MINNESOTA POLLUTION CONTROL AGENCY

Progress Update

Wood Environment & Infrastructure Solutions Inc.

June 19, 2019

Agenda

- Modeling Progress since last month
  - Hydraulic Model
  - Groundwater Model
    - Map presentation
- Process Map - Execution Plan to the Finish Line
  - Water supply improvement options (WSIO) screening in progress
- Next steps and Outlook
  - CDWSP text
  - Input from SG-1

Drinking Water Hydraulic Model

- Modeling Progress since last month
  - QA/QC Process
- Communities with Completed Internal QA/QC
  - Lakeland
  - Woodbury
  - Cottage Grove
  - Saint Paul Park

Drinking Water Hydraulic Model

- In Progress
  - LGU Review of Models (assumptions and results)
    - Meetings this week in lieu of Work Group meetings
  - Issues and corrective actions
- Next Steps
  - GIS Data Correlation/Labeling
  - Combining Models
  - Incorporating expedited projects and future/proposed infrastructure
  - Scenario Evaluation

Map Presentation

Map Presentation – CSM and Numerical Model Inputs

- Residential Wells by Aquifer
  - Only wells that have been sampled by MDH
  - Wells have been distributed according to aquifer (per map)
  - Different shading relative to Health Index (red is above)
  - Note: Source Areas are also depicted on map
- Pumping wells in East Metro Area
  - Pumping rate (> 10 million gallons per year)
  - Different colors according to aquifer
  - Different sizes according to pumping rate

Map Presentation – CSM and Numerical Model Inputs

- Geological layers
    - Reviewed by MGS (Tony Runkel's Group)
- X-sections
    - Transects determined by MPCA and MDH

Groundwater Model - Next Steps

- Conceptual Model Technical Memorandum
  - Text (see outline)
  - Largely figures, maps, and tables
- Initiate Numerical Model Construction
  - Insert model layers into Groundwater Vistas™
  - Boundary conditions and pumping wells

Process Map

CAUTION

Work in progress

Process Map

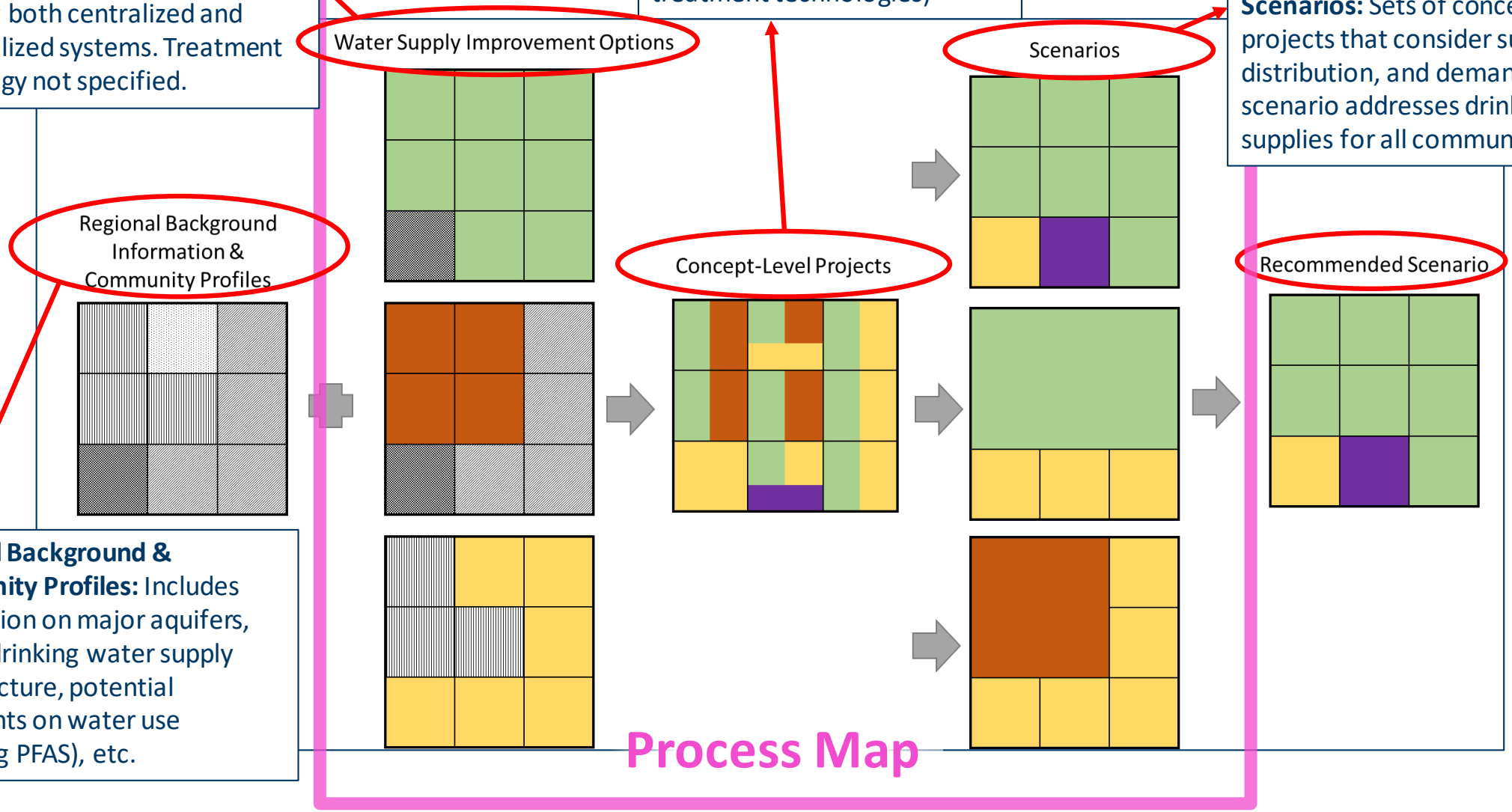
- Still in progress
- Developed to support the remaining stages of the project
- PRIMARY OBJECTIVE: To map out an execution plan to support the theoretical approach previously laid out and communicated.
- END GOAL: A clearly defined path forward with project milestones, input and feedback loop with stakeholders,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

Theoretical Approach

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

Process Flow Map Legend

= points where feedback is requested from the work groups and SG-1

= a screening process is taking place (e.g., priority 1 criteria is applied)

= a document or list is produced

WATER SUPPLY IMPROVEMENT OPTIONS SCREENING (DRAFT COMPLETED)

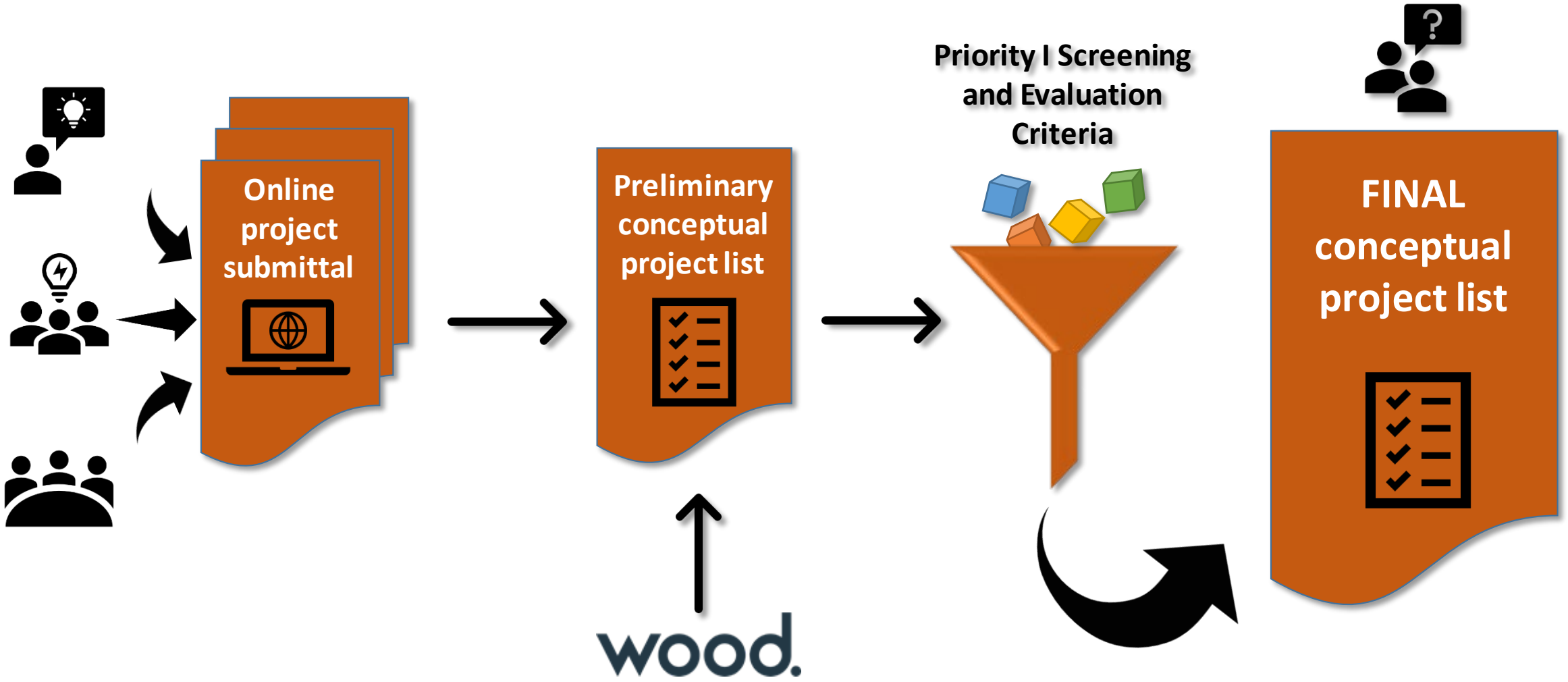
Water Supply Improvement Options

Priority 1 Screening Criteria

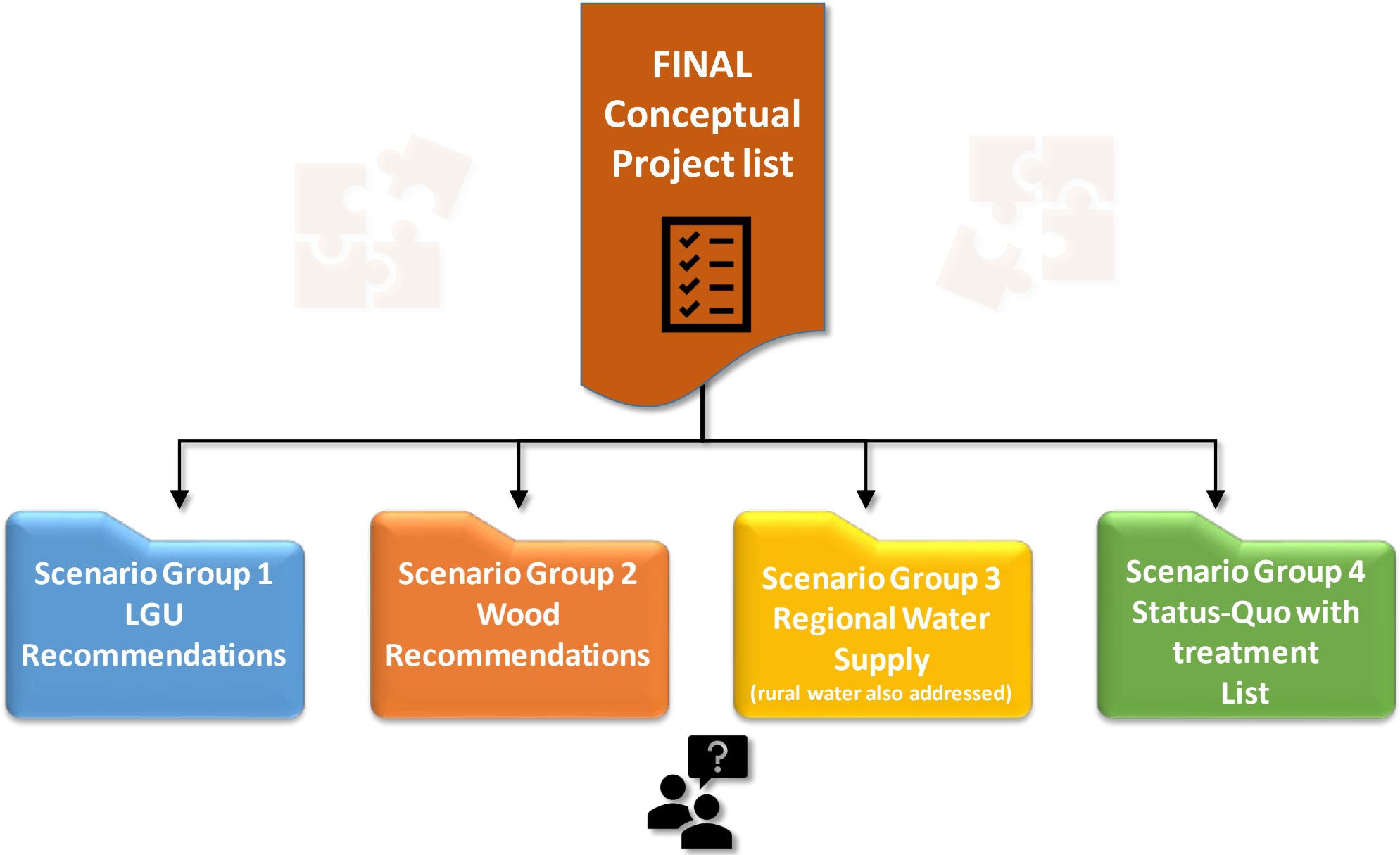
Screened water supply improvement option list
(for each community)

Screened water supply improvement options will be used to develop Conceptual Project Ideas

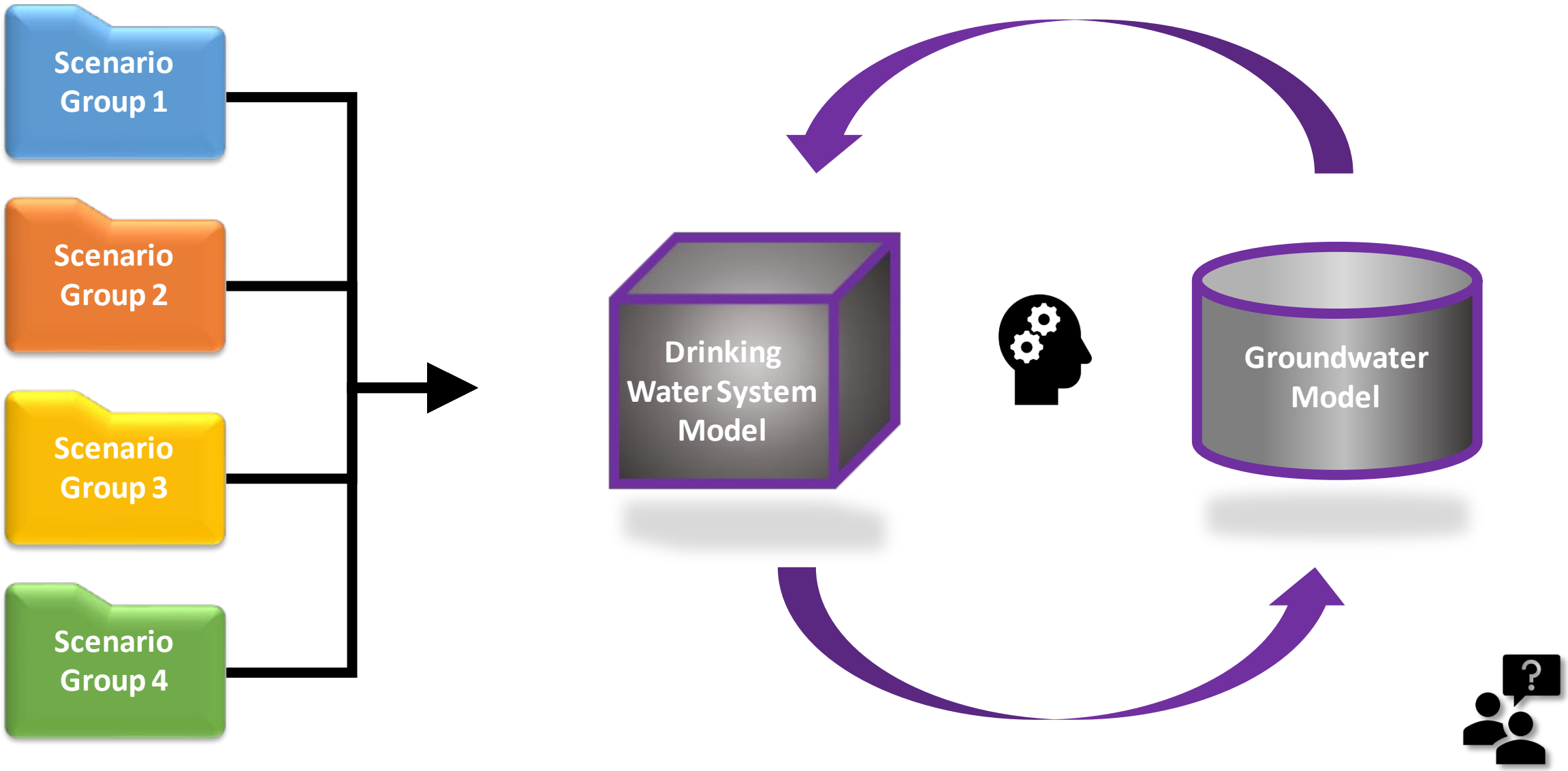
CONCEPTUAL PROJECT EVALUATION (IN PROGRESS)



SCENARIO DEVELOPMENT



SCENARIO MODELING



SCENARIO EVALUATION

Use **modeling results** to develop costs

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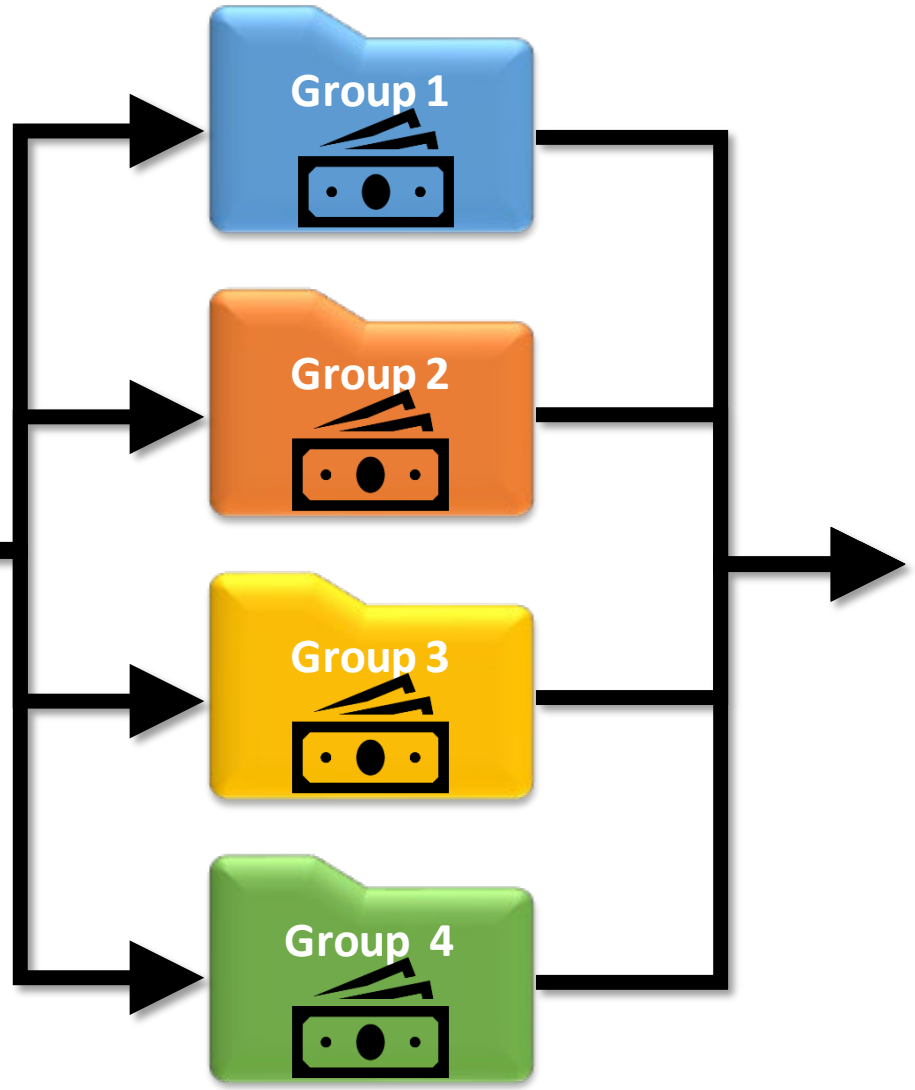


Water Supply Improvement Options – Priority 1 Screening

EXAMPLE

Priority 1 Screening Criteria:	1	2	3	4	5	Count "No" and "N/A"	Overall Option?
Water Supply Improvement Options							
1. Drill new wells in optimized locations.	N/A	N/A	N/A	N/A	N/A	5	No
2. Connect subsets of communities to St. Paul Regional Water Services.	Yes	Yes	Yes	Yes	Yes	0	Yes
3. Create new surface water treatment plant for use of Mississippi or St. Croix River waters.	Yes	Yes	Yes	Yes	Yes	0	Yes
4. Create new regional water supply system(s) (with treatment).	Yes	Yes	Yes	Yes	Yes	0	Yes
5. Create new rural drinking water supply system(s) (with treatment).	Yes	Yes	Yes	Yes	Yes	0	Yes
6. Move private well hookups to existing drinking water supply system(s) (where available).	Yes	Yes	Yes	Yes	Yes	0	Yes
7. Provide drinking water treatment of existing water supply system(s).	N/A	N/A	N/A	N/A	N/A	5	No
8. Provide point of entry treatment of drinking water.	Yes	Yes	Yes	Yes	Yes	0	Yes
9. Non-potable and potable reuse of treated 3M containment water.	Yes	Yes	Yes	Yes	Yes	0	Yes
10. Minimize water well usage by reducing current potable demand, through beneficial reuse and/or conservation	N/A	N/A	N/A	N/A	N/A	5	No

Priority 1 Screening Criteria

1. Address drinking water supply and/or groundwater protection/restoration issues due to PFAS contamination in the East Metropolitan Area consistent with the Priority 1 of the Agreement.
2. Comply with applicable/relevant federal, state, tribal, and local laws, regulations, and rules (in some limited instances, projects that conflict with local regulations and rules can be considered if a reasonably achievable plan is provided to address these conflicts).
3. Technically and Administratively Feasible
4. Not jeopardize public health and/or safety.
5. Not negatively impact results of remediation under the 2007 Settlement Agreement and Consent Order (Consent Order) or other remedies addressing other sources of contamination.

Conceptual Project Ideas – Submittal Process

Page 1: Background

- The State of Minnesota's 2018 Agreement and Order (Agreement) with 3M Company (3M) establishes the 3M Grant for Water Quality and Sustainability Fund (Grant). The Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Natural Resources (DNR) will use the Grant for projects that are reasonable and necessary to achieve the purposes of the Agreement. For more information, see https://www.pca.state.mn.us/waste/3m-and-pfcs-2018-settlement and https://3msettlement.state.mn.us/.
- As the first and highest priority of the Agreement (Priority 1), MPCA and DNR will use the Grant for projects that enhance the quality, quantity, and sustainability of drinking water in the East Metropolitan Area. For more information on Priority 1, see the Agreement (https://www.pca.state.mn.us/sites/default/files/c-pfc2-11f.pdf).
- To address Priority 1, MPCA and DNR are developing a Conceptual Drinking Water Supply Plan to provide clean, sustainable drinking water to the communities in the East Metropolitan Area. The plan will identify a series of projects (at a conceptual level) to improve drinking water quality and/or quantity, to be later refined further in future project implementation plans (including engineer and design).
- To support the development of the Conceptual Drinking Water Supply Plan, MPCA and DNR are requesting conceptual project ideas to be submitted for consideration. Conceptual project ideas can be general types of projects or more specific projects for consideration, with as much or as little detail as possible.
    - For example, a conceptual project idea may be: "Connect the Cherry Creek Neighborhood to municipal water", with the specific details of the project (e.g., engineering/design) to be determined later.

Conceptual Project Ideas – Submittal Process

Page 1: Background (Continued)

  - For example, a conceptual project idea may be: "Connect the Cherry Creek Neighborhood to municipal water", with the specific details of the project (e.g., engineering/design) to be determined later.
- Conceptual project ideas should be aimed to improve drinking water quality and/or quantity, and be consistent with Priority 1 of the Agreement. Examples of project types may include, but are not limited to:
  - Creation of relocation of wells (municipal or individual)
  - Treatment of existing water supplies (municipal or individual)
  - Connecting residences to municipal water supplies
  - Water conservation and efficiency.
- Project types that won't be considered at this time include, but are not limited to: recreational use projects, habitat improvements projects, administrative or communication projects, others?.
- For more information on the Conceptual Drinking Water Supply Plan, see: https://3msettlement.state.mn.us/sites/default/files/Draft%20Conceptual%20Drinking%20Water%20Supply%20Plan.pdf.

Conceptual Project Ideas – Submittal Process

Page 2: Form Instructions

Instructions:

- This project idea form is for all applicants, including public entities (e.g., state, tribes, counties, municipalities, schools, higher-education institutions), for-profit businesses, nonprofit organizations, and individuals, to submit project ideas to be considered for inclusion in the Conceptual Drinking Water Supply Plan.
- If you have multiple projects, please submit one form for each idea.
- At a minimum, please fill in all of the information with an *.
- You may provide supporting documents at the end of the form.
- If you have any questions, please contact: pfcinfo.pca@state.mn.us.

Deadline:

- Project ideas must be submitted by [TBD].

Filling out the application form:

- All fields are shown on one page.
- After you submit your idea, you will receive a confirmation email that your form was successfully submitted. A pdf of your form will also be attached for your records. If you do not receive this email, please contact: pfcinfo.pca@state.mn.us.
- You are able to submit the form with a maximum of 10 documents, with a size maximum of 50 MB per file.
- Submit a new form if you want to modify your project idea.

Additional note:

- This project idea submission process is not a competitive grant-type Request for Proposals (RFP). Project ideas will be considered by the agencies, work groups, and subgroups for inclusion in the Conceptual Drinking Water Supply Plan. However, if an idea is included, this does not provide funds to the project proponent to implement the project. Project ideas might be modified and combined with other project ideas as needed.
- Your project idea – including your name, contact information, and any associated attachments – are public information and may be made publicly available at any time.

Conceptual Project Ideas – Submittal Process

Page 3: Project Idea Form

A. Contact Information

1. Organizational/individual name (e.g., organizational or legal name)*:

2. Organizational/individual type (select one)*:
   - Federal government
   - State government
   - Local/regional government
   - Tribal government
   - For-profit
   - Nonprofit
   - Private college/university
   - Public college/university
   - Individual
   - Other (please specify)

3. Organizational website (if available):

4. Are you a member of the 3M Settlement working groups (i.e., Citizen Business Group, Government and 3M Working Group, or Subgroup 1)? (select one)*:
   - Yes
     - If yes, indicate which one:
     - Citizen-Business Group
     - Government and 3M Working Group
     - Subgroup 1
   - No

5. Primary contact information (person to be contacted for more information, if needed):

First name*:
Last name*:
Title:
Address:
City:
State:
Zip code*:
Phone number:
Email*:

Conceptual Project Ideas – Submittal Process

Page 3: Project Idea Form

(Continued)

B. Project Idea Information

6. Project idea name*:

7. Project idea description (please provide a short project description)*:

8. Project idea location city(ies)/township(s) (select all that apply)*:
   - Afton
   - Cottage Grove
   - Grey Cloud Island Township
   - Denmark Township
   - Lake Elmo
   - Lakeland
   - Lakeland Shores
   - Maplewood
   - Newport
   - Oakdale
   - Prairie Island Indian Community
   - St. Paul Park
   - West Lakeland Township
   - Woodbury
   - Other (fill in)

9. Project idea location description (e.g., address, name of a neighborhood, cross streets, etc.):

Conceptual Project Ideas – Submittal Process

Page 3: Project Idea Form (Continued)

C. Supporting Documents

10. Supporting documents (attach any supporting documents, such as maps, reports, designs, etc., if available)

11. Additional comments

Page 4

Thank you for submitting your project idea! Your form has been successfully submitted and you will receive an email confirmation shortly.

For questions or comments regarding the 3M Settlement or the Conceptual Drinking Water Supply Plan, please contact: pfcinfo.pca@state.mn.us.

Confirmation Email

Thank you for submitting your project idea. Your completed form is attached for your records.

Please submit a new form if you want to modify or submit a new project idea.

For questions or comments regarding the 3M Settlement or the Conceptual Drinking Water Supply, please contact: pfcinfo.pca@state.mn.us.

CDWSP – Draft Chapter 4 Outline

4.	**Model Development and Results**
4.1	Water systems modeling (with appendices)
4.1.1	Purpose
4.1.2	LGU data gathering and assessment
4.1.3	Model development
4.1.4	Modeling results
4.2	Groundwater modeling
4.2.1	Purpose
4.2.2	Data gathering and assessment
4.2.3	Conceptual site model development
4.2.4	Numerical Model Description and Construction

CDWSP – Draft Chapter 5 Outline

5. Evaluation of Water Supply Improvement Options
5.1 Water Supply Improvement Options
5.1.1 Drill new wells in optimized locations
5.1.2 Connect subsets of communities to St. Paul Regional Water Services
5.1.3 Create new surface water treatment plant for use of Mississippi or St. Croix River waters
5.1.4 Create new regional water supply system(s) (with treatment)
5.1.5 Create new rural drinking water supply system(s) (with treatment)
5.1.6 Move private well hookups to existing drinking water supply system(s) (where available)
5.1.7 Provide drinking water treatment of existing water supply system(s)
5.1.8 Provide point of use or point of entry treatment of drinking water
5.1.9 Non-potable and potable reuse of treated 3M containment water
5.1.10 Minimize water well usage by reducing current potable demand, through:
5.1.10.1 Beneficial use of other non-treated or less treated waters (e.g., grey water, storm water)
5.1.10.2 Water conservation
For each water supply improvement option:
[Description of option]
5.1._.1 Elements of technical feasibility – where/when would it work?
5.1._.2 Limitations to approach – where/when would it NOT work?
5.1._.3 Potential impacts of approach (environmental, socioeconomic, cost)

CDWSP – Draft Chapter 6 Outline

6.	**Concept-Level Project Development, Screening, and Evaluation**
6.1	Discussion of how project concepts were identified
6.1.1	Local Government Unit input (via Government and 3M Working Group)
6.1.2	Subgroup input (via Subgroup 1)
6.1.3	Public submission (via a web-based Project Portal and Citizen-Business Group)
6.2	Overview of project criteria
6.2.1	Screening – pass/fail
6.2.2	Evaluation – components of successful projects
~~6.4~~6.3	Application of criteria
6.~~4~~3.1	Screening criteria – which concept-level projects passed screening criteria?
6.~~4~~3.2	Use of evaluation criteria to compare multiple options in a given area
~~6.3~~6.4	Treatment technology alternatives analysis for PFAS (up to 10 technologies evaluated)
6.~~3~~4.1	Technology alternatives feasibility study
6.5	Hydrological analysis of concept-level projects that passed screening criteria

3-Month Look-Ahead

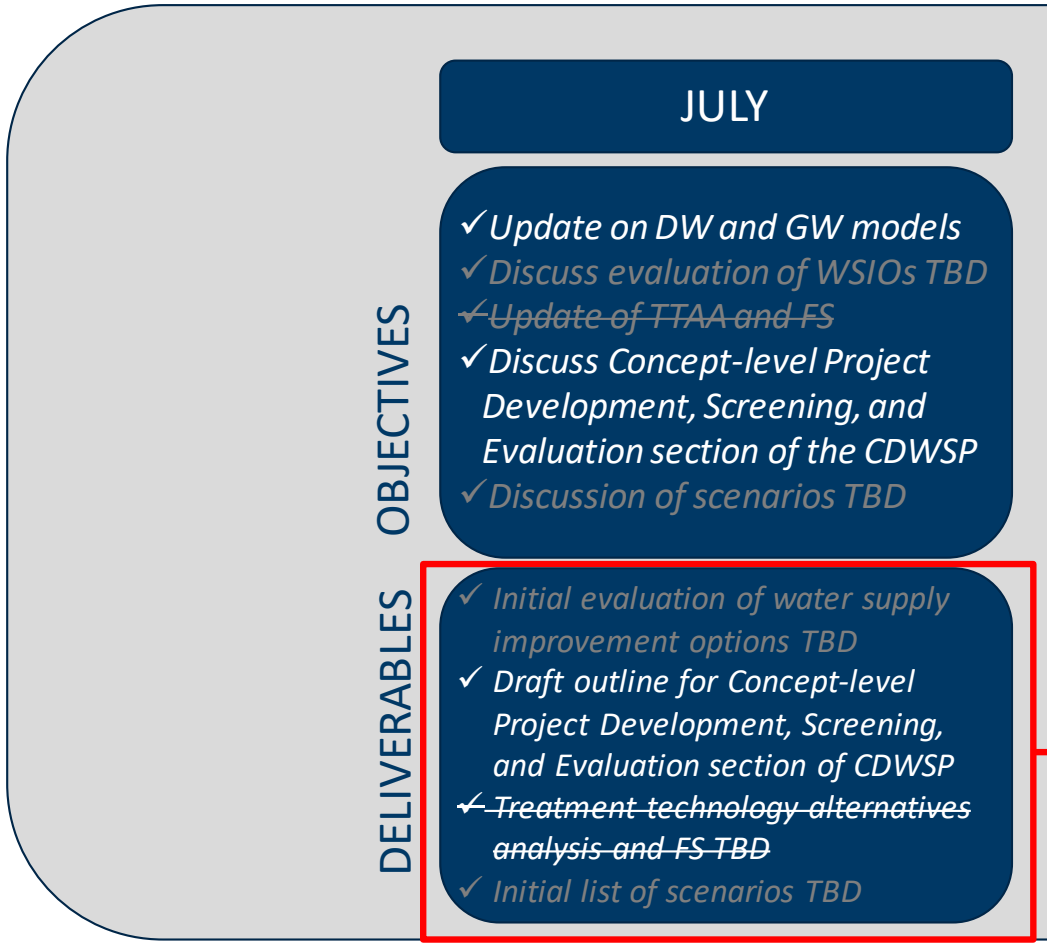
THE CONCEPTUAL DRINKING WATER SUPPLY PLAN

	JULY	AUGUST	SEPTEMBER	OCTOBER
OBJECTIVES	✓Update on DW and GW models ✓*Discuss evaluation of WSIOs TBD* ✓~~*Update of TTAA and FS*~~ ✓Discuss Concept-level Project Development, Screening, and Evaluation section of the CDWSP ✓*Discussion of scenarios TBD*	✓Discuss revised DW and GW models ✓Discuss Model Devel. and Results sections of CDWSP ✓*Discuss concept-level projects to move forward TBD* ✓Discuss Scenarios Devel. and Eval. section of CDWSP	✓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 TBD*	✓*Discussion of recommended scenario TBD* ✓Discussion of Scenarios Development and Evaluation section of the CDWSP
DELIVERABLES	✓*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*	✓Revised DW and GW models ✓Draft Model Devel. and Results section of CDWSP ✓*Choose concept-level projects to move forward TBD* ✓Draft outline of Scenarios Devel. and Eval. section of CDWSP	✓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 TBD*	✓Draft Scenarios Development and Evaluation section of the CDWSP

To be determined (TBD) = task under development

Upcoming Tasks

THE CONCEPTUAL DRINKING WATER SUPPLY PLAN



TODAY

- ❑ Evaluation of water supply improvement options drafted and under review by agencies.
- ❑ Finalizing draft outline for Model Development and Results section of CDWSP
  - ➢ **Draft Model Development and Results section anticipated for agency review by ~July 31**
- ❑ Draft Groundwater Conceptual Site Model Memo
  - ➢ **Draft GW CSM Memo anticipated for agency review by ~July 31**
- ❑ Collecting input on Conceptual Project Ideas
  - ➢ **Anticipate online form by end of July**

Upcoming Tasks

THE CONCEPTUAL DRINKING WATER SUPPLY PLAN

AUGUST

OBJECTIVES

- ✓ **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**

DELIVERABLES

- ✓ ***Revised DW and GW models***
- ✓ ***Draft Model Devel. and Results section of CDWSP***
- ✓ ***Choose concept-level projects to move forward TBD***
- ✓ ***Draft outline of Scenarios Devel. and Eval. section of CDWSP***

LOOK AHEAD

- ❑ Draft Chapter 4 Model Development and Results
  - ➢ **Subgroup 1 review in August**
- ❑ Initial evaluation of water supply improvement options
  - ➢ **Screening started in June with CLP meetings**
  - ➢ **Subgroup 1 review of results in August**
- ❑ Conceptual project idea submittals will be through end of August
- ❑ Draft outline of Scenarios Devel. and Eval. Section
  - ➢ **Subgroup 1 review schedule TBD**

To be determined (TBD) = task under development

Thank you!

Wood Environmental & Infrastructure Solutions

MINNESOTA POLLUTION CONTROL AGENCY