



Overview of Drinking Water Supply System Modeling

Erin Daugherty, PE, Wood Environment & Infrastructure Solutions Inc.

May 15, 2019

- Modeling Progress since last month
 - Community Models , Information Collected
 - QA/QC Process
 - LGU Review of Assumptions
- Next steps and Outlook
 - Requested Information and Input from SG-1
 - Gathering Concept-Level Project Ideas
 - Evaluation of Concept-level projects

DWS Modeling Update Overview

- **Modeling Progress**
 - Developed Working Models
 - Internal QA/QC Process
 - Provide Summary of Assumptions to LGUs for Review
- **Finalizing Models**
 - Gather any remaining outstanding information
 - Incorporate LGU comments and changes

Current Status

Water Supply Improvement 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.

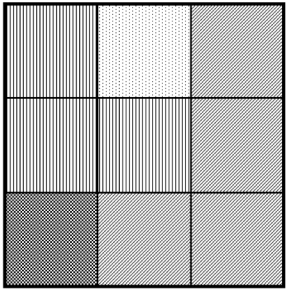
Concept-Level Projects:

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.

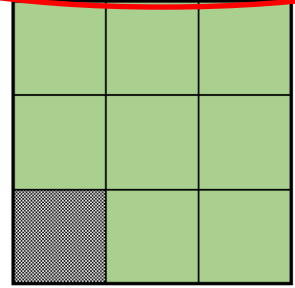
Regional Background Information & Community Profiles



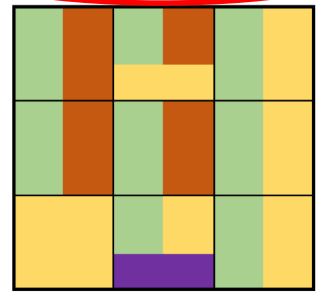
Regional Background & Community Profiles:

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

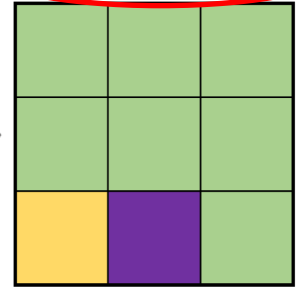
Water Supply Improvement Options



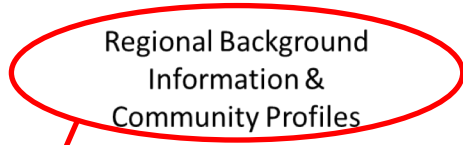
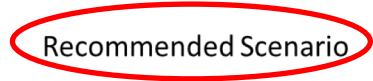
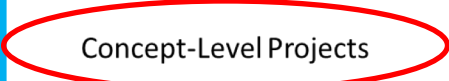
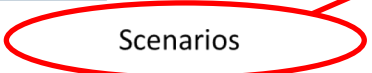
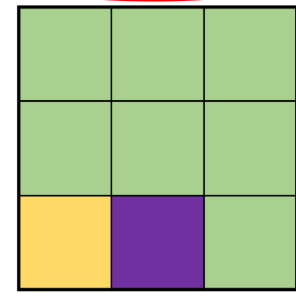
Concept-Level Projects



Scenarios



Recommended Scenario



Information Collected

1. Initial Water Supply Improvement Options:

- Drill new wells in optimized locations
- Connect subsets of communities to St. Paul Regional Water Services
- Create new surface water treatment plant for use of Mississippi or St. Croix River waters
- Create new regional water supply system(s) (with treatment)
- Create new rural drinking water supply system(s) (with treatment)
- Move private well hookups to existing drinking water supply system(s) (where available).
- Provide drinking water treatment of existing water supply system(s)
- Provide point of use or point of entry treatment of drinking water
- Non-potable and potable reuse of treated 3M containment water
- Minimize water well usage by reducing current potable demand, through:
 - Beneficial use of other non-treated or less treated waters (e.g., grey water, storm water)
 - Water conservation.

2. Expedited Projects – May 25th Closing Date

3. CIP and Other Improvement Projects

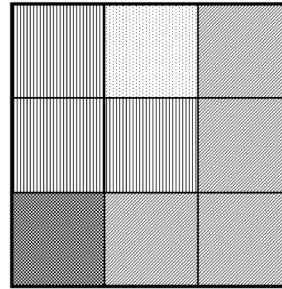
Next Steps

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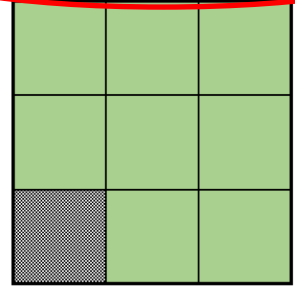
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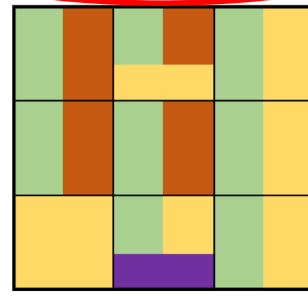


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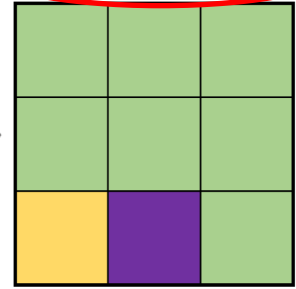
Water Supply Improvement Options



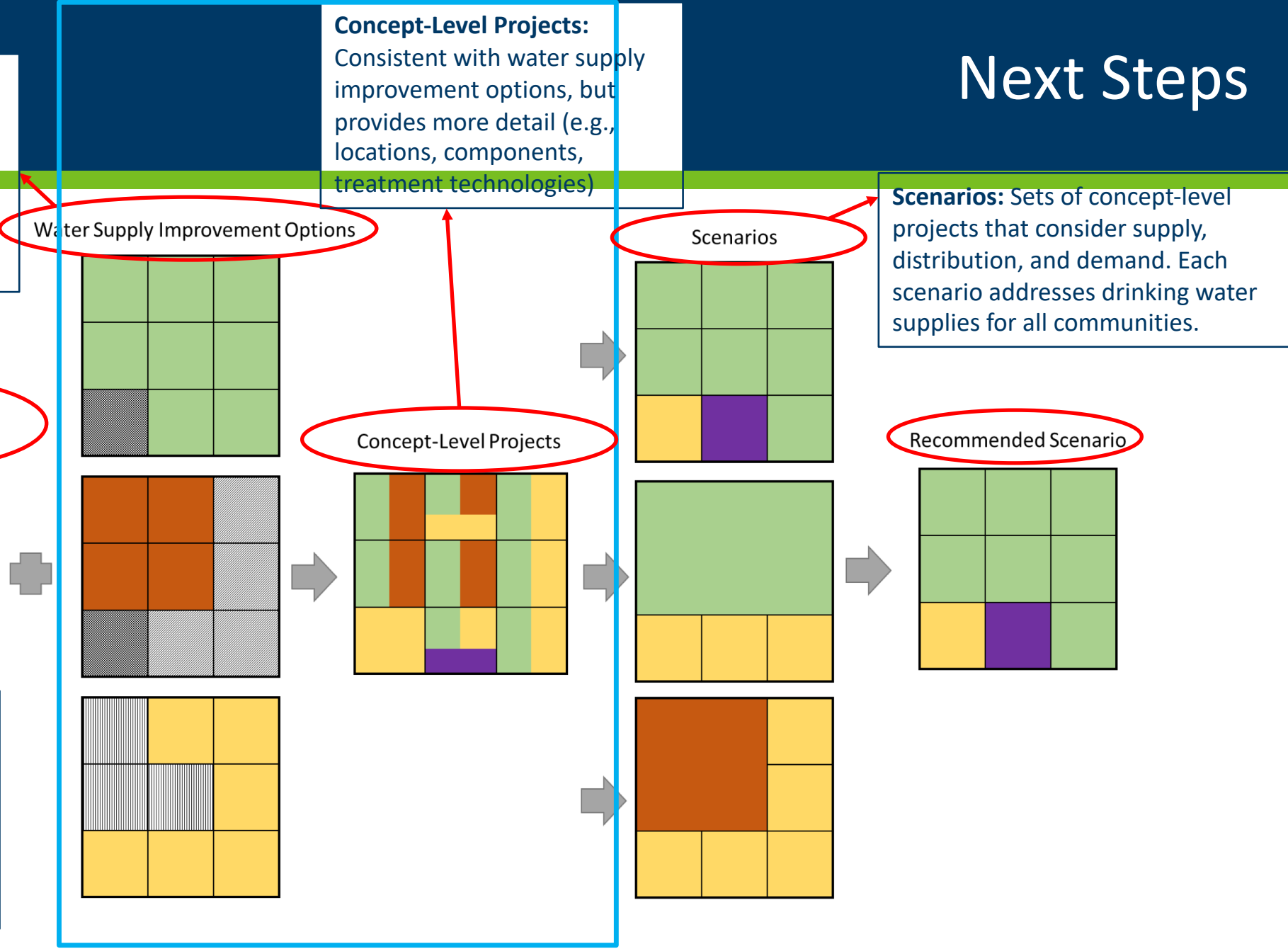
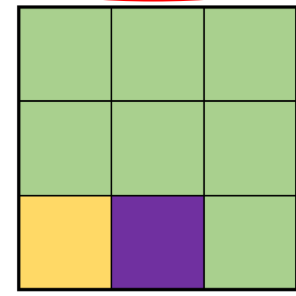
Concept-Level Projects



Scenarios



Recommended Scenario



Requested Information and Input From LGUs

- Starting point for concept-level projects is LGU input
- Requesting input from **each** community regardless of the level of development, detail, or design
 - Community-Specific Water Supply Improvement Preferences
 - Concept-Level Projects
- Level of detail can range from conceptual ideas to planned projects
- Feedback based on what has been considered –
 - what projects/preferences/objectives have been considered and rationale behind each
- Include information regarding excluded concepts and why
- Not requesting that any new work be completed for this request

Requested Information Format

- Recognize that each community may be at different levels
- Format for information is flexible and should best suit the needs of each community
- Examples of concept-level projects/preferences/objectives format are:
 - Written documents describing ideas
 - Proposals for projects
 - Project plan documents
 - Studies of Alternatives evaluated
 - Modeling files
 - Can include a description of what community does not want to see implemented
- All submitted ideas for concept-level projects should include a description and explanation

Collection of Requested Information

- Wood will be coordinating with each Subgroup 1 member to identify their list (if any) of concept-level projects
 - Provide a presentation at the May Subgroup 1 meeting on the specific project information they need
 - Follow-up with a call to each Subgroup 1 member individually (as needed) to determine the most effective way to capture their list of concept-level projects (before the end of May)
- If no concept-level projects have been developed, Wood will solicit information on SG1 member preferences and objectives.
- Goal is to have all LGU input for concept-level projects no later than June 14th

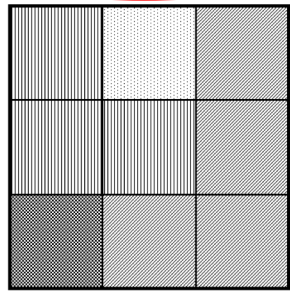
Outlook

Water Supply Improvement 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.

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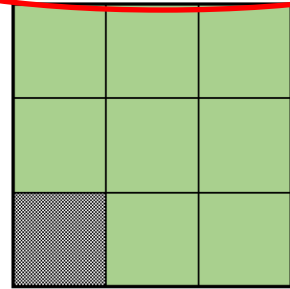
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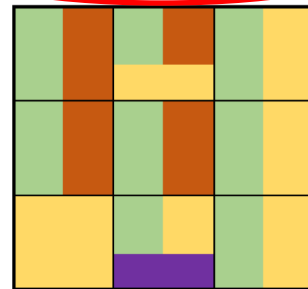


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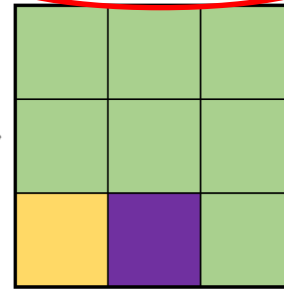
Water Supply Improvement Options



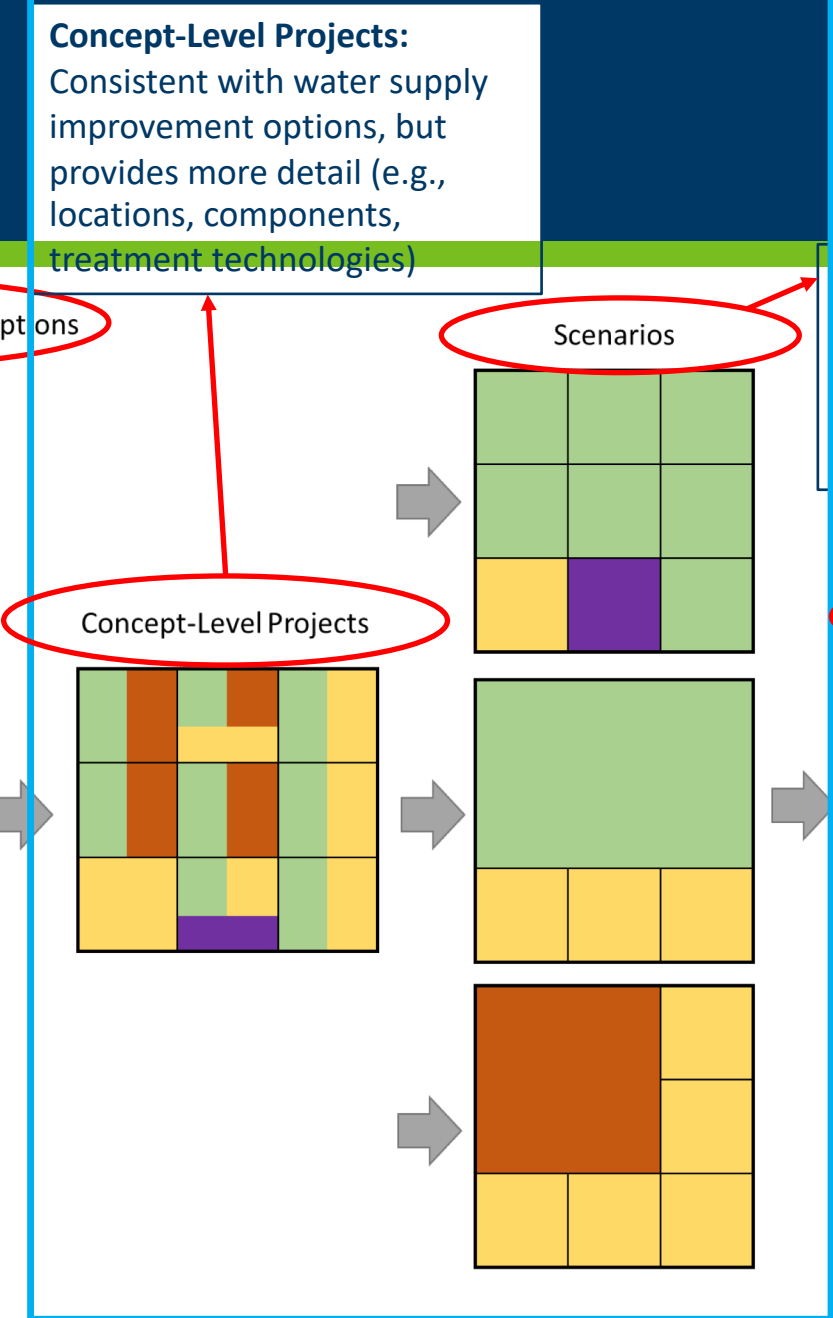
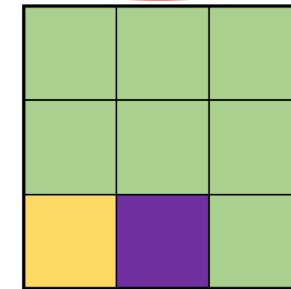
Concept-Level Projects



Scenarios

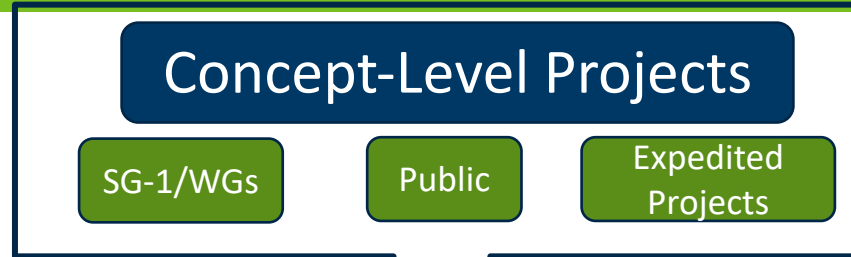


Recommended Scenario



Outlook (Cont'd)

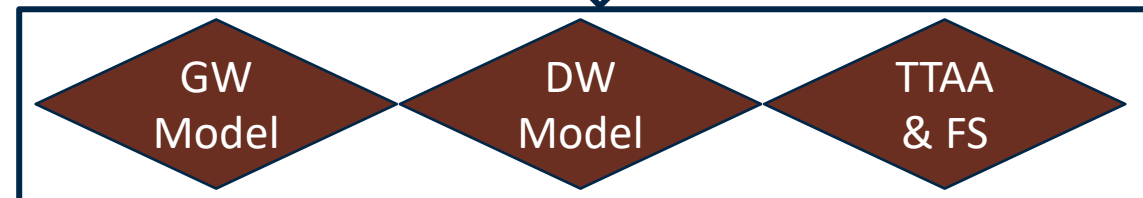
Gather input from:



Evaluate and screen concept-level projects to develop scenarios



Evaluate and screen scenarios with:



Further Solicitation for Concept-Level Projects

- Work Group Members (Government and 3M Working Group and Citizen-Business Group):
 - Work group members can coordinate with their Subgroup 1 members on projects and will be encouraged to coordinate with LGUs
 - Walker Smith will be sending out a follow-up email requesting if work group members have additional concept-level project ideas to share
- Public Involvement:
 - Hold a public meeting in July to share the initial list of concept-level project ideas

Evaluating Concept-Level Projects

- Develop list of concept-level projects starting with input from SG1 members.
 - Evaluate potential conflicts
 - Propose solutions for unaddressed areas
 - Look for inter-community solution opportunities
- Share the list of proposed concept-level projects with the Work Groups and SG1 for review
- Package subsets of the projects into scenarios for drinking water supply and groundwater model evaluation

Thank you!

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