

**PART 3—
FIRE DISTRICT ANNEXES**

CHAPTER 14. FIRE DISTRICT #1 ANNEX

14.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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14.2 JURISDICTION PROFILE

Fire District #1 is the largest provider of fire and emergency medical services in Snohomish County, serving approximately 230,000 residents and employing 195 fire suppression personnel and 60 support personnel. The support personnel include the administration's support personnel, commissioners, volunteers and chaplains. The District was formed in 1950. Fire District #1 has been a leader in regionalizing fire and emergency services – completing a successful department merger in 1999 and implementing a consolidated apparatus maintenance program with two other departments. Fire District #1 is a junior taxing district that is governed by five commissioners with day-to-day operations overseen by an appointed Fire Chief. This board will assume responsibility for the adoption and implementation of this plan. Situated on the Interstate 5 corridor, the 45.5-square mile District contains a mix of land uses including single-family and multi-family residential, commercial and industrial. The District represents approximately 31 percent of the parcels located in unincorporated Snohomish County and Fire District #1's assessed value represents approximately 33.7 percent of the assessed value of all parcels located in unincorporated Snohomish County. Fire District #1 also provides fire protection services to the cities of Mountlake Terrace, Edmonds, and Brier; and the Town of Woodway by contract. Snohomish County Fire District #1, with the contact cities of Brier, Edmonds and Mountlake Terrace; and the Town of Woodway, represent 69,691 of Snohomish Counties 286,364 total parcels of land or approximately 24.3 percent of the County.

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

- **Population Served**—230,000 as of 2010
- **Land Area Served**—45.5 square miles (including the contract cities)
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$24,272,911,227
- **Land Area Owned**—20.21 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

District #1 has a staff of 195 professional firefighters staffing 12 stations (10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, & 23) around the clock. Ten stations have an engine and medic/aid unit available each shift. Two stations staff and respond with a ladder truck as dispatched. Station 21 also responds with Decon 21 as dispatched and Station 22 will respond with TR-22 (trench rescue). The equipment list includes:

- 19 Fire engines
- 3 Ladder Trucks
- 14 ALS Ambulances
- 3 BLS Ambulances
- 10 Command vehicles
- 16 Utility vehicles
- 1 Hazardous materials vehicle
- 14 Support vehicles
- 4 Trailers
- 2 Rescue units
- 1 Boat
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$10,147,015
- **List of Critical Facilities Owned by the Jurisdiction** (Fire Stations 16, 17, 19 and 20 are owned by client agencies):
 - Fire Station 10 \$837,200
3922 156th St SW
Lynnwood, WA 98037
 - Fire Station 11 \$3,595,672
12310 Meridian Ave
Everett, WA 98208
 - Fire Station 12 \$1,895,913
3528 108th St SE
Everett, WA 98208
 - Fire Station 13 \$995,925
13611 Puget Park Dr.
Everett, WA 98208
 - Fire Station 18 (under construction) \$3,016,000
212th Poplar Way
Brier, WA 98037
 - Fire Station 21 \$4,867,200
16819 13 Ave W
Lynnwood, WA 98037
 - Fire Station 22 \$651,015
20510 Damson Rd.
Lynnwood, WA 98036
 - Fire Station 23 \$647,340
4323 Serene Way
Lynnwood, WA 98037

– Headquarters Building 12425 Meridian Ave Everett, WA 98208	\$5,502,880
– Education Center 12425 Meridian Ave Everett, WA 98208	\$506,189
– Maintenance/Training 12425 Meridian Ave Everett, WA 98208	\$1,248,000
– Training Tower 12425 Meridian Ave Everett, WA 98208	\$837,200

- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$24,600,534
- **Current and Anticipated Service Trends**—Based on the *Snohomish County Tomorrow Growth Monitoring Report*, the portion of Snohomish County serviced by Fire District #1 experienced a five percent increase in population from 1990 to 2000. It is projected that the population in this portion of the county will increase by 15 percent, or 1.34 percent annually, by the year 2012. Based on these projections, it is assumed that the serviced population of Fire District #1 will increase by similar ratios. Annexations of Fire District #1 response area are anticipated in the future.

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume.

14.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 14-1 lists all past occurrences of natural hazards within the jurisdiction.

14.4 HAZARD RISK RANKING

Table 14-2 presents the ranking of the hazards of concern.

14.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- The District must adhere to all applicable codes and regulations enforced by federal, State and local authorities within the District service area.
- Washington State Fire Service Resource Mobilization Plan

14.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 14-3.

14.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 14-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 14-5 identifies the priority for each initiative. Table 14-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

14.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 14-7 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.

14.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Analysis of hazards and risks employing accessible science and technology.

Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Severe Storm	1499-DR	11/7/03	No estimates available
Earthquake (Nisqually)	1361-DR	2/28/2001	\$2 to \$3 million for the County
Storm/Flooding	1172-DR	4/2/1997	No estimates available
Ice/Snow	1159-DR	1/7/1997	No estimates available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	30
2	Earthquake	22
3	Landslide	20
4	Flood	20
5	Wildfire	3
6	Volcano/Lahar	0
7	Dam Failure	0
8	Tsunami	0
9	Avalanche	0

TABLE 14-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	4	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 14-4. 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?	
FD1-1—Seismic Retrofit Stations 22 and 23								
Existing	Earthquake	1, 2, 5	District	\$200,000	Capital Improvement Funds, FEMA Hazard Mitigation Grants	Short term	Yes	
FD1-2—Enhance existing public information and public education programs to emphasize preparedness and mitigation for all natural hazards								
Existing	All Hazards	3, 4, 9, 10	District	Low	District Funds, EMPG	Short term	Yes	
FD1-3—Enhance Fire Operations Center								
New	All Hazards	1, 5	District	\$100,000	District Funds, EMPG	Short term	No	
FD1-4—Support County-wide initiatives identified in Chapter 21 of Volume 1.								
New and Existing	All Hazards	All	District	Low	District Funds	Short-term, ongoing	No	
FD1-5—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.								
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No	

**TABLE 14-5.
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
FD1-1	3	High	Medium	Yes	Yes	No	Medium
FD1-2	4	High	Low	Yes	Yes	Yes	High
FD1-3	2	High	Medium	Yes	Yes	No	Medium
FD1-4	14	High	Low	Yes	No	Yes	High
FD1-5	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 14-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure						
Earthquake	FD1-4, FD1-5	FD1-1, FD1-4	FD1-2, FD1-4, FD1-5	FD1-4	FD1-3, FD1-4	FD1-4
Flood	FD1-4, FD1-5	FD1-4	FD1-2, FD1-4, FD1-5	FD1-4	FD1-3, FD1-4	FD1-4
Landslide	FD1-4, FD1-5	FD1-4	FD1-2, FD1-4, FD1-5	FD1-4	FD1-3, FD1-4	FD1-4
Severe Weather	FD1-4, FD1-5	FD1-4	FD1-2, FD1-4, FD1-5	FD1-4	FD1-3, FD1-4	FD1-4
Tsunami						
Volcano/Lahar						
Wildfire	FD1-4, FD1-5	FD1-4	FD1-2, FD1-4, FD1-5	FD1-4	FD1-3, FD1-4	FD1-4

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 14-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1	X			Action completed in 2009. All stations equipped with emergency generators.
2		X		Station 21 remodeled and seismic issues resolved. Stations 22 and 23 remain and are carried over to updated action, see FD1-1.
3		X		Action not completed during initial performance period. Carried over, see FD1-2. Should be able to partially address with 2010 Fire Corp program.

CHAPTER 15. FIRE DISTRICT #3 ANNEX

15.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Monroe, WA 98272
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Alternate Point of Contact

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15.2 JURISDICTION PROFILE

Monroe Fire District #3 provides fire protection, rescue, and emergency medical services to Snohomish County Fire District #3 which includes the City of Monroe. We currently have 36 Career members and 30 Volunteer Firefighters. All of our firefighters are certified as Emergency Medical Technicians or Paramedics and provide 24-hour emergency response from our two fire stations. In addition to fire and EMS services, Fire District #3 also provides Technical Rescue, Hazardous Materials response, Public Assistance, Fire Prevention and Public Safety Education. Along with our firefighters, the district employs a Chief Fire Officer, an Assistant Chief Fire Officer, three Battalion Chiefs, six Captains, a Fire Marshal, a Medical Services Administrator, a Training Officer, a Public Educator, a Support Staff of three, and nine Mechanics. The District also contracts paramedic services to Snohomish County Fire District #5. Fire District #3 is a junior taxing district governed by a board of five Fire Commissioners and funded primarily through property taxes. The Board of Commissioners has adoptive and governing authority over the District and will assume the responsibility for the adoption and implementation of this plan.

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

- **Population Served**—28,745 as of January 1, 2010
- **Land Area Served**—56 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$3,415,257,307
- **Land Area Owned**—Approximately 4 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:** Table 15-1 lists all critical infrastructure and equipment owned by Fire District #3
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$5,900,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Station 31 163 Village Court, Monroe \$2,161,800
 - Station 32 22122-132nd Street, Monroe \$300,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$2,461,800

- **Current and Anticipated Service Trends**—Fire District #3’s population is growing at an annual rate of approximately 3 percent. This trend is expected to continue into the future. The District anticipates an average annual increase in call volume to correspond with the ongoing population increase.

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume.

15.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 15-2 lists all past occurrences of natural hazards within the jurisdiction.

15.4 HAZARD RISK RANKING

Table 15-3 presents the ranking of the hazards of concern.

15.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- City of Monroe Comprehensive Emergency Management Plan, 2005
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

15.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 15-4.

15.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 15-5 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 15-6 identifies the priority for each initiative. Table 15-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

15.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 15-8 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 15-1.
CRITICAL INFRASTRUCTURE/EQUIPMENT OWNED BY FIRE DISTRICT #3**

Year	Make	Model	AC Value	Equipment	Equipment Value
2008	Carnai	2800 Lb Boat Trailer	\$4,000		\$0
1999	Chevrolet	K3500 Road Rescue	\$50,000	Ems Equipment	\$130,000
1992	Chevrolet	Pick-Up 1/2 Ton	\$10,000	Radio & Equipment	\$40,000
1995	Chevrolet	Suburban	\$20,000	Radio & Equipment	\$55,000
2008	Chevrolet	Suburban	\$40,000	Radio & Equipment	\$55,000
2008	Chevrolet	Tahoe	\$10,000	Radio & Equipment	\$50,000
1984	Ford	4x4	\$20,000	Radio & Equipment	\$80,000
1991	Ford	Brush Truck	\$10,000	Radio & Equipment	\$90,000
2005	Ford	E-350 Braun Aid Unit	\$50,000	Sirens, Lights, Radio, Emerg. Equip.	\$130,000
1994	Ford	E-350 Ambulance	\$50,000	Ems Equipment	\$130,000
2005	Ford	E-450 Medic	\$50,000	Ems Equipment	\$130,000
2005	Ford	E-450 Medic	\$50,000	Ems Equipment	\$130,000
2008	Ford	Escape	\$25,000	Radio Equipment	\$10,000
1998	Ford	Expedition	\$10,000	Radio & Equipment	\$50,000
2004	Ford	Expedition	\$25,000	Radio & Equipment	\$50,000
2000	Ford	Expedition Sport Utility	\$10,000	Radio & Equipment	\$50,000
1991	Ford	Explorer	\$10,000	Radio & Equipment	\$35,000
1989	Ford	Rescue	\$75,000	Radio & Equipment	\$400,000
2009	IH	Tanker	\$25,000	Radio & Equipment	\$300,000
1995	Ford	Taurus	\$4,000	Radio & Equipment	\$7,000
2001	Ford F-350	12 Passenger Van	\$10,000	Radio & Equipment	\$40,000
2000	Ford F-450	4 X 4 Cab & Chassis W/Flatbed	\$25,000	Compartmentation & Brush Equip.	\$90,000
1985	GMC	Top Kick 7000	\$100,000	Radio & Equipment	\$80,000
1999	GMC	W4500 W/Cargo Box	\$75,000	Tools And Parts	\$750,000
1992	International	Cab & Chassis	\$75,000	Fire Fighting Equip	\$400,000
1936	Pirsch	Pumper	\$25,000		\$0
1996	Simon	LTI 110 Foot Aerial Ladder Apparatus	\$75,000	Fire Fighting Equip	\$800,000
2000	Spartan	H & W Fire Engine	\$75,000	Fire Fighting Equip	\$400,000
1987	Spartan	Western States Pumper	\$75,000	Fire Fighting Equip	\$400,000
	Phantom	21' Sportjohn Boat	\$10,000	Radio & Equipment	\$43,000
	Alumaweld	19' Seadory Boat	\$10,000	Radio & Equipment	\$17,000

**TABLE 15-2.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm	DR-1817	1/2009	No estimates available
Severe Winter Storm	DR-1825	12/2008- 1/2009	No estimates available
Severe Storm	DR-1682	12/2006	No estimates available
Flooding	DR-1671	11/2006	No estimates available
Flooding	DR-1499	11/2003	No estimates available
Earthquake (Nisqually)	DR-1361	2/2001	\$2-\$3 Million for County
Flooding	NA	12/1995	No estimates available
Severe Storm	DR-981	1/1993	\$130 Million in Western WA
Flooding	NA	11/1990	No estimates available
Flooding	NA	12/1990	No estimates available
Flooding	NA	11/1986	No estimates available
Flooding	NA	1977	No estimates available
Flooding	NA	12/1975	No estimates available

**TABLE 15-3.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Storm	36
2	Earthquake	36
3	Flood	27
4	Volcano/Lahar	14
5	Dam Failure	12
6	Wildfire	3
7	Landslide	0
8	Avalanche	0
9	Tsunami	0

**TABLE 15-4.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Public Protection	Yes	5	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 15-5. 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?
FD3-1—Assessment of non structural seismic risks of all District facilities							
Existing	Earthquake	1, 2, 5, 8, 9, 11	District	\$2,000	District Funds	Short-term	No
FD3-2—Non structural seismic retrofit of all District facilities							
Existing	Earthquake	1, 2, 5, 8, 11, 14	District	\$30,000	General Operating budget, Bond issues District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
FD3-3—Study to determine seismic stability of training tower							
Existing	Earthquake	1, 2, 5, 8, 11, 14	District	\$10,000	General Operating budget, Bond issues, District Funds	Short-term	Yes
FD3-4—Continue existing public education program to address preparedness for and the mitigation of the impacts from natural hazards in cooperation with the City of Monroe.							
New and Existing	All Hazards	4, 5, 9, 10, 11	City of Monroe	Medium	District Funds, City Funds, FEMA Hazard Mitigation Grants	Short-term, ongoing	Yes
FD3-5—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	County	Low	District Funds	Short-term, ongoing	Yes
FD3-6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	County	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

**TABLE 15-6.
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
FD3-1	6	Medium	Low	Yes	No	Yes	High
FD3-2	6	High	Medium	Yes	Yes	No	High
FD3-3	6	High	High	Yes	Yes	No	Medium
FD3-4	5	Medium	Low	Yes	Yes	Yes	High
FD3-5	14	Medium	Medium	Yes	Yes	No	Medium
FD3-6	14	High	Medium	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 15-7.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	FD3-5, FD3-6	FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-5	FD3-5
Earthquake	FD3-5, FD3-6	FD3-1, FD3-2, FD3-3, FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-1, FD3-2, FD3-3, FD3-5	FD3-5
Flood	FD3-5, FD3-6	FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-5	FD3-5
Landslide						
Severe Weather	FD3-5, FD3-6	FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-5	FD3-5
Tsunami						
Volcano/ Lahar	FD3-5, FD3-6	FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-5	FD3-5
Wildfire	FD3-5, FD3-6	FD3-5	FD3-4, FD3-5, FD3-6	FD3-5	FD3-5	FD3-5

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 15-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
FD3-1		X		Action not completed during initial performance period. Action carried over as FD3-2.
FD3-2		X		Action on-going. Carried over to updated action plan, see FD3-5.
FD3-3		X		Action not completed during initial performance period. Action carried over as FD3-3.
FD3-4		X		Action ongoing. Carried over to updated action plan, see FD3-4.

CHAPTER 16. FIRE DISTRICT #4 ANNEX

16.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

Ron Simmons, Deputy Fire Chief
1525 Avenue D, PO Box 820
Snohomish, WA 98291-0820
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e-mail Address: rons@snohomishfire.org

16.2 JURISDICTION PROFILE

Snohomish County Fire Protection District #4 (Snohomish Fire & Rescue) is a large, suburban/urban fire department located east of the City of Everett in central Snohomish County. Encompassing nearly 60 square miles and a population of around 27,000, the area of coverage for fire/rescue/emergency medical service is mostly suburban, with the City of Snohomish located in the middle of the district. Rivers, highways and railways divide the fire district and many lakes dot the geography.

Snohomish Fire & Rescue provides fire, basic and advanced emergency medical treatment/transport, light rescue and a variety of accident and disaster prevention programs around the clock, with over 100 career and volunteer members. Snohomish Fire & Rescue participates at a regional level with a heavy rescue and hazard material team. Additionally, the District regularly responds to surrounding fire departments with automatic aid, augmenting their forces and assisting in mitigating their emergencies. Snohomish Fire and rescue has an active Community Emergency Response Team (CERT) training program, but not an active CERT program.

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

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

- **Population Served**—27,000 as of 2009
- **Land Area Served**—Approximately 60 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$3,900,000,000
- **Land Area Owned**—18 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Station Generators, X4 \$110,000
 - Computers, Mobile Computers, Network servers \$75,000
 - Communications Equipment Radios \$200,000
 - Communications Equipment Phone System \$850,000

- Apparatus (1 aerial ladder, 5 engines,
1 medium rescue, 4 ambulances, 1 brush engine,
1 MCI trailer 2 command vehicles) \$8,250,000
- Small Equipment (hose, pumps, generator, breathing apparatus, chainsaws) \$750,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$9,400,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Station 40, 6319 Foster Slough Road \$1,300,000
 - Station 41, 427 Maple Avenue \$1,300,000
 - Station 42, 6724 171st Ave SE \$1,500,000
 - Station 43, 1525 Avenue D \$3,200,000
 - Emergency Operations Center/Training Building, 1525 Ave D \$1,100,000
 - Storage Building, 1525 Ave D \$150,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$8,550,000
- **Current and Anticipated Service Trends**—In 2009 the Fire District responded to 3183 incidents. This represents a 38 percent increase over the last 10 years. While our normal incident volume has remained consistence and has a flat projection, the Fire District has experienced single and multiple major weather related events (flood, snow, wind) every year for the past 10. Last year we experienced our first Type 3 wild land interface incident. Climate change has caused warmer, drier summers, which produced more wild land fires. The Fire District feels the trend is more frequent (multiple per year) and longer duration weather related incidents

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume.

16.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 16-1 lists all significant past occurrences of natural hazards within the jurisdiction.

16.4 HAZARD RISK RANKING

Table 16-2 presents the ranking of the hazards of concern.

16.5 APPLICABLE REGULATIONS AND PLANS

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

- Strategic Plans and Goals, 2010-2015
- Resolution – National Incident Management System adoption, July 2005
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

16.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 16-3.

16.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 16-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 16-5 identifies the priority for each initiative. Table 16-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

16.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 16-7 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.

16.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

A seismic study for the District’s buildings and steel tanks is necessary to better understand the District’s seismic risks and vulnerabilities.

TABLE 16-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment ^a
Wildland Urban Interface Fire	NA	7/2009	No estimates available
Flooding	1817-DR	1/2009	No estimates available
Severe Storm	1825-DR	12/2008	No estimates available
Flooding	NA	11/2008	No estimates available
Severe Storm	1734-DR	12/2007	No estimates available
Severe Storm	1682-DR	12/2006	No estimates available
Flooding	1671-DR	11/2006	No estimates available
Earthquake (Nisqually)	1361-DR	2/2001	No estimates available

a. Damage limited to increased response services – no facility damage

TABLE 16-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Storm	36
3	Wildland Fire	22
4	Flood	21
5	Landslide	12
6	Dam Failure	7
7	Volcano/Lahar	0
8	Tsunami	0
9	Avalanche	0

TABLE 16-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	6	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**TABLE 16-4.
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?
FD4-1—Perform structural seismic retrofit in all fire stations							
Existing	Earthquake	1, 2, 5	District	\$445,000	District Funds (Capital Project), FEMA Hazard Mitigation Grants	Short Term	Yes
FD4-2—Improve redundancy and survivability of the district’s communications and information management technology							
Existing	Earthquake, Severe Storm	1, 2, 8	District	\$50,000	District Funds	Short Term	No
FD4-3—Provide Community Emergency Response Team (CERT) training to District residents							
New	Earthquake, Floods, Dam Failure, Severe Storm	4, 8, 9, 10	District	\$2,000	District Funds	Short Term, ongoing	Yes
FD4-4—Install noncombustible roofing and siding to fire station located in wildland-urban interface hazard zone							
Existing	Wildfire	1, 2, 5	District	\$162,000	District Funds (Capital Project), FEMA Hazard Mitigation Grants	Short Term	No
FD4-5—Install shatter resistant glass in Emergency Operations Center							
Existing	Earthquake	1, 2	District, County, Corps	\$20,000	District Funds (Capital Project), FEMA Hazard Mitigation Grants	Short Term	No
FD4-6—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	Yes
FD4-7—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 16-5.
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
FD4-1	3	High	High	Yes	Yes	Yes	High
FD4-2	3	Medium	Medium	Yes	No	Yes	High
FD4-3	3	High	Low	Yes	No	Yes	High
FD4-4	3	High	High	Yes	Yes	Yes	High
FD4-5	2	High	Medium	Yes	Yes	Yes	High
FD4-6	14	High	Low	Yes	No	Yes	High
FD4-7	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 16-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	FD4#6, FD4#7	FD4#6	FD4#2, FD4#6, FD4#7	FD4#6	FD4#2, FD4#6	FD4#6
Earthquake	FD4#6, FD4#7	FD4#1, FD4#5, FD4#6	FD4#2, FD4#6, FD4#7	FD4#6	FD4#1, FD4#2, FD4#5, FD4#6	FD4#6
Flood	FD4#6, FD4#7	FD4#6	FD4#2, FD4#6, FD4#7	FD4#6	FD4#2, FD4#6	FD4#6
Landslide	FD4#6, FD4#7	FD4#6	FD4#6, FD4#7	FD4#6	FD4#2, FD4#6	FD4#6
Severe Weather	FD4#6, FD4#7	FD4#6	FD4#2, FD4#6, FD4#7	FD4#6	FD4#2, FD4#6	FD4#6
Tsunami						
Volcano/Lahar						
Wildfire	FD4#6, FD4#7	FD4#4, FD4#6	FD4#6, FD4#7	FD4#6	FD4#2, FD4#4, FD4#6	FD4#6

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 16-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Carried over to updated action plan, see FD4-1.
2		X		Carried over to updated action plan, see FD4-6.
3		X		Ongoing action. Carried over, see FD4-3.

CHAPTER 17. FIRE DISTRICT #5 ANNEX

17.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Merlin Halverson, Fire Chief
PO Box 149
Sultan WA 98294
Telephone: 360-793-1179
e-mail Address: m.halverson@snofire5.org

Alternate Point of Contact

Ron Bertholf, Lieutenant
PO Box 149
Sultan WA 98294
Telephone: 360-793-1179
e-mail Address: r.bertholf@snofire5.org

17.2 JURISDICTION PROFILE

Snohomish County Fire District #5 provides fire suppression, EMS, hazardous materials mitigation, and rescue services to 72 square miles with an assessed valuation of \$440,030,608 and a population of 14,550. The District is a mix of urban, rural, interface and wildland forested areas. The department employs a Fire Chief, six full-time fire fighters, and 40 part-time paid members who respond to approximately 1200 alarms per year. As a junior taxing district, a three-member Board of Commissioners governs this District and will assume the responsibility for the adoption and implementation of this plan. The following is a summary of key information about the jurisdiction:

- **Population Served**—14,550 as of 2009
- **Land Area Served**—Approximately 72 square miles
- **Value of Area Served**—The estimated value of the District’s service area is \$915,098,973
- **Land Area Owned**—7 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Two Type 1 Pumpers \$600,000
 - Three Ambulances \$450,000
 - One Water Tender \$275,000
 - Three Command Vehicles \$150,000
 - Brush truck \$100,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,325,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Fire Station 304 Alder Street Sultan WA 98294 \$1,500,000
 - Sleeper Quarters 33019 Cascade View Drive Sultan WA 98294 \$200,000
 - Administrative Office 33021 Cascade View Drive Sultan WA 98294 \$200,000
 - Training Trailer \$400,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is 2,300,000

- **Current and Anticipated Service Trends**—The Fire District has experienced a 19-percent increase in call volume over the last five years due to new construction in the district and increases traffic on the SR 2 corridor. The trend is expected to stabilize around 2012/2013 due to the current down trend in the economy.

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume. The District is bordered on the west by Monroe Fire District #3 at the 25900 block of SR 2, on the east by Snohomish County Fire District #26 at the 38700 block of SR 2, on the south by King County Fire District #45, and on the north by the unprotected area that begins at Mile Post 4 of the Sultan Basin Road.

17.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 17-1 lists all past occurrences of natural hazards within the jurisdiction.

17.4 HAZARD RISK RANKING

Table 17-2 presents the ranking of the hazards of concern.

17.5 APPLICABLE REGULATIONS AND PLANS

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

- The Jackson Hydroelectric Project/Emergency Action Plan for the Culmback Dam
- The Emergency Action Plan for the Lake Chaplain South Dam
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

17.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 17-3.

17.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 17-4 lists the initiatives in the District’s hazard mitigation plan. Table 17-5 identifies the priority for each initiative. Table 17-6 summarizes the initiatives by hazard of concern and mitigation type.

17.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 17-7 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.

17.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Future Need #1

The existing Fire Station and Emergency Operations Center is a masonry building built by volunteers in 1979 on property donated to the District. It is located in a floodplain in grade “E” soil type, vulnerable to

earthquakes, floods, and devastation from dam failure. On several occasions the station has been inundated with floodwaters of up to 18 inches; apparatus had to be relocated to higher ground. Annual flooding often isolates the station and even when water does not reach the building apparatus have to be staged to make them available for emergency responses. Recent earthquakes have caused cracking and weakening of the building; repairs and seismic upgrades are expensive and would not resolve the type “E” soils or flood issues.

The District’s first priority is to relocate the Fire Station and Emergency Operations Center to the east on SR 2, on ground that is 70 feet higher, out of the floodplain and the inundation zone of a catastrophic dam failure. This location would still be central, providing good access to SR 2. The grade “B” soil type at this location is superior to the existing soils in withstanding the effects of an earthquake; a newer station would be built to improved seismic standards, also improving the survivability of the structure during an earthquake. Replacement and relocation of the station will improve the reliability of the Fire District and Emergency Operations Center during and following events such as major floods, earthquakes, or catastrophic dam failure. Cost savings will be realized in that equipment and buildings will continue to be damaged by floods and earthquakes if left in the present location; it is likely that a major earthquake would do such extensive damage, that the building could not be repaired, and that expensive emergency replacement measures would be far more costly than planned improvements.

Future Need #2

By mandate of Snohomish County, the District is transitioning to an 800-MHz radio system; the existing VHF infrastructure will not be maintained. The 800-MHz system is not sufficient for rescue operations, interface and wildland firefighting, or operations in remote parts of the District; and it is subject to overload during major disasters such as floods and earthquakes. Because the District is a user in the 800-MHz radio system but does not have ownership, the agreement allows for District #5 and neighboring fire districts to be shut down in the event of system overload. The Skykomish Valley needs a stand-alone VHF narrow band radio system suited to the unique requirements of non-urban emergency services.

Future Need #3

As population becomes increasingly dense in the District’s urban growth areas as required by the Growth Management Act, there will be a movement of homes into the interface areas, creating a need to expand the range of the District’s aging dam failure notification system. There is a growing population in the inundation areas that is unable to hear the siren, which was originally designed to serve the City of Sultan.

There also is a problem of obsolescence. The current system will need to be replaced by more modern equipment in the future. The District has been finding that failed components in the current system are obsolete and difficult to replace. More economical and advanced systems are now available that could be used for other emergency notifications as well as a dam failure. Some of these systems would allow notification in the event of hazardous material incidents in which residents would need to evacuate or shelter in place, wildfires that threaten homes in the interface, or imminent flooding in the lowlands along the rivers and floodplains. Currently the District does not have the means to provide these notifications.

Future Need #4

There is a need to come up with emergency action plans for various disaster situations within the fire district. These plans can address what to do for various hazards, sheltering in place, and evacuation routes. These plans can be used in conjunction with the public address system discussed above.

Future Need #5

In 1992 the Sultan Fire Department separated from the City and became an independent Fire District with a larger jurisdiction. The District has since annexed surrounding areas that requested fire protection and medical services. This change increased the complexity of the emergency responses and natural disasters. The District now covers 72 square miles, much of which is forested or interface area subject to wildland fires floods, landslides, wind storm damage from trees and an additional fault line increasing earthquake damage potential. Most of these rural areas have no water systems available for firefighting. Homes are being built in some mountainous areas within the District on steep grades with unimproved roads. These homes have been difficult to access with the District’s standard structural firefighting equipment during inclement weather, floods and windstorms. Apparatus and equipment suited to these special conditions is needed; structural equipment suited for use in the City is of limited value in many situations.

Future Need #6

Work in cooperation with the City of Sultan to make improvements in the water supply system that will decrease the ISO performance rating and help insure an adequate fire flow following a disaster. Some of the improvements to be made are an elevated water storage facility so that we do not have to rely on pumps to supply water, seismic retrofits on the water line, water line pipe replacement to current standards and fire flows.

TABLE 17-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment ^a
Severe Storm (Wind & Flood)	N/A	11/2009	No estimates available
Flood	1817-DR	1/2009	No estimates available
Severe Winter Storm (Record Snow)	1825-DR	12/2008	No estimates available
Severe Winter Storm	N/A	11/2008	No estimates available
Severe Winter Storm	1734-DR	12/2007	No estimates available
Severe Winter Storm	N/A	1/2007	No estimates available
Severe Winter Storm	1682-DR	12/2006	No estimates available
Severe Storms (Flooding)	1671-DR	11/2006	\$12,716 – Emergency protective measures
Severe Storms (Flooding)	1641-DR	2/2006	No estimates available
Flood & Erosion	1499-DR	11/2003	\$3,232 – Emergency protective measures
Earthquake (Nisqually)	1361-DR	2/2001	No estimates available
Flood & Landslide	1172-DR	3/1997	No estimates available
Severe Weather	1159-DR	12/1996	No estimates available
Earthquake (Duvall)	N/A	5/1996	No estimates available
Flood	1100-DR	1/-2/1996	No estimates available
Flood	1079-DR	11/-12/1995	No estimates available
Severe Storm (Wind)	981-DR	1/1993	No estimates available

TABLE 17-1 (continued). NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment ^a
Flood	896-DR	12/1990	No estimates available
Flood	883-DR	11/1990	No estimates available
Flood	784-DR	11/1986	No estimates available
Flood	N/A	12/1975	No estimates available

a. Damage involves increased response services

TABLE 17-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Storm	36
3	Flood	18
4	Landslide	18
5	Dam Failure	18
6	Wildland Fire	12
7	Avalanche	0
8	Volcano/Lahar	0
9	Tsunami	0

TABLE 17-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	8	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**TABLE 17-4.
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?
FD5-1—Replace/Relocate Fire Station out of high risk hazard zones							
New and Existing	Flood, Earthquake, Dam Failure, Severe Weather, Wildfire	All	District	\$2,700,000	District Funds, Bonds, FEMA Hazard Mitigation Grants	Short-term	Yes
FD5-2—Build Regional VHF emergency radio system							
New and Existing	All Hazards	1, 4, 5, 8	District	\$480,000	District Funds, Bonds, EMPG	Short-term	Yes
FD5-3—Acquire Public Address/Emergency Warning System							
New	All Hazards	1, 4, 5, 8	District	\$100,000	District Funds, Bonds, EMPG	Long-term	Yes
FD5-4—Create Emergency Action Plan for all hazards in Sultan							
New	All Hazards	1, 4, 5, 8	District, City of Sultan	\$15,000	District Funds, City of Sultan, Bonds, EMPG	Short-term	Yes
FD5-5—Purchase response equipment specifically suited to highest risk hazards							
New	All Hazards	1, 4, 5, 8	District	\$515,000	District Funds, Bonds, EMPG	Short-term	Yes
FD5-6—Work with the City of Sultan to improve the ISO Rating through water supply improvements within the City							
New	All Hazards	1, 4, 5, 8	District, City of Sultan	\$3,500,000	District Funds, City of Sultan, Assessments	Long-term	No
FD5-7—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
FD5-8—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 17-5.
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
FD5-1	14	High	High	Yes	Yes	No	High
FD5-2	4	Low	Medium	No	Yes	No	Medium
FD5-3	4	High	Medium	Yes	Yes	Partial	Medium
FD5-4	4	High	Low	Yes	Yes	Yes	Medium
FD5-5	4	High	Medium	Yes	Yes	No	High
FD5-6	4	Medium	High	Yes	No	No	Medium
FD5-7	14	High	Low	Yes	No	Yes	High
FD5-8	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 17-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	FD5-6, FD5-7, FD5-8	FD5-1, FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7
Earthquake	FD5-6, FD5-6, FD5-7, FD5-8	FD5-1, FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7
Flood	FD5-6, FD5-7, FD5-8	FD5-1, FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7
Landslide	FD5-6, FD5-7, FD5-8	FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7
Severe Weather	FD5-6, FD5-7, FD5-8	FD5-1, FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7
Tsunami						
Volcano/Lahar						
Wildfire	FD5-6, FD5-7, FD5-8	FD5-1, FD5-7	FD5-7, FD5-8	FD5-7	FD5-1, FD5-2, FD5-3, FD5-4, FD5-5, FD5-6, FD5-7	FD5-7

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 17-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see FD5-1.
2		X		Action not completed during initial performance period. Carried over, see FD5-2.
3		X		Action not completed during initial performance period. Carried over, see FD5-3. Previous initiative expanded to cover all hazards warning not just dam failure system.
4		X		Action not completed during initial performance period. Carried over, see FD5-4. Previous initiative expanded to cover all hazards warning not just emergency actions for dam failures..
5		X		Action not completed during initial performance period. Carried over, see FD5-5.

CHAPTER 18. FIRE DISTRICT #7 ANNEX

18.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Ralph Provenzano, Battalion Chief
8010 180th St. SE
Snohomish, WA 98296
Telephone: 360-668-5357
e-mail Address: rprovenzano@firedistrict7.com

Alternate Point of Contact

Janet Jaeger, Battalion Chief
8010 180th St. SE
Snohomish, WA 98296
Telephone: 360-668-5357
e-mail Address: jjaeger@firedistrict7.com

18.2 JURISDICTION PROFILE

Established in 1945, Fire District #7 supports a population of about 60,000 people in a 50-square-mile area that includes the City of Mill Creek and portions of unincorporated Snohomish County. Fire District #7's demographics are diverse in that area covered serves residential, commercial, and DNR Land. The residential lands covered include urban, suburban, and rural properties.

Five elected fire commissioners serving staggered six-year terms govern the Fire District. This Board will assume responsibility for the adoption and implementation of this plan. A Fire Chief who serves at the pleasure of the Fire Commissioners supervises the day-to-day operations. The Fire District employs 95 fire fighters, 4 battalion chiefs, 2 assistant chiefs, 2 deputy chiefs, and 6 administrative personnel

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

- **Population Served**—60,000 (estimated)
- **Land Area Served**—Approximately 50 square miles
- **Value of Area Served**—The estimated value of the District's service area is \$3,900,000,000.
- **Land Area Owned**—59.99 acres (the Fire District has purchased 50 acres for future building of combined Fire/Police training facility)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:** See Table 18-1.
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$10,553,880
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Headquarters, Station 71
 - Station 72
 - Station 73
 - Station 74
 - Station 75
 - Station 76
 - Station 77

- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$7,382,100.
- **Current and Anticipated Service Trends**—The District has met the many challenges faced with rapid growth; specifically, the transformation from a traditional volunteer department to a combination volunteer-career department, the introduction of emergency medical services, fire prevention services, hazardous materials response, increased federal and State training requirements, as well as many other challenges. Despite this, the District has developed along with the community it serves.

Today, the population is estimated to be nearly 60,000. The District operates seven fire stations with Station 76 located in and serving the City of Mill Creek under a long-term contract for services. Currently, the District now employs approximately eighty-eight (88) full-time and nearly forty (40) volunteer personnel. Snohomish County Fire District #7 will undoubtedly see additional advances as it continues to meet the needs of the community.

The jurisdiction's boundaries are shown on Map 1-1 in Chapter 1 of this volume.

18.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 18-2 lists all past occurrences of natural hazards within the jurisdiction.

18.4 HAZARD RISK RANKING

Table 18-3 presents the ranking of the hazards of concern.

18.5 APPLICABLE REGULATIONS AND PLANS

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

- Fire District #7 has a Comprehensive Emergency/Preparedness Response Plan, which is referenced in the Policy and Procedure manual
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

18.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 18-4.

18.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 18-5 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 18-6 identifies the priority for each initiative. Table 18-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

18.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 18-8 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.

18.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Additional help with understanding and developing in-house mitigation plans.

18.10 ADDITIONAL COMMENTS

There may be a need for common emergency response plans with a more defined emergency operations center (EOC) set up for a unified command.

TABLE 18-1. CRITICAL INFRASTRUCTURE/EQUIPMENT OWNED BY THE DISTRICT	
Facility	Apparatus
Headquarters, Station 71 8010 - 180th St. SE; Clearview	1 Chief 2 Assistant Chiefs 1 Deputy Chief of Training 1 Deputy Chief MSA 1 Battalion Chief 1 Captain of Fire Training 1 Captain of EMS Training 2 Fire Engines (1 First out and 1 Reserve Engine) 1 Medic Unit 1 Reserve Medic Unit 1 Aid Rehab Unit 1 Brush Truck
Station 72 3431 – 180th St. SE; Fernwood	1 Ladder Truck (Quint) 1 Aid Unit
Station 73 22225 45th Ave. SE; Bear Creek	1 Fire Engine 1 Medic/Aid Unit
Station 74 21709 99th Ave. SE; Maltby	1 Fire Engine 1 Medic Unit 1 Converted Military Potable Water Buffalo 1 Military Portable Generator
Station 75 13725 Lost Lake Road; Lost Lake	1 Fire Engine 1 Aid Unit 1 Tender
Station 76 1020 – 152nd Pl. SE; Mill Creek	1 Fire Engine 1 Medic Unit 1 6x6 2.5 Ton Military Truck (Carries 400 gals. Of Diesel/Pump)
Station 77 6610 Snohomish/Cascade Dr.; Gold Creek	1 Fire Engine 1 Aid Unit

**TABLE 18-2.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment ^a
Severe Storm (Wind & Flood)	N/A	11/2009	No estimates available
Flood	1817-DR	1/2009	No estimates available
Severe Winter Storm (Record Snow)	1825-DR	12/2008	No estimates available
Severe Winter Storm	N/A	11/2008	No estimates available
Severe Winter Storm	1734-DR	12/2007	No estimates available
Severe Winter Storm	N/A	1/2007	No estimates available
Severe Winter Storm	1682-DR	12/2006	No estimates available
Severe Storms (Flooding)	1671-DR	11/2006	No estimates available
Severe Storms (Flooding)	1641-DR	2/2006	No estimates available
Flood & Erosion	1499-DR	11/2003	No estimates available
Earthquake (Nisqually)	1361-DR	2/2001	No estimates available
Flood & Landslide	1172-DR	3/1997	No estimates available
Severe Weather	1159-DR	12/1996	No estimates available
Earthquake (Duvall)	N/A	5/1996	No estimates available
Flood	1100-DR	1/-2/1996	No estimates available
Flood	1079-DR	11/-12/1995	No estimates available
Severe Storm (Wind)	981-DR	1/1993	No estimates available
Flood	896-DR	12/1990	No estimates available
Flood	883-DR	11/1990	No estimates available
Flood	784-DR	11/1986	No estimates available
Flood	N/A	12/1975	No estimates available

a. Damage involves increased response services only as Fire District #7 has not sustained any damages to its facilities or equipment from a natural hazard event to the best of its knowledge

**TABLE 18-3.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Storm	48
2	Earthquake	36
3	Flood	30
4	Dam Failure	7
5	Wildland Fire	4
6	Landslide	0
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

TABLE 18-4. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	3	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 18-5. 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?
FD7-1—Fully outfit reserve apparatus with equipment							
Existing	All Hazards	1, 5, 8, 11	District	\$120,000	District Funds, Operating Budget	Short Term	No
FD7-2—Purchase trailer and support equipment to store and relocate EOC in case of building damage							
Existing	All Hazards	1, 5, 8, 11	District	\$20,000	District Funds, Disaster Planning Budget, EMPG	Short Term	No
FD7-3—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
FD7-4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5- year update	Short-term ongoing	No

**TABLE 18-6.
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
FD7-1	4	High	High	Yes	No	Yes	High
FD7-2	4	High	Medium	Yes	Yes	No	High
FD7-3	14	High	Low	Yes	No	Yes	High
FD7-4	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 18-7.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	FD7-3, FD7-4	FD7-3	FD7-3, FD7-4	FD7-3	FD7-1, FD7-2, FD7-3	FD7-3
Earthquake	FD7-3, FD7-4	FD7-3	FD7-3, FD7-4	FD7-3	FD7-1, FD7-2, FD7-3	FD7-3
Flood	FD7-3, FD7-4	FD7-3	FD7-3, FD7-4	FD7-3	FD7-1, FD7-2, FD7-3	FD7-3
Landslide						
Severe Weather	FD7-3, FD7-4	FD7-3	FD7-3, FD7-4	FD7-3	FD7-1, FD7-2, FD7-3	FD7-3
Tsunami						
Volcano/Lahar						
Wildfire	FD7-3, FD7-4	FD7-3	FD7-3, FD7-4	FD7-3	FD7-1, FD7-2, FD7-3	FD7-3

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 18-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
3	X			Action completed during initial performance period.
4	X			Action completed during initial performance period.

CHAPTER 19. FIRE DISTRICT #19 ANNEX

19.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Keith Strotz, Fire Chief
2720 212th St NW
Stanwood, WA 98292
Telephone: 360-652-8277
e-mail Address: kstrotz@firedistrict19.com

Alternate Point of Contact

Jeremy Swearengin, Assistant Fire Chief
2720 212th St NW
Stanwood, WA 98292
Telephone: 360-652-8277
e-mail Address: jswearengin@firedistrict19.com

19.2 JURISDICTION PROFILE

Snohomish County Fire District #19 provides fire suppression, and emergency medical response for 22 square miles of unincorporated Snohomish County. District 19 was formed in 1960 as a property tax levy dependant fire protection district governed by a board of three publicly elected Commissioners. The board of commissioners governs the distribution of property tax dollars collected through the levy. As of April of 2010 the District provides service to 5,200 residents, business, and property owners. Boundaries for the District extend north from 188th Street to 252nd Street, and west from 35th Avenue NE to 75th Avenue NW. District 19 is bordered by Marysville Fire District to the south, City of Arlington Fire to the east, and North County Regional Fire Authority to the west and north. Currently the fire district is staffed by 30 part time firefighters and one full time fire chief.

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

- **Population Served**—5,200 estimated as of May, 2010
- **Land Area Served**—22 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$419,000,000
- **Land Area Owned**—11 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 2 Engines \$900,000
 - 2 Aid Cars \$400,000
 - 2 Tenders \$650,000
 - 3 Staff vehicles \$175,000
 - 1 Air unit trailer \$120,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$2,190,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - 94 Head Quarters Station 2720 212th St NW, Stanwood, WA 98292
 - 95 Satellite Station 21207 27th Ave NE, Arlington, WA 98223
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$6,300,000

- **Current and Anticipated Service Trends**—Over the past five years, the District has experienced a 16-percent increase in population and call volume has increased 33 percent. Based on the Snohomish County Tomorrow 2001 Growth Monitoring Report, the portion of Snohomish County serviced by Fire District #19 experienced a 7.32-percent average annual increase in population between 1990 and 2000. It is projected that the population of this portion of the county will increase by 271 percent, or 8.32 percent annually, by the year 2012. It is assumed that the service population for district #19 will increase by similar ratios.

The jurisdiction's boundaries are shown on Map 1-1 in Chapter 1 of this volume. Boundaries extend north from 188th street to 252nd street, and west from 35th Avenue NE to 75th Avenue Nw. District 19 is bordered by Marysville fire district to the south, City of Arlington Fire to the east, and North County Regional Fire Authority to the west and north.

19.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 19-1 lists all past occurrences of natural hazards within the jurisdiction.

19.4 HAZARD RISK RANKING

Table 19-2 presents the ranking of the hazards of concern.

19.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

19.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 19-3.

19.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 19-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 19-5 identifies the priority for each initiative. Table 19-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

19.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 19-7 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.

19.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Additional studies on hazards and risks utilizing best available science and technology.

TABLE 19-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Flood	1817-DR	1/2009	\$1,000
Winter Storm/Snow	1825-DR	12/2008	\$1,000
Flood	1499-DR	11/2003	\$1,000
Severe Weather/Wind	NA	2/1999	\$3,8000
Flood	NA	3/1997	\$1,000
Flood	NA	2/1997	\$1,000
Flood	1159-DR	12/1996	\$1,000
Flood	1100-DR	1/1996	\$1,000

TABLE 19-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Storm	36
3	Flood	36
4	Tsunami	5
5	Volcano/Lahar	3
6	Wildland Fire	1
7	Landslide	0
8	Avalanche	0
9	Dam Failure	0

TABLE 19-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	8	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
FD19-1—Installation of Fire Pump – Station 94							
New & Existing	All Hazards	1,2,5,11	District	\$30,000	District Funds, Grants	Short Term	No
FD19-2—Public Education and Awareness Training for Hazard Mitigation							
Existing	All Hazards	4,9,10	District	\$5,000	District Funds, FEMA Hazard Mitigation Grants	Short Term	No
FD19-3—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term, ongoing	Yes
FD19-4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

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
FD19-1	4	Medium	High	No	Yes	No	Medium
FD19-2	3	High	Low	Yes	Yes	No	High
FD19-3	14	High	Low	Yes	No	Yes	High
FD19-4	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 19-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure						
Earthquake	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3
Flood	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3
Landslide						
Severe Weather	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3
Tsunami	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3
Volcano/Lahar	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3
Wildfire	FD19-3, FD19-4	FD19-3	FD19-2, FD19-3, FD19-4	FD19-3	FD19-1, FD19-3	FD19-3

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 19-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1			X	Action removed, project not economically feasible at this time.
2			X	Action removed, project not economically feasible at this time.
3		X		Action not completed during initial performance period. Carried over, see FD19-3.

CHAPTER 20. FIRE DISTRICT #24 ANNEX

20.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Dennis Fenstermaker, Fire Chief
PO Box 1238/1115 Seeman Street
Darrington, WA 98241
Telephone: 360-436-1338
e-mail Address:
fenstermaker.firedist24@hotmail.com

Alternate Point of Contact

Trudy LaDouceur, Administrative Assistant
PO Box 1238/1115 Seeman Street
Darrington, WA 98241
Telephone: 360-436-1338
e-mail Address: tladouceur.firedist24@gmail.com

20.2 JURISDICTION PROFILE

Darrington Fire District #24 is located in Snohomish and Skagit Counties. Originally, the Town of Darrington established a fire department and later partnered with the newly established fire districts in the 1940s. In 2006, the Town of Darrington was annexed into the fire district. The fire district provides fire suppression, rescue and emergency medical services, wildland/urban interface protection, and hazardous materials response to approximately 4000 people residing in the fire district. Funding comes to our junior taxing district through fire and EMS levy taxes and grants.

A fire commission make up of three elected officials administer the district with 29 volunteers, a part time administrative support person and a part time fire chief. The fire district owns Station 38 and the Whitehorse community Center and leases Station 39 from the Town of Darrington.

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

- **Population Served**—4,000 as of 2010
- **Land Area Served**—Approximately 19 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$349,000,000
- **Land Area Owned**—2.5 acres (The District owns one fire station on 2.5 acres and currently leases another fire station located on Town of Darrington property.)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Darrington Fire Station #38 \$400,000
 - Whitehorse Community Center \$300,000
 - 2 Tenders and Contents \$300,000
 - 4 Engines and Contents \$900,000
 - 2 Rescue Trucks and Contents \$300,000
 - 1 Water Rescue Squad \$10,000
 - CERT Trailer \$10,000
 - 2 Inflatable Rafts \$25,000
 - 1 Command Unit \$10,000

- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$2,255,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Darrington Fire Station #38 \$400,000
 - Whitehorse Community Center \$300,000
 - Cloer Pump Station \$10,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$710,000
- **Current and Anticipated Service Trends**—Fire District #24 provides fire suppression, hazardous material mitigation, and emergency medical care through a two-tier response service. Anticipated future mergers will reduce service cost and improve quality service. According to the *Snohomish County Tomorrow 2008 Growth Monitoring Report*, the Darrington urban growth area experienced an estimated increase in population of 157 from 2002 to 2008. The population within the Darrington Urban Growth Area is expected to increase by 657 persons, to a total of 2,125 in the year 2025, a growth of 30.9 percent. The continued growth expected for this portion of the county is expected to impact District #24's service population, and thus lead the District to seek ways to increase its service capability through merger or consolidation with other districts.

The jurisdiction's boundaries are shown on Map 1-1 in Chapter 1 of this volume.

20.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 20-1 lists all past occurrences of natural hazards within the jurisdiction.

20.4 HAZARD RISK RANKING

Table 20-2 presents the ranking of the hazards of concern.

20.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

20.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 20-3.

20.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 20-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 20-5 identifies the priority for each initiative. Table 20-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

20.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 20-7 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.

20.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

More studies are needed to better understand the relationship between primary disasters that result in secondary disasters.

TABLE 20-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms, Flooding, Landslides and Mudslides	1734-DR	12/2007	\$1,150 – Fire Station Roof Repair
Severe Storms, Landslides and Mudslides	1682-DR	2/2007	No estimates available
Severe Storms, Flooding, Landslides and Mudslides	1671-DR	12/2006	No estimates available
Severe Storms, Flooding, Landslides and Mudslides	1641-DR	5/2006	No estimates available
Severe Storm, Flooding	1499-DR	11/2003	No estimates available
Earthquake (Nisqually)	1361-DR	2/2001	No estimates available
Flood, Landslide	1172-DR	3/1997	No estimates available
Ice, Wind, Snow, Landslide, Flood	1159-DR	12/1996-2/1997	No estimates available
Flood	1100-DR	1/-2/1996	No estimates available
Flood	1079-DR	1/1996	No estimates available
Wind	981-DR	3/1993	No estimates available
Flood	896-DR	3/1991	No estimates available
Flood	883-DR	11/1990	No estimates available
Flood	784-DR	11/1986	No estimates available
Volcanic Eruption (Mt St Helens)	623-DR	5/1980	No estimates available
Flood	612-DR	12/1972	No estimates available
Flood, Landslide	545-DR	12/1975	No estimates available
Flood	492-DR	12/1975	No estimates available
Earthquake	186-DR	5/1965	No estimates available
Flood	185-DR	12/1964	No estimates available
Flood, Wind	137-DR	10/1962	No estimates available

TABLE 20-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Flood	45
3	Severe Storm	42
4	Landslide	18
5	Volcano/Lahar	12
6	Wildland Fire	12
7	Tsunami	0
8	Avalanche	0
9	Dam Failure	0

TABLE 20-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	Yes	8	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**TABLE 20-4.
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?
FD24-1 —Create a public education plan that would include classes, publications, and signage to raise the level of knowledge in the community about volcano, lahars and all natural hazards. Part of the education would be taught through CERT classes.							
New	All Hazards	All	District	\$5,000	District Funds, FEMA Hazard Mitigation Grants, EMPG	Short Term	No
FD24-2 —Retrofit fire station to reduce impact from severe weather storms							
Existing	Severe Weather	1, 2, 4, 5, 11, 14	District	High	District Funds, FEMA Hazard Mitigation Grants	Long Term	Yes
FD24-3 —Seismic retrofit fire station to reduce vulnerability to earthquakes							
Existing	Earthquake	1, 2, 4, 5, 11, 14	District	High	District Funds, FEMA Hazard Mitigation Grants	Long Term	No
FD24-4 —Retrofit Cloer and Station 38 water stations from all natural hazards							
Existing	All Hazards	1, 2, 4, 5, 11, 14	District	High	District Funds, FEMA Hazard Mitigation Grants	Long Term	No
FD24-5 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term, ongoing	No
FD24-6 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

**TABLE 20-5.
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
FD24-1	14	High	Low	Yes	No	No	High
FD24-2	6	High	High	Yes	Yes	No	High
FD24-3	6	High	High	Yes	Yes	No	High
FD24-4	6	Medium	Medium	Yes	Yes	No	Medium
FD24-5	14	High	Low	Yes	No	Yes	High
FD24-6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 20-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure						
Earthquake	FD24-5, FD24-6	FD24-3, FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5
Flood	FD24-5, FD24-6	FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5
Landslide	FD24-5, FD24-6	FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5
Severe Weather	FD24-5, FD24-6	FD24-2, FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5
Tsunami						
Volcano/Lahar	FD24-5, FD24-6	FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5
Wildfire	FD24-5, FD24-6	FD24-4, FD24-5	FD24-1, FD24-5, FD24-6	FD24-5	FD24-5	FD24-5

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 20-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see FD24-2.
2			X	Action removed, project not feasible at this time.

CHAPTER 21. FIRE DISTRICT #26 ANNEX

21.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Wendy Enyart, Lieutenant
P. O. Box 376
Gold Bar, WA 98251
Telephone: 360-793-1335
e-mail Address: wenyart@snofire26.org

Alternate Point of Contact

Eric Andrews, Fire Chief
P. O. Box 376
Gold Bar, WA 98251
Telephone: 360-793-1335
e-mail Address: eandrews@snofire26.org

21.2 JURISDICTION PROFILE

Snohomish County Fire District #26 was created in 1968. A board of five publicly elected commissioners oversees district funding and operations with monthly meetings and will assume responsibility for the adoption and implementation of this plan. The District is mostly funded by taxes and grants, but it also receives donations and its volunteers hold fundraisers. Although serving a very small community, the District is a busy department protecting 36 square miles of land. The estimated population of 5,000 more than doubles during summer due to a US highway, railroad, and recreational facilities such as state parks, the Skykomish River, and mountainous regions. With about 60 volunteer personnel, the District responds to alarms 24 hours a day, 365 days a year. The District's mission statement is "Volunteering to Make a Difference." The following is a summary of key information about the jurisdiction:

- **Population Served**—Approximately 6,500 including the Urban Growth Area as of March 30, 2010
- **Land Area Served**—Rural area of 36 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$212,957,600 as of 2009 statistics.
- **Land Area Owned**—5 Acres of land (where Fire Station 54 is located)
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

– 4 Type 1 Engines –	\$1,400,000
– 1 Tender –	\$250,000
– 2 Aid units –	\$240,000
– 2 Medic units –	\$240,000
– 2 Type 3 Brush trucks –	\$150,000
– 1 Technical Rescue Unit –	\$28,000
– 1 Air Trailer –	\$70,000
– 4 Utility Vehicles –	\$80,000
– 1 Jet Rescue Boat –	\$30,000
– 1 Command Unit –	\$40,000
– 1 Support Trailer –	\$25,000

The apparatus are located at two different fire stations within the District.

- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is approximately \$4.1 million dollars.

- **List of Critical Facilities Owned by the Jurisdiction:**
 - Fire Station 54 - 42013 State Route 2, Gold Bar (includes an EOC) – \$1.5 million (Fire Station 53 is leased from the City of Gold Bar.)
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is approximately \$1.5 million.
- **Current and Anticipated Service Trends**—The Fire District has been experiencing a 5 percent increase in call volume since 2006, however it is unknown how this trend will continue due to changes in the economy and new construction suspended at this time.

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume.

21.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 21-1 lists all significant past occurrences of natural hazards within the jurisdiction.

21.4 HAZARD RISK RANKING

Table 21-2 presents the ranking of the hazards of concern.

21.5 APPLICABLE REGULATIONS AND PLANS

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

- Gold Bar Comprehensive Emergency Management Plan
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

21.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 21-3.

21.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 21-4 lists the District’s hazard mitigation plan. Table 21-5 identifies the priority for each initiative. Table 21-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

21.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 21-7 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.

21.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Though the *Hazard Identification and Vulnerability Assessment* has been a great resource in understanding the District’s current risk/vulnerability, as the community changes both physically and in population/infrastructure, an ongoing assessment of the region could assist in assessing future hazards.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Winter Storm - Snow	1825-DR	12/2008-01/2009	\$5,000
Wind	1825-DR	12/2008	No estimates available ^a
Flooding	NA	2008	No estimates available ^a
Flooding	1734-DR	12/2007	No estimates available ^a
Flooding	1671-DR	12/2006	No estimates available ^a
Wind	1499-DR	11/2003	No estimates available ^a
Earthquake (Nisqually)	1361-DR	3/2001	No estimates available ^a

a. Damage limited to increased response services – no facility damage]

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Severe Weather	36
3	Earthquake	36
4	Wildland Fire	36
5	Landslide	3
6	Avalanche	3
7	Dam Failure	0
8	Tsunami	0
9	Volcano/Lahar	0

	Participating?	Classification	Date Classified
Public Protection	Yes	6	5/1/2010
Building Code Effectiveness Grading Schedule	Yes	3/3	5/1/2010
Storm Ready	No	NA	NA
Firewise	No	NA	NA
Tsunami Ready	No	NA	NA

**TABLE 21-4.
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 #FD26-1—Seismic Retrofit of Station 53							
Existing	Earthquake	1, 5, 11, 14	District	High	FEMA Hazard Mitigation Grants, Bond Issue	Short-term	Yes
Initiative #FD26-2—Provide emergency back-up power for the district’s critical facilities							
New	All Hazards	1, 5, 8	District	Low	Donations District Funds	Short-term	Yes
Initiative #FD26-3—Establish the capabilities necessary to provide emergency shelter for 200 residents							
Existing	All Hazards	4, 8, 10	District	Low	Grants, Donations	Short-term	Yes
Initiative #FD26-4—Retrofit district water mains to improve infrastructure resilience							
New & Existing	Earthquake, Wildland Fire, Flood, Landslide	1, 2, 4, 14	District, City of Gold Bar	High	Grants, Bond Issue	Long-term	No
Initiative #FD26-5—Educate the public on the risks associated with natural hazards and methods to prepare for and mitigate those risks							
New & Existing	All Hazards	1, 3, 4, 7, 9, 10	District	Medium	General Fund Grants	Short-term ongoing	No
Initiative #FD26-6—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New & Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
Initiative #FD26-7—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New & Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No
Initiative #FD26-8—Procurement and installation of a river gauge on the Wallace River at the Moonlight Drive Levee							
New	Flood	1, 5, 8, 11	District	Low	District Funds, Grants	Short-term ongoing	No

**TABLE 21-5.
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
FD26-1	4	High	Medium	Yes	Yes	No	High
FD26-2	3	High	Low	Yes	Yes	No	High
FD26-3	3	High	Low	Yes	No	No	High
FD26-4	4	High	High	Yes	Yes	No	High
FD26-5	6	High	Medium	Yes	Yes	No	High
FD26-6	14	High	Low	Yes	No	Yes	High
FD26-7	14	High	Low	Yes	Yes	Yes	High
FD26-8	4	High	Low	Yes	Yes	No	High

a. Explanation of priorities

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

**TABLE 21-6.
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	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6
Dam Failure	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6
Earthquake	FD26-6, FD26-7	FD26-1, FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6
Flood	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6, FD26-8	FD26-6
Landslide	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6
Severe Weather	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6
Tsunami						
Volcano/Lahar						
Wildfire	FD26-6, FD26-7	FD26-4, FD26-6	FD26-5, FD26-6, FD26-7	FD26-6	FD26-2, FD26-3, FD26-6	FD26-6

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

TABLE 21-7. PREVIOUS ACTION PLAN IMPLEMENTATION STATUS				
Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see FD26-1.
2		X		Action not completed during initial performance period. Carried over, see FD26-2. Changed verbiage to include all critical facilities.
3		X		Action not completed during initial performance period. Carried over, see FD26-3. Expanded scope to encompass all aspects of sheltering.

CHAPTER 22. NORTH COUNTY REGIONAL FIRE AUTHORITY (FIRE DISTRICTS #14 AND #18) ANNEX

22.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Dale Fulfs, Fire Chief
19727 Marine Drive
Stanwood, WA 98292-7879
Telephone: 360-652-1246
e-mail Address: dfulfs@northcountyfireems.com

Alternate Point of Contact

Ken Longley
19727 Marine Drive
Stanwood, WA 98292-7879
Telephone: 360-652-1246
e-mailAddress:klongley@northcountyfireems.com

22.2 JURISDICTION PROFILE

North County Regional Fire Authority (NCRFA) was formed January 1, 2008 with the merging of Snohomish County Fire District #14 and Snohomish County Fire District #18. North County Regional Fire Authority provides fire suppression, EMS, surface water rescue and hazardous materials mitigation at the awareness level to approximately 15,000 citizens in the northwest corner of Snohomish County. The Fire Authority employs a Fire Chief, two Assistant Chief's, 20 fulltime firefighters and 46 volunteer firefighters. As a junior taxing district the Fire Authority is funded primarily by property taxes and is governed by a six member Board of Commissioners. The Board of Commissioners has adoptive and governing authority over the District and will assume the responsibility for the adoption and implementation of this plan.

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

- **Population Served**—15,000 as of January 1, 2010
- **Land Area Served**—104 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$2,237,428,383
- **Land Area Owned**—12 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 5 fire engines
 - 3 water tenders
 - 6 ambulances
 - 7 command vehicles
 - 1 rescue boat with a utility tow vehicle
 - 2 Brush Trucks
 - 4 Utility Vehicles
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$3,800,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Station 90, 3002 252nd St NE Arlington, WA 98223

- Station 91, 26828 SR 9 NE Arlington, WA 98223
 - Station 92, 29219 Heimer Rd Arlington, WA 98223
 - Station 96, 3231 300th St NW Stanwood, WA 98292
 - Station 97, 19727 Marine Drive Stanwood, WA 98292
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$6,000,000
 - **Current and Anticipated Service Trends**—North County Regional Fire Authority has experienced a 10 percent growth over the last five years. Land use designations have allowed for an increase in residential land uses. Call volume has leveled off the last few years, but with the recent decline in property values, the District’s revenue source has also declined.

The jurisdiction’s boundaries are shown on Map 1-1 in Chapter 1 of this volume.

22.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 22-1 lists all significant past occurrences of natural hazards within the jurisdiction.

22.4 HAZARD RISK RANKING

Table 22-2 presents the ranking of the hazards of concern.

22.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

22.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 22-3.

22.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 22-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 22-5 identifies the priority for each initiative. Table 22-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

22.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 22-7 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.

22.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Additional studies on hazards and risks utilizing best available science and technology.

Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Snow Storm	1825-DR	12/2008	\$35,000 to facilities & apparatus
Severe Storm	1499-DR	11/2003	Roof damage estimated \$3,000 to \$5,000
Earthquake	1361-DR	2/2001	Estimated \$100,000 within the District
Wind Storm	NA	12/1996	Indirect damage attributable to power outages

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Weather	30
2	Earthquake	22
3	Wildland Fire	22
4	Flood	20
5	Landslide	3
6	Avalanche	0
7	Volcano/Lahar	0
8	Dam Failure	0
9	Tsunami	0

	Participating?	Classification	Date Classified
Public Protection	Yes	6/7	7/1/2010
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #NCRFA-1—Seismic Retrofit Station 96							
Existing	Earthquake	1,5,11,14	District	\$100,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
Initiative #NCRFA-2—Construct Water Tower in Wildland Fire-Urban Interface area							
New	Wildland Fire	1,3,4	District	\$75,000	District Funds	Long-term	Yes
Initiative #NCRFA-3—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	Yes
Initiative #NCRFA-4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

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
NCRFA-1	4	High	Medium	Yes	Yes	No	Medium
NCRFA-2	3	Medium	Medium	Yes	No	No	Low
NCRFA-3	14	High	Low	Yes	No	Yes	High
NCRFA-4	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 22-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 22-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
FD#14-1		X		Action not completed during initial performance period. Carried over, see NCRFA-1.
FD#14-2		X		Action ongoing. Carried over to updated action plan, see NCRFA -3.
FD#18-1		X		Action not completed during initial performance period. Carried over, see NCRFA-2.
FD#18-2			X	Action removed, project not feasible at this time.

**PART 4—
UTILITY DISTRICT ANNEXES**

CHAPTER 23. ALDERWOOD WATER/WASTEWATER DISTRICT ANNEX

23.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Curt Russell, Safety & Emergency Preparedness
Coordinator
3626 156th St SW
Alderwood, WA 98087
Telephone: 425-743-4605 ext. 8929
e-mail Address: crussell@awwd.com

Alternate Point of Contact

Mike Pivec, Admin Services Manager
3626 156th St SW
Alderwood, WA 98087
Telephone: 425-743-4605 ext. 7921
e-mail Address: mpivec@awwd.com

23.2 JURISDICTION PROFILE

The Alderwood Water & Wastewater District is a special purpose municipal government, which operates under Title 57 of the Revised Code of Washington. The District is in southwest Snohomish County, north of Seattle and south of the city of Everett. The District was formed in 1931. The District has a staff of 110 and is governed by an elected board of five commissioners that will assume the responsibility for the adoption and implementation of this plan. Revenue for the District is generated from ratepayers within the service area.

The District serves all or parts of the cities of Bothell, Mill Creek, Brier, and Mukilteo and unincorporated Snohomish County. In addition, the District is the wholesale provider of water to the cities of Edmonds, Lynnwood, and Mountlake Terrace. The District extends over an area of approximately 60 square miles. Customers served are predominantly residential. Commercial customers are most represented by office complexes. Manufacturing facilities would be classified as light.

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

- **Population Served**—Approximately 128,000 (direct service) and approximately 212,000 including the population of wholesale customers
- **Land Area Served**—Approximately 60 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$35,700,000,000
- **Land Area Owned**—65 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 550 miles of water main, 375 miles of sewer main; Water Pump Stations 1 & 2; Reservoir 2 & 3 Site, which includes Reservoirs 2 & 3, Chlorination Building and Meter Vault Building and Administration Building; Maintenance and Operations Facility, which includes Reservoir 1, High Tanks 1 & 2, Booster Pump Station, Chlorine Generation Facility, Materials Warehouse, Vehicle Repair Shop, Fueling Station, and Storage Facilities for Vehicles and Equipment; Nike Reservoir Site, which includes Tanks 1 & 2; Canyon Park Reservoir Site; City of Lynnwood Master Meter; City of Edmonds Master Meter; City of Mountlake Terrace Master Meter; Wastewater Treatment Plant; Wastewater Lift Stations

- Dump Trucks (various capacities): 5
- Misc Trucks (TV Van, Vac-Con, etc): 5
- Crew & Support vehicles: 30
- Staff vehicles (Admin, inspectors, etc): 30
- Backhoe: 3
- Front End Loader: 1
- Support Trailers (various: generators, compressors, etc): 27
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$2,500,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Office Building \$3,884,900
3626 156th St SW Lynnwood, WA
 - Maintenance & Operations Facility \$4,713,900
15204 35th Ave W Lynnwood, WA
 - Treatment Plant \$1,700,800*
6315 Picnic Point Rd Edmonds, WA
 - Reservoirs (Nike #1 & #2) \$863,900
22608 4th Ave W Bothell, WA
 - Reservoir (Canyon Park) \$536,900
22423 45th Ave SE Bothell, WA
 - Lift Station (#5) \$18,800
5016½ 164th St SW Lynnwood, WA

**The treatment plant is undergoing a major rebuild that is anticipated to be finished in 2013.*
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$13,719,200
- **Current and Anticipated Service Trends**—The District is located within the Southwest County Urban Growth Area. Growth is occurring at the rate of approximately 3 percent per year. The District will approach build out between 2012 and 2020.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

23.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 23-1 lists all past occurrences of natural hazards within the jurisdiction.

23.4 HAZARD RISK RANKING

Table 23-2 presents the ranking of the hazards of concern.

23.5 APPLICABLE REGULATIONS AND PLANS

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

- Endangered Species Act—Limits action in some areas where critical infrastructure may reside.
- H.R. 3448 Public Health Security and Bioterrorism Preparedness and Response Act of 2002—requires districts to prepare a vulnerability assessment. The classified nature of this plan does not permit unlimited work that would affect the protection of critical infrastructure.
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

23.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 23-3.

23.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 23-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 23-5 identifies the priority for each initiative. Table 23-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

23.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 23-7 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.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms, Snow	1825-DR	12/2008-1/2009	<\$20,000
Severe Winter Storm, landslides, mudslides, and flooding	1817-DR	1/2009	<\$20,000
Severe Storms, flooding, landslides, and mudslides	1734-DR	12/2007	<\$20,000
Severe Winter Storm, landslides, and mudslides	1682-DR	2/2007	<\$20,000
Severe Storms, flooding, landslides, and mudslides	1671-DR	12/2006	<\$20,000
Severe Storms, Flooding, Tidal Surge, Landslides, and Mudslides	1641-DR	5/2006	<\$20,000
Severe Storms, Flooding	1499-DR	11/2003	<\$20,000
Wind Storm	981-DR	1/1993	High Tank Pump Station damaged – no estimates available
Flooding, Landslide	NA	10/1996	North Creek Manhole, Picnic Point Treatment Plant affected – no estimates available
Flooding	1159-DR	12/1996	Martha Lake Lift Station and Lake Pleasant Lift Station damaged – no estimates available

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Storm	48
2	Earthquake	36
3	Flood	27
4	Landslide	12
5	Dam Failure	3
6	Volcano/Lahar	3
7	Tsunami	3
8	Wildland Fire	0
9	Avalanche	0

TABLE 23-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 23-4. 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?
AWWD-1—Seismic retrofit of 8” Sewer on Pedestrian Bridge							
Existing	Earthquake	1, 2, 5, 11, 14	District	\$249,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
AWWD-2—Seismic Retrofit/Replace existing 8” Sewer on steep slope							
Existing and New	Earthquake, Landslide	1, 2, 5, 11, 14	District	\$327,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
AWWD-3—Structural retrofit and improvements to pier supports across ravine (vicinity of 153rd St SW) to protect critical infrastructure							
Existing	Earthquake, Flooding	1, 2, 5, 11, 14	District	\$28,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
AWWD-4—Rehabilitate and retrofit 15” Sewer Pipe Downstream of Lift Station #5 Force main							
Existing	Earthquake	1, 2, 5, 11, 14	District	\$808,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
AWWD-5—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term, ongoing	No
AWWD-6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

**TABLE 23-5.
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
AWWD-1	5	High	Medium	Yes	Yes	No	Medium
AWWD -2	5	High	Medium	Yes	Yes	No	Medium
AWWD -3	5	High	Medium	Yes	Yes	No	Medium
AWWD -4	5	High	Medium	Yes	Yes	No	Medium
AWWD -5	14	High	Low	Yes	No	Yes	High
AWWD -6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 23-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 23-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1			X	Sewer structure seismic reinforcement removed as entire project is not feasible.
2	X			Sewer lift station seismic retrofit project completed.

CHAPTER 24. CROSS VALLEY WATER DISTRICT ANNEX

24.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Gary Hajek, General Manager
8802 180th Street SE
Snohomish, WA 98296
Telephone: 360-668-6766 ext. 102
e-mail Address: gary@crossvalleywater.net

Alternate Point of Contact

Robert Wagner, FAM
8802 180th Street SE
Snohomish, WA 98296
Telephone: 360-668-6766 ext. 103
e-mail Address: robertw@crossvalleywater.net

24.2 JURISDICTION PROFILE

Cross Valley Water District is a municipal corporation formed in 1989 under RCW 57 and is governed by a three member elected Board of Commissioners. The General Manager is the Chief Executive of the District. Cross Valley provides water services to customers within its service area. Water sources are principally from ground water (70 percent ground water-30 percent purchased surface water). Wastewater collection service is provided in the urban growth areas of the District. The service area is located generally in SW Snohomish County. As of March, 2010 the District serves 6,646 water connections and 120 sewer connections. Current District staff is 12. 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**—17,280 as of March, 2010
- **Land Area Served**—Approximately 48 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$3,746,540,689
- **Land Area Owned**—27.5 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Wells 5,6, & 10 \$1,000,000
 - Wells 1 & 9 \$500,000
 - Wells 3 & 8 \$500,000
 - Wells 7 & 7A \$500,000
 - Water Treatment Plant \$3,000,000
 - Echo Lake Standpipe \$750,000
 - Vine Street Reservoir & Booster Pump \$700,000
 - Lee Forest Reservoir & Booster Pump \$1,500,000
 - Clearview Elevated Tank \$400,000
 - Clearview Standpipe \$2,000,000
 - Clearview Booster Pump \$1,000,000
 - Clearview Water Supply Project \$22,000,000
 - Eight master meters \$1,600,000
 - 37 Pressure Reducing Stations \$1,400,000
 - 174 miles of water pipeline \$98,000,000

- Sewer Lift Station #1 \$800,000
- Sewer Mains/Manholes \$8,000,000
- Rolling Stock \$500,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$154,150,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Administration & Maintenance Buildings \$3,000,000
 - Generator Storage & Archive Building \$1,000,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$4,000,000
- **Current and Anticipated Service Trends**—The majority of the District’s service area is currently zoned as rural. The District is anticipating a growth rate of approximately 1 percent.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

24.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 24-1 lists all significant past occurrences of natural hazards within the jurisdiction.

24.4 HAZARD RISK RANKING

Table 24-2 presents the ranking of the hazards of concern.

24.5 APPLICABLE REGULATIONS AND PLANS

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

- Cross Valley Water District Comprehensive Plan
- Cross Valley Water District Vulnerability Assessment
- Emergency Response Plan
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

24.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 24-3.

24.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 24-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 24-5 identifies the priority for each initiative. Table 24-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

24.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 24-7 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.

24.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

A seismic study for the District’s buildings and steel tanks is necessary to better understand the District’s seismic risks and vulnerabilities.

TABLE 24-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Winter Weather	1825-DR	12/2008	\$10,000
Severe Storm	1734-DR	12/3/2007	\$96,000
Wind	NA	4/27/2004	\$15,000
Winter Weather	NA	1/6/2004	\$10,000
Earthquake (Duvall)	NA	5/1996	\$60,000
Winter Weather	NA	1/30/1996	\$75,000
Flooding	NA	11/10/1990	\$40,000
Severe Storm	NA	1/18/1986	\$60,000
Flood	NA	1977	\$30,000

TABLE 24-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Storm	36
3	Flood	36
4	Landslide	5
5	Dam Failure	5
6	Wildland Fire	0
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

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

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
Initiative #CV1—Relocation of water mains out of floodway and erosion-prone areas							
Existing	Earthquake, Flood, Severe Weather	1, 2, 4, 6, 13, 14	District	\$3,500,000	Loans, grants, District Funds, FEMA Hazard Mitigation Grants	Short Term	Yes
Initiative #CV2—Seismic upgrades/retrofits to District facilities							
Existing	Earthquake	1, 2, 4, 5, 14	District	\$750,000	Loans, grants, District Funds, FEMA Hazard Mitigation Grants	Short Term	Yes
Initiative #CV3—Install back-up generators at various District wells							
New	Earthquake, Severe Weather	1, 2, 4, 5, 14	District	\$250,000	Loans, grant, District Funds	Short Term	Yes
Initiative #CV4—Continue ongoing water conservation program							
Existing	All Hazards	1, 10	District	\$20,000	District Funds	Long Term	No
Initiative #CV5—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
Initiative #CV6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 24-5.
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
CV1	6	High	High	Yes	Yes	No	High
CV2	5	High	Medium	Yes	Yes	No	High
CV3	5	High	Medium	Yes	Yes	Yes	High
CV4	2	Low	Low	Yes	No	Yes	Low
CV5	14	High	Low	Yes	No	Yes	High
CV6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 24-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	CV5, CV6	CV5	CV5, CV6	CV5	CV5	CV5
Earthquake	CV5, CV6	CV1, CV2, CV5	CV5, CV6	CV5	CV3, CV5	CV5
Flood	CV5, CV6	CV1, CV5	CV5, CV6	CV1, CV5	CV5	CV5
Landslide	CV5, CV6	CV5	CV5, CV6	CV5	CV5	CV5
Severe Weather	CV5, CV6	CV1, CV5	CV5, CV6	CV5	CV3, CV5	CV5
Tsunami						
Volcano/Lahar						
Wildfire						

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 24-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		A portion has been completed. Action ongoing. Carried over to updated action plan, see CV1.
2		X		Action not completed during initial performance period. Carried over, see CV2.
3		X		Action not completed during initial performance period. Carried over, see CV3.
4			X	Action removed, project not feasible at this time.

CHAPTER 25. HIGHLAND WATER DISTRICT ANNEX

25.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Monroe, WA 98272
Telephone: 360-794-6900
e-mail Address: bobshonka@verizon.net

Alternate Point of Contact

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Monroe, WA 98272
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e-mail Address: rayphelps@verizon.net

25.2 JURISDICTION PROFILE

The Highland Water District is special-purpose district created in 1998 to provide local water in the unincorporated area of south-central Snohomish County between the Cities of Monroe and Sultan, with the primary boundaries of the Sultan River to the east, the Skykomish River to the south and Woods Creek to the west. The area served is primarily residential. The purpose of the District is to provide local water service to its customers, as of April 30, 2010, the District serves 1,198 water connections. The District currently employs three full-time employees (general manager, administrative assistant, and field assistant) to operate and maintain its system. Funding for the District is provided through rates, connection charges, and various loans and grant programs. A three-person Board of Commissioners with alternating terms governs the District and will assume responsibility for the adoption of this plan and the general manager will oversee its implementation of this plan.

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

- **Population Served**—Approximately 2863 people served
- **Land Area Served**—Approximately 20 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$621,943,620
- **Land Area Owned**—Approximately 7.82 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Reiner Reservoir #1 \$1,000,000
 - Reiner Reservoir #2 \$1,330,660
 - Booster Pump Station #1 \$850,000
 - Booster Pump Station #2 \$599,968
 - 30.3 miles of water mains \$19,000,000
 - Old Owen Rd Pressure Reducing Valve (PRV) Vault \$37,000
 - Florence Acres Rd PRV Vault \$37,000
 - Friar Creek Rd PRV Vault \$18,750
 - Reiner Rd Double Check Valve Assembly (DCVA) Vault \$25,800
 - Woods Lake Rd DCVA Vault \$25,800
 - Bollenbaugh Hill Rd DCVA Vault \$25,800
 - Friar Creek Rd DCVA Vault \$2,400
 - 105th Street SE DCVA Vault \$11,200

- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$22,938,596
- **List of Critical Facilities Owned by the Jurisdiction:**
 - District’s Office and property \$278,000
 - Reiner Reservoir property (Tank #1) \$61,000
 - Woods Lake Reservoir property (Tank #2) \$90,600
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$1,115,000
- **Current and Anticipated Service Trends**

The Highland Water District is not a land use planning authority. The District must respond to the growth approved by Snohomish County for the area the District serves. The District’s *2008 Comprehensive Water Plan*, which was reviewed and approved by Snohomish County, reported a growth rate of 2.6 percent from 2001 through 2006 and projects a population growth rate of 2.9 percent. Since the growth rate was calculated during the late 2007 and early 2008 the actual growth rate has suffered due to the economical situation of the country. With two development extensions (47 homes) sitting idle for the past 15 months, the growth in the District’s area has seen only a few new service connections in that time period.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

25.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

According to the District’s records, none of its facilities have received damages from a natural hazard event since its inception in 1998.

25.4 HAZARD RISK RANKING

Table 25-1 presents the ranking of the hazards of concern.

25.5 APPLICABLE REGULATIONS AND PLANS

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

- WAC 246-290
- RCW 57.16
- Federal Bioterrorism Act (PL 107-188)
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

25.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 25-2.

25.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 25-3 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 25-4 identifies the priority for each initiative. Table 25-5 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

25.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 25-6 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 25-1. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	42
3	Landslide	22
4	Flood	8
5	Wildland Fire	6
6	Dam Failure	0
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

TABLE 25-2. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
HWD 1—Seismic retrofit of 20,000 lineal feet of AC 6” water mains							
New and Existing	Flood, Earthquake, Landslide	1, 2, 11, 14	District	\$3,775,100	PWTF, USDA Rural Development Rates, Connections Fees, District Funds, FEMA Hazard Mitigation Grants	Long-term	Yes
HWD 2—Install District telemetry system							
New	Earthquake, Severe Weather	1, 5, 8	District	< \$10,000	Rates, Connection Fees, District Funds, Other Funding	Long-term	Yes
HWD 3—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
HWD 4—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

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	4	High	High	Yes	Yes	No	High
HWD 2	3	Low	Low	No	No	No	Low
HWD 3	14	High	Low	Yes	No	Yes	High
HWD 4	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 25-5.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 25-6.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1	X			Completed 01/2008, by T. Bailey
2	X			Completed 09/2009, by Mossenbrucker
3		X		Action #3 is carried over as Action #HWD 1 in the updated action plan.
4		X		Action #4 is carried over as Action #HWD 2 in the updated action plan.

CHAPTER 26.

MUKILTEO WATER AND WASTEWATER DISTRICT ANNEX

26.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Rick Matthews, Projects Coordinator
PO Box 260
Mukilteo, WA 98275
Telephone: 425-355-3355
e-mail Address: rickm@mukilteowwd.org

Alternate Point of Contact

Daniel E. Hammer, General Manager
PO Box 260
Mukilteo, WA 98275
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e-mail Address: danh@mukilteowwd.org

26.2 JURISDICTION PROFILE

The Mukilteo Water District and Olympus Terrace Sewer District merged into one entity in 2007. Both entities were partners in the original Snohomish County Natural Hazard Mitigation Plan. The resulting entity is now called the Mukilteo Water and Wastewater District (MWWD). The Mukilteo Water District was formed in 1920 and is still the oldest active water district in the State of Washington. The Olympus Terrace Sewer District was formed in 1969. The purpose of the District is to provide quality water and sewer service to its customers.

The District provides water and sewer service to portions of the City of Mukilteo, City of Everett, unincorporated Snohomish County, and the Snohomish County Airport at Paine Field. The service area is bound by Puget Sound on the west and north, Everett to the east and the Alderwood Water & Wastewater District to the south. Elevations within the District range from sea level to approximately 620 feet above sea level. Most of the District lies on a plateau. The western edge of the plateau is intersected by several deep ravines running down to Puget Sound. The District currently obtains all of its drinking water from the City of Everett. The District owns and operates a Wastewater Treatment Plant for its westerly customers. The City of Everett provides the District's wastewater treatment for its easterly customers. The District owns and maintains the storage, transmission, distribution and treatment systems within its service area.

The District is governed by an elected five-member board of Commissioners, with the day-to-day operations overseen by the General Manager. The Board will assume the responsibility for the adoption and implementation of this plan. The District currently has 21 employees performing the day-to-day duties, including operation and maintenance of the water system and sewer system, customer billing, construction inspection of new facilities, and other utility-related duties. The District is funded by the rate-payers within its District through rates, general facilities charges and service connection charges.

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

- **Population Served**—28,840 as of 2010
- **Land Area Served**— Approximately 5,500 acres or 8.6 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$3,819,499,287
- **Land Area Owned**—17.52 Acres

- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Lamar Hill Booster Station-Lamar DR, Mukilteo, \$3,997
 - Mukilteo Boulevard Source Meter-1603 5th ST, Mukilteo, \$152,697
 - Casino Road Source Meter-8051 40th Ave, Mukilteo, \$152,697
 - 100th ST Source Meter-2806 100th St, Everett, \$152,697
 - 112th ST Source Meter-2419 112th ST, Everett, \$152,697
 - Reservoir 1 (.75 MG) Site, Reservoir and Booster Sta.-807 Park St, Mukilteo, \$1,965,500
 - Reservoir 2 (2.3 MG) and Enclosed Pump Sta. Building-8300 44th Ave, Mukilteo, \$2,500,000
 - Reservoir 4 (4.5 MG)-3300 109th ST, Paine Field, \$3,000,000
 - Reservoir 5 (6.3 MG)-8300 44th Ave, Mukilteo, \$3,500,000
 - Holly Drive Sewer Lift Station-10706 Holly Dr, Everett, \$994,968
 - 112th ST Sewer Lift Station-2419 112th ST, Everett, \$994,968
 - S-7 Sewer Lift Station-11533 Airport Road, Everett, \$1,147,197
 - Lift Station 2- 5300 84th ST SW, Mukilteo, \$951,797
 - Lift Station 4- 5801 Sunset Lane, Mukilteo, \$500,000
 - Lift Station 5- 6129 88th ST SW, Mukilteo, \$951,797
 - Lift Station 8- 11399 ST Andrews PL, Mukilteo, \$951,797
 - Lift Station 9- 800 Mukilteo Lane, Mukilteo, \$951,797
 - Lift Station 10- 1121 Mukilteo Speedway, Mukilteo, \$1,776,232
 - Lift Station 11- 1399 West Horizon Dr, Mukilteo, \$500,880
 - Lift Station 12- 9050 Surrey Lane, Mukilteo, \$951,797
 - Lift Station 13- 4011 78th ST SW, Mukilteo, \$951,797
 - Lift Station 14- 500 3rd ST, Mukilteo, \$951,797
 - Water Distribution System-City of Everett, City of Mukilteo, Snohomish County Airport and Snohomish County, \$23,239,552
 - Approx. 95 Miles of Water Distribution Piping with hydrants, valving, etc.
 - Approx. 50 Pressure Reducing/Pressure Relief/Check valves
 - Wastewater Collection System- City of Everett, City of Mukilteo, Snohomish County, \$45,775,720
 - Approx. 82 Miles of Gravity Sewer with Man Holes, Clean Outs, Side Sewers, etc.
 - Approx. 5 Miles of Sewer Force Mains
 - International Vac-Con Sewer Jet/Vac Truck, \$339,197.98
 - Sterling Vactor Sewer Jet/Vac Truck, \$307,008.57
 - Ford Camera/TV Van, \$108,591.84
 - International 10 yard Dump Truck, \$87,285.83
 - John Deere Back Hoe, \$90,518.56
 - JCB Wheel Loader, \$102,069.90
 - John Deere Tractor, \$38,750.00
 - Godwin pump/trailer, \$48,122.80
 - SDMO Trailer Mounted Generator, \$32,052.21
 - Five (5) ¾ Ton Service Trucks, Total of \$162,558.84
 - Two (2) 1 Ton Service Trucks, Total of \$109,942.00
 - One (1) 2 ½ Ton Service Truck with Crane, Total of \$88,943.98
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$94,687,423.51
- **List of Critical Facilities Owned by the Jurisdiction:**
 - MWWO Office and Maintenance Facility-7824 Mukilteo Speedway, Mukilteo, \$2,922,800

- MWWD Waste Water Treatment Plant-9417 62nd PL W, Mukilteo, \$9,108,468
- Former Office Facility-806 5th ST, Mukilteo, \$432,500
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$12,463,768
- **Current and Anticipated Service Trends**—The District’s service area is primarily Residential with Commercial and Industrial users. Based on City of Mukilteo and Snohomish County projections, the District anticipates an average annual growth rate of 1.67 percent from 2011 through 2020 and an annual growth rate of 0.41 percent from 2021 through 2030. Annexations of District customers in the City of Everett would lower these growth rates.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

26.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 26-1 lists all past occurrences of natural hazards within the jurisdiction.

26.4 HAZARD RISK RANKING

Table 26-2 presents the ranking of the hazards of concern.

26.5 APPLICABLE REGULATIONS AND PLANS

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

- Mukilteo Water and Wastewater District Comprehensive Water System Plan, February, 2010
- Olympus Terrace Sewer District Comprehensive Plan, June, 2005
- Mukilteo Water District Emergency Response Manual/O&M Plan, December, 2004
- Mukilteo Water District Wastewater Comprehensive Plan, February, 2007
- Sanitary Sewer Trunk Line Stability and Alignment Plan
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

26.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 26-3.

26.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 26-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 26-5 identifies the priority for each initiative. Table 26-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

26.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 26-7 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.

26.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Our most valuable piece of critical infrastructure is the wastewater treatment plant (WWTP), which sits on the shore of Puget Sound. Detailed information regarding tsunami risk would be beneficial to better understand risk to the District’s critical infrastructure.

TABLE 26-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Weather/ Flooding	1734-DR	12/2007	Anchor Village: Heavy rains and overland flooding damaged existing sewer line in four places and broke in one. Two manholes were damaged beyond repair. Grant Funds Received-\$52,948.88
Severe Weather/ Flooding	1734-DR	12/2007	WWTP: Heavy rains and overland flooding damaged rotor #4 and motor bearings. 3.5 Tons of sedimentary debris was deposited in the Headworks. Grant Funds Received-\$11,890.36
Severe Weather/ Flooding	1734-DR	12/2007	Big Gulch Segment 2: Storm drainage from Paine Field Airport, SR 525 and Paine Field Blvd. damaged the, not yet completed, stream restoration. Grant Funds Received-\$161,945.26
Severe Weather/ Flooding	1734-DR	12/2007	Big Gulch Segment 3: An alternate project was approved for the segment and a Vac-Con was purchased. Grant Funds Received-\$162,594.27
Severe Weather/ Flooding	1734-DR	12/2007	Lift Station 9: Heavy rains and overland flooding inundated/damaged the LS. Grant Funds Received-\$28,340.64
Severe Weather/ Flooding	1734-DR	12/2007	Big Gulch Segment 1: Two wash outs from Harbour Point to the North Fork of Big Gulch. Grant Funds Received-\$118,100.73
Severe Weather/ Flooding	1671-DR	11/2006	Storm/flooding event scoured the protective cover over newly installed sewer pipeline. Emergency repairs by helicopter. Grant Funds Received-\$495,749.83
Earthquake (Nisqually)	1361-DR	2/2001	Failed 12-inch water main due to seismic event - \$40,000 plus loss of 25 gallons per minute.

TABLE 26-1 (continued). NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood/ Severe Weather	1159-DR	12/1996-1/1997	12" sewer Main damage in Big Gulch Creek. Landslides caused stream to divert and undermine sewer main in five separate locations.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	LS #5 Force main Failure. Force main sheared on 91st PL SW.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	Creek Gabion Repair. 90 LF of Gabion Wall and chain link fence undermined/damaged.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	WWTP road failure at culvert 1500' above WWTP.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	WWTP Mud Slide at entrance. Large mud/tree slide blocked access.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	WWTP Road Failure above Bridge. Slide/embankment failure above Bridge.
Flood/ Severe Weather	1159-DR	12/1996-1/1997	Failed 4-inch water main due to severe flooding and saturated soil conditions - \$2,000 repair and \$6,000 claim
Flood/ Severe Weather	1159-DR	12/1996-1/1997	Failed 8-inch water main in Japanese Gulch due to storm runoff and flooding - \$5,000
Landslide	N/A	1/1993	Failed 4-inch water main due to ground/slope movement - \$5,000
Severe Weather	N/A	2/1988	Freezing caused 8-inch water main failure - \$140,000

TABLE 26-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	54
2	Severe Storm	54
3	Flood	54
4	Tsunami	24
5	Wildland Fire	24
6	Landslide	12
7	Volcano/Lahar	0
8	Avalanche	0
9	Dam Failure	0

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

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
MWWD-1 —Repair/Replacement of trunk sewer line, rehabilitation of creek bed and slopes, development of high flow storm water bypass within Big Gulch in order to protect Sewer and Treatment Plant Infrastructure from a variety of hazards.							
New and Existing	Earthquake, Flood, Landslide, Severe Storm, Tsunami	1, 2, 4, 5, 6, 11, 14	District	\$26,000,000	Capital Funds, Public Works Trust Fund Loan, Ecology, State Revolving Fund Loan/Grant, Bonds, FEMA Hazard Mitigation Grants	Short Term	Yes
MWWD-2 —Research, plan and establish an alternate water source/supply contract with Alderwood Water and Wastewater (currently 100 percent from City of Everett). Install two new interties with AWWD.							
New	Earthquake, Flood, Landslide, Severe Storm, Tsunami	1, 2, 4, 5, 6, 11, 14	District	\$3,187,000	District Funds, Loans	Short Term	No
MWWD-3 —Research, Repair, Replace, Re-locate existing Sanitary Sewer Lift Station #5 and provide permanent access.							
New and Existing	Earthquake, Flood, Landslide, Severe Storm, Tsunami	1, 2, 4, 5, 6, 11, 14	District	\$1,535,803	District Funds, Bonds, FEMA Hazard Mitigation Grants	Long Term	No

<p align="center">TABLE 26-4 (continued). HAZARD MITIGATION ACTION PLAN MATRIX</p>							
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
<p>MWWD-4—Develop and Adopt an Emergency Response Plan to provide emergency access and evacuation of the WWTP during Natural Hazard Events.</p>							
Existing	Earthquake, Flood, Landslide, Severe Storm, Tsunami, Wildland Fire	1, 4, 5, 8, 9, 11	District	\$19,000	District Funds, EMPG	Short Term	No
<p>MWWD-5—Research, Replace, Re-locate existing WWTP Headworks Inlet Piping and provide slope stabilization for piping and WWTP to reduce risk to infrastructure.</p>							
New and Existing	Earthquake, Flood, Landslide, Severe Storm, Tsunami	1, 2, 4, 5, 6, 11, 14	District	\$269,200	District Funds, Bonds, FEMA Hazard Mitigation Grants	Short Term	No
<p>MWWD-6—Repair/Replace 720 LF of 24” Diameter existing sewer outfall pipe from WWTP</p>							
Existing and then new	Earthquake, Landslide, Severe Storm, Tsunami	1, 2, 4, 5, 6, 11, 14	District	\$707,500	Capital Fund	Long Term	No
<p>MWWD-7—Continue to revise existing Standards and Policies to address Natural Hazard Event effects on construction, access and maintenance of District assets/infrastructure</p>							
New and Existing	Earthquake, Flood, Landslide, Severe Storm, Tsunami, Wildland Fire	1, 2, 4, 5, 6, 8, 9, 10, 11, 14	District	Low	District Funds	Short and Long Term	No
<p>MWWD-8—Seismic Retrofit/Fixture restraint of existing and new equipment and infrastructure.</p>							
New and Existing	Earthquake, Severe Storm	1, 2, 5, 8, 11, 14	District	High	District Funds, FEMA Hazard Mitigation Grants	Short and Long Term	Yes

TABLE 26-4 (continued). 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?
MWWD-9—Lift Station 10: Purchase Stable Site, Relocate LS and install Restraint Joint Force Main Piping.							
New	Earthquake, Landslide, Severe Storm	1, 2, 4, 5, 6, 11, 14	District	\$2,988,732	District Funds	Long Term	No
MWWD-10—Lift Station 9: Purchase Stable Site, Relocate LS and install Restraint Joint Force Main Piping.							
New	Earthquake, Tsunami, Landslide, Severe Storm, Flood	1, 2, 4, 5, 6, 11, 14	District	\$2,164,297	District Funds	Long Term	No
MWWD-11—WWTP: Perform Geotechnical evaluation, Install New Retaining Wall							
New and Existing	Earthquake, Tsunami, Landslide, Severe Storm	1, 2, 4, 5, 6, 11, 14	District	\$343,743	District Funds, FEMA Hazard Mitigation Grants	Long Term	No
MWWD-12—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term, ongoing	No
MWWD-13—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term, ongoing	No

**TABLE 26-5.
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
MWWD-1	7	High	High	Yes	Yes	Yes	High
MWWD-2	7	High	High	Yes	No	Yes	High
MWWD-3	7	High	High	Yes	Yes	Yes	High
MWWD-4	6	High	Low	Yes	No	Yes	High
MWWD-5	7	High	Medium	Yes	Yes	Yes	High
MWWD-6	7	High	Medium	Yes	No	Yes	Medium
MWWD-7	10	High	Low	Yes	No	Yes	High
MWWD-8	6	High	Low	Yes	Yes	Yes	High
MWWD-9	7	High	High	Yes	No	No	Medium
MWWD-10	7	High	High	Yes	No	No	Medium
MWWD-11	7	High	Medium	Yes	Yes	No	Medium
MWWD-12	14	High	Low	Yes	No	Yes	High
MWWD-13	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 26-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Earthquake	MWWD-12 MWWD-13	MWWD-1 MWWD-2 MWWD-3 MWWD-5 MWWD-6 MWWD-8 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-1 MWWD-3 MWWD-5 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-4 MWWD-7 MWWD-8 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-8 MWWD-9 MWWD-10 MWWD-11 MWWD-12
Severe Storm	MWWD-12 MWWD-13	MWWD-1 MWWD-2 MWWD-3 MWWD-5 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-1 MWWD-3 MWWD-5 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-4 MWWD-7 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-9 MWWD-10 MWWD-11 MWWD-12
Flood	MWWD-12 MWWD-13	MWWD-1 MWWD-2 MWWD-3 MWWD-5 MWWD-10 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-1 MWWD-3 MWWD-5 MWWD-1 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-4 MWWD-7 MWWD-10 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-10 MWWD-12
Tsunami	MWWD-12 MWWD-13	MWWD-6 MWWD-5 MWWD-10 MWWD-11 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-6 MWWD-5 MWWD-10 MWWD-11 MWWD-12	MWWD-6 MWWD-4 MWWD-7 MWWD-10 MWWD-11 MWWD-12	MWWD-6 MWWD-10 MWWD-11 MWWD-12
Wildland Fire	MWWD-12 MWWD-13	MWWD-2 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-2 MWWD-12	MWWD-2 MWWD-4 MWWD-7 MWWD-12	MWWD-2 MWWD-12
Landslide	MWWD-12 MWWD-13	MWWD-1 MWWD-2 MWWD-3 MWWD-5 MWWD-6 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-4 MWWD-7 MWWD-12 MWWD-13	MWWD-1 MWWD-3 MWWD-5 MWWD-6 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-6 MWWD-4 MWWD-7 MWWD-9 MWWD-10 MWWD-11 MWWD-12	MWWD-1 MWWD-2 MWWD-3 MWWD-6 MWWD-9 MWWD-10 MWWD-11 MWWD-12

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 26-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
MWD-1	X			Res #4 Seismic & Security from 2005 Plan completed.
MWD-2	X			86th PL Water Main project completed.
MWD-3	X			Reservoir Security and Roof Vents completed.
MWD-4	X			Reservoir Seismic Improvements completed.
MWD-5	X			Master Meter Check Valve completed.
MWD-6	X			New Smoke/Fire Detectors have been completed and actions are ongoing.
MWD-7		X		Fixture Restraint of SCADA/Electrical Equipment actions are ongoing. Carried over to updated action plan, see MWWD-8.
OTSD-1		X		Repair/Replace/Restore Infrastructure in Big Gulch in final phase. Carried over to updated action plan, see MWWD-1
OTSD-2		X		Critical Facilities Evaluation. Carried over to updated action plan, see MWWD-1.

CHAPTER 27.

SILVER LAKE WATER AND SEWER DISTRICT ANNEX

27.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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27.2 JURISDICTION PROFILE

The District is governed by a Board of Commissioners who are elected for staggered six-year terms. The current commissioners are Willis Anderson, Rod Keppler, and Anne Backstrom. The General Manager of the District is Patrick Curran. The District's water system identification number is 79250B. As of May 2010, the District includes a staff of fifteen (15) certified waterworks operators, seven (7) administrative staff, and a licensed professional engineer. The District office is located at 15205 41st Avenue SE, Bothell, WA 98012, within Snohomish County.

The District was incorporated in 1935 for the purpose of providing an adequate and safe water supply for the community, including fire protection. The first water system was installed in 1937. In 1981, the Fircrest Sewer District merged into the Silver Lake Water District, as Fircrest had been providing wastewater collection for much of the same area as the District. The District Name was formally changed from "Silver Lake Water District" to "Silver Lake Water and Sewer District" in 2006.

In 1997, the District joined with the Alderwood Water & Wastewater District and the Cross Valley Water District to form the Clearview Group. The Clearview facilities include a 12-million-gallon reservoir; 33-million-gallon-per-day (mgd) booster station; and 39-inch and 42-inch transmission main from the City of Everett's Pipeline No. 5 to the reservoir site. This provides the District with up to 9.0 mgd of supply and an additional 2.5 MG in water storage capacity; and allows the District to provide service from existing facilities in the west, from the east through the Clearview facilities, or by a combination of both.

The District's water storage consists of three reservoirs with a total capacity of 16.4 MG, together with a 2.5 MG share of the Clearview Reservoir, for a total storage capacity of 18.9 MG.

The District Office was relocated to new headquarters in 2006 and provides customer service and billing; hearings for Commission meetings; and storage for records, drawings, and District documents. The District Office also houses the SCADA system, allowing staff convenient access to its monitoring and control system. A new maintenance facility was constructed on-site with our new District Headquarters.

The 2009 year-end number of service connections provided by the District was 15,670. The ultimate population or holding capacity of the District is calculated to be 74,667.

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

- **Population Served**—44,800 as of December, 2009

- **Land Area Served**—Approximately 9,032 acres
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$6,780,000,000
- **Land Area Owned**—Approximately 22 acres

The District has many mainline facilities located in public road right-of-way or easements to the District but the pump stations and reservoirs are in general on property owned by the District. Reservoir sites have water Booster pump stations and can be used for limited and temporary storage of material and equipment. In addition, the District has former offices and a maintenance facility on a joint use reservoir site and property developed for a new office and maintenance facility. These uses and others occur on the approximately 22 acres of land owned by the District.

- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**

- The District maintains over 178 miles of water mains, which interconnect the source meters, emergency interties, reservoirs, and customer service connections. Table 27-1 describes the water system piping.
- The District’s wastewater collection system consists of 21 sewage lift stations, approximately 15 miles of force main and 180 miles of gravity sewer line. Table 27-2 describes the sewer system piping.

- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$222,000,000*

*Using an assumed replacement cost of \$ 75.00 per foot for any water pipe and \$ 150.00 for any sewer pipe which is to include design and other infrastructure such as pump stations etc. the value would be \$ 70,726,000 for Water and \$ 142,000,000 for Sewer for a total value of the estimated replacement cost of \$ 212,726,00.

The District further is in an association of water purveyors called the Clearview Group that built and collectively owns major transmission and water storage facilities. A portion of those facilities are located within the Silver Lake District Boundaries and include nearly 14,000 feet of 42-inch and 39-inch diameter transmission main and a 12 million gallon reservoir. These Clearview Group Facilities have an estimated constructed value of nearly \$9,600,000.

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

- Booster Stations and Reservoirs 2,3 and 4 \$16,000,000
- Regional Pump Stations, LS No. 2, LS No. 3,
 Thomas Lake LS, Waldenwood LS,
 Pioneer Trails LS, and Sector 7 LS \$18,000,000
- Office Headquarters and Maintenance Facilities \$9,000,000

- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$43,000,000

- **Current and Anticipated Service Trends**—The District service area boundary can grow by annexation but the extent is relatively limited due to County defined urban growth areas and the territorial limits of adjacent and nearby water and sewer districts. However, the growth the District is experiencing is attributable to the higher development of the “raw” land area within the District and the infill and additional density from developing to the higher allowable dwelling density than the initial land conversion density for property previously

served by District facilities. This is demonstrated by the growth of 27 percent the District experienced in the last 6 years.

The jurisdiction's boundaries are shown on Map 1-2 in Chapter 1 of this volume.

27.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 27-3 lists all past occurrences of natural hazards within the jurisdiction.

27.4 HAZARD RISK RANKING

Table 27-4 presents the ranking of the hazards of concern.

27.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.
- The District has an emergency response program included as part of the comprehensive water and sewer plans. These plans detail response actions anticipated for different hazard events detailed above. This program is approved by elected officials the District Commissioners and is reviewed by adjacent purveyors, county and city planning and their elected officials, the State Departments of Health and Ecology. This planning element is used to identify mitigation projects that are incorporated in the District's Capital Improvement Program. The Natural Hazards Mitigation program is as identified in the Comprehensive planning and related Capital Improvement Program. Many of these programs have been identified and installed in prior plan developments and have included on-site emergency generator facilities, seismic pipe considerations on tank design development of our emergency response procedures.

27.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 27-5.

27.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 27-6 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 27-7 identifies the priority for each initiative. Table 27-8 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

27.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 27-9 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 27-1. WATER SYSTEM PIPING			
Pipe Diameter	Approximate Length of Water Pipe in System		Percent of Total
	Lineal Feet	Miles	
4-inch	22,000	4.2	2.3
6-inch	142,000	26.9	15.1
8-inch	544,000	103.0	57.7
10-inch	12,000	2.3	1.3
12-inch	133,000	25.2	14.1
16-inch and larger	90,000	17.0	9.5
Total	943,000	178.6	100.0

TABLE 27-2. SEWER SYSTEM PIPING			
Pipe Diameter	Approximate Length of Gravity Sewer Pipe in System		Percent of Total
	Lineal Feet	Miles	
6-inch	336,000	63.6	35.5
8-inch	546,000	103.4	57.6
10-inch	9,000	1.7	1.0
12-inch	25,000	4.7	2.6
15/16-inch	11,000	2.1	1.2
18-inch	20,000	3.8	2.1
Total	947,000	179.3	100.0

TABLE 27-3. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storm	1499-DR	11/2003	Damage Assessment from this event and other severe weather periods following revealed no significant disruption of our operations. However the District recognized that the weather could have impacted our operations by extended loss of telecommunications and fuel resupply if the storm events continued for longer durational periods.
Earthquake (Nisqually)	1361-DR	2/2001	Damage Assessment of our critical facilities was performed and no significant damage was visible to warrant further study of our structures. The District did take a proactive approach to new facilities constructed after this event to consider earthquake mitigation was included in the construction.
Wind	981-DR	1/1993	No direct costs were attributed to this storm. Critical facilities had standby power generation and outages in the PUD electrical distribution grid did not prevent operation of these facilities

TABLE 27-4. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Storm	18
2	Earthquake	18
3	Landslide	12
4	Flood	4
5	Dam Failure	0
6	Wildland Fire	0
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

TABLE 27-5. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**TABLE 27-6.
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?
SLWSD1—Installation of Isolation Valves in Seismic Areas to reduce vulnerability							
New	Earthquake, Landslide	1, 2, 4, 5, 11, 14	District	Site Specific, High	Ratepayers, District Funds, FEMA Hazard Mitigation Grant Funding	Long-term	Yes
SLWSD2—Trailer Mounted Emergency High Head Sewage Pump to reduce risk to existing facility							
Existing	Storm, Earthquake, Landslide, Flood	1, 2, 4, 5, 11, 14	District	\$100,000	Ratepayers, District Funds, FEMA Hazard Mitigation Grant Funding	Long-term	Yes
SLWSD3—Installation of Seismic Valve Operators to reduce risk to reservoir as critical facility							
Existing	Earthquake, Landslide	1, 2, 4, 5, 11, 14	District	\$50,000	Ratepayers, District Funds, FEMA Hazard Mitigation Grant Funding	Long-term	Yes
SLWSD4—Radio Based Telemetry on Critical Facilities							
Existing	Storm, Earthquake	1, 2, 4, 5, 11, 14	District	\$200,000	Ratepayers, District Funds, EMPG, other grant	Short-term	No
SLWSD5—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
SLWSD6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 27-7.
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
SLWSD1	6	Low	Low	Yes	Yes	Yes	Low
SLWSD 2	6	Medium	Medium	Yes	Yes	Yes	Low
SLWSD 3	6	Medium	Low	Yes	Yes	Yes	Medium
SLWSD 4	6	High	Low	Yes	Yes	Yes	High
SLWSD 5	14	High	Low	Yes	No	Yes	High
SLWSD 6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 27-8.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 27-9.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1	X			IT Redundancy completed in new Headquarters Construction
2		X		Action not completed during initial performance period. Carried over, see SLWSD1. Isolation Valves for Earthquake mitigation are considered on developer projects and will be installed on significant District projects as existing infrastructure is upgraded. – On-going Action
3		X		Action not completed during initial performance period. Carried over, see SLWSD2. District is taking alternative actions to increase reliability at remote station sites that may reduce the need for the obtainment of a Trailer Mounted Emergency High Head Sewage Pump.
4		X		Action not completed during initial performance period. Carried over, see SLWSD3. The installation of seismic sensitive valve operators was completed at our new Reservoir 4 installation and will be considered in future upgrade work at our major booster stations and reservoirs.

CHAPTER 28. SNOHOMISH COUNTY PUD NO. 1 ANNEX

28.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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28.2 JURISDICTION PROFILE

Public Utility District (PUD) #1 of Snohomish County is a special purpose district created in 1936 for the purpose of providing publicly owned electric and water utility service to the people of Snohomish County and Camano Island. A three member elected Board of Commissioners governs the District. The PUD is governed by a Board of Commissioners, comprised of three local citizens, elected on a nonpartisan basis by the people of Snohomish County and Camano Island. The commissioners represent three districts. A commissioner is elected every two years at the November general election to serve a six-year term.

The Commissioners establish PUD policies, set rates, adopt system plans for electric and water utilities, and approve the revenue obligations. In addition to guiding PUD operations, the Commissioners appoint the General Manager.

The General Manager is directly responsible to the Board of Commissioners. He is supported by the Leadership Team and about 900 full- and part-time employees who help carry out Commission policies and conduct PUD business.

As of December 2008, the District serves a 2,200 square mile service area

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

- **Population Served**—683,655 electric customers as of 2008 Census Bureau Estimate and 59,970 water customers based on Snohomish county average household size
- **Land Area Served**—Electric system 2089 square miles, Water system 205 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$94,125,212,678
- **Land Area Owned**—5,037 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 6016 miles of electric transmission and distribution lines and 87 electrical substations, with estimated value of \$1,182,993,000
 - 377 miles of water lines, 19 reservoirs, 20 pump stations and two treatment plants, with an estimated value of \$108,041,000

- Jackson Hydroelectric Project, consisting of Culmback Dam which impounds 153,260 acre feet, a 4 mile tunnel, a 4 mile pipeline, a powerhouse with four hydroelectric turbines with a total nameplate generation capacity of 112 Mw, and an estimated value of \$355,696,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,646,730,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Headquarters Building, Located at 2320 California Street, Everett. The on-site buildings currently consist of the Annex building (34,104 square feet), the Electric Building which includes the original two story North tower constructed in 1958 with two additional floors added in 1969, and South Tower and Training Center constructed in 1993 (115,030 square feet). Estimated value of \$37,429,340
 - Operations Center, Located at 1802 75th Street SW, Everett. The Operations Center is primarily utilized as an engineering/service site consisting of the main office complex (80,533 square feet), Vehicle Maintenance Building (34,615 square feet), a combined Warehouse, Transformer Shop and Meter Shop (56,951 square feet), a new expansion project slated for completion in late 2010 (32,000 square feet), as well as various types of storage on approximately 70 acres of industrial property. Estimated value of \$137,467,716
 - Water Shop, located at 3301 Hartford Road, Lake Stevens. The Water Shop is in the final stages of construction and scheduled for occupancy in June of 2010. It consists of an administrative and engineering building and a warehouse and vehicle storage building comprising 3,828 square feet of office, warehouse and storage space and a 797 square foot modular building located on 9 acres. Estimated value of \$10,000,000.
 - Arlington Local Office, 210 Division Street, Arlington. Single story brick faced building built in 1959, consisting of 2,894 square feet of office space and a 692 square foot loading dock. Estimated value of \$1,660,450.
 - Snohomish Local Office, 807 Rainier Avenue, Snohomish. Single story brick faced building built in 1966 and expanded in 1991, consisting of 4,484 square feet of office space and a 690 square foot loading dock. Estimated value of \$1,793,947.
 - Monroe Local Office, 120 E. Fremont, Monroe. Single story brick faced building built in 1991 and expanded in 1995, consisting of 5,411 square feet of office space and a 975 square foot loading dock. Estimated value of \$2,496,508.
 - Stanwood Local Office, 9124 271st NW, Stanwood. Single story brick faced building built in 1962 and expanded in 1995, consisting of 5,742 square feet of office space and a 995 square foot loading dock. Estimated value of \$3,076,649.
 - South County Local Office, 21018 Highway 99, Edmonds. Two story brick faced building built in 1968, consisting of 11,367 square feet of office space. Estimated value of \$1,158,134.
 - Halls Lake Service Building, 6120 212th SW, Montlake Terrace. One story building built in 1958 and expanded in 1969, consisting of 6540 square feet of office, crew and warehouse space and 4,396 square foot loading dock. Estimated value of \$3,213,352.
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$198,296,096

- **Current and Anticipated Service Trends**—Snohomish County is one of the fastest growing counties in Washington State. Its population has increased by approximately 20 percent over the past ten years to about 726,000 persons in 2010. Based on the “Final 2007 GMA Population Projections (RCW 43.62.035)” dated November 2007, the County planners forecast approximately 845,000 people (an increase of 119,000) will reside in Snohomish County by the year 2020 (16.3 percent increase). Planning for the electric system must be prudent and flexible in order for the electric system to be ready to handle this growth. Based on the latest “2009-2017 Load Forecast” dated March 31, 2009 from January 2010 to December 2016, the District electric facilities will be expanded to accommodate the expected increase of 44,300 in customer growth to 359,400 total customers by the end of 2016. Figure 28-1 shows new customer and population growth trends. This plan includes descriptions of major projects including projected costs and schedules necessary to meet this expected growth.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

28.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 28-1 lists recent significant past occurrences of natural hazards within this jurisdiction.

28.4 HAZARD RISK RANKING

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

28.5 APPLICABLE REGULATIONS AND PLANS

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

- National Electrical Safety Code
- National Environmental Protection Act
- Federal Endangered Species Act
- Title 18 Chapter I of the Code of Federal Regulations
- Snohomish County Critical Area Ordinance
- Emergency Planning and Community Right to Know Act
- Snohomish County PUD Oil Spill Containment and Countermeasure Plan
- Washington State Building Code
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

28.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 28-3.

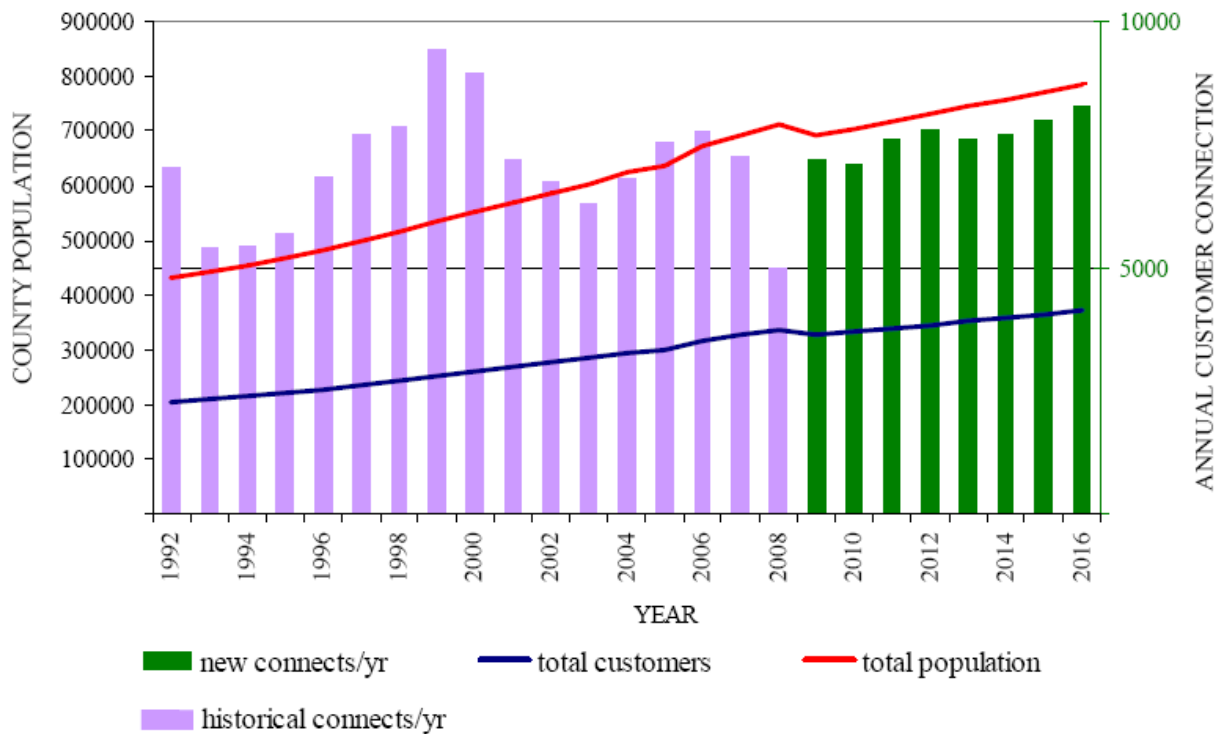


Figure 28-1. County Population and New Customer Connections

28.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 28-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 28-5 identifies the priority for each initiative. Table 28-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

28.8 FUTURE NEEDS TO BETTER UNDERSTAND RISK

As this was the first time that the District has participated in the updating of the Snohomish County Natural Hazards Mitigation Plan and development of this Annex, the availability of staff resources available to work on it was very limited. Our future needs would include resources to perform a more comprehensive risk assessment and identification of potential natural hazard risk mitigation projects.

28.9 ADDITIONAL COMMENTS

Table 28-1 Natural Hazard Events was completed using actual District data from 1993 to the present rather than non-specific SHELDUS dataset because it more accurately reflects the natural hazard incidents that have had operational and financial impacts to the District.

An assessment of the results from the risk ranking methodology used to prepare the Hazard Risk Ranking (Table 28-2) concluded that it did not accurately reflect the District’s risk exposure based on its experience and actual risk exposure. For that reason, Table 28-2 was amended to more accurately reflect the District’s relative risk exposures. The risk rating score results using the risk ranking methodology were left unchanged in this amended table.

**TABLE 28-1.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Flood	1817-DR	1/6/2009	\$855,500
Snow storm	1825-DR	12/18/2008	\$5,806,106
Wind storm	1734-DR	11/12/2007	\$360,552
Wind storm	N/A	10/18/2007	\$1,613,462
Wind storm	N/A	1/9/2007	\$543,079
Wind storm	N/A	1/6/2007	\$1,402,259
Wind storm	1682-DR	12/14/2006	\$5,612,896
Snow storm	1671-DR	11/26/2006	\$6,280,894
Wind storm	1641-DR	2/3/2006	\$1,581,705
Wind storm	N/A	4/27/2004	\$1,998,772
Ice storm	N/A	1/7/2004	\$1,813,289
Wind storm	N/A	12/4/2003	\$1,109,348
Wind storm	N/A	11/18/2003	\$827,940
Wind storm	N/A	10/28/2003	\$1,380,624
Wind storm	1499-DR	10/16/2003	\$767,274
Wind storm	N/A	12/27/2003	\$679,993
Wind storm	N/A	10/22/2002	\$616,540
Earthquake (Nisqually)	1361-DR	2/28/2001	\$86,538
Wind storm	N/A	12/15/2002	\$1,689,069
Wind storm	N/A	1/16/2002	\$832,774
Wind storm	N/A	10/27/1999	\$589,437
Wind storm	N/A	3/3/2002	\$1,351,296
Wind storm	N/A	11/24/2002	\$1,049,305
Wind storm	N/A	3/30/2002	\$862,388
Wind storm	N/A	12/29/2002	\$1,095,647
Snow storm	N/A	11/19/2002	\$771,252
Wind storm	N/A	12/12/2002	\$3,299,144
Wind storm	N/A	12/4/2002	\$1,814,531
Wind storm	N/A	11/18/2002	\$510,584
Wind storm	N/A	1/20/1993	\$3,914,150

**TABLE 28-2
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact) ^a
1	Earthquake	42
2	Severe Storm	27
3	Flood	18
4	Dam Failure	15
5	Tsunami	6
6	Avalanche	18
7	Landslide	18
8	Wildland Fire	12
9	Volcano/Lahar	6

a. An assessment of the results from the standard risk ranking methodology used to prepare the Hazard Risk Ranking concluded that it did not accurately reflect the District’s risk exposure based on its experience and actual risk exposure. For that reason, risk ranking was amended to more accurately reflect the District’s relative risk exposures. (The risk rating score results using the standard risk ranking methodology were left unchanged in this amended table.)

**TABLE 28-3.
COMMUNITY CLASSIFICATIONS**

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

TABLE 28-4. HAZARD MITIGATION ACTION PLAN MATRIX						
Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
PUD #1—Seismic retrofit of Engineering/Administration Building						
Existing	Earthquake	1, 2, 5	PUD	\$1 M	District Funds, FEMA Hazard Mitigation Grants	Short-term
PUD #2—Seismic retrofit of Local Offices (Stanwood, Monroe, Arlington, Snohomish, South County)						
Existing	Earthquake	1, 2, 4, 5	PUD	\$310 K	District Funds, FEMA Hazard Mitigation Grants	Short-term
PUD #3—Construction of flood wall for protection of N. Stanwood electrical substation critical facility						
New and Existing	Flood	1, 2, 4, 5, 6, 14	PUD	\$520 K	District Funds, FEMA Hazard Mitigation Grants	Long-term
PUD #4—Relocate and retrofit vulnerable 115-kV “H” frame electrical power transmission facility located in North Fork of Stillaguamish River floodplain						
Existing	Flood, Earthquake	1, 2, 4, 5, 14	PUD	\$50 K	District Funds, FEMA Hazard Mitigation Grants	Short term
PUD #5—Support County-wide initiatives identified in Chapter 21 of Volume 1.						
New and Existing	All Hazards	All	PUD	Low	District Funds	Short-term ongoing
PUD #6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.						
New and Existing	All Hazards	All	PUD	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5- year update	Short-term ongoing

**TABLE 28-5.
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
PUD #1	3	High	Low	Yes	Yes	Yes	High
PUD #2	4	High	Medium	Yes	Yes	No	High
PUD #3	6	High	High	Yes	Yes	No	High
PUD #4	5	High	Medium	Yes	Yes	No	High
PUD #5	14	High	Low	Yes	No	Yes	High
PUD #6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 28-6.
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	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Dam Failure	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Earthquake	PUD #5, PUD #6	PUD #1, PUD #2, PUD #4, PUD #5	PUD #5, PUD #6	PUD #5	PUD #1, PUD #2, PUD #4, PUD #5	PUD #5
Flood	PUD #5, PUD #6	PUD #3, PUD #4, PUD #5	PUD #5, PUD #6	PUD #5	PUD #3, PUD #4, PUD #5	PUD #3, PUD #5
Landslide	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Severe Weather	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Tsunami	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Volcano/Lahar	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5
Wildland Fire	PUD #5, PUD #6	PUD #5	PUD #5, PUD #6	PUD #5	PUD #5	PUD #5

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**PART 5—
DIKE AND FLOOD CONTROL DISTRICT
ANNEXES**

CHAPTER 29. SNOHOMISH COUNTY DIKE DISTRICT NO. 2 ANNEX

29.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Ruth Brandal, Commissioner
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Everett, WA 98206
Telephone: 425-334-7403
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Alternate Point of Contact

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Telephone: 425-879-6340
e-mail Address: reidcarleton@comcast.net

29.2 JURISDICTION PROFILE

Snohomish County Dike District #2 is one of nine organized diking, drainage or flood control districts assigned to provide flood protection along the Snohomish River. Recognized as a special purpose district under Washington state statute, Dike District #2 has junior taxing authority and funds its operations from revenue generated from assessments within its service area. A three-member Board of Commissioners governs the district and will assume the responsibility for adoption and implementation of this plan. The protected area serviced by Dike District #2 includes the east bank of Ebey Slough from River Mile 8 to River Mile 10. The District lies between Ebey Slough on the west and Sunnyside Boulevard on the east, between approximately 1 mile north of SR 2 and approximately 1 mile south of Soper Hill Road.

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

- **Population Served**—Approximately 42 properties are located within the District boundaries
- **Land Area Served**—Approximately 412 acres (with potential to add 100 more acres)
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$4,750,000
- **Land Area Owned**—No land is owned outright by the District
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Approximately 4 miles of dikes
 - 13 tide gates and drain tubes
 - 13 staging ponds
 - Drainage ditch system
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$10,000,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Lake Stevens Sewer District Wastewater Treatment Plant
 - Olympic Gas Pipeline
 - Airstrip
 - 475 acres of farmland
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$15,000,000

- **Current and Anticipated Service Trends**—Intensive development in the upstream area has increased the frequency and duration of flooding from dike erosion. Additional impervious surfaces are anticipated with County growth trends. Since the river is no longer dredged, the channel is more unstable, leading to harsh wear on the dikes. The use of recreational aquatic vehicles creating wakes in the river also wears on the integrity of the dikes.

According to the *Snohomish County Tomorrow 2008 Growth Monitoring Report*, the population in the rural unincorporated portion of Snohomish County potentially serviced by Dike District #2 is projected to increase by 45,295 between 2002 and 2025, which is 14.6 percent of the projected county growth. It is estimated that Dike District #2's facilities demands could increase by similar ratios, compounded by the concentration of storm water from a large area being collected into a much smaller area. Because District #2 is located entirely within the floodplain zoned for commercial agriculture with restrictive regulations, there is no additional housing anticipated within the District boundaries.

The jurisdiction's boundaries are shown on Map 1-2 in Chapter 1 of this volume.

29.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 29-1 lists all past occurrences of natural hazards within the jurisdiction.

29.4 HAZARD RISK RANKING

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

29.5 APPLICABLE REGULATIONS AND PLANS

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

- All replacement and repair to levee facilities within the designated floodplain must be permitted and compliant with floodplain development regulations in effect including but not limited to the Growth Management Act (GMA) Critical Areas Ordinances, Floodplain Regulations (Chapter 40.6), and Snohomish County Surface Water Management Plan (SCC Title 25).
- Snohomish River Comprehensive Flood Control Management Plan, 1991
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

29.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 29-3.

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 STATUS OF PREVIOUS PLAN INITIATIVES

Table 29-7 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.

29.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

The District needs to know if the community is willing to support on-going funding for drainage to preserve and protect agricultural land from the damage caused by surface water and storm water runoff from nearby urban development.

TABLE 29-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding	NA	1999	\$1,000,000 – Dike repaired with support from US Army Corps of Engineers
Flooding	883-DR	11/1990	Over \$10,000 to repair damages
Flooding	NA	1986	No estimates available – Dike breached as a result of flooding
Flooding	NA	1975	No estimates available – Dike breached as a result of flooding

TABLE 29-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flooding	54
2	Severe Storm	36
3	Dam Failure	36
4	Earthquake	6
5	Wildland Fire	5
6	Landslide	0
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

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

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
D1—Resloping dikes to reduce erosion							
Existing	Flood, Dam Failure	1, 2, 4, 14	District	\$50,000	Assessments, District Funds	Short-term	Yes
D2—Construct 3 access roads to dike for maintenance/repair and emergency access							
New	Flood, Dam Failure	1, 2, 4	District	\$50,000	Assessments, District Funds	Short-term	Yes
D3—Annexation of adjacent private Dike District							
New	Flood, Dam Failure	1, 2, 13	District	High	Assessments, District Funds	Short-term	No
D4—Expand size of existing staging ponds next to dike							
Existing	Flood, Dam Failure	1, 2, 11	District	High	Assessments, District Funds	Short-term	No
D5—Construct additional tide gates and tubes to enhance release of storm water drainage after storm/flood events							
New and Existing	Flood, Dam Failure, Severe Storm	1, 2, 4	District	High	Lake Stevens & Snohomish County cost share, SWM, Assessments, District Funds	Short-term	No
D6—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
D7—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 29-5.
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
D1	4	High	High	Yes	No	No	High
D2	3	High	Medium	Yes	No	No	High
D3	3	Medium	High	No	No	No	Medium
D4	3	Medium	Medium	Yes	No	No	Medium
D5	3	High	High	Yes	No	No	High
D6	14	High	Low	Yes	No	Yes	High
D7	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 29-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	D6, D7	D6	D6, D7	D1, D3, D6	D2, D6	D1, D2, D4, D5, D6
Earthquake	D6, D7	D6	D6, D7	D6	D6	D6
Flood	D6, D7	D6	D6, D7	D1, D3, D6	D2, D6	D1, D2, D4, D5, D6
Landslide						
Severe Weather	D6, D7	D6	D6, D7	D6	D6	D5, D6
Tsunami						
Volcano/Lahar						
Wildfire	D6, D7	D6	D6, D7	D6	D6	D6

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

TABLE 29-7. PREVIOUS ACTION PLAN IMPLEMENTATION STATUS				
Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over to updated action plan, see D1.
2			X	Action removed, project not feasible at this time.
3			X	Action removed, project not feasible at this time.
4		X		Action not completed during initial performance period. Carried over to updated action plan, see D2.

CHAPTER 30. MARSHLAND FLOOD CONTROL DISTRICT ANNEX

30.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Paul Reasoner, Secretary/Manager
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Snohomish, WA 98291
Telephone: 360-568-6044
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Alternate Point of Contact

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Snohomish, WA 98296
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e-mail Address:

30.2 JURISDICTION PROFILE

The Marshland Flood Control District is one of nine districts providing flood protection along the Snohomish River. As a special purpose district under Washington law, the District has junior-taxing authority and funds its operations from revenue generated from assessments within its service area. A three-member Board of Commissioners governs the district and will assume the responsibility for adoption and implementation of this plan. The protected area serviced by the District includes the left bank of the Snohomish River from River Mile 7 to River Mile 15.5, protecting approximately 6,000 acres of mostly agricultural land. The following is a summary of key information about the jurisdiction:

- **Population Served**—300 as of May, 2010
- **Land Area Served**—Approximately 14,000 acres
- **Value of Area Served**—The estimated value of the District’s service area is \$146,000,000
- **Land Area Owned**—34.74 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 10 ton crane \$103,360
 - 2 – 100 hp pumps \$147,282
 - 4 – 250 hp pumps \$430,515
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$681,157
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Dam
 - Pump Plant
 - 8.5 miles river levees
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$20,000,000
- **Current and Anticipated Service Trends**—According to the *Snohomish County Tomorrow 2008 Growth Monitoring Report*, the population for this portion of the County will increase by 64.4 percent between 2002 and 2025, or 2.8 percent annually. It is estimated that the Marshland Flood Control District’s service population will increase by similar ratios.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

30.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

30.4 HAZARD RISK RANKING

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

30.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

30.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 30-3.

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.

30.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 30-7 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 30-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm, Flooding	DR-1817	1/2009	\$40,189.26
Severe Storm, Flooding	DR-1734	12/2007	\$40,625.00
Severe Storm, Flooding	DR-1100	2/1996	\$12,000,000
Flooding	DR-1079	11/-12/1995	No estimates available
Flooding	NA	11/1991	No estimates available
Flooding	DR-883	11/-12/1990	\$7,500,000
Flooding	NA	1982	No estimates available
Flooding	NA	1981	No estimates available
Flooding	NA	1979	No estimates available
Flooding	NA	1977	No estimates available
Flooding	NA	12/1975	No estimates available

TABLE 30-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Severe Storm	36
3	Earthquake	18
4	Tsunami	3
5	Dam Failure	3
6	Wildland Fire	0
7	Landslide	0
8	Avalanche	0
9	Volcano/Lahar	0

TABLE 30-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

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?
MFCD1 —Structural retrofit of pump plant and dam to reduce vulnerability to critical facilities							
Existing	Earthquake, Flood, Severe Weather, Tsunami, Dam Failure	1, 2, 4, 5, 11, 14	District	\$4,000,000	Assessment, Bond issue, District Funds, FEMA Hazard Mitigation Grants	Long-term	Yes
MFCD2 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
MFCD3 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 30-5.
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
MFCD1	6	High	High	Yes	Yes	No	High
MFCD2	14	High	Low	Yes	No	Yes	High
MFCD3	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 30-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

TABLE 30-7. PREVIOUS ACTION PLAN IMPLEMENTATION STATUS				
Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see MFCD1.

CHAPTER 31. STILLAGUAMISH FLOOD CONTROL DISTRICT ANNEX

31.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Chuck Hazelton, Manager
23224 Marine Dr.
Stanwood, WA 98292
Telephone: 360-652-9233
e-mail Address: eagletreefarm@verizon.net

Alternate Point of Contact

None

31.2 JURISDICTION PROFILE

The Stillaguamish Flood Control District was formed on December 9, 1992 under RCW 85.38. The District encompasses much of the lower Stillaguamish River floodplain, beginning just south of the intersection of SR 530 and Norman Road, west to Marine Drive, and north to the Stanwood city limits and Leque Road. The District maintains levees and drainage systems within this defined service area. As a junior-taxing district, funds for operations are generated from assessments within the service area. A three-member Board of Commissioners governs the district and will assume the responsibility for adoption and implementation of this plan.

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

- **Population Served**—Approximately 400 parcels are located within the District boundaries
- **Land Area Served**—Approximately 6,600 acres
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$60,000,000
- **Land Area Owned**—1 acre
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - River Levees (22 mi) and Sea Dike (8 mi) \$79,200,000 (estimate)
 - Tide gates (10) \$5,000,000 (estimate)
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$84,200,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - District office/Maintenance Building \$100,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$100,000
- **Current and Anticipated Service Trends**—The current trend is to put land into “natural growth” that will benefit fish and waterfowl habitat. This will not have a direct impact on the District, as the ditches will still need to be cleaned, the levees maintained and the water pumped. Increases in population in the surrounding areas will create additional runoff, which will increase the demand on the District for flood control. According to the *Snohomish*

County Tomorrow 2008 Growth Monitoring Report, the unincorporated UGA for the City of Stanwood estimates that the population for this portion of the County will increase by an astounding 87.6 percent between 2002 and 2025, or 3.81 percent annually. Although the majority of the District service area will remain in agricultural use, the growth projected for the urban growth portions of this service area will impact District facilities.

The jurisdiction's boundaries are shown on Map 1-2 in Chapter 1 of this volume.

31.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 31-1 lists all past occurrences of natural hazards within the jurisdiction.

31.4 HAZARD RISK RANKING

Table 31-2 presents the ranking of the hazards of concern.

31.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Floodplain Management Ordinance
- Stillaguamish River Comprehensive Flood Hazard Management Plan
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009

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.

31.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 31-3.

31.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 31-4 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 31-5 identifies the priority for each initiative. Table 31-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

31.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 31-7 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.

31.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

The Stillaguamish District recognizes that due to the age and extensive nature of the existing levee system, it has been difficult to ascertain an exact measurement of linear length of the system or numbers of tide gates in the District's possession. A thorough GIS analysis combined with a physical assessment would allow the District to capture that data definitively.

TABLE 31-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flood	1817-DR	1/2009	\$64,064.50
Severe Storms (Flooding)	1671-DR	11/2006	\$24,563.91
Severe Storms (Flooding)	1641-DR	2/2006	\$37,927.00
Flood & Erosion	1499-DR	11/2003	\$16,789.79
Flood	1172-DR	3/1997	\$5000
Flood	1100-DR	1/-2/1996	\$16,000
Flood	1079-DR	11/-12/1995	No estimates available
Flood	896-DR	12/1990	\$64,700 (for entire basin)
Flood	883-DR	11/1990	\$64,700 (for entire basin)
Flood	784-DR	11/1986	No estimates available

TABLE 31-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	48
2	Severe Storm	48
3	Earthquake	34
4	Tsunami	32
5	Volcano/Lahar	18
6	Wildland Fire	0
7	Landslide	0
8	Avalanche	0
9	Volcano/Lahar	0

**TABLE 31-3.
COMMUNITY CLASSIFICATIONS**

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

**TABLE 31-4.
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?
SFCD-1 —Address repetitive flooding in the Irvine Slough area							
Existing	Flood	1, 4, 11	District	\$250,000	Grants, Bonds, Assessment Funds	Short-term	No
SFCD-2 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
SFCD-3 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 31-5.
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
SFCD-1	3	Medium	Medium	Yes	Yes	No	High
SFCD-2	14	High	Low	Yes	No	Yes	High
SFCD-3	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 31-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 31-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1	X			Completed per final 2008/2009 progress report

CHAPTER 32. FRENCH SLOUGH FLOOD CONTROL DISTRICT ANNEX

32.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Neil Wheeler, Manager
8222 Riverview Road
Snohomish, WA 98290
Telephone: 425-308-9854
e-mail Address: neilwheeler@comcast.net

Alternate Point of Contact

None

32.2 JURISDICTION PROFILE

French Slough Flood Control District provides flood protection and drainage to the land within its boundaries along the Snohomish and Pilchuck Rivers. The District was formed in 1949 but has undergone many changes since its inception. The District currently has two employees—Manager and Secretary-Treasurer. The District is funded by assessments to the landowners within the boundary of the District. As a special interest district, the French Slough Flood Control District is governed by a board of three elected Commissioners which are elected by the landowners within the boundaries of the District for six year terms. The following is a summary of key information about the jurisdiction:

- **Population Served**—There are 237 landowners within the District boundaries
- **Land Area Served**—5,500 acres of floodplain; Inter-local with City of Monroe – 1,300 acres; Total watershed is 17,000 acres
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is as follows:
 - Inter-local area - \$2.275 billion
 - Balance of district is approximately \$93.8 million
- **Land Area Owned**—The District owns 20 acres of land. The Pump Plant, Riverside Facility and Discharge Facility are located on the property.
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 1 Pump Plant which includes:
 - 2 - 150 HP Pumps \$2,250,000
 - 4 – 450 HP Pumps \$9,000,000
 - Numerous small pumps \$750,000
 - Trash Rake mounted on rail system \$1,000,000
 - 4 hydraulic pumps \$1,000,000
 - 4 steel flood gates \$1,000,000
 - 4.6 miles of dike \$32,000,000
 - 0.6 miles of levee \$750,000
 - 25 lineal miles of ditches \$10,000,000
 - 3 Tide Gates with culvert attached \$500,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$58,250,000

- **List of Critical Facilities Owned by the Jurisdiction:**
 - 2 Equipment buildings \$5,000,000
 - Pump Plant Structure \$12,000,000
 - Riverside Structure \$2,000,000
 - Flood Gate Structure \$4,000,000
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$23,000,000
- **Current and Anticipated Service Trends**—The current trend is to put land into “natural growth” that will benefit fish and waterfowl habitat. This will not have a direct impact on the District, as the ditches will still need to be cleaned, the levees maintained and the water to be pumped. Increases in population in the surrounding areas will create additional run-off, which ultimately increases the demands on the District for pumping and other means of flood control. According to the “Snohomish County Tomorrow 2001 Growth Monitoring Report”, the unincorporated area in and surrounding the District experienced a 7 percent average annual increase in population between 1990 and 2000. This report estimates that the population for this portion of the county will increase by approximately 8 percent by 2012 or 0.7 percent annually.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

32.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

32.4 HAZARD RISK RANKING

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

32.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazard Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- Washington Department of Fish and Wildlife Hydraulic Project Approval
- 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.

32.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 32-3.

32.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 32-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 32-5 identifies the priority for each initiative. Table 32-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

32.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 32-7 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.

Type of Event	FEMA Disaster #(if applicable)	Date	Preliminary Damage Assessment
Flooding	1817-DR	1/2009	Estimates not available
Flooding	1671-DR	11/2006	Estimates not available
Flooding	1100-DR	2/1996	\$7,000,000
Flooding	N/A	11/1995	\$1,000,000
Flooding	N/A	12/1990	\$2,000,000
Flooding	N/A	1/1982	\$3,000,000
Flooding	492-DR	12/1975	\$10,000,00

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Flood	54
2	Earthquake	54
3	Severe Weather	39
4	Landslide	18
5	Dam Failure	18
6	Wildfire	0
7	Avalanche	0
8	Volcano/Lahar	0
9	Tsunami	0

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

**TABLE 32-4.
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 #FSFCD-1—Continue to implement ongoing dike maintenance program							
Existing	Flood, Severe Weather, Earthquake, Dam Failure	1, 2, 3, 11, 13, 14	District	\$50,000 Low	Grants & Assessments	Short-term ongoing	Yes
Initiative #FSFCD-2—Strengthen/enhance Dike from 6th St. to Sexton Road							
Existing	Flood, Severe Weather, Earthquake, Dam Failure	1, 2, 3, 11, 13, 14	District, County	\$100,000	Grants & Assessments	Short-term	No
Initiative #FSFCD-3—Property acquisition within Pilchuck Trailer Park							
Existing	Flood, Severe Weather, Earthquake, Dam Failure	1, 2, 3, 11, 13, 14	District, County	\$1,000,000	FEMA Hazard Mitigation Grants & Assessments	Long-term depends on funding	Yes
Initiative #FSFCD-4—Feasibility study for structural/non-structural seismic retrofit of pump plant.							
Existing	Earthquake	2,14	District	\$100,000	Grants & Assessments	Short-term	Yes
Initiative #FSFCD-5—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
Initiative #FSFCD-6—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, possibly FEMA Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 32-5.
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
FSFCD-1	6	High	Medium	Yes	Yes	Partially	High
FSFCD-2	6	High	Medium	Yes	Yes	No	High
FSFCD-3	6	High	Medium	Yes	Yes	No	Medium
FSFCD-4	2	Medium	Low	Yes	Yes	No	Medium
FSFCD-5	14	High	Low	Yes	No	Yes	High
FSFCD-6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 32-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 32-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		This is an ongoing action carried over, see FS-1.
2		X		Action not completed during initial performance period. Carried over, see FS-4.
3		X		Action not completed during initial performance period. Carried over, see FS-3.

**PART 6—
SCHOOL DISTRICT ANNEXES**

CHAPTER 33. DARRINGTON SCHOOL DISTRICT ANNEX

33.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Alan Pickard, Family Liaison
41017 Squire Creek Road
Arlington, WA 98223
Telephone: 360.436.1800
e-mail Address: pickarda@dsd.k12.wa.us

Alternate Point of Contact

Larry Johnson, Superintendent
PO Box 315
Darrington, WA 98241
Telephone: 360.631.2937
e-mail Address: johnsonl@dsd.k12.wa.us

33.2 JURISDICTION PROFILE

The Darrington School District has three schools and the administration building on one campus. The District has been in operation for 80 years and presently has 75 employees. The District is funded by local, state, and federal dollars, which is administered by a board of directors and superintendent. The Board will assume the responsibility of the adoption and implementation of this plan. The District's customers are the students who attend its schools. The following is a summary of key information about the jurisdiction:

- **Population Served**—1500 in Darrington proper as of December 2008 and approximately 500 residences in the outlying school district boundaries
- **Land Area Served**—Approximately 310,000 acres
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$12,000,000
- **Land Area Owned**—60 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - 5 School Buses \$500,000
 - 5 Substitute School Buses \$125,000
 - 4 Passenger Vans \$85,000
 - Equipment \$631,000
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,341,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Administration Portable \$127,000
 - Bus Garage/Maintenance \$600,000
 - Darrington Elementary/Middle \$5,085,000
 - Darrington High School \$2,604,500
 - Vocational Shop Building \$250,000
 - Maintenance Building \$100,000
 - Darrington Middle School \$750,000
 - Special Education Portable \$200,000
 - Title I Portable \$200,000

- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$9,916,500
- **Current and Anticipated Service Trends**—The Darrington School District continues to deal with declining enrollment. The ongoing trend has been anticipated by the county and the state. According to the *2008 Snohomish County Growth Monitoring Report*, Snohomish County grew 14.9 percent between 2000-2008, the Darrington population grew 32 percent in the same time; however, the increase did not produce an influx of more students due to so many of these people being retirees coming to the area. In 2008 Darrington had 1500 residents, but our school population decreased by almost 10 percent. Darrington is impacted by the Washington State Growth Management Act (GMA) and is compliant with the provisions of this State mandate.

The jurisdiction's boundaries are shown on Map 1-2 in Chapter 1 of this volume.

33.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 33-1 lists all past occurrences of natural hazards within the jurisdiction.

33.4 HAZARD RISK RANKING

Table 33-2 presents the ranking of the hazards of concern.

33.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- 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.

33.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction's classifications under various hazard mitigation programs are presented in Table 33-3.

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.

33.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 33-7 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.

33.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Flexible piping on portable buildings would help to maintain water and septic during an earthquake. Any educational opportunities to help the community be better informed about natural disasters that threaten our area would be very helpful. We have a generator to run the town’s pump house to maintain water supply, but we need funding to have it installed and for additional electrical components required for the installation. The district would like to have the ability to maintain and add to its emergency preparedness container. It needs added ventilation installed to prevent condensation from ruining the supplies. We also need shelving to put supplies on. The district receives no funding from the state to cover the costs of these things, yet it needs to be prepared and self-sufficient in the event of the listed hazards.

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Storms, Snow	1825-DR	12/2008-1/2009	\$6,937.20 – Damaged curbs, gutters, plumbing
Severe Storms, Wind	1682-DR	2/2007	No estimates available
Earthquake (Nisqually)	1361-DR	2/2001	\$32,055.48 – School buildings damaged
Severe Storms, Wind	NA	6/1997	No estimates available
Flood, Landslide	1172-DR	3/1997	No estimates available
Ice, Wind, Snow, Landslide, Flood	1159-DR	12/1996-2/1997	No estimates available - widespread flooding throughout Snohomish County
Flood	1100-DR	1/-2/1996	No estimates available - major damage compounded by previous years flooding
Flood	NA	11/-12/1995	\$53,000 on the Stillaguamish River
Severe Storms, Wind	NA	11/-12/-1995	No estimates available
Severe Storms, Wind	981-DR	1/1993	No estimates available
Flood	883-DR	11/1990	\$64,700 on the Stillaguamish River

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Flood	45
3	Severe Storm	42
4	Landslide	18
5	Volcano/Lahar	12
6	Wildland Fire	12
7	Tsunami	0
8	Avalanche	0
9	Dam Failure	0

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

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline	Included in Previous Plan?
DSD-1 —Install existing generator to sub-panel to prevent loss of power during disasters in order to protect building inhabitants and reduce damages to critical facility							
Existing	All Hazards	1, 2, 4, 5, 11, 14	District	\$4,500	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
DSD-2 —Seismic Retrofit/Replace existing hard sewer pipes in 4 portables with flex pipe							
Existing and New	Earthquake	1, 2, 4, 5, 11, 14	District	\$3,200	District Funds, Bond, FEMA Hazard Mitigation Grants	Short-term	Yes
DSD-3 —Non-structural seismic retrofit of computer monitor lasso straps to prevent monitors from falling during earthquakes							
Existing	Earthquake	1, 2, 4, 5, 11, 14	District	\$4,000	District Funds, FEMA Hazard Mitigation Grants	Short-term	Yes
DSD-4 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
DSD-5 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 33-5.
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
DSD-1	6	High	Low	Yes	Yes	No	High
DSD-2	6	Medium	Low	Yes	Yes	No	High
DSD-3	6	High	Low	Yes	Yes	No	High
DSD-4	14	High	Low	Yes	No	Yes	High
DSD-5	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 33-6.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 33-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1	X			Action completed during initial performance period. Existing LAN stand replaced.
2		X		Action not completed during initial performance period. Carried over, see DSD-3.
3		X		A portion has been completed as the generator has been purchased but not yet installed. Action on-going. Carried over to updated action plan, see DSD-1.
4		X		Action not completed during initial performance period. Carried over, see DSD-2.

CHAPTER 34. SULTAN SCHOOL DISTRICT #311 ANNEX

34.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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Alternate Point of Contact

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34.2 JURISDICTION PROFILE

The Sultan School District has two elementary schools (grades K-5), one middle school (grades 6-8), one high school (grades 9-12) and an Alternative Program offsite (grades 11-12). The District serves a student population of 2,171 (October 1, 2009 Headcount) in kindergarten through 12th grade has approximately 250 employees, and has an estimated population of 13,328 residents in the cities of Sultan and Gold Bar as well as unincorporated rural areas of Snohomish County (Snohomish County 2025 GMA Population Forecast by School District, 2009 Census Estimate). The District is located 47 miles northeast of Seattle in the Puget Sound Region of Washington State, in the foothills along the western slope of the Cascade Mountain range and is host to many waterways including the Skykomish River and the Sultan River.

The Sultan School District was established in 1908 and is primarily funded through Washington State Basic Education Allocation (BEA) funds (75 percent), local taxes (18 percent), and federal flow-through dollars (7 percent). The general operating budget is about \$16.7 million, and the monthly payroll is about \$1.15 million. An elected five-person Board of Directors hires a superintendent, who in turn hires a variety of employees. This board will assume the responsibility for the adoption and implementation of this plan. The following is a summary of key information about the jurisdiction:

- **Population Served**—13,328 residents
- **Land Area Served**—354 square miles
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$1,312,784,855 (OSPI 2009 Adjusted Assessed Valuations, 4/7/2010)
- **Land Area Owned**—Approximately 108 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Bluebird School Buses (qty 24) \$1,200,000
 - Collins School Buses (qty 6) \$300,000
 - 1987 Jeep Cherokee (green) \$1,000
 - 1987 Chevrolet Pickup (white) \$1,000
 - 1983 Chevrolet Pickup (green) \$1,000
 - E350 Box Truck (white) \$5,000
 - Boom Truck (silver) \$2,000
 - Utility Trailer (green) \$1,000
 - JCB Backhoe \$2,000

- 2 Tractors \$3,000
- Forklift \$1,500
- Manlift \$1,500

- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,519,000

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

	<i>Buildings</i>	<i>Contents</i>	<i>Total</i>
- Sultan High School	\$24,967,650	\$3,028,653	\$27,996,303
- Sultan Middle School	\$21,374,920	\$2,599,790	\$23,974,710
- Sultan Elementary School	\$12,767,950	\$1,891,913	\$14,659,863
- Gold Bar Elementary School	\$9,072,050	\$1,379,138	\$10,451,188
- District Support Facilities	\$1,479,300	\$423,903	\$1,903,203

- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$69,661,870 (Total facility value with contents is \$78,985,267.)
- **Current and Anticipated Service Trends** - There are two reports that project student headcount enrollment for the Sultan School Districts Service Area. Forecasts are included from both reports along with Population Projections from the Washington State Office of Financial Management and the Census Bureau and shown in Table 34-1. According to these reports, both student enrollment and County population are expected to increase by 2015.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume. The boundaries are irregular, with the northernmost point located near Olney Pass up Sultan Basin Road at 74th Place SE and the southernmost point located along Ben Howard Road south of the Skykomish River. The westernmost point is near Fern Bluff Road between Sultan and Monroe, and the easternmost point is located northeast of the Town of Index. The District covers approximately 354 square miles. Within these 354 square miles of service area, the District owns about 108 acres of land for educational and recreational purposes, including 40 acres of raw land purchased on Reiter Road in Gold Bar for a proposed future middle school.

34.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

34.4 HAZARD RISK RANKING

Table 34-3 presents the ranking of the hazards of concern.

34.5 APPLICABLE REGULATIONS AND PLANS

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

- Sultan School District Emergency Plan (08/20/2009)
- Snohomish County Code 2.36 Emergency Management
- Snohomish County Public Utility District #1 Jackson Project Emergency Action Plan
- City of Everett Lake Chaplain Emergency Action Plan
- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009

- 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.

34.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 34-4.

34.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 34-5 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 34-6 identifies the priority for each initiative. Table 34-7 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

34.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 34-8 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.

34.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Active participation with Snohomish County Department of Emergency Management and Snohomish County Fire District #5 for training and workshop opportunities.

34.10 ADDITIONAL COMMENTS

Following a natural hazard event with damage to facilities and/or equipment, loss of service would be one of the District’s greatest issues as it is required by law to provide 180 days of education to students and its funding is based on meeting this requirement. Staff payroll is based on days students are in class. Days not in the classroom require students and staff to make up the missed days at another time. It is imperative that school facilities and transportation infrastructure are operable to meet the state requirements. School facilities are also designated as shelter sites for relief efforts following a natural hazard event. School facilities must be intact to provide support to emergency service agencies.

TABLE 34-1. POPULATION AND ENROLLMENT PROJECTIONS			
	OSPI Cohort Survival Enrollment Projections	OFM County Enrollment Projections	OFM County Population Projections
2009 headcount (actual count 10/2009)	2,071	2,071	13,328
2010	2,129	2,130	
2011	2,085	2,191	
2012	2,079	2,253	
2013	2,039	2,317	
2014	2,037	2,383	
2015	2,010	2,451	15,776

**TABLE 34-2.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Flooding (Skykomish River & Sultan River)	1817-DR	1/2009	Flooding caused water over roadways and school was closed for 2 days affecting students & staff district-wide.
Severe Winter Storm (Record Snow)	1825-DR	12/2008	Weather/snow on roadways caused school closures for 2 days affecting students & staff district-wide.
Severe Winter Storm, Flooding (Skykomish River & Sultan River)	N/A	11/2008	Flooding caused water over roadways and school was closed for 2 days affecting students & staff district-wide
Severe Storm (Lightning)	N/A	6/2004	No estimates available
Severe Storm (Ice/Wind)	N/A	1/2004	Weather prevented students & staff district-wide from returning to school at the end of winter break. Property fence-line at Gold Bar Elementary blew down, injuring 2 employees who tried to save it. Roof vent from Sultan Middle School Woodshop blew off and struck a maintenance vehicle.
Earthquake (Monroe)	N/A	2003	Building veneer cracked at Sultan High School
Earthquake (Nisqually)	1361-DR	2/2001	Cracking on split block and ceiling tile grids separated at Sultan High School
Severe Storm (Wind)	981-DR	1/1993	No estimates available
Flooding (Skykomish River & Sultan River)	883-DR	11/1990	Bus parking lot was flooded and buses had to be moved to higher ground. No structural damage reported

**TABLE 34-3.
HAZARD RISK RANKING**

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Severe Storm	48
2	Flood	42
3	Dam Failure	18
4	Landslide	18
5	Earthquake	15
6	Wildland Fire	12
7	Tsunami	0
8	Avalanche	0
9	Volcano/Lahar	0

TABLE 34-4. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

TABLE 34-5. 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?
SSD1 —Enhance existing audible early warning device with remote voice override capability to improve early warning for all hazards, particularly for flood and dam failure events.							
Existing	All Hazards	1, 4, 5, 8	District	\$30,000	District Funds, Bond issue, EMPG	Short Term	Yes
SSD2 —Non-structural seismic retrofit of all school facilities that also serve as emergency shelters							
Existing	Earthquake	1, 2, 4, 5, 11, 14	District	\$20,000	District Funds, Bond issue, FEMA Hazard Mitigation Grants	Short Term	Yes
SSD3 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short-term ongoing	No
SSD4 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 34-6.
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
SSD1	4	High	Medium	Yes	Yes	No	High
SSD2	6	High	Medium	Yes	Yes	No	High
SSD3	14	High	Low	Yes	No	Yes	High
SSD4	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 34-7.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure	SSD3, SSD4	SSD3	SSD3, SSD4	SSD3	SSD1, SSD3	SSD3
Earthquake	SSD3, SSD4	SSD2, SSD3	SSD3, SSD4	SSD3	SSD1, SSD2, SSD3	SSD3
Flood	SSD3, SSD4	SSD3	SSD3, SSD4	SSD3	SSD1, SSD3	SSD3
Landslide	SSD3, SSD4	SSD3	SSD3, SSD4	SSD3	SSD1, SSD3	SSD3
Severe Weather	SSD3, SSD4	SSD3	SSD3, SSD4	SSD3	SSD1, SSD3	SSD3
Tsunami						
Volcano/Lahar						
Wildfire	SSD3, SSD4	SSD3	SSD3, SSD4	SSD3	SSD1, SSD3	SSD3

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 34-8.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see SSD1.
		X		Action not completed during initial performance period. Carried over, see SSD2.

**PART 7—
PARK AND HEALTH DISTRICT
ANNEXES**

CHAPTER 35. NORTHSHORE PARKS AND RECREATION SERVICE AREA ANNEX

35.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Cheri Rondeau, Assistant Director
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Alternate Point of Contact

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35.2 JURISDICTION PROFILE

On September 20, 1988, the voters of the Northshore School District approved the formation of the Northshore Parks and Recreation Service Area (NPRSA) to finance the construction of a senior citizen center. The NPRSA includes portions of King and Snohomish Counties and the Cities of Bothell, Woodinville and Kenmore.

In 1988, with the formation of the NPRSA, a \$3.6 million bond issued was passed to build the current 24,000-square-foot Northshore Senior Center. In 2001 the voters passed a \$3.9 million bond to build a 20,000-square-foot Health and Wellness Center currently under construction, with an expected completion date in early 2005. The Northshore Senior Center provides programs and services to over 8,000 elderly and disabled citizens. With the completion of the Health and Wellness Center, the NPRSA is expecting to serve almost 9,000 frail and disabled elders and adults in 2005.

The current NPRSA governing board consists of seven members: two King County Council members, one Snohomish County Councilmember, two Bothell City Council members, one Woodinville City Council member and one City of Kenmore City Council member. This Board will assume the responsibility for the adoption and implementation of this plan. The Senior Center Director and the Administrative Assistant act as staff for the Northshore Park and Recreation Service Area taxing district.

The NPRSA contracts with Senior Services of King County to operate the Northshore Senior Center at no cost to the NPRSA]

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

- **Population Served**—165,227 as of April 24, 2010
- **Land Area Served**—Approximately 60 square miles in King and Snohomish Counties. The District follows the Northshore School District Boundary.
- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$20,636,777,204
- **Land Area Owned**—Approximately 7 acres
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction**—None
- **Total Value of Critical Infrastructure/Equipment**—N/A

- **List of Critical Facilities Owned by the Jurisdiction:**
 - Northshore Senior Center, 10201 E Riverside Drive, Bothell \$3,041,500
 - Northshore Health & Wellness Center, 10212 E Riverside Drive, Bothell \$3,042,400
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is approximately \$7 million.
- **Current and Anticipated Service Trends**—The percent of older adults in the Northshore community will double by 2020, reaching 22 percent. Servicing a full spectrum of seniors, from frail elderly to the healthy active senior as well as disabled adults of all ages.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

35.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Based on NPRSA records, none of its facilities have received damage from a natural hazards event since its inception in 1988.

35.4 HAZARD RISK RANKING

Table 35-1 presents the ranking of the hazards of concern.

35.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability Assessment, 2004
- Snohomish County Comprehensive Emergency Management Plan, 2009
- 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.

35.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 35-2.

35.7 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.

35.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 35-6 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.

35.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

The Northshore Park and Recreation Service Area does not have any additional facility projects ready as ballot measures. However, a regional aquatics center is a future possibility.

TABLE 35-1. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Landslide	51
3	Severe Weather	42
4	Flood	12
5	Wildland Fire	11
6	Dam Failure	0
7	Avalanche	0
8	Volcano/Lahar	0
9	Tsunami	0

TABLE 35-2. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**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	Included in Previous Plan?
Initiative #NS1 —Continue to provide public information focusing on preparedness and response to impacts of natural hazards.							
Existing	All Hazards	4,9,10	NPRSA	Low	District Funds	Short-term, ongoing	Yes
Initiative #NS2 —Continue to update Emergency response plan to address impacts from natural hazards.							
Existing	All Hazards	1,4,5,8,10	NPRSA	Low	District Funds	Short-term, ongoing	Yes
Initiative #NS3 —Seismic reinforcement and/or replacement of unbraced pendant lights in both facilities.							
New & Existing	Earthquake	1,4,5,11	NPRSA	\$30,000	District Operations Funds, FEMA Hazard Mitigation Grants	Short-term	No
Initiative #NS4 —Acquire generators for both buildings to allow for use as emergency shelters.							
New	Earthquake, Severe Weather, Flood, Landslide, Wildfire	5	NPRSA	\$60,000	Grants	Long-term	No
Initiative #NS5 —Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	NPRSA	Low	District Funds	Short-term ongoing	No
Initiative #NS6 —Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	NPRSA	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short-term ongoing	No

**TABLE 35-4.
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
NS-1	3	High	Low	Yes	No	Yes	High
NS-2	5	High	Low	Yes	No	Yes	High
NS-3	4	Medium	Medium	Yes	Yes	No	Medium
NS-4	1	Low	High	Yes	No	No	Low
NS-5	14	High	Low	Yes	No	Yes	High
NS-6	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 35-5.
ANALYSIS OF MITIGATION INITIATIVES**

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

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
3. Public Education and Awareness: Actions to inform citizens and elected officials about hazards and ways to mitigate them. Includes outreach projects, real estate disclosure, hazard information centers, and school-age and adult education.
4. Natural Resource Protection: Actions that minimize hazard loss and preserve or restore the functions of natural systems. Includes sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. Emergency Services: Actions that protect people and property during and immediately after a hazard event. Includes warning systems, emergency response services, and the protection of essential facilities.
6. Structural Projects: Actions that involve the construction of structures to reduce the impact of a hazard. Includes dams, setback levees, floodwalls, retaining walls, and safe rooms.

**TABLE 35-6.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
NS-1	✓	✓		Action ongoing, carried over to plan update, NS-1. Media (quarterly newsletter, monthly news flyer, monthly e-news, website) – to over 6,000 participants and community contacts.
NS-2	✓	✓		Action ongoing, carried over to plan update, NS-2. Facilities Manager CERT trained as well as HAM radio licensed. Work closely with City of Bothell as well as senior housing community and Red Cross Shelter.

CHAPTER 36.

SNOHOMISH COUNTY HEALTH DISTRICT ANNEX

36.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

Donald E. Peterson, Business Manager
3020 Rucker Avenue, Suite 308
Everett, WA 98201
Telephone: 425-339-8696
e-mail: don.peterson@shd.snohomish.wa.gov

Alternate Point of Contact

Nancy Furness, Special Assistant
3020 Rucker Avenue, Suite 207
Everett, WA 98201
Telephone: 425-339-8612
e-mail Address: nfurness@shd.snohomish.wa.gov

36.2 JURISDICTION PROFILE

Snohomish Health District is the municipal corporation responsible for public health in Snohomish County. A 15-member Board of Health, composed of local county and city elected officials, oversees the policy and budget of the Health District. The District provides a wide range of programs for protecting and promoting public health. Many of these are Environmental Health Division programs, including permitting and inspection of food establishments, on-site septic systems, public swimming pools, and solid waste disposal facilities. Response is provided to complaints about garbage accumulations, failing septic systems, vermin and other potential public health risks. Licensed childcare facilities are provided voluntary inspections. Environmental health education of the public and persons serving the public is a priority in each of these programs.

Snohomish Health District has responsibility for assessing the overall health status of the County's population, which results in regular publication of reports and health data analyses by the Health Statistics and Assessment Program. The Health District also issues certified copies of birth and death certificates in its role as the local vital statistics registrar. A number of clinical services are provided in the Community Health Division. Immunizations for children, adults and overseas travelers are provided at clinics in Everett and Lynnwood. Other Community Health Division activities focus largely on promoting the health of children and families with children. This is done through home visits to pregnant and parenting women, through parenting education, and through coordination of services for children with special health care needs and children needing early childhood education and assistance. In addition, special efforts are made to promote child safety by loaning and providing car seats and bicycle helmets, to promote child dental health screenings and sealant application and to prevent youth addiction to tobacco.

The Communicable Disease Division focuses on the diagnosis and treatment of tuberculosis, sexually transmitted diseases and other communicable diseases. Contact tracing and treatment is an important component of these services. Persons at risk of HIV/AIDS can receive counseling and testing, and persons with HIV infection can receive case management and other services. In the HIV/AIDS program, as with all Health District programs, education of clients and health promotion receive high priority.

Snohomish Health District seeks to develop collaborative efforts with many agencies and community groups in order to maximize overall efforts to improve and promote the public health. In almost all of the program areas above, such community partnerships are essential to achievement of this goal. The following is a summary of key information about the jurisdiction:

- **Population Served**—704,300 as of 12/31/2009
- **Land Area Served**—All of Snohomish County (2,090 square miles)

- **Value of Area Served**—The estimated value of the area served by the jurisdiction is \$93,531,730,338
- **Land Area Owned**—Approximately 1/4 city block in downtown Everett, Washington
- **List of Critical Infrastructure/Equipment Owned by the Jurisdiction:**
 - Approximately 60 vehicles
 - 210 computers/servers
- **Total Value of Critical Infrastructure/Equipment**—The total value of critical infrastructure and equipment owned by the jurisdiction is \$1,750,000
- **List of Critical Facilities Owned by the Jurisdiction:**
 - Rucker Building (3020 Rucker Avenue, Everett, Washington)
- **Total Value of Critical Facilities**—The total value of critical facilities owned by the jurisdiction is \$12,000,000
- **Current and Anticipated Service Trends**—The Snohomish Health District provides a wide variety of services to all Snohomish County citizens. District growth is closely correlated with the growth in population of Snohomish County. The district has experienced an increase in staffing levels of 8 percent over the last five years and anticipates the rate to continue.

The jurisdiction’s boundaries are shown on Map 1-2 in Chapter 1 of this volume.

36.3 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

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

36.4 HAZARD RISK RANKING

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

36.5 APPLICABLE REGULATIONS AND PLANS

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

- Snohomish County Natural Hazards Mitigation Plan, 2005
- Snohomish County Hazard Identification and Vulnerability (HIVA), 2004
- Snohomish County Comprehensive Emergency Management Plan (CEMP), 2009
- The District adheres to all applicable codes and regulations enforced by federal, state and local authorities with a sphere of influence within the district service area.

36.6 CLASSIFICATION IN HAZARD MITIGATION PROGRAMS

The jurisdiction’s classifications under various hazard mitigation programs are presented in Table 36-3.

36.7 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 36-4 lists the initiatives that make up the jurisdiction’s hazard mitigation plan. Table 36-5 identifies the priority for each initiative. Table 36-6 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

36.8 STATUS OF PREVIOUS PLAN INITIATIVES

Table 36-7 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.

36.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK

Additional information on hazards and risks utilizing best available science and technology.

TABLE 36-1. NATURAL HAZARD EVENTS			
Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Storm/Snow	1159-DR	12/1996	Significant damage to the Everett facility due to water coming into the building through the roof ventilation system. \$400,000

TABLE 36-2. HAZARD RISK RANKING		
Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	51
2	Severe Weather	18
3	Avalanche	0
4	Dam Failure	0
5	Flood	0
6	Landslide	0
7	Tsunami	0
8	Wildland Fire	0
9	Volcano/Lahar	0

TABLE 36-3. COMMUNITY CLASSIFICATIONS			
	Participating?	Classification	Date Classified
Public Protection	No	N/A	N/A
Building Code Effectiveness Grading Schedule	No	N/A	N/A
Storm Ready	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready	No	N/A	N/A

**TABLE 36-4.
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?
SHD1—Structural seismic retrofit Everett facility							
Existing	Earthquake	1, 5, 11, 14	District	\$250,000	District funds, FEMA Hazard Mitigation Grants	Long term	Yes
SHD2—Support County-wide initiatives identified in Chapter 21 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds	Short term, ongoing	No
SHD3—Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Chapter 7 of Volume 1.							
New and Existing	All Hazards	All	District	Low	District Funds, FEMA Hazard Mitigation Grant Funding for 5-year update	Short term, ongoing	No

**TABLE 36-5.
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
SHD1	4	High	High	Yes	Yes	No	High
SHD2	14	High	Low	Yes	No	Yes	High
SHD3	14	High	Low	Yes	Yes	Yes	High

a. Explanation of priorities

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

**TABLE 36-6.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche						
Dam Failure						
Earthquake	SHD2,SHD3	SHD1, SHD2	SHD2,SHD3	SHD2	SHD2	SHD2
Flood						
Landslide						
Severe Weather	SHD2,SHD3	SHD2	SHD2,SHD3	SHD2	SHD2	SHD2
Tsunami						
Volcano/Lahar						
Wildfire						

Notes:

1. Prevention: Government, administrative or regulatory actions that influence the way land and buildings are developed to reduce hazard losses. Includes planning and zoning, floodplain laws, capital improvement programs, open space preservation, and stormwater management regulations.
2. Property Protection: Modification of buildings or structures to protect them from a hazard or removal of structures from a hazard area. Includes acquisition, elevation, relocation, structural retrofit, storm shutters, and shatter-resistant glass.
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**TABLE 36-7.
PREVIOUS ACTION PLAN IMPLEMENTATION STATUS**

Action #	Action Status			Comments
	Completed	Carry Over to Plan Update	Removed; No Longer Feasible	
1		X		Action not completed during initial performance period. Carried over, see SHD1.
2	X			Action Completed.

