

CHAPTER 6. PLAN IMPLEMENTATION

Flooding and channel migration risks transcend political boundaries. Actions taken in upland portions of a watershed may contribute to flooding and channel migration in lower portions of that watershed. Individual actions taken by one floodplain jurisdiction or property owner can have beneficial or adverse consequences for others in the same floodplain. This Plan, and its set of proposed policies, projects and programs, is based on the premise that major river flooding in King County is a regional issue, and as such, flood risk reduction requires extensive collaboration and strong partnerships.

The Plan recommends creation of a countywide flood control zone district to ensure effective and direct implementation of the 10-Year Action Plan. In its regional role as flood risk reduction service provider, King County will build upon its long history of coordinating and partnering with local jurisdictions, special districts, state and federal agencies, and other stakeholders to reduce flood risks. Pre-existing partnerships and relationships will be strengthened while new collaborative opportunities will be developed.

Through the proposed flood control zone district and in partnership with jurisdictions, King County will provide leadership in Plan implementation, including many of the project and program actions outlined in the 10-year Action Plan detailed in Chapter 5 and Appendix F. Plan implementation will result in multiple public benefits, including the reduction of flood and channel migration risks, the protection of roads and other critical infrastructure that support regional safety and economic viability, the enhancement of salmon habitat, and open space protection within floodplains.

Plan implementation will be informed by ongoing economic impact risk assessments, a systematic approach for assessing risk to floodplain areas that depend on flood protection infrastructure, including levees and revetments. As King County gains a more complete understanding of the condition of its flood protection facilities and the degree to which those occupying the floodplain are at risk, Plan implementation will be adjusted accordingly. Adaptive management approaches to Plan implementation require a commitment to information management. Emerging data, maps, studies, innovative project designs, and monitoring information will be maintained in an accessible and organized format. Informed decision-making will ensure that limited financial resources will be directed to highest risk portions of the floodplain environment.

This chapter describes Plan implementation considerations and provides recommendations associated with King County's implementation role, partnership and coordination opportunities, and adaptive management strategies.

6.1 KING COUNTY'S ROLE

The River and Floodplain Management Program of King County's Department of Natural Resources and Parks provides regional flood risk reduction services to incorporated and unincorporated portions of the County. This program will provide leadership in Plan implementation and will work closely with other King County departments to maximize consistency between this Plan's regional flood risk reduction goals, objectives, guiding principles, policies, and proposed actions and other County-provided regional services that have the potential to reduce the risk from flooding and channel migration. Other King County-provided services that assist Plan implementation include emergency operations, road maintenance and bridge projects, stormwater services, private development permit issuance, regional trail development, park and open space management, and habitat restoration projects and programs, particularly those associated with water resource inventory areas and salmon habitat recovery plans. The

River and Floodplain Management Program will work with other King County departments and jurisdictions to pursue cooperative, interdisciplinary Plan implementation strategies.

The *2006 King County Flood Hazard Management Plan* will be adopted as a technical appendix to the King County Comprehensive Plan. The King County Comprehensive Plan is the County's legal framework for land use in unincorporated King County and is the guiding document for functional plans and development regulations. Given the many County-sponsored projects and initiatives in the vicinity of the County's major rivers and floodplain environments, it is imperative that King County departments operate in manner that is consistent with the flood risk reduction policies and implementing regulations supported by the *2006 King County Flood Hazard Management Plan*.

Other King County departments will also be directly involved with the implementation of this Plan. The Department of Development and Environmental Services will review and regulate floodplain permits jointly with the River and Floodplain Management Program. Smaller tributary streams and constructed drainage systems handling stormwater runoff in unincorporated King County are regulated through the *King County Surface Water Design Manual*, administered jointly by the Department of Natural Resources and Parks and the Department of Development and Environmental Services. King County's River and Floodplain Management Program collaborates closely with these County agencies and will continue to do so as part of Plan implementation.

The King County Office of Emergency Management, of the King County Department of Executive Services, prepares and maintains the *King County Regional Hazard Mitigation Plan* for compliance with the federal Disaster Mitigation Act. The *2006 King County Flood Hazard Management Plan* will serve as the flood hazard mitigation plan component of the *King County Regional Hazard Mitigation Plan*, which makes the River and Floodplain Management Program eligible for federal disaster mitigation grant funding. This transition within the regional Hazard Mitigation plan will occur via the plan maintenance strategy identified in the Regional Hazard Mitigation Plan, which includes processes for annual review and update, along with a strategy for a 5-year update of the overall plan. The King County Office of Emergency Management is the lead agency for coordination and response during emergencies. The River and Floodplain Management Program works with the Office of Emergency Management to provide efficient delivery of emergency response services.

King County collaborates with many government agency and non-agency floodplain stakeholders to achieve flood risk reduction project, program, and policy outcomes. The following section provides a summary of the primary stakeholders and partners that the River and Floodplain Management Program anticipates working with as part of Plan implementation.

6.2 COORDINATION AND PARTNERSHIPS

Given the patchwork of jurisdictions and stakeholders in King County's floodplain environments, the River and Floodplain Management Program partners and coordinates with diverse sets of interests. All of the major river basins in King County contain incorporated cities, many of which are located in floodplains. King County also shares jurisdiction with Pierce County in the White River basin and with Snohomish County in the Snoqualmie and Skykomish River basins. Other major river floodplain stakeholders include: state and federal agencies, water resource inventory area planning partners, Native American tribes, river recreational groups, private property owners, and non-governmental organizations. This section describes the variety of partners the River and Floodplain Management Program typically interacts with for flood risk reduction purposes. King County will continue to strengthen these pre-existing relationships, as part of Plan implementation. Formation of a countywide flood control zone district will strengthen future Plan implementation options and partnerships.

6.2.1 Cities

All communities that are required to plan under the Washington State Growth Management Act (Chapter 36.70A RCW) must prepare comprehensive plans and adopt implementing regulations for the protection of frequently flooded areas. All communities are also required to comply with the Washington State regulations for floodplain management adopted under the Flood Control by Counties Act (Chapter 86.12 RCW). King County's floodplain regulations and policies, as contained in the Critical Areas Ordinance and this Plan, limit development in unincorporated portions of the County's major river floodplains. The effect of these regulations and policies would be far-reaching if they were developed and enforced consistently throughout the incorporated and unincorporated portions of the County; however, flood hazard regulations vary considerably among jurisdictions.

State laws pertaining to comprehensive flood control management plans require all jurisdictions within the planning area to participate in the development of a comprehensive flood hazard management plan and ultimately adopt the plan for implementation within their community. King County acknowledges that each jurisdiction is faced with different levels of existing development, resources for implementing flood hazard management programs, and staff for enforcing regulations. It is clear that wholesale adoption by the cities of the policies contained in this Plan may not be appropriate. However, it is important that flood hazard regulations and programs adopted by other jurisdictions ensure that there will be no adverse impact on other jurisdictions. Therefore, the way in which cities implement no-adverse-impact policies and regulations should be tailored to each city's needs and resources.

Following adoption of the *2006 King County Flood Hazard Management Plan* and pending formation of a countywide flood control zone district, King County will continue to provide technical assistance and services to cities, within the limitations of King County resources, including floodplain mapping, technical evaluation such as sediment monitoring, flood protection facility retrofit projects, and removal of at-risk structures from flood-prone areas. King County's floodplain management services provided to cities is often formalized through interlocal agreements, cost-share arrangements, joint grant applications, and other partnership arrangements.

6.2.2 Special Districts and Funds

Nine special districts address flood risk reduction in King County. These districts vary in their composition, administrative authorities, and operations. The Green River Flood Control Zone District was established in 1960, and its authority to generate revenue through a levy was activated in December 1990. The District provides a funding base for the operation and maintenance of Green River levees, revetments and pump stations within its boundaries, and administration of the District's work program.

The Patterson Creek Flood Control Zone District, which does not collect fees at this time, advises King County regarding flooding and surface water management issues, organizes volunteer stewardship activities, and educates local residents about flooding, water quality and habitat issues. The Inter-County River Improvement Fund was established in 1914 to jointly fund and manage the maintenance of approximately 19 miles of the White River between King and Pierce Counties; this Fund currently collects minimal fees, countywide (RCW 86.13). For additional detail regarding these special districts and funds, see Chapter 7.

6.2.3 Dam Operators: Local and Federal

Major dams have been built in four of King County's six major river basins: the South Fork Tolt River Dam in the Snoqualmie River basin; the Masonry Dam on the Cedar River; the Howard Hanson Dam on the Green River; and the Mud Mountain Dam on the White River. These dams are operated by either the

City of Seattle or the United States Army Corps of Engineers for a variety of purposes, including municipal water supply, hydroelectric power and flood control.

The River and Floodplain Management Program coordinates with the City of Seattle and the Army Corps of Engineers to ensure that flows from the dams are managed to minimize flood risks to downstream portions of the watersheds. Future anticipated effects on the Pacific Northwest's water regime associated with global climate change, salmon habitat recovery, and increased demands on water supply necessitate ongoing communication and cooperation among the River and Floodplain Management Program and the agencies that operate dams.

6.2.4 Water Resource Inventory Areas

State code authorizes planning for Water Resource Inventory Areas to address water quantity, water quality, habitat, and in-stream flow (RCW 90.82.060). Salmon habitat recovery planning in Water Resource Inventory Areas 7, 8, 9 and 10 culminated in the completion and adoption of salmon habitat recovery plans. Cities, counties, and other partners in Water Resource Inventory Areas 7, 8, 9 and 10 are currently implementing the salmon habitat recovery plans.

Many of the objectives and projects proposed in the salmon habitat recovery plans physically coincide with portions of the County's major rivers that experience significant flooding, erosion, and channel migration. In many cases, the *2006 King County Flood Hazard Management Plan* proposes flood risk reduction projects that are compatible with the identified habitat restoration projects. Whenever possible, the River and Floodplain Management Program partners with the Water Resource Inventory Area planning partners or other interested parties to complete projects that have multiple public benefits, such as flood risk reduction and habitat improvement.

6.2.5 Native American Tribes

Federally recognized Native American tribes in King County are recognized as sovereign nations. Native Americans have lived and worked in proximity to the shoreline environments in what is now King County for thousands of years. These tribes have also retained treaty fishing rights along streams, rivers and coastal shores in King County. Early and ongoing coordination between King County and the tribes minimizes the likelihood of impacts from flood risk reduction projects on cultural and historic resources or to tribal fisheries.

6.2.6 Federal Agencies and Programs

The River and Floodplain Management Program primarily interacts and partners with two federal agencies—the United States Army Corps of Engineers and FEMA—to achieve its regional flood risk reduction objectives.

The United States Army Corps of Engineers sponsors flood risk reduction projects through its Section 205 program. This program requires local participation and has resulted in the completion of two levee improvement projects on the Green River: Horseshoe Bend 205 and Tukwila 205. The Corps of Engineers, King County, and the City of Snoqualmie partnered on a Section 205 excavation project near the top of Snoqualmie Falls on the Snoqualmie River, the majority of which was completed in 2004, with final completion scheduled for 2007.

A second United States Army Corps of Engineers program that affects flood risk reduction initiatives in King County is the Rehabilitation and Inspection Program, promulgated under PL 84-99. Most of King County's levees are not eligible for this program due to inadequate freeboard and levee vegetation maintenance practices. The River and Floodplain Management Program staff have pursued staff level

dialogue regarding the inconsistency between the United States Army Corps of Engineers' levee maintenance requirements regarding riparian vegetation for Pacific Northwest rivers. King County will continue this dialogue with the Corps of Engineers as part of Plan implementation, to explore alternative maintenance standards that meet requirements detailed in the adopted salmon habitat recovery plans for Water Resource Inventory Areas 7, 8, 9 and 10.

During major flood events, the United States Army Corps of Engineers provides emergency flood-fighting support to King County and coordinates with the River and Floodplain Management Program regarding its dam operations to minimize downstream flood risks.

FEMA's National Flood Insurance Program provides federally backed flood insurance to participating communities, insuring home and business owners against private property damage and loss due to flooding. King County's rating as a Class 3 community under the Community Rating System means that residents in unincorporated King County who purchase flood insurance receive up to a 35 percent savings on their insurance premiums. This results in savings of thousands of dollars every year for King County residents. The National Flood Insurance Program also tracks repetitive loss properties and annually submits updated parcel scale information to King County.

6.2.7 Non-Governmental Organizations and Volunteer Groups

King County partners with non-governmental organizations and volunteer groups to achieve long-term, regional flood risk reduction objectives along major rivers. Non-governmental organizations such as Earth Corps, Trust for Public Lands, Cascade Land Conservancy, and Washington Conservation Corps contribute valuable technical assistance and crew support. Other community groups and businesses also contribute many volunteer planting and site stewardship hours in support of major river flood risk reduction and habitat restoration projects.

6.3 ADAPTIVE MANAGEMENT

A cornerstone of this Plan's implementation strategy will be adaptive management. As new technical information associated with King County's flood hazard management corridors evolves, plan implementation priorities will be reevaluated. Shifting plan implementation priorities over time will reflect the River and Floodplain Management Program's more detailed understanding of the level of risk posed by flooding and channel migration to human safety and the regional economy, the degree to which current structural and non-structural flood risk reduction strategies are working, and the effectiveness of aquatic and riparian habitat enhancement and mitigation measures.

Plan implementation will always reflect the precept that flooding is a natural process that provides many valuable contributions to an ecosystem. Reducing the risk to humans from flooding and channel migration has long-term consequences for people, property, and the many land uses and values associated with the County's major river floodplains. Public safety and regional economic interests will be evaluated within a context of the large-scale ecosystem functions and values provided by major rivers and their floodplains. This type of analysis requires a more complete understanding of flood risks along the County's major rivers.

Adaptive management of major rivers for flood risk reduction requires high quality, well organized, and accessible technical information. The River and Floodplain Management Program and if enacted, the countywide flood control zone district, will use state-of-the-art information management strategies and performance assessment tools to measure flood risk reduction and ecosystem changes associated with plan implementation.

6.4 CLIMATE CHANGE AND MAJOR RIVER FLOODING

Future predicted warmer climate conditions in Western Washington will result in precipitation falling as rain instead of snow which could increase the magnitude of fall and winter flooding along King County's major rivers. As a result, flood events may be more frequent and longer in duration. Current weather patterns and subsequent flooding events exceed the protective capacity of King County's aging system of 500 levees and revetments. The potential for increased magnitude and frequency of fall and winter flood events in King County require immediate near- and long-term strategies to prepare for potential increased flood risks, as a result of warmer climate conditions.

Research is currently underway to evaluate the relationships between climate change and flooding to better understand the impacts that warmer conditions will have on the frequency, duration and intensity of fall and winter storms and associated flooding events in Western Washington. Research findings will inform King County's long-term flood risk reduction strategies in response to climate change. The *2006 King County Flood Hazard Management Plan* proposes proactive public safety actions, each of which is consistent with the University of Washington Climate Impact Group's recommendations to minimize the potential effects of a warming climate to major river flooding in King County.

6.5 RECOMMENDATIONS

- **IMP-1**—King County should maintain its Community Rating System rating of 3 or better as a primary measure of successful flood risk reduction.
- **IMP-2**—King County should authorize a countywide flood control zone district to ensure effective Plan implementation and efficient multi jurisdictional coordination efforts. The use of interlocal agreements or other contractual relationships in support of achieving long-term comprehensive flood risk reduction solutions will be evaluated.
- **IMP-3**—King County should provide technical expertise, when funding and staffing are available, to help incorporated cities develop policies, regulations and programs that are consistent with the *2006 King County Flood Hazard Management Plan*.
- **IMP-4**—The River and Floodplain Management Program should continue to work with King County's Office of Emergency Management to prepare updates to the flood hazard mitigation component of the *2006 King County Hazard Mitigation Plan*.
- **IMP-5**—The River and Floodplain Management Program should actively coordinate with Water Resource Inventory Area salmon habitat plan implementation efforts to maximize partnership opportunities for portions of the County's major river floodplains where joint projects will result in flood risk reduction and salmon habitat restoration.
- **IMP-6**—King County will continue to notify affected tribes early in the project planning and design process of flood risk reduction projects to allow the tribes to comment on the proposals and identify any potential impacts on Native American tribal cultural or fisheries resources. Discussion of the measures and the possibility of uncovering materials of archaeological or historic significance near inland waters should be discussed during a preconstruction conference with the construction crew and contractor prior to performing the work on the site.
- **IMP-7**—River and Floodplain Management Program construction management staff and construction crews should receive training in field identification of archaeological historic artifacts. The training should include an overview of archaeological and heritage resource management issues and contemporary archaeological field methods, and emphasize collaboration of natural resource professionals, archaeologists and Native Americans in the protection of cultural resources.

- **IMP-8**—King County should dedicate additional plan implementation funds for adaptive management purposes.
- **IMP-9**—King County will continue its discussions with the United States Army Corps of Engineers to explore alternative Rehabilitation and Inspection Program (PL 84-99) levee vegetation maintenance standards that are compatible with salmon habitat recovery requirements as detailed within the adopted salmon habitat recovery plans for Water Resource Inventory Areas 7, 8, 9 and 10.
- **IMP-10**—King County should continue to provide staffing, management, and administration to ensure effective implementation of the Green River Flood Control Zone District projects, programs, pump station operations and other related activities.
- **IMP-11**—King County should modify flood risk reduction strategies in response to emerging research on climate change and its impact on major river flooding in Western Washington.