Board Work Session Minutes  
March 2, 2021

This meeting was held by phone and the internet.

WORK SESSION – 6:03 PM

CALL TO ORDER

Commissioners Present: Bernice Bagnall; Jim Doane, PE; Jim Duggan, PE; Todd Sanders; Dick Schmidt

Staff Present: Tom Hickmann, PE, Chief Executive Officer; Paul Matthews, Chief Financial Officer; Carrie Pak, PE, Chief Engineer; Dave Kraska, PE, Water Supply Program Director; Clark Balfour, General Counsel; Tim Boylan, IT Services Director; Andrea Watson, Communications and Public Affairs Supervisor; Andrew Carlstrom, Customer Service Manager; Joel Cary, Water Resources Division Manager; Pete Boone, PE, Water Operation Division Manager; Debbie Carper, District Recorder

Other Attendees: Norm Eder, CFM Strategic Communications

ANNOUNCEMENTS

Mr. Hickmann announced staff’s forthcoming development of a debt collection plan and gave an update on the customer emergency assistance program (see attached memo). He said staff learned of an additional funding source for customers and will provide outreach when more information is known. Mr. Hickmann also included the latest update to the Board communications log with his memo.

Mr. Kraska gave the safety moment on calling 811 before digging.

1. DISCUSSION ITEMS

A. Willamette Water Supply System Commission Update. Staff Report – Dave Kraska

Mr. Kraska reviewed the WWSS Commission March agenda, the current approvals and procurement forecast and recent Willamette Water Supply Program (WWSP) activities (see attached presentation).
After Mr. Kraska described possible cost reduction alternatives, Commissioners said they have appreciated staff analyses in developing the alternatives and staff time in keeping the Board updated.

In response to Commissioner questions, staff said:

- Rate projections based on the viable cost reduction alternatives will be available during the March 17 Board meeting consideration of financial strategy adoption.
- Each project within the WWSP has a cost share amongst partners that will enable staff to determine what the District’s savings would be for each of the alternatives.
- Partners will all be contractually obligated to complete WWSP construction projects in the near future; therefore all parties want to select the most appropriate alternatives and move forward together.

B. Potential Impacts to TVWD from the Final Revisions to the Lead and Copper Rule (LCR). Staff Report – Joel Cary

Mr. Cary gave an overview of the current LCR and described revisions, the associated compliance timeline and staff’s plans to approach development of the District’s short- and long-term responses (see attached presentation).

In response to questions, staff said:

- There is a higher concentration of lead pipes in the Midwest and East Coast.
- The District will work with private property owners on location and replacement of lead service lines on the customer side of the water system.
- Galvanized pipe is exempt from the LCR updates if it is not downstream from a lead pipe.
- Staff hopes to start reviewing publicly available data to start the inventory process. Once that work has been completed, there will be a need to conduct digging and potholing to identify pipe materials unable to be identified in records.
- There are some provisions in the updated rule regarding requirements that utilities assist customers with replacement of pipes on the private property side of the system.

C. District Cyber Security Update. Staff Report – Tim Boylan

Mr. Boylan described some of the major cyber security incidents in the prior year, highlighting two attacks with most relevance to District operations (see attached presentation). He laid out the District’s security framework, listed potential threats and presented a side-by-side comparison of how a recent water utility’s security framework, which failed during a cyberattack, was not as robust as the District’s.
ADJOURNMENT

There being no further business, President Bagnall adjourned the meeting at 8:07 p.m.

_____________________________  ________________________________
Bernice Bagnall, President     Todd Sanders, Secretary
MEMO

Date: March 2, 2021
To: TVWD Board of Commissioners
From: Tom Hickmann, CEO
Re: CEO Announcements

The following Announcements will be covered during the work session:

1. **Be Sure to Unmute and Mute** – Just a reminder to please be sure to unmute whenever you are speaking and mute yourself when you are done during the work session this evening.

2. **Collections Plan** – TVWD is developing a COVID debt collection plan, as we see a growing number of customers with unpaid balances. The pandemic continues to be an active health issue, and we are aware that many customers are experiencing an extended financial hardship.

   We will present information to you at the March 17 Board Meeting, explaining what we have done to date and outlining the plan to move forward in our collection efforts. At the April 6 work session, we will present a progress report on our actions taken and a draft plan; guidance will also be sought from the Board.

   The plan will focus on our most delinquent customers who, to date, have not responded to TVWD outreach efforts. It will include recommendations for temporary changes to our collections and customer assistance program until we can return to normal business operations.

3. **Customer Emergency Assistance** – TVWD is working to strengthen our customer assistance program. Community Action of Oregon is a valuable partner, making heroic efforts to process the requests for CARES Utility Assistance Program from August through December 2020. Our staff worked seamlessly with the employees at Community Action to serve 27% of our customers who were in shutoff status. Community Action is the regional leader in serving vulnerable community members, and TVWD hopes to transition our assistance program processing to this partner.
4. **Board Communications Log** – There was one update to the Board communications log this month. Please see the attached, updated log and the February 16, Finance Committee meeting notes.

5. **Safety Minute** – WWSP Director, Dave Kraska, will present tonight’s safety minute.
**2021 Board Communications Log**

**Commissioner Questions/Topics:** (includes research requests directed to staff via email or at Board meeting)
- Initial request sent to Tom (copy Board President)
- Tom responds with projected timeframe for response and any other logistical info
- Answer shared with the full Board during work sessions

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Requestor</th>
<th>Subject</th>
<th>Date Submitted</th>
<th>Response Date</th>
<th>Date Information Shared with Full Board</th>
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<td>01-21</td>
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</table>

**Board Committee Information:**
- Meeting notes/handouts shared with the full Board during work sessions

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Notes</th>
<th>Date Information Shared with the Full Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Committee</td>
<td>Meeting synopsis prepared by Debbie Carper</td>
<td>March 2</td>
</tr>
<tr>
<td>Policy and Board Development Committee</td>
<td></td>
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<tr>
<td>Strategic Planning Committee</td>
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<tr>
<td>Water Supply Committee</td>
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</tbody>
</table>

Last updated February 16, 2021
The meeting started at 4:37 p.m.

Attendees: Commissioners Bagnall and Duggan

Staff Present: Tom Hickmann, PE, Chief Executive Officer; Dave Kraska, PE, Water Supply Program Director; Paul Matthews, Chief Financial Officer; Joe Healy, Senior Management Analyst; Debbie Carper, District Recorder

1. Identifying Financial Planning Strategies

Mr. Hickmann gave an overview of the meeting discussion topics and highlighted financial risks and recommendations based on a District management perspective (see attached presentation). Mr. Kraska added that Willamette Water Supply Program (WWSP) partner agencies are experiencing financial constraints.

Mr. Hickmann highlighted the interdependent components of the financial management process. He noted the WWSP is at a turning point and financial management options will become limited soon. Next, he described some of the challenges inherent in large public works projects in the current environment and acknowledged the inherent unpredictability of future projections.

Mr. Hickmann listed specific issues the District faces regarding revenues and costs. Mr. Matthews said the greater concern is on the revenue side.

Mr. Hickmann highlighted three strategies that staff analyzed in greater detail and said management staff recommends the third strategy. Mr. Matthews reiterated the uncertainties the District may face in future years.

Mr. Hickmann asked for feedback, including if Commissioners are ready to consider adopting the financial strategy at the March 17 regular Board meeting.

Commissioners expressed support with the recommended strategy, especially as it allows the District to be a responsive partner amidst partner agency concerns. There is a desire to see what WWSP projects would be delayed within this strategy and to consider the possibility that if the financial situation improves, if feasible, there could be a restoration of the original schedules to affected projects. Mr. Hickmann said all partners support the goal of overall system functionality in 2026. Until staff conducts more detailed financial analyses, he said it is
unclear if shorter WWSP project delays of a few years will make a great difference in the financial situation.

Mr. Kraska said the WWSP is operating under a deadline of having the baseline budget approved by May at the latest. Twelve WWSP construction projects will be bid this year, which is nearly all of the remaining projects.

Mr. Hickmann concluded the presentation by listing the proposed schedule and asking Commissioners if there is a need for a future work session discussion on potential candidates for WWSP project postponement. The Commissioners said the schedule looks good, and they would like a more in-depth discussion regarding WWSP projects.

The meeting adjourned at 6:21 p.m.
Development of Financial Strategies

Board Finance Committee

February 16, 2021
Topic for Discussion

Identifying Financial Planning Strategies

- Evaluate the financial implications alternative financial strategies
- Identify approach that matches District’s current financial situation with inherent risks
- Present the results of those strategies to the Board at its March 17, 2021 regular meeting
- Provide a basis for the requested CIP and rates for 2021-23 biennium
- Review schedule to complete the budget and financial planning
Management’s Concern

Risks
- Significant risk that future rate increases will be higher than planned
- Economy may not recover to pre-COVID levels for water sales
- Significant construction risk remains

Recommendation
- Build financial capacity
- Adopt rates that provide financial resources in advance of need
- Enhance the customer emergency assistance program
- Pursue federal and state assistance
District Financial Management Process Interdependencies
Challenges Facing Major Public Works Projects

The Environment

- Higher expectations of the accuracy of cost estimates
- Increasing sensitivity to public investments
- Customers’ expectations of future costs
- COVID-19
Nature of Knowledge

Donald Rumsfeld on Knowledge:

Things you know

Things you know you don’t know

Things you don’t know you don’t know
Nature of Knowledge

Donald Rumsfeld on Knowledge:

- Things you know
- Things you know you don’t know
- Things you don’t know you don’t know
- Things you thought you knew but didn’t
# Limitation on Cost Details

<table>
<thead>
<tr>
<th>Estimate Class</th>
<th>Expected Accuracy Range</th>
<th>Level of Project Definition</th>
<th>Typical Purpose</th>
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<tbody>
<tr>
<td>Class 5</td>
<td>Low: -20% to -50%</td>
<td>0% to 2%</td>
<td>Concept Screening</td>
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<tr>
<td></td>
<td>High: +30% to +100%</td>
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<tr>
<td>Class 4</td>
<td>Low: -15% to -30%</td>
<td>1% to 15%</td>
<td>Study or Feasibility</td>
</tr>
<tr>
<td></td>
<td>High: +20% to +50%</td>
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<tr>
<td>Class 3</td>
<td>Low: -10% to -20%</td>
<td>10% to 40%</td>
<td>Budget, Authorization, or Control</td>
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<tr>
<td></td>
<td>High: +10% to +30%</td>
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</tr>
<tr>
<td>Class 2</td>
<td>Low: -5% to -15%</td>
<td>30% to 70%</td>
<td>Control or Bid/ Tender</td>
</tr>
<tr>
<td></td>
<td>High: +5% to +20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 1</td>
<td>Low: -3% to -10%</td>
<td>50% to 100%</td>
<td>Check Estimate or Bid/Tender</td>
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<tr>
<td></td>
<td>High: +3% to +15%</td>
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</tbody>
</table>

Source: The Association for the Advancement of Cost Engineering (AACE) International Recommended Practice No. 18R-97.
### Problem Statement

#### Revenues
- Declines began in summer of 2019
- Commercial declines became more pronounced during COVID
- Residential (both single-family and multifamily) have stabilized at a lower level
- Lower sales and collection challenges could reduce effective revenue by over $12 million in the biennium

#### Costs
- Actual costs are higher than planned
- Within the normal range for projects of this type and complexity
- We’re still early in the program, a lot of construction risk is still to come
## Strategies Analyzed

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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Most Risk</td>
<td>Scenario presented at January Board Mtg.</td>
<td>7.5%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>3.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>2</td>
<td>Less Risk</td>
<td>Same costs as #1; build financial capacity in next biennium.</td>
<td>9.5%</td>
<td>9.5%</td>
<td>4.4%</td>
<td>4.4%</td>
<td>3.75%</td>
<td>3.75%</td>
</tr>
<tr>
<td>3</td>
<td>Least Risk</td>
<td>Same rates as #2 and reduce WWSP outlays.</td>
<td>9.5%</td>
<td>9.5%</td>
<td>3.6%</td>
<td>3.6%</td>
<td>3.6%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

[1] Rate adjustments projected for Nov. 1 of each fiscal year (i.e., rates adjusted on 11/1/2021 for FY2022).

[2] Scenarios 1b and 3b do not meet TVWD’s net leverage target in FY2024 and FY2025, respectively.
Financial Strategies

**Strategy 1 – Baseline**
- Forecast of even rate increases funding capital program
- Does not provide additional financial capacity
- Presented at the January Board meeting
- Less likely to achieve rate stability

**Strategy 2 – Higher Rate Increases Now**
- Baseline funding of capital program
- Requires higher rate increases this year
- Increases financial capacity
- More likely to achieve rate stability

**Strategy 3 – Higher Rate Increases with Reduced Capital**
- Higher near-term rate increases
- Reduce WWSP capital outlays by deferring some beyond 2030
- Increases financial capacity the most
- Most likely to achieve rate stability
But Uncertainty Persists

Things you know

Things you know you don’t know

Things you don’t know you don’t know

Things you thought you knew but didn’t
Discussion of Strategies

Identifying Financial Strategies

Board Finance Committee
February 16, 2021
## Proposed Schedule

<table>
<thead>
<tr>
<th>Financial Plan Adoption</th>
<th>Budget Adoption</th>
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</thead>
<tbody>
<tr>
<td>• Preparation of Financial Strategies</td>
<td>• Budget Committee Actions</td>
</tr>
<tr>
<td>• February 16 – Board Finance Committee</td>
<td>• March 23 – Workshop #1</td>
</tr>
<tr>
<td>• February 17 to March 1 – Brief Other Board Members</td>
<td>• April 8 – Workshop #2</td>
</tr>
<tr>
<td>• March 17 – Selection of Financial Strategy by Board</td>
<td>• April 22 – Workshop #3</td>
</tr>
<tr>
<td>• Preparation of Financial Plan</td>
<td>• May 25 – Budget Committee Formal Meeting</td>
</tr>
<tr>
<td>• March 18 to April 13 – Prepare draft Financial Plan</td>
<td>• Board Adoption</td>
</tr>
<tr>
<td>• April 18 – Board Adopts Financial Plan</td>
<td>• June 16 – Board Adoption</td>
</tr>
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</table>
Questions and Answers

Board Finance Committee

February 16, 2021
Willamette Water Supply Commission Update
TVWD Work Session

March 2, 2021

Outline

Review March WWSS Commission Board Meeting Agenda
Review Approvals and Procurements Forecast
Update on WWSP Activities
Willamette Water Supply System Commission
March 4, 2021 Board Meeting Agenda

1. General Manager’s Report
2. Public Comment
3. Consent Agenda
   A. Approve the February 4, 2021 meeting minutes
4. Business Agenda
   A. Adopt MPE_1.1/COB_1.1 City of Beaverton Construction IGA
   B. Adopt MPE_1.2/COB_1.2 City of Beaverton Construction IGA Amendment 1
   C. Approve Amendment to Permitting Services Contract for Next One-Year Period
   D. Approve (as Local Contract Review Board, or LCRB) Special Procurement for DCS_1.0 Panel Fabrication Services
5. Information Items
   A. Planned April Business Agenda items
## Approvals and Procurement Forecast for February 2021 – April 2021

**Program Baseline or Related Plans**

<table>
<thead>
<tr>
<th>Description</th>
<th>Program Director</th>
<th>WWSS Management Committee</th>
<th>WWSS Commission Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWSP Annual Baseline Schedule and Budget</td>
<td>NA</td>
<td>3/18/2021</td>
<td>4/1/2021</td>
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<tr>
<td>WWSS Fiscal Year 2021-2022 Work Plan and Budget</td>
<td>NA</td>
<td>3/18/2021</td>
<td>4/1/2021</td>
</tr>
</tbody>
</table>
Background and Drivers for Considering Alternatives to Reduce WWSP Cost

- Response to COVID-19 impacts on Partners’ revenue
- Partners’ desire to limit potential for inter-annual variations in Baseline cost estimates
- Need to address drivers before extensive construction procurements throughout 2021

Why now? How much cost uncertainty exists?

<table>
<thead>
<tr>
<th>Calendar Quarter</th>
<th>Quantity of Planned Procurements</th>
<th>Projects</th>
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<tbody>
<tr>
<td>Q1 2021</td>
<td>4</td>
<td>MPE_1.1/COB_1.1</td>
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<tr>
<td></td>
<td></td>
<td>MPE_1.2/COB_1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLM_4.1</td>
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<tr>
<td></td>
<td></td>
<td>PLM_4.4 (move to Q3?)</td>
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<tr>
<td>Q2 2021</td>
<td>3</td>
<td>PLW_2.0/COH_1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLM_4.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLM_4.3</td>
</tr>
<tr>
<td>Q3 2021</td>
<td>2</td>
<td>RES_1.0/PLM_5.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(GMP bidding)</td>
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<td></td>
<td></td>
<td>PLW_1.2</td>
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<tr>
<td>Q4 2021</td>
<td>2</td>
<td>PLM_1.3</td>
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<tr>
<td></td>
<td></td>
<td>MPE_1.3</td>
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Underlying Estimate Uncertainty Based on AACEI Expected Accuracy Range

- Approx. $303.4M
### Alternatives Summary

(approximate cost reduction through FY2026)

<table>
<thead>
<tr>
<th>Alt. 1</th>
<th>Alt. 2.1</th>
<th>Alt. 2</th>
<th>Alt. 3</th>
<th>Alt. 4</th>
<th>Alt. 5</th>
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<tr>
<td>($29.4M)</td>
<td>($55.7M)</td>
<td>($73.6M)</td>
<td>($121.1M)</td>
<td>($152.7M)</td>
<td>($171.3M)</td>
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<tr>
<td>• In service 6/30/26 (no float)</td>
<td>• In service 6/30/26 (no float)</td>
<td>• In service 6/30/26 (float preserved)</td>
<td>• In service 9/30/27 (no float)</td>
<td>• In service 12/31/27 (no float)</td>
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<tr>
<td>• WTP delayed 6 months</td>
<td>• WTP delayed 6 months</td>
<td>• WTP delayed 21 months</td>
<td>• WTP delayed 24 months</td>
<td>• WTP delayed 24 months</td>
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<tr>
<td>• PLW_2.0 COH turnouts &amp; TVWD PRV facility deferred</td>
<td>• PLW_2.0 (except OWNP &amp; Berm) delayed 45 months (1/31/28)</td>
<td>• PLW_2.0 (except OWNP &amp; Berm) delayed 45 months (1/31/28)</td>
<td>• PLW_2.0 (except OWNP &amp; Berm) delayed 54 months (10/31/28)</td>
<td>• PLW_2.0 (except OWNP &amp; Berm) delayed 54 months (10/31/28)</td>
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<tr>
<td>• Fiber cable deferred</td>
<td>• Fiber cable deferred</td>
<td>• One RES_1.0 tank deferred</td>
<td>• One RES_1.0 tank deferred</td>
<td>• One RES_1.0 tank deferred</td>
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<td>• Staffing modifications</td>
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<td>• Fiber cable deferred</td>
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<td></td>
<td></td>
<td>• Staffing modifications</td>
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</table>

Notes:
1. Lists shown are not comprehensive
2. Deferred means to post-FY2026

### Next Steps

- **Complete Baseline 6.1 and FY2022 Annual Work Plan/Budget**
  - Feb. 26 – Distribute draft for Management and Finance Committee review
  - Mar. 1 – Collect Operations Committee input
  - Mar. 4 – Management Committee to make preliminary selection
  - Mar. 15 – Submit final draft in Management Committee packet
  - Mar. 18 – Request Management Committee approval
  - Apr. 1 – Request WWSS Board approval
- **Develop implementation plan for Preferred Alternative/Baseline 6.1**
  - Throughout Q2 2021
Approvals and Procurement Forecast for February 2021 – April 2021

Real Estate

<table>
<thead>
<tr>
<th>Description</th>
<th>Program Director</th>
<th>WWSS Management Committee</th>
<th>WWSS Commission Board</th>
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</thead>
<tbody>
<tr>
<td>MPE_1.2 Resolution of Need (3rd supplemental)</td>
<td>NA</td>
<td>3/18/2021</td>
<td>4/1/2021</td>
</tr>
<tr>
<td>PLM_1.3 Resolution of Need</td>
<td>NA</td>
<td>4/22/21</td>
<td>5/6/2021</td>
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Approvals and Procurement Forecast for February 2021 – April 2021

IGAs, MOUs, Permit Commitments

Metro and City of Hillsboro
- Settlement Agreement For Easement Through the Orenco Woods Nature Park (April)

City of Beaverton
- MPE_1.1/COB_1.1 Construction IGA (March)
- MPE_1.2/COB_1.2 Construction IGA Amendment 1 (April)

City of Sherwood
- DCS_1.0 Broadband Services IGA (April)

Washington County Land Use & Trans
- PLM_4.2 Design IGA Amendment 2 (November)
- Master IGA Amendment 1 (April)
- RES_1.0 Grabhorn Road Realignment IGA (April)
- PLM_4.1 Construction IGA (April)
- PLM_4.4 Construction IGA (May)
- PLM_4.2 Construction IGA (May)
### Contracts

<table>
<thead>
<tr>
<th>Title</th>
<th>Goal</th>
<th>Value</th>
<th>Key Dates</th>
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<tbody>
<tr>
<td>None</td>
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### Contract Amendments and Change Orders*

<table>
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<th>Title</th>
<th>Goal</th>
<th>Value</th>
<th>Key Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate Services</td>
<td>Updated scope to address revised property counts and staffing</td>
<td>$707k</td>
<td>WWSS Board Approval: 2/4/2021</td>
</tr>
<tr>
<td>WTP_1.0 Design Contract Amendment</td>
<td>Amend contract to reflect Sherwood land use requirements in 100% design</td>
<td>$705k</td>
<td>WWSS Board Approval: 2/4/2021</td>
</tr>
<tr>
<td>Water Supply Integration</td>
<td>Add integration plans</td>
<td>~$300k</td>
<td>WWSS Board Approval: 3/4/2021</td>
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<tr>
<td>Permitting Services</td>
<td>Extend DEA’s contract through February 2022 and add budget to cover continued services during this period</td>
<td>~$2M</td>
<td>WWSS Board Approval: 3/4/2021</td>
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*having values higher than the Program Director’s authority
### LOCAL CONTRACT REVIEW BOARD RULE EXEMPTION

#### APPROVALS AND PROCUREMENT FORECAST FOR FEBRUARY 2021 – APRIL 2021

<table>
<thead>
<tr>
<th>Title</th>
<th>WWSS Management Committee Approval</th>
<th>WWSS Board Informational Item</th>
<th>WWSS Board Consider Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCS_1.0 Panel Fabrication Services</td>
<td>2/18/2021</td>
<td></td>
<td>3/4/2021</td>
</tr>
<tr>
<td>Special procurement for panel fabrication services</td>
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**UPDATE ON WWSP ACTIVITIES**
Willamette Water Supply
Our Reliable Water

Project Delivery Progress

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<tr>
<th>Work Package</th>
<th>Conceptual/Preliminary</th>
<th>30%/50%</th>
<th>60%/70%</th>
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Design & Construction Milestones:
- 60% Design Received
- Advanced to 100% Design
- All 66" Pipe Installed
- 90% Design Received
- 100% Design Received

Estimated Construction Physical Percent Complete

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Willamette Water Supply
Our Reliable Water

Estimate is an opinion based on (1) actual costs paid, (2) pay applications in development, and (3) field staff observations. Refer to published reports for fully-vetted information.
Construction Update
Projects currently in construction

PLM_5.1
(Roy Rogers Rd.)

PLM_5.2
(Scholls Ferry/Tile Flat)

PLM_1.1
(S. of Wilsonville Rd.)

PLM_1.2
(Garden Acres Rd.)

PLW_1.3
(South Hillsboro)

RWF_1.0
(Phase 1)

Current and Planned Activities:

• Completed Deep Soil Mixing (DSM) at Caisson Zone.
• Began work on DSM elements at Transition Zone.
• Jet Grouting began.
• Began excavation at trenchless launch shaft.
• Began excavation at trenchless receiving shaft.
• Removed existing Raw Water Pump #2 and sent to shop for inspection and rehabilitation if necessary.

Contractor: Kiewit Infrastructure West Co.
Designer: Black & Veatch
Removing Raw Water Pump #2 to send for evaluation and rehabilitation.

Excavation of pipe ram sending shaft after secant pile rework.
Construction Photos – RWF_1.0

Pipe Ram Receiving Shaft

RWF_1.0 Notable Topics

• External Coordination
  – Continued coordination w/City of Wilsonville and Veolia Operations staff.
  – Continued coordination with nearby neighbors and public. Neighbor complaints about damage caused by vibration.

• Potential Claims
  – Differing site condition claim from Condon-Johnson on soil properties at DSM and jet grouting areas
  – Differing site condition notice from JW Fowler on hydraulic conductivity of soils at tunnel

• Delivery Challenges
  – Rework required at the trenchless launch shaft
  – DSM and Jet Grout issues impacting schedule
Current and Planned Activities:

• Project complete. Punch list items complete.
• Final paving striping completed on Kinsman
• Cathodic Protection system activated and tested.
• Potential additional work required in drainage swale by City.
• Final paperwork and project closeout in progress.
Construction Photos – PLM_1.1

Design Engineer performing corrosion protection testing and gathering baseline readings

PLM_1.1 Notable Topics

- External Coordination
  - None
- Potential Claims
  - None
- Delivery Challenges
  - Settlement of Boulder PCO
PLM_1.2

Partner: City of Wilsonville  
Contractor: Moore Excavation Inc.  
Designer: HDR

Current and Planned Activities:
• Completed activation of cathodic protection system  
• PLM_1.2 to PLM_3.0 final tie-in  
• Finish grading and restoration north of Day Rd.  
• Setting WWSS appurtenances after completion of Schedule A sitework and landscaping

Construction Photos – PLM_1.2

PLM_1.2 tie-in to PLM_3.0
Construction Photos – PLM_1.2

Welding interior of tie-in spool for connection to PLM_3.0

Construction Photos – PLM_1.2

Garden Acres Rd.
Schedule A work remaining
PLM_1.2 Notable Topics

• Partner Coordination
  – Ongoing coordination with City of Wilsonville
• Potential Claims
  – None
• Delivery Challenges
  – Contractor requested time extension

Partner: Washington Co.
Contractor: Tapani, Inc.
(Moore Excavation Inc. – Waterline Sub)
Designer: Jacobs

Current and Planned Activities:
• Completed installation of all 66” pipe.
• Continued installation of CP systems, air vault assemblies and access vaults.
• 18” Tigard Turnout piping and associated vault construction upcoming.
• Interior joint grouting for all 66” pipe
Construction Photos – PLM_5.1

Final two pieces of 66” pipe to be installed  
(Project ends at UGB)

Construction Photos – PLM_5.1

Completion of air valve vault in foreground.  
Tigard turnout (Friendly Lane) in distance.
PLM_5.1 Notable Topics

- Partner Coordination
  - Continued developer coordination
  - No issues with Washington County coordination
- Potential Claims
  - None
- Delivery Challenges
  - None

PLM_5.2

Contractor: Emery & Sons
Designer: Jacobs

Current and Planned Activities:
- Complete property restoration
- Close project permits
- Complete Punch List
- Satisfy Final Completion Requirements
Construction Photos – PLM_5.2

Erosion Control at Project End

PLM_5.2 Progress Status

- Construction Cost (Emery & Sons)
  - Total contractor price $15,056,518
  - Total cost to date (Jan) $14,627,745
  - Percent complete 97.15%

- Construction Schedule
  - Construction NTP June 28, 2019
  - Substantial completion date December 11, 2020
  - Final completion date March 4, 2021

- Change Orders
  - Change orders to date $192,686
  - Percent of original price 1.0%
PLM_5.2 Notable Topics

• External Coordination
  – Permitting
    • DEQ 1200C permit closeout 12/15/2020 (pending confirmation)
    • City of Beaverton permit closeout

• Potential Claims
  – Property owner requesting restoration of private road.

• Delivery Challenges
  – PCO issued for pipeline markers. Lead time may delay final completion.

PLW_1.3

Contractor: Tapani, Inc.
Designer: Kennedy/Jenks

Current and Planned Activities:
• Approximately 700 feet of 30-inch TVWD Turnout pipe installed
• Microtunnel launch shaft secant pile construction complete, excavation ongoing
• Microtunnel receiving shaft secant pile ongoing
Microtunnel receiving shaft north of Butternut Creek. Looking south.

Microtunnel launch shaft excavation.
Construction Photos – PLW_1.3

30-inch ductile iron pipe on Rosedale Rd.

PLW_1.3 Notable Topics

• External Coordination
  – Neighborhood / Resident outreach
  – PGE and OR-OSHA Consultation on Overhead Wires

• Potential Claims
  – None

• Delivery Challenges
  – Unmarked / Poorly Marked utility crossings
Final Lead and Copper Rule (LCR) Revisions

*Potential Impacts to TVWD*

Joel Cary & Carrie Pak, PE  
Water Resources Division Manager & Chief Engineer
Informational Presentation Outline

• Lead and Copper Rule (LCR) recap
• Final LCR Revisions – major components
• Timeline for implementation and compliance
• Shorter-term response: lead service line inventory
• Longer-term impacts
• Potential next steps
• Q&A

Current LCR Highlights

Sampling occurs at customer homes based on copper plumbing with lead soldering (Tier 1 sites, 1982-1985)

TVWD collects 100+ samples annually and 100+ twice annually in 2022 due to PWB changes

Compliance based on 90th percentile value of sample set + 15 ppb Action Level (AL)

Optimized Corrosion Control Treatment (OCCT)
Final LCR Revisions – What’s Changing?

- A lot, actually – newly required elements:
  - Lead service line (LSL) inventory
  - Sampling no longer based on Tier 1 Homes (shifts to LSL focus)
  - Requires sampling of schools and childcare by water systems
  - “Find and fix” provisions
  - Notification timelines changes (e.g., 24 hours for AL exceedance)
  - Trigger level added below current action level (10 parts per billion)

Timeline – Important Milestones

- Jan 15, 2021:Published
- March 1, 2021:Petition Deadline
- Jan 16, 2023:State Primacy Packages Due
- Jan 16, 2024:
  - LSL Inventory Submitted
  - LSL Replacement Plan Submitted
  - Requirements following Action Level Exceedance
  - Trigger Level Requirements Apply
  - Find-and-Fix Assessments Required
  - Public Notice Required
  - Notifications Required
  - Consumer Confidence Report Changes
  - School Monitoring Starts
- Jan 16, 2025:
  - End of Primacy Package Extension
  - Sample Plan Ready for Use
  - Revised Monitoring Pool and Protocol Use Starts
Short-Term Response: What Do We Need To Start Now?

• Service line inventory within three (3) years
• Must include:
  – Lead service lines (LSL), partially galvanized, unknown, non-lead*
  – Both public and private side (see example graphic)

*Note: Multiple definitions in LCR Revisions

Short-Term Response: Continued

What Else Happen First?
• Data publicly available (online) for large systems
• Updated annually unless no LSLs identified
• Develop replacement plan for LSLs/unknowns
• Notice to all customers with LSL, partial galvanized, or unknowns within 30 days of inventory completion (Jan 2024)
• Information included in Consumer Confidence Report

Initial Inventory Approaches
• Water system records, such as distribution system maps and drawings, installation and maintenance records
• Plumbing codes, permits, and tax records
• Key historical dates to define materials:
  ✓ 1985 lead ban
  ✓ Post TVWD Design Standards
• Direct investigation if necessary (e.g., dig-up, potholing)

Potential Opportunities
• During water main repair or replacement
• During meter reading or replacement*
• In-home inspection, where possible, by customer or utility
• Options TBD

*See next slide, some progress already made in this area
Next Steps – Where Do Go From Here?

- Drafting roadmap/plan for initial service line inventory work (within next month)
- Developing add package for Board consideration in draft 21-23 Budget (now)
- Considering consulting and outreach services to assist over next three (3) years (now through 21-23 Budget adaption)*

Longer-Term Elements

- The Final LCR Revisions are complex. Staff are continuing to review details and communicate with industry peers and experts. TVWD Board will be updated again.
  - Oregon Health Authority guidance needed, but we can’t wait
  - School sampling, “find and fix” provision, new notification steps, etc., all likely to have an impact on resources needed
  - OCCT changes in the revisions already being evaluated and addressed as part of the WWSS and Water Supply Integration project
Conclusion: This is a Big Deal

- LCR already complex given unique customer-utility interface
- One of the largest rule changes under EPA’s Safe Drinking Water Act in nearly 30 years
- Aimed at providing further public health protection from lead exposure
- Will require both short-term and long-term resource needs for TVWD (staffing priorities, outreach, IT, etc)
- All industry guidance to-date is “don’t wait,” developing an LSL inventory will take time and resources

Questions and Answers

Thank-you!
District Cybersecurity Update

March 2, 2021

Tim Boylan
Director of IT Services

2020 In Cyber Security

A transformational year....

- Working from home
- Online classes
- Surge in online commerce
- Delivery-based businesses

....saw an accompanying increase in cyber security incidents.
Local and Industry Attacks

- Government systems infected with malware.
- Computers and phones were taken offline.
- County paid $300,000 in ransom.
- Systems were offline for around two weeks.

- Unauthorized access to treatment plant SCADA.
- Settings changed to allow increased level of sodium hydroxide into the system.
- Operators watching the application saw the change and corrected the situation.

TVWD Security Framework

- Standards as Guide
  – ISO 27000
  – NIST Cybersecurity Framework
  – AWWA Cybersecurity Tool/Guide
- Layered Security Elements
  – Perimeter Security (Firewalls)
  – Access Controls (User ID/Password)
- Monitoring
  – Penetration Testing
  – Auditing
  – Alerting
The CIA Triad Philosophy

- **Confidentiality**
  - Data is protected
  - Only authorized users

- **Integrity**
  - Data is maintained
  - No improper modification

- **Availability**
  - Data is available when needed

Current and Emerging Threats

**Current Threats**
- Phishing
- Malware/Ransomware
- Data Leakage

**Emerging Threats**
- Fakes / Deep Fakes
- Smartphones Attacks
- Supply Chain Attacks

**Countermeasures**
- Education & Awareness
- MFA / Password Changes
- Scanning / Detection Software
- Perimeter Security
### TVWD vs Oldsmar

<table>
<thead>
<tr>
<th>Element</th>
<th>Oldsmar</th>
<th>TVWD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>• Direct connection</td>
<td>• Dedicated, protected network for SCADA</td>
</tr>
<tr>
<td>Firewall(s)</td>
<td>• None</td>
<td>• Perimeter – VPN and public filter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Internal – Zone/network filter</td>
</tr>
<tr>
<td>VPN for Remote Access</td>
<td>• None</td>
<td>• Encrypted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multifactor Authentication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MFA Logging / Auditing</td>
</tr>
<tr>
<td>Target PC (HMI)</td>
<td>• Outdated</td>
<td>• Targeted Updates</td>
</tr>
<tr>
<td></td>
<td>• Directly connected to Internet</td>
<td>• Behind firewall</td>
</tr>
<tr>
<td>Password Security</td>
<td>• Shared TeamViewer Password</td>
<td>• Individual IDs/passwords for HMI</td>
</tr>
<tr>
<td></td>
<td>• Not regularly changed</td>
<td>• Limited access to Server</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Role-based access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No enforced Change frequency w/in SCADA</td>
</tr>
<tr>
<td>Operator</td>
<td>• Operator noticed mouse movement indicating</td>
<td>• Limited “eyes on”</td>
</tr>
<tr>
<td></td>
<td>intruder</td>
<td></td>
</tr>
</tbody>
</table>

#### Layered Security Model In Action

1. Laptop ID/Password
2. VPN Initiated
3. VPN ID/Password Validated
4. Multifactor Authentication
5. SCADA System ID/Passwords x2
Questions?