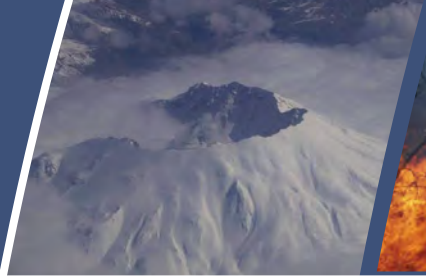
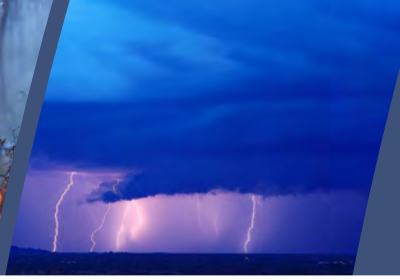


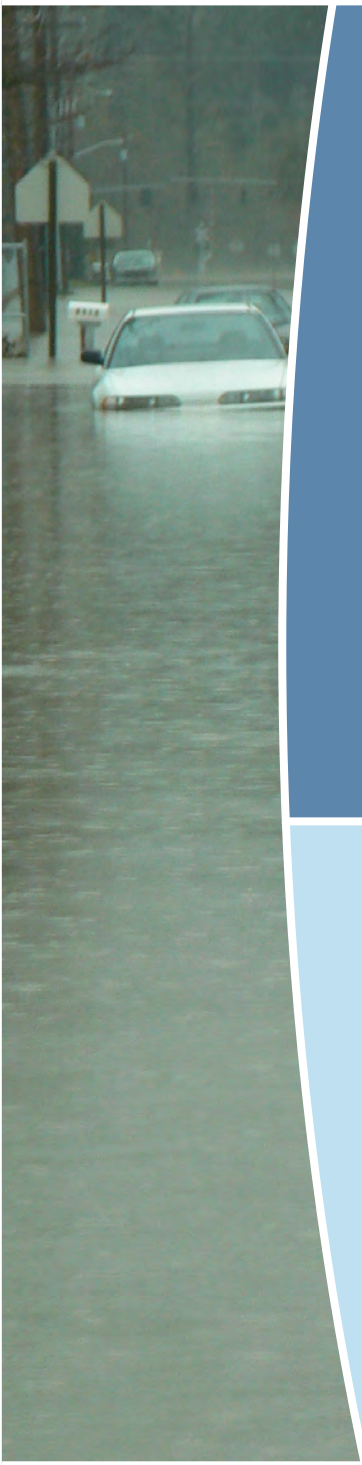


King County
Office of Emergency Management

King County Regional Hazard Mitigation Plan Update

Volume 2: Planning Partner Annexes
Part 2d—Special Purpose Districts

Public Review Draft
June 2014



TETRA TECH

King County

REGIONAL HAZARD MITIGATION PLAN UPDATE
VOLUME 2: PLANNING PARTNER ANNEXES

PUBLIC REVIEW DRAFT

JUNE 2014

Prepared for:
King County
Office of Emergency Management
3511 NE 2nd Street
Renton, WA 98056

Prepared by:

TETRA TECH
complex world | CLEAR SOLUTIONS™

19803 North Creek Parkway, Bothell, WA 98011
Tel 425.877.2800 Fax 425.877.2899 www.tetratech.com

Project #103S2548

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

TABLE OF CONTENTS

Note: To reduce document and electronic file size, the Planning Partner annexes presented in Volume 2 of the King County Regional Hazard Mitigation Plan have been separated into four parts. Each part includes the Volume 2 table of contents, introduction and appendices and a limited number of annexes. Municipal annexes are presented alphabetically in the first three parts, followed by special purpose district annexes in the fourth part. See the list below to identify which part contains each annex.

Part 2a

Introduction

Chapter 1. Update Annex for King County Regional Service Providers and Unincorporated Areas

Chapter 2. City of Algona Annex

Chapter 3. City of Auburn Update Annex

Chapter 4. Town of Beaux Arts Village Annex

Chapter 5. City of Bothell Update Annex

Chapter 6. City of Burien Annex

Chapter 7. City of Carnation Annex

Chapter 8. City of Clyde Hill Annex

Chapter 9. City of Duvall Annex

Appendix A. Planning Partner Expectations

Appendix B. Procedures for Linking to the Regional Hazard Mitigation Plan Update

Appendix C. annex Instructions and Templates

Part 2b

Introduction

Chapter 10. City of Federal Way Update Annex

Chapter 11. Town of Hunts Point Annex

Chapter 12. City of Issaquah Update Annex

Chapter 13. City of Kent Update Annex

Chapter 14. City of Kirkland Annex

Chapter 15. City of Maple Valley Annex

Chapter 16. City of Medina Annex

Chapter 17. City of Mercer Island Update Annex

Chapter 18. City of North Bend Annex

Appendix A. Planning Partner Expectations

Appendix B. Procedures for Linking to the Regional Hazard Mitigation Plan Update

Appendix C. annex Instructions and Templates

Part 2b

Introduction

Chapter 19. City of Pacific Update Annex

Chapter 20. City of Redmond Update Annex

Chapter 21. City of Renton Update Annex

Chapter 22. City of Seatac Annex

Chapter 23. City of Shoreline Update Annex

Chapter 24. Town of Skykomish Annex

Chapter 25. City of Snoqualmie Update Annex

Chapter 26. City of Tukwila Update Annex

Chapter 27. City of Woodinville Update Annex

Appendix A. Planning Partner Expectations

Appendix B. Procedures for Linking to the Regional Hazard Mitigation Plan Update

Appendix C. annex Instructions and Templates

Part 2d

Introduction

Chapter 28. Coal Creek Utility District Annex

Chapter 29. Covington Water District Update Annex

Chapter 30. Highline Water District Update Annex

Chapter 31. Kent Fire Department Regional Fire Authority Update Annex

Chapter 32. Kent School District #415 Annex

Chapter 33. King County Fire District No. 2 Annex

Chapter 34. King County Fire DIstrict No. 45 Annex

Chapter 35. King County Public Hospital District No. 1 (Valley Medical Center) Annex

Chapter 36. King County Public Hospital District No. 2 Annex

Chapter 37. King County Water District No. 19 Update Annex

Chapter 38. King County Water District No. 20 Annex

Chapter 39. King County Water District No. 90 Annex

Chapter 40. King County Water District No. 111 Update Annex

Chapter 41. King County Water District No. 125 Annex

Chapter 42. Midway Sewer District Annex

Chapter 43. North City Water District Update Annex

Chapter 44. Riverview School District Annex

Chapter 45. Ronald Wastewater District Annex

Chapter 46. Sammamish Plateau Water & Sewer Update Annex

Chapter 47. Shoreline Fire Department Update Annex

Chapter 48. Skyway Water and Sewer District Annex

Chapter 49. Soos Creek Water & Sewer District Update Annex

Chapter 50. Southwest Suburban Sewer District Update Annex

Chapter 51. Valley Regional Fire Authority Annex

Chapter 52. Valley View Sewer District Annex

Chapter 53. Vashon Island Fire & Rescue (King County Fire Protection District 13) Annex

Chapter 54. Woodinville Water District Annex

Appendix A. Planning Partner Expectations

Appendix B. Procedures for Linking to the Regional Hazard Mitigation Plan Update

Appendix C. annex Instructions and Templates

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 in this process, with distinct needs and capabilities:

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

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

a. For unincorporated King County, the CRS plan of record is the *2013 King County Flood Hazard Management Plan Update and Progress Report*.
b. The 2010 Shoreline Water District Hazard Mitigation Plan was not submitted to FEMA for approval.

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

ACRONYMS AND ABBREVIATIONS

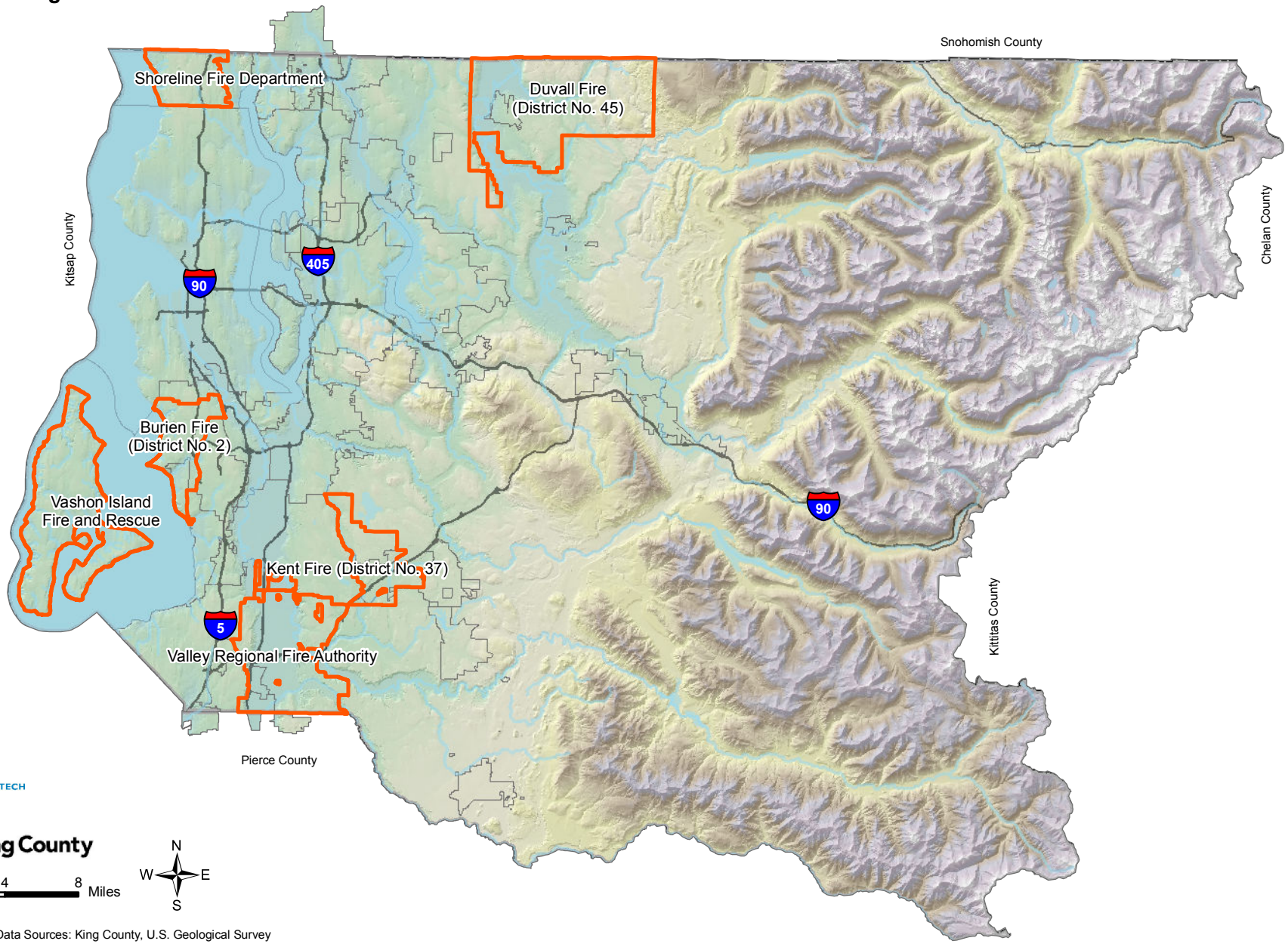
The following terms are used in the planning partner annexes:

- 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)

Figure X-X

Participating Fire Districts



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

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Figure X-X

Participating Public Hospital Districts

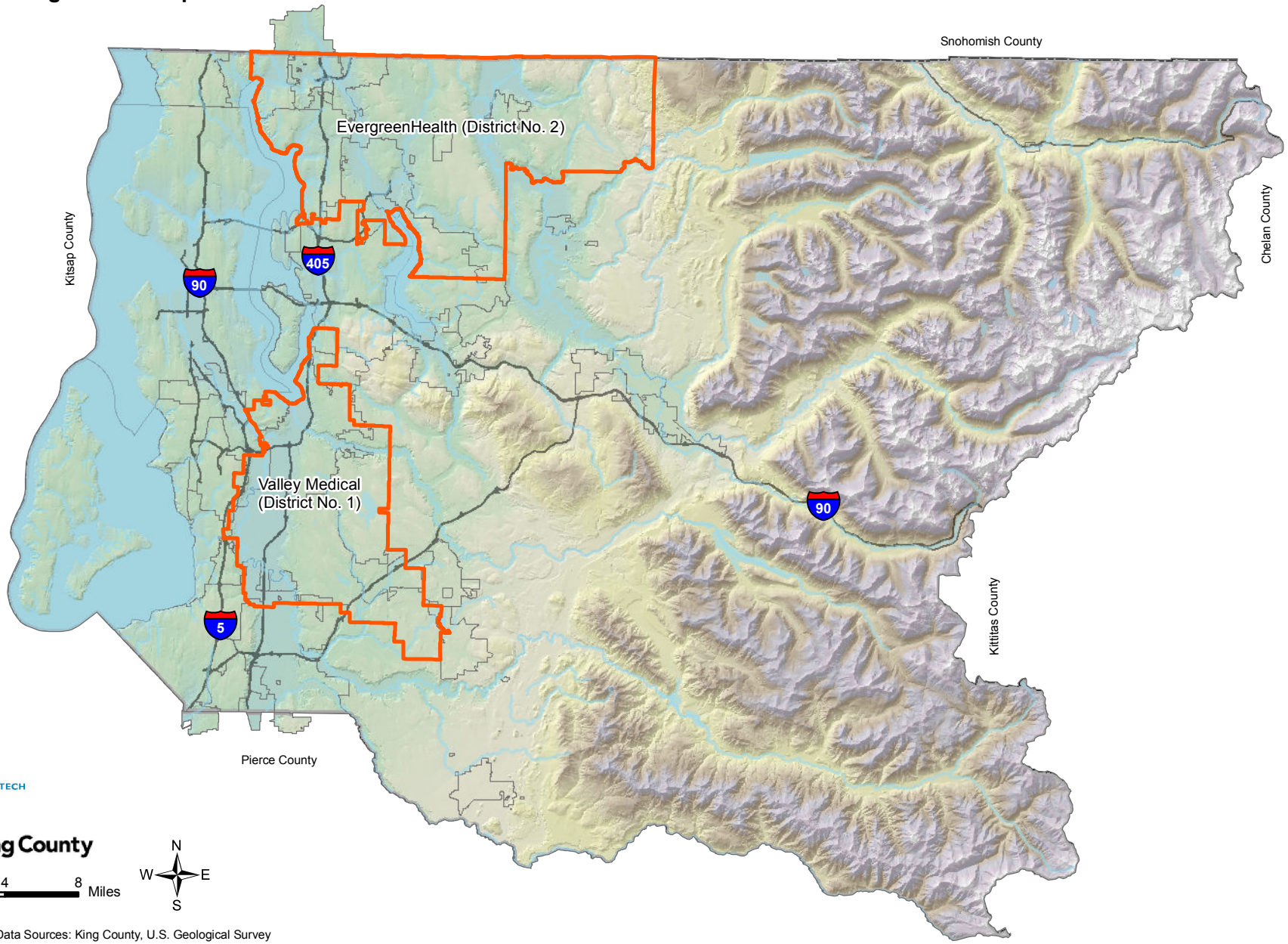

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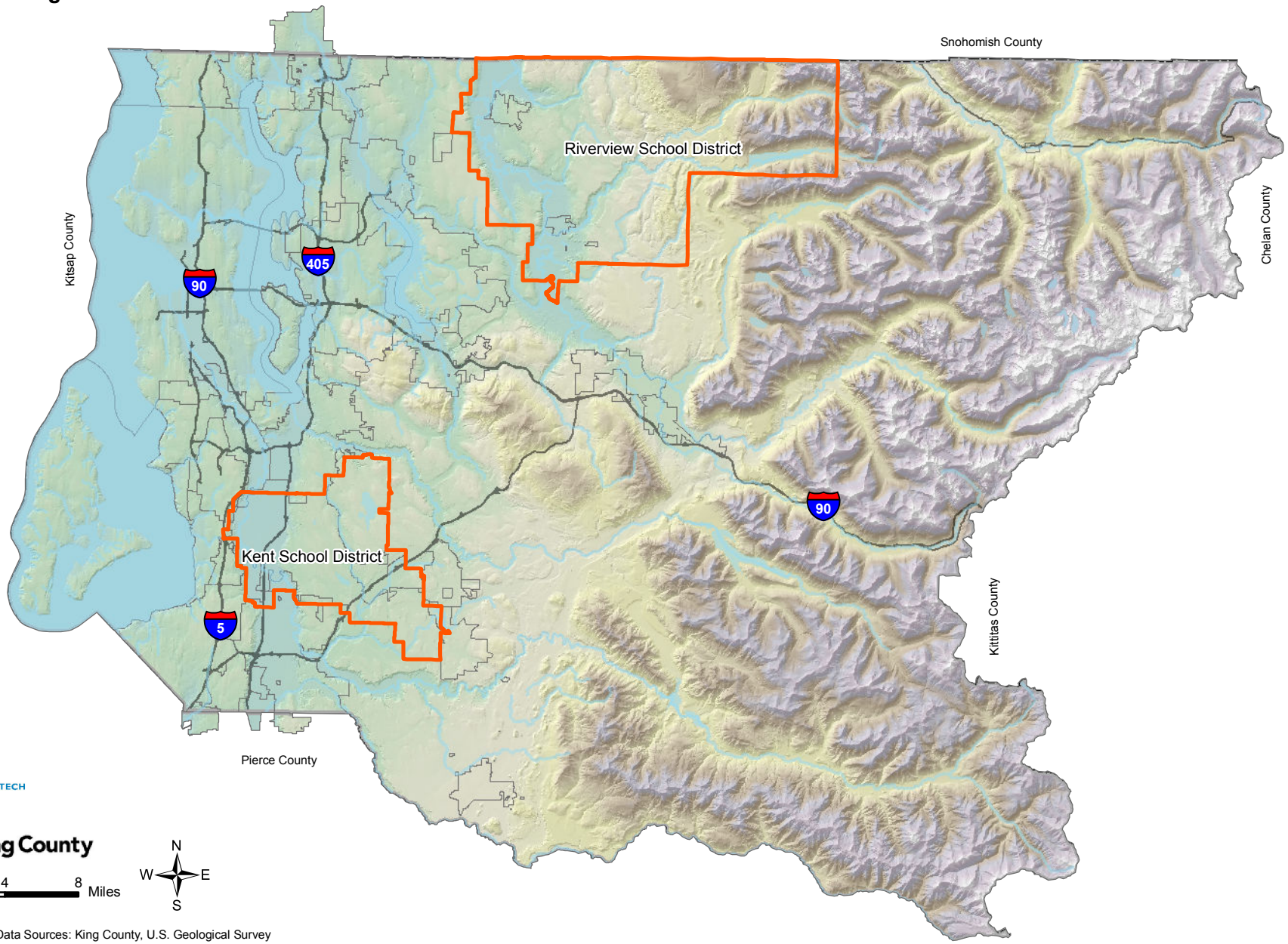
Figure X-X

Participating School Districts



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

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Figure X-X

Participating Sewer Districts

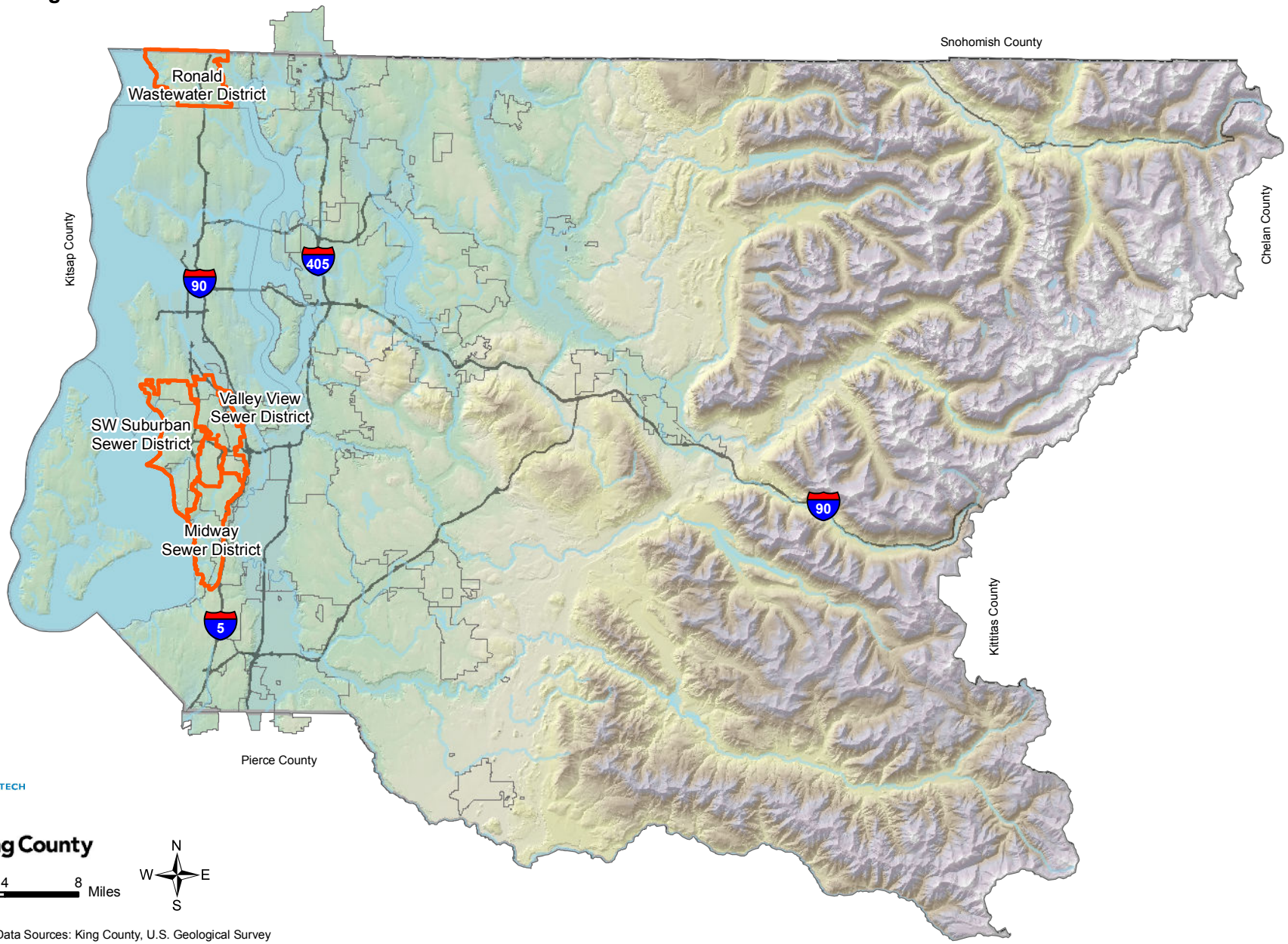

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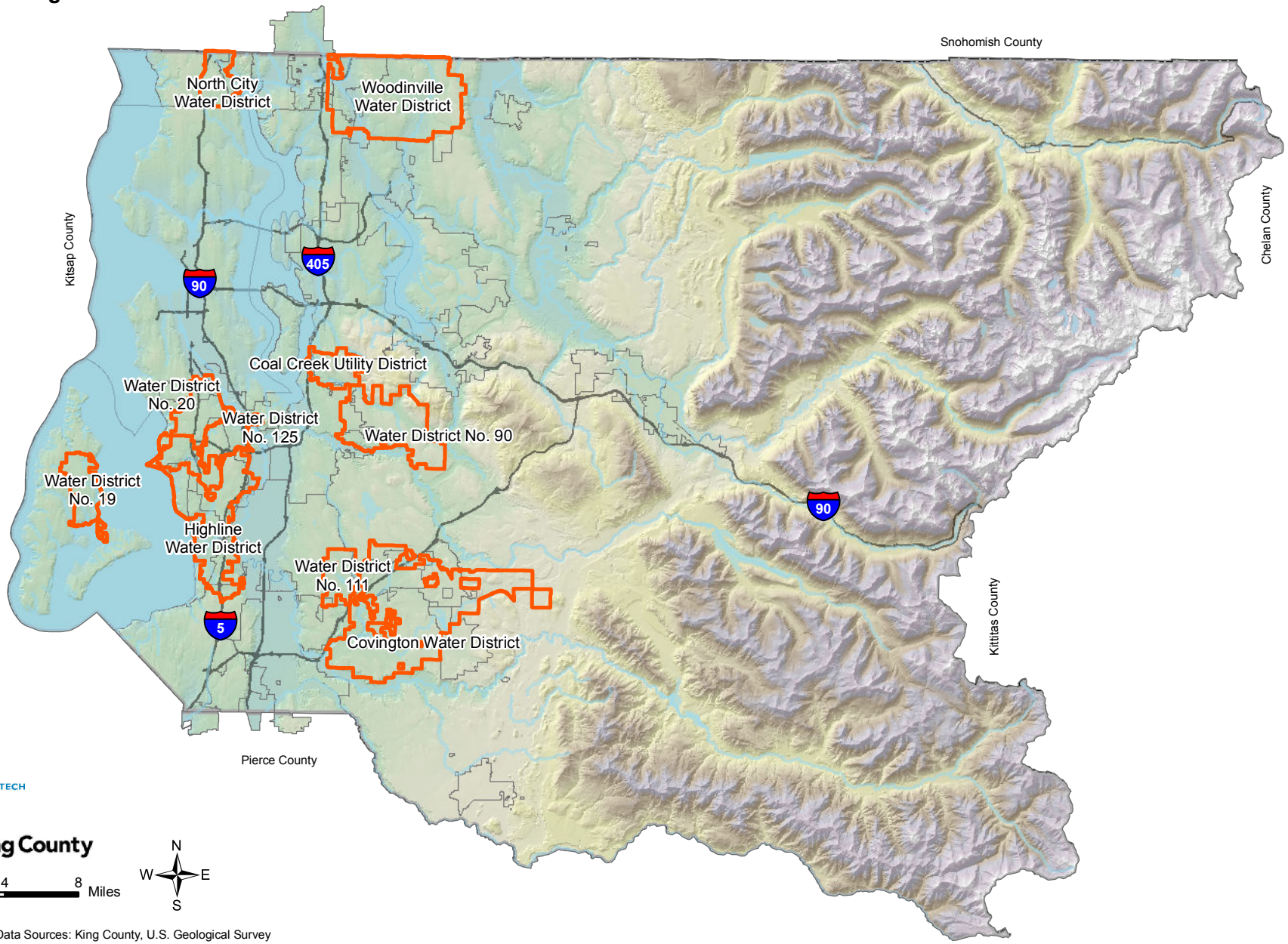
Figure X-X

Participating Water Districts



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

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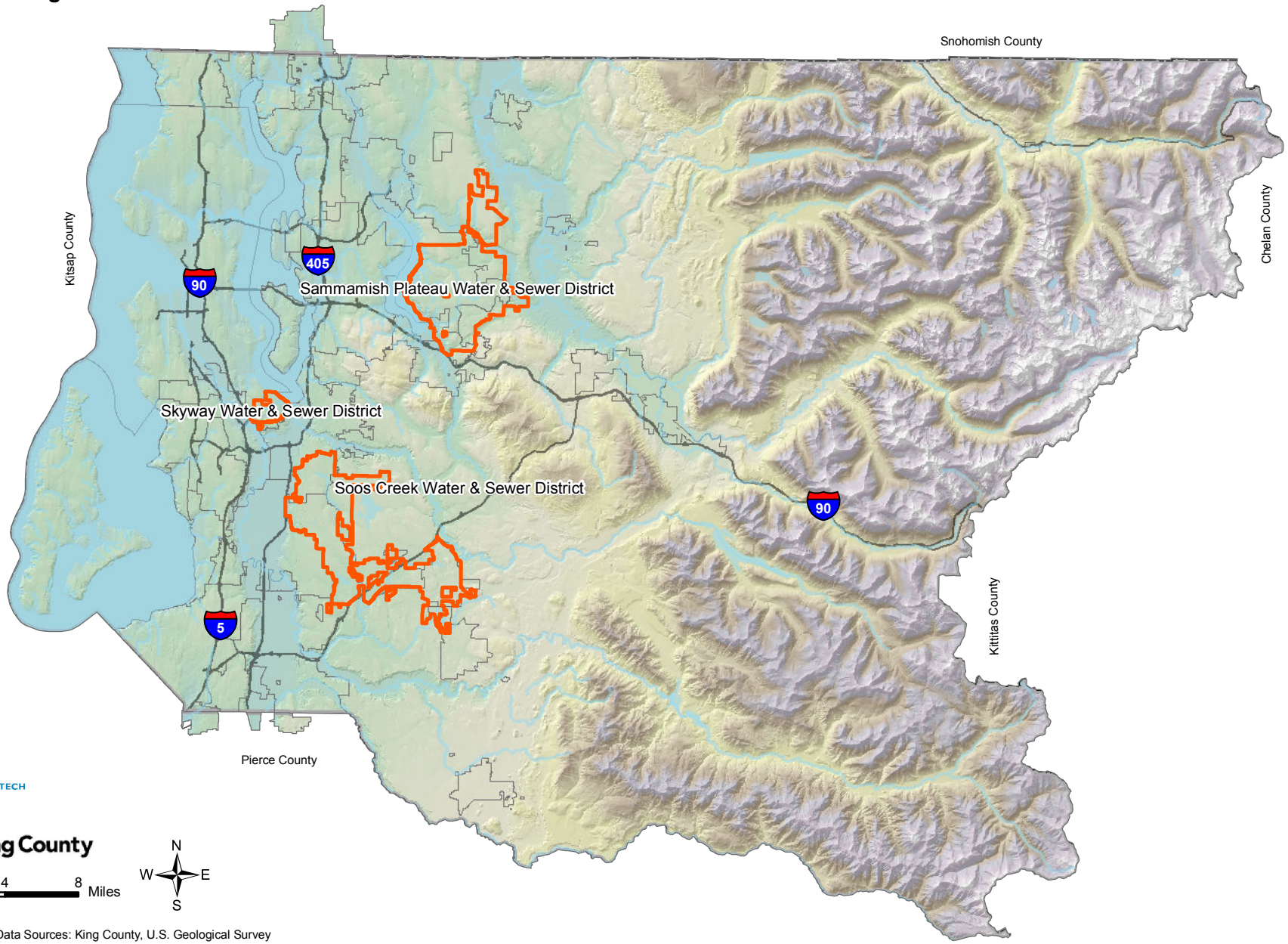
Figure X-X

Participating Water and Sewer Districts



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

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CHAPTER 28.
COAL CREEK UTILITY DISTRICT ANNEX

28.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Robert Russell, General Manager
6801 132nd Place SE
Newcastle, WA 98059
Telephone: (425) 235-9200
e-mail Address: rrussell@ccud.org

Alternate Point of Contact
Steve Moye, Water/Sewer Technician
6801 132nd Place SE
Newcastle, WA 98059
Telephone: (425) 235-9200
e-mail Address: smoye@ccud.org

28.2 JURISDICTION PROFILE

Coal Creek Utility District is a special purpose district that was created in 1959 to provide water and sewer to the City of Newcastle, small parts of the City of Renton, and unincorporated King County. Coal Creek Utility District is authorized by the State of Washington under the Revised Code of Washington Title 57 to operate a public utility system. The District operates under a commissioner system, whereby three commissioners are elected by the residents of the incorporated area. This area is approximately 5.7 square miles. Resolutions and motions adopted by the District make and establish the policies that govern its operation. The District's Commissioners assumes responsibility for the adoption of this plan; The District's management will oversee its implementation.

The District serves approximately 3,700 water and 3,000 sewer customers with 15 employees.

- **Population Served—**11,500 as of 2010
- **Land Area Served—**5.7 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $2,236,341,269
- **Land Area Owned—**9.8 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 66 miles of water mains $87,000,000
  - 45 miles of sewer mains $95,000,000
  - Metering Point 5, 440 Booster $800,000
  - Metering Point 4, Hazelwood PS $1,000,000
  - Metering Point 1 $200,000
  - 440 Reservoir/475,580 Booster $4,800,000
  - 580 Reservoir $3,500,000
  - 700 Reservoir/Rainer Crest PS $3,500,000
  - 1060 Reservoir $4,000,000
  - Meadowview Sewer Lift Station $500,000
  - Upper May Creek Lift Station $1,000,000
  - Middle May Creek Lift Station $400,000

- Lower May Creek Lift Station #1 $400,000
- Lower May Creek Lift Station #2 $300,000
- Olympus Sewer Lift Station $1,000,000
- Lake Boren Lift Station $350,000
- Pleasant Cove Lift Station $300,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $204,000,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Operation Center $4,800,000
  - Office Annex $600,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $5,400,000
- **Current and Anticipated Service Trends—**Coal Creek Utility District expects the population in its service area to increase to 14,000 people by 2033.

28.3 APPLICABLE REGULATIONS AND PLANS

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

- Coal Creek Utility District Resolution No. 1636
- Coal Creek Utility District Resolution No. 1652
- Coal Creek Utility District 2013 Water/Sewer Comprehensive Plan
- King County Regional Disaster plan

28.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 28-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 28-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm	DR-4056	1/16/12	No information available
Winter Storm		11/22/10	No information available
Snow, Wind, Power outage		12/20/07	No information available
Wind	DR-1682	12/14/06	No information available
Wind		12/04/03	No information available
Earthquake	DR-1361	2/28/01	No information available
Wind	DR-981	1/20/93	No information available

28.5 HAZARD RISK RANKING

Table 28-2 presents the ranking of the hazards of concern.

TABLE 28-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	48
3	Severe Winter Weather	48
4	Landslide	22
5	Avalanche	0
6	Dam Failure	0
7	Flood	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

28.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 28-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 28-4 identifies the priority for each initiative. Table 28-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 28-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
CCUD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All	CCUD	Low	General Fund	Ongoing
CCUD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2,4,7,13	CCUD	Low	General Fund	Ongoing
CCUD-3—Seismic evaluation of the 700 Reservoir structure.						
Existing	Earthquake	2,4	CCUD	$75,000	CIP	Short-term
CCUD-4—Geotechnical analysis of 700 Reservoir and Rainer Crest P/S site.						
Existing	Landslide	2,4	CCUD	$130,000	CIP	Short-term
CCUD-5—Purchase HDPE Pipe, Fittings, Equipment for temporary emergency repairs.						
Existing	Landslide	1,9	CCUD	$50,000	CIP	Long-term

TABLE 28-4.
MITIGATION STRATEGY PRIORITY

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority[a]
1	15	Medium	Low	Yes	No	Yes	High
2	5	Medium	Low	Yes	No	Yes	High
3	2	High	Medium	Yes	No	Yes	High
4	2	High	Medium	Yes	No	Yes	High
5	2	High	Medium	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 28-5.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	3,4,5	3,4	-	-	5	3
Flood	-	-	-	-	-	-
Landslide	4,5	4	-	-	5	-
Severe Weather	1,2	-	-	-	5	-
Severe Winter Weather	1,2	4	-	-	5	-
Tsunami	-	-	-	-	-	-
Volcano	-	-	-	-	-	-
Wildfire	-	-	-	-	-	-

a. See Introduction for explanation of mitigation types.

28.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

The District would like to acquire more information on existing coal mines. Locations of coal mine hazards should be included in the District's GIS databases and research should be conducted on the effects of mine workings on future water and sewer main installations. The District should coordinate with Newcastle Historical Society to possibly convert paper maps to digital.

CHAPTER 29.
COVINGTON WATER DISTRICT UPDATE ANNEX

29.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Robert Taylor, Water Resources Manager
18631 SE 300th Place
Covington, WA 98042
Telephone: 253-867-0940
e-mail Address: bob.taylor@covingtonwater.com

Alternate Point of Contact

Gwenn Maxfield, General Manager
18631 SE 300th Place
Covington, WA 98042
Telephone: 253-631-0565
e-mail Address: gmaxfield@covingtonwater.com

29.2 JURISDICTION PROFILE

The Covington Water District (District) was formed in southeast King County in 1960 with less than 100 customers. Over the years, a number of small districts merged into the Covington Water District and more customers were added as development occurred. Currently, the District has 38 employees and serves a population of approximately 50,000 through 17,000 water connections as of July, 2013. The District's service area contains residential, small farm, commercial, governmental, medical facility and institutional/educational development. The District is governed by a five member Board of Commissioners, which will assume responsibility for the adoption of this Annex of the Regional Hazard Mitigation Plan up-date (Plan) by Resolution and will oversee its implementation. Funding come primarily through rates and revenue bonds.

The District serves an area of approximately 55 square miles as established by the South King County Coordinated Water System Plan. The District is roughly bounded by SR 18 on the northwest, the Maple Valley Highway on the northeast, Ravensdale on the east, and the Green River on the south. The cities of Covington, Kent, Maple Valley and Black Diamond, along with King County, set land use policies that determine zoning and growth demands for the District's service area. Land use designations in the District's service area are 11 percent Agriculture and Forest Production Resource Land, 68 percent Rural and 21 percent Urban as set forth under King County Growth Management Policies.

The following is a summary of key information about Covington Water District:

- **Population Served—**50,000 as of July 31, 2013
- **Land Area Served—**55 square miles
- **Value of Area Served—**the estimated value of the area served by the jurisdiction is $5,325,391,800 (Source of information – King County Assessor data bases).
- **Land Area Owned—**92.7 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 220 miles of water main — $108,544,000
  - 11 wells and well pumps — $3,250,402
  - 8 water storage tanks — $17,278,812
  - 7 booster pump stations — $2,584,935

- 3 treatment plants $5,471,986
- 7 interties $776,000
- 16 pressure reducing valve stations $1,024,000
- 12 control valve stations $744,000
- 1 SCADA network $3,500,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $143,444,135
- **List of Critical Facilities Owned by the Jurisdiction:**
  - District Headquarters $6,325,384
  - 11 well buildings $1,630,642
  - 3 treatment plants $1,490,071
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $9,446,097
- **Current and Anticipated Service Trends—**Covington Water District has experienced a 5 percent overall growth within the last five years (2008-2012). Land use designations allow for an increase in commercial, light industrial and primarily residential land uses within the District's service area. The increase in density in land use will represent an expansion of the District's delivery network.

29.3 APPLICABLE REGULATIONS AND PLANS

The District is regulated by the Washington State Department of Health and the Environmental Protection Agency. Land use management is under the authority of the jurisdictions served by the District and the District's planning is consistent with jurisdictional land management policies.

The District has adopted/enacted codes, resolutions, policies and plans that compliment and support hazard mitigation planning and activities. The following existing District codes, resolutions, policies and plans are applicable to this hazard mitigation plan:

- Code 1.20.010 Emergency Management Program
- Resolution 3749, adopting the 2009 Regional Hazard Mitigation Plan Update
- King County Hazard Mitigation Plan, 2009
- Covington Water District Hazard Identification and Vulnerability Assessment, 2004
- Resolution 3782, accepting the District's revised Emergency Procedures Manual
- Covington Water District Emergency Response Plan
- Covington Water District Divisional Business Continuity Plans
- Covington Water District Comprehensive Water System Plan
- Covington Water District Capital Improvement Program

These laws, policies and plans support the mitigation strategies of the 2014 Update of the King County Regional Hazard Mitigation Plan by identifying the District's critical facilities and their vulnerability to hazards. They also identify predetermined actions to mitigate the vulnerabilities through emergency preparation or capital expenditures such as seismic retrofits, structural enhancements, relocation, etc.

29.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 29-1 lists all of the past occurrences of natural hazards within the service area of Covington Water District.

TABLE 29-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm	4056	1/12/2012	$20,648
Severe Winter Storm	1963	1/11/2011	$2,010
Severe Winter Storm	1817	1/6/2009	$988
Severe Winter Storm	1825	12/12/2008	$548
Severe Storm	1734	12/1/2007	$1,000
Severe Storm	1682	12/14/2006	$1,000
Severe Storm	1671	11/2/2006	$1,000
Severe Storm	1499	10/15/2003	$1,000
Earthquake	1361	2./28/2001	$1,000
Severe Storm	1172	3/18/1997	$1,000
Severe Winter Storm	1159	1/17/1997	$1,000
Severe Storm	1100	2/9/1996	$1,000
Severe Storm	1079	11/171995	$1,000
Severe Storm	981	1/20/1993	$1,000
Severe Storm	896	12/20/1990	$1,000

29.5 HAZARD RISK RANKING

Table 29-2 presents the ranking of the natural hazards of concern.

TABLE 29-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	54
3	Severe Winter Weather	54
4	Flood	42
5	Dam Failure	13
6	Landslide	12
7	Wildfire	12
8	Volcano	6
9	Avalanche	0
10	Tsunami	0

29.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 29-3 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 29-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
CWD-1		✓		Seismic evaluation is completed and retrofit will occur in 2014-15.
CWD-2	✓			Tank 2B seismic retrofit was completed in the fall or 2012
CWD-3			✓	Tank 2A was demolished because cost to retrofit exceeded benefit
CWD-4		✓		Seismic evaluation is completed and retrofits will occur in 2015-16
CWD-5			✓	Tank 1B will be demolished in 2015-2016 and a new single tank will be built to replace both Tank's 1 A & B
CWD-6			✓	Tank 1A will be demolished in 2015-2016 and a new single tank will be built to replace both Tank's 1 A & B
CWD-7		✓		No progress to date. The project is identified in the District's 6-year Capital Projects Plan

29.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 29-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 29-5 identifies the priority for each initiative. Table 29-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

29.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

An evaluation of the District's water storage tank's inlet/outlet piping, so the District has a better understanding of the seismic risks and vulnerabilities associated with the existing rigid piping.

29.9 ADDITIONAL COMMENTS

Prior to 2008, the District did not track expenses due to hazard events independently; therefore all damage assessments prior to 2008 in Table 1-1, Natural Hazard Events, are estimates.

TABLE 29-4.
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?
CWD-1 - Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	All Objectives	Covington Water District	Low	District General Funds	Ongoing	No
CWD-2 - Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	2,4,7,13	Covington Water District	Low	District General Fund	Ongoing	No
CWD-3 – Perform structural seismic retrofit of Tank 3.							
Existing	Earthquake	1,2,5,8,9	Covington Water District	High	Loans, Grants, District Funds, FEMA Hazard Mitigation Grants	Long Term	Yes
CWD-4 – Perform structural seismic retrofit of Tank 4.							
Existing	Earthquake	1,2,5,8,9	Covington Water District	High	Loans, Grants, District Funds, FEMA Hazard Mitigation Grants	Short Term	Yes
CWD-5 – Relocate Soos Creek water main crossing out of floodway and landslide prone area.							
Existing	Earthquake, Landslide	1,2,5,8,9	Covington Water District	Medium	Loans, Grants, District Funds, FEMA Hazard Mitigation Grants	Short Term	Yes
CWD-6 – Perform a non-structural seismic retrofit of District headquarters.							
Existing	Earthquake	1,2,5,8,9	Covington Water District	Low	District Funds, FEMA Hazard Mitigation Grants	Long Term	No
CWD-7 – Install a back-up generator at the Tank 2 Booster Pump Station.							
Existing	Earthquake, Severe Weather	1,5,8,9	Covington Water District	Low	District Funds, FEMA Hazard Mitigation Grants	Short Term	No

TABLE 29-5.
MITIGATION STRATEGY PRIORITY

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]
CWD-1	15	High	Low	Yes	No	Yes	High
CWD-2	5	High	Low	Yes	Yes	Yes	High
CWD-3	5	High	High	Yes	Yes	Yes	High
CWD-4	5	High	High	Yes	Yes	Yes	High
CWD-5	5	Medium	Medium	Yes	Yes	Yes	Medium
CWD-6	5	Medium	Low	Yes	Yes	Yes	Medium
CWD-7	4	Medium	Medium	Yes	Yes	Yes	Medium

a. See Introduction for explanation of priorities.

TABLE 29-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2	1, 2	1, 2	1,2	1, 2	1, 2
Earthquake	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5,6, 7	1, 2	1, 2, 3, 4, 5	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6
Flood	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2
Landslide	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2 3, 4, 5
Severe Weather	1, 2, 7	1, 2, 7	1, 2	1, 2	1, 2	1, 2
Severe Winter Weather	1, 2, 7	1, 2, 7	1, 2	1, 2	1, 2	1, 2
Tsunami	-	-	-	-	-	-
Volcano	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2
Wildfire	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2

a. See Introduction for explanation of mitigation types.

CHAPTER 30.
HIGHLINE WATER DISTRICT UPDATE ANNEX

30.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Mike Becker, Operations Supervisor
23828 30th Ave S
Kent, WA 98032
Telephone: 206-592-8920
e-mail Address: mbecker@highlinewater.org

Alternate Point of Contact
Jeremy DelMar, Engineering/Operations Mgr.
23828 30th Ave S
Kent, WA 98032
Telephone: 206-592-8904
e-mail Address: jdelmar@highlinewater.org

30.2 JURISDICTION PROFILE

Highline Water District originally formed in 1946 to serve potable water in southwest King County, WA. The District serves an approximate population of 70,014 people (year 2013 data) through approximately 18,200 connections in a service area that encompasses approximately 18 square miles. The service area generally extends from Interstate Highway 5 on the east, to Puget Sound on the west, and from State Route 518 on the north, to South 284th street on the south. The District serves the Cities of Des Moines and Normandy Park and portions of the Cities of Burien, Federal Way, Kent, SeaTac, Tukwila and unincorporated King County.

Highline Water District is directed by a five-member Board of Commissioners, which are elected to six-year terms by the citizens of the District. By resolutions, the Board of Commissioners establishes the policies that govern the operation of the District and will be the responsible authority for adopting the Hazard Mitigation Plan.

The District's General Manager has overall responsibility for day-to-day operations of the District in accordance with Commissioner-established policies and in coordination with neighboring jurisdictions, other water purveyors, and regional water supply groups and agencies. The Construction/Operation Manager will oversee the implementation of this plan.

The District currently employs 30 individuals. Funding for the District is provided by ratepayers.

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

- **Population Served—**70,014 as of 2013
- **Land Area Served—**18 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $4,479,913,731
- **Land Area Owned—**21.79 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Pump Station No 1 $638,000
  - Pump Station No 2 $589,000
  - Pump Station No 3 $475,000

- Pump Station No 4 $380,000
- Pump Station No 6 $960,000
- Pump Station No 7 $533,000
- McMicken 0.5 MG Tank $650,000
- Crestview 7.6 MG Reservoir $7,790,000
- Mansion Hill 0.25 MG Elevated Tank $373,000
- Mansion Hill 1.0 MG Elevated Tank $1,300,000
- Mansion Hill 2.5 MG Ground Reservoir $2,920,000
- Mansion Hill 5.0 MG Ground Reservoir $5,200,000
- Bow Lake to MG Tank $1,300,000
- Star Lake 2.5 MG Tank $2,920,000
- North Hill 1.0 MG Tank $1,300,000
- Angle Lake Well $568,000
- Des Moines Well and Treatment Plant $2,770,000
- Tyee Well and Treatment Plant $2,730,000
- McMicken Heights Well and Treatment Plant $2,600,000
- Water Mains $68,942,000

• **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $104,938,000

• **List of Critical Facilities Owned by the Jurisdiction:**

- District Office and Maintenance Facility $6,780,000
- Pump Station No 1 $160,000
- Pump Station No 2 $149,000
- Pump Station No 3 $120,000
- Pump Station No 4 $95,000
- Pump Station No 6 $240,000
- Pump Station No 7 $134,000
- Angle Lake Well $142,000
- Des Moines Well and Treatment Plant $692,000
- Tyee Well and Treatment Plant $625,000
- McMicken Heights Well and Treatment Plant $212,000

• **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $9,349,000

• **Current and Anticipated Service Trends—**The Highline Water District falls almost entirely within incorporated cities in King County, with the exception of a small area in the southeast portion of the district, which is in unincorporated King County. The District does not anticipate any significant changes in land use during the foreseeable future except as noted below.

- **Des Moines Creek Business Park—**The final Environmental Impact Statement for the Des Moines Creek Business Park development was issued on March 2, 2007. The development is west of 24th Avenue South between South 208th Street and South 216th Street. The development encompasses about 89 acres and is expected to include 535,000

square feet (sq. ft.) of manufacturing /logistics space, 231,000 sq. ft. of office/research/flexible space, and 235,000 sq. ft. of retail space.

– **Pacific Ridge—**The Pacific Ridge Neighborhood Improvement Plan projects the following: 5,540 residential units (net increase of 4,175 units over year 2000 baseline); 11,080 population (net increase of 8,350 over year 2000 baseline); and 8,770 jobs (net increase of 6,935 jobs over year 2000 baseline). The residential development is forecast to be multi-family.

30.3 APPLICABLE REGULATIONS AND PLANS

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

- Asset Management Plan – Indicates the useful life schedule of the District's infrastructure and equipment.
- Comprehensive Water System Plan – References the Hazard Mitigation Plan.
- Capital Improvement Program – Identifies capital improvements projects and funding mechanism.

30.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 30-1 lists all past occurrences of natural hazards within the jurisdiction.

30.5 HAZARD RISK RANKING

Table 30-2 presents the ranking of the hazards of concern.

30.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 30-3 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.

30.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 30-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 30-5 identifies the priority for each initiative. Table 30-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 30-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Volcano	623	1980	No information available
Severe Winter Weather	1100	1996	No information available
Severe Weather	981	1993	No information available
Earthquake	1361	2001	No information available
Severe Winter Weather	1671	2006	No information available
Severe Weather	1734	2007	No information available
Landslide	NA	2010	No information available

TABLE 30-2.
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	Landslide	16
5	Volcano	9
6	Dam Failure	6
7	Flood	5
8	Wildfire	5
9	Avalanche	0
10	Tsunami	0

TABLE 30-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
HWD-1	✓			Completed in 2009.
HWD-2		✓		Design completed. Project scheduled for 2014.
HWD-3		✓		Project budgeted for 2016.

TABLE 30-4.
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?
HWD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	All	Highline Water District	Low	General Fund	Ongoing	No
HWD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	2,4,7,13	Highline Water District	Low	General Fund	Ongoing	No
HWD-3—Angle Lake back-up generator							
Existing	Earthquake, Severe Weather, Severe Winter Weather	1,5	Highline Water District	Low	CIP, Grants	Short term	No
HWD 4—Feasibility study for developing South Water supply.							
New and Existing	All hazards	1,5,7	Highline Water District	Low	CIP	Short term	No
HWD 5—Replace the current disinfection process and equipment from gaseous chlorine to onsite sodium hypochlorite generation at the Tyee, Angle Lake and Des Moines Treatment Plants.							
New and Existing	Earthquake, Flood, Dam Failure	1,12	Highline Water District	Low	CIP	Short term	Yes
HWD 6—Install backup power generator and appurtenances at the Des Moines Treatment Plant.							
Existing	Earthquake, Severe Weather, Severe Winter Weather	1, 5	Highline Water District	Low	CIP, Grants	Short term	Yes

TABLE 30-5.
MITIGATION STRATEGY PRIORITY

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]
HWD-1	15	High	Low	Yes	No	Yes	High
HWD-2	4	High	Low	Yes	No	Yes	High
HWD-3	2	Medium	Low	Yes	No	Yes	High
HWD-4	3	Medium	Low	Yes	No	Yes	High
HWD-5	2	Medium	Low	Yes	No	Yes	High
HWD-6	2	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 30-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2, 4	5	-	5	-	-
Earthquake	1, 2, 4	5	-	5	3, 4, 6	-
Flood	1, 2, 4	5	-	5	-	-
Landslide	1, 2, 4	-	-	-	-	-
Severe Weather	1, 2, 4	-	-	-	3, 4, 6	-
Severe Winter Weather	1, 2, 4	-	-	-	3, 4, 6	-
Tsunami	-	-	-	-	-	-
Volcano	1, 2, 4	-	-	-	-	-
Wildfire	1, 2, 4	-	-	-	-	-

a. See Introduction for explanation of mitigation types.

CHAPTER 31.
KENT FIRE DEPARTMENT REGIONAL FIRE AUTHORITY UPDATE ANNEX

31.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Kimberly Behymer, Program Coordinator
24611 116th Ave SE
Kent, WA 98030
Telephone: (253) 856 4343
e-mail Address: kbehymer@kentwa.gov

Alternate Point of Contact

Dominic Marzano
24611 116th Ave SE
Kent, WA 98030
Telephone: (253) 856 4316
e-mail Address: dmarzano@kentwa.gov

31.2 JURISDICTION PROFILE

The Kent Fire Department Regional Fire Authority (KFD RFA) provides fire and emergency services for the City of Kent, the City of Covington and King County Fire Protection District No. 37 (KCFD #37). The KFD RFA is governed by six voting members and one non-voting member. This board is comprised of three members appointed from the ranks of the Kent City Council by the council president, the three members of KCFD #37's board of commissioners and a non-voting member appointed from the Covington City Council. A five-member elected Board of Directors governs the District. The Board of Directors assumes responsibility for the adoption of this plan; Kent Office of Emergency Management will oversee its implementation.

The KFD RFA provides comprehensive emergency response services, including basic life support with defibrillation, fire suppression, hazardous materials, and technical rescue emergency services from eight fire stations. There are currently 174 uniformed employees and 31 civilian employees in various support and/or educator positions. Internal support divisions include Training, Fire Prevention, Fire Administration, Planning, Logistics, Public Education, Arson Investigations, Emergency Management and Vehicle Maintenance. The KFD RFA has inter-local agreements with the City of Kent which provide information technology and facility maintenance. The KFD RFA in turn provides fire prevention, emergency management and fire investigations.

The KFD RFA is funded using a two part system:

- A tax of up to $1 may be levied on assessed values of all property and used for all day-to-day operations and capital needs of the Fire Department.
- A fire benefit charge of up to 60% of the operating budget may be assessed to improvements on real property and used only for day-to-day operational expenses such as salaries, equipment, fuel, and utilities. The fire benefit charge portion of the two-part funding system considers that those who benefit more from fire protection services (e.g., large structures and high fire-risk structures) should pay more for that service. The benefit charge is applied to improvements to real property but does not apply to land, giving tax relief to owners of vacant land.

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

- **Population Served—**171,740 as of April 2013
- **Land Area Served—**60.35 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $16,479,892,752
- **Land Area Owned—**29.13
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - (2) Ladder and contents $3,000,000
  - (2) Skyboom and contents $2,000,000
  - (11) Type 1 Engines and contents $9,750,000
  - (1) Tender and contents $500,000
  - (4) Aid Units and contents $1,200,000
  - (10) Command Vehicles $800,000
  - (23) Staff Vehicles $800,000
  - (21) Special Operations Equipment (trailers, generators, boats etc.) $250,000
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $18,700,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Station 71 (504 W. Crow Street) $2,500,000
  - Station 72 (25620 140th Ave SE) $2,000,000
  - Station 73 (26512 Military Rd S) $3,000,000
  - Station 74 (24611 116th Ave SE) $7,250,000
  - Training Tower 74 (24523 116th Ave SE) $2,000,000
  - Training Annex 74 (24523 116th Ave SE) $200,000
  - Radio Shack (24523 116th Ave SE) $22,000
  - Emergency Management (24425 116th Ave SE) $525,000
  - Station 75 (15635 SE 272nd) $3,000,000
  - Station 76 (20676 72nd Ave S) $2,800,000
  - Apparatus Repair Shop (20678 72nd Ave S) $3,000,000
  - Station 77 (20717 132nd Ave SE) $4,500,000
  - Station 78 (17820 SE 256th Street) $5,800,000
  - Logistics Center (8320 S 208th Street, Suite H-110) $5,500,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $42,097,000
- **Current and Anticipated Service Trends—**The impacts of area growth over the past 23 years has significantly affected KFD RFA's ability to deliver service. Service population in 1990 was approximately 95,018 generating just over 9,000 emergency incidents. In 2013, service area population is greater than 142,000 with 17,277 emergency incidents generated in 2012. Covington incorporated as a city in 1997 and since incorporation its population has grown by more than 55 percent. Demand for service is likely to increase. It is estimated that by 2023 demand for service will increase by 13 to 16 percent and by 2033 to increase by 31 to 54 percent.

31.3 APPLICABLE REGULATIONS AND PLANS

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

- 2014-2033 Capital Facilities and Equipment Plan
- Standards of Coverage
- Fire Department Accreditation Document

31.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 31-1.

TABLE 31-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	3	Not available
StormReady	Yes	StormReady	Not available
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

31.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 31-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 31-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding	852	1/6/1990	No information available
Severe Storm	981	1/20/93	No information available
Storm/High Winds/ Floods	1079	11/7/1995	No information available
Severe Storm	1100	2/9/1996	No information available
Earthquake	1361	2/28/2001	No information available
Severe Storm	1499	10/15/2003	No information available
Severe Storm	1671	11/2/2006	No information available
Severe Storm	1682	12/14/2006	No information available
Severe Storm	1817	1/6/2009	No information available
Severe Storm	1825	12/12/2008	No information available
Severe Storm	4056	1/12/2012	No information available

31.6 HAZARD RISK RANKING

Table 31-3 presents the ranking of the hazards of concern.

TABLE 31-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	48
2	Severe Winter Weather	48
3	Flood	45
4	Earthquake	39
5	Landslide	32
6	Dam Failure	14
7	Volcano	12
8	Wildfire	7
9	Avalanche	0
10	Tsunami	0

31.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 31-4 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 31-4.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
KF-1	✓	✓		Seismic mitigation conducted for critical computer server room equipment as well as several city workspaces. See KF-3.
KF-2	✓	✓		Now use Code Red emergency notification system. See KF-4.

31.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 31-5 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 31-6 identifies the priority for each initiative. Table 31-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 31-5.
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?
KF-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	All Objectives	Kent Fire/ Kent OEM	Low	General Fund	Ongoing	No
KF-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	2,4,7,13	Kent Fire/ Kent OEM	Low	General Fund	Ongoing	No
KF-3—Continue to Mitigate the non-structural impacts of an earthquake on KFD RFA owned critical facilities.							
Existing	Earthquake	1, 5	Kent Fire	Low	General Funds	Ongoing	Yes
KF-4—Continue to use emergency notification systems (Code Red).							
Existing	All Hazards	3, 4, 5, 6, 11	Kent Fire	Low	General Funds	Ongoing	Yes

TABLE 31-6.
MITIGATION STRATEGY PRIORITY

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]
KF-1	15	Medium	Low	Yes	No	Yes	High
KF-2	4	Medium	Low	Yes	No	Yes	High
KF-3	2	High	Low	Yes	No	Yes	High
KF-4	5	High	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 31-7.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2	-	4	-	4	-
Earthquake	1, 2	3	4	-	3, 4	-
Flood	1, 2	-	4	-	4	-
Landslide	1, 2	-	4	-	4	-
Severe Weather	1, 2	-	4	-	4	-
Severe Winter Weather	1, 2	-	4	-	4	-
Tsunami	-	-	-	-	-	-
Volcano	1, 2	-	4	-	4	-
Wildfire	1, 2	-	4	-	4	-

a. See Introduction for explanation of mitigation types.

CHAPTER 32.
KENT SCHOOL DISTRICT #415 ANNEX

32.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Beth Gilbertson, Environmental Services Supervisor
12033 SE 256th St.
Kent, WA 98030
253-373-7052
beth.gilbertson@kent.k12.wa.us

Alternate Point of Contact

Keith Klug, Risk Manager
12033 SE 256th St:
Kent, WA 98030
253-373-7220
Keith.klug@kent.k12.wa.us

32.2 JURISDICTION PROFILE

Kent School District No. 415 is the fourth largest school district in Washington State. Kent School District was created in the early 1900s and currently serves approximately 27,531 students. Kent School District encompasses approximately 71 square miles. This includes a large area of Kent, a significant portion of unincorporated King County, all of Covington, and portions of Auburn, Black Diamond, Maple Valley, Renton, and SeaTac. A five-member elected board of directors governs Kent School District. The board assumes responsibility for the adoption of this plan; the chief business officer will oversee its implementation. As of September 30, 2013 Kent School District employees a current certified staff of 1,700, and support personnel of 1,300. Funding comes from state allotments, local bonds, and levies.

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

- **Population Served—**151,688 (2010 U.S. Census)
- **Land Area Served—**70 square miles
- **Value of Area Served—**$15,585,124,612
- **Land Area Owned—**701.19 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Heavy Trucks $322,636
  - Light Trucks $93,950
  - Other Vehicles $578,910
  - School Buses $16,632,358
  - Trailers $53,500
  - Facility Contents $56,085,769
  - Other Equipment $922,480
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $74,689,603
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Administration Complex
  - Carriage Crest Elementary
  - Martin Sortun Elementary
  - Mattson Middle School

- Cedar Heights Middle School
- Cedar Valley Elementary
- Central Kitchen
- Covington Elementary
- Crestwood Elementary
- District Bus Garage
- District Owned Portables
- East Hill Elementary
- Emerald Park Elementary
- Fairwood Elementary
- George T. Daniel Elementary
- Glenridge Elementary
- Grass Lake Elementary
- Horizon Elementary
- Jenkins Creek Elementary
- Judo Building
- Kent Elementary
- Kent Mountain View
- Kent-Meridian High School
- Kentlake High School
- Kentridge High School
- Kentwood High School
- Lake Youngs Elementary
- Meadow Ridge Elementary
- Meeker Middle School
- Meridian Elementary
- Meridian Middle School
- Mill Creek Middle School
- Millennium Elementary
- Misc. Locations
- Neely O'Brien Elementary
- New Panther Lake Elementary
- Northwood Middle School
- Panther Lake Elementary
- Park Orchard Elementary
- Phoenix Academy
- Pinetree Elementary
- Ridgewood-Renton Elementary
- S. King Co. Activity Center
- Sawyer Woods Elementary
- Scenic Hill Elementary
- Soos Creek Elementary
- Springbrook Elementary
- Sunrise Elementary
- Transportation Building

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $976,356,892
- **Current and Anticipated Service Trends—**Since 2009, there has been no significant change in student enrollment. Preliminary 2013 enrollment numbers indicate a slight increase in student enrollment, this is accompanied by an elevated birth rate for the southeast King County area. With recent new home construction within Kent School District boundaries, student enrollment is expected to trend upward.

  Capital improvements and construction activity is expected to include renovations and expansions of existing facilities.

32.3 APPLICABLE REGULATIONS AND PLANS

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

- Kent School District Emergency Response Plan
- Kent School District Capital facilities Plan 2013/14 – 2018/19
- All Federal, State, and local regulations and ordinances that apply to Kent School District

32.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 32-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 32-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter storm	DR-4056	1/16/2012	No information available
Winter storm	NA	11/22/2010	No information available
Howard Hanson Dam prepare for potential failure	NA	9/10/2009 – 8/20/2013	$300,000
Severe Weather	NA	7/6/2008	No information available
Winter storm	NA	12/20/2007	No information available
Wind event	NA	10/1/2007	No information available
Wind damage	DR-1682	12/18/2006	No information available
Wind damage	NA	3/13/2006	No information available
Wind damage	NA	12/28/2005	No information available
Winter storm	NA	1/6/2004	No information available
Wind event	NA	12/3/2003	No information available
Nisqually earthquake	DR-1361	2/28/2001	$1,000,000

32.5 HAZARD RISK RANKING

Table 32-2 presents the ranking of the hazards of concern.

TABLE 32-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Dam Failure	54
3	Severe Weather	51
4	Flood	45
5	Severe Winter Weather	36
6	Volcano	8
7	Avalanche	0
8	Landslide	0
9	Tsunami	0
10	Wildfire	0

32.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 32-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 32-4 identifies the priority for each initiative. Table 32-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 32-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
KSD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	District/ County	Low	General Fund	Ongoing
KSD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	District/ County	Low	General Fund	Ongoing
KSD-3—Participate in regional public information campaign regarding hazard mitigation initiatives.						
New and Existing	All Hazards	4, 6, 7, 11	District	Low	General Funds	Ongoing
KSD-4—Review district wide building seismic assessment and project feasibility report.						
Existing	Earthquake	1, 5, 9	District	Low	General Funds	Short Term

TABLE 32-4.
MITIGATION STRATEGY PRIORITY

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]
KSD-1	15	Medium	Low	Yes	No	Yes	High
KSD-2	4	Medium	Low	Yes	No	Yes	High
KSD-3	4	High	Low	Yes	No	Yes	High
KSD-4	3	Low	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 32-5.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2	-	3	-	-	-
Earthquake	1, 2	4	3	-	-	-
Flood	1, 2	-	3	-	-	-
Landslide	-	-	-	-	-	-
Severe Weather	1, 2	-	3	-	-	-
Severe Winter Weather	1, 2	-	3	-	-	-
Tsunami	-	-	-	-	-	-
Volcano	1, 2	-	3	-	-	-
Wildfire	-	-	-	-	-	-

a. See Introduction for explanation of mitigation types.

CHAPTER 33.
KING COUNTY FIRE DISTRICT NO. 2 ANNEX

33.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Lt. Milton Guerreiro
15100 8 Ave SW
Burien, WA. 98166
Telephone: 206-391-5593
e-mail Address: mguerreiro@burienfire.org

Alternate Point of Contact

BC Doug Luedeman
15100 8 Ave SW
Burien, WA. 98166
Telephone: 206-391-1655
e-mail Address: dluedeman@burienfire.org

33.2 JURISDICTION PROFILE

King County Fire District 2 Burien/Normandy Park Fire Department is located in Southwest King County and was established in 1920. Covering approximately 15.5 square miles, KCFD 2 is bordered on the west by the Puget Sound. The northern border is a portion of unincorporated King County that consists of White Center. Sea-Tac Airport borders the District to the east and is protected by the Port of Seattle Fire Department. To the south the District is bordered by the City of Des Moines. KCFD 2 provides fire protection and emergency medical aid to approximately 54,000 citizens living and working in the Cities of Burien and Normandy Park. KCFD 2 consists of Fire Station 28 and Fire Station 29, two Fire Engines, one Aid Unit and a Ladder Truck. KCFD 2 employs 48 full time employees and 18 volunteers. A three-member elected Fire Commissioner Board governs the District and will assume the responsibility for the adoption of this plan; Fire Commissioner Board will oversee its implementation. Funding primarily comes from property taxes with a current rate of $1.50 per thousand of assessed valuation.

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

- **Population Served—**54,000 as of September 30, 2011
- **Land Area Served—**15.5 sq. miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is approximately $5 billion
- **Land Area Owned—**4.3 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Fire Engine $500,000
  - Fire Engine $500,000
  - Ladder Truck $1,000,000
  - Aid Car $140,000
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $2.14 million
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Station 28 (old) $1,000,000
  - Station 28 (new) $12,000,000
  - Station 29 $8,000,000

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $21 million
- **Current and Anticipated Service Trends—**KCFD 2 has expanded its response area to include part of the northern portion of the City of Burien. Primarily from the increase of Assisted Living Facilities, KCFD 2 has experienced a continual growth in call volume at an average of 5 percent a year. Also, potential annexation of the unincorporated area north of Burien will increase the population served and the need for a north based fire station.

33.3 APPLICABLE REGULATIONS AND PLANS

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

- Citizen Emergency Response Training (CERT).
- Emergency Operations Plan with the City of Burien
- Emergency Procedures and Policies

33.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 33-1.

TABLE 33-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	4	Not available
StormReady	N/A	N/A	N/A
Firewise	N/A	N/A	N/A
Tsunami Ready	N/A	N/A	N/A

33.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 33-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 33-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	1825-DR	12/2008	No estimates available
Severe Weather	1734-DR	12/2007	No estimates available
Severe Weather	1671-DR	12/2006	No estimates available
Earthquake	1361-DR	2/2001	No estimates available
Severe Weather	981-DR	1/1993	No estimates available

33.6 HAZARD RISK RANKING

Table 33-3 presents the ranking of the hazards of concern.

TABLE 33-3.
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	Volcano	13
5	Flood	9
6	Landslide	9
7	Tsunami	3
8	Wildfire	3
9	Avalanche	0
10	Dam Failure	0

33.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 33-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 33-5 identifies the priority for each initiative. Table 33-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 33-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
FD2-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	KCFD 2	Low	District Funds	Ongoing
FD2-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	KCFD 2	Low	District Funds	Ongoing
FD2-3—Provide Community Emergency Response Team (CERT) Training to District residents.						
New and Existing	All Hazards	4,8,9,10	KCFD 2	Low	District Funds	Ongoing

TABLE 33-5.
MITIGATION STRATEGY PRIORITY

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]
FD2-1	15	High	Low	Yes	Yes	Yes	High
FD2-2	4	High	Low	Yes	No	Yes	High
FD2-3	4	High	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 33-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1, 2	-	3	-	3	-
Flood	1, 2	-	3	-	3	-
Landslide	1, 2	-	3	-	3	-
Severe Weather	1, 2,	-	3	-	3	-
Severe Winter Weather	1, 2,	-	3	-	3	-
Tsunami	1, 2	-	3	-	3	-
Volcano	1, 2	-	3	-	3	-
Wildfire	1, 2	-	3	-	3	-

a. See Introduction for explanation of mitigation types.

CHAPTER 34.
KING COUNTY FIRE DISTRICT NO. 45 ANNEX

34.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Joel Kuhnhenn, Deputy Chief
15600 1st Ave NE
Duvall, WA 98019
Telephone: 425-788-1625
Email address: jkuhnhenn@duvallfire45.com

Alternate Point of Contact

David Burke, Fire Chief
15600 1st Ave NE
Duvall, WA 98019
Telephone: 425-788-1625
Email address: dburke@duvallfire45.com

34.2 JURISDICTION PROFILE

King County Fire District No. 45, incorporated on September 21, 1959, provides fire and emergency medical services to approximately 50 square miles, mostly of a rural demographic. The City of Duvall was annexed into the District and receives all fire and emergency medical service through KCFD 45, which includes mutual aid from area fire service providers. The District also serves the communities of Lake Margaret and Lake Marcel, and the surrounding areas. The District boundary is the County line on the north, 244 Avenue NE on the west and the forest and mountains on the east. KCFD 45 is staffed with 17 career staff members and 12 volunteer personnel.

The Fire District is a political subdivision of the State of Washington. District operations are overseen by a three person Board of Commissioners, elected by the citizens of the District. The Fire Chief is responsible for all aspects of the fire department operation and administration with the help of a Deputy Chief. The Board of Commissioners assumes responsibility for the adoption of this plan; The Fire Chief will oversee its implementation. The Fire District is a tax supported entity with over 95 percent of the revenue coming from property taxes.

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

- **Population Served—**10,725 as of 2010
- **Land Area Served—**approximately 50 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,462,378,681
- **Land Area Owned—**8.85 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - H&W Fire Engine $400,000
  - Seagrave Fire Engine $162,000
  - Aid Car $200,000
  - Aid Car $75,000
  - Aid Car $75,000
  - Brush Truck $57,200
  - Brush Truck $40,000

- Freightliner Tanker $168,000
- Rescue Boat/Trailer $58,503
- Mobile Equipment $297,138
- Battalion (F350) $25,000
- Rescue ATV/trailer $27,165

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $1,585,006
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Fire Station (headquarters) $3,636,866
  - Fire Station $389,145
  - Fire Station $137,957
  - Training Tower $109,304
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $4,273,272
- **Current and Anticipated Service Trends—**KCFD 45 responds to about 1,000 calls for service annually. This number has remained relatively fixed for the past few years. There are no indications that any major changes to the City and/or District are on the horizon that would significantly increase or decrease the anticipated call volume.

34.3 APPLICABLE REGULATIONS AND PLANS

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

- Capital Improvement Program, renewed annually
- Strategic Plan, adopted 2014
- Fire Explorer Post
- After Quake Assessment Report

34.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 34-1.

TABLE 34-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	5/9A[a]	Not available
StormReady	NA	NA	NA
Firewise	NA	NA	NA
Tsunami Ready	NA	NA	NA

a. After a recent evaluation by Washington State Survey and Rating Bureau 425 homes in the lake Margaret area off of Mountain View Rd fell to a 9A fire protection rating; resulting in significant increases to home insurance rates for this area.

34.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 34-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 34-2.
NATURAL HAZARD EVENTS

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

34.6 HAZARD RISK RANKING

Table 34-3 presents the ranking of the hazards of concern. Based on historical data the probability of wildfire is medium. Based on climate changes increasing potential for wildfire, the probability is high. Flooding in the area can essentially turn Duvall into an island. Although a significant portion of the population does not reside in the floodplain, the impacts of a flood event affect much of the population. The same issues would occur in the event of a dam failure, although the flooding may be shorter in duration.

TABLE 34-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	36
2	Severe Winter Weather	36
4	Flood	33
4	Wildfire	33
6	Dam Failure	14
6	Landslide	14
8	Volcano	6
9	Avalanche	0
9	Tsunami	0

34.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 34-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 34-5 identifies the priority for each initiative. Table 34-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 34-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
FD45-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	KCFD 45	Low	General Fund	Ongoing
FD45-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	KCFD 45	Low	General Fund	Ongoing
FD45-3—Continue to participate and support the Fire Explorer Program, introduction to a fire service career providing lifelong skills in emergency medical care and fire control.						
New and Existing	All Hazards	4, 6, 7, 8, 11	KCFD 45	Low	General Fund/ Donations	Ongoing
FD45-4—Complete fire district 5-year strategic plan, establishing goals and priorities for current and future operations and growth to meet the needs of the community.						
New and Existing	All Hazards	1, 3, 7, 8	KCFD 45	Low	General Fund	Short Term
FD45-5—Review and update ‘After quake event plan” and exercise plan.						
New and Existing	Earthquake	1, 3, 5, 7	KCFD 45	Low	General Fund, Grants	Short Term
FD45-6—Continue to participate with, support and integrate volunteer groups such as HAM and CERT teams into local disaster response plans.						
New and Existing	All Hazards	1, 3, 7, 8, 11	KCFD 45	Low	General Fund	Ongoing
FD45-7—Continue to provide emergency preparedness kits to the public at cost.						
New and Existing	All Hazards	3, 4, 5, 6, 7, 8, 11, 13	KCFD 45	Low	General Fund	Ongoing

TABLE 34-5.
MITIGATION STRATEGY PRIORITY

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]
FD45-1	15	Medium	Low	Yes	No	Yes	High
FD45-2	4	Medium	Low	Yes	No	Yes	High
FD45-3	5	Medium	Low	Yes	No	Yes	High
FD45-4	4	Medium	Low	Yes	No	Yes	High
FD45-5	4	Medium	Low	Yes	Yes	Yes	High
FD45-6	5	Medium	Low	Yes	No	Yes	High
FD45-7	8	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 34-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2,	-	3, 6 , 7	-	3, 6	-
Earthquake	1, 2, 4	-	3, 6, 7	-	3, 4, 6	-
Flood	1, 2	-	3, 6, 7	-	3, 6	-
Landslide	1, 2	-	3, 6, 7	-	3, 6	-
Severe Weather	1, 2	-	3, 6, 7	-	3, 6	-
Severe Winter Weather	1, 2	-	3, 6, 7	-	3, 6	-
Tsunami	-	-	-	-	-	-
Volcano	1, 2	-	3, 6, 7	-	3, 6	-
Wildfire	1, 2	-	3, 6, 7	-	3, 6	-

a. See Introduction for explanation of mitigation types.

CHAPTER 35.
KING COUNTY PUBLIC HOSPITAL DISTRICT NO. 1 (VALLEY MEDICAL CENTER) ANNEX

35.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Jim Tritten, Safety Officer
400 S. 43rd St.
Renton, WA 98055
Telephone: 425-228-3440, x 5961
e-mail Address: james_tritten@valleymed.org

Alternate Point of Contact

Garry Maitrejean, Director of Facilities
400 S. 43rd St.
Renton, WA 98055
Telephone: 425-228-3440, x 5826
e-mail Address: garry_maitrejean@valleymed.org

35.2 JURISDICTION PROFILE

Public Hospital District No. 1 of King County, aka Valley Medical Center (VMC), is a 321-bed acute care hospital and clinic network committed to providing safe, quality, compassionate care for more than 63 years. Established in 1947, VMC is the oldest and largest public district hospital in the State of Washington and the largest nonprofit healthcare provider between Seattle and Tacoma serving 600,000 residents in south King County encompassing the cities of Kent, Renton, two-thirds of Tukwila, and portions of Auburn, Black Diamond, Covington, Federal Way, Maple Valley, Newcastle and Seattle.

Public hospital districts are governmental entities established by Washington State statute. The legislature granted local communities the authority to create hospital districts in 1945. Today, nearly one-half of Washington's 90 hospitals are part of public hospital districts.

Public hospital districts fulfill a vital role in the state's healthcare system. Without them many people would be unable to receive healthcare in their own communities. Hospital districts are authorized not only to operate a hospital, but to deliver any service to help people stay healthy—physically, socially, and mentally. Because they're owned and governed by local citizens, hospital districts tailor their services to meet the unique needs of their individual communities. It is this community-based mission that defines and distinguishes hospital districts from other healthcare entities.

Located in Renton, Washington, VMC offers medical, surgical and 24-hour emergency care as a Level III Trauma Center. VMC is a regional resource with recognized Centers of Excellence in birth, sleep, joint, spine and stroke care, and provides specialized treatment in cardiology, oncology, high-risk obstetrics, orthopedics, neonatal, cancer and neurology. Ancillary services include diagnostic capabilities as well as a full range of imaging services.

Nearly 3,000 clinical and non-clinical employees work at VMC; more than 600 are credentialed physicians, and half are active medical staff.

Valley Medical Center is a component entity of UW Medicine, which includes Harborview Medical Center, Northwest Hospital & Medical Center, UW Medical Center, UW Neighborhood Clinics, UW Physicians, UW School of Medicine and Airlift Northwest. The District is subject to the oversight of a Board of Trustees (BOT, otherwise referred to as the "Valley Board"). The Valley Board oversees the healthcare operations of the District, while a Board of Commissioners (BOC, otherwise referred to as the

"District Board"), oversees the District's taxes and certain non-healthcare related functions. District operations are funded through property tax, interest on investments and fees for services.

The Board of commissioners is comprised of 5 commissioners elected by District residents to a 6-year term. The District is divided into three subdistricts, each represented by one commissioner. The remaining two commissioners serve as at-large members of the Board. Terms of the subdistrict commissioners are staggered. The Board of Trustees may include all current Public Hospital District No. 1 commissioners as well as five trustees who reside within the District Service Area, at least three of whom also reside within the boundaries of the District. In addition, two current or former trustees of the UW Medicine Board or a Board of another component entity within UW Medicine and the CEO of UW Medicine or his designee also serve on The Board of Trustees.

The VMC Board of Commissioners assumes responsibility for the adoption of this plan; The Chief Operating Officer will oversee its implementation.

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

- **Population Served—**The Public Hospital District population is roughly 400,000, however the total service area encompasses approximately 330 square miles and serves 600,000 residents.
- **Land Area Served—**330 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $50 billion
- **Land Area Owned—**the hospital campus sits on 43 acres at the intersection of Talbot Rd and 43rd St adjacent to Hwy 167. Additional property owned in the district totals about 30 additional acres.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

  Medical equipment located within the hospital facility that includes surgical, laboratory, radiological, emergency, and intensive care equipment.
- **Total Value of Critical Infrastructure/Equipment—**the total value of critical infrastructure and equipment owned by the jurisdiction is estimated to be in excess of $200 million.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Valley Medical Center $288,979,700 (includes ED tower, parking garages)
  - Covington North $5,499,100
  - Covington South $16,412,400
  - Kent Primary Care $4,352,900
  - Newcastle Clinic $2,863,600
  - Valley Day Surgery $1,542,500
  - Behavioral Health $1,518,400
  - Radiation and Oncology $2,111,100
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is approximately $385 million in capital assets
- **Current and Anticipated Service Trends—**VMC will continue primary and urgent care clinic expansion, as well as specialty services including obstetrics and cancer services. VMC's deployment of the Epic EMR (electronic medical record) system has increased our

ability to coordinate care across all patient entry points in our system including ER, Urgent Care, VMC primary care and specialty clinics and our inpatient units. We are focusing on the competencies required for Accountable Care Organization – quality, safety, service, patient access and satisfaction measures, transformation of care and performance improvement models are in place and monitored with standard metrics. We continue to implement the Patients are First customer service tool to ensure high-quality patient care. Long term growth is expected to meet or exceed the population growth occurring in the south King County service area.

35.3 APPLICABLE REGULATIONS AND PLANS

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

- National Fire Protection Association 99: Health Care Facilities Code
- National Fire Protection Association 101: Life Safety Code
- National Fire Protection Association 1600: Standard on Disaster/Emergency Management and Business Continuity
- American Society of Civil Engineers: Minimum Design Loads For Buildings and Other Structures
- International Building Code
- The Joint Commission Environment of Care
- Organizational Emergency Operations Plan

35.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 35-1 lists all past occurrences of natural hazards within the jurisdiction.

35.5 HAZARD RISK RANKING

Table 35-2 presents the ranking of the hazards of concern.

35.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 35-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 35-4 identifies the priority for each initiative. Table 35-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 35-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	DR-4056	2012	No information available
Severe Winter Weather	NA	2011	No information available
Flooding	DR-1963	2011	No information available
Severe Winter Weather	DR-1963	2011	No information available
Flooding	NA	2010	No information available
Severe Winter Weather	NA	2010	No information available
Severe Weather	NA	2009	No information available
Flooding	DR-1817	2009	No information available
Severe Winter Weather	DR-1825	2008	No information available
Severe Weather	NA	2008	No information available
Flooding	DR-1734	2007	No information available
Severe Weather	NA	2007	No information available
Severe Winter Weather	DR-1682	2006	No information available
Flooding	DR-1671	2006	No information available
Earthquake	DR-1360	2001	No information available
Flooding	DR-1172	1997	No information available
Landslides	DR-1100	1996	No information available
Flooding	DR-1079	1995	No information available
Severe Storm, High Winds	DR-981	1993	No information available
Flooding	DR-852	1990	No information available
Flooding	DR-883	1990	No information available
Flooding	NA	1982	No information available
Flooding	DR-492	1975	No information available
Earthquake	DR-196	1965	No information available

TABLE 35-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Winter Weather	48
3	Severe Weather	32
4	Flood	27
5	Dam Failure	13
6	Volcano	13
7	Landslide	10
8	Wildfire	3
9	Avalanche	0
10	Tsunami	0

TABLE 35-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VMC-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All Objectives	VMC	Low	General Fund	Ongoing
VMC-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	VMC	Low	General Fund	Ongoing
VMC-3—Provide emergency backup power to ambulatory care clinics.						
New and Existing	All Hazards	1,3,8,15	VMC	Medium	General Fund, Grants	Short-term
VMC-4—Complete a structural assessment and gap analysis of seismic risk for main hospital built in 1968.						
Existing	Earthquake	1,3,4,5,8,9	VMC	Medium	General Fund, HMGP, PDM	Short-term
VMC-5—Complete an assessment and gap analysis of non-structural seismic risk across the organization.						
New and Existing	Earthquake	1,3,4,5,8,9,15	VMC	Medium	General Fund	Short-term
VMC-6—Mitigate identified structural seismic risks.						
Existing	Earthquake	1,3,4,5,8,9	VMC	Medium	General Fund, HMGP, PDM	Short-term
VMC-7—Mitigate identified non-structural seismic risks.						
New and Existing	Earthquake	1,3,4,5,8,9,15	VMC	Medium	General Fund	Short-term
VMC-8—Implement an enterprise level personal resiliency program.						
New and Existing	All Hazards	1,3,4,5,8,9,15	VMC	Medium	General Fund	Short-term
VMC-9—Install a direct bypass feed valve for boiler water.						
Existing	All Hazards	1,3,5,8,9	VMC	Medium	General Fund, Grants	Short-term

TABLE 35-4.
MITIGATION STRATEGY PRIORITY

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]
VMC-1	15	Medium	Low	Yes	No	Yes	High
VMC-2	4	Medium	Low	Yes	No	Yes	High
VMC-3	4	High	Medium	Yes	No	Yes, but not currently budgeted	Medium
VMC-4	6	High	Medium	Yes	Yes	Yes, but not currently budgeted	Medium
VMC-5	7	High	Medium	Yes	No	Yes, but not currently budgeted	Medium
VMC-6	6	High	Medium	Yes	Yes	Yes, but not currently budgeted	Medium
VMC-7	7	High	Medium	Yes	No	Yes, but not currently budgeted	Medium
VMC-8	8	High	Medium	Yes	No	Yes, but not currently budgeted	Medium
VMC-9	5	High	Medium	Yes	No	Yes, but not currently budgeted	Medium

a. See Introduction for explanation of priorities.

TABLE 35-5.
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	1, 2, 8	9	8	-	3, 8	-
Earthquake	1, 2, 4, 5, 8	6, 7, 9	8	-	3, 4, 6, 8	-
Flood	1, 2, 8	9	8	-	3, 8	-
Landslide	1, 2, 8	9	8	-	3, 8	-
Severe Weather	1, 2, 8	9	8	-	3, 8	-
Severe Winter Weather	1, 2, 8	9	8	-	3, 8	-
Volcano	1, 2, 8	9	8	-	3, 8	-
Wildfire	1, 2, 8	9	8	-	3, 8	-

a. See Introduction for explanation of mitigation types.

CHAPTER 36.
KING COUNTY PUBLIC HOSPITAL DISTRICT NO. 2 ANNEX

36.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Barb Jensen, RN, CHEP
Trauma and Preparedness Program Manager
12040 NE 128th Street
Kirkland, WA 98034
Telephone: 425-899-2409
e-mail Address: bajensen@evergreenhealth.com

Alternate Point of Contact

Todd Buxton, Director Support Services
12040 NE 128th Street
Kirkland, WA 98034
Telephone: 425-899-1975
e-mail Address: tlbuxton@evergreenhealth.com

36.2 JURISDICTION PROFILE

EvergreenHealth is a licensed, 318 bed hospital in Kirkland, WA. It serves as the cornerstone of services provided by King County Public Hospital District No. 2. These include medical groups, home care, hospice and many community health programs.

The voters approved formation of King County Public Hospital District No. 2 in November 1967, and Evergreen General Hospital opened its doors on March 9, 1972. Over the years the community's support has been key to Evergreen's development. Additional voter approved bonds have provided:

- Completion of the hospital's third floor
- Addition of a fourth floor
- A new emergency department and Medic One base
- The Evergreen Hospice Center
- Emergency Department expansion
- Eight-story patient tower construction.

In addition to providing acute care, Evergreen is active in the community with wellness initiatives designed to promote healthier lifestyles. Programs like Healthcare Access make sure the community's under- and uninsured residents have access to affordable health care services. Evergreen also created the Evergreen Medical Group (now Evergreen Primary Care) to guarantee family practice physicians would always be available to the community.

EvergreenHealth employs 3,658 people and is governed by an elected Board of Commissioners. King County Public Hospital District No. 2 is primarily funded through patient services revenue, with less than 5 percent of total revenue from assessed levy funds.

The Board of Commissioners assumes responsibility for the adoption of this plan, and the Director of Support Services will oversee its implementation.

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

- **Population Served—**289,839 as of 2013

- **Land Area Served—**King County Public Hospital District No. 2 serves Bothell, Duvall, Kenmore, Kirkland, Redmond, Sammamish, Woodinville and portions of unincorporated King County, approximately 178 square miles.
- **Value of Area Served—**the estimated value of the area served by the jurisdiction $52 billion.
- **Land Area Owned—**35 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Medical equipmentlocated within the hospital facility, primary and specialty care centers and inpatient Hospice Care that includes surgical, laboratory, radiological, emergency and intensive care equipment.
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $5 million.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - EvergreenHealth Medical Center, Evergreen Surgery and Physician Center, Evergreen Professional Center $261,681,500
  - Gene and Irene Wocknew Hospice Center $6,201,600
  - DeYoung Pavilion $37,042,030
  - Evergreen Technical Center $4,063,600
  - Administrative Services Building $4,699,200
- **Total Value of Critical Facilities—**the total value of critical facilities owned by the jurisdiction is $315 million.
- **Current and Anticipated Service Trends—**EvergreenHealth will continue to focus on increasing access to primary care through King and South Snohomish Counties, the continued need and growth of Home Health which serves both King & Snohomish Counties, and our affiliate relationship with Valley General Monroe. In addition we will focus on services impacting the aging population resulting in higher acuity patients. Our efforts in technology continue to advance with increased IT integration across our service area and with a patient portal. The population served by the District is projected to grow to 310,854 in 2018.

36.3 APPLICABLE REGULATIONS AND PLANS

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

- EvergreenHealth Emergency Operations Plan (2008)
- EvergreenHealth Facility Evacuation Plan (2010)
- EvergreenHealth Master Space Plan (Capital Improvement) (2012)

36.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 36-1 lists all past occurrences of natural hazards within the jurisdiction.

36.5 HAZARD RISK RANKING

Table 36-2 presents the ranking of the hazards of concern.

TABLE 36-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Earthquake	1361	2/28/01	No information available
Winter Storm		1/6/2004	No information available
Flooding	06-3338/1671	11/6/2006	No information available
High Wind	06-3783/1682	12/14/2006	No information available
Severe Storms, Flooding	07-3894/ 1734	12/3/2007	No information available
Severe Winter Storm	1825	12/12/08	No information available
Winter Storm, Flooding	09-0023/1817	1/7/2009	No information available
Swine Flu	09-1178	4/27/2009	No information available
Severe Winter Storm	11-0094/1963	1/10/2011	$13,500
Severe Winter Storm	12-0112/4056	1/13/2012	No information available

TABLE 36-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	28
3	Severe Winter Weather	24
4	Flood	12
5	Landslide	9
6	Volcano	6
7	Wildfire	6
8	Avalanche	0
9	Dam Failure	0
10	Tsunami	0

36.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 36-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 36-4 identifies the priority for each initiative. Table 36-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 36-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
EH-1 Continue support of county-wide initiatives identified in volume 1, part 3 of the King County Hazard Management Plan.						
New and Existing	All Hazards	All Objectives	King County Public Hospital District #2	Low	General Fund	Ongoing
EH-2—Participate in the planned maintenance strategies identified in volume 1, part 3 of the King County Hazard Management Plan.						
New and Existing	All Hazards	2,4,7,13	King County Public Hospital District #2	Low	General Fund	Ongoing
EH-3—Identify facilities in need of seismic retrofitting and implement projects on those facilities with identified need						
New and Existing	Earthquake	1,2,3,4,5,9	King County Public Hospital District #2	High	FEMA HM Grant	Long Term, dependent on funding
EH-4—Provide seismic bracing for all utilities including piping and conduit systems						
New and Existing	Earthquake	1,2,3,4,5,9	King County Public Hospital District #2	High	FEMA HM Grant	Long Term, dependent on funding
EH-5—Design and install additional emergency electrical generation in an effort to reduce load, provide greater redundancy and supplement aging equipment						
New and Existing	All-Hazards	1,3,5,9	King County Public Hospital District #2	High	Grant, Long Term Capital	Long Term, dependent on funding
EH-6—Support community wide initiatives that promote public education on the impacts of natural hazards within King County, and the preparedness for and mitigation of those impacts. Support will be in the form of dissemination of information, hosting of a yearly Disaster Readiness Fair, Community Education Personal and Home Preparedness Class						
New and Existing	All-Hazards	3,6,7,11,15	King County Public Hospital District #2	Low	General Fund	Ongoing

TABLE 36-4.
MITIGATION STRATEGY PRIORITY

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

a. See Introduction for explanation of priorities.

TABLE 36-5.
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
Avalanche	--	--	1,6	--	5	--
Dam Failure	--	--	1,6	--	5	--
Earthquake	1,2	3,4	1,6	--	3,4,5	--
Flood	1,2	--	1,6	--	5	--
Landslide	1,2	--	1,6	--	5	--
Severe Weather	1,2	--	1,6	--	5	--
Severe Winter Weather	1,2	--	1,6	--	5	--
Tsunami	--	--	1,6	--	5	--
Volcano	1,2	--	1,6	--	5	--
Wildfire	1, 2	--	1,6	--	5	--

a. See Introduction for explanation of mitigation types.

CHAPTER 37.
KING COUNTY WATER DISTRICT NO. 19 UPDATE ANNEX

37.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Jeffrey T. Lakin, General Manager
PO Box T
17630 100th Ave. SW
Vashon, WA 98070
Telephone: 206.463.9007
e-mail Address: jlakin@water19.com

Alternate Point of Contact

Armin R. Wahanik, Operations Lead
PO Box T
17630 100th Ave. SW
Vashon, WA 98070
Telephone: 206.463.9007
e-mail Address: awahanik@water19.com

37.2 JURISDICTION PROFILE

Water District No. 19 is a Special Purpose District authorized under RCW Title 57 – Water and Sewer Districts. Water District 19 is the only public water district on Vashon Island. The District was established by special election in 1925 to provide water service to a one square mile area encompassing the Unincorporated Rural Town of Vashon. To date the District's service area has expanded to include 6 percent of the land area of Vashon and Maury Islands. In 1959 the District established a street lighting franchise.

Governance of the District is conducted by a three member Board of Commissioners elected by the residents of Water District No. 19. The Board assumes responsibility for the adoption of this plan. The General Manager is chief executive of the District and will oversee implementation of the plan. As of August, 2013, 1,625 active connections are served by five pressure zones, with a current staff of six. Funding comes primarily through rates and connection fees.

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

- **Population Served—**The current estimate of the population served is 3,740 (2010 census estimate).
- **Land Area Served—**Water District No. 19 provides essential potable water services in an area that encompasses approximately 6.2 square miles in the east-central portion of Vashon Island and a small area on the northern end of Maury Island in King County, Washington. The land area is described as generally bounded by SW 160th Street to the north, Puget Sound to the east, 115th Avenue SW and 103rd Avenue SW to the west and to Puget Sound and Maury Island on the south. The service area on Maury Island is bordered on the south by SW 240th Street, on the east by Puget Sound and Dockton Road SW, and to the west by Quartermaster Harbor.
- **Value of Area Served—**The estimated land value for property within the corporate boundary of the District is $516,246,652 (Source: King County Assessor).
- **Land Area Owned—**The land area owned by the District is approximately 90 acres.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

- Beal Creek Station $750,000
- Ellis Creek Station $750,000
- 1-million-gallon reservoir $1,250,000
- 0.625-million-gallon réservoir $750,000
- 0.1-million-gallon réservoir $125,000
- VHF radio system $20,000
- Well #1 $600,000
- Well #2 $600,000
- Well #3 (Morgan Hill) $600,000
- Well #4 $600,000
- Well #5 (Beall Well) $600,000
- Well #6 (Vashon Meadows) $600,000
- Wellfield and tank farm $100,000
- Underground pipe network (39 miles) $31,200,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure/equipment owned by the jurisdiction is $38,545,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Bank Road Treatment Facility $3,000,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $3,000,000.
- **Current and Anticipated Service Trends—**Due to rural zoning and dependency on the ferry system for Vashon Island, current and anticipated service trends are predicted to be a slowly increasing population of 0.5 percent per year for the 5-year and 20-year horizons. Land use designations allow for an increase in light commercial and residential land uses in the service area. This 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.

37.3 APPLICABLE REGULATIONS AND PLANS

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

- District's Water Comprehensive Plan (2008) supports efforts to minimize natural hazard vulnerabilities in the water plan by developing a capital facilities plan. The Plan also identifies policies that support hazard mitigation planning efforts.
- District's Annual Capital Improvement Plan (CIP) supports projects that are identified in this plan update. The CIP is updated annually by the District and adopted by the Board of Commissioners in the fall of each year.
- District's Emergency Response Plan supports efforts to minimize water system vulnerabilities in emergencies. It is updated as needed and is not available to the public.
- The Disaster Mitigation Act of 2000 requires state, tribal and location governments to develop a hazard mitigation plan as a condition of receiving certain types of non-emergency disaster assistance. The District's current approved Hazard Mitigation Plan Update (2009) supports the effort of this regulation and plan update. The Federal Emergency Management Agency approved the District's Hazard Mitigation Plan on January 12, 2010.

- District Vashon Be Prepared Response Participation policy – The District will participate in warning, alert and response organization that collaborate with local and regional governments to share information that protects critical infrastructure.
- The District participates in the Northwest Warning, Alert & Response Network (WARN) which is a collaborative effort between government and private sector critical infrastructure partners with a goal of near real-time information sharing to help protect regional/national infrastructures, communities and the public.
- The District participates in the Washington State Fusion Center, which supports public safety and homeland security missions of state, local, tribal agencies and private sector entities.
- District Mutual Aid Agreement policy – The District will participate in Mutual Aid Agreements with adjacent jurisdictions, King County and the State of Washington.
- District Emergency (water) Interties policy – The District supports emergency interties with adjacent water systems where there is a benefit to the water systems.

37.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 37-1 lists all past occurrences of natural hazards within the jurisdiction.

37.5 HAZARD RISK RANKING

Table 37-2 presents the ranking of the hazards of concern.

37.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 37-3 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.

37.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 37-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 37-5 identifies the priority for each initiative. Table 37-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 37-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather*	DR-757	January 1986	No information available
Severe Weather*	DR-784	November 1986	No information available
Severe Weather*	DR-883	November 1990	No information available
Severe Weather*	DR-896	December 1990	No information available
Severe Weather*	DR-981	January 1993	No information available
Severe Weather*	DR-1079	November 1995	No information available
Earthquake**	N/A	January 1995	No information available
Earthquake**	N/A	May 1996	No information available
Severe Winter Weather*	DR-1159	December 1996	No information available
Severe Weather*	DR-1172	March 1997	No information available
Earthquake**	N/A	July 1999	No information available
Earthquake**	N/A	February 2001	No information available
Severe Weather	1682-DR-WA	December 2006	$10,545
Severe Winter Weather**	N/A	December 2008	$2,100 (estimate)
Severe Winter Weather**	N/A	January 2009	$700 (estimate)
Severe Weather	N/A	December 2010	$3,000
Severe Winter Weather	4056-DR-WA	January 2012	$1,700

*Source: FEMA, Disaster Declarations history
**Source: Haulman, Bruce (2011), "Images of American – Vashon-Maury Island," Charleston, SC, Arcadia Publishing.

TABLE 37-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Winter Weather	32
3	Tsunami	26
4	Severe Weather	18
5	Landslide	16
6	Volcano	15
7	Wildfire	12
8	Avalanche	0
9	Dam Failure	0
10	Flood	0

TABLE 37-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
1	✓	✓		Completed in 2012 and ongoing. See WD19-1.
2		✓		See WD19-2.
3		✓		Added two sources since 2009. More sources in the "pipeline." See WD19-3.

TABLE 37-4.
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?
WD19-1—Continue to coordinate mitigation and preparedness activities with Vashon Be Prepared and King County Fire Protection District 13 (Vashon Island Fire and Rescue)							
New and Existing	All Hazards	All Objectives	Vashon Island Fire and Rescue	Low	General Fund	Ongoing	No
WD19-2—Install emergency generators in additional designated District-owned critical facilities							
New	All Hazards (as it relates to power failures)	1,3,5,8	WD19	High	General Fund, Public Works Trust Fund Loans	Ongoing	New and Existing
WD19-3—Develop additional source(s) of water to provide backup supplies.							
New	1,5,6	1,8	WD19	High	General Fund, Public Works Trust Fund Loans	Ongoing	New
WD19-4—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan							
New and Existing	All Hazards	All Objectives	WD19	Low	General Fund	Ongoing	New and Existing
WD19-5—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and Existing	All Hazards	2,4,7,13	WD19	Low	General Fund	Ongoing	New and Existing

TABLE 37-5.
MITIGATION STRATEGY PRIORITY

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]
WD19-1	15	Medium	Low	Yes	No	Yes	High
WD19-2	4	Medium	Low	Yes	No	Yes	High
WD19-3	2	High	Low	Yes	No	Yes	High
WD19-4	15	Medium	Low	Yes	No	Yes	High
WD19-5	4	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 37-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1, 3, 4, 5	2	-	-	1, 2, 3	
Flood	-	-	-	-	-	-
Landslide	1, 3, 4, 5	2	-	-	1, 2, 3	-
Severe Weather	1, 3, 4, 5	2	-	-	1, 2, 3	-
Severe Winter Weather	1, 3, 4, 5	2	-	-	1, 2, 3	-
Tsunami	1, 3, 4, 5	2	-	-	1, 2, 3	-
Volcano	1, 3, 4, 5	2	-	-	1, 2, 3	-
Wildfire	1, 3, 4, 5	2	-	-	1, 2, 3	-

a. See Introduction for explanation of mitigation types.

CHAPTER 38.
KING COUNTY WATER DISTRICT NO. 20 ANNEX

38.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Dick Swaab, General Manager
King County Water District 20
12606 First Avenue South
Burien, WA 98168
Telephone: (206) 243-3990
e-mail Address: dswaab@KCWD20.com

Alternate Point of Contact

Rodney Langer, Principal
CHS Engineers LLC
12507 Bel Red Road Suite 101
Bellevue, WA 98005
Telephone: (425) 637-3693
e-mail Address: rodneyl@chsengineers.com

38.2 JURISDICTION PROFILE

King County Water District No. 20 is a special purpose municipal Group A water district created in 1925 to provide water and street lighting to urban portions of south King County. The District's service area has expanded over the years and has reached its present size with the merger of Water District No. 85 in 2003. The general service area extends as far north as South Director Street (South 92nd Street), as far south as South 160th Street, as far west as Puget Sound and as far east as Tukwila International Boulevard (SR 99). The service area encompasses portions of unincorporated King County and portions of the Cities of Burien, SeaTac, Tukwila and Seattle. A three member elected Board of Commissioners sets District policy and governs the District. The General Manager administers implementation of policy and is responsible for the day to day operation and management of the District. The Board assumes responsibility for the adoption of this plan and the General Manager will oversee its implementation. As of December 2009, the District had a total of 9,125 active retail water connections and 6 wholesale accounts and a current staff of 10 employees. Funding for operation, maintenance and improvement of the District comes from water revenues from water sales to existing District customers.

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

- **Population Served—**29,819 as of 2010
- **Land Area Served—**7.0 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $2,375,223,589
- **Land Area Owned—**4.29 Acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Six Million Gallon Water Storage Reservoir and Pump Station Jointly owned by Water District Consortium consisting of:
    - Water District 20 (68%) $5,100,000
    - Water District 45 (7%) $425,000
    - Water District 125 (25%) $1,875,000
    - Total $7,500,000

- Water Supply Master Meters, all owned by Seattle Public Utilities (SPU); Total number of supply points - Twelve ranging from 4" to 16" diameter
- Emergency interties with adjacent water districts (total 10)
  - One way intertie to Highline Water District – 1 location $75,000
  - Two way intertie with Water District 49 – 3 locations $15,000
  - Two way intertie with Water District 49 – 2 locations $150,000
  - Two way intertie with Water District 45 – 1 location $5,000
  - One way intertie to Water District 125 – 2 locations $150,000
  - Two way intertie with Water District 125 – 1 location $5,000
- Water Distribution System Pipe Network, 598,501 feet (113.35 miles) of pipe
  - 4" and smaller (10,710 feet) $2,142,000
  - 6" (50,890 feet) $10,178,000
  - 8" (443,411 feet) $88,682,200
  - 10" (9,750 feet) $2,925,000
  - 12" (63,580 feet) $19,074,000
  - 16" (9,890 feet) $3,461,500
  - 20" (8,520 feet) $3,408,000
  - 24" (1,750 feet) $875,000
- 22 Pressure Reducing Valve Stations $1,650,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $137,895,700
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Water District Office, Garage and Maintenance Shops $2,563,744
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $2,563,744
- **Current and Anticipated Service Trends—**Current and future land use within the District is dependent on and subject to the land use plans and zoning codes of five separate governmental entities, King County and the Cities of Burien, SeaTac, Tukwila and Seattle. The unincorporated King County area in the north end of the District is expected to be annexed in the future by the Cities of Seattle and / or Burien. Barring wholesale changes in zoning or developmental densities by any agency, projected growth is expected to continue to be infill development, where individual vacant lots are developed or several single-family residential lots are redeveloped as a multi-unit development. Based on historic District growth and projected King County growth for the area, the population of the District is expected to show a 0.7 percent growth and water usage based on Equivalent Residential Units is expected at about 0.9 percent for the near foreseeable future.

38.3 APPLICABLE REGULATIONS AND PLANS

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

- State of Washington RCW Title 57 Water-Sewer Districts
- Safe Drinking Water Act

- Comprehensive Water System Plan Update 2012 (includes design criteria, operations program, water use efficiency program, water quality program and capital improvement program)
- Capital Improvement Plan 2012
- Hazard Mitigation Plan 2003
- Emergency Response Plan 2002
- Developer Extension Manual 2011
- Cross Connection Control Plan
- Coliform Monitoring Plan 2004
- Water Shortage Contingency Plan 2006
- Distribution System Operation and Maintenance Manual 1996
- Pump Station/Reservoir Operation and Maintenance Manual 2000
- Washington Association of Sewer & Water Districts Mutual Aid Agreement

It is not anticipated that any applicable hazard mitigation provisions of the above listed documents would conflict with this hazard mitigation plan.

38.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 38-1 lists all past occurrences of natural hazards within the jurisdiction.

38.5 HAZARD RISK RANKING

Table 38-2 presents the ranking of the hazards of concern.

38.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 38-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 38-4 identifies the priority for each initiative. Table 38-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

38.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Possible future assessment of risks from bio-terrorism or civil unrest hazards and actions

TABLE 38-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm, Flood, Landslides, and Mudslides	DR-4056	1/14-1/23 -2012	No information available
Severe Winter Storm and Near Record Snow	DR-1825	3/2/2009	No information available
Severe Winter Storm, Landslides, Mudslides and Flooding	DR-1817	1/30/2009	No information available
Severe Storms, Flooding, Landslides and Mudslides	DR-1734	12/8/2007	No information available
Severe Winter Storm, Landslides and Mudslides	DR-1682	2/14/2007	No information available
Severe Storms, Flooding, Landslides and Mudslides	DR-1671	12/12/2006	No information available
Severe Storms, Flooding, Tidal Surge, Landslides and Mudslides	DR-1641	5/17/2006	No information available
Severe Storms and Flooding	DR-1499	11/7/2003	No information available
Earthquake	DR-1361	3/1/2001	No information available
Flooding	DR-1252	10/5/1998	No information available
Severe Storms, Flooding, Landslides, and Mudslides	DR-1172	4/2/1997	No information available
Severe Winter Storms and Flooding	DR-1159	1/17/1997	No information available
Ice and Snow Storms	DR-1152	1/7/1997	No information available
Severe Storms and Flooding	DR-1100	2/9/1996	No information available
Storms, High Winds and Floods	DR-1079	1/3/1996	No information available
Severe Storm and High Winds	DR-981	3/4/1993	No information available

Note: While the District did not sustain damage as a result of most of the listed hazard events, these events did have impacts in the area that the District serves.

TABLE 38-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Winter Weather	42
3	Severe Weather	42
4	Landslide	16
5	Volcano	14
6	Flood	10
7	Wildfire	6
8	Tsunami	3
9	Avalanche	0
10	Dam Failure	0

TABLE 38-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD20-1 Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	KCWD20	Low	General Fund	Ongoing
WD20-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	KCWD20	Low	General Fund	Ongoing
WD20-3—Des Moines Memorial Drive Water Main Replacement North ID-1						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-4—South 128th Street Water Main Replacement ID-2						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-5—21st Avenue SW Water Main Replacement ID-3						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-6—South 101st Street Water Main Replacement ID-4						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term

TABLE 38-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD20-7—South 104th Street Water Main Replacement ID-5						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-8—14th Avenue South Water Main Replacement Section 1 ID-6						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-9—South 102nd Street Water Main Replacement ID-7						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-10—South 137th Street Water Main Replacement ID-8						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-11—South 138th Street/9th Place South Water Main Replacement ID-9						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-12—5th Avenue South Water Main Replacement ID-10						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-13—South 103rd Street Water Main Replacement ID-11						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-14—Former Water District 85 Area Hydrant Installation ID-12						
New	Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-15—Industrial Park Loop Water Main Replacement ID-13						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-16—South 116th Street Alley Water Main Replacement ID-14						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Short Term
WD20-17—14th Avenue South Water Main Replacement Section 2 ID-15						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-18—4th Avenue SW Water Main Replacement ID-16						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term

TABLE 38-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD20-19—4th Avenue South Main Replacement ID-17						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-20—8th Place SW Water Main Replacement ID-18						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-21—SW 128th Street/14th Avenue SW Water Main Replacement ID-19						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-22—14th Avenue South Water Main Replacement Section 3 ID-20						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-23—14th Avenue South Water Main Replacement Section 4 ID-21						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-24—6th Avenue SW/SW 121st Street Water Main Replacement ID-22						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-25—South 112th Street Water Main Replacement ID-23						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-26—11th Avenue South Water Main Replacement ID-24						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-27—South 142nd Place Water Main Replacement ID-25						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-28—5th Place South Water Main Replacement ID-26						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-29—Ambaum Blvd/130th Avenue SW Water Main Replacement ID-27						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-30—Ambaum Blvd/132nd Avenue SW Water Main Replacement ID-28						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term

TABLE 38-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD20-31—12th Avenue South Water Main Installation ID-32						
New	Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-32—South 136th Street Water Main Replacement ID-33						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-33—6th Place South Water Main Replacement ID-34						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-34—21st Avenue South Water Main Replacement ID-35						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-35—South 104th Street Water Main Replacement ID-36						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-36—South 107th Street Water Main Replacement ID-37						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-37—9th Place South Water Main Replacement ID-38						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-38—SW 136th Street Off-Street Water Main Replacement ID-39						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-39—South 99th Street Water Main Replacement ID-40						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-40—14th Avenue South Water Main Replacement ID-41						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-41—16th Avenue South/15th Avenue South Off-Street Water Main Replacement ID-42						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-42—SW 118th Street Water Main Replacement ID-43						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term

TABLE 38-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD20-43—South 124th Street Water Main Replacement ID-44						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-44—South 121st Street Water Main Replacement ID-48						
Existing	Earthquake, Severe Winter Weather, Wildfire	1,9	KCWD20	Low	General Fund	Long Term
WD20-45—Preparation for Volcanic Ash (Office and Reservoir) Ash Screens, Filters and Air Masks						
Existing	Volcano	1, 3, 15	KCWD20	Medium	General Fund	Long Term
WD20-46—Winter and Severe Weather Assessment at Office and Reservoir (Inspect Tall trees)						
Existing	Severe Winter Weather, Severe Weather	1, 5	KCWD20	Low	General Fund	Short Term
WD20-47—Wildfire Assessment (Underbrush on water main easements)						
Existing	Wildfire	1, 4, 5, 12	KCWD20	Low	General Fund	Short Term
WD20-48—Stockpile Water Main Repair Material						
Existing	Earthquake, Severe Winter Weather, Severe Weather, Landslide	1, 4	KCWD20	Low	General Fund	Short Term
WD20-49—Assess Public Warning System Options in Case of Hazard (i.e. boil water notice)						
Existing	All Hazards	3, 4, 6	KCWD20	Medium	General Fund	Short Term

TABLE 38-4.
MITIGATION STRATEGY PRIORITY

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant-Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority[a]
1	15	Low	Low	Yes	Yes	No	Medium
2	4	Low	Low	Yes	Yes	No	Medium
3 – 16	2	High	Low	Yes	Yes	Yes	High
17 - 44	2	High	Low	Yes	Yes	Yes	Low
45	3	Medium	Medium	Yes	Yes	No	Low
46	2	Medium	Low	Yes	Yes	No	Medium
47	4	Medium	Low	Yes	Yes	No	Medium
48	2	Medium	Low	Yes	Yes	Yes	High
49	3	Medium	Medium	Yes	Yes	No	Medium

a. See Introduction for explanation of priorities.

TABLE 38-5.
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
Avalanche	—	—	—	—	—	—
Dam Failure	—	—	—	—	—	—
Earthquake	1, 2	3 – 44	49	—	48, 49	—
Flood	1, 2	—	49	—	—	3 – 44
Landslide	1, 2	—	49	—	—	—
Severe Weather	1, 2	3 – 44	49	46	48, 49	—
Severe Winter Weather	1, 2	3 – 44	49	46	48, 49	—
Tsunami	1, 2	—	49	—	—	—
Volcano	1, 2	45	49	—	—	—
Wildfire	1, 2	3 – 44	49	47	48, 49	—

a. See Introduction for explanation of mitigation types.

CHAPTER 39.
KING COUNTY WATER DISTRICT NO. 90 ANNEX

39.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Tom Hoffman, General Manager
15606 SE 128th St
Renton, WA 98059
Telephone: 425-255-9600
e-mail Address: tomh@kcwd90.com

Alternate Point of Contact

Josh Deraitus, Operations Manager
15606 SE 128th St
Renton, WA 98059
Telephone: 425-255-9600
e-mail Address: Joshd@kcwd90.com

39.2 JURISDICTION PROFILE

King County Water District No. 90 is located between the cities of Renton and Issaquah, Washington with Cougar Mountain to the north and the Cedar River to the south. The District was incorporated in 1952 with a service area of approximately five square miles and served the rural area outside of the Renton city limits. At the present time, the District covers an area of 15.5 square miles and ranges in elevations between 100-to-1,400 feet. The District currently provides all domestic and fire protection needs to a population of approximately 20,000 customers or 7,600 households, 140-plus businesses, a portion of the Renton and Issaquah School Districts, and Fire Districts No. 10 and No. 25.

Water District No. 90 is a rapidly growing suburb "bedroom community" of the city of Seattle with a diverse economic community. By area, the District is currently comprised of one- third urban and two-thirds rural. The District is governed by a Board of Commissioners with three members. The Board of Commissioners will assume responsibility for the adoption of this plan; The General Manager will oversee its implementation.

The present Board of Commissioners and management staff supporting the District, recognize the need to improve the system operations and communications with other jurisdictions. In the past ten years, the District has invested approximately $12 million to improve the system. In order to reduce the impact to our service community resulting from a disaster, the District maintains design standards, preventative maintenance and operational procedures, and emergency training programs. Funding for the District comes primarily through rates.

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

- **Population Served—**20,000 (Estimate in 2013)
- **Land Area Served—**15.5 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $2,200,000,000
- **Land Area Owned—**15 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Water Treatment Plant $3,500,000
  - Well Field $2,500,000

- 8 Pump Stations $5,000,000
- 8 Storage Reservoirs $8,000,000
- 124 Miles of Transmission &Water Main $99,000,000
- 800 Fire Hydrants $4,000,000
- 20 Pressure Reducing Stations $2,000,000
- Construction Equipment $750,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $124,750,000
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Administration and Operation Buildings $3,000,000
  - Water Treatment Plant $3,500,000
  - Well Field $2,500,000
  - 8 Pump Stations $5,000,000
  - Transmission Mains $5,000,000
  - 6 Storage Reservoirs $7,000,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $26,000,000
- **Current and Anticipated Service Trends—**The District has experienced a 2 percent growth over the last five years. If the urban Growth Boundary changed, this growth would most likely increase to about 5 percent per year. The Water Systems backbone (transmission mains) is designed for this growth.

39.3 APPLICABLE REGULATIONS AND PLANS

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

- Safe Drinking Water Act
- State of Washington RCW Title 57 Water-Sewer Districts
- 2008 Comprehensive Water System
- 2004 Regional Hazard Mitigation Plan of King County
- 2009 Hazard Mitigation Plan
- KCWD No. 90 Emergency Response Plan
- Participant and Member of WA WARN
- Mutual Aid and Assistance Agreement for Washington State for Intrastate Water/Wastewater Agency Response Network.
- Capital Improvement Plan 2013
- Developer Extension Agreement
- Cross Connection Control Program
- Coliform Monitoring Plan 2013
- Water Shortage Contingency Plan 2004

39.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 39-1 lists all past occurrences of natural hazards within the jurisdiction. This list of natural hazard events is not a comprehensive list of events that have impacted the District's operations. The list was created from discussing past events with current District staff. Some events that impacted the District may have been unintentionally forgotten, or are unknown to the current staff.

TABLE 39-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm	DR-4056	1/12/2012	$10,000
Severe Winter Storm	DR-1963	1/11/2011	$5,000
Severe Winter Storm Near Record Snow	DR-1825	12/12/2008	$20,000
Severe Winter Storm	DR-1682	12/14/2006	$10,000
Wind	NA	4/27/2004	$10,000
Winter Weather	NA	1/06/2004	$10,000
Earthquake - Landslide	DR-1361	2/28/2001	$28,000
High Winds	DR-1079	11/07/1995	$40,000
High Winds	DR-981	1/20/1993	$10,000

39.5 HAZARD RISK RANKING

Table 39-2 presents the ranking of the hazards of concern.

TABLE 39-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Winter Weather	54
3	Severe Weather	45
4	Dam Failure	20
5	Landslide	15
6	Flood	12
7	Avalanche	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

39.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 39-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 39-4 identifies the priority for each initiative. Table 39-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 39-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to Existing or New Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost *	Sources of Funding	Timeline
WD90-1 Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	Water District 90	Low	District Funds	Ongoing
WD90-2 Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	Water District 90	Low	District Funds	Ongoing
WD90-3 Seismic upgrades/retrofits to District Pump Stations 4, 5, 6, 7 and 8 including building, electrical systems with variable frequency drives and auto transfer switches.						
Existing	Earthquake, Severe Weather	1, 2, 3, 4, 5, 8	Water District 90	Med, $300,000	District Funds, HMGP, PDM Grant & Loans	Ongoing
WD90-4 Training and Testing of Emergency Power Systems						
Existing,	Earthquake, Severe Weather	1, 2, 3, 4, 5, 8	Water District 90	Low, $10,000	General Fund,, HMGP	Ongoing
WD90-5 Harden Water System - Replace 14,000+' of 10 AC Pipe with 12" DI Pipe – 550 & 744 Zones						
Existing	Earthquake	1, 2, 3, 5, 8	Water District 90	High, $3,800,000	District Funds, PDM Grant & Loans	Long-term
WD90-6 Harden Water System - Replace 18,000+' AC & Steel Pipe with 8' DI Pipe - Maple Hills						
Existing	Earthquake	1, 2, 3, 5, 8	Water District 90	High, $4,300,000	District Funds, PDM Grant & Loans	Long-term
WD90-7 Harden Water System - Replace 12,000+' AC Pipe with 8' DI Pipe - Maplewood Heights and Maple ridge						
Existing	Earthquake	1, 2, 3, 5, 8	Water District 90	High, $3,000,000	District Funds, PDM Grant & Loans	Long-term
WD90-8 Harden Water System - Replace 12,000+' AC Pipe with 8' DI Pipe – High Valley & Briarwood South						
Existing	Earthquake	1, 2, 3, 5, 8	Water District 90	High, $3,000,000	District Funds, PDM Grant & Loans	Long-term

TABLE 39-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to Existing or New Assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost *	Sources of Funding	Timeline
WD90-11 Harden Telemetry System Communications with Radio/Cellular – Pump Stations 3, 4, 5, 6, 7, 8, Well and Water Treatment Plant.						
Existing	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $15,000/ Year	District Funds, Loans, HMGP	Long-term, Ongoing
WD90-12 Pump Stations Bypass System - Pump Stations 4, 5, 6, 7 and 8 – Provides the ability to pump around a pump station after a full failure of the Electrical system.						
Existing	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $100,000	District Funds, Loans, HMGP, PDM Grants	Long-term
WD90-13 Install 2,300' for 8" DI water main and PRV station on 154th PL SE from Jones Rd to SE 142nd PL (Only main serving this area is in a landslide prone area.						
New	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $800,000	District Funds, Loans, HMGP, PDM Grants	Long-term
WD90-14 Install Third Pump with variable frequency drive at Pump Station #2 for emergency supply to 744 and 804 zones, Landfill and Co-Generation Plant.						
New	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $100,000	District Funds, Loans, HMGP, PDM Grants	Long-term
WD90-15 Install 500,000 Gal Storage Tank Maple Hills for 744 and 804 Zones for emergency supply.						
New	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $700,000	District Funds, Loans, HMGP, PDM Grants	Long-term
WD90-16 Install Meter and Backflow device at Stonegate intertie with City of Renton for Backup Emergency Supply.						
New	All Hazards	1, 2, 3, 5, 8	Water District 90	Low, $120,000	District Funds, Loans, HMGP, PDM Grants	Long-term

*Costs are in 2014 Dollars
AC Pipe =Asbestos Cement Pipe; DI =Ductile Iron Pipe

TABLE 39-4.
MITIGATION STRATEGY PRIORITY

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]
WD90-1	15	Med	Low	Yes	Yes	Yes	High
WD90-2	15	Med	Low	Yes	Yes	Yes	High
WD90-3	6	High	Med	Yes	Yes	Yes	Medium
WD90-4	6	High	Low	Yes	Yes	Yes	High
WD90-5	5	High	High	Yes	Yes	Possibly	Low
WD90-6	5	High	High	Yes	Yes	Possibly	Low
WD90-7	5	High	High	Yes	Yes	Possibly	Low
WD90-8	5	Med	Low	Yes	Yes	Yes	Low
WD90-9	15	Med	Low	Yes	Yes	Yes	High
WD90-10	15	Med	Low	Yes	Yes	Yes	Medium
WD90-11	5	High	Low	Yes	Yes	Yes	Medium
WD90-12	5	Med	Low	Yes	Yes	Yes	Medium
WD90-13	5	High	Med	Yes	Yes	Possibly	Low
WD90-14	5	High	Low	Yes	Yes	Possibly	Medium
WD90-15	5	High	Med	Yes	Yes	Possibly	Medium
WD90-16	5	Med	Low	Yes	Yes	Possibly	Low

a. See Introduction for explanation of priorities.

TABLE 39-5.
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
Avalanche	—	—	—	—	—	—
Dam Failure	1, 2	—	1, 2, 9	—	10, 11, 12, 14, 15, 16	—
Earthquake	1, 2	3, 5, 6, 7, 8	1, 2, 9	—	3, 4, 10, 11, 12, 14, 15, 16	3
Flood	1, 2	—	1, 2, 9	—	10, 11, 12, 14, 15, 16	—
Landslide	1, 2, 13	13	1, 2, 9	—	10, 11, 12, 13, 14, 15, 16	—
Severe Weather	1, 2	3	1, 2, 9	—	3, 4, 10, 11, 12	3
Severe Winter Weather	1, 2	3	1, 2, 9	—	3, 4, 10, 11, 12	3
Tsunami	—	—	—	—	—	—
Volcano	—	—	—	—	—	—
Wildfire	—	—	—	—	—	—

a. See Introduction for explanation of mitigation types.

CHAPTER 40.
KING COUNTY WATER DISTRICT NO. 111 UPDATE ANNEX

40.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Pam Cobley, Consultant, Stantec
11130 NE 33rd Place, Suite 200
Bellevue, WA 98004
Telephone: 425.289.7309
e-mail Address: pam.cobley@stantec.com

Alternate Point of Contact

Chris Hall, General Manager
27224 – 144th Avenue SE
Kent, WA 98042
Telephone: 253.631.3770
e-mail Address: chall@wd111.c0m

40.2 JURISDICTION PROFILE

King County Water District No. 111 (KCWD 111 or District) was originally formed in 1962 to bring water service to the Lake Meridian area and along Kent-Kangley Road. KCWD 111 serves primarily residential customers within the cities of Auburn and Kent, a portion of the City of Covington, and unincorporated King County. Other water purveyors which bound KCWD 111's service area include: the City of Kent, Covington Water District, Soos Creek Water & Sewer District, and the City of Auburn. A three-member Board of Commissioners governs the District. The Board of Commissioners assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation.

The District uses its own wells while using City of Auburn as its primary supply. Interties with four purveyors, including Tacoma, provide for excellent emergency supply redundancy.

The District funds its operations from its water-usage revenue, and has nine full time employees.

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

- **Population Served—**approximately 19,130 (2013 estimate)
- **Land Area Served—**more than 5 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,396,350,798 (includes Appraised Land Value and Improvements per KC IMap)
- **Land Area Owned—**4.34 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 81 miles water main — $64,152,000 (estimate)
  - 4 Primary Wells — $4,309,867*
  - 3 Storage Facilities — $10,251,000*
  - 1 Pump Station — $178,500*
  - 3 Interties — $1,610,000*
  - *Insurance Value
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $80,501,367

- **List of Critical Facilities Owned by the Jurisdiction**:**
  - Administrative Building $1,550,400
  - Storage Building $346,800
  - **Insurance Value
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $1,897,200
- **Current and Anticipated Service Trends—**The District has seen moderate growth over the last four years resulting in an approximately 4 percent increase in equivalent residential units. The District does not have land use authority, therefore it can be difficult to predict growth; however, it is anticipated the District will see a 10 percent increase in equivalent residential units over the next ten years.

40.3 APPLICABLE REGULATIONS AND PLANS

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

- Federal Mitigation Act of 2000 requires State, Tribal and local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. The District's current approved Hazard Mitigation Plan Update (2009) supports this regulation and plan update. The Federal Emergency Management Agency approved the District's Hazard Mitigation Plan on April 20, 2010.
- The Bioterrorism Preparedness and Response Act of 2002 required community drinking water systems serving populations of more than 3,300 persons to conduct assessments of their vulnerabilities to terrorist attack or other intentional acts and to defend against adversarial actions that might substantially disrupt the ability of a system to provide a safe and reliable supply of drinking water. The District's Assessment, completed in 2003, supports projects that may be identified in this Hazard Mitigation Plan. The Assessment is not available to the public.
- District's Emergency Response Plan supports the efforts of minimizing vulnerabilities within the water system during an emergency. This Plan is updated on an as needed basis and is not available to the public.
- District's Annual Capital Improvement Plan (CIP) supports projects that are identified in this plan update. The CIP is updated annually by the District and adopted by the Board of Commissioners in the fall of each year.
- District's Water Comprehensive Plan 2007 supports the efforts in minimizing the vulnerabilities within the water plan by developing a capital improvement plan. The Plan also identifies policies that support the hazard mitigation plan. The Washington State Department of Health approved this Plan on May 13, 2009.
- District Regional Participation policy – The District supports and participates in applicable regional plans to provide and maintain a reliable and adequate system. Regional planning efforts promote a framework for coordinated water system improvements. Therefore, the District coordinates and cooperates with adjacent jurisdictions and water service providers to identify anticipated growth, demand and capacity requirements for water facilities.
- District Coordination with Adjacent Jurisdictions policy – The District coordinates closely with adjacent jurisdictions to determine applicable regulatory requirements, growth

projections and opportunities for joint projects. Interlocal agreements are prepared between the pertinent parties on all joint projects. By working closely with adjacent jurisdictions, the District will identify opportunities for joint projects and thus minimize potential impacts to neighborhoods and the environment. These coordination efforts aid in diminishing regulatory hurdles that could increase project costs through restrictive permit conditions.

- District Mutual Aid Agreement policy –The District participates in Mutual Aid Agreements with adjacent jurisdictions, King County and the State of Washington. Mutual Aid Agreements allows agencies to contract with each other to provide personnel and equipment to other agencies that request assistance during a disaster or emergency. The District has signed Mutual Aid Agreements that provide access to resources of other agencies and jurisdictions and defines the terms under which agencies respond to such requests.
- District Emergency Interties policy – The District currently interties with all adjacent water systems. Interties increase reliability of water systems during emergencies and other unusual operational circumstances.

40.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 40-1 lists all past occurrences of natural hazards within the jurisdiction. This list of natural hazard events is not a comprehensive list of events that have impacted the District's operations. The list was created from discussing past events with current District staff. Some events that impacted the District may have been unintentionally forgotten, or are unknown to the current staff.

TABLE 40-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	4056	1/24/2012	$28,410
Severe Winter Weather	1682	12/2006	No information available
Severe Winter Weather	981	1/20/1993	No information available
Earthquake	1361	2/28/2001	No information available
Earthquake	196	4/29/1965	No information available
Flood	1100 & 1079	11/1995 to 2/1996	No information available

40.5 HAZARD RISK RANKING

Table 40-2 presents the ranking of the hazards of concern.

40.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 40-3 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 40-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	42
3	Severe Winter Weather	42
4	Dam Failure	10
5	Volcano	10
6	Flood	6
7	Avalanche	0
8	Landslide	0
9	Tsunami	0
10	Wildfire	0

TABLE 40-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
KCWD111-1		✓		Perform seismic evaluation of Reservoir/Tank Site: The District completed a seismic analysis of the 2 million gallon reservoir. There are other facilities on this site that still need to be evaluated including two buildings, 2 reservoirs and one well.
KCWD111-2		✓		Perform seismic evaluation of the District Office.
KCWD111-3		✓		Replace active asbestos concrete main at Facility #48 to mitigate earthquake hazards.
KCWD111-4		✓		Replace active asbestos concrete main at Facility #28 to mitigate earthquake hazards.
KCWD111-5		✓		Replace active asbestos concrete main at Facility #51 to mitigate earthquake hazards.
KCWD111-6		✓		Replace active asbestos concrete main at Facility #26 to mitigate earthquake hazards.
KCWD111-7		✓		Replace active asbestos concrete main at Facility #45 to mitigate earthquake hazards.
KCWD111-8		✓		Replace active asbestos concrete main at Facility #32 to mitigate earthquake hazards.
KCWD111-9		✓		Replace active asbestos concrete main at Facility #46 to mitigate earthquake hazards.
KCWD111-10		✓		Replace active asbestos concrete main at Facility #38 to mitigate earthquake hazards.

40.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 40-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 40-5 identifies the priority for each initiative. Table 40-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 40-4.
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?
KCWD111-1 Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	All Objectives	King County & KCWD #111	Low	General Fund	Ongoing	No
KCWD111-2 Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	2,4,7,13	King County & KCWD #111	Low	General Fund	Ongoing	No
KCWD111-3 Perform seismic evaluation of Reservoir/Tank Site.							
Existing	Earthquake	1, 2, 4	KCWD #111	$64,630	General Fund	Ongoing Long-term	Yes
KCWD111-4 Perform seismic evaluation of the District Office.							
Existing	Earthquake	1, 2, 4	KCWD #111	$64,630	General Fund PDM Grant	Long-term	Yes
KCWD111-5 Replace active asbestos concrete main at Facility #48 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$416,300	General Fund PDM Grant	Long-term	Yes
KCWD111-6 Replace active asbestos concrete main at Facility #28 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$373,600	General Fund PDM Grant	Short-term	Yes
KCWD111-7 Replace active asbestos concrete main at Facility #51 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$550,220	General Fund PDM Grant	Long-term	Yes
KCWD111-8 Replace active asbestos concrete main at Facility #26 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$355,400	General Fund PDM Grant	Short-term	Yes
KCWD111-9 Replace active asbestos concrete main at Facility #45 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$120,500	General Fund PDM Grant	Short-term	Yes

TABLE 40-4.
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?
KCWD111-10 Replace active asbestos concrete main at Facility #32 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$500,300	General Fund PDM Grant	Long-term	Yes
KCWD111-11 Replace active asbestos concrete main at Facility #46 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$169,300	General Fund PDM Grant	Short-term	Yes
KCWD111-12 Replace active asbestos concrete main at Facility #38 to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	KCWD #111	$286,800	General Fund PDM Grant	Short-term	Yes
KCWD111-13 Construct a new storage tank to assist with minimal pressure in certain areas and increase water storage available.							
New	All Hazards	1, 5, 8	KCWD #111	$4,460,400	General Fund	Long-term	No**
KCWD111-14 Loop Closure Program to improve flow reliability and redundancy in the system.							
New	All Hazards	1, 5, 8	KCWD #111	$39,900 annually	General Fund	Short-term Long-term	No**
KCWD111-15 Add Hazard Mitigation Plan objectives to District's Water Comprehensive Plan with next update.							
New & Existing	All Hazards	2, 3, 5, 6, 7, 10, 12	KCWD #111	Low	General Funds	Short term	No

TABLE 40-5.
MITIGATION STRATEGY PRIORITY

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

a. See Introduction for explanation of priorities.

TABLE 40-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2, 15	-	1	-	13, 14	-
Earthquake	1, 2, 15	3, 4, 5, 6, 7, 8, 9, 10, 11, 12	1	-	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	-
Flood	1, 2, 15	-	1	-	13, 14	-
Landslide	1, 2, 15	5, 6, 7, 8, 9, 10, 11, 12	1	-	5, 6, 7, 8, 9, 10, 11, 12, 13, 14	-
Severe Weather	1, 2, 15	-	1	-	13, 14	-
Severe Winter Weather	1, 2, 15	-	1	-	13, 14	-
Tsunami	-	-		-		-
Volcano	1, 2, 15	-	1	-	13, 14	-
Wildfire	-	-		-		-

a. See Introduction for explanation of mitigation types.

40.8 ADDITIONAL COMMENTS

In addition to the projects listed in Table 40-4, Table 40-5 will help the District choose which pipe facilities to replace to mitigate the District's hazard risk. The tables summarize the hazard type to which each pipe is vulnerable, and lists the potential financial loss for each facility.

40.8.1 Critical Water Pipes Owned by the District

Each vulnerable water pipe has been assigned a facility identification number and is included in following table. A map showing the vulnerable facilities is available at the District office.

Multiple factors contribute to each facility's level of vulnerability. These factors include the material the facility is constructed of, whether the facility is tapped for service, and whether there are any downstream areas dependent on the facility. The following sections discuss these factors in detail.

Pipe Material

The type of material of each water main directly affects its vulnerability. A number of the District's water mains are constructed of ductile iron (DI) pipe. Due to the inherent toughness of DI pipe, the most likely method of failure during an earthquake event would be separation of the pipe at the joints. It is not as likely that DI pipe walls will be damaged compared to other pipe materials, and they are therefore considered to be less vulnerable than asbestos-cement (AC) or cast-iron (CI) water mains.

The other common pipe material present in the District is AC pipe. AC pipe is much more brittle than DI pipe, and therefore is much more likely to break rather than pull apart during an earthquake event. AC water mains are considered to be more vulnerable than water mains made of other materials, and were therefore specifically classified as earthquake hazards.

A small number of vulnerable CI water mains were identified in hazard areas. Though this material is somewhat tougher than AC, it is still brittle material and more vulnerable than DI pipe.

Services

Facilities identified in this category are water mains with services that provide water to District customers.

Downstream Areas Served Solely by Facility

Facilities identified in this category are the sole source of water to downstream portions of the water system. They are considered more vulnerable than other facilities, as potential damage to them would impact a large portion of the water system.

Main Lines

Facilities identified in this category are water mains which were classified by the District as critical water distribution components of the District's system.

Potential Financial Losses

Several factors must be considered when estimating the potential financial losses caused by hazard-related damage. These factors include the number of facilities damaged, the extent of damage to each facility, the length of time required for repairs, etc. The magnitudes of several losses are more difficult to determine, such as the revenue that would be lost from customers being without service and the costs of providing temporary service, if necessary.

Due to these intangibles, it was decided that the most effective method to estimate potential financial losses for each of the vulnerable facilities would be to estimate the cost of replacing the entire facility. It is likely that the actual cost of repairing a facility would be less than the cost of replacing it, but the large number of variables makes it difficult to accurately determine the cost of repair. Therefore, providing the replacement cost provides the most conservative projection of potential financial losses.

To determine the cost of replacing a facility, a base construction cost was estimated based on costs of recently constructed similar projects. Additionally, an emergency contingency of 10% of the base construction cost was included in the cost estimate. This contingency was added to account for costs that may be incidental to emergency repairs, such as the cost of providing temporary water services.

It was assumed that each water main would be replaced with DI pipe of the same diameter as the existing pipe, with a few exceptions. Facilities #28, #32, #46 and #48 were assumed to be replaced with 12-inch pipe. All existing pipes with diameters less than 8 inches were assumed to be replaced with 8-inch pipe, per District standards. The actual diameters of proposed water mains to be replaced will be confirmed in the District's Water Comprehensive Plan.

CHAPTER 41.
KING COUNTY WATER DISTRICT NO. 125 ANNEX

41.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mark Parsons, Superintendent
3460 S 148th ST Suite 110
Tukwila, WA 98168
Telephone: (206) 242-9547
e-mail Address: markparsons@waterdistrict125.com

Alternate Point of Contact

Shane Young, Office Manager
3460 S 148th ST Suite 110
Tukwila, WA 98168
Telephone: (206) 242-9547
e-mail Address: shaneyoung@waterdistrict125.com

41.2 JURISDICTION PROFILE

Formed in 1930, King County Water District No. 125 (KCWD 125) is a special-purpose district located east and north of the Seattle-Tacoma International Airport and within unincorporated King County and the city limits of Tukwila, SeaTac and Burien. KCWD 125 is comprised of three former water districts: King County Water Districts No. 35, 38 and 43. In 1975, Water District No. 35 and 38 merged to form an enlarged Water District 38. Water District No. 38 and 43 consolidated two years later to form the existing KCWD 125. The District currently has over 3,700 connections serving approximately 15,000 people. KCWD 125 operates under a three commissioner system whereby these elected officials set the policies for the District, authorize disbursement of funds, issue warrants in payments of bills and approve contract documents and capital improvements expenditures. The Board assumes responsibility for the adoption of this plan and its implementation will be overseen by the Superintendent.

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

- **Population Served:** 15,000 as of 2009
- **Land Area Served:** 3.83 sq. miles / 2,451.2 acres / 106,774,272 sq. feet
- **Value of Area Served:** The estimated value of the area served by the jurisdiction is $1,658,555,989
- **Land Area Owned:** 41,667 Square Feet
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Approximately 40.06 miles of Pipe $48,636,799
  - Equipment and Intangibles $1,526,184
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $50,162,983
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Office Building $397,600
  - Maintenance Building $489,900
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $887,500

- **Current and Anticipated Service Trends:** The District continues to see small incremental growth of less than 10 new service connections per year.

41.3 APPLICABLE REGULATIONS AND PLANS

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

King County Water District No. 125 is authorized as a Public Water System under the laws of the State of Washington. As such, the District must operate in accordance with specific regulations mandated by the State as well as the rules and regulations of the other jurisdictions within which the District operates.

- King County Water District No. 125 Water System Plan (2009)
- Emergency Response Plan – King County Water District No. 125 (2010)
- National Environmental Protection Act
- Federal Emergency Management Act Regulations and Guidelines
- Federal Endangered Species Act
- Title 18, Chapter 1 of the Code of Federal Regulations (Conservation of Power and Water Resources)
- Emergency Planning and Community Right-to-Know Act
- Washington State Building Code
- The District must adhere to all applicable codes and regulations enforced by federal, state, and local authorities with a sphere of influence within the District service area.

41.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 41-1 lists all past occurrences of natural hazards within the jurisdiction.

41.5 HAZARD RISK RANKING

Table 41-2 presents the ranking of the hazards of concern.

41.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 41-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 41-4 identifies the priority for each initiative. Table 41-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 41-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Weather		1/19/2012	No information available
Winter Weather/Rain		12/17/2010	No information available
Winter Weather		12/22/2008	No information available
Winter Weather		12/21/2008	No information available
Winter Weather		12/20/2008	No information available
Winter Weather		12/18/2008	No information available
Heavy Rain	DR-1734	12/3/2007	No information available
High Wind		12/14/2006	No information available
Heavy Rain		1/5/2006	No information available
High Wind		4/27/2004	No information available
Winter Weather		1/6/2004	No information available
Heavy Rain		11/18/2003	No information available
Flooding/severe thunderstorm		10/20/2003	No information available
Heavy Rain		12/13/2001	No information available
Earthquake	DR-1361	2/28/2001	No information available
Winter Weather		2/15/2001	No information available
High Wind	DR-1682	12/14/2000	No information available
Lightning		7/16/1999	No information available
High Wind		2/5/1999	No information available
Flooding/severe thunderstorm		1/1/1997	No information available
Heavy Rain		12/29/1996	No information available
Heavy Snow		12/28/1996	No information available
Heavy Snow		11/19/1996	No information available
Flooding/severe thunderstorm		7/13/1993	No information available

TABLE 41-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	45
2	Severe Weather	42
3	Severe Winter Weather	42
4	Landslide	24
5	Flood	12
6	Avalanche	0
7	Dam Failure	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

TABLE 41-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
WD125-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All Objectives	KCWD 125	Low	General Fund	Ongoing
WD125-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2,4,7,13	KCWD 125	Low	General Fund	Ongoing
WD125-3—Consider Hazard Areas, Critical Areas & system performance history (i.e. pipeline breaks) in prioritizing renewal & replacement projects.						
New and existing	All Hazards	1,2,5,7,9	KCWD 125	Low	General Fund	Ongoing
WD125-4—Continue to coordinate through hazard mitigation & emergency planning with SPU, Skyway & KCWD 20 to ensure continuous water supply & adequate storage.						
New and Existing	All Hazards	1,2,4,7,13	KCWD 125	Low	General Fund	Ongoing
WD125-5—Coordinate with neighboring Jurisdictions for assistance & equipment / supply inventory back-ups.						
New and Existing	All Hazards	1,2,4,7,13	KCWD 125	Low	General Fund	Ongoing
WD125-6—Annual review of procedures, inventory & purchase of emergency supplies & equipment.						
New and Existing	All Hazards	1,2,3,4	KCWD 125	Low	General Fund	Ongoing

TABLE 41-4.
MITIGATION STRATEGY PRIORITY

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]
WD125-1	15	Medium	Low	Yes	No	Yes	High
WD125-2	4	Medium	Low	Yes	Yes	Yes	High
WD125-3	5	High	Low	Yes	Yes	Yes	High
WD125-4	5	High	Low	Yes	No	Yes	High
WD125-5	5	High	Low	Yes	No	Yes	High
WD125-6	4	High	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 41-5.
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
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Earthquake	1,3,4,5	1,3,6	1	1	1,2,4,5,6	1,3
Flood	1,3,4,5	1,3,6	1	1	1,2,4,5,6	1,3
Landslide	1,3,4,5	1,3,6	1	1	1,2,4,5,6	1,3
Severe Weather	1,3,4,5	1,3,6	1	1	1,2,4,5,6	1,3
Severe Winter Weather	1,3,4,5	1,3,6	1	1	1,2,4,5,6	1,3
Tsunami	1	1	1	1	1,2,4,5,6	1,3
Volcano	--	--	--	--	--	--
Wildfire	--	--	--	--	--	--

a. See Introduction for explanation of mitigation types.

41.7 ADDITIONAL COMMENTS

The District chose which pipe facilities to list on the Hazard Mitigation Action Plan from those presented in Table 41-6. The table summarizes the hazard type to which each water pipe is vulnerable and specifies the existing pipe materials. Additional projects may be pulled from the list to be included in the Action Plan in the future. The table also identifies whether each pipe has any services, dependent downstream facilities, existing hazard mitigation features, and if it is a main line. Finally, the potential financial loss for each facility is listed. The map referencing the facility number listed on the table below is available to view at the District office.

TABLE 41-6.
LIST OF DISTRICT PIPE FACILITIES

Facility No.	Hazard	Existing Pipe Material	Services	Downstream Areas Dependent on Facility	Main Line	Potential Financial Loss 2013
5	Flood	HDPE	X	X	X	$136,600
7	Seismic	AC	X	X		$3,772,100
8	Seismic	AC				$88,200
9	Erosion	AC, DI	X			$472,500
10	Erosion	AC	X			$99,000
11	Erosion	DI	X			$80,400
12	Seismic	AC	X	X		$283,000
13	Erosion	DI	X			$578,400
14	Erosion	DI	X		X	$89,200
15	Seismic	DI	X	X	X	$82,500
16	Seismic	AC	X			$426,200
17	Erosion	DI, CI	X			$69,700
18	Seismic	AC	X			$91,900
19	Erosion	AC	X			$70,100
20	Seismic	AC	X			$123,700
21	Seismic	AC	X	X		$715,500
22	Seismic	AC	X			$301,800
23	Seismic	AC	X			$223,100
24	Seismic	AC	X			$98,300
25	Seismic	AC	X			$137,000
26	Seismic	AC	X	X		$358,900
27	Seismic	CI, DI	X	X		$875,300
28	Seismic	AC	X	X	X	$377,200
29	Seismic	AC	X	X		$49,100
30	Seismic	AC	X			$26,900
31	Seismic	AC	X			$147,500
32	Seismic	AC	X	X	X	$505,300
33	Seismic	AC	X			$60,000
34	Seismic	AC				$49,000
35	Seismic	AC	X			$146,500
36	Seismic	AC	X			$171,300
37	Seismic	AC	X			$119,000
38	Seismic	AC	X	X		$289,700
39	Seismic	AC	X	X		$185,000

TABLE 41-6.
LIST OF DISTRICT PIPE FACILITIES

Facility No.	Hazard	Existing Pipe Material	Services	Downstream Areas Dependent on Facility	Main Line	Potential Financial Loss 2013
40	Seismic	AC	X			$81,000
41	Erosion	AC	X			$25,600
42	Erosion	AC				$35,300
43	Erosion	DI	X			$107,500
44	Erosion	DI	X	X	X	$250,600
45	Seismic	AC	X	X	X	$121,800
46	Seismic	AC	X	X	X	$171,000
47	Seismic	AC	X			$117,300
48	Seismic	AC	X	X	X	$420,400
51	Seismic	AC	X	X	X	$555,700
52	Seismic	AC	X	X		$600,600
53	Seismic	AC	X	X		$40,600
54	Seismic	AC	X	X		$67,800

41.7.1 Facility Characteristics

Multiple factors contribute to each facility's level of vulnerability. These factors include the material the facility is constructed of, whether the facility is tapped for service, and whether there are any downstream areas dependent on the facility. The following sections discuss these factors in detail.

- **Pipe Material -** The type of material of each water main directly affects its vulnerability.

  A number of the District's water mains are constructed of ductile iron (DI) pipe. Due to the inherent toughness of DI pipe, the most likely method of failure during an earthquake event would be separation of the pipe at the joints. It is not as likely that DI pipe walls will be damaged compared to other pipe materials, and they are therefore considered to be less vulnerable than asbestos-cement (AC) or cast-iron (CI) water mains.

  The other common pipe material present in the District is AC pipe. AC pipe is much more brittle than DI pipe, and therefore is much more likely to break rather than pull apart during an earthquake event. AC water mains are considered to be more vulnerable than water mains made of other materials, and were therefore specifically classified as earthquake hazards.

  A small number of vulnerable CI water mains were identified in hazard areas. Though this material is somewhat tougher than AC, it is still brittle material and more vulnerable than DI pipe.

- **Services -** Facilities identified in this category are water mains with services that provide water to District customers.

- **Downstream Areas Served Solely by Facility –** Facilities identified in this category are the sole source of water to downstream portions of the water system. They are considered more

vulnerable than other facilities, as potential damage to them would impact a large portion of the water system.

- **Main Lines –** Facilities identified in this category are water mains which were classified by the District as critical water distribution components of the District's system.

41.7.2 Potential Financial Losses

Several factors must be considered when estimating the potential financial losses caused by hazard-related damage. These factors include the number of facilities damaged, the extent of damage to each facility, the length of time required for repairs, etc. The magnitudes of several losses are more difficult to determine, such as the revenue that would be lost from customers being without service and the costs of providing temporary service, if necessary.

Due to these intangibles, it was decided that the most effective method to estimate potential financial losses for each of the vulnerable facilities would be to estimate the cost of replacing the entire facility. It is likely that the actual cost of repairing a facility would be less than the cost of replacing it, but the large number of variables makes it difficult to accurately determine the cost of repair. Therefore, providing the replacement cost provides the most conservative projection of potential financial losses.

To determine the cost of replacing a facility, a base construction cost was estimated based on costs of recently constructed similar projects. Additionally, an emergency contingency of 10% of the base construction cost was included in the cost estimate. This contingency was added to account for costs that may be incidental to emergency repairs, such as the cost of providing temporary water services.

It was assumed that each water main would be replaced with DI pipe of the same diameter as the existing pipe, with a few exceptions. Facilities #28, #32, #46 and #48 were assumed to be replaced with 12-inch pipe. All existing pipes with diameters less than 8 inches were assumed to be replaced with 8-inch pipe, per District standards. The actual diameters of proposed water mains to be replaced will be confirmed in the District's Water Comprehensive Plan.

CHAPTER 42.
MIDWAY SEWER DISTRICT ANNEX

42.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Tim Campbell, Operations Supervisor
P.O. Box 3487
Kent, WA 98089
Telephone: 206-824-2760
e-mail Address: Tim@Midwaysewer.org

Alternate Point of Contact

Ken Kase, Manager
P.O. Box 3487
Kent, WA 98089
Telephone: 206-824-4960
e-mail Address: Ken@Midwaysewer.org

42.2 JURISDICTION PROFILE

Midway Sewer District is a special purpose district that was created on November 23, 1956 to provide wastewater collection and treatment services to the area in and around Des Moines, Washington. The District's designated areas expanded throughout the years to include parts of unincorporated King County as well as the communities of SeaTac, Burien, Kent, Normandy Park, and Federal Way. A five-member elected Board of Commissioners governs the District. The Board of Commissioners assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of 2008, the District has approximately 7,900 direct service connections, with a current staff of 24 full-time employees and 1 seasonal position. Funding for projects comes primarily through sewer rates, with additional revenue coming from loans, such as the Public Works Trust Fund.

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

- **Population Served—**As of 2007, it was estimated that there were 46,500 residents living inside the District's service area and an additional 13,900 people who work in businesses the District serves.
- **Land Area Served—**The corporate area is just over 10 square miles in size and is nearly identical to its service area, with the exception being the area of SeaTac Airport to the north. SeaTac Airport extends beyond the corporate area, adding an additional 3 miles to the overall area the District serves, bringing the total area to 13 square miles.
- **Value of Area Served—**The estimated value (King County Assessor's office data) of the area served by the jurisdiction is $3,943,466,648.
- **Land Area Owned—**27.74 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Covenant Beach—Insured value: $318,400. The station is a submersible pump station located near the District's western edge (Puget Sound). It serves an area of approximately 155 acres serving single/multi-family, and commercial developments. Last upgraded in 2012 with an on-site generator.
  - 7th Avenue—Insured value: $1,172,000. This station is located just south of Covenant Beach station near the Des Moines marina. This is the largest of the stations within the District with four-1800 gpm pumps for a combined capacity of 4425 gpm. During storm events it can also take the flow from the Interceptor station that serves the south westerly

portions of the District. The station has an on-site generator to provide secondary backup power if needed.

- Interceptor—Insured value: $333,000. This station handles flow from the southern portion of the district. It has a pumping capacity of 2211 gpm. The service area for this station is approximately 2,390 acres. Last upgrade was in 2000.
- Zenith—Insured value: $685,000. This is a station comprised of two smaller stations (Zenith 1 & 2) and one slightly larger one (Zenith 3) to handle the residences in the Zenith Beach area that borders the waters of Puget Sound. The largest of the stations receives flow from the smaller stations. Zenith 3 then discharges to a line whereby it flows by gravity towards the 7th Avenue pump station.
- 16th Avenue—Insured value: $402,000. This pump station serves an area of approximately 700 acres in the south central part of the District. The pump capacity of the station is 2240 gpm. The station has been recently upgraded and has an on-site generator as a backup power supply.
- Watson—Insured value: $285,000. This station serves an area of approximately 5 acres and serves 20 homes. The total pumping capacity is 186 gpm. It is located just east of the Saltwater Park pump station.
- 260th—Insured value: $452,000. This station serves an area of approximately 310 acres in the southeastern portion of the District. It has been upgraded several times over the years including wet well improvements, modern control systems, increased pumping capacity (1930 gpm), and an on-site backup power supply.
- Saltwater Park—Insured value: $227,000. This station serves an area of approximately 180 acres in the southwestern portion of the District. It serves the state park and private residences in the area. The total pumping capacity of the station is 452 gpm. A backup power supply is available onsite.
- Motel 6—Insured value: $256,000. This station serves an area of approximately 55 acres of mixed use development (commercial and residential). The station has a pump capacity of 660 gpm. It has a backup power supply on site.
- 14th Avenue—Insured value: $123,000. This station built in 1992 serves the central region of our district. It services a total of two connected lots, and a third (future) with a pumping capacity of 38 gpm.
- Sun Vista—Insured value: $186,000. This station was built in 1998 to serve a 14 lot (future 100 lots at build-out) single-family development. It has a total pumping capacity of 183 gpm.
- Des Moines Creek wastewater treatment plant—Insured value: $8,822,000. The facility located near south 216th street in Des Moines has a capacity rating of 9 mgd and capable of treating wastewater to Secondary Treatment standards (trickling filter/solids contact). The effluent from the plant is disinfected by ultraviolet light. Emergency back-up power is provided by one of two generators that provide a total of 1,500 kW for full operation.

- **Total Value of Critical Infrastructure/Equipment—**The total insured value of critical infrastructure and equipment owned by the jurisdiction is $43,019,291.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Covenant Beach—insured value: $318,400
  - 7th Avenue—insured value: $1,172,00.
  - Interceptor—insured value: $333,000. This station handles flow from the southern portion of the district. It has a pumping capacity of 2211 gpm. The service area for this station is approximately 2,390 acres. Last upgrade was in 2000.

- Zenith—insured value: $685,000 (structure(s) only). This is a station comprised of two smaller stations (Zenith 1 & 2) and one slightly larger one (Zenith 3) to handle the residences in the Zenith beach area that is bounded by the waters of Puget Sound. The largest of the stations receives flow from the smaller stations. Zenith 3 then discharges to a line whereby it flows by gravity towards the 7th avenue pump station.
- 16th Avenue—insured value: $402,000. This pump station serves an area of approximately 700 acres in the south central part of the District. The pump capacity of the station is 2240 gpm. The station has been recently upgraded and has an on-site generator as a backup power supply.
- Watson—insured value: $285,000 (structure only).This station serves an area of approximately 5 acres and serves 20 homes. The total pumping capacity is 186 gpm. It is located just east of the Saltwater Park pump station.
- 260th—insured value: $452,000. This station serves an area of approximately 310 acres in the southeastern portion of the District. It has been upgraded several times over the years including wet well improvements, modern control systems, increased pumping capacity (1930 gpm), and an on-site backup power supply.
- Saltwater Park—insured value: $227,000 (structure only). This station serves an area of approximately 180 acres in the southwestern portion of the District. It serves the state park and private residences in the area. The total pumping capacity of the station is 452 gpm.
- Motel 6—insured value: $256,000 (structure only). This station serves an area of approximately 55 acres of mixed use development (commercial and residential). The station has a pump capacity of 660 gpm. It has a backup power supply on site.
- 14th Avenue—insured value: $123,000 (structure only). This station built in 1992 serves the central region of our district. It services a total of two connected lots, and a third (future) with a pumping capacity of 38 gpm.
- Sun Vista—insured value: $186,000 (structure only). This station was built in 1998 to serve a 14 lot (future 100 lots at build-out) single-family development. It has a total pumping capacity of 183 gpm.

- **Total Value of Critical Facilities—**The total insured value of critical facilities owned by the jurisdiction is $43,019,291
- **Current and Anticipated Service Trends—**The District currently treats base wastewater flows of 4.22 mgd (Million Gallons per Day) and has experienced instantaneous peaks of 19.75 mgd at the treatment plant. Projections indicate that flows by the year 2030 could reach as high as 6.23 mgd for base flows in the sanitary sewer system and more than 24 mgd for peak flows during wet weather periods. Land use designations allow for an increase in light commercial (e.g. strip malls and the Sound link-light rail stations) and residential land uses (e.g. high density developments) to meet urban growth requirements within our service area. Planning for the future growth will take the form of periodic engineering studies as required by the Department of Ecology to ensure the District is proactive in planning for additional capacity of the collection and treatment systems.

42.3 APPLICABLE REGULATIONS AND PLANS

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

- 2008 Comprehensive Sewer System Plan
- Midway Sewer District Emergency Management Plan

42.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 42-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 42-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm`	852-DR-WA	3/22/1990	$108,369
Winter Storm	1079-DR-WA	2/8/1996	72,305
Winter Storm	981-DR-WA	1/20/1993	$30,170
Winter Storm	1159-DR-WA	12/26/1996	$35,735
Winter Storm	1100-DR-WA	12/28/1996	$100,885
Earthquake*	NA	2/28/2001	$400,000

* Nisqually Earthquake is suspected in the damage recently discovered (July 2013) in Secondary Clarifier #1 tank bottom.

42.5 HAZARD RISK RANKING

Table 42-2 presents the ranking of the hazards of concern.

TABLE 42-2.
HAZARD RISK RANKING

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

42.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 42-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 42-4 identifies the priority for each initiative. Table 42-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 42-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
MSD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New	All Hazards	All Objectives	Midway Sewer	Low	General Fund	Ongoing
MSD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New	All Hazards	2,4,7,13	Midway Sewer	Low	General Fund	Ongoing
MSD-3—Encourage seismic evaluations of suspect critical facilities to identify vulnerabilities						
Existing	Seismic	1,2,4,5,8,9,10	Midway Sewer	$1000	General Fund	Ongoing
MSD-4—Implement the use of bracing, straps and or anchoring systems to increase seismic strength for vulnerable suspect equipment during an earthquake						
Existing	Seismic	1,2,4, 5,8,9,10	Midway Sewer	Low	General Fund, HMGP, PDM	Long-term
MSD-5—Collection system rehabilitation and I/I reduction to reduce the impacts of flooding and inclement weather issues						
Existing	Severe weather, Flooding, Tsunami	1,5,12	Midway Sewer	$100,000	General Fund, HMGP, PDM	Short-term

TABLE 42-4.
MITIGATION STRATEGY PRIORITY

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]
MSD-1	15	Medium	$50,000	Yes	No	Yes	High
MSD-2	4	Low	Low	Yes	No	Yes	High
MSD-3	7	High	Low	Yes	No	Yes	High
MSD-4	6	High	$50,000	Yes	Yes	Yes	Medium
MSD-5	3	High	$100,000	Yes	Yes	Yes	Medium

a. See Introduction for explanation of priorities.

TABLE 42-5.
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
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Earthquake	1, 3, 4, 5	1, 3, 4, 5	1	1, 3, 5	1, 2	1, 3, 4, 5
Flood	1, 5	1, 5	1	1, 5	1, 2	1, 3, 5
Landslide	1, 3, 5	1, 3, 5	1	1, 3, 5	1, 2	1, 3, 5
Severe Weather	1, 5	1, 5	1	1, 5	1, 2	1, 5
Severe Winter Weather	1, 5	1, 5	1	1, 5	1, 2	1, 5
Tsunami	1, 4	1, 4	1	1, 4	1, 2	1, 4
Volcano	--	--	--	--	--	--
Wildfire	--	--	--	--	--	--

a. See Introduction for explanation of mitigation types.

CHAPTER 43.
NORTH CITY WATER DISTRICT UPDATE ANNEX

43.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Diane Pottinger, PE, District Manager
1519 NE 177th Street
Shoreline, WA 98155
Telephone: 206.362.8100
e-mail Address: dianep@northcitywater.org

Alternate Point of Contact

Denny Clouse, Operations Manager
1519 NE 177th Street
Shoreline, WA 98155
Telephone: 206.362.8100
e-mail Address: dennyc@northcitywater.org

43.2 JURISDICTION PROFILE

North City Water District (formerly Shoreline Water District) is a municipal corporation formed by election on August 1, 1931 under RCW 57 and is governed by a three member elected Board of Commissioners. The District currently provides water service to approximately 8,100 customer accounts. All water supplied to the District is provided by Seattle Public Utilities (SPU) through both its Tolt and Cedar River supply pipelines at five supply stations and one emergency intertie. The District has two interties with the City of Mountlake Terrace, which provides water supply to the system in the event of an emergency. The service area is located north of Seattle and East of Kenmore in the Cities of Lake Forest Park and Shoreline. Current District staff is 13. Funding is provided through rates, connection charges, revenue bonds, Public Works Trust Fund loans, and State Revolving Fund Loans. The Board of Commissioners assumes responsibility for the adoption of this plan and the District Manager will oversee its implementation.

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

- **Population Served—**24,706 as of January 1, 2013
- **Land Area Served—**5 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $3,418,026,636
- **Land Area Owned—**2 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 3.7 MG Reservoir $3,800,000
  - 2.0 MG Reservoir $1,700,000
  - 660 Booster Pump Station $800,000
  - Supply Station 1 $200,000
  - Supply Station 2 $1,000,000
  - Supply Station 3 $200,000
  - Supply Station 4 $520,000
  - Booster Station 1 $600,000
  - Booster Station 2 $600,000

- SPU Emergency Intertie $50,000
- MLT Emergency Intertie 1 $100,000
- MLT Emergency Intertie 2 $100,000
- SPU Tolt Supply Line $1,300,000
- PRVs $1,200,000
- 32 mi. of transmission mains $2,000,000
- Generator – Admin Bldg. $500,000
- Generator – Pump Station $300,000
- Rolling Stock $800,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $15,770,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Administrative Bldg. $4,600,000
  - Maintenance Bldg. $2,500,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $7,100,000
- **Current and Anticipated Service Trends—**The District is nearly 60 percent single family residential, 20 percent multi-family and the remaining portions commercial, public facilities and open spaces. The District is anticipating an annual growth rate of less than 1 percent as single family residential properties are converted to multi-family and light commercial residential.

43.3 APPLICABLE REGULATIONS AND PLANS

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

- Shoreline Water District Water System Plan Update, 2013
- Shoreline Water District Code
- Shoreline Water District Vulnerability Assessment Plan, updated February 2010
- Shoreline Water District Emergency Response Plan, 2010
- Shoreline Water District Hazard Mitigation Plan, 2010
- Shoreline Water District Vulnerability Assessment Plan, 2010
- The District must adhere to all applicable codes and regulations enforced by federal, state and local authorities that would potentially impact the District.

43.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

The history of natural hazard events that have impacted the District have not been well documented. The District has experienced power outages, but since generators have been installed, the administration of the District has not been impacted by power outages. The District has only experienced one event impacting the District, since such instances have been tracked (since 2003). The other events listed in Table 43-1 were identified in King County records.

TABLE 43-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Heavy Rain	None	12/24/2005	$10,000
Lightning	None	6/1/1999	No information available
Landslide	None	Late 1990s	$23,000

43.5 HAZARD RISK RANKING

Table 43-2 presents the ranking of the hazards of concern.

TABLE 43-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54
2	Severe Winter Weather	54
3	Earthquake	51
4	Flood	42
5	Landslide	27
6	Avalanche	0
7	Dam Failure	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

43.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 43-3 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.

43.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 43-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 43-5 identifies the priority for each initiative. Table 43-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 43-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

Action #	Action Status: Completed	Action Status: Carry Over to Plan Update	Action Status: Removed; No Longer Feasible	Comments
NCWD-1		✓		Communications System Evaluation will be done in the next 6 year period.
NCWD-2	✓	✓		Emergency Power Supply was completed for Admin Bldg., Pump Station. Generator will be part of new Maintenance Bldg.
NCWD-3	✓			Off-site data repository has been completed.
NCWD-4	✓			New District office has been completed.
NCWD-5	✓			Emergency Intertie with SPU on secondary source has been completed.

TABLE 43-4.
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?
NCWD-1—Communication System Evaluation.							
Existing	Severe Weather, Earthquake, Flood, Landslide	1,2,3	District	$50,000	District Funds	Ongoing	Yes
NCWD-2—Emergency Power Supply for Maintenance Building.							
Existing	Severe Weather, Earthquake, Flood, Landslide	1,2,3,7,8	District	$100,000	District Funds	Short-term (2014-2016)	Yes
NCWD-3—Continue ongoing water conservation program.							
Existing	All Hazards	3, 6, 11	District	$15,000	District Funds	Ongoing	No
NCWD-4—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	All Objectives	District	Low	District Funds	Short-term Ongoing	No
NCWD-5—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	All Objectives	District	Low	District Funds	Ongoing	No

TABLE 43-5.
MITIGATION STRATEGY PRIORITY

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]
NCWD-1	3	High	Medium	Yes	Yes	Yes	High
NCWD-2	5	High	Medium	Yes	Yes	Yes	High
NCWD-3	3	Low	Low	Yes	No	Yes	High
NCWD-4	15	Medium	Low	Yes	No	Yes	High
NCWD-5	15	Medium	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

TABLE 43-6.
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
Avalanche	—	—	—	—	—	—
Dam Failure	—	—	—	—	—	—
Earthquake	4, 5	3, 4, 5	1-5	3, 4, 5	1-5	2, 4
Flood	4, 5	3, 4, 5	1-5	3, 4, 5	1-5	2, 4
Landslide	4, 5	3, 4, 5	1-5	3, 4, 5	1-5	2, 4
Severe Weather	4, 5	3, 4, 5	1-5	3, 4, 5	1-5	2, 4
Severe Winter Weather	4, 5	3, 4, 5	1-5	3, 4, 5	1-5	2, 4
Tsunami	—	—	—	—	—	—
Volcano	—	—	—	—	—	—
Wildfire	—	—	—	—	—	—

a. See Introduction for explanation of mitigation types.

43.8 ADDITIONAL COMMENTS

North City Water District has been and will continue to undertake mitigation activities regularly with each capital project that is authorized.

CHAPTER 44.
RIVERVIEW SCHOOL DISTRICT ANNEX

44.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

William J. Adamo Director of Business and Operations
P O Box 519
Duvall 98019
Telephone: Phone # 425.844.4505
e-mail Address: adamob@riverview.wednet.edu

Alternate Point of Contact

Anthony Smith , Superintendent
Street Address Same
City, State ZIP
Telephone: Phone #425.844.4503
e-mail Address: smitha@riverview.wednet.edu

44.2 JURISDICTION PROFILE

The Riverview School District services three jurisdictions: King County, the City of Carnation, and the City of Duvall. The district is 250 square miles and is located in northeast King County serving the Snoqualmie River valley from the King/Snohomish County line south approximately 16 miles, and from the western ridge of the valley to the Cascade foothills. The district employs approximately 375 people and serves an enrollment of approximately 3,233 (headcount enrollment) students, with three elementary schools, one middle school, one high school, two alternative high school programs, and two alternative elementary school programs. The grade configuration is kindergarten through fifth grade for elementary school, sixth through eighth for middle school, and ninth through twelfth for high school. Three of the alternative programs are housed at the Riverview Learning Center in Carnation. The district is overseen by a fiver person Board of Directors who work with District administrators to make decisions and set policy regarding bond and levy elections, budget adoption, facilities, curriculum adoption, fiscal planning and oversight, employee relations and transportation. The Board of Directors assumes responsibility for the adoption of this plan; the Superintendent will oversee its implementation.

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

- **Population Served—**The Riverview School District boundaries include the City of Duvall (OFM April 2013 population 7,120), the City of Carnation (OFM April 2013 population 1,785), and a portion of unincorporated King.
- **Land Area Served—**250 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $2,465,318,716
- **Land Area Owned—**160 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Insured content value for all facilities $4,176,170
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Annex $181,800
  - Bus/Maintenance $557,035
  - Carnation Elementary $7,055,814

- Cedarcrest High School $15,298,122
- Cherry Valley Elementary $1,774,079
- Cherry Valley Elementary $6873679
- Learning Center $6,708,734
- Stillwater Elementary $6,567,415
- Tolt Middle School $10,116,828

- **Current and Anticipated Service Trends—**The District is currently experiencing a 1 percent annual growth in student population. This trend is expected to continue.

44.3 APPLICABLE REGULATIONS AND PLANS

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

- Riverview School District Strategic Plan
- Tolt Dam Evacuation Drill

44.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 44-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 44-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	DR-4056	2012	No information available
Flooding	N/A	2011	No information available
Flooding	N/A	2010	No information available
Flooding	DR-1817	2009	No information available
Snow Storm	DR-1852	2008-2009	No information available
Wind Storm	DR-1882	2006	No information available
Earthquake	DR-1361	2001	No information available

44.5 HAZARD RISK RANKING

Table 44-2 presents the ranking of the hazards of concern.

44.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 44-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 44-4 identifies the priority for each initiative. Table 44-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 44-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	51
3	Flood	48
4	Dam Failure	36
5	Severe Winter Weather	33
6	Wildfire	30
7	Landslide	20
8	Volcano	15
9	Avalanche	0
10	Tsunami	0

TABLE 44-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
RSD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	All Objectives	Riverview School District	Low	General Fund	Ongoing
RSD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan						
New and Existing	All Hazards	2,4,7,13	Riverview School District	Low	General Fund	Ongoing
RSD-3—Develop and adopt (by Board of Directors) an Emergency Operations Plan and the Emergency Operations Field Guide. The purpose of which is to identify and respond to emergencies that may occur on school grounds while children are present. The plan outlines an approach to emergency management operations in the event of a high impact incident that requires immediate action when traditional resources are en route, limited or nonexistent. The plan educates staff, faculty, students and other key stakeholders on their roles and responsibilities before, during and after an event. The Emergency Operations Plan takes an all-hazard approach to emergency management with strategies for prevention, preparedness, response and recovery. The Emergency Operations Field Guide details specific procedures and guidelines for responding to an emergency. The Emergency Operations Field Guide outlines an organized method to prepare for and respond to incidents with the development of building level Emergency Response Teams based on the National Incident Management System and corresponding Incident Command System,						
New and Existing	All Hazards	All Objectives	Riverview School District	Medium	General Fund, Grants	Ongoing

TABLE 44-4.
MITIGATION STRATEGY PRIORITY

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]
RSD-1	15	Medium	Low	Yes	No	Yes	High
RSD-2	4	Medium	Low	Yes	No	Yes	High
RSD-3	15	High	Medium	Yes	Possibly	Yes	High

a. See Introduction for explanation of priorities.

TABLE 44-5.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 2, 3	-	-	-	3	-
Earthquake	1, 2, 3	-	-	-	3	-
Flood	1, 2, 3	-	-	-	3	-
Landslide	1, 2, 3	-	-	-	3	-
Severe Weather	1, 2, 3	-	-	-	3	-
Severe Winter Weather	1, 2, 3	-	-	-	3	-
Tsunami	-	--	--	-	-	-
Volcano	1, 2, 3	-	-	-	3	-
Wildfire	1, 2, 3	-	-	-	3	-

a. See Introduction for explanation of mitigation types.

CHAPTER 45.
RONALD WASTEWATER DISTRICT ANNEX

45.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

George Dicks, Maintenance Manager
17505 Linden Ave N
Shoreline, WA 98133
Telephone: 206-546-2494
e-mailAddress:gdicks@ronaldwastewater.org

Alternate Point of Contact

Michael U. Derrick, General Manager
17505 Linden Ave N
Shoreline, WA 98133
Telephone: 206-546-2494
e-mail Address: mderrick@ronaldwastewater.org

45.2 JURISDICTION PROFILE

Ronald Wastewater District is a special-purpose district created in 1951 to provide sanitary sewer services to a portion of unincorporated area north of Seattle. The District now serves all of the city of Shoreline and receives flows from the Town of Woodway, Olympic View Water and Sewer District, the city of Mountlake Terrace and the Highlands Sewer District. A five-member elected Board of Commissioners governs the District. The Board assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of September 30, 2013, the District serves 16,510 sewer connections (customers), with a current staff of 15. Funding comes primarily through rates and revenue bonds.

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

- **Population Served—**53,000 as of 2010 U.S. Census
- **Land Area Served—**approximately 12.5 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1,127,830,170
- **Land Area Owned—**2.3 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 182.9 miles of pipe $299,993,088
  - 16 Pump Stations $4,950,382
  - 22 Grinder Pump Stations $237,710
  - 8 Vehicles/Equipment $726,290
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $35,913,690
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Office Building $1,810,800
  - Vehicle Storage Buildings $1,554,170
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $3,364,970
- **Current and Anticipated Service Trends—**Ronald Wastewater District's service area has had an approximate 1 percent growth per year over the last ten years. Land use designations

have allowed higher density construction in residential and light commercial service areas. This increase in density will represent an increase in the number of housing units within the service area and thus represent an increase in flows and the total amount of pipe and will require upsizing of some existing pipe.

45.3 APPLICABLE REGULATIONS AND PLANS

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

- Ronald Wastewater District Hazard Mitigation Plan (2003)—This plan should be enhanced by the current hazard mitigation update.
- Ronald Wastewater District Environmental Protection Plan (2001)—Current Hazard Mitigation plan update may provide opportunities to address some identified environmental protection needs.
- Ronald Wastewater District Emergency Response Plan (2000)—Current Hazard Mitigation plan update may provide funding opportunities to address some identified Emergency Management goals.
- Ronald Wastewater District Comprehensive Sewer Plan (2010)—Current Hazard Mitigation plan update may provide funding opportunities to address some identified long range infrastructure replacement plans.

45.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 45-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 45-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather	DR-1172	Jan. 1997	$314,773
Severe Weather		December 1988	$42,000
Severe Weather		March 1983	$23,000

45.5 HAZARD RISK RANKING

Table 45-2 presents the ranking of the hazards of concern.

45.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 45-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 45-4 identifies the priority for each initiative. Table 45-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 45-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	30
3	Severe Winter Weather	30
4	Landslide	16
5	Flood	16
6	Volcano	5
7	Tsunami	5
8	Wild Fire	3
9	Avalanche	0
10	Dam Failure	0

TABLE 45-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
RWD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All Objectives	Ronald WWD	Low	Rates/R&R Fund	Ongoing
RWD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2,4,7,13	Ronald WWD	Low	Rates/R&R Fund	Ongoing
RWD-3—Install underground generator for backup power at Lift Station # 14.						
New	All Hazards	1, 5, 8	Ronald WWD	$100,000	Rates/R&R Fund, Grant	Short-term
RWD-4—Install underground generator for backup power at Lift Station # 11.						
New	All Hazards	1, 5, 8	Ronald WWD	$100,000	Rates/R&R Fund, Grant	Short-term

TABLE 45-4.
MITIGATION STRATEGY PRIORITY

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]
RWD-1	15	Low	Low	Yes	No	Yes	High
RWD-2	4	Low	Low	Yes	No	Yes	High
RWD-3	3	Medium	Medium	Yes	Yes	Yes	High
RWD-4	3	Medium	Medium	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

TABLE 45-5.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1,2	3,4	1,2	-	3,4	-
Flood	1,2	3,4	1,2	-	3,4	-
Landslide	1,2	3,4	1,2	-	3,4	-
Severe Weather	1,2	3,4	1,2	-	3,4	-
Severe Winter Weather	1,2	3,4	1,2	-	3,4	-
Tsunami	1,2	3,4	1,2	-	3,4	-
Volcano	1,2	3,4	1,2	-	3,4	-
Wildfire	1,2	3,4	1,2	-	3,4	-

a. See Introduction for explanation of mitigation types.

CHAPTER 46.
SAMMAMISH PLATEAU WATER & SEWER UPDATE ANNEX

46.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Janet Sailer, Planning and Outreach Coordinator
1510 228th Avenue SE
Sammamish, WA 98075
Telephone: 425-392-6256 x 204
e-mail Address: janet.sailer@spwsd.org

Alternate Point of Contact

Jay Regenstreif, Planning Engineer
1510 228th Avenue SE
Sammamish, WA 98075
Telephone: 425-392-6256 x 215
e-mail Address: jay.regenstreif@spwsd.org

46.2 JURISDICTION PROFILE

The Sammamish Plateau Water and Sewer District is a special purpose district created in 1948 under RCW Title 57. The District provides water and sewer services to most of the city of Sammamish and portions of Issaquah and unincorporated King County. A five member Board of commissioners governs the District. The Board assumes responsibility for the adoption of this plan; the Planning Engineer will oversee its implementation. As of December 2013, the District serves 17,123 water connections and 10,920 sewer connections. Funding comes primarily through rates and revenue bonds.

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

- **Population Served:** 54,000
- **Land Area Served:** 29 square miles
- **Value of Area Served:** The estimated value of the area served by the jurisdiction is $4,828,416,081
- **Land Area Owned:** 44 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 303 miles of water main pipeline $515,100,000
  - 175 miles of sewer main pipeline $429,600,000
  - SE 43rd Booster PS $531,000
  - 297 Booster PS $1,729,000
  - Boulder Creek Booster PS $147,000
  - NE 80th Booster $87,000
  - 3 MG Reservoir $2,504,000
  - 2 MG Reservoir $1,895,000
  - Section 36 Tank & Booster PS $965,000
  - 2.25 MG Reservoir and Booster $3,418,000
  - 7 MG Reservoir $3,773,000
- **Total Value of Critical Infrastructure/Equipment:** The total value of critical infrastructure and equipment owned by the jurisdiction is $959,749,000.

- **List of Critical Facilities Owned by the Jurisdiction:**
  - District Office Building $3,473,000
  - District Shop Building $3,093,000
  - Well No. 1 $849,000
  - Well No. 2 $1,027,000
  - Well No. 4 & Booster $2,066,000
  - Well No. 7 $512,000
  - Well No. 8 $723,000
  - Well No. 9 / Corrosion Control $2,537,000
  - Well No. 10 $679,000
  - Well No. 11. 1 & 11.2 $1,288,000
  - Well No. 12 & Booster (CV) $2,372,000
  - Well No. 13 (Cascade View) $654,000
  - Control Structure $99,000
  - Inglewood Lift Station $2,637,000
  - First Branch Lift Station $23,000
  - Pine Lake Glen Lift Station $200,000
  - Pine Lake Heights Lift Station $62,000
  - North Lake Sammamish Lift Station $1,054,000
  - Central Lake Sammamish Lift Station $1,064,000
  - Alexander's Lift Station $72,000
  - Mallard Bay Lift Station $1,173,000
  - Freegard Lift Station $242,000
  - Todd's Landing Lift Station $200,000
  - Beaver Lake Estates Lift Station $610,000
  - Trossachs Lift Station $211,000
  - Beaver Dam Lift Station $200,000
  - Camden Park Lift Station $200,000
  - Redford Hudson Lift Station $201,000
  - Aldarra Lift Station $648,000
  - The Greens Lift Station $86,000
  - Aldarra Club Lift Station $291,000
  - Good Samaritan Lift Station $86,000
- **Total Value of Critical Facilities:** The total value of critical facilities owned by the jurisdiction is $28,632,000.
- **Current and Anticipated Service Trends:** Approximately 92 percent of the District's service territory consists of single family residential customers. Another 2 percent are multi-family customers, and the remaining 6 percent include non-residential customers. The District anticipates a 1.1 percent growth rate per year for the next five years.

46.3 APPLICABLE REGULATIONS AND PLANS

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

- SPWSD Emergency Response Plan, Resolution 3250, December 6, 2004
- King County Regional Hazard Mitigation Plan Commitment, Resolution 3821, June 22, 2009

46.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 46-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 46-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms/Flooding	Major #852	January 1990	SE 43rd Sewer Easement Road Slides – Three slides on a roadbed threatening a 16" diameter sewer transmission main. Repair cost ~$200,000
Inaugural Day Windstorm	Major #981	January 1993	Limited water supply due to only 1 well with generator. Water tank overflow with minimal damage. Limited fuel supply for generators and trucks. Tree fall damage Phone service disrupted Tree fall – roots caused water main leaks Primary costs overtime - estimate $5,000
Winter Storm (Ice, snow, flooding)	Major #1159, Declared January 17, 1997	December 1996	SE 43rd Sewer Easement Road Slide – Area #5. Soldier Pile wall installed - ~$114,000 Sewer main break and access road repair - ~$40,000 Power Outage response – fueling and pulling generators to sewer lift stations and water well sites. Up to 1-week outage. ~$5,000
Nisqually Earthquake	Major DR-1361, Declared March 1, 2001	February 2001	Well 8 piping thrust block movement. Pipe repair. ~$5000 estimated E. Lake Sammamish Pkwy road slide exposed water and sewer mains. Support during road repair and minor pipe repair. ~$1000 estimate
Severe storms, floods, landslides, mudslides	Major DR-1682	Dec 14-15, 2006	Power Outage response – fueling and pulling generators to sewer lift stations and water well sites. Trees down – building damage, fences damaged, debris removal, lift station controls crushed, lift station pump replacement, truck shelter damaged. Cost~$43,000
Severe winter storm, ice storm, landslides, mudslides, and flooding	Major - 4056	January 2012	Power Outage response – fueling and pulling generators to sewer lift stations and water well sites. Communications outages Facility damage Cost~$59,328

46.5 HAZARD RISK RANKING

Table 46-2 presents the ranking of the hazards of concern.

TABLE 46-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	48
3	Severe Winter Weather	48
4	Landslide	20
5	Flood	10
6	Wildfire	10
7	Avalanche	0
8	Dam Failure	0
9	Tsunami	0
10	Volcano	0

46.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 46-3 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 46-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
SPWSD-1	✓			The Redundant Repeater Installation project was not feasible due to property and technical issues. Instead, the District installed DSL lines on all existing repeater sites to enhance communications. The project was completed in November 2010.

46.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 46-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 46-5 identifies the priority for each initiative. Table 46-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 46-4.
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?
SP-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	All Objectives	District	Low	District Funds	Ongoing	No
SP-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	2,4,7,13	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5 year update	Ongoing	No
SP-3—Replace existing ductile iron pipe with seismic resistant pipe from Well 9 through liquefiable soils to the 297th street tank.							
Existing	Earthquake	1,4,5,9	District	$3.5 million	Grants, loans, FEMA Hazard Mitigation grants, District funds	Short Term	No
SP-4—Seismically upgrade the 297 tank anchorage and the 297 site retaining wall.							
Existing	Earthquake	1,4,5,9	District	$150,000	District Funds	Short Term	No
SP-5—Rehabilitate the 7 MG tank anchorage, which is vulnerable to anchorage failure.							
Existing	Earthquake	1,4,5,9	District	$263,000	District Funds	Long Term	No
SP-6—Complete seismic retrofits and upgrades of Well 12 Tank.							
Existing	Earthquake	1,4,5,9	District	$100,000	District Funds	Long Term	No
SP-7—Complete seismic retrofits and upgrades of sewer control structure.							
Existing	Earthquake	1,4,5,9	District	$200,000	District Funds	Short Term	No

TABLE 46-5.
MITIGATION STRATEGY PRIORITY

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]
SP-1	All	High	Low	Yes	No	Yes	High
SP-2	4	High	Low	Yes	Yes	Yes	High
SP-3	4	High	High	Yes	Yes	No	Medium
SP-4	4	Medium	Medium	Yes	No	Yes	Medium
SP-5	4	High	Medium	Yes	No	Yes	Low
SP-6	4	High	Medium	Yes	No	Yes	Low
SP-7	4	High	Medium	Yes	No	Yes	Low

a. See Introduction for explanation of priorities.

TABLE 46-6.
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
Avalanche	—	—	—	—	—	—
Dam Failure	—	—	—	—	—	—
Earthquake	1, 2	3, 4, 5, 6, 7	1, 2	—	3, 4, 5, 6, 7	3, 4, 5, 6, 7
Flood	1, 2	—	1, 2	—	—	—
Landslide	1, 2	—	1, 2	—	—	—
Severe Weather	1, 2	—	1, 2	—	—	—
Severe Winter Weather	1, 2	—	1, 2	—	—	—
Tsunami	—	—	—	—	—	—
Volcano	—	—	—	—	—	—
Wildfire	1, 2	—	1, 2	—	—	—

a. See Introduction for explanation of mitigation types.

46.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

The Sammamish Plateau Water and Sewer District completed a Seismic Vulnerability Assessment Report on January 6, 2014 to gain an understanding of the earthquake vulnerability of District facilities, including buildings, reservoirs, pump stations and wells. The project evaluated the vulnerability of the water distribution and sewage collection pipeline systems, and provided an estimate of the post-earthquake damage state of each of the facilities. Mitigation alternatives were developed for each deficiency, along with preliminary designs and estimated costs to implement the upgrades. This report was used for the project initiatives in the Hazard Mitigation Action Plan Matrix, and also included smaller projects that the District intends to conduct in-house.

CHAPTER 47.
SHORELINE FIRE DEPARTMENT UPDATE ANNEX

47.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
Steven Taylor, Battalion Chief
17525 Aurora Ave N
Shoreline, WA 98133
Telephone: 206 533-6500
e-mail Address: staylor@shorelinefire.com

Alternate Point of Contact
Matthew Cowan, Fire Chief
17525 Aurora Ave N
Shoreline, WA 98133
Telephone: 206 533-6510
e-mail Address: mcowan@shorelinefire.com

47.2 JURISDICTION PROFILE

Shoreline Fire Department operates as an independent local government agency in King County, Washington serving the City of Shoreline. We are defined as a special purpose district charged with the responsibility to provide fire suppression, emergency medical, and fire prevention services. The Department is governed by a Board of Fire Commissioners who are elected to represent and serve the interests of Shoreline citizens. The Board is comprised of elected officials responsible for providing general direction in the areas of financial management, administration and policy adoption for the Fire Department. Each Fire Commissioner's term is held for six years. Board of Commissioners assumes responsibility for the adoption of this plan; The Fire Chief will oversee its implementation.

Originally formed as King County Fire District No. 4, Shoreline Fire Department has served the community since 1939. The Department covers a service area of approximately 13-square miles and a population of approximately 53,000 citizens. We employ more than 100 full-time personnel who provide various services for the divisions that make-up the Department: fire suppression, emergency medical services, administration and support, fire prevention, public information and education, training, and facilities and maintenance. Shoreline Fire Department operations are primarily funded through the collection and distribution of property taxes.

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

- **Population Served—**53,670 as of April 1, 2013 (WA OFM estimate)
- **Land Area Served—**approximately 13-square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $7.6 billion
- **Land Area Owned—**The Fire Department owns all the land where the properties are located. The addresses to the properties are listed below.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Station 61, 17525 Aurora Ave N. $3,800,000
  - Station 63, 1410 NE 180 St $1,300,000
  - Station 64, 719 N 185 St $2,100,000
  - Station 65, 145 NE 155 St. $2,100,000

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $9,300,000
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - Station Generators (4) $210,000
  - Computers, Mobile Computers, Network Servers $75,000
  - Communications Equipment Radios $200,000
  - Communications Equipment Phone System $850,000
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $8,152,185
- **Current and Anticipated Service Trends—**In 2013 the Shoreline Fire responded to 11,700 incidents. This represents a 10.5 percent increase from the previous year. The Shoreline Fire Department has experiences single and multiple major weather related events (areas of flooding, snow or wind) each year for the past ten years. We have also experienced urban/wild land interface incidents. Climate change has caused warmer, drier summers, which produced more urban/wild land fires. The Shoreline Fire Department feels the trend is more frequent (multiple per year) and longer duration weather related incidents.

47.3 APPLICABLE REGULATIONS AND PLANS

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

- Shoreline Emergency Comprehensive Plan
- Responding to Disasters and other Major Events Ops Policy 213

47.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 47-1.

TABLE 47-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	3	01/2013
StormReady	Yes	StormReady	12/2012
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

47.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 47-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 47-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm and Ice Storm	4056	Jan 16, 2012	Information Not Available
Severe Winter Storm	1825	Jan. 2009	Information Not Available
Severe Winter Flood Storm	1734	Dec. 2007	Information Not Available
Severe Winter Wind Storm	1682	Dec. 2006	Information Not Available
Severe Winter Storm	1671	Nov. 2006	Information not available
Earthquake	1361	Feb. 28, 2001	Information not available
Winter Storm/Sink Hole	1671	Dec. 1996 – Feb. 1997	Information Not Available

47.6 HAZARD RISK RANKING

Table 47-3 presents the ranking of the hazards of concern.

TABLE 47-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
1	Severe Winter Weather	48
3	Landslide	33
4	Severe Weather	32
5	Wildfire	16
6	Flood	15
7	Volcano	10
8	Tsunami	6
9	Dam Failure	5
10	Avalanche	0

47.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 47-4 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.

47.8 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 47-5 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 47-6 identifies the priority for each initiative. Table 47-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 47-4.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
SFD-1	✓			The originally targeted neighborhoods are complete.
SFD-2	✓			City and Fire trained a cadre of staff in ATC 20, 21 and 54.
SFD-3	✓			GIS capability has been established.
SFD-4	✓			All franchise agreements were negotiated and now include stronger language about how identified hazards are being addressed.
SFD-5	✓			All schools, community centers and many of the faith-based organizations have been inventoried and have been mapped as possible places of refuge during a disaster.

TABLE 47-5.
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?
SFD-1—Evaluation of the City of Shorelines hazard vulnerability analysis to identify the most significant event facing the facilities of the Shoreline Fire Department.							
New and existing	Flood	2,4,10,12	District	Low	General Funds	Ongoing	No
SFD - 2 - The Shoreline Fire Department will continue to take appropriate measures to seismically reinforce their facilities as they are determined to be essential, or as they are significantly remodeled, whichever comes first.							
New and Existing	All Hazards	1, 3, 5	District	$700,000	CIP and other	Short Term (2016)	No
SFD - 3 - Provide Community Emergency Response Team (CERT) training to District residents and work with the Neighborhood Associations							
New and Existing	All Hazards	4,8,11,13	District	Low	General	Ongoing	No
SFD – 4 – Continue to work with the City of Shoreline to ensure operational readiness of the Emergency Operations Center and establish the backup EOC in a new location at the Washington State Public Health Lab							
New and Existing	All Hazards	1, 3	Community Services Division	Medium	General and Grant Funds	Short Term (EOC by end of 2015 and back-up EOC by mid-2016)	No

TABLE 47-5.
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?
SFD – 5 – Work with the City to assure completion of the Salt Water Park Pedestrian Bridge Repair – replacing the decking and improving both the structural integrity and water supply for the only access to Richmond Salt Water Beach Park. This bridge is the only way to access the beach and it crosses the Burlington Northern Railroad lines in the event we have Urban/Wildland fires • Provides safe crossing for public access to the beach • Provides safe access for first responders to fight fires on the steep slopes and provide for rescue operations associated with medical emergencies and landslides.							
New and Existing	All Hazards	1, 3, 5	Parks	$300,000	CIP	Short Term (2015)	No
SFD – 7 – Improve redundancy and survivability of the district's communications and information management technology.							
Existing	All Hazards	1, 5, 7, 8, 12	District and City	$730,000	CIP/General Funds/ Grants	Ongoing	No
SFD -8 – Continue to support county-wide initiatives identified in part 3 volume 1 of this plan							
New and existing	All Hazards	All Objectives	District	Low	General Fund	Ongoing	No
SFD- 9—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan							
New and existing	All Hazards	2,4,7,13	District	Low	General Fund	Ongoing	No

TABLE 47-6.
MITIGATION STRATEGY PRIORITY

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]
SFD-1	4	High	Low	Yes	No	Yes	High
SFD-2	2	High	Medium	Yes	No	Yes	High
SFD-3	3	High	Low	Yes	Yes	Yes	Med
SFD-4	2	Medium	Medium	Yes	Yes	Yes	Med
SFD-5	3	High	Medium	Yes	No	Yes	High
SFD-6	1	High	High	Yes	Yes	Yes	High
SFD-7	5	High	Medium	Yes	Yes	Yes	High
SFD-8	5	Medium	Low	Yes	Yes	Yes	High
SFD-9	4	Medium	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 47-7.
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
Avalanche	-	-	-	-	-	-
Dam Failure	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Earthquake	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Flood	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Landslide	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Severe Weather	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Severe Winter Weather	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Tsunami	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Volcano	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5
Wildfire	1, 8, 9	2, 5	3	-	1, 2, 3, 4, 7	5

a. See Introduction for explanation of mitigation types.

47.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Apply future climate science and related regional weather events to potential revision of hazard mitigation strategies and implementation.

CHAPTER 48.
SKYWAY WATER AND SEWER DISTRICT ANNEX

48.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Cynthia Lamothe, General Manager
6723 South 124th Street
Seattle, WA 98175
Telephone: 206-772-7343
e-mail Address: CynthiaL@skywayws.org

Alternate Point of Contact

Rodney Langer, P.E., Principal, CHS Engineers
12507 Bel-Red Road, Suite 101
Bellevue, WA 98005-2500
Telephone: 425-637-3693
e-mail Address: RodneyL@chsengineers.com

48.2 JURISDICTION PROFILE

Skyway Water and Sewer District is a special purpose district formed over a period of approximately 60 years from the merger of several water and sewer utilities to provide water and sewer service. Skyway Water and Sewer District began operation in its current configuration on June 1, 1999. The District is located in the West Hill Area of unincorporated King County, southwest of Lake Washington. It is generally bounded by the City of Renton to the east and south, Seattle to the north and northwest, and Tukwila to the west and southwest. The District operates under the direction of the Board of Commissioners; the Board's three members are elected by the voters of the District. The Board adopts resolutions and motions to establish the policies for the District's operation. The District employs a General Manager who has the responsibility for the daily operation of the District. In addition, the District employs a superintendent, administrative and field support staff for a total of 10 employees. The Board of Commissioners assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. As of September 2013, the District serves 3,350 water connections and 4,050 sewer connections. Funding comes primarily through rates, facility charges on new service connections and bonds. Grants and state funding are also used when funds are available. The following is a summary of key information about the jurisdiction:

- **Population Served—**Water service area population is estimated at 9,890 with an additional 1,040 employment. Sewer service area population is estimated at 16,210 with an additional 1,350 employment (from 2013 Draft Comprehensive Plan for Water and Sewer).
- **Land Area Served—**Water service area: 1.80 square miles. Sewer service area: 2.70 square miles.
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $1.1 billion.
- **Land Area Owned—**11.6 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

  Water:
  - Supply – Interties and Wells:
    - Seattle Meter No. 1 – Owned and operated by City of Seattle
    - Seattle Meter No. 5 – Owned and operated by City of Seattle
    - Renton Supply Connection – Owned and operated by City of Renton

- District Wells:
  - Well No. 5 - $150,000
  - Well No. 6 - $372,000
  - Well No. 8 - $51,270
  - Well No. 9 - $120,830
  - Well No. 10 - $81,840
- Treatment Facility – at well site
- Chlorine Treatment Building - $123,000
- Electrical/Telemetry Building - $174,000
- Emergency Interties:
  - Seattle – Owned and operated by City of Seattle
  - Renton – Owned and operated by City of Renton
- Pump Stations:
  - Pump Station No. 1 (2-300 gpm pumps; 1-500 gpm pumps; 1-3,000 gpm fire pump) – $753,000
  - Pump Station No. 3 (2-75 gpm pumps) – $172,000
  - Dimmitt Pump Station (2-300 gpm pumps; 1-500 gpm pump; 1-3,000 gpm fire pump) – $1,194,140
  - City of Renton West Hill Pump Station (2-600 gpm pumps; 1-1,000 gpm fire pump) (Pump station owned and operated by City of Renton; however critical to District's operation) – Owned and operated by City of Renton
- Storage Facilities:
  - Reservoir No. 1 (75,000 gallon elevated) – $672,140
  - Reservoir No. 2 (75,000 gallon elevated) – $672,140
  - Reservoir No. 3 (250,000 gallon steel standpipe) – $380,060
  - Reservoir No. 4 (250,000 gallon steel standpipe) – $380,060
  - Reservoir No. 5 (1.3 mg pre-stressed concrete standpipe) Jointly owned by King County Water District No. 125; District responsible for operation and maintenance – $1,109,000
  - Renton West Hill Reservoir (1.35 mg steel standpipe). Jointly owned by City of Renton; City of Renton responsible for operation and maintenance – Owned and operated by City of Renton
- Transmission and Distribution:
  - 210,038 linear feet of pipe (2-inch to 16-inch) – $38,176,600
- Seven pressure reducing valves stations (2-inch to 8-inch) – $611,000 total
- Altitude Valve (S 124th St @ 68th Ave) - $31,000
- Flow Control Valve (S Langston & 68th Ave S) - $87,000

Sewer:

- Lift Stations:
  - No. 1 Main Lift Station (3 pumps – 650 gpm, 750 gpm, 485 gpm) – $1,105,000
  - No. 2 Park Lift Station (2 pumps – 80 gpm each) – $259,000
  - No. 3 Foster Lift Station (2 pumps – 400 gpm each) – $265,000
  - No. 4 Sunset Lift Station (2 pumps – 320 gpm, 340 gpm) – $341,000

    - No. 5 First Cities Lift Station (2 pumps – 365 gpm each) – $343,000
    - No. 6 Langston Lift Station (2 pumps – 520 gpm each) – $313,000
    - No. 7 Greentree Lift Station (2 pumps – 120 gpm each) – $206,000
    - No. 8 Holcam Lift Station (2 pumps – info not available) – $265,000
    - No. 9 Northshore Lift Station (2 pumps – 450 gpm each) – $295,000
    - No. 10 Southshore Lift Station (2 pumps – 360 gpm each) – $270,000
    - No. 11 Cornell Lift Station (2 pumps – 125 gpm each) – $276,000
    - No. 12 Grinder Lift Station (1 pump – info not available) – $50,000
  - Force Mains – assume 5,000 linear feet of 6-inch force main total – $1,200,000
  - Collection System – 250,705 linear feet of pipe (6-inch to 24-inch) – $69,082,800

  General District Critical Equipment:
  - Emergency Generators:
    - Cat Trailer/Generator (at Lift Station 5) - $20,000
    - Aptex Trailer/Generator (at Lift Station 1) - $32,400
    - Koehler Trailer/Generator (at Maintenance Shop) - $18,360
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is:
  - Water System - $45,311,080
  - Sewer System – $74,270,800
  - District Critical Equipment - $70,760
  - Total District Critical Infrastructure Value - $119,652,640
- **List of Critical Facilities Owned by the Jurisdiction:**
  - District Headquarters Building - $1,213,280
  - Vehicle Maintenance Facility – $1,244,930
  - Carport - $42,700
  - Administration Bldg. on Renton Ave S - $164,000
  - Storage Building at Reservoir No. 1 - $55,000
  - Storage Building at Reservoir No. 2 - $109,800
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is **$2,829,710**.
- **Current and Anticipated Service Trends—**The District is basically built out with no large undeveloped areas in the boundaries. New services are expected from redevelopment and infill.
  - Water – no significant change to the area through 2019, however 20 year projection assumes the District will serve areas designated as Seattle Transfer Areas. These areas are currently served by SPU directly off the Cedar River Supply Line but designated for transfer to the District. Due to redevelopment and infill, and improved fire flows, smaller mains (4-inch and 6-inch) need to be upsized to 8-inch.
  - Sewer – growth is again limited to redevelopment, infill and homes transferring from septic systems to sewer system. Several mains have been identified to be upsized.

48.3 APPLICABLE REGULATIONS AND PLANS

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

- Washington State RCW Title 57 – Water and Sewer Districts
- Safe Drinking Water Act
- Clean Water Act
- State Environmental Policy Act
- King County requirements (land use, construction, capital plan approval process, annexation approval)
- 2013 Comprehensive Plan – Water and Sewer (includes design criteria, operations program, water use efficiency program, water quality program and capital improvement plan)
- 2003 Local Hazard Mitigation Plan
- Emergency Response Plan

The above laws, regulations and plans will support with mitigation strategies by providing design and operation criteria. None of the above regulations and plans is considered to have a negative impact on the mitigation strategies in this plan.

48.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 48-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 48-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	DR-4056	2012	No information available
Severe Winter Weather	NA	2011	No information available
Flooding	DR-1963	2011	No information available
Severe Winter Weather	DR-1963	2011	No information available
Flooding	NA	2010	No information available
Severe Winter Weather	NA	2010	No information available
Severe Weather	NA	2009	No information available
Flooding	DR-1817	2009	No information available
Severe Winter Weather	DR-1825	2008	No information available
Severe Weather	NA	2008	No information available
Flooding	DR-1734	2007	No information available
Severe Weather	NA	2007	No information available
Severe Winter Weather (Wind)	DR-1682	12-14-2006	Property damage from fallen trees
Flooding	1671	2006	No information available
Earthquake	1360	2001	No information available

48.5 HAZARD RISK RANKING

Table 48-2 presents the ranking of the hazards of concern.

TABLE 48-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Winter Weather	42
3	Severe Weather	36
4	Volcano	24
5	Landslide	7
6	Wildfire	6
7	Flood	6
8	Avalanche	0
9	Dam Failure	0
10	Tsunami	0

48.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 48-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 48-4 identifies the priority for each initiative. Table 48-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

48.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Periodic studies should be conducted to re-assess hazard risk and vulnerability. Staff training in facilities design, operations and maintenance to reduce risk and vulnerability.

TABLE 48-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SWSD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All Objectives	Skyway Water and Sewer District	Low	General Fund	Ongoing
SWSD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2,4,7,13	Skyway Water and Sewer District	Low	General Fund	Ongoing
SWSD-3—Reservoir No. 1 – CIP #W-24 Paint or Decommission.						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Low	Water Revenues	Short Term
SWSD-4—Water Main Replacement; Water Services Stub and Meter Replacements CIP #W-7, W-9, W-22, W-23, W-27, W-28, W-31						
Existing	Earthquake, Landslide	1, 9	Skyway Water and Sewer District	Low	Water Revenues	Short Term
SWSD-5—Water Main Replacement – CIP #W-8, W-33						
Existing	Earthquake, Landslide	1, 9	Skyway Water and Sewer District	Low	Water Revenues	Long Term
SWSD-6—Repair Existing Sewer System – CIP #S-8						
Existing	Earthquake, Landslide	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-7—Sewer Facility & Maintenance Equipment Replacement – CIP #S-7						
Existing	Earthquake, Severe Winter Weather, Severe Weather	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-8—Convert Main Pump Station to Submersible Station/Decommission Greentree and Park Stations with new gravity and force main – CIP #S-9						
Existing	Earthquake, Severe Winter Weather, Severe Weather, Flood	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-9—Skyway Park North Sewer Replacement – Phase 1 – CIP #S-20						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-10—Sunset Pump Station – Sewer Force Main Replacement – CIP #S-21.1						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-11—Sunset Pump Station – Convert to Submersible Station – CIP #S-21.2						
Existing	Earthquake, Flood	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Long Term

TABLE 48-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SWSD-12—Skyway Park South Sewer Replacement – CIP #S-22						
Existing	Earthquake, Flood	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-13—Rainier Ave South Lakefront Sewer Main Replacement – CIP #S-23						
Existing	Earthquake, Flood	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Short Term
SWSD-14—Skyway Park North Sewer Replacement – Phase 2 – CIP #S-24						
Existing	Earthquake, Flood	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Long Term
SWSD-15—Seattle Heights Sewer Replacement – CIP #S-26						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Long Term
SWSD-16—Sewer Main Renewal and Replacements (various locations) – CIP #S-27 & S-25						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Low	Sewer Revenues	Long Term
SWSD-17—Seismic Evaluations Pump Stations 1 and 2 and Dimmit Pump Station						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Medium	Water Revenues	Short Term
SWSD-18—Seismic Evaluation Renton Ave Administration Building						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Medium	Water Revenues	Short Term
SWSD-19—Seismic Evaluation Reservoirs 1 & 2 (code, sloshing effects, etc.)						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Medium	Water Revenues	Short Term
SWSD-20—Seismic Evaluation Reservoirs 3, 4 and 5 (code, sloshing effects, etc.)						
Existing	Earthquake	1, 9	Skyway Water and Sewer District	Medium	Water Revenues	Short Term
SWSD-21—Preparation for Volcanic Ash (reservoir and lift station ash screens, air filters, staff air masks, etc.)						
Existing	Volcano	1	Skyway Water and Sewer District	Medium	Water and Sewer Revenues	Long Term
SWSD-22—Severe Weather Assessment (inspect tall trees at reservoirs and buildings)						
Existing	Severe Winter Weather, Severe Weather	1	Skyway Water and Sewer District	Low	Water and Sewer Revenues	Short Term

TABLE 48-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
SWSD-23—Wildfire Mitigation (clear underbrush around facilities located in susceptible areas – well site, treatment building, Reservoirs 3 & 4)						
Existing	Wildfire	1	Skyway Water and Sewer District	Low	Water Revenues	Short Term
SWSD-24—Stockpile Water and Sewer Main Repair Materials (breaks due to weather, Earthquake)						
Existing	Earthquake, Severe Winter Weather	1	Skyway Water and Sewer District	Low	Water and Sewer Revenues	Short Term
SWSD-25—Study Warning System Options in Case of Hazard (i.e. boil water notice)						
Existing	All Hazards	3	Skyway Water and Sewer District	Medium	Water and Sewer Revenues	Short Term

TABLE 48-4.
MITIGATION STRATEGY PRIORITY

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]
SWSD-1	15	Low	Low	Yes	Yes	No	Medium
SWSD-2	15	Low	Low	Yes	Yes	No	Medium
SWSD-3	2	Medium	Low	Yes	Yes	Yes	Medium
SWSD-4	2	Medium	Low	Yes	Yes	Yes	High
SWSD-5	2	Medium	Low	Yes	Yes	Yes	Low
SWSD-6	2	Low	Low	Yes	Yes	Yes	High
SWSD-7	2	Low	Low	Yes	Yes	Yes	High
SWSD-8	2	Medium	Low	Yes	Yes	Yes	High
SWSD-9	2	Low	Low	Yes	Yes	Yes	Medium
SWSD-10	2	Low	Low	Yes	Yes	Yes	Medium
SWSD-11	2	Low	Low	Yes	Yes	Yes	Low
SWSD-12	2	Low	Low	Yes	Yes	Yes	High
SWSD-13	2	Low	Low	Yes	Yes	Yes	High
SWSD-14	2	Low	Low	Yes	Yes	Yes	Low
SWSD-15	2	Low	Low	Yes	Yes	Yes	Low
SWSD-16	2	Low	Low	Yes	Yes	Yes	Low
SWSD-17	2	Medium	Medium	Yes	Yes	No	Medium
SWSD-18	2	Medium	Medium	Yes	Yes	No	Medium
SWSD-19	2	Medium	Medium	Yes	Yes	No	Medium
SWSD-20	2	Medium	Medium	Yes	Yes	No	Medium
SWSD-21	1	Medium	Medium	Yes	Yes	No	Low
SWSD-22	1	Medium	Low	Yes	Yes	No	Medium
SWSD-23	1	Medium	Low	Yes	Yes	No	Medium
SWSD-24	1	Medium	Low	Yes	Yes	No	Medium
SWSD-25	1	Medium	Medium	Yes	Yes	No	Medium

a. See Introduction for explanation of priorities.

TABLE 48-5.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1,2	1-20, 24, 25	-	-	24, 25	-
Flood	1,2	8, 11-14	-	-	25	-
Landslide	1,2	4-6, 20	-	-	24, 25	-
Severe Weather	1,2	4-8, 22	-	-	25	-
Severe Winter Weather	1,2	4-8, 22	-	-	25	-
Tsunami	-	-	-	-	-	-
Volcano	1,2	21	-	-	25	-
Wildfire	1,2	23	-	-	25	-

a. See Introduction for explanation of mitigation types.

CHAPTER 49.
SOOS CREEK WATER & SEWER DISTRICT UPDATE ANNEX

49.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Pamela-Rae Cobley, Consultant, Stantec
11130 NE 33rd Place, Suite 200
Bellevue, WA 98004
Telephone: 425.289.7309
e-mail Address: pam.cobley@stantec.com

Alternate Point of Contact

Ron Speer, District Manager
14616 SE 192nd Street
Renton, WA 98058
Telephone: 253.630.9900
e-mail Address: rspeer@sooscreek.com

49.2 JURISDICTION PROFILE

49.2.1 Water

In 1939, King County Water District No. 58 formed to provide water service to an area less than two square miles that centered on Benson Road (108th Avenue SE) and extended from SE 164th to SE 192nd Street. At that time water was collected from a well, pumped to a timber tank and distributed to customers. Over the next 16 years, the water service area continued to grow and in 1955, when the District began purchasing water from the Seattle Water Department (now known as Seattle Public Utilities), it discontinued the use of well water. By 1961, the area had expanded to serve approximately 1,900 customers in a 10-square mile service area. Throughout the next decade, Water District No. 58 continued to grow and expand, and by 1974, it provided service to 6,000 customers.

During the 1960s, 1970s and early 1980s, Water District No. 58 continued to grow by annexations within the approved service area. In the 1980s several annexations were completed that added island areas to the District's service area.

49.2.2 Sewer

The portion of the District that provides sewer service formed in 1959, over 50 years ago, originally as Cascade Sewer District. The area comprised approximately 600 acres and principally included the community of Cascade Vista. For several years prior to and after the actual formation of the Cascade Sewer District, a private company constructed and operated the sewer system and treatment plant for this community. In 1963 Cascade Sewer District assumed operation of these facilities and shortly thereafter, the treatment plant was abandoned and the sewer facilities were connected to the King County system for treatment at the Renton Plant.

To keep pace with growth demands, by 1975, the sewer system extended to provide service to 15,000 customers within a 10 square mile area.

In 1987, Water District No. 58 merged with Cascade Sewer District and created what is now known as Soos Creek Water & Sewer District.

49.2.3 Today

Combined, the District now encompasses over 35 square miles serving nearly 100,000 people in southeast King County spanning service to cities of the Auburn, Black Diamond, Covington, Kent, Maple Valley, and Renton as well as a portion of unincorporated King County. The water and sewer service areas are not coterminous.

The District is governed by a five member Board of Commissioners. The Board of Commissioners assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation.

The District funds its operations from its water- and sewer-usage revenue, and has 34 full time employees.

49.2.4 Key Information

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

- **Population Served—**nearly 100,000 people as of 2013
- **Land Area Served—**over 35 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $10,533,416,180 (includes Appraised Land Value and Improvements per King County IMap)
- **Land Area Owned—**42.81 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 30 Sewer Lift Stations $18,675,320*
  - 2,576,804 feet Sewer Gravity Lines (year end 2012) $500,518,410**
  - 167,039 feet Sewer Force Main (year end 2012) $32,445,660**
  - 1,181,920 lineal feet Water Distribution Pipe $201,919,220**
  - 4 Water Reservoirs/Tank $12,418,800*
  - 12 Water PRVs $1,200,000**
  - 5 Water Pump Stations $6,526,860*
  - 4 Primary Water Interties (emergency interties not included) $507,900**

    *Based on insurance values

    **Estimated value
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is estimated at $774,212,170.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Administrative/Maintenance Building $4,993,812*
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $4,993,812.
- **Current and Anticipated Service Trends—**

  Water—The District's water service area has historically seen a steady growth pattern. Over the last four years, the District has seen an increase of approximately 4 percent in equivalent residential units. By the year 2021, the District expects to see an increase in its customer base by approximately 8 percent equivalent residential units.

Sewer—Much of the District's sewer service area experienced significant growth prior to the downturn in the economy. Since the downturn, an increase of approximately 7 percent in equivalent residential units has occurred during the last four years. The District expects to see an increase of an estimated 9 percent in equivalent residential units by 2020.

49.3 APPLICABLE REGULATIONS AND PLANS

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

- District's Water Comprehensive Plan (2012) supports the efforts in minimizing the natural hazard vulnerabilities within the water plan by developing a capital facilities plan. The Plan also identifies policies that support hazard mitigation planning efforts.
- District Sewer Comprehensive Plan (2013) supports the efforts in minimizing the natural hazard vulnerabilities within the sewer system by developing a capital facilities plan. The Plan also identifies policies that support hazard mitigation planning efforts.
- District's Annual Capital Improvement Plan (CIP) supports projects that are identified in this plan update. The CIP is updated annually by the District and adopted by the Board of Commissioners in the fall of each year.
- District's Emergency Response Plan supports the efforts of minimizing vulnerabilities within the water system during an emergency. This Plan is updated on an as needed basis and is not available to the public.
- The Federal Mitigation Act of 2000 requires State, Tribal and location governments to develop a hazard mitigation plan as a condition of receiving certain types of non-emergency disaster assistance, include funding for mitigation projects. District's current approved Hazard Mitigation Plan Update (2009) supports the effort of this regulation and plan update. The Federal Emergency Management Agency approved the District's Hazard Mitigation Plan on March 10, 2010.
- The Bioterrorism Preparedness and Response Act of 2002 required community drinking water systems serving populations of more than 3,300 persons to conduct assessments of their vulnerabilities to terrorist attack or other intentional acts and to defend against adversarial actions that might substantially disrupt the ability of a system to provide a safe and reliable supply of drinking water. This assessment, completed in 2003, supports projects that may be identified in this Hazard Mitigation Plan. The assessment is not available to the public.
- District Warning, Alert and Response Participation policy – The District will participate in warning, alert and response organization that collaborate with local and regional governments to share information that protects critical infrastructure.
- The District participates in the Northwest Warning, Alert & Response Network (WARN) which is a collaborative effort between government and private sector critical infrastructure partners with a goal of near real-time information sharing to help protect regional/national infrastructures, communities and the public.
- The District participates in InfraGuard, which is a Federal Bureau of Investigation (FBI) program that is responsible for Critical Infrastructure Protection matters. The goal of InfraGuard is to promote ongoing dialogue and timely communication between members and the FBI.

- The District participates in the Washington State Fusion Center. Its mission is to support the public safety and homeland security missions of state, local, tribal agencies and private sector entities.
- District Regional Participation policy - The District should support and participate in applicable regional plans to provide and maintain safe, reliable and adequate water and sewer facilities for its customers.
- District Coordination with Adjacent Jurisdictions policy – The District coordinates closely with adjacent jurisdictions to determine applicable regulatory requirements, growth projections and opportunities for joint projects. Interlocal agreements should be prepared between the pertinent parties on all joint projects.
- District Mutual Aid Agreement policy – The District will participate in Mutual Aid Agreements with adjacent jurisdictions, King County and the State of Washington.
- District Emergency (water) Interties policy – The District supports emergency interties with adjacent water systems where there is a benefit to the water systems.

49.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 49-1 lists all past occurrences of natural hazards within the jurisdiction. This list of natural hazard events is not a comprehensive list of events that have impacted the District's operations. The list was created from discussing past events with current District staff. Some events that impacted the District may have been unintentionally forgotten, or are unknown to the current staff.

TABLE 49-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	4056	1/24/2012	No information available
Severe Winter Weather	1682	12/14-15/2006	No information available
Earthquake	1361	2/28/2001	No information available
Severe Winter Weather	-	12/1996	$74,000
Severe Winter Weather	1100	2/1996	$38,100
Severe Winter Weather	981	1/20/1993	No information available
Severe Weather	-	1992	No information available
Earthquake	-	4/13/1990	No information available
Flood	757	1/18/1986	No information available

49.5 HAZARD RISK RANKING

Table 49-2 presents the ranking of the hazards of concern.

TABLE 49-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	42
2	Severe Weather	42
3	Severe Winter Weather	42
4	Flood	27
5	Volcano	26
6	Landslide	12
7	Avalanche	4
8	Dam Failure	4
9	Wildfire	3
10	Tsunami	0

49.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 49-3 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 49-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
SCWD-1	✓			Portable Generator Receptacle Retrofit: Pump Station No. 2. Completed in 2012. See SCWD-3.
SCWD-2		✓		Portable Generator Receptacle Retrofit: Pump Station No. 1
SCWD-3		✓		Permanent Generator: Pump Station No. 2. See SCWD-4.
SCWD-4		✓		Permanent Generator: Pump Station No. 1. See SCWD-5.
SCWD-5			✓	Lift Station Retrofit: Lift Station No. 14 Project is not necessary at this time.
SCWD-6			✓	Lift Station Retrofit: Lift Station No. 12 Project is not necessary at this time.
SCWD-7		✓		Lift Station No. 5B Force main North. See SCWD-6.

49.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 49-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 49-5 identifies the priority for each initiative. Table 49-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 49-4.
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?
SCWSD-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	All Objectives	King County & SCWSD	Low	General Fund	Ongoing	No
SCWSD-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	2, 4, 7, 13	King County & SCWSD	Low	General Fund	Ongoing	No
SCWSD-3—Retrofit the portable generator receptacle at Pump Station #1.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	Medium	General Fund	Short-term	Yes
SCWSD-4—Provide a permanent generator at Pump Station #2.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	High	General Fund	Long-term	Yes
SCWSD-5—Provide a permanent generator at Pump Station #1.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	High	General Fund	Long-term	Yes
SCWSD-6—Improve Lift Station #5B's north force main to mitigate surcharging during storm events.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	$3,330,200	General Fund PDM Grant	Long-term	Yes
SCWSD-7—Upgrade the Cascade Interceptor to mitigate surcharging during storm events.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	$1,805,700	General Fund PDM Grant	Long-term	No
SCWSD-8—Upgrade Lift Station #12's pumping capacity to alleviate surcharging.							
Existing	Severe Weather & Severe Winter Weather	1, 5, 8, 9	SCWSD	$520,700	General Fund PDM Grant	Long-term	No

TABLE 49-4.
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?
SCWSD-9—Replace Pump Station #1 to improve flow reliability and redundancy in the system.							
Existing	All Hazards	1, 5, 8, 9	SCWSD	$891,064	General Fund	Long-term	No
SCWSD-10 – Perform seismic upgrades on Tank #6 to make the tank compliant with current American Water Works Association codes for steel reservoirs.							
Existing	Earthquake	1, 2, 4	SCWSD	$118,040	General Fund PDM Grant	Short-term	No
SCWSD-11 – Perform seismic analysis on Tank #5 to determine if it meets current American Water Works Association codes for steel reservoirs.							
Existing	Earthquake	1, 2, 4	SCWSD	$20,800	General Fund	Short-term	No
SCWSD-12 – Replace active asbestos concrete main within the system to mitigate earthquake hazards.							
Existing	Earthquake	1, 5, 8, 9	SCWSD	$414,400 annually	General Fund PDM Grant	Short-term & Long-term	No
SCWSD-13 - Loop Closure Program to improve flow reliability and redundancy in the system.							
New	All Hazards	1, 5, 8	SCWSD	Low	General Fund	Short & Long term	No
SCWSD-14 - Update the District's Water Comprehensive Plan to reflect Hazard Mitigation Plan.							
New & Existing	All Hazards	2, 3, 5, 6, 7, 10, 12	SCWSD	Low	General Fund	Ongoing	No
SCWSD-15 - Update the District's Sewer Comprehensive Plan to reflect Hazard Mitigation Plan.							
New & Existing	All Hazards	2, 3, 5, 6, 7, 10, 12	SCWSD	Low	General Fund	Ongoing	No

TABLE 49-5.
MITIGATION STRATEGY PRIORITY

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

a. See Introduction for explanation of priorities.

TABLE 49-6.
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
Avalanche	1, 2, 14, 15	-	1	-	9, 13	-
Dam Failure	1, 2, 14, 15	-	1	-	9, 13	-
Earthquake	1, 2, 14, 15	10, 11, 12	1	-	9, 10, 11, 12, 13	-
Flood	1, 2, 14, 15	6, 7, 8	1	-	6, 7, 8, 9, 13	-
Landslide	1, 2, 14, 15	10, 11, 12	1	-	9, 10, 11, 12, 13	-
Severe Weather	1, 2, 14, 15	3, 4, 5, 6, 7, 8	1	-	3, 4, 5, 6, 7, 8, 9, 13	-
Severe Winter Weather	1, 2, 14, 15	3, 4, 5, 6, 7, 8	1	-	3, 4, 5, 6, 7, 8, 9, 13	-
Tsunami	-	-	-	-	-	-
Volcano	1, 2, 14, 15	-	1	-	9, 13	-
Wildfire	1, 2, 14, 15	-	1	-	9, 13	-

a. See Introduction for explanation of mitigation types.

49.8 ADDITIONAL COMMENTS

49.8.1 Critical Water Pipes Owned by the District

In addition to the projects listed in Table 49-4, Table 49-7 will help the District choose which water pipe facilities to replace to mitigate the District's hazard risk. The table summarizes the hazard type to which each pipe is vulnerable, and lists the potential financial loss for each facility. Each vulnerable water pipe has been assigned a facility identification number and is included in following table. A map showing the vulnerable facilities is available at the District office.

TABLE 49-7.
ADDITIONAL POTENTIAL WATER PROJECTS

Facility No.	Hazard	Existing Pipe Material	Length (LF) – Diameter (in.)	Services	Downstream Areas Dependent on Facility	Potential Financial Loss 2013
1	Earthquake	AC	850 – 8"	X		$154,200
2	Earthquake	CI	1,200 – 12"	X		$286,900
3	Earthquake & Landslide	DI	2,400 – 16"	X	X	$725,200
4	Landslide	AC	1,500 - 6" 800 - 12"	X		$362,600
5	Earthquake	DI	500 – 8"			$90,600
6	Earthquake	DI	1,500 – 12"	X		$358,800
7	Earthquake	AC	2,400 – 8"	X		$435,100
8	Landslide	AC	1,000 - 6" 900 - 8"	X		$308,200
9	Earthquake	DI	1,000 – 12"			$239,100
10	Landslide	DI	900 – 12"			$215,400
11	Landslide	DI	350 – 12"		X	$83,800
12	Landslide	DI	1,150 – 8"	X		$208,500
13	Landslide	DI	100 - 4" 350 - 8"	X		$74,400
14	Landslide	AC	200 - 4" 350 - 6" 900 - 8"	X	X	$72,600
15	Landslide	DI	200 - 6" 200 - 8"	X		$65,300

Pipe Material

The type of material of each water main directly affects its vulnerability. A number of the District's water mains are constructed of ductile iron (DI) pipe. Due to the inherent toughness of DI pipe, the most likely method of failure during an earthquake event would be separation of the pipe at the joints. It is not as likely that DI pipe walls will be damaged compared to other pipe materials, and they are therefore considered to be less vulnerable than asbestos-cement (AC) or cast-iron (CI) water mains.

The other common pipe material present in the District is AC pipe. AC pipe is much more brittle than DI pipe, and therefore is much more likely to break rather than pull apart during an earthquake event. AC water mains are considered to be more vulnerable than water mains made of other materials, and were therefore specifically classified as earthquake hazards.

A small number of vulnerable CI water mains were identified in hazard areas. Though this material is somewhat tougher than AC, it is still brittle material and more vulnerable than DI pipe.

Services

Facilities identified in this category are water mains with services that provide water to District customers.

Downstream Areas Served Solely by Facility

Facilities identified in this category are the sole source of water to downstream portions of the water system. They are considered more vulnerable than other facilities, as potential damage to them would impact a large portion of the water system.

Potential Financial Losses

Several factors must be considered when estimating the potential financial losses caused by hazard-related damage. These factors include the number of facilities damaged, the extent of damage to each facility, the length of time required for repairs, etc. The magnitudes of several losses are more difficult to determine, such as the revenue that would be lost from customers being without service and the costs of providing temporary service, if necessary.

Due to these intangibles, it was decided that the most effective method to estimate potential financial losses for each of the vulnerable facilities would be to estimate the cost of replacing the entire facility. It is likely that the actual cost of repairing a facility would be less than the cost of replacing it, but the large number of variables makes it difficult to accurately determine the cost of repair. Therefore, providing the replacement cost provides the most conservative projection of potential financial losses.

To determine the cost of replacing a facility, a base construction cost was estimated based on costs of recently constructed similar projects. Additionally, an emergency contingency of 10% of the base construction cost was included in the cost estimate. This contingency was added to account for costs that may be incidental to emergency repairs, such as the cost of providing temporary water services.

It was assumed that each water main would be replaced with DI pipe of the same diameter as the existing pipe, with a few exceptions. All existing pipes with diameters less than 8 inches were assumed to be replaced with 8-inch pipe, per District standards. The actual diameters of proposed water mains to be replaced will be confirmed with the District's Water Comprehensive Plan.

49.8.2 Critical Sewer Pipes Owned by the District—

In addition to the projects listed in Table 49-4, Table 49-8 will help the District choose which sewer pipe facilities to replace to mitigate the District's hazard risk. The table summarizes the hazard type to which each pipe is vulnerable, and lists the potential financial loss for each facility. Each vulnerable sewer pipe has been assigned a facility identification number and is included in following table. A map showing the vulnerable facilities is available at the District office.

As buried facilities, gravity sewers are vulnerable to landslides and earthquake events. These events may pull the sewer pipe apart at the joints or rupture the sidewall of the pipes. It is also possible for these events to disrupt the horizontal or vertical alignment of the pipe, resulting in humps or bellies. This could lead to sediment deposition, which in turn could result in flow blockage. Gravity sewers are also vulnerable to flooding, which could inflow through unsealed manholes and overload the conveyance capacity of the system. Force mains, unlike gravity sewers, are not vulnerable to flooding because, as sealed facilities, there is no potential inflow route for flood waters.

TABLE 49-8.
ADDITIONAL POTENTIAL SEWER PROJECTS

Facility No.	Hazard	Existing Pipe Material	Length (LF) – Diameter (in.)	Potential Financial Loss 2013
1	Gravity Sewer	Flood & Seismic	850 - 12”	$278,800
2	Gravity Sewer	Flood & Seismic	200 - 18” 800 - 20”	$364,500
2a	Force Main	Flood & Seismic	200 - 16” 800 - 18”	$364,500
3	Gravity Sewer	Flood & Seismic	800 - 12”	$245,800
4	Gravity Sewer	Seismic	750 - 8” 200 - 10” 350 - 12” 600 - 18”	$620,000
5	Force Main	Seismic	5550 - 21”	$2,040,400
6	Gravity Sewer	Landslide	800 – 10”	$254,100
7	Gravity Sewer	Landslide	650 - 12” 200 - 15” 250 - 18”	$369,600
8	Gravity Sewer	Seismic	750 - 10” 750 - 12”	$484,200
9	Gravity Sewer	Flood	750 – 12”	$245,900
10	Gravity Sewer	Flood & Seismic	450 - 14” 1,500 - 18” 700 - 20”	$939,300
11	Gravity Sewer	Seismic	350 – 12”	$114,900
12	Force Main	Seismic	2050 – 8”	$629,700

Pipe Material

For gravity sewers, the pipe material significantly affects the mode of failure during a landslide or earthquake event, as well as the method of repair. For ductile iron (DI) pipe, the most likely method of failure during a landslide or earthquake event would be separation of the pipe at the joints. It is unlikely that the pipe wall themselves will rupture or be crushed. Sewer mains constructed of ductile iron pipe are considered to be less vulnerable than sewer mains constructed of more brittle materials.

Another pipe material often used in the District is high-density polyethylene (HDPE). Lengths of HDPE are fused together instead of jointed, creating one continuous length of pipe. This, along with the inherent flexibility of HDPE, allows HDPE sewer mains to undergo substantial, but not all, movement without damage. Due to this, sewer mains constructed of HDPE are considered less vulnerable than mains constructed of any other material.

The other common piping materials in the system are concrete and poly-vinyl chloride (PVC). These types of piping are much more brittle than HDPE and DI. During an earthquake event or landslide**,** these types of piping may crack or break in addition to pulling apart. Therefore, facilities constructed of these materials are more vulnerable than facilities constructed of ductile iron pipe.

Potential Financial Losses

As with the water potential financial calculations, the sewer potential financial losses estimate the cost of replacing the entire facility. An additional emergency contingency of 10% of the base construction cost was added to these estimates. This contingency was added to account for costs that may be incidental to emergency repairs, such as the cost of providing temporary sewer services. It was assumed that each sewer main would be replaced in kind, or as stated in the District’s Sewer Comprehensive Plan.

CHAPTER 50.
SOUTHWEST SUBURBAN SEWER DISTRICT UPDATE ANNEX

50.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Laura Gallez, Supervisor
431 SW Ambaum Blvd
Burien, WA 98166
Telephone: (206) 432-3513
e-mail Address: laura.gallez@swssd.com

Alternate Point of Contact

Ron Hall, General Manager
431 SW Ambaum Blvd
Burien, WA 98166
Telephone: (206) 432-3512
e-mail Address: ron.hall@swssd.com

50.2 JURISDICTION PROFILE

50.2.1 Background

Southwest Suburban Sewer District was established in 1945 in order to maintain sewer infrastructure installed by the Federal Government during World War II. The District formally purchased the sewer infrastructure in 1954. The first sewer comprehensive plan was adopted in the 1950s to provide sanitary sewer service.

Southwest Suburban Sewer District is located in west central portion of King County and encompasses more than 12.5 square miles serving the City of Burien, the City of Normandy Park, portions of the City of Seattle, the City of Des Moines, the City of SeaTac, and a portion of Valley View Sewer District. The District service area is generally bounded on the north by the City of Seattle and unincorporated King County, on the east by the City of SeaTac, to the south by the City of Des Moines, and on the west by Puget Sound.

The District provides sanitary sewer service to customers within its sewer service area. Wastewater ultimately flows to one of three locations:

- Miller Creek Wastewater Treatment, which is owned and operated by the District.
- Salmon Creek Wastewater Plant, which is owned and operated by the District.
- Midway Sewer District. A segment of the southern portion of the District boundaries generally flows in a southerly direction to the Midway Sewer District.

Wastewater that affects the total flows through the District's collection and conveyance system can be categorized into two sources:

- Direct service—Flow from customers within the boundaries of the District
- Tributary Service—Flow that originates from areas outside the District boundaries from other sewer agencies. These tributary areas include flow from the Cities of Seattle, SeaTac, Des Moines, Normandy Park and Burien, unincorporated King County and from the Valley View Sewer District.

Inter-local agreements between the District and the neighboring sewering agencies define the terms by which sewer service is provided. It is possible that those agreements could be amended in the future but it is unlikely that flows would be routed differently than currently described. It is assumed for the purposes of this Plan that the flows will continue under the current routing mode and that there would be no change to the current inter-local agreements that govern these sewer services.

The District encompasses 8,000 acres. Of these 8,000 acres approximately 601 acres and 670 acres of the sewer infrastructure is maintained by Seattle Public Utilities (SPU) and Valley View Sewer District, respectively. All flow is treated by one of the two waste water treatment plants in the District. In 2010, the District provided sewer service directly to 24,700 connections and serves approximately 56,791 people.

The District is governed by an elected three person board of commissioners and is under the general management of Mr. Ron Hall. There are 33 full time employees that comprise the District staff. The Board of Commissioners assumes responsibility for the adoption of this plan; the General Manager will oversee its implementation. Funding for projects comes primarily through sewer rates, with additional revenue coming from loans, such as the Public Works Trust Fund, the issuance of bonds and available grants.

50.2.2 Key Information

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

- **Population Served—**56,791 people as of 2010
- **Land Area Served—**8,000 acres
- **Value of Area Served—**Estimated value of the area served by the jurisdiction is $3,375,165,100
- **Land Area Owned—**35 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 1,531,200 LF Sewer System $215,000,000
  - Vactor $350,000
  - Camera Truck $300,000
  - Sludge Hauler $150,000
  - Excavation Equipment $200,000
  - Service Trucks $300,000
  - Tank Truck $75,000
  - District Fleet Vehicles $750,000
  - Portable Generators $60,000
  - Pumps and Misc. Equipment $100,000
  - Network and Computer Equipment $150,000
  - Emergency Communication Equipment $50,000
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $217,485,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Administration and Sewer Department Facility $10,000,000
  - Salmon Creek Treatment Plant $50,000,000

– Miller Creek Treatment Plant	$60,000,000
– Pump Stations No. 2	$600,000
– Pump Station No. 4	$600,000
– Pump Station No. 7	$600,000
– Pump Station No. 8	$1,000,000
– Pump Station No. 11	$600,000
– Pump Station No. 12	$600,000
– Pump Station No. 14	$600,000
– Pump Station No. 15	$600,000
– Pump Station No. 16	$600,000
– Pump Station No. 17	$1,000,000
– Pump Station No. 18	$600,000

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $127,400,000.

50.2.3 Current and Anticipated Service Trends

Figure 50-1 demonstrates the predicted District population growth for the District geographical area and the growth trends associated with the current non-sewer served population. Table 50-1 and Table 50-2 represent the current wastewater treatment plant flows and the projected flows relating to population growth, infiltration and inflow, and increased seasonal water flows. This data was taken from the 2013 SWSSD Comprehensive Plan.

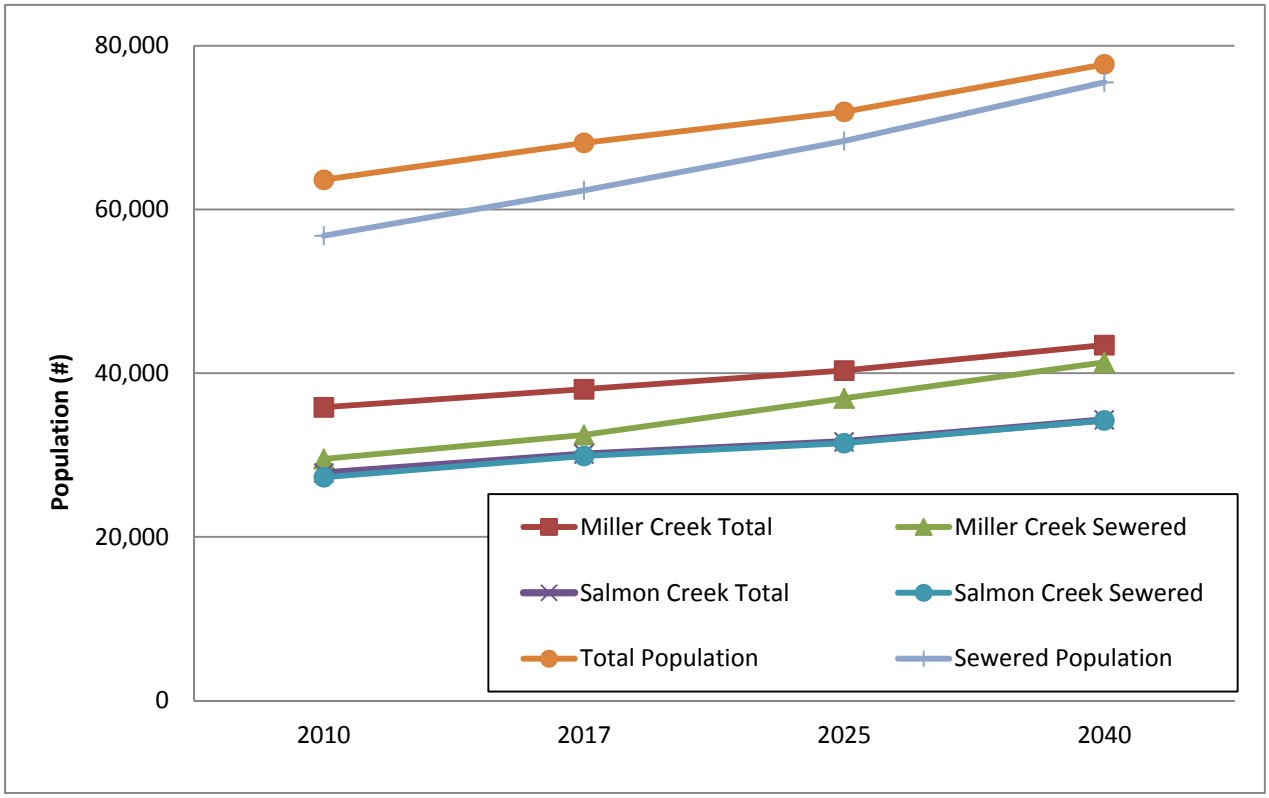

Figure 50-1. Total Population and Sewered Population

TABLE 50-1.
HISTORICAL FLOWS FOR SWSSD WASTEWATER TREATMENT PLANTS

Parameter	Miller Creek Wastewater Treatment Plant	Salmon Creek Wastewater Treatment Plant
Average dry weather flow, mgd	2.00	1.70
Annual average flow, mgd	2.85	2.31
Average wet weather flow[2], mgd	3.19	2.90
Maximum month flow[3], mgd	4.58	4.32
Peak day flow, mgd	14.76	14.37
Peak wet weather flow, mgd	>22.00	>22.00

1 Values presented are the annual average values for years 2007 to 2010.
2 Average wet weather flow defined as the average of Nov – Feb flows for 2007 to 2010.
3 Maximum month flow is the average flow for the maximum month, as defined in the current NPDES permit. The maximum month flow is sometimes referred to as peak month flow and is considered the design flow.

TABLE 50-2.
FLOW PROJECTIONS FOR SWSSD WASTEWATER TREATMENT PLANTS FOR 2017, 2025, 2040

	Miller Creek Wastewater Treatment Plant			Salmon Creek Wastewater Treatment Plant		
Parameter	2017	2025	2040	2017	2025	2040
Average dry weather flow, mgd	2.23	2.52	2.81	1.93	2.03	2.21
Annual average flow, mgd	3.15	3.55	3.98	2.52	2.65	2.90
Maximum month flow[3], mgd	5.05	5.69	6.40	4.65	4.90	5.37
Peak day flow, mgd	16.19	18.17	20.55	15.31	16.16	17.74
Peak wet weather flow, mgd	24.60	27.61	31.23	23.61	24.92	27.34
Equivalent Sewered Population	37,191	42,040	46,915	32,120	33,859	36,917

1 Per capita flow rates applied population projections to estimate future average dry weather flow.
2 I/I contribution calibrated to 2010 flows then increased at 7% per decade due to assumed pipe degradation.
3 Peak Wet Weather Flow Estimate assumes a peaked average dry weather flow, based on diurnal patterns.

50.3 APPLICABLE REGULATIONS AND PLANS

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

- 2013 Comprehensive Sewer Plan Update
- Southwest Suburban Sewer District 2009-28 Resolution
- Regional Coordination Framework (Disaster Plan)
- The Washington Water/Wastewater Agency Response Network

50.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 50-3 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 50-3.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Weather	DR-4056	01/2012	No information available
Flood	DR-1963	01/2011	$11,300
Landslide	DR-1963	01/2011	$16,500
Flood	NA	12/2010	$6,500
Winter Storm	DR-1817	01/2009	No information available
Winter Storm	DR-1825	12/2008	No information available
Flood/Landslide	DR-1734	12/2007	$60,000
Winter Storm	DR-1682	12/2006	No information available
Winter Storm	DR-1671	11/2006	No information available
Flood	NA	11/2004	No information available
Flood	DR-1499	10/2003	$2,000
Wind	NA	12/2002	$1,000
Earthquake	DR-1361	02/2001	$124,600
Wind	NA	03/2000	$1,000
Wind	NA	03/1999	$2,000
Wind	NA	01/1999	$2,000
Winter Storm	NA	12/1998	No information available
Winter Storm	DR-1159	01/1997	No information available
Landslide	DR-1100	02/1996	No information available
Landslide/Flood	DR-1079	11/1995	No information available
Flood	DR-981	01/1993	No information available
Flood	DR-852	11/1990	No information available
Flood	DR-757	11/1986	No information available
Flood	NA	12/1985	No information available

50.5 HAZARD RISK RANKING

Table 50-4 presents the ranking of the hazards of concern.

50.6 STATUS OF PREVIOUS PLAN INITIATIVES

Table 50-5 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 50-4.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	45
2	Flood	39
2	Severe Winter Weather	39
3	Severe Weather	36
3	Landslide	36
4	Volcano	16
5	Wildfire	10
6	Avalanche	7
7	Dam Failure	0
8	Tsunami	0

TABLE 50-5.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments
SSSD-1		✓		Completed emergency mitigation work. Still seeking a comprehensive geological study of the acreage surrounding facility. See SW-3.
SSSD-2			✓	Revised this initiative for next five year plan. See SW-7.
SSSD-3			✓	Revised this initiative for next five year plan. See SW-7.
SSSD-4		✓		See SW-4.
SSSD-5		✓		Currently in design phase for this project. See SW-6.

50.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 50-6 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 50-7 identifies the priority for each initiative. Table 50-8 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 50-6.
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?
SW-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	All Objectives	King County	Low	General Fund	Ongoing	No
SW-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.							
New and existing	All Hazards	2,4,7,13	SWSSD	Low	General Fund	Ongoing	No
SW-3—Conduct geologic and mitigation study on assets located within identified landslide prone areas.							
Existing	All Hazards	1,5,9,12,	SWSSD	High	General Fund, Loan, Grant	Long Term	Yes
SW-4—Develop Continuity of Operations Plan.							
New and Existing	All Hazards	1,2,3,8,12	SWSSD	Low	General Fund	Short Term	Yes
SW-5—Install emergency fuel storage tanks.							
New	All Hazards	1,8,12	SWSSD	Medium	General Fund	Short Term	Yes
SW-6—Relocate assets out of hazard area.							
Existing	All Hazards	1,5,9,12	SWSSD	High	Grant, Bond, Reserves, HMGP, PDM	Short Term	No
SW-7—Conduct wastewater collection system and treatment plant risk analysis for CIP prioritization.							
Existing	Winter Storm, Flood	1,5,9,12	SWSSD	Low	General Fund	Short Term	No
SW-8—Assemble cache of emergency supplies and repair parts.							
Existing	All Hazards	1,5,9,12	SWSSD	Medium	General Fund	Short Term	No

TABLE 50-7.
MITIGATION STRATEGY PRIORITY

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]
SW-1	15	Low	Low	Yes	No	Yes	High
SW-2	4	Low	Low	Yes	No	Yes	High
SW-3	4	Medium	Medium	Yes	No	Yes	High
SW-4	5	High	Low	Yes	No	Yes	High
SW-5	3	Medium	Low	Yes	Yes	No	Medium
SW-6	4	High	High	Yes	Yes	No	Medium
SW-7	4	Medium	Low	Yes	No	Yes	High
SW-8	4	High	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 50-8.
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
Avalanche	1,2,4	6	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1,2,4	6,7	-	3,4,8	5,8	-
Flood	1,2,4	6,7	-	3,4,8	5,8	-
Landslide	1,2,4	6	-	3,4,8	5,8	-
Severe Weather	1,2,4	6,7	-	3,4,8	5,8	-
Severe Winter Weather	1,2,4	6,7	-	3,4,8	5,8	-
Tsunami	-	-	-	-	-	-
Volcano	1,2,4	6	-	-	-	-
Wildfire	1,2,4	6	-	-	-	-

a. See Introduction for explanation of mitigation types.

CHAPTER 51.
VALLEY REGIONAL FIRE AUTHORITY ANNEX

51.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Mike Gerber, Deputy Fire Chief
1101 D Street NE
Auburn WA 98002
Telephone: 253-288-5804
e-mail Address: mike.gerber@vrfa.org

Alternate Point of Contact
Tim Day, Battalion Chief
1101 D Street NE
Auburn WA 98002
Telephone: 253-288-5861
e-mail Address: tim.day@vrfa.org

51.2 JURISDICTION PROFILE

The Valley Regional Fire Authority (VRFA) is a regional fire protection service authority as defined in Revised Code of Washington 52.26. The VRFA was created in 2007 to provide fire, rescue and emergency medical services for Algona, Auburn and Pacific. The VRFA service area was expanded through the years by adding contract services to King County Fire Protection District 31 and by the City of Auburn's annexation of the West Hill and Lea Hill PAA's in 2007. The Auburn and Pacific city boundaries are located in both, King and Pierce counties, with the overwhelming majority of residents currently living in King County. However, both cities have the potential for growth in Pierce County. A nine-member Board of Governance comprised of elected officials from all three cities, is responsible for the administration of the VRFA and assumes responsibility for adoption of this plan. The VRFA Administrator will oversee its implementation. In 2012, the VRFA served an estimated 81,000 residents with a staff of 120 employees. Funding for the VRFA comes primarily through property taxes, a fire service benefit charge, fees and other sources of revenue. The following is a summary of key information about the jurisdiction:

- **Population Served**—81,000 as of 2012
- **Land Area Served**—35 square miles
- **Value of Area Served**—$8 billion
- **Land Area Owned**—2.44 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 10 - Fire Engine Pumpers and their contents $6,000,000
  - 1 - Ladder Truck and contents $1,300,000
  - 4 Ambulance and their contents. $1,000
  - 2- Command Vehicle and contents $140,000
  - 2 - Breathing air compressors $150,000
  - 22- Vehicles for Support Staff $250,000
  - Regional Emergency Medical Equipment Cache $75,000
  - Local Disaster Supply and Equipment Cache $75,000
  - VRFA IT Network and Equipment $780,000
  - Fuel Dispensing Equipment and Tanks $175,000

  - 6- Fixed Emergency Power Generators $360,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is $10,305,000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Fire Station 31 Headquarters $7,000,000
  - Fire Station 32 $5,000,000
  - Fire Station 33 $6,500,000
  - Fire Station 34 $5,000,000
  - Fire Station 35 (Support Services) $5,000,000
  - Fire Station 38 $2,500,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is $31,000,000
- **Current and Anticipated Service Trends**—The VRFA serves the cities of Algona, Auburn and Pacific and their potential annexation areas, as well as providing contract service to King County Fire Protection District No. 31. The cities have comprehensive plans that encourage growth in their designated light commercial and residential land use zones. Although the economic downturn of the last few years prevented steady development and growth, the cities are seeing an increase in building and business permits during 2013. It is expected that population growth will increase at a rate of about 3 percent per year over the next several years. This rate is subject to a more rapid increase if annexations are completed by the cities. We expect that VRFA call volume would increase at the same rate as the population growth based on historical data. The VRFA expects that additional fire stations and response equipment will be necessary to keep up with the growing population, expansion of the service area and the growing call volume. See VRFA Capital Plan for details.

51.3 APPLICABLE REGULATIONS AND PLANS

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

- City of Auburn Comprehensive Emergency Management Plan
- City of Pacific Comprehensive Emergency Management Plan
- City of Algona Comprehensive Emergency Management Plan
- King County Comprehensive Emergency Management Plan
- Pierce County Comprehensive Emergency Plan
- State of Washington Comprehensive Emergency Management Plan
- National Response Framework
- National Incident Management System
- Revised Code of Washington 52.26
- Valley Regional Fire Authority Capital Improvement Plan
- Valley Regional Fire Authority Howard Hanson Dam Flood Plan
- Valley Regional Fire Authority Strategic Plan

The above references support the hazard mitigation strategies of the Valley Regional Fire Authority. Because of our role as a public safety first responder, the infrastructure from which we deliver services, as well as the equipment and human resources we need to deliver those services, are vital to our mission and ultimately to the safety of the community. The Valley Regional Fire Authority serves as a backup Emergency Operations Center for the Cities of Auburn, Algona and Pacific. Auburn and Pacific are dual County cities with portions of their current boundaries in both King and Pierce Counties.

51.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 51-1.

TABLE 51-1.
JURISDICTION CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	4	January 1, 2013
StormReady	No	NA	NA
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

51.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 51-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 51-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Damage Estimates
Winter Snow and Ice Storm	4056-DR-WA	1/16/2012	$33,566
Snow & Flooding	DR-1963	1/10/2011	No information available
Snow Storm	NA	11/22/2010	No information available
Howard Hanson Dam-Green River Flood Potential	NA	9/10/2009	No information available
Swine Flu	NA	4/27/2009	No information available
Flooding Winter Weather City of Pacific White River	DR-1817	1/7/2009	No information available
Wind Storm	NA	10/1/2007	$5,000
Wind Storm	NA	12/4/2003	No information available
Nisqually Earthquake	NA	11/8/2001	No information available

See City of Auburn and City of Pacific Regional Hazard Mitigation Plan Annex Natural Hazard Events table for information prior to 2007 when the VRFA was formed.

51.6 HAZARD RISK RANKING

Table 51-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 51-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Weather	54
3	Severe Winter Weather	51
4	Flood	36
5	Wildfire	30
6	Dam Failure	18
7	Landslide	9
8	Volcano	7
9	Tsunami	3
10	Avalanche	0

51.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 51-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 51-5 identifies the priority for each initiative. Table 51-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 51-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VRFA-1—Support public education programs and preparedness strategies consistent with County and local government goals.						
New	All Hazards	1, 2, 4, 6	VRFA	Low	Local funds, Hazard Mitigation Grants, Community Education Grants.	Short Term
VRFA-2—Retrofit fire stations to reduce impacts from earthquake. Currently this work needs to be done at Stations 31, 35 and 38.						
Existing	Earthquake	1, 6	VRFA	High	Local funds & Hazard Mitigation Grants	Long Term

TABLE 51-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VRFA -3—Support the implementation, monitoring, maintenance and updating of this plan.						
New	All Hazards	1, 2, 3, 4, 5, 6, 7	King County	Low	Local	Short term
VRFA-4—Retrofit fire stations to reduce impacts from severe weather. Currently this work needs to be done at Stations 31, 35 and 38.						
New	Severe Weather, Severe Winter Weather	1, 6	VRFA	Medium	Local funds & Hazard Mitigation Grants	Long Term
VRFA-5—Retrofit fire stations to reduce the impacts from flood and/or dam failure. Currently this work needs to be completed at station 31, 35 and 38.						
New	Flood, Dam Failure	1, 6	VRFA	High	Local funds & Hazard Mitigation Grants	Long Term
VRFA-6—Develop a more resilient Emergency Operations Center to reduce the impacts from all hazards.						
New	All Hazards	1, 2, 4, 5, 6	VRFA	Medium	Local funds and Hazard Mitigation Grants	Long Term

TABLE 51-5.
MITIGATION STRATEGY PRIORITY SCHEDULE

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

a. See Introduction for explanation of priorities.

TABLE 51-6.
ANALYSIS OF MITIGATION INITIATIVES

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

a. See Introduction for explanation of mitigation types.

51.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

The VRFA in cooperation with our local government partners, King County and Pierce County will conduct a community risk analysis within the next 3 years to more clearly identify the specific risks we have and where our vulnerabilities exist. The results of this analysis will be shared with the three cities and one fire district that we provide service to as well as any other local government agency that may be affected. Updates to our King County Hazard Mitigation Plan Annex will be made when the analysis is completed.

As a part of this community risk analysis the VRFA will be able to more clearly identify the seismic retrofit needs, flood protection needs and severe weather retrofit needs of our critical infrastructure. The analysis will also identify gaps in our community programs allowing us to focus on creating a more disaster resilient community.

CHAPTER 52.
VALLEY VIEW SEWER DISTRICT ANNEX

52.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Dana Dick, Manager
3460 S 148th St, Suite 100
Tukwila, WA 98168
Telephone: 206-242-3236
e-mail Address: danad@valvue.com

Alternate Point of Contact

Andrew LaRue, Manager-in-training
3460 S 148th St, Suite 100
Tukwila, WA 98168
Telephone: 206-396-9290
e-mail Address: andrewl@valvue.com

52.2 JURISDICTION PROFILE

Valley View Sewer District is a special-purpose district created in 1946 to provide public sanitary sewer service to unincorporated King County south of the City of Seattle. The District has expanded over time and now provides service to part of four cities (Seattle, Tukwila, SeaTac, Burien) as well as unincorporated King County. A three-member elected Board of Commissioners governs the District. The Board assumes responsibility for this plan; its implementation will be overseen by the District manager. The District serves approximately 9,000 sewer connections with a staff of 13 full time employees and 2 part time employees. Funding comes primarily through rates.

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

- **Population Served—**36,968 as of January 2010
- **Land Area Served—**9.5 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $3,101,494,209.
- **Land Area Owned—**1.49 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - 125 miles of sewer lines $198,000,000
  - 16 sewage lift stations $4,021,998
  - Flush Truck, Camera Truck, Pump Station Maintenance Equipment, Emergency Generators $1,234,405
- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $203,256,403.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Five buildings (maintenance office, admin office, garage, shop, old administration office) $4,153,416.
  - **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $4,153,416.
- **Current and Anticipated Service Trends—**There remains about 1.5 square miles inside the District's service area that is not yet served by public sewers. Within 5 to 10 years this area

will be served by public sewers with a possible requirement for new sewage lift stations to provide service to some of the area. In addition, there is likely to be future development and rezoning on the International Boulevard corridor partly driven by the location of the light rail station at S 154th St. This new development will result in increased population densities and concomitant commercial development. It is currently unclear if this will require improvements in the District's service network, but it will certainly increase the population served.

52.3 APPLICABLE REGULATIONS AND PLANS

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

- Emergency Response Plan
- 2011 Comprehensive Sewer Plan
- 2011 Capital Improvement Plan
- Washington Association of Sewer and Water Districts Mutual Aide Agreement
- Employee Handbook

52.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 52-1 lists all past occurrences of natural hazards within the jurisdiction.

52.5 HAZARD RISK RANKING

Table 52-2 presents the ranking of the hazards of concern.

52.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 52-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 52-4 identifies the priority for each initiative. Table 52-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 52-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding/severe thunderstorm	NA	7/13/1993	No information available
Heavy Snow	NA	11/19/1996	No information available
Heavy Snow	NA	12/28/1996	No information available
Heavy Rain	NA	12/29/1996	No information available
Flooding/severe thunderstorm	DR-1159	1/1/1997	No information available
High Wind	NA	2/5/1999	No information available
Lightning	NA	7/16/1999	No information available
High Wind	NA	12/14/2000	No information available
Winter Weather	NA	2/15/2001	No information available
Earthquake	DR-1361	2/28/2001	No information available
Heavy Rain	NA	12/13/2001	No information available
Flooding/severe thunderstorm	DR-1499	10/20/2003	No information available
Heavy Rain	NA	11/18/2003	No information available
Winter Weather	NA	1/6/2004	No information available
High Wind	NA	4/27/2004	No information available
Heavy Rain	NA	1/5/2006	No information available
High Wind	DR-1682	12/14/2006	No information available
Heavy Rain/landslide	NA	1/2/2007	$120,869
Heavy Rain	DR-1734	12/3/2007	No information available
Winter Weather	DR-1825	12/18/2008	No information available
Winter Weather	NA	12/20/2008	No information available
Winter Weather	NA	12/21/2008	No information available
Winter Weather	NA	12/22/2008	No information available
Heavy Rain/landslide	DR-1817	1/7/2009	$94,121
Winter Weather/Rain	NA	12/17/2010	No information available
Winter Weather	4056	1/19/2012	No information available

TABLE 52-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	45
2	Severe Weather	42
3	Severe Winter Weather	36
4	Flood	18
5	Landslide	18
6	Avalanche	0
7	Dam Failure	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

TABLE 52-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VV-1—Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All Objectives	VVSD	Low	General Fund	Ongoing
VV-2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2,4,7,13	VVSD	Low	General Fund	Ongoing
VV-3—Provide all new Pump Stations with redundant power capabilities.						
New and Existing	All Hazards	1,2,5,13,14,	VVSD	Low	General Fund	Ongoing
VV-4—Enter into agreement with local fuel suppliers for joint effort to power station and obtain fuel.						
New and Existing	All Hazards	1,2,5,13,14	VVSD	Medium	General Fund	Ongoing
VV-5—Coordinate with neighboring jurisdictions for assistance and equipment/supply inventory back-ups.						
New and Existing	All Hazards	1,2,4,6,7,12, 14	VVSD	Low	General Fund	Ongoing
VV-6—Encourage seismic evaluations & upgrades of critical facilities to identify vulnerabilities.						
New and Existing	All Hazards	1,2,4,5,8,9,10	VVSD	Low	General Fund, HMGP, PDM	Ongoing

TABLE 52-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VV-7—Consider Hazard Areas, Critical Areas and system performance history (i.e. pipeline breaks) in prioritizing renewal and replacement projects.						
New and Existing	All Hazards	1,2,5,9,12	VVSD	Low	General Fund	Ongoing
VV-8—Monitor, flush, and repair high vulnerability pipes with historical problems (i.e. low spots) to maintain maximum available capacity.						
New and Existing	All Hazards	1,2,4,5,8,9,10	VVSD	$50,000/year	General Fund	Ongoing
VV-9- Annual review of inventory and procedures and purchase of emergency supplies and equipment.						
New and Existing	All Hazards	1,2,9	VVSD	Low	General Fund	Ongoing
VV-10- Maintain & upgrade telemetry as necessary to ensure prompt emergency response (RUGID/RED LION).						
New and Existing	All Hazards	1,2,3,4,9,12	VVSD	Low	General Fund	Ongoing

TABLE 52-4.
MITIGATION STRATEGY PRIORITY

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]
VV-1	15	High	Low	Yes	No	Yes	High
VV-2	4	High	Low	Yes	Yes	Yes	High
VV-3	5	High	Low	Yes	Yes	Yes	High
VV-4	5	High	Medium	Yes	Yes	Yes	High
VV-5	7	High	Low	Yes	No	Yes	High
VV-6	7	High	Low	Yes	Yes	Yes	High
VV-7	5	High	Low	Yes	Yes	Yes	High
VV-8	7	High	$50,000	Yes	No	Yes	High
VV-9	3	High	Low	Yes	No	Yes	High
VV-10	6	High	Low	Yes	No	Yes	High

a. See Introduction for explanation of priorities.

TABLE 52-5.
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
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Earthquake	1,4,5,6,7,8	1,4,5,6,7,8	1	1,6,7	1,2	1,3,6,7,8
Flood	1,6	1,6	1	1	1,2	1,6,7
Landslide	1,6,7	1,6,7,8	1	1,6,7	1,2	1,6,7
Severe Weather	1,6,7	1,8	1	1	1,2	1,3,4
Severe Winter Weather	1,6,7	1,8	1	1	1,2	1,3,4
Tsunami	1	1	1	1	1,2	1
Volcano	--	--	--	--	--	--
Wildfire	--	--	--	--	--	--

a. See Introduction for explanation of mitigation types.

CHAPTER 53.
VASHON ISLAND FIRE & RESCUE (KING COUNTY FIRE PROTECTION DISTRICT 13) ANNEX

53.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Hank Lipe, Fire Chief
10020 SW Bank Road
Vashon, WA 98070
Telephone: 206-463-2405
e-mail Address: hlipe@vifr.org

Alternate Point of Contact

George Brown, Assistant Chief of Operations
10020 SW Bank Road
Vashon, WA 98070
Telephone: 206-463-2405
e-mail Address: gbrown@vifr.org

53.2 JURISDICTION PROFILE

Vashon Island Fire & Rescue (King County Fire Protection District No. 13) is a special-purpose district created in 1942 to provide Fire Protection, Rescue, Emergency Medical, and other related services to the unincorporated area of King County known as Vashon Island and Maury Island. A five-member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan; the Fire Chief will oversee its implementation. The Fire District is comprised of a combination of career and volunteer staff of approximately sixty-five members. Funding comes primarily through tax revenue.

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

- **Population Served—**10,624 as of 2010
- **Land Area Served—**37 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $2,326,833,300
- **Land Area Owned—**6.25 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
  - (6) Fire Engines and contents $3,200,000
  - (4) Water Tenders and contents $2,480,000
  - (4) Ambulances and contents $878,000
  - (2) Medic Units and contents $180,000
  - (7) Staff vehicles & contents $329,000
  - (1) Ladder truck & contents $940,000
  - (2) Brush trucks & contents $175,000
  - (1) Rescue truck & contents $880,000
  - (1) Boat & contents $78,000
  - (3) Trailers & Contents $135,000
  - (2) Mobile generators $178,000

- **Total Value of Critical Infrastructure/Equipment—**The total value of critical infrastructure and equipment owned by the jurisdiction is $9,453, 000.
- **List of Critical Facilities Owned by the Jurisdiction:**
  - Headquarters Station & contents $7,550,000
  - Training Center & contents $1,940,000
  - Maintenance Facility & contents $615,000
  - Training Annex & contents $886,000
  - Bennedsen Residence & contents $467,000
  - Burton Station & contents $682,000
  - Dockton Station & contents $683,000
  - Heights Station & contents $624,000
  - Tahlequah Station & contents $735,000
- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $12,140,000.
- **Current and Anticipated Service Trends—**Vashon Island Fire & Rescue responds to approximately 1,500 calls for service in the service year. Responses are anticipated to increase 5 to 10 percent per year, especially in the field of emergency medical services.

53.3 APPLICABLE REGULATIONS AND PLANS

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

- Vashon Emergency Management Plan, adopted by Vashon Island Fire & Rescue, approved by Vashon Island Emergency Management Agency, reviewed by King County Office of Emergency Management, 2009
- Resolution by Vashon Island Fire & Rescue, National Incident Management System adoption, 2009
- The District must adhere to all applicable codes and regulations enforced by federal, state and King County authorities with a sphere of influence within the District service area

53.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 53-1.

TABLE 53-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection	Yes	5	05/14
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

53.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 53-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 53-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm	DR-4056	01/12	Island-specific estimate not avail.
Winter Storm	DR-1963	01/11	Island-specific estimate not avail.
H1N1 Pandemic		2009	Island-specific estimate not avail.
Winter Storm	DR-1817	01/09	Island-specific estimate not avail.
Winter Storm/Record Snow	DR-1825	12/08 to 01/09	Island-specific estimate not avail.
Winter Storm	DR-1734	12/07	Island-specific estimate not avail.
Winter Wind Storm Extended Power Outage	DR-1682	12/06	Island-specific estimate not avail.
Oil Spill/Dalco Passage		10/05	Island-specific estimate not avail.
Winter Storm	DR-1499	10/03	Island-specific estimate not avail.
Nisqually Earthquake	DR-1361	02/01	Island-specific estimate not avail.
Winter Storm	DR-1159	12/96 to 02/97	Island-specific estimate not avail.
Winter Storm	DR-1152	11/96 to 12/96	Island-specific estimate not avail.
Winter Storm	DR-1079	11/95 to 12/95	Island-specific estimate not avail.
Wind Storm	DR-981	01/93	Island-specific estimate not avail.
Winter Storm	DR-784	11/86	Island-specific estimate not avail.
Volcanic Eruption Mount St. Helens	DR-623	05/80	Island-specific estimate not avail.
Gas Crisis/Major Fuel Shortages		1974	Island-specific estimate not avail.
Winter Storm/Blizzard		01/72	Island-specific estimate not avail.

53.6 HAZARD RISK RANKING

Table 53-3 presents the ranking of the hazards of concern.

53.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 53-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 53-5 identifies the priority for each initiative. Table 53-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 53-3.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	54 *(top 3 ranked equal)*
2	Severe Winter Weather	54 *(top 3 ranked equal)*
3	Earthquake	*54 (top 3 ranked equal)*
4	Landslide	33
5	Wildfire	28
6	Tsunami	24
7	Volcano	14
8	Flood	12
9	Dam Failure	0
10	Avalanche	0

TABLE 53-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VIFR-1-Continue to support county-wide initiatives identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	All	VIFR	Low	District	Ongoing
VIFR-2-Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.						
New and Existing	All Hazards	2, 4, 7, 8, 13	VIFR	Low	District	Ongoing
VIFR-3-Conduct engineering study of earthquake and severe weather survivability and continuity of emergency capability of District fire stations, make recommendations for improvements or replacement.						
Existing	Earthquake	1, 2, 4, 5, 8, 9, 12	VIFR	High	District, HMGP	Short Term
VIFR-4-Guided by engineering study, retrofit or replace District fire stations to comply with earthquake building codes, improve survivability and continuity of emergency services for each structure						
Existing	Earthquake	1, 2, 4, 5, 8, 9, 12	VIFR	High	FEMA HMGP, PDM	Short & Long Term
VIFR-5-Expand Vashon's Neighborhood Emergency Response Organization program, organizing new NEROs and nurturing existing ones with neighborhood level preparedness education and outreach.						
New and Existing	All Hazards	All	VIFR, Vashon Be Prepared	High	District, Grants	Short Term & Ongoing
VIFR-6- Update and upgrade 2009 Vashon Emergency Management Plan						
New and Existing	All Hazards	All	VIFR, Vashon Be Prepared	Low	District, Grants	Short Term

TABLE 53-4.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
VIFR-7- Develop landslide annex to Vashon Emergency Management Plan and conduct training exercises/drills to refine it						
New and Existing	Landslide	1, 2, 4, 5, 8, 9, 12	VIFR, Vashon Be Prepared	Low	District	Short Term
VIFR-8- Assemble mobile cache for response to major landslide or building collapse/earthquake response including command post and National Incident Management System/Incident Command System functions to support field command or alternate Emergency Operations Center						
New and Existing	Landslide, Earthquake	1, 2, 4, 5, 8, 9, 12	VIFR	Medium	District, HMGP	Short Term
VIFR-9 -Purchase flexible vessel (e.g., small landing craft) and dock/storage facility, develop deployment plan and conduct training exercises for use of vessel in support of marine/shoreline and humanitarian relief operations in event of landslide, earthquake or other isolating incident						
New and Existing	Landslide, Earthquake	1, 2, 4, 5, 8, 9, 12	VIFR	Medium	District, HMGP	Short Term
VIFR-10 -Develop and maintain a coordinated approach between VIFR and Island water purveyors to identify needed improvements in water distribution system for firewater supplies						
New and Existing	Wildfire, Earthquake	1, 2, 4, 5, 7, 8, 12, 14	VIFR	Medium	District, HMGP	Short Term

TABLE 53-5.
MITIGATION STRATEGY PRIORITY

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

a. See Introduction for explanation of priorities.

TABLE 53-6.
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
Avalanche	-	-	-	-	-	-
Dam Failure	-	-	-	-	-	-
Earthquake	1, 2, 3	3, 4, 10	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	4, 5
Flood				-		
Landslide	1, 2, 3	3, 4, 7	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	4, 5
Severe Weather	1, 2, 3	3, 4	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	4, 5
Severe Winter Weather	1, 2, 3	3, 4	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	4, 5
Tsunami	1, 2, 3	3, 4, 9	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	-
Volcano	1, 2, 3	3, 4, 9	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	-
Wildfire	10	9, 10	5	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	-

a. See Introduction for explanation of mitigation types.

53.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK/ VULNERABILITY

Planning for a tsunami would be greatly enhanced through a Puget Sound Region study of potential effects from a tsunami, seiche or undersea landslide event. Although scientists know of a destructive seismic incident perhaps ten centuries ago, little quantifiable information is available for risk modeling purposes.

CHAPTER 54.
WOODINVILLE WATER DISTRICT ANNEX

54.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Kurt Oakland, Safety Officer
17238 NE Woodinville Duvall Road
Woodinville, WA 98072
Telephone: 425-487-4113
e-mail Address: koakland@woodinvillewater.com

Alternate Point of Contact

Ken McDowell, District Engineer
17238 NE Woodinville Duvall Road
Woodinville, WA 98072
Telephone: 425-487-4104
e-mail Address kmcdowell@woodinvillewater.com

54.2 JURISDICTION PROFILE

The Woodinville Water District, formerly King County Water District No. 104, is a municipal corporation of King County, Washington. King County Water District No. 104 was established in 1959 and officially became known as the Woodinville Water District in 1985.

The District engineer prepared the first comprehensive plan for water development in August of 1960. Construction of the first part of the system was completed and the District was able to commence serving water to its customers in January of 1963.

The District purchases all its water supply from the City of Seattle for distribution to its customers. The majority of our water comes from the Tolt River Reservoir, but occasionally we receive water from the Cedar River Reservoir. From 1963 to the present, the District has grown to an area of approximately 30 square miles. In 1969, the District started providing sewer service to a small portion of customers and, thus, became a water and sewer district, but has chosen to keep the name Woodinville Water District.

In the first year of operation the District served 14 million gallons of water. In 1973 annual consumption was 243 million gallons. In 2004 the District purchased over 1.5 billion gallons of water. The Woodinville Water District presently is the fifth largest district in King County, serving 14,073 water customers and 2,873 (2013) sewer customers. Anticipated future growth would result in a combined customer base of 25,000 sewer and water connections by the year 2020.

Currently the District maintains over 250 miles of water mains ranging in size from 4 to 18 inches, 6 steel reservoirs, 45 pressure reducing stations, 4 water and 2 sewer pump stations, and other related facilities. The District also maintains over 40 miles of gravity sewer main from 8 to 18 inch along with 0.48 miles of siphon sewer main range 6 inches to 8 inches. The District expects to continue expanding its facilities to meet the needs of its customers.

The organization of the District includes an elected five member Board of Commissioners, which is supported by a General Manager and staff of thirty-five employees. The Board of Commissioner's assumes responsibility for the adoption of this plan; General Manager will oversee its implementation.

Funding is provided through rates, connection charges, revenue bonds, Public Works Trust Fund Loans and grants.

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

- **Population Served -** Approximately 46,000 estimated as of December 2013
- **Land Area Served—**Approximately 30 square miles
- **Value of Area Served—**The estimated value of the area served by the jurisdiction is $7,816,929,083
- **Land Area Owned—**39.88 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

	Property Value	Content Value
– Vehicles and related equipment	$1,359,554	$0
– Fixed Assets	$186,478	$0
– Non-Capital Equipment	$141,073	$0
– Membrane Bio Reactor	$0	$225,260
– Kingsgate Act. Valve	$0	$82,500
– Kingsgate Reservoir (1.1 MG)	$243,000	$1,219,170
– Hollywood Pump Station	$0	$557,990
– Hollywood Reservoir (2.4 MG)	$308,000	$1,768,690
– Wellington Reservoir (1.4 MG)	$900,000	$1,400,000
– Brookside Control Vault	$	$78,500
– No Facility Name Listed	$1,823,220	$0
– Siphon 1	$750,000	$700,000
– Sunrise Lift Station	$0	$300,000
– S. Hollywood Valve & Flow Unit	$0	$182,500
– S. Hollywood Reservoir (1.74 MG)	$600,000	$1,669,160
– S. Hollywood Booster Pump Station	$0	$412,100
– Ringhill Pump Station	$200,000	$385,680
– Jim Bard Reservoir (1.8 MG)	$210,000	$1,446,710
– PRV Station #16	$0	$76,500
– Sammamish Reservoir (2.8 MG)	$487,000	$1,980,990
– Lake of the Woods East Pump Station	$50,000	$214,500
– Aspenwood Reservoir (1.1 MG)	$237,000	$1,334,000
– English Hills Sewer Lift Station	$0	$173,500
– 250 Miles of water main	$0	$140,000,000
– 40 Miles of Sewer main.	$0	$42,000,000
– 45 PRV stations	$0	$2,025,000

- **Total Value of Critical Infrastructure/Equipment—**the total value of critical infrastructure and equipment owned by the jurisdiction is $**394,465,750.**
- **List of Critical Facilities Owned by the Jurisdiction:**

	Property Value	Content Value
– Conference Bldg. - A	$1,628,910	$231,800
– Admin Bldg. - B	$935,080	$157,308

– Maintenance & Operations - C	$543,180	$94,600
– Emergency Preparedness - D	$1,018,000	$177,400
– Vehicle Storage - E	$637,500	$187,300

- **Total Value of Critical Facilities—**The total value of critical facilities owned by the jurisdiction is $5,611,078
- **Current and Anticipated Service Trends—**Slow to moderate growth is expected in the coming years. It is anticipated that future growth will result in a combined customer base of 25,000 sewer and water connections by the year 2020.

54.3 APPLICABLE REGULATIONS AND PLANS

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

- Resolution #3505 Woodinville Water District Regional Hazard Mitigation Plan.
- The District's current hazard mitigation efforts are achieved using the WWD Comprehensive Water System Plan (2008). The Plan includes Capital Improvement Projects (CIP), which include AC-pipe replacement and reservoir seismic retrofits.
- The District also uses the General Sewer Plan (2007) for Hazard Mitigation through sewer system camera work to ensure the system is stable.
- The Districts Vulnerability Assessment study (2003) was used to determine District vulnerability to terrorist attacks and ways to mitigate them.
- The District Emergency response plan (2004) would be reviewed after an emergency to assess all policy, procedures, operations and hazard mitigation changes.
- Army Corp of Engineers
- Washington State Department of Health
- Washington State Department of Ecology
- Federal Environmental Protection Agency
- Safe Drinking Water Act
- Title 57 of the Revised Code of Washington
- Purveyor contract with Seattle Public Utilities, WWD Resolution 3512, December 7, 2004
- Snohomish River Regional Water Authority Agreement, December 18, 1996
- King County Franchise Agreement No. 9353
- East King County Coordinated Water System Plan, November 1996

54.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 54-1 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 54-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Nisqually Earthquake	1361-DR-WA	2/28/01	Wellington reservoir $6,486.75 Kingsgate Reservoir $10,001.61
Wind storm	No FEMA Disaster # – Insurance claim, Insurance paid $2,100	12/14/06	South Hollywood Reservoir & Aspenwood Reservoir • Fencing $3,111.08 • Tree removal $2,200
Snow – Severe winter storm event	1825-WA	1-5-09 &1-6-09	Damaged gutters, Damaged PRV Vault. $34,164.42

54.5 HAZARD RISK RANKING

Table 54-2 presents the ranking of the hazards of concern.

TABLE 54-2.
HAZARD RISK RANKING

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Winter Storm	39
3	Severe Weather	36
4	Flood	12
5	Landslide	8
6	Avalanche	0
7	Dam Failure	0
8	Tsunami	0
9	Volcano	0
10	Wildfire	0

54.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 54-3 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 54-4 identifies the priority for each initiative. Table 54-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

TABLE 54-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	In previous Plan?
WWD 1—Continue to support countywide initiatives identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	All Objectives	WWD	Low	District Funds	Ongoing	No
WWD 2—Participate in the plan maintenance strategy identified in part 3 of volume 1 of this plan.							
New and Existing	All Hazards	2,4,7,13	WWD	Low	District Funds	Ongoing	No
WWD 3—Backup generators at various district sites.							
Existing	Earthquake, Severe Weather, Severe Winter Weather	1,2,4,5,14	WWD	$75,000	Loans, Grants, District Funds	Short term	No
WWD 4—Continue ongoing water conservation program.							
Existing	All hazards	1,10	WWD	20,000	District Funds	On going	No
WWD 5—Kingsgate Standpipe - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$802,000	Loans, Grants, HMGP, PDM, District Funds	Short term	No
WWD 6—Hollywood Reservoir - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$887,500	Loans, Grants, HMGP, PDM, District Funds	Short term	No
WWD 7 --- James Bard Memorial(Ringhill)Reservoir – Seismic Upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$1,041,000	Loans, Grants, HMGP, PDM, District Funds	Short term	No
WWD 8—Brookside Reservoir - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$1,418,000	Loans, Grants, HMGP, PDM, District Funds	Short term	No
WWD 9—Aspenwood Standpipe - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$1,100,000	Loans, Grants, HMGP, PDM, District Funds	Long term	No

TABLE 54-3.
HAZARD MITIGATION ACTION PLAN MATRIX

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	In previous Plan?
WWD 10—Sammamish Reservoir - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$1,055,000	Loans, Grants, HMGP, PDM, District Funds	Long term	No
WWD 11—Wellington Reservoir - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$858,500	Loans, Grants, HMGP, PDM, District Funds	Long term	No
WWD 12—South Hollywood Reservoir - Seismic upgrade							
Existing	Earthquake	1,2,4,5,14	WWD	$845,500	Loans, Grants, HMGP, PDM, District Funds	Long term	No
WWD 13—Pursuing redundant sources of water supply.							
Existing	All Hazards	1,5,8,12	WWD	$450,000	Loans, Grants, District Funds	Long term	Yes
WWD 14—Study the feasibility and requirements of making the existing Wellhead at the WWD District Headquarters operational.							
Existing	All Hazards	1,5,8,12	WWD	$226,000	Loans, Grants, District Funds	Short term	Yes

TABLE 54-4.
MITIGATION STRATEGY PRIORITY

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]
WWD-1	15	High	Low	Yes	Yes	Yes	High
WWD-2	4	High	Low	Yes	No	Yes	High
WWD-3	5	High	Medium	Yes	No	No	Low
WWD-4	2	Low	Low	Yes	No	Yes	Low
WWD-5	5	High	Medium	Yes	Yes	Yes	High
WWD-6	5	High	Low	Yes	Yes	Yes	High
WWD-7	5	High	Low	Yes	Yes	Yes	High
WWD-8	5	High	Low	Yes	Yes	Yes	High
WWD-9	5	High	High	Yes	Yes	No	Low
WWD-10	5	High	High	Yes	Yes	No	Low
WWD-11	5	High	Medium	Yes	Yes	Yes	High
WWD-12	5	High	High	Yes	Yes	No	Low
WWD-13	4	Low	High	No	Yes	Yes	Low
WWD-14	15	Med	Low	Yes	Yes	Yes	High

a. See Introduction for explanation of priorities.

TABLE 54-5.
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
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Earthquake	1,2 & 5-12	1, 3 & 5-12	1, 2	1, 3	1, 3	1, 5-12
Flood	1, 2	1	1, 2	1	1	1
Landslide	1, 2	1	1, 2	1, 3	1, 14	1
Severe Weather	1, 2, 3	1, 3	1, 2	1	1, 3	1
Severe Winter Weather	1, 2,3	1, 3	1, 3	1, 3	1, 3	1, 3
Tsunami	--	--	--	--	--	--
Volcano	--	--	--	--	--	----
Wildfire	--	--	--	--	--	

a. See Introduction for explanation of mitigation types.

54.7 ADDITIONAL COMMENTS

The district boundary is shown in Figure 54-1

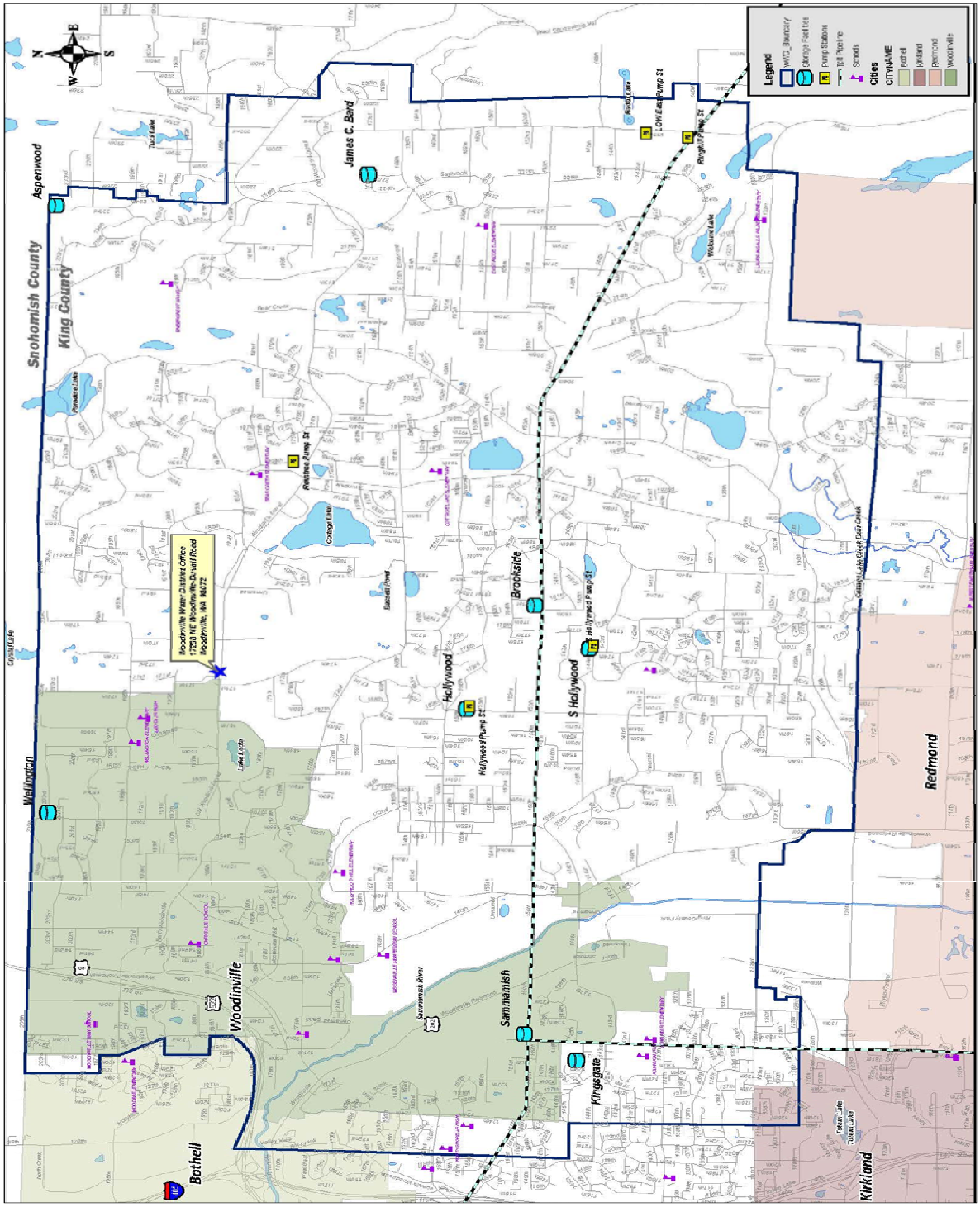

Figure 54-1. Woodinville Water District Boundary

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:

- **The Estimated level of effort.** It is estimated that the total time commitment to meet these "participation" requirements for a planning partner not participating on the Steering Committee would be approximately 40 hours over the 12 to 14 month period. Approximately sixty percent of this time would be allocated to meeting items F through L described below. 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. 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. 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.

- **Facility Update.** Each planning partner will be requested to update their facilities list for use during the risk assessment. If the list is not updated, Hazus default data will be utilized. Updating this list provides a much more detailed analysis.
- **Consistency Review.** All planning partners will be asked to identify their capabilities during this process. This capability assessment will require a review of existing documents (plans, studies and ordinances) pertinent to each jurisdiction to identify policies or recommendations that are consistent with those in the "base" plan or have policies and recommendations that complement the hazard mitigation initiatives selected (i.e.: comp plans, basin plans or hazard specific plans).
- **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.
- **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 perform a "consistency review" of all technical studies, plans, ordinances specific to hazards to determine the existence of any not consistent with the same such documents reviewed in the preparation of the County (parent) Plan. For example, if your community has a floodplain management plan that makes recommendations that are not consistent with any of the County's Basin Plans, that plan will need to be reviewed for probable incorporation into the plan for your area.
- 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@tetratech.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**	**Janice.Rahman@Kingcounty.gov**
Sam Ripley	**King County OEM**	**3511 NE 2nd Street** **Renton, WA 98056**	**(206) 205-4072**	**Sam.Ripley@kingcounty.gov**
Rob Flaner	**Tetra Tech, Inc.**	**90 S. Blackwood Ave** **Eagle, ID 83616**	**(208) 939-4391**	**Rob.flaner@tetratech.com**

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 within King County are included in the King County Regional Hazard Mitigation Plan Update. It is assumed that some or all of these non-participating local governments may choose to "link" to the Plan at some point to gain eligibility for programs under the federal Disaster Mitigation Act. In addition, some of the current partnership may not continue to meet eligibility requirements due to a lack of participation as prescribed by the plan. The following "linkage" procedures define the requirements established by the Planning team for dealing with an increase or decrease in the number of planning partners linked to this plan. It should be noted that a currently non-participating jurisdiction within the defined planning area is not obligated to link to this plan. These jurisdictions can chose to do their own "complete" plan that addresses all required elements of section 201.6 of 44 CFR.

INCREASING THE PARTNERSHIP THROUGH LINKAGE

The annual time period for the linkage process will be from March to August during any year. Eligible linking jurisdictions are instructed to complete ***all*** of the following procedures during this time frame:

- The eligible jurisdiction requests a "Linkage Package" by contacting the Point of Contact (POC) for the plan:

  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 packages that includes:

  - Copy of Volume 1 and 2 of the plan
  - Planning partner's expectations package
  - A sample "letter of intent" to link to the Regional Hazard Mitigation Plan Update
  - A Special Purpose District or City template and instructions
  - Catalog of Hazard Mitigation Alternatives
  - A "request for technical assistance" form
  - A copy of Section 201.6 of Chapter 44, the Code of Federal Regulations (44 CFR), which defines the federal requirements for a local hazard mitigation plan.
- The new jurisdiction will be required to review both volumes of the Regional Hazard Mitigation Plan Update, which includes the following key components for the planning area:
  - The planning area risk assessment
  - Goals and objectives
  - Plan implementation and maintenance procedures
  - Comprehensive review of alternatives
  - Countywide initiatives.

Once this review is complete, the jurisdiction will complete its specific annex using the template and instructions provided by the POC. Technical assistance can be provided upon request by completing the request for technical assistance (TA) form provided in the linkage package. This TA may be provided by the POC or any other resource within the Planning Partnership such as a member of the Steering Committee or a currently participating City or Special Purposes District partner. The POC will determine who will provide the TA and the possible level of TA based on resources available at the time of the request.

- The new jurisdiction will be required to develop a public involvement strategy that ensures the public's ability to participate in the plan development process. At a minimum, the new jurisdiction must make an attempt to solicit public opinion on hazard mitigation at the onset of this linkage process and a minimum of one public meeting to present their draft jurisdiction specific annex for comment, prior to adoption by the governing body. The Planning Partnership will have resources available to aid in the public involvement strategy such as the Plan website. However, it will be the new jurisdiction's responsibility to implement and document this strategy for incorporation into its annex. It should be noted that the Jurisdictional Annex templates ***do not*** include a section for the description of the public process. This is because the original partnership was covered under a uniform public involvement strategy that covered the planning area described in Volume 1 of the plan. Since new partners were not addressed by that strategy, they will have to initiate a new strategy, and add a description of that strategy to their annex. For consistency, new partners are encouraged to follow the public involvement format utilized by the initial planning effort as described in Volume 1 of the plan.
- Once their public involvement strategy is completed and they have completed their template, the new jurisdiction will submit the completed package to the POC for a pre-adoption review to ensure conformance with the Regional plan format.
- The POC will review for the following:
  - Documentation of Public Involvement strategy
  - Conformance of template entries with guidelines outlined in instructions
  - Chosen initiatives are consistent with goals, objectives and mitigation catalog of the Regional Hazard Mitigation Plan Update
  - A designated point of contact
  - A ranking of risk specific to the jurisdiction.

  The POC may utilize members of the Steering Committee or other resources to complete this review. All proposed linked annexes will be submitted to the Steering Committee for review and comment prior to submittal to the Washington State Emergency Management Division.
- Plans approved and accepted by the Steering Committee will be forwarded to the Washington State Emergency Management Division for review with a cover letter stating the forwarded plan meets local approved plan standards and whether the plan is submitted with local adoption or for criteria met/plan not adopted review.
- The Washington State Emergency Management Division 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 new jurisdiction of results of review with copies to the Washington State Emergency Management Division and approved planning authority.

- New jurisdiction corrects plan shortfalls (if necessary) and resubmits to the Washington State Emergency Management Division through the approved plan lead agency.
- For plans with no shortfalls from the FEMA review that have not been adopted, the new jurisdiction governing authority adopts the plan (if not already accomplished) and forwards adoption resolution to FEMA with copies to lead agency the Washington State Emergency Management Division.
- FEMA regional director notifies new jurisdiction governing authority of plan approval.

The new jurisdiction plan is then included with the regional plan with the commitment from the new jurisdiction to participate in the ongoing plan implementation and maintenance.

DECREASING THE PARTNERSHIP

The eligibility afforded under this process to the planning partnership can be rescinded in two ways. First, a participating planning partner can ask to be removed from the partnership. This may be done because the partner has decided to develop its own plan or has identified a different planning process for which it can gain eligibility. A partner that wishes to voluntarily leave the partnership shall inform the POC of this desire in writing. This notification can occur any time during the calendar year. A jurisdiction wishing to pursue this avenue is advised to make sure that it is eligible under the new planning effort, to avoid any period of being out of compliance with the Disaster Mitigation Act.

After receiving this notification, the POC shall immediately notify both 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 7 in Volume 1 of the plan. Each partner agreed to these terms by adopting the plan.

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

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

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

- The POC will advise the Steering Committee of this pending action and provide evidence or justification for the action. Justification may include: multiple failures to submit annual progress reports, failure to attend meetings determined to be mandatory by the Steering

Committee, failure to act on the partner's action plan, or inability to reach designated point of contact after a minimum of five attempts.

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

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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2014

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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 (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 59ºF. 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.

> ***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."

- **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."

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:

What department is responsible for floodplain management in your community?	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
Who is your Community's Floodplain Administrator? (Department/Position)	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.
Do you have any Certified Floodplain Managers (CFM) on staff within your community?	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.
What is the date of adoption of your flood damage prevention ordinance?	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.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	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

	Community Floodplain Administrator. If she or he does not know, you should check with the State NFIP Coordinator: Scott McKinney, Washington Department of Ecology 360-407-6131 scott.mckinney@ecy.wa.gov
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.	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.
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why).	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."
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?	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.
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?	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.

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)

TABLE 4.
HAZARD IMPACT ON PROPERTY

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Economy

To assess impacts on the economy, values are assigned based on the percentage of the total ***property value vulnerable*** to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total assessed value of property in the county. For some hazards, such as wildland fire, landslide and severe weather, vulnerability is the same as exposure due to the lack of loss estimation tools specific to those hazards. In Table 5, list the potential impact of each hazard on the economy in your jurisdiction, along with its impact factor, as follows:

- **High Impact—**Estimated loss from the hazard is 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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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					
Is the plan equipped to provide linkage to this mitigation plan?					__Yes or No___
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
What types of capital facilities does the plan address?					_____
How often is the plan revised/updated?					__Yes or No___
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 #

TABLE 1-6.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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		

1.6 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 1-9.
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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-10.
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
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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2013

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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**.**

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 59ºF. 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.

> ***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."

- **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."

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:

What department is responsible for floodplain management in your community?	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
Who is your Community's Floodplain Administrator? (Department/Position)	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.
Do you have any Certified Floodplain Managers (CFM) on staff within your community?	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.
What is the date of adoption of your flood damage prevention ordinance?	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.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	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

	Community Floodplain Administrator. If she or he does not know, you should check with the State NFIP Coordinator: Scott McKinney, Washington Department of Ecology 360-407-6131 scott.mckinney@ecy.wa.gov
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.	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.
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why).	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."
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?	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.
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?	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.

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—3**0% or more of the population is exposed to a hazard (Impact Factor = 3)
- **Medium Impact—1**5% 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)

TABLE 4.
HAZARD IMPACT ON PROPERTY

Hazard Type	Impact	Impact Factor	Weighted Impact Factor (Unweighted Factor x 2)

Impacts on the Economy

To assess impacts on the economy, values are assigned based on the percentage of the total ***property value vulnerable*** to the hazard event. Values represent estimates of the loss from a major event of each hazard in comparison to the total assessed value of property in the county. For some hazards, such as wildland fire, landslide and severe weather, vulnerability is the same as exposure due to the lack of loss estimation tools specific to those hazards. In Table 5, list the potential impact of each hazard on the economy in your jurisdiction, along with its impact factor, as follows:

- **High Impact—**Estimated loss from the hazard is 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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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					
Is the plan equipped to provide linkage to this mitigation plan?					__Yes or No___
Floodplain or Basin Plan					
Stormwater Plan					
Capital Improvement Plan					
What types of capital facilities does the plan address?					_____
How often is the plan revised/updated?					__Yes or No___
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 #

TABLE 1-6.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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		

1.6 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.

TABLE 1-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments

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 1-10.
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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-11.
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
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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2014

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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.

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.

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 Myrtletown, 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.

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.

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

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 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)

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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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

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

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

TABLE 1-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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 1-4.
MITIGATION STRATEGY PRIORITY

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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-5.
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
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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2014

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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.

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.

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 Myrtletown, 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.

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.

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

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 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)

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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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

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

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

TABLE 1-1.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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 STATUS OF PREVIOUS PLAN INITIATIVES

Table 1-3 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 1-3.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments

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 1-5.
MITIGATION STRATEGY PRIORITY

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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-6.
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
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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2014

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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.

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.

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 Myrtletown, 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.

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

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 SHELDUS 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)

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)

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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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.
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- **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 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

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

1.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 1-1.

TABLE 1-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection			
Storm Ready			
Firewise			
Tsunami Ready			

1.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 1-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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		

1.7 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 1-5.
MITIGATION STRATEGY PRIORITY

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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-6.
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
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.

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@tetratech.com

Please complete and return by:
Friday, January 17, 2014

Please email completed template to:
Kristen Gelino
425.482.7801
kristen.gelino@tetratech.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).

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.

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.

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 Myrtletown, 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.

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.

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)

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 that what you know based on substantiated data and documentation, you may alter the ranking based on this knowledge. If this is the case, please note this fact in 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.

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.

- 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 1-5 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

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

1.4 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 1-1.

TABLE 1-1.
COMMUNITY CLASSIFICATIONS

	Participating?	Classification	Date Classified
Public Protection			
Storm Ready			
Firewise			
Tsunami Ready			

1.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-2 lists all past occurrences of natural hazards within the jurisdiction.

TABLE 1-2.
NATURAL HAZARD EVENTS

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment

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		

1.7 STATUS OF PREVIOUS PLAN INITIATIVES

Table 1-4 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 1-4.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS

	Action Status			
Action #	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	Comments

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 1-6.
MITIGATION STRATEGY PRIORITY

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]

a. See Chapter 1 for explanation of priorities.

TABLE 1-7.
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
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