



# King County Flood Management Plan

Partner Planning Committee

Meeting #9 – October 17, 2023

# Meeting Agenda (10:30 – 12:30)

Topic	Time	Speaker	Affiliation
Welcome and Introductions	10:30 – 10:35		
Public Comment	10:35 – 10:45		
Presentation and Discussion: Flood Plan Activities	10:45 – 12:10	Spencer Easton	Environmental Science Associates
Flood Plan Process	12:10 – 12:20	Jason Wilkinson	King County
Wrap Up	12:20 – 12:30		

# Partner Planning Committee process



**Legend**

★ = current topic

Committee Input

External to Committee



# Opportunity for Public Comment



# Flood Plan Activities

What We've Done	Objectives for Today	What Happens Next
<ul style="list-style-type: none"><li>• Discussed potential activities to include in the Flood Plan.</li><li>• Asked Partner Planning Committee members, city staff, and county staff to submit risk mitigation activities.</li></ul>	<ul style="list-style-type: none"><li>• Briefly review actions in previous plans (Hazard Mitigation Plan and 2013 Flood Plan).</li><li>• Review the activities submitted.</li><li>• Discuss your questions and input.</li><li>• Discuss gaps and next steps.</li></ul>	<ul style="list-style-type: none"><li>• The project team will develop the activities chapter of the Flood Plan.</li></ul>

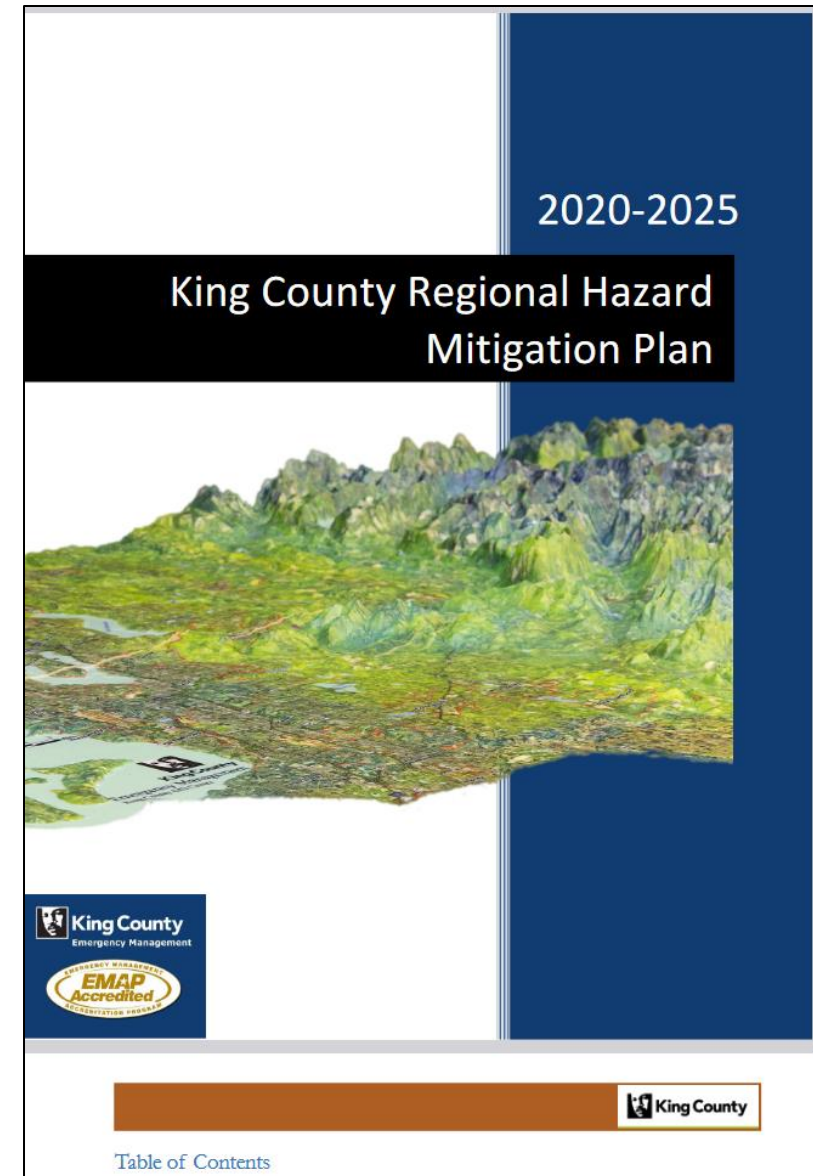


# King County Regional Hazard Mitigation Plan (RHMP)

- Covers various hazards, including flooding.
- Adopted in 2020.
- Includes 26 activities that support flood risk reduction.
  - 14 of these activities apply to flood hazards only.

## Countywide major activity types

- **Preventive** (land use regulations, inspection & maintenance, insurance promotion, flood maps, stormwater mgmt., monitoring)
- **Emergency services** (training, communications, equitable response services, flood warning, recovery efforts)
- **Public Information** (training, education, and outreach)
- **Natural resource protection and restoration**
- **Property protection and retrofits**



# King County Regional Hazard Mitigation Plan (RHMP)

**\*\*Highlighted text** reflects actions not proposed in 2024 Flood Plan

## Completed Actions

### Preventive

- Adopt higher floodplain regulations

### Emergency services

- Flood warning communications improvements

### Property protection

- Acquisitions
- Property elevations

## Ongoing Actions

### Preventive

- Promote flood insurance
- Retrofit stormwater facilities
- Climate change planning

### Emergency services

- **Incorporate resilience-building into flood recovery**

### Structural

- Maintain, improve flood control facilities

# King County Regional Hazard Mitigation Plan (RHMP)

## Actions That Have Not Been Initiated

### Preventive

- Community preparedness support
- Hazard mitigation support grants for communities
- Integrate hazard planning with climate change

### Emergency services

- Disaster training for communities
- Equitable disaster response

### Natural Resource Protection/Structural

- High hazard dam rehabilitation or removal

**Should any of these activities be included in the Flood Plan?**

**Should any of these be modified?**

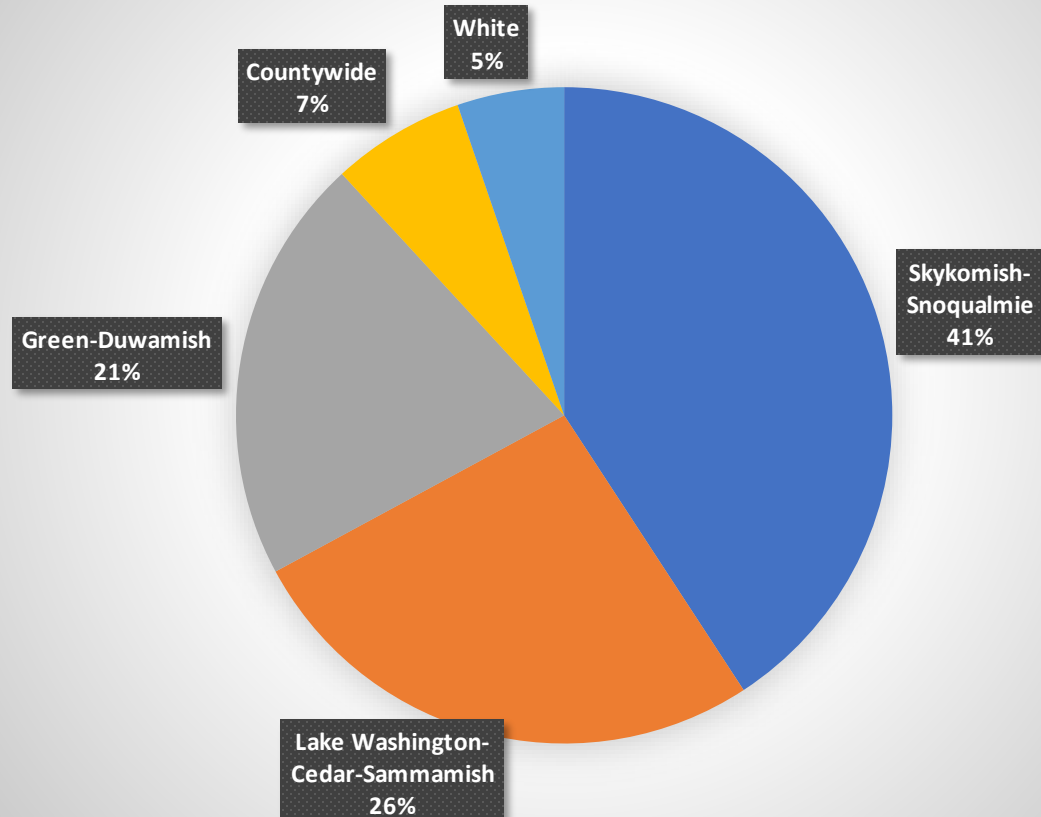
**Are any of these activities no longer relevant? Only relevant to the Hazard Mitigation Plan?**



# King County 2013 Flood Hazard Management Plan

- Update to 2006 Flood Plan.
- 76 actions.
  - Only five actions have not been implemented or initiated.

2013 Flood Plan by Project Location



## 2013 KING COUNTY FLOOD HAZARD MANAGEMENT PLAN UPDATE AND PROGRESS REPORT

An Amendment to the 2006 Flood Hazard Management Plan for the  
Community Rating System



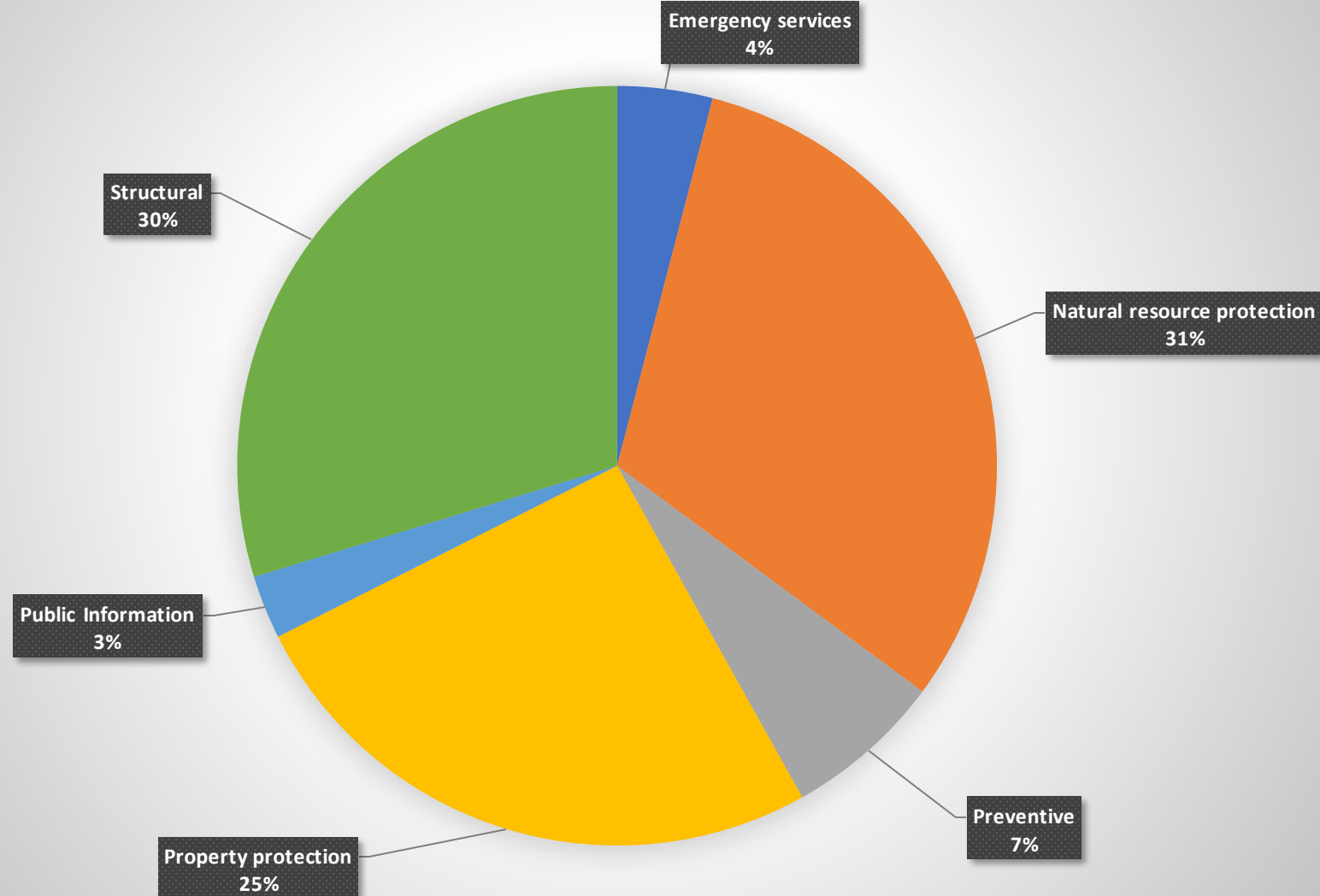
FINAL PLAN  
November 2013



# 2013 Flood Plan Activities

- Many natural resource projects also involved acquisition.
- Natural resource projects mostly levee setbacks.
- Some new flood control structures.
- Little emphasis on information, outreach, and preparedness.
- No projects to address coastal or urban flooding, few to address tributary flooding.

2013 Flood Plan  
Project Types



# King County 2013 Flood Hazard Management Plan

**Lake Washington-Cedar-Sammamish** - Emphasis on acquisitions, levee setbacks, some levee maintenance and expansion in Cedar

**Progress 90%**

**Skykomish-Snoqualmie** - Emphasis on acquisitions, flood control structure repair, some restoration

**Progress 97%**

**Green-Duwamish** - Emphasis on new flood control structures, small number of setbacks, and acquisitions to support new structures

**Progress 88%**

**Countywide** - Emergency services and natural resource grants

**Progress 100%**

**White** - Restoration and acquisition activities

**Progress 75%**

**Should these activities be continued and/or expanded upon?**

**Should any of these be modified?**

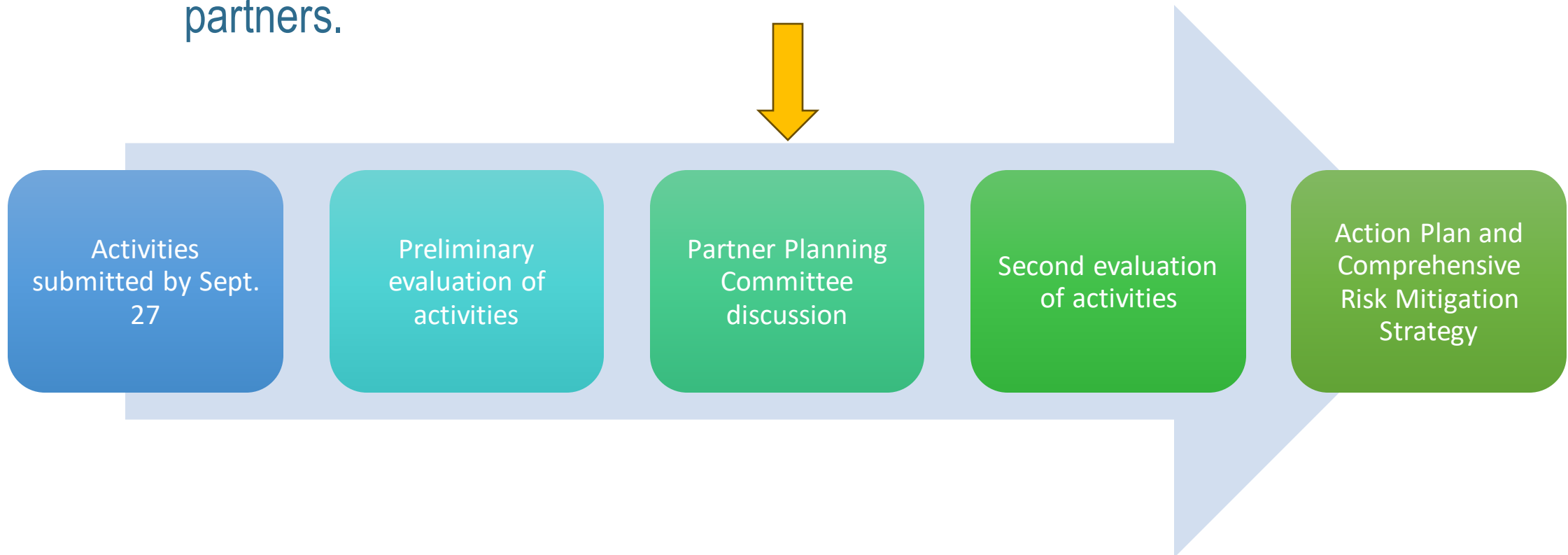
**Are any of these activities no longer relevant?**

# Components of the Activities Chapter of the Flood Plan

- Comprehensive Risk Mitigation Strategy
  - Previously called the “Comprehensive Mitigation Strategy.”
  - Consists of activities that different entities can undertake to address identified flood risks throughout King County.
- King County 5-Year Action Plan
  - A subset of the Comprehensive Risk Mitigation Strategy.
  - Consists of activities for which King County has decision-making and budgetary authority.

# Activity Summary

- Over 300 activities currently captured.
  - ~100 King County activities.
  - ~200 activities led by other governments, organizations, and partners.



# Activity Contributors and Partners

## King County Departments/Divisions

- Emergency Management
- Parks
- Road Services
- Water & Land Resources (stormwater services, fish passage, basin stewardship)

## Tribes

- Snoqualmie Tribe

## Other Organizations

- King County Flood Control District
- WRIAs 7, 8, and 9

## Partner Planning Committee Members

- Angela Donaldson (Snoqualmie FFF)
- Patrick Haluptzok
- Snoqualmie Valley Preservation Alliance
- Snoqualmie Watershed Improvement District
- Washington Sensible Shorelines Association

## Cities

- Issaquah
- Kirkland
- Renton
- Seattle
- Shoreline
- Snoqualmie

# FEMA categories of floodplain management activities

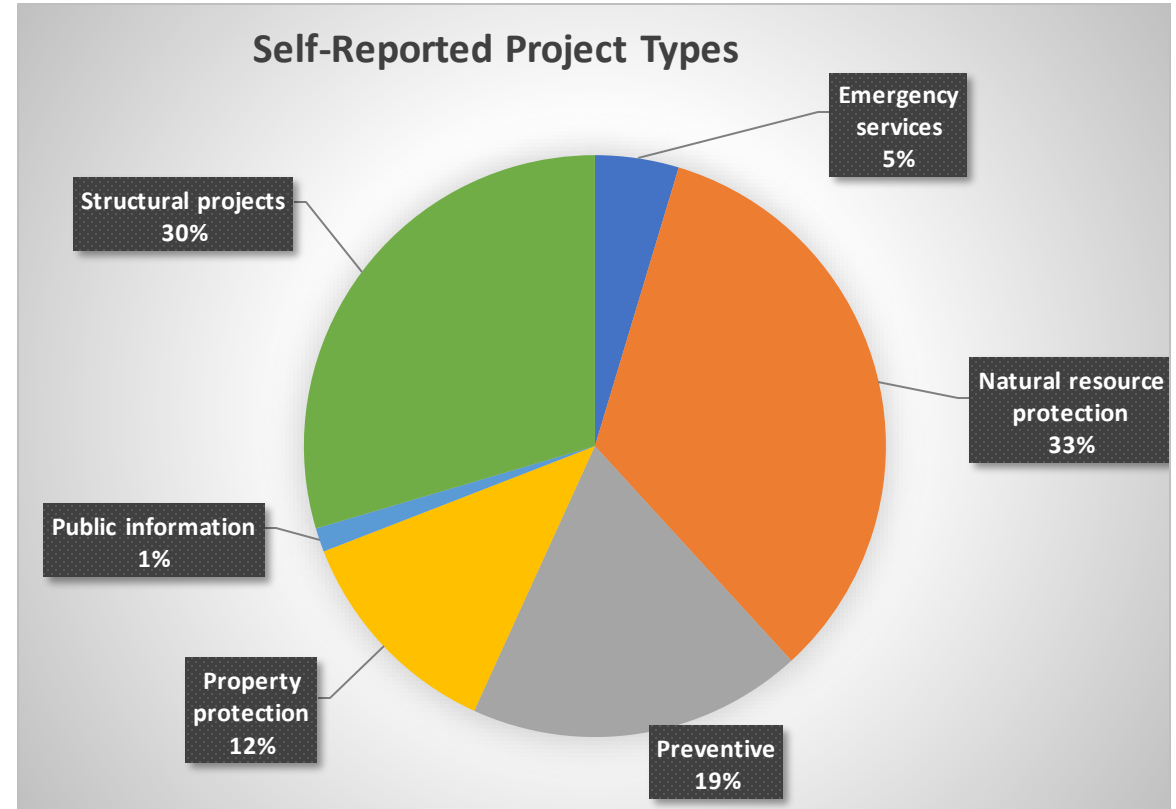
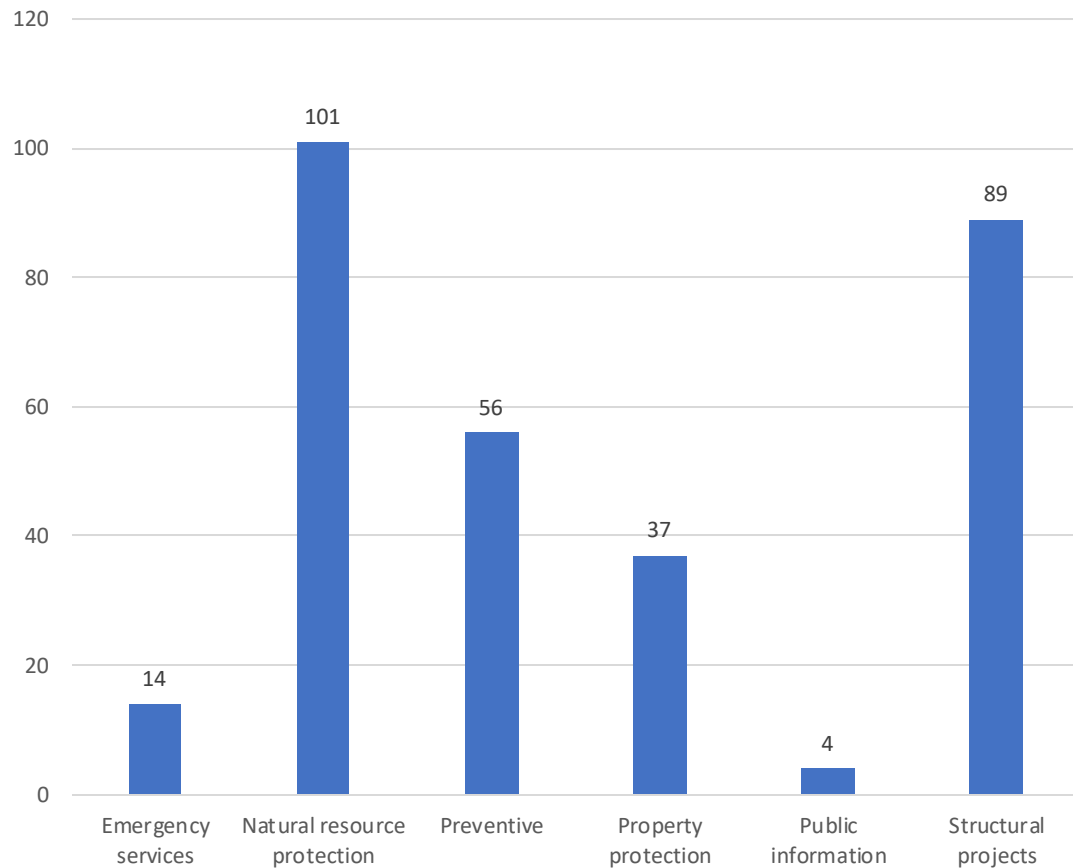
- **Preventive** – floodplain and land use, stormwater management, building codes, open space protection, flood management infrastructure maintenance
- **Property protection** – relocation, acquisition, elevation, retrofits, insurance
- **Natural resource protection** – restore ecological functions, preserve natural areas, erosion/sediment control, wetlands protection, water quality improvement, levee setbacks
- **Emergency services** – alerts, monitoring, response operations, mitigation actions
- **Structural projects** – move or restrict flow of water, including levees, drainage infrastructure, channel modifications, stormwater storage
- **Public information** – education, outreach, transparency requirements, studies

# Types of Activities

Does this breakdown of project types reflect the input we have heard?

Does it reflect the goals and objectives of the Flood Plan?

Self-Reported Project Types





# Evaluation

- The project team completed an initial review of the activities using the evaluation criteria:
  - Supports Flood Plan goals
  - Supports legal obligations and policy priorities
  - Technical merit
  - Technical efficacy
  - Multiple benefits
  - Financial
  - Timeline

# Evaluation – Initial Results

- No activities were deemed inappropriate for the Flood Plan on preliminary review. Additional review is underway.
- ~40 activities require further review (more information from proponents or further review from King County staff on feasibility, background information, and appropriateness).

**64% of activities  
will be  
completed  
within five years  
or occur annually**

**83% of  
activities  
support  
multiple Flood  
Plan goals**

**70% of  
activities have  
secured  
funding**

**55% of activities  
support multiple  
King County  
policy priorities**

# Programmatic Activities

## 37 programmatic activities

Over half are continuations of existing programs, including:

- Flood warning systems
- Stormwater services
- Monitoring programs
- Emergency response
- Grant programs

Expanded programmatic efforts include:

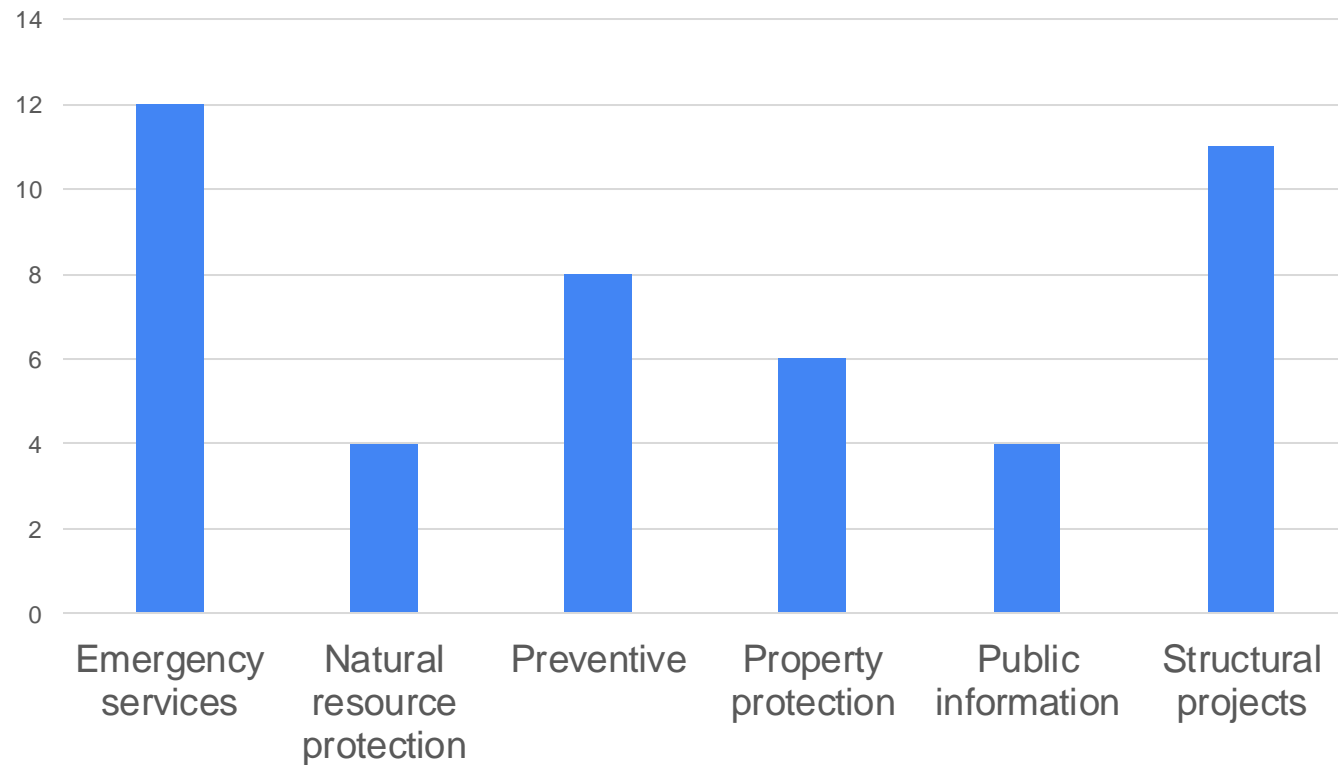
- Beaver management
- Dam safety education
- Water quality monitoring
- Public outreach

New programmatic activities include:

- Vashon-Maury Island Coastal Vulnerability Assessment
- Evacuation route planning
- Rural drainage program pilot
- Base level engineering (automated flood mapping approach)

# Countywide & Multi-Watershed Activities

Multiple watersheds

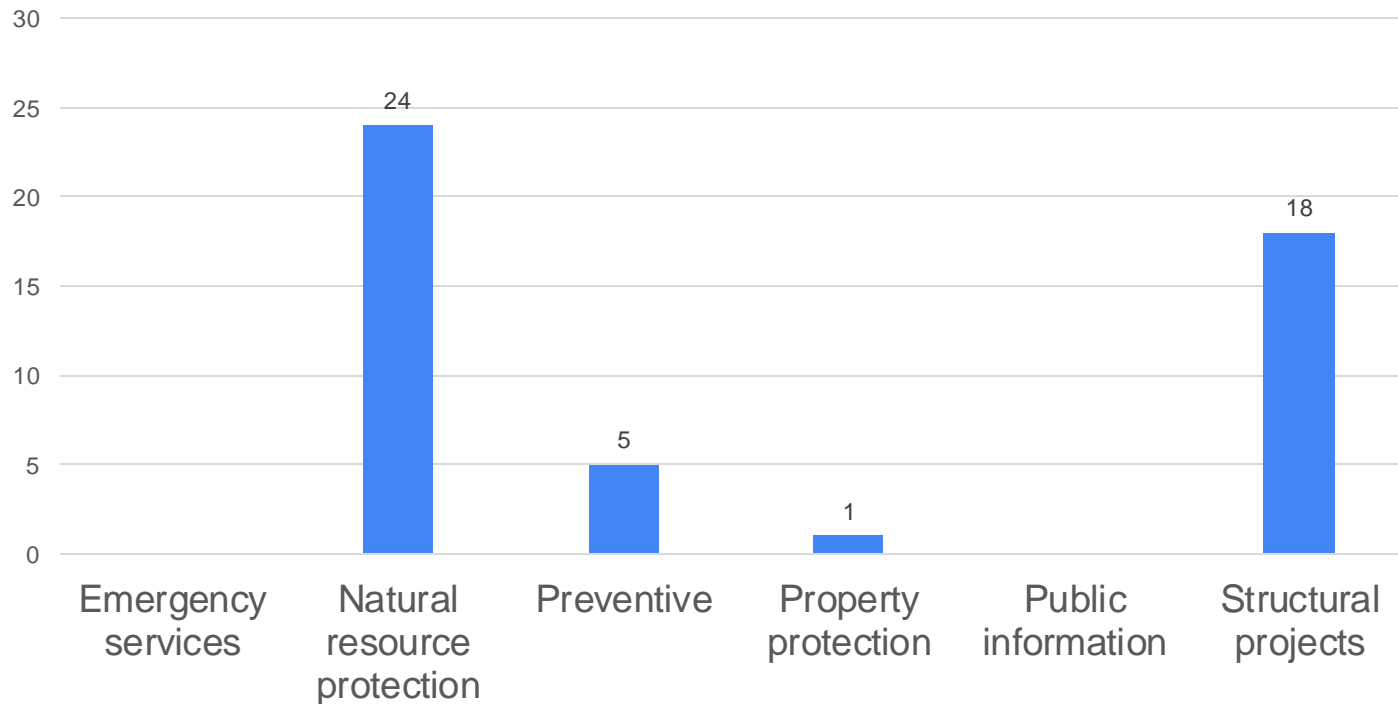


## Highlights (42 activities)

- Open space grants
- Seattle urban green stormwater infrastructure
- County flood/stormwater/engineer expertise support
- Flood warning system upgrades
- Neighborhood drainage assistance program

# Green-Duwamish Watershed Activities

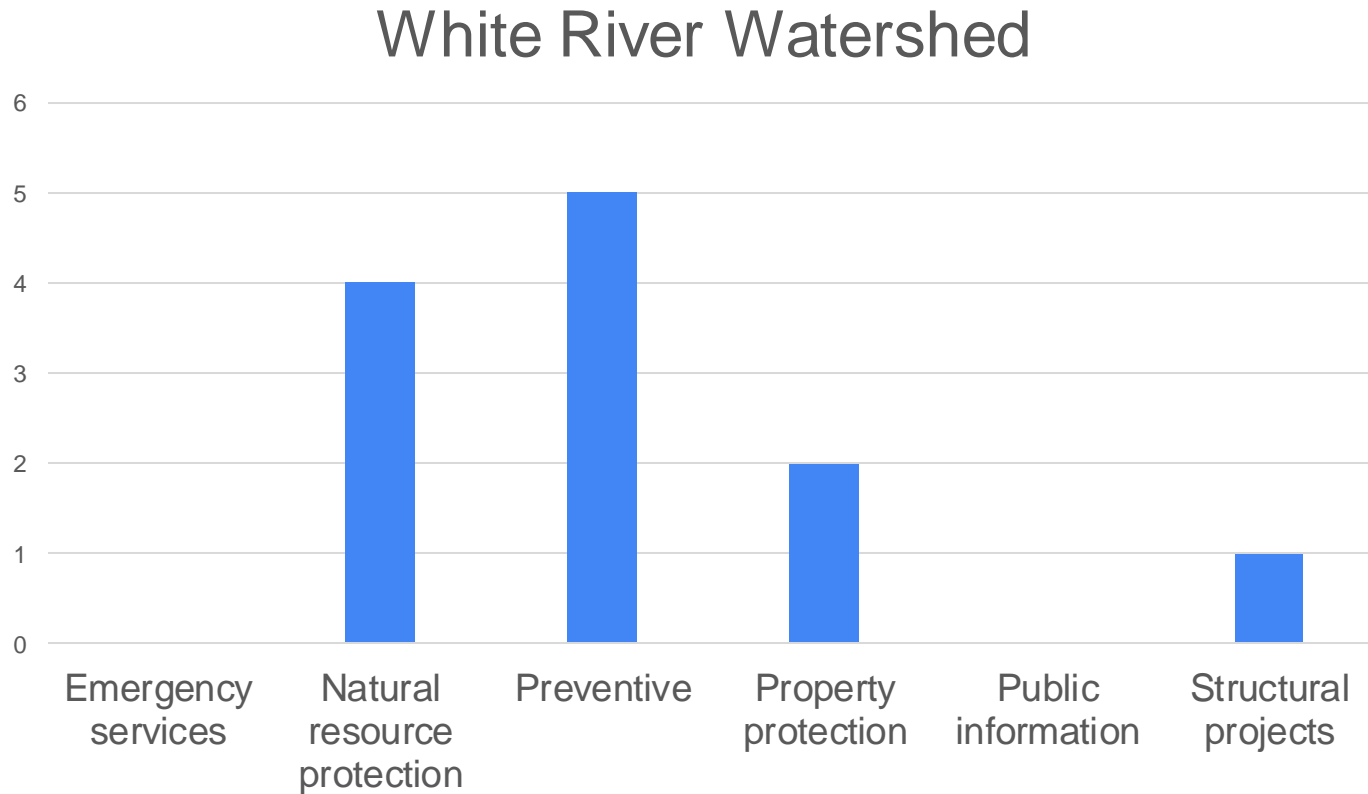
Green/Duwamish River Watershed



## Highlights (48 activities)

- Chinook Wind Habitat/Open Space Expansion
- Numerous levee setbacks
- 10 fish passage/conveyance capacity projects
- South Park conveyance improvements, sea level rise adaptation, and preparedness
- Lower Green River acquisitions for future projects

# White River Watershed Activities

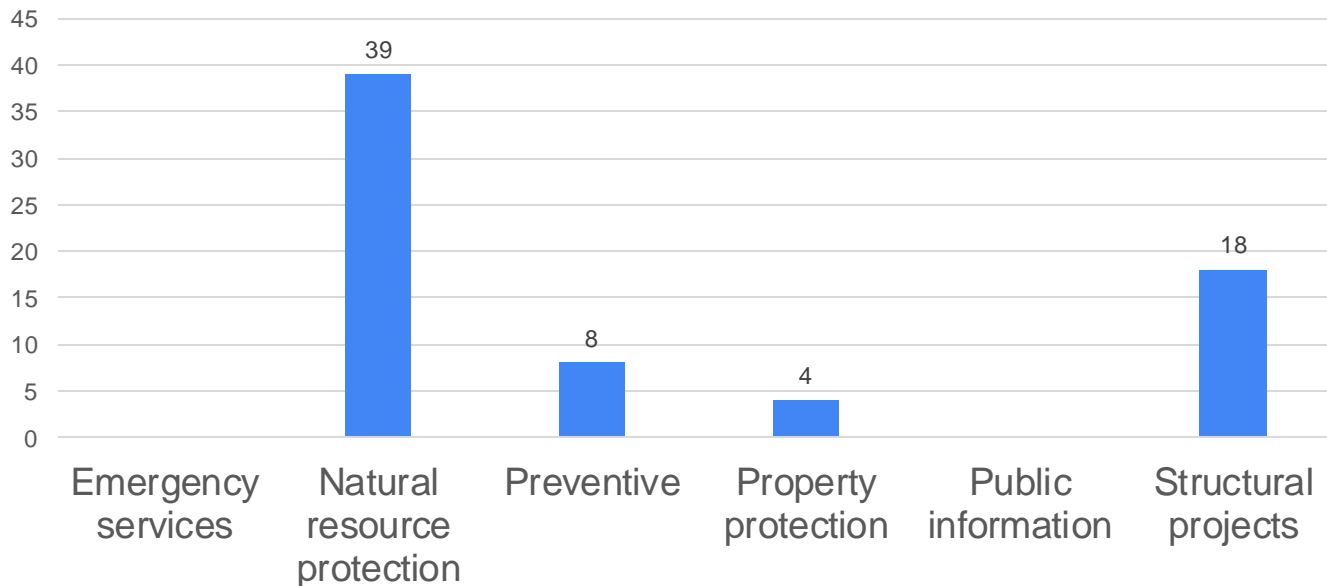


## Highlights (12 activities)

- Numerous culvert replacement and fish passage improvements
- Levee setback in City of Pacific
- Rural road elevation project
- One floodplain property acquisition

# Lake Washington/Sammamish/Cedar River Watershed Activities

Lake Washington/Sammamish/Cedar River Watershed

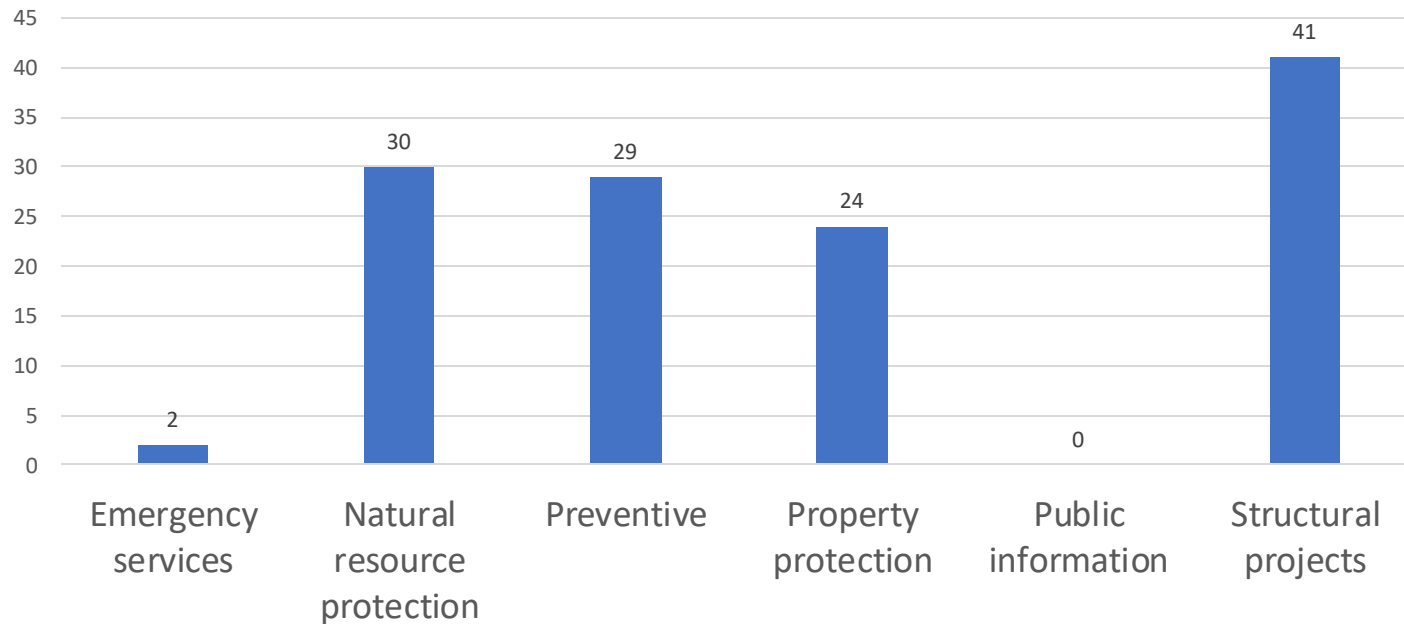


## Highlights (69 activities)

- Cedar River levee setbacks and structure maintenance
- Tributary restoration efforts by Seattle, Sammamish, Redmond, and State Parks
- Numerous fish passage/conveyance improvement projects
- Sammamish River Floodplain Restoration
- Proposed Sammamish River Dynamic Weir

# South Fork Skykomish-Snoqualmie River Watershed Activities

South Fork Skykomish/Snoqualmie River Watershed



## Highlights (126 activities)

- Floodzilla gauge network
- Numerous FCD levee setbacks
- Tolt and Miller River Acquisitions and Restoration
- Farm pad projects
- North Bend residential flood mitigation
- Agricultural drainage projects
- Riparian restoration projects
- Road elevations and bridge improvements



# Coastal Flooding Activities

8 activities, spanning Seattle, Des Moines, Vashon-Maury Island, and Countywide programs

## County Efforts

- Vashon-Maury Coastal Vulnerability Assessment

## Seattle Projects on Duwamish Waterway

- Emergency response and preparedness efforts
- Near-term physical interventions
- Conveyance improvements
- Alternatives study for sea level rise adaptation



*McSorley Creek Future Restoration Site, Des Moines*

# Urban Flooding Activities

Dozens of projects spanning Seattle, North Bend, Issaquah, Kirkland, Tukwila, Kent, County programs, and Flood Control District efforts

## Highlights

- King County Stormwater assistance programs
- Seattle South Park conveyance and adaptation projects
- Seattle urban green stormwater infrastructure program
- Issaquah stormwater studies and conveyance improvements
- Kirkland stormwater system improvements



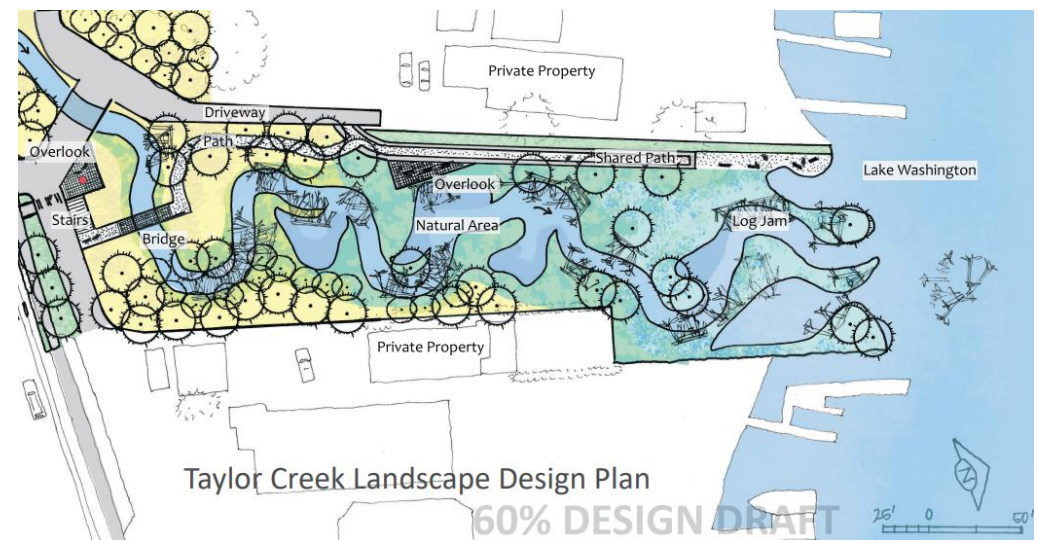
*Seattle Green Stormwater Initiative*

# Tributary Flooding Activities

Over 100 tributary flood risk reduction activities, many conveyance and restoration

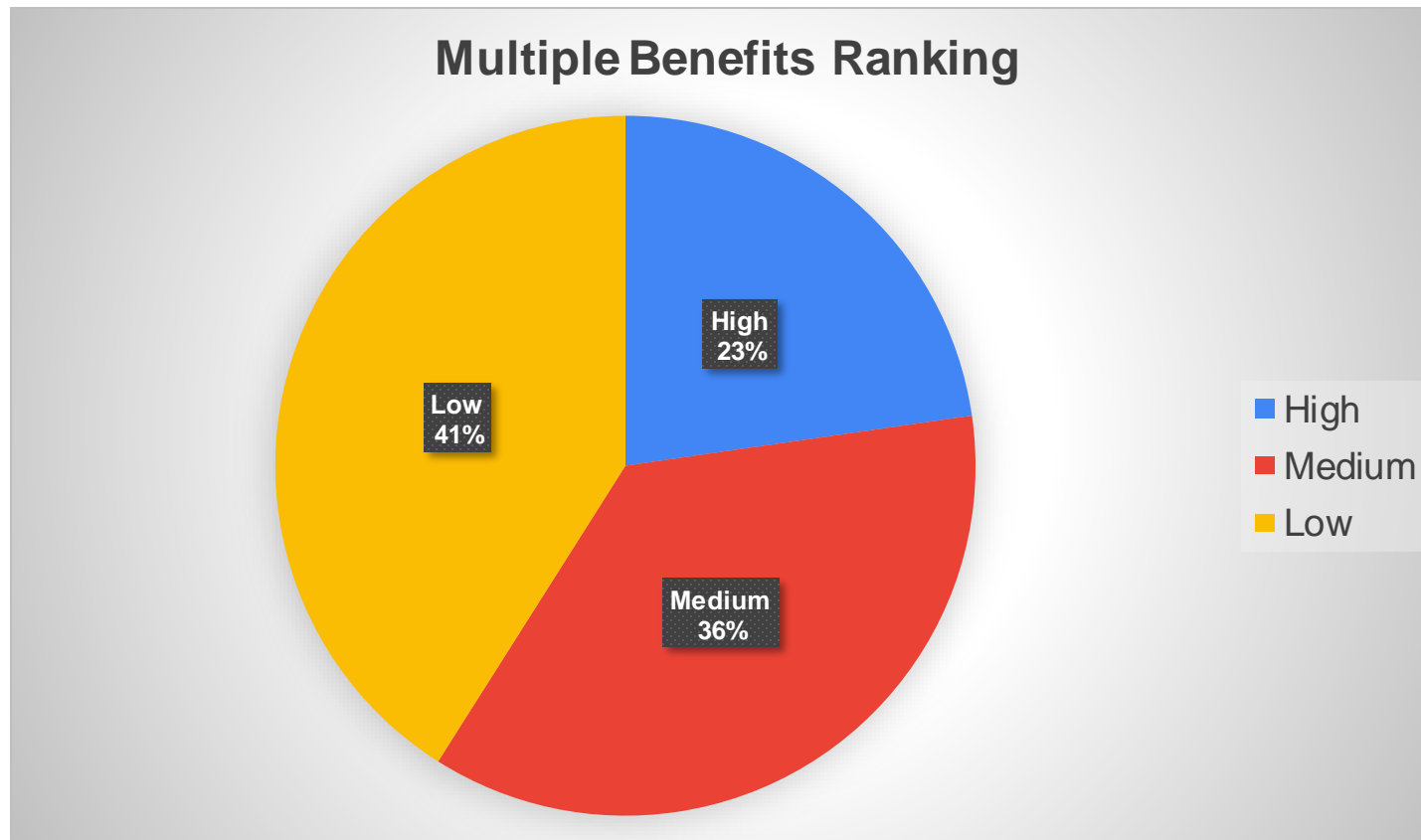
## Highlights

- Dozens of King County culvert removals/conveyance increases (in most watersheds)
- Snoqualmie Valley WID Tuck and Ames Creek barrier removal/replacement, daylighting
- Seattle Taylor Creek restoration & Longfellow Creek floodplain storage
- King County Tate Creek acquisitions
- Issaquah Creek restoration
- City of Shoreline Ballinger Creek restoration
- City of Kirkland Juanita Creek restoration



# Multiple Benefits

- 194 activities provide benefits beyond flood risk reduction.
- Most common benefits include habitat restoration/fish passage, open space conservation, recreation, and productive agriculture.



# Activities to Support Climate Change Resilience

- 65+ conveyance improvement projects
  - Culvert replacements and urban stormwater conveyance improvements, including green infrastructure.
- Incorporating resilience into public information and planning efforts
  - Vulnerability and risk assessments, technical assistance, alternatives analyses, response planning.
- Structural solutions that support resilience
  - Sea level rise adaptations and improving flood protection of existing flood protection infrastructure.

# Equity and Social Justice

Numerous activities will reduce risk for vulnerable and underrepresented populations, but few identified equity benefits or goals.

## **King County/Seattle Property Protection Accessibility**

Understand community property protection programs and how accessible they are and how they may be utilized by some population segments.

## **Seattle Continued Support for Sandbag Program**

Distribution of sandbags especially in areas with urban flooding issues and concentrations of vulnerable populations, including South Park, Delridge, North Seattle.

## **Seattle Green Stormwater Infrastructure in Urban Villages**

Construction of bioretention facilities and increase of green spaces in urban areas of Seattle, providing additional climate resilient benefits like mitigating heat island effects.

## **King County Public Education and Emergency Information**

King County's public information about flood risk is translated into many languages, in addition to King County providing a translation hotline for additional support.

# Discussion: Gaps and Additions

Types of actions that will be supplemented with ideas from committee and workshop discussions:

- Public information activities
- Mapping, monitoring, or studies
- Coastal flood risk reduction activities
- Regulation or policy development
- Equity and social justice benefits

## Discussion Questions

**Given the flood risks we've discussed, are there additional activities or activity types we should consider?**

**Do you see any gaps in what was presented today?**

# Prioritization

- Many activities rated high based on our evaluation criteria.
- Instead of ranking all 300+ activities into tiers, we propose creating a shorter and more qualitative list of highest priorities based on the evaluation criteria and key themes of the flood plan (such as equity, climate change, multi-benefits, integrated floodplain management).
- We propose including “implementation of actions on the FCD’s CIP” as a priority.

## Discussion of Short List Priorities

**What types of activities should be short list priorities? Why?**

**Which criteria are most important for prioritizing activities?**



# How Activities Will Be Reflected in the Flood Plan

## Comprehensive Risk Mitigation Strategy Structure

- Comprehensive Risk Mitigation Strategy — Programmatic recommendations
  - Activities by CRS Activity Type (preventive, property protection, public info, etc.)
    - Tables of activities by sub-type (e.g. Preventive: Hazard mapping, land use regulations, etc)
- Comprehensive Risk Mitigation Strategy — Capital projects
  - Table of capital projects for each watershed
- King County Action Plan

## Example Comp. Risk Mitigation Strategy Section

### Preventive Actions

What we have heard since the last Flood Plan	How this informs our approach
[Summary of public input on activity type]	[Summary of strategy and application of input]

Activity name and description	Potential Implementer	Funding source	Timeline	Types of flooding addressed	Benefits provided
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# Flood Plan Process

- Second review of submitted activities.
  - Follow-up on activities that require more information.
  - Use Committee input and evaluation criteria to develop short priority lists.
- Internal review of draft Flood Plan by King County.
- If needed, December meeting of Partner Planning Committee.
- Draft Flood Plan available for public comment in late January 2024.
  - 45-day comment period.
  - Public Draft EIS available around the same time.
- February 2024 Partner Planning Committee meeting for input during comment period.
- Revisions to Flood Plan likely through Spring 2024.
- County Council review process for Flood Plan begins Spring 2024.

# Next steps

- No additional meetings currently scheduled.
  - Public Draft Flood Plan discussion meeting proposed for mid-February 2024.
- Contact us:
  - Jason Wilkinson, [jason.wilkinson@kingcounty.gov](mailto:jason.wilkinson@kingcounty.gov)
  - Spencer Easton, [seaston@esassoc.com](mailto:seaston@esassoc.com)
- Website:
  - [www.kingcounty.gov/floodplan](http://www.kingcounty.gov/floodplan)