

An aerial photograph showing a wide, winding river that has overflowed its banks, flooding the surrounding green fields and forests. The water is a muddy brown color, and the landscape is a mix of green and brown. A bridge is visible in the distance.

King County Flood Hazard Management Plan

December 4-6, 2012

Protecting public safety, the regional economy and critical infrastructure.

Presentation Overview

- Timelines and public input opportunities
- Purpose of King County Flood Plan
- Reasons for Flood Plan update
- Examples of policy issues
- Basin strategy

Timeline and Opportunities for Public Input

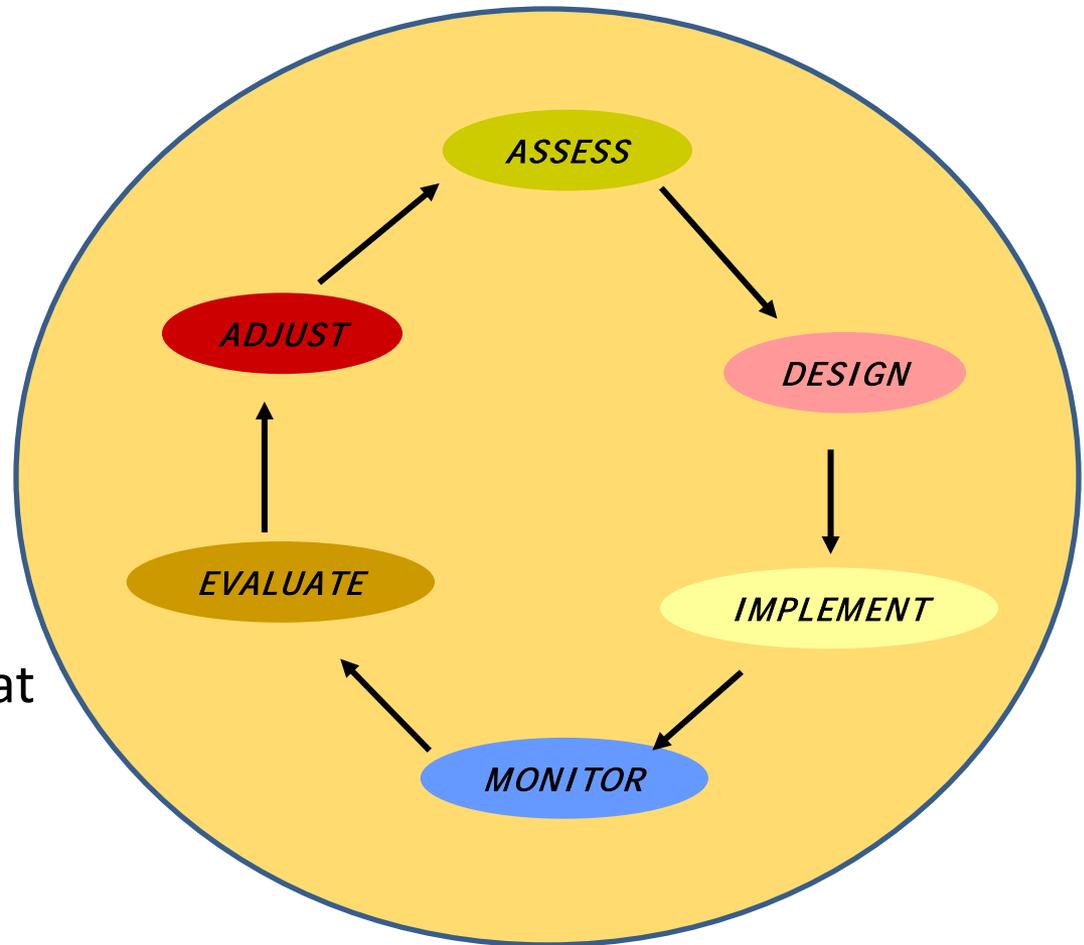
- **September 2011:** Flood District establishes Citizens Committee and scope of work for updating the Flood Plan.
- **Jan. – July 2012:** Citizen Committee meetings convened.
- **June-July 2012:** Review proposed river basin strategies with Basin Technical Committees (city and county staff).
- **December 2012 - Public meetings to present proposed flood risk reduction strategies for each river basin.**
- **January 2013: Public review period for the Draft Flood Plan, public environmental review, and public meetings to present Draft Flood Plan.**
- **February 2013:** Provide responses to public comments.
- **April 2013:** Transmit proposed Flood Plan to Flood District Board and King County Council.
- **Second Quarter 2013 (tentative):** Action by Board and Council to adopt the King County Flood Hazard Management Plan.





Why are we updating the Flood Plan?

- New information about flood and channel migration hazards.
- New information about risks, vulnerabilities and economic impacts.
- New Flood District
- Updated actions.
 - What is complete and what remains to be done?
 - What lessons have we learned since 2006?
- Policy issues.



Flood Plan 101

Goals

1. Reduce flood and channel migration risks
2. Improve the natural environment
3. Reduce long-term costs

Areas of interest being updated

- Policy issues.
- Basin-specific visions, strategies, actions.
- Program recommendations – mapping, monitoring, project prioritization, etc.



Equity, Social Justice and Outreach to Underserved Populations

Improving delivery of flood risk reduction services to the underserved populations through coordination, partnerships and outreach.

- Interpreters available 24/7.
- Flood safety videos in 21 languages, as well as ASL.
- Coordinating with local vulnerable populations network.
- Supporting American Red Cross Disaster Preparedness training.



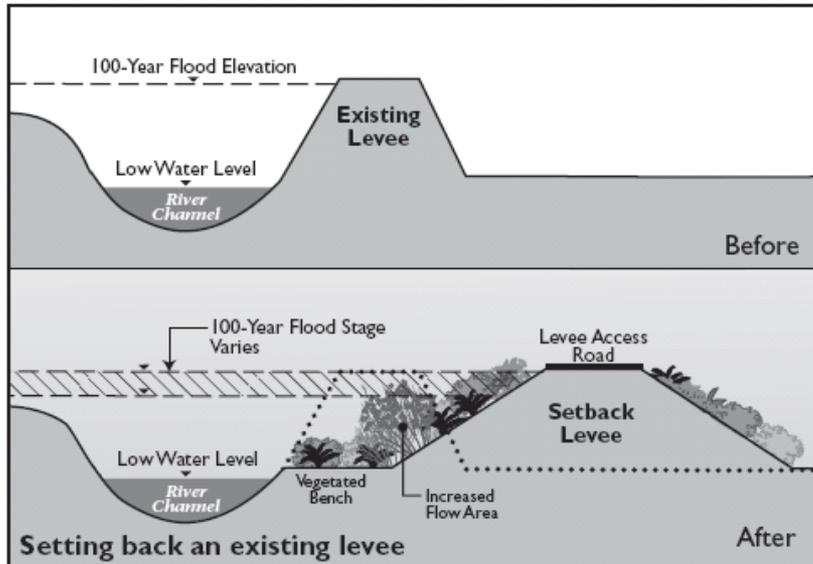
Levees: Bioengineering & Design Factors

Reasons for current approaches:

- Better flood protection
- Rivers are 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

Levee Vegetation and Corps Emergency Assistance

How can we best maintain levees to ensure:

- safe and effective levees,
- functional habitat,
- cost-effective use of limited resources, and use
- science-based approach.



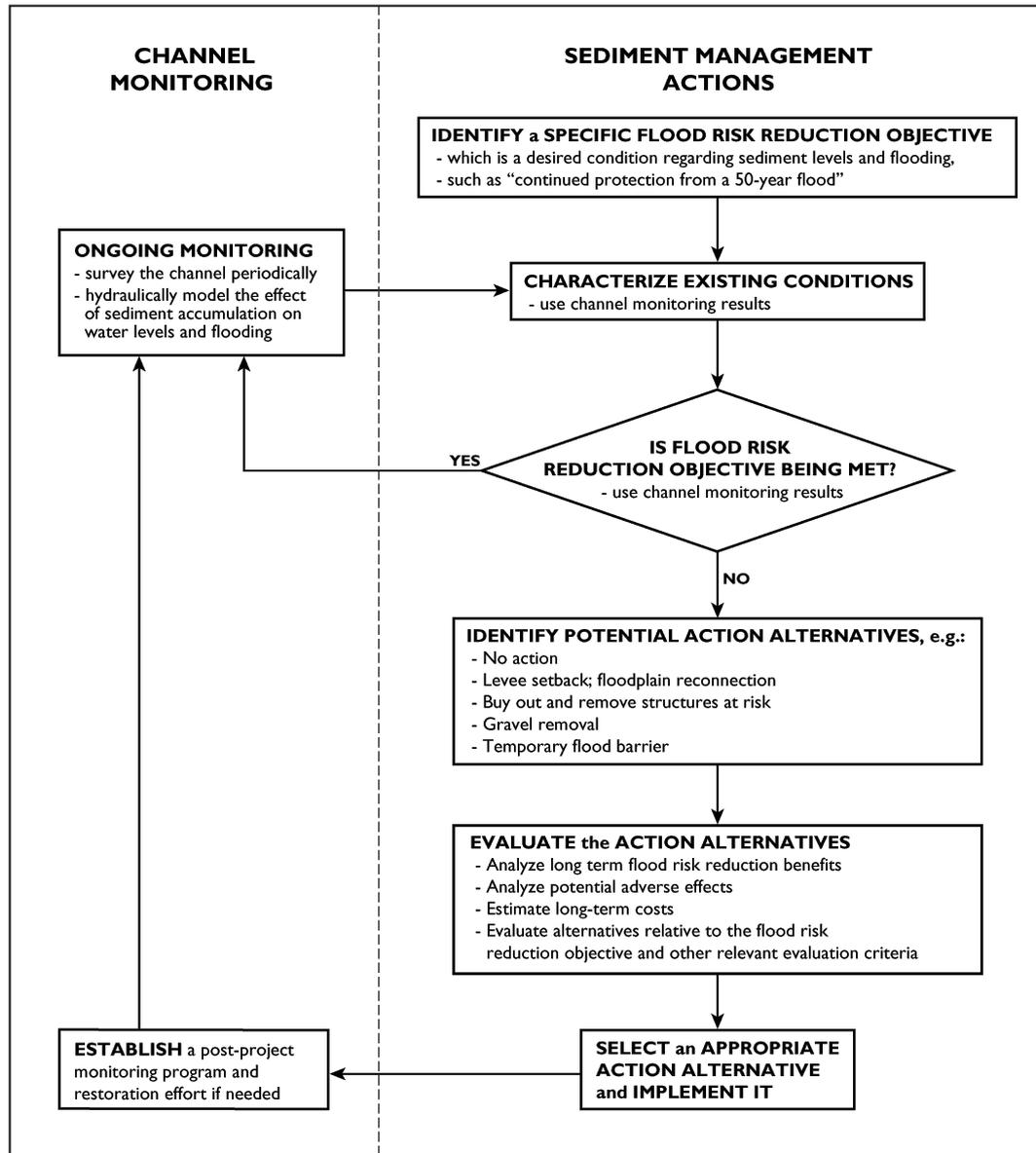
U.S. Army Corps of Engineers, 2010

OR



Narita Bioengineered Levee, Green River, 2004

Sediment Management Decision Tree



How Do We Prioritize Capital Projects?

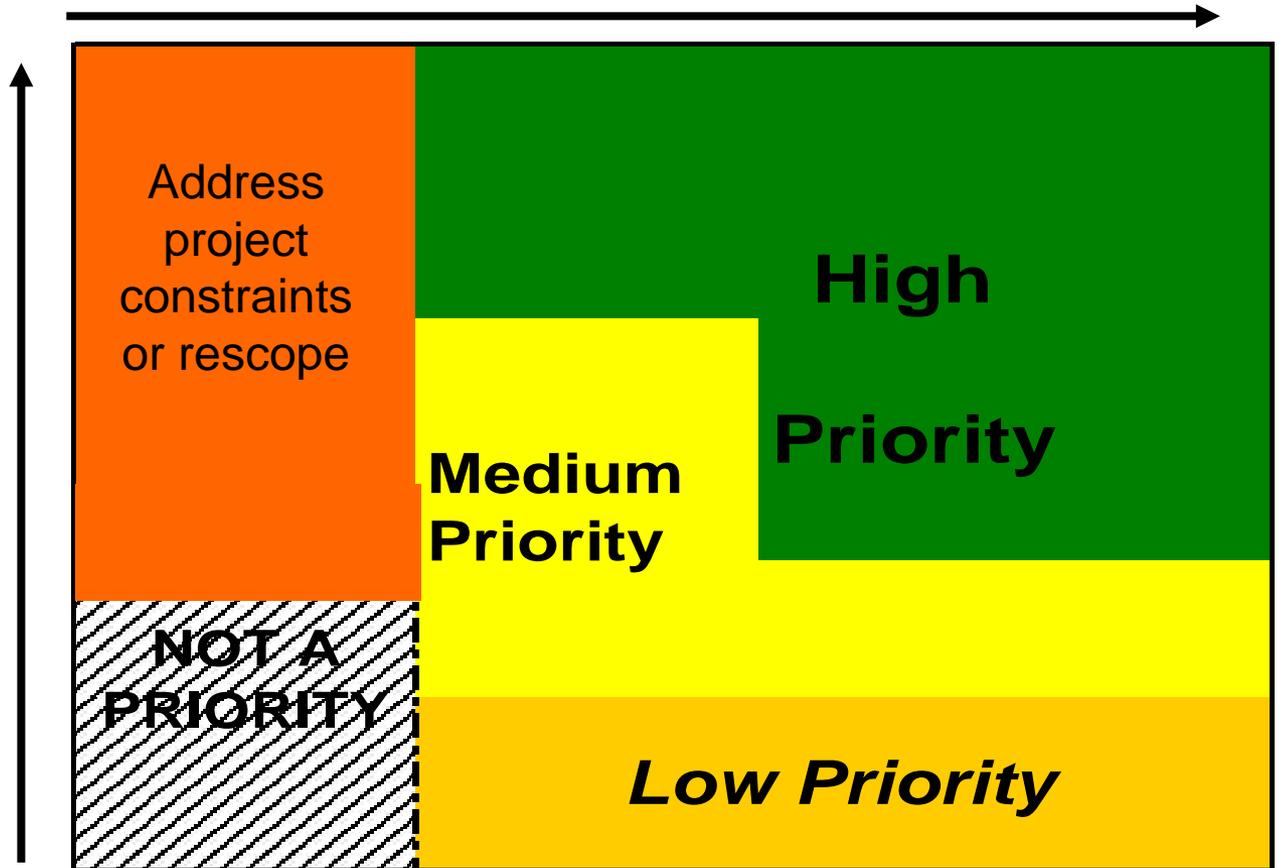
Consequence, severity and urgency

Flood risk reduction potential:

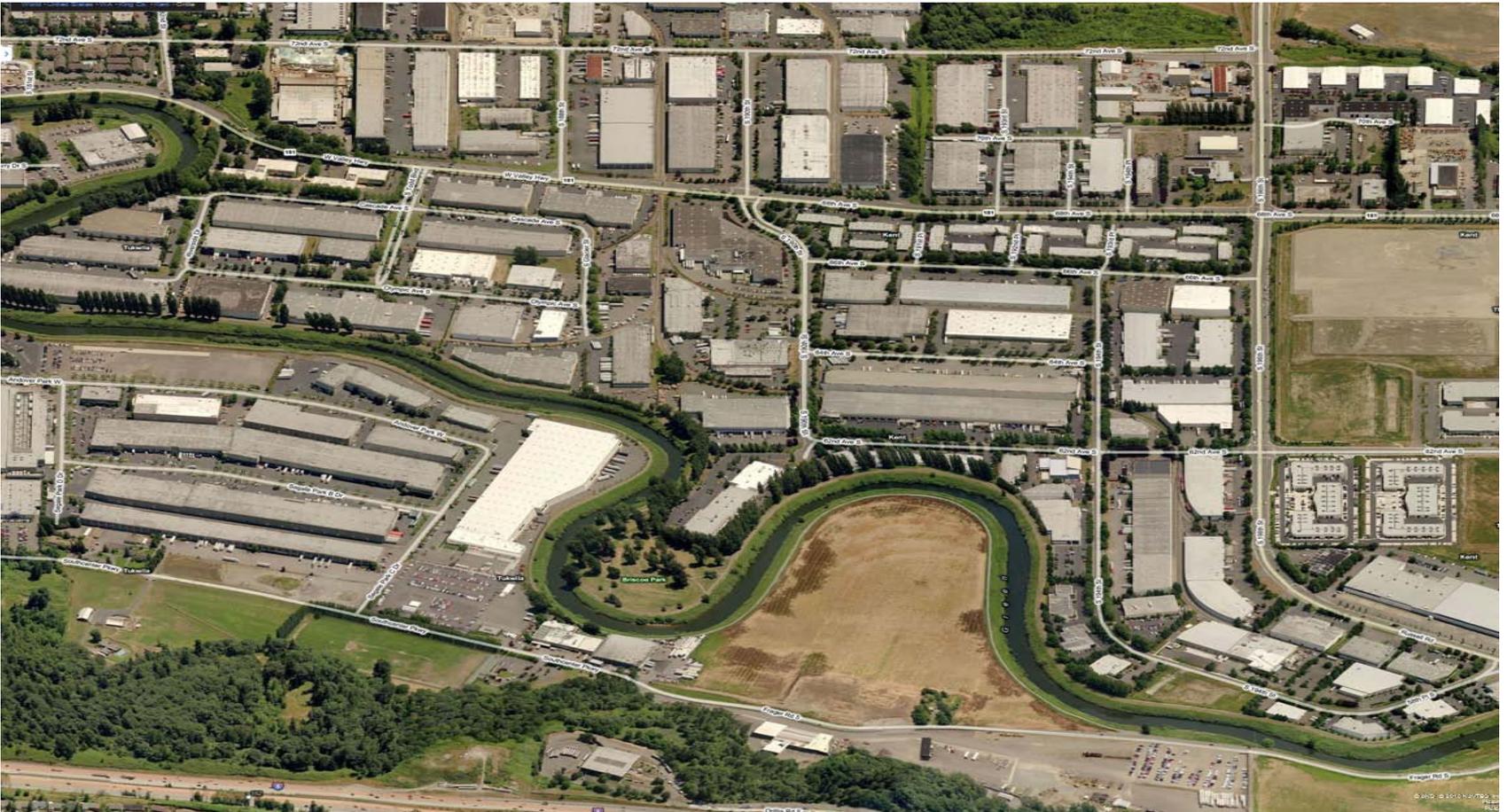
- Consequence
- Severity
- Urgency

Implementation opportunity potential:

- Readiness
- Multiple objectives met
- Partnerships

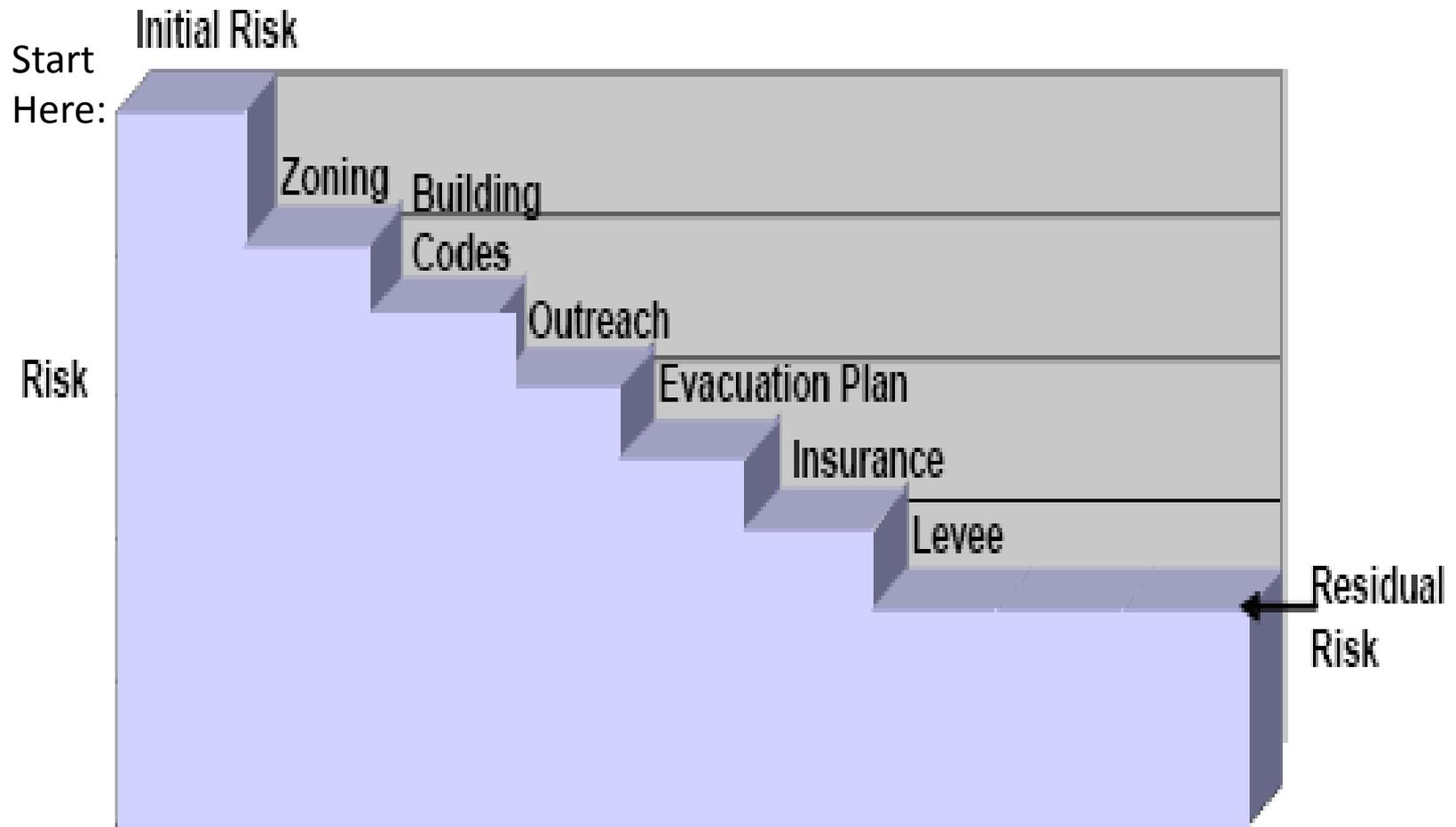


Flood Risk “Levels of Service” and Levee Certification



“The 100-year standard may be woefully insufficient in some areas (such as highly urbanized environments) and perhaps overly protective in others (such as agricultural lands, undeveloped lands, etc), thus FEMA accreditation should include risk and economic analysis.” *November 2010 report to Washington State Legislature*

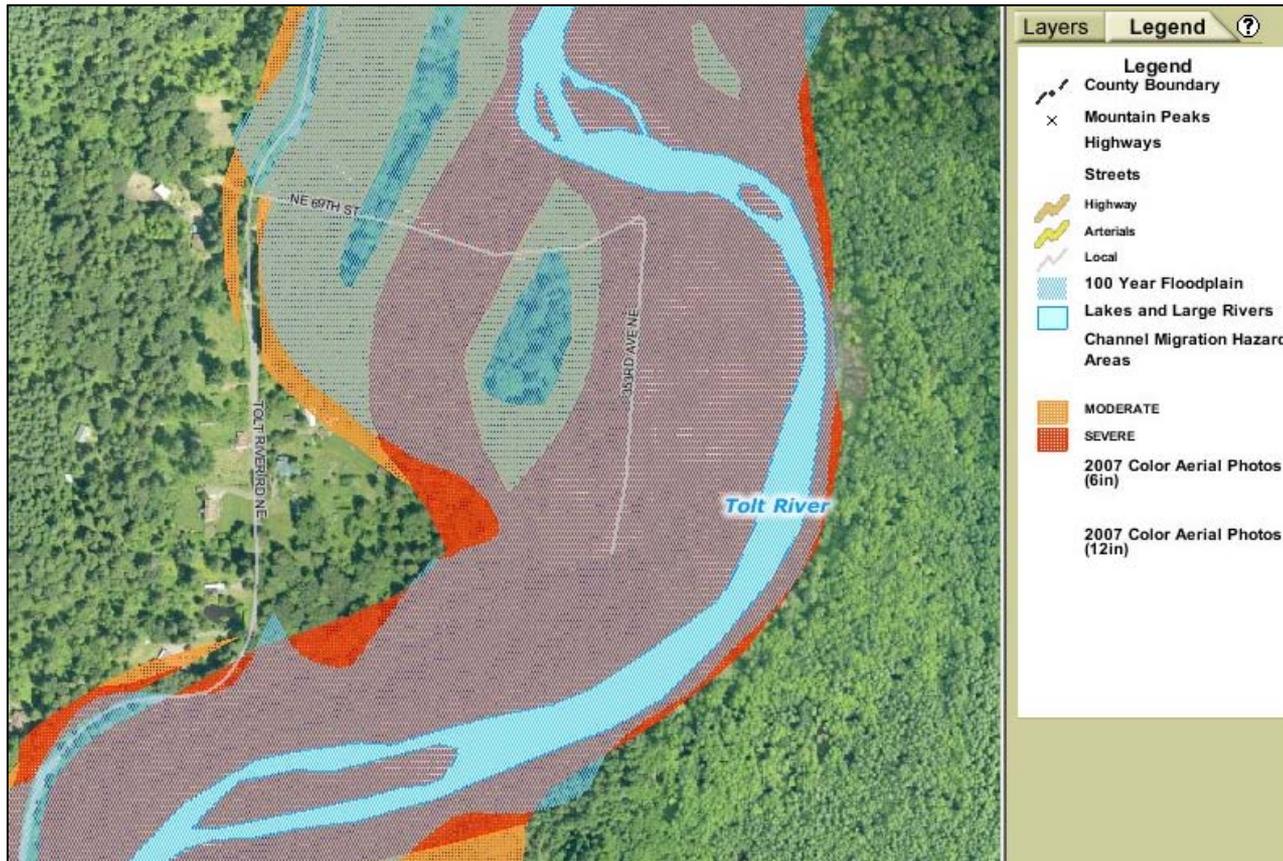
Action plans: More than just projects...



Risk Reduction Tools
(Cumulative)

Source: FEMA and USACE

Improving Understanding of Flood Risk: Consequence, severity and urgency



*Tolt River Channel
Migration Map –
Available on King
County iMap*

Building Awareness of Flood Risks

- Flood Update mailed to **5,200** floodplain addresses.
- Online flood information; one of the most popular King County Web pages.
- **5,000+** flood alert subscribers.
- Flood information available in multiple languages. Regional coordination for emergency planning and evacuation for pets.



New in this issue:

- Are your pets safe in a flood?
- Help us update King County's Flood Plan
- Take our online survey
- King County Rivers Facebook page

Flood preparedness tools on the Web:

- Real-time river gage data
- Automated flood alert subscription
- Floodplain maps and photos
- Sandbag distribution locations

www.kingcounty.gov/flood

2012 - 2013 Actualización sobre INUNDACIONES

Información de advertencia contra inundaciones para los ríos principales del Condado de King

Nueva en esta edición:

- ¿Están seguras sus mascotas durante una inundación?
- Ayúdenos a actualizar el plan para inundaciones del Condado de King
- Participe en nuestra encuesta por Internet
- Página de Facebook de los ríos del Condado de King

Herramientas en Internet sobre preparación en caso de inundación:

- Datos de medición del río en tiempo real
- Suscripción a la alerta de inundación automatizada
- Mapas de áreas de inundación y fotos
- Puntos de distribución de bolsas de arena

www.kingcounty.gov/flood

Antes, durante y después de una inundación

Esta información sobre cómo proceder ante una inundación le ayudará a reducir el riesgo para su familia y sus bienes.

King County
Public Health
Emergency Services

Help us improve our site with this interactive activity

HOME | NEWS | SERVICES | DIRECTORY | CONTACT

Flooding services
King County, Washington
You're in: Flooding services

Flooding services and information

Learn what to do before, during and after a flood. Look up, locate, and order flood hazard maps. Print the page and keep it on hand just in case.

- [How to prepare for a flood](#)
- [Important emergency phone numbers and resources](#)
- [Sandbag distribution locations in King County](#)

Flood warnings and alerts
Flood conditions, warnings and alerts for major rivers and streams in King County including Snoqualmie River, Tolt River, Skykomish River, Raging River, Issaquah Creek, Cedar River, Green River, and White River.

Customer satisfaction survey
Flood Risk Reduction Services

Flood Plan Update
King County is updating its Flood Hazard Management Plan. Learn about the scope of the update, its schedule and how you can provide input. Public meetings scheduled for Dec. 4, 5 and 6.

Related information

- Breaking emergency news (RPIN.org)
- King County watersheds map
- Stormwater services

Related agencies

- Water and Land Resources Division
- Department of Natural Resources and Parks
- Emergency Services

Flood warning for mobile devices
Try our new mobile website!
Low-bandwidth version



Actions to Reduce Flood Risk: Frequently Flooded Structures

- Since 2008, **300** acres acquired in the floodplain from willing landowners.
- Approximately **300** people relocated to safer, superior housing.

Before: Homes and Residents at Risk



After: Tenants Relocated and Structures Removed



Rainbow Bend, Cedar River

Actions to Reduce Flood Risk: Elevations and Farm Pads

- 48 home and 2 barn elevations completed
- 18 home elevations in progress, FEMA grant submitted for 8 more
- 26 Farm Pads completed



Actions to Reduce Risk: Rebuilding Levees

- 63 levee repair projects completed
- 14 major levee rehabilitations scheduled for construction in 2013-2018



*Cedar River (top)
Lower Green River (bottom)*

Actions to Reduce Risk: Maintenance

- 500 levees and revetments along 120 miles of river
- Inspection and access for flood season
- 620 acres of property to maintain
- Remove 15-20 at-risk structures per year

*Vegetation removal, Tukwila
(top)*

*Home demolition, Cedar River
(bottom)*



Actions to Reduce Risk: Partnerships and Grants

- Since 2008, 37 grants from FEMA, Corps, State of Washington, KCD, and Conservation Futures
- \$49.5M in external grant funds for flood risk reduction
- Funding to 40 jurisdictions through the Opportunity Fund



Lower Green River – Horseshoe Bend



King County Flood Hazard Management Plan & Flood Preparedness Information

King County Flood Services

www.kingcounty.gov/floodservices

- *Flood Plan Update, Citizens Committee and Issue Papers*
- *King County Flood Alerts*
- *King County flood gage and phase information*
- *Sandbag distribution information*

King County Flood Control District

www.kingcountyfloodcontrol.org