

Executive Summary

The City of Kenmore has submitted an application to King County Office of Emergency Management to become a fully vested planning partner in the King County Regional Hazard Mitigation Plan, approved by FEMA on May 1, 2015. This jurisdictional annex is the result of the City of Kenmore adhering to all linkage procedures prescribed in appendix B, of volume 2 of the King County Regional Hazard Mitigation Plan. These “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 the regional plan during the plan performance period. Any review of this jurisdictional annex must clearly understand that is not to be interpreted as a stand-alone hazard mitigation plan for the City of Kenmore. This jurisdictional annex is now a functional component of the King County Regional Hazard Mitigation plan and should be viewed in context with elements of the regional plan.

As described in section 1.3 of volume 1 of the Regional Plan, this plan has been set up in two volumes so that elements that are jurisdiction-specific can easily be distinguished from those that apply to the whole planning area:

- Volume 1—Volume 1 includes all federally required elements of a disaster mitigation plan that apply to the entire planning area. This includes the description of the planning process, public involvement strategy, goals and objectives, countywide hazard risk assessment, countywide mitigation actions, and a plan maintenance strategy. The following appendices provided at the end of Volume 1 include information or explanations to support the main content of the plan:
 - Appendix A—A glossary of acronyms and definitions
 - Appendix B—A 5-year progress report on actions identified in prior hazard plans
 - Appendix C—Planning partner bulletins
 - Appendix D—Hazard mitigation questionnaire and summary of results.
 - Appendix E—Concepts and methods used for hazard mapping
 - Appendix F—Plan adoption resolutions from Planning Partners
 - Appendix G—A template for progress reports to be completed as this plan is implemented.
- Volume 2—Volume 2 includes all federally required jurisdiction-specific elements, in annexes for each participating jurisdiction. It includes a description of the participation requirements established by the Steering Committee, as well as instructions and templates that the partners used to complete their annexes. Volume 2 also includes “linkage” procedures for eligible jurisdictions that did not participate in development of this plan but wish to adopt it in the future.

All planning partners have adopted Volume 1 in its entirety and at least the following parts of Volume 2: Part 1; each partner’s jurisdiction-specific annex; and the appendices.

As a linking partner, the City of Kenmore implemented components of the planning process prescribed by the linkage procedures that gave the citizens of the City of Kenmore to participate in the development of the jurisdictional annex and is described therein. The City is fully committed to the plan maintenance strategy identified in section 21.5 of the King County Regional Plan. Like all planning partners, the City will process annual progress reports requested by King County Office of Emergency Management and actively participate in future updates to this plan.

CHAPTER 1. CITY OF KENMORE UPDATE ANNEX

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Lauri Anderson, Senior Planner
18120 68th Ave NE
Kenmore, WA 98028
Telephone: 425-398-8900
e-mail Address: landerson@kenmorewa.gov

Alternate Point of Contact

Debbie Bent, Community Development Director
18120 68th Ave NE
Kenmore, WA 98028
Telephone: 425-398-8900
e-mail Address: dbent@kenmorewa.gov

1.2 JURISDICTION PROFILE

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

- **Date of Incorporation**—August 31, 1998
- **Current Population**—21,370 as of April 1, 2014
- **Population Growth**—Since 2008, the City of Kenmore has grown by 1,170 people—an increase of almost 6%. It is anticipated that by 2035, the City will have a population of 28,473.
- **Location and Description**— Kenmore is located in the northern portion of King County commonly known as the “Northshore” area, between the cities of Bothell and Lake Forest Park. The City extends along the northeastern shoreline of Lake Washington and is bisected from east to west by the Sammamish River, which connects Lake Sammamish to Lake Washington. Swamp Creek and its extensive wetlands divide the northern portion of the city. Kenmore is about 6 square miles in size and is primarily developed with single-family neighborhoods. Most commercial development stretches along SR-522 which crosses the City from east to west.

Brief History— Native Americans who lived in the Sammamish River Valley Area were known as the Simump Tribe. White settlers, who arrived in the 1860s, called them the Squaks, a corruption of the word “Squowh.” The forest-covered hills of Kenmore were acquired by investors in Washington timber lands, including Philo Remington (inventor of Remington guns). Remington later sold most of his property in the Kenmore area to Watson C. Squire (his son-in-law). Squire was the last territorial governor of Washington state and one of the state’s first United States Senators. Squire platted his land in 1892.

Kenmore was named by John McMasters. He and his wife, Annie, were originally from the small town of Kenmore, Canada - 40 miles south of Ottawa. They arrived in Puget Sound in 1889 and leased land at Kenmore from Squire and named the area after his old home town. McMasters operated McMasters’ Shingle Mill from 1900 to 1920. At first Kenmore was only the mill, its cookhouse, manager’s house, bunkhouse and a few worker shacks. The mill was just at the edge of Lake Washington, where logs were floated to the area to be made into shingles for roofs and the sides of houses.

In 1913-1914, the brick road between Lake Forest Park and Bothell was opened and restaurants sprang up in the Kenmore portion of the road. The first school was built in 1914. In about 1918 a bridge across the Sammamish River was constructed.

After the end of logging and in the days after the first World War, the Puget Mill Company (Pope & Talbot) offered small tracts of land for residential use in Kenmore. Kenmore's immediate proximity to Seattle—just two miles (3 km) north of modern Seattle city limits—made it an early target of post-war housing development. The first plats in the new Uplake neighborhood were sold in 1954. Homes were built north of the highway and between the main intersection and Swamp Creek. Development of the southern part of the city started about the same time.

During the second half of the 20th Century, the population of Kenmore grew quickly. On August, 31, 1998, the City incorporated.

- **Climate**—Kenmore's climate is typical of the Seattle area, with temperatures varying from an average high of 75 degrees in August to an average low of 36 degrees in January.
- **Governing Body Format**—The seven member City Council is the legislative branch of the city government and serves as the policymaking body. The Council selects one of its members as Mayor and one of its members as Deputy Mayor, both to two-year terms. The Council appoints a City Manager to provide management direction of all City departments and activities in accordance with City Council policies and direction. The Kenmore City Council assumes responsibility for the adoption of this plan; the City Manager will oversee its implementation.
- **Development Trends**—In the 10 years between 2000 and 2010, 1,081 new housing units were built in Kenmore. It is anticipated that an additional 3,667 units will be built over the 25 years between 2010 and the 2035 planning horizon. This averages to an additional 147 new units annually. Jobs actually were lost in the City during the decade between 2000 and 2010, reflecting impacts of the Great Recession. Over the 25 years between 2010 and 2035, it is anticipated that an additional 3,079 jobs will come to Kenmore--an average of 123 new jobs per year. Regional policy documents designate Kenmore as a "Larger City"--expected to become an important subregional job, service, cultural, and housing center over time, with strong links to the regional transportation system. Creating a Downtown "central place" is an important community focus, as are advancing the public's access to and connection to the waterfront and protecting existing single-family neighborhoods. Zoning changes to allow clean light manufacturing throughout much of the commercial area outside of the Downtown core may support the growth of primary jobs in the City.

1.3 PUBLIC INVOLVEMENT STRATEGY

Early in development of this Hazard Mitigation Plan, the City conducted a public survey about hazard mitigation issues. The survey was announced by a story in the Bothell-Kenmore Reporter, on the city's website, and through social media. Fifty people responded to the survey. Most (70%) were Kenmore residents. An additional 25% were Kenmore residents who also work in the City. Two percent of the surveyed work in Kenmore but were not residents. Survey questions included: what hazards are you most concerned about affecting Kenmore; how prepared does your household feel post- disaster; what actions can the city take to mitigate these hazards; and following a disaster, from whom would you expect to receive help?

Respondents were least concerned about avalanches and dam failures.¹ They were slightly concerned by seiches (lake waves) and volcanic eruptions. The most concerning hazards were earthquakes, floods, severe weather, and landslides.

Ninety-two percent of respondents were prepared in some way to deal with a natural disaster. Of that 92%, 60% felt somewhat prepared, 16% felt adequately prepared, 12% felt well prepared and 4% felt very well prepared. Only 8% of respondents felt not prepared at all. In the first day following a disaster, over 70% of respondents stated that they expect help from family and neighbors in the affected area. Only 16% believed that local government would assist them in recovery.

Respondents supported the retrofitting of power infrastructure—in conjunction with Northshore Utility District and Puget Sound Energy-- as the highest mitigation priority. This was followed by retrofitting of City-owned infrastructure, including roads and bridges. More than 50% of respondents believed that partnering with Northshore Fire Department, the Northshore School District, and hospital districts to retrofit fire stations, schools and hospitals was a priority mitigation measure. Nearly 50% focused on education about risk and natural hazards that affect Kenmore as a means to reduce damage and disruption following a disaster.

Updating city laws and regulations for hazard areas such as floodplains and steep slopes was viewed as a medium priority. Acquisition of properties in high hazard areas or in areas that are repeatedly damaged was viewed as a low priority.

When asked how information about what to do and how to help should be distributed, 36% of respondents preferred local broadcast media such as TV and radio. A close 34% prefer city government email and alerts for information. Other less popular modes of information include the city government website, community information bulletin boards, and social media networks like Facebook and Twitter.

After completion of the draft plan, a three-week public comment period was held (from May 1, 2015 through May 22, 2015). Information about the draft plan and the comment period was emailed to all of the survey respondents who provided contact information. A press release was issued and information was included on the cover page of the City's website. One comment was received, suggesting that a Cascadia Subduction Zone earthquake would dwarf any of the other hazards covered in the Plan, particularly if it were to occur in the winter. As the Plan already addresses earthquake hazards, no further amendments were necessary to respond to this comment.

1.4 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.

¹ A weir is located on the Sammamish River.

**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 | No | Yes | KMC Title 15, updated 2013 |
| Zonings | Yes | No | No | Yes | KMC Title 18, updated 2014 |
| Subdivisions | Yes | No | Yes | Yes | KMC Title 17, updated 2011 |
| Stormwater Management | Yes | No | Yes | Yes | KMC Title 13, updated 2010 |
| Post Disaster Recovery | Yes | No | No | Yes | Comprehensive Emergency Management Plan (CEMP), updated 2013 |
| Real Estate Disclosure | No | No | Yes | Yes | |
| Growth Management | Yes | No | Yes | Yes | Comprehensive Plan, updates ongoing |
| Site Plan Review | Yes | No | No | No | KMC Chapter 18.105, updated 2011 |
| Public Health and Safety | Yes | No | Yes | Yes | KMC Title 8, 1998 and 2003 |
| Environmental Protection | Yes | No | Yes | Yes | KMC Titles 16 and 18, updated 2012 |
| Planning Documents | | | | | |
| General or Comprehensive Plan | Yes | No | Yes | Yes | Comprehensive Plan, updates ongoing |
| | | | | | <i>Is the plan equipped to provide linkage to this mitigation plan?</i> No |
| Floodplain or Basin Plan | Yes | No | No | No | Swamp Creek Basin Study, 2014 |
| Stormwater Plan | Yes | No | Yes | Yes | Comprehensive Plan, 2014 |
| Capital Improvement Plan | Yes | No | Yes | Yes | Updated 2014 |
| | | | | | <i>What types of capital facilities does the plan address?</i> Transportation, parks, surface water |
| | | | | | <i>How often is the plan revised/updated?</i> Annually |
| Habitat Conservation Plan | Yes | No | Yes | No | Comprehensive Plan, 2006 |
| Economic Development Plan | Yes | No | No | Yes | Comprehensive Plan and Economic Development Strategy, 2009 |
| Shoreline Management Plan | Yes | No | Yes | Yes | Updated 2012 |
| Community Wildfire Protection Plan | No | No | No | No | |

| Response/Recovery Planning | | | | | |
|--|-----|----|-----|-----|-------------------------------------|
| Comprehensive Emergency Management Plan | Yes | No | No | Yes | Updated 2013 |
| Threat and Hazard Identification and Risk Assessment | Yes | No | Yes | No | Hazard Mitigation Plan, ongoing |
| Terrorism Plan | Yes | No | No | No | CEMP, 2013 |
| Post-Disaster Recovery Plan | Yes | No | No | No | CEMP, 2013 |
| Continuity of Operations Plan | Yes | No | No | No | CEMP, 2013 |
| Public Health Plans | Yes | No | Yes | No | CEMP, 2013, and County Health plans |

| TABLE 1-2. FISCAL CAPABILITY | |
|--|---|
| Financial Resources | Accessible or Eligible to Use? |
| Community Development Block Grants | Yes – through King County Consortium |
| 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 | Unknown |
| Withhold Public Expenditures in Hazard-Prone Areas | Yes |
| State Sponsored Grant Programs | Yes |
| Development Impact Fees for Homebuyers or Developers | Yes |
| Other | Surface water utility fee; Real Estate Excise Tax |

| 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 | Development Services/Assistant and Associate Planners Community Development/ Director and Senior Planner Public Works/Director, Senior Engineer and Civil Engineer |
| Engineers or professionals trained in building or infrastructure construction practices | Yes | Development Services/Director, Building Inspectors Public Works/Director, Senior Engineer, Civil Engineer and Surface Water Program Manager |
| Planners or engineers with an understanding of natural hazards | Yes | Development Services/Assistant and Associate Planners Community Development/Director and Senior Planner Public Works/Director, Senior Engineer, Civil Engineer, and Surface Water Program Manager |
| Staff with training in benefit/cost analysis | Yes | Finance and Administration/Director and Accountant |
| Surveyors | No | |

| | | |
|---|-----|---|
| Personnel skilled or trained in GIS applications | Yes | Development Services/Associate Planner Public Works/Surface Water Program Manager and Surface Water Technician |
| Scientist familiar with natural hazards in local area | Yes | Public Works/Surface Water Program Manager |
| Emergency manager | Yes | Development Services Director |
| Grant writers | Yes | Community Development/Director, Senior Planner and Parks Project Manager Public Works/Director, Senior Engineer, Civil Engineer, Surface Water Program Manager City Manager's Office/Management Analyst, Volunteer & Events Coordinator |

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

| | |
|--|--|
| What department is responsible for floodplain management in your community? | Development Services |
| Who is your community's floodplain administrator? (department/position) | Development Services 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? | 1998 (Flood Damage Prevention); 2006 (Critical Areas); 2012 (Shoreline Management) |
| 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) | No. FIRM Panel 63 of 1725 is out of date and needs to be updated by FEMA. |
| 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 floodplain maps are 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 |

**TABLE 1-5.
COMMUNITY CLASSIFICATIONS**

| | Participating? | Classification | Date Classified |
|--|----------------|----------------|-----------------|
| Community Rating System | No | | |
| Building Code Effectiveness Grading Schedule | No | | |
| Public Protection | No | | |
| Storm Ready | No | | |
| Firewise | No | | |
| Tsunami Ready (if applicable) | No | | |

1.5 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: 2
- Number of FEMA-Identified Severe Repetitive Loss Properties: None

- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: None
- Property Type of Repetitive Flood Loss/Severe Repetitive Loss Properties: Residential

For more information on FEMA-Identified Repetitive Loss properties, please refer to the King County Regional Hazard Mitigation Basic Plan, Vol. 1, Part 2, Chapter 11, Section 5.2.

| Type of Event | FEMA Disaster # (if applicable) | Date | Preliminary Damage Assessment |
|--|---------------------------------|-------------------|--|
| Landslide (62 nd Ave. NE and NE 150 th St.) | N/A | 4/2013 | \$5,000 |
| Severe Winter Weather (Citywide snow and ice control) | 4056 | 1/2012 | \$56,000 |
| Landslide (15209 61 st Ave. NE) | N/A | 3/2011 | \$100,000 |
| Landslide (61 st Ave. NE and NE 184 th St.) | N/A | 12/2010 | \$5,000 |
| Landslide (15219 61 st Ave. NE) | N/A | 12/2010 | \$186,000 |
| Severe Winter Weather (Citywide snow and ice control) | 1825 | 12/12/08-1/5/09 | \$50,000 |
| Flooding | 1734 | 12/1/07-12/17/07 | \$380,000 |
| Landslide (15021 61 st Ave. NE) | N/A | 1996 and 2006 | \$250,000 |
| Severe Winter Weather (Hanukkah Eve Windstorm) | 1682 | 12/14/06-12/15/06 | Unknown. One fatality in Kenmore (carbon monoxide poisoning) |
| Earthquake (Nisqually) | 1361 | 2/28/01 | Unknown |
| Landslide (north side of SR-522, west of 61 st Ave. NE) | N/A | Almost annually | Unknown. Series of small slumps and slides. |
| Sammamish River Flooding | Unknown | 1998/1999 | Unknown |

1.6 HAZARD RISK RANKING

Table 1-7 presents the ranking of the hazards of concern. Initial rankings were prepared by Kenmore's Senior Planner in conjunction with King County staff. The rankings then were reviewed and adjusted by an interdepartmental team of Kenmore staff members. Ranking factors included probability of a hazard event and potential impacts on people, property and the economy. Ranking scores could range from a high of 54 to a low of 0.

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.

For more information on specific hazards and probability, refer to the King County Regional Hazard Mitigation Base Plan, Vol.1, Part2, Chapters 8-19.

| Rank | Hazard Type | Risk Rating Score (Probability x Impact) |
|------|-----------------------|--|
| 1 | Earthquake | 48 |
| 2 | Severe Weather | 39 |
| 3 | Severe Winter Weather | 39 |
| 4 | Flood | 15 |
| 5 | Landslide | 15 |
| 6 | Wildfire | 9 |
| 7 | Tsunami | 6 |
| 8 | Volcano | 6 |
| 9 | Dam Failure | 0 |
| 10 | Avalanche | 0 |

For more information on the Hazard Risk Ranking Methodology, please refer to the King County Regional Hazard Mitigation Base Plan, Vol. 1, Part 2, Chapter 19.

1.7 METHODOLOGY FOR DEVELOPMENT OF ACTION PLAN MATRIX

To develop the Action Plan, the risk ranking was reviewed along with the list of historical hazard events and actions from the previous plan (Annex to the North King and South Snohomish Counties Regional Mitigation Plan, 2010 Update, formally adopted by Kenmore's City Council on February 14, 2011 by Resolution No. 11-185). Previously uncompleted initiatives were carried forward to this Plan, if feasible, and new initiatives were identified in response to current information and concerns.

After a first draft of the Action Plan Matrix was prepared, a staff working group was convened to review the draft and make final recommendations. This working group included: the Community Development Director and Senior Planner; the Development Services Director; the Engineering and Environmental Services Director; and a representative from the Finance and Administration Department. After the meeting, information was reviewed with the Public Works Operations Manager, the Surface Water

Program Manager, and the Assistant City Manager. The City Manager gave final review and approval to the Action Plan.

1.8 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.

| Action # | Action Status | | | Comments |
|-------------|---------------|---------------------------|-----------------------------|--|
| | Completed | Carry Over to Plan Update | Removed; No Longer Feasible | |
| KM-01-MH-ST | X | | | Incorporate the full emergency management cycle – including Planning, Response, Recovery and Mitigation – into Kenmore’s planning, policy, and financial processes. CEMP updated in 2013 |
| KM-02-MH-ST | | X | | Identify equipment necessary for safety and operations. Carried over as new action KM-10 |
| KM-03-MH-ST | | X | | Continue and enhance hazard education programs. Carried over as new action KM-11 |
| KM-04-MH-ST | | X | | Enhance public safety strategies for debris avoidance and management for natural hazards events. Carried over as new action KM-18 |
| KM-05-MH-LT | X | | | Develop mapping capabilities to better identify hazard areas and assess potential damage. Activities are ongoing (Kenmore Public Works) |
| KM-06-D-ST | X | | | Work with Northshore Utility District to educate consumers about drought impacts and ways to minimize water waste. Activities are ongoing (Northshore Utility District) |
| KM-07-E-ST | | X | | Conduct non-structural retrofit activities. Carried over as new action KM-12 |
| KM-080E-ST | | X | | Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices. Carried over as new action KM-13 |
| KM-09-E-ST | | X | | Identify city-owned buildings and infrastructure that require structural retrofitting. Carried over as new action KM-14 |

| | | | | |
|------------|---|---|---|---|
| KM-10-E-LT | X | | | <p>Identify funding sources for structural and nonstructural retrofitting of structures that are identified as seismically vulnerable.</p> <p>Completed for infrastructure, 2014, Kenmore Public Works.</p> |
| KM-11-F-ST | X | | | <p>Incorporate Flood Reduction Management Plan and Surface Water Management Plan recommendations into the City of Kenmore’s Capital Improvement Schedule.</p> <p>2014, Kenmore Public Works</p> |
| KM-12-F-ST | X | | | <p>Identify surface water drainage obstructions within the City of Kenmore</p> <p>2014, Kenmore Public Works</p> |
| KM-13-F-LT | X | | | <p>Enhance data and mapping for floodplain information within the city, and identify and map flood-prone areas outside of designated floodplains.</p> <p>2012-2014, Kenmore Public Works and Development Services</p> |
| KM-14-F-LT | X | | | <p>Develop acquisition and management strategies to preserve open space for flood mitigation, fish habitat, and water quality in the floodplain.</p> <p>Activities are ongoing (Kenmore Public Works)</p> |
| KM-15-L-ST | | X | | <p>Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard prone areas.</p> <p>Carried over, with more specificity, as new action KM-9</p> |
| KM-16-L-ST | X | | | <p>Encourage construction and subdivision design that can be applied to steep slopes to reduce the potential adverse impacts from development.</p> <p>2006 and 2011, Kenmore Community Development</p> |
| KM-17-S-ST | X | | | <p>Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe storms.</p> <p>Activities are ongoing (Kenmore Public Works)</p> |
| KM-18-S-ST | X | | | <p>Increase public awareness of severe storm mitigation activities.</p> <p>Activities are ongoing (City Manager’s Office)</p> |
| KM-19-S-ST | | | X | <p>Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during severe storm events.</p> <p>Trees of concern are on private property and not under City control</p> |
| KM-20-T-ST | | X | | <p>Develop public information to educate citizens on this type [tsunami/seiche] of hazard.</p> <p>Carried over as new action KM-15</p> |

| | | | | |
|------------|--|---|---|---|
| KM-21-V-ST | | X | | <p>Collaborate to develop ash fall models that are specific to the north King and south Snohomish Counties area.</p> <p>Carried over as new action KM-16</p> |
| KM-22-V-ST | | | X | <p>Develop and implement policy for maintaining stock of filters for key vehicles and pieces of equipment.</p> <p>Action not financially feasible considering cost/benefit analysis, given the low risk of a volcanic event with local impact</p> |
| KM-23-W-LT | | X | | <p>Increase communication, coordination, and collaboration between wildland-urban interface property owners, city planners, fire prevention crews, and city officials to address risks, existing mitigation measures, and federal assistance programs.</p> <p>Carried over as new action KM-17</p> |

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? |
| KM-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 | Kenmore Development Services | Low | General Fund | Ongoing | No |
| KM-2 — 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 | Kenmore Development Services | Low | General Fund | Short-term | No |
| KM-3 — Integrate the hazard mitigation plan into other plans, ordinances or programs to dictate land uses within the jurisdiction. | | | | | | | |
| New | All Hazards | 2,4,8,10 | Kenmore Community Development | Low | General Fund | Short-term | No |
| KM-4 — 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 | Kenmore Development Services | Low | General Fund | Long-term | No |
| KM-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 | 5,9,13 | Kenmore Public Works | High | FEMA grants | Long-term | No |

| Applies to new or existing assets | Hazards Mitigated | Objectives Met | Lead Agency | Estimated Cost | Sources of Funding | Timeline | Included in Previous Plan? |
|--|-------------------|-----------------------|--|----------------|---|------------|----------------------------|
| KM-6 — Continue to support the county-wide initiatives identified in this plan. | | | | | | | |
| New and existing | All Hazards | 4,6,11,12, 13, 14, 15 | Kenmore Development Services | Low | General Fund | Ongoing | No |
| KM-7 — Actively participate in the plan maintenance strategy identified in this plan. | | | | | | | |
| New and existing | All Hazards | 4,6,11,12, 13, 14, 15 | Kenmore Community Development | Low | General Fund | Ongoing | No |
| KM-8 — Strive to capture perishable data (i.e. high water marks, preliminary damage estimates, and damage photos) after significant hazard events to support future updates to the risk assessment of this plan. | | | | | | | |
| New and existing | All Hazards | 1,2,4 | Kenmore Public Works and Building Inspectors in Development Services | Medium | General Fund, FEMA Grants | Short-term | No |
| KM-9 — Investigate and improve mapping of landslide hazard areas. Increase understanding of vulnerability and risk to life and property in hazard prone areas. Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in hazard prone areas, particularly near 84th Ave. NE and 88th Ave. NE between NE 157th Street and NE 169th Street, and in areas of previous landslides. | | | | | | | |
| New and existing | Landslide | 2,4,10, 12,13 | Kenmore Development Services | Medium | Partnership with King County | Short-term | Yes |
| KM-10 — Identify and begin acquisition of City equipment necessary for safety and operations during a natural hazard event. | | | | | | | |
| New and existing | All Hazards | 1,3 | Kenmore Public Works | Medium | General Fund, Surface Water Management Fund and Street Fund | Ongoing | Yes |
| KM-11 — Continue to facilitate and support hazard education programs, such as CERT training or providing educational materials for family disaster preparedness. | | | | | | | |
| New and existing | All Hazards | 3,4,6,7,11, 13,14,15 | Kenmore City Manager's Office | Low | General Fund | Ongoing | Yes |

| Applies to new or existing assets | Hazards Mitigated | Objectives Met | Lead Agency | Estimated Cost | Sources of Funding | Timeline | Included in Previous Plan? |
|--|-------------------|---------------------------------|-------------------------------|----------------|------------------------------|-------------|----------------------------|
| KM-12 — Conduct non-structural retrofit activities in City facilities, such as strapping down and securing computers and other office equipment and machinery, securing shelves and heavy furniture to walls, ensuring that heavy items are not stored overhead, mounting computer servers on seismic isolation platforms, etc. | | | | | | | |
| Existing | Earthquake | 1,3,5,12 | Kenmore Public Works | Medium | General Fund FEMA Grants | Medium-term | Yes |
| KM-13 — Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and other government offices. | | | | | | | |
| Existing | Earthquake | 1,3,4,5,7,8,9,11,12,13,14,15 | Kenmore City Manager's Office | Low | General Fund FEMA Grants | Ongoing | Yes |
| KM-14 — Identify city-owned buildings and infrastructure that require structural retrofiting. | | | | | | | |
| Existing | Earthquake | 1,3,4,9,12 | Kenmore Public Works | Low | General Fund, FEMA Grants | Short-term | Yes |
| KM-15 — Develop public information to educate citizens on tsunamis/seiches. | | | | | | | |
| New and existing | Seiche | 3,4,6,7,8,11,12,13,14,15 | Kenmore Development Services | Low | General Fund | Medium-term | Yes |
| KM-16 — Encourage King County to develop ash fall models that are specific to the north King and south Snohomish Counties area. | | | | | | | |
| New and existing | Volcano | 2,4,12 | Kenmore Development Services | High | FEMA Grants | Long-term | Yes |
| KM-17 — Increase communication, coordination, and collaboration between wildland-urban interface property owners, city planners, fire prevention crews, and city officials to address risks, existing mitigation measures, and federal assistance programs related to wildfire. | | | | | | | |
| New and existing | Wildfire | 1,2,3,4,6,7,8,10,11,12,13,14,15 | Kenmore Development Services | Low | General Fund FEMA Grants | Ongoing | Yes |

| Applies to new or existing assets | Hazards Mitigated | Objectives Met | Lead Agency | Estimated Cost | Sources of Funding | Timeline | Included in Previous Plan? |
|--|----------------------|----------------------------------|----------------------------|-------------------|-----------------------|----------|-------------------------------------|
| <p>KM-18 — Enhance public safety strategies for debris avoidance and management for natural hazards events. Implementation measures include developing and enhancing right-of-way maintenance programs, educating property owners about tree maintenance near roadways, and developing coordinated management strategies for public safety issues such as clearing debris from public and private property.</p> | | | | | | | |
| New and existing | All Hazards | 1,3,6,7,8, 11,12,13, 14,15 | Kenmore Public Works | Low | General Fund | Ongoing | Yes |

**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 |
|--------------|---------------------|----------|--------|------------------------------------|----------------------------|---|-----------------------|
| KM-1 | 4 | High | Low | Yes | No | Yes | High |
| KM-2 | 2 | Medium | Low | Yes | No | Yes | High |
| KM-3 | 4 | Medium | Low | Yes | No | Yes | High |
| KM-4 | 6 | High | Low | Yes | No | Yes | High |
| KM-5 | 3 | High | High | Yes | Yes | No | Medium |
| KM-6 | 7 | Medium | Low | Yes | No | Yes | High |
| KM-7 | 7 | Medium | Low | Yes | Yes | Yes | High |
| KM-8 | 3 | Medium | Medium | Yes | Yes | No | Medium |
| KM-9 | 5 | High | Medium | Yes | No | No | Medium |
| KM-10 | 2 | High | Medium | Yes | No | No | Medium |
| KM-11 | 8 | High | Low | Yes | No | Yes | High |
| KM-12 | 4 | High | Medium | Yes | Yes | No | Medium |
| KM-13 | 12 | High | Low | Yes | Yes | Yes | High |
| KM-14 | 5 | Medium | Low | Yes | Yes | Yes | High |
| KM-15 | 10 | High | Low | Yes | No | No | Medium |
| KM-16 | 3 | Medium | High | No | No | No | Low |
| KM-17 | 13 | Medium | Low | Yes | Yes | Yes | High |
| KM-18 | 10 | High | Low | Yes | No | Yes | High |

a. See Chapter 1 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 | 6,7 | | 6,7 | | | |
| Dam Failure | 6,7 | | 6,7 | | | |
| Drought | 6,7,8 | | 4,6,7,8,11 | | | |
| Earthquake | 2,3,6,7,8,9,10, 14,18 | 5,13 | 3,4,6,7,8,11,13, 18 | 3 | 6,10,12 | |
| Flood | 1,3,6,7,8,9,10, 18 | 1,5 | 1,3,4,6,7,8,11, 18 | 1,3 | 6,10 | |
| Landslide | 2,3,6,7,8,9,10, 18 | 5 | 3,4,6,7,8,9,11, 18 | 3 | 6,10 | |
| Severe Weather | 2,6,7,8,9,10, 14,18 | 5 | 3,4,6,7,8,11,18 | | 6,10,12 | |
| Tsunami/Seiche | 3,6,7,8,18 | 5 | 3,4,6,7,8,11,15, 18 | | 6,10 | |
| Volcano | 6,7,8,10,16,18 | | 4,6,7,8,11,16,18 | | 6,10 | |
| Wildfire | 2,3,6,7,8,10, 17,18 | 5 | 3,4,6,7,8,11,17, 18 | | 6,10 | |

a. See Chapter 1 for explanation of mitigation types.

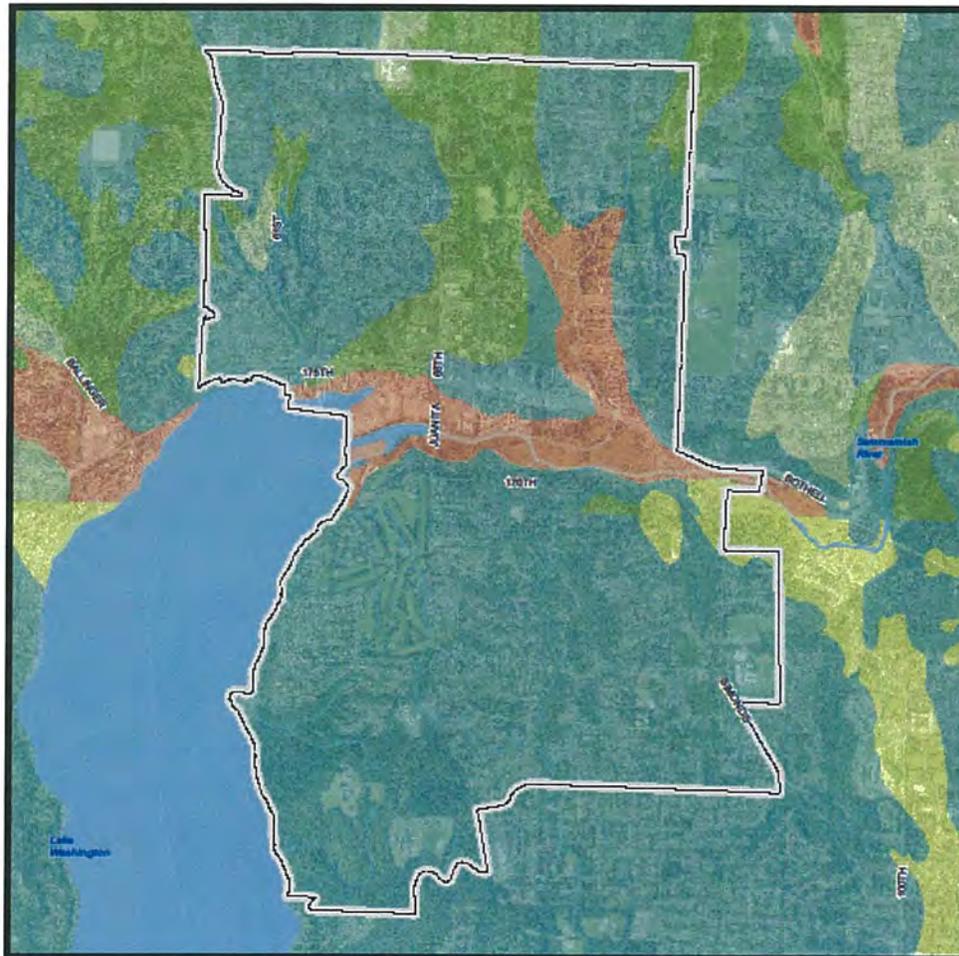
1.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Enhanced mapping of landslide hazard areas and floodplains would greatly improve the City’s understanding of vulnerability and risks.

1.10 ANNEX DEVELOPMENT CHRONOLOGY/MILESTONES

Table 1-12 summarizes important milestones in the development of Kenmore’s Annex. Additional documentation of the planning process is available upon request.

| TABLE 1-12. ANNEX DEVELOPMENT MILESTONES | | | |
|---|---------------------------|---|------------|
| Date | Event | Description | Attendance |
| 10/3/14 | Meeting with KCOEM | Overview of RHMP, received “Linkage Package” of instructions and templates. | 6 |
| 11/13/14 | Meeting with KCOEM | In-depth discussion of annex template and linkage procedure. | 3 |
| 12/12/14 | Public Outreach | Press release announcing Kenmore’s participation in King County’s Hazard Mitigation Plan including a link to a public survey. | N/A |
| 12/17/14 | Meeting with KCOEM | In-depth discussion of annex template and linkage procedure. | 3 |
| 02/19/15 | Internal Planning Meeting | Discussion of draft annex and information to be provided by City departments. | 5 |
| 4/27/15 | Meeting with City Manager | Review and discussion of draft annex. | 2 |
| 4/28/15 | Draft to KCOEM | Draft annex submitted to KCOEM (and their consultant) for review and comment. | N/A |
| 5/4/15 | Public Outreach | Announcement of public comment period and opportunity for citizens to participate. | N/A |
| 5/26/15 | Final to KCOEM | Final draft annex submitted to KCOEM. KCOEM submits plan to WA EMD who forwards to FEMA. | N/A |
| X/X/XX | Pre-adoption Approval | Received pre-adoption approval from FEMA. | N/A |
| X/X/XX | Adoption | Kenmore City Council adopts the plan. | N/A |
| X/X/XX | Plan Approval | Final approval granted by FEMA. | N/A |



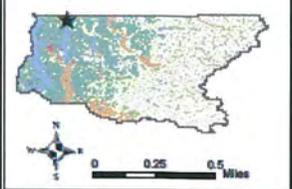
CITY OF KENMORE
Liquefaction Susceptibility

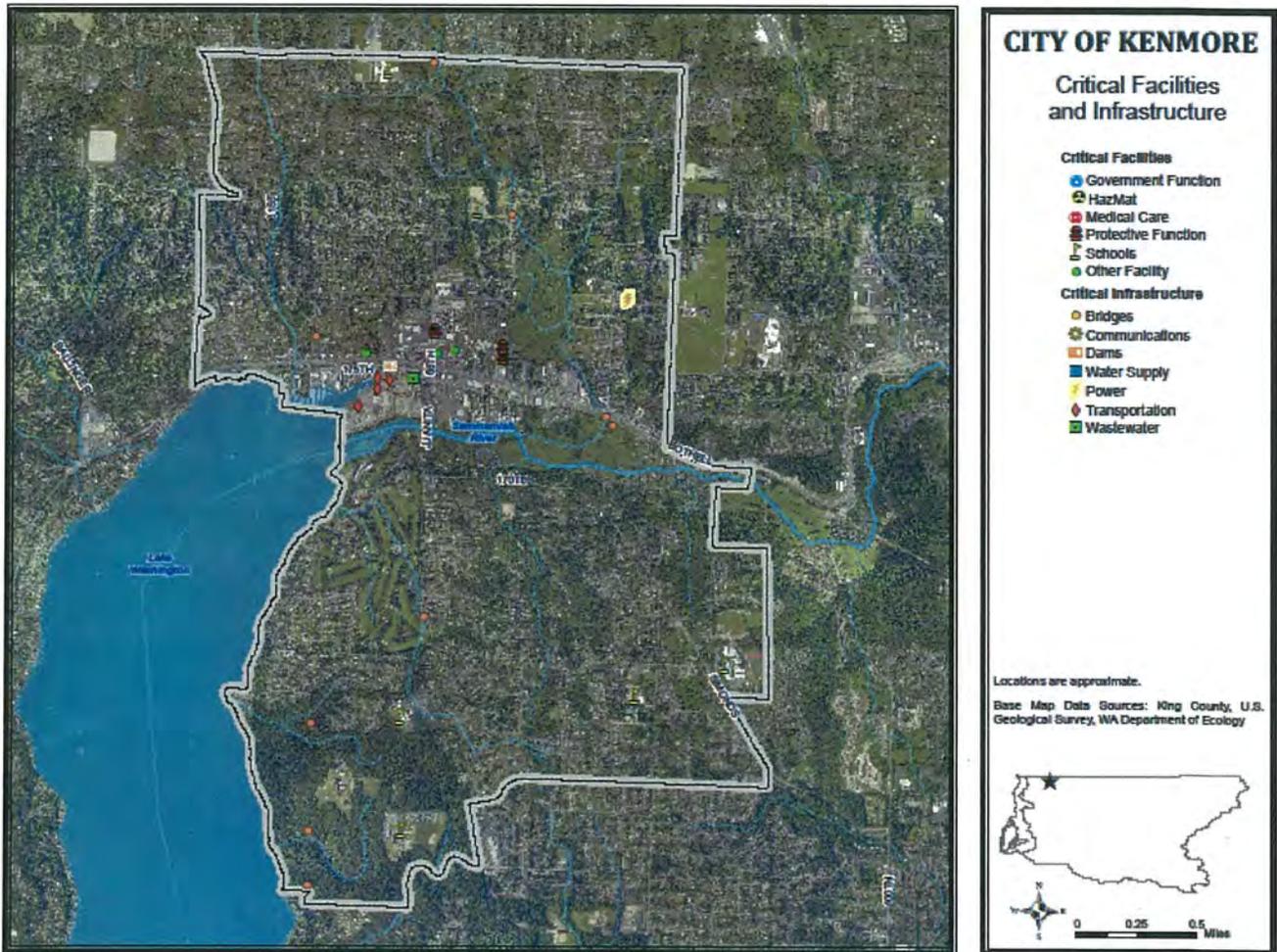
| Susceptible | | Not Susceptible | |
|-------------|------------------|-----------------|------|
| High | Moderate to High | Bedrock | Peat |
| Moderate | Low to Moderate | Water | Ice |
| Low | Very Low to Low | | |
| Very Low | | | |

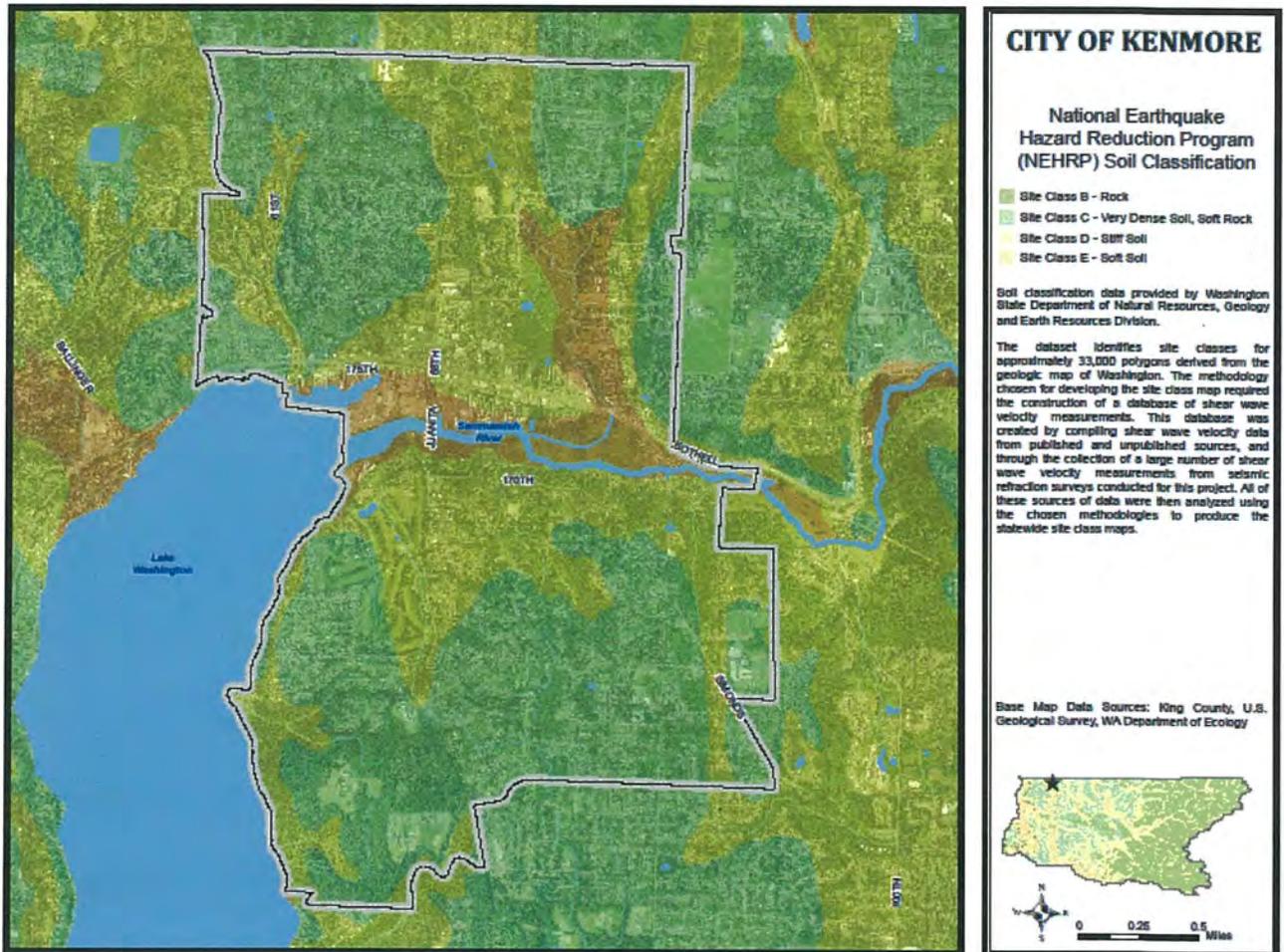
Liquefaction data provided by the Washington State Department of Natural Resources, Division of Geology and Earth Resources. Data is based solely on surficial geology published at a scale of 1:100,000.

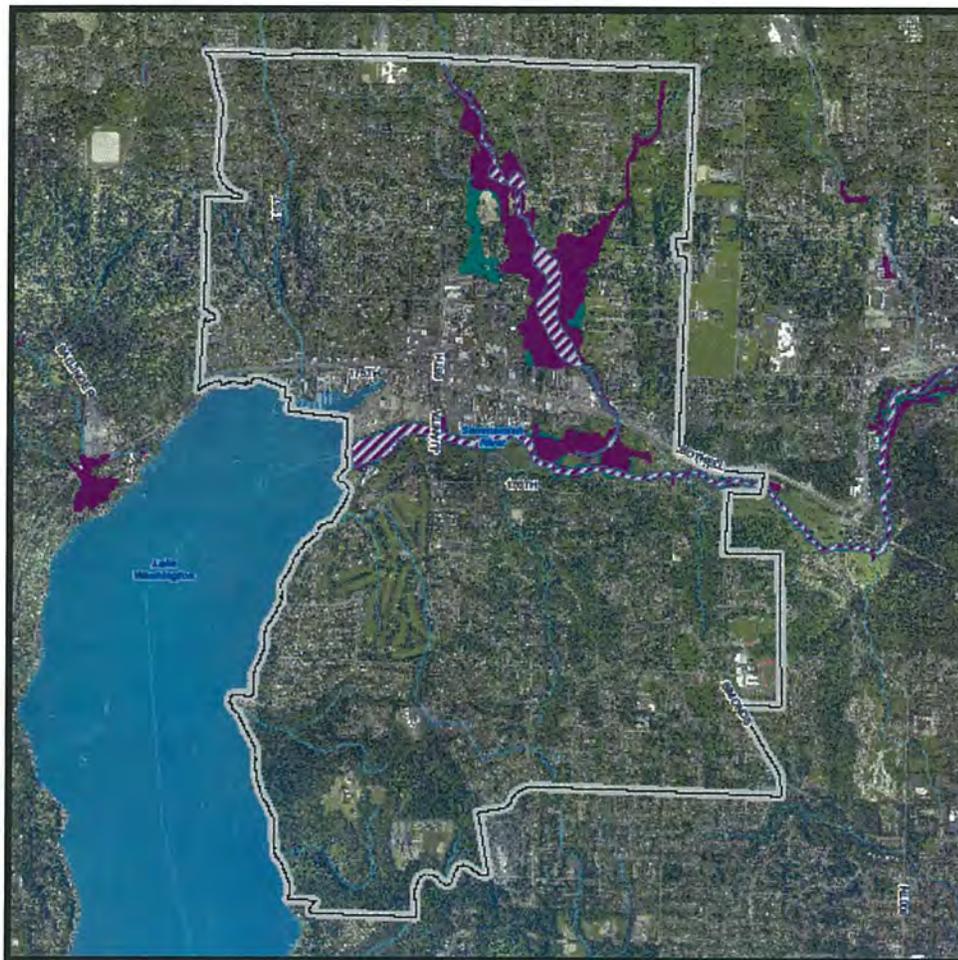
A liquefaction susceptibility map provides an estimate of the likelihood that soil will liquefy as a result of earthquake shaking. This type of map depicts the relative susceptibility in a range that varies from very low to high. Areas underlain by bedrock or peat are mapped separately as these earth 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 KENMORE

**FEMA DFIRM
Flood Hazard Areas**

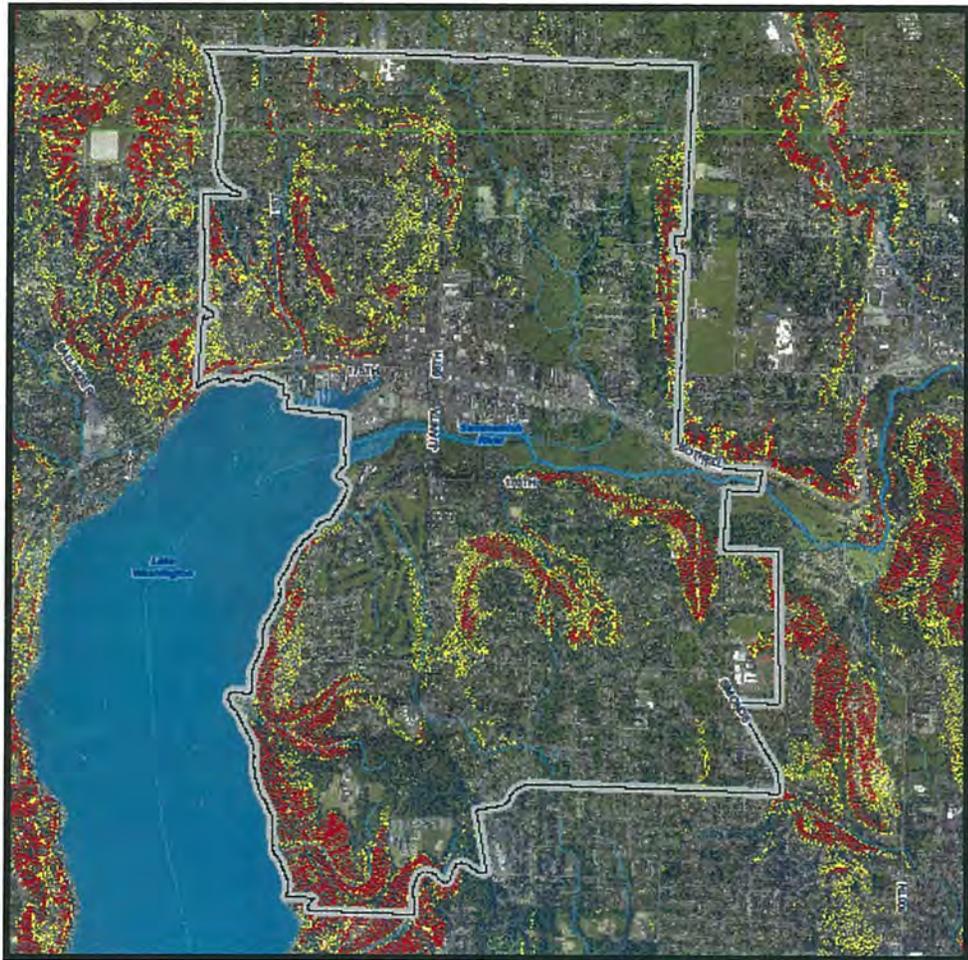
- ▨ Floodway
- 1 Percent Annual Flood Hazard
- 0.2 Percent Annual Flood Hazard

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

0 0.25 0.5 Miles



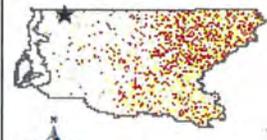
CITY OF KENMORE

Slope Stability

- Low Slope Instability
- Medium Slope Instability
- High Slope Instability

Slope stability data downloaded from the WA State Department of Natural Resources, Forest Practices Division website. This dataset is a predictive layer of shallow-depth slope stability using one or more calibrated GIS-based models that use DEMs to generate slope and curvature information. The models used are SIMORPH and SHALSTAB. Additionally, other information, such as landslide inventories, soils, mass wasting units, geology, and precipitation amounts are used in the calibration of these models to a specific area. These landslide data were collected at a variety of scales, over a large period of years. The horizontal accuracy of the grid coverage is dependent on the resolution of the Digital Elevation Model (DEM) from which it was derived.

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





CITY OF KENMORE

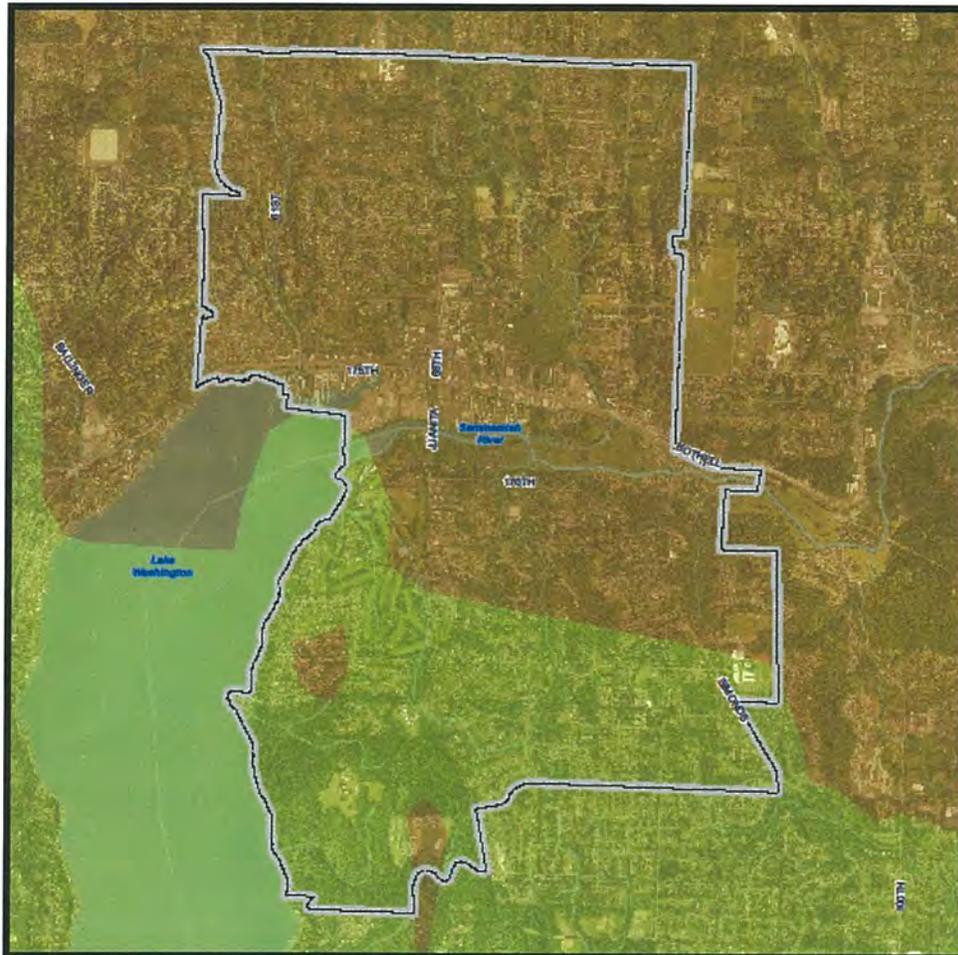
2008 LANDFIRE Fire Behavior Fuel Model

Anderson 13 Fuel Classes

| Burnable | | Non-Burnable | |
|----------|-----------|--------------|-------------|
| FBFM1 | Developed | FBFM2 | Agriculture |
| FBFM3 | Water | FBFM4 | Barren |
| FBFM5 | Barren | FBFM6 | |
| FBFM7 | | FBFM8 | |
| FBFM9 | | FBFM10 | |
| FBFM11 | | FBFM12 | |

Fuel Class data (LANDFIRE REFRESH 2008 (L_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



CITY OF KENMORE

**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, WA Department of Ecology

