



Loss Avoidance Study: City of Snoqualmie, WA

- Study Area** – City of Snoqualmie, WA
- Hazard Type** – Flood
- Project Type** – Elevation of 28 residential structures
- Total Project Cost** – \$1,314,852 (28 projects)
- Total Losses Avoided** – \$1,624,720 (2007 dollars)
- Return on Investment (ROI)** – 1.24

Pre- and Post-Mitigation Events

This Loss Avoidance Study analyzed the cost-effectiveness of elevation projects in Snoqualmie completed by the Washington State Emergency Management Division and the Federal Emergency Management Agency (FEMA) in the aftermath of the floods of 1996 and 1997.

The study found that without mitigation, all 28 homes would have been damaged by a November 2006 flood with the following levels of inundation:

- 8 of the structures would have experienced less than 2 feet of water
- 16 would have been flooded to depths between 2 and 5 feet
- 4 would have had more than 5 feet of water above pre-mitigation first floor elevations
- 1 home would have had 7.9 feet of inundation

Loss Avoidance Methodology

The analysis was limited to 28 homes for which the City of Snoqualmie Building Department was able to provide Elevation Certificates as well as building plans. The project area is shown in Figure 1.

To determine the losses avoided, this study calculated the damages based on the 2006 flood data. The study compared the losses that actually occurred with the losses that would have occurred if the houses had not been elevated. The calculated losses included physical losses (i.e., damage to structures and contents), loss of function (i.e., lost business income, wages, or public services), and the cost of emergency services after flooding occurred.

Return on Investment

The total losses avoided in the November 2006 flood were estimated to be more than \$1.6 million. Because the total cost of elevating the 28 homes was estimated to be \$1,314,850, the flood damages avoided exceeded the cost of the original elevation project. This results in an ROI of 1.24. Thus, the projects were cost-effective, and the payoff is expected to increase over time as cumulative losses avoided grow with subsequent flood events.

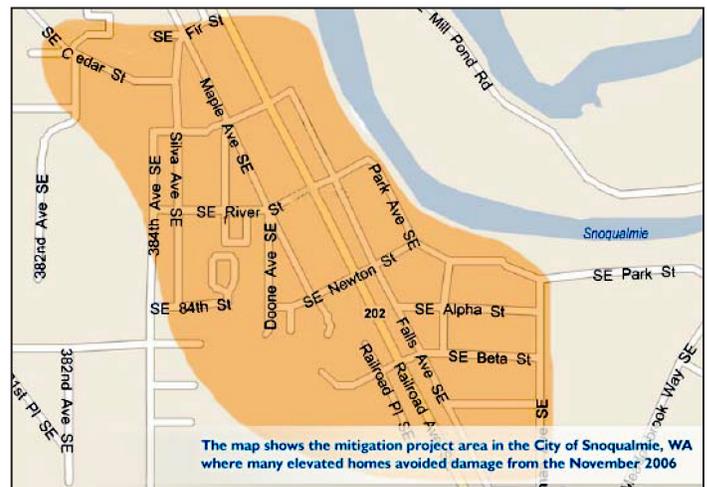


Figure 1. Location of 28 elevation projects