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Water Advisory Group

September 3, 2025 • 11 am–12:30 pm

Hybrid Meeting • MS Teams or Bend Utilities Department Deschutes Conference Room

Lori Faha, P.E., Environmental Resources Manager

Austin Somhegyi, P.E. Stormwater Master Plan Project Manager

Purpose & Agenda

Reconvene the WAG and share updates on the Stormwater Master Plan and drainage and density discussion outcomes.

1. Welcome & Introductions
2. Meeting Reflections
3. Stormwater Master Plan (final!)
4. Drainage & Density
5. Discussion & Feedback
6. Summary & Closing

Meeting reflections

May 2025 stormwater focus meeting:

- Reviewed how WAG input is reflected in the Stormwater Master Plan
- Discussed maintenance and space needs for recommended solutions
- Discussed levels of service for stormwater management (maintenance, inspection, drainage response, water quality, etc.)
- Collected polling input on stormwater level of service satisfaction

June 2025 tour:

- Visited Overturf Butte Park (City water system and BPRD dog park site)
- Reviewed site access and use, plant types, erosion control and fire fuel reduction measures
- Discussed overlap/coordination of water conservation, native landscapes, fire-wise practices, tree protection, and recreation interests

Meeting look ahead

October 1, 2025: WaterWise/FireWise Discussion & Stormwater Updates
11am-12:30pm Hybrid Meeting (Boyd Acres or MS Teams)

November 5, 2025: Stormwater Program Updates
11am-12:30pm Virtual Meeting

December 3, 2025: Year in Review
11am-12:30pm Hybrid Meeting (new Public Works Building or MS Teams)

Stormwater Master Plan

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Stormwater Master Plan purpose and overview

- Update 2014 Stormwater Master Plan
- Identify projects to address conveyance/drainage issues
  - Improve the quality of runoff discharged to the Deschutes River through the City's outfalls
  - Reduce flooding issues and mitigate risks to groundwater from drill holes and drywells (UICs)
- Address key policy areas:
  - Climate change resilience
  - Drainage and Density
  - Level of Service

Stormwater Master Plan Project Timeline

At-a-glance

PLANNING

Define the project scope, objectives, and deliverables.

Communications planning.

Manage the project over time.

2024

Jan – Closeout

DISCOVERY

Intake data and reports.

Assess existing conditions & identify issues to be solved.

Study outfall retrofits.

Study drywells and drill holes.

Study climate change.

2024

Feb - Sept

VISIONING

Assess and document values surrounding stormwater and goals for plan among various groups, including staff, stakeholders, and community.

Use values and goals to prioritize issues, capital projects, and inform policy recommendations.

2024

Feb - Dec

SOLUTIONS

Select capital improvement projects (CIPs).

Develop CIP fact sheets.

Develop policy white papers.

2024 - 2025

Jun – Jun

IMPLEMENT

Write and deliver Stormwater MP.

Develop Public Facilities Plan (PFP)

Develop content for implementation tracking web page.

Final public review.

City Council adoption.

2025

May – Dec

Project Outreach

1. Water Advisory Group (sounding board of external stakeholders)
2. Engineering Round Table (AKS, DOWL, HHPR, Wallace Group)
3. COBA
4. Internal Departments (PDED, Engineering, Water Services, Planning, Growth Management)
5. City of Redmond
6. Project web page

Capital Improvements

Large projects to address significant flooding and water quality issues

Capital Project Prioritization

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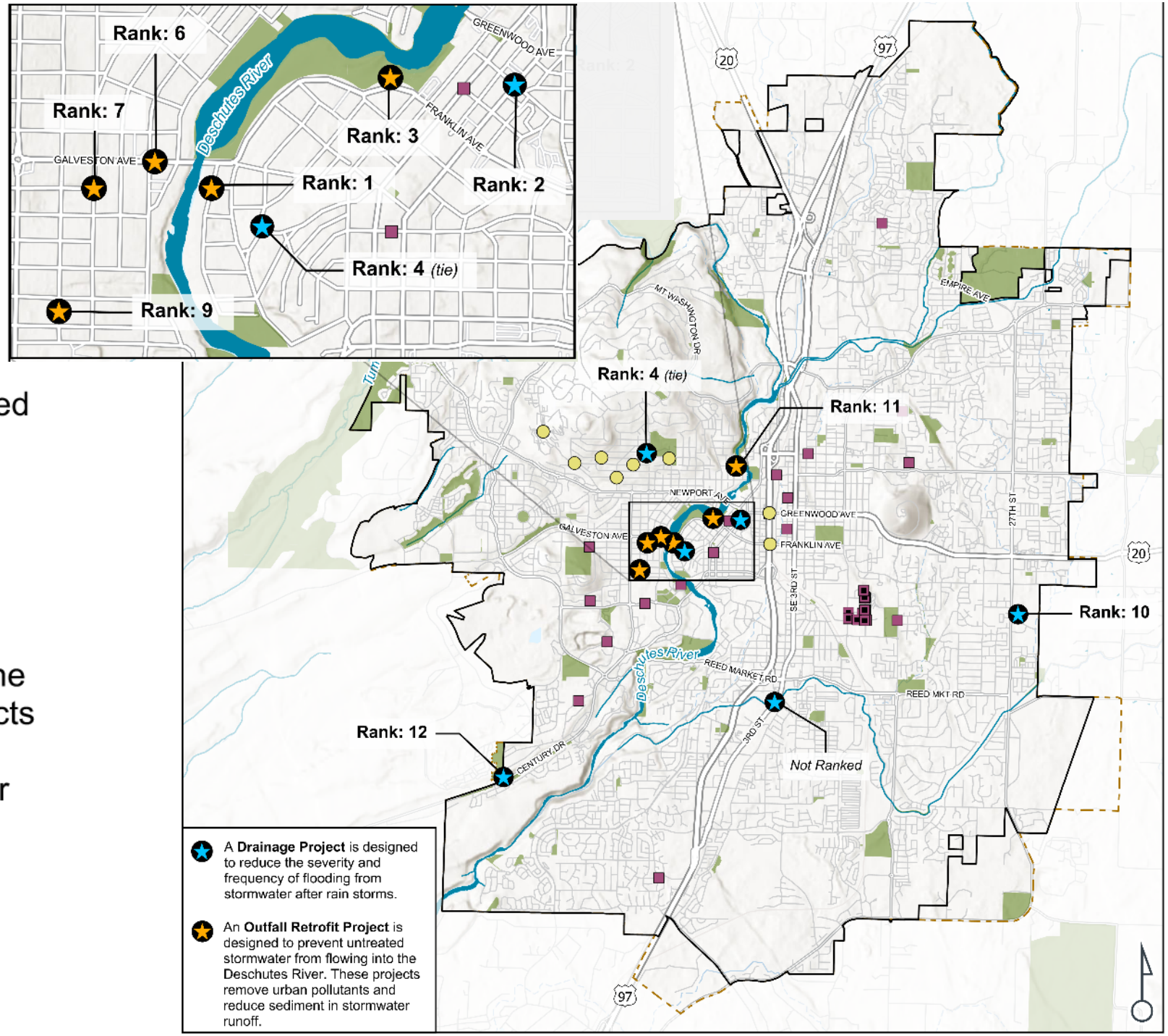
CIP Map

- A **Drainage Project** is designed to reduce the severity and frequency of flooding from stormwater after rain storms.
- An **Outfall Retrofit Project** is designed to prevent untreated stormwater from flowing into the Deschutes River. These projects remove urban pollutants and reduce sediment in stormwater runoff.



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Project Cost Summary – Draft

Rank	PP-ID	Project Name	Cost (2025 $)
1	PP-35	Riverfront Street Stormwater Outfall 128 Retrofit and Drainage Improvements	$ 930,000
2	PP-42	Downtown Pedestrian Safety Drainage Improvements	$ 800,000
3	PP-44	Drake Park Stormwater Outfall 018 Retrofit and Pipe Repair	$ 4,350,000
4	PP-14	Congress Street Drainage Improvements	$ 1,540,000
4*	PP-46	Vicksburg Drainage Improvements	$ 148,000
6	PP-47	Galveston Stormwater Outfall 020 Retrofit	$ 6,110,000
7	PP-48	Fresno Avenue Outfall 020 Retrofit & Neighborhood Drainage	$ 4,100,000
9**	PP-45	12th Street Stormwater Outfall 024 Retrofit	$ 990,000
10	PP-1	Dove Lane Drainage Improvements	$ 420,000
11	PP-43	Saginaw Avenue Stormwater Outfall 013 Retrofit	$ 2,770,000
12	PP-16	Campbell Road Drainage Improvements	$ 170,000
		Total	**$ 22,328,000**

* There was a tie for 4th place, so there is no 5th place.

** The 8th place project was later removed from consideration because we learned it is infeasible after discussing options with Bend Park and Recreation District.

Programmatic Solutions

Underground Injection Control (UIC) Priorities

Major Maintenance Program

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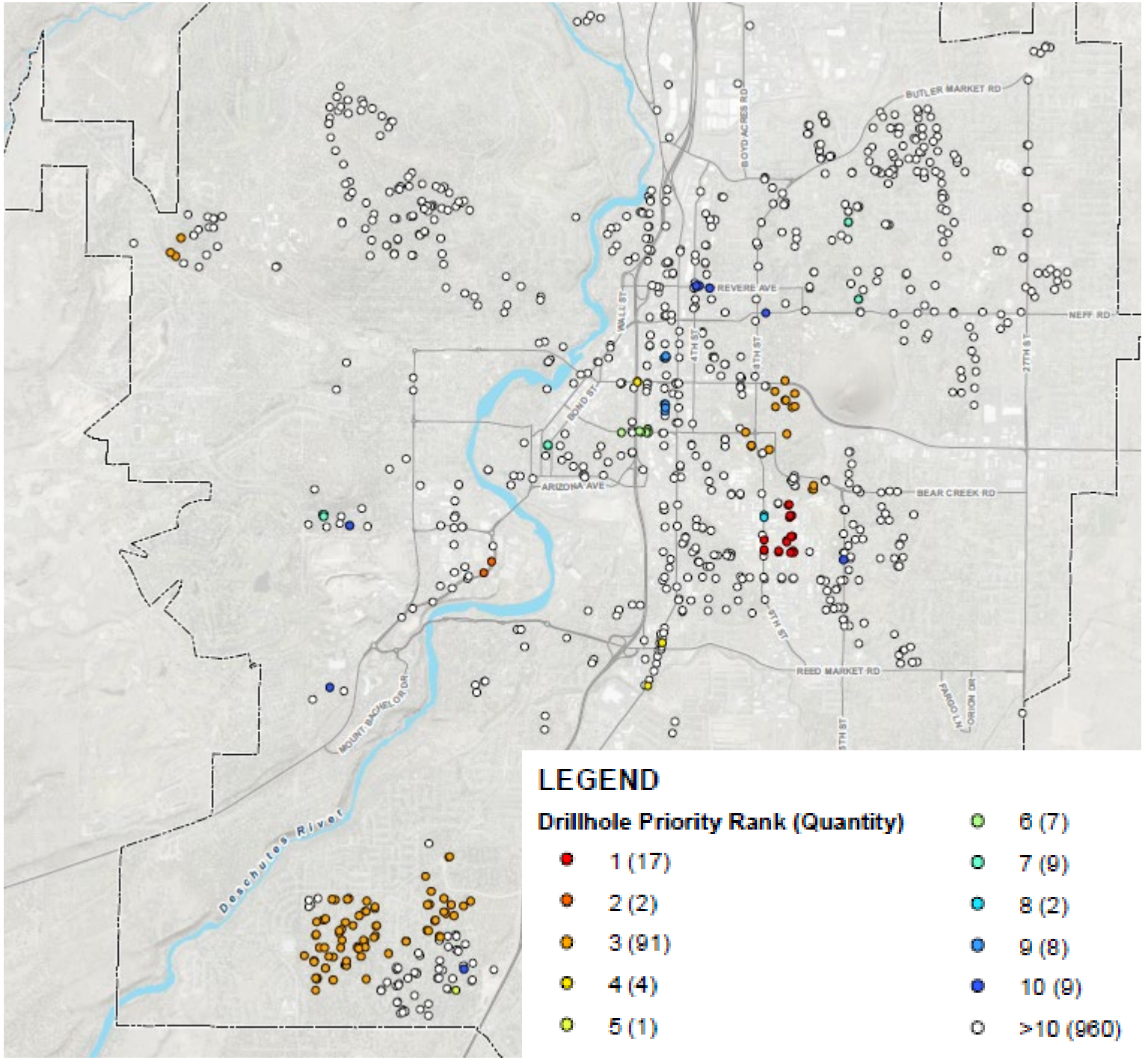
Underground Injection Control Priorities

- Drillhole Decommissioning/Retrofit
  - Groundwater protection
- Failing UIC Program
  - Drainage improvements
- Modified Drywell Siting
  - Tool for areas with difficult geologic formations



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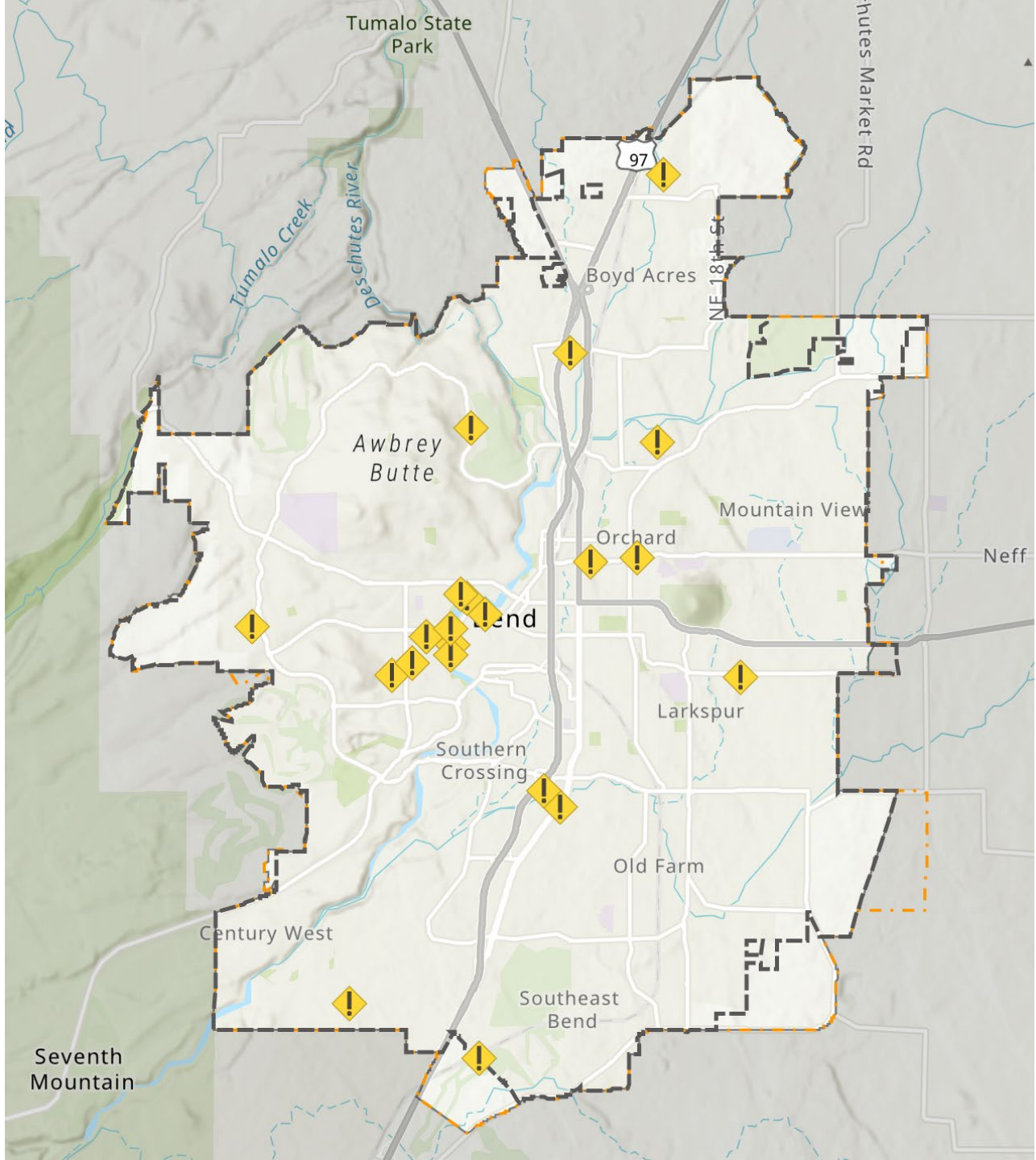
Major Maintenance Program

- List of stormwater nuisance areas
  - Compiled through known issue reports
  - Solutions can be implemented in house or through synergy opportunities



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Policy Recommendations

Climate Change

Drainage and Density

Level of Service

Projected Climate Changes in Bend

Slight increases (~6%) in overall annual precipitation by 2100	Less precipitation: April – October More rain and less snow in winter
Increase in frequency and intensity of storms	Especially during winter months Increased intensity of atmospheric rivers
Decline in snowpack	Decrease in overall mountain snowpack Earlier snowmelt means decreased streamflow in summer
Increased severity and duration of drought	Increased annual number of dry days (from 186 in 1990s to 192 by 2050)

Source: Oregon Watershed Enhancement Board. (September 2023). *Region 4 Observed & Projected Climate Changes.* https://www.oregon.gov/oweb/Documents/climate-R4-variables.pdf

Climate Change – Takeaways & Recommendations

- Build accurate historical rainfall data:
  - Increase data collection with more gauges
  - Build a robust monitoring network.
- Use rainfall data and future updated NOAA atlas to update design standards
- Collaborate with regional partners

Level of Service

Drainage Response

Maintenance & Repair

Vegetation Management

Inspection

Water Quality

Capital Programs Implementation

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Level of Service

- Topics discussed:
  - Bend's current level of service for stormwater management – generally moderate to good with a few areas of low service
  - Concerns for reducing service levels due to system growth and no commensurate staff increases for multiple years
  - Need to ensure meeting regulatory requirements (DEQ permits)
  - Consider public maintenance of more facilities (e.g. facilities serving multiple properties)

Stormwater Master Plan

Next Steps and Adoption

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Next Steps

- Draft Stormwater Master Plan Received Last Week
- Reviews of draft (staff, Water Advisory Group stakeholders, post on website, COBA) – July/August
- City Council proposed adoption – November/December
  - Concurrent with Public Facilities Plan (PFP)
- Budgeting (some included in proposed FY 25/26 budget)
- Finalize and implement policies
- Cost of Service evaluation – incorporate into upcoming rate study

Drainage & Density Discussion

WAG discussion questions

- Should there be a minimum lot size for onsite stormwater management?
- How can we encourage developers to take a centralized on-site stormwater management approach, when necessary?

Drainage and Density Issues

- With City's increasing density, staff and the community have observed the need for:
  - Finding room on individual lots for stormwater facilities
  - Providing enough stormwater options to developers
  - Preventing downstream impacts from on-site stormwater facilities
    - Local flooding (street, neighbors)
    - Erosion
  - Preventing use of infiltration when it is not feasible, such as next to steep slopes or when infiltration rate is too low
  - Allowing or requiring centralized on-site stormwater facilities that serve a whole neighborhood

This infiltration swale should be set back both from the foundation and property line

Centralized On-Site Stormwater Facilities

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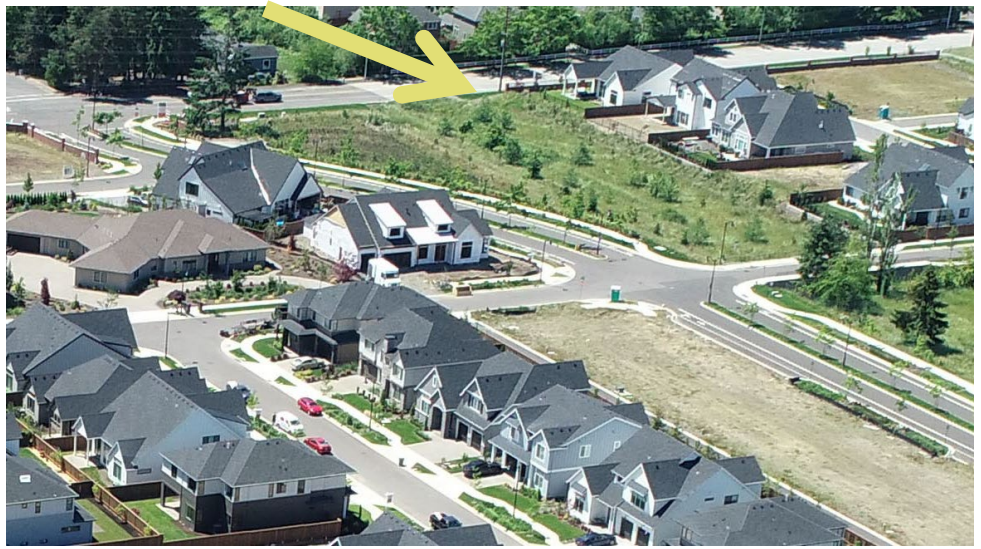
Centralized On-site Stormwater

- Bend currently interprets “on-site” to mean on an individual lot
- Many communities and DEQ interpret “on-site” to mean either on/near an individual lot OR located in the same neighborhood serving the whole subdivision
- Bend has only allowed limited centralized stormwater management as part of master planning process

Bend example

Bend example



Portland-area example

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Options

Stormwater Engineering Policy Options

1. On-site Stormwater – Business as Usual
   - No change to policy or enforcement

2. On-site Stormwater – Improved Enforcement
   - Change to interpretation in applying the 5,000 sf impervious threshold to align with MS4 permitting requirements
     - Adjustment of land development activities to consider larger common plan of development
   - Change to enforcement of setbacks
     - Stormwater facilities to be sited away from lot lines, foundations, and slopes, even if maximum lot coverage cannot then be achieved

3. Centralized On-site – Private / HOA

Allow or require stormwater facilities to serve an entire subdivision including streets and parcels.

- Stormwater facilities to be located on private property and operated and maintained by an HOA.
- Require a private maintenance agreement with City and easements granted to City for inspection.

4. Centralized ROW Stormwater Management Options

- Allow or require stormwater facilities to serve an entire subdivision including streets and parcels.
- Stormwater facilities to be located in ROW and/or on tracts dedicated to City.
- Stormwater facilities to be owned and operated by City.

Fee in lieu for small infill?

- Allow small infill (need to define small) to drain to ROW and pay fee-in-lieu
- Plan up front for potential maximum lot coverage, so future ADU's/additions are covered
- Idea needs further refinement

Next Steps

- Continue conversations beyond Stormwater MP Update and refine concepts for:
  - Centralized on-site Stormwater Management Options or Requirements
  - ROW Stormwater Management Options
  - Infill Developments
  - Special district areas

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Thank you!

Accommodation Information for People with Disabilities

To obtain this information in an alternate format such as Braille, large print, electronic formats, etc. please contact Lori Faha at lfaha@bendoregon.gov or (541) 317-3025; Relay Users Dial 7-1-1.