



KING COUNTY  
FLOOD CONTROL  
DISTRICT



**King County**

# Advisory Committee Meeting

May 6, 2009

*Protecting public safety, the regional economy and critical infrastructure.*

# Presentation Overview

- District Goals and Policies
- Capital Project Evaluation Approach
- Basin-Specific Strategies for Capital Project Implementation
- Preliminary 2010 Work Program

# District Comprehensive Plan

## ■ Goals

- To reduce the risks from flood and channel migration hazards.
- To avoid or minimize the environmental impacts of flood hazard management.
- To reduce the long-term costs of flood hazard management

## ■ Policies

- Effectively meet site- and reach-specific flood risk reduction needs
- Achieve benefits that exceed the total cost of projects or programs, including long-term maintenance costs;
- Avoid the creation of new flood, channel migration or other risks that cannot be mitigated
- Protect productive agricultural soils
- Protect and, where possible, enhance aquatic and riparian habitat in a manner consistent with adopted salmon habitat recovery plans, and
- Leverage flood hazard management revenues through partnerships with other agencies and stakeholders.

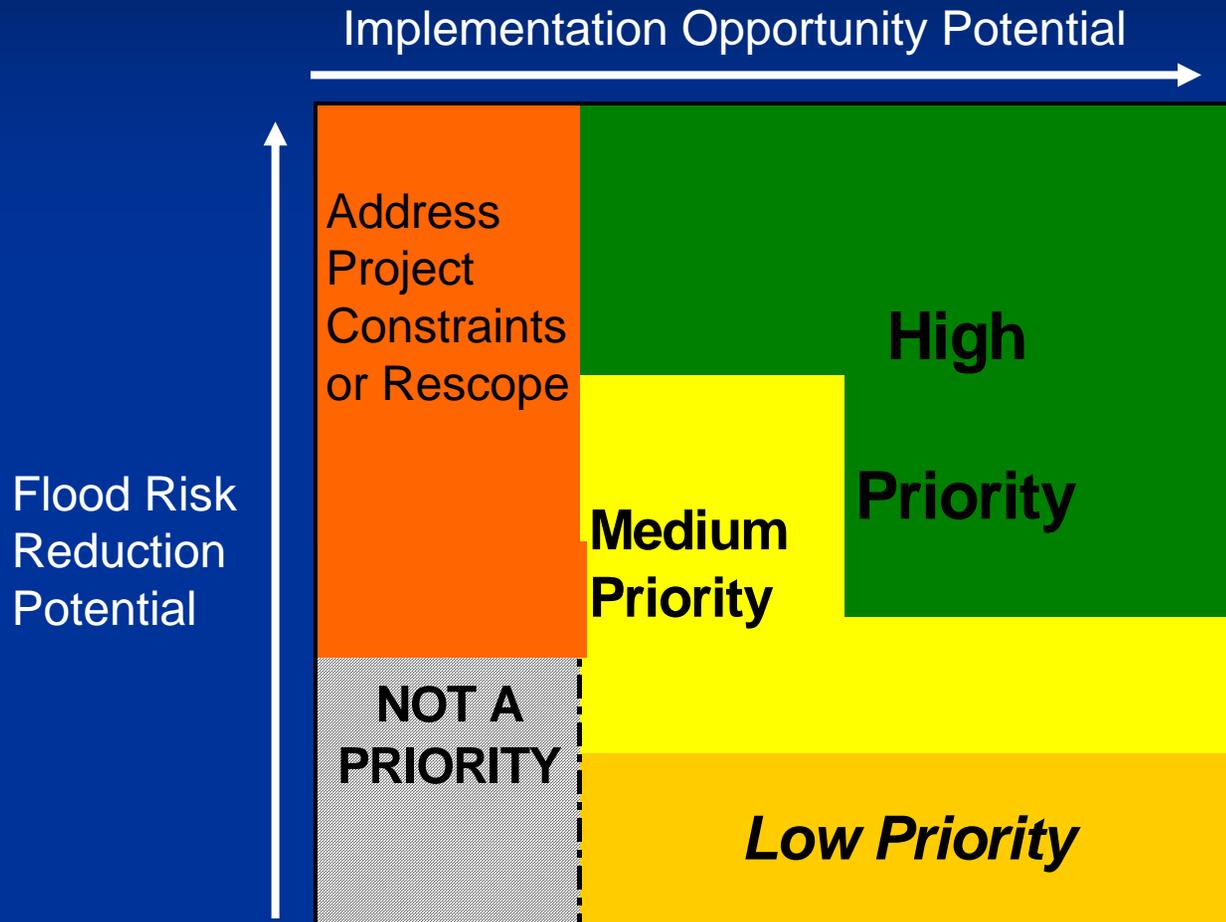
# Flood Risk Reduction Potential

- Consequences: What would happen if no action were taken?
  - Types of land use impacted; Regional Economic Benefit
- Severity: How serious is the impact?
  - Human injury or death *vs* little or no damage
- Extent of Impact: What is the scale of the problem?
  - Impacts beyond the area of flooding *vs*. localized
- Urgency: How soon will the impacts occur?
  - Next high flow event *vs*. Risks are not rapidly increasing

# Implementation Potential

- Project Readiness
- Partnerships / Leverages Funds
- Supports multiple objectives
- Long-Term Maintenance Costs
- Programmatic Activities
  - Community Rating System
  - Meet or exceed NFIP
  - Active CIP program
  - Active O&M program

# Evaluation Criteria: Project Evaluation Approach



NOTE: This is a conceptual diagram and is not intended to imply clear and distinct thresholds between these categories.

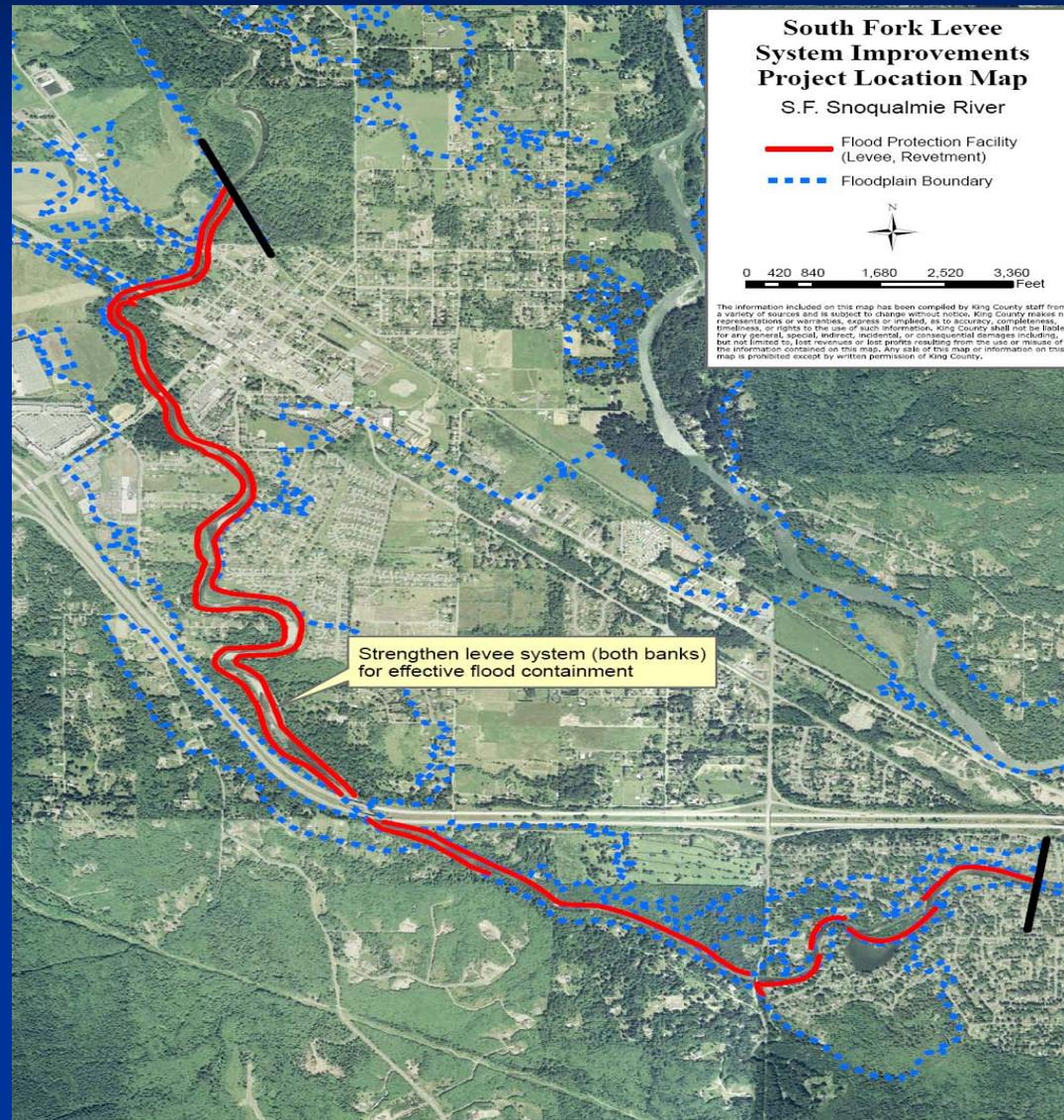
# 2010 Capital Overview

- Continue to focus on sustainable, long-term solutions
- Respond to new information
  - Updated Flood Hazard Maps – Green and White
  - Howard Hanson Dam situation
- Address critical repairs from 2009 flood
  - High priority projects
  - Prevent bigger (and more expensive) problems
  - 6.7% of 2009 and 2010 expenditures on repairs
- Retain projects identified on 2009-2014 CIP

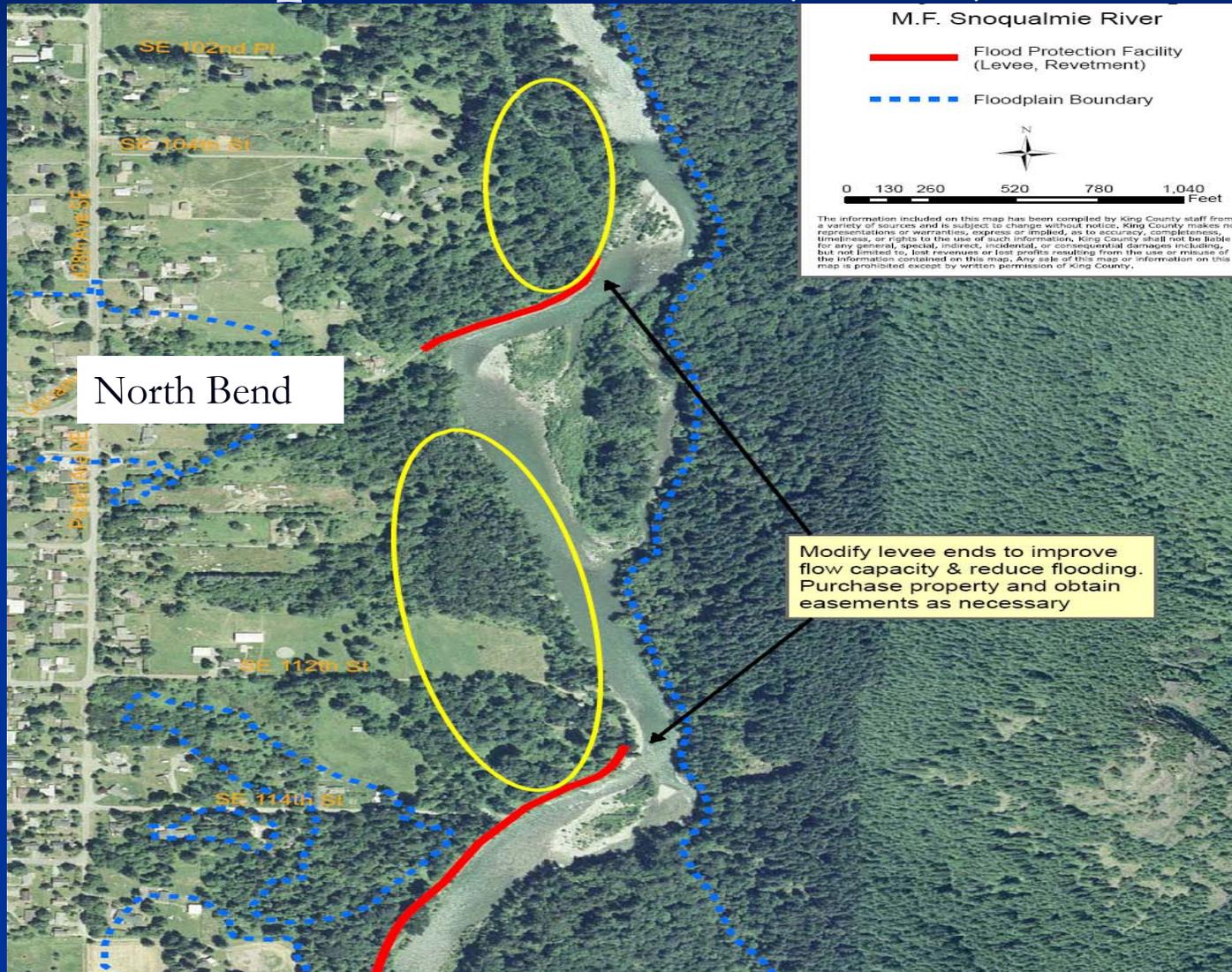
# Snoqualmie and SF Skykomish Strategy

- Strengthen and rehabilitate flood containment facilities
- Buyout or elevate at-risk structures

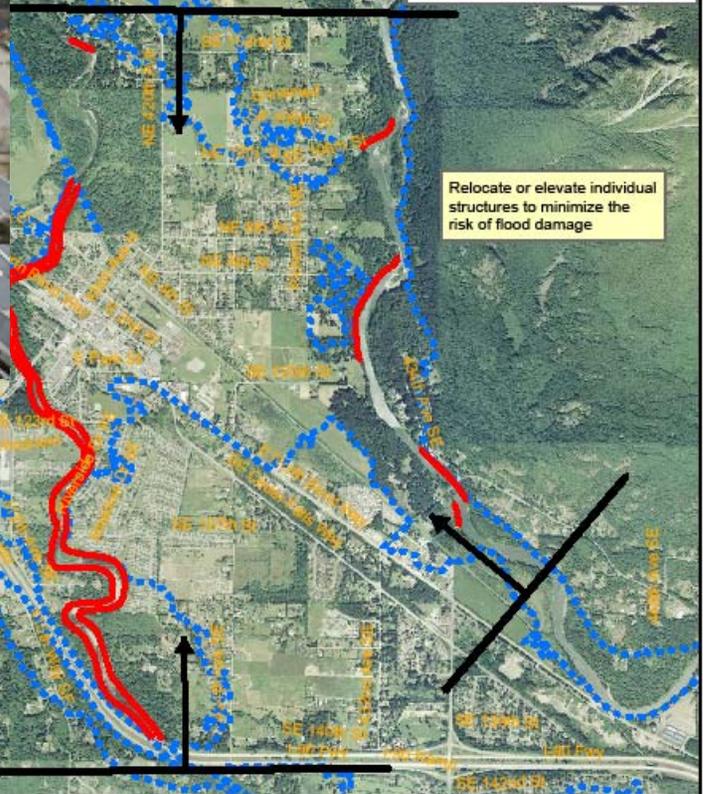
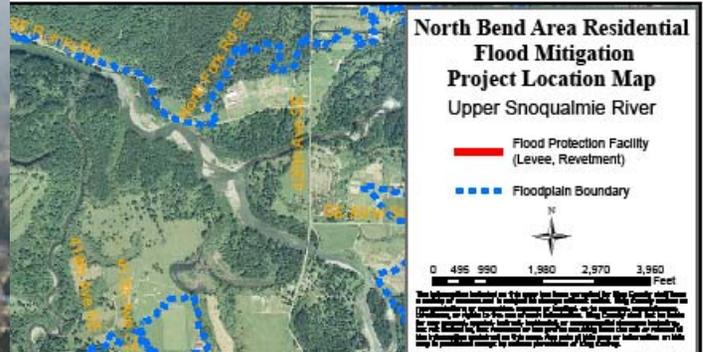
# South Fork Snoqualmie Levee Improvements & North Bend Residential Mitigation (2008)



# Snoqualmie: Middle Fork Capacity Improvements (2009)



# Upper Basin Residential Flood Mitigation



Combine North Bend 205 and City of Snoqualmie Residential Flood Mitigation projects, funds allocated over the 6-yr CIP





# Green River Strategy

- Rehabilitate levees to protect critical public infrastructure and regional distribution centers
- Implementation Constraints: Right-of-way issues during 2009 may influence implementation ability
- 2010 Work Program:
  - Briscoe 1-3, 5-8; Desimone 1-4, Segale 2-4, Reddington, South Park
  - Setback of 18,000 linear feet of levees using Briscoe design
  - Phased implementation
  - South Park, Reddington/Riverside

# Green River Levee Rehabilitation

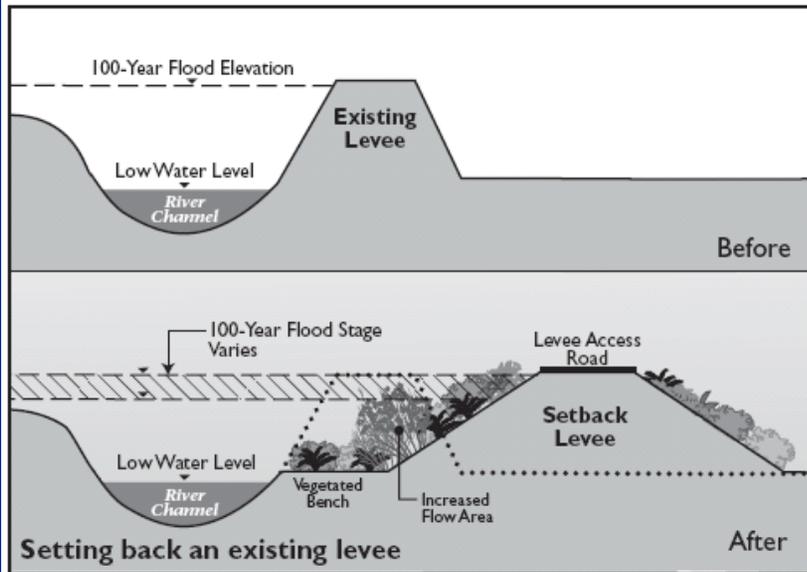
## Reasons for Current Approaches

- Better flood protection
- River is dynamic
- Permitting requirements
- Environmental benefits
- Cost effective



## LEVEE SETBACK PROJECTS

2006 KING COUNTY FLOOD HAZARD MANAGEMENT PLAN

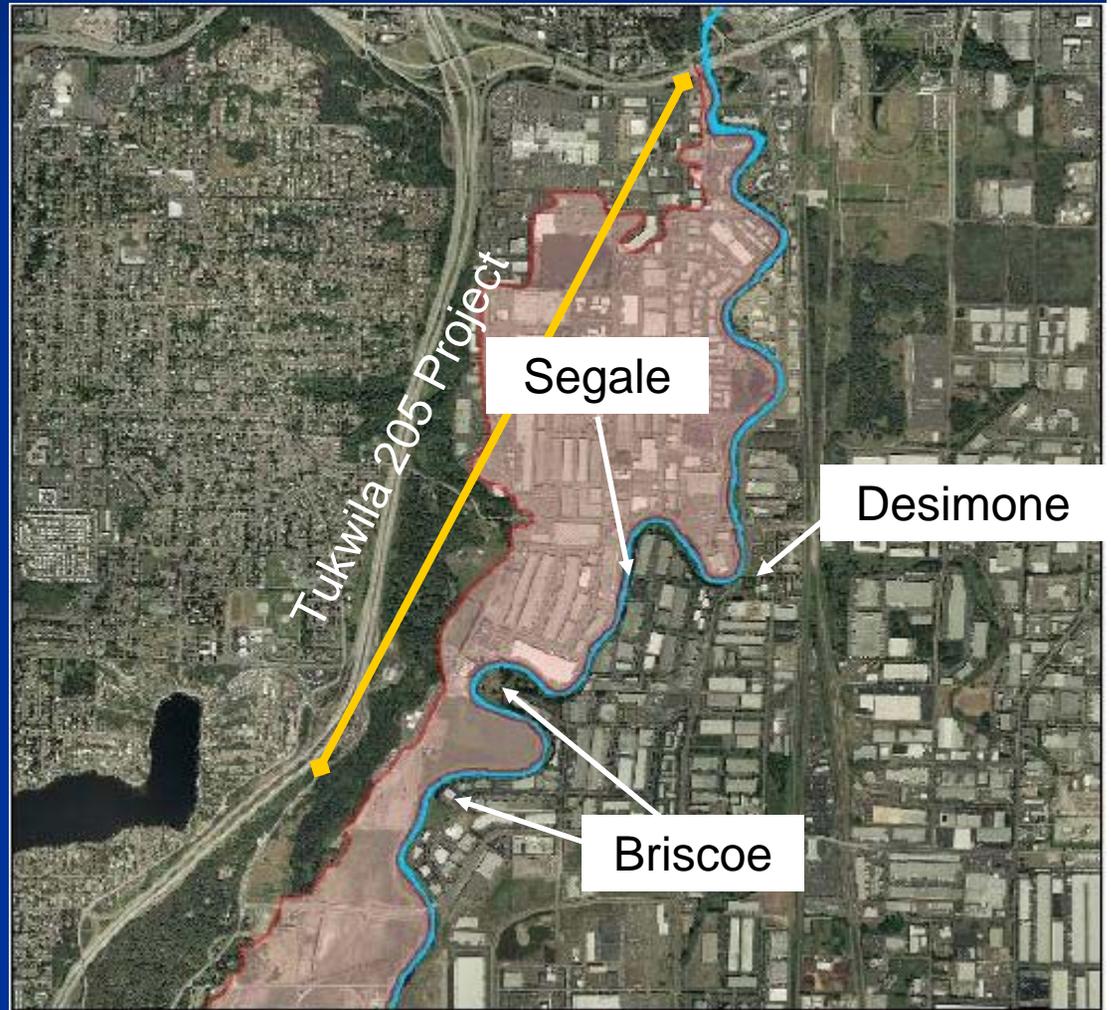
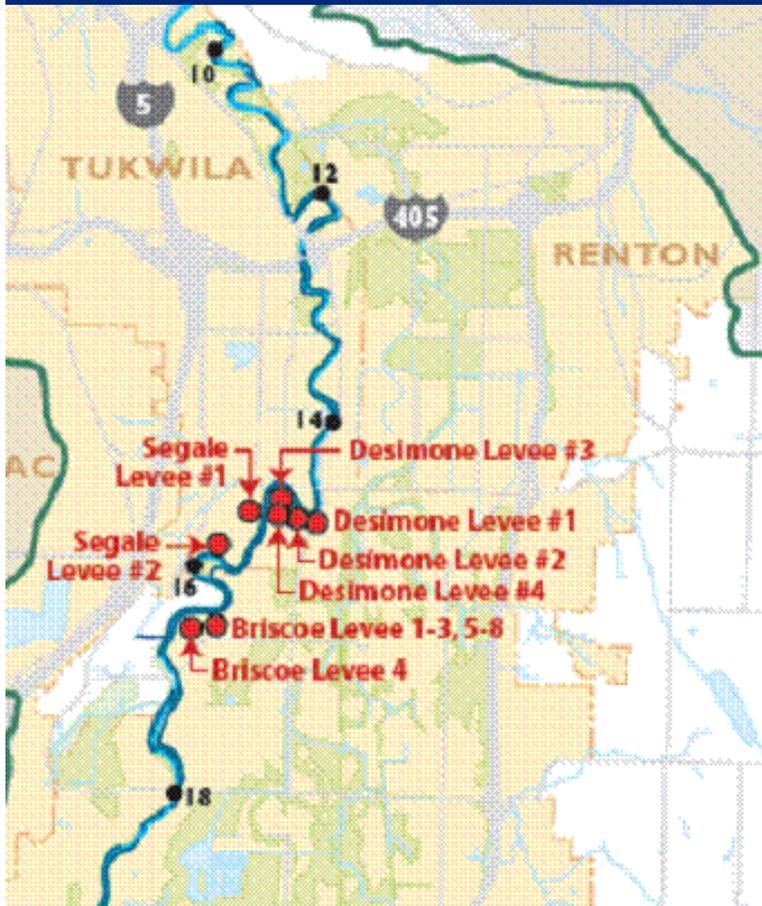


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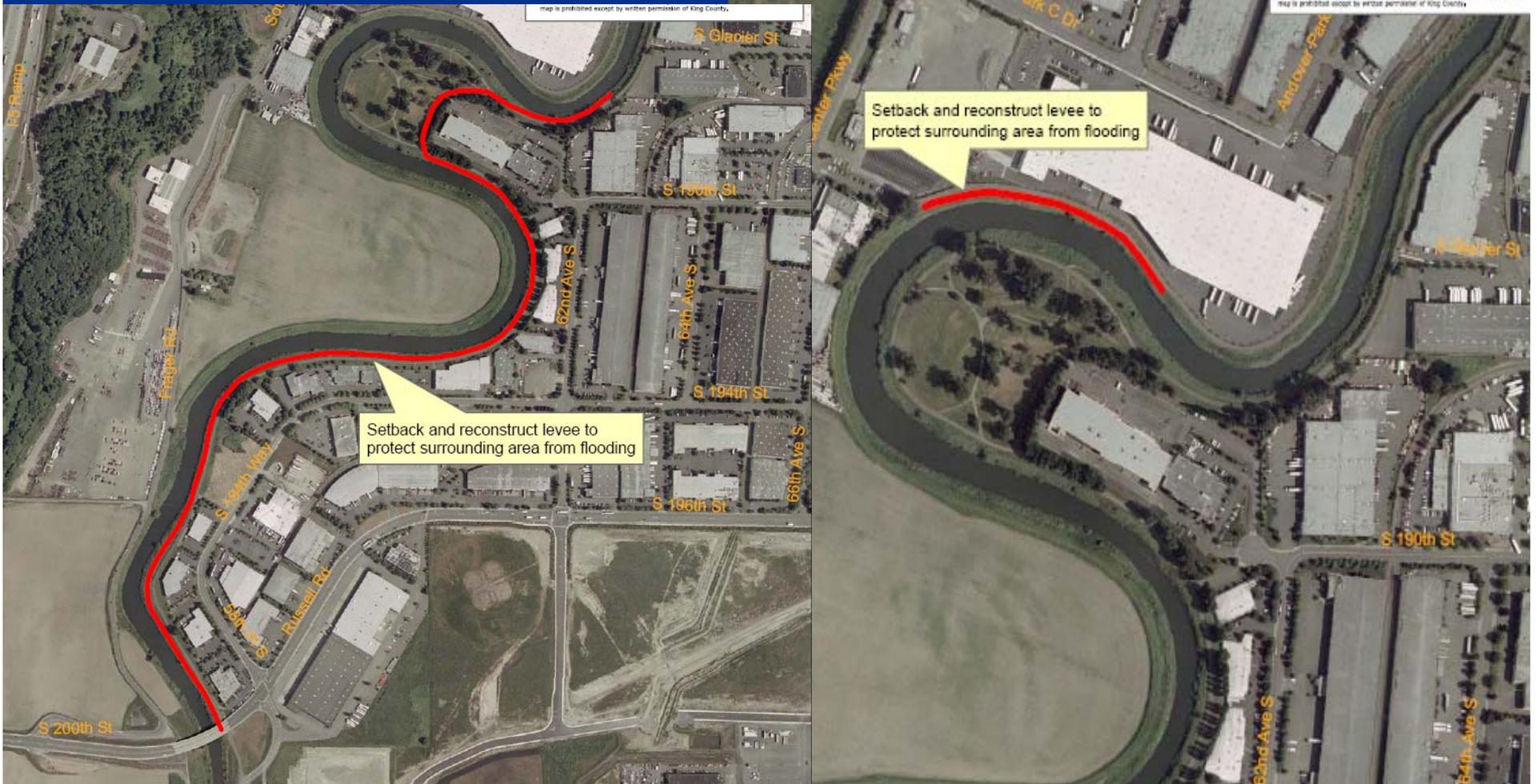


Bio-engineered levee setback - Lower Green River

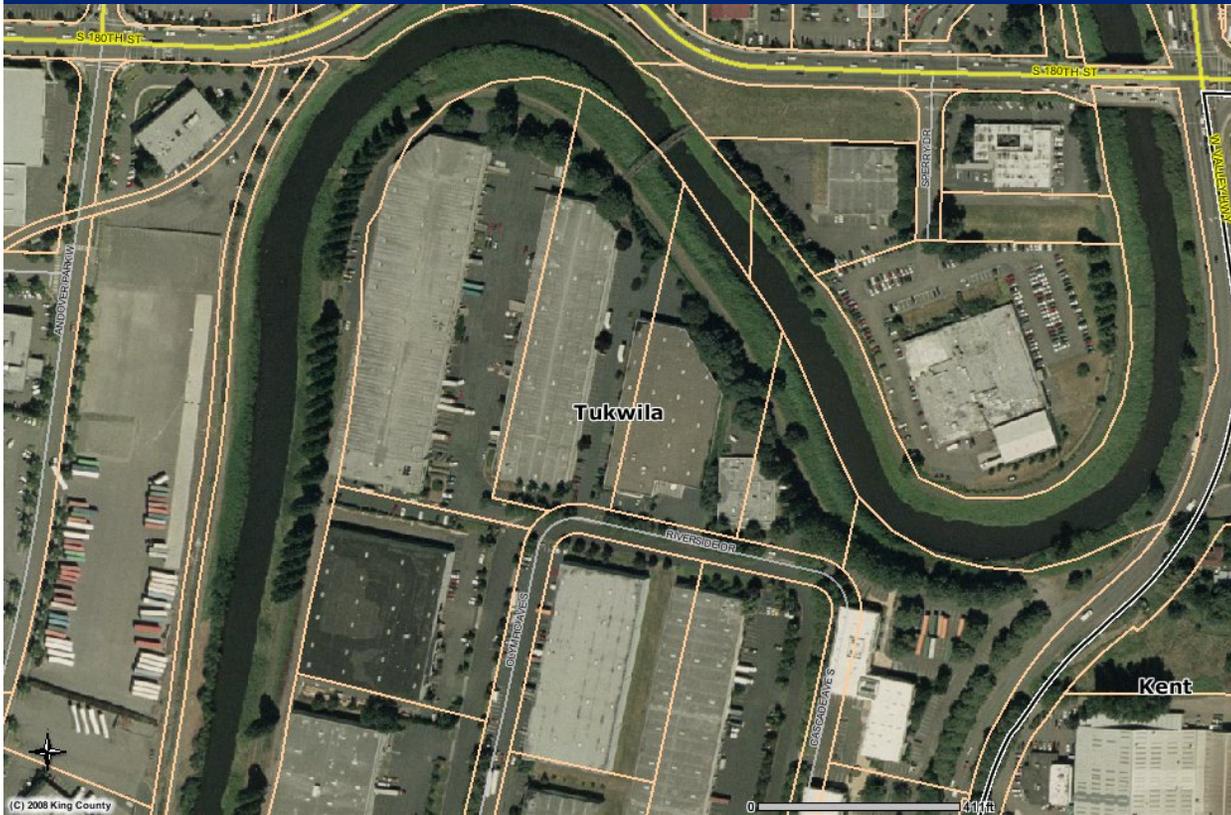
# Lower Green River: 2009 Proposed Projects



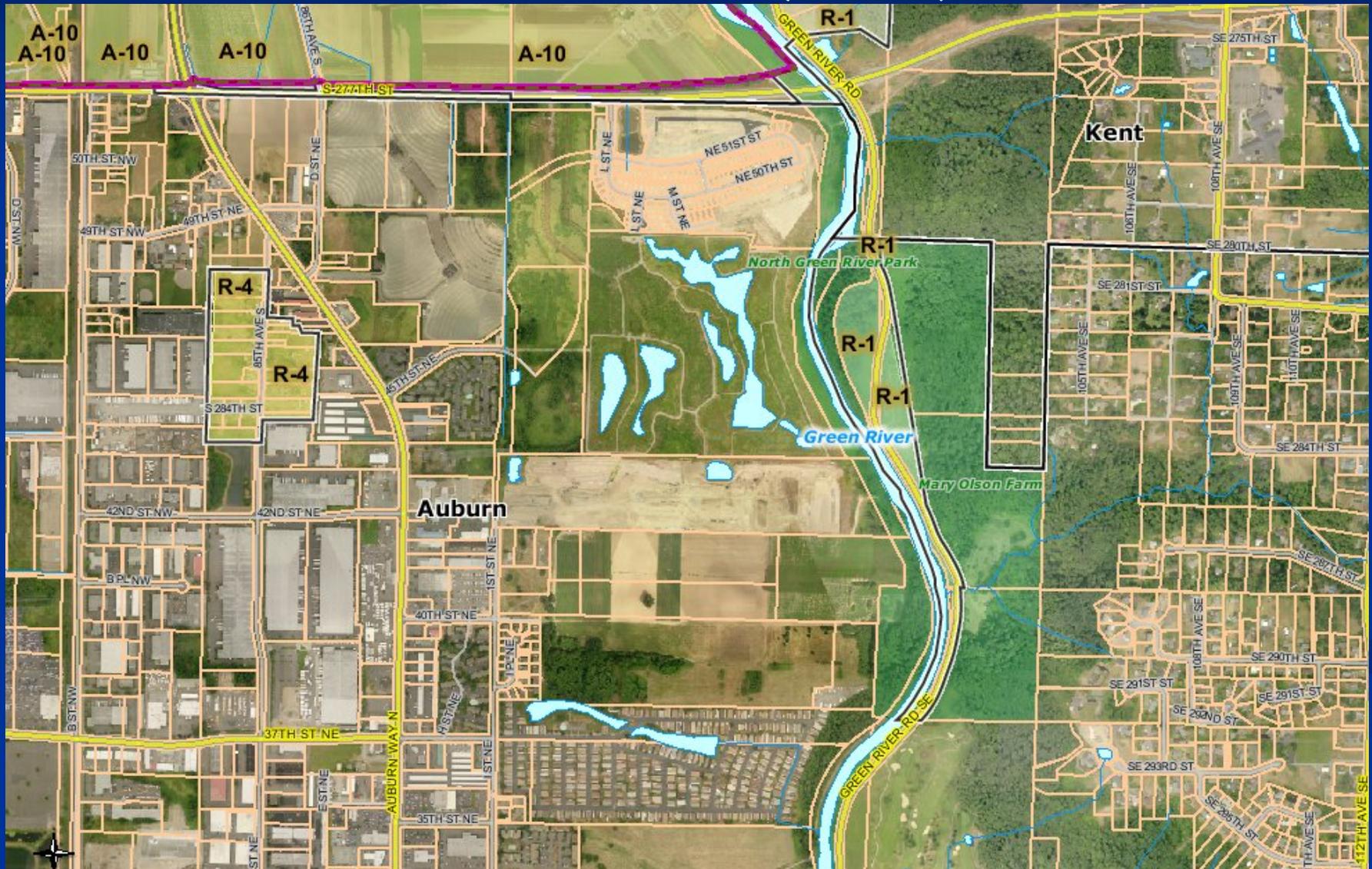
# Briscoe 1-3, 5-8 Segale 2 & 3



# Desimone 1-4

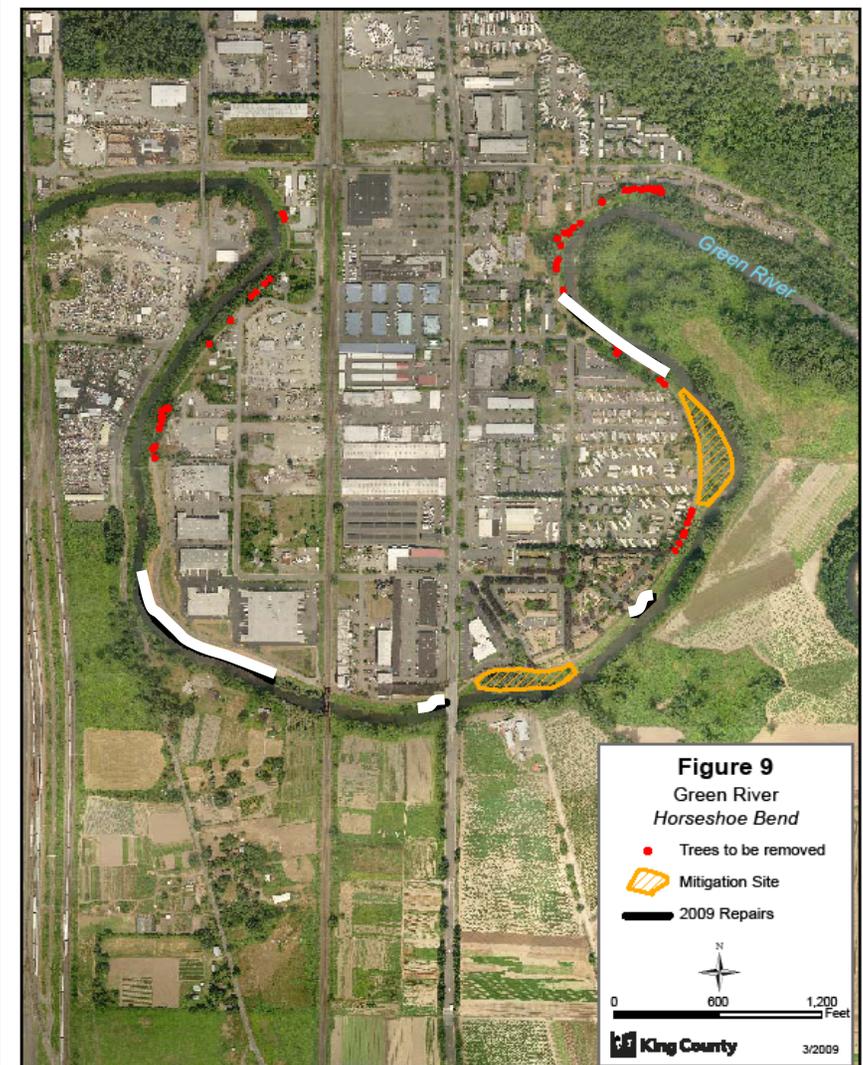


# Reddington (2009) and Reddington Extension (2010)



# Horseshoe Bend 205

- 2009 Repairs with Corps
- 2010-2011 \$10M in state funds to support levee rehabilitation
- 2010 Incorporate FCD Nursing Home Project into broader Horseshoe Bend reach
- 2012-2015 FCD funds to support long-term rehabilitation



# Corps Partnership Projects

- Flood Repairs
  - Tukwila 205 and Horseshoe Bend 205 Repairs
- Ecosystem Restoration Program
  - Upper Russell Road Construction 2010-2012
  - Russell Road Lower Design 2010, construct 2011
  - Russell Road Lowest Design 2012, construct 2013
  - Boeing Levee 2013 (setback is already complete)
- Pursue Cooperative Projects at Auburn “Low Spot”
  - Reddington, Reddington Ext, Brannan Park, Lones Addition

# What are we doing in response to the Howard Hanson Dam Emergency?



## Build on Completed Work

- 600 Feet – Briscoe #4 in 2007
- 9,300 linear feet at 6 sites in 2008

## Implement 2009 Construction

- 2,200 linear feet at Horseshoe Bend
- 800 linear feet at the Tukwila 205
- Critical repairs at 3 other sites to protect critical public infrastructure and commercial and industrial land uses
- Pursuing Corps partnerships to address the low spots near Auburn

## Preparing for 2010 Levee Setbacks

- Acquire sufficient right of way to set back the levee during 2010
- 18,000 linear feet of construction at 14 sites
- Corps ERP partnership – Upper Russell

# Cedar-Sammamish Strategy

- Reduce flood velocities and volumes that threaten critical public infrastructure, residential dwellings, and block sole-access roads
- Reduce public safety risks associated with neighborhood-scale flooding and channel migration
- 2010 Work Program
  - Work with landowners to acquire property necessary for levee setbacks in subsequent years
  - Evaluate options for large scale neighborhood flood and channel migration risks

# Cedar Grove Mobile Home Park



January 2009

- 17 Relocations have closed; 1 in closing
- 13 Looking for replacement housing
- Several units are vacant
- Several remain in negotiation

# Rainbow Bend Levee Removal (2008)



# Elliott Bridge Acquisition and Levee Setback (2008)



January 2009

# Byers Bend an Dorre Don and Maplewood Neighborhood Flood Studies



Originally 2009 –  
delayed due to  
damage repairs,  
begin in 2010

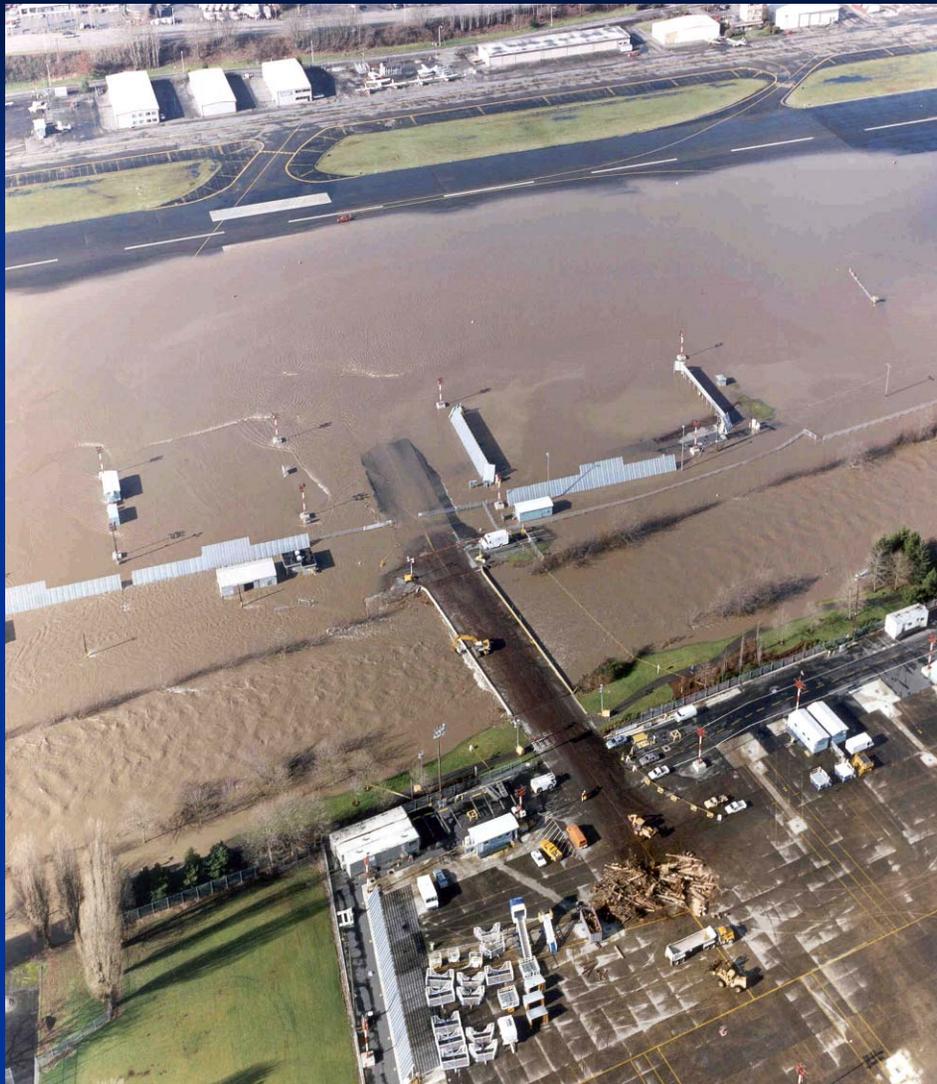




# Addressing Constraints: Landowner Willingness

- Implementation of flood buyouts and levee setbacks limited by landowner willingness
- Landowner interest is not driven by CIP list
- Multiple parcels....and multiple owners
- Proposed Solution:
  - Pre-Construction Strategic Acquisition Project
  - Disaggregate a portion of acquisition funds from capital projects
  - Act on opportunities as they become available throughout the District
  - Specific parcels at specific projects
  - Leverage District funds through grants

# Proposed 2010 Corps 205 Project



February 1996

Flood peak 7520 cfs in Renton



January 2009

Flood peak 9470 cfs in Renton

# White River Strategy

- Reduce risks to public safety by setting back levees to increase flood storage and conveyance capacity
- Buyout residential structures at risk of flooding and rapid channel migration

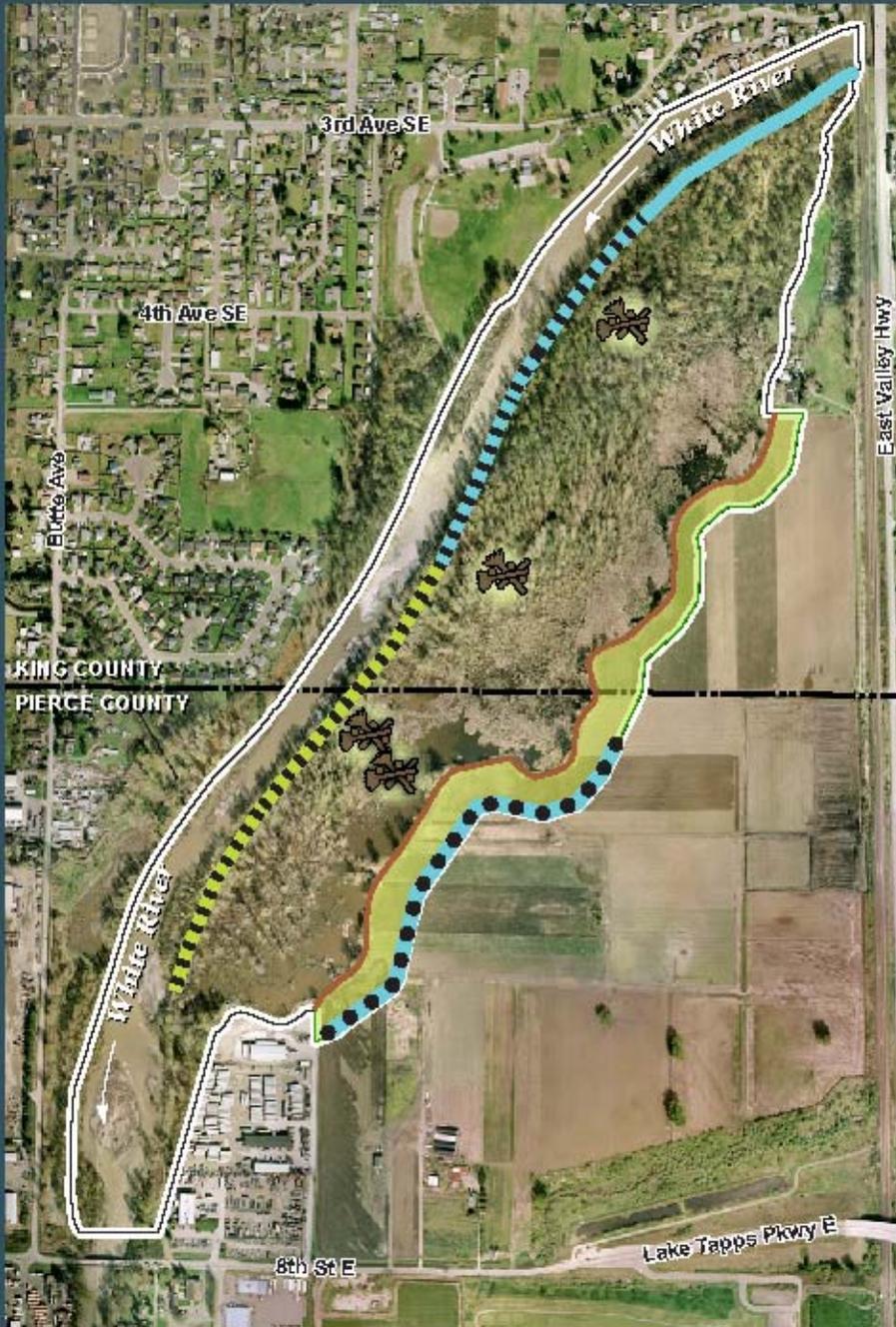
# Countyline Project Construction

## Phase I

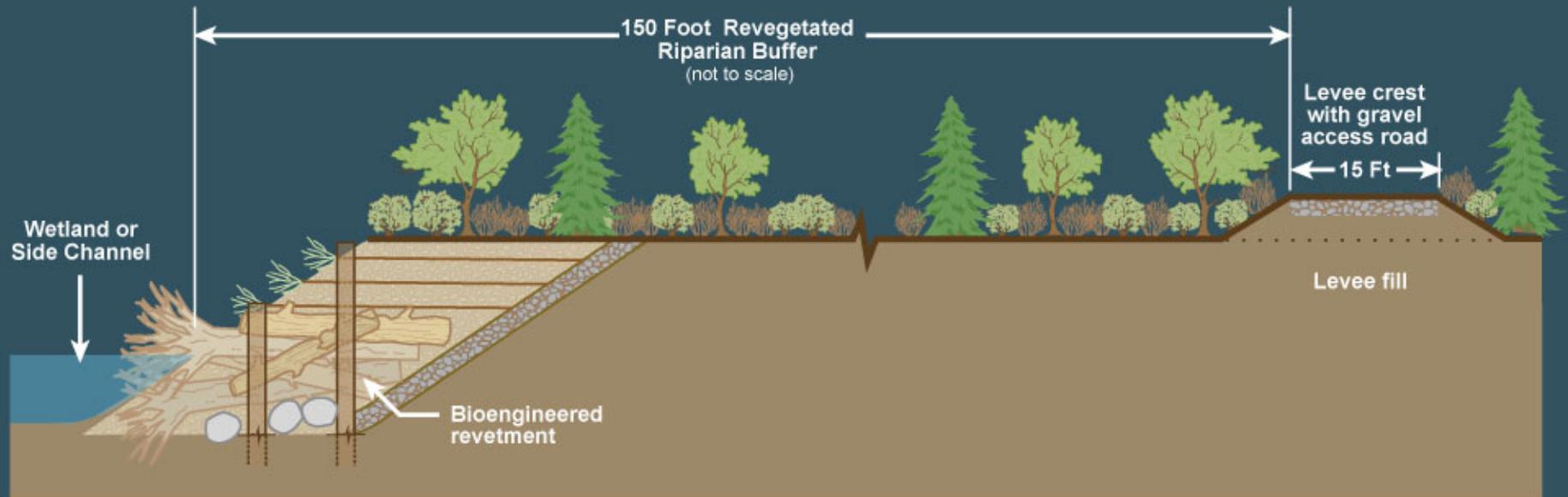
-  Project area
-  Setback levee
-  Bioretment and riparian buffer
-  Engineered log structures

## Phase II

-  Levee and revetment removal



# Constructed Setback Levee Profile View



# Flood Storage and Refuge

- Increase Flood Storage and Conveyance
- Provide off-channel flood refuge among log jams and live trees
  - Reconnect 85 acres of floodplain storage area
  - Slower velocities for juvenile fish to remain in river for adequate growth



-  Project area
-  Riparian buffer restoration
-  Available flood refuge
-  Engineered log structures



# City of Pacific Right Bank Levee Setback and Berm



# Summary of 2010 New Projects

1. Cedar River Gravel Removal
2. Cedar Pre-Construction Acquisitions
3. Dorre Don /Byers Bend Phase 1 Study
4. Rhode Levee Setback
5. Herzman Repair
6. Reddington Extension
7. Russell Road Upper
8. Russell Road Lower
9. Farm/Flood Task Force
10. Tolt Pipeline
11. Shiessel-Phiffer Repair
12. McElhoe-Pearson Setback
13. Aldair Levee Repair
14. Preston-Fall City Upper
15. Preston-Fall City Lower
16. Miller Home Buyout
17. Lower Tolt Acquisition
18. Circle River Ranch Repair

# 2010 Operating Program

- Flood Preparedness, Regional Flood Warning Center, and Post Flood Recovery
- Flood Hazard Assessments, Mapping, and Technical Studies
- Planning, Grants, Mitigation, and Public Outreach
- Resource Management, Annual Maintenance, and Facility Monitoring

# Proposed Green River Communication Improvements

1. Open Flood Warning Center earlier in response to major storm forecasts
2. Flow thresholds based on dam releases rather than observed flows at Auburn. Result is that thresholds are reached 7 hours earlier
3. Reduce Phase 4 threshold to 10,000 cfs
4. Increased Flood Patrols (King County, Corps, and City staff)
5. Automated callouts for next flood season (countywide)
  - Subscription list underway; outreach to floodplain residents once system is established
6. Incident Management Plan with Green River Valley cities for next flood season

# Operating Changes from 2009

- \$80,000 for sand and sandbags
- \$250,000 for implementation of FEMA coastal hazard mapping grant
- \$50,000 for White River flood study review
- \$50,000 for White River sediment investigation
- \$55,000 increase for USGS gage installation and cost-share
- \$70,000 increase for WCC/EarthCorps for river facility maintenance, native plantings + watering
- \$17,000 increase for utilities at Black River Pump Station
- \$203,000 increase in salaries for no projected vacancies in 2010
  
- Total Increase: @ \$800,000 or @7%
- Total Proposed Operating Budget: \$6,680,000