



KING COUNTY
FLOOD CONTROL
DISTRICT



King County

Advisory Committee Meeting

November 19, 2009

Protecting public safety, the regional economy and critical infrastructure.

Presentation Overview

- Capital Program
 - 24 projects completed
 - 6 emergency repairs - January 2009
 - 18 construction projects – Summer/Fall 2009
- Programmatic Efforts
 - Flood Warning and Preparation
 - Flood Studies
 - Grants and External Funding
 - Planning
 - Outreach



White River Basin

-  River/Stream
-  Other Basin Boundaries
-  Lake
-  Incorporated Area
-  White River Basin



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 GIS, Visual Communications & Web Unit
 File Name: 0901_KCwriasPPT.ai lpre



City of Pacific – Countyline and Right Bank Setback

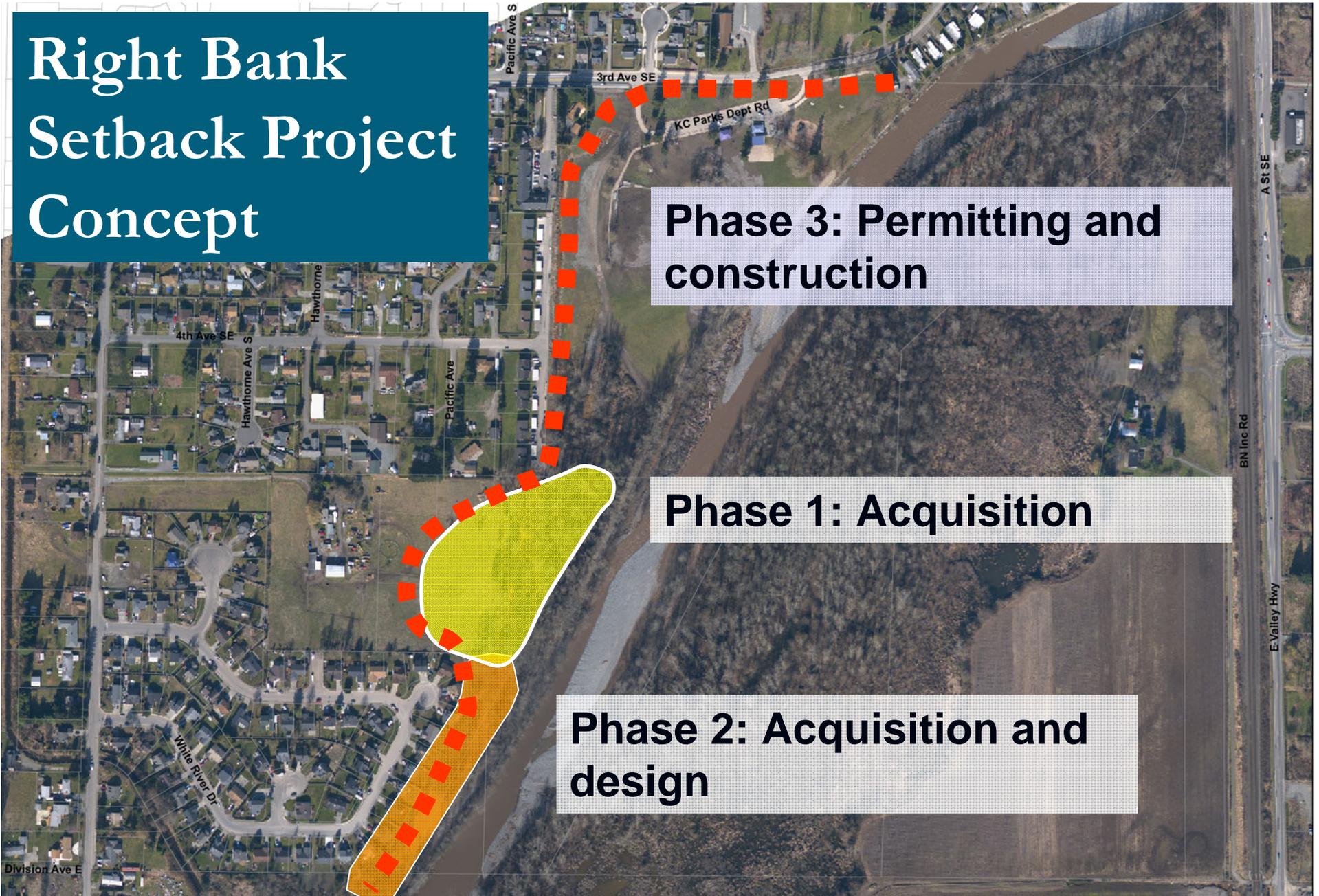


Right Bank Setback Project Concept

**Phase 3: Permitting and
construction**

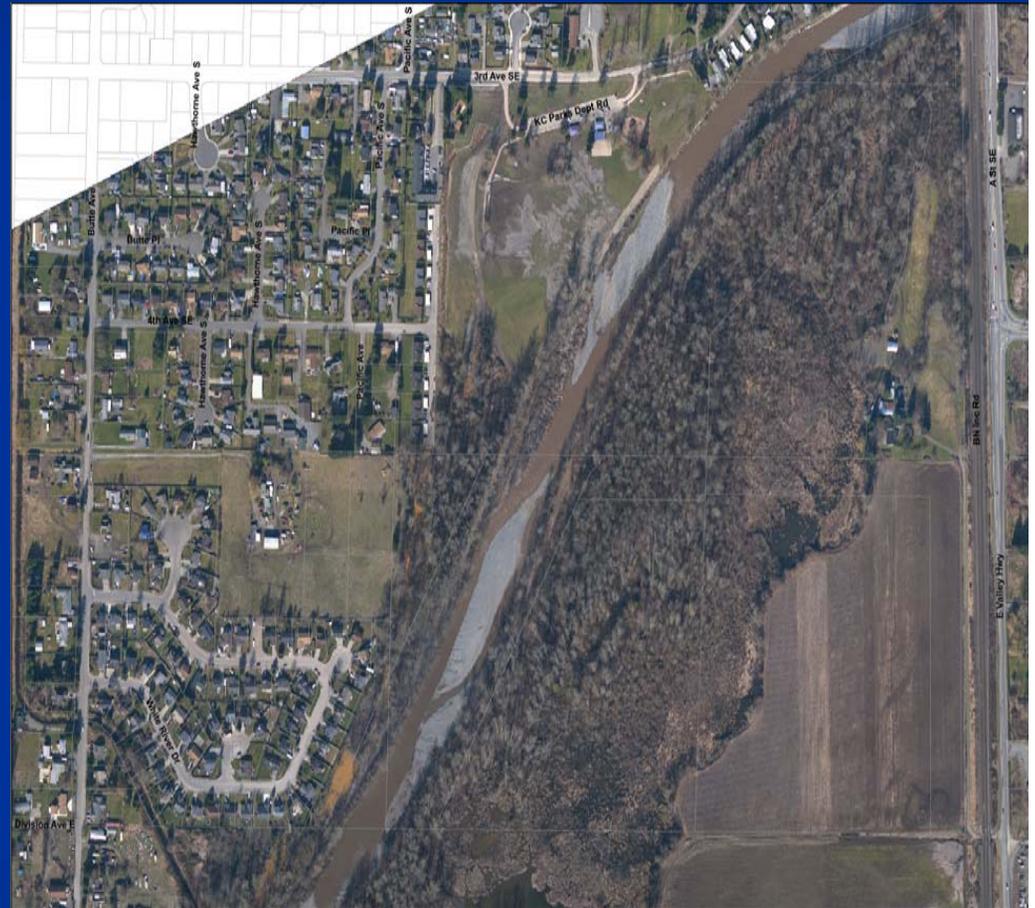
Phase 1: Acquisition

**Phase 2: Acquisition and
design**



White River – Acquisition Progress

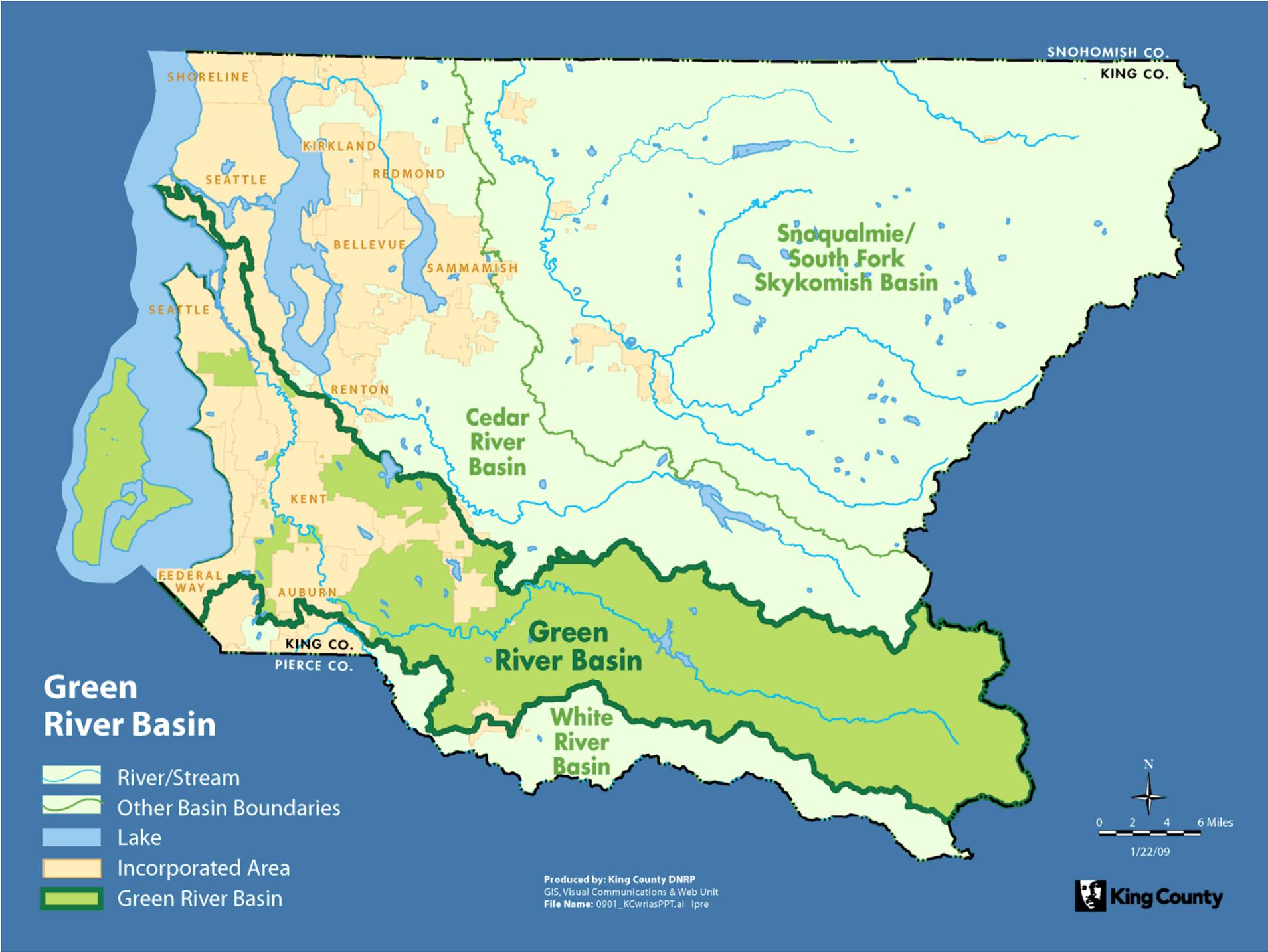
- White River Corridor / Right Bank Set Back
 - Phase One – Acquisition: Leveraged \$262K toward an estimated \$460K acquisition
 - In negotiations with 4 property owners in White River Estates / Pacific
- Countyline to A-Street Floodplain Reconnection
 - Acquisitions: In negotiations with 5 of 7 property owners



White River – Advance Flood Protection Measures

- Installed HESCO Barriers, SuperSaks, and sandbags to form a 3500' flood wall
- Wall will provide temporary flood protection to residential areas of Pacific
- Total cost = ~\$300K; ~\$162K in materials supplied by Corps





Green River Basin

-  River/Stream
-  Other Basin Boundaries
-  Lake
-  Incorporated Area
-  Green River Basin



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 File Name: 0901_KCwriasPPT.ai |pre



Green River Flood Damage Repairs

42nd Ave S revetment



- Damaged during January '09 flood
- Protects water main serving all of Southcenter and much of Tukwila, as well as an arterial roadway
- Repair length = 95 lineal feet

Green River Flood Damage Repairs

- Stoneway – design and permitting complete; will construct with FEMA public assistance funds
- Horseshoe Bend Levee – repaired 5 sites, 2,760 lf



- Partnership with Corps of Engineers – 100% funded by Corps (~\$4 million)
- Protects commercial and residential areas of Kent

Green River HHD Emergency Planning

- Installing 27,500 lf of Hescos & 66,000 SuperSaks
- Coordination with KC ECC on regional flood preparedness
- Hydraulic modeling potential impacts of high flows; impact of enhanced containment
- Coordination of lower Green R. cities thru BTC to design and implement advance flood protection measures

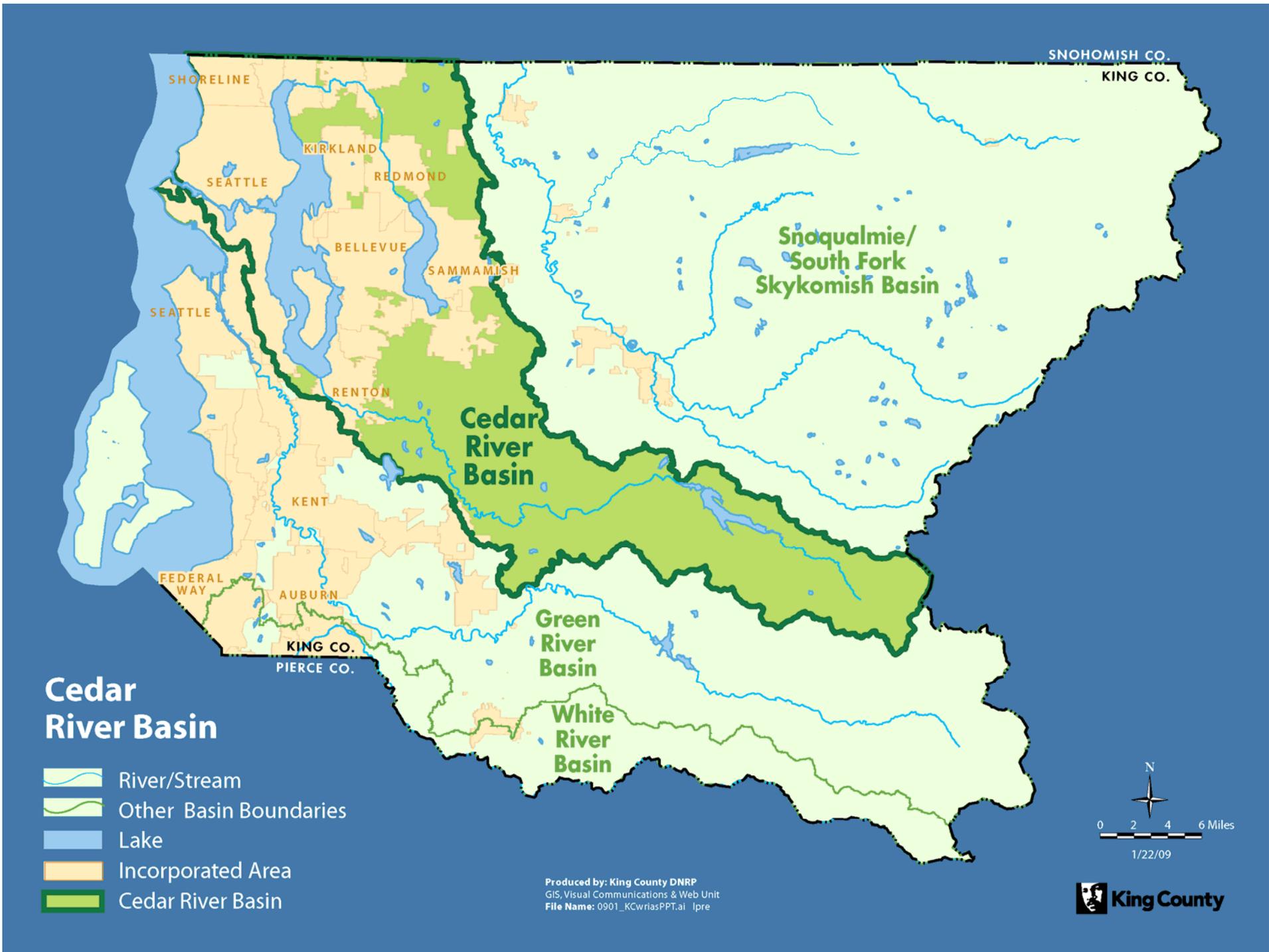


Vegetation Management

- Vegetation greater than 4" in diameter removed per Corps eligibility requirements for damage repair funding
- Mitigation sites necessary, to be determined
- Corps and NMFS discussions regarding ESA impacts



*Horseshoe Bend
Photos Courtesy
USACE*



SNOHOMISH CO.
KING CO.

SHORELINE
SEATTLE
KIRKLAND
REDMOND
BELLEVUE
SAMMAMISH
RENTON
KENT
FEDERAL WAY
AUBURN
KING CO.
PIERCE CO.

Snoqualmie/
South Fork
Skykomish Basin

Cedar
River
Basin

Green
River
Basin

White
River
Basin



Cedar River Basin – 2009

Construction

- Facility repairs
 - Cedar River Trail #1
– 215 lf
 - Cedar River Trail #3
– 100 lf
 - Petorak-Wadhams –
75 lf



Petorak-Wadhams Repair

Cedar River Trail Site 1

(Protects SR 169, regional fiber optic line, & Cedar River Trail – similar work at CRT # 3)



Before – January 09



After – August 09

Belmondo Emergency Repair



- Permanent repair scheduled for 2010
- Mitigation for emergency repair scheduled for 2010



Scour threatens trail, regional fiber optic line, and SR-169.



Snoqualmie Basin Structural Projects

- Tolt River Road Shoulder Protection
 - Constructed and in-ground setback revetment about 250' long; removed ~140' of rock along riverbank
 - Protects public roadway, buried water line, phone and power lines
 - Cost = \$150,000; project complete
- Bridge to Bridge Right Levee – Raging River
 - Repaired 40' of damaged levee to protect Preston-Fall City Road, water line, and fiber optic cable
 - Cost = \$40,000; project complete



Tolt River Road Shoulder Protection, RM 3



Bridge to Bridge Right Levee
Raging River near Fall City, RM 1

Lower Tolt Levee Setback (Near Mouth)



Lower Tolt Levee Setback (Near Mouth)

- Reconnects the river to approximately 40 acres of floodplain
- Total cost = ~\$6 million
 - FCD share = \$700K
 - Remainder funded by King County, City of Seattle, SRFB, ALEA, and KCD
- Phase II of the project largely completed in summer '09 – “ribbon cutting” to occur Spring 2010

Snoqualmie Basin Non-Structural Projects

- Completed this year:
 - Buyouts: Timberlane Village, Aldair, Nichols and Jelstrup
 - Elevations: 11 homes, 1 barn
 - Farm Pads: 11 pads
- In Progress:
 - Buyouts: Tolt 1.1 breach; SR 202 overtopping location
 - Shamrock Park Elevations and Buyout
 - Farm pads and technical assistance



Sub-Regional Opportunity Fund



Photo by Kristin Standford via West Seattle Blog

King County Flood Control District
Sub-Regional Opportunity Fund

2008-2009 Application Packet

- 2008/2009 Combined Allocation = \$6,835,299
- \$6.3M applied
- \$0.5M accrued
- To date, 6 cities have requested reimbursement

- Capital projects = \$5.9M
- Acquisitions and programmatic activities = \$0.4M

*2010 Projects included in Adopted
2010 budget*

Programmatic Floodplain Management Efforts

Efforts for Enhanced, Countywide Flood Warning and Preparation

- Implemented new automated call-out system
 - Provides flood warning notifications via voice mail, e-mail, text message
 - > 2,000 subscribers so far
- Partnering with cities for sandbag distribution
 - FCD is providing materials or cash equivalent
 - Supports cities' efforts and makes supplies available to unincorporated residents
 - Signed agreements in place with Auburn, Carnation, Duvall, Kent, North Bend, Pacific
 - Six additional agreements in development

King County
FLOOD
ALERT





King County
Always at your service

Flooding

Services and Resources for King County, Washington

You're in: Flooding Services » Flood Warning System » Green River Flooding Information

Green River Flooding Information

USGS gage data, map, and alert phases, and recent high flows

- » [2009-2010 Green River Valley preparation information](#)
- » [River Conditions for Mobile Devices](#)

USGS Gage Name	Time, Date	Stage (feet)	Flow (c.f.s.)	Flow Change (c.f.s./hr)
Green River near Palmer (external link)	7:00 AM, 11/2/2009	7.73	1570	0
Green River near Auburn (external link)	6:45 AM, 11/2/2009	55.60	1790	-10

Notes:

This data was requested from USGS at 11/2/2009 7:42:38 AM.

The next request for USGS data is expected in approximately 6 minutes from when this page was loaded.

King County provides funding to the United States Geological Survey (USGS) to support the operation and maintenance of river and stream gages and related systems. The term "gage" is defined as an instrument for measuring or testing. USGS uses the term "streamgage" to describe their equipment that obtains estimates of the amount of water flowing in streams and rivers. More information [about USGS streamgages](#)

Flood Phase Information			
Phase	Green River gage at Auburn (measured or expected flow) *	Description	Condition
1	5,000 c.f.s.	Internal Alert	
2	7,000 c.f.s.	Minor Flooding	Lowland flooding in valley upstream of Auburn.
3	9,000 c.f.s.	Moderate Flooding	Flooding of varied depths occurs in valley upstream of Auburn and lower Mill Creek basin. SE Green Valley Rd and West Valley Rd may overtop.
4	12,000 c.f.s.	Extreme Flooding	Levees may exhibit seepage and/or weaken from saturation.

* Phase is determined by current Auburn gage reading or the expected flow based on Howard Hanson dam operations information from the U.S. Army Corps of Engineers.





King County
Always at your service

Flooding

Services and Resources for King County, Washington

You're in: Flooding Services » Flood Warning System » Flood Alerts

- Flooding services
- Flood warning system
- Flood Alerts**
- Log in
- Sign-up form
- Terms of Service
- Help / Q & A
- Rivers map
- How to prepare for a flood
- Phone Numbers
- Rain Gages

Sign up to receive Flood Alerts!

King County is offering free Flood Alerts to help keep you informed of flood conditions.

- Get Alerts by e-mail and/or phone (voice or text messages)
- Select the rivers that affect you
- Select the flood phase levels of interest to you.



Special note: [Make sure you get alerted in an emergency!](#)

Register...	...or Sign In
<p>for a free account to begin receiving alerts</p> <p>Sign me up</p> <p>Read the Terms of Service</p>	<p>if you already have an account to update your alerting preferences</p> <p>e-mail: <input type="text"/></p> <p>password: <input type="password"/></p> <p><input type="button" value="login"/></p> <p>forgot your password?</p>

<http://green.kingcounty.gov/FloodAlertSystem/>

Leveraged Funding and Grants

- Corps' Partnerships
 - \$4M for Horseshoe Bend, over \$3M for levee raising materials
- Conservation Futures: \$260K for White River project
- FEMA flood studies: \$270K for Coastal Hazard Study
- FEMA flood mitigation: Two grants awarded and underway; five grants pending

Grant Cost Share by Agency and Status

	Awarded in '09; Work in Progress	Awarded in '09; Contract Pending	Submitted in '09; Not Yet Awarded	Funding Totals
FEMA	\$1,791,909	\$1,530,281	\$2,242,856	\$5,565,046
State	\$298,651	\$205,513	\$373,809	\$877,973
FCD	\$298,651	\$304,579	\$373,809	\$977,039 ((\$400K from homeowners))
Totals	\$2,389,211	\$2,040,373	\$2,990,474	\$7,420,058

KCFCD Planning Activities

- Flood District Hazard Mitigation Plan
 - Will allow the FCD to submit grant applications to FEMA
 - Required under the federal Disaster Mitigation Act of 2000 to receive FEMA grant funds
 - Will assess flood, channel migration, and seismic risks to District facilities
 - Identifies vulnerabilities and actions to reduce them
 - 2006 Flood Plan serves as foundation

Technical Studies

■ **Sammamish River Flood Study**

- Completed data collection and draft H&H analyses
- Early 2010 – Draft flood boundary maps provided to cities

■ **Coastal Flood Hazard Analysis**

- Phase I – Vashon-Maury draft maps expected in summer 2010
- Phase II - \$270K grant from FEMA extends work to incorporated shorelines; to commence in Jan. 2010

■ **Sediment Monitoring**

- Collected channel data for Tolt, Raging, SF Snoqualmie, lower mainstem Snoqualmie, and White Rivers
- Provided White R. data to USGS and Corps to support their sediment and channel investigations

Public Outreach

Green River Flooding **ARE YOU READY?**

Prepare now for a higher risk of flooding



PREPARE NOW

1. Make an emergency plan for your family, pets or livestock.
2. Assemble an emergency kit.
3. Buy flood insurance now – it takes 30 days to take effect. www.floodsmart.gov
4. Get a radio and keep fresh batteries.



IN THE EVENT OF A FLOOD

1. Monitor area news.
2. Move vehicles and equipment to higher ground.
3. Do not walk or drive through standing water or closed roads.
4. Listen for alerts about evacuation notices and routes. Heed evacuation instructions.
5. Bring medications and supplies with you.
6. Relocate animals and livestock, if needed.



www.kingcounty.gov/floodplans

FLOOD WARNING INFORMATION for Major Rivers in King County 2009-2010



SEE INSIDE FOR INFORMATION ABOUT:

- FLOOD PREPAREDNESS
- EMERGENCY OPERATIONS
- POST-FLOOD RECOVERY

VISIT OUR WEB SITE FOR MORE INFORMATION:

- Real-Time River Gage Readings
- Flood Watches, Warnings and Statements
- Flood Hazard Maps
- King County Flood Alerts
- Howard Hanson Dam Status

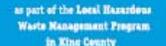
www.kingcounty.gov/flood



Flood Response Information

What you can do to reduce risk to
your family and property

October 2009





KING COUNTY
FLOOD CONTROL
DISTRICT



King County



Questions?



2010 Budget Adjustments

2010 Budget Overview

- Flood District Audit Findings
- 2010 Budget Adopted November 16, 2009
 - Advisory Committee Recommendations
 - Board reallocated \$300,000 from Upper Snoqualmie Residential Flood Mitigation project to Lower Snoqualmie Flood Mitigation project to fund elevation of homes and farm structures
 - Green River \$8.4M reallocation – impacts for 2010 need to be determined via BTCs, Advisory Committee, and Board of Supervisors

Guidance for Reallocating Funds

Funds Available:

- Fund balance for completed projects
- Existing 2010 Fund Balance (\$3.557M)
- Adopted projects that will not be moving forward in 2010 due to implementation constraints
 - Partnerships and Coordination
 - Land Owner Willingness
 - Grants and Leveraging

Funds Not Available:

- Flood Risk Score > 75%
- Significant investment to date
- Partnership or leveraging in place
- Contractual obligations

Next Steps

- Establish clear, accountable, and transparent baseline for reallocation
 - Final expenditures for construction season
 - Post-construction season budget clean-up
 - Consistent budget authority between FCD and County
- BTC meetings in January to review options
- Advisory Committee in February for 2010 adjustments
- Feb-April for 2011 recommendations