



**Title:** East Auburn Wetland Restoration Feasibility Update

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**Purpose:**

Provide an update on the feasibility study, conducted by Moore Engineering and Wetland Solutions, to address phosphorus loading from the East Auburn wetland complex to East Auburn Lake. Staff will also provide an update on next steps, including the ongoing partnership with the city of Victoria, project ordering, design and schedule.

**Background:**

The 2017 Minnehaha Creek Watershed District (MCWD) Watershed Management Plan (WMP) identifies that impairments in East Auburn Lake are driven primarily by external wetland phosphorus export making its way into the lake. The WMP also identifies the wetland systems between Wassermann Lake and East Auburn Lake as a potential restoration opportunity to address nutrient export to East Auburn Lake.

Beginning in 2019, MCWD staff analyzed historical water quality data to determine the extent to which the wetland system between Wassermann Lake and East Auburn Lake exports phosphorus. That analysis revealed that the phosphorus was higher at the outlet of the wetland complex rather than the inlet, exporting an approximate 135 pounds of phosphorus per year to East Auburn Lake. In 2021, MCWD staff commenced a refined water quality sampling, hydrology, and vegetation analysis, in cooperation with Stantec, in the wetland system to identify if there is a specific area within the wetlands responsible for the majority of the phosphorus export. This analysis indicated that a relatively small portion of the wetland complex, the Cell 1 Wetland, is the primary driver of phosphorus export. With having the characterization of the location and magnitude of the phosphorus export defined, identifying an engineering solution to reduce export from this wetland was identified as the next step.

Owing to the confidence of the monitoring assessment findings in late September 2022, the board authorized the release of Request for Proposals for feasibility to identify opportunities to address phosphorus export from the wetland. The feasibility study was contracted in 2023 with Moore Engineering and its subconsultants, Wetland Solutions Inc and Dr. Nathan Johnson from the University of Minnesota, with the primary objective of evaluating and recommending alternative strategies to manage phosphorus export from the wetland to East Auburn Lake.

Moore Engineering collected and analyzed flow data, water quality data, water level data, soil data, and groundwater data for the feasibility assessment and produced an alternative's matrix of restoration methods for the Cell 1 Wetland. The feasibility study confirmed the Cell 1 Wetland as the primary contributor of phosphorus to East Auburn Lake, indicated by higher phosphorus concentrations in the first half of the wetland complex that would have occurred from historic poor water quality in Wasserman Lake to this wetland cell. The analysis also revealed the increase in phosphorus through the wetland is dominated by exports in the summer months when the water levels in the wetland dry out mid-June and slowly decrease in the channel as the marsh drains.

Given this understanding of the hydrologic regime, it is hypothesized that phosphorus increases in the Cell 1 Wetland are being driven by a wet-drying cycling. Therefore, of the seven approaches developed to address the phosphorus loading in the final feasibility report, a hydrologic restoration through the installation of a sheet pile weir was recommended to be most optimal to manage the flushing of phosphorus that occurs during the water level fluctuation.

At the January 25, 2024 meeting, MCWD staff will be reviewing the feasibility results and restoration recommendation with the Board, followed by an overview of next steps as the project moves into design.