



Advisory Committee Meeting

April 29, 2010

Protecting public safety, the regional economy and critical infrastructure.

Levee Vegetation Policy Cost Analysis

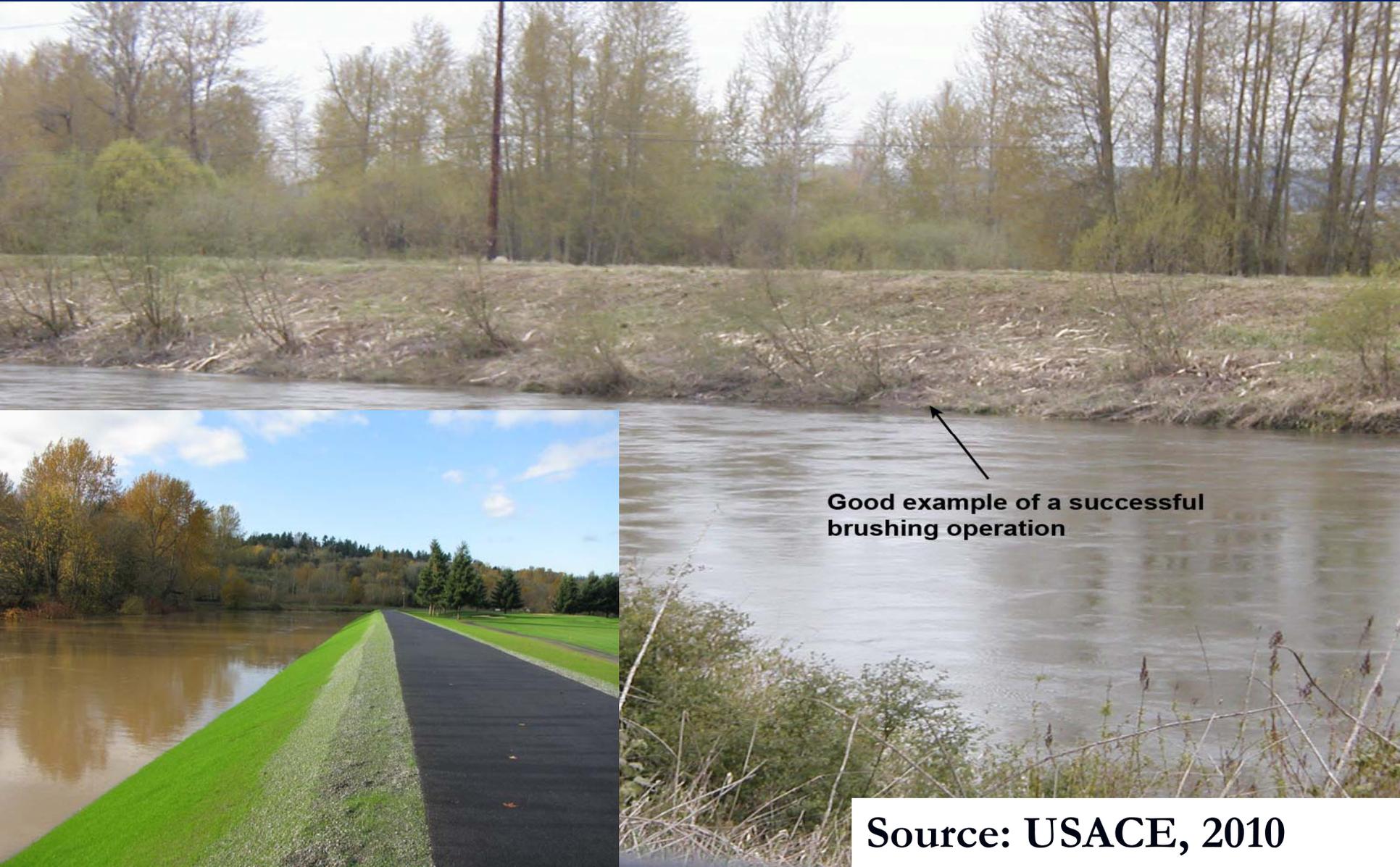
Levee Vegetation Management Cost Analysis

	Trees Removed (Estimates unless noted otherwise)	Costs (Estimates unless noted otherwise)
2008-9 Tree Removal	512 (74 trees/mile)	\$5.2 million (Actual) (includes land acquisition on Green River)
Potential Impacts of Regional Variance	8,700 – 19,000 (238 – 544 trees/mile)	\$61,000,000 - \$133,000,000 (\$1.3-\$2.9 million/mile)
Potential Impacts of National Standard	13,600 – 35,300 (354-660 trees/mile)	\$95,000,000 - \$174,000,000 (\$2-3.8 million/mile)
Estimates from State of California – National Standard	Not Provided	\$6,500,000,000 - \$7,500,000,000 (\$4-\$4.7 million/mile)

2008-9 PL 84-99 Project Cost Analysis

- During 2008-9 the USACE provided \$25,000,000 and King County provided \$10,470,000, or 29% of the total cost of \$35,531,000.
- Local cost-share is 20% of construction on non-federal levees, 0% of construction for federal levees
- Local cost-share ranged from 19%-77%
- USACE projects cost King County **\$1** for a project that costs the USACE **\$3.50** and could have been completed by King County for an estimated cost of **\$2**.
- While there was a net savings to King County during 2008-9, there was also a likely higher total cost to the taxpayer.
- Local cost-share highest for projects under \$1 million vs. over \$1 million (62% vs. 29%)

Example: PL 84-99 Eligible Levee



Good example of a successful brushing operation

Source: USACE, 2010

Example of Biostabilized Levee (Narita Levee, Green River)



Nov 2003



Sept 2007

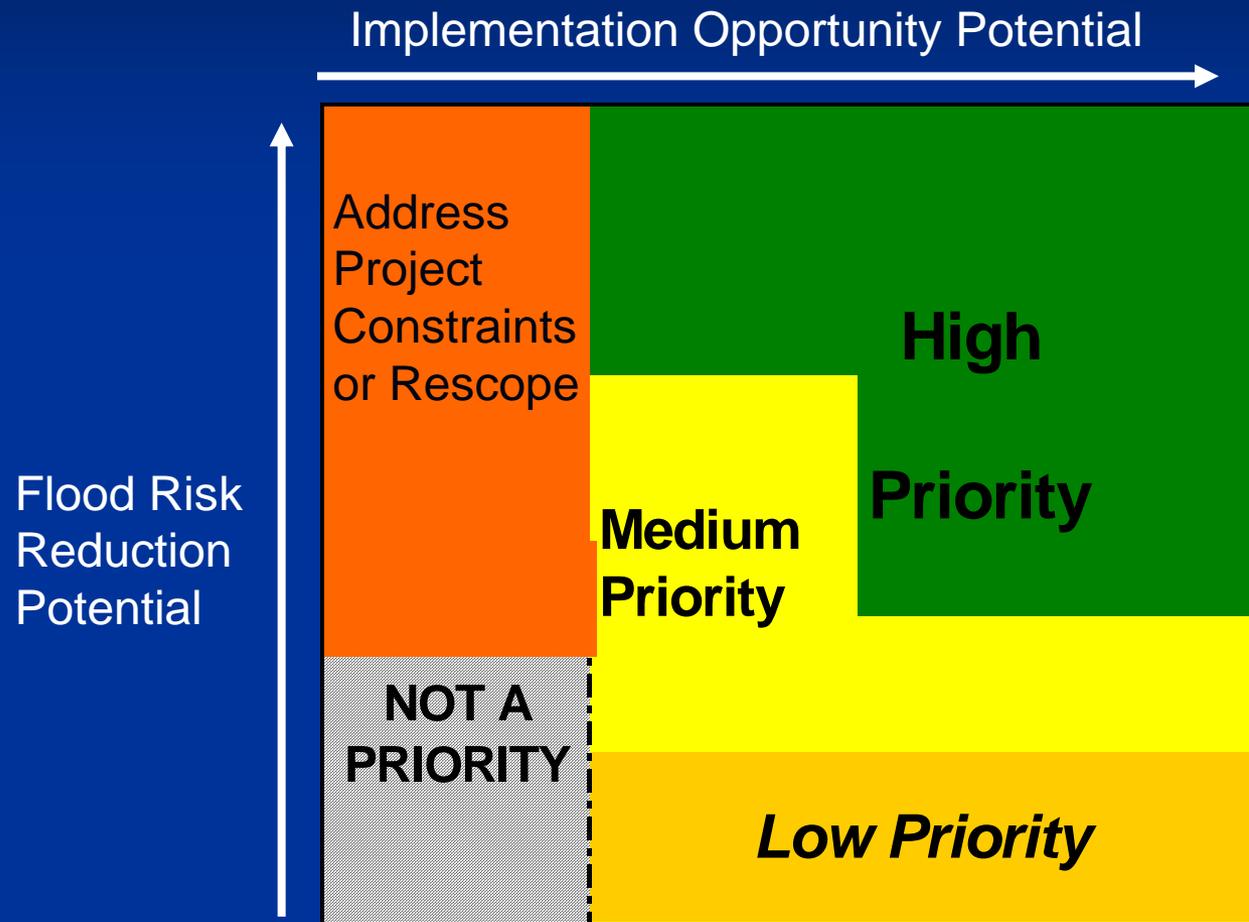
2011 Capital Program

Preliminary Recommendations and
CIP Options

Presentation Overview

- *No decisions today*
- Capital Project Evaluation Criteria and Process
- Overview of Flood Risk Reduction Strategy by Basin
- Current Capital Program Capacity
- New Proposals
- 2011-2016 Potential CIP Options

Evaluation Criteria: Project Evaluation Approach



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



Snoqualmie/ South Fork Skykomish Basin

-  River/Stream
-  Other Basin Boundaries
-  Lake
-  Incorporated Area
-  Snoqualmie/S. Fork Skykomish Basin



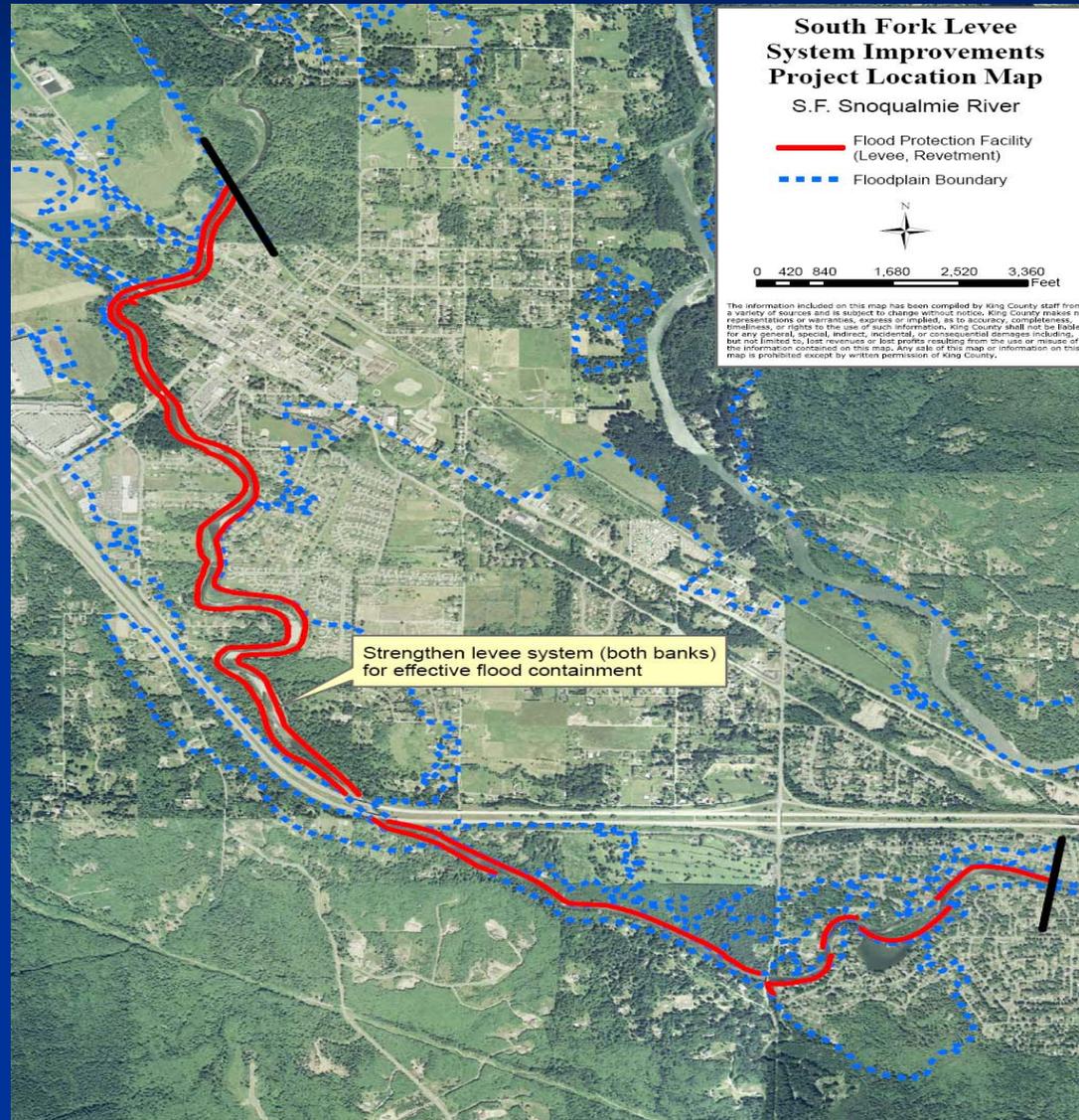
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Snoqualmie and SF Skykomish Strategy

- Strengthen and rehabilitate flood containment facilities
- Buyout or elevate at-risk structures, elevations and farm pads to reduce impacts on agricultural land uses in the Lower Valley

South Fork Snoqualmie Levee Improvements



Upper Basin Residential Flood Mitigation



Lower Snoqualmie - Tolt Pipeline



Lower Snoqualmie – Farm Pads





Cedar River Basin

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

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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

Cedar Grove Mobile Home Park



January 2009

Rainbow Bend Levee Removal



Elliott Bridge Acquisition and Levee Setback



January 2009

Byers Bend and Dorre Don and Maplewood Neighborhood Flood Studies





Green River Basin

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



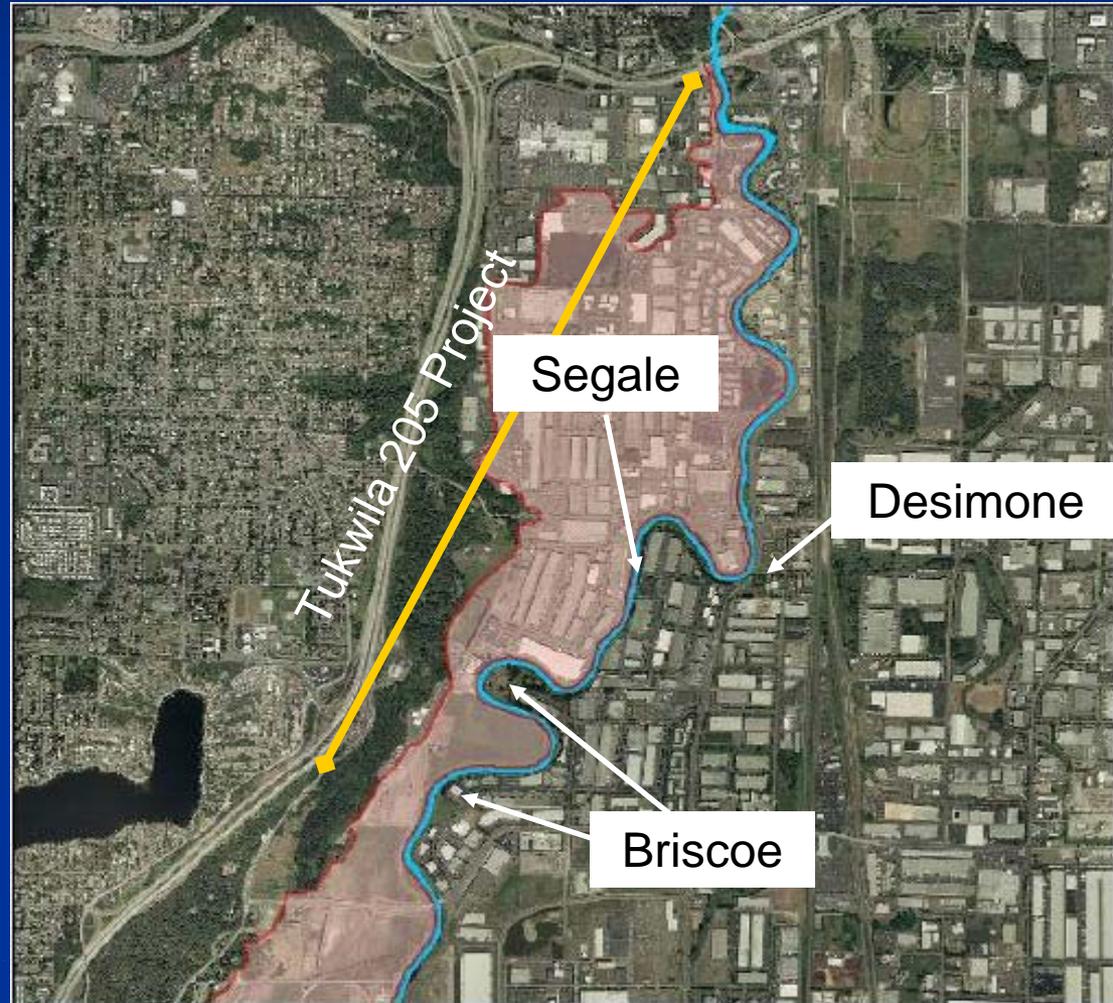
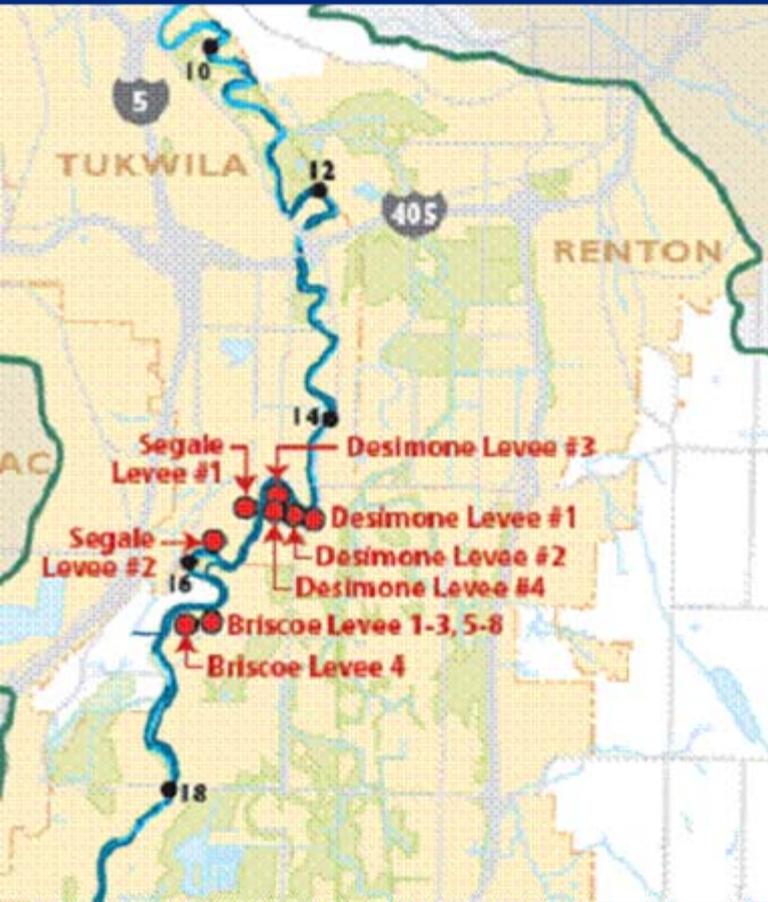
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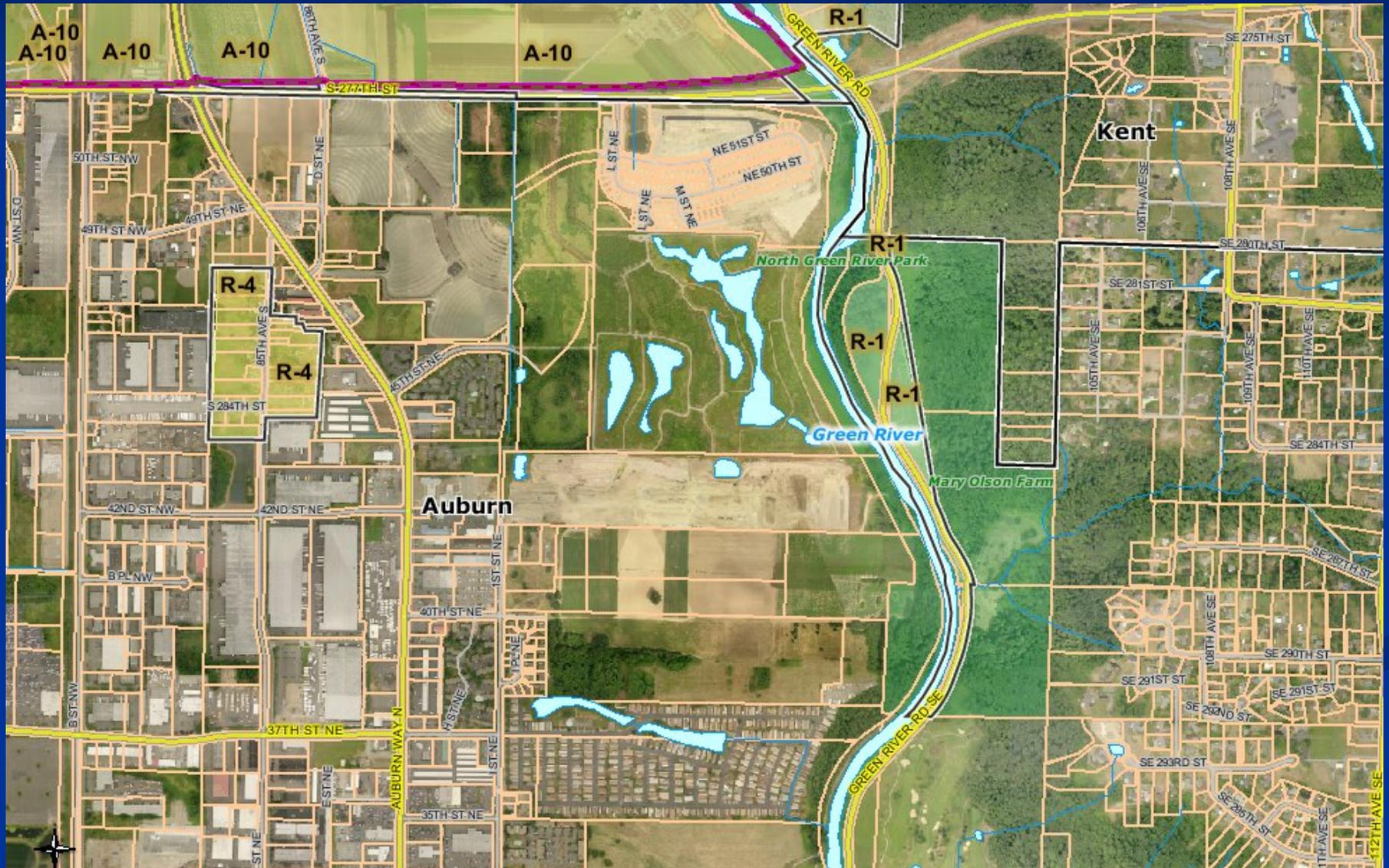
Green River Strategy

- Rehabilitate levees to protect critical public infrastructure and regional distribution centers
- Increase storage and conveyance capacity; reduce slope of levees
- Implementation Constraints: Right-of-way issues are critical for implementation and project sequencing
- Temporary flood protection in response to USACE Howard Hanson Dam reduced storage capacity

Briscoe Reach Levee Setbacks



Reddington Reach Levee Setback and Extension



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 (2008-9)
 - 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)



White River Basin

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



1/22/09

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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
- Temporary flood protection in City of Pacific

City of Pacific – Countyline and Right Bank Setback



Countyline Project Construction



Phase I

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

Phase II

-  Levee and revetment removal

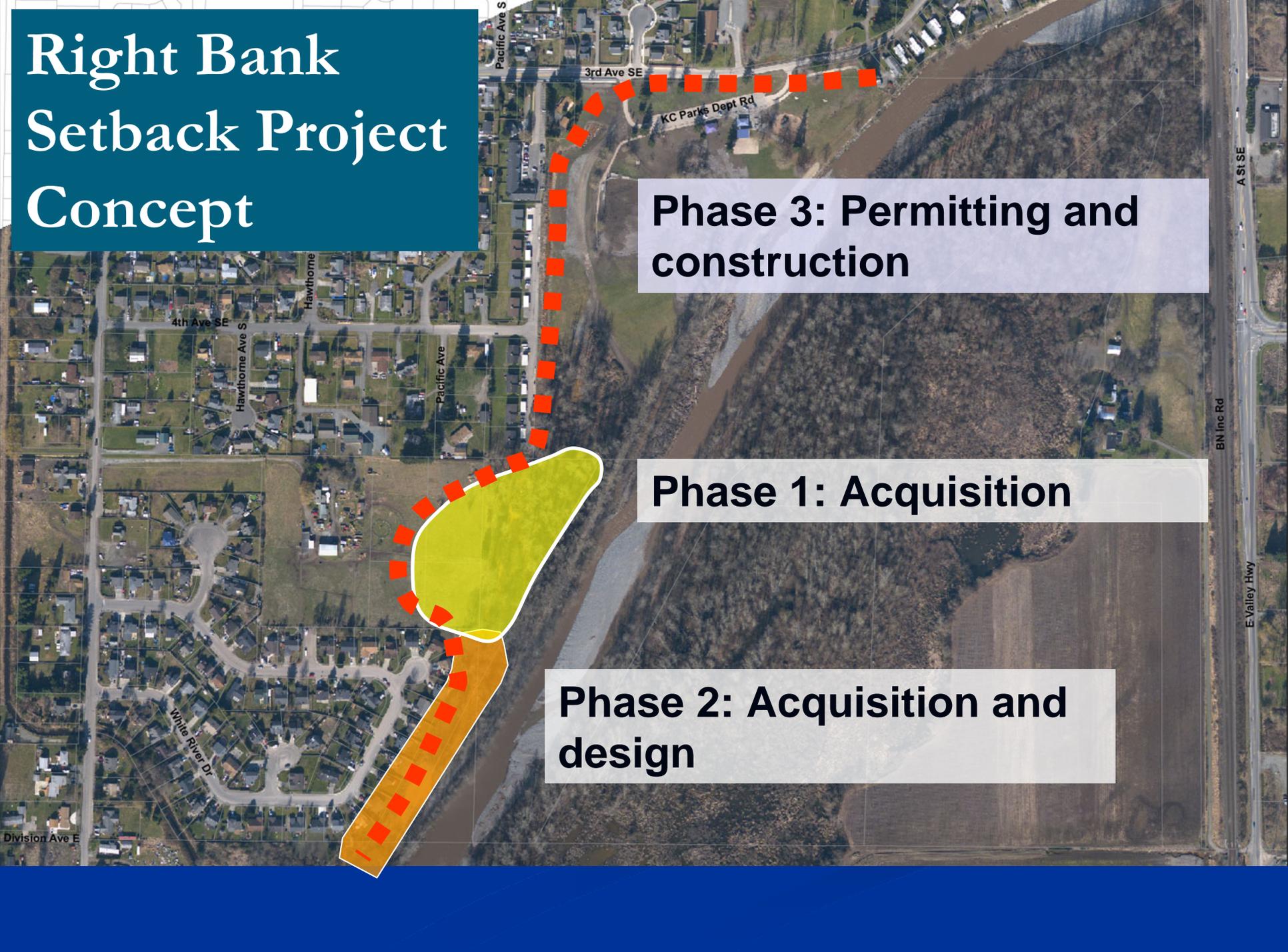


Right Bank Setback Project Concept

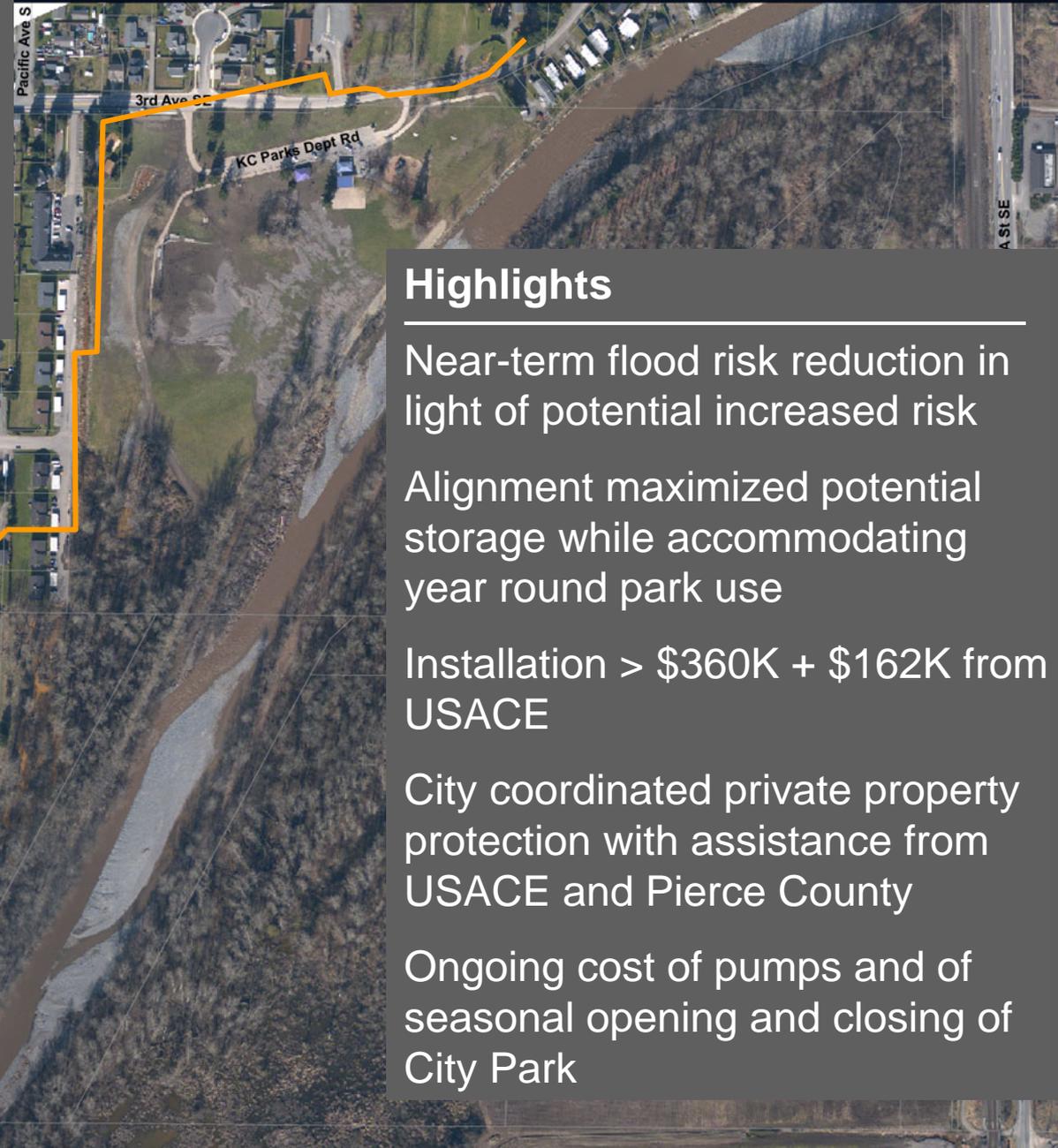
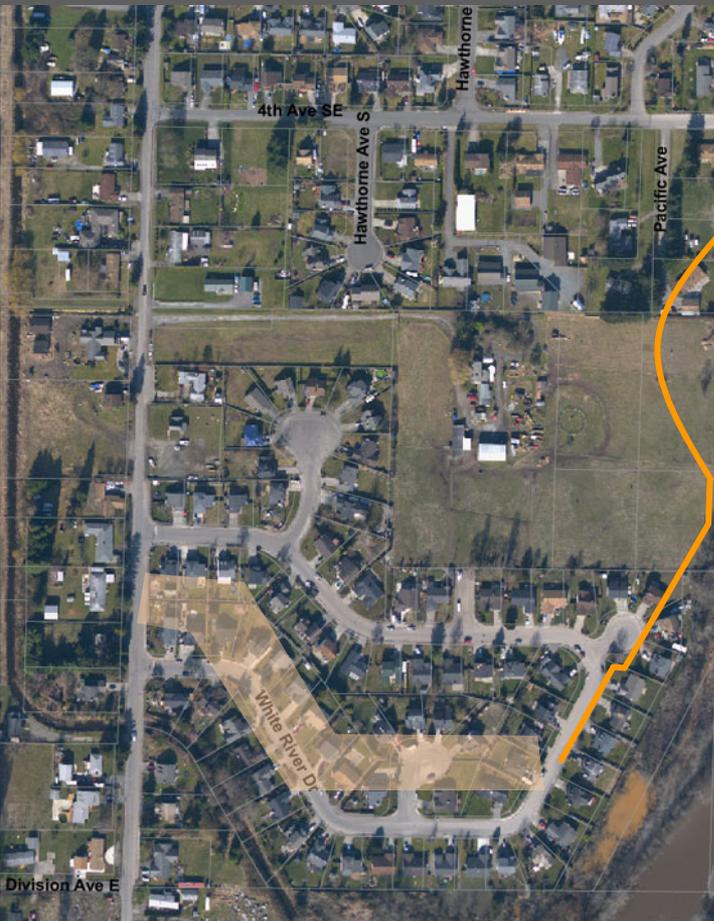
Phase 3: Permitting and construction

Phase 1: Acquisition

Phase 2: Acquisition and design



Temporary Flood Protection Measures in the City of Pacific



Highlights

Near-term flood risk reduction in light of potential increased risk

Alignment maximized potential storage while accommodating year round park use

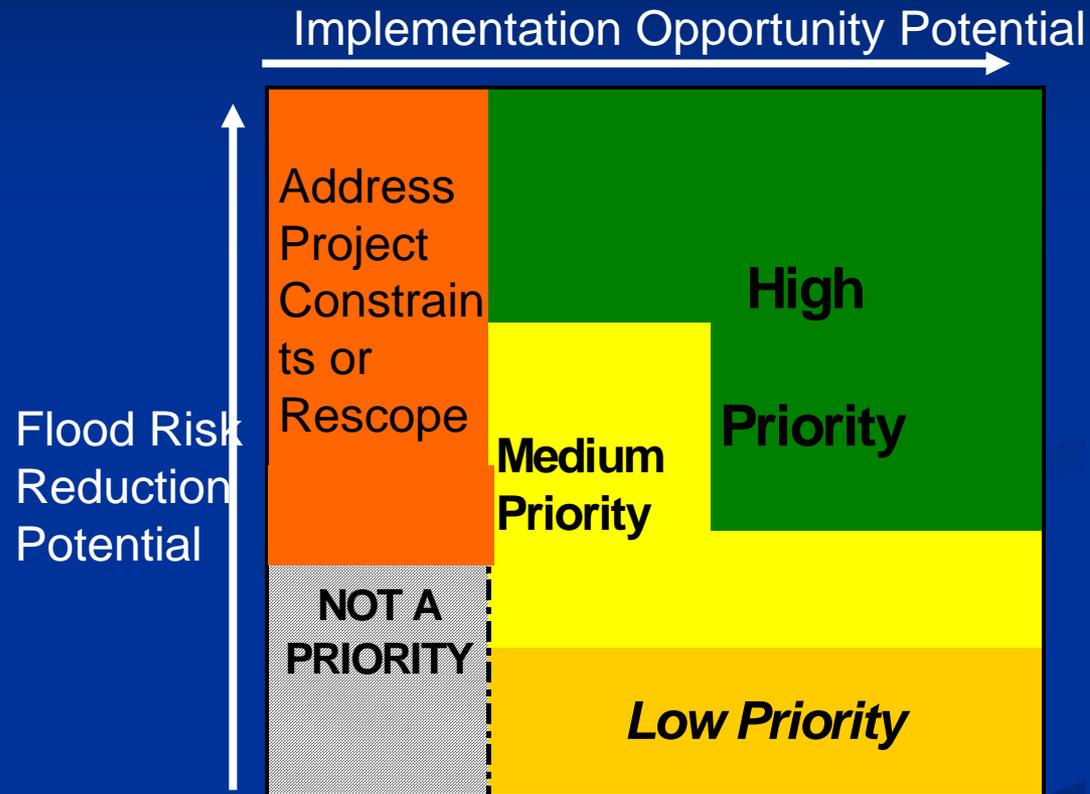
Installation > \$360K + \$162K from USACE

City coordinated private property protection with assistance from USACE and Pierce County

Ongoing cost of pumps and of seasonal opening and closing of City Park

Capital Program to Date

- 80% of 2008-2010 appropriations for projects scoring greater than 75% on flood risk benefit
- 52 Projects Complete in 2008-2009
- Increased need of \$17M due to 2009 flood disaster



Adopted 2010-2015 Context

- 25 multi-year projects continue into 2011
- Limited capacity for new projects without impacting adopted high-priority projects
 - 2010-2015 Adopted CIP includes \$27 million in new projects during 2011-2015, less than one year's worth of FCD revenue
 - \$24.5M of the \$27.4M is in 2014-2015
 - 1 new start proposed for 2011, 2 new starts for 2012

Annual Request for Proposals

Submitted by	Name	Request	Comment
Auburn	Lones Levee Ext	\$ 2,900,000	Already on CIP
Auburn	8th street Bridge debris removal	\$ 50,000	Address through Green River Flood Prep Project
Auburn	Debris Removal Pad near 8th St Bridge	\$ 75,000	Address through Green River Flood Prep Project
Pacific	Debris Removal on White River	\$ 210,000	On-Going Programmatic Work with Multiple Agencies
Kent	Kent Airport Levee	\$ 13,000,000	Request is for 2018
Kent	Frager Road levee rehabilitation	\$ 38,000,000	Request is for 2018
King County	Crisp Creek Floodplain Channel Avulsion	\$ 75,000	Recommend Opportunity Fund
King County	Burns Creek Floodplain Management	\$ 2,500,000	Recommend Opportunity Fund
King County	PL 84-99 Mitigation work	\$ 2,100,000	Required by permits
Auburn	Porter Bridge Levee	\$ 3,500,000	
King County	S. 180th to Strander Blvd Floodway Capacity Improvements	\$ 75,000	
Lake Forest Park	Lyon/McAleer Creek Channel Improvements	\$ 375,000	
Seattle	Seawall Construction	\$ 30,000,000	

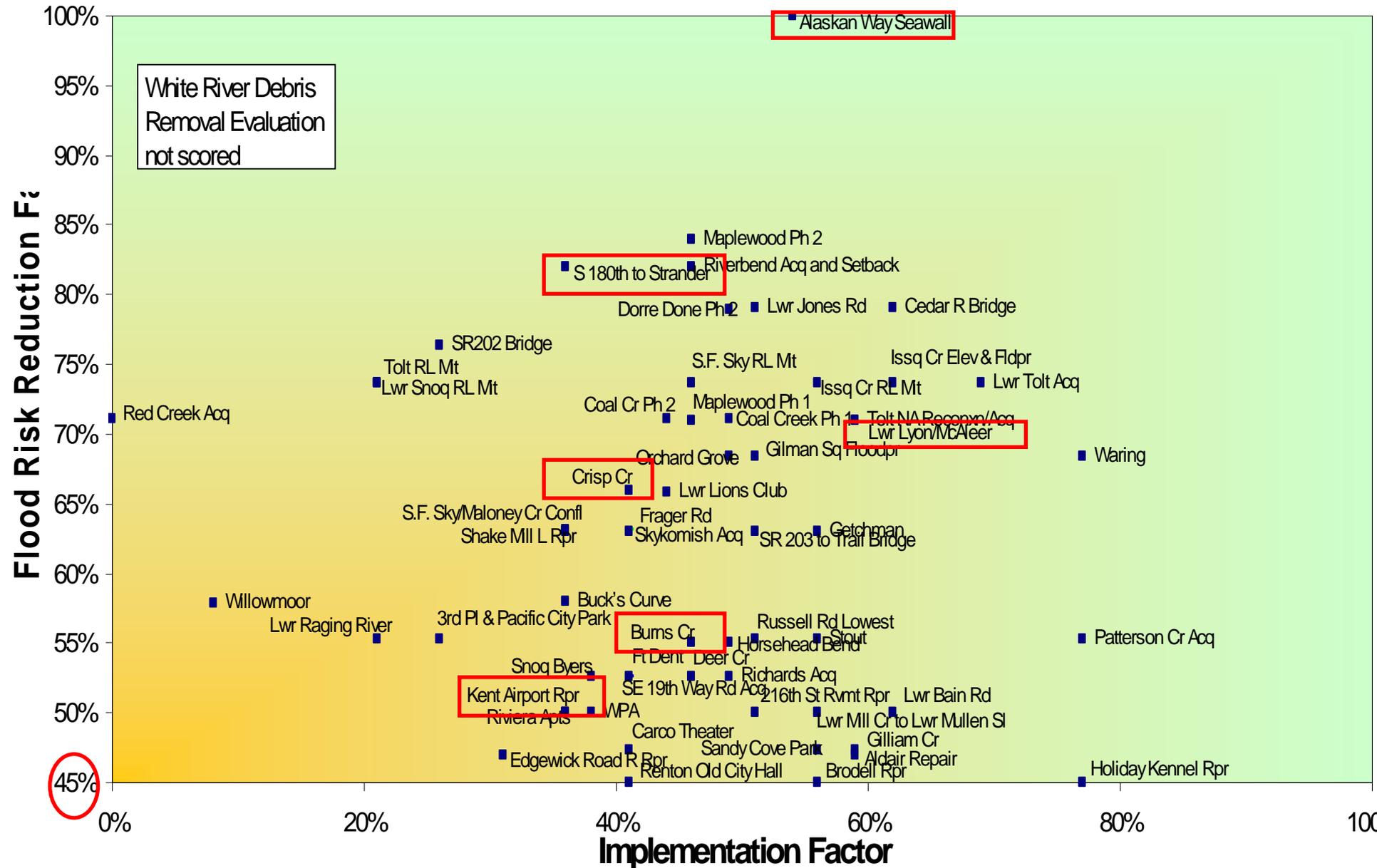
Total New Requests: \$ 92,860,000

New Proposals Evaluated for 2011-2016

Submitted by	Name	Amount	Comment	Flood %	Impl %
King County	PL 84-99 Mitigation work	\$ 2,100,000	Required by permits	N/A	N/A
Auburn	Porter Bridge Levee	\$ 3,500,000		34	36
King County	S. 180th to Strander Blvd Floodway Capacity Improvements	\$ 75,000		82	36
Lake Forest Park	Lyon/McAleer Creek Channel Improvements	\$ 375,000		71	59
Seattle	Seawall Construction	\$ 30,000,000		100	54

Total New Requests: \$ 36,050,000

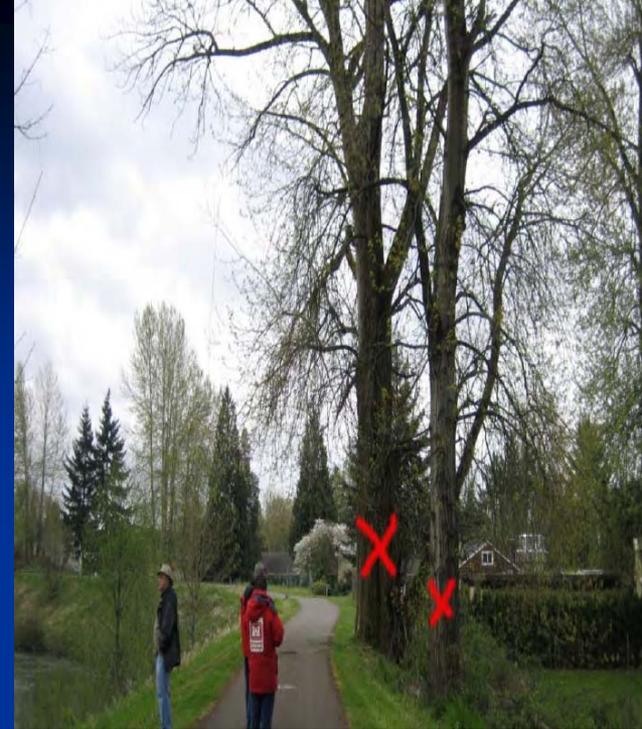
Capital Improvement Projects - 2011 and Beyond



Note: Flood Risk Reduction is > 45%

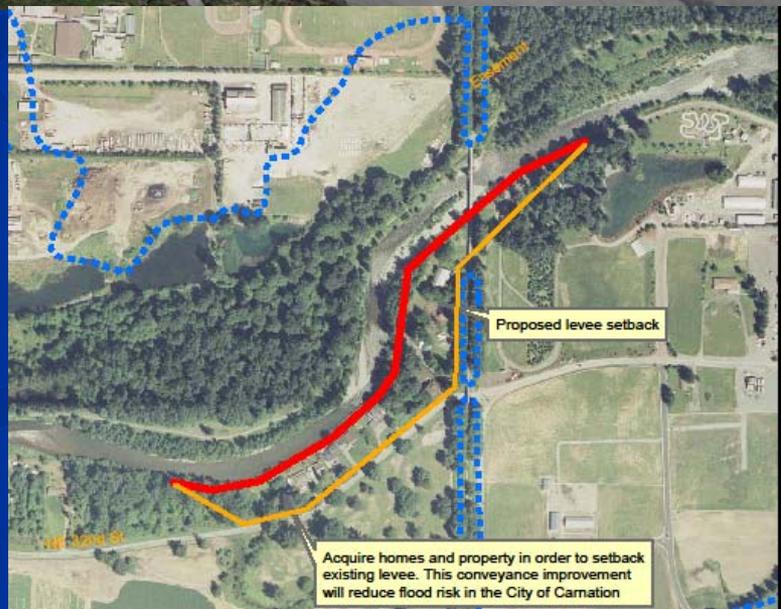
Proposed CIP Adjustments Common to all Options (highlighted in Green)

- PL 84-99 Mitigation
 - \$2.1 million in 2011
 - Required by state and local permits
- Lower Snoqualmie Residential Flood Mitigation
 - \$300,000 per year
 - Reduce risk to agricultural community



Proposed CIP Adjustments Common to all Options (Highlighted in Green)

- Projects resequenced due to landowner willingness (no net change in total appropriation)
 - Tolt River Mile 1.1 Levee Setback
- Projects resequenced due to readiness factors
 - Tolt Pipeline Protection
 - Pacific Debris Removal



Assumptions for all Options

- Emergency reserve target increases from \$2.5 million to \$3.5 million
- Emergency reserve target met under all options
- Projects adopted in 2008-2010 are not impacted
- Flood risk score drives re-sequencing of individual projects

Policy Issues Raised by New Proposals

- Levee Certification?
- Small Streams vs. Large Rivers?
- Coastal Hazards?

CIP Option 1

- Option 1: “Table” new project proposals until the 2012 plan update when policy issues such as coastal projects, small streams, and levee certification can be resolved and clearly articulated in the District’s plan and policies.

2011-2016 CIP Option 2

- Option 2: Provide Seattle Seawall funding at \$5M/year starting in 2013; Add funding for Lake Forest Park proposal in 2012. Minimize impacts on high priority projects (e.g. those over 75-80%) previously identified in the capital program.

Impacts of CIP Option 2

- Delay 8 projects seeking to reduce residential flood risks,
- Majority of impact is on projects scoring between 65-75% on the flood risk scale.
- 4 projects along the Tolt River
- 1 on Issaquah Creek
- 1 on Sammamish River
- 1 on Bellevue's Coal Creek
- 1 on the South Fork Skykomish



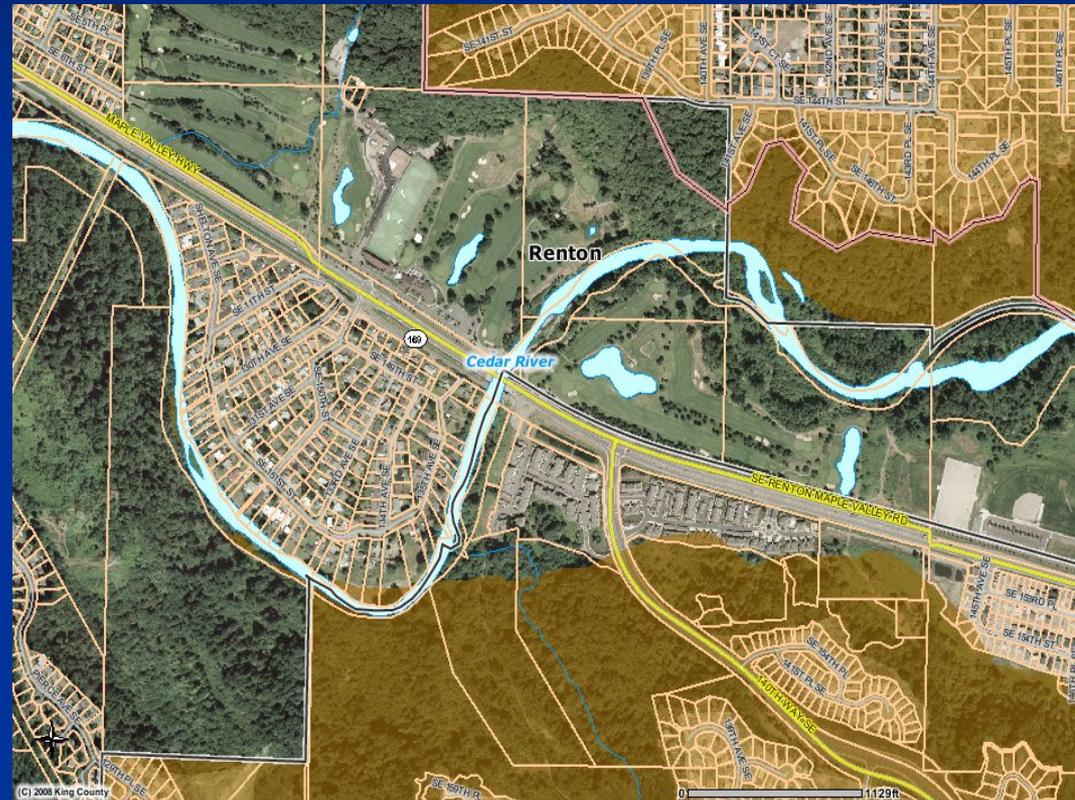
Lower Tolt River – Carnation

2011-2016 CIP Option 3

- Option 3: Add Seattle Seawall at full request of \$30 million over 2013-2016.

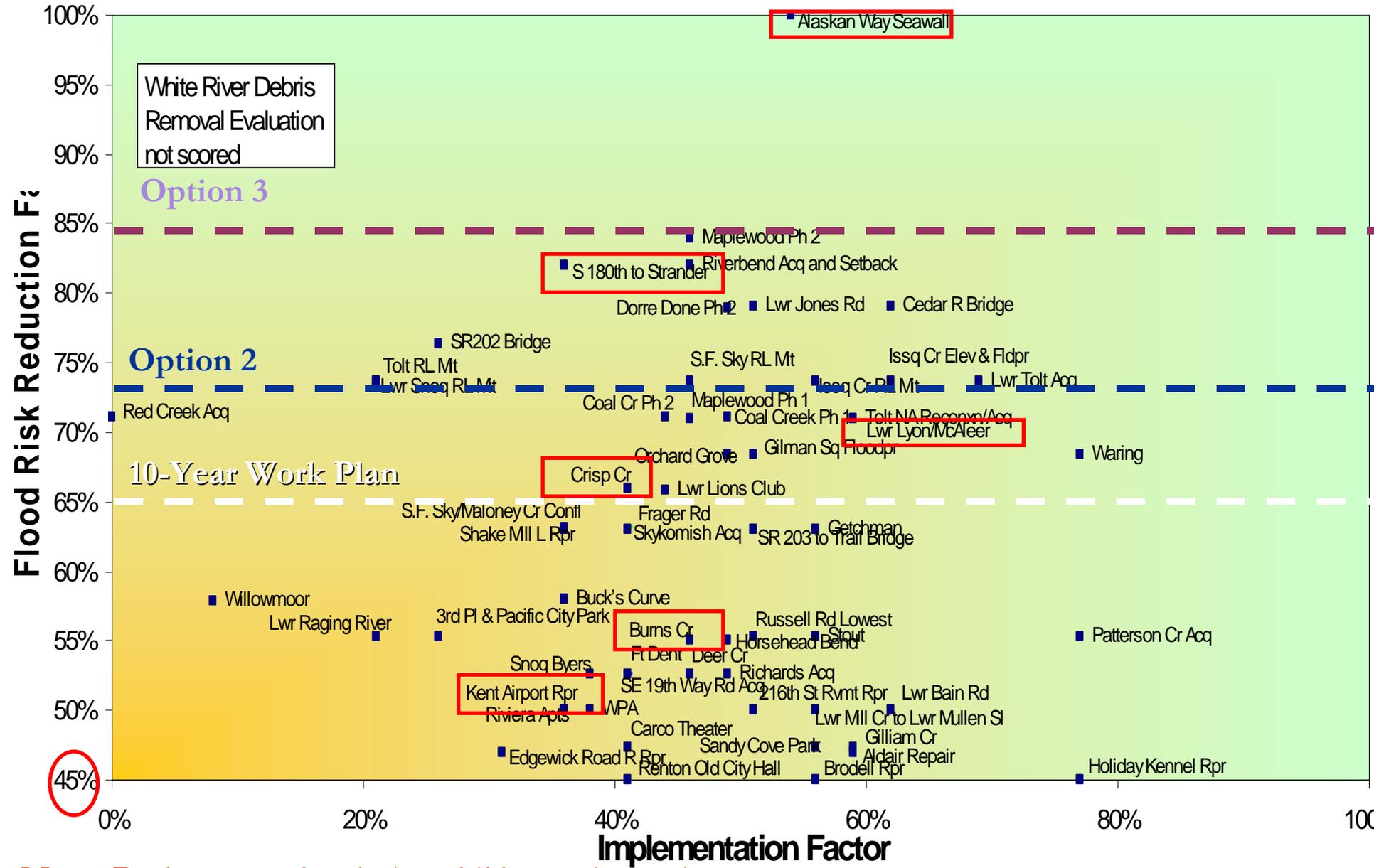
Impacts of CIP Option 3

- 15 projects delayed
- Under this scenario several projects scoring up to 75%-85% would be delayed.
- Option 2 delayed projects plus:
 - Cedar River - Dorre Don, Maplewood, and Lower Jones Road.



Cedar River - Maplewood

Capital Improvement Projects - 2011 and Beyond



Advisory Committee Discussion

- Questions on BTC Process and Discussion?
- Questions on Projects?
- Questions on CIP Options?
- Discussion and Feedback