

Lower Russell Rd Levee Setback Project

Public Meeting and Open House
at Kent Senior Activity Center
4 – 7 p.m. Nov. 19, 2014



Attendees from Lower Russell Project Staff Team

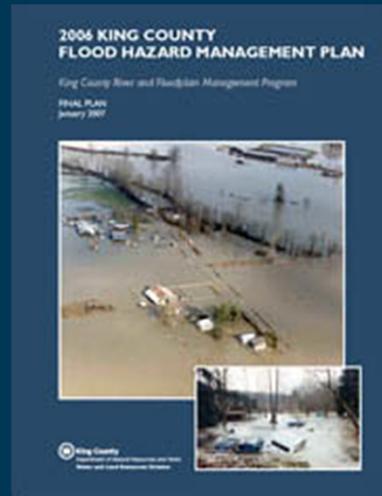


Reddington setback construction, Sept 2013

- **Lorin Reinelt, Green River Basin Supervisor**
- **Erik Peters, Engineer, Project Manager**
- **Kerry Bauman, Ecologist**
- **Jennifer Rice, Green River Basin Coordinator**

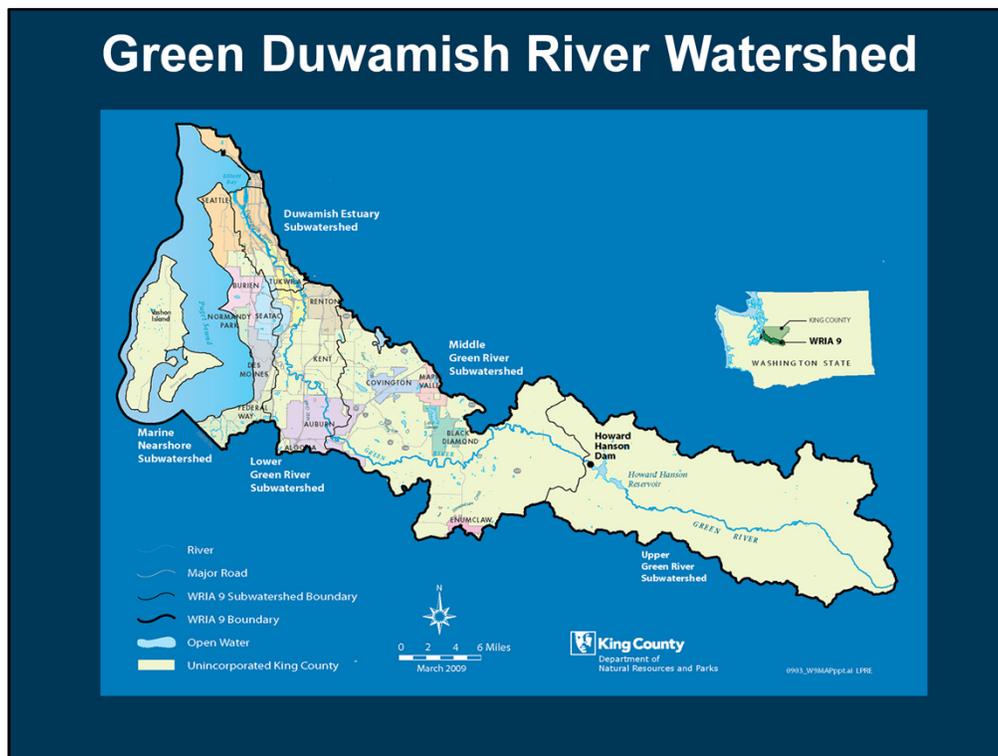
Adopted Flood Plan Goals

1. Reduce the risks from flood and channel migration hazards
2. Avoid or minimize the environmental impacts of flood hazard management
3. Reduce the long-term costs of flood hazard management



King County's goals for flood hazard management

Green Duwamish River Watershed



The River runs for over 93 miles beginning at the crest of the Cascade Mountains and ending at Elliott Bay. The River's watershed is 483 sq. miles (309,120 acres). The watershed is commonly divided into 4 subwatersheds:

- Upper Green River: Covers 220 square miles. Extends from Stampede Pass down to the Howard Hanson Dam (HHD) at river mile (RM) 64.5. The HHD was constructed 1962, primarily for flood control. Land use is almost entirely forest.
- Middle Green River: Covers 177 square miles. Extends from HHD to just downstream of Hwy 18 (RM 32.0) in Auburn. Watershed includes two significant tributaries (Newaukum and Soos creeks). Land use is a mix of commercial forestry, agriculture and residential (largely rural).
- Lower Green River: Covers 64 square miles. Extends from near Hwy 18 to just downstream of I-405 (RM 11.0 - former Black River confluence). Land use is a mix of urban residential, industrial and commercial.
- Duwamish River: Extends to the River's outlet into Elliott Bay and the Puget Sound in Seattle. Covers 22 square miles. Land use is industrial and urban residential.

Watershed includes 9 cities and unincorporated King County. The County Flood Control District manages 36 miles of levees and revetments along the River, most of which are within the Lower Green River portion of the watershed.

Lower Green River: Context



Socio-Economic

- \$7.3 billion in floodplain including:
 - 100,000 jobs
 - 100 million square feet warehouse and distribution space (2nd largest on West Coast)
 - Comprises 1/8th of the GDP for WA State
 - Annual taxable revenue of \$8 billion

Analysis done by FEMA in 2009 showed that failure of the current levee system in a 1% annual chance (100 year) storm event would result in damages of \$1.3 to \$3.7 billion, taking into account damages to buildings, contents, and business interruption.

Home to many large businesses, including Boeing, Starbucks roasting plant, and REI headquarters.

Lower Green River: Context



Salmon Populations & Habitat

- All species of salmon present, including federal ESA-listed Chinook salmon
- Limited spawning in Lower Green (above RM 24)
- Lethal water temperatures (> 23°C) have occurred in Green River mainstem (July 2006); TMDL water quality standard is 16°C
- Tribal fishing rights

Anadromous salmonids found in the Green-Duwamish watershed are coho, chinook, chum, and pink salmon and coastal cutthroat, steelhead, and bull trout/Dolly Varden char. Historical chinook population was 30,000-40,000 adults. Last 40 years have averaged about 5,000. Low of 800 adults in 2009 (75% of which were from hatchery origin)

WA Dept. of Ecology's (Ecology) Water Quality Standards:

- Duwamish River is categorized as "Salmonid Rearing and Migration Only" habitat. The Duwamish Waterway and River is on the 2012 Ecology's 303(d) list for not meeting pH and water temperature standards.
- Lower Green is categorized as "Salmonid Spawning, Rearing, and Migration" habitat. The Green River is 303(d) listed for violation of dissolved oxygen (DO), fecal coliform bacteria, and temperature standards.
- Middle Green as "Core Summer Salmonid" habitat for aquatic life use. As part of the updated water quality standards, the Middle Green River has been assigned an additional "Supplemental Spawning and Incubation Protection" temperature criteria of 13 °C to be applied from September 15th through July 1st.

Local jurisdictions throughout the Green River basin are responsible for implementing salmon recovery plans under the ESA, complying with the Clean Water Act (CWA), the Federal Emergency Management Agency's (FEMA) development standards, and mitigating impacts on habitat that may result from flood risk reduction projects. These complex issues require key policy considerations of levee system management options and implications.

Green SWIF Vision and Goals



Vision:

Improve flood protection, for current and future generations, in a way that builds economic, ecological and community resiliency

Goals:

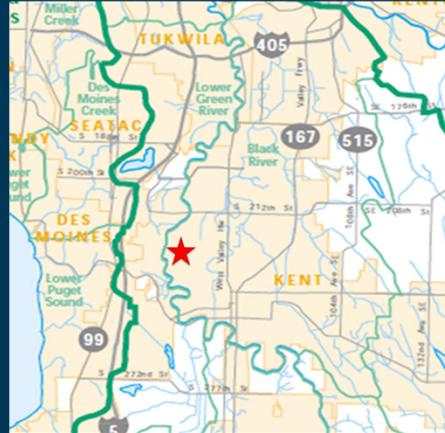
- Integrated River and Floodplain Management
- Flood Protection
- Vegetation Management
- Ecological Resiliency
- Economic Resiliency
- Community Resiliency

7

A SWIF is a US Army Corps of Engineers-sanctioned process to achieve flood protection solutions that satisfy the multiple and often competing federal mandates and legal requirements that apply to levee systems, enrolled in the Corps' PL-84-99 program and the riverine environment in which they're located. The Green River SWIF will produce a prioritized set of capital project and programmatic recommendations to achieve reach-specific, Lower Green River flood protection goals in a manner that builds economic, ecologic and community resiliency for current and future generations. The Green River SWIF will inform and influence the Lower Russell Rd Levee Setback project.

Lower Russell Project Location

City of Kent along the right (east) bank of the Green River between S 212th St and Veterans Drive/S. 228th St bridges.



Having covered the flood control planning and project context in relation to Green River valley we now turn to the project. The following slides present the project scope of work, budget and schedule and then discuss current work to date.

Along the project length we have an existing system of levees and rock revetment lining the river bank making up one flood containment system.

Lower Russell Rd Levee Setback

- **Goal:** Remove and replace the existing flood containment system of levee and revetments in order to provide long-term flood protection and improve riparian and aquatic habitat
- **Need:** The existing system of levee and revetments do not meet current engineering design standards. The system is prone to scour and slope instability leaving the lower Green River valley at a higher flood risk than desired.



Lower Russell Road Levee 2006 Flood Photo

The levee system in the Green River is old and outdated and originally constructed to protect agricultural lands rather than the significant regional economic infrastructure, businesses and residential land uses that exist currently. Additionally, the level of protection from flooding provided by current levees and other flood protection structures varies.

Lower Russell Rd Levee Setback

- **Objectives:**
 - Increase the level of flood flow containment along the right bank with substantial construction complete in October, 2016.
 - Select a flood protection system alternative for final design and construction in February 2015 that balances (1) policy guidance regarding flood protection, habitat restoration, and recreational use as informed by the SWIF; (2) project site opportunities and constraints; and (3) available funding.
- **Current Budget:**
 - \$17.4 Million from Flood Control District
 - \$3.8 Million in additional Washington State Floodplains by Design grant funding pending legislative approval.

The grant funding isn't certain until the WA legislature approves funding of the grant program.

Lower Russell Project Timeline



- Predesign (August 2014 – May 2015)
 - Project Alternatives Development (ongoing)
 - Project Alternative Selection (Feb 2015)
 - 30% Design (May 2015)
- Design of Selected Alternative (June 2015 to Jan 2016)
- Construction Contract Procurement (Feb 2016 – April 2016)
- Construction (May 2016 to June 2017)
 - Construction Substantially Complete by Nov 2016

The schedule is ambitious to achieve 2016 construction with little slack available for delays without pushing back construction. Our construction season is typically limited to May through October due to weather dependent work, in-water work window restrictions and avoiding our typical flood season of Nov – March.

Levee Design Considerations and Constraints

- Existing businesses will constrain setback available at the southern and northern ends of the project.
- Transportation or recreational improvements beyond what currently exist will require funding sources other than the Flood Control District.
- Van Doren's Park current functions to remain
- Providing suitable vehicular access to the Nursery and Van Doren's Park
- PSE transmission tower
- Kent Nursery
- Pedestrian Bridge



Levee Setback Alternatives



- Three levee setback alternatives are currently being considered in the middle of the project length
- Site constraints limit options available at the north and south (downstream and upstream) ends of the project.

Three flood containment alignments, each with a progressively further setback from the river, are being evaluated. The three alignments differ only in the middle of the project area as shown by the red, yellow and blue lines. Otherwise, the three share a common (red) alignment at the north and south ends of the project length.

Beginning at the south end of the project, from 228th Street to Van Doren's Park:

- Russell Road alternatives include either leaving the road in place with a flood containment system east of the road or reconstructing the road at a new location with a similar cross-section as today.
- Aquatic habitat improvement opportunities are very limited along this stretch with its site constraints.
- Flood containment system alternatives include either an earthen levee or a combination of floodwall and levee.

From Van Doren's park north to 212th Street:

- Russell Road alternatives include either removal of the road without replacement or reconstructing the road on top of the setback levee through the GRNRA. The former option would maintain Park access from 228th Street.
- Aquatic habitat improvement opportunities increase with each alternative. Habitat opportunities begin with excavation of off-channel cove in the lobe north of Van Doren's park. Alignment 3 includes alternative for a riparian habitat corridor (high flow bypass) between the park and the setback levee.
- Flood containment system here would be a levee, levee crest width varying depending on whether Russell road is relocated to be on the levee crest, or a narrower trail.

Recreation: The one existing paved trail in the project length, between Van Doren's Park and the

river, is envisioned to remain in place regardless of the levee alignment alternative. Access to Van Doren's Park and protection of the park from inundation up to the 100 year event will be provided with each alternative. The Kent Parks are providing input into the project and they have a long term vision for the Park and future trail system.

Project Contact Information

Erik Peters, Project Manager

206-477-4797

erik.peters@kingcounty.gov

www.kingcounty.gov/rivers

