

UNINCORPORATED SKAGIT COUNTY

Jurisdiction-Specific Hazard Mitigation Information

Introduction:

Skagit County Government, in partnership with city governments as well as the Upper Skagit Indian Tribe, the Swinomish Indian Tribal Community, and the Samish Indian Nation located within Skagit County, has been an active participant throughout 2008 process to update the **Skagit County Natural Hazards Mitigation Plan**. Skagit County has been represented throughout the planning process by the Department of Emergency Management, the Planning & Permit Center, the Public Works Department, Geographic Information Services (GIS) and the Assessor's Office.

Skagit County personnel who served on the 2008 Skagit Natural Hazards Mitigation Steering Committee include:

Tom Karsh, Skagit County Public Works Special Projects Administrator (*reviewed draft documents*)
Mark Watkinson, Skagit County Emergency Management Coordinator (*provided information*)

Skagit County personnel who served on the 2008 Skagit Natural Hazards Mitigation Planning Committee include:

Tim Devries, Skagit County Building Official (*provided information*)
Delores McLeod, Skagit County Community Rating System Coordinator (*provided information*)

Other Skagit County personnel who were involved in the 2008 plan update process are:

Daniel Cain, Skagit County Emergency Management Director (*reviewed draft documents*)
Krista Salinas, Skagit County Emergency Management Administrative Assistant (*administrative support*)
Gary Christensen, Skagit County Planning and Development Services Director (*provided personnel*)
Geoff Almvig, Skagit County GIS Director (*provided department personnel*)
Sean Carson, Skagit County GIS Analyst (*updated maps*)
Kari Seacrest, Skagit County GIS Analyst (*updated maps*)
Kim Berry, Skagit County GIS Analyst (*updated maps*)
Brian Young, Skagit County Web Site Developer (*posted draft and final documents to web*)
Alex Von Cube, Skagit County Health Department Statistician (*provided population statistics*)
Mark Leander, Skagit County Assessor (*provided department personnel*)
Kelly Briggs, Skagit County Assessor's Office Manager (*provided assessed/market valuation figures*)

Updating the Plan:

Key personnel involved in updating the unincorporated Skagit County portion of the plan were:

Tom Karsh, Skagit County Public Works Special Projects Administrator (*reviewed draft documents*)
Mark Watkinson, Skagit County Emergency Management Coordinator (*provided information*)
Tim Devries, Skagit County Building Official (*provided information*)
Delores McLeod, Skagit County Community Rating System Coordinator (*provided information*)

The 2003 portion of the plan was reviewed to determine what plan information needed to be updated based on changes since 2003. In addition, the Local Multi-Hazard Mitigation Planning Guidance dated July 1, 2008 was also reviewed to determine new components that needed to be added to the plan as part of the 2008 plan update process.

As in 2003, Skagit County was segmented into 4 distinct "neighborhoods" based on geography, land use, and hazard risk elements that are specific to each. The use of these neighborhood profiles has allowed for the development of area-specific risk assessments and has thereby promoted efficient mitigation planning.

Natural Hazard Caused Events:

Skagit County has experienced a wide variety of emergency and/or disaster events as a result of the various natural hazards that affect the area. Throughout the plan development process conducted in 2003 and the 2008 plan update process, a substantial effort was made by Skagit County staff to gather as much information as possible regarding past emergency and/or disaster events caused by natural hazards. For specific information regarding these events, please refer to the MULTI-JURISDICTIONAL HAZARD IDENTIFICATION portion of this plan found in SECTION II.

Determining Vulnerability:

To complete the vulnerability assessment process, various county staff utilized a series of locally developed forms as well as forms available in the 20/20 Mitigation Software that was provided to Skagit County by the Washington State Military Department, Emergency Management Division. The information collected with these forms is included in this portion of the plan.

As part of the vulnerability assessment process, Skagit County government completed an inventory of all critical facilities as part of the original plan development process in 2003. This inventory of critical facilities was modified during the 2008 plan update process. These critical facilities have been considered in our planning and mitigation strategy development process. However, due to post 9/11 concerns, those facilities are not listed in this document. A list of these facilities will be made available to FEMA personnel in the event this information is required to obtain future hazard mitigation grant funding.

As in 2003, representatives from Skagit County government worked closely with other jurisdictions, agencies, Indian tribes, and the Skagit Natural Hazards Planning Committee throughout the 2008 plan update process to insure a comprehensive and coordinated mitigation plan intended to reduce the vulnerability to natural hazards within unincorporated Skagit County.

The information contained in this document presents the results of this effort to identify the specific natural hazards threatening unincorporated Skagit County, to characterize the vulnerability of unincorporated Skagit County regarding these hazards, and to identify current as well as proposed mitigation strategies, projects and/or programs to address those vulnerabilities.

The analysis conducted by Skagit County staff was based on the best currently available information and data regarding the characteristics of the neighborhoods identified, the natural hazards that threaten the people, property, and environment of these neighborhoods, and the impacts these neighborhoods have suffered in past disasters. Sources of information and data queried in this analysis included Washington State Census data, local tax records, local geographic information system data, Flood Insurance Rate Maps, hazard specific data, and other environmental and demographic facts. However, in some cases, sufficient authoritative or current information was not available. In these cases, the experience, knowledge and judgment of long-time residents of the area, informed stakeholders, and local officials representing Skagit County government were utilized to help make reasonable assumptions and approximations based on known facts and historical events.

Throughout this process, some information such as the number of structures and property values within various neighborhoods was readily available. However, other information such as the population of neighborhoods was not available due to the difficulty in correlating census blocks with neighborhood boundaries. In the case of determining neighborhood populations, estimations were made by Skagit County government staff based on the known population of the unincorporated area of Skagit County in relationship to the number of living structures located in the various neighborhoods. The reliance on the judgment of knowledgeable officials and simplified analyses is considered acceptable at this stage to allow the participating organizations to complete the tasks needed to develop this multi-jurisdictional natural hazards mitigation plan. At such time a proposed mitigation initiative is intended to be funded and/or implemented, we recognize additional information and analyses may be required.

Skagit County government is committed to the implementation of the mitigation-related projects/programs described in this section of the plan when and if resources become available. Skagit County government is also committed to continuing the mitigation planning process that has resulted in the development and subsequent update of this plan, and to the ongoing cooperation with other agencies, organizations, Indian tribes, and jurisdictions to make Skagit County more resistant to the damages and hardships that could otherwise be the result of future natural disasters.

National Flood Insurance Program Participation:

Skagit County government has actively participated in the National Flood Insurance Program (NFIP) since 1985 and has also participated in the Community Rating System (CRS) program since 1997. Skagit County government has made a concerted effort to exceed minimum floodplain management requirements and provide increased public awareness regarding the local flood hazard and provide protection from flooding. Skagit County is proud of its most recent CRS accomplishment ... ***Classification 4 status*** ... thus saving qualified policy holders 30% on their flood insurance premiums amounting to over \$700,000 saved each year by owners of property located in unincorporated Skagit County!!!

At the present time, there are 79 repetitive loss properties within unincorporated Skagit County, of these, 7 properties are categorized as severe repetitive loss properties; all 79 repetitive loss properties are residential. These residential properties were analyzed and considered as part of the vulnerability assessment process; to protect confidentiality, specific information regarding these properties is not included in this plan.

Because of the flood hazard affecting Skagit County, continued participation by Skagit County government in both the NFIP and the CRS program are integral to current and future flood mitigation efforts within the unincorporated portion of Skagit County. As a result, the mitigation strategy for unincorporated Skagit County is based upon continued participation and compliance with the National Flood Insurance Program as well as the Community Rating System program.

Estimating the Value of County Infrastructure:

Estimating the valued of county-owned infrastructure and the various critical facilities owned by other jurisdictions (such as water treatment facilities) proved to be a difficult but worthwhile task in the development of this plan. While some of the information obtained is based on “best-guess” estimates, county officials now have a much more accurate picture of the value of government infrastructure within Skagit County and more specifically, the value of that government infrastructure located within the flood plain of the Skagit River.

In order to complete the county infrastructure value process, county staff considered:

- Critical facilities
- Buildings owned by Skagit County
- Skagit County owned transportation routes and bridges
- Municipal water treatment facilities that supply water to portions of unincorporated Skagit County
- Facilities/structures owned and/or operated by various special purpose districts including:
 1. Hospital Districts
 2. Public Utility Districts
 3. Fire Districts
 4. Dike Districts
 5. Drainage Districts
 6. Port Districts

In addition to estimating the value of local infrastructure, it was also important to determine the location of this infrastructure (especially critical facilities) relative to the floodplain of the Skagit River. For security reasons, Skagit County has not listed individual facilities or the value of these individual facilities in this plan but has completed an inventory of all facilities and has considered these facilities in our planning and mitigation strategy development process.

Estimated 2008 Value of County Infrastructure:	\$2,400,000,000
(This figure does not include local schools.)	

Estimated 2008 Value of County Infrastructure Located in the Floodplain of the Skagit River:	\$1,700,000,000
(This figure does not include local schools.)	

The above-listed estimated values are conservative. The actual replacement cost of county-owned infrastructure and critical facilities would most likely be much greater than the above-listed estimated values in the event of a catastrophic disaster event.

Identifying Neighborhoods:

Skagit County staff made the decision early in the planning process to attempt to streamline and simplify the vulnerability assessment process as much as possible. Consideration was given to the size of the county, the great variety of physical geography, the vast differences between the more densely populated western portion of the county in relationship to the sparsely populated mountainous eastern portion of the county, and the natural hazards that affect the different portions of the county. After considering various options, it was decided to divide the unincorporated portion of Skagit County into four neighborhoods based upon the types of natural hazards these areas were most vulnerable to.

Neighborhood #1

Neighborhood #1 (referred to as "**Fidalgo**" on the 20/20 Mitigation Software Forms) includes all portions of unincorporated Skagit County lying westerly of the Swinomish Channel including Fidalgo Island, Guemes Island, Cypress Island, and Sinclair Island.

This neighborhood is located out of the floodplain of the Skagit River and typically receives far less rainfall than the remainder of Skagit County and is therefore more susceptible to summer drought conditions and wildland-urban interface fires due to the high percentage of homes located in timbered interface areas. The shoreline areas of Neighborhood #1 are also vulnerable to storm surge and could be vulnerable to tsunamis. This area of the county is also very vulnerable to high wind events and snow events originating in the arctic and traveling southerly through the Frazier Valley of British Columbia and across Whatcom County before striking the western portion of Skagit County.

According to estimates obtained from the Skagit County Assessor, there are about 5,620 structures with an approximate average market value of \$420,000 in the Fidalgo Neighborhood. An exact population figure for this neighborhood was not available. However, based upon the total population of unincorporated Skagit County (using 2000 Census data) and the number of structures located in this neighborhood compared to the number of structures located in other neighborhoods, county staff estimated that there are approximately 11,000 residents living in the Fidalgo Neighborhood.

Neighborhood #2

Neighborhood #2 (referred to as "**Lower Elevation**" on the 20/20 Mitigation Software Forms) includes all portions of unincorporated Skagit County below 500 feet in elevation and lying westerly of Range 7 East, Willamette Meridian, and easterly of the Swinomish Channel.

The boundaries of this neighborhood follow the boundaries of the 100-year flood plain of the Skagit River. This portion of unincorporated Skagit County is highly vulnerable to the flood events of the Skagit River. Due to the soils typical of this area and the high percentage of the population and infrastructure located within the floodplain, this neighborhood is also highly vulnerable to damage caused by severe earthquakes.

According to estimates obtained from the Skagit county Assessor, there are about 9,640 structures with an approximate average market value of \$218,000 in the Lower Elevation

Neighborhood. An exact population figure for this neighborhood was not available. However, based upon the total population of unincorporated Skagit County (using 2000 Census data) and the number of structures located in this neighborhood compared to the number of structures located in other neighborhoods, county staff estimated that there are approximately 18,850 residents living in the Lower Elevation Neighborhood.

Neighborhood #3

Neighborhood #3 (referred to as “**Higher Elevation**” on the 20/20 Mitigation Software Forms) includes all portions of unincorporated Skagit County below 500 feet in elevation and lying easterly of Range 6 East, Willamette Meridian to the crest of the Cascades. This neighborhood is located outside of the 100-year flood plain of the Skagit River. This portion of unincorporated Skagit County is sparsely populated but is more vulnerable to winter storms than Neighborhood #2 and can become isolated from the rest of the county during flood events due to limited access and water over roadways downriver.

According to records obtained from the Skagit county Assessor, there are about 2,560 structures with an approximate average market value of \$94,000 in the Higher Elevation Neighborhood. An exact population figure for this neighborhood was not available. However, based upon the total population of unincorporated Skagit County (using 2000 Census data) and the number of structures located in this neighborhood compared to the number of structures located in other neighborhoods, county staff estimated that there are approximately 5,080 residents living in the Upper Elevation Neighborhood.

Neighborhood #4

Neighborhood #4 (referred to as “**Wildlands**” on the 20/20 Mitigation Software Forms) includes all portions of unincorporated Skagit County above 500 feet in elevation. This neighborhood is located outside of the 100-year flood plain of the Skagit River. This portion of unincorporated Skagit County is sparsely populated and contains the majority of the industrial forest areas of Skagit County as well as forest and recreational lands owned by the State of Washington and the federal government.

According to records obtained from the Skagit county Assessor, there are about 1,780 structures with an approximate average market value of \$120,000 in the Wildlands Neighborhood. An exact population figure for this neighborhood was not available. However, based upon the total population of unincorporated Skagit County (using 2000 Census data) and the number of structures located in this neighborhood compared to the number of structures located in other neighborhoods, county staff estimated that there are approximately 3,540 residents living in the Wildlands Neighborhood.

Unincorporated Skagit County Additional Information:

<u>Contact Information:</u>	Mark Watkinson, Skagit County Department of Emergency Management 2911 East College Way, Suite B, Mount Vernon, WA 98273 Telephone: (360) 428-3250
<u>Population of Jurisdiction:</u>	38,475 (2000 Census) and growing slightly
<u>Geographical Size:</u>	1,735 square miles

Unincorporated Skagit County 2008 Natural Hazard Identification and Risk Estimation

**Based on Mitigation 20/20 Risk Assessment Formula (Area Impacted+Health and Safety Consequences+Property Damage+Environmental Damage+Economic Disruption multiplied by Probability of Occurrence)*

***The greater the Risk Score, the greater the risk.*

	Area Impacted	Health & Safety	Property	Environment	Economic	Probability	Risk Score
Drought	1	1	1	2	1	1	6
Earthquake	4	2	3	1	2	3	36
Flooding	4	1	3	1	3	4	48
High Winds	3	1	2	1	1	5	40
Landslide/Erosion	1	1	1	1	1	2	10
Storm Surge/Tsunami	1	1	1	0	1	1	4
Wildfire	1	1	1	2	2	4	28
Winter Storm	3	1	1	1	1	4	28
Volcanic Activity	4	1	3	3	2	1	13

Total Jurisdictional Risk Estimation Score:	213
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Area Impacted:	0=No impact	1=<25%	2=<50%	3=<75%	4=>75%
Health & Safety:	0=No impact	1=Few injuries	2=Few fatalities, many injuries	3=Numerous fatalities	
Property:	0=No impact	1=Few destroyed or damaged	2=Few destroyed, many damaged or Few damaged, many destroyed	3=Many properties destroyed or damaged	
Environment:	0=Little or No impact	1=Short term	2=Long term	3=No recovery	
Economic:	0=No impact	1=Low costs	2=High direct cost and Low indirect or Low direct and High indirect	3=High Direct and Indirect Cost	
Probability:	1=Unknown but rare	2=Unknown but anticipated	3= <100 year	4=<25 year	5=Once a year or more

Future Land Uses and General Development Trends:

1. The current rate of development of vacant or unused land has been rapid and somewhat faster than planned.
2. The current rate of expansion, reconstruction, or redevelopment of existing properties has been minimal and has occurred in only a few locations.
3. Future land uses and development/redevelopment are controlled by various codes, ordinances and policies as well as the comprehensive plan and the flood threat of the Skagit River, Sauk River, and Samish River.

Future Land Use Category	Percent of Jurisdiction
Agricultural	9%
Developed with Mixed Uses	8%
Parks/Restricted Wildland and Wildlife Refuge	48%
Waterway/Lake/Wetland	17%
Other Land Uses	18%

Current Policies, Codes, and Ordinances:

Skagit County has adopted the 2006 edition of the International Building Code through Ordinance 17064, effective July, 2007. The purpose of these codes is to provide minimum standards to safeguard life and limb, health, property and public welfare. In addition to the general standards for construction, the Building Code provides for geographically specific requirements for seismic design, high wind design and high snow load design.

Skagit County adopted the Flood Damage Prevention Ordinance as a part of the Unified Development Code, Section 14.34, Ordinance 17938, Skagit County Code, effective January, 2007. The purpose of this ordinance is to protect life and health, minimize public money expenditure, minimize the need for rescue and relief associated with flooding, and minimize prolonged business interruption and to minimize damage to public facilities and utilities.

Skagit County adopted the Critical Areas Ordinance as a part of the Unified Development Code, Section 14.24, Ordinance 17938, Skagit County Code, effective July, 2000. Within this ordinance are requirements and restrictions relating to steep, unstable or otherwise hazardous slopes which could impact human safety during earthquakes, sliding and erosion. The purpose of this portion of the Critical Areas Ordinance is to safeguard citizens, property and resources through identification of hazardous areas, requirements for mitigation through engineered design and construction methods; and, when design and construction methods cannot reduce risks to acceptable levels, to prohibit building and construction.

Listed below are other applicable Skagit County Hazard Mitigation Codes/Plans/Ordinances:

- Comprehensive Land Use Plan
- Adopted Land Use/Zoning Code
- Adopted Fire or Life Safety Code
- Drainage Ordinance
- Drainage Utility Ordinance
- Dike District Ordinance

- Drainage District Ordinance
- Sub-Flood Control Zone Ordinance
- Countywide Planning Policies (CPP)
- 2008-2013 Skagit County Capital Facilities Plan
- Skagit County Comprehensive Emergency Management Plan
- United States Army Corps of Engineers Skagit River Flood Damage Reduction and Ecosystem Restoration Project Feasibility Study* (also known as The United States Army Corps of Engineers General Investigation) ... *this study is current and on-going at this time.*
- 1989 Skagit County Flood Management Plan* ... *this plan is currently being updated and is scheduled for completion in late 2009 or 2010.*
- Sauk River Erosion/Flood Hazard Management Plan ... *this plan is in the initial stages of development and is expected to be completed in 2009.*
- Participation in National Flood Insurance Program (NFIP)
- Participation in the NFIP Community Rating System (CRS) Program with a current classification rating of "4"

** Upon completion and formal adoption, these documents will become the foundation for future flood mitigation strategies and projects within Skagit County.*

Flood:

A significant portion of Skagit County is located within the 100 year floodplain. In addition, portions of the County are located within a designated floodway or are located in a coastal high-hazard V zone. Substantial losses due to flooding have occurred most recently as a result of the 1990, 1995, 2003, and 2006 flood events. Through federal and state grants, a significant number of repetitive loss properties, in areas prone to flooding, have been purchased by the County and the buildings either demolished or removed.

Skagit County adopted the Flood Damage Prevention Ordinance as a part of the Unified Development Code, Section 14.34, Ordinance 17938, Skagit County Code, and effective January, 2007. The purpose of this ordinance is to protect life and health, minimize public money expenditure, minimize the need for rescue and relief associated with flooding, and minimize prolonged business interruption and to minimize damage to public facilities and utilities. Other flood hazard mitigation policies, codes, and ordinances include:

- The Skagit County Countywide Planning Policies (CPPs) are the foundation of the County's Comprehensive Plan. The CPPs were most recently updated on June 15, 2000. Three CPPs directly address flood hazard reduction:
 - 1) Skagit County and Cities and Towns, in cooperation with appropriate local, state and Federal agencies, shall develop and implement flood hazard reduction programs, consistent with and supportive of the Corps Feasibility Study. (CPP 10.13)
 - 2) The Skagit River Floodway and the Skagit River Floodplain shall be regulated to protect human life, property and the public health and safety of the citizens of Skagit County; minimize the expenditure of public money; and maintain flood insurance eligibility while avoiding regulations which are unnecessary restrictive or difficult to administer. (CPP 10.14)
 - 3) Skagit County and Cities and Towns shall work together to provide ongoing public education about flooding in a coordinated and consistent program, and shall adopt a flood hazard reduction plan, that works together with the natural and beneficial functions of floodplains. (CPP 10.15)

- Under requirements of the state Growth Management Act, the Comprehensive Plan also identifies, designates, and protects wetlands, aquifer recharge areas, and frequently flooded areas. This is done through numerous education, incentive, and protection and conservation measures contained in Comprehensive Plan Chapter 13, the Environment Element.
- Policy 13A-5.1 Frequently Flooded Areas
 - (j) Undisturbed natural rivers, streams, lakes, wetlands, and floodplains shall be protected to avoid increases in flood elevations, to reduce flood damage, and to allow proper conveyance of flood flows.
- Policy 13A-5.2 Frequently Flooded Areas
 - (a) Low intensity land use activities such as agricultural, forestry, and recreational land uses should be encouraged in floodplain areas and other land uses in these areas should be discouraged."
 - (b) Land uses, densities, and development activities in the floodplain and coastal high hazard areas should be limited to protect public health, safety, and welfare, to minimize expenditure of public money and costly flood control projects, and to maintain hydrologic systems.
- New construction and substantial improvements are required to be elevated so that finished floor height is 1 foot above the base flood elevation. (SCC 14.34.170)
- Elevation certificates are required on all elevated buildings. Certificates are collected by office or field inspection staff and are kept in a maintained file at the Planning & Permit Center. (SCC14.34.140)
- Agricultural buildings and private garages not elevated are required to be wet floodproofed. A professional engineer or registered architect is required to verify that there is low potential for damage from velocities, debris, and scouring as well as verifying adequate opening area to allow free passage of flood water. (SCC 14.34.170.4)
- In all buildings, construction materials used below the base flood elevation must be resistant to damage by flood waters. (SCC 14.34.160)
- In V zones, and in areas of shallow flooding where velocities exceed 5 fps and when located within 500 feet of the toe of a dike, buildings are required to be elevated on columns or piles. (SCC 14.34.190 & 14.34.180)
- Construction in a designated floodway is prohibited except where it can be demonstrated by a professional engineer that there is no rise in the floodway. The current FEMA no-rise procedure is the standard by which this must be demonstrated. (SCC 14.34.200)

Earthquake:

Skagit County is located in seismic zone D1 as determined by the International Building Code. Damage and loss due to earthquake was experienced as recently as the 2001 Nisqually earthquake. Earthquake hazard mitigation policies, codes, and ordinances include:

- Skagit County Ordinance #17064. The 2006 International Building Code, including its special provisions for seismic zones 3 and 4.

- 1) All new buildings not meeting the strict prescriptive requirements of the International Building Code are required to have their structural elements designed by a professional engineer or registered architect. Such design is required to include seismic analysis of the building in addition to wind, gravity and other forces.
- 2) Building permits are issued for repair of seismically damaged buildings, normally based on a site inspection by the field inspection staff. All repair construction must meet the current building code requirements for seismic design.
- 3) In areas of the County with steep or unstable slopes, or with soil prone to liquefaction, geotechnical reports, prepared by a professional engineer, are required as part of a building permit application. Such reports must include an analysis of the effects of a seismic event.

High Wind:

Skagit County is located in a borderline high wind area. The design wind speed for Skagit County is 85 mph. Some portions of Skagit County are located in exposure B (2006 IBC) areas where some protection from winds is provided by forests and hills. Other portions of the County are in exposure C areas where there is little or no protection from high wind. High wind mitigation policies, codes, and ordinances include:

- Skagit County Ordinance #17064. The 2006 International Building Code.
 - 1) All new buildings not meeting the strict prescriptive requirements of the building code for adequate wall bracing, are required to have their structural elements designed by a professional engineer or registered architect utilizing the wind design requirements of the building code.
 - 2) The Skagit County Building Official renders decisions on which exposure group an individual property is located in.

Landslide/Avalanche:

Portions of Skagit County are prone to landslide due to steep slopes, soil erosion, fractured rock faces, etc. Landslides occur with some frequency during winter storms, resulting in temporary road closures. Landslide/avalanche mitigation policies, codes, and ordinances include:

- 2006 International Building Code, including provisions for the requirement of setbacks from the top and bottom of slopes, Section J108.1, appendix chapter J.
- The Comprehensive Plan contains the following policies regarding geologically hazardous areas.

Policy 13A-5.2:

- (c) Low land use densities and intensities or open space shall be preferred in geologically hazardous areas where this practice can provide site specific mitigation.
- (d) Land use regulations and practices for geologically hazardous areas shall be established so that development does not cause or exacerbate natural processes that endanger lives, property, infrastructure, and resources on or off site.

Policy 13A-5.3:

Geologically Hazardous Areas include erosion hazards, landslide hazards, mine hazards, volcanic hazards and seismic hazards.

- Critical Areas Ordinance, Section 14.24, Ordinance #17938. This document sets forth review and mitigation standards for development within geologically hazardous areas. The hazardous areas include seismic hazards, soil liquefaction, volcanic hazards, landslide hazards and erosion hazards.

Fire-Related Mitigation Policy Statements and Citations:

POLICY TYPE	CITATION	DESCRIPTION
Skagit County Code	Title 14	Limit Land Use
Skagit County Resolution	20020310	Burn Permit Fee and Information
Skagit County Resolution	17064	International Code
Skagit County Resolution	15129	Creation of New Chapter of Code
Skagit County Resolution	14375	Fireworks Limitations
Skagit County Resolution	14255	Road Standards

Incorporating Mitigation into other Planning Mechanisms:

Skagit County is governed by a Board of County Commissioners that set policy and oversee the various county offices and departments. The process by which Skagit County will incorporate the mitigation strategy and other information contained in the **Skagit County Natural Hazards Mitigation Plan** into other planning mechanisms is:

1. Adoption of the plan by the Board of Skagit County Commissioners.
2. Inclusion into the Skagit County Comprehensive Plan, when appropriate.
3. Inclusion into other planning mechanisms subordinate to the Skagit County Comprehensive Plan, when appropriate.

It should also be noted that additions and changes made to the Skagit County Comprehensive Plan utilize an established process that is consistent with and in compliance with Washington State Growth Management requirements.

Since the original adoption of the **Skagit County Natural Hazards Mitigation Plan** in 2003, Skagit County government has begun the process of incorporating the mitigation strategy and other information contained in the plan pertaining to the local vulnerability and risk associated with natural hazards into the plans and programs listed below:

- Skagit County Comprehensive Plan (see excerpt below).
- Skagit County Flood Damage Prevention Ordinance (see excerpt below).
- Skagit County Critical Areas Ordinance (see excerpt below).
- Skagit County Community Wildfire Protection Plan (described in FIRE portion; Section II).

The following excerpt from the 2007 Comprehensive Plan for Skagit County, Natural Resources Element, Environment Profile is provided to help explain how Skagit County has, during the 2003 – 2008 hazard mitigation plan cycle, incorporated the mitigation strategy and other information contained in the **Skagit County Natural Hazards Mitigation Plan** into other planning mechanisms.

The adopted Skagit County Natural Hazards Mitigation Plan includes goals and policies from the Comprehensive Plan (2000) and building code references. It proposes strategies for earthquake, fire and flooding hazard mitigation including facility improvements that could be incorporated into the Capital Facilities Element, and others that relate to policies. For example the Skagit County Natural Hazard Mitigation Plan suggests implementing the “Fire Wise” public education program, a policy reflected in the Natural Resource Element and elsewhere in the Comprehensive Plan. The most recent update of the Comprehensive Plan has identified additional fire prevention planning as a priority for the rural portions of the County as well. Another strategy suggests enacting additional

regulations to restrict future residential and non-agricultural construction in the 100-year floodplain. The County's recently updated Flood Damage Prevention Ordinance (2006) has taken important steps in this direction, and additional flood prevention planning has been identified by the Skagit County Planning Commission as a priority "trailing issue." The County's Critical Areas Ordinance update, ongoing in 2007, will implement new regulations based on "best available science" for wetlands, aquifer recharge areas, geologically hazardous areas, and frequently flooded areas.

In addition to the Comprehensive Plan - Natural Resource Element; the Flood Damage Prevention Ordinance; and the Critical Areas Ordinance, Skagit County has also adopted the most recent editions of the International Building Code and International Fire Code.

Continued participation by Skagit County government in the following programs is consistent with, and in support of, the mitigation strategy as well as the local vulnerability and risk associated with the natural hazards that affect unincorporated Skagit County:

- NFIP Community Rating System program.
- National Weather Service Storm Ready program.
- Skagit Community Emergency Response Team (C.E.R.T.) program (English and Spanish).

During the 2008 – 2013 hazard mitigation plan cycle, information regarding the county's vulnerability and risk associated with flooding is expected to be incorporated into the following flood hazard studies, plans and programs:

- United States Army Corps of Engineers Skagit River Flood Damage Reduction and Ecosystem Restoration Project Feasibility Study.
- Update of the 1989 Skagit River Comprehensive Flood Hazard Management Plan.
- Development of the Sauk River Erosion/Flood Hazard Management Plan.
- Recommendation and prioritization of flood mitigation measures by the Skagit County Flood Control Zone District Advisory Committee (formed in 2008).
- Update of the Skagit County Comprehensive Emergency Management Plan (2009).

Mitigation Planning Committee:

As stated earlier in the plan, each jurisdiction has the responsibility to establish a Mitigation Planning Committee to assist the jurisdiction's governing body in selecting, prioritizing, and evaluating mitigation measures specific to the jurisdiction. At the present time, the Mitigation Planning Committee for unincorporated Skagit County consists of the following individuals:

- Tom Karsh, Skagit County Public Works Special Projects Administrator
- Tim Devries, Skagit County Building Official
- Dan Cain, Director, Skagit County Department of Emergency Management

Skagit County Community Rating System Mitigation Activities:

The following activities are carried out as part of Skagit County's participation in the NFIP Community Rating System program in an effort to further reduce the effects of flooding in the unincorporated portions of Skagit County.

1. Elevation Certificates: Skagit County maintains elevation certificates for new and substantially improved buildings. Copies of elevation certificates are made available upon request and may be viewed on the County website.
2. Map Information: Skagit County furnishes flood zone information from the community's latest Flood Insurance Rate Map (F.I.R.M.), annually publicizes the service and maintains records.
3. Outreach Projects: A brochure is mailed to all properties in Skagit County on an annual basis; a separate brochure is mailed annually to all properties in the Special Flood Hazard Area. Flood hazard information is also provided through displays at public buildings.
4. Hazard Disclosure: Skagit County recognizes the disclosure requirements of the State of Washington disclosure law.
5. Flood Protection Information: Documents relating to floodplain management and locally pertinent flood issues are available throughout the Skagit County library system and its web site.
6. Flood Protection Assistance: Skagit County provides technical advice and assistance to interested property owners and annually publicizes the service.
7. Additional Flood Data: Skagit County maintains a high-level restrictive floodway standard and has conducted and adopted flood studies for areas not included on the flood insurance rate maps exceeding minimum mapping standards. Skagit County is a participant in the Cooperating Technical Partnership (C.T.P.) Program.
8. Open Space Preservation: Skagit County is preserving approximately 40,785 acres in the special flood hazard area as open space.
9. Higher Regulatory Standards: Skagit County enforces regulations that require freeboard for new construction and substantial improvement, protection of critical facilities, natural and beneficial functions, other higher regulatory standards, land development criteria and state mandated regulatory standards. The County also maintains a Building Code Effectiveness Grading Schedule (B.C.E.G.S.) classification of 3/3.
10. Flood Data Maintenance: Skagit County maintains and uses digitized overlay maps in the day-to-day management of the floodplain. The County has also established and maintains a system of elevation reference marks and maintains copies of all previous F.I.R.M. maps and Flood Insurance Study Reports.
11. Stormwater Management: The State of Washington has instituted a Clean Water Program and the County has adopted the Department of Ecology's Stormwater Manual for Puget Sound. The County enforces regulations for stormwater management,

12. Repetitive Loss: As of the NFIP Report of Repetitive Losses dated June 30, 2006, the County has 59 repetitive loss properties and is a Category C community for CRS purposes. All requirements for the 2007 cycle have been met. An adopted Multi-Jurisdictional Multi Natural Hazard Mitigation Plan was approved by FEMA on October 30, 2003 and is being updated in 2008.
13. Acquisition and Relocation: Skagit County has acquired and demolished or removed over 47 properties in the flood hazard area thus removing them from the repetitive loss roster.
14. Flood Protection: Skagit County receives credit for buildings that have been flood proofed, elevated or otherwise modified to protect them from flood damage.
15. Drainage System Maintenance: Skagit County's drainage system is inspected regularly throughout the year and maintenance is performed as needed by the Skagit County Public Works Department. Records are maintained for both inspections and required maintenance. The Capital Facilities Program is a planning and budgeting tool used for drainage improvement projects. The County also enforces a regulation prohibiting dumping in the drainage system.
16. Flood Warning Program: Skagit County provides a program for timely identification of impending flood threats, disseminating warnings to appropriate floodplain residents and coordinating flood response activities. The County has been designated as a Storm Ready Community by the National Weather Service.
17. Dam Safety: All Washington communities currently receive Community Rating System credit for the Washington State Department of Ecology Dam Safety Program.

For additional information regarding the National Flood Insurance Program Community Rating system and Skagit County's participation in the CRS Program, please contact: Delores McLeod, Skagit County CRS Coordinator, (360) 336-9400.

Jurisdiction-Specific Suggested Mitigation Strategies and Projects:

It should be noted that although the various mitigation strategies and/or projects listed on the following pages are contained in the Unincorporated Skagit County portion of this section of the Skagit County Natural Hazards Mitigation Plan, many of these mitigation strategies and/or projects would most likely benefit multiple jurisdictions and may ultimately be paid for from a variety of sources.

While these mitigation strategies and/or projects have been suggested by various county officials and staff throughout the plan development process, these strategies and/or projects have not been officially approved by the Skagit County Board of Commissioners and funding for these strategies and/or projects has not been allocated. In many cases, funding for these mitigation strategies and/or projects is dependent upon Skagit County receiving future federal and/or state hazard mitigation grant funding.

EARTHQUAKE:

1. Continue existing public education programs within Skagit County to better inform citizens as to the earthquake hazard that exists locally and provide citizens with information to better prepare for and recover from a damaging earthquake. This mitigation activity is current and on-going and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Department of Emergency Management
FUNDING SOURCE: Pre-Disaster Mitigation Program
TIME-LINE: Current and On-Going

2. Provide for the increased safety of employees and the public through the implementation of a non-structural earthquake mitigation program in all county-owned buildings. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Facility Management Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

3. Re-locate all above-ground utilities underground within 300 feet of all county-owned buildings to facilitate egress of employees and citizens and ingress of emergency response personnel following a damaging earthquake. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Facility Management Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

4. Evaluate, and prioritize all Skagit County transportation infrastructure systems for needed seismic retro-fitting. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Short Term (less than 3 years from funding)

5. Retro-fit and/or reconstruct county-owned transportation systems/facilities, and drainage structures to better withstand damage from a major earthquake. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

6. Retro-fit and/or reconstruct county-owned buildings/facilities to better withstand damage from a major earthquake. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Facility Management Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

7. Reconstruct, strengthen, and/or retro-fit local emergency communications structures, facilities, and equipment to better withstand the effects of a major earthquake and aid in post-disaster communication capabilities of first response agencies. This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit 9-1-1
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

FIRE:

1. In cooperation with the Skagit Conservation District and the Washington State Department of Natural Resources, develop a county-wide Community Wildfire Protection Plan within Skagit County to raise awareness and provide public education regarding the wildland-urban interface fire hazard that exists locally.

This mitigation activity has been modified to reflect the establishment of a Community Wildfire Protection Plan within Skagit County that was initiated in 2008; this mitigation project has been re-affirmed (as modified) for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Fire Marshal's Office
FUNDING SOURCE: Local Funding; Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Short Term (less than 3 years from funding)

FLOOD:

NOTE: As previously stated in the Unincorporated Skagit County Jurisdiction-Specific Vulnerability Assessment, the following flood mitigation strategies are based on continued participation and compliance with the National Flood Insurance Program (NFIP) as well as the Community Rating System (CRS) program.

1. Skagit County government will continue its participation in the NFIP Community Rating System program, and continue to improve its CRS classification rating through current and on-going efforts to: encourage the residents of Skagit County to purchase flood insurance; inform citizens as to the flood risk in Skagit County; and provide information for persons to prepare for a catastrophic flood event. Since 2003, unincorporated Skagit County has increased the CRS Classification rating from a 6 to a 4. Skagit County has, and will continue to undertake a series of significant activities to protect its citizens from losses caused by flooding and effectively manage the floodplain.

This mitigation activity is current and on-going and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Current and On-Going

2. In cooperation with various Community Rating System programs that currently exist in Skagit County, continue to conduct an on-going public education/awareness program to encourage those persons who live and/or own property within the 100-year floodplain to purchase flood insurance.

This mitigation activity is current and on-going and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Current and On-Going

3. Re-locate the Skagit County Information Services Department facilities and equipment out of the floodplain of the Skagit River.

Although no mitigation funding was obtained for this project, a new facility designed to house the Skagit County Information Services Department server equipment is currently under construction (outside of the floodplain) and is expected to be operational before the end of 2008.

As this project has not yet been completed, it remains active and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Information Services Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

4. Continue efforts to enhance the capabilities and/or systems/programs of the Skagit County GIS Department to provide for increased services and information to aid the citizens of Skagit County during a natural disaster event.

This mitigation activity is current and on-going and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County GIS Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

5. Continue current and on-going efforts to provide for inter-operability of emergency communications systems to enhance post-disaster communications capabilities of first response agencies.

Washington State Homeland Security Region 1 recently received a Public Safety Interoperability Communications Grant that will greatly increase command coordination

and inter-operability of emergency communications systems within Skagit County as well as neighboring counties.

Due to the very recent award of this grant, this mitigation project remains active and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit 9-1-1
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

6. Enact additional regulations at the local level that will serve to restrict future construction of residential structures and non-agricultural related development within the 100-year floodplain.

Although no regulations currently exist, there have been discussions at the local level to consider future regulations that would prohibit the construction of residential structures in the Agriculture Zone unless the property owner was directly involved in farming.

This mitigation activity has been re-affirmed for the 2008-2013 plan cycle.

LEAD AGENCY: Skagit County Planning Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

7. Develop evacuation plans for the 100-year floodplain that may include signed flood evacuation routes as well as siren warning systems and/or telephone warning systems to alert residents of imminent danger.

This mitigation project has not been funded but has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Department of Emergency Management
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Long Term (more than 3 years from funding)

8. Continue current efforts to increase the storage capacity at various hydro-electric dams in the upper Skagit Valley. This mitigation activity is vital to providing an increased level of flood protection for the citizens of Skagit County.

This mitigation activity is current and on-going and has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Water Resources Development Act
TIME-LINE: Short Term (less than 3 years from funding)

9. Continue to conduct buy-out programs, elevation programs, and/or flood-proofing programs for repetitive loss properties within the 100-year floodplain.

Despite increased difficulties in obtaining a positive benefit-cost ratio for these types of projects, this mitigation activity has been re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Planning Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program
TIME-LINE: Short Term (less than 3 years from funding)

10. Help develop and assist responsible jurisdictions implement a variety of structural and non-structural flood control projects throughout the western portion of Skagit County (including certified levees in urban areas) designed to reduce flood risk and that are consistent with current on-going planning efforts such as the Skagit River Comprehensive Flood Hazard Management Plan and the United States Army Corps of Engineers' Skagit River Flood Hazard Reduction and Ecosystem Restoration Feasibility Study, also known as the Skagit River General Investigation Study (Skagit GI).

This mitigation activity is new to the plan for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Water Resources Development Act
TIME-LINE: Long Term (more than 3 years from funding)

11. Continue existing efforts to help develop and assist responsible jurisdictions implement a program to retro-fit the existing municipal, county, state, and railway transportation infrastructure and design newly constructed municipal, county, state and railway transportation infrastructure to allow for the passage of high flows of floodwaters presently impeded by the design and construction of this infrastructure.

This mitigation activity was revised and is re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Federal Highway Administration
TIME-LINE: Long Term (more than 3 years from funding)

12. Help develop and assist responsible jurisdictions implement a variety of flood control projects designed to manage high flows of the Skagit River during flood events.

This mitigation activity was revised and is re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Water Resources Development Act
TIME-LINE: Long Term (more than 3 years from funding)

13. Help develop and assist responsible jurisdictions implement a program to manage interior drainage; plan for drainage of floodwater out through sea dikes.

This mitigation activity was revised and is re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Water Resources Development Act, Washington State Department of Ecology Flood Control Assistance Account Program (FCAAP)
TIME-LINE: Long Term (more than 3 years from funding)

14. Help develop and assist responsible jurisdictions implement a program to provide 50-year or greater flood protection for the State Route #20 corridor between Interstate #5 and the Swinomish Channel.

This mitigation activity was revised and is re-affirmed for the 2008 – 2013 plan cycle.

LEAD AGENCY: Skagit County Public Works Department
FUNDING SOURCE: Pre-Disaster Mitigation Program; Hazard Mitigation Grant Program, Water Resources Development Act, Washington State Department of Ecology Flood Control Assistance Account Program (FCAAP)
TIME-LINE: Long Term (more than 3 years from funding)