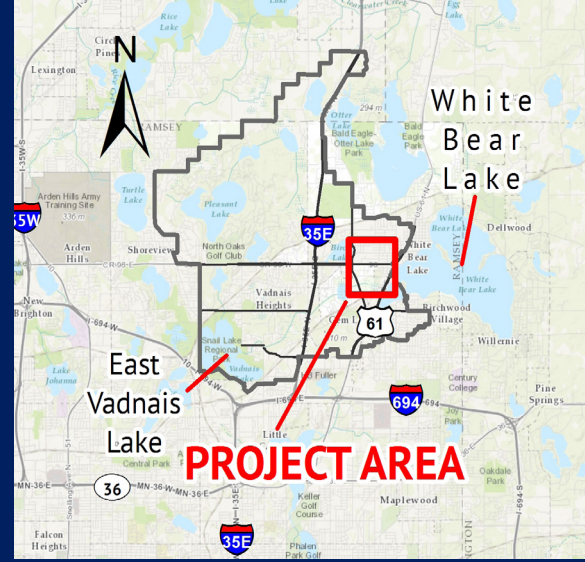


# WHITAKER WETLANDS:

## Pilot Bacteria Treatment System for Urban Impaired Waters



## BACKGROUND

Over 500 water bodies in Minnesota are impaired due to high levels of fecal coliform bacteria.

This project focuses on an urban creek and its subwatershed that drains into Vadnais Lake, the drinking water reservoir for the St. Paul Regional Water Service (SPRWS) for over 400,000 consumers. The Vadnais Lake Area Water Management Organization (VLAWMO) has a strong partnership with SPRWS as well as local municipalities.

The 'Surface Water Bacteria Treatment System Pilot Project-088-B' (Whitaker Wetlands) proposes a simple but innovative approach to reducing bacteria levels in both urban and rural settings.

## PROJECT GOALS AND DELIVERABLES

This research and capital project builds on an existing watershed-implemented bacteria source monitoring program analyzing bacteria DNA for effective treatment targeting. Bacteria monitoring started in 2007 on Lambert Creek. DNA source monitoring of bacteria is in its second year.

Deliverables include:

- A reduction in bacteria and nutrient levels in a much enriched urban stormwater system.
- An innovative project including a replicable design, construction costs, and monitoring to document effectiveness.
- Distribution of the design, effectiveness and monitoring via 3 technical conferences and 3 webinars targeting entities in MN who are affected by bacteria impairments.
- Potential efficiencies for post-reservoir drinking water treatment.
- Local wetland habitat improvement in an active use park along with educational materials on-site and online.

## FOR MORE INFORMATION

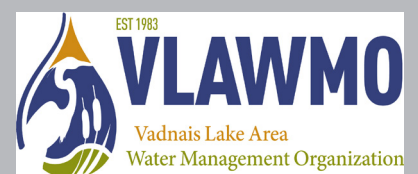
### VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION:

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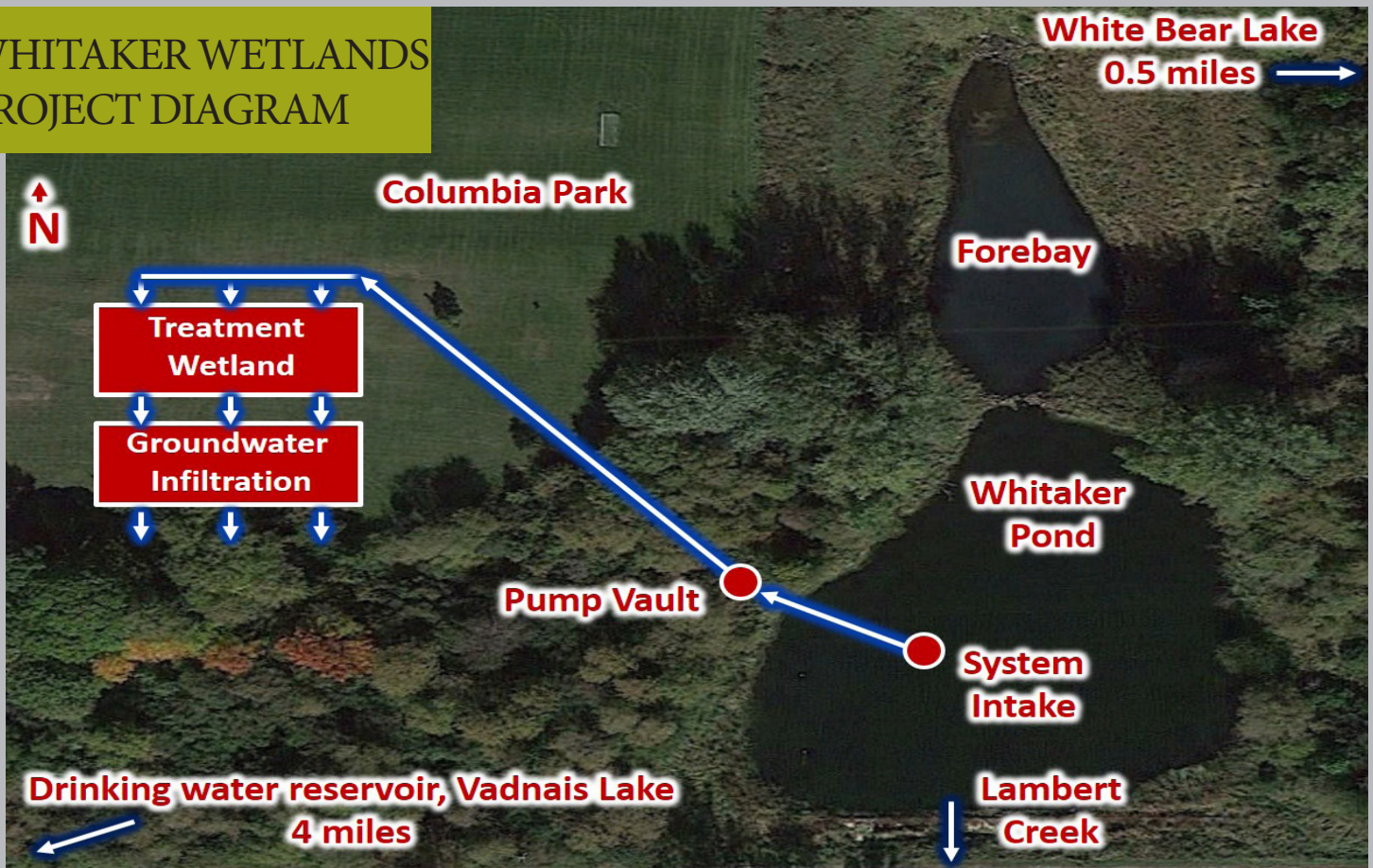
Brian Corcoran - Project Manager  
p: 651-204-6075  
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### LOCAL MUNICIPAL PARTNERS:

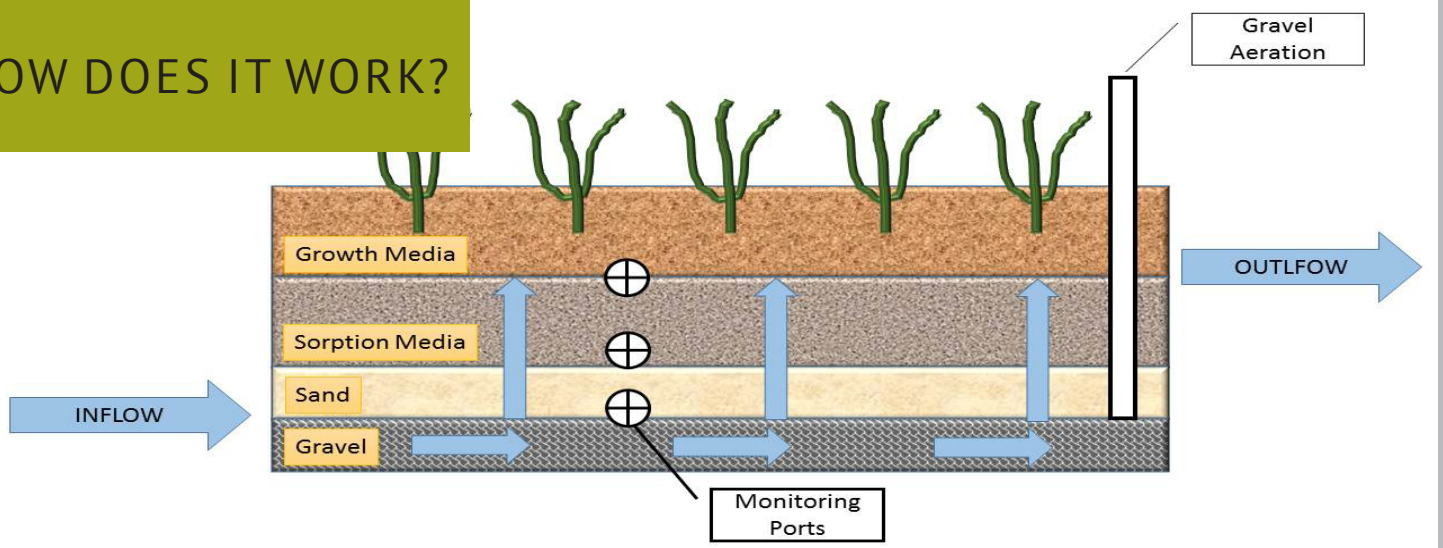
White Bear Lake  
White Bear Township



# WHITAKER WETLANDS PROJECT DIAGRAM



## HOW DOES IT WORK?



Using a solar pump, water would be conveyed from Whitaker pond which frequently exceeds State standards for bacteria to 3 different experimental wetland cells for treatment. Nutrient and bacteria laden water would enter the lined bottom of the subsurface constructed wetland (SSWC), filling gravel and sand layers and then entering a layer of sorptive materials that have been shown to reduce bacteria. A top layer of planting medium and deep rooted native plants would help draw the water through the system. Yes, water is designed to move upward in the wetland as it is processed. Different combinations of sorptive materials as well as targeted wetland plant species in the three wetland cells will be monitored for effectiveness in removing bacteria and nutrients, both entering & leaving the treatment cells. A report on the results will be made available for peer scientific review, to State and local agencies and municipalities.