
2015 Snohomish County Natural Hazard Mitigation Plan Update

Public Workshop

Mitigation Strategies Information

Mitigation Discussion Topics

1. How to Encourage Building or Not Building - Tools to encourage development in low risk areas and not encourage development in high risk areas.
 - a. Currently Transfer of Development Rights (TDRs) and Purchase of Development Rights (PDRs) are used in the county to help preserve "resource" areas (agriculture and forestry lands).
 - i. Should use of these tools be expanded to discourage development in high risk hazard areas?
 - ii. How could local government best fund a PDR program that seeks to decrease development in high risk areas?
 - b. The county currently requires a disclosure notice be signed for development to occur in areas at risk of a lahar.
 - i. Should use of disclosure notices be expanded to include areas of high risk from other hazards?
2. Accommodating Floods - Floods are what built the fertile farm land of the river valleys. And the frequency of flooding is projected to increase with climate change. Our challenge is how to live with floods.
 - a. Should local government pursue building code and land use strategies that increase off-channel storage of flood waters and decrease impacts to built structures?
 - b. Should a basin wide coordinated diking district be used to coordinate funding resources for maintenance and repair?
3. Resilient Community Design
 - a. Current electrical network design results in many properties being without power when there is an outage even if they have solar panels installed.
 - i. Should local governments work with the utilities to develop micro networks that can temporarily separate from the larger electric grid and operate on solar power?
 - b. Communities that require the use of a car to access basic services are vulnerable to isolation without services during a disaster.
 - i. Should local governments encourage land use that creates communities where you can walk to access basic services?
4. Strengthening Community Social Networks - Communities with strong social networks are better able to respond and recover from disasters.
 - a. Land use mix and design can encourage or discourage social networks. A few examples include walking-accessible commercial or public gathering spaces, and grouped mail boxes.
 - i. Should local governments encourage land use mix and design that would strengthen social networks?
5. Individual and Community Preparedness - The previous plan addresses preparedness through the following tools: emergency preparedness kits, CERT programs, Map Your Neighborhood, mapping of critical

transportation routes, maintaining and strengthening early warning systems, and strengthening emergency operations capacity.

- a. Are there any additional actions that would help with preparedness?

Potential Mitigation Strategies for 2015 Plan

Included in 2010 HMP	Potential New Mitigation Strategies
All Hazards	
Locate critical facilities in hazard areas that are low-risk when possible.	Identify and map critical infrastructure.
Retrofit critical facilities that cannot be moved to low risk areas.	Use Transfer of Development Rights and Purchase of Development Rights in high risk hazard areas.
Where appropriate support retrofitting, purchase, or relocation of structures located in hazard prone area.	Snohomish County and municipalities will require a disclosure document for hazard area
Enhance and improve zoning and development standards to include regulations that will mitigate or reduce exposure/vulnerability to natural hazards	Develop and incentivize social capital by supporting, strengthening and creating community networks.
Create or enhance public information programs that will promote preparedness and mitigation of risk from natural hazard	
Promote community self-sustainability in areas at risk of isolation from natural hazard events	
Strengthen community disaster preparedness by the following tools: <ul style="list-style-type: none"> • Emergency preparedness kits (3 to 10 days survival) and programs (CERT... • Map your neighborhood • Mapping of critical transportation routes • On-line distribution of hazard risk information • Maintain and improve hazard monitoring and early warning systems • Strengthen emergency operations capacity 	
Preserve and strengthen communication systems : <ul style="list-style-type: none"> • VHF regional emergency radio system 	<ul style="list-style-type: none"> • Develop a solar-powered community radio. • Protect fiber optic cables.
Continued support, maintenance, improvement and implementation of HMP <ul style="list-style-type: none"> • Updates of hazard and risk information with best available science • Improve risk assessment and monitoring capabilities • Monitoring implementation of the plan by Steering Committee 	<ul style="list-style-type: none"> • Use scenario planning methods to identify future potential risks within county.
Support and increase local governments capacity for hazard mitigation planning <ul style="list-style-type: none"> • Technical capacity such as GIS capability • Coordination and technical assistance for grants • Intergovernmental coordination and partnership 	
Integrate HMP with other planning mechanisms such as comprehensive planning	

Wildfire	
Promote use of wildfire reduction tools: <ul style="list-style-type: none"> • Selective pruning, thinning and reduction of wildfire ladder fuels • Controlled burns for the purpose of reducing fuel 	Promote the Firewise Program in Communities within the wildfire interface areas
	Snohomish County and communities will examine dis-incentivizing further development in areas located in the wildfire interface area
Severe Weather	
Installation of backup infrastructure (generators)	Reduce risk to utility networks. Strategies may include: <ul style="list-style-type: none"> • Creating a coalition amongst municipalities and utility companies • Identify where to place utilities underground • Develop functional micro-networks including diversification and redundancy of utilities • Install backup infrastructure (i.e. water supply)
Promote water conservation to minimize impacts of drought	
Landslides	
	Snohomish County and municipalities will require a disclosure document of landslide hazard area.
	Develop an acquisition program for homes or other non-conforming uses identified in high risk landslide hazard areas.
	Use the best science (data) available including: <ul style="list-style-type: none"> • Better mapping with better analysis of landslide area risk; • Identify how “active” existing landslide hazard areas are; • Improve monitoring of slides.
	Utilize innovative development techniques and regulation <ul style="list-style-type: none"> • Use toe to slope setbacks based on available data • Change geotechnical reporting requirements – potentially broaden the required analysis • Expand use of transfer of development rights and purchase of development rights programs to include high risk landslide hazard areas
Flooding	
Participate in Risk MAP program	Adopt improved DFIRMs.
Participation in CRS	Dis-incentivize development in flood risk areas with the exception of uses that are functionally dependent (piers, harbors).
Upgrade/improve flood hazard warning	Promote strategies that accommodate flooding within

	high risk flood zones.
Develop basin floodplain plans	Maintain levees where accommodation isn't possible focusing on areas of high economic value.
Stormwater management – <ul style="list-style-type: none"> • Preserve and protect open space and agricultural land • Adopt and implement Low Impact Development code • Develop regional stormwater plan • Maintain stormwater facilities • Reduce sprawl and land consuming development patterns • Retrofit and repair stormwater conveyance infrastructure 	Stormwater management – <ul style="list-style-type: none"> • Adopt development code with “no net increase in impermeable surfaces” for new development in watersheds with flood hazard risk (low impact development); • Maintain and restore forested area within watersheds with flood hazard risk; • Retrofit and repair stormwater conveyance infrastructure to restore floodplain function.
Continue buyouts of “repetitive loss” properties	Develop coordinated diking district that has the ability to tax for dike/levee and maintenance and improvements
Maintain existing flood control facilities	Research innovative methods to reduce peak flood flows such as: <ul style="list-style-type: none"> • off-channel storage for water; • dispersed retention of stormwater higher in watershed <ul style="list-style-type: none"> ○ snow fences ○ reintroducing beaver ○ constructed retention facilities
	Allow for “Critter Pads” for livestock in agricultural areas.
	Explore sediment dredging at the Snohomish River (currently tools in place for this)
Earthquakes	
Develop neighborhood-based continuity plans (businesses and neighborhoods)	Encourage re-development or development in dense, urban, older areas where retrofit is needed.
Incentivize structural retrofitting, particularly for critical facilities	Develop in safe, walkable community gathering or emergency meeting spaces in urban areas to help provide services during and after an earthquake.
	Map vulnerability of urban systems including structural stability.
Tsunami	
Improve early warning capacity by joining NOAA's Tsunami Ready Program	Adopt revised Washington DNR tsunami map for Seattle Fault (when finalized).
	Map tsunami hazard area for the South Whidbey Fault.
	Evaluate increased landslide potential and increased setbacks from vulnerable areas.
Climate Change	
Implement County Sustainability Plan	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.
	Adopt and implement land use and transportation policies that reduce greenhouse gas emissions such as: <ul style="list-style-type: none"> • Transit Oriented Development (TOD) • Improved bike, pedestrian and transit infrastructure • Electric car charging stations • Leadership Energy and Environmental Design (LEED) • Low carbon fuels
	Dis-incentivize auto dependent land use <ul style="list-style-type: none"> • Establish fee structure on new development that reflects the full cycle infrastructure costs of dispersed development
	Support policy adoption at state level to facilitate county policy implementation
Volcano	
Maintain the disclosure notice	Support improved collection and distribution of data for Glacier Peak seismic activity
Create evacuation routes for the community in the event of a volcano/lahar	
Avalanche	
	Map known avalanche hazard areas that could impact residential, business, and public buildings and transportation routes.
	Adopt use of disclosure notices for properties with known avalanche risk.
	Discourage development in areas of known avalanche risk.
	Explore use of snow fences to reduce avalanche hazard in areas with existing development and known avalanche risk.
	Expand programs like "Are you beeping?" winter trailhead program to known winter ski trails with avalanche risk in the county.
	Direct public to existing organizations with avalanche education information.
Dam and Levee Failure	
Identify high risk dams	Map all high risk dams and levees that pose a threat to people and property.
Map the impacted area of high risk dam failure	Map the failure inundation areas for high risk dams and

	levees that pose a threat to people and property.
Create dam failure action plans	Create failure action plans for high risk dams and levees.
Upgrade dam failure warning system	Upgrade or create levee and dam failure warning system.
Hazardous Materials/Pipelines	
Update emergency response plans	Notify property owners and residents near hazardous material facilities of risk and emergency response procedures
	Adopt policies that encourage a reduction in the use of carbon based fuels. <ul style="list-style-type: none"> • TOD • Improved bike, pedestrian and transit infrastructure • Electric car charging stations • LEED • low carbon fuels
	Dis-incentivize auto dependent land use <ul style="list-style-type: none"> • Establish fee structure on new development that reflects the full cycle infrastructure costs of dispersed development