



Board of Managers Meeting Agenda

Wednesday - November 13th, 2024 - 3:00 p.m.

Veterans Memorial Community Center - Community Room 1
8055 Barbara Ave, Inver Grove Heights, MN 55077

1. Call Meeting to Order
 - 1.1 Identification of Voting Board Members
 - 1.2 Approval of Agenda* (Additions/Corrections/Deletions) Action
 - 1.3 Opportunity for Public Comment (Limited to 2 minutes per person)
2. Approve October 9th, 2024 Meeting Minutes - Chair* Action
3. Approve November 13th, 2024 Financial Summary & Invoice Payment - Treasurer* Action
4. Presentation on Draft Mississippi River Direct Drainage Study - WSB** Information
5. Presentation on Lake Augusta Water Quality Improvement and Outlet Feasibility Study and FAQs - Barr Engineering* ** Information
6. Updates & Handouts
 - 6.1: Seidls Lake Shoreline Restoration - SWCD Information
 - 6.2: Interstate Valley Creek Stabilization and Stormwater BMPs - SWCD* Information
 - 6.3: Member City Updates Information
7. Next Meeting: December 11, 2024 - Wellstone Center, Saint Paul – Room 212
8. Adjourn

* Materials included in full packet

** Materials available separately on website

<https://LMRWMO.org/about-us/meeting-information/>



Board of Managers Meeting Minutes

Wednesday - October 9th, 2024 - 3:00 p.m.
Veterans Memorial Community Center, Inver Grove Heights

Managers and Alternates in Attendance:

Sharon Lencowski (Chair), Inver Grove Heights
Analiese Miller, West St. Paul
Dawn Gaetke, Inver Grove Heights
Mary Kleinberg, Lilydale

Karen Reid (Vice-Chair), Saint Paul
Leslie Pilgrim, Mendota Heights
Brian Jastram, Saint Paul
Dan Halvorsen, Sunfish Lake

Advisors and Others in Attendance:

Krista Spreiter, Mendota Heights
Nick Guilliams, South St. Paul
Chris English, Inver Grove Heights
Victoria Ranua, Dakota County SWCD

Pat Murphy, Saint Paul
Paul Merchlewicz, Inver Grove Heights
Greg Williams, Barr Engineering
Joe Barten, Dakota County SWCD

1. Call Meeting to Order

1.1 Public Comment / Introductions

Audience members may address the Board regarding items not on the agenda.

1.2 Approval of Agenda* (Additions/Corrections/Deletions)

Barten recommended that the discussion on the Lake Augusta feasibility study, agenda item #4, be tabled until the next Board meeting.

Motion by Halvorsen to approve the agenda with item number 4 removed and tabled for the next meeting, second by Miller; motion passed.

2. Approve August 14th, 2024 Meeting Minutes

Motion by Pilgrim to approve the previous meeting minutes, second by Kleinberg; motion passed.

3. Approve October 9th, 2024 Financial Summary & Invoices

Spreiter provided a summary of the finances.

Motion by Reid to approve the financial summary, second by Pilgrim; motion passed.

4. Review Draft 2025 Dakota County SWCD Work Plan and Services

Barten summarized the information included in the packet, noting that there was an increase in the SWCD hourly rate of \$5/hour and that the agreement includes \$10,000 in matching funds for staff time towards the Interstate Valley Creek stabilization project and grant. Otherwise, the work plan is similar to past years.

Motion by Halvorsen to approve the 2025 SWCD work plan and authorize the Board Chair to execute an agreement for services with the Dakota County SWCD, second by Pilgrim; motion passed.

5. Updates & Handouts

Grant Tracking: Williams provided an update on upcoming grants.

Groundwater Conservation & LCW Marketing Campaign: Barten provided an update on the marketing campaign and video shoots for this outreach effort funded in part by the LMRWMO. Pilgrim requested that Board members receive information to share via social media to help inform the public about WMO programs. Barten noted that they will include that in the outreach package for 2025.

Project Updates: Barten provided an update on the Seidls Lake project, Direct Drainage Study project, and discussions surrounding Lake Augusta. Pilgrim asked about the opportunity for the Board to review the study. Barten noted that the project scope included staff review of the draft study but not Board review. Pilgrim requested that future studies and/or scopes of work include Board review prior to final draft creation.

Member City Updates: City Advisors and Members provided updates on relevant projects in their cities.

6. Adjournment and Next Meeting

The meeting was adjourned at 3:55 with the next Board meeting scheduled for November 13th, 2024 at the Veterans Memorial Community Center.



FINANCIAL SUMMARY
October 10, 2024 to November 13, 2024

Beginning Balance - Gateway Bank Checking Account: **\$15,668.11**

Deposit *Transfer* *From Savings to Checking* + **\$40,000.00**

Payments

5016	11/13/2024	Dakota County Soil & Water	-	\$19,116.30
5017	11/13/2024	Barr Engineering	-	\$1,440.00
5018	11/13/2024	wsb	-	\$14,572.25
5019	11/13/2024	Ramsey County	-	\$160.00

Checking Ending Balance **\$20,379.56**

Beginning Balance - Gateway Bank Savings Account: **\$186,712.32**

<i>Dep</i>	10/31/2024	October 2024 Interest	+	\$436.09
<i>Transfer</i>	11/7/2024	Transfer to Checking Account	-	\$40,000.00

Savings Ending Balance **\$147,148.41**

Available Balance at Gateway Bank **\$167,527.97**

LMRWMO 2024 Budget & Financial Summary													
		2023 Carryover			2024 Monthly Revenue								
Revenue	Budget	Dec 14, 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	2024 Total	Variance	Percent Received
Dues from Members	\$133,676.00		\$42,950.84	\$90,723.74							\$133,674.58	\$1.42	100%
Interest	\$2,000.00	\$364.62	\$1.02	\$365.97	\$189.01	\$186.60	\$192.36	\$1,000.16	\$969.03	\$436.09	\$3,704.86	(\$1,704.86)	185%
LMCIT Rebate	\$250.00										\$0.00	\$250.00	0%
Grant Revenue	\$117,200.00		\$30,000.00				\$70,192.78				\$100,192.78	\$17,007.22	85%
Subtotal Operating Revenue	\$135,926.00	\$364.62	\$72,951.86	\$91,089.71	\$189.01	\$186.60	\$70,385.14	\$1,000.16	\$969.03	\$436.09	\$237,572.22		
		2023 Carryover			2024 Monthly Expenses								
Expenses	Budget	Dec 14, 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	2024 Total	Remaining Budget	Percent Expended
Engineering/Technical Assistance													
Technical Assistance	\$6,000.00	\$479.50		\$4,046.50			\$1,323.00	\$1,408.00	\$2,516.00	\$1,440.00	\$10,733.50	(\$4,733.50)	179%
Meetings	\$6,500.00	\$1,155.00		\$1,671.43			\$1,632.00	\$655.00	\$595.00		\$4,553.43	\$1,946.57	70%
Plan Implementation/Grant Applications	\$6,000.00					\$1,330.00		\$617.50		\$1,805.00	\$3,752.50	\$2,247.50	63%
Watershed Plan Amendment	\$0.00	\$1,369.50									\$0.00	\$0.00	
Project Study/Implementation													
Miss. River Direct Drainage - FY-21 WBIF Match	\$9,300.00									\$3,095.25	\$3,095.25	\$6,204.75	33%
Interstate Valley Creek Stabilization FY-24 CWF Match	\$10,000.00										\$0.00	\$10,000.00	0%
Priority Watershed Modeling - \$100,000 (FY-23 WBIF Match)	\$12,000.00										\$0.00	\$12,000.00	0%
Seidls Lake Improvements - \$356,000 (FY-22 CPL % Match)	\$2,500.00										\$0.00	\$2,500.00	0%
Landscaping for Clean Water Projects	\$13,600.00	\$750.00								\$6,110.00	\$6,110.00	\$7,490.00	45%
Monitoring													
Lake and Stream Water Monitoring (CAMP) and Reports	\$13,760.00	\$3,103.97				\$4,240.94		\$4,756.63		\$3,086.73	\$12,084.30	\$1,675.70	88%
Education													
WMO Biannual E-Newsletter	\$3,800.00					\$1,615.00		\$475.00			\$2,090.00	\$1,710.00	55%
Landscaping for Clean Water Classes (Intro, Design, Maint. Shore)	\$9,500.00							\$9,500.00			\$9,500.00	\$0.00	100%
MN Water Stewards Support	\$4,000.00	\$225.00				\$285.00		\$427.50		\$712.50	\$3,287.50	\$712.50	18%
Storm Drain Stenciling Program	\$3,000.00	\$180.00				\$190.00		\$2,434.96		\$291.07	\$2,916.03	\$83.97	97%
Engage Residents at Public Events / WMO Tabling Materials	\$500.00							\$570.00			\$570.00	(\$70.00)	114%
General Education Requests	\$1,000.00	\$1,170.00				\$807.50					\$807.50	\$192.50	81%
Metro Watershed Partners Membership	\$1,000.00		\$1,000.00	\$231.00							\$1,231.00	(\$231.00)	123%
Website Maintenance and Updates	\$2,900.00					\$2,277.50		\$142.50		\$665.00	\$3,085.00	(\$185.00)	106%
Board Education	\$200.00	\$360.00									\$0.00	\$200.00	0%
Adopt A Drain Welcome Kits ²	\$1,500.00										\$0.00	\$1,500.00	0%
Administration													
General Administration	\$32,000.00	\$7,925.00				\$10,595.00		\$6,700.00		\$4,467.50	\$21,762.50	\$10,237.50	68%
Hold Annual TAC Meeting	\$1,000.00										\$0.00	\$1,000.00	0%
Insurance	\$2,500.00							\$2,772.00			\$2,772.00	(\$272.00)	111%
Attorney and Audit	\$5,500.00	\$34.00				\$897.72	\$136.00	\$4,300.00			\$5,333.72	\$166.28	97%
Subtotal Operating Expenses	\$148,060.00	\$16,751.97	\$1,000.00	\$5,948.93	\$897.72	\$21,476.94	\$7,255.00	\$30,459.09	\$3,111.00	\$20,960.55	\$91,109.23	\$56,950.77	62%
Grant Expenses	\$175,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12,442.50	\$61,741.53	\$27,487.00	\$30,989.25	\$14,328.00	\$146,988.28	\$28,011.72	84%
Overall Fund Balance	\$168,417.88	\$240,369.74	\$325,510.52	\$324,801.81	\$291,068.97	\$292,457.58	\$235,511.65	\$202,380.43	\$167,527.97				
Total Grant Balance³	\$38,158.59	\$68,158.59	\$86,652.50	\$86,652.50	\$74,210.00	\$82,661.25	\$55,174.25	\$51,672.00	\$40,846.25				
Operating Fund Balance	\$130,259.29	\$172,211.15	\$238,858.02	\$238,149.31	\$216,858.97	\$209,796.33	\$180,337.40	\$150,708.43	\$126,681.72				
Unencumbered Operating Fund Balance¹	\$115,259.29	\$152,211.15	\$218,858.02	\$218,149.31	\$196,858.97	\$189,796.33	\$160,337.40	\$130,708.43	\$106,681.72				

2024 Budget Notes:

- \$20,000 set aside for 2033 Watershed Plan Update, \$5,000 additional annually encumbered.
 - \$1,500 Added to Budget at 1-8-23 Meeting, carryover from 2023
 - Overage from FY-19 WBIF grant of \$18,493.91 (\$13,000 additional water monitoring Lake Augusta, \$5,493.91 in staff time) officially shown as absorbed into WMO general fund, to zero out/close out grant, on March 13, 2024.
- General: Budget is an estimate and will vary depending on changing priorities and grant project progress.

Balances Explained:

Overall Fund Balance	Balance of all bank accounts
Total Grant Balance	Grant funds in-hand
Operating Fund Balance	WMO funds without grants
Unencumbered Operating Fund Balance	WMO funds not already dedicated

LMRWMO 2024 Grant Budget & Financial Summary															
	Budget	Aggregate Prior to Jan 12, 2022	Jan 13, 2022 - Jan 11, 2023	Jan 12 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Total	Variance	Percent Received/ Expended
BWSR - FY 2021 Watershed Based Implementation Funding (Miss. River Direct Drainage Study)															
Revenue															
BWSR FY-2021 WBIF Payment	\$93,042.00	\$46,521.00											\$46,521.00	\$46,521.00	50%
WBIF Matching Funds	\$9,304.00												\$0.00	\$9,304.00	0%
Total Revenue	\$102,346.00	\$46,521.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46,521.00	\$55,825.00	45%
Expenses															
Grant Administration	\$10,042.00			\$156.00				\$3,248.50		\$176.00			\$3,580.50	\$6,461.50	36%
Erosion & Direct Drainage Study	\$71,000.00								\$6,666.75	\$21,867.00	\$30,989.25	\$11,477.00	\$71,000.00	\$0.00	100%
Erosion & Direct Drainage Study Match (WMO)	\$9,304.00												\$0.00	\$9,304.00	0%
Project Development	\$12,000.00			\$2,733.50				\$4,539.00		\$528.00		\$957.00	\$8,757.50	\$3,242.50	73%
Total Expenses	\$102,346.00	\$0.00	\$0.00	\$2,889.50	\$0.00	\$0.00	\$0.00	\$7,787.50	\$6,666.75	\$22,571.00	\$30,989.25	\$12,434.00	\$83,338.00	\$19,008.00	81%
FY-21 WBIF Balance		\$46,521.00	\$46,521.00	\$43,631.50	\$43,631.50	\$43,631.50	\$43,631.50	\$35,844.00	\$29,177.25	\$6,606.25	-\$24,383.00	-\$36,817.00	-\$36,817.00		
BWSR - FY 2023 Watershed Based Implementation Funding (Priority Watershed Project ID & Model - Thompson, Rogers, Seidls)															
Revenue															
BWSR FY-2021 WBIF Payment	\$118,385.00			\$59,193.00									\$59,193.00	\$59,192.00	50%
WBIF Matching Funds	\$12,000.00												\$0.00	\$12,000.00	0%
Total Revenue	\$130,385.00	\$0.00	\$0.00	\$59,193.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$59,193.00	\$71,192.00	45%
Expenses															
Grant Administration	\$8,000.00							\$769.50					\$769.50	\$7,230.50	10%
Priority Watershed Project ID & Model	\$100,385.00												\$0.00	\$100,385.00	0%
Priority Watershed Project ID & Model Match (WMO)	\$10,000.00												\$0.00	\$10,000.00	0%
Project Development	\$12,000.00							\$534.00					\$534.00	\$11,466.00	4%
Total Expenses	\$130,385.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,303.50	\$0.00	\$0.00	\$0.00	\$0.00	\$1,303.50	\$129,081.50	1%
FY-21 WBIF Balance		\$0.00	\$0.00	\$59,193.00	\$59,193.00	\$59,193.00	\$59,193.00	\$57,889.50	\$57,889.50	\$57,889.50	\$57,889.50	\$57,889.50	\$57,889.50		
MN DNR - Conservation Partners Legacy Grant (Seidls Lake Shoreline Restoration)															
Revenue															
Grant Reimbursement Payments	\$382,000.00								\$70,192.78				\$70,192.78	\$311,807.22	18%
Matching funds	\$75,000.00												\$0.00	\$75,000.00	0%
Total Revenue	\$457,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$70,192.78	\$0.00	\$0.00	\$0.00	\$70,192.78	\$386,807.22	15%
Expenses															
Grant Administration/Project Mgmt	\$26,000.00			\$15,118.00				\$3,351.50		\$926.00		\$1,894.00	\$21,289.50	\$4,710.50	82%
Construction	\$356,000.00								\$23,496.03	\$3,990.00			\$27,486.03	\$328,513.97	8%
Engineering - Construction Docs	\$37,500.00								\$31,578.75				\$31,578.75	\$5,921.25	84%
Engineering - Const. Mgmt, Permits, Bids	\$37,500.00														
Total Expenses	\$457,000.00	\$0.00	\$0.00	\$15,118.00	\$0.00	\$0.00	\$0.00	\$3,351.50	\$55,074.78	\$4,916.00	\$0.00	\$1,894.00	\$80,354.28	\$339,145.72	18%
Seidls Lake Shoreline Balance		\$0.00	\$0.00	-\$15,118.00	-\$15,118.00	-\$15,118.00	-\$15,118.00	-\$18,469.50	-\$3,351.50	-\$8,267.50	-\$8,267.50	-\$10,161.50	-\$10,161.50		
	Budget	Aggregate Prior to Jan 12, 2022	Jan 13, 2022 - Jan 11, 2023	Jan 12 2023 - Jan 10 2024	Jan 11 - Feb 14 2024	Feb 15 - Mar 13 2024	Mar 14 - April 10 2024	April 11 - May 8 2024	May 9 - July 10 2024	July 11 - Aug 14 2024	Aug 15 - Oct 9 2024	Oct 10 - Nov 13 2024	Total	Variance	Percent Received/ Expended
TOTAL GRANT FUNDS RECEIVED	\$763,656.00	\$118,856.00	\$0.00	\$156,528.00	\$30,000.00	\$18,493.91	\$0.00	\$0.00	\$70,192.78	\$0.00	\$0.00	\$0.00	\$394,070.69	\$428,778.31	52%
PASS THROUGH MATCH RECEIVED	\$130,000.00	\$0.00	\$0.00	\$25,000.00	\$30,000.00	\$18,493.91	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$73,493.91	\$70,450.09	57%
LMRWMO MATCH PROVIDED	\$13,944.00	\$0.00	\$3,040.00	\$546.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,586.00	\$428,778.31	26%
GRANT EXPENSES (MINUS WMO MATCH)	\$762,712.00	\$5,985.63	\$158,488.68	\$72,751.10	\$0.00	\$0.00	\$0.00	\$12,442.50	\$61,741.53	\$27,487.00	\$30,989.25	\$14,328.00	\$387,799.69	\$374,912.31	51%
PASS THROUGH MATCH EXPENSES	\$130,000.00	\$0.00	\$58,040.00	\$546.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31,578.75	\$0.00	\$0.00	\$0.00	\$90,164.75	\$39,835.25	69%
NET FUND BALANCE (MINUS WMO MATCH)		\$112,870.37	-\$45,618.31	\$38,158.59	\$68,158.59	\$86,652.50	\$86,652.50	\$74,210.00	\$82,661.25	\$55,174.25	\$51,672.00	\$40,846.25	\$9,857.00		



MEMORANDUM

To: LMRWMO Board of Managers
From: Joe Barten, Dakota County SWCD
Subject: Lake Augusta Water Quality Improvement and Outlet Feasibility Study
Date: November 8, 2024

SUMMARY & BACKGROUND

Lake Augusta is located within an urbanized watershed in Mendota Heights, is landlocked with no natural outlet, and has very poor water quality. Water levels have steadily increased over the last 40 years from what the DNR determined as the normal water level in the early 1980's and water quality has continued to decline. A Watershed Restoration and Protection Strategies study was completed on Lake Augusta and four other LMRWMO lakes in 2011. This was a high-level study of the 5 lakes and recommended an alum treatment to improve the water quality of Lake Augusta. In 2017, the LMRWMO and partners implemented an alum treatment. The alum treatment measurably improved total phosphorus levels in the lake but after the impact was not significant enough to improve overall lake water quality given the higher water levels and landlocked nature of the lake.

The LMRWMO determined a feasibility study was needed to identify implementation activities to improve the water quality of Lake Augusta and investigate the effectiveness of a lake outlet in improving water quality. During initial scope creation of the feasibility study, Tom Kovarik, a Lake Augusta resident, informed LMRWMO staff of the potential impact of large populations of double crested cormorants on lake water quality. This population impact appears to have been steadily increasing in the last 20-25 years (based on anecdotal information) and was not considered in the 2011 lake study. Additionally, the high water levels, increasing development, and the potential contributions of sediment and corresponding phosphorus from the shoreline surrounding the lake, was not considered in past studies.

The LMRWMO engaged Barr Engineering to complete the Lake Augusta Water Quality Improvement and Outlet Feasibility Study in 2022, and the attached final study was completed in late 2023. The report includes relevant background information on Lake Augusta water quality, including high water level issues, and large double crested cormorant populations contributing feces and related phosphorus (potentially 40-70% of the total phosphorus load in any given year) to the lake. Also attached is a presentation given by Barr staff on the study outcomes in December 2023.

RESIDENT CONCERNS

Residents of the Augusta Shores and Lemay Shores homeowner associations have provided valuable information on the cormorant populations and impact on water quality of Lake Augusta. Residents were provided the draft Lake Augusta Feasibility study and given the chance to submit comments for Barr Staff and the LMRWMO Administrator to review. These comments informed edits to the report and a reply to all comments was provided. Since the report has been finalized, residents have continued to express concern with the poor water quality of the lake and the interest to take action to improve the lake water quality. Residents have also expressed concern on a number of items in the report since it's finalization. In response to resident questions and concerns, the attached FAQ document was created by Barr staff and the LMRWMO Administrator.

UPCOMING DISCUSSION

Below is a tentative timeline for discussion of Lake Augusta.

November 13th, 2024 LMRWMO Board meeting

- Barr staff will present on the results of the study/report as well as the FAQ document. The intent is to clarify the report recommendations, FAQs, and clarify potential next steps.

December 11th, 2024 LMRWMO Board meeting

- LMRWMO staff will present on cormorant research related to Lake Augusta and Francie Cuthbert (a recently retired UofM professor and cormorant expert) will be present to answer questions.
- The Board may discuss next steps, if any, for Lake Augusta study or implementation

BOARD ACTION REQUESTED

None at this time. Lake Augusta will again be discussed at the December 11th, 2024 LMRWMO Board meeting.

ATTACHED

- Lake Augusta FAQ
- 2023 Lake Augusta Outlet and Water Quality Feasibility Study (posted separately on website)
- Barr Engineering presentation slides on Lake Augusta Study (posted separately on website)

LAKE AUGUSTA FAQs

Supplemental Questions and Answers for the Lake Augusta Water Quality Improvement & Outlet Feasibility Study

Why does Lake Augusta need an outlet? Lake Augusta is a closed-loop system that, given watershed and climate changes, has been accumulating increasingly higher amounts of inflow and associated phosphorus loading. Since Lake Augusta does not have a natural surface water outlet, the higher inflows have led to higher lake levels that have killed riparian vegetation, and the higher phosphorus loading has led to increased recycling of nutrients that cannot be assimilated by the lake, making it more difficult to meet State water quality standards. We do not believe water quality will improve without a lake outlet, although a lake outlet alone may not drastically improve water quality.

What specific benefits will be derived from a pumped outlet for Lake Augusta? The pumped outlet system proposed for Lake Augusta would provide enough flexibility to manage excess inflow and maintain lake levels that will sustain healthy lakeshore vegetation and habitat. A portion of the existing phosphorus budget will be discharged downstream to water bodies that will not be adversely affected by the phosphorus load. The added lake flushing will mitigate nutrient recycling.

Does the feasibility study recommend a specific elevation for the permanent lake level? No, it does not. The feasibility study recommended constructing the outlet structure and pump so that the water level can be drawn down to a lower level to facilitate shoreline tree removal, initially, and then subsequently managed at a higher level if tree removal can be completed. The intake for lake outlet structure may be constructed at a lower elevation to allow for maximum flexibility in managing lake levels and adapting to future conditions. It is unclear how funding for tree removal and shoreline vegetation management could be obtained. The land surrounding the lake is very steep and nearly entirely privately owned. State grant funds for vegetation management are only available for use on publicly owned lands.

Will the pumped outlet affect lake turnover, and exacerbate the impacts of internal phosphorus load? No. Based on the limited data available from early spring and/or late fall, the lake does already (mostly) turnover. Additionally, the feasibility study did not suggest dropping the Lake Augusta depth should affect lake turnover. Since the proposed lake outlet is not expected to change the way that the lake turnover occurs each year, its operation will not exacerbate the impacts of internal phosphorus loading.

What mechanisms were assumed to result in reduced numbers of cormorants in the feasibility study? The feasibility study primarily assumed that removal of dead trees and permanent changes to shoreline vegetation would result in fewer roosting and nesting sites that would ultimately discourage cormorants from residing at the lake, both permanently and seasonally. However, it is possible that the more we learn about the Augusta cormorant population, more extensive efforts aside from only tree removal (such as hazing, harassing, and/or culling) may be required to lower bird populations to a level that could meet the lake water quality goals. It is expected that lowering the lake level and removing the dead trees would increase the distance from feces deposition to the lake that may also provide benefits, but the benefits reported in the feasibility study were based solely on reducing the overall cormorant population on Lake Augusta.

Do the feasibility study assumptions about the amount of nutrients from cormorant feces entering the lake vary based on how the lake level is managed in the future? No, the modeling in the feasibility study assumes that all of the nutrients from cormorant feces will reach the lake. The resulting water quality benefit from reducing the phosphorus load from cormorant feces may be delayed due to remaining elevated nutrient levels in the shoreline soils, but it is expected that some of the nutrients will remain on the shoreline and be taken up by the plants. Additionally, the longer the distance between the feces and the water with a vegetated buffer, and the more robust the vegetation in the vegetated buffer around the lake, create more potential for slowing the feces entering the lake and the opportunity for uptake of nutrients by plants.