



Progress Update - Wood Scope

Wood Environment & Infrastructure Solutions Inc.

3M PFC Settlement Subgroup 1 Meeting

June 19, 2019

- Modeling Progress since last month
 - Hydraulic Model
 - Groundwater Model
- Concept-Level Projects Update
 - LGU Meeting Summary
- Process Map- Execution Plan to the Finish Line
- Next steps and Outlook
 - Requested Information and Input from SG-1
 - Gathering Concept-Level Project Ideas
 - Evaluation of Concept-level projects
 - CDWSP text

DWS Modeling Update Overview

- Progress since last month – QA/QC process
 - Communities with Completed Internal QA/QC
 - Lakeland
 - Woodbury
 - Cottage Grove
 - Communities in the QA/QC Process
 - Saint Paul Park
 - Newport
 - Lake Elmo
 - Oakdale

DWS Modeling Update Overview (Cont'd)

- Next Steps

- LGU Review of Assumptions
- Issues and corrective actions
- GIS Data Correlation/Labeling
- Combining Models
- Incorporating expedited projects and future/proposed infrastructure
- Scenario Evaluation

Groundwater Modeling Update Overview

- **Modeling Progress**
 - Submitted geologic model to MGS/DNR for review
 - Met with watershed/conservation districts to learn more about data available
- **Current tasks**
 - Revising geologic model reviewed by MGS/DNR
 - Plotting groundwater elevations
 - Compiling pumping data
 - Plotting PFAS data by aquifer

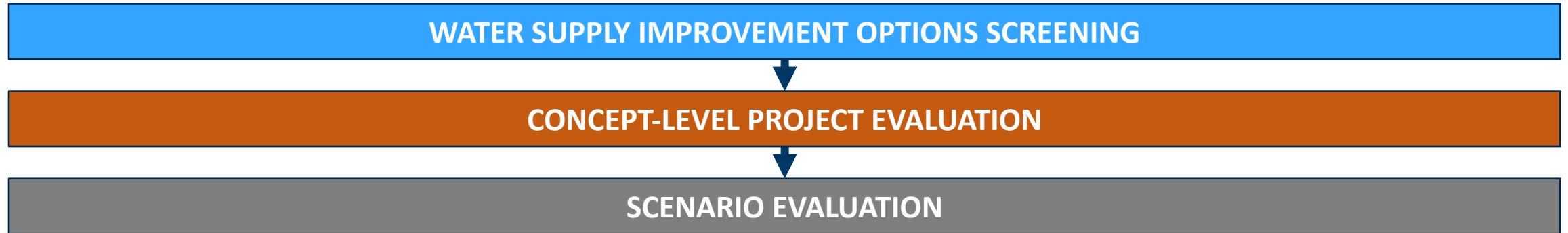
Concept-Level Projects Update

- CLP LGU Meetings
 - **Met with representatives from 13 of the 14 communities**
 - **General topics:**
 - Community's CLP preferences/objectives
 - Ideas/concepts/options that are less preferable or have already been determined to be not feasible for your community
 - municipal ordinances in place that may restrict options
 - **Water Supply Improvement Options list – applicability**
 - **Expedited projects (community specific)**
 - **Process map**
 - **“Plume” concept and data availability**

Process Map- Execution Plan to the Finish Line

- In progress
- Developed to support the remaining stages of the project
- **PRIMARY OBJECTIVE:** To map out an execution plan to support the theoretical approach previously laid out and communicated.
- **END GOAL:** A clearly defined path forward with project milestones, input and feedback loop with stakeholders, and tangible, easy-to-understand steps.

- Three primary blocks



- Clearly defined evaluation criteria with increasing specificity
- Provides an efficient approach that funnels projects (semi)-quantitatively into a pipeline for east metro-wide scenario evaluation

Theoretical Approach

Water Supply Improvement Options

Options: A reasonable range of options, at a high-level, that could improve drinking water supply, including both centralized and decentralized systems. Treatment technology not specified.

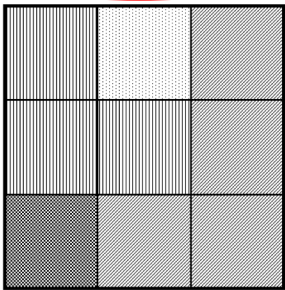
Concept-Level Projects:

Consistent with water supply improvement options, but provides more detail (e.g., locations, components, treatment technologies)

Scenarios:

Sets of concept-level projects that consider supply, distribution, and demand. Each scenario addresses drinking water supplies for all communities.

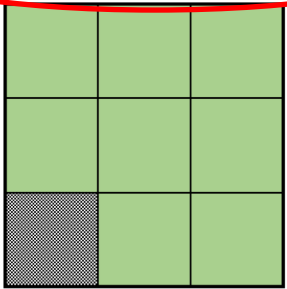
Regional Background Information & Community Profiles



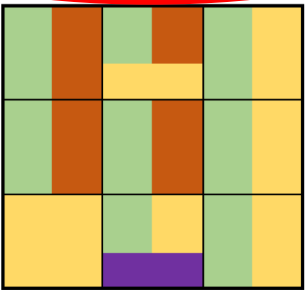
Regional Background & Community Profiles:

Includes information on major aquifers, current drinking water supply infrastructure, potential constraints on water use (including PFAS), etc.

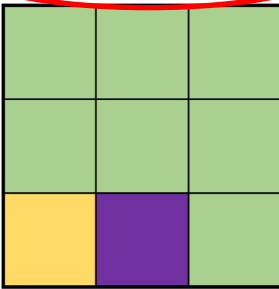
Water Supply Improvement Options



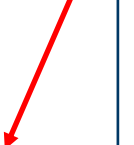
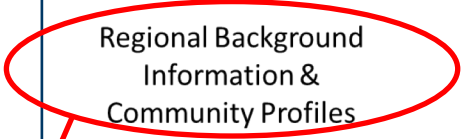
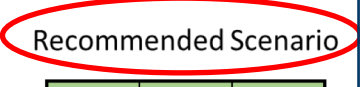
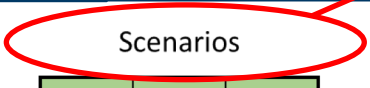
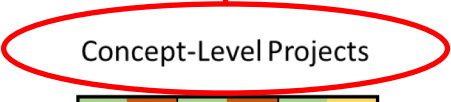
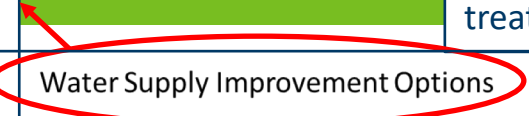
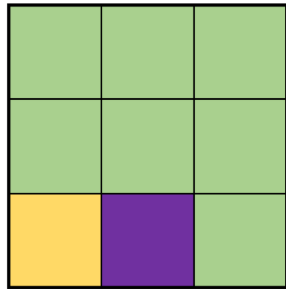
Concept-Level Projects



Scenarios

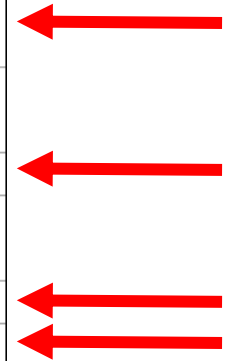


Recommended Scenario



Next Steps and Outlook -Project Plan for 2019

| Tasks | 2018 | | 2019 | | | | | | | | | | | |
|--|---------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | Jul-Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | |
| Develop Goals & Criteria | █ | | | | | | | | | | | | | |
| Compile regional background information and community profile information | █ | █ | █ | █ | █ | █ | | | | | | | | |
| <i>Write, review, revise: Introduction, Background, and Approach (Chapters 1-3)</i> | | | █ | █ | █ | █ | | | | | | | | |
| Develop and revise drinking water system model and ground water system model | | | █ | █ | █ | █ | █ | █ | █ | █ | | | | |
| <i>Write, review, revise: Model Development and Results (Chapter 4)</i> | | | | | | █ | █ | █ | █ | █ | | | | |
| Evaluate water supply improvement options | | | | | | █ | █ | █ | █ | █ | █ | | | |
| <i>Write, review, revise: Evaluation of Water Supply Improvement Options (Chapter 5)</i> | | | | | | | █ | █ | █ | █ | █ | | | |
| Identify projects | | | | | | █ | █ | █ | █ | | | | | |
| Screen & evaluate projects | | | | | | █ | █ | █ | █ | █ | | | | |
| <i>Write, review, revise: Concept-Level Project Development, Screening, and Evaluation (Chapter 6)</i> | | | | | | | █ | █ | █ | █ | █ | | | |
| Develop & evaluate scenarios; select recommended scenario | | | | | | | █ | █ | █ | █ | █ | | | |
| <i>Write, review, revise: Scenarios Development and Evaluation (Chapter 7)</i> | | | | | | | | █ | █ | █ | █ | | | |
| <i>Compile, review, revise: Final Report</i> | | | | | | | | | | | █ | █ | █ | |



● Public meeting

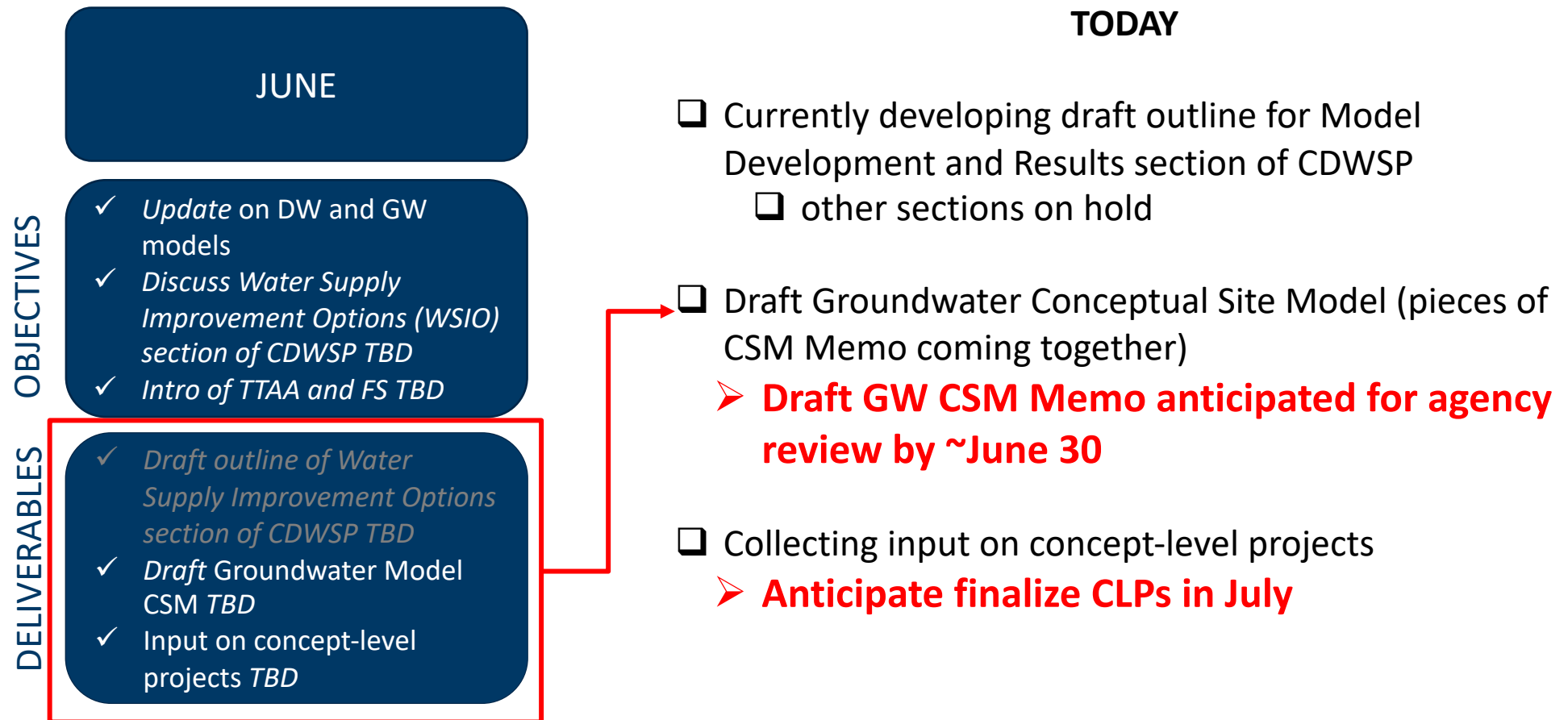
3-Month Look-Ahead

THE CONCEPTUAL DRINKING WATER SUPPLY PLAN

| | JUNE | JULY | AUGUST | SEPTEMBER |
|--------------|--|---|---|---|
| OBJECTIVES | <ul style="list-style-type: none"> ✓ Update on DW and GW models ✓ Discuss Water Supply Improvement Options (WSIO) section of CDWSP TBD ✓ Intro of TTAA and FS TBD | <ul style="list-style-type: none"> ✓ Update on DW and GW models ✓ Discuss evaluation of WSIOs ✓ Update of TTAA and FS ✓ Discuss Concept-level Project Development, Screening, and Evaluation section of the CDWSP ✓ Discussion of scenarios TBD | <ul style="list-style-type: none"> ✓ Discuss revised DW and GW models ✓ Discuss Model Devel. and Results sections of CDWSP ✓ Discuss concept-level projects to move forward ✓ Discuss Scenarios Devel. and Eval. section of CDWSP | <ul style="list-style-type: none"> ✓ Discuss revised evaluation of WSIOs ✓ Discuss WSIO section of the CDWSP ✓ Discuss CLP Development, Screening, and Evaluation section of the CDWSP ✓ Discuss CLPs and approximate costs |
| DELIVERABLES | <ul style="list-style-type: none"> ✓ Draft outline of Water Supply Improvement Options section of CDWSP TBD ✓ Draft Groundwater Model CSM TBD ✓ Input on concept-level projects TBD | <ul style="list-style-type: none"> ✓ Initial evaluation of water supply improvement options TBD ✓ Draft outline for Concept-level Project Development, Screening, and Evaluation section of CDWSP ✓ Treatment technology alternatives analysis and FS TBD ✓ Initial list of scenarios TBD | <ul style="list-style-type: none"> ✓ Revised DW and GW models ✓ Draft Model Devel. and Results section of CDWSP ✓ Choose concept-level projects to move forward ✓ Draft outline of Scenarios Devel. and Eval. section of CDWSP | <ul style="list-style-type: none"> ✓ Revised evaluation of WSIO ✓ Draft WSIO section of the CDWSP ✓ Draft CLP Development, Screening, and Evaluation section of the CDWSP ✓ Draft CLPs and approximate costs |

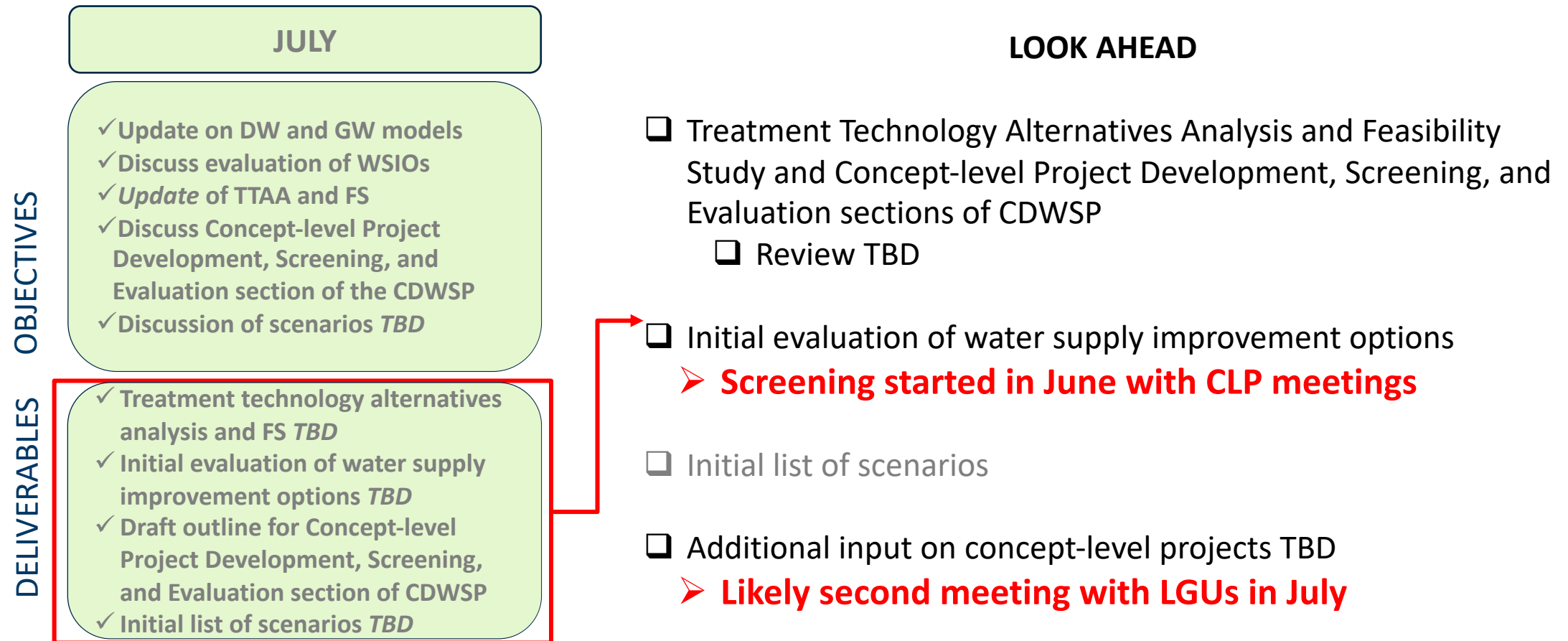
To be determined (TBD) = task under development

THE CONCEPTUAL DRINKING WATER SUPPLY PLAN



Upcoming Tasks (Cont'd)

THE CONCEPTUAL DRINKING WATER SUPPLY PLAN



To be determined (TBD) = task under development

Thank you!

Wood Environmental & Infrastructure Solutions