

**CLACKAMAS RIVER WATER**  
BOARD OF COMMISSIONERS  
SPECIAL MEETING, WORK SESSION AND EXECUTIVE SESSION  
**May 24, 2021 at 6:00pm**



**THIS MEETING WILL HAVE REMOTE ACCESS VIA ZOOM\***

**AGENDA**

**16770 SE 82<sup>nd</sup> Drive, Clackamas, OR 97015**

**Public Comment:** If there is a member of the public that wishes to address the Board they may submit a request through email to [kholzgang@crwater.com](mailto:kholzgang@crwater.com) no later than 4pm the day of the meeting.

To protect the health of our customers, staff, and commissioners, CRW's Board of Commissioners and most of its staff will attend this meeting through an online Zoom meeting. Anyone who wishes to attend the meeting may do so by internet at <https://us02web.zoom.us/j/82426463692> or by calling the following number [12532158782](tel:12532158782) and join meeting 82426463692#. Passcode: 328363

**SPECIAL MEETING @ 6:00PM**

Call to Order, and Roll Call – *Sherry French, President*

- a. Approval of the Agenda

**Action Item**

1. Consider Approval of 82<sup>nd</sup> Dr. Waterline -Phase 1; Project Scope Increase– *Joe Eskew, Engineering Manager*

**Public Comment**

*Adjourn special meeting*

**Work Session -begins immediately following the Special Meeting**

Call to Order

1. Water Treatment Plant Facility Plan Update- *Carollo Engineers*
2. South Service Area Distribution Enhancements-*Adam Bjornstedt, Chief Engineer*
3. Natural Hazard Mitigation Plan (NHMP) Update- *Donn Bunyard, Emergency Manager*
4. Commissioner Communications- *CRW Board of Commissioners*
5. General Manager Update- *Todd Heidgerken, General Manager*

**Public Comment**

*Adjourn Work Session*

**NEXT PAGE**

**EXECUTIVE SESSION- will start immediately following the work session.**

1. Discuss information or records that are exempt by law from public inspection pursuant to ORS 192.660 (2) (f) and 192.355 (9)

Work Session Reminders:

- a. Work Session – audio only
- b. No decisions will be made by the CRW Board
- c. Staff may get direction or a sense of the board on key issues
- d. Members of the public are allowed to attend but not participate (*public comment provided at the end of the session*)

The meeting location is accessible to persons with disabilities. A request for accommodations for persons with disabilities should be made at least 48 hours before the meeting to Adora Campbell (503) 722-9226.

**CLACKAMAS RIVER WATER**

**SPECIAL BOARD MEETING**

**May 24, 2021**

**SUBJECT** Consider approval of 82nd Dr. Waterline -Phase 1; Project Scope Increase

<b>DRAFT MOTION</b>	I move to approve the increase in expenditure for the additional waterline constructed within the 82 <sup>nd</sup> Dr. Waterline Phase 1 project CIP 19-5253
<b>EFFECTIVE DATE</b>	May 24, 2021

**PRINCIPAL STAFF PERSON** Joseph D. Eskew PE – Engineering Manager

**BOARD ACTION REQUESTED** The Board is requested to approve the funds necessary to increase the amount of waterline constructed under the 82<sup>nd</sup> Dr. Waterline – Phase 1 project.

**DOCUMENTS ATTACHED** Exhibit A – Project Map

**Agenda Summary**

**BACKGROUND** The 82nd Dr. Waterline – Phase 1 project is the last planned CIP project for the current biennium. The bid prices received for the project were under the engineers estimate which prompted a review of the BN 19-21 CIP budget. The review revealed that CIP funds remained unspent and/or unencumbered. As of the end of March, approximately \$500,000 remained unencumbered. This presented an opportunity to install more pipe at an efficient price and within the funding limitations.

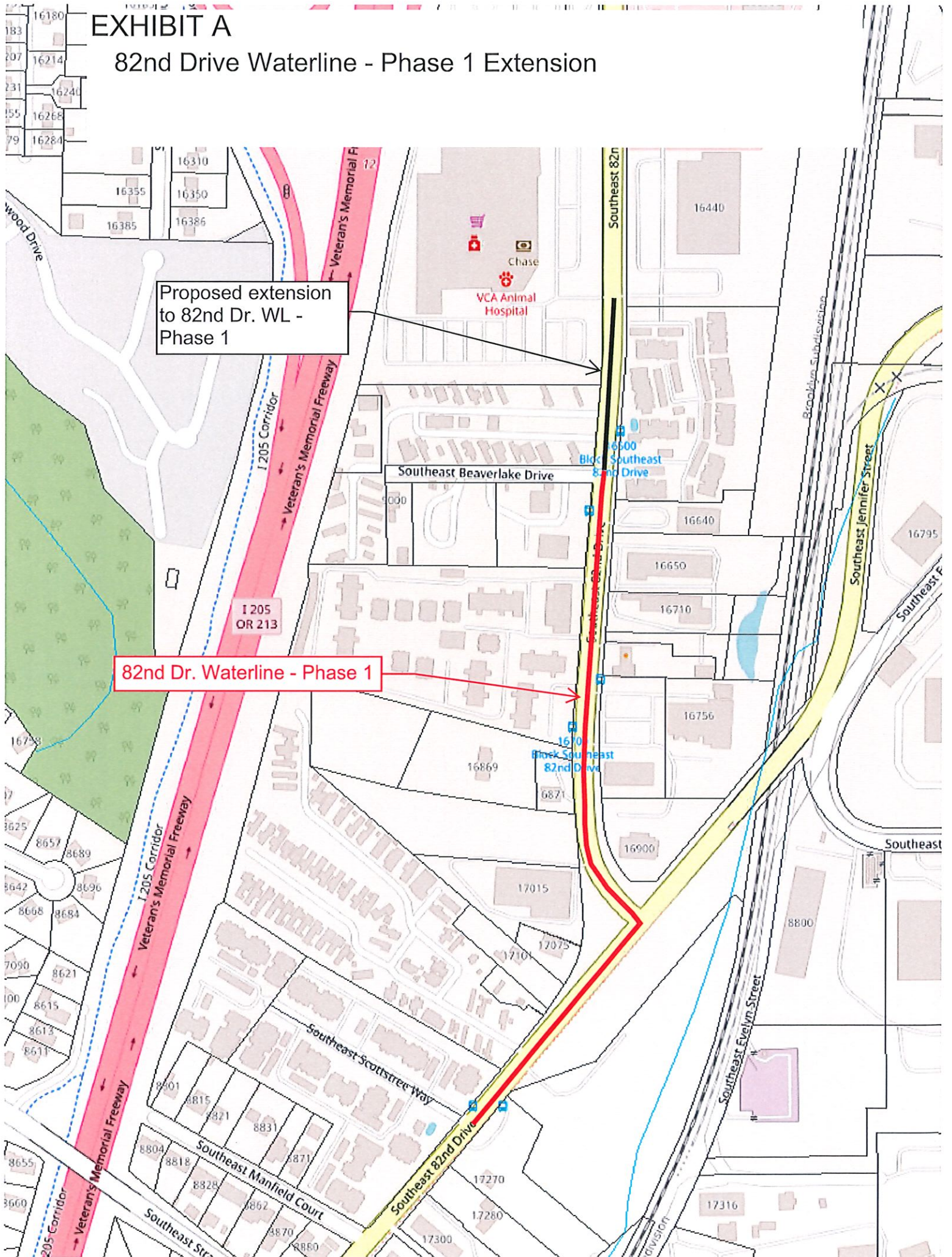
Project expansion limits were selected at the north end of the existing project to facilitate design and construction coordination under the existing contract without altering the project complexity by introducing additional unknowns and unplanned impact. A cost estimate for the additional 340 lineal feet of pipe is approximately \$110,000 or 16.5% of the \$664,500 bid amount. Payment will be made at bid prices for increased volumes of existing bid items.

The additional pipe constructed today will reduce the amount of pipe required to be replaced in the future.

**STAFF RECOMMENDATION** Staff recommends the Board approve the funds for the project expansion.

# EXHIBIT A

## 82nd Drive Waterline - Phase 1 Extension



# CLACKAMAS RIVER WATER

## BOARD WORK SESSION

May 24, 2021

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**SUBJECT** Water Treatment Plant Facility Master Plan Update

**PRINCIPAL STAFF PERSON** Adam Bjornstedt, Chief Engineer  
(with Carollo Engineers)

### Agenda Summary

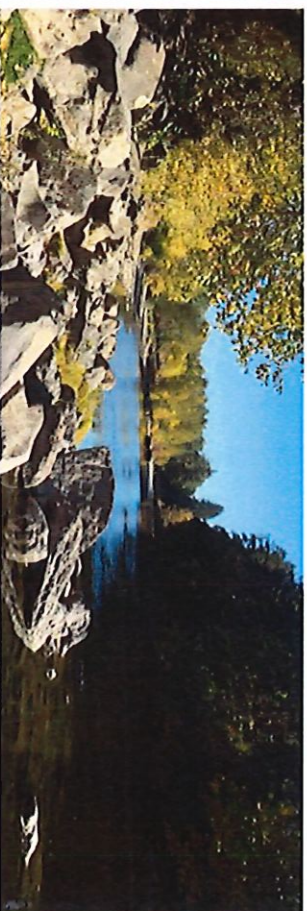
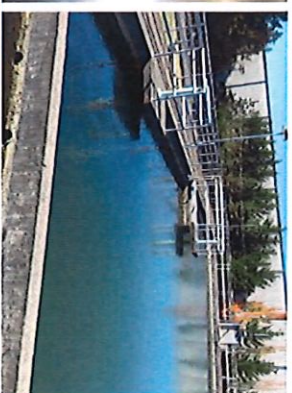
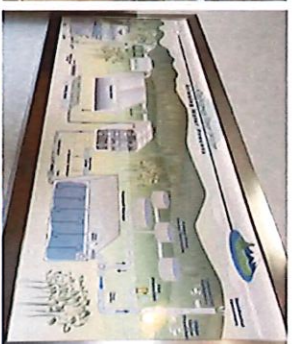
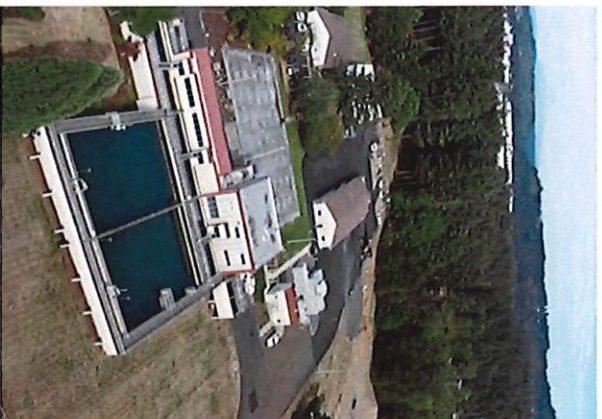
**BACKGROUND** CRW identified the need to conduct a water treatment plant (WTP) facilities plan in the 2019-21 budget, and a professional services contract was awarded to Carollo Engineers in June 2019. The purpose of the facilities plan is to provide an analysis of the District's WTP including evaluating treatment capacity, identifying potential deficiencies, and recommending improvements that correct or minimize these deficiencies. These improvements will provide for future water quality, capacity, and resiliency requirements. The final plan will capture all analysis, key findings, and recommendations for the WTP facility.

CRW's water treatment plant was constructed in 1964 and has undergone various upgrades over the past 50-plus years; however, a water treatment facilities master plan has never been prepared for the plant. The District will realize significant value from completing this plan, including reviewing and compiling existing reports, plans, and other data; assessing existing treatment operations; identifying deficiencies based on defined planning criteria; and developing a WTP capital improvement plan that can be utilized to prioritize future treatment improvements of various types. The completed plan will also be of tremendous value as a knowledge transfer repository and continuity planning document.

The anticipated completion of the plan is June 2021. Carollo Engineers will present an overview of the plan and share some of the key findings and be available for any questions.

A link to the draft plan was sent out prior to this work session (<https://bit.ly/3eYTYxy>). A PowerPoint presentation will be presented at the Work Session.

# WATER TREATMENT PLANT FACILITIES PLAN



## WTP Facility Plan Board Work Session

May 24, 2021

**WATER**  
OUR FOCUS  
OUR BUSINESS  
OUR PASSION



# Purpose of the Plan

- Evaluate WTP treatment capacity (current and future demands)
- Identify potential deficiencies
- Recommend improvements
- Prioritize improvements



## We have methodically stepped through key planning activities...

Assessment of raw water quality, risk of change to raw water quality, potential for regulatory changes  
Determine capacity and level of service goals for the WTP

High level assessment of existing condition and process performance infrastructure

What are the current needs?

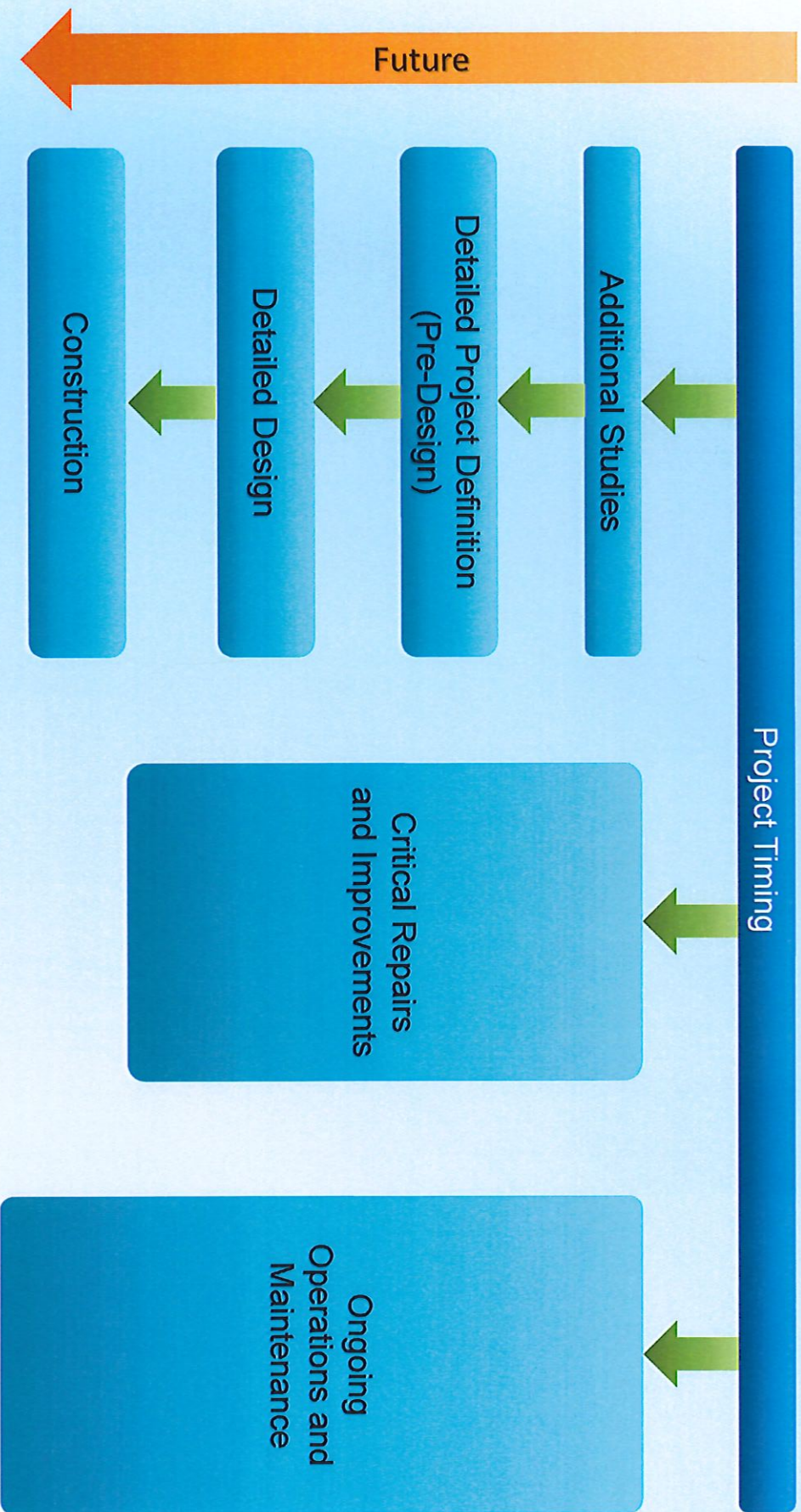
What is needed in the future and how do we best meet these needs?

Project recommendations and prioritization

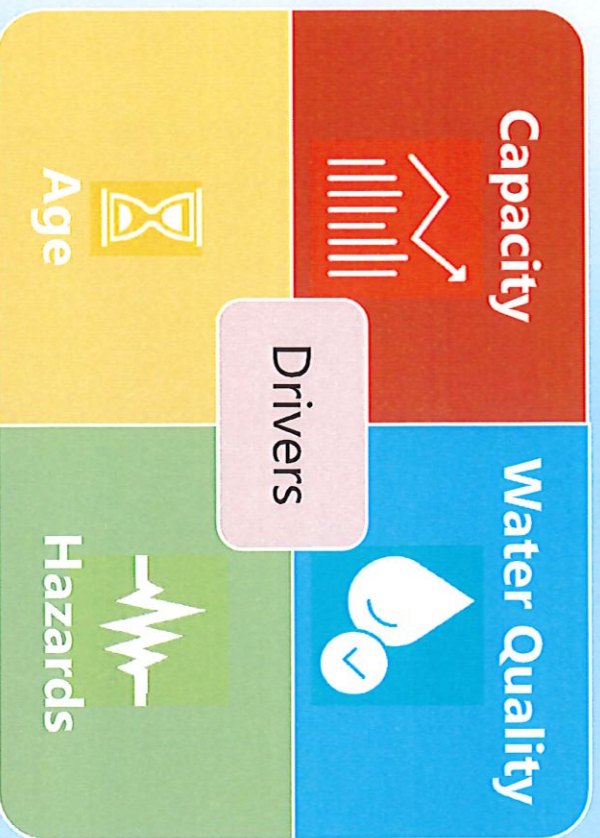
Project timing



# ...And set a course for future activities



# Key Findings



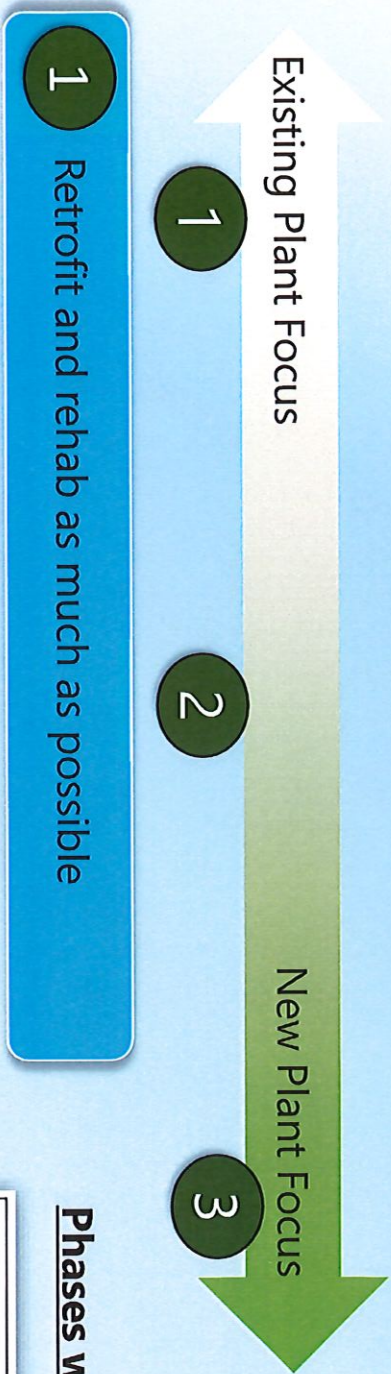
Plant Element	Deficiencies			
	Capacity	WQ	Age	Hazards
Raw Water Intake and Pipeline			X	
Low-Lift Pump Station and Raw Water Pipe	X		X	X
Flash Mix			X	X
Pre-Treatment (Exiting Contactors)		X	X	X
Filters	X		X	X
Clearwell	X		X	X
High-Lift Pump Station	X		X	X
Residuals Handling (lagoons)	X		X	X
Control Building			X	X
Chemical Storage			X	X
Plant Electrical			X	X
ANTICIPATED TIMEFRAME	2028	2031-2040*	2034-2074	By 2063

\* May be sooner depending on funding

# Resulting Projects

Existing Plant Focus

New Plant Focus



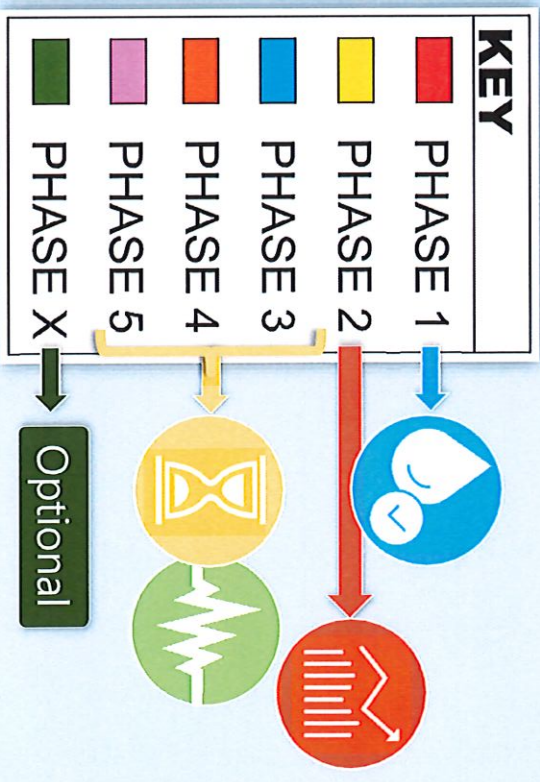
1 Retrofit and rehab as much as possible

2 Incremental construction of new infrastructure  
 a. Floc/Sed with Plates + PAC  
 OR  
 b. Ozone and Ballasted Floc

3 Build all new treatment plant  
 a. Floc/Sed with Plates + PAC  
 OR  
 b. Ozone and Ballasted Floc

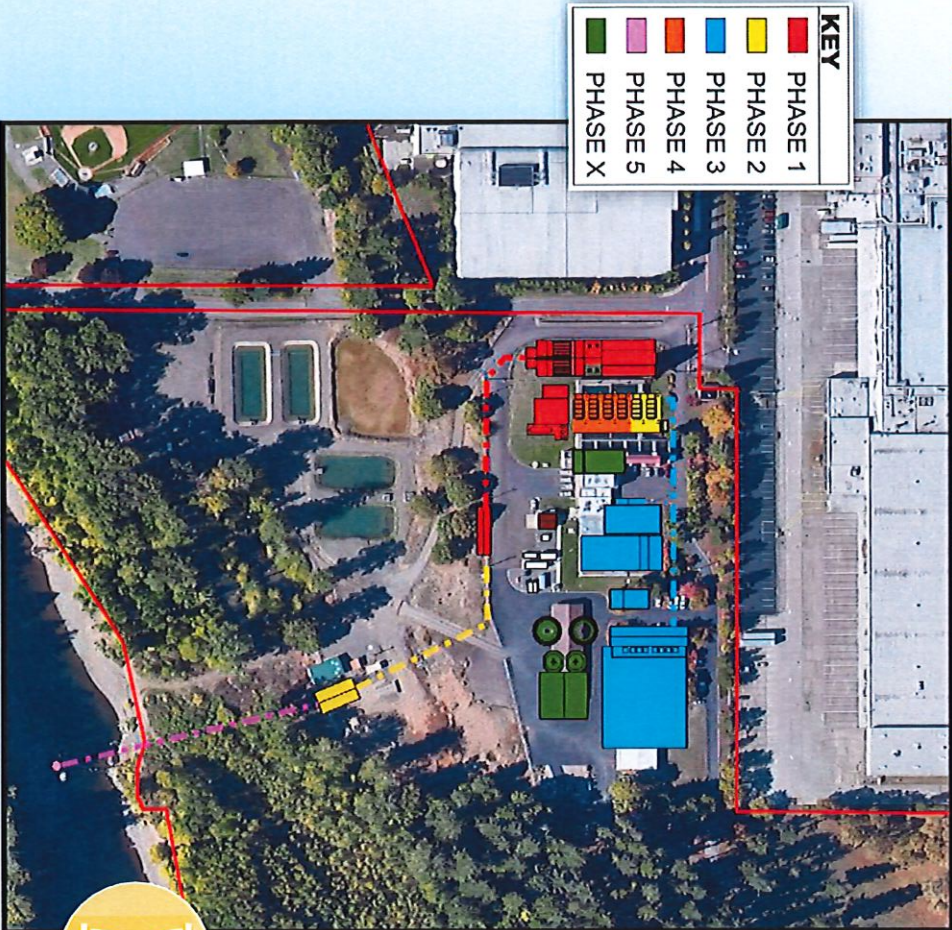


## Phases within alternatives:



# Selected Alternative

(Alternative 2b)

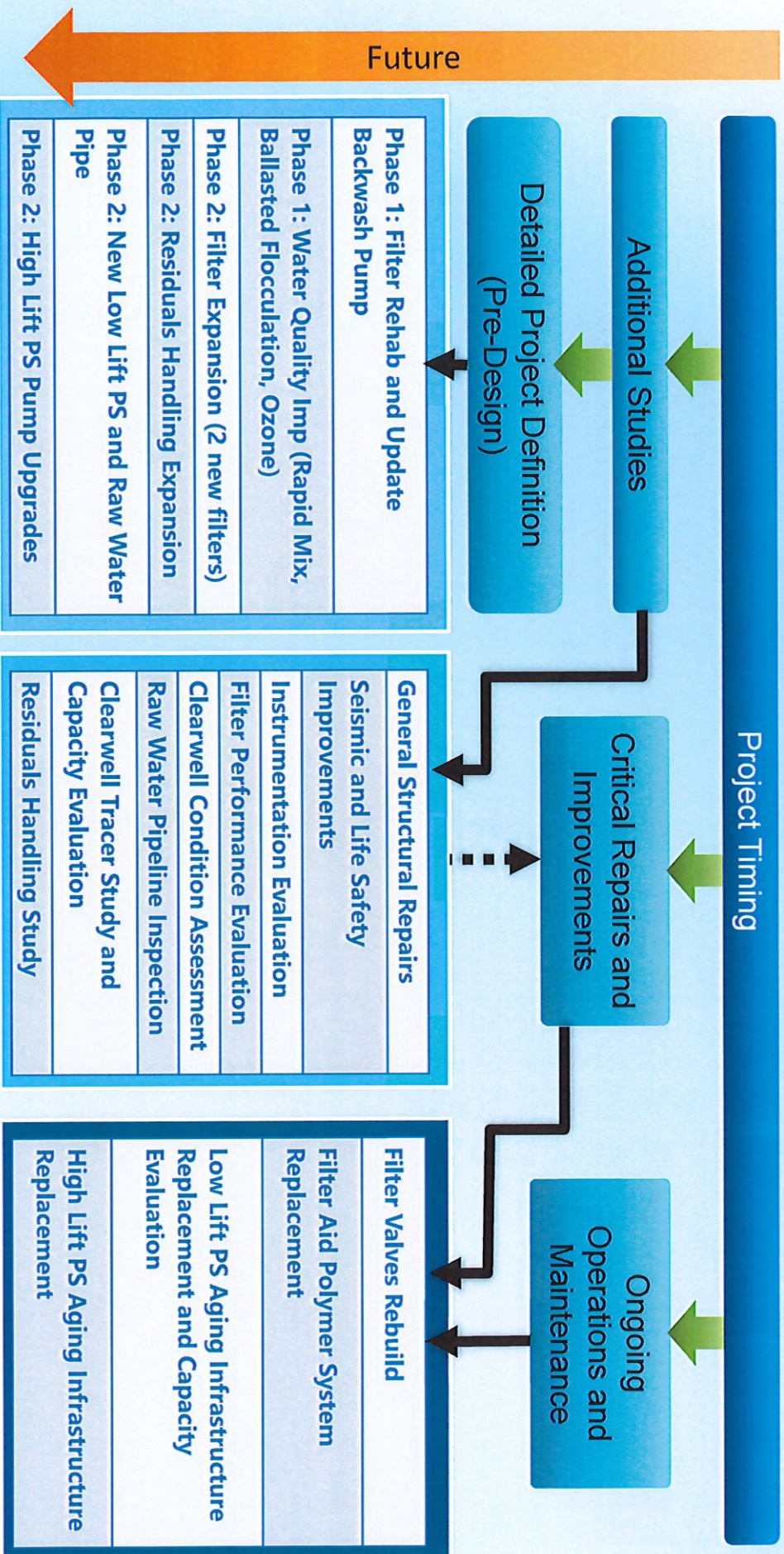


## Incrementally Replace Infrastructure

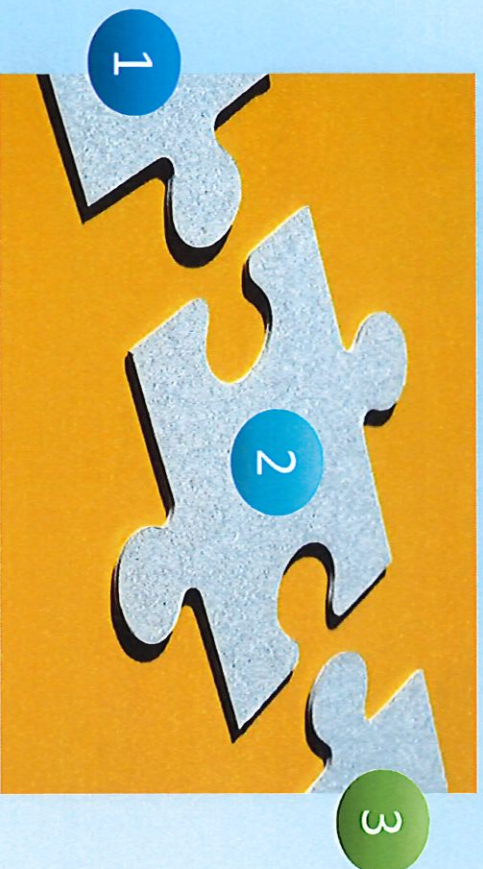
- ❖ Water Quality Improvements
  - Ozone system
  - Ballasted flocculation basins
  - Upgrade existing filters
- ❖ Capacity Improvements
  - Additional filters (as needed)
  - Additional solids handling basins
- ❖ Aging Infrastructure / Resilience
  - Achieved as facilities are replaced



# Recommended improvements included all types of projects



# Projects within the WTP were prioritized to maximize value



## Benefits Include:

- Reduced Risk
- Addressing the Most Drivers
- Meeting short term needs with existing funding reserves while planning for larger long-term projects

- Power
- Footprint
- Process

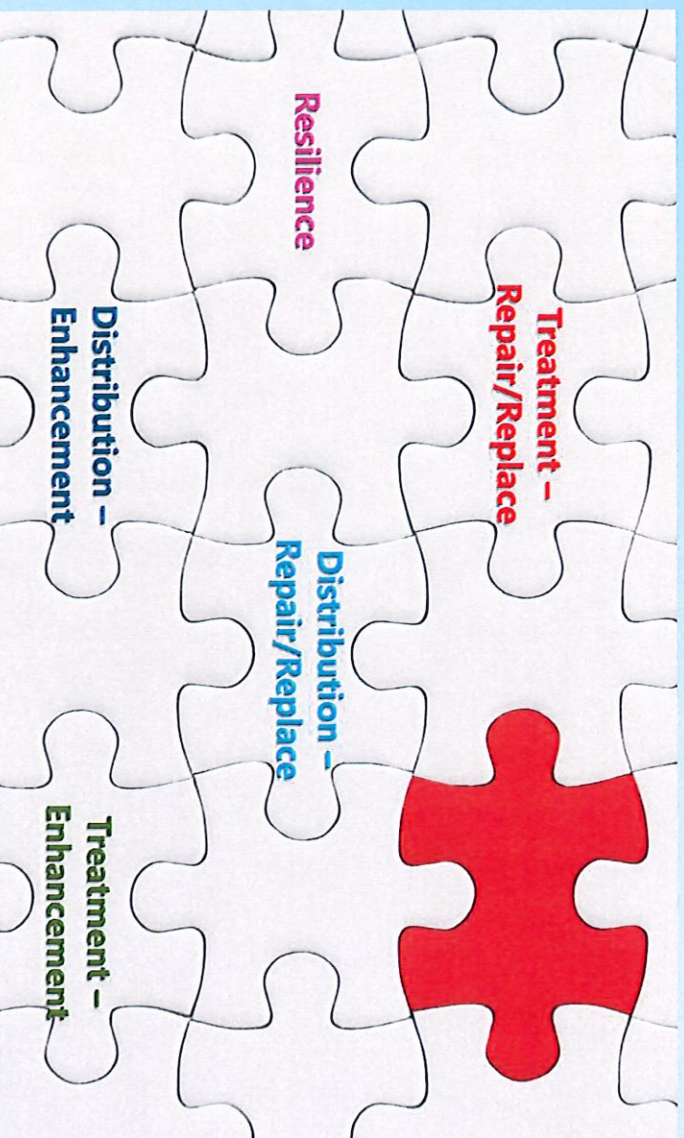
- Planning with other projects

- Maximizing benefits

## But... CRW's infrastructure extends beyond the WTP

The WTP is only one part of the “puzzle” of the District's overall CIP strategy:

- Repair/Replacement needs of the system
- Enhancement needs of the system
- Resilience of the system



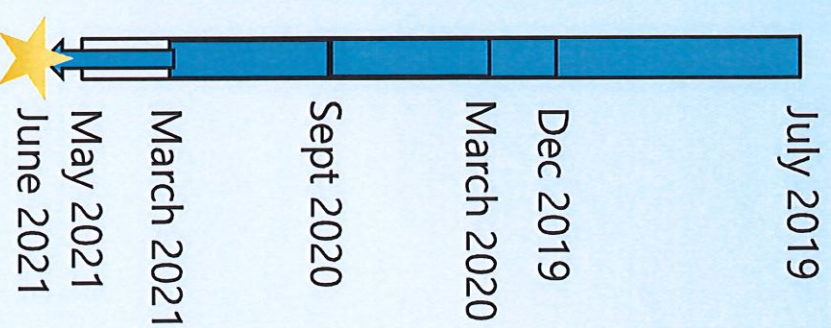
# Timing prioritizes repairs/replacements, gathering needed information, and funding considerations for future projects

Replace/repair	Enhancement
FY 21-23 Study Suite Project Suite	FY 25-27 Project Suite
General Structural Repairs Seismic and Life Safety Improvements Instrumentation Evaluation Filter Performance Evaluation Clearwell Condition Assessment Filter Valves Rebuild Filter Aid Polymer System Replacement Raw Water Pipeline Inspection Clearwell Tracer Study and Capacity Evaluation Residuals Handling Study Low Lift PS Aging Infrastructure Replacement and Capacity Evaluation High Lift PS Aging Infrastructure Replacement Phase 1: Filter Rehab and Update Backwash Pump Phase 1: Water Quality Improvements (Rapid Mix, Ballasted Flocculation, Ozone) Phase 2: Filter Expansion (2 new filters) Phase 2: Residuals Handling Expansion Phase 2: New Low Lift PS and Raw Water Pipe Phase 2: High Lift PS Pump Upgrades	Long Term (2031-2040)* *May be sooner depending on funding

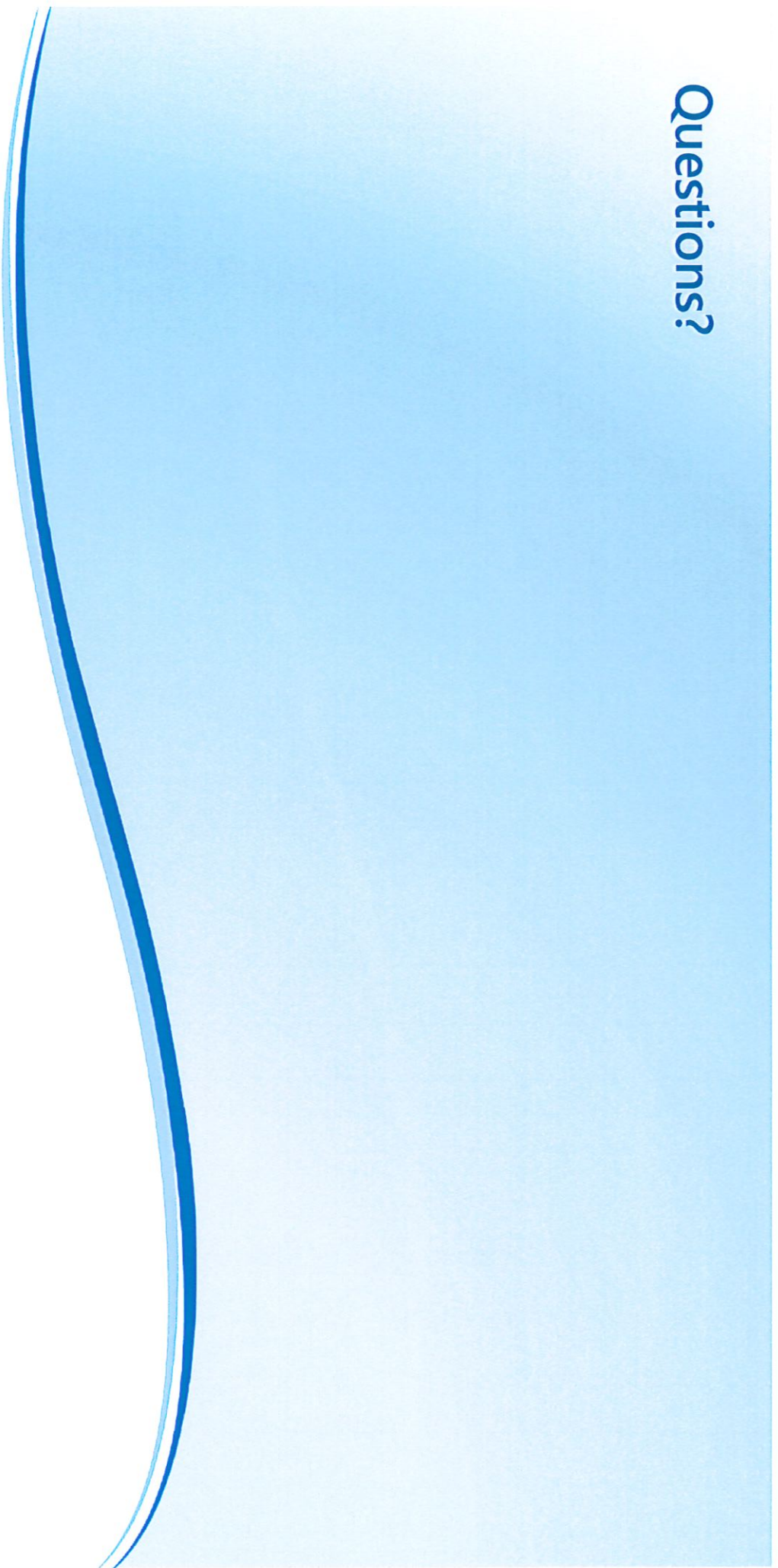


# WTP Facility Plan Wrap Up – Almost There!

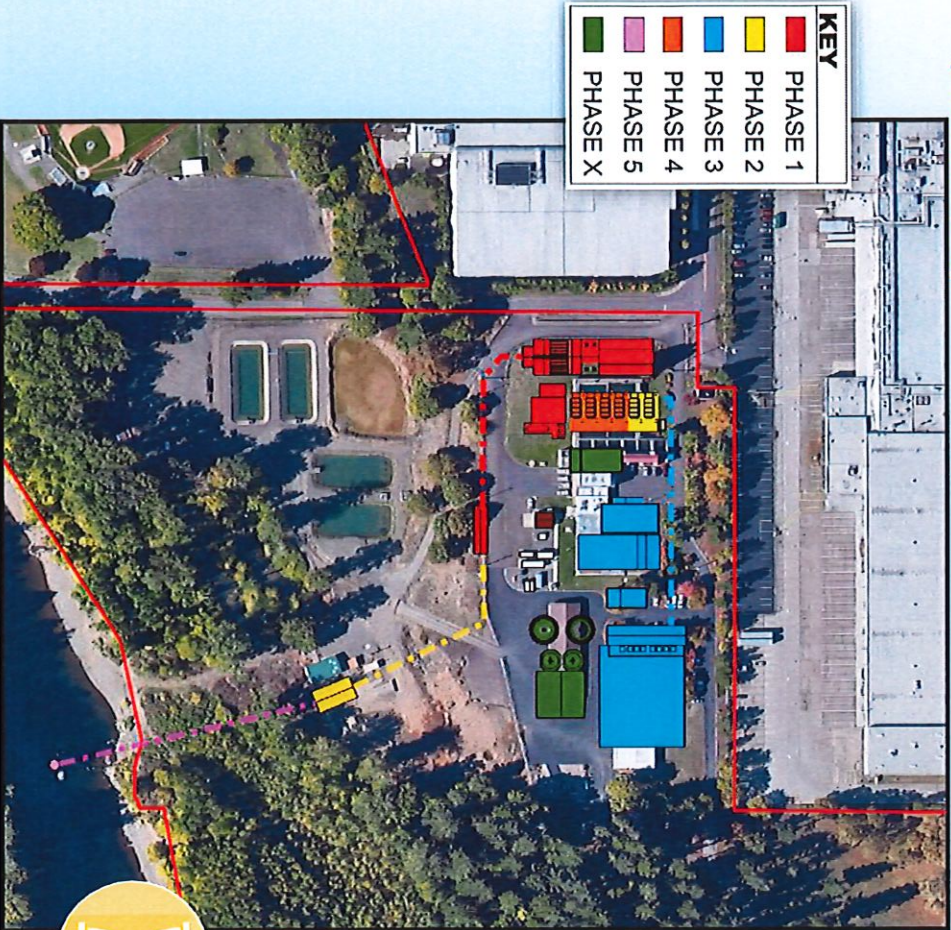
- Data Gathering
- Existing WTP Assessment
- Project Recommendations
- Final List, Strategy, & Planning Docs
- Final Document Revisions
- Issue



Questions?



# Selected Alternative (Alternative 2b)



## Incrementally Replace Infrastructure

- ❖ Water Quality Improvements
  - Ozone system
  - Ballasted flocculation basins
  - Upgrade existing filters
- ❖ Capacity Improvements
  - Additional filters (as needed)
  - Additional solids handling basins
- ❖ Aging Infrastructure / Resilience
  - Achieved as facilities are replaced



# Timing prioritizes repairs/replacements, gathering needed information, and funding considerations for future projects

Replace/repair		Enhancement		
FY 21-23	Study Suite Project Suite	General Structural Repairs	Long Term (2031-2040)* <i>*May be sooner depending on funding</i>	
		Seismic and Life Safety Improvements		
Instrumentation Evaluation				
Filter Performance Evaluation				
Clearwell Condition Assessment				
Filter Valves Rebuild				
Filter Aid Polymer System Replacement				
Raw Water Pipeline Inspection				
Clearwell Tracer Study and Capacity Evaluation				
Residuals Handling Study				
FY 23-25	Study Suite Project Suite	Low Lift PS Aging Infrastructure Replacement and Capacity Evaluation	Phase 1: Filter Rehab and Update Backwash Pump	
		High Lift PS Aging Infrastructure Replacement	Phase 1: Water Quality Improvements (Rapid Mix, Ballasted Flocculation, Ozone)	
FY 25-27	Project Suite		Phase 2: Filter Expansion (2 new filters)	
			Phase 2: Residuals Handling Expansion	
			Phase 2: New Low Lift PS and Raw Water Pipe	
			Phase 2: High Lift PS Pump Upgrades	
				\$125,000
				\$1.0M
				\$78,000
				\$664,000
				\$600,000
				\$4.4M
				\$17.6M
				\$10.2M
				\$5.1M
				\$10.6M
				\$3.6M

# CLACKAMAS RIVER WATER

## BOARD WORK SESSION

May 24, 2021

**SUBJECT** South Service Area Distribution Enhancements

**PRINCIPAL STAFF PERSON** Adam Bjornstedt, Chief Engineer

**ATTACHMENTS** “South Service Area Distribution Enhancements” map

### Agenda Summary

**BACKGROUND** In 2015, the District developed concept plans for a series of distribution system enhancements that would accomplish a number of goals. These became known as the “Backbone Projects” and were focused on:

- ✓ Improving system ability to meet current and future water demands;
- ✓ Replacing some outdated/sub-standard infrastructure;
- ✓ Expanding distribution of CRW-produced water to CRW South Service Area.

Phase 1 of the Backbone Projects, completed in 2016-2020, partially accomplished these goals by constructing storage, pumping and transmission improvements to move water from the CRW WTP, through the Mather pressure zone, and across the Carver Bridge to the South Area’s Redland pressure zone.

Through recent District planning activities, including the Water System Master Plan, Water Treatment Facility Plan, and Capital Planning Strategy, further development and prioritization of system-wide deficiencies was conducted, as well as determining the most effective means of beginning to meet long-term system improvement needs. As was identified in the Capital Planning Strategy memo (Feb. 2021), a multi-faceted approach is needed in order to address the variety of District infrastructure needs. For the “Backbone” as originally scoped, a fresh look was required that would couple the original goals of the Backbone projects but still allow focus on other high-priority system improvements, including repair/replacement and enhancement projects to the WTP and distribution system, all within the abilities of the District’s current and future funding and resources.

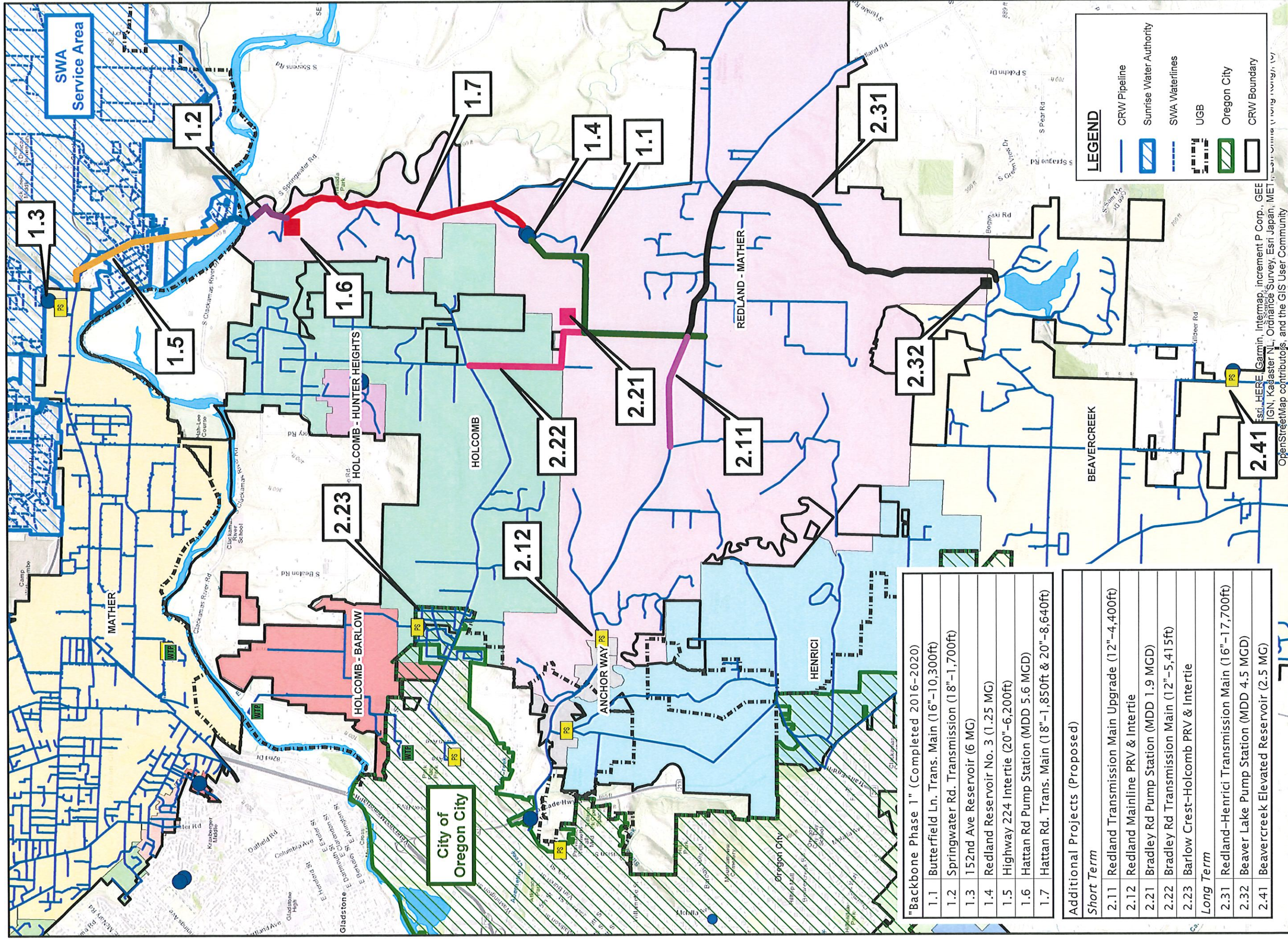
Staff performed an analysis of the existing system and developed an approach to provide further enhancements to the south service area. This short term “interim” plan would:

- Connect additional south side pressure zones (Holcomb/Hunter Heights, Henrici, Beavercreek) to CRW north side water.
- Meet existing and short term demands at less cost to allow resources to be devoted to other critical needs (i.e. WTP).
- Enhance and maximize use of existing infrastructure, all in a 6-year timeframe as part of the District's capital strategy.

The resulting concept has been captured graphically in the attached map, which shows not only the completed "Backbone Phase 1" projects, but also a new series of projects for short-term (6-year CIP) system enhancements, as well as longer term enhancements that would focus more on expansive infrastructure to meet long-term growth or other system requirements, which may require further analysis.

The short-term interim projects, 2.11 through 2.23, have been included in the District's 6-year CIP plan and can be accomplished at an approximate total cost (in today's dollars) of roughly \$6 million.

# SOUTH SERVICE AREA DISTRIBUTION ENHANCEMENTS



**"Backbone Phase 1" (Completed 2016-2020)**

1.1	Butterfield Ln. Trans. Main (16"-10,300ft)
1.2	Springwater Rd. Transmission (18"-1,700ft)
1.3	152nd Ave Reservoir (6 MG)
1.4	Redland Reservoir No. 3 (1.25 MG)
1.5	Highway 224 Intertie (20"-6,200ft)
1.6	Hattan Rd Pump Station (MDD 5.6 MGD)
1.7	Hattan Rd. Trans. Main (18"-1,850ft & 20"-8,640ft)

**Additional Projects (Proposed)**

Short Term	
2.11	Redland Transmission Main Upgrade (12"-4,400ft)
2.12	Redland Mainline PRV & Intertie
2.21	Bradley Rd Pump Station (MDD 1.9 MGD)
2.22	Bradley Rd Transmission Main (12"-5,415ft)
2.23	Barlow Crest-Holcomb PRV & Intertie
Long Term	
2.31	Redland-Henrici Transmission Main (16"-17,700ft)
2.32	Beaver Lake Pump Station (MDD 4.5 MGD)
2.41	Beaver Creek Elevated Reservoir (2.5 MG)



**CLACKAMAS RIVER WATER**

**BOARD WORK SESSION**

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May 24, 2021

**SUBJECT** Natural Hazard Mitigation Plan - Update

**PRINCIPAL STAFF PERSON** Donn Bunyard, Project Manager

**DOCUMENTS ATTACHED** None

**Agenda Summary**

**BACKGROUND** The Natural Hazard Mitigation Plan (NHMP) is one more step in the effort to create a “Resilient” water system which includes our infrastructure, facilities, and people.

The District has expended considerable effort to develop and update planning and preparedness documents that will guide the district in our stewardship efforts and help fulfill our Vision, Mission, Values and Goals.

The work session presentation will provide a brief overview of the NHMP purpose, existing planning efforts, plan action items, and an overview of the review, approval, and adoption processes. Staff will share information on how the plan can be used and the potential benefits.





# Emergency Preparedness

## Natural Hazard Mitigation Plan Update Board Work Session

Presented by Donn Bunyard  
May 24.,2021



# Natural Hazard Mitigation Plan-(NHMP)

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- Vision, Mission, Values, & Goals
  - ❖ Ensure a reliable water supply for the communities we serve by investing in infrastructure and emergency preparedness.
    - ✓ Hazard Mitigation is a part of that preparedness effort!
  - ❖ Heighten public awareness of the District's role in enhancing public health, community vitality, and economic growth.
    - ✓ Public review is a step towards increased public awareness of our efforts to build a resilient water system on behalf of our ratepayers and the region.

# Natural Hazard Mitigation Plan

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- **Purpose**
  - ❖ Evaluate Risk & Establish Actions to Mitigate Impact
    - ✓ County Plan, City - Special District Addendums
      - Ex. - Clackamas Fire & Clackamas River Water
- **Development Contributions**
  - ❖ Multiple CRW Plans— Goal is to Capture, Consolidate, and Incorporate into an NHMP
- **Mitigation Action Items**
  - ❖ Hazards - Assets - Actions
    - ✓ Seismic – Flood – Power – Wildfire – Loss of Supply
    - ✓ WTP - Processes - SCADA – Pipe – Reservoirs – PS
    - ✓ Seismic Analysis, SCADA Master Plan, Emergency Water Supply, Backbone, Power

# Natural Hazard Mitigation Plan

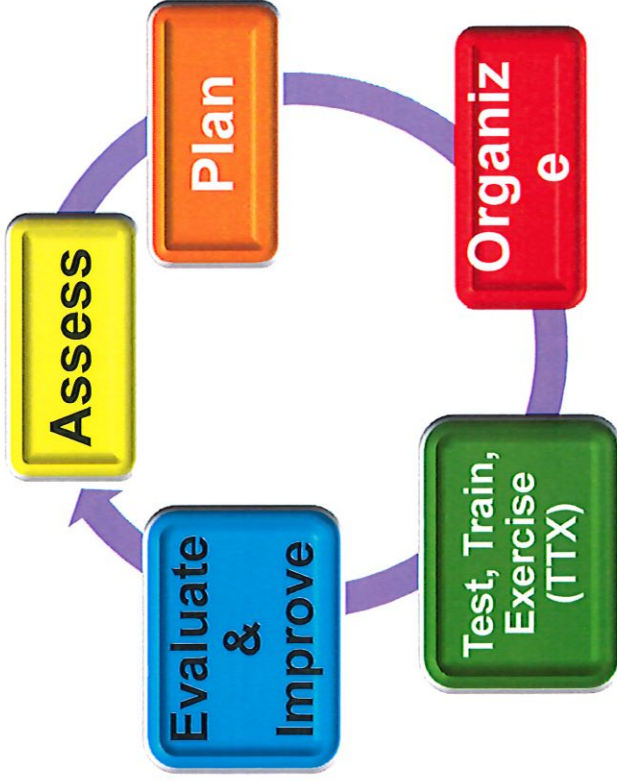
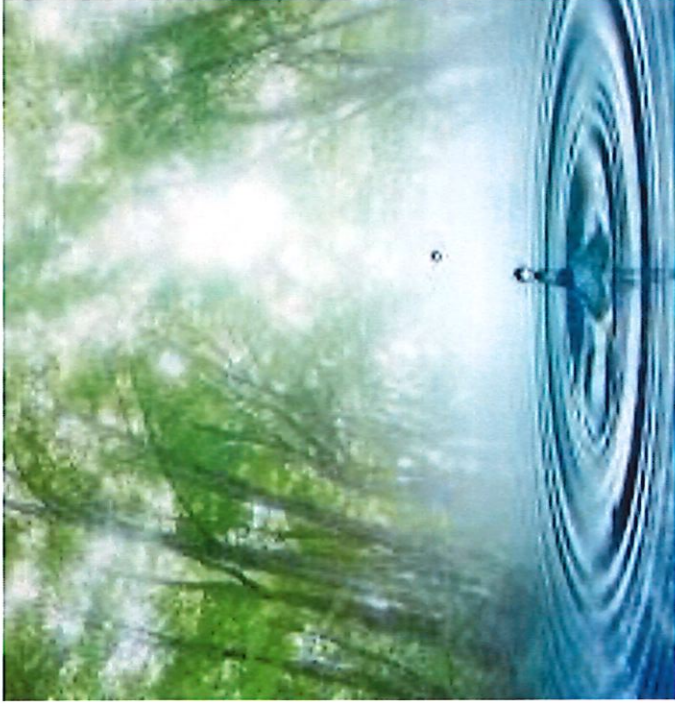
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- **Plan Review**
  - ❖ Community Engagement
    - ✓ Ratepayers & Stakeholders
    - ✓ Clackamas County
    - ✓ State – Oregon Emergency Management
  
- **Approval**
  - ❖ FEMA – Checklist of Regulations
    - ✓ Contingent Approval or Edits Required
  
- **Adoption & Timelines**
  - ❖ CRW Board of Commissioners – August 2021
    - ✓ Notify FEMA – Final FEMA Approval

# Natural Hazard Mitigation Plan

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- **Value of a NHMP**
  - ❖ Consolidated Strategies
    - ✓ Mitigation Action Items = Resilient Water Utility
      - Vision, Mission, Goals
  - ❖ Hazard Mitigation Grant Programs
    - ✓ Potential State and Federal Funds
      - NHMP Required to Qualify
      - 75/25 Split – **No Guarantees**
- ❖ **Next Steps**
  - ✓ Research the Details
    - Short- & Long-Term Grant Funding Plan



# Questions

**CLACKAMAS RIVER WATER**

**BOARD WORK SESSION**

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May 24, 2021

**SUBJECT** Commissioner Communications

**PRINCIPAL STAFF PERSON** CRW Board of Commissioners

**DOCUMENTS ATTACHED**

**Agenda Summary**

**BACKGROUND** Time is being set aside during the work session to provide an opportunity for Commissioners to:

- Identify topics for consideration at future works sessions or board meetings;
- Discuss future agenda items.

# CLACKAMAS RIVER WATER

## BOARD WORK SESSION

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May 24, 2021

**SUBJECT**                    General Manager Update

**PRINCIPAL STAFF  
PERSON**                    Todd Heidgerken, General Manager

**DOCUMENTS  
ATTACHED**                    None

### Agenda Summary

**BACKGROUND**                    Time has been set aside to briefly update and inform the Board on topics since the May Board Meeting.