



Flood



Hazard Description

Flooding is a naturally occurring cycle. It occurs when the volume of precipitation (rain or snow) exceeds the capacity of river banks to keep flowing waters contained. Floods are one of the most common and, on an annual average basis, the costliest in Skagit County. Skagit County has received 7 Federal Disaster Declarations for flood. In addition, flooding was also included in FEMA's "Severe Storm" typing, which included an additional five flood events for a total of 12!

Several factors determine the severity of floods:

- Precipitation, intensity, and duration;
- Soil saturation conditions;
- Topography and ground cover;
- Amount of snow.

Estimated Probability of Flood Event	
EVENT	ANNUAL CHANCE OF OCCURRENCE
10-year flood	10%
25-year flood	4%
50-year flood	2%
100-year flood	1%
500-year flood	0.2%

National Flood Insurance

Congress established the National Flood Insurance Program (NFIP) in 1968. This federal program enables property owners in participating communities to purchase insurance to protect against flood losses in exchange for floodplain management regulations that reduce future flood damage. For most participating communities, FEMA has prepared a detailed Flood Insurance Study. The study presents water surface elevations for floods of various magnitudes, including the 1-percent (100-year) annual chance flood and the 0.2-percent (500-year) annual chance flood. Base flood elevations and the boundaries of the 100- and 500-year floodplains are shown on Flood Insurance Rate Maps (FIRMs), which are the principle tool for identifying the extent and location of the flood hazard. FIRMs are the most detailed and consistent data source available, and for many communities they represent the minimum area of oversight under their floodplain management program. That map is identified to the right. The estimated probability of a flood occurring during any given year is identified in Table 1 (above). The current number of NFIP insurance policies in force in Skagit County are identified in Table 2. The NFIP also requires identification of repetitive loss properties. These are structures meeting an identified threshold of previous flood claims as identified in Table 3. Communities which participate in the NFIP also have the option to become a member of the Community Rating System, which requires a significant number of items which each local municipality must address. As reward for addressing those items, communities receive points, and an overall score, with 1 being the best, and 10 serving as the starting point. Not all communities participate in the CRS program, but those that do and have achieved a higher level of scoring receive reduced insurance rates for their constituents.

Table 1 – Estimated Probability

Table 2 – NFIP Policies in Force

Skagit County NFIP Insurance Policies in Force by Municipality			
Community Name	Policies In-Force	Insurance In-Force	Premiums In-Force
Anacortes, City of	42	14,565,000	21,057
Burlington, City of	992	255,886,000	1,012,662
Concrete, Town of	6	1,254,700	10,408
Hamilton, Town of	15	1,943,900	22,040
La Conner, Town of	117	28,631,700	175,196
Lyman, Town of	1	350,000	373
Mount Vernon, City of	765	186,403,300	848,676
Sedro-Woolley, City of	54	19,157,400	60,536
Skagit County	2137	463,719,300	2,137,088

Source: <https://bsa.nfipstat.fema.gov/reports/1040.htm#53>
Statistics as of 9/30/18 – most recent update

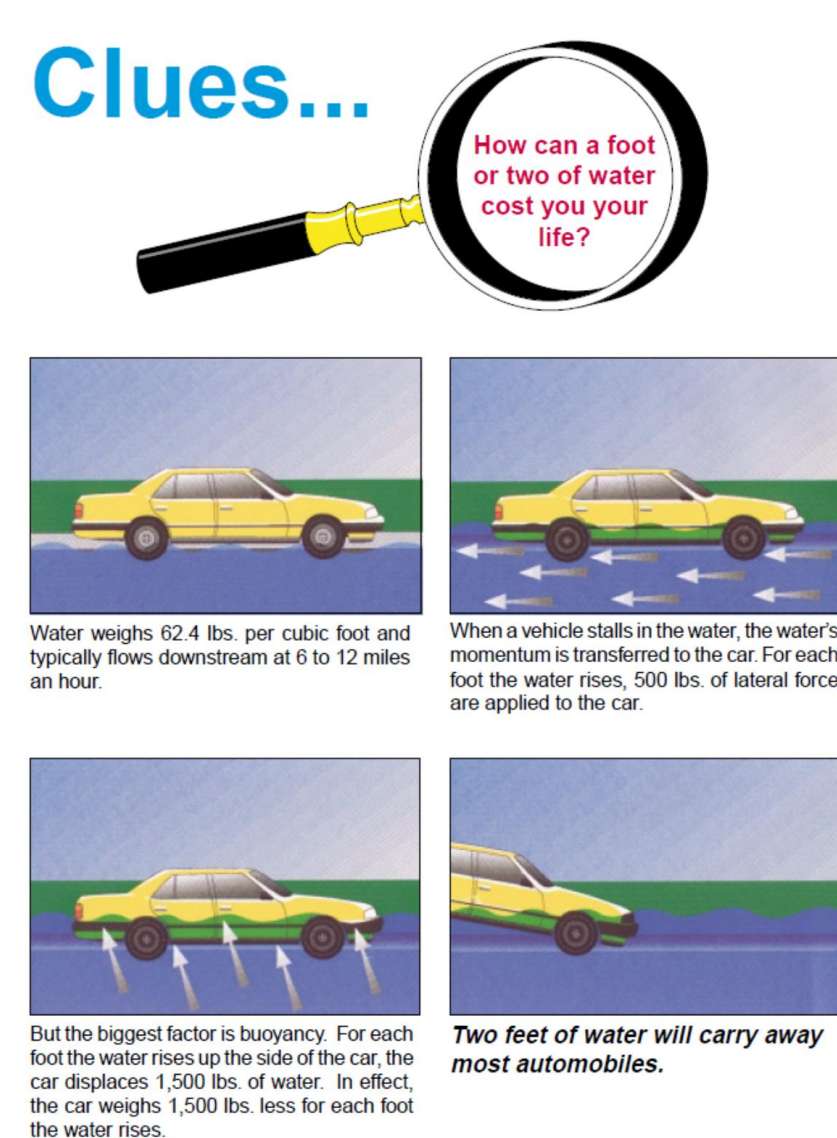
Vulnerability

Skagit County has a long history of flood events, and their numbers seem to be increasing, suggesting a high probability of occurrence. The table below shows the current status of municipalities within Skagit County enrolled in the Community Rating System (CRS), as well as the number of claims and dollar amounts paid out for those claims.

Table 3 – Repetitive Loss Properties and Claim Information

NATIONAL FLOOD INSURANCE INFORMATION SKAGIT COUNTY COMMUNITY RATING SYSTEM, REPETITIVE LOSSES, AND FLOOD INSURANCE CLAIMS					
Community Name	CRS Community*	Total Losses	Flood Claims Closed	Total Flood Loss Payments	Repetitive Loss Properties
Anacortes, City of	N	1	1	\$42,151.47	0
Burlington, City of	5	34	19	\$165,594.82	0
Concrete, Town of		15	12	\$93,078.44	1
Hamilton, Town of	N	228	201	\$4,029,431.48	34
La Conner, Town of	10 (R)	5	2	\$2,664.54	0
Lyman, Town of	N	No data	0	\$-	0
Mount Vernon, City of	6	103	65	\$624,768.36	0
Sedro-Woolley, City of	N	35	29	\$336,318.68	3
Skagit County Unincorporated	6	715	576	\$7,415,014.29	36

Clues...



Types of Flooding in Skagit County

1. **River or stream flooding** occurs with prolonged heavy rainfall, a rapidly melting snow pack, or a combination of these.
2. **Urban flooding** results from intense storms dropping large volumes of rain within a short period of time, exceeding the capacity of stormwater management systems.
3. **Tidal flooding** results when extremely high tides combine with low atmospheric pressure, excessive run-off, or strong northerly winds. The tides can also enhance flooding in delta areas when rivers or creeks are at or near flood stage. Sea level rise will exacerbate tidal flooding.
4. **Groundwater flooding** occurs when there is a high water table and persistent heavy rains. The situation is caused in areas where an upper, thin layer of permeable soils overlays an impermeable layer of hardpan. As the ground absorbs more rain, the groundwater table rises, resulting in flooding in areas where the land surface is below the water table.

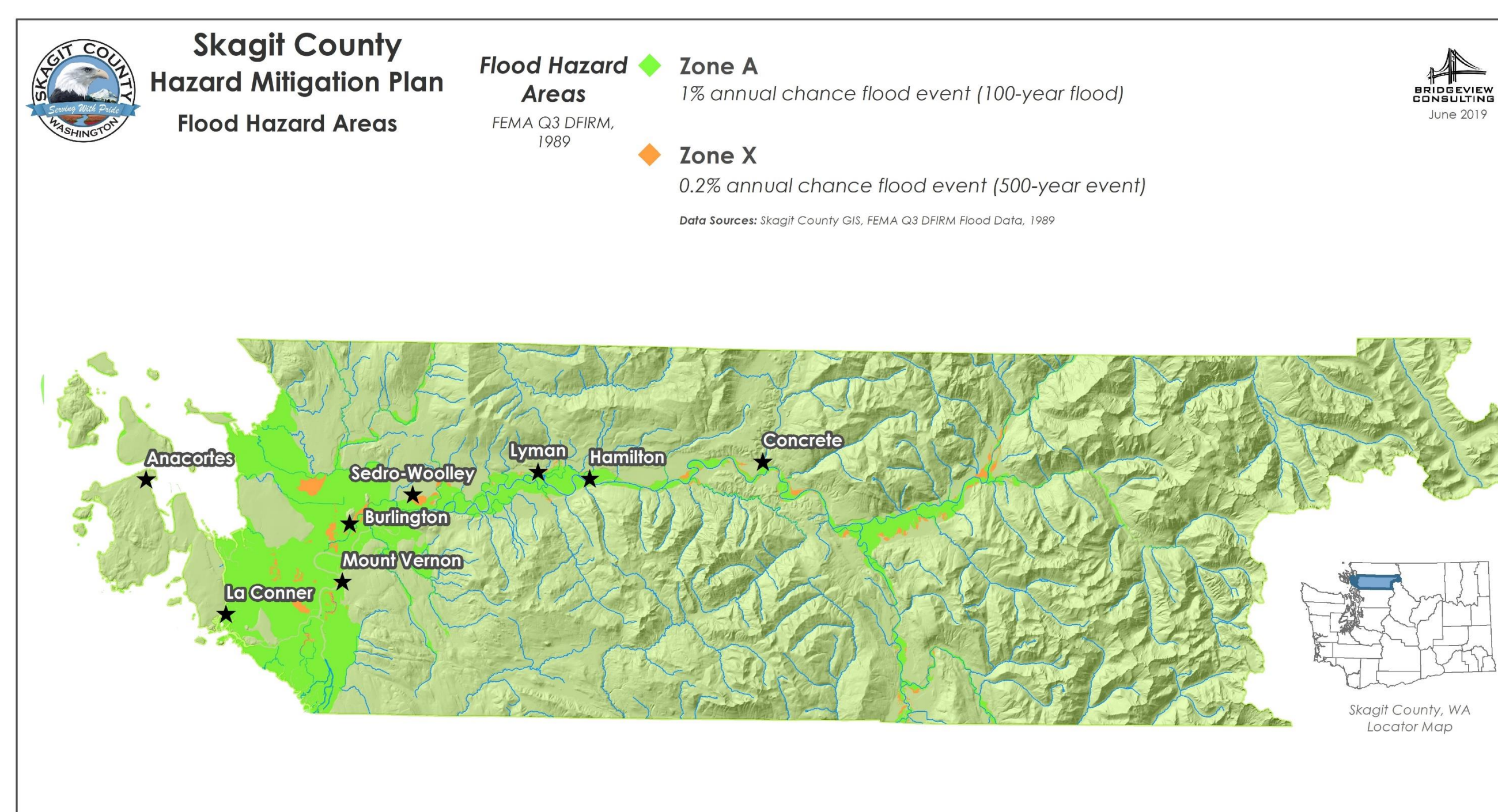
Effects of Flooding

The effects of floods are devastating. Aside from inundation of lands and property with sediment-filled waters, floods also result in:

- Death or injury to people, pets, and livestock;
- People stranded or isolated for extended periods of time;
- Physical destruction of infrastructure which support communities, such as roads, bridges, railroads, pipelines, and utility systems;
- Contaminated water sources and water treatment systems;
- Compromised septic systems, destroyed electrical and heating systems;
- Restricted or limited access for emergency responders.

Delineation of a Flood Hazard Area

For mitigation planning purposes, the flood hazard is delineated using the County's adopted NFIP maps, combining the 100- and 500-year floodplains. It should be remembered that flooding does, and will, continue to occur outside of these boundaries. The following maps illustrate the 100- and 500-year boundaries in Skagit County.



Map 1: FEMA-identified Flood Hazard Areas

Map 2 (Right) - Skagit County also has several high hazard dams within the Skagit County River Basin that also pose a risk to flooding if capacity is over-whelmed, or if the dam breaches as a result of an earthquake or major landslide in the area.

