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Normandale Lake Water Quality Improvement Project

An aquatic plant survey was conducted in Normandale Lake and upstream portions of Nine Mile Creek in June; results have not been summarized yet. An additional aquatic plant survey will be completed in August and a fall curly-leaf pondweed turion survey of Normandale Lake will be completed in the fall of 2021. Water quality monitoring in Normandale Lake is underway and will continue throughout the summer, including near the inlet of Nine Mile Creek and at the routine monitoring location on the east side of the lake.

Dissolved oxygen levels are being monitored monthly this summer along five transects in Normandale Lake (lines on image represent approximate transect locations)

Discovery Point Restoration and Building Addition Rain Garden and Landscape

Planting and the final construction items related to the rain garden have been completed. Native seeding of the southeast portion of the site has also been completed. The remaining disturbance from the addition construction has been repaired including removal and disposal of the silt fence. Pay request #3 was received from Minnesota Native Landscapes for work completed through July 2, 2021 in the amount of $31,654.00. The pay request includes work completed to plant and mulch the rain garden, and seed the front native prairie area. Barr is recommending payment. This work wraps up the substantial construction as part of this project. Remaining items include site-wide management. On-going restoration and site management has included monthly site visits, a site-wide herbicide application to control woody invasive re-sprouts, garlic mustard, and narrowleaf bittercress.

Photos of the recently constructed and planted rain garden on the northwest side of Discovery Point. Photos by NMCWD.

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Arrowhead Lake and Indianhead Lake Use Attainability Analysis/Water Quality Study

Activities for the Arrowhead Lake and Indianhead Lake Use Attainability Analyses (UAA) updates are underway and include analysis of recent and historic lake water quality, stormwater volume and quality modeling (P8 model), and in-lake water quality modeling. While these efforts are designed to understand phosphorus loading contributions and reductions needed to meet Minnesota eutrophication standards for shallow lakes, we are learning quite a bit about these unique shallow lakes. A community meeting was held virtually on May 25, 2021 in which there was good exchange of information on current management practices, lake association member concerns, and member observations of lake ecology and water quality. A recording of the meeting is available on the District's website.

At this meeting, we indicated that residents would be receiving a survey to help the District and City better understand how they use the lake, their perceptions of water quality, and their interest in committing to lake water quality improvements by managing fertilizer use and other activities such as shoreline buffers. Survey questions were developed with input from District and the City of Edina staff. District staff mailed paper copies to residents July 7, 2021 and an online version of the survey will be posted here until August 16, 2021: https://ninemilecreek.typeform.com/to/A2Z4Rb9L

Results of the survey will inform management strategies and educational recommendations for Arrowhead and Indianhead lakes.

Lake Level Management Plans for Arrowhead and Indianhead Lakes

The Lake Level Management report was revised in response to comments from the City of Edina and the final report was issued June 3, 2021.

Next steps for the project include further evaluation of the influence of groundwater on high lake levels, refinement of triggers (groundwater and lake levels) for temporary pumping based on the groundwater-surface water interaction, and coordination with the Minnesota Department of Natural Resources regarding the lake level management plan(s). These next steps, Phase 2 of the project, will be undertaken by the City of Edina without participation by NMCWD. The City of Edina has sought a proposal from Barr to continue working on Phase 2 of the project.

Aerial view of Arrowhead Lake and Indianhead Lakes, two land-locked lakes in southwest Edina.

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Bush Lake Shoreline Vegetation Management

Barr staff continue to coordinate with the vegetation management contractor, including a June 14, 2021 site inspection.

Holiday-Wing-Rose Chain of Lakes Use Attainability Analysis/Water Quality Study

Activities for the Holiday-Wing-Rose Chain of Lakes Use Attainability Analysis (UAA) Update are underway and include analysis of recent and historic lake water quality and stormwater volume and quality modeling (P8 model). A kick-off meeting with District, City of Minnetonka, and Barr representatives was held virtually on June 9, 2021 to discuss the objectives of the study and the public engagement approach.

A follow-up meeting was held on June 25, 2021 to discuss public engagement. NMCWD and the City of Minnetonka plan to work together closely to develop a StoryMap and online survey that will be posted on the City of Minnetonka's webpage. The StoryMap will include background information on lake ecology, lake characteristics, and the goals of the UAA study. The survey will inquire about how residents use the lake, their perceptions of water quality, and their interest in committing to lake water quality improvements by managing fertilizer use and other activities such as shoreline buffers. The StoryMap and survey will tentatively be posted in late-August, with an in-person public engagement meeting in mid-September. Residents will be notified of the StoryMap, survey and meeting through a mailing. Results of the survey and information gathered at the meeting will inform management and educational recommendations for Holiday, Wing, and Rose lakes.

Edina Stream Stabilization Project

There were no new construction or maintenance activities associated with the project.

Barr and District staff have been working with the City of Edina as they prepare for long term contracting for future maintenance of the Phase 1 and Phase 2 reaches. A field walk of the Phase 1 and 2 reaches of the creek was completed with City staff and their consultant on June 8th in conjunction with future maintenance obligations. Barr staff will be reviewing contract documents prepared by the City's consultant in advance of bidding.

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Lake Cornelia and Lake Edina Water Quality Improvements: *Lynmar Basin Stormwater Retrofit Concept Plan:*

Two concept plans were developed and presented to District and City of Edina staff for review and comment in late-June, and further refined based on feedback received. The two concept plans, shown on the below, consist of grading and lowering the bottom of the existing basin to promote stormwater infilration. The two rain garden concept designs offer similar flood reduction and water quality benefits.

Handout developed to summarize the multiple co-benefits offered by the proposed project. Beyond the primary benefits of flood improvement and stormwater and pollutant reduction, the project will enhance habitat, improve the park experience, and offer educational opportunities.

One of the primary differences in the two concepts is the type of plantings (grasses for simplicity and ease of maintenance or a more ornamental plant palette). The other significant difference is alignment of the path; in Concept #1, the path lowers down into the basin, whereas the path remains along the east edge of the park in Concept #2. The design concepts were shared with interested residents at a community meeting on July 13, 2021 attended by Barr, City of Edina, and District staff. Attendees generally preferred Concept 2. We will continue to receive feedback on the concepts through the end of July.

Poster prepared for the July 13, 2021 community meeting.

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Atlas 14 Flood Risk and Resiliency, Phase II

Project efforts during the past month have focused on finalizing model calibration and review of preliminary 100-year model results along the creek corridor. Although long model run times have impacted our calibration schedule, we are nearing completion and have compiling and preparing the necessary files to complete subsequent project tasks, including the flood mapping and identification of flood prone areas, structures, and roadways.

During the past month, we made significant progress on Task 5: risk analysis for potential pipe failure or clogging and creek crossings. The Barr team completed an inventory of all major creek crossings, including a summary of pipe crossing dimensions (i.e., size and shape of culverts), overflow locations, and overflow elevations. Overflow drainage areas to each crossing were digitized, and inundation mapping was completed to show the potential impact of a pipe crossing failure (see image, below). The number of structural impacts within each drainage area have been calculated and mapped, and we are beginning the process of review to select a number of creek crossing for more detailed model analysis (Task 5b).

We anticipate sharing preliminary results at a second project Technical Advisory Comment (TAC) meeting in late-summer, which will include review of calibration results, delivery of preliminary flood mapping for stakeholder review, and discussion on our framework for evaluating flood mitigation and resilience opportunity analysis (Phase III).

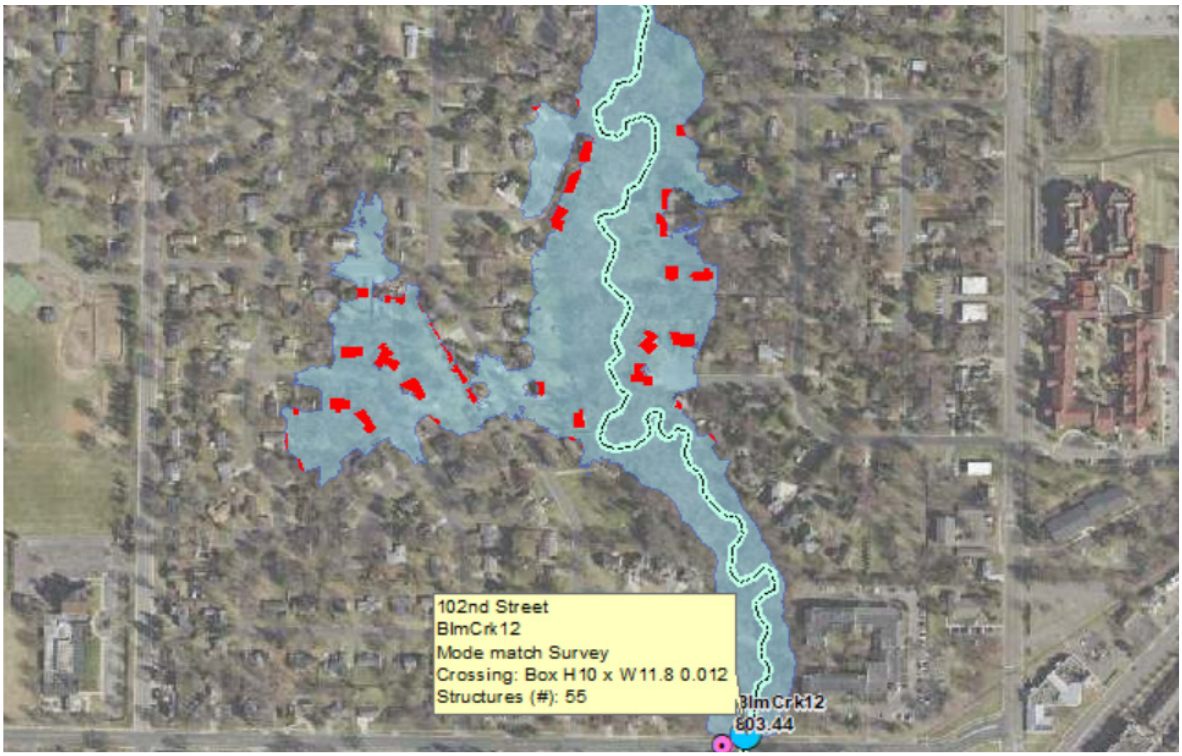

Image showing the extent that water could back up upstream of the 102nd street crossing of Nine Mile Creek in Bloomington before overtopping the roadway. As shown, there is potential for numerous primary structures to be impacted if significant clogging or an infrastructure failure caused the creek to back up at this location.

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Lake Cornelia and Lake Edina Water Quality Improvements- *Rosland Park Stormwater Filtration BMP*

Construction plans and technical specifications for the Rosland Park stormwater filtration vault project were completed and the project went out for bid on June 19, 2021. An optional pre-bid meeting for interested contractors was held on July 7, 2021. Bids are due on Tuesday, July 20th.

A NMCWD permit application and accompanying documentation was prepared and submitted. We are now working through the permitting process and anticipate that the permit will be on the agenda at the District's early-August workshop.

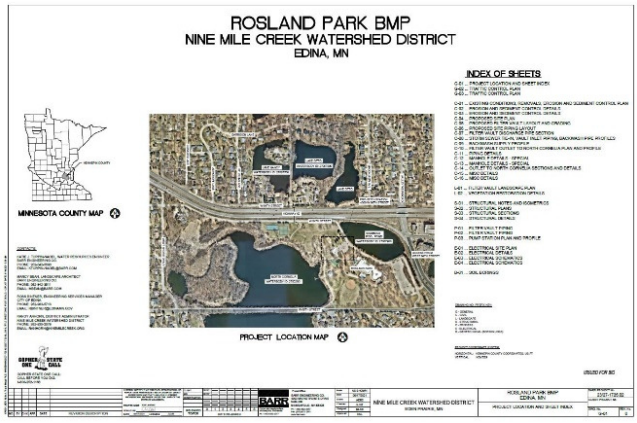

Image to the left is the front page of the 33-page Rosland Park BMP construction plan set. The project is a multidisciplinary project including civil, structural, pump/piping, electrical, and landscaping design. Construction is anticipated to start in late-August.

Wetland Conservation Act (WCA) and NMCWD Wetland Rule Administration

Work administering the WCA and NMCWD wetland rule in the past month included:

- Cherokee Trail/Old Shady Oak Road Culvert Improvements (Eden Prairie) – Reviewing comment responses from applicant regarding potential indirect impacts, providing to TEP members and requesting additional comments, providing additional comments to applicant's agent; reviewing applicant comment responses, communicating with engineering review and TEP, preparing, obtaining signature, and submitting revised WCA Notice of Decision for no-loss and utility exemption approval.
- Blake Road Reconstruction (Edina) – Reviewing wetland application, preparing and submitting WCA Notice of Application for no wetland determination, conducting site review.
- 4425 Valley View Road (Edina) – Following up with site review documentation; preparing, obtaining signature, and submitting WCA Notice of Decision for wetland boundary and type approval.
- 6075 Lincoln Dr. (Edina) – conducting a desktop wetland review and evaluation for potential incidental wetlands.
- 10601 Smetana Rd (Minnetonka) – reviewing wetland application, participating in site review, providing comments.
- 5121 Baker Rd (Minnetonka) - reviewing wetland application, participating in site review, providing comment.

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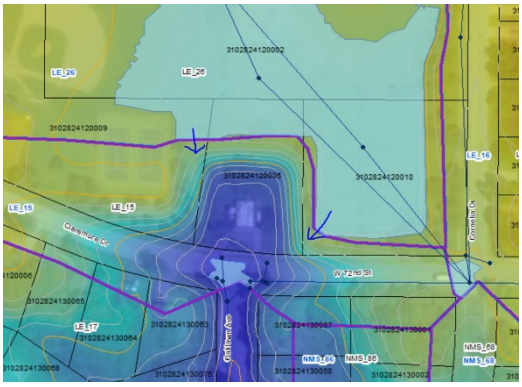
- UNFI Super Valu Campus (Eden Prairie) - reviewing wetland report, prepare and submit WCA Notice of Application; schedule site review, communicate with TEP members
- Blue Stem (Eden Prairie) - responding to wetland questions from applicant's agent
- Other miscellaneous program administration

Other

The City of Edina is planning to replace sanitary lift station #6, which is located just south of Cornelia Elementary School/Cornelia School Park on West 72nd Street (Lake Edina watershed—see screen shots on next page). Barr has helped them with sanitary system modeling and evaluation of the condition of this system in the past, and the City has now requested design assistance for the replacement. Given that this site is within the Nine Mile Creek watershed, the project will require a permit from NMCWD. There is a chance that the structure will remain within its existing footprint and not trigger the stormwater rules. However, the scope of redesign is uncertain at this point, so stormwater rules may be triggered. In accordance with language in Barr's agreement with NMCWD, I wanted to bring Barr's potential involvement in the design on behalf of the City of Edina to your attention for consideration.

As a side note, there may be an opportunity to expand the flood storage in the Cornelia School Park, the property directly adjacent to the lift station parcel. Under current conditions there is a large amount of flood storage in the low area of the park, but water does overflow to West 72nd Street in large (e.g., 100-year) storm events. It appears that the berm could potentially be raised (see locations of blue arrows in screenshot to the right) to achieve more storage and reduce overflows.



NMCWD watershed fun fact of the month:

Did you know that Nine Mile Creek drops over 200 feet as it descends toward the confluence with the Minnesota River (see map below)?

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