

# Information Item: Wastewater Reuse Update

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Environment Committee: February 9, 2016



# System Plan Update

- Wastewater System Plan: Wastewater reuse in Northeast Metro Area
- Alternative Concept: Augmentation of White Bear Lake with reclaimed water

# White Bear Lake Augmentation

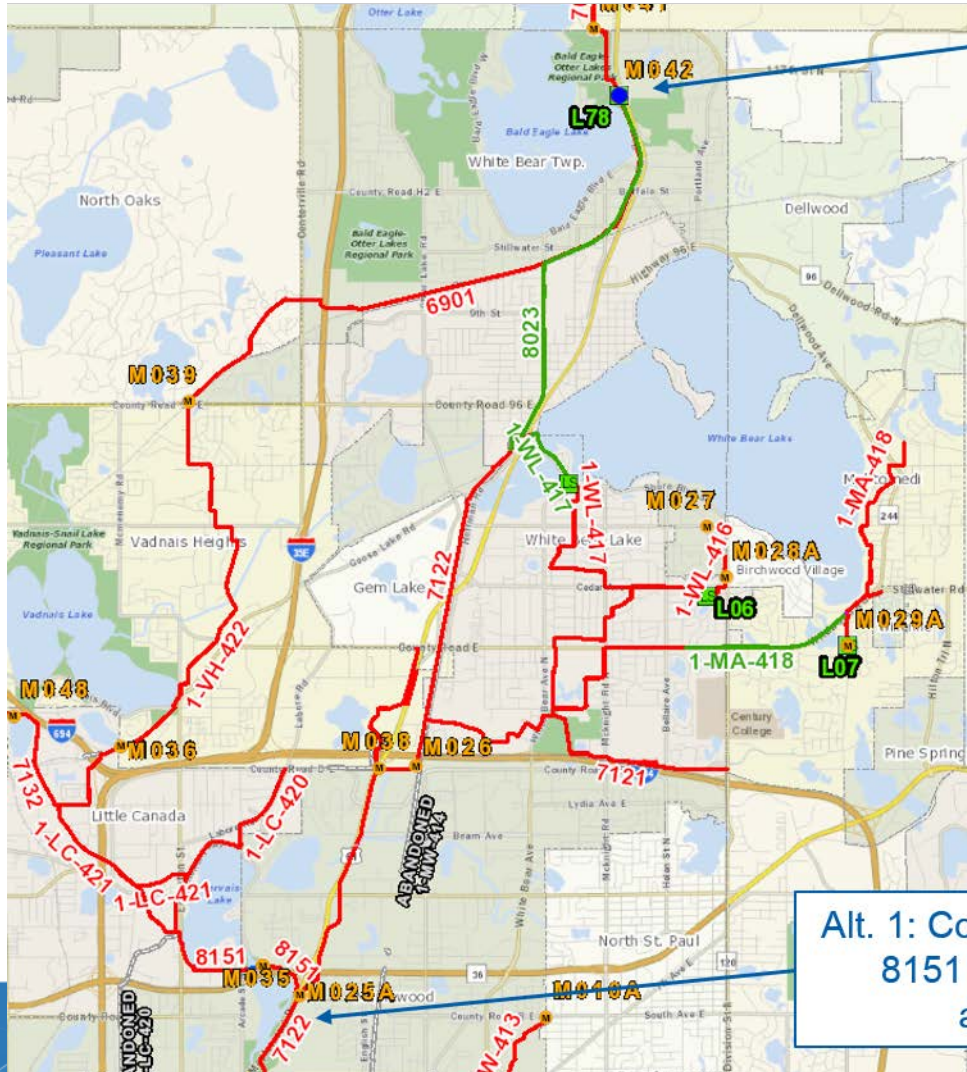
- Augmentation with surface water:
  - DNR study funded by Legislature
  - Report released January 29, 2016
- Augmentation with reclaimed water:
  - MCES study as potential concept

# Augmentation with Reclaimed Water – Overall Assumptions

- Water quantity:
  - 2 billion gallons per year (BGY) assumed, as per DNR study
- Water quality:
  - Maintain & protect existing White Bear Lake uses
  - Prevent degradation of WBL's existing high water quality
  - Match known water quality

# Water Quantity

Alt. 2: Collect  
2.6 MGD of  
WW near L78;  
yr-round  
augmentation

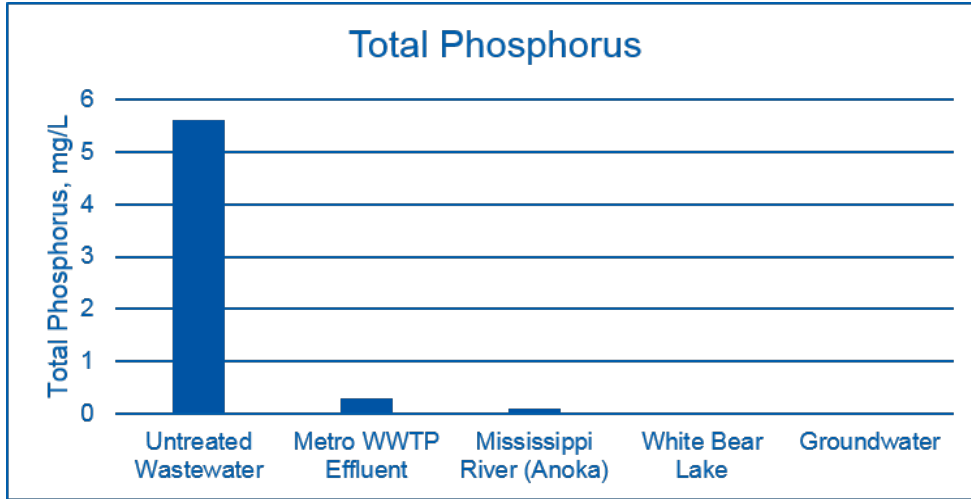


Alt. 1: Collect 10 MGD at junc.  
8151 & 7122; seasonal  
augmentation

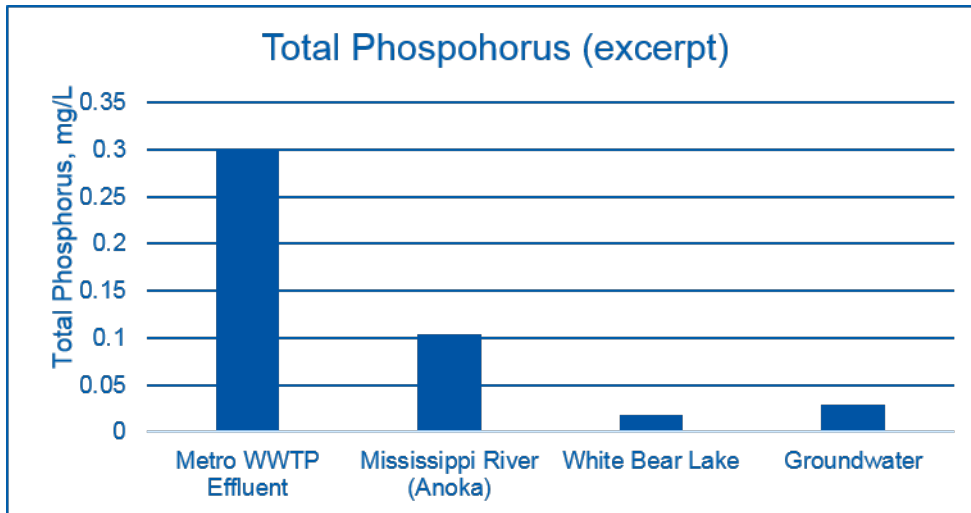
# Water Quality

- Based on available data, phosphorus and chlorides drive treatment costs
- MPCA looks at both to evaluate impaired water status
- Phosphorus: too much leads to algae growth, low dissolved oxygen, and eutrophication
- Chlorides: impacts lake mixing and aquatic life

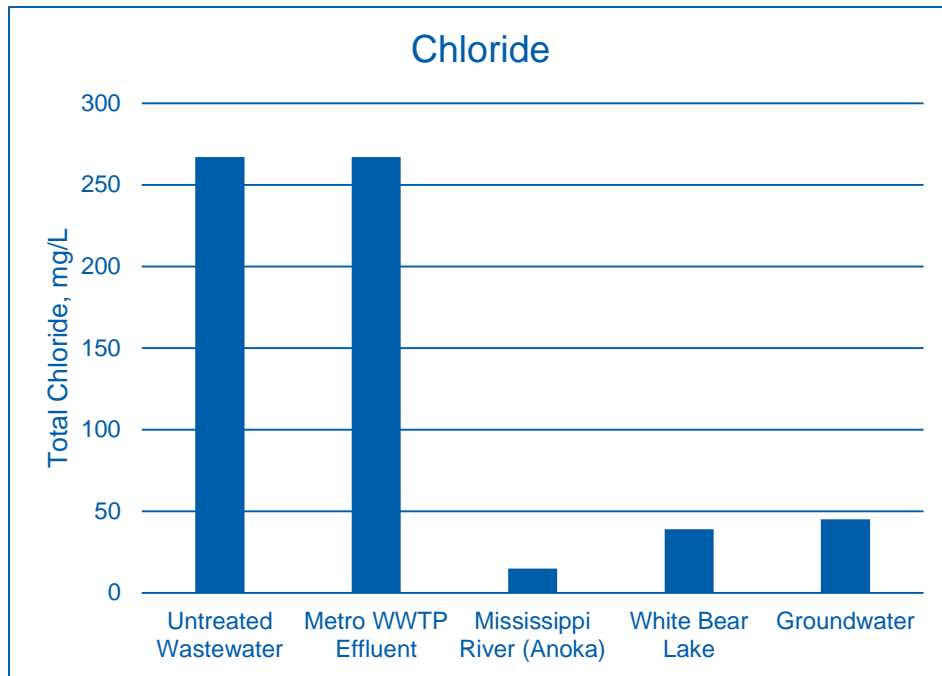
# Water Quality - Phosphorus



- 99.7% reduction in untreated wastewater TP required to match WBL TP concentration
- In addition to existing level of treatment MCES normally provides, would need to add membrane filtration process



# Water Quality - Chloride

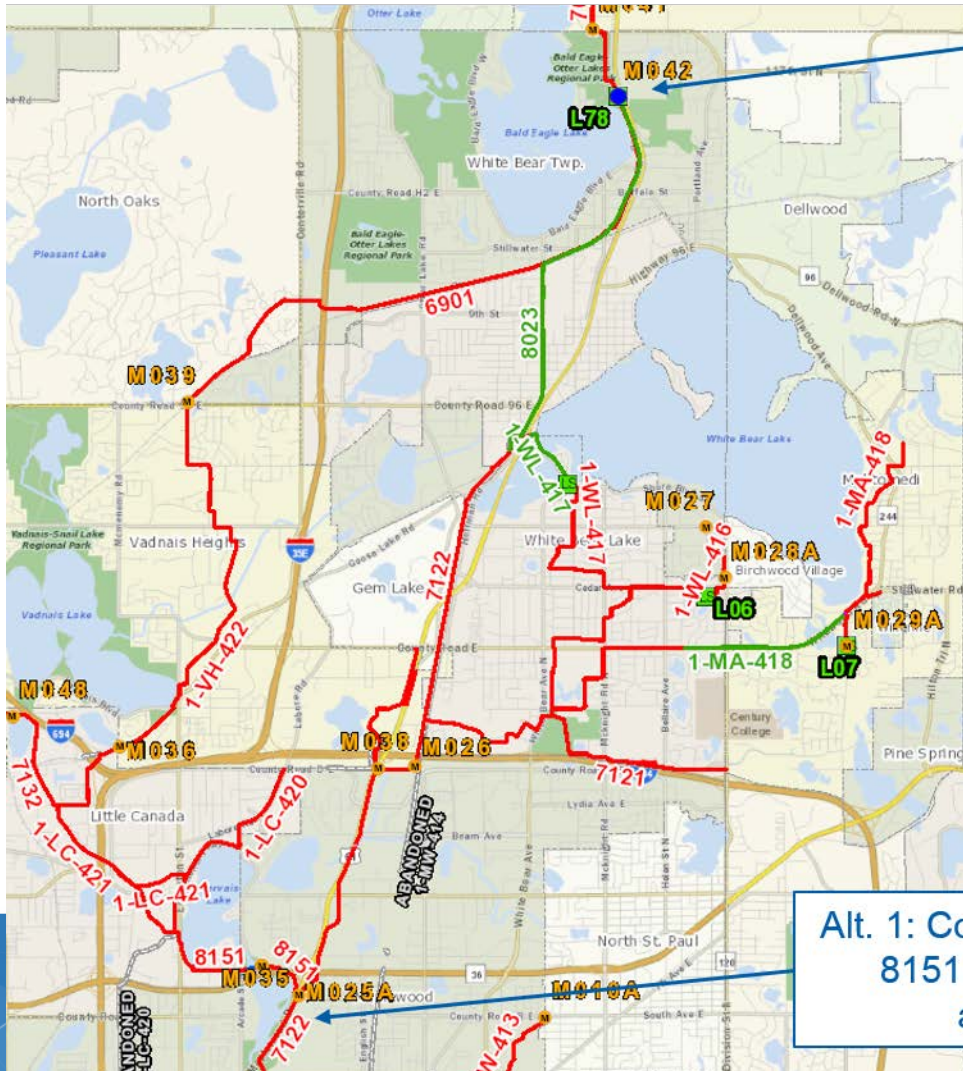


- 85% reduction in untreated wastewater chloride required to match WBL chloride concentration
- Reverse osmosis process needed
  - Approx. 20% concentrate to be disposed of; assumed piped back to interceptor system



# Augmentation with Reclaimed Water

Alt. 2: Collect 2.6 MGD of WW near L78; yr-round augmentation



Alt. 1: Collect 10 MGD at junc. 8151 & 7122; seasonal augmentation

# Augmentation with Reclaimed Water – Conceptual Cost

Alternative	Capital Cost, M	Annual O&M Cost, M
Alternative 1 – 8.3 MGD Seasonal Augmentation (10 MGD Water Reclamation Facility)	\$305	\$15
Alternative 2 – 2.0 MGD Year-Round Augmentation (2.6 MGD Water Reclamation Facility)	\$135	\$5

# Next Steps

- Hugo Water Summit
- Further development of wastewater reuse concepts

# Questions