contact (POC) for the plan:
 - Janice Rahman, Project Manager
 - King County Office of Emergency Management
 - 3511 NE 2nd Street
 - Renton, WA 98056
 - (206) 205-4061
 - Janice.Rahman@kingcounty.gov
- The POC will provide a linkage procedure package that includes linkage information and a linkage tool-kit:
 - Linkage Information
 - Procedures for linking to the regional hazard mitigation plan update
 - Planning partner’s expectations for linking jurisdictions
 - A sample “letter of intent” to link to the Regional Hazard Mitigation Plan
 - A copy of Section 201.6 of 44 CFR, which defines the federal requirements for a local hazard mitigation plan.
 - Linkage Tool-Kit
 - Copy of Volume 1 and 2 of the plan
 - A special purpose district or city template and instructions
 - A catalog of hazard mitigation alternatives
 - A “request for technical assistance” form
 - An annex review check-list
 - A sample resolution for plan adoption
- The new jurisdiction will be required to review both volumes of the Regional Hazard Mitigation Plan, which include the following key components for the planning area:

- Goals and objectives
- The planning area risk assessment
- Comprehensive review of alternatives
- Countywide initiatives
- Plan implementation and maintenance procedures.

Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC. Jurisdictions can request technical assistance (TA) by completing the TA form provided in the linkage package and submitting it to the POC. The POC will coordinate the provision of the TA based on resources available at the time of the request.

- The development of the new jurisdiction’s annex must not be completed by one individual in isolation. The jurisdiction must develop, implement and describe a public involvement strategy and a methodology to identify and vet jurisdiction-specific actions. The original partnership was covered under a uniform public involvement strategy and a process to identify actions that covered the planning area described in Volume 1 and Volume 2 of this plan. Since new partners were not addressed by these strategies, they will have to initiate new strategies and describe them in their annex. For consistency, new partners are encouraged to develop and implement strategies similar to those described in this plan.
- The public involvement strategy must ensure the public’s ability to participate in the plan development process. At a minimum, the new jurisdiction must solicit public opinion on hazard mitigation at the onset of the linkage process and hold one or more public meetings to present the draft jurisdiction-specific annex for comment at least two weeks prior to adoption by the governing body. The POC will have resources available to aid in the public involvement strategy, including:
 - The questionnaire utilized in the plan development
 - Presentations from public meeting workshops and the public comment period
 - Flyers and information cards that were distributed to the public
 - Press releases used throughout the planning process
 - The plan website.
- The methodology to identify actions should include a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard and a description of the process by which chosen actions were identified. As part of this process, linking jurisdictions should coordinate the selection of actions amongst the jurisdiction’s various departments.
- Once their public involvement strategy and template are completed, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the Regional plan format and linkage procedure requirements.
- The POC will review for the following:
 - Documentation of public involvement and action plan development strategies
 - Conformance of template entries with guidelines outlined in instructions
 - Chosen initiatives are consistent with goals, objectives and mitigation catalog of the Regional Hazard Mitigation Plan Update
 - A designated point of contact
- Plans will be reviewed by the POC and submitted to Washington State Emergency Management Division (EMD) for review and approval.

- EMD will review 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 the new jurisdiction of the results of review with copies to EMD and the approved plan lead agency.
- New jurisdiction corrects plan shortfalls (if necessary) and resubmits to EMD 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 and forwards adoption resolution to FEMA with copies to lead agency and EMD.
- FEMA regional director notifies the new jurisdiction's governing authority of the plan's approval.

The new jurisdiction plan is then included with the regional plan, and the new jurisdiction is committed to participate in the ongoing plan implementation and maintenance strategies.

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 the Washington State Emergency Management Division and FEMA in writing that the partner in question is no longer covered by the Regional Hazard Mitigation Plan Update, 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 21 in Volume 1 of the plan. Each partner agreed to these terms by adopting the plan.

Eligibility status of the planning partnership will be monitored by the POC. The determination of whether a partner is meeting its participation requirements will be based on the following parameters:

- Are progress reports being submitted annually by the specified time frames?
- Are partners notifying the POC of changes in designated points of contact?
- Are the partners supporting the Steering Committee by attending designated meetings or responding to needs identified by the body?
- Are the partners continuing to be supportive as specified in the Planning Partners expectations package provided to them at the beginning of the process?

Participation in the plan does not end with plan approval. This partnership was formed on the premise that a group of planning partners would pool resources and work together to strive to reduce risk within the planning area. Failure to support this premise lessens the effectiveness of this effort. The following procedures will be followed to remove a partner due to the lack of participation:

- The POC will advise the Steering Committee of this pending action and provide evidence or justification for the action. Justification may include: multiple failures to submit annual progress reports, failure to attend meetings determined to be mandatory by the Steering Committee, failure to act on the partner's action plan, or inability to reach designated point of contact after a minimum of five attempts.
- The Steering Committee will review information provided by POC, and determine action by a vote. The Steering Committee will invoke the voting process established in the ground rules established during the formation of this body.
- Once the Steering Committee has approved an action, the POC will notify the planning partner of the pending action in writing via certified mail. This notification will outline the grounds for the action, and ask the partner if it is their desire to remain as a partner. This notification shall also clearly identify the ramifications of removal from the partnership. The partner will be given 30 days to respond to the notification.
- Confirmation by the partner that they no longer wish to participate or failure to respond to the notification shall trigger the procedures for voluntary removal discussed above.
- Should the partner respond that they would like to continue participation in the partnership, they must clearly articulate an action plan to address the deficiencies identified by the POC. This action plan shall be reviewed by the Steering Committee to determine whether the actions are appropriate to rescind the action. Those partners that satisfy the Steering Committee's review will remain in the partnership, and no further action is required.
- Automatic removal from the partnership will be implemented for partners where these actions have to be initiated more than once in a 5-year planning cycle.

**APPENDIX C.
ANNEX INSTRUCTIONS AND TEMPLATES**

Appendix C1.
Annex Instructions and Templates for Municipalities

INSTRUCTIONS FOR COMPLETING MUNICIPALITY ANNEX TEMPLATE

This document provides instructions for city and county governments participating in multi-partner hazard mitigation planning. These instructions are intended for municipalities that do not have a FEMA approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all Planning Partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by:

Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

Municipality Annex:

This document provides instructions for completing the jurisdictional annex template for city and county governments.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2014

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs,
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.), replacing the yellow, highlighted text.

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).

Please be sure to include information about who will adopt the Plan and who will oversee plan implementation. Consider using the following sentence: _____ assumes responsibility for the adoption of this plan; _____ will oversee its implementation.

For each bullet point, please replace the highlighted, yellow text with your jurisdiction-specific information.

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.

CAPABILITY ASSESSMENT

NOTE: Please do not attempt to complete this section of the template by yourself. You will need to reach out to other departments within your jurisdiction to find the answers to these questions. Departments such as, Planning, Public Works/Engineering, and Emergency Services are responsible for the implementation of many of the capabilities listed in this assessment. If you find that your jurisdiction does not have any of the listed capabilities, then ask yourself or the responsible department “why?” Remember, increasing capability is a way to reduce risk and is, therefore, a viable mitigation action.

Legal and Regulatory Capability

Describe the legal authorities available to your jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that can support hazard mitigation initiatives. In Table 1-1, indicate “Yes” or “No” for each listed code, ordinance, requirement or planning document in each of the following columns:

- **Local Authority**—Enter “Yes” if your jurisdiction has prepared or adopted the identified item; otherwise, enter “No.” If yes, then enter the code or ordinance number and its date of adoption in the comments column. It is very important that you list the code citation as well as date of adoption. Identification of old codes often are leads to identifying mitigation actions. For example, if your flood damage prevention ordinance has a date of adoption prior to 2004, there is a good chance that the ordinance is out of compliance with the National Flood Insurance Program (NFIP). This should be addressed as an action in your action plan. If a code has been updated since its initial adoption date, please provide the date of the most recent update.
- **State or Federal Prohibitions**—Enter “Yes” if there are any state or federal regulations or laws that would prohibit local implementation of the identified item; otherwise, enter “No.”
- **Other Regulatory Authority**—Enter “Yes” if there are any regulations that may impact your initiative that are enforced or administered by another agency (e.g., a state agency or special purpose district); otherwise, enter “No.”
- **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.”

A Note On Planning Documents:

Comprehensive Plans - Jurisdictions that engage in comprehensive planning may wish to link their plan to the hazard mitigation plan. This linkage can occur in many related elements such as the safety element or in the critical areas discussion of the land use element.

Capital Improvement Programs – CIPs may address a variety of infrastructure such as sewer, water, drainage, roads and storm water. Capital Facilities Plans are a required element of the Washington State Growth Management Act; however, counties and municipalities may have differing definitions of “capital.”

Fiscal Capability

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 1-2 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.

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 the implementation of specific mitigation actions.

Complete Table 1-3 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.

National Flood Insurance Program Compliance

For those communities that participate in the National Flood Insurance program (NFIP), this section will aid in meeting the requirements specified in 44CFR 201.6(c)(3)(ii), dealing with the maintenance of NFIP compliance. This section asks a series of questions aimed at identifying the community’s floodplain management program and any inherent needs within that program. Table 1-4 asks nine questions about the community floodplain management program. To complete this table, you will need to identify the department responsible for floodplain management within your jurisdiction. Guidance on how to respond to each of these questions is as follows:

<p>What department is responsible for floodplain management in your community?</p>	<p>All communities that participate in the NFIP must appoint a department that is responsible for the administration of its floodplain management program. This can be designated in the actual ordinance language. Places to check include; Building Department, Community Development, Public Works or Engineering Department</p>
<p>Who is your Community’s Floodplain Administrator? (Department/Position)</p>	<p>This position will be designated in the Community’s flood damage prevention ordinance. Please confirm that this position is still acting as the designated Flood Plain Administrator. If it is not, then you will need to amend your ordinance.</p>
<p>Do you have any Certified Floodplain Managers (CFM) on staff within your community?</p>	<p>The Association of State Floodplain Managers has established a national program for professional certification of floodplain managers. The program recognizes continuing education and professional development that enhance the knowledge and performance of local, state, federal, and private-sector floodplain managers. The role of the nation’s floodplain managers is expanding due to increases in disaster losses, the emphasis being placed upon mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. This certification program lays the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation’s human, financial, and natural resources.</p>
<p>What is the date of adoption of your flood damage prevention ordinance?</p>	<p>Check the date your floodplain management ordinance was last adopted/amended. Please site the code number and whether this date reflects the initial adoption date or an amendment date.</p>
<p>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</p>	<p>The CAV is the method utilized by FEMA to monitor NFIP compliance. CAV’s are supposed to occur every 3 to 5 years. They can be performed by the FEMA Regional Office or by the State Coordinating Agency. The best source for this information is your</p>

	<p>Community Floodplain Administrator. If she or he does not know, you should check with the State NFIP Coordinator:</p> <p>Scott McKinney, Washington Department of Ecology 360-407-6131 scott.mckinney@ecy.wa.gov</p>
<p>To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.</p>	<p>If any administrative problems or potential violations are identified during a CAV the community will be notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. The best source for this information is your Community Floodplain Administrator. If she does not know, you should check with the State NFIP Coordinator.</p>
<p>Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why).</p>	<p>If you believe that the flood hazard maps for your community do not adequately address the flood risk, please provide an explanation. If you believe the maps do adequately address the flood risk within your community, please answer “Yes.”</p>
<p>Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?</p>	<p>What do you need to make your floodplain management program better? Do you need staffing, training, better maps? This is the section where you identify needs. Needs result in actions. If you identify needs here, you should identify an action in your action plan to address those needs. It is plausible to answer “nothing” here. But to do so, you need to have a very well established floodplain management program or little or no floodplain to manage.</p>
<p>Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?</p>	<p>The CRS program is a part of the National Flood Insurance Program that rewards participating communities for exceeding the minimum requirements of the NFIP by lowering the cost of flood insurance premiums in participating jurisdictions. The CRS provides credit for 18, non-structural flood mitigation activities. The CRS program is voluntary, and communities must be in full compliance and good standing under the NFIP to be eligible to apply.</p>

Community Mitigation Related Classifications

The Planning Team will complete Table 1-5 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. You do not need to provide information for this table.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table 1-6, 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 in the SHELDUS historical data included in your tool kit. 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. The Planning Team will provide information regarding repetitive loss properties for your jurisdiction. Please do not worry about completing this portion of the template.

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)

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.

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

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**—30% or more of the population is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the population is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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)

TABLE 2. HAZARD IMPACT ON PEOPLE			
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**—25% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)

- **Medium Impact**—10% to 24% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—9% 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)

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 15% or more of the total assessed property value (Impact Factor = 3)
- **Medium Impact**—Estimated loss from the hazard is 5% to 14% of the total assessed property value (Impact Factor = 2)
- **Low Impact**—Estimated loss from the hazard is 4% or less of the total assessed property value (Impact Factor = 1)
- **No Impact**—No loss is estimated from the hazard (Impact Factor = 0)

TABLE 5. HAZARD IMPACT ON THE ECONOMY			
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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Economy (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-7 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-7 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

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 vision of the hazard mitigation plan. The approved goals, objectives and vision are included in your tool kit.
- 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 the entire 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.

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.

Complete Table 1-8 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. The approved goals, objectives and vision are included in your tool kit.
- 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 1-2) to identify possible sources of funding.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).

Technical assistance will be provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-9 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-8.
- **# 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 (e.g., 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 Equal or 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 1-10 by 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.

As you complete your template, please forward it to:

Kristen Gelino, Tetra Tech, Inc.

425.482.7801

Kristen.Gelino@TetraTech.com

CHAPTER 1.

INSERT JURISDICTION NAME ANNEX

1.1 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

1.2 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

1.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction's legal and regulatory capabilities is presented in Table 1-1. The assessment of the jurisdiction's fiscal capabilities is presented in Table 1-2. The assessment of the jurisdiction's administrative and technical capabilities is presented in Table 1-3. Information on the community's National Flood Insurance Program (NFIP) compliance is presented in Table 1-4. Classifications under various community mitigation programs are presented in Table 1-5.

**TABLE 1-1.
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					
Public Health and Safety					
Environmental Protection					
Planning Documents					
General or Comprehensive Plan					
	<i>Is the plan equipped to provide linkage to this mitigation plan?</i>			<input type="checkbox"/>	<input type="checkbox"/>
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
	<i>What types of capital facilities does the plan address?</i>			<input type="checkbox"/>	<input type="checkbox"/>
	<i>How often is the plan revised/updated?</i>			<input type="checkbox"/>	<input type="checkbox"/>
Habitat Conservation Plan					
Economic Development Plan					
Shoreline Management Plan					
Community Wildfire Protection Plan					
Response/Recovery Planning					
Comprehensive Emergency Management Plan					
Threat and Hazard Identification and Risk Assessment					
Terrorism Plan					
Post-Disaster Recovery Plan					
Continuity of Operations Plan					
Public Health Plans					

TABLE 1-2. 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 1-3. 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		
Surveyors		
Personnel skilled or trained in GIS applications		
Scientist familiar with natural hazards in local area		
Emergency manager		
Grant writers		

**TABLE 1-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	
Who is your community’s floodplain administrator? (department/position)	
Do you have any certified floodplain managers on staff in your community?	
What is the date of adoption of your flood damage prevention ordinance?	
When was the most recent Community Assistance Visit or Community Assistance Contact?	
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	

**TABLE 1-5.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Community Rating System			
Building Code Effectiveness Grading Schedule			
Public Protection			
Storm Ready			
Firewise			
Tsunami Ready (if applicable)			

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

- Number of FEMA-Identified Repetitive Loss Properties: **Insert #**
- Number of FEMA-Identified Severe Repetitive Loss Properties: **Insert #**
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: **Insert #**

1.5 HAZARD RISK RANKING

Table 1-7 presents the ranking of the hazards of concern.

Hazard area extent and location maps 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. **Delete this paragraph if no maps available.**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

1.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-8 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-9 identifies the priority for each initiative. Table 1-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-8. 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						

**TABLE 1-10.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

**1.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/
VULNERABILITY**

Insert text, if any; delete section if not used

1.8 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used

INSTRUCTIONS FOR COMPLETING MUNICIPALITY UPDATE ANNEX TEMPLATE

This document provides instructions for city and county governments participating in multi-partner hazard mitigation planning. These instructions are intended for municipalities that currently have a FEMA approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all Planning Partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by:

Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

Municipality Update Annex:

This document provides instructions for completing the jurisdictional annex template for city and county governments.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2013

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs,
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.), replacing the yellow, highlighted text.

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).

Please be sure to include information about who will adopt the Plan and who will oversee plan implementation. Consider using the following sentence: _____ assumes responsibility for the adoption of this plan; _____ will oversee its implementation.

For each bullet point, please replace the highlighted, yellow text with your jurisdiction-specific information.

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.

CAPABILITY ASSESSMENT

NOTE: Please do not attempt to complete this section of the template by yourself. You will need to reach out to other departments within your jurisdiction to find the answers to these questions. Departments such as, Planning, Public Works/Engineering, and Emergency Services are responsible for the implementation of many of the capabilities listed in this assessment. If you find that your jurisdiction does not have any of the listed capabilities, then ask yourself or the responsible department “why?” Remember, increasing capability is a way to reduce risk and is, therefore, a viable mitigation action.

Legal and Regulatory Capability

Describe the legal authorities available to your jurisdiction and/or enabling legislation at the state level affecting planning and land management tools that can support hazard mitigation initiatives. In Table 1-1, indicate “Yes” or “No” for each listed code, ordinance, requirement or planning document in each of the following columns:

- **Local Authority**—Enter “Yes” if your jurisdiction has prepared or adopted the identified item; otherwise, enter “No.” If yes, then enter the code or ordinance number and its date of adoption in the comments column. It is very important that you list the code citation as well as date of adoption. Identification of old codes often are leads to identifying mitigation actions. For example, if your flood damage prevention ordinance has a date of adoption prior to 2004, there is a good chance that the ordinance is out of compliance with the National Flood Insurance Program (NFIP). This should be addressed as an action in your action plan. If a code has been updated since its initial adoption date, please provide the date of the most recent update.
- **State or Federal Prohibitions**—Enter “Yes” if there are any state or federal regulations or laws that would prohibit local implementation of the identified item; otherwise, enter “No.”
- **Other Regulatory Authority**—Enter “Yes” if there are any regulations that may impact your initiative that are enforced or administered by another agency (e.g., a state agency or special purpose district); otherwise, enter “No.”
- **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.”

A Note On Planning Documents:

Comprehensive Plans - Jurisdictions that engage in comprehensive planning may wish to link their plan to the hazard mitigation plan. This linkage can occur in many related elements such as the safety element or in the critical areas discussion of the land use element.

Capital Improvement Programs – CIPs may address a variety of infrastructure such as sewer, water, drainage, roads and storm water. Capital Facilities Plans are a required element of the Washington State Growth Management Act; however, counties and municipalities may have differing definitions of “capital.”

Fiscal Capability

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 1-2 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.

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 the implementation of specific mitigation actions.

Complete Table 1-3 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.

National Flood Insurance Program Compliance

For those communities that participate in the National Flood Insurance program (NFIP), this section will aid in meeting the requirements specified in 44CFR 201.6(c)(3)(ii), dealing with the maintenance of NFIP compliance. This section asks a series of questions aimed at identifying the community’s floodplain management program and any inherent needs within that program. Table 1-4 asks nine questions about the community floodplain management program. To complete this table, you will need to identify the department responsible for floodplain management within your jurisdiction. Guidance on how to respond to each of these questions is as follows:

<p>What department is responsible for floodplain management in your community?</p>	<p>All communities that participate in the NFIP must appoint a department that is responsible for the administration of its floodplain management program. This can be designated in the actual ordinance language. Places to check include; Building Department, Community Development, Public Works or Engineering Department</p>
<p>Who is your Community’s Floodplain Administrator? (Department/Position)</p>	<p>This position will be designated in the Community’s flood damage prevention ordinance. Please confirm that this position is still acting as the designated Flood Plain Administrator. If it is not, then you will need to amend your ordinance.</p>
<p>Do you have any Certified Floodplain Managers (CFM) on staff within your community?</p>	<p>The Association of State Floodplain Managers has established a national program for professional certification of floodplain managers. The program recognizes continuing education and professional development that enhance the knowledge and performance of local, state, federal, and private-sector floodplain managers. The role of the nation’s floodplain managers is expanding due to increases in disaster losses, the emphasis being placed upon mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. This certification program lays the foundation for ensuring that highly qualified individuals are available to meet the challenge of breaking the damage cycle and stopping its negative drain on the nation’s human, financial, and natural resources.</p>
<p>What is the date of adoption of your flood damage prevention ordinance?</p>	<p>Check the date your floodplain management ordinance was last adopted/amended. Please site the code number and whether this date reflects the initial adoption date or an amendment date.</p>
<p>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</p>	<p>The CAV is the method utilized by FEMA to monitor NFIP compliance. CAV’s are supposed to occur every 3 to 5 years. They can be performed by the FEMA Regional Office or by the State Coordinating Agency. The best source for this information is your</p>

	<p>Community Floodplain Administrator. If she or he does not know, you should check with the State NFIP Coordinator:</p> <p>Scott McKinney, Washington Department of Ecology 360-407-6131 scott.mckinney@ecy.wa.gov</p>
<p>To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.</p>	<p>If any administrative problems or potential violations are identified during a CAV the community will be notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. The best source for this information is your Community Floodplain Administrator. If she does not know, you should check with the State NFIP Coordinator.</p>
<p>Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why).</p>	<p>If you believe that the flood hazard maps for your community do not adequately address the flood risk, please provide an explanation. If you believe the maps do adequately address the flood risk within your community, please answer “Yes.”</p>
<p>Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?</p>	<p>What do you need to make your floodplain management program better? Do you need staffing, training, better maps? This is the section where you identify needs. Needs result in actions. If you identify needs here, you should identify an action in your action plan to address those needs. It is plausible to answer “nothing” here. But to do so, you need to have a very well established floodplain management program or little or no floodplain to manage.</p>
<p>Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?</p>	<p>The CRS program is a part of the National Flood Insurance Program that rewards participating communities for exceeding the minimum requirements of the NFIP by lowering the cost of flood insurance premiums in participating jurisdictions. The CRS provides credit for 18, non-structural flood mitigation activities. The CRS program is voluntary, and communities must be in full compliance and good standing under the NFIP to be eligible to apply.</p>

Community Mitigation Related Classifications

The Planning Team will complete Table 1-5 to indicate your jurisdiction’s participation in various national programs related to natural hazard mitigation. You do not need to provide information for this table.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Chronological List of Hazard Events

In Table 1-6, 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 in the SHELDUS historical data included in your tool kit. 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. The Planning Team will provide information regarding repetitive loss properties for your jurisdiction. Please do not worry about completing this portion of the template.

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)

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.

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

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**—30% or more of the population is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the population is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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)

TABLE 2. HAZARD IMPACT ON PEOPLE			
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**—25% or more of the total assessed property value is exposed to a hazard (Impact Factor = 3)

- **Medium Impact**—10% to 24% of the total assessed property value is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—9% 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)

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 15% or more of the total assessed property value (Impact Factor = 3)
- **Medium Impact**—Estimated loss from the hazard is 5% to 14% of the total assessed property value (Impact Factor = 2)
- **Low Impact**—Estimated loss from the hazard is 4% or less of the total assessed property value (Impact Factor = 1)
- **No Impact**—No loss is estimated from the hazard (Impact Factor = 0)

TABLE 5. HAZARD IMPACT ON THE ECONOMY			
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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Economy (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-7 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-7 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

STATUS OF PREVIOUS PLAN INITIATIVES

In this section, provide a status report of actions recommended in your previous hazard mitigation plan. You must be able to reconcile your original action plan to meet FEMA requirements for plan updates. Enter all the recommended actions from your previous plan in Table 1-8 and put an ✓ in one of the following three columns for each action to indicate its status:

- **Completed**—If the action has been completed, place a check mark in this column and enter a brief explanation in the “Comments” column (e.g., “Action #WC31 was completed by the Public Works Department on 3/12/2009”). Ongoing actions, such as annual outreach projects or maintenance activities, should also be indicated as “Completed,” with a statement about the ongoing nature of the action provided in the “Comments” column (e.g., “Ongoing action, implemented annually by Community Development Department”).
- **Carry Over to Plan Update**—If you did not complete an action and want to carry it over to your updated action plan, place a check mark in this column, and enter an explanatory statement in the comment section (e.g., “Action carried over as Action #WC14 in updated action plan”).
- **Removed; No Longer Feasible**—If you want to remove an action because you have determined that it is no longer feasible, place a check mark in this column. “No longer feasible” means that you have determined that you do not have the capability to implement the action or that the action does not serve the best interest of your jurisdiction. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., “Action no longer considered feasible due to lack of political support to complete it.”)

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 vision of the hazard mitigation plan. The approved goals, objectives and vision are included in your tool kit.

- 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 the entire 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 1-9 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. The approved goals, objectives and vision are included in your tool kit.
- 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 1-2) to identify possible sources of funding.
- Indicate the time line as “short term” (1 to 5 years) or “long term” (5 years or greater).
- Enter “Yes” or “No” to indicate whether this initiative was included in the previous version of this hazard mitigation plan.

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 provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-10 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-9.
- **# 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 (e.g., 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 1-11 by 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 1.

INSERT JURISDICTION NAME UPDATE ANNEX

1.1 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

1.2 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

1.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 1-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 1-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 1-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 1-4. Classifications under various community mitigation programs are presented in Table 1-5.

**TABLE 1-1.
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					
Public Health and Safety					
Environmental Protection					
Planning Documents					
General or Comprehensive Plan					
					<i>Is the plan equipped to provide linkage to this mitigation plan?</i> <input type="text" value="Yes or No"/>
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
					<i>What types of capital facilities does the plan address?</i> <input type="text"/>
					<i>How often is the plan revised/updated?</i> <input type="text"/>
Habitat Conservation Plan					
Economic Development Plan					
Shoreline Management Plan					
Community Wildfire Protection Plan					
Response/Recovery Planning					
Comprehensive Emergency Management Plan					
Threat and Hazard Identification and Risk Assessment					
Terrorism Plan					
Post-Disaster Recovery Plan					
Continuity of Operations Plan					
Public Health Plans					

TABLE 1-2. 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 1-3. 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		
Surveyors		
Personnel skilled or trained in GIS applications		
Scientist familiar with natural hazards in local area		
Emergency manager		
Grant writers		

**TABLE 1-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	
Who is your community’s floodplain administrator? (department/position)	
Do you have any certified floodplain managers on staff in your community?	
What is the date of adoption of your flood damage prevention ordinance?	
When was the most recent Community Assistance Visit or Community Assistance Contact?	
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	
Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	

**TABLE 1-5.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Community Rating System			
Building Code Effectiveness Grading Schedule			
Public Protection			
Storm Ready			
Firewise			
Tsunami Ready (if applicable)			

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

- Number of FEMA-Identified Repetitive Loss Properties: **Insert #**
- Number of FEMA-Identified Severe Repetitive Loss Properties: **Insert #**
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: **Insert #**

1.5 HAZARD RISK RANKING

Table 1-7 presents the ranking of the hazards of concern.

Hazard area extent and location maps 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. **Delete this paragraph if no maps available.**

TABLE 1-7. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

1.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-9 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-10 identifies the priority for each initiative. Table 1-11 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-9. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							

**TABLE 1-11.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

**1.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/
VULNERABILITY**

Insert text, if any; delete section if not used

1.9 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used

Maps to Be Inserted Here, If Any; Delete this page if no maps

Appendix C2.
Annex Instructions and Templates for Special-Purpose Districts

INSTRUCTIONS FOR COMPLETING SPECIAL-PURPOSE DISTRICT ANNEX TEMPLATE

This document provides instructions for special-purpose districts participating in multi-partner hazard mitigation planning. These instructions are intended for districts that do not have a previously approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all planning partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by:

Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

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.) replacing the yellow, highlighted text.

Special District Annex:

This document provides instructions for completing the jurisdictional annex template for special purpose districts.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2014

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.

Please be sure to include in this profile description who will assume responsibility for the adoption of the plan and who will oversee the implementation of the plan.

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.

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.
- 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.

APPLICABLE REGULATIONS AND PLAN

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements addressing hazard mitigation. Describe how these laws may support or conflict with the mitigation strategies of this plan. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction or may allow you to support or enhance actions identified in this plan. Note whether the documents could have a positive or a negative impact on the mitigation strategies of this plan. Some examples of plans that may be relevant include Emergency Response Plan, Continuity of Operations Plan, Recovery Plan, and Capital Improvement Program. “None applicable” is a possible answer for this section.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table 1-1, 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 SHELDUS historical event data included on your cd.. 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 in order 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)

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

TABLE 2. HAZARD IMPACT ON PEOPLE			
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**—30% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)

- **Medium Impact**—15% to 29% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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)

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.

TABLE 5. HAZARD IMPACT ON OPERATIONS			
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 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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Operations (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-2 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-2 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

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.

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.

Complete Table 1-3 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. Approved objectives have been included in your tool kit.
- 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).

Technical assistance will provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-4 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-3.
- **# 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 Equal or 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 1-5 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 add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

As you complete your template, please forward it to:

Kristen Gelino, Tetra Tech, Inc.

425.482.7801

Kristen.Gelino@TetraTech.com

CHAPTER 1.

INSERT JURISDICTION NAME ANNEX

1.1 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

1.2 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
- **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
- **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

1.3 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

1.5 HAZARD RISK RANKING

Table 1-2 presents the ranking of the hazards of concern.

TABLE 1-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

1.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-3 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-4 identifies the priority for each initiative. Table 1-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-3. 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						

**TABLE 1-5.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

1.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Insert text, if any; delete section if not used

1.8 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used

INSTRUCTIONS FOR COMPLETING SPECIAL-PURPOSE DISTRICT UPDATE ANNEX TEMPLATE

This document provides instructions for special-purpose districts participating in multi-partner hazard mitigation planning. These instructions are intended for districts that currently have a previously approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all planning partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by:

Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

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.) replacing the yellow, highlighted text.

Special District Update Annex:

This document provides instructions for completing the jurisdictional annex template for special purpose districts.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2014

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.

Please be sure to include in this profile description who will assume responsibility for the adoption of the plan and who will oversee the implementation of the plan.

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.

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.
- 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.

APPLICABLE REGULATIONS AND PLAN

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements addressing hazard mitigation. Describe how these laws may support or conflict with the mitigation strategies of this plan. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction or may allow you to support or enhance actions identified in this plan. Note whether the documents could have a positive or a negative impact on the mitigation strategies of this plan. Some examples of plans that may be relevant include Emergency Response Plan, Continuity of Operations Plan, Recovery Plan, and Capital Improvement Program. “None applicable” is a possible answer for this section.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table 1-1, 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 SHELDUS historical event data included on your cd.. 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 in order 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)

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

TABLE 2. HAZARD IMPACT ON PEOPLE			
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**—30% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)

- **Medium Impact**—15% to 29% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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)

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.

TABLE 5. HAZARD IMPACT ON OPERATIONS			
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 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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Operations (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-2 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-2 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

STATUS OF PREVIOUS PLAN INITIATIVES

In this section, provide a status report of actions recommended in your previous hazard mitigation plan. You must be able to reconcile your original action plan to meet FEMA requirements for plan updates. Enter all the recommended actions from your previous plan in Table 1-3 and put a ✓ in one of the following three columns for each action to indicate its status:

- **Completed**—If the action has been completed, place a check mark in this column and enter a brief explanation in the “Comments” column (e.g., “Action #WC31 was completed by the Public Works Department on 3/12/2009”). Ongoing actions, such as annual outreach projects or maintenance activities, should also be indicated as “Completed,” with a statement about the ongoing nature of the action provided in the “Comments” column (e.g., “Ongoing action, implemented annually by Community Development Department”).
- **Carry Over to Plan Update**—If you did not complete an action and want to carry it over to your updated action plan, place a check mark in this column, and enter an explanatory statement in the comment section (e.g., “Action carried over as Action #WC14 in updated action plan”).
- **Removed; No Longer Feasible**—If you want to remove an action because you have determined that it is no longer feasible, place a check mark in this column. “No longer feasible” means that you have determined that you do not have the capability to implement the action or that the action does not serve the best interest of your jurisdiction. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., “Action no longer considered feasible due to lack of political support to complete it.”)

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.

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.

Complete Table 1-4 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. Approved objectives have been included in your tool kit.
- 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).

Technical assistance will provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-5 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-4.
- **# 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 1-6 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 add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

As you complete your template, please forward it to:

Kristen Gelino, Tetra Tech, Inc.

425.482.7801

Kristen.Gelino@TetraTech.com

CHAPTER 1.

INSERT JURISDICTION NAME UPDATE ANNEX

1.1 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

1.2 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
- **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
- **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

1.3 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

1.5 HAZARD RISK RANKING

Table 1-2 presents the ranking of the hazards of concern.

TABLE 1-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
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1.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-5 identifies the priority for each initiative. Table 1-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-4. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							

**TABLE 1-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

1.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Insert text, if any; delete section if not used

1.9 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used

Appendix C3.
Annex Instructions and Templates for Fire Districts

INSTRUCTIONS FOR COMPLETING FIRE DISTRICT ANNEX TEMPLATE

This document provides instructions for fire districts participating in multi-partner hazard mitigation planning. These instructions are intended for districts that do not currently have a FEMA approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all planning partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by:

Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of the numbering.

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.) replacing the yellow, highlighted text.

Fire District Annex:

This document provides instructions for completing the jurisdictional annex template for fire districts.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2014

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.

Please be sure to include who will assume responsibility for the adoption of the plan and who will oversee the implementation of the plan.

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.

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. Example is 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.
- **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.

APPLICABLE REGULATIONS AND PLAN

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements addressing hazard mitigation. Describe how these laws may support or conflict with the mitigation strategies of this plan. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction or may allow you to support or enhance actions identified in this plan. Note whether the documents could have a positive or a negative impact on the mitigation strategies of this plan. Some examples of plans that may be relevant include Emergency Response Plan, Continuity of Operations Plan, Recovery Plan, and Capital Improvement Program. “None applicable” is a possible answer for this section.

CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

If you know your jurisdiction’s Public Protection number, please enter it under the “Classification” column in Table 1-1. If you do not know if your jurisdiction participates in this program or do not know the number, please leave it blank and the Planning Team will provide this information for you. No entries are needed for the other items in Table 1-1.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table 1-2, 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 SHEL DUS historical event data included on your dvd. 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 in order 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 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**—30% or more of the population is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the population is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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)

TABLE 2. HAZARD IMPACT ON PEOPLE			
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**—30% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Operations (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-3 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-3 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

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 1-4 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. Approved objectives have been included in your tool kit.
- 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).

Technical assistance will provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-5 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-4.

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.

- **# 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 Equal or 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 1-6 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.

As you complete your template, please forward it to:

Kristen Gelino, Tetra Tech, Inc.

425.482.7801

Kristen.Gelino@TetraTech.com

CHAPTER 1.

INSERT JURISDICTION NAME ANNEX

1.1 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

1.2 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
- **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
- **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

1.3 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

1.6 HAZARD RISK RANKING

Table 1-3 presents the ranking of the hazards of concern.

TABLE 1-3. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
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8		
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10		

1.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-5 identifies the priority for each initiative. Table 1-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-4. 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						

**TABLE 1-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

1.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Insert text, if any; delete section if not used

1.9 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used

INSTRUCTIONS FOR COMPLETING FIRE DISTRICT UPDATE ANNEX TEMPLATE

This document provides instructions for fire districts participating in multi-partner hazard mitigation planning. These instructions are intended for districts that currently have a previously approved hazard mitigation plan.

Assistance in completing the template will be available in the form of a workshop for all planning partners in November and technical assistance as requested and as funding allows. Any questions on completing the template should be directed to:

Rob Flaner
208. 939.4391
Rob.Flaner@TetraTech.com

Fully completed templates must be completed and returned by Friday, January 17, 2014.

A NOTE ABOUT FORMATTING

The template for the 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.

Content should be entered within the yellow, highlighted text that is currently in the template, rather than creating text in another document and pasting it into the template. Text from another source will alter the style and formatting of the document.

The numbering in the document will be updated when completed annexes are combined into the final document. Please do not adjust any of this numbering.

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.) replacing the yellow, highlighted text.

Fire District Update Annex:

This document provides instructions for completing the jurisdictional annex template for fire districts.

Please refer all questions to:

Rob Flaner
208.939.4391

rob.flaner@tetrattech.com

Please complete and return by:

Friday, January 17, 2014

Please email completed template to:

Kristen Gelino
425.482.7801

kristen.gelino@tetrattech.com

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:

- SHELDUS historical event data
- Summary-of-loss matrix for the hazard mitigation plan,
- Results from the hazard mitigation plan questionnaire,
- Catalog of funding programs
- Catalog of mitigation alternatives, and
- Fact sheet on Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Grant Program (PDM).

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.

Please be sure to include in this profile description who will assume responsibility for the adoption of the plan and who will oversee the implementation of the plan.

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.

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.
- **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.

APPLICABLE REGULATIONS AND PLAN

List any federal, state, local or district laws, ordinances, codes and policies that govern your jurisdiction that include elements addressing hazard mitigation. Describe how these laws may support or conflict with the mitigation strategies of this plan. List any other plans, studies or other documents that address hazard mitigation issues for your jurisdiction or may allow you to support or enhance actions identified in this plan. Note whether the documents could have a positive or a negative impact on the mitigation strategies of this plan. Some examples of plans that may be relevant include Emergency Response Plan, Continuity of Operations Plan, Recovery Plan, and Capital Improvement Program. “None applicable” is a possible answer for this section.

CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

If you know your jurisdiction’s Public Protection number, please enter it under the “Classification” column in Table 1-1. If you do not know if your jurisdiction participates in this program or do not know the number, please leave it blank and the Planning Team will provide this information for you. No entries are needed for the other items in Table 1-1.

JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

In Table 1-2, 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 SHELDUS historical event data included on your cd.. 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 in order 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**—30% or more of the population is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the population is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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**—30% or more of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 3)
- **Medium Impact**—15% to 29% of the total assessed property value of facilities, equipment and infrastructure is exposed to a hazard (Impact Factor = 2)
- **Low Impact**—14% 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.

TABLE 6. HAZARD RISK RATING			
Hazard Type	Probability Factor (P)	Sum of Weighted Impact Factors on People, Property & Operations (I)	Risk Rating (P x I)

Complete Risk Ranking in Template

Once Table 6 has been completed above, complete Table 1-3 in your template. The hazard with the highest risk rating in Table 6 should be listed at the top of Table 1-3 and given a rank of 1; the hazard with the second highest rating should be listed second with a rank of 2; and so on. Two hazards with equal risk ratings should be given the same rank.

It is important to note that this exercise should not override your subjective assessment of relative risk based on your knowledge of the history of natural hazard events in your jurisdiction. If this risk ranking exercise generates results other than what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in the comments at the end of the template. Remember, one of the purposes of this exercise is to support the selection and prioritization of initiatives in your plan. If you identify an initiative with a high priority that mitigates the risk of a hazard you have ranked low, that project will not be competitive in the grant arena.

STATUS OF PREVIOUS PLAN INITIATIVES

In this section, provide a status report of actions recommended in your previous hazard mitigation plan. You must be able to reconcile your original action plan to meet FEMA requirements for plan updates. Enter all the recommended actions from your previous plan in Table 1-4 and put a ✓ in one of the following three columns for each action to indicate its status:

- Completed**—If the action has been completed, place a check mark in this column and enter a brief explanation in the “Comments” column (e.g., “Action #WC31 was completed by the Public Works Department on 3/12/2009”). Ongoing actions, such as annual outreach projects or maintenance activities, should also be indicated as “Completed,” with a statement about the ongoing nature of the action provided in the “Comments” column (e.g., “Ongoing action, implemented annually by Community Development Department”).
- Carry Over to Plan Update**—If you did not complete an action and want to carry it over to your updated action plan, place a check mark in this column, and enter an explanatory statement in the comment section (e.g., “Action carried over as Action #WC14 in updated action plan”).

- **Removed; No Longer Feasible**—If you want to remove an action because you have determined that it is no longer feasible, place a check mark in this column. “No longer feasible” means that you have determined that you do not have the capability to implement the action or that the action does not serve the best interest of your jurisdiction. Lack of funding does not mean that it is no longer feasible, unless the sole source of funding for an action is no longer available. Place a comment in the comment section explaining why the action is no longer feasible (e.g., “Action no longer considered feasible due to lack of political support to complete it.”)

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.

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.

Complete Table 1-5 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. Approved objectives have been included in your tool kit.
- 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).

Technical assistance will provided upon request.

Prioritization of Mitigation Initiatives

Complete the information in Table 1-6 as follows:

- **Initiative #**—Indicate the initiative number from Table 1-5.
- **# 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 1-7 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 add any additional information pertinent to hazard mitigation and your jurisdiction not covered in this template.

As you complete your template, please forward it to:

Kristen Gelino, Tetra Tech, Inc.
425.482.7801
Kristen.Gelino@TetraTech.com

CHAPTER 1.

INSERT JURISDICTION NAME UPDATE ANNEX

1.1 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

1.2 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
- **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
- **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

1.3 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



1.6 HAZARD RISK RANKING

Table 1-3 presents the ranking of the hazards of concern.

TABLE 1-3. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

1.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-5 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 1-6 identifies the priority for each initiative. Table 1-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 1-5. HAZARD MITIGATION ACTION PLAN MATRIX							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							
Initiative #—Description							

**TABLE 1-7.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	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						
Flood						
Landslide						
Severe Weather						
Tsunami						
Volcano						
Wildfire						

a. See Chapter 1 for explanation of mitigation types.

1.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Insert text, if any; delete section if not used

1.10 ADDITIONAL COMMENTS

Insert text, if any; delete section if not used