



**Bull Run**  
TREATMENT  
PROJECTS

*Our water: Safe and abundant  
for generations to come*

PORTLAND WATER BUREAU

## Bull Run Treatment Projects

# Building Teams over Teams and Overcoming Other Collaboration Challenges

May 9, 2025

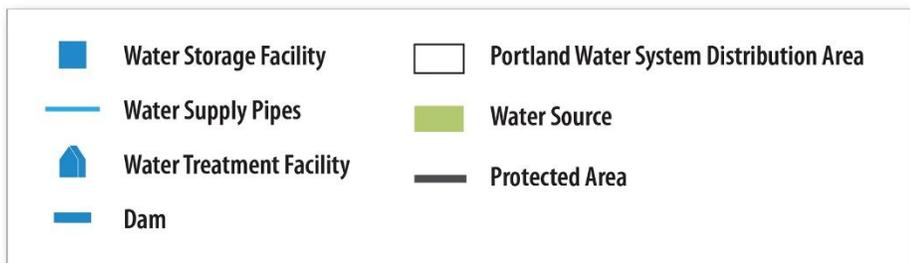


in association with  
  
and other firms

# Objectives

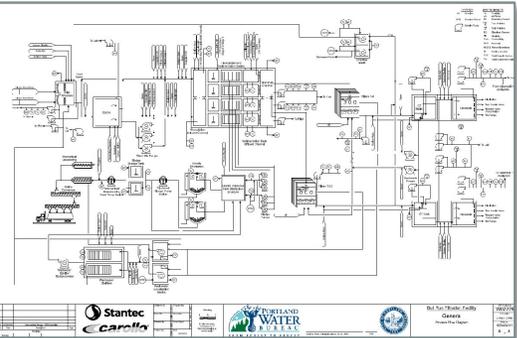
- Discuss importance of building strong teams
- Share strategies for effective videoconferencing
- Share approaches for using project management processes to create more effective teams

# Portland's Water System



- Serves almost a million people
- Uses 100 million gallons of water on an average day
- Serves the City of Portland and 19 wholesale water districts

# Filtration 100% Milestone Deliverable Content



**SECTION NO 24-40 - SODA ASH STORAGE AND FEED SYSTEM**

**Notes to Designer:**  
The following specification sections are not set out, each specification section is provided at varying level of completion. For the purpose of the design process it is provided to show the essential information to the most important elements of the section.

**1) Specification to be completed:**  
This specification has been reviewed and updated to be added and provide specific in all aspects. After review and incorporation of comments the specification will be final. It is essential review of all parts of the specification should be conducted to be correct.

**2) Specification to be completed:**  
This specification has been drafted to be Project specific, the specification is generally complete and ready for the designer to be completed. A review of the major elements of the specification should be conducted to be correct.

**3) Code Qualifier:**  
This specification is a standard specification with little or no project specific updates, the specification provides an explanation and to show the general information to be provided.

**4) General Comments:**  
(Include any specific notes regarding this specification)

**PART 1 - GENERAL**

**1.1 THE SUMMARY**

A. THE CONTRACTOR shall provide a soda ash storage and feed system, complete and complete, as described and the Contract Documents.

B. THE CONTRACTOR shall provide a soda ash storage and feed system, complete and complete, as described and the Contract Documents. The CONTRACTOR shall be responsible for the temporary and permanent operation of the soda ash system, including all related work, including, but not limited to, the design, construction, testing, commissioning, and operation of the system. The CONTRACTOR shall be responsible for the temporary and permanent operation of the system, including all related work, including, but not limited to, the design, construction, testing, commissioning, and operation of the system.

C. Soda ash feed pumps shall be provided as a separate package.

D. Pumps and equipment shall be delivered to the site in an assembled and ready for operation condition, including, but not limited to, testing and commissioning. Contractors with the equipment may be required to provide a breakdown of the equipment.

**NUMBER 2025** SODA ASH STORAGE AND FEED SYSTEM PAGE NO 24-40-1

Table with 2 columns: Item, Description. Includes sections for 'Soda Ash Storage and Feed System - Overview', 'Soda Ash Storage and Feed System - Design', and 'Soda Ash Storage and Feed System - Construction'. It contains various technical specifications and calculations.

2,428 Drawings

6,328 pages of Specifications

10,000+ pages of Calculations

Table with 2 columns: Item, Description. It lists structural design criteria and systems for various building components.



Area 20 31 33 Inlet and Pre Treatment.mp4



483 page Design Summary TM

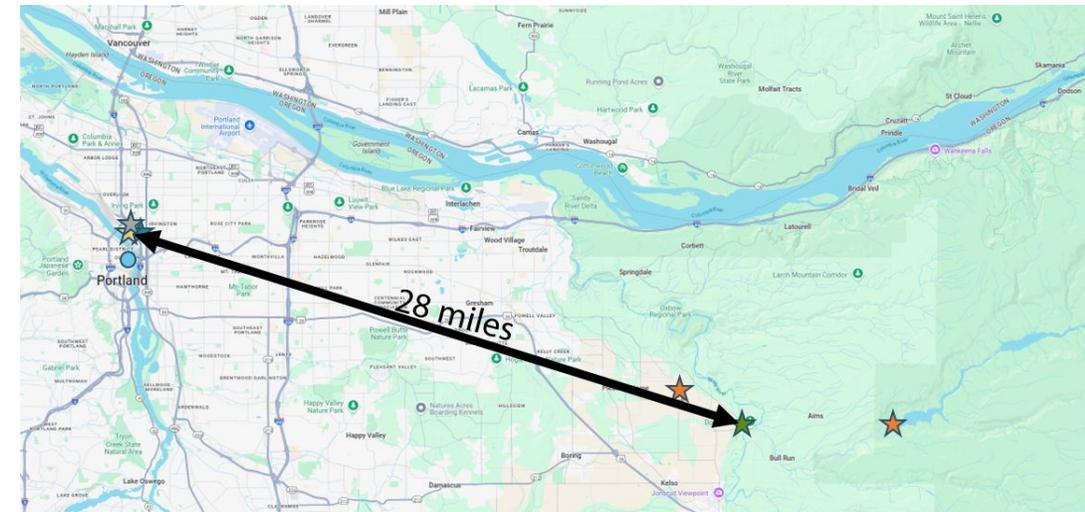
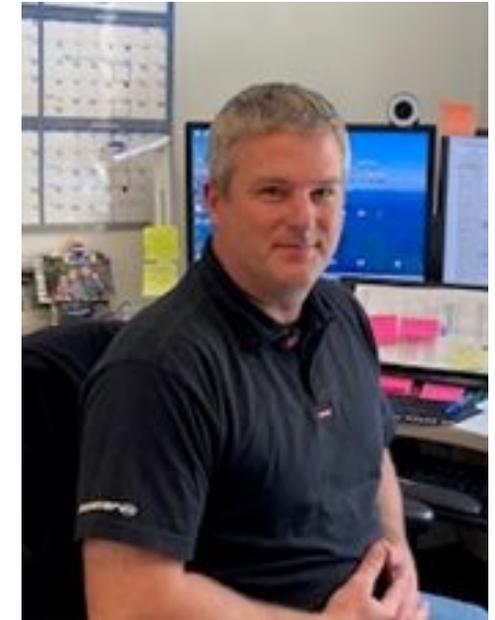
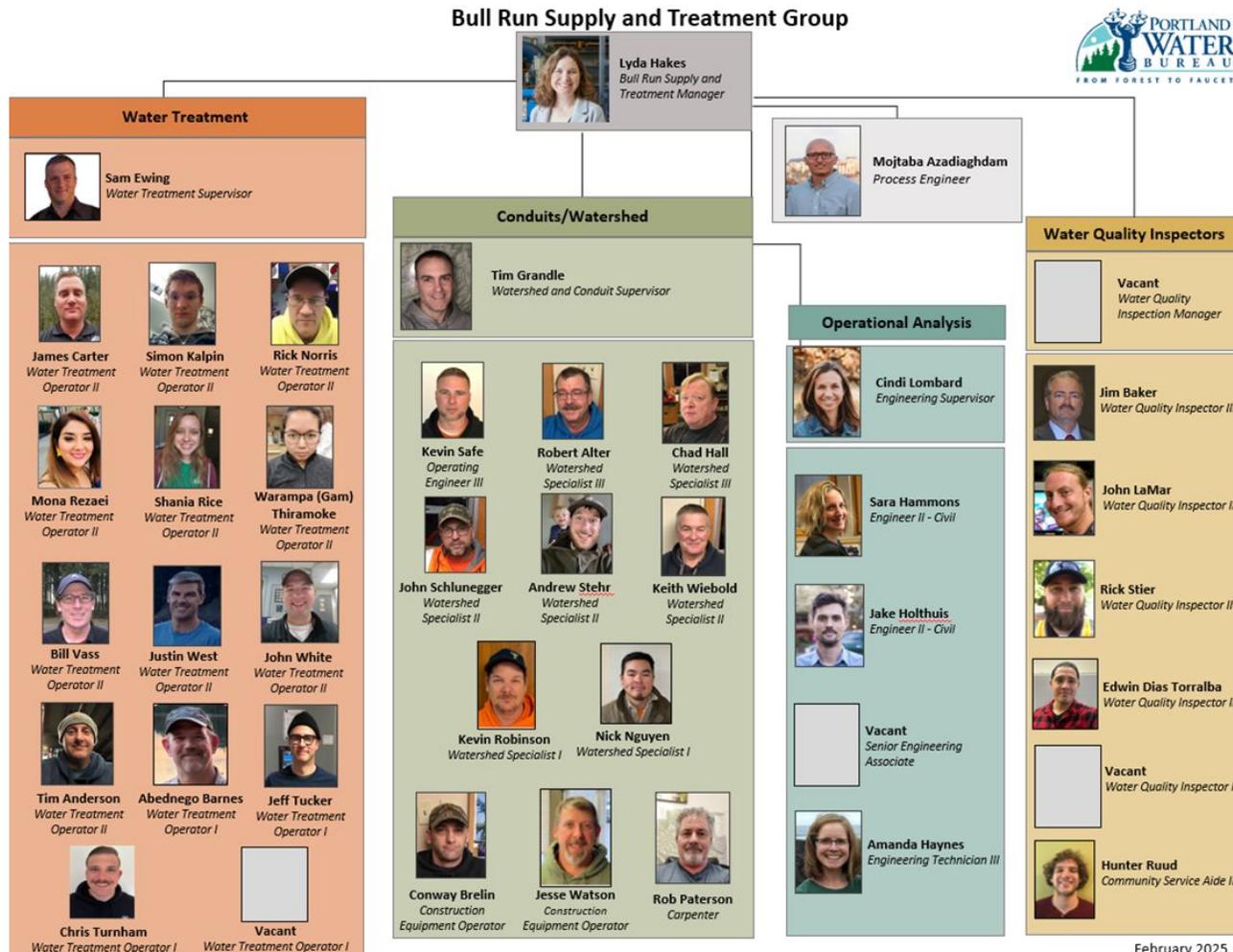
69 minutes of Videos

15 3D Models

# Teams over Time

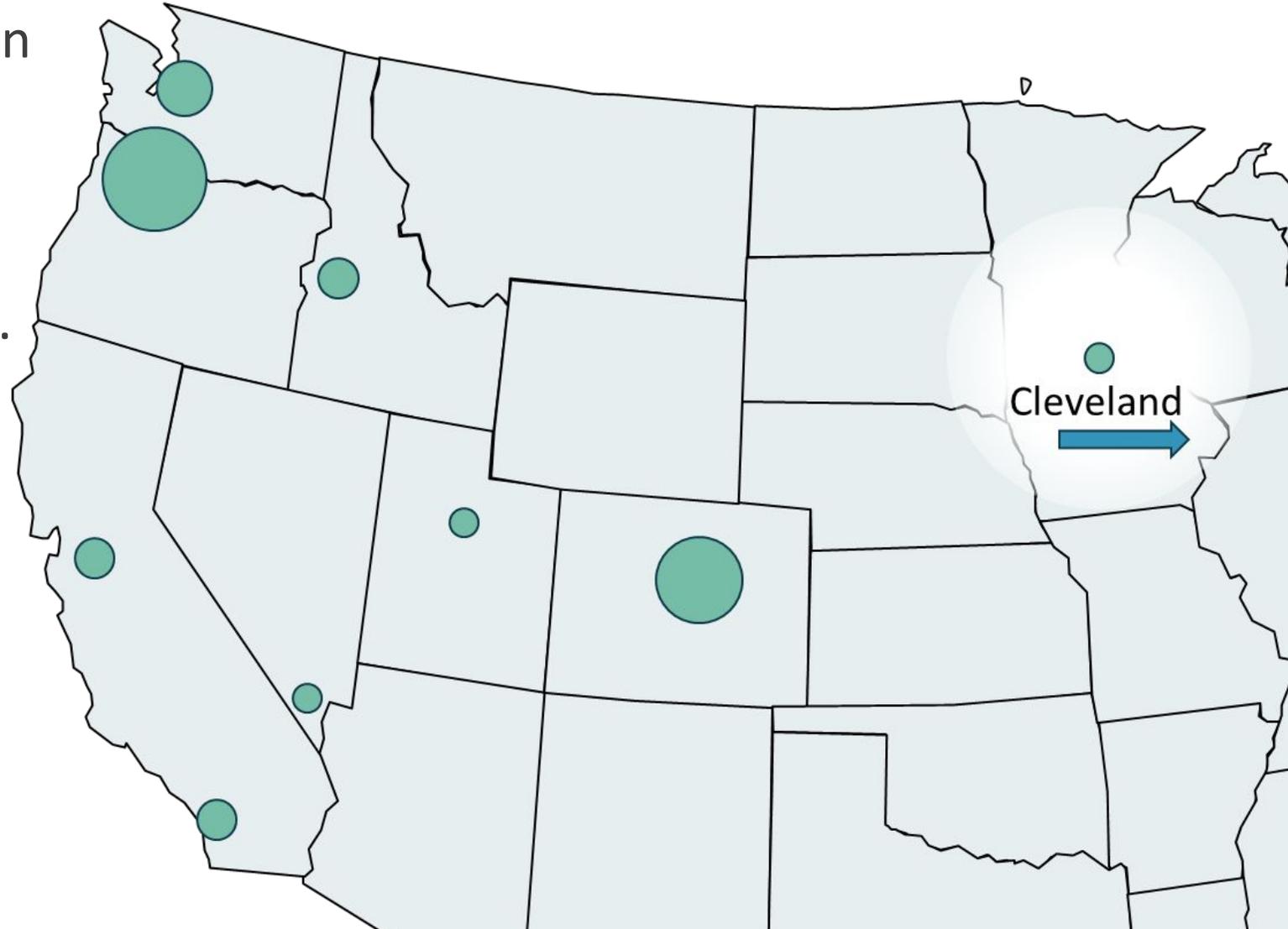


# PWB Team



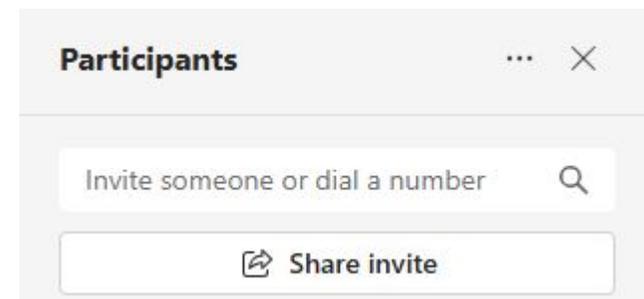
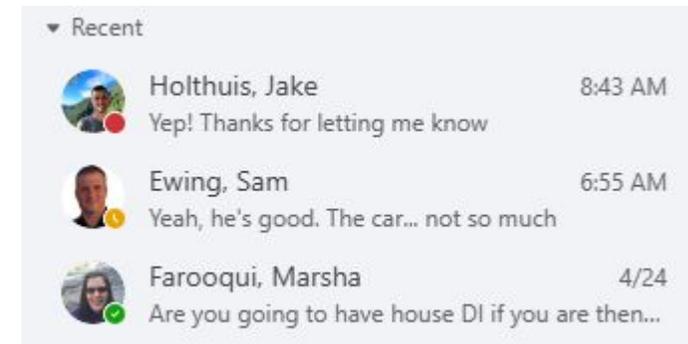
# Consultant Team

- Consultant Team largely based in Portland Metro region
- Significant support from across Western U.S.
- Cultural norms differ across U.S. (“Northwest Nice”?)



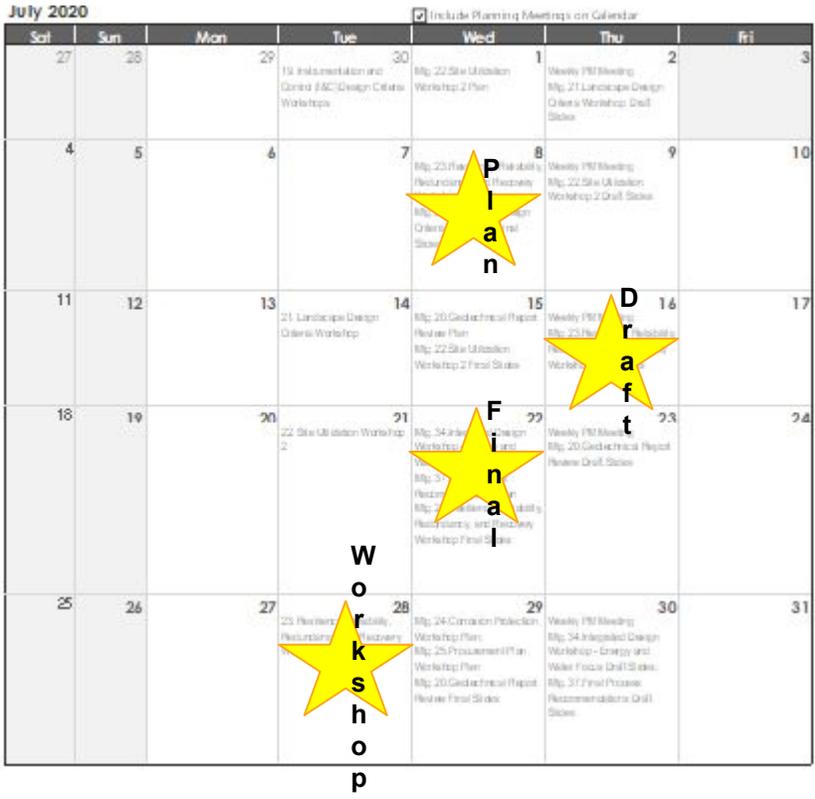
# How I Use Teams (almost) Every Day

- Say the person's name before asking them a question
- Share relevant info on the screen
- Relaxed chat for the first few minutes, end early if possible
- Use the chat to share links
- Have a known cameras culture
- Know the Teams status colors
- Need someone and they're red? Send a chat (even across organizations!)
- Need someone and want to eliminate back-and-forth, Teams call!
- Pull more people into your meeting as needed
- Use headphones



# Our Approach to Remote Workshops

1. Plan
2. Communicate
3. Plan Some More
4. Revise Your Approach to Planning
5. Communicate Some More
6. Plan Again



- Regular workshop schedule
- 3-week planning cycle

3	PDR Validation				3/3/20	
Design Lead		Jude Grounds				
Program Team Lead		Lyda Hakes				
Meeting Attendees	Program Team		Design Team		Others	
	David Peters, Michelle Cheek, Lyda Hakes, Tony Ra, Christopher Bowker, Ben Gossett, Jon Johnson, Bonita Oswald, Jearna Ott, Humberto Piedra-Ruiz, Jaideep Singh, Ken Ackerman, Yone Akagi, Kim Gupta, Jodie Inman, Mike Saling, Rich Brought, James Senior, Jan Holland, Kyle Sanders, Jeremy Williams (p), Tyler Bird (p), Bill Persich (p?)		Jude Grounds, Mark Graham, Pete Krell, Andrew Nishihara, Austin Peters, Steve Scherk, Qiansu Deng (p), Ali Leeds (p), Bill Carr, Patrick Carlson (p)			
<b>Workshop Purpose and Goals</b>						
No.	Description					
1	Review preliminary LOS (Oregon Resiliency Plan) goals (45 min)					
1a	Oregon Resiliency Plan summary					
1b	Normal Conditions and Catastrophic Events (Seismic, Watershed WO - volcanic ash, algae, climate change, wildfire)					
1c	Response Time					
1d	Capacity					
1e	Finished Water Quality					
2	Review & Confirm PDR Recommendations & areas for further consideration (75 min)					
2a	Process Flow Diagram - Verification and Opportunities for Refinement					
2b	Initial, ultimate, minimum design capacities					
2c	Life Cycle Cost Assessment					
2d	Bypass and Shutdown Conditions					
<b>Make or Validate Decisions to Be Made at Workshop</b>						
No.	Description				Decision Log Info	
					No.	
					MV/D	
1	Ultimate Plant Capacity (M)				2	M
2	Partnership for Safe Water (V)				22	V
3	Raw Water Quality Baseline (D)				29	D
4	LOS Goals (M)				53	M
5	Use of Wellfield (M)				54	M
6	Finished Water Goals (V)				90	V
7	Minimum Operating Rate (D)				102	D
8	Lifecycle Cost Assumptions (V)				104	V
9	Challenged WO Capacity (D)				106	D
10	Plant bypass (V)				108	V
11	Shutdown Conditions (D)				111	D
<b>Workshop Development Gateway Checklist</b>						
Gateway	Lead	Status	Date	Approval Meeting	Program Team	Approval
Draft Workshop Plan Approval by Design Lead	J. Grounds	Complete	2/11/20	Grounds, Krell, Nishihara		2/11/2020 J. Grounds
Workshop Plan Approval by PWB	J. Grounds	Complete	2/12/20	Grounds, Nishihara, Graham	Peters, Cheek, Hakes	2/13/2020 L. Hakes
Draft Slides Approved by PWB	J. Grounds	Complete	2/20/20	Grounds, Nishihara, Carr	Peters, Cheek, Hakes	2/20/2020 L. Hakes
Final Slides Approved by PWB	J. Grounds		2/26/20			2/27/2020 L. Hakes
Workshop			3/3/20			
Meeting Summary	A. Nishihara		3/3/20			3/17/2020 L. Hakes

- Workshop planning sheets

# Setting ourselves up for success and fun

- Set up clear decisions
- Right people in the right room so decisions stick
- Put some fun in with the engineering

## Poll 0: It's Taco Tuesday on Cinco De Mayo!

What Level of Service do you expect from your Tacos, based on Shell Integrity Rate (SIR)?

1. Standard Taco
  - 75% SIR
2. Resilient-Shell Taco
  - 90% SIR through use of flour tortilla
  - 1.0x cost
  - Significantly reduced crunch factor
3. Redundant Shell (e.g. Cheesy Gordita Crunch)
  - 95% SIR
  - 1.8x cost
4. N+2 Redundant Units
  - 98% SIR
  - Free Pepsi
  - 3.0x cost



1. Standard Taco



2. Resilient Shell



3. Redundant Shell



4. Redundant Tacos



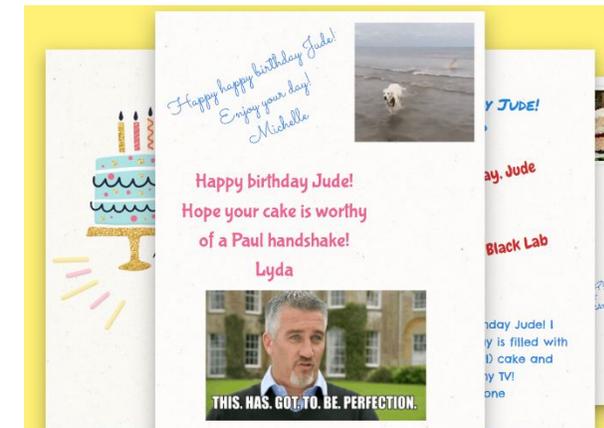
LYDA HAKES

FACILITY DESIGN PROJECT MANAGER  
PORTLAND WATER BUREAU



JEREMY WILLIAMS

FACILITY DESIGN TECHNICAL LEAD  
BROWN AND CALDWELL



# Approach to Project Management Guided by Program Charter



**PORTLAND WATER BUREAU**  
FROM FOREST TO FAUCET

**BULL RUN TREATMENT PROGRAM**  
Water Treatment Plant and Conduits

**PROGRAM CHARTER**

**PROGRAM VISION**  
Protecting the water we love for generations to come

**MISSION**  
Deliver the Bull Run Treatment Program in a fiscally responsible and sustainable manner to meet regulatory requirements and exceed customer expectations.

**GOALS AND OBJECTIVES**

- Continue to produce excellent tasting water while meeting regulatory requirements and water quality goals
- Engage O&M staff throughout the program lifecycle to create an adaptable system with a successful handoff
- Advance social equity and D/M/W/ESB capacity
- Maintain transparent communication, stakeholder engagement, and good neighbor practices
- Emphasize a safe work environment and minimize lost work incidents
- Execute a sustainable project that minimizes its carbon footprint
- Complete construction well in advance of compliance deadline to allow time for commissioning
- Create a fun, collaborative program team that encourages sharing lessons learned

**WE VALUE**

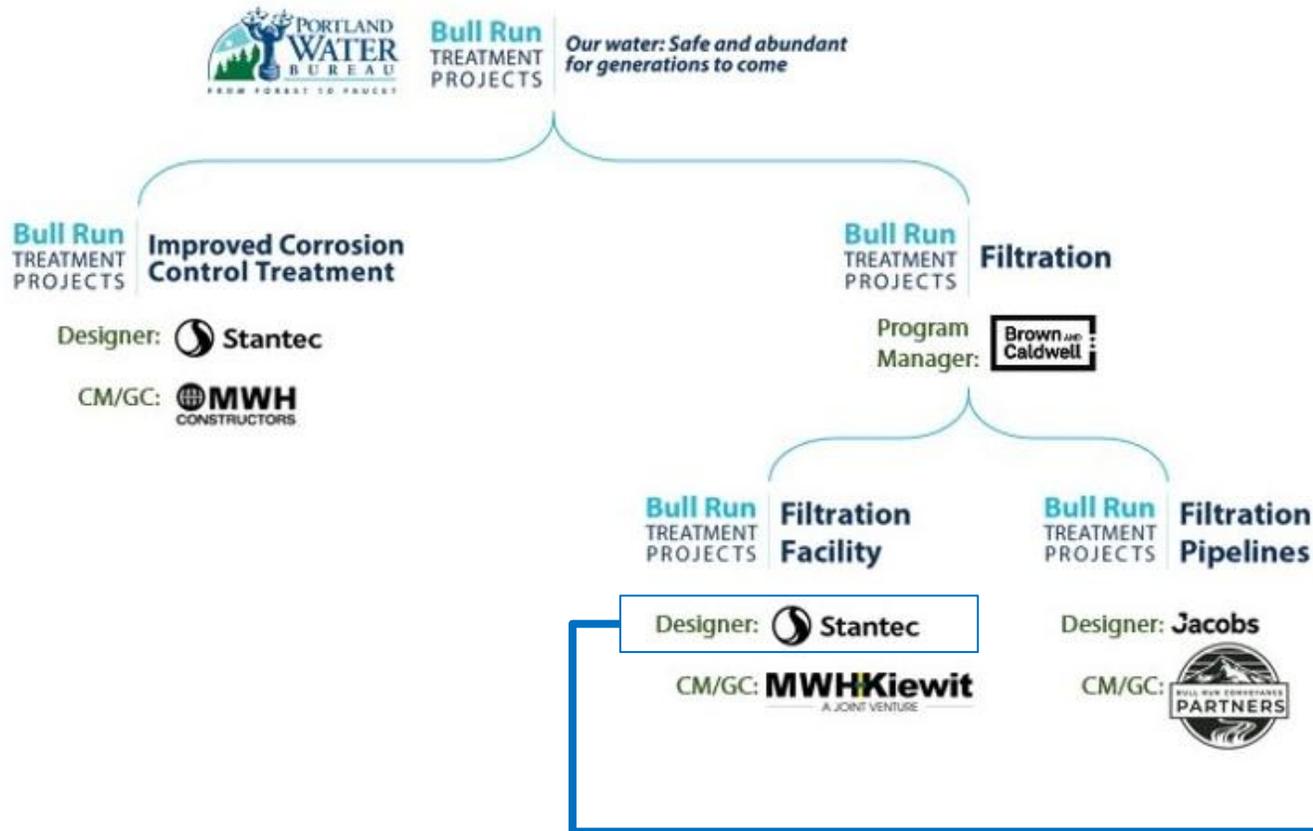
- One team with a passion for achieving the Program vision, with high morale, and professional fulfillment for team members
- An inclusive and collaborative culture
- Being respectful and honest with each other, all stakeholders, and the public
- Sound investments for tangible benefits
- Team members that are creative and flexible

**SUCCESS FACTORS**

- Consistently meet all water quality goals – both internal and external
- The plant is safe and easy to operate
- Meet equity and D/M/W/ESB goals for the program
- Neighbors, City Council, and the public are pleased with the result
- Construction is executed safely
- On-schedule delivery at best value budget
- Program is recognized for excellence

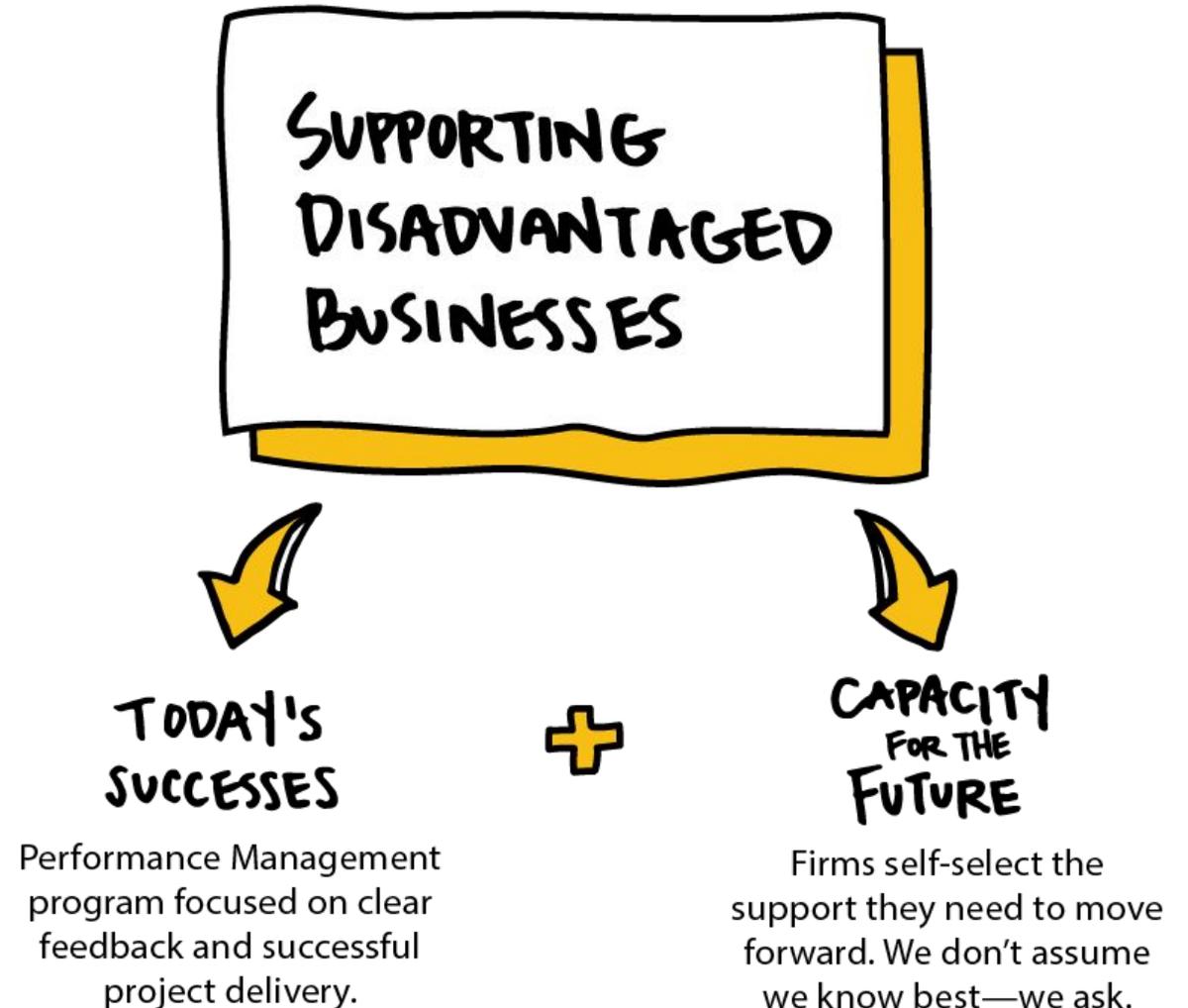
# Managing a Large, Diverse Team

- 17 firms
- 11 equity contractors\*



# Supporting Small Firms

- We can put systems in place to support small firm success—both now and into the future



# Planning to be successful

## Challenges

- Bilateral Compliance Agreement with September 2027 deadline for serving filtered water
- Water Bureau's largest project ever
- No current filtration facility
- COVID



## Solutions

- “Go slow to go fast”
- Developed dedicated internal team
- Tours and chats
- Online and offline tools



# Maintaining Engagement

- Regular communication with entire team
  - Weekly coordination meetings
  - Update emails
  - Small-team coordination calls
  - Management team meetings
  - Quarterly all-hands meetings
- In-person meetings
- Site visits



Weekly Filtration Facility Design Team Update #30 - Message (HTML)

File Message Help BLUEBEAM Acrobat Tell me what you want to do

Weekly Filtration Facility Design Team Update #30

Graham, Mark  
To: Filtration Facility  
Bcc: Lyda Hakes (lyda.hakes@portlandoregon.gov); Michelle Cheek (michelle.cheek@portlandoregon.gov); Oswald, Bonita; +4 others  
10/20/2020



Filtration Facility Design Team

October 20, 2020

Filtration Facility Design Team and Friends:

As we scramble to put the finishing touches on the Basis of Design Report, a few of us are working on a very late addition to this document – a section on equity, diversity, and inclusion in design. While this is a late addition to the BDR, the intentional incorporation of equity, diversity, and inclusion has been part of our work from the outset. As I compiled information for this section, I was reminded of coursework I did as an undergraduate in the interdisciplinary program “Values, Technology, Science and Society” (now Science Technology and Society). I borrow a few sentences from a current description of the program:

*Let's start with an old joke. Two young fish are swimming along. A frog on a lily pad spots them and remarks, "Hello boys! How's the water today?" The two young fish mumble something to the effect of "Just fine, Grandma." After they pass by, one young fish eyes the other and asks: "What's water?"*

*Scientists, engineers, and medical professionals swim (as they must) in the details of their technical work: experiments, inventions, treatments and cures. It's an intense and necessary focus. STS, by contrast, draws attention to the water: the social, political, legal, economic, and cultural environment that shapes research and invention, supports or inhibits it — and is in turn shaped by evolving science and technology.*

From "What is the Study of STS"





# Better Communication Better Engagement

- Pre-populated and regularly updated decision log
  - Early definition of decision, stakeholders, and process
- Interactive review workshops

poll 2 results.txt

File Edit View

1.PWB: Which one of the following types of facility and equipment access would you prioritize?

A. Walking/pedestrian and cart/forklift access	4/40 ( 10%)
B. Vehicle/large equipment and crane access	8/40 ( 20%)
C. Defer to others	4/40 ( 10%)
D. Defer, need more information	1/40 ( 3%)

No Answer 23/40 ( 58%)

	A	B	C	D
Austin Peters				
Matthew Huang				
akimoo			X	
Casey Hagerman				
Alli Leeds				
Ben				
Qiancu Deng				
BGOSSETT			X	
apeck				
ksandera				
RNELSON		X		
Ryan Roepke				
Mark Graham				
MYLAT				
watonyr	X			
hpiedracuiz		X		
pkreft				
Idird				
Bonita Oswald			X	
Steve Schenk				
YONEA	X			
JRHolland				
michelle cheek	X			
David Peters			X	
jsingh			X	
Patrick Carlson				
jinman				X
Kimberly Gupta	X			
Chris Johnson				
Jeremy				
Patrick Carlson				
JANETS			X	
tim				
cbowker				X
lhakes		X		
Andrew Nishihara				
jmccraw				
MIKESA		X		
RICHS		X		

## Poll #2

### SITE LAYOUT OPTIONS

**Q1. (PWB) / Q5. (Consult.): Which one of the following types of facility and equipment access would you prioritize?**

- Walking/pedestrian and cart/forklift access
- Vehicle/large equipment and crane access
- Defer to others
- Defer – need more information

**Q2. (PWB) / Q6. (Consult.): Which process structure does operations staff (control room) need to be closest to? (Choose all that apply)**

- Ozone?
- Floc/Sed?
- Filters?
- Solids Handling?
- Chemical Building?
- Defer to others
- Defer - need more information

**Q3. (PWB) / Q7. (Consult.): From finished grade (surface) which would you rather have:**

- Easier access to equipment located at the bottom of structures (pumps, valves, pipes)
- Easier access to the top deck of structures (above the water surface)?
- Defer to others
- Defer – need more information

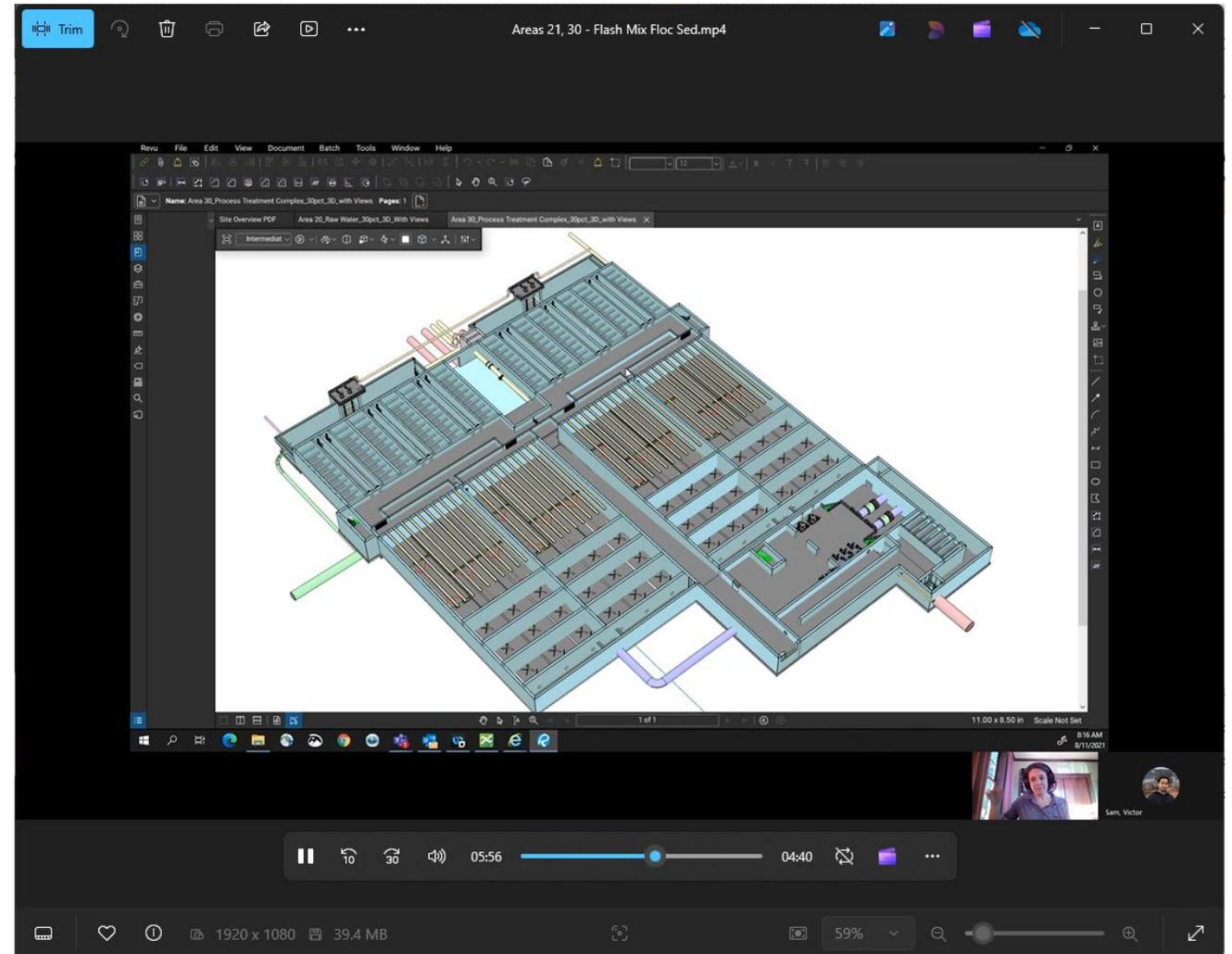
**Q4. (PWB) / Q8. (Consult.): Considering access to the Administration facility for public, deliveries, staff, etc.) which strategy do you prefer?**

- A 'public facing' administration building separated from the process to receive visitors and control access
- A more plant-oriented administration building with direct access to process facilities.
- Defer to others
- Defer – need more information

**Q9. (All): If you need more information, please specify below.**

# Better Communication Better Engagement

- Pre-populated and regularly updated decision log
  - Early definition of decision, stakeholders, and process
- Interactive review workshops
- Recorded model walk-throughs



# Success comes in many forms

- Seamless transition from in person collaboration to fully remote during the pandemic.
- Buy-in from executive committee and technical advisors has led to decisions that stick.
- Project has remained on schedule despite the complexity.
- Team has successfully navigated value engineering changes needed to maintain affordability.
- Equity contractors have greatly benefited from participation in this project—both in economic opportunity and technical and project management skills they can continue to build on.

# Today's Takeaways

- Microsoft Teams has excellent features to help teams work from different locations
- Great online experiences start offline
- Plan for the team you want and the outcomes you need

# Questions?



**Bull Run**  
TREATMENT  
PROJECTS

*Our water: Safe and abundant  
for generations to come*

**Learn More** [portland.gov/bullrunprojects](http://portland.gov/bullrunprojects)



in association with  
  
and other firms