

MEMORANDUM

TO: Rep. Alice Emmons, House Corrections and Institutions, Chair
Rep. Amy Sheldon, House Natural Resources, Fish & Wildlife, Chair
Sen. Joe Benning, Senate Institutions, Chair
Sen. Chris Bray, Senate Natural Resources and Energy, Chair

FROM: Commissioner Emily Boedecker, Department of Environmental Conservation

SUBJECT: Contractor and Cost for Phase III (Design/Build) of Lake Carmi Aeration Project

DATE: 8 February 2019

CC: Secretary Julie Moore, Agency of Natural Resources
Commissioner Louis Porter, Department of Fish & Wildlife
Commissioner Mike Snyder, Department of Forests, Parks & Recreation

In the Capital Bill of 2018 (Act 190)¹, the Legislature authorized the Department of Environmental Conservation (DEC) to use up to \$1.4 million of its appropriation for capital-eligible projects at Lake Carmi, provided that DEC give notice to the chairs of the four committees of jurisdiction. This memorandum serves to fulfill the requirement that DEC provide prior notification to the chairs of the committees indicated in legislation. In addition, DEC would be happy to meet in person with the chairs or their committees to explain the department's recommendation to fund a whole-lake aeration system in Lake Carmi.

DEC recommends whole-lake aeration as a scalable and time-limited approach to contain legacy phosphorous in lake sediment while partners accelerate the pace of project implementation in the watershed to reduce phosphorus loading. Monitoring data collected bi-weekly during the summer months of 2016 and 2017 showed large influxes of phosphorus from the lake sediments into the water column when oxygen was depleted from the lowest lake layer. Aeration reduces oxygen depletion at the lowest lake level thus containing phosphorous in the sediment. Once targets have been met to reduce the influx of new phosphorous from the watershed, DEC anticipates recommending a more permanent approach to capping phosphorus in lake sediments such as an alum treatment.

Based on input from a review committee representing diverse stakeholders, the Department of Conservation (DEC) has selected a contractor for the design/build phase of the Lake Carmi aeration project. Members of the review committee were Pete Benevento, president of the Lake Carmi Campers'

¹ [2018 Act 190](#) Section 8:

"The Commissioner of Environmental Conservation may use up to \$1,400,000.00 of the amounts appropriated in subdivision (2)(A) of this subsection to support capital-eligible clean water projects for Lake Carmi; provided, however, that the Commissioner shall provide prior notification of any project and its cost to the Chairs of the House Committees on Corrections and Institutions and on Natural Resources, Fish, and Wildlife and of the Senate Committees on Institutions and on Natural Resources and Energy."

Association; Bernie Pientka, fisheries biologist with the Department of Fish & Wildlife; Tim Clear, water quality TMDL coordinator with DEC; Pete Magnant, chair of the Franklin Select Board; Mark Mitchell, lake assessment coordinator with DEC; and Emily Porter-Goff, coordinator of the Franklin Watershed Committee; and Dave Webb, environmental engineer with DEC. Technical input was provided by Frank Spaulding and Rob Peterson of the Department of Forests, Parks & Recreation, as well as Angela Shambaugh and Perry Thomas of DEC. David Pasco and Maria Davies of DEC provided process support.

Key features of the successful proposal are as follows:

- Use of existing single-phase power source(s)
- Two ~10' X 12' compressor locations (one to north of day use area, one near northern extent of the State Park) on pads with associated lakeside manifold boxes
- 80-ceramic micropore disk diffusers in the Lake.
- A fenced-in compressor design with sound-proof, stainless steel compressor cabinets.

Benefits of the successful proposal include:

- Simplicity of design:
 - Does not require very costly three phase power which would have to be run a long distance to compressors.
 - No requirement for large building structures to house compressors.
 - Flexibility in meeting requirements as to aesthetics and sound mitigation by offering alternative fencing or potential small enclosures for compressors.
 - Flexibility in addressing in-lake considerations such as walleye habitat protection.
 - A streamlined construction timeline.
- Use of specifically engineered equipment:
 - A patented disk diffuser design and specifically designed compressor cabinet to minimize sound. The compressor cabinets are based on engineering improved prototypes over the last few years.
 - References corroborated the low-sound claims.
- Customer Service:
 - A two-year O&M commitment with a specific Performance Guarantee that allows for no-cost expandability of the in-lake portion of the system
 - An outstanding record of commitment to achieving objectives in other lake restoration projects.

The current cost estimate for design and installation is \$905,141. DEC anticipates that conditions included in the contract may lead to a modest increase in the installation cost. A final design and an "Opinion of Probable Cost" will be provided by the contractor in April 2019. Complete installation is expected by 22 May 2019. Total estimated electrical costs for compressors (based on \$0.15/kWh) range from \$14,000 to \$17,000 annually. There will be some annual equipment maintenance costs, which are currently estimated at \$600. The final contract will include conditions minimizing negative effects on users of the State Park, protecting critical habitat for Lake Carmi's unique walleye population, and optimizing the final design for reduction of internal nutrient loading.