

# SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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## Staff Memorandum

### SCOPE OF WORK TO BE PERFORMED BY SEWRPC FOR PHASE TWO OF A COMPREHENSIVE LAKE MANAGEMENT PLAN FOR CRAVATH AND TRIPPE LAKES, WALWORTH COUNTY, WISCONSIN

September 3, 2024

As requested during a March 4, 2024, meeting of the City of Whitewater lake committee ("City"), the Southeastern Wisconsin Regional Planning Commission ("Commission") has prepared this scope of work examining a variety of management issues that the City believes are important to the continued health and vitality of Cravath and Trippe Lakes ("Lakes"). The City and Commission are already working together on the first phase of a two-phase project to update the comprehensive lake management plan for the Lakes. The first phase addressed fieldwork that will inform an aquatic plant management plan as well as the comprehensive plan; this phase is expected to be completed by early 2025. This scope of work addresses the second phase of the project and includes the technical, schedule, and budget information regarding data analysis, plan writing, and management plan activities; the City may elect to apply for a grant through the WDNR Surface Water Grant program to help fund some of this second phase. TH

#### BACKGROUND INFORMATION

Cravath and Trippe Lakes are 68-acre and 113-acre, respectively, impounded lakes within the City of Whitewater in Walworth County. Trippe Lake is an impoundment of Whitewater Creek while Cravath Lake is an impoundment of Spring Brook. Outflow from Trippe lake flows into Cravath Lake while outflow from Cravath lake flows as Whitewater Creek downstream to the Bark River, then to the Rock River, then to the Mississippi River, and ultimately discharges into the Gulf of Mexico. Both lakes are impounded by dams owned and operated by the City of Whitewater. According to the WDNR Presto-Lite model, the lakes receive runoff from 42.2 square mile watershed that drains northwestern Walworth and northeastern Rock Counties.<sup>1</sup> The eastern portion of the watershed draining into Trippe Lake contains substantial natural resource areas, including Whitewater Lake, Rice Lake, several WDNR State Natural Areas, and parts of the Kettle Moraine State Forest. The western portion of the watershed draining into Cravath Lake is predominantly in agricultural and wetland uses.

The Commission produced Memorandum *Report No. 191, A Lake Protection Plan for Cravath and Trippe Lakes, Walworth County, Wisconsin*, in April 2011. Since that time, the City completed a lake drawdown and dredging project to address excessive sediment accumulation in the lakes. Following those efforts, the City would like to update the lake management plan to study several issues related to the lakes' ability to maintain desirable ecological conditions and provide quality recreational opportunities to lake users.

<sup>1</sup> For more information on the WDNR Presto-Lite model, see the following webpage: <https://dnr.wisconsin.gov/topic/SurfaceWater/PRESTO.html>.

Representatives from the City are also in preliminary discussions to form a lake district that would have jurisdiction over Cravath and Trippe lakes. This forthcoming management plan would help guide and be guided by the lake district as it forms during the plan development.

At the March 4<sup>th</sup> meeting, Commission staff discussed with the City representatives a list of lake management goals and activities that the City had prepared. Some of these activities were discussed as candidates for 2024 WDNR Surface Water Grant program funding while others were discussed as occurring prior to grant applications. Via March 6<sup>th</sup> email correspondence, Commission staff categorized these activities into activities that should occur outside the lake plan development, plan activities that could be completed in summer 2024 without grant funding, and plan activities that could be included in a fall WDNR grant application. This scope of work is intended to cover summer 2024 fieldwork and data collection efforts funded entirely by the City. A subsequent scope of work tailored toward data analysis, plan writing, and management activities that could be included in a fall 2024 WDNR grant application will be developed using results from this summer's efforts.

## **PROPOSED SCOPE OF WORK**

The major factors proposed to be examined as part of the study are listed below.

- Morphology, hydrology, and watershed conditions
- Lakes water quality
- Shoreline condition
- Stormwater management
- Pollutant sources and loads
- Aquatic plant community and management
- Fish and wildlife
- Recreational use

It should be noted that while some tasks are best performed sequentially, we anticipate that work on several tasks will occur simultaneously. Some of these elements require active cooperation and participation by City volunteers as well as contributions from Walworth County staff, WDNR staff, and students and faculty from University of Wisconsin - Whitewater. Highlights of each element are summarized below.

### **Morphology, Hydrology, and Watershed Conditions**

*Activity:* Commission staff will collect and summarize watershed physiography, hydrology, land use, land management practices, and other characteristics that affect the lakes.

*Methods and Data Collected:* Commission staff will examine and refine physiographic information (e.g., vegetation, geology, hydrogeology, surface-water hydrology, topography); revise as necessary the water budget for the Lakes; and will document historical, existing, and planned land use conditions within the recently re-delineated watershed.

*Deliverables:* The Commission will prepare text, tables, figures, maps, and other graphical means to summarize the data and present it in a format accessible to a wide array of stakeholders. This information will provide context to management strategies that help sustain lake health.

### **Water Quality**

*Activity:* Commission staff will collect readily-available historical water quality information related to the lakes as well as Whitewater Creek and Spring Brook as their major tributaries. The Commission will also incorporate any water quality information collected during phase one of the comprehensive management plan update, such as the continuous water temperature data monitored by the Commission's loggers as well as data collected by University of Wisconsin-Whitewater. If not begun during summer 2024, the City should enroll in the Citizen Lake Monitoring Program to begin collecting water quality data on the lakes themselves.

*Method or Data Collected:* Within the lakes, Commission staff recommend that the City engage with the WDNR's Citizen Lake Monitoring Network ("CLMN") and/or UW-W faculty and students to begin conducting baseline water quality information at the deep holes of both lakes. At a minimum, this data collection should include:

- Profile of water temperature with depth
- Profile of dissolved oxygen with depth
- Water clarity as measured via Secchi disc
- Total phosphorus concentrations
- Chlorophyll-*a* concentrations
- Chloride concentrations

These parameters should be collected at least monthly. Additional parameters of interest may include orthophosphate, nitrogen compounds (e.g., total nitrogen, nitrate, ammonia), specific conductance, total suspended solids, pH, total hardness, *E. coli*, and fecal coliform.

Water quality sampling and laboratory costs are typically reasonable but are beyond the scope of the Commission's work. Nevertheless, such costs should be grant eligible.

*Deliverable:* Commission staff will utilize water quality data collected before and during the comprehensive planning project to evaluate trends, assess current conditions, and provide recommendations to protect and enhance water quality. These recommendations may include additional monitoring locations and parameters; best management practices in the lakes, along the shoreline, or in the watershed; and opportunities to inspire interagency collaboration and fund implementation of these practices.

### **Shoreline Condition**

*Activity:* Commission staff will complete an on-the-water shoreline condition inventory around the perimeter of the open-water portion of the lakes in summer of 2024 as part of the Phase 1 Scope for the City. Data from the inventory will be incorporated into the plan.

*Method or Data Collected:* No new data collected.

*Deliverable:* The Commission will map shoreline conditions as well as recommend how to enhance shoreline and near-shore habitat and protect against erosion. Commission staff will discuss opportunities to fund shoreline restoration and/or protection projects through the WDNR Surface Water Grant program, the WDNR Healthy Lakes & Rivers program, and potentially other available programs.

### **Stormwater Management**

*Activity:* Stormwater runoff can be a major pollutant source to surface waters, particularly in watersheds with no point sources. A stormwater management plan was completed for the City of Whitewater in 2017. The City would like the Commission to reference the existing stormwater management plan, incorporate major elements into the lake plan, and investigate the potential influence of stormwater on overall pollutant loading to the lakes.

*Method or Data Collected:* Commission staff would review the City's 2017 stormwater management plan, discuss stormwater management planning with the City, and incorporate major elements and actions from the stormwater plan into the comprehensive lake plan. Additionally, Commission staff will incorporate stormwater pollutants and pollutant load modeling and discussion from the 2017 plan into the overall pollutant load modeling for the lakes.

*Deliverable:* Commission staff would examine the impact that stormwater management has on overall pollutant loads to the lakes. The Commission will reinforce recommended actions from the 2017 plan as part of the recommendations within the lake management plan.

### **Pollutant Loading Sources and Loads**

*Activity:* The watershed characterization, water quality monitoring, and stormwater management information gathered in previous tasks will be used to model the amount of sediment and phosphorus reaching the lakes each year. The activities and geographical areas that contribute higher loads will be identified as well as recommendations on how to reduce these loads. Pollutant loading goals and funding opportunities from the Rock River Total Maximum Daily Load will be incorporated to the extent feasible.<sup>2</sup>

*Methods and Data Collected:* Commission staff will use field data and models (e.g., Presto-Lite, STEPL, and/or potentially other models) to estimate sediment and phosphorus loads under current and planned future conditions. Commission staff will use this information to identify land uses, watersheds, and areas contributing excessive nutrient or sediment loads to the lakes and their tributaries and that may be important to address as part of lakes management plans.

*Deliverables:* Commission staff will prepare maps and tables displaying pollutant loading loads, sources, and areas to the lakes. The Commission will also examine how different land management scenarios could mitigate pollutant loads.

### **Aquatic Plant Community Management**

*Activity:* The City will independently complete an aquatic plant inventory and management plan update as part of the first phase of this management plan update, therefore, this element is not a major component to this proposed scope of work. However, the results of the aquatic plant inventory and management plan update will provide information valuable to the comprehensive lake plan.

*Methods and Data Collected:* No new data will be collected for this task.

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<sup>2</sup> For more information on the Rock River Total Maximum Daily Load, see the following link: <https://dnr.wisconsin.gov/topic/TMDLs/RockRiver/index.html>.

*Deliverables:* Commission staff will summarize each Lake's aquatic plant community and management and discuss how these elements provide context to other elements of the comprehensive lake plan.

### **Fish and Wildlife**

*Activity:* Following the drawdowns, the City would like to re-establish the warmwater sport fishery that has historically been present in the lakes. Additionally, the City would like a long-term strategy to reduce the invasive carp population. With these goals established, Commission staff will compile available historical fishery, stocking, and water quality information to recommend management strategies to meet this goal. Changes in each of the Lake's fishery over time will also be studied. Goals for the Lakes' fishery and methods to achieve those goals will be discussed with the City as well as with WDNR fisheries biologists.

The Lakes' watershed contains several significant natural areas and critical habitat for rare and/or threatened species in Wisconsin. Commission staff will compile information on these critical areas and the rare species present and will provide management recommendations to protect these resources.

*Methods and Data Collected:* Commission staff will compile available fishery survey and fish stocking data from WDNR and possibly other sources. Supplemental fish surveys conducted by an independent contractor may be recommended and would be included in the lake management plan if conducted during plan preparation.

Commission staff will assemble available wildlife and species habitat information, including tallies of recorded species and important habitat sites within the watershed. Information on how to protect rare species habitat and/or manage terrestrial invasive species may be provided if relevant.

*Deliverables:* Commission staff will provide text, figures, and tables documenting the lakes' water quality, fishery, and stocking practices. Recommendations on how to meet fishery goals and how fish and wildlife management can help achieve other lake goals will be provided.

Commission staff will provide figures and tables of recorded species within the watershed as well as maps of known critical species habitats or other natural areas of importance. Recommendations on how to protect, enhance, and expand these habitats will be provided.

### **Recreational Use**

*Activity:* Cravath and Trippe lakes act in some fashion as extensions of the City of Whitewater park system and the public has access to recreate on and along both lakes. As part of phase one of the comprehensive lake management plan project, Commission staff will collect data on recreational use at the time of other aquatic inventories on the lakes. In this second phase, this data collection could be extended by installing signs along the link with a Quick-Response (QR) code that links to an online survey asking users about how they recreate on the lakes. This data along with recreational use data collected in the first phase will be inventoried and discussed in the lake management plan update.

*Methods and Data Collected:* Commission staff could assist the City in developing a recreational user survey via an online survey provider. This survey would ask questions about how the user recreates on the lake, their concerns regarding recreation, and how their recreation could be improved. Users could access this online survey via posted QR codes on City property near the lakes.

*Deliverables:* Commission staff will inventory available recreational use data from its own survey as well as collected lake user survey data. This data inventory would be summarized in the management plan with recommendations to enhance recreational use of the lakes. Some of these recommendations may relate to water quality goals to keep the lakes healthy for fishing, swimming, wildlife-viewing, paddle sports, and

other activities. Other recommendations may relate to facility enhancements to improve swimming, fishing, and paddling opportunities and accessibility.

### **Publish Lake Management Plan**

*Activity:* Share general information, technical data, interpretations, and recommendations generated as part of the lake management planning process and provide recommendations. Prepare and publish a written Lake management plan.

*Methods and Data Collected:* The Commission will present resultant data, interpretations, management implications, and recommendations as part of a written comprehensive management plan at project conclusion. The Commission will suggest management concepts addressing past practices, current conditions, and impending threats. Inventory data and recommendations will be separated by local government boundaries to better display implementing recommendations for potential stakeholders. Commission staff may develop interactive tools to display inventory data and recommendations to encourage and facilitate use of the plan.

The Commission will generate a draft written plan that will first be reviewed by the City. Comments and suggestions will be discussed with the Commission and a final draft will subsequently be submitted to the WDNR for review. After incorporating WDNR comments and edits, Commission staff may present report findings and recommendations at an event hosted by the City and will host the draft plan on the Commission website for at least 30 days to allow for public comments. Following the incorporation of public comments as feasible, a final plan will be published.

*Deliverables:* The plan will be readily available to the public through posting a digital copy for free download on various websites and by distributing a limited number (i.e., up to 10) of printed copies. The plan will include a short executive summary that helps convey plan content to those with a casual interest in the lakes and conveys key points to the average lake user. The City or its partners may host a public presentation where the Commission will present a summary of plan content and will answer questions. Commission staff will incorporate comments received during the presentation or via the website into the plan as feasible.

### **DELIVERABLES**

A comprehensive report will be prepared that summarizes the data, conclusions, and recommendations generated as part of this study. The report will convey the key findings and recommendations in a format useful to the City, WDNR, and the average lake user. The report will discuss methods used to complete project work; will present data using tables, figures, and maps; will interpret the meaning and implications of the data; will describe concepts to address critical management issues; and may suggest well-targeted additional study that helps resolve unanswered questions. The Commission will provide the City, WDNR, and the public with an opportunity to review and comment on the draft report and will incorporate mutually agreed revisions into the final report. This report will then be published on Commission's website and digital and bound copies will be provided to interested parties.<sup>3</sup> If the City desires, Commission staff will also present the findings at a public meeting arranged by the City.<sup>4</sup>

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<sup>3</sup>SEWPRC will provide a digital copy of the final report to the City and WDNR. Additionally, the Commission will provide up to twenty print copies of the final report to the City and one bound copy to the WDNR. Draft versions of the report are typically provided digitally.

<sup>4</sup>The City would be responsible for informing interested parties of the public meeting, arranging meeting space, and hosting the meeting. Commission staff would use visual aids to convey the highlights of the report and answer salient questions. Such presentations commonly require a half hour and are followed by at least a half hour of questions or general discussion. The City should record the questions and input provided by meeting attendees for consideration in future management actions.

## PROBABLE SCHEDULE

The Commission will initiate work on this project as soon as City authorizes work to proceed.<sup>5</sup> Given the expansive data collection effort and wide-ranging services component to this scope of work, the project is anticipated to require at least two years to complete. At least two summers' worth of water quality data should be collected for this project. Certain information is best collected at certain times while other elements have a broader and less specific time frame. For example, water quality information should be collected immediately after project initiation and should continue throughout the duration of the project and beyond. The results and findings will be shared with the City and the WDNR. The Commission will periodically update the City regarding new data and findings. The project report will need to be reviewed by the WDNR and the City, and time needs to be allowed for discussion, revision, and public comments. Draft copies of the report may be provided to the WDNR and the City as early as fall 2026. Assuming prompt review, the final report would normally be available for public distribution in early 2027.

## PROPOSED PROJECT BUDGET

Category	Activity	Cash Outlays (Commission Services)	
		Labor (Hours)	Probable Cost (\$)
Natural History, Morphology, Hydrology, and Watershed Conditions	Use delineated watershed to quantify factors that contribute to lakes and watershed health. Commission will prepare tables, figures, and maps to support field investigation and stimulate discussion.	80	3,600
Water Quality	Coordinate with UW-Whitewater and City to monitor water quality and water levels in lakes, lake tributaries, and lake outflow. If feasible, assist with developing water and nutrient mass budget for lakes. Update water quality data, examine trends/significance, and evaluate management implications.	52	2,500
Shoreline Condition	Compile data from 2024 field inventory of the lakes' shorelines. Quantify the effect of nearshore areas on lake water quality and habitat value.	24	1,300
Stormwater Management	Examine the influence of stormwater on lake pollutant loading. Incorporate major recommendations from 2017 stormwater management plan into lake plan.	32	1,700
Pollutant Sources and Loads	Model pollutant sources and loads to Lake utilizing information gathered about stormwater management and watershed land use. Examine land use management scenarios that mitigate non-point source pollutant loading.	40	2,100
Aquatic Plant Management	Incorporate updated aquatic plant management plan into comprehensive plan.	24	1,300
Fish and Wildlife	Use available data to evaluate conditions and suggest management with goals of enhancing warmwater sport fishery and reducing carp population.	40	1,900
Recreational Use	Complete incidental monitoring of recreational use while completing other surveys. Assist City with installing interactive signs to collect information on lake use.	56	2,700
Publish Lake Management Plan	Prepare comprehensive report, develop management recommendations, and publish report.	300	18,400
Communication	Attend select meetings, provide updates on plan progress, and give presentation on completed lake management plan.	48	2,500
<b>Total</b>		<b>696</b>	<b>38,000</b>

<sup>5</sup>A short letter agreement, with a copy of this scope of work attached, is what is used to retain the Commission's services for this type of project. The Commission issues this letter and the City would also sign the letter to initiate work. The grantee must remember that Commission fee-based services cannot proceed before the date of official grant award to be reimbursed through the grant.

The Commission can supply additional budget details as may be required for the grant application and/or City's interest.

As noted in the scope section of this document, this budget assumes that the City will acquire and make available certain pieces of equipment (e.g., boats, incidental gear, water testing equipment), will provide any volunteer labor necessary, and will be responsible for contractor fees (e.g., analytical laboratories).

Following City review and acceptance of this scope of work, an agreement would be executed between the City and the Commission. Under that agreement, the City would be responsible for the entire \$38,000 project cost. If a WDNR Surface Water Planning Grant were received, grant proceeds would cover a portion of the City's cost.<sup>6</sup> The City would provide the remainder (at least \$22,050) as the local cost share required under the terms of the grant as part of its cash payment to the Commission. Other costs, beyond those used to reimburse the Commission, that may be counted as the grantee's cost share include volunteer labor and provision of certain equipment.

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<sup>6</sup>The Lake Planning Grant program reimburses 67 percent of eligible project costs, up to \$25,000. Sixty-seven percent of total project cost is \$25,460, a total exceeding the maximum grant award. This means that the City will cover at least \$22,050 percent of the project's total cost, a fact that should be underscored in the grant application.