



# Management Approach to Sustainable Drinking Water; Addressing PFAS Contamination across 14 Communities

Shalene Thomas  
Emerging Contaminant Program Manager

Michele Mabry, MPCA  
State Program Administrative Coordinator

Great Lakes Environmental Remediation &  
Redevelopment Conference

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[woodplc.com](http://woodplc.com)

# Overview

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## 1. History and Background

- Overview of Area
- Criteria, plume, and contamination

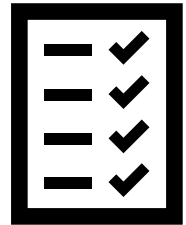
## 2. Settlement and Directives

- ü Stakeholder and Community Engagement

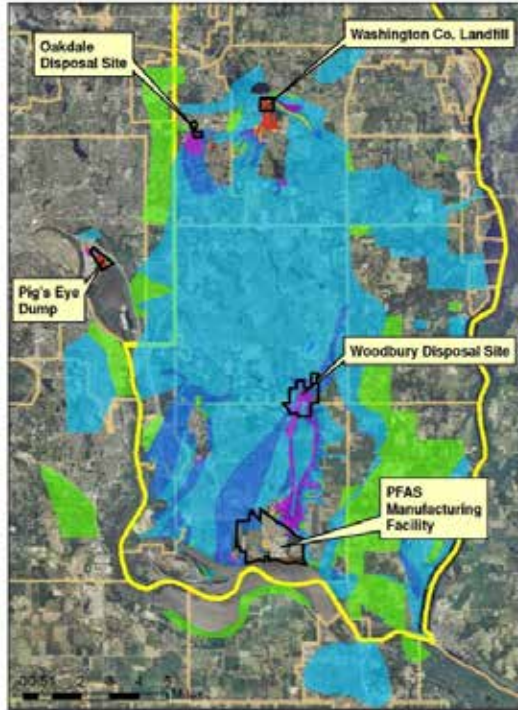
## 3. Conceptual Drinking Water Supply Plan

- ü Overview of the Process

## 4. Path forward



# History and Background- Overview



**Location of Legacy PFAS Sites in Washington Co., Minnesota**



July 11, 2018

- ü Waste on-site and landfills since 1940s
- ü >150 mi<sup>2</sup> GW/SW contaminated
- ü 4 major aquifers
- ü 14 communities
- ü 8 municipal systems (150,000+)
- ü >2,500 private wells



# History and Background –Criteria

- ü Health Risk Index (HI)
- ü TEQ-like approach
- ü HI > 1 considered an exceedance

	PFOA	PFOS	PFBA	PFBS	PFHxS*
2002	7	1			
2006	1	0.6	1		
2007	0.5	0.3	7		
2009	0.3	0.3	7	7	
2013	0.3	0.3	7	7	0.3
2016	0.07	0.07	7	7	0.07
2017	0.035	0.015	7	3 or 2	0.047

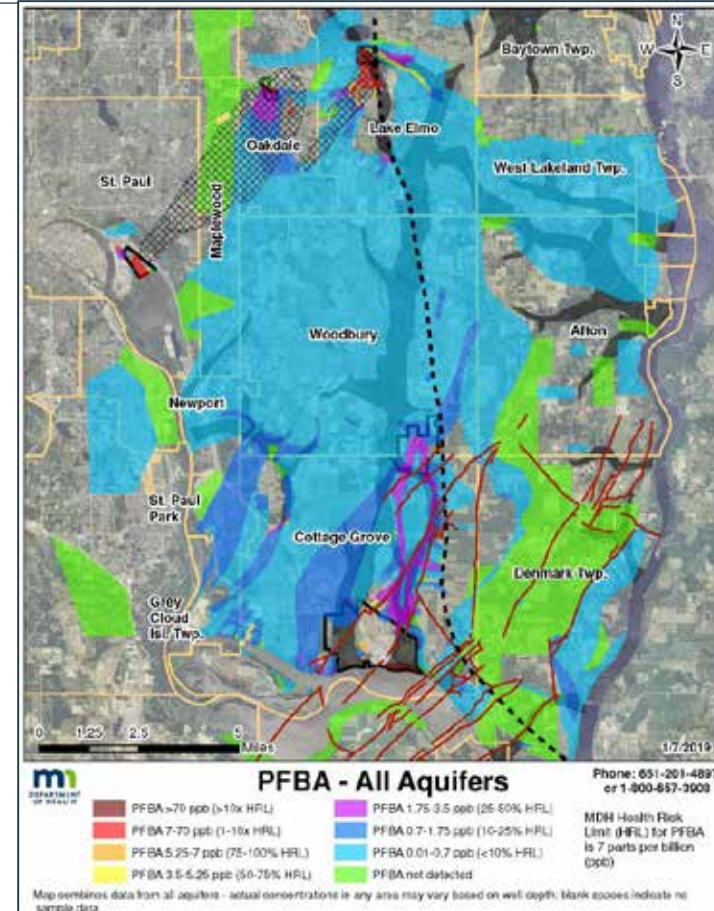
Black = HRL; Red = HBV; Green = Surrogate

$$HI = \frac{PFOA_{[conc]}}{0.035} + \frac{PFOS_{[conc]}}{0.027} + \frac{PFBA_{[conc]}}{7} + \frac{PFBS_{[conc]}}{3} + \frac{PFHxS_{[conc]}}{0.027}$$



# History and Background- Groundwater

- ü Very large plumes
  - ü Co-mingled
  - ü Complex geology
  - ü Complex GW/SW interaction
- 
- ü PFBA most widespread
    - Serves as groundwater tracer



# History and Background – PFAS



PFAS concentrations  
stable or decreasing

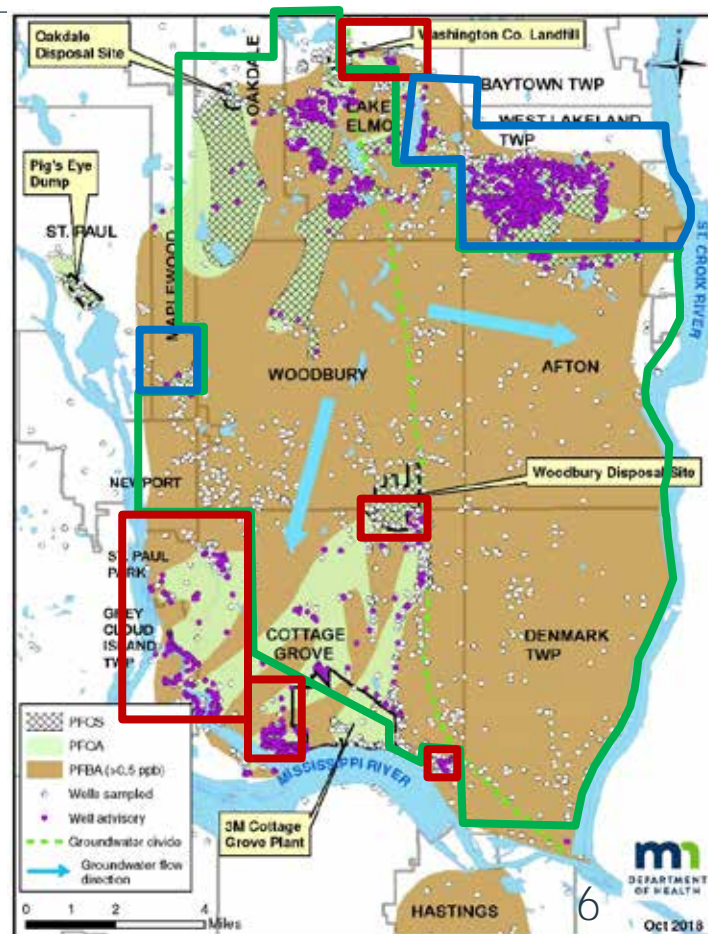


PFAS concentrations  
increasing (or unclear)



PFAS trends  
unknown

Source: Ginny Yingling, MDH [virginia.Yingling@state.mn.us](mailto:virginia.Yingling@state.mn.us)

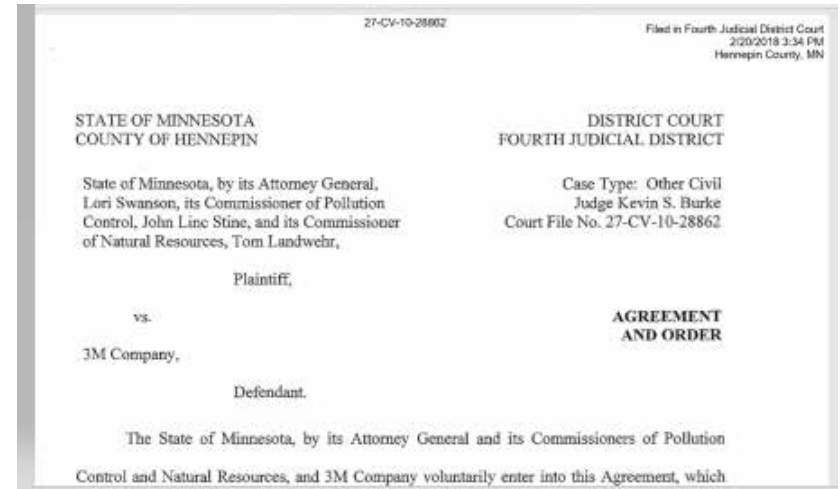


# Settlement and Directives

## ü State of MN vs 3M

- Settlement February 2018
- \$850M
  - \$720M as grant
  - \$20M for restoration
- DNR and MPCA co-trustees
- \$40M from 3M on short-term drinking water needs

## Settlement Agreement and Order



For more information: <https://3msettlement.state.mn.us/>



# Settlement and Directives

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## ü Two top priorities

- Priority One- Ensure Safe Drinking Water
- Priority Two- Enhance Natural Resources
- Remaining funds- If available, for statewide environmental projects



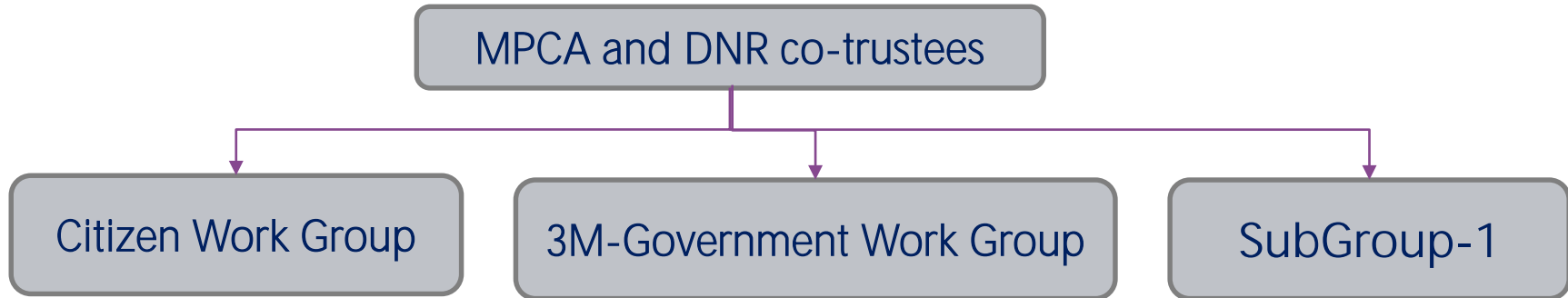


# Settlement and Directives

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## ü Stakeholder and Community Engagement

- Two main work groups
- Work Groups each have 15-20 delegated members
- Technical Sub-group (SG-1)



# Conceptual Drinking Water Supply Plan

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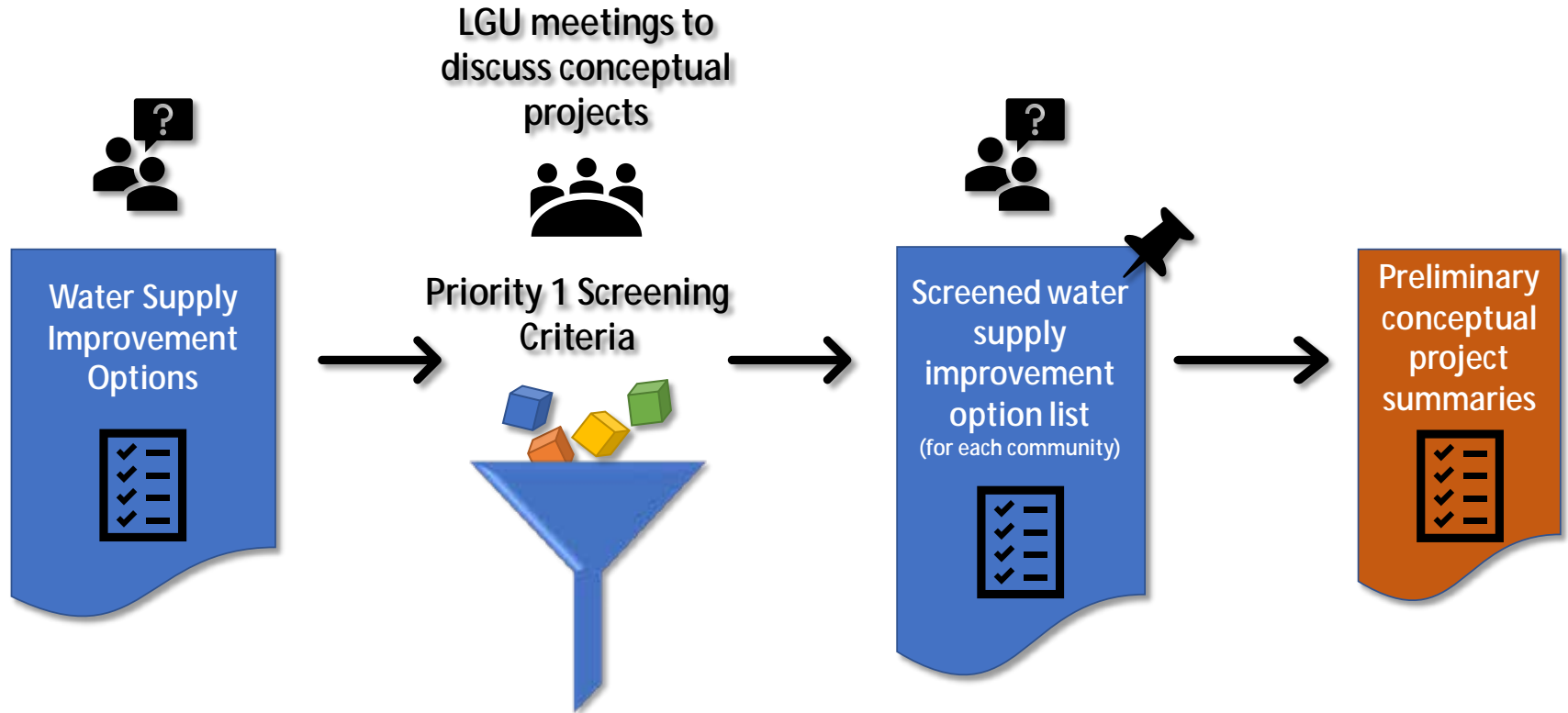
ü CDWSP -mechanism to address Priority One

## Objectives:

- i. Seek the most beneficial solution for entire East Metro area
- ii. Consider both public water systems and private wells
- iii. Consider hydrology, infrastructure and groundwater
- iv. Establish a plan for current and future




# Conceptual Drinking Water Supply Plan



# Conceptual Drinking Water Supply Plan

**wood.**

Preliminary  
conceptual  
project  
summaries



SG-1 meetings to  
discuss conceptual  
projects



DRAFT  
Conceptual  
Project list

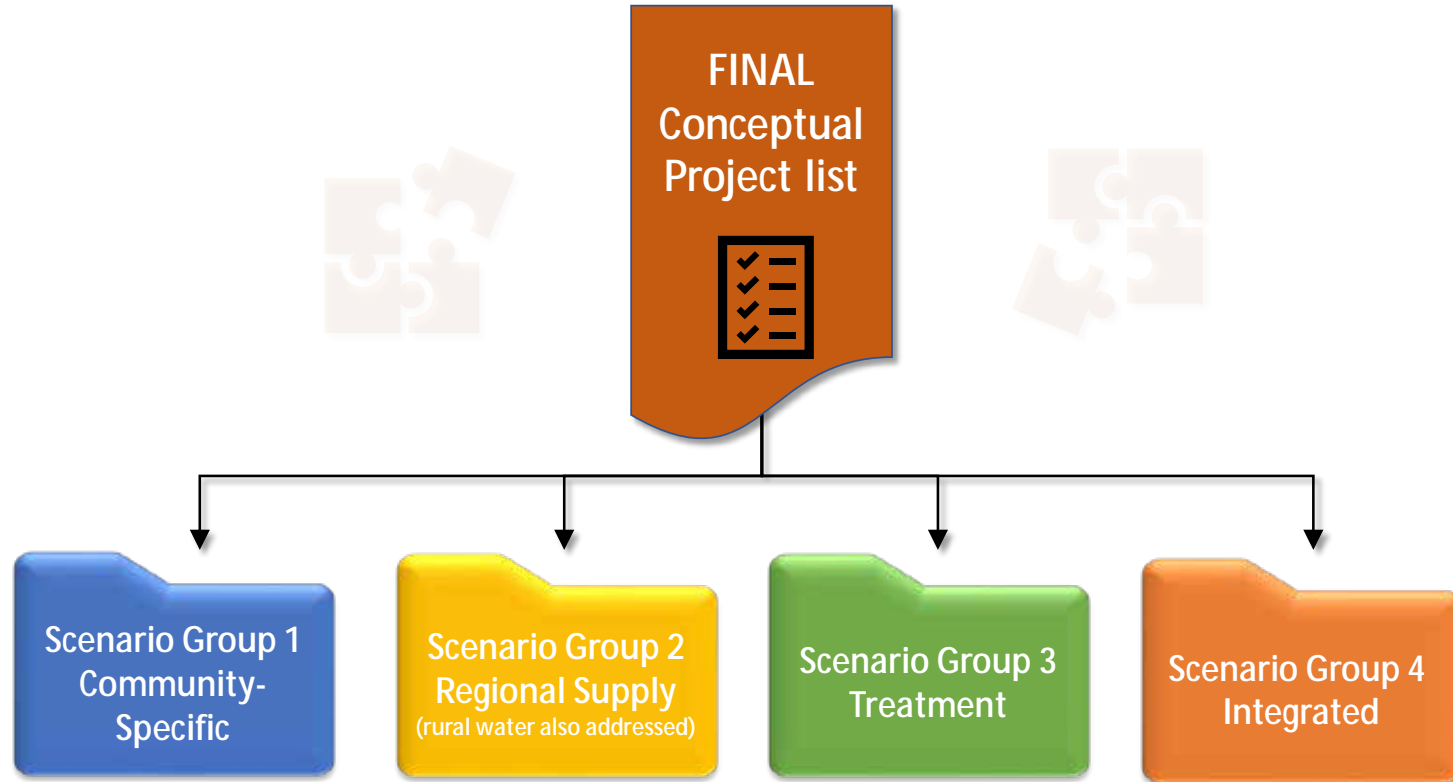


Public  
submit  
online

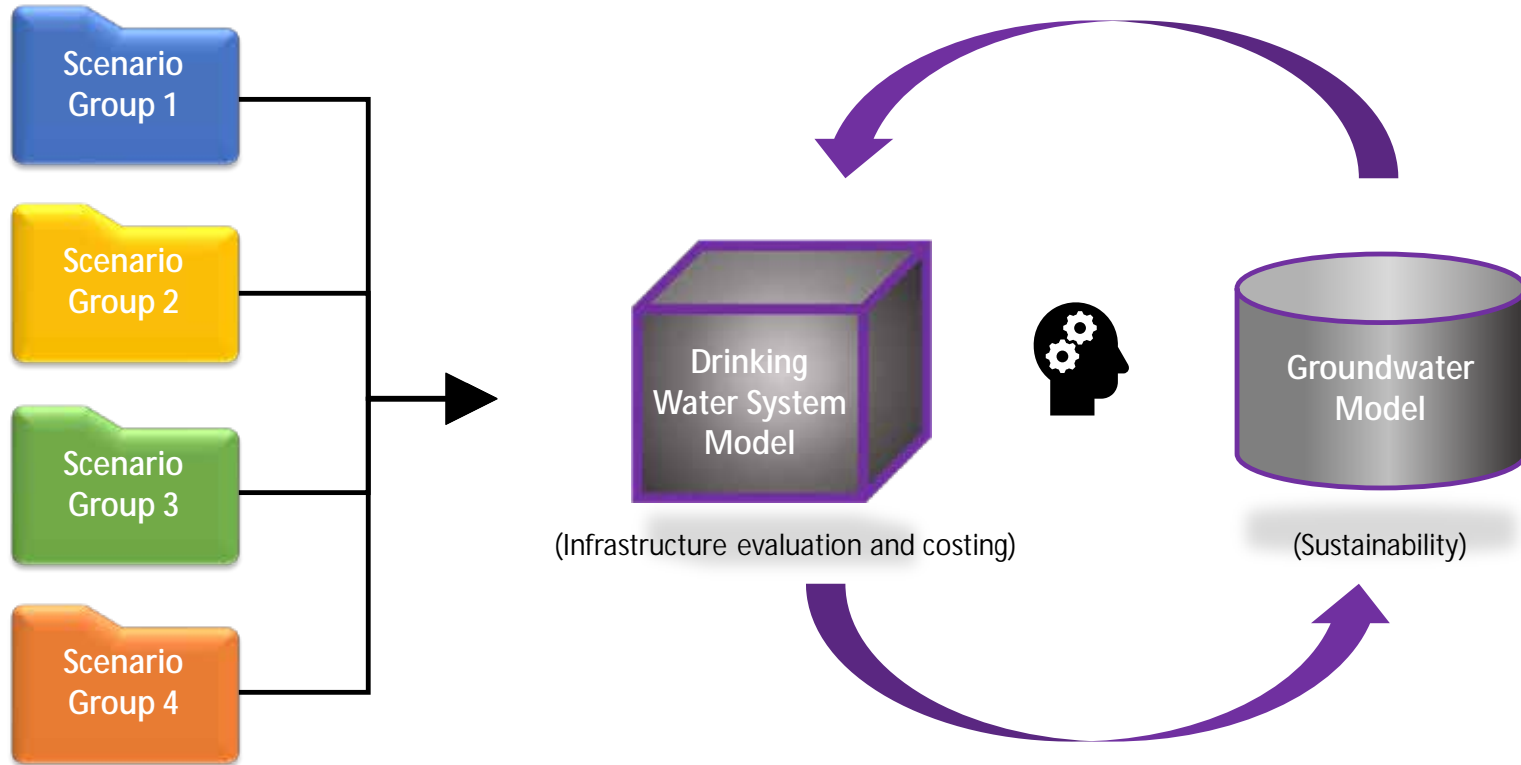


# Conceptual Drinking Water Supply Plan

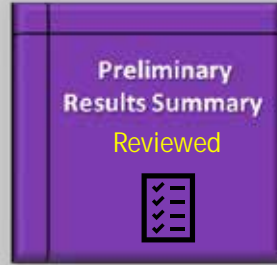
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# Conceptual Drinking Water Supply Plan

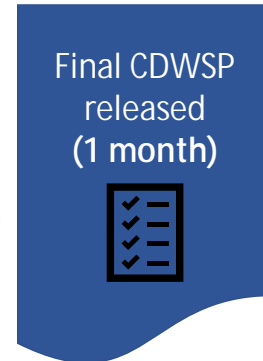
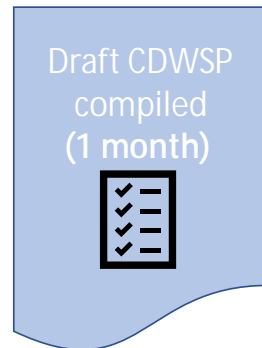


# Conceptual Drinking Water Supply Plan



Co-trustees apply  
Priority 1 Criteria for  
Good/Better/Best  
Scenarios

## Next steps



# Path forward

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## Local Government Units (LGUs)

- decide on pursuing recommended scenarios
- submit work plans
- go through grant process to obtain funding
- complete projects for sustainable drinking water

**For more information: <https://3msettlement.state.mn.us/>**





# Major Take-Away Points

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- Substantial collaboration at every level- it takes time!
- Social and political impact on process
- Certifications and approvals at State level as early as possible
- Contributions and authorities of the departments (MDH, MPCA, DNR)





Questions?

Thank you!

For more information:

Shalene Thomas  
Emerging Contaminant Program  
Manager

[shalene.thomas@woodplc.com](mailto:shalene.thomas@woodplc.com)

612-490-7606

woodplc.com

Michele Mabry  
State Program Administrative  
Coordinator, MPCA

[michele.mabry@state.mn.us](mailto:michele.mabry@state.mn.us)

651-757-2155

