


Portland City Council
Work Session

*Improving Portland's Water:
Bull Run Treatment Projects*

Portland Water Bureau
August 14, 2018



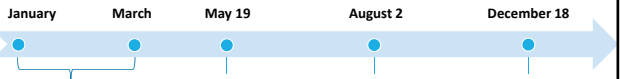
Presentation Outline

- Background
- Accomplishments
 - ✓ Outreach & Engagement
 - ✓ Team and Tool Building
 - ✓ Alternatives Analysis
- Next Steps
- Questions

BACKGROUND

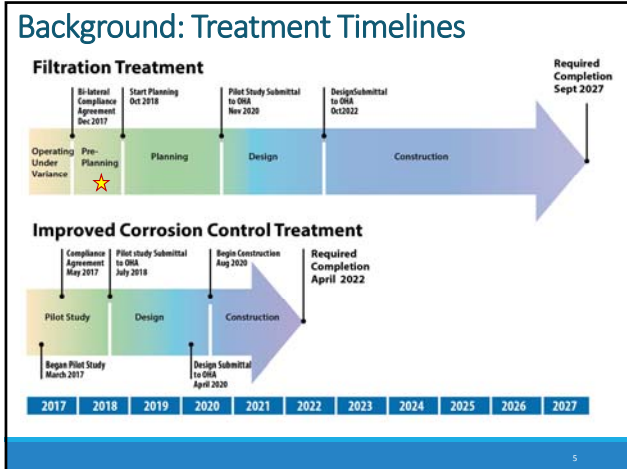
Timeline Review

Background: Variance 2017



Date	Event
January	PWB finds 19 <i>Crypto</i> oocysts
March	OHA* notifies PWB that it will revoke variance and that PWB must submit treatment plan
May 19	
August 2	Council unanimously selects filtration as treatment
December 18	Variance revoked, compliance agreement and interim conditions received from OHA

* Oregon Health Authority



- ### Background: Treatment Benefits
- Removes organisms from the water, making our water safer
 - May reduce the amount of chlorine for disinfection and disinfection byproducts
 - Improves year-round availability of Bull Run water
 - Provides consistent, high-quality drinking water
 - Future investment

ACCOMPLISHMENTS

Outreach & Engagement Team and Tool Building
 Alternatives Analysis

Outreach and Engagement: Public Conversations

- 1,653** customers queried through our online survey
- Over **183,343** people reached through social media
 - Facebook: 932 followers
 - Twitter: 9,827 followers
 - LinkedIn: 170,412 followers
 - Instagram: 413 followers
 - YouTube: 1,843 followers
- 20** stakeholder interviews representing a range of stakeholder groups:
 - Wholesale Customers
 - Business/Institutional
 - Residential
 - Public Health Interests
 - Minority Groups/Organizations
 - Portland Stakeholders

Outreach and Engagement: Survey

1,653
customers
queried
through our
**online
survey**



- 97%** PWB customers
- 34** Customer zip codes
- 12%** Living in an apartment or multi-family residence
- 70%** Lived in Portland more than 10 years

9

Outreach and Engagement: Feedback

✓ TOP THEMES

- Customers love Bull Run water
- Customers understand the need for the project
- **Water quality** and **cost benefit** remain the top of mind issues

10

Outreach and Engagement: Outcomes

- Public values drive project development
- Values include:
 - Cost benefit & impact to individual bills
 - Appropriate treatment & chemicals
 - Minimal environmental impacts
 - Look to future needs
 - Reliability & resilience to earthquake and fires
 - Consistent water quality

11

ACCOMPLISHMENTS

Outreach & Engagement
Team and Tool Building
Alternatives Analysis

12

Team and Tool Building: Project Team

Built a Cross-Functional Internal Team

- Office of the Director
- Engineering
- Operations
- Communications
- Resource Protection

Consultant Support

- Engineering
- Public Engagement

13

Team and Tool Building: Process

Expert and values-driven process to review alternatives for four key areas:

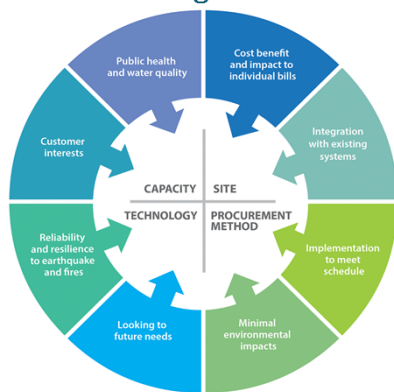
1. Procurement Method
2. Treatment Plant Capacity
3. Treatment Plant Location
4. Treatment Plant Technology

GOAL

- Identify a preferred alternative in each key area to lay the foundation for the project definition

14

Team and Tool Building: Values Framework



15

Team and Tool Building: Expert Analysis

- Geotechnical evaluations
- Environmental review
- Cultural resource review
- Water quality evaluations
- Land use evaluations
- Demand projections
- Hydraulic evaluations
- Literature review
- Evaluation of previous studies
- Comparative cost estimates
- Creation of technical memos

16


ACCOMPLISHMENTS

Outreach & Engagement
Team and Tool Building
Alternatives Analysis


17

Analysis: Alternatives


Four key areas




Procurement Method



Treatment Plant Location




Treatment Plant Capacity



Treatment Plant Technology

18

Analysis: Procurement Method




- Traditional procurement
 - Design-Bid-Build (Low Bid)
- Alternative procurement
 - Construction Manager/General Contractor (CM/GC)
 - Design-build
 - Progressive design-build
- Regardless of method, PWB is committed to meeting or exceeding the City's D/M/W/ESB* participation goals
- Community Benefits Agreement will be applied

* Disadvantaged, minority, women and emerging small business

19

Analysis: Procurement Method

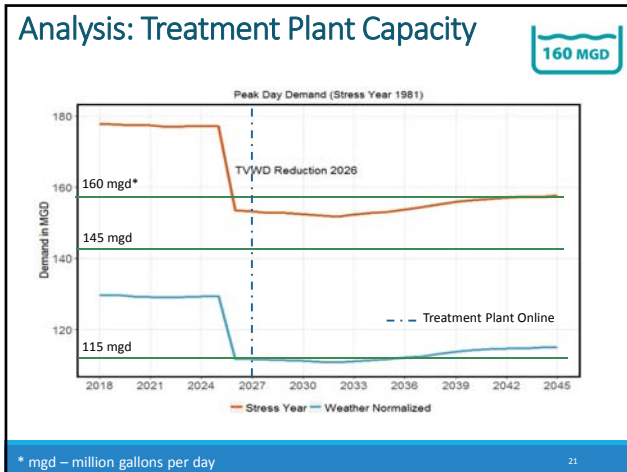


CM/GC has several benefits when compared with design build options, including:

- Ability to drive innovation
- Cost and schedule control
- Promote D/M/W/ESB Participation
- Collaborative working environment
- Decision making control
- Previous experience

CM/GC is the preferred procurement method.

20



Analysis: Treatment Plant Capacity

Factors

- Regional demands, past and present
- Growth projections
- Future demand projections
- Comparative costs
- Groundwater use
- Alternative management strategies

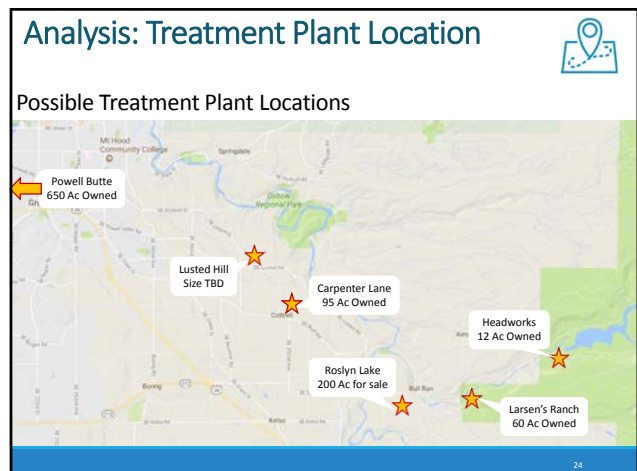
Public Conversation

- ✓ Plan for future growth but don't overbuild it—phase it!
- ✓ Ability to meet future regulatory requirements.

Analysis: Treatment Plant Capacity

- Capacity larger than 160 mgd is not consistent with demand projections
- Capacity smaller than 145 mgd requires increased use of groundwater
- 160 mgd will meet peak day demands out to 2045, additional capacity could be added later, if needed
- Capacity options of 145 to 160 mgd have similar costs and benefits

Preferred capacity is between 145 and 160 mgd.



Analysis: Treatment Plant Location

Factors:

- Geotechnical
- Environmental
- Land use suitability
- Land ownership
- Parcel size
- Hydraulics
- Proximity to existing system

Public Conversation:

- ✓ *Avoid factors that make the project harder to implement or more expensive*
- ✓ *Consider impacts to site neighbors*

25

Analysis: Treatment Plant Location

Sites were eliminated based on:

- Incompatible hydraulics
- Incompatible zoning
- Poor land conditions
- Land ownership concerns


Carpenter Lane has good hydraulics, is owned by the Water Bureau, and is zoned and sized appropriately.

Preferred location is the Water Bureau owned site known as Carpenter Lane.


26

Analysis: Treatment Plant Technology


Membrane



Granular Media



Slow Sand



27

Analysis: Treatment Plant Technology

Factors:

- Water quality
- Hydraulics
- Regulatory requirements
- Comparative costs
- Other utility comparisons

Public Conversation:

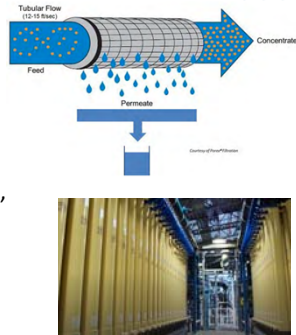
- ✓ *Think beyond Cryptosporidium to provide other benefits*
- ✓ *Balance benefits with costs*
- ✓ *Use a robust process and explain the process and your choices to the public*

28

Analysis: Treatment Plant Technology

Membrane

- Physical barrier
- Smallest footprint
- Most expensive
- Extensive pumping
- Only 4 facilities over 50 mgd in North America, none over 145 mgd



29

Analysis: Treatment Plant Technology

Slow Sand

- Easy to use and clean
- Does not meet desired water quality criteria
- Least flexible for future water quality conditions
- Largest footprint
- Only 1 facility over 50 mgd in North America, none over 145 mgd

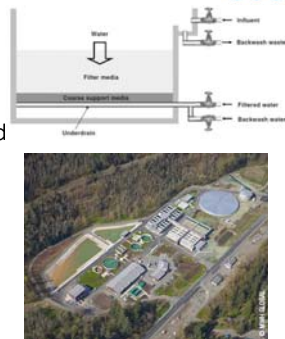


30

Analysis: Treatment Plant Technology

Granular Media

- Used by 146 of 157 facilities over 50 mgd in North America
- Many larger than 145 mgd
- Most adaptable to future water quality conditions
- Moderate footprint
- Moderate costs



31

Analysis: Treatment Plant Technology

Membranes:

- High energy use
- High capital and operating costs

Slow Sand:

- Significant size
- Comparative poor water quality

Granular Media:

- Best operating capabilities
- Good water quality
- Most flexibility

Preferred technology is a granular media filtration system

32

NEXT STEPS

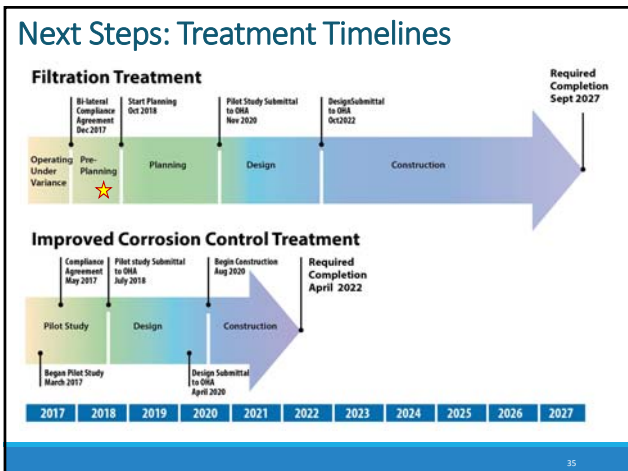
Near-Term Activities

33

Next Steps: Project Activities

- Water Infrastructure Finance and Innovation Act (WIFIA) Letter of Interest
- Begin pilot study
- Begin project definition
- Design request for proposals and contract
- CM/GC request for proposals and contract

34



Next Steps: Outreach Efforts

- ✓ 2018
 - PUB CUB Quarterly Reports
 - Short Term Communications Framework
- ✓ 2019
 - PUB CUB Quarterly Reports
 - Communications Plan

36

Next Steps: Council Actions & Reports

- ✓ 2018
 - Ordinance—Program Management and Support Contract
 - Ordinance—CM/GC Findings
 - Authorize an alternative procurement for construction
- ✓ 2019
 - Ordinance—Design contract
 - Report to Council—CM/GC Contractor Selection
 - Annual Report

37

QUESTIONS

38