Snohomish County Hazard Mitigation Plan – September 2015 Update

2017 Progress Report

Date this Report was Prepared: September 28, 2017
Name of Community: Snohomish County, WA
Name of Plan: Snohomish County Hazard Mitigation Plan – September 2015 Update
Date of Adoption of Plan: 9/8/2015

1. How can a copy of the original plan or area analysis report be obtained:
   Please visit the Department of Emergency Management (DEM) office (720 80th Street SW, Building A, Everett, WA 98203) to view a hard copy. A navigable electronic version is available on our website at:
   https://snohomishcountywa.gov/HMP

2. Describe how this evaluation report was prepared and how it was submitted to the governing body, released to the media, and made available to the public:
   This report was prepared by DEM staff and is being submitted to the County Council for review. This progress report is available for review by the media and the public. A locally published notice stating progress report availability and the location of the full plan will be released during the month of September 2017.

3. Provide a review of each recommendation or action item in the action plan or area analysis report, including a statement on how much was accomplished during the previous year:
   Progress percentages, when available, were included under each action item.

4. Discuss why any objectives were not reached or why implementation is behind schedule:
   Objectives for the plan are in-progress and were prioritized based on current projects, funding, and objectives.

5. What are the recommendations for new projects or revised recommendations?
   Revised recommendations include multi-disciplinary approaches to risk reduction by identifying projects that also exist within programmed capital improvements, climate adaptation projects, and Growth Management. Additionally, revised recommendations include building actionable preparedness capabilities within jurisdictions to withstand hazard impacts and enhancing the social capital of communities to recover more quickly from disasters.

HAZARD MITIGATION ACTION PLAN MATRIX
CW-1—Retrofit critical facilities that cannot be moved to low risk areas.
Actions: Reduce risk to critical facilities in higher risk areas where relocation is not practicable and where life safety can be assured. 1. Support retrofitting to assure life safety and the functionality of critical facilities post disaster. 2. Elevate structures prone to increased frequency of flooding. 3. Determine the appropriate retrofitting approaches using best available science. 4. Conduct a seismic retrofit of the Snohomish County Courthouse complex (four buildings). 5. Implement structural and non-structural mitigation measures to reduce risk to vulnerable buildings and critical facilities at Paine Field Airport. 6. Retrofit, Rehabilitate or Replace Vulnerable Road and Bridge Facilities and Infrastructure Throughout Snohomish County (Includes replacement/retrofit of vulnerable bridge at May Creek (#559), Provide soil stabilization at Waldheim Slide (MP 20.6) and Marten Creek (MP 21) to reduce erosion risk).
Hazards Addressed: All
Objective(s): 3, 7, 9
Lead Agency: Facilities Management, Airport, Public Works (Roads)
Funding has not been secured but is grant eligible for existing grant program. Possible implementation tools include -- Revenue sources: FEMA Hazard Mitigation Grants, General Fund, Airport Funds, Roads Fund, CIP Special Assessment Districts, and Assessment Fees.
Timeline: Long-term
Percent Complete (2017): No feedback received

CW-2—Enhance and improve capital improvement programs, taxing, zoning, and development approaches to promote mitigation and reduce exposure/vulnerability to natural hazards.

Actions:

1. Promote development in low risk areas (General Policy Plan growth centers).
   a. Conduct a pre-disaster gap analysis for growth centers to identify the required provisions that need to be in place before a disaster for the growth centers to function to their full supportive capability.
   b. Develop approaches that reduce the pressure to develop or redevelop in high risk areas yet allow property owners to retain value to properties. (Purchase or transfer development rights from high risk areas that are not location-dependent to areas of minimal risk or where risks can be mitigated to tolerable levels.)
   c. Require deferral permit fees for risk reducing development. (The local governments may even be able to secure alternative funding during the referral period and can perhaps reduce or waive the fees at the time of collection if they are not covered by private insurance.)
   d. Offer expedited permitting and prioritization for development within a growth center. (This would encourage use of the TDR program by homeowners within vulnerable locations to relocate to safer areas where they would be given access to rapid permitting and perhaps other incentives. Reconstruction is an ideal time to mitigate future hazard damages.)
2. Support the retrofitting of structures in land uses that are location-dependent or where locating to lower risk areas is not practicable
   a. Adopt higher building standards commensurate with higher risks (such as added flood freeboard) where practicable.
   b. Evaluate the permitting process for opportunities to incentivize improved building practices.
3. Make greatest use of the post disaster environment to advance the comprehensive plan and increase community safety.
   a. Consider more stringent building standards commensurate with higher risks (added flood freeboard) where practicable.
   b. Work with or create (e.g. Map-Your-Neighborhood) neighborhood organizations within risk areas to discuss risk reduction mitigation measures.
   c. Evaluate the permitting process for opportunities to incentivize improved building practices.
4. Seek land acquisition opportunities for open space use and preservation in areas of high vulnerability due to multiple risk exposure.

Hazards Addressed: All

Objective: 1, 3, 4, 5, 6, 7

Lead Agency: Planning & Development Services (PDS), Parks &Recreation, Public Works (PW)

Funding available through an ongoing project and meets existing grant eligibility requirements.

Current implementation tools include Revenue: General Fund, FEMA Hazard Mitigation Grants, River Improvement Plan, REET, CIP, Grants

Implementation tools to explore: Creation of special assessment districts, Assessment fees, Disincentive taxing (higher taxing in areas having higher risks and demanding greater County resources), and FEMA Hazard Mitigation Grants, Planning and zoning: Incentive zoning (Transfer or Purchase of Development rights, Contact zoning, Impact zones…), Rolling easements.

Timeline: Short-term

Percent Complete (2017): No feedback received

CW-3—Create and enhance public information programs that will result in actionable preparedness and mitigation measures.

Actions:

1. Encourage emergency preparedness kits (3 to 10 days survival) and programs (CERT, SNAP, etc.)
   a. Have an earthquake plan
   b. Store food and water
   c. Supply of medicine
   d. Emergency radio (NOAA weather radio)
2. Arrange household meeting place
3. Have hazards insurance
4. Designate evacuation plan
5. Know how to shut off gas/ water (earthquake)
6. Know first aid
7. Address concerns of elderly and infirm
8. Manage emergency communications
9. Store heavy objects on floor (earthquake)
10. Store critical objects above/outside of flood prone area (flooding)
11. Secure moveable items (earthquake)
12. Keep heavy objects off walls above and near beds (earthquake)
13. Secure objects (earthquake)
14. Retrofit home/office
15. Distribute risk information and hazard mapping on websites.
16. Map and maintain critical transportation routes. (government)
17. Maintain and improve hazard monitoring and early warning systems. (government)

Hazards Addressed: All

Objective: 3, 7

Lead Agency: Department of Emergency Management (DEM)

Funding secured, available, is an ongoing project or meets existing grant eligibility requirements.

Current implementation tools include: -- Revenue: General Fund, EMPG, SHSP, UASI grant funds.

Possible implementation tools -- Revenues: Grants. Planning and Zoning: Hazard disclosure signage. Other: Partnering with private and not-for-profit organizations.

Timeline: Short-term

Percent Complete (2017): 20%

CW-4— Promote community's ability to self-organize by developing social capital through strengthening of community networks. Strong neighborhoods can help promote risk reduction.
Actions: 1. Promote a "Map-Your-Neighborhood" program. 2. Encourage meeting places within neighborhoods. 3. Connect neighborhoods by increasing walkability and increased connectivity of walkable and bikeable networks. 4. Inform and educate the public on hazard mitigation and preparedness via a County-operated website.
Hazards Addressed: All
Objective: 3, 7
Lead Agency: DEM
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements Current implementation tools—Revenues: General Fund, Public Works, Office of Energy & Environmental Sustainability (Exec Office), Map Your Neighborhood. Possible implementation tools -- Revenues: FEMA / State Division of Emergency Management. Other: Partnering with private and not-for-profit organizations.
Timeline: Short-term
Percent Complete (2017): 20%

CW-5—Research the possibility of developing functional neighborhood based micro infrastructure networks (micro grids) including the diversification, decentralization and redundancy of utilities. Such systems have increased operational resilience, decreased carbon emissions and decreased life cycle costs.
Actions: 1. Establish and lead infrastructure partner/stakeholder committee to prioritize and guide research. 2. Research the following micro infrastructure networks: electrical grids, water, telecommunication and waste systems.
Hazards Addressed: All
Objective: 3, 5, 7, 9
Lead Agency: Public Works, Office of Energy & Environmental Sustainability (Exec Office)
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Possible implementation tools -- Revenues: General Fund Resources, Grants. Planning and Zoning: Bonus, Incentive, Contract or Conditional Zoning. Other: Partnering with Universities.
Timeline: Short-term
Percent Complete (2017): No progress

CW-6—Preserve and strengthen communication systems.
Actions: 1. Solar- powered community radio system 2. VHF regional emergency radio system 3. Protection of fiber optic cables
Hazards Addressed: All
Objective: 3, 7, 9
Lead Agency: DEM, E911, Snohomish County Emergency Radio System (SERS)
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools include -- Revenue: General fund, User fees, Partnering with Radio Amateur Civil Emergency Services (RACES), Grants.
Timeline: Long Term

CW-7—Support HMP and integrate HMP with other planning mechanisms such as the Growth Management Act. (The Hazard Mitigation Plan is driven by risk and is advisory. Other plans have legal standing and affect action. These legal plans should adopt sections of the HMP that strengthens their mission.)
Actions: 1. Integrate the HMP with the following plans and mechanisms: a. Comprehensive Plan b. Capital Improvements Plan c. Critical Areas Ordinances d. Shoreline Master Plan e. Other applicable mechanisms 2. Continue support, maintenance, improvement, and implementation of HMP. a. Update hazard, risk, and vulnerability information incorporating best available science and enhanced technology. b. Improve risk assessment and monitoring capabilities. c. Use scenario planning methods to identify future potential risks within county. d. Maintain a natural hazards informational website. e. Monitor implementation of the plan by Planning Committee. 3. Support and increase local governments' capacity for hazard mitigation planning. a. Increase technical capacity b. Coordinate and provide technical assistance to jurisdictions for grant eligible projects. 4. Provide intergovernmental coordination and partnership opportunities. 5. All planning partners that committed to the update effort will formally adopt this plan once pre-adoption approval has been granted by Washington Emergency Management and FEMA Region X. Additionally; each planning partner will adhere to the plan maintenance protocol identified chapter 7 of the plan. All actions under this initiative will be coordinated by DEM.
Hazards Addressed: All
Objective: 1, 2, 3, 4, 5, 6, 7, 8, 9
Lead Agency: PDS, DEM, Public Works [Surface Water Management (SWM)]
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements.

Possible implementation tools: General Fund Expenditures (Growth Management Act, Critical Areas Ordinance, Coastal Zone Management Area Plans, Capital Improvement Program, NFIP Community Rating System 510 Plans, Special Area and Functional Plans).
Timeline: Short-term
Percent Complete (2017): 10%

CW-8—Develop Departmental continuity of operations plans and neighborhood-based continuity plans (small businesses and neighborhoods).
Actions: Provide incentives, such as neighborhood grants, for high-risk neighborhoods to develop plans.
Hazards Addressed: All
Objective: 3, 5, 6, 7, 9
Lead Agency: DEM
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Possible implementation tools—Revenues: General Fund, FEMA / State Division of Emergency Management. (Emergency Management Performance Grants (EMPG)). Other: Private and Not-for-profit business continuity organizations could partner with County.
Timeline: Short-term
Percent Complete (2017): No progress

CW-9—Provide incentives for eligible non-profits and private entities, including homeowners, to adapt to risks through structural and nonstructural retrofitting.
Actions: 1. Provide retrofitting information and technical expertise to organizations. 2. Develop special retrofitting loan packages with banks. 3. Work with neighborhood organizations to inform homeowners of retrofit options, through special purpose events such as block parties. 4. Develop home-based government loan and or grant programs for communities with higher risks.
Hazards Addressed: All
Objective: 3, 5, 6, 7, 9
Lead Agency: DEM, All County Departments
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Possible implementation tools: Revenues: General Fund Revenues, FEMA mitigation grants (HMGP) with local match provided by property owners. Planning and Zoning: Granting occupancy permits with sunsets without retrofitting (unsafe URM high occupancy structures), incentivized taxing and increasing substantial improvement threshold. Other: Partnering with neighborhood, not-for-profit and business organizations.
Timeline: Short-term, Long–term depending on funding
Percent Complete (2017): No progress

CW-10—Assure that services provided by critical facilities, including medical and emergency services, are available to at risk communities with special emphasis on communities at risk of isolation.
Actions: Give a higher priority within capital improvement budgets, grant programs or other funding sources to: 1. Relocate or retrofit vulnerable emergency operation centers, medical facilities, and other critical facilities serving communities at risk of isolation during an event. 2. Provide alternative access to critical facilities. 3. Establish and maintain backup or redundant power sources. 4. Strengthen community networks. 5. Relocate County-owned critical facilities out of identified high hazard risk zones.
Hazards Addressed: All
Objective: 5, 7, 9
Lead Agency: Facilities Management
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Possible implementation tools -- Revenues: General Fund Revenue, Grants (FEMA, HUD), and Special Assessments. Planning and Zoning: Bonds, and Developer extractions.
Timeline: Long-term
Percent Complete (2017): No feedback received

CW-11—Map avalanche hazard areas and determine risk to residential, business, and public buildings and transportation routes.
Actions: 1. Identify and map release and run-out zones where evidence of avalanche has occurred. 2. Map areas with slopes greater than 20 degrees (emphasis on slopes from 25 to 55 degrees) and potential run-out zones.
Hazards Addressed: Avalanche
Objective: 2, 4, 7
Lead Agency: DEM, Public Works (SWM)
Funding secured, available or meets existing grant eligibility requirements. Possible Implementation Tools -- Revenues: General Fund Revenues, User fees, Grants. Planning and Zoning: Extractions from resource organizations. Other: Partnerships with not-for- profit groups, University Geology Departments.
Timeline: Short-term
Percent Complete (2017): No progress

CW-12— Increase public awareness of the avalanche hazard and promote instructional (actionable) guidance.
Actions: Expand programs like “Are you beeping" winter trailhead program to winter ski and hiking trails with known avalanche risk.
Hazards Addressed: Avalanche
Objective: 2, 4, 7
Lead Agency: DEM
Funding secured, available or meets existing grant eligibility requirements. Possible implementation tools—Revenues: General Fund Revenues, User fees, Grants. Planning and Zoning: Extractions from resource organizations. Other: Partnerships with not-for- profit groups, University Geology Departments.
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-13— Demonstrate leadership in greenhouse gas emissions reductions through leading by example and working with stakeholders.
Actions: Climate Change is occurring and is increasingly presenting challenges to all natural hazards. It is the County’s intention to build resilience into policies, programs, projects, and infrastructure. This Plan supports efforts to reduce greenhouse gas emissions while adapting to climate change impacts. Many climate change adaptation measures include mitigation alternatives presented in this Plan. 1. Continue implementation of Sustainable Operations Action Plan (SOAP). 2. Establish collaborative workgroup of County Departments, municipal governments in the county, and organizations that provide public services to focus on implementation of strategies to reduce greenhouse gas emissions and adapt to changing climate. Many climate change adaptation measures include mitigation alternatives presented in this Plan.
Hazards Addressed: Climate Change
Objective: 5, 7, 8
Lead Agency: Office of Energy & Environmental Sustainability (Exec Office)
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools—Revenues: General Fund Revenues, Possible tools to be explored: User fees, Grants. Other: Partnerships with not-for- profit groups, University Geology and Planning Departments.
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-14—When updating the Comprehensive Plan and other plans, evaluate decisions through a climate change impact lens. (Many plans are based on historic information. This is particularly evident with flood projections. This practice can lead to inaccurate projections and plans that do not address future needs.)
Actions: 1. Consider best available climate science modeling in comprehensive planning efforts.
Hazards Addressed: Climate Change
Objective: 1, 2, 3, 4, 5, 6, 7, 8, 9
Lead Agency: PDS
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools—Revenues: General Fund, Possible additional tools—Partnerships with not-for-profit organizations, Universities…
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-15—Adopt and implement land use and transportation policies, termed "Centers" in the General Policy Plan, that reduce greenhouse gas emissions.
Actions: Measures that reduce greenhouse gas emissions include the following: 1. Continue to support Transit Oriented Development (TOD). 2. Improve bike, pedestrian and transit infrastructure. 3. Install electric car charging stations. 4. Encourage Leadership Energy and Environmental Design (LEED) construction and low impact development (LID). 5. Adopt low carbon fuels 6. In cooperation with the cities and towns, create urban developments which provide a safe and desirable environment for residents, shoppers, and workers.
Hazards Addressed: Climate Change
Objective: 1, 2, 3, 4, 5, 6, 7, 8, 9
Lead Agency: PDS, Office of Energy & Environmental Sustainability (Exec Office), Public Works
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools—Revenues: General Fund Possible implementation tools -- Planning and Zoning: Extractions, User fees. Conditional zoning
Timeline: Short-term, Long-term depending on funding
Percent Complete (2017): No feedback received

CW-16— Plan and prepare for climate impacts using best available science.
Actions: 1. Conduct study in collaboration with local jurisdictions to identify critical infrastructure that may be impacted due to climate change. 2. Use scenario planning to assess impacts from most current climate projections. 3. Upgrade/relocate county buildings and infrastructure to protect and prepare for sea level rise, flooding, and storm events from climate change. 4. Prepare for sea level rise throughout the County. 5. Promote water conservation to minimize impacts of drought.
Hazards Addressed: Climate Change
Objective: 1, 2, 3, 4, 5, 6, 7, 8, 9
Lead Agency: Public Works, DEM, Office of Energy & Environmental Sustainability (Exec Office), Agricultural Coordinator
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current available implantation tool—Revenue: General Fund, FEMA Grants, NFIP. Other: Partnering with foundations such as the Russell Family Foundation, The Nature Conservancy.
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-17—Improve hazard mitigation planning for dam and levee failure.
Actions: 1. Identify high-risk dams and levees. 2. Map the failure inundation areas for high-risk dams and levees. 3. Create dam and levee failure action plans.
Hazards Addressed: Dam/Levee Failure
Objective: 1, 2, 3, 4, 7, 9
Lead Agency: PW, Public Works (SWM), PDS (GIS), DEM
Funding secured, available or meets existing grant eligibility requirements. Possible implementation tools— Revenues: General Fund, Grants (FEMA, USACE, HUD). Planning and Zoning: Restricting occupancy for unsafe properties. Exactions, fees.
Timeline: Short Term
Percent Complete (2017): No feedback received

CW-18—Improve dam and levee failure warning for vulnerable communities.
Actions: 1. Upgrade dam failure warning system in compliance with CRS requirements 2. Establish levee failure warning system.
Hazards Addressed: Dam/Levee Failure
Objective: 3, 7, 9
Lead Agency: Public Works (SWM)
Funding secured, available or meets existing grant eligibility requirements. Possible implementation tools—Revenues: General Fund, Grants (FEMA, USACE, HUD). Planning and Zoning: Restricting occupancy for unsafe properties. Exactions, fees.
Timeline: Long Term
Percent Complete (2017): No feedback received

CW-19—Consider flood control structure maintenance that restores and maintains hydrologic ecosystems services of flood plains where feasible.
Actions: 1. Reestablish and maintain healthy riparian areas and where possible, consider setbacks and the use of bioengineering techniques where it is not feasible to decommission existing flood control structures. 2. Prohibit new dikes, levees, floodgates, pump stations, culverts, dams, water diversions, and other alterations in the floodplain unless it has been demonstrated that no feasible alternative exists. 3. Consider a policy promoting the spreading of flood flows over developed land where flood risks can be accommodated. This would be a preferred alternative to the construction of ever higher and higher levees. This strategy would be appropriate where there are climate change predicted increases in the occurrences of more frequency, lower depth, and low velocity events.
Hazards Addressed: Dam/Levee Failure, Flooding
Objective: 3, 7, 8, 9
Lead Agency: Public Works, PDS, Agricultural Coordinator
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implantation tools—Resources: General Fund Possible implementation tools— Revenues: General Fund, Grants (FEMA, EPA, BLM (CREP, CRP)). Planning and Zoning: Easements, Differential Tax Assessments, Land banking, larger lot zoning, con tact zoning. Other: Partnering with foundations such as the Russell Family Foundation, The Nature Conservancy, land trusts.
Timeline: Long Term
Percent Complete (2017): No feedback received

CW-20—Maintain levees where accommodation though elevation and other flood risk reduction measures is not possible.
Actions: Consider the benefits and life cycle costs of removing flood-prevention structures and instituting an adaptive strategy for vulnerable land uses.
Hazards Addressed: Dam/Levee Failure
Objective: 3, 7, 9
Lead Agency: Public Works
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools— Revenues: General Fund, Snohomish County Public Works Possible implantation tools— Special Assessment Districts, Exactions, Conditional use requirement, Contact zoning.
Timeline: Long Term
Percent Complete (2017): No feedback received

CW-21—Support improved data collection and distribution for Glacier Peak seismic activity.
Actions: Improve early warning of eruption and lahar flow. Glacier Peak is the second most active volcano in the region and has the least number of monitoring stations, one. There are plans to increase monitoring of the mountain; however they have been delayed in recent years due to sequestration. 1. Coordinate with US Geological survey staff to identify actions the County can take to accelerate new monitoring station installation and integration into public emergency notification mechanisms.
Hazards Addressed: Earthquake and Volcano/Lahar
Objective: 7, 9
Lead Agency: DEM
Funding secured, available or meets existing grant eligibility requirements. Possible implementation tools—Revenues: General Fund, Grants.
Timeline: Short-term
Percent Complete (2017): 30%

CW-22—Update and improve County flood hazard risk assessment data and methodology.
Actions: 1. Adopt improved DFIRMs. 2. Use best available science to assess changes in flood impacts due to climate change. 3. Continue to participate and improve rating in the NFIP and CRS. 4. Participate in RiskMAP program. 5. Work with the City of Bothell and the National Weather Service (NWS) Seattle Weather Field Office (WFO) to develop a flood stage for the North Creek stream gage at 228th Street SE. Include development of flood phase's 1, 2, 3, 4 with corresponding property damages and loss of use with each flood stage identified. 6. Work with the UW Atmospheric Sciences department and Seattle Public Utilities to expand the "rain watch" products north of the City of Seattle. This would include integration of King County and Snohomish County rain gages with the NWS Camano Island Radar to fine tune precipitation monitoring as well as predictions for the I-5 corridor to Arlington. 7. Enhance the Flood Warning System on major rivers within Snohomish County including strengthening the computer interface, and upgrading and increasing the number of weather stations.
Hazards Addressed: Flooding
Objective: 1, 2, 3, 4, 5, 6, 7, 8, 9
Lead Agency: Public Works (SWM), DEM
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools —Resources: General Fund, River Improvement Fund, CIP, Grants. Possible implementation tools— Other: Partnerships with Profit, Not-for-profit organizations and Universities.
Timeline: Short-term, Long-term, Ongoing
Percent Complete (2017): No feedback received

CW-23—Improve community ability to respond to a flood event.
Actions: 1. Annually disseminate flood hazard information brochure to all floodplain area households. 2. Upgrade/improve flood hazard warning based on CRS requirements. 3. Expand the Storm Ready program in Snohomish County to include more sites around the county.
Hazards Addressed: Flooding
Objective: 3, 7, 9
Lead Agency: Public Works (SWM), DEM
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools include—Resources: General Fund, River Improvement Fund. Possible implementation tools: Other: Partnering with local communities, the Red Cross, neighborhood organizations, schools, business civic groups and faith based organizations.
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-24—Promote strategies that accommodate flooding with minimal consequences within flood prone areas were risks are not life threatening.
Actions: Measures to accommodate flood waters with minimal consequence include: 1. Elevating homes above flood levels. 2. Locating critical services out of the flood area. 3. Exploiting ecosystem services benefits of open spaces, parkways, forested lands to reduce water velocity, control debris, and hold water. 4. Protect flood waters from the discharge of household pollutants. 5. Provide emergency access. 6. Relocate or retrofit "repetitive flood-loss" properties and those at risk to channel migration.
Hazards Addressed: Flooding
Objective: 2, 3, 5, 6, 7, 8, 9
Lead Agency: Public Works (SWM), PDS, Parks & Recreation
Funding secured, available or meets existing grant eligibility requirements. Current implementation tool—Resources: General Fund, Public Works (SWM), PDS, Parks & Recreation, River Improvement Fund, Real Estate Excise Tax (REET). Possible Implementation Tools—Revenues: FEMA (HMGP), Grants,). Planning and Zoning: Higher NFIP Standards, ESA Bio Op. Other: Partnering neighborhood organizations, schools, business civic groups, Faith based organizations, The Nature Conservancy (Floodplains by Design).
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-25—Enable communities to recover development value of properties as they become more frequently flooded resulting from reduced upstream storage (e.g. increased development, reduced snow pack caused by climate change).
Actions: 1. Continue acquisition of "repetitive loss" properties. 2. Expand county TDR/PDR program to include all high flood risk areas as sending areas. (See mitigation strategy **CW-2**)
Hazards Addressed: Flooding
Objective: 1, 2, 3, 4, 9
Lead Agency: Public Works (SWM), PDS
Funding secured, available, is part of existing program, or is grant eligible for existing grant program. Possible Implementation Tools—Revenues: General Fund, FEMA Grants, Public Works (SWM), PDS, Parks & Recreation. River Improvement Fund, REET. Planning and Zoning: Transfer and Purchase of Development Rights. Other: Partnering with communities containing potential TDR receiving areas.
Timeline: Short-term
Percent Complete (2017): No feedback received

CW-26—Preserve and restore floodplain and watershed ecosystem functions and services. Functioning ecosystems provide flood risk reducing co-benefits. Such benefits can include storing water, reducing damaging flows, containing debris, recharging aquifers and removing pollutants.

Actions:

1. Continue compliance with the Shoreline Master Plan and Growth Management Act Programs.
2. Implement salmon recovery plans and Sustainable Lands Strategy (SLS) (e.g. watershed-based hydrologic management plan as identified in SLS). These plans include the following measures that preserve and restore hydrologic ecosystem services:
    a. Support forestry and farming resource area uses through tax and other incentives.
    b. Exempt forestry and farming activities from nuisance complaints to allow for full provisioning of ecosystem services.
    c. Preserve and protect open space and agricultural land.
    d. Restrict urban growth to non-flood prone areas unless expansion facilitates habitat restoration or open space acquisition
    e. Discourage new development and increased densities, both public and private, within riparian areas, channel migration zones, and marine shorelines wherever feasible.
    f. Decommission and treat select roads.
    g. Restore forested land cover.
    h. Restore natural hydrological and biological function to the floodplain and along shorelines.
3. Promote enhanced native vegetation along shorelines.
4. Implement storm water management to prevent land use caused increases in flood levels and restore flood plain function. Methods may include the following:
    a. Monitor all storm water and pumping station sites.
    b. Retrofit and repair storm water conveyance infrastructure to restore floodplain function and maintain ecosystem services.
    c. Develop regional storm water management plan.
    d. Continue to improve and upgrade storm water facilities.
    e. Replace existing failed drainage system with adequately sized culvert at 22510 Cherry Valley Road.
    f. Construct bridges to replace undersized culverts at Mann Rd (MP 1.53) and Mt. Loop (MP 13.620029 to reduce flood risk.

Hazards Addressed: Flooding

Objective: 2, 3, 4, 5, 7, 8, 9

Lead Agency: Public Works (SWM, Roads), PDS

Funding secured, available, is an ongoing project or meets existing grant eligibility requirements.

Current implementation tools -- Resources: General Fund, Stormwater impact fees, Road Fund, CIP.

Possible implementation tools -- Revenues: FEMA Hazard Mitigation Grants. Planning and Zoning: Transfer and Purchase of Development Rights. Other: Partnering with communities with potential TDR receiving areas.

Timeline: Short-term, Long-term

Percent Complete (2017): No feedback received

CW-27—Utilize innovative methods to reduce increasing peak flood flows.
Actions: 1. Consider off-channel water storage. 2. Disperse retention of storm water higher in watershed via: a. Installing snow fences b. Re-introducing beaver into watersheds, where practicable c. Constructing retention facilities.
Hazards Addressed: Flooding
Objective: 3, 5, 7, 8
Lead Agency: Public Works (SWM)
Funding has not been secured but is grant eligible for existing grant program. Possible Implementation Tools—Revenues: General Fund, Grants. Planning and Zoning: Conditional Zoning, Developer Exactions, and Easement. Other: Partnering with community and agricultural organizations, Universities.
Timeline: Long-term
Percent Complete (2017): No feedback received

CW-28—Develop coordinated flood control district that has the ability to tax for flood control improvements.
Actions: 1. Establish and lead exploratory committee of stakeholders to identify issues that would need to be resolved and oversee coordinated flood control district development.
Hazards Addressed: Flooding
Objective: 3, 9
Lead Agency: Public Works (SWM)
Funding has not been secured and may not meet existing grant eligibility requirements. Possible implementation tools—Revenues: General Fund, FEMA Hazard Mitigation Grants. Other: Partnering with Universities, Not-for-profit organizations (Russell Foundation, The Nature Conservancy).
Timeline: Short-term
Percent Complete (2017): No progress

CW-29—Isolate wastewater infrastructure from storm and flood waters.
Actions: 1. Protect wastewater facility from ground water infiltration 2. Seal wastewater pipes throughout system 3. Seal pump gallery at wastewater treatment facility.
Hazards Addressed: Flooding
Objective: 1, 7, 9
Lead Agency: Public Works (SWM)
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements Current implementation tools—Resource: General Fund. (on-going) Possible implementation tools—Special improvement and taxing districts, developer exactions, utility fees.
Timeline: Short-term, ongoing
Percent Complete (2017): No feedback received

CW-30—Develop an acquisition program for homes or other uses located within high risk hazard areas (e.g. flooding, landslide, lahar, etc.)
Actions: Use the best available science to: 1. Develop prioritization for acquisition. 2. Identify/develop financing mechanisms.
Hazards Addressed: Flooding, Landslides, Lahar
Objective: 2, 5, 7, 9
Lead Agency: Public Works, Parks & Recreation
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements Possible Implementation Tools— Revenues: General Fund, Grants. Other: Partnering with lending institutions, State Department of Natural Resources.
Timeline: Short Term
Percent Complete (2017): No progress

CW-31— Enable communities to recover development value of properties in prioritized hazard areas (e.g. landslide and tsunami).
Actions: 1. Incorporate best available science as required by the Growth Management Act to prioritize hazard areas. 2. Expand use of the transfer and purchase of development rights programs to include prioritized hazard areas. (See mitigation strategy **CW-2**)
Hazards Addressed: Landslide, Tsunami
Objective: 1, 3, 4, 7
Lead Agency: PDS, Public Works
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements Current implementation tools—Resource: General Fund Possible implementation tools—Partnering with Universities, DNR.
Timeline: Short Term
Percent Complete (2017): No feedback received

CW-32—Reduce risk to utility networks.
Actions: 1. Establish micro grids as disasters destroy original systems and as systems reaching the end of their design life. (See mitigation strategy **CW-5**.) 2. Create coalition amongst municipalities and utility companies. 3. Bury above ground systems as elements are upgraded and where practicable. 4. Install backup generators where necessary.
Hazards Addressed: Severe Weather
Objective: 1, 3, 5, 6, 7, 9
Lead Agency: Public Works
Funding has not been secured but is grant eligible for existing grant program. Possible Implementation Tools— Revenues: General Fund, FEMA Hazards Mitigation Funds, Grants. Other: Partnering with Universities, State Department of Natural Resources, and utility districts.
Timeline: Long Term
Percent Complete (2017): No feedback received

CW-33—Promote water conservation to minimize impacts of drought. Climate change projections warn of increasing summer drought risks.
Actions: Practicing a low water-use lifestyle will increasingly become the norm for many communities as summer flows reduce substantially many of our rivers. Reducing water use will help meet future needs and result in cost savings and decreasing energy use, helping preserve the environment. Government can provide information, tools. and incentives to assist residents, businesses, communities, and water providers to design and implement comprehensive and proven conservation strategies.
Hazards Addressed: Severe Weather
Objective: 3, 5, 7, 8
Lead Agency: Public Works (SWM)
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools include— Resources: General Fund, FEMA EMPG funds. Possible implementation tools: Resources: FEMA Hazards Mitigation and HUD Grants. Other: Partnering with local communities, the Red Cross, neighborhood organizations, schools, business civic groups and faith based organizations.
Timeline: Short Term
Percent Complete (2017): No feedback received

CW-34—Improve communities' abilities to respond to a severe weather event.
Actions: 1. Expand the Storm Ready program in Snohomish County to include more sites around the county.
Hazards Addressed: Severe Weather
Objective: 3, 7
Lead Agency: DEM
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Current implementation tools include—Resources: General Fund, FEMA EMPG funds. Possible implementation tools: Resources: FEMA Hazards Mitigation and HUD Grants. Other: Partnering with local communities, the Red Cross, neighborhood organizations, schools, business civic groups and faith based organizations.
Timeline: Short Term
Percent Complete (2017): 65%

CW-35—Revise existing plans to address updated assessments of tsunami risks from the Seattle and South Whidbey Island faults.
Actions: 1. Obtain tsunami numerical modeling data from NOAA/DNR to approximate wave height maximums along the Snohomish County coastline and map the results to better understand potential tsunami risk. South Whidbey Island fault data should be available in 2016 and Cascadia Subduction Zone tsunami impacts will be available in 2015.
Hazards Addressed: Tsunami
Objective: 3, 4, 5, 7, 9
Lead Agency: DEM, Public Works (SWM)
Funding has not been secured, may not be eligible for existing grant program Possible Implementation Tools— Revenues: General Fund, Grants (FEMA, USACE, HUD). Other: Partnering with Universities, NOAA, DNR.
Timeline: Short-term
Percent Complete (2017): 40%

CW-36—Evaluate increased landslide potential from a tsunami and need for increased setback in high risk areas.
Actions: Coastal land uses may be vulnerable to increased landsides as tsunami wave energy destabilizes slopes.
Hazards Addressed: Tsunami
Objective: 3, 4, 5, 7, 9
Lead Agency: Public Works (SWM), PDS
Funding has not been secured, may not be eligible for existing grant program Possible implementation tools—Revenues: General Fund, Grants (FEMA, USACE, HUD). Other: Partnering with Universities, NOAA, DNR.
Timeline: Long Term
Percent Complete (2017): No feedback received

CW-37—Create evacuation routes for communities at risk of a lahar.
Actions: Work with communities to: 1. Place volcano/lahar interpretive signage in key areas like campgrounds and trailheads. 2. Identify safe areas in the event of a lahar. 3. Identify and mark routes to the safe areas.
Hazards Addressed: Volcano/Lahar
Objective: 3, 7, 9
Lead Agency: DEM, Parks & Recreation
Funding secured, available or meets existing grant eligibility requirements. Possible implementation tools— Revenues: General Fund, Grants (FEMA, SHSP, USACE, HUD). Other: Partnering with Universities, State Homeland Security Region 1.
Timeline: Short-term
Percent Complete (2017): 30%

CW-38— Promote Firewise Program in communities and encourage Firewise risk reduction methods for parcels adjacent to forest resource lands. Firewise encourages and empowers neighbors to work together in reducing their wildfire risk.
Actions: Using a five-step process, encourage communities to develop an action plan that guides their residential risk reduction activities, while engaging and encouraging their neighbors to become active participants in maintaining a safer place to live (www.firewise.org).
Hazards Addressed: Wildfire
Objective: 3, 5, 6, 7, 8, 9
Lead Agency: DEM, PDS
Funding secured, available, is an ongoing project or meets existing grant eligibility requirements. Possible Implementation Tools—Revenues: General Fund, Grants. Planning and Zoning: Conditional Zoning, Developer Exactions. Other: Partnering with community organizations, schools, business civic groups, churches, FireWise.
Timeline: Short-term
Percent Complete (2017): 5%