



FLOODPLAIN MANAGEMENT UPDATE PROGRAM

City Council Presentation
August 30, 2023

Jeff Caudill

Environmental Planner, BPS

Patricia Diefenderfer

Chief Planner, BPS

Jason Butler-Brown

Engineering Supervisor, BDS

Doug Morgan

Engineering Manager, BDS



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services** FROM CONCEPT
TO CONSTRUCTION

Presentation Outline

1. Background
2. Overview of Proposed Title 33 Zoning Code Amendments (BPS) "Floodplain Resilience Plan"
3. Overview of Proposed Title 24 Building Code Amendments (BDS) "Building Regulations Update Project"
4. Development Considerations/ Costs
5. Next Steps/Schedule
6. Q & A



Photo: The Oregonian



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



Background



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

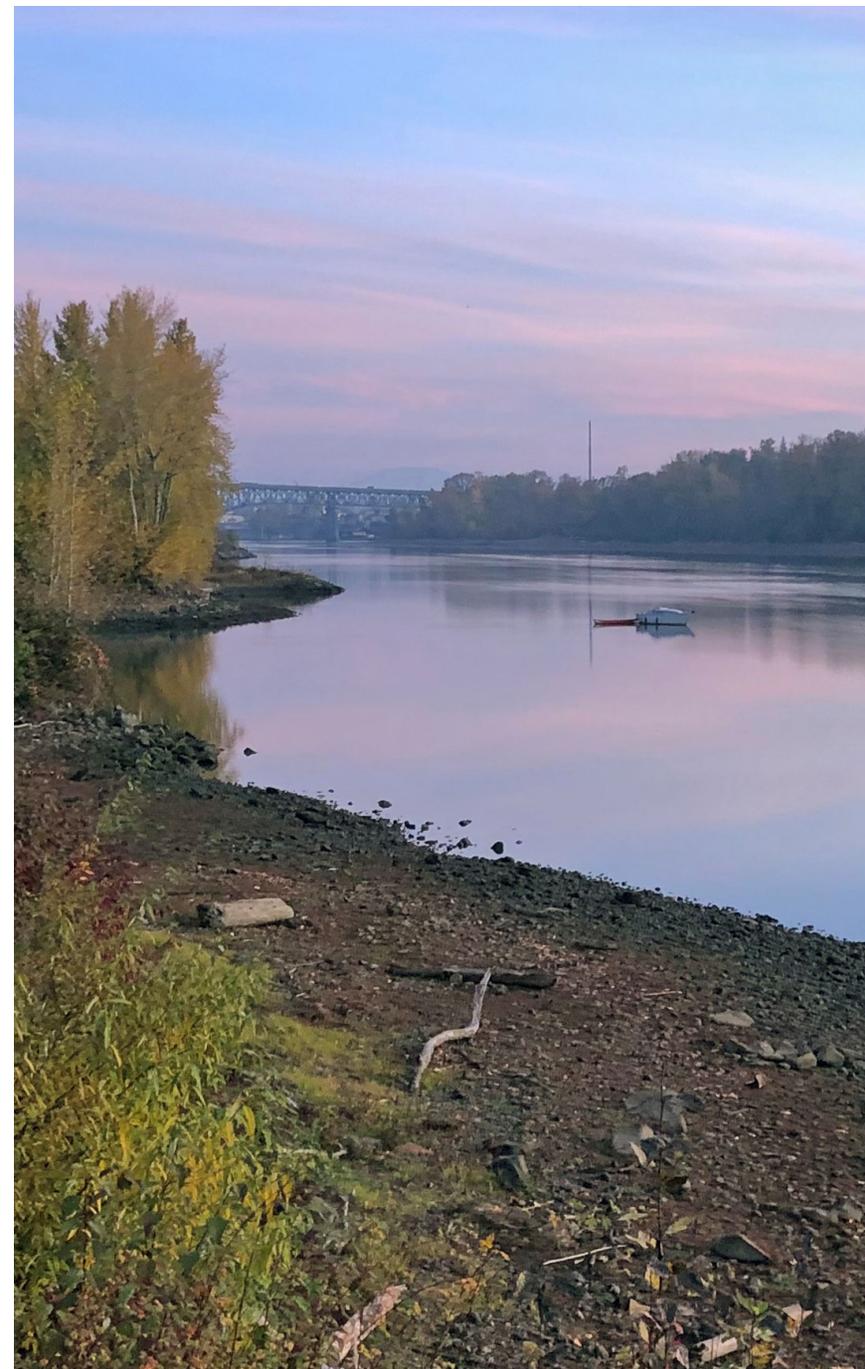
Background

Multi-bureau Floodplain Management Update

- 5-year work plan based on 2019 Implementation Agreement with:
 - BDS, BES, BPS, OGR, CAO, OMF, PP&R and Prosper Portland
 - PBEM and PBOT also on team
- Council-funded in FY18/19 & FY22/23

Project Goals

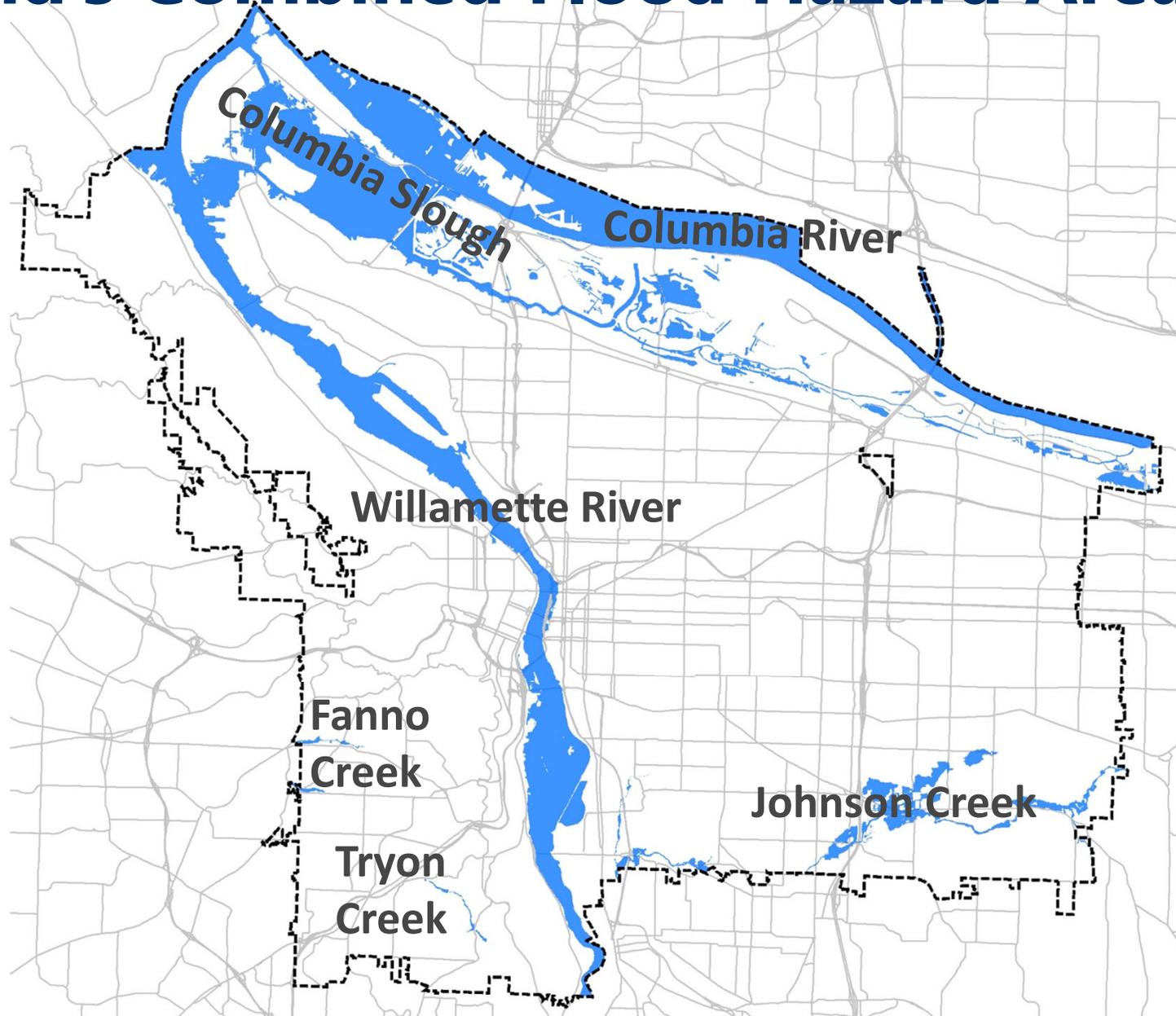
- Maintain access to national flood insurance and disaster relief funds
- Reduce future flood risk
- Improve and expand habitat for Portland's threatened and endangered species



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



Portland's Combined Flood Hazard Area

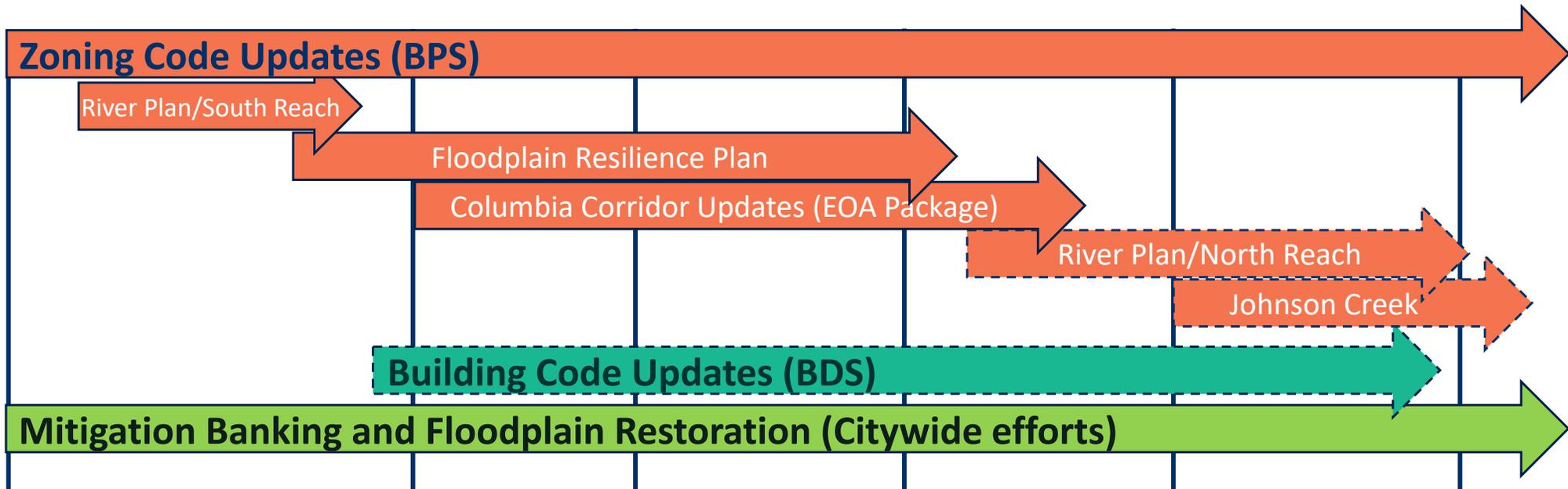


Responding to the 2016 Biological Opinion

FEMA's TIMELINE



CITY WORK PLAN COMPONENTS & SCHEDULE



Overview of Proposed Title 33 Zoning Code Amendments

“Floodplain Resilience Plan”



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



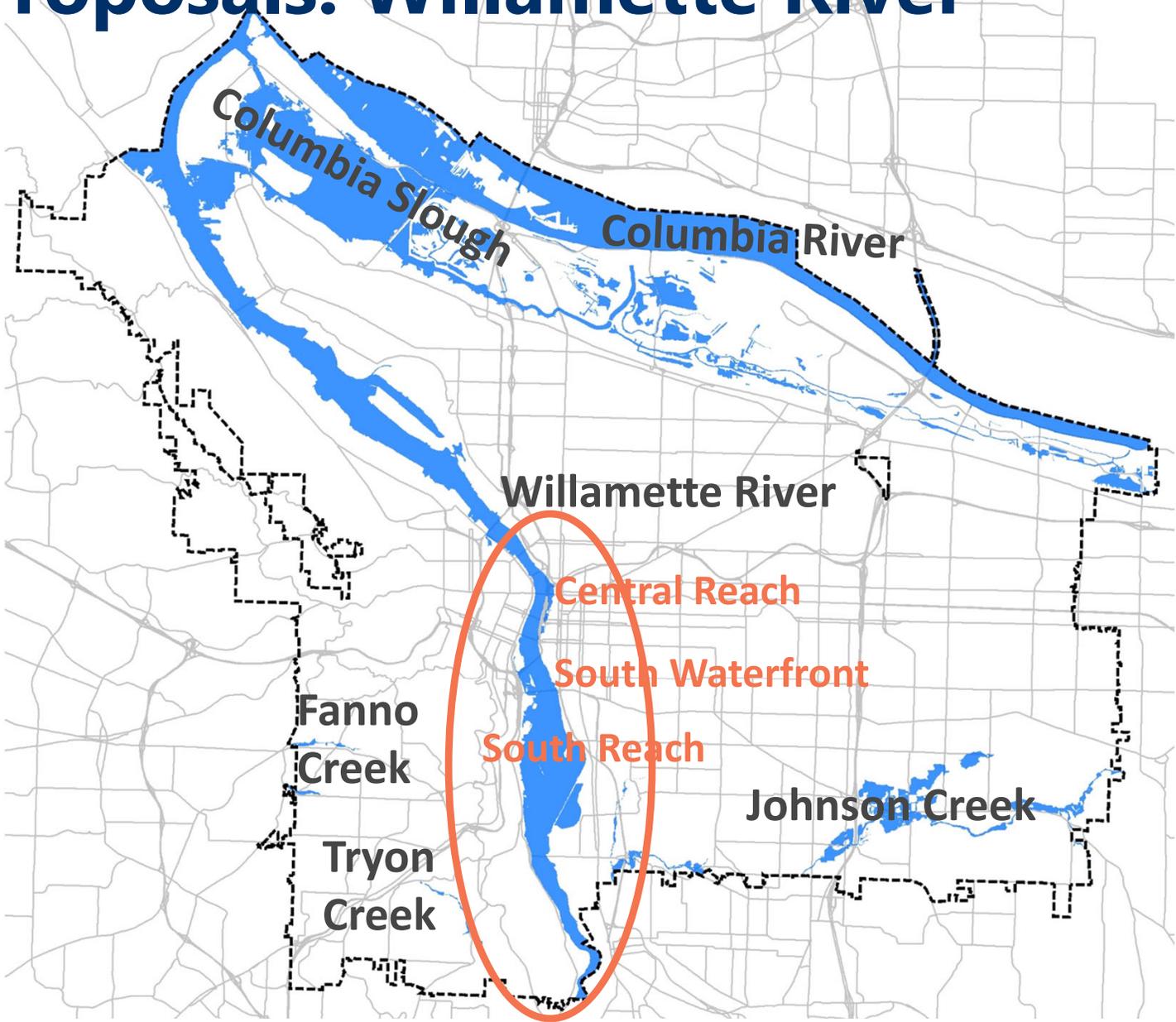
**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Zoning Code (Title 33) Updates

- Add new requirement for fish habitat improvements as a part of Central City development close to the river
- Expand environmental zones to apply habitat protections to undeveloped floodplains
- Establish consistent tree and vegetation replacement in the city's floodplains

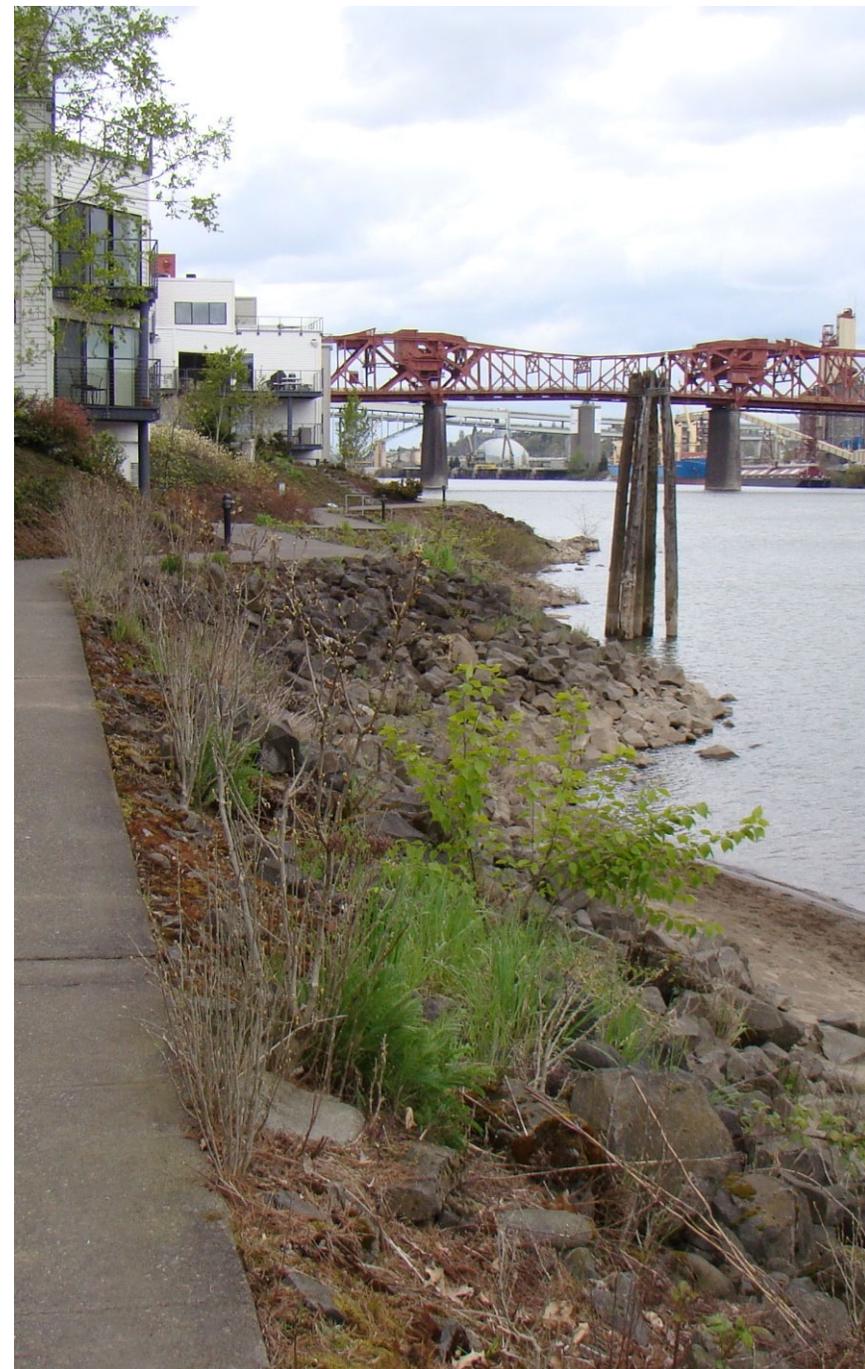


Key Proposals: Willamette River



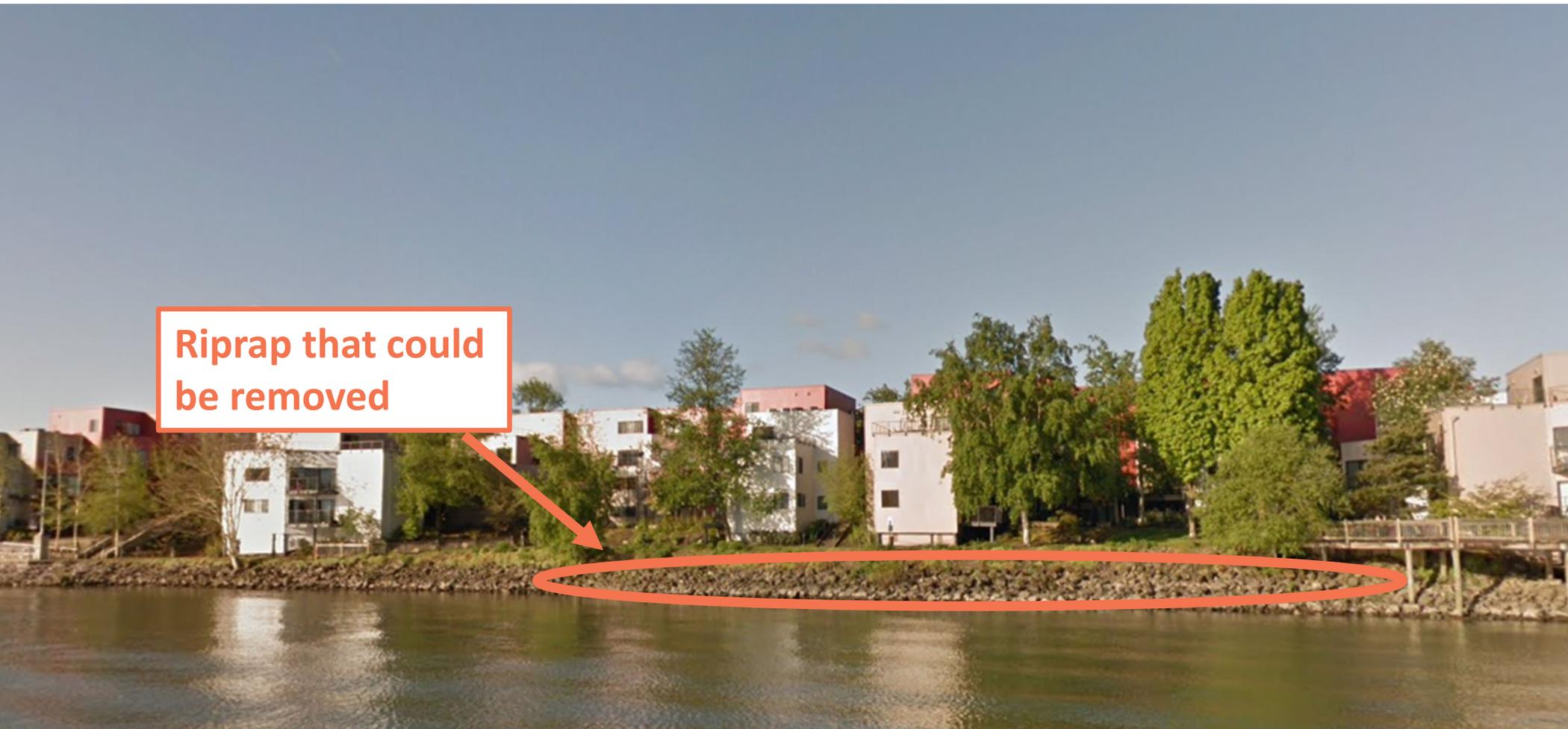
Riparian Buffer Area

- Often extends beyond required setback, but not always
- Not a “no-build” zone but additional mitigation required
- Mitigation
 - Vegetation, trees and habitat improvements to offset development impacts
 - Can be located onsite or off-site
 - Extent/type of improvements depend on scale of impact



Riparian Buffer Area – Mitigation Strategies

Removal of structures, riprap, etc.



Riprap that could be removed



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Riparian Buffer Area – Mitigation Strategies

Laying back the bank



Riverplace



South Waterfront

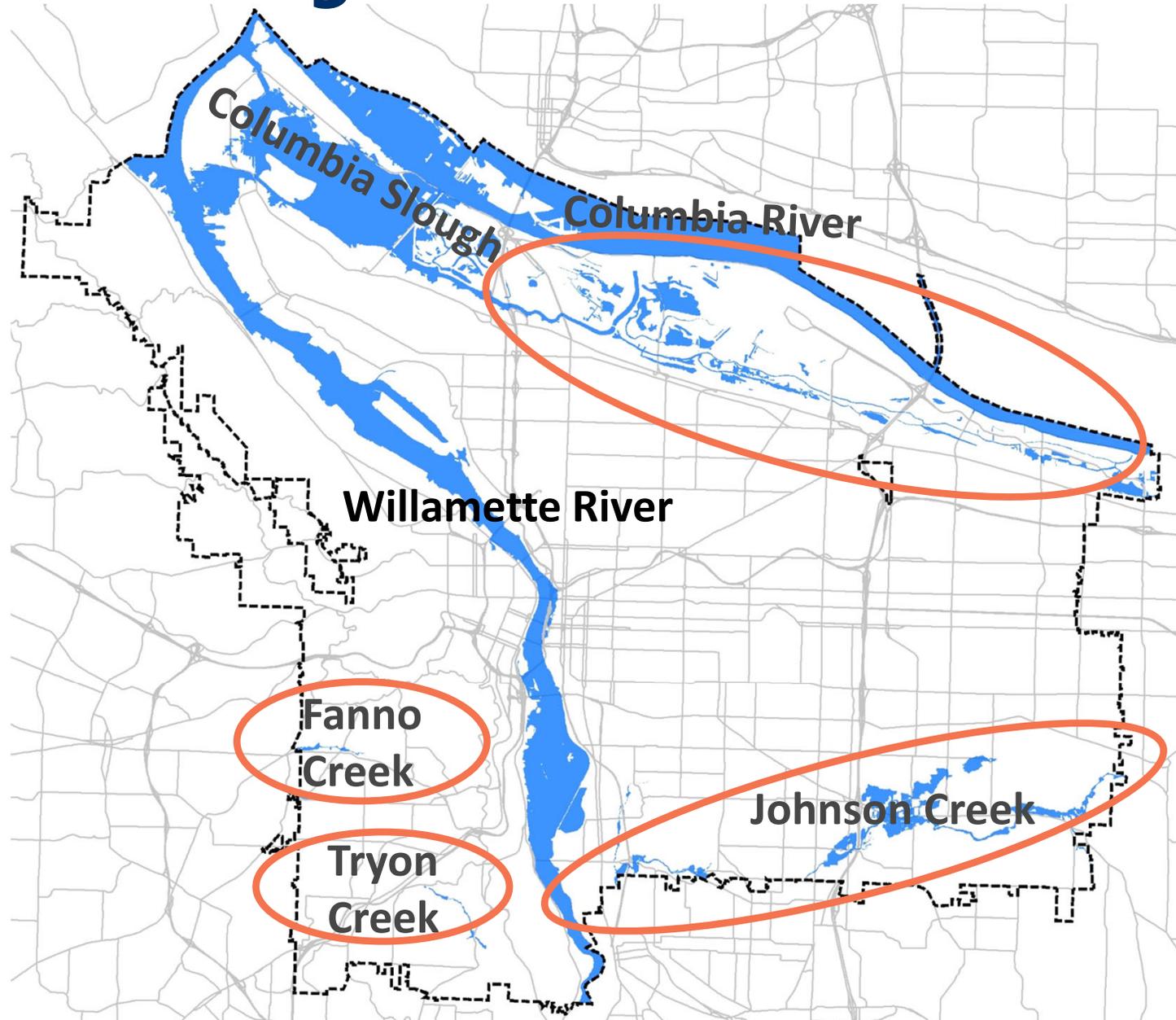


THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Additional changes in some other areas



Summary of Public Outreach & PSC Review

Nov 2021-Feb 2022 - Discussion Draft public comment period

Sept-Nov 2022 – Planning & Sustainability Commission (PSC) Review

PSC Testimony Themes

- Climate change response is critical
- Include Title 24 and other changes
- Expedite work in industrial areas/ Complete EOA work faster
- Slow project until more from FEMA

PSC Amendments

- Technical mapping and zoning code amendments



Proposed Council Amendments to Recommended Draft

Substantive Amendments (see memo)

1. Extend expiration of land use approvals to 7 years for multiple building/phased projects
2. Allow minor changes to approved River Review to remain vested in the regulations in effect at land use review approval
3. Maintain existing exemption for replacement of utilities in the floodplain and allow expansion of existing BES pump stations close to the Willamette River



Proposed Council Amendments to Recommended Draft

Technical Amendments (see memo)

4. Clarify approval criteria for modifications to the River Environmental overlay boundary
5. Update Recommended Draft section "C. Restoration and Mitigation Banks" to reflect current status
6. Minor updates to actions MM-1 and RG-1 in the Action Plan in Chapter VI, Implementation, to depict current info
7. Add zoning quarter sections maps into the document to show overlay zone changes in detail



Implementation Timeline

Would go into effect on March 1, 2024

- Environmental zone expansions (Fanno & Tryon)
- Updates to floodplain tree and vegetation requirements in Environmental overlay zone
- New tree replacement requirements and update land use approval process in South Waterfront
- Incorporate 1996 flood model as basis for South Reach floodplain development requirements
- Other miscellaneous code clean up items

Would go into effect on October 1, 2025

- Central City riparian buffer area requirements
- River Environmental expansion in Central City



Overview of Proposed Building Code (Title 24) Amendments

Exhibit A FEMA Regulatory Changes
Updated February 1996 Flood Map

Exhibit B BiOp Changes



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**

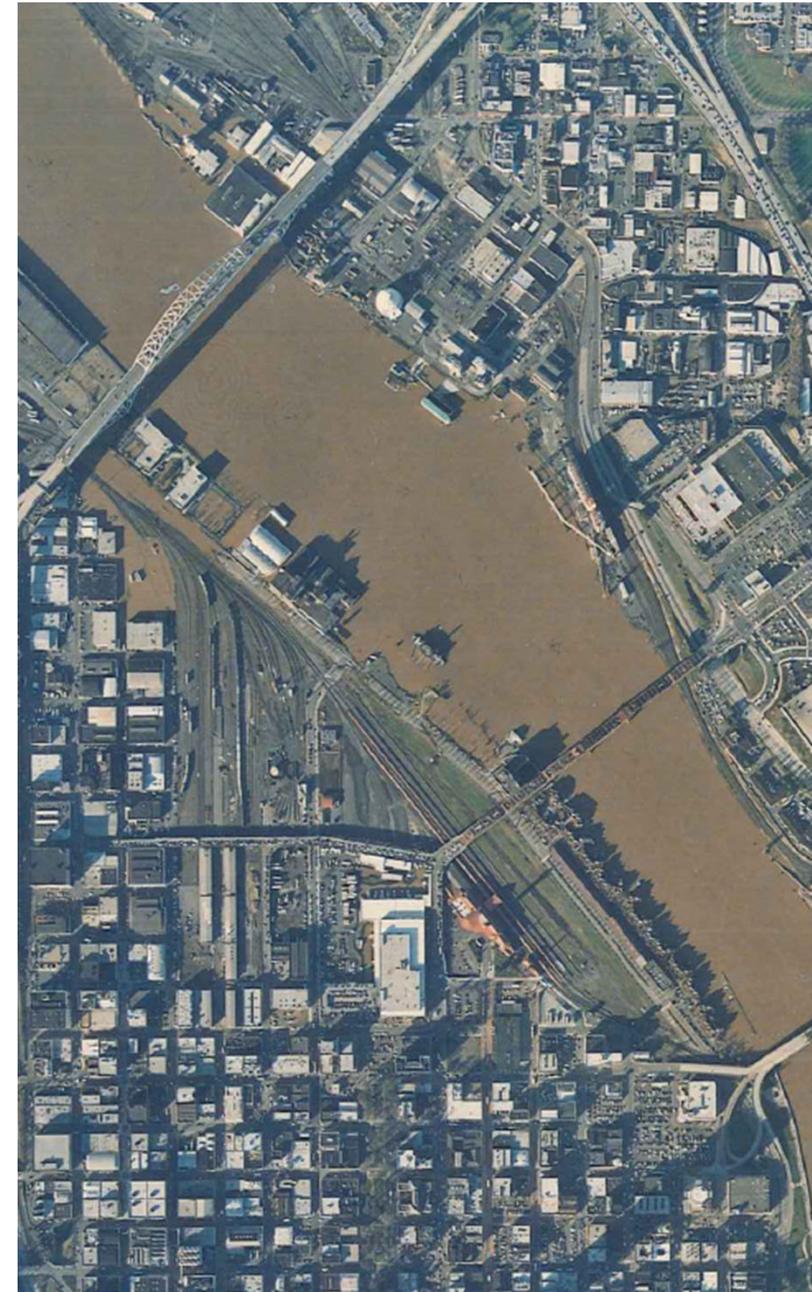


**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

FEMA Regulatory Changes - Exhibit A

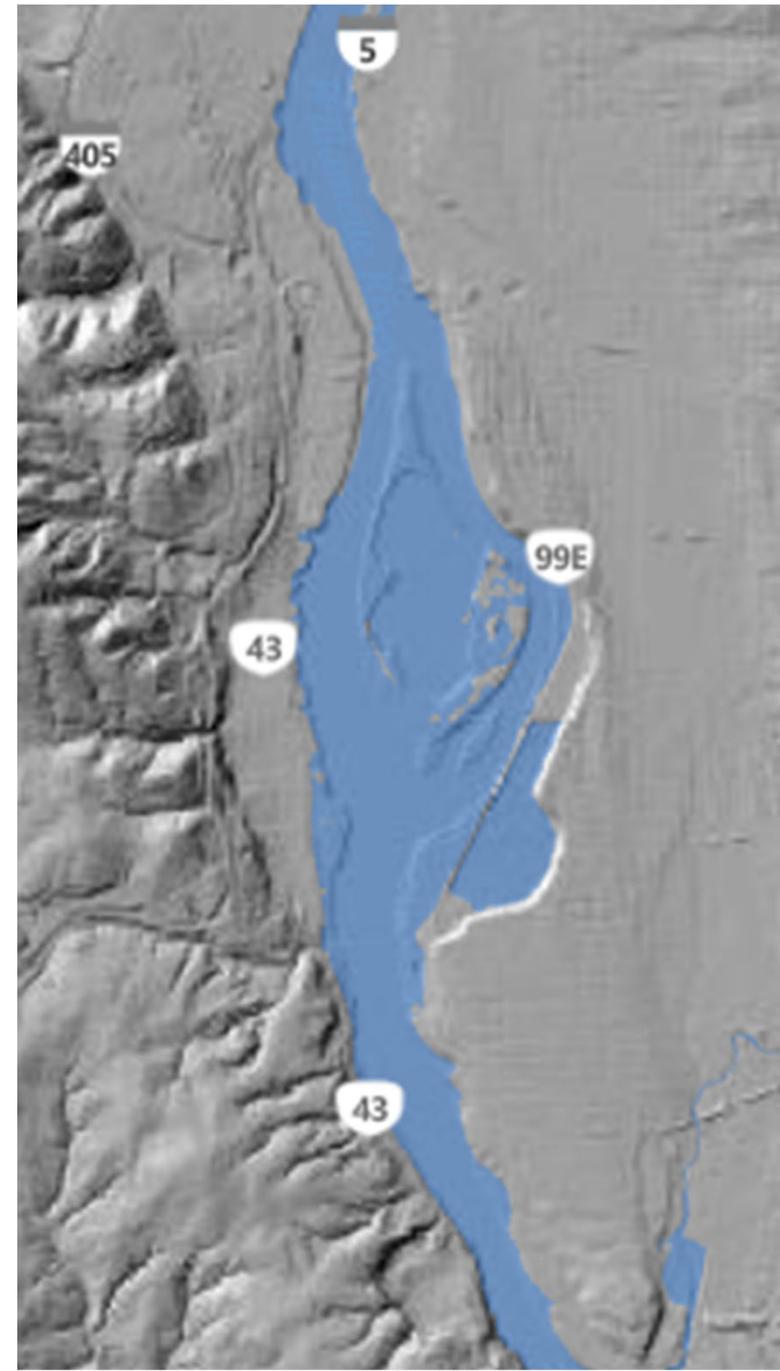
Align with State of Oregon's Model Ordinance for the National Flood Insurance Program

- Additional Definitions
- Clarifies permit submittal and inspection requirements
- Requires a development permit for structures in the floodplain that currently do not require permit



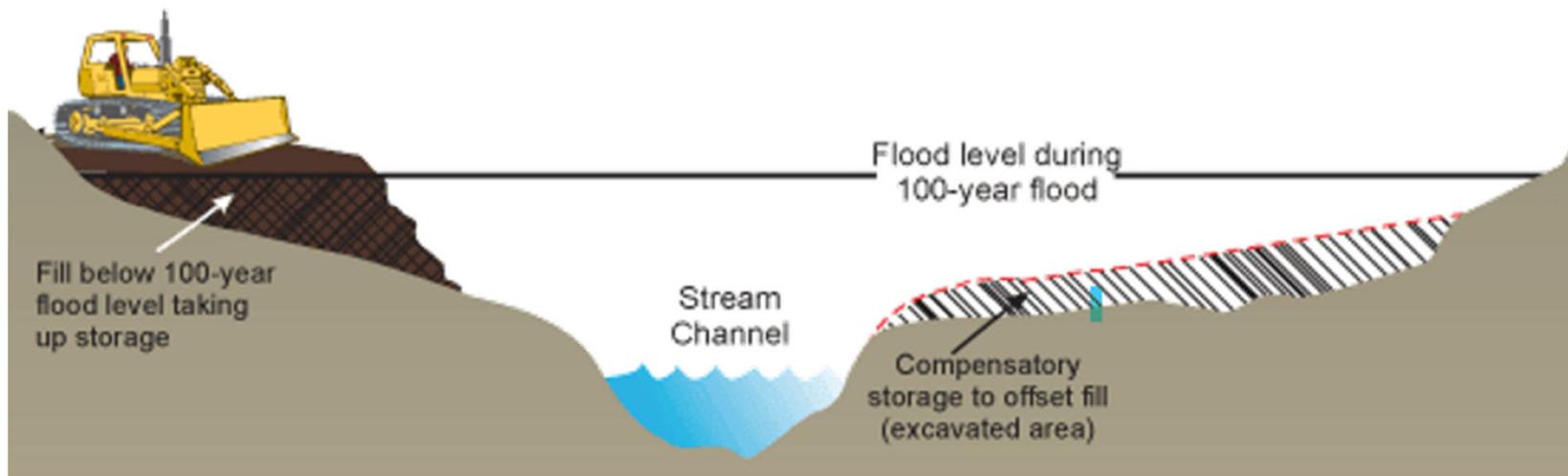
Update to Flood Inundation Area Map Exhibit A

- Adopt a new Composite February 1996 Flood map developed by the City
- Based on the 1996 Flood Area on the Metro Title 3 Map
- Includes recently completed model of the Willamette River 1996 Flood Inundation Area for the Central and South Reach
- Maintains existing South Waterfront exemption



Responding to the FEMA Biological Opinion Exhibit B

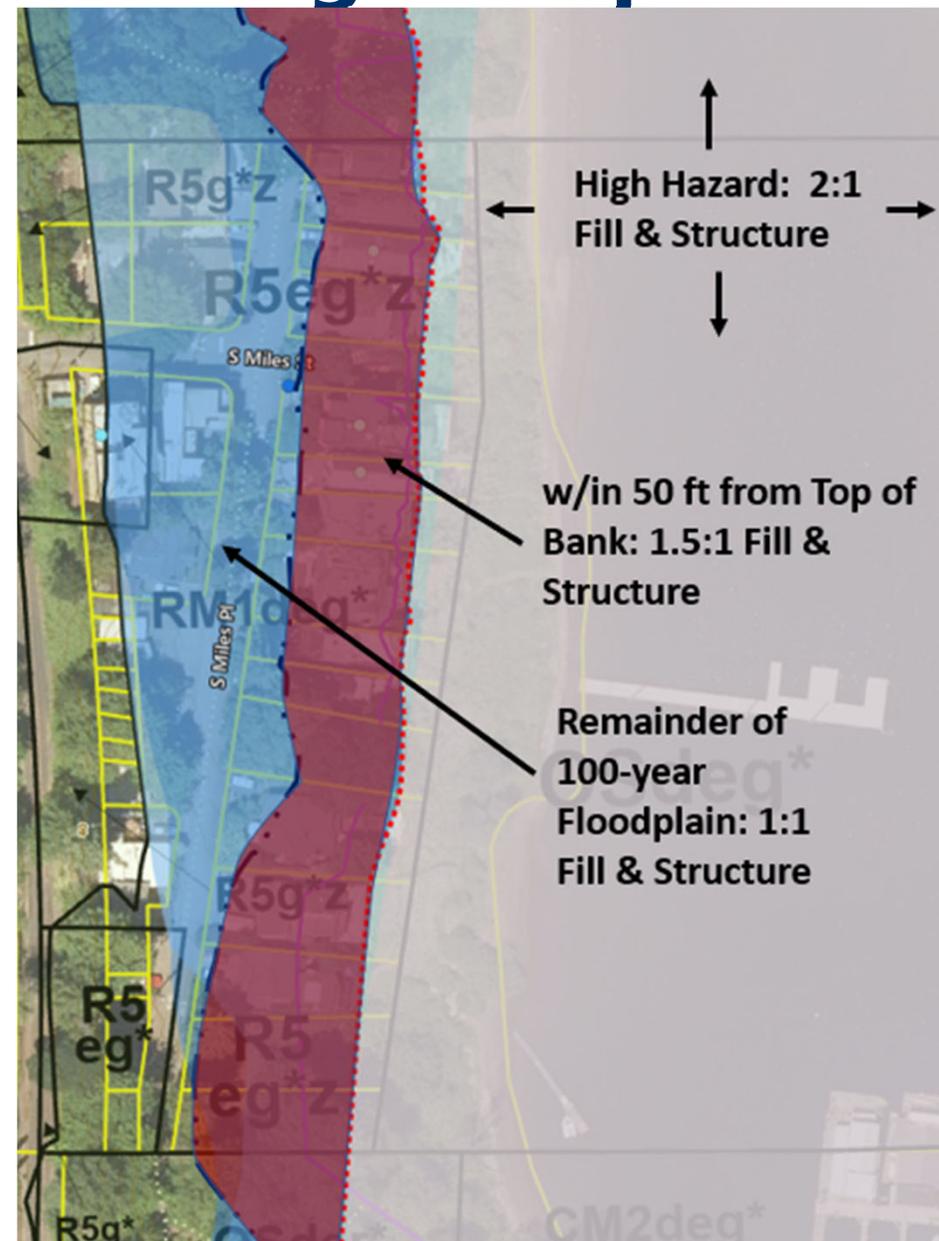
- Increases requirements for flood storage “compensation” within certain areas of the FEMA 100-year floodplain
- Flood storage compensation will be required for new fill and structure; including additions to existing structures



Responding to the FEMA Biological Opinion

Exhibit B

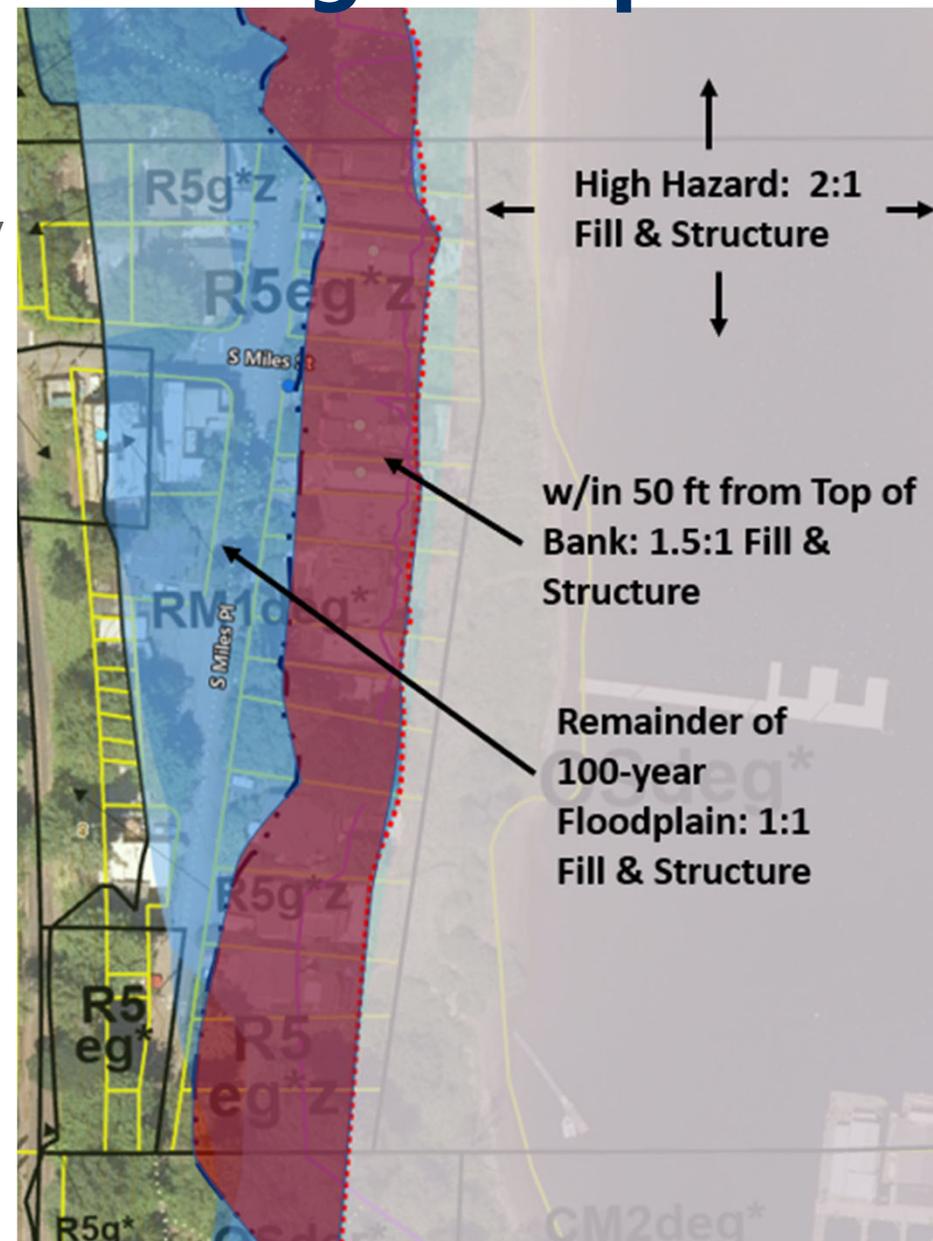
- Flood storage required for placement of fill and structure below the 100-yr flood elevation
- Volume of flood storage is based on the location relative to the river
- Allow use of flood storage mitigation bank credits
- Allow certain land use approvals to vest permits in flood storage requirements



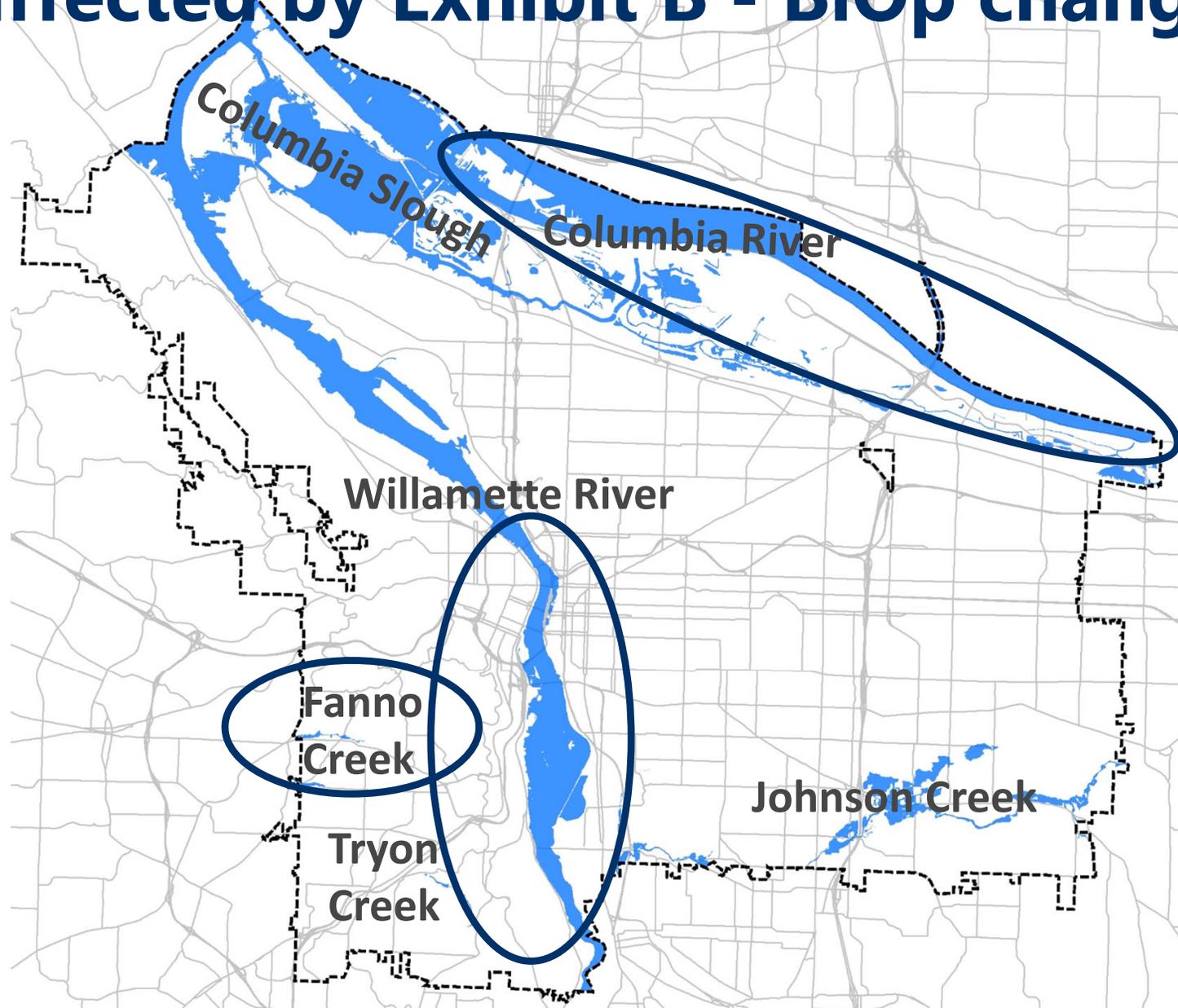
Responding to the FEMA Biological Opinion

Exhibit B

- Maintain the current storage requirements within the February 1996 Flood Inundation Area
 - Applies to fill placement
 - Balanced cut and fill (ratio 1:1)
- Does not apply to Industrial zoned land:
 - Heavy Industrial (IH)
 - General Industrial 2 (IG2)
 - General Employment 2 (EG2)



Areas affected by Exhibit B - BiOp changes



Summary of Title 24 Amendments

Exhibit A

Alignment with State of Oregon's Model Ordinance for the National Flood Insurance Program

Update to the 1996 flood map

Would go into effect on March 1, 2024

Exhibit B

Changes in response to FEMA BiOp.

Would go into effect on October 1, 2025



Summary of Public Outreach on Title 24

June & July 2023 Public presentations summarizing proposed building code changes and overview of Title 33 amendments

July 10th through Aug 1st Public review of draft Title 24 ordinance. Received comments from many environmental stakeholders requesting:

- Remove exemptions and vesting, implement requirements right away.
- Adopt rules for industrial lands sooner / now

Received a few comments supporting the proposed rules with the South Waterfront exemptions, vesting, and implementation timelines.



Development Considerations/Costs



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Off-Site Mitigation for Flood Storage and Habitat

MITIGATION BANKS

1. RestorCap at Linnton Plywood
 - Capacity: 16,000 cubic yards for flood storage
 - Est. \$135/cy (\$2.2 mil total)
2. PGE Harborton
 - Capacity: 57,000 cubic yards for flood storage
 - Est. \$240/cy (\$13.7 mil total)
3. Potential/Future: Eastbank Crescent
 - Capacity: ~10,000 cubic yards for flood storage & habitat ("stacked" credits)
 - Est. \$890/cy (\$8.9 mil total)

POTENTIAL DEMAND

- Central City & South Waterfront private dev sites
 - Could need 27,100 cubic yards, per City's Buildable Lands Inventory
 - Public projects also need off site habitat mitigation options
 - Burnside Bridge
 - Interstate Bridge Replacement Project
- 2019 BES analysis (10-yr period)
- 48% of permitted projects would benefit from habitat mitigation bank option



What could mitigation cost under the proposed rules?

Evaluated a “typical” Central City Project

- 2.5 acres
- Zoned EX, Central Employment
- 450 units w/some parking

Baseline project cost = \$205 million



What could mitigation cost under the proposed rules?

Hypothetical 1: Redevelopment of site that has existing buildings:

- Remove old foundation walls on riverbank and/or in-water structures (serves as onsite habitat mitigation)
- Provide cut/fill mitigation offsite (credit for removal of existing buildings)

Estimated project costs with floodplain regulations

- Existing requirements for Greenway trail & landscaping = \$900,000
- Existing floodproofing requirements = \$10 million
- **Proposed** new habitat mitigation (onsite) = \$1.3+ million
- **Proposed** increased flood storage credits (offsite) = \$135,000
(existing offsite flood storage credit costs = \$101,250)

Total New Floodplain-Related Costs = ~\$1.4 million



What could mitigation cost under the proposed rules?

Hypothetical 2: New development on vacant brownfield site:

- All mitigation requirements for site are met via Eastbank Crescent credits (incl. riverbank and in-water work, as well as upland natural resource impacts)

Estimated project costs with floodplain regulations

- Existing Greenway trail & landscaping req = \$864,000
- Existing floodproofing requirements = \$10 million (5% of project cost)
- **Proposed** new habitat and increased flood storage mitigation off-site by purchasing Eastbank Crescent credits = \$2.3 million

Total New Floodplain-Related Costs = ~\$2.3 million



Council Testimony & Record

- Written testimony is available for review on the Floodplain Resilience Plan Map App. <https://www.portlandmaps.com/bps/floodplain/#/map/>
- Written testimony is available for review on the Chapter 24.50 Flood Hazard Areas Code Update Project Map App. <https://www.portlandmaps.com/bps/title-24-flood/#/map/>
- The full record of evidence supporting this ordinance can be found on the Auditor's Office website: <https://efiles.portlandoregon.gov/Record/14762263>
- The materials on the Floodplain Resilience Plan website are also incorporated into the record. <https://www.portland.gov/bps/planning/environ-planning/floodplain-project>



Schedule/Next Steps



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Next Steps

**Aug-Oct
2023**

City Council hearing, deliberations, amendments, & potential adoption of Title 33 and Title 24 code changes

March 2024

1st package of code changes go into effect

2024-2027

Continue Floodplain Management Work Plan

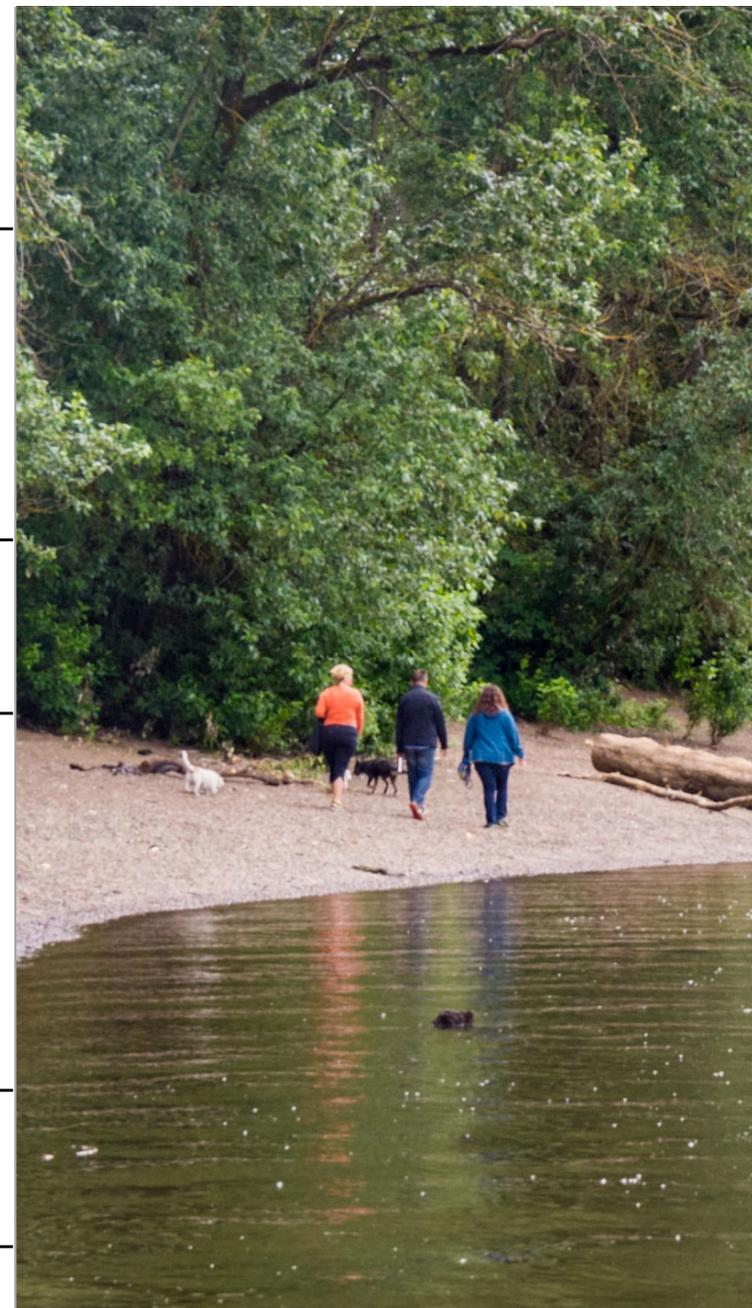
- Next phases: Industrial Lands, Willamette River North Reach, & Johnson Creek

March 2025

FEMA anticipated to finalize their response to BiOp

Oct 2025

2nd package of code changes go into effect



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Thank You





FLOODPLAIN MANAGEMENT UPDATE PROGRAM

City Council Deliberations
September 13, 2023

Jeff Caudill

Environmental Planner, BPS

Patricia Diefenderfer

Chief Planner, BPS

Jason Butler-Brown

Engineering Supervisor, BDS

Doug Morgan

Engineering Manager, BDS



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Agenda

- I. FEMA Biological Opinion Elements
- II. Floodplain Management Update Work Plan Phasing
- III. Amendments to the Recommended Draft

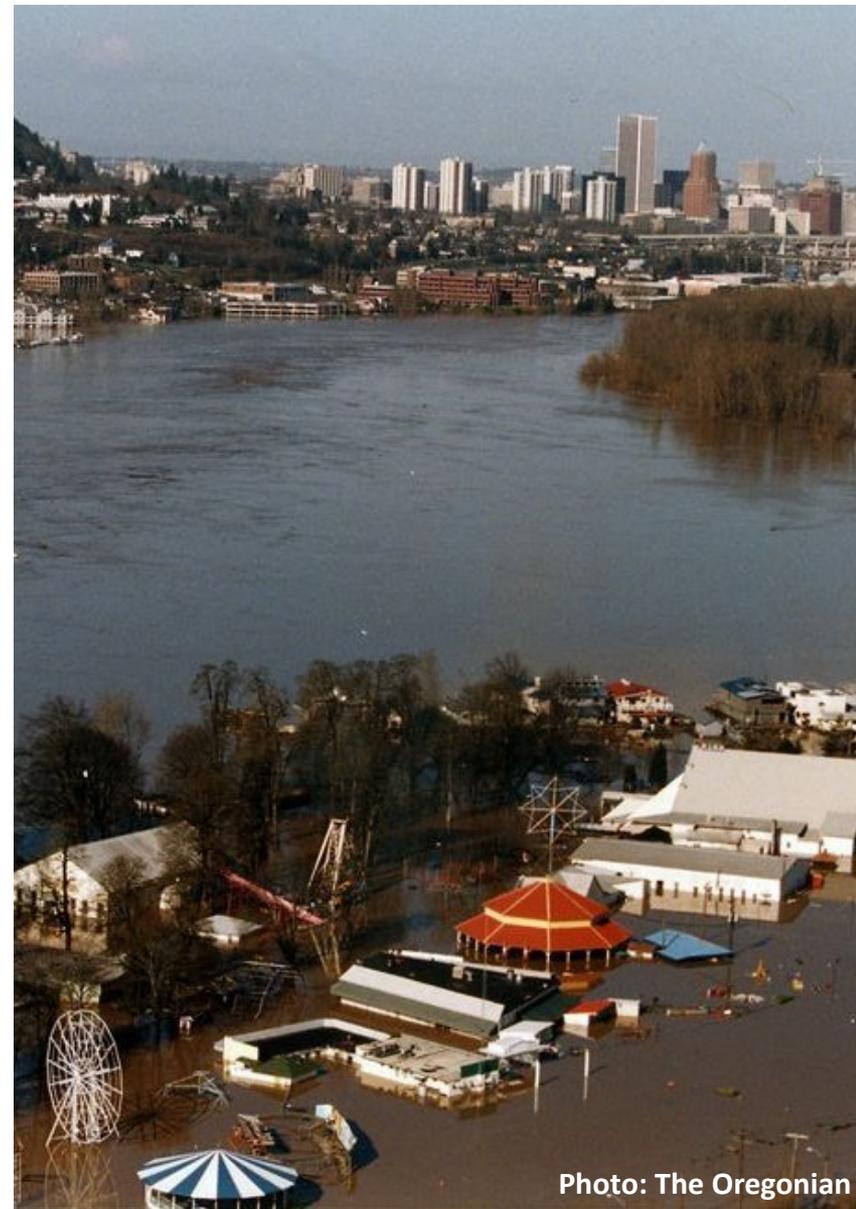


Photo: The Oregonian



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

FEMA Biological Opinion Elements



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

FEMA Biological Opinion Elements

ELEMENT #	DESCRIPTION	DIRECTIVE	ACTION REQUIRED	
			FEMA	CITY OF PORTLAND
1	Notice, Education, and Outreach	Notify NFIP communities and develop an education and outreach strategy for RPA implementation	X	
2	Interim Measures	Implement immediate actions to reduce loss of floodplain habitat and functions until Elements 3-6 are implemented	X	X
3	Mapping Flood and Flood-Related Hazards	Implement FEMA program standards to better identify and map flood and flood-related erosion hazard areas	X	
4	Floodplain Management Criteria	Revise FEMA’s regulatory floodplain management criteria to avoid, minimize, and mitigate the adverse effects of floodplain development on habitat functions and processes	X	X
5	Data Collection and Reporting	Collect and report floodplain development information for all NFIP participating communities	X	X
6	Compliance and Enforcement	Ensure that participating communities comply with revised floodplain management criteria	X	



FEMA Biological Opinion Elements

Element #	DESCRIPTION	DIRECTIVE	FLOODPLAIN MANAGEMENT WORK PLAN RESPONSE
2	Interim Measures	Implement immediate actions to reduce loss of floodplain habitat and functions	<p>Element #2 included specific actions FEMA should take to reduce impacts in the short-term, including:</p> <ul style="list-style-type: none"> ○ Min vegetation requirements ○ Riparian buffer area ○ Increased flood storage mitigation ○ Mitigation of new impervious surface <p><u>City Response</u></p> <ul style="list-style-type: none"> • BPS - Floodplain Resilience Plan applies minimum vegetation requirements and riparian buffer area. • BDS - Title 24 updates include increases in flood storage mitigation. • BES - Stormwater Management Manual (SWMM) addresses mitigation of impervious surfaces.



FEMA Biological Opinion Elements

Element #	DESCRIPTION	DIRECTIVE	FLOODPLAIN MANAGEMENT WORK PLAN RESPONSE
3	Mapping Flood and Flood-Related Hazards	Implement FEMA program standards to better identify and map flood and flood-related erosion hazard areas	<p>Although this element is directed to FEMA, it recognizes the significant limitations of existing FEMA 100-year floodplain maps.</p> <p><u>City Response</u></p> <ul style="list-style-type: none"> Incorporation of the new Modeled Willamette River 1996 Flood Extent to better represent the hazard from a 1996-like flood, given current river characteristics and development patterns.



Floodplain Management Update Work Plan Phasing



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



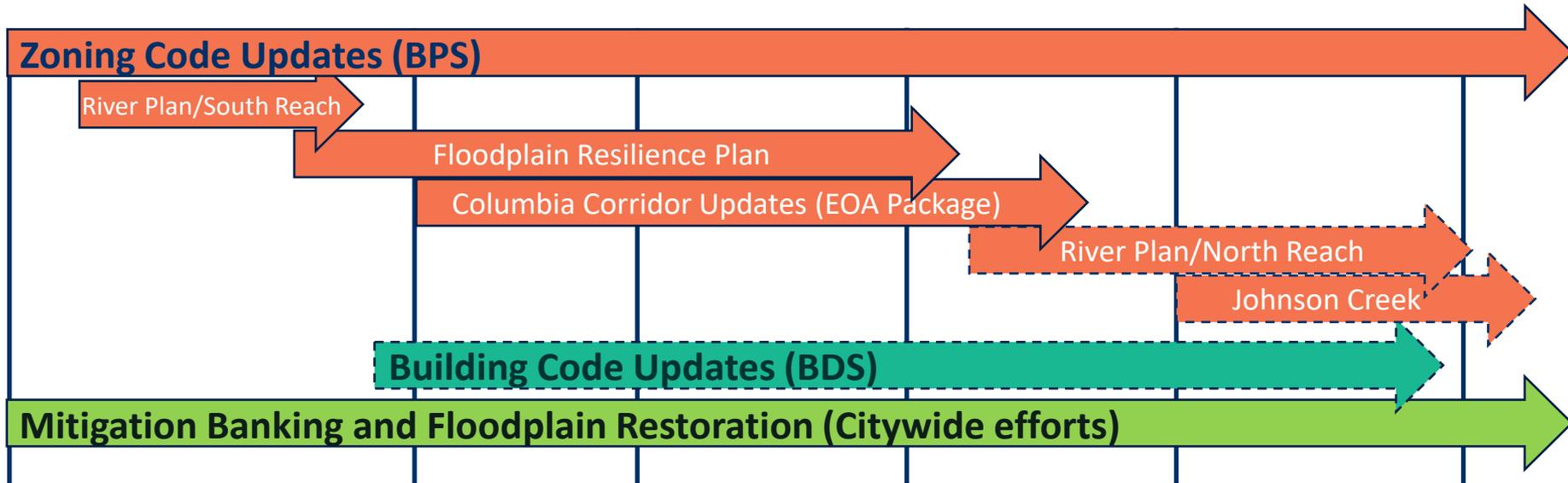
**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Floodplain Management Work Plan Phasing

FEMA's TIMELINE



CITY WORK PLAN COMPONENTS & SCHEDULE



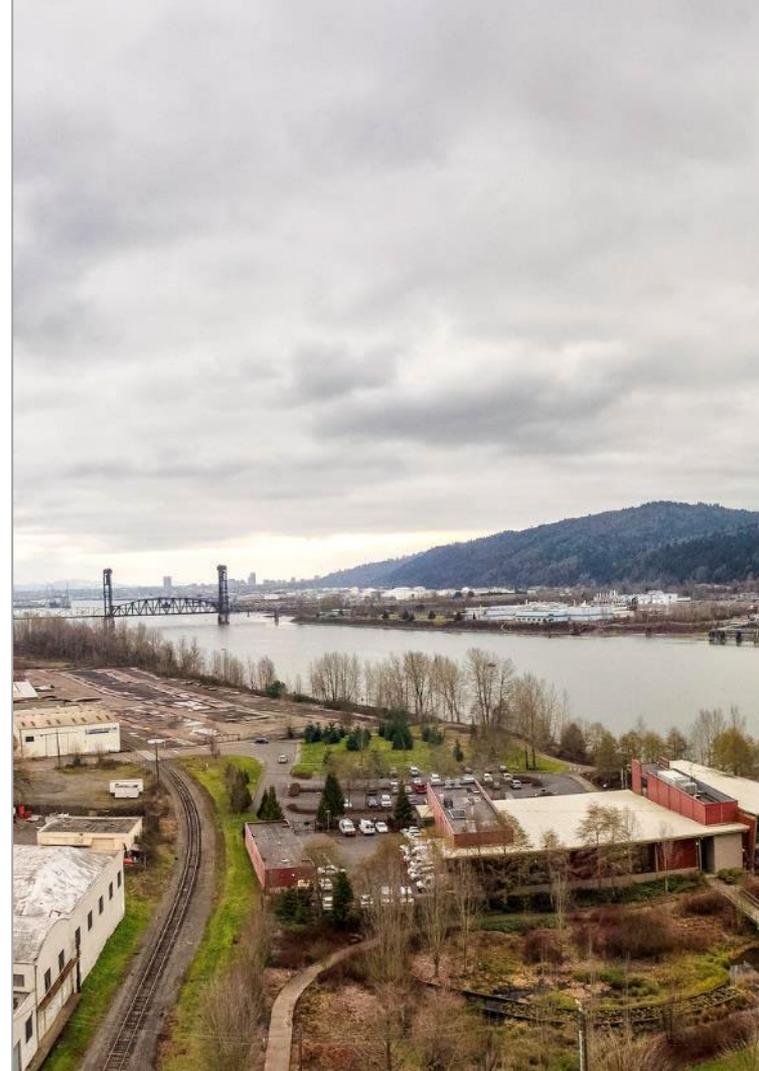
Statewide Planning Goal 9: Economic Development

Comprehensive plans should:

- Provide for an adequate supply of sites of suitable sizes, types, and locations for a variety of industrial and commercial uses
- Take into account the social, environmental, energy, and economic impacts upon the resident population

Economic Opportunities Analysis (EOA)

- Must demonstrate adequate land supply for future job growth



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Goal 9 Coordinated Policy Decisions

State, Metro and City directives for natural resources protection and economic growth

Statewide Planning Goals

Goal 5, Natural Resources, Scenic and Historic Areas and Open Spaces

Goal 9, Economic Development

Goal 15, Willamette River Greenway

Metro Urban Growth Mgmt Functional Plan

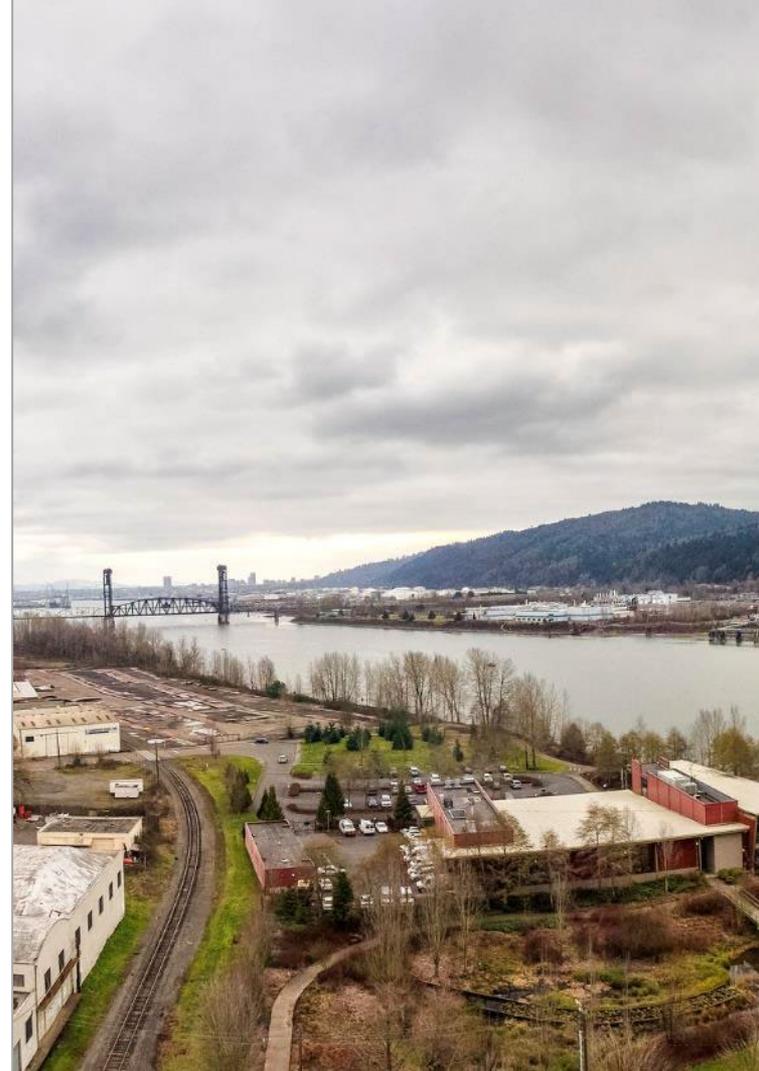
Title 4, Industrial and Other Employment Areas

Title 13, Nature in Neighborhoods

City of Portland 2035 Comprehensive Plan

Chapter 6, Economic Development

Chapter 7, Environment and Watershed Health



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

Amendments to the Recommended Draft



THE BUREAU OF
**PLANNING &
SUSTAINABILITY**



**Bureau of
Development
Services**
FROM CONCEPT
TO CONSTRUCTION

August 30 Amendments – Moved and Seconded

Rubio Amendment #1

Amendments 1-3: Substantive

Amendments 4-7: Technical



New Amendments: Effective Dates

Rubio Amendment #2

Title 33 Central City riparian buffer area-related and River Environmental overlay zone changes - **October 2024 effective date**

Rubio Amendment #3

Title 24 FEMA BiOp flood storage excavation increases - **October 2024 effective date**



New Amendments: Effective Dates

Rubio Amendment #4

Add a Section 2 to the Title 24 Ordinance to incorporate a severability clause:

"Section 2. If any provision of this Chapter, or its application to any person or circumstance, is held invalid by any court, the remainder of this Chapter and its application to other persons and circumstances, other than that which has been held invalid, shall not be affected by such invalidity, and to that extent the provisions of this Chapter are declared to be severable."



New Amendment: Flood Storage Mitigation

Mapps Amendment #1

Add the following finding to the Title 24 ordinance:

"31. The Council finds this ordinance strikes a necessary balance through promoting safety, livability and economic vitality. Council heard testimony concerned that the delayed implementation and areas not subject to these regulations would impact the flood storage capacity. The Council recognizes that the flood storage compensation requirements provide some protection to people and property by ensuring flood storage is not reduced and is interested in finding additional ways to further mitigate development."



New Amendment: Flood Storage Mitigation

Mapps Amendment #1

Add the following directive to the Title 24 ordinance:

“C. Under the leadership of the Office of Governmental Relations, the City of Portland will establish a policy position for 2024 and 2025 state legislative sessions of support for state policies, programs, or resources that support environmental mitigation. Policies should include funding to provide or purchase mitigation credits in the floodplain along the Willamette, and additional strategies to help mitigate development of housing or other community needs.”

