



2006 King County Flood Hazard Management Plan

Full Mitigation Best Practice Story

King County, Washington

King County, WA - Planning is the most significant action a community can take to address and resolve potential disaster risks. Implementing effective plans can reduce damages from disasters, protect people from hazardous areas, and remove them from harm's way. It can also facilitate recovery and simultaneously reduce the amount of emergency response efforts needed, as well as the time such efforts require.



The State of Washington has considerable experience in dealing with disasters. The most frequently occurring and costly natural hazard in Washington is flooding. Like many Washington communities, King County is subject to a wide range of flood hazards.

With six major river systems traversing the region (the South Fork Skykomish, Snoqualmie, Sammamish, Cedar, Green, and White Rivers), and many other bodies of water all subject to the random acts of nature, the residents of King County face the frequent risk of inundation from rising flood waters. In addition, many of King County's rivers and tributaries are subject to channel migration resulting in the potential for more damaging and dangerous flood events.

Recognizing the ever-present and ever-changing hazards facing their residents, King County officials have taken significant steps over the years to reduce, or mitigate, the effects of flooding. In 1993, the County adopted a Flood Hazard Reduction Plan. That document was updated in 2006 to the King County Flood Hazard Management Plan to include evolving conditions in the County's watershed and flood characteristics; changes in State and Federal regulations and eligibility requirements for grant assistance; and levels of participation in various State and Federal programs.

This pro-active planning effort has already helped King County reap significant benefits. Looking at examples in the Cedar River, just one of the six major river basins, there are numerous mitigation projects, both completed and underway, that reduce future vulnerability for people, property, and infrastructure. This river has sustained many flood events over the years. In response to this flooding, more than 65 flood protection facilities have been constructed in the basin since 1960. Most of these take the form of levees and revetments, yet few if any provide protection to a 100-year flood level.

Many of the proposed projects listed in the Cedar River section of the County's 2006 Plan specifically address the need for greater protection than what is currently provided by the many levees and other flood control structures that have been installed along the course of the river over time. Solutions are wide ranging – some take the form of buyouts to remove homes and structures from the flood hazard area, while others involve setting back the levees or removing them entirely to improve conveyance and storage of floodwaters.

For example, at the location of Cedar Rapids on the River, levees on both banks result in constriction of the floodway, causing increased velocities and flood depths. While two property acquisitions have already occurred, allowing restoration of the area to begin, the two levees are still in place.

According to the Plan, their presence causes an impediment to floodwater and natural floodplain processes throughout the reach, affecting both the adjacent public infrastructure and the local natural resources. The Plan calls for the additional acquisition of properties on both banks and moving the levees back approximately 800 feet from their present locations, consequently opening up the floodplain and allowing the river's natural processes to reestablish themselves.

Flooding in the November 2006 event had widely different effects in the numerous basins throughout King County. While the Snoqualmie River experienced the highest flood of record, Cedar River sustained only moderate flooding.

For King County the outcome was clear: in areas where efforts have been taken to address and reduce flood risks, those actions have worked. Damage in King County during the November 2006 flood was minimized through ongoing implementation of the County's comprehensive flood plans. Nature cannot be controlled, but risk can be managed and damage can be lessened or even eliminated entirely.

Both the 1993 Flood Hazard Reduction Plan and the 2006 Flood Hazard Management Plan were funded, in part, through 50 percent cost-share grants from the Washington Department of Ecology's Flood Control Assistance Account Program (FCAAP). In developing the 2006 update, the County utilized its own staff and resources as well as a thorough public participation process.

Both the Department of Ecology and FEMA's Region X staff believe that King County's plan represents a prototype for such plans for any community that would engage in such an effort. Recognizing the number of people in King County (approximately 30 percent of the State's population) and the infrastructure at risk, it is crucial for the County to have a well-conceived and thoroughly documented strategy for reducing flood damage and loss in their community when seeking project funding.

This plan has laid the groundwork for much of King County's success in securing grant funds to implement its important flood hazard management work. It is important to note that although King County receives its fair share of state funding assistance, this version of the plan continues the County's long history of harnessing and focusing its own resources to identify flood hazards and develop mitigation strategies.

While the Cedar River section of the Plan represents an important series of steps towards protecting the people living along that River from flood risks, it is only a small part of the entire Plan. The ability to identify where problems are and what must be done to solve them is the first stage in creating a plan. King County officials have sought the means to protect their residents by reducing their flood risks.

The 2006 King County Flood Hazard Management Plan is one vital measure towards a comprehensive approach to flood hazard reduction for everyone living in King County.

Activity/Project Location

Geographical Area: **Single County (County-wide)**

FEMA Region: **Region X**

State: **Washington**

County: **King County**

Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding**

Activity/Project Type: **Floodplain Management**

Activity/Project Start Date: **01/1993**

Activity/Project End Date: **Ongoing**

Funding Source: **State sources**

Activity/Project Economic Analysis

Cost: **Amount Not Available**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster? **Unknown**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: <http://www.floodsmart.gov>

Reference URL 2: <http://www.fema.gov/government/grant/fma/index.shtm>

Main Points

- The most frequently occurring and costly natural hazard in Washington is flooding.
- With six major river systems traversing the region and many other bodies of water all subject to the random acts of nature, the residents of King County face the frequent risk of inundation from rising flood waters.
- In 1993, the County adopted a Flood Hazard Reduction Plan. That document was updated in 2006 to the King County Flood Hazard Management Plan.
- Many of the proposed projects listed in the Cedar River section of the County's 2006 Plan specifically address the need for greater protection than what is currently provided by the many levees and other flood control structures that have been installed along the course of the river over time.
- Both the 1993 Flood Hazard Reduction Plan and the 2006 Flood Hazard Management Plan were funded, in part, through 50 percent cost-share grants from the Washington Department of Ecology's Flood Control Assistance Account Program (FCAAP).
- The 2006 King County Flood Hazard Management Plan is one vital measure towards a comprehensive approach to flood hazard reduction for everyone living in King County.



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Cedar Grove Road and Rainbow Bend Levee in King County - November 1990