May 6, 2026 • 11 a.m.–12:30 p.m.

Hybrid Meeting • MS Teams or Public Works Headquarters Building Roundabout Room

Water Advisory Group

Lori Faha, Environmental Resources Manager • Elisabeth O'Keefe, Stormwater Program Manager • Dade Pettinger, Engineering Associate • Aubrie Koenig, Facilitator

Purpose & Agenda

Discuss and get input on stormwater maintenance agreement approach and related educational materials. Introduce Water Reclamation Facility planning.

1. Welcome and Introductions
2. Stormwater Program Updates
   - Maintenance Agreements
3. Water Reclamation Facility Plan
   - Role in water resources
   - Facility plan overview
   - Findings and solutions
4. Summary and Closing

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April meeting reflections: drainage and density

- General:
  - Proposed solutions show right track and momentum, seem viable
  - Can't entrust situation to take care of itself, doing nothing isn't feasible
  - Known issues include drainage between lots, crawl space water, post-construction maintenance
- Developer incentives:
  - City taking on maintenance responsibility is key
  - Use of public facilities allows more space on individual lots
- Funding:
  - Perspective of fairness often as important as magnitude
  - Important to show how rates benefit existing and new development
  - Review fee in lieu opportunities, and potentially SDCs for master plans
- Communication:
  - Reference flooding issues and complaints after recent storms
  - Consider possibility of broader benefits or amenities (open space access, converting older systems)
  - Provide case studies and show there are real costs to address issues

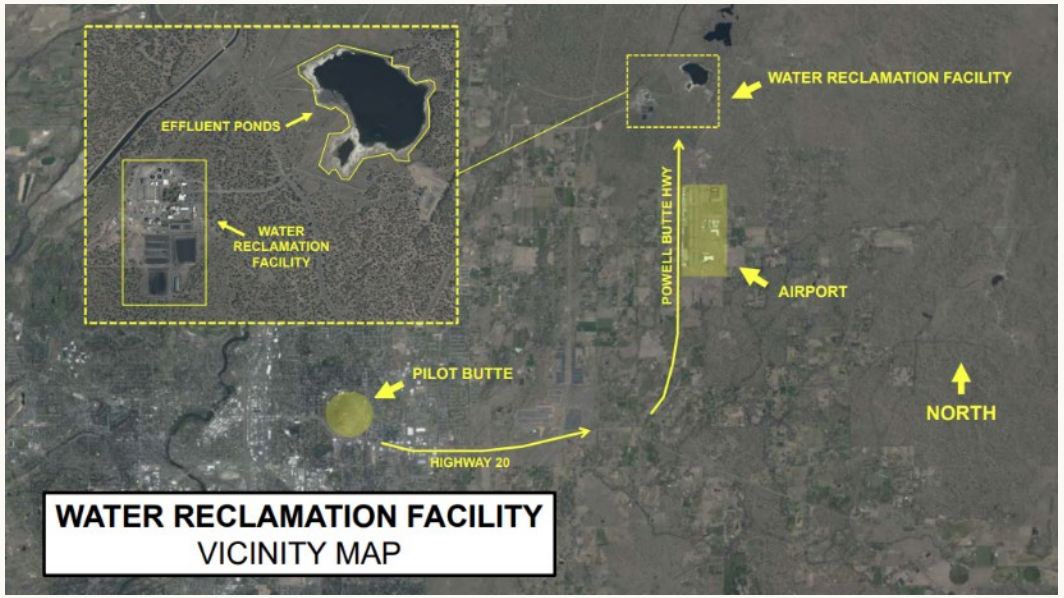
June Tour Logistics

Planning to tour Hatfield Ponds and the Water Reclamation Facility to discuss key facilities planning project topics.

Agenda:

- 11 a.m. tour start (likely meet at 22395 McGrath Road)
- Walking tour
- 12:30 p.m. optional lunch

More RSVP info soon!



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Fall Meeting Topics

- 100 years of water campaign takeaways
- Central Oregon Stormwater Manual update
- Water Management Conservation Plan progress report
- Water Conservation Program updated measures

100 Years of Water Update

100 Years of Water celebration

The City of Bend is celebrating 100 Years of Exceptional Water Service.

For more, visit: bendoregon.gov/celebrate-water

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New “Bend’s Water: Sustaining Homes, Health, and Community” video

From homes and health care to local businesses and breweries, Bend’s water sustains daily life across our community.

In this video, Bend community members share why our drinking water is such an important resource that supports public health, hospitality, and quality of life in Bend.

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Upcoming Events

- **Public Works Open House**
  - When: May 14, 4 p.m. to 7 p.m.
  - Where: NE Talus Place
  - Take a selfie at the Demonstration Garden or water system artifacts display and enter to win prizes!
- **WaterWise Landscape Field Day**
  - When: June 13, 9 a.m. to 1 p.m.
  - Where: Hollinshead Park Barn and Demo Garden
  - Learn hands-on how to create a water-wise and beautiful landscape

Stormwater Program Update

Stormwater Maintenance Agreements

- Privately owned stormwater facilities
- Agreement with the City and property owner to conduct long-term maintenance and reporting
- Historically haven't formally requested or enforced reporting
- As of 11/1/2025- became a requirement through the City's MS4 permit

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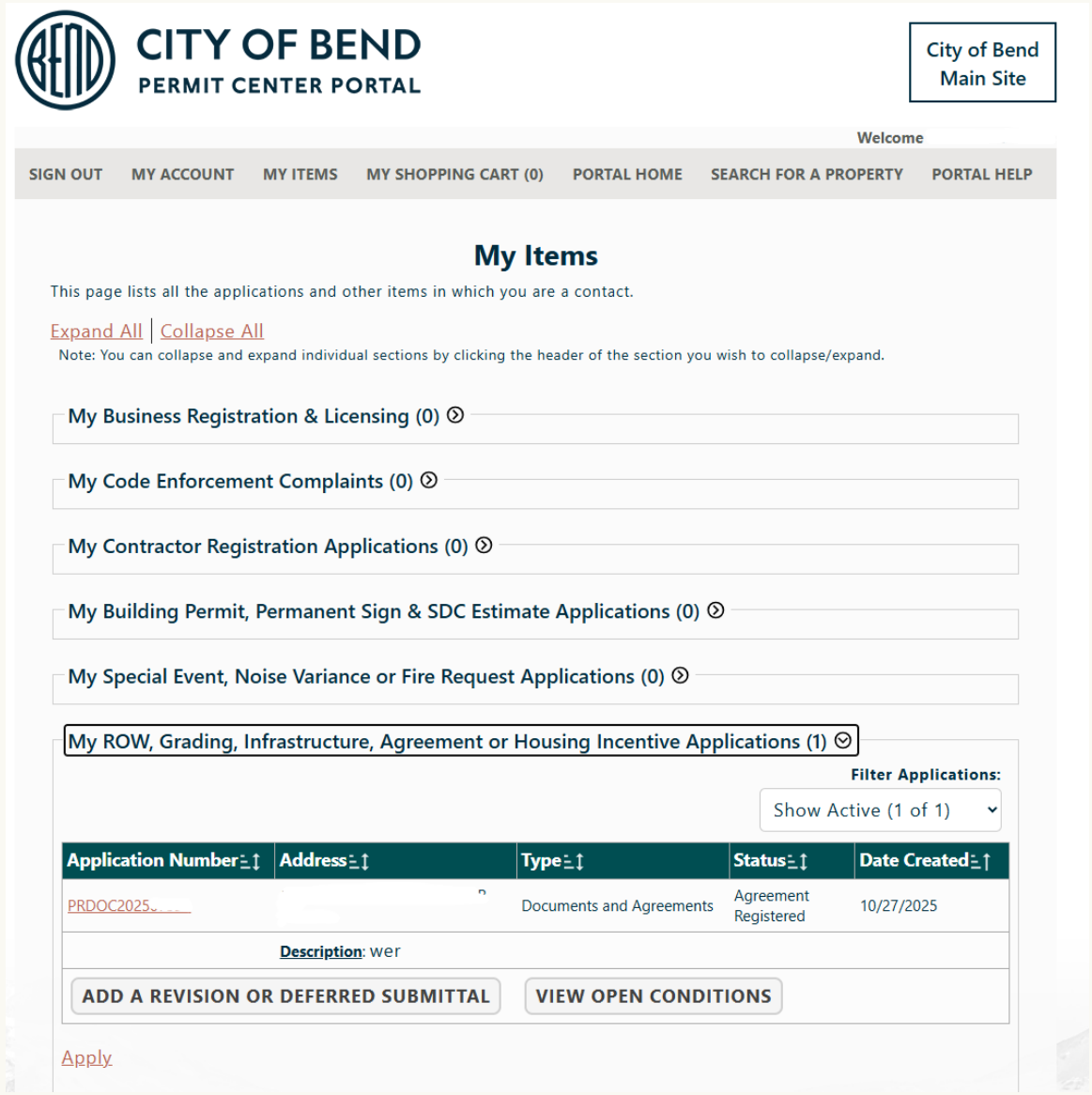
Reporting



CITY OF BEND
PERMIT CENTER PORTAL

City of Bend Main Site

Welcome

SIGN OUT | MY ACCOUNT | MY ITEMS | MY SHOPPING CART (0) | PORTAL HOME | SEARCH FOR A PROPERTY | PORTAL HELP

My Items

This page lists all the applications and other items in which you are a contact.

Expand All | Collapse All

Note: You can collapse and expand individual sections by clicking the header of the section you wish to collapse/expand.

My Business Registration & Licensing (0)

My Code Enforcement Complaints (0)

My Contractor Registration Applications (0)

My Building Permit, Permanent Sign & SDC Estimate Applications (0)

My Special Event, Noise Variance or Fire Request Applications (0)

My ROW, Grading, Infrastructure, Agreement or Housing Incentive Applications (1)

Filter Applications: Show Active (1 of 1)

Application Number	Address	Type	Status	Date Created
PRDOC2025		Documents and Agreements	Agreement Registered	10/27/2025

Description: wer

ADD A REVISION OR DEFERRED SUBMITTAL | VIEW OPEN CONDITIONS

Apply

CITY OF BEND
WATER SERVICES

Stormwater Facility
Inspection and Maintenance Checklist

Property Address:	Agreement #:
Owner/Responsible Party:	Inspector:
Inspector Phone:	Inspector Email:
Inspection Date:	Inspector Signature:

Stormwater Facility Checklists

Catch Basins

Number of Catch Basins: _____	Maintenance Needed?	Comments
Debris and Sediment (Sediment accumulation >12")	☐ Yes ☐ No ☐ N/A	
Damaged Pipes (Broken or needing repair)	☐ Yes ☐ No ☐ N/A	
Joints Between Basin/Pipe Section (Separated/Roots)	☐ Yes ☐ No ☐ N/A	
Structure (Cracks > 1/2")	☐ Yes ☐ No ☐ N/A	
Contaminants & Pollutants (Oil, Gas, Trash, or other contaminants)	☐ Yes ☐ No ☐ N/A	
Cover – Grate (Missing, cracked, broken)	☐ Yes ☐ No ☐ N/A	
Ladder (Unsafe, cracks, missing)	☐ Yes ☐ No ☐ N/A	
Mosquito Vector Breeding (Standing water)	☐ Yes ☐ No ☐ N/A	

Sediment Manhole

Number of Sediment Manhole: _____	Maintenance Needed?	Comments
Debris and Sediment (Sediment accumulation >12")	☐ Yes ☐ No ☐ N/A	
Damaged Pipes (Broken or needing repair)	☐ Yes ☐ No ☐ N/A	
Joints Between Basin/Pipe Section (Separated/Roots)	☐ Yes ☐ No ☐ N/A	
Structure (Cracks > 1/2")	☐ Yes ☐ No ☐ N/A	
Contaminants & Pollutants (Oil, Gas, Trash, or other contaminants)	☐ Yes ☐ No ☐ N/A	

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2025 Private Stormwater Facility Reporting Year

March 1st 2025 – February 28th 2026

362 agreements

248 inspection reports submitted, 114 not completed

69% compliance the first year with new digital database submission

~84 agreements that submitted inspection reports hired a contractor to conduct the inspection.

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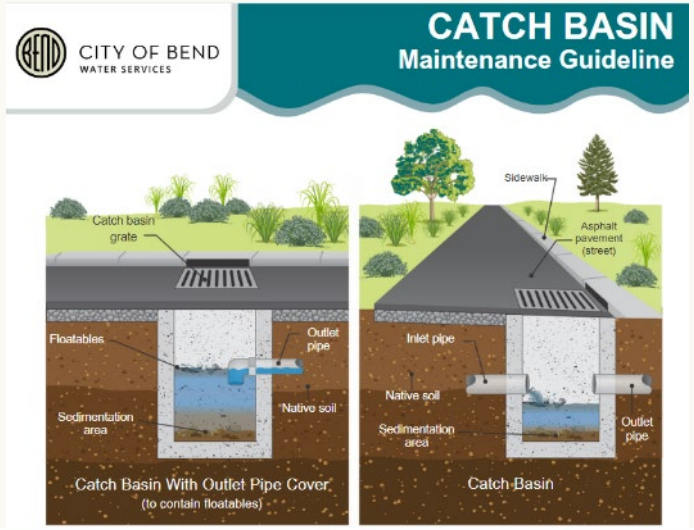
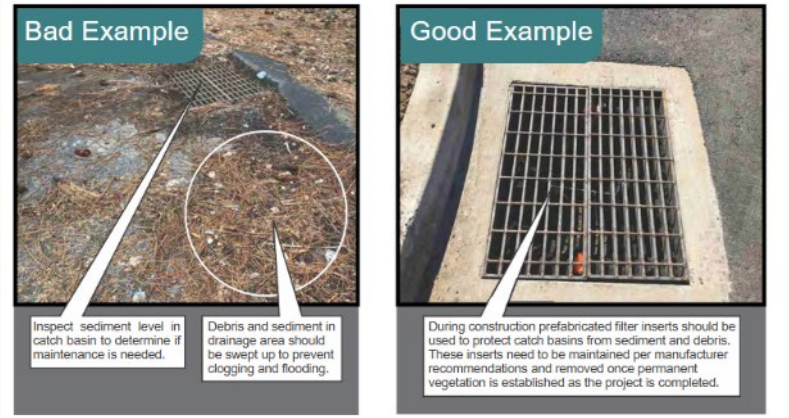
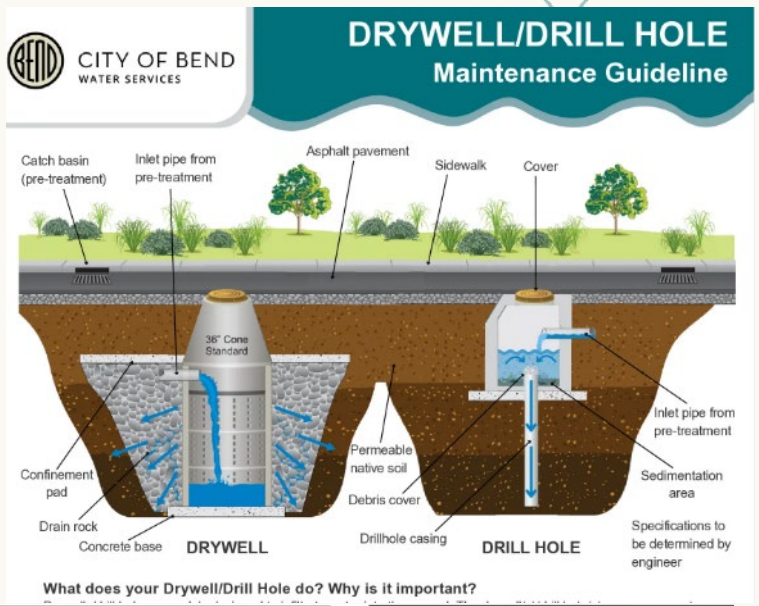
Education and Resources

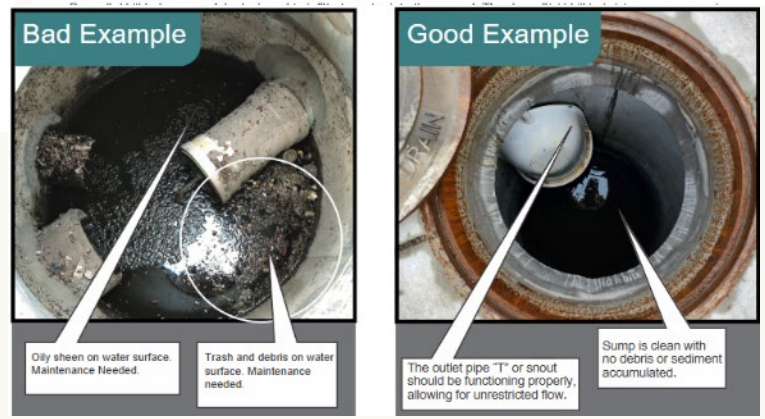




Need Help?

- How to submit annual reports step by step instructions
- Submit Reports through the Online Permit Center Portal
- Get help using the Online Permit Center Portal





https://bendoregon.gov/departments/public-works/water-services/stormwater/stormwater-maintenance-agreements-annual-reporting/

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Lessons Learned

- Property owners often unaware of maintenance agreement requirements and facility type and locations
- Difficult to coordinate report submission when the agreement applies to multiple private properties without an HOA
- Outreach & education needed at the time of initial purchase and when property owners change or HOAs dissolve
- Extensive staff time needed to effectively implement the program

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Next Steps

Map private facilities covered under existing agreements and display in dashboard

Conduct staff inspections for delinquent agreements beginning Summer 2026

Strengthen enforcement processes and escalation pathways

Establish inspection fees and expand outreach to subdivisions without HOAs

Refresh the website and broaden public outreach materials

Maintain ongoing updates to the database, including contact information and newly executed agreements

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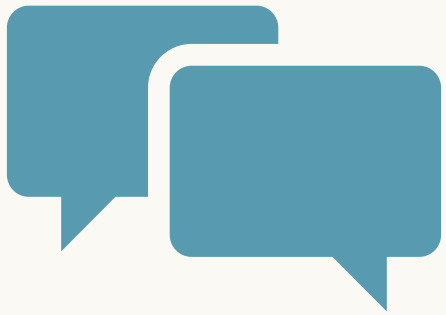
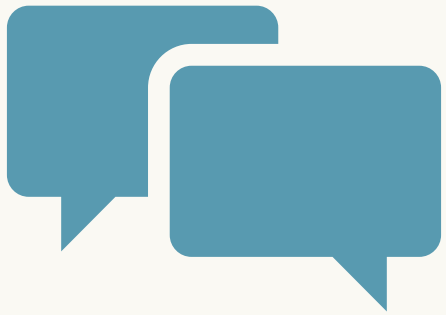
WAG Discussion Questions



- *What additional communication, outreach, or educational tools from the City would make it easier to understand responsibilities of maintenance agreements?*
- *Should the City charge an inspection fee for conducting inspection of privately owned facilities with delinquent annual reports?*
- *How should the City handle inspection and maintenance of private facilities in subdivisions where there is no coordinating body/HOA?*

Water Reclamation Facility Plan Planning and Tour Input

WAG Discussion Questions Preview



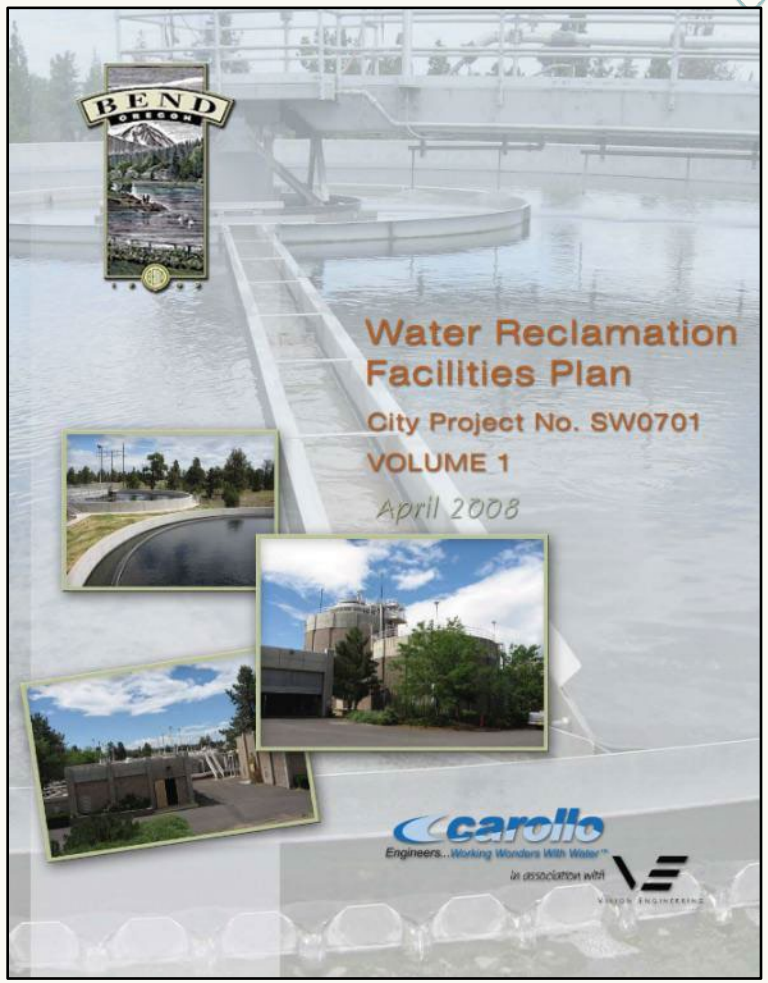
- *Is our explanation of the facility planning process clear, or is there other information you think we should provide?*
- *Do you think we should expand the discussion of deficiencies, analyses, or findings, or is the current level of detail enough for this stage?*
- *Do you think the description of the proposed or anticipated solutions is detailed enough, or are there parts you'd recommend we elaborate on?*

Agenda

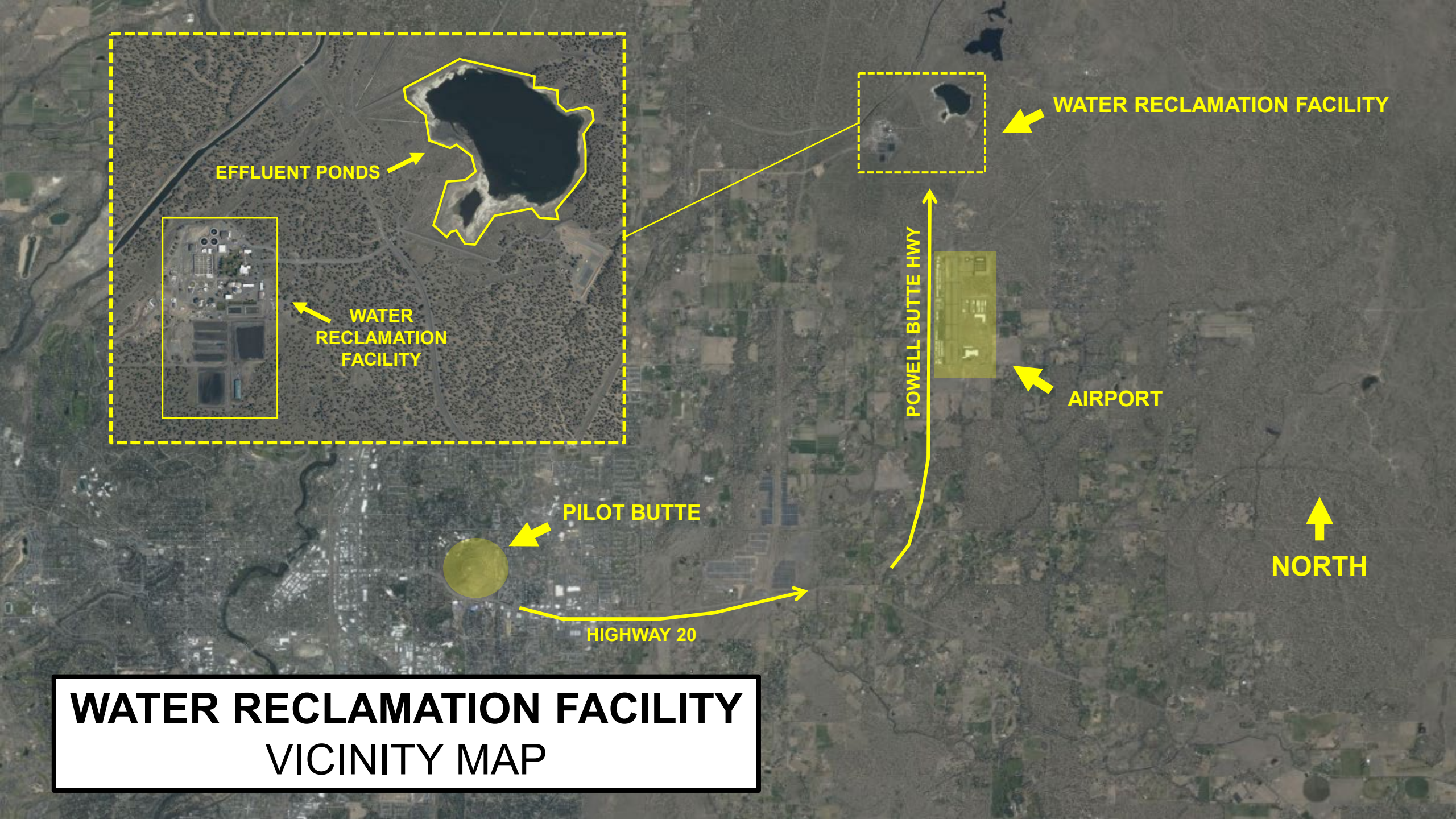
- Background
  - City of Bend Water Reclamation Facility
  - Facility Plan Overview
- Scope of Work
- Project Status & Findings
- Next Steps & Actions
- Schedule

Background

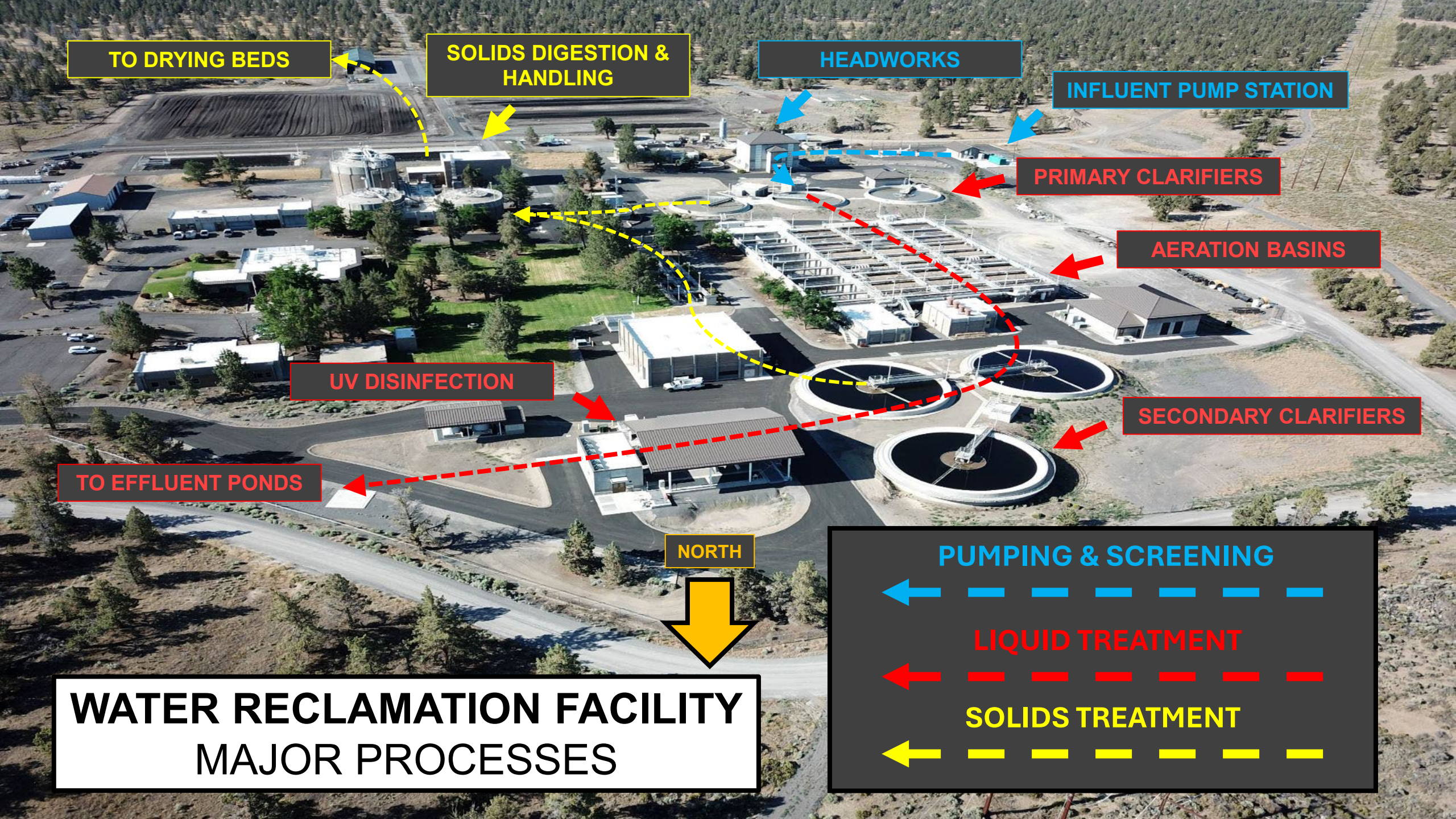
- Current Water Reclamation Facility (WRF) Facility Plan was adopted in 2008.
  - Developed 20-year Capital Improvement Plan.
- Recommend updating facility plans every 5-10 years.
  - Alignment with policy, economic, and environmental regulatory changes.
- Major improvements and expansions completed in 2020 and 2021.
  - Continued use of beneficial water and biosolids.



Pictured: 2008 Facility Plan Cover



WATER RECLAMATION FACILITY
VICINITY MAP



WATER RECLAMATION FACILITY
MAJOR PROCESSES

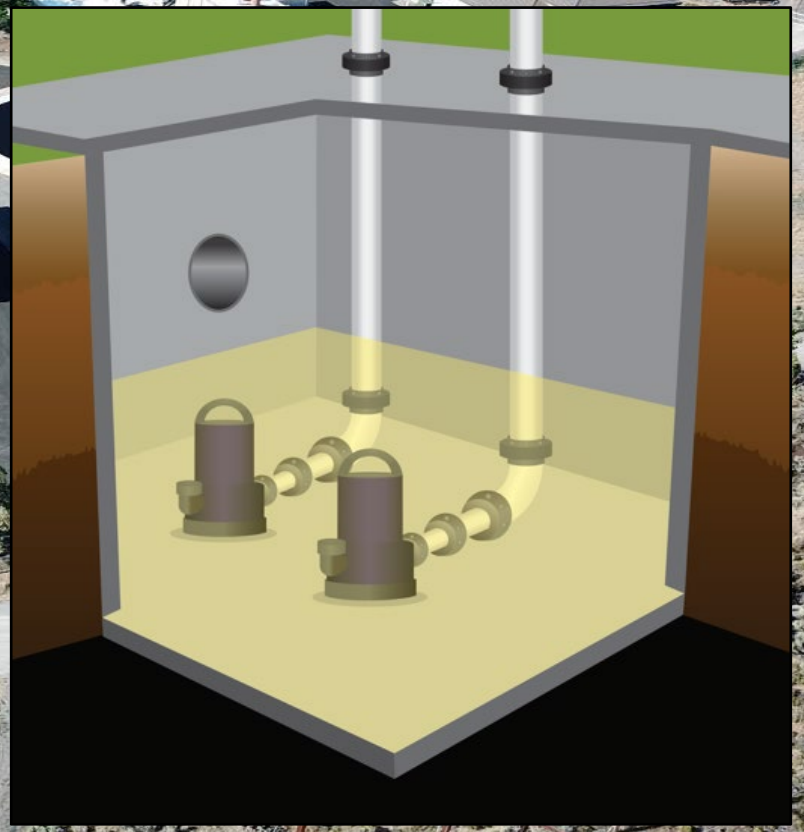
HAULED WASTE FACILITY:

- Third-party contract operation
- Contract expires June 30, 2030 (they will not extend)
- Only regional site for Central Oregon hauled waste disposal

INFLUENT PUMP STATION

- Wastewater is conveyed to the WRF in collection system piping and ultimately collected in the influent pump station
- The influent pump station lifts wastewater to the headworks

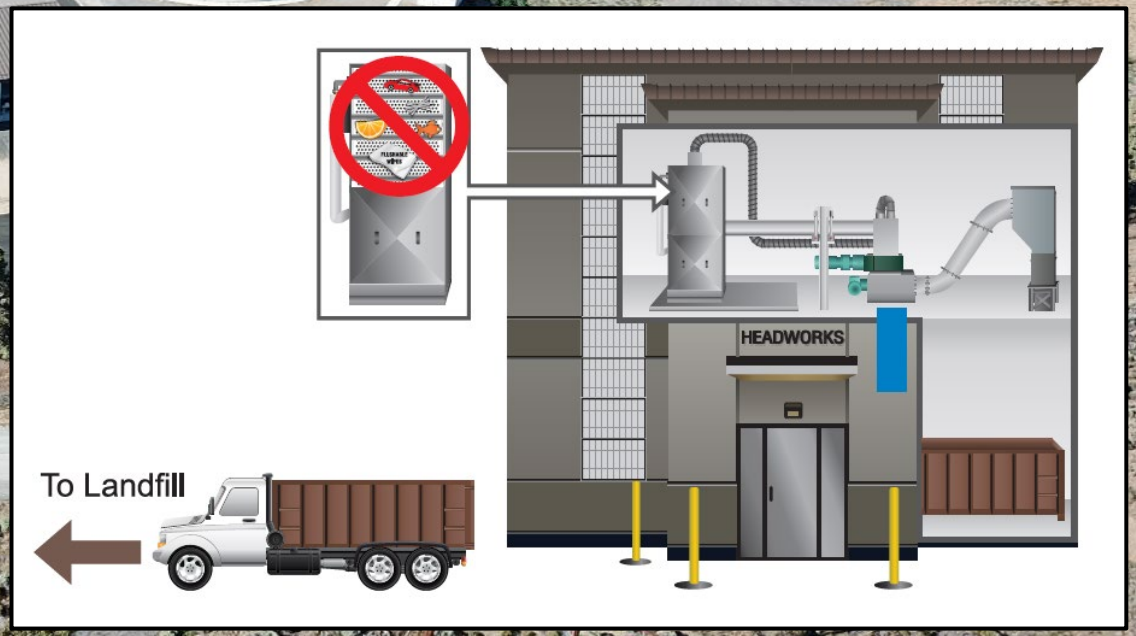
INFLUENT PUMP STATION



HEADWORKS

HEADWORKS

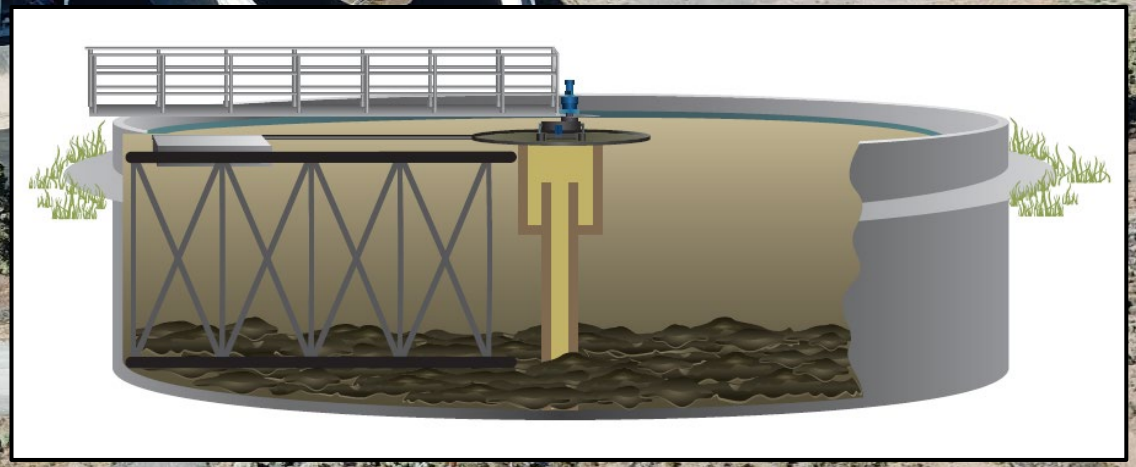
- Screening of influent (wastewater) to remove debris
- Debris is collected and dewatered for disposal at the county landfill



PRIMARY CLARIFIERS

- Sedimentation to remove readily settable solids (primary sludge) and floating material
- Primary sludge is collected and pumped to the digesters

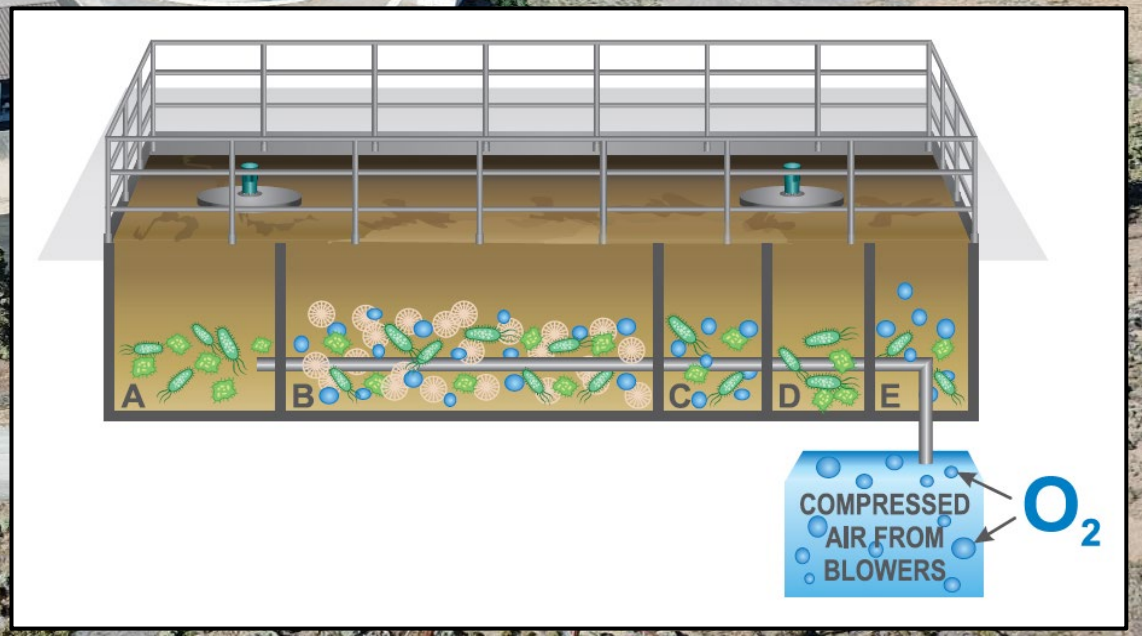
PRIMARY CLARIFIERS



AERATION BASINS

- Convert organic material and nutrients by a large mass of microorganisms
- Provide microorganisms oxygen through compressed air

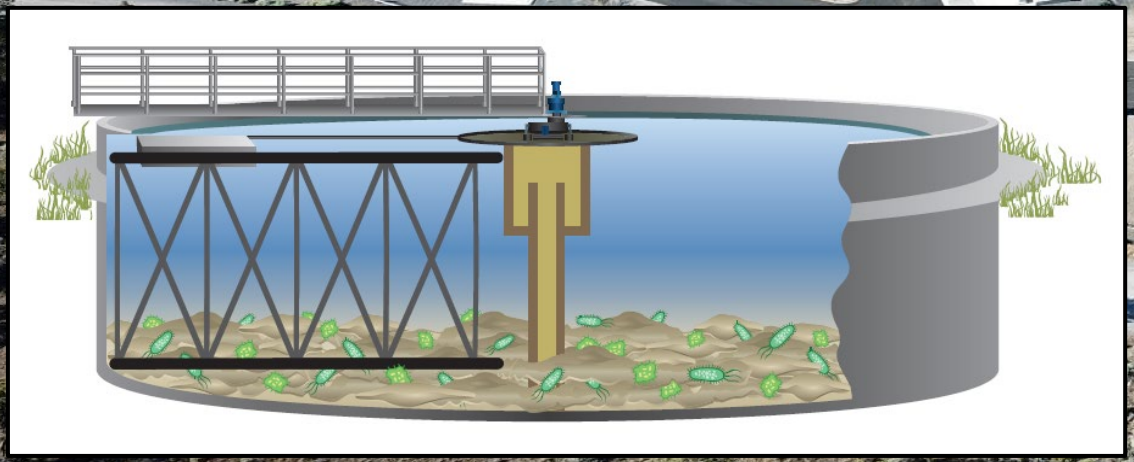
AERATION BASINS



SECONDARY CLARIFIERS

- Microorganisms are flocculated and separated from effluent by sedimentation
- Secondary sludge is collected and pumped to the digesters

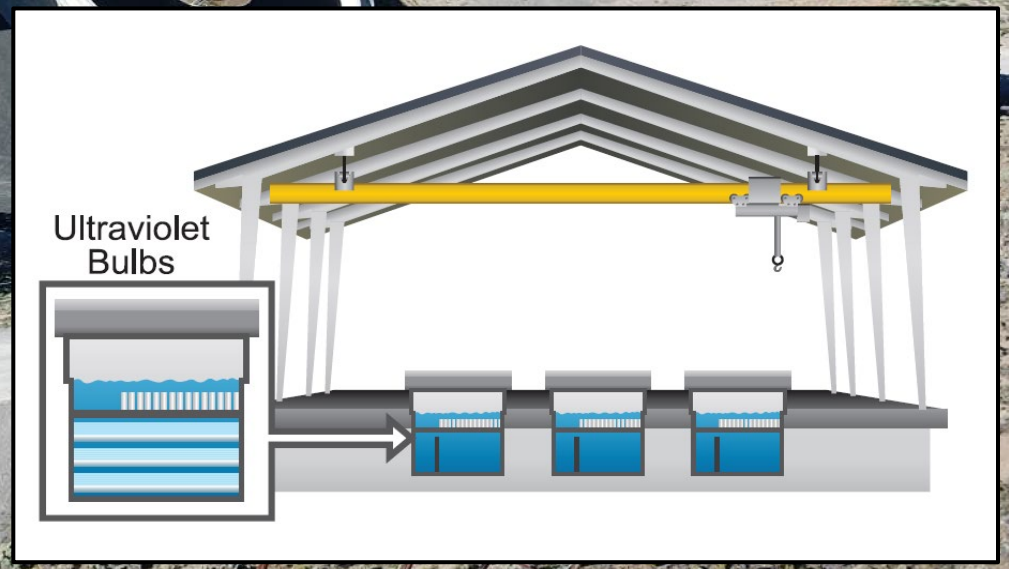
SECONDARY CLARIFIERS



UV DISINFECTION

- Use of ultraviolet irradiation for inactivation of microorganisms in effluent
- Effluent can be filtered for reuse applications

UV DISINFECTION



TO EFFLUENT PONDS

EFFLUENT PONDS

- Disposal of disinfected effluent to evaporation/seepage ponds
- Available reclaim of disinfected effluent at regional golf course

Hatfield Ponds (June 3, 2026 WAG Tour)

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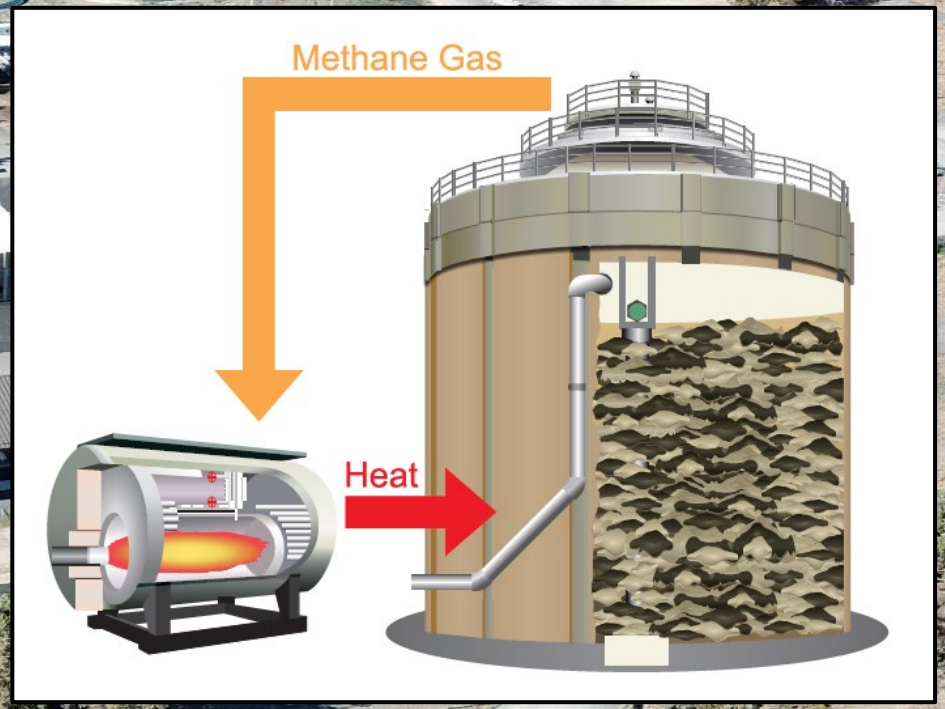
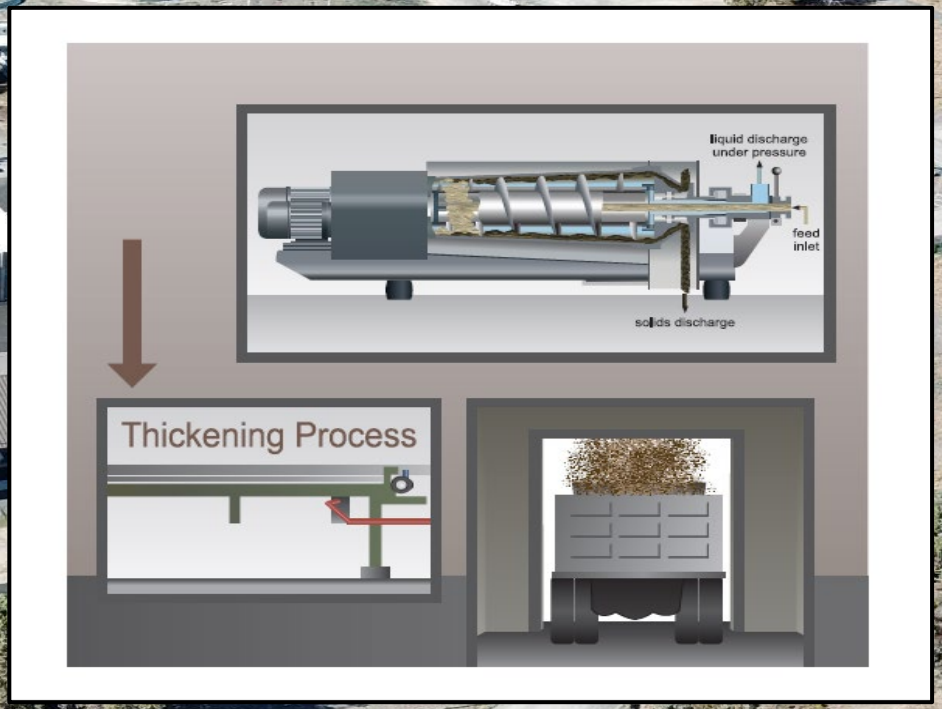
SOLIDS DIGESTION



SOLIDS DIGESTION

- Anaerobic digestion of mixed primary and secondary sludges
- Production of digester gas is reused in heating system with remaining gas flared to atmosphere
- Use of centrifugation for liquid separation of digested sludges

SOLIDS HANDLING



SOLIDS HANDLING

- Use of centrifugation for liquid separation of digested sludges
- Dewatered sludge is collected and hauled to onsite drying beds

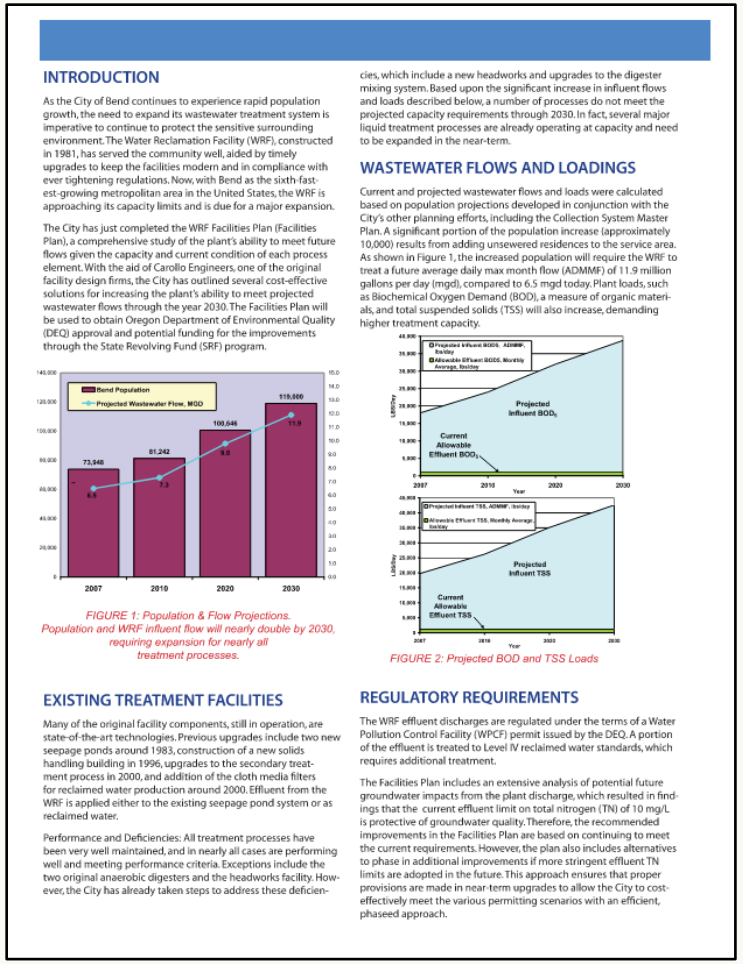
TO DRYING BEDS

DRYING BEDS

- Continued liquid separation by means of ambient air temperature and sunlight
- Biosolids meet criteria for land application use
- Coordination with regional agricultural stakeholders for pickup and ultimate disposal

Major Contract Scope Items

- Flow and loading projections.
- Evaluation of existing structures:
  - Condition assessment
  - Resiliency
  - Energy conservation
- Consideration to current City strategic programs and policies.
- Review of current and anticipated public health and environmental regulatory requirements.



INTRODUCTION

As the City of Bend continues to experience rapid population growth, the need to expand its wastewater treatment system is imperative to continue to protect the sensitive surrounding environment. The Water Reclamation Facility (WRF), constructed in 1981, has served the community well, aided by timely upgrades to keep the facilities modern and in compliance with ever tightening regulations. Now, with Bend as the sixth fastest-growing metropolitan area in the United States, the WRF is approaching its capacity limits and is due for a major expansion.

The City has just completed the WRF Facilities Plan (Facilities Plan), a comprehensive study of the plant's ability to meet future flows given the capacity and current condition of each process element. With the aid of Carollo Engineers, one of the original facility design firms, the City has outlined several cost-effective solutions for increasing the plant's ability to meet projected wastewater flows through the year 2030. The Facilities Plan will be used to obtain Oregon Department of Environmental Quality (DEQ) approval and potential funding for the improvements through the State Revolving Fund (SRF) program.

FIGURE 1: Population & Flow Projections. Population and WRF influent flow will nearly double by 2030, requiring expansion for nearly all treatment processes.

EXISTING TREATMENT FACILITIES

Many of the original facility components, still in operation, are state-of-the-art technologies. Previous upgrades include two new seepage ponds around 1983, construction of a new solids handling building in 1996, upgrades to the secondary treatment process in 2000, and addition of the cloth media filters for reclaimed water production around 2000. Effluent from the WRF is applied either to the existing seepage pond system or as reclaimed water.

Performance and Deficiencies: All treatment processes have been very well maintained, and in nearly all cases are performing well and meeting performance criteria. Exceptions include the two original anaerobic digesters and the headworks facility. However, the City has already taken steps to address these deficiencies, which include a new headworks and upgrades to the digester mixing system. Based upon the significant increase in influent flows and loads described below, a number of processes do not meet the projected capacity requirements through 2030. In fact, several major liquid treatment processes are already operating at capacity and need to be expanded in the near-term.

WASTEWATER FLOWS AND LOADINGS

Current and projected wastewater flows and loads were calculated based on population projections developed in conjunction with the City's other planning efforts, including the Collection System Master Plan. A significant portion of the population increase (approximately 10,000) results from adding unsewered residences to the service area. As shown in Figure 1, the increased population will require the WRF to treat a future average daily max month flow (ADMMF) of 11.9 million gallons per day (mgd), compared to 6.5 mgd today. Plant loads, such as Biochemical Oxygen Demand (BOD), a measure of organic materials, and total suspended solids (TSS) will also increase, demanding higher treatment capacity.

FIGURE 2: Projected BOD and TSS Loads

REGULATORY REQUIREMENTS

The WRF effluent discharges are regulated under the terms of a Water Pollution Control Facility (WPCF) permit issued by the DEQ. A portion of the effluent is treated to Level IV reclaimed water standards, which requires additional treatment.

The Facilities Plan includes an extensive analysis of potential future groundwater impacts from the plant discharge, which resulted in findings that the current effluent limit on total nitrogen (TN) of 10 mg/L is protective of groundwater quality. Therefore, the recommended improvements in the Facilities Plan are based on continuing to meet the current requirements. However, the plan also includes alternatives to phase in additional improvements if more stringent effluent TN limits are adopted in the future. This approach ensures that proper provisions are made in near-term upgrades to allow the City to cost-effectively meet the various permitting scenarios with an efficient, phaseed approach.

Pictured: 2008 Facility Plan Executive Summary

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Deliverables

- 20-year Capital Improvement Plan.
  - Coordinated effort with the concurrent update of the Collection System Master Plan (CSMP).
- Updated Water Reclamation Facility Plan.
- Treatment Facility Public Facilities Plan.

Pictured: Digester Gas Burner

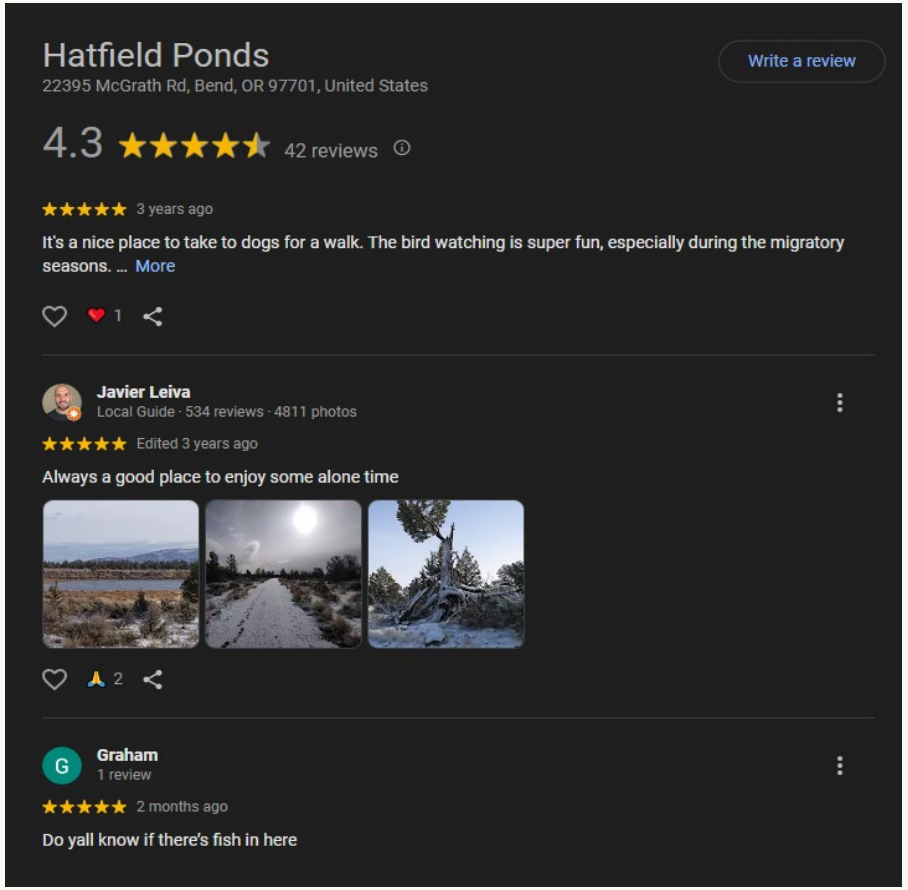
Current Status

- Kick-Off Meeting on November 21, 2024
- Flow and Waste Load Projections
- Condition Assessment
  - Energy Management
- Environmental Regulatory Assessment
  - WPCF Permit Renewal
- Liquid Treatment Process Review
  - Effluent Disposal Methodology
  - Recycled Water
- Solids Treatment Process Review
  - Digester Cleanings
  - Pumping and Screening
    - Grit Study

Pictured: PFAS Response Plan Workshop with Carollo and City Staff (Engineering, Water Services, Legal, and Communications)

Current Findings

- **Effluent Disposal**
  - Existing effluent disposal ponds provide reliable and safeguarded disposal for the current and build-out planning period.
    - Groundwater mitigation.
    - Recreational outlet.
- **Water Reuse**
  - Maintain existing reuse system.
  - Plan for the potential expansion.
    - State of Oregon pursuing policy to encourage water reuse
- **Regional Hauled Waste Program**
  - Need for more permanent solution. ***Hauled Waste receiving facilities needed.***



Pictured: Google review of Hatfield Ponds

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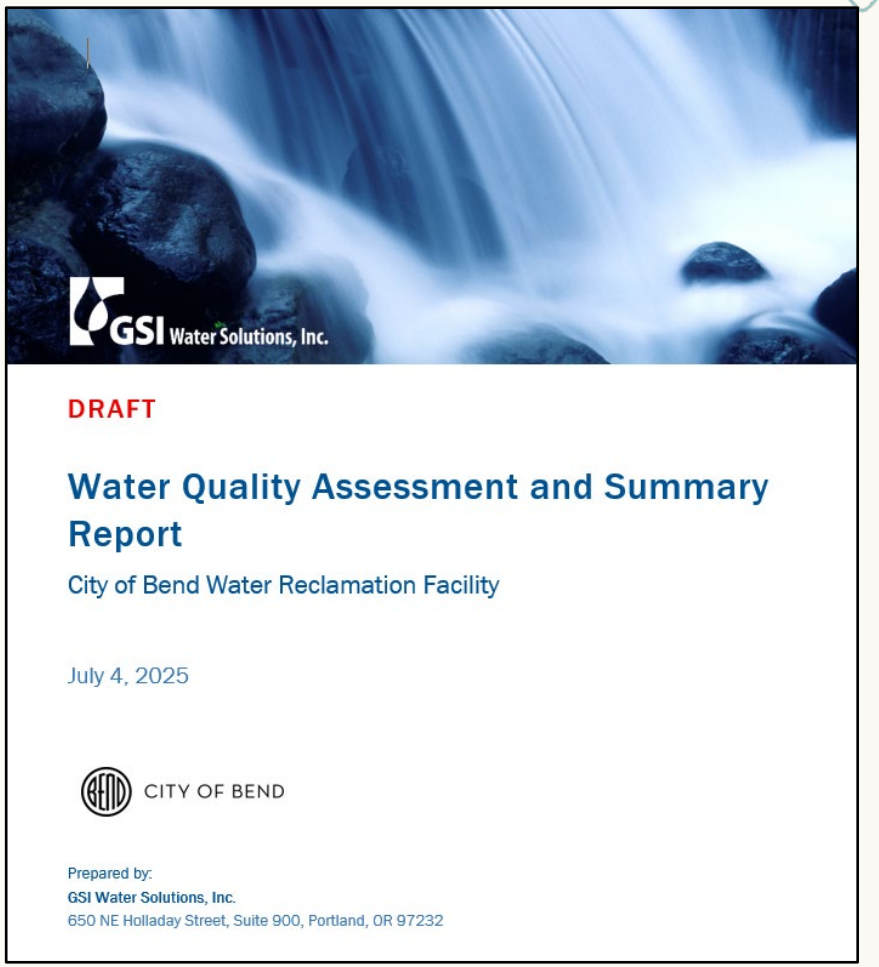
Current Findings (continued)

- **Regulatory**:
  - WPCF Permit
    - No new regulations or more stringent regulations are being forecasted, contingent DEQ concurrence on WPCF permit limits.
  - Emerging Contaminants/PFAS
    - Ongoing concern, but DEQ is not planning to regulate the WRF effluent or biosolids for these constituents in the foreseeable future.
      - PFAS Response Plan



Pictured: 2025 Water Quality Analysis Report

Current Findings (continued)

- **Condition Assessment/Process Analysis**:
  - Digestion Complex
    - WRF severely lacks redundancy and reliability in the solids processing, particularly with the ability to provide quality biosolids with the largest digester out of service. ***Digester 4 is needed***.
  - Secondary Treatment
    - WRF also lacks ability to provide consistent secondary treatment, particularly with the ability to settle solids prior to discharge to the effluent disposal ponds. ***Secondary Clarifier 4 is needed.***

Pictured: Struvite interior wall slabs collapsed in Digester 3

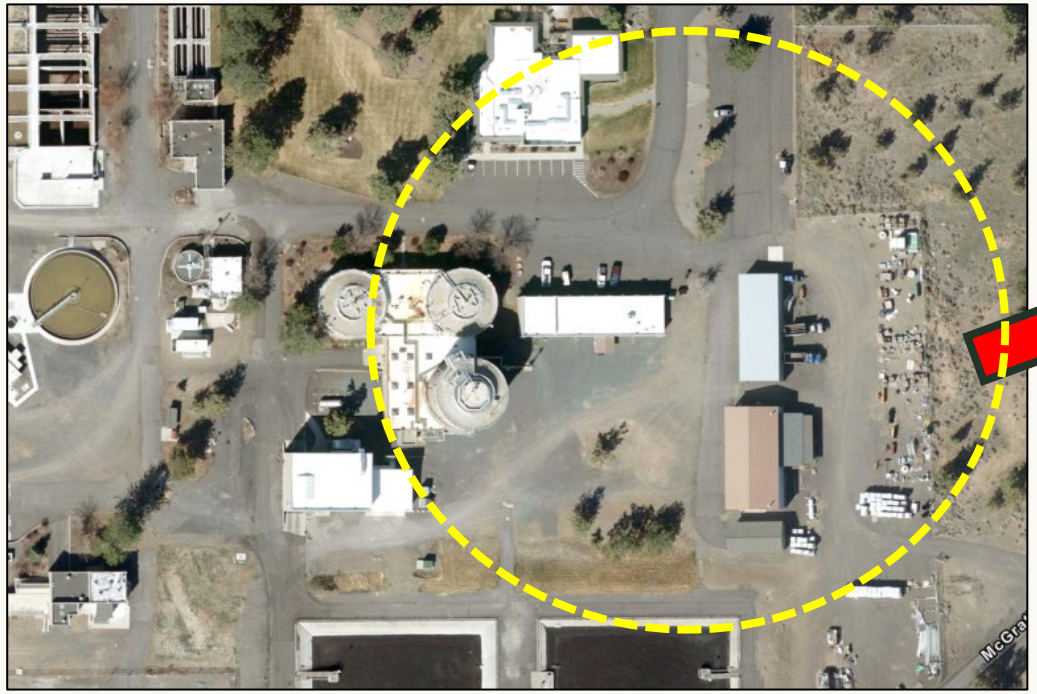
Near Term Solutions

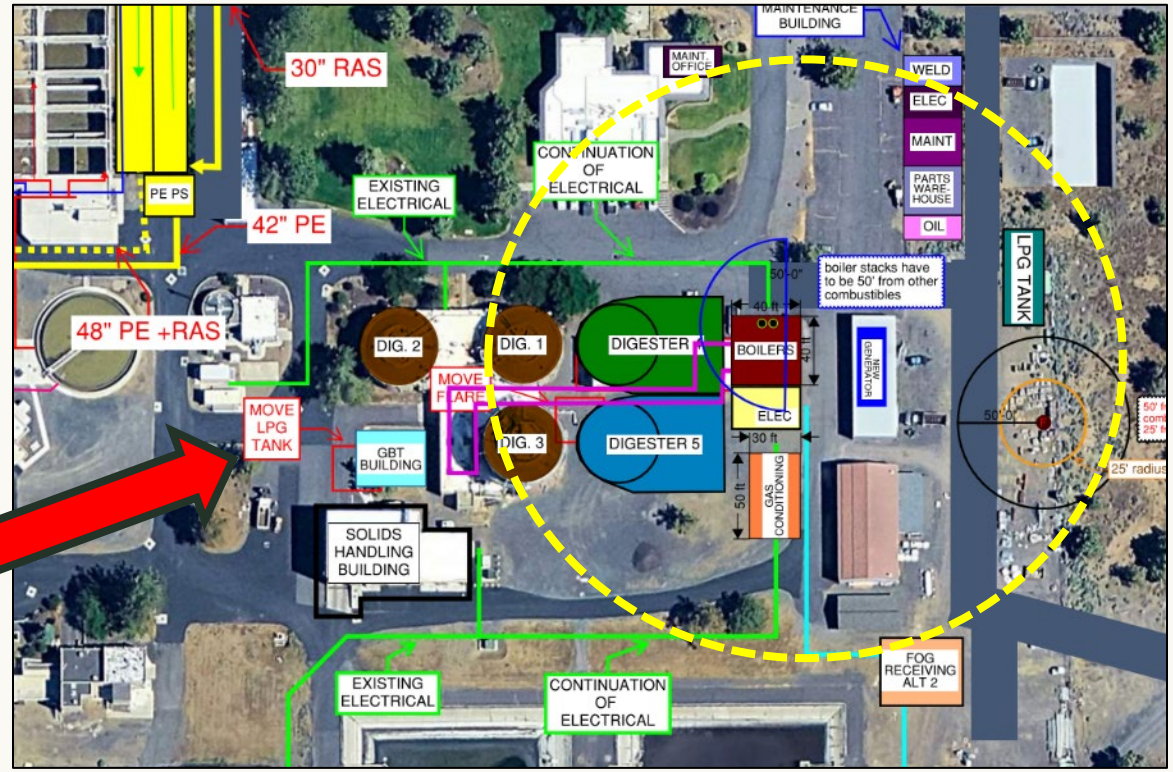
- Digester 4
- Hauled Waste Receiving Facilities
- Secondary Clarifier 4 and RAS/WAS Pump Station
- Capital costs are for these items are estimated to be approximately$185M over the next seven years

Pictured: Primary Clarifier No. 1 Improvement Project (Previous R&R Project)

Near Term Solutions (continued)

- New Digester 4
  - Includes New Major Mechanical, Electrical, and Instrumentation Equipment





Pictured: Left: overview picture represents the existing Digester Complex; Right: overview picture represents the anticipated 2045 and Build-Out Digester Complex. Respective impacted areas circled in yellow.

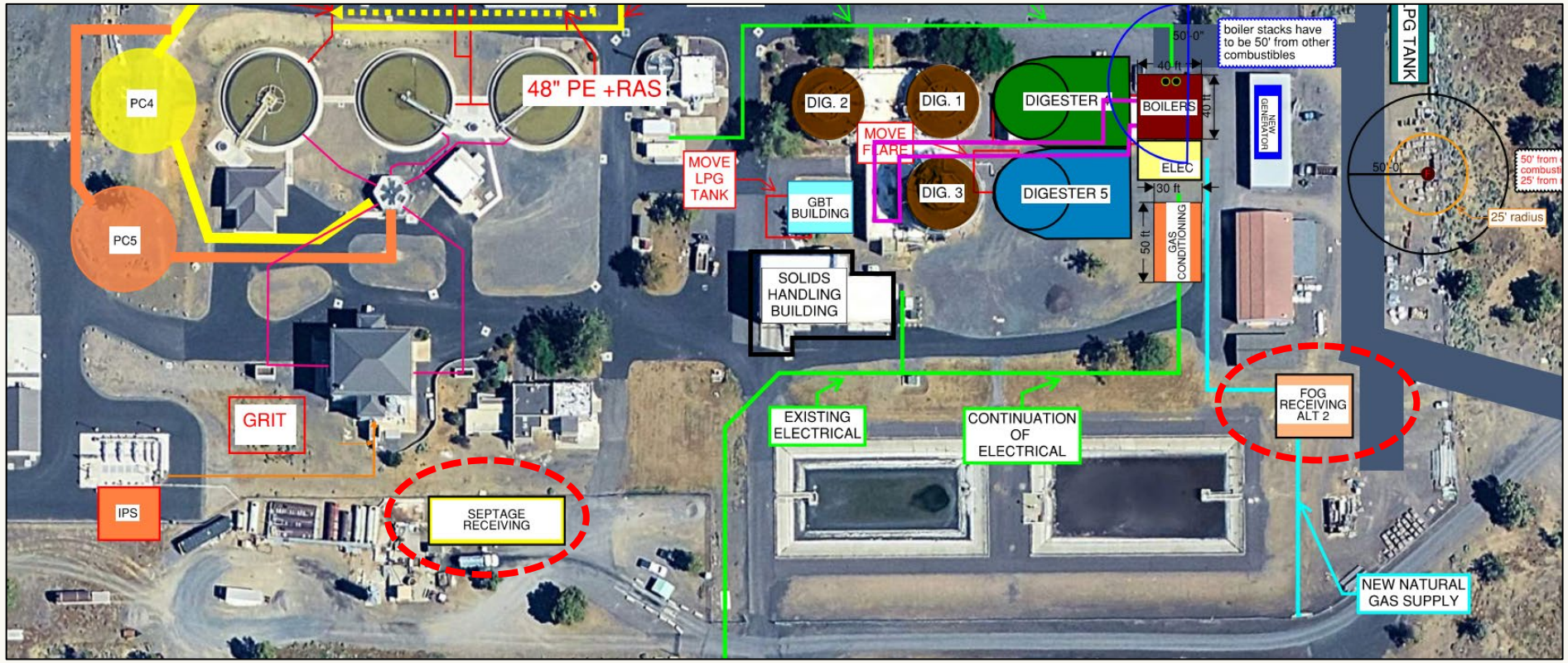
Near Term Solutions (continued)

- New Digester 4
  - Similarly sized to existing Digester 3
  - Approximately 80 feet tall

Pictured: Left overview picture represents the existing Digester Complex; Right overview picture represents Digester 4. Respective impacted areas circled in yellow.

Near Term Solutions (continued)

- **Hauled Waste Management**
  - New Hauled Waste Receiving Facilities



Pictured: Respective impacted areas circled in red.

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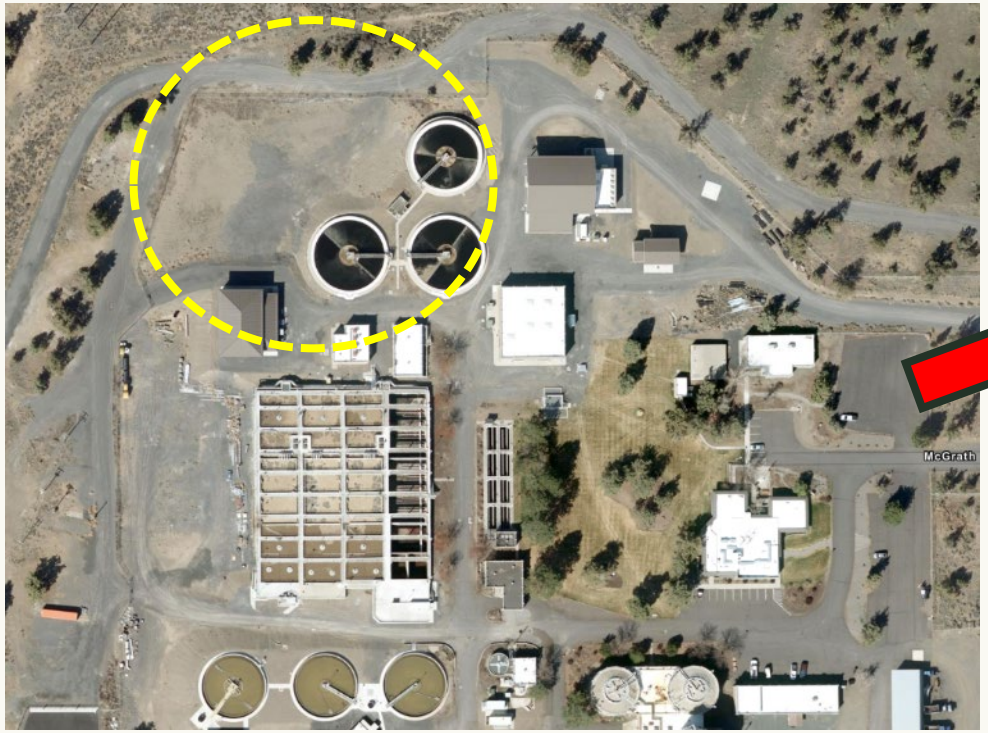
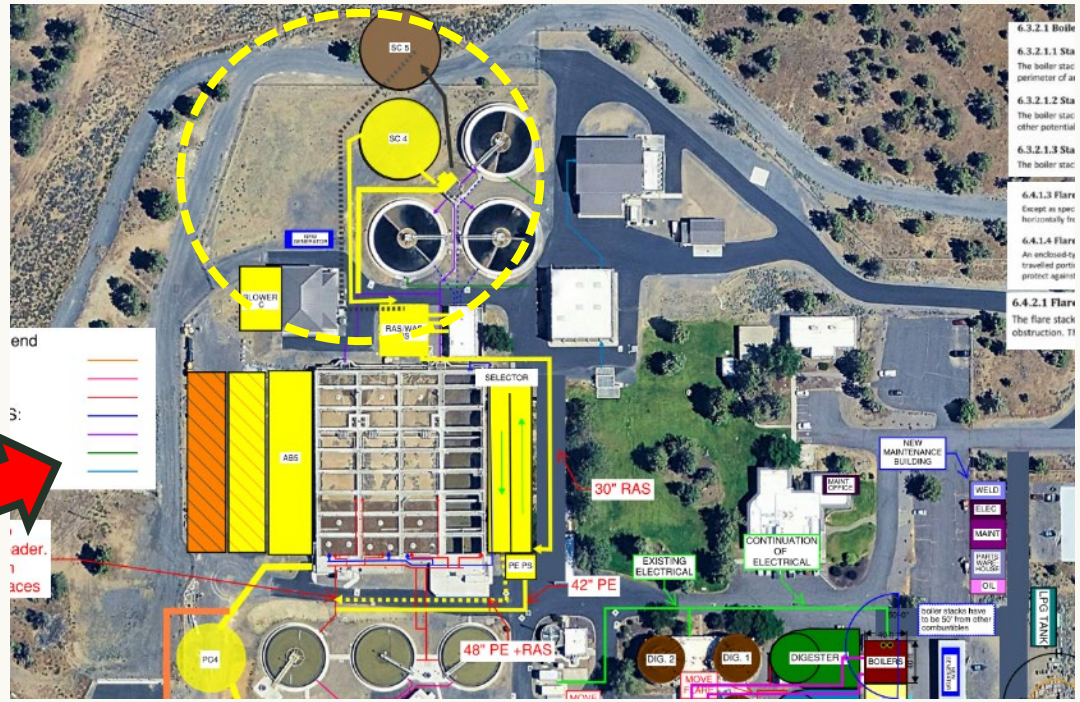
Near Term Solutions (continued)

- **Secondary Treatment**
  - Secondary Clarifier 4
  - Process Recycle Pumping
  - Auxiliary Power





Pictured: Left overview picture represents the existing Digester Complex; Right overview picture represents the anticipated 2045 and Build-Out Digester Complex. Respective impacted areas circled in yellow.

CITY OF BEND

Next Steps

- Refine and complete ongoing assessments and analysis for near term solutions
- Continue WPCF Permit Renewal with DEQ
- Identify solutions and respective alternatives to address deficiencies; regulatory requirements; population growth demands, etc.
  - Long term solutions
- DRAFT Capital Improvement Plan
- DRAFT Facility Plan
- Sanitary Sewer System Public Facility Plan

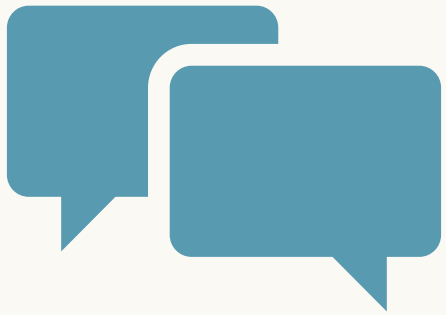
Pictured: Carollo Condition Assessment Team reviewing RAS/WAS Pump Station

Project Schedule

- Notice to Proceed (November 2024)
- Plan Development (December 2024 – Fall 2026)
- 20-year Capital Improvement Plan (Summer 2026)
- City Council adoption of:
  - Water Reclamation Facility Plan and Treatment Facility Public Facilities Plan (Fall/Winter 2026)

Pictured: Aeration Basin 3 IFAS Zone (1SCAP Project)

WAG Discussion Questions



- *Is our explanation of the facility planning process clear, or is there other information you think we should provide?*
- *Do you think we should expand the discussion of deficiencies, analyses, or findings, or is the current level of detail enough for this stage?*
- *Do you think the description of the proposed or anticipated solutions is detailed enough, or are there parts you'd recommend we elaborate on?*

Discussion & Feedback

Look ahead

June 3, 2026: In-person Tour!

July-August, 2026: Summer Break

September 2, 2026: Water Conservation Program

Thank you!

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