

## Memorandum

**To:** Bassett Creek Watershed Management Commission  
**From:** Barr Engineering Co.  
**Subject:** Item 5C– Consider Approval of Proposal to Prepare Feasibility Study for the Jevne Park Stormwater Improvement Project (2020 CIP Project ML-21)  
BCWMC July 19, 2018 Meeting Agenda  
**Date:** July 11, 2018

### **5C. Consider Approval of Proposal to Prepare Feasibility Study for the Jevne Park Stormwater Improvement Project (2020 CIP Project ML-21)**

#### **Recommendations:**

1. Consider approving the scope of work and \$70,200 budget presented in this memorandum and direct the Engineer to complete the feasibility study for the Jevne Park Stormwater Improvement Project (2020 CIP Project ML-21), scheduled for construction in 2020 and 2021.
2. Direct the Engineer to consult with the U.S. Army Corps of Engineers (USACE) to determine whether the Resources Management Plan Pre-application Consultation Protocols may apply for this project.
3. Direct the Engineer to prepare a feasibility study that complies with the requirements of the USACE and BCWMC criteria.

#### **Background**

As the City of Medicine Lake is nearly all surrounded by Medicine Lake, maintaining and improving the quality of the lake itself is paramount. Given the city's size and current infrastructure, there are limited opportunities for stormwater management retrofits, with the exception of the Jevne Park area. The project goal is to construct an improved water retention pond in Jevne Park, which will result in:

- better management of stormwater runoff as the city has no municipal storm sewer system
- increased capacity for stormwater storage within the pre-existing natural pond/wetland and swale in Jevne Park
- a better way to route, carry and store excess stormwater to minimize flooding within Jevne Park and on adjacent residential properties (approximately 15)
- reduced sediment and phosphorus loading to Medicine Lake
- reduced City of Medicine Lake capital and maintenance expenditures associated with road and culvert repair caused by excessive volumes and rates of runoff
- sustainability of existing waterfowl and wildlife habitats

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This project is intended to improve conditions for smaller, more frequent storm events but is not intended to address the backflow from Medicine Lake onto the peninsula when water levels are abnormally high. Events greater than the 10-year (10% chance) event can result in high water levels on the lake that backflow into this area. Jevne Park is within the 100-year (1% chance) floodplain for Medicine Lake, as officially mapped by FEMA.

The Jevne Park area is not a Minnesota Department of Natural Resources (MnDNR) public water or wetland. However, this area is mapped as wetland as part of the National Wetlands Inventory (NWI) and is also flagged as a potential wetland in the Hennepin County Wetlands Inventory.

Medicine Lake is listed as impaired on the Minnesota Pollution Control Agency (MPCA) 303d list for mercury, chlorides, and excess nutrients (e.g. total phosphorus) and a Total Maximum Daily Load Study (TMDL) for the excess nutrients was approved in 2011. The TMDL identified a needed reduction in watershed loads to Medicine Lake by 28 percent; however, the wasteload allocation assigned in the TMDL was categorical, meaning the City of Medicine Lake was not assigned a load reduction specific to the city.

Figure 1 shows the location of Jevne Park.

As is required for BCWMC Capital Improvement Project (CIP) Projects, a feasibility study must be completed prior to BCWMC holding a hearing and ordering the project. The feasibility study will develop conceptual designs of the drainage and water quality improvement project, review the permitting requirements, and develop cost estimates for each concept of the project.

This project is consistent with the goals (Section 4.1) and policies (Sections 4.2.1, 4.2.2, and 4.2.10) in the 2015 – 2025 BCWMC Watershed Management Plan.

The BCWMC completed a Resource Management Plan (RMP) in 2009 through which the USACE and the BCWMC agreed on a series of steps, work items, deliverables (called “protocols”) that must be accomplished and submitted to complete the RMP process and USACE review/approval process. Although this project was not included in the RMP, the USACE has allowed the RMP protocols to be applied to other projects not specifically included in the RMP. With the completion of the protocols, we expect the USACE application process to move more quickly than it would otherwise. Most of the protocols must be addressed as part of the feasibility study, in addition to the usual tasks that would be performed as part of a BCWMC feasibility study. In general, the protocols require compliance with Section 106 of the National Historic Preservation Act, compliance with Section 404 of the Clean Water Act, and Clean Water Act Section 401 Water Quality Certification. Compliance with Section 106 typically requires a cultural resources inventory.

## **Content and Scope of Feasibility Study**

The feasibility study will address and include the feasibility study criteria adopted by the BCWMC in October 2013:

- Analysis of multiple alternatives with the context of Commission objectives, including the following for each alternative:
  - Pros and cons analysis
  - Cost estimate for construction and a “30-year cost”
  - Analysis of life expectancy
  - Summarize each alternative for the Commission to judge its merits
  - Cost estimate for annualized cost per pound of pollutant removal
- Evaluation of new and/or innovative approaches
- Identification of permitting requirements

The BCWMC developed the above criteria when the BCWMC’s CIP was limited to water quality improvement projects, so they do not specifically address flood mitigation aspects of CIP projects.

As noted earlier, most of the RMP protocols must be addressed as part of the feasibility study. In addition to the tasks above, the feasibility study will include the identification of wetland impacts to meet the RMP pre-application protocols.

In addition to the RMP protocols and specific criteria adopted by the BCMWC, it is important to gather stakeholder input. The BCWMC Engineer will work with the BCWMC Administrator, and City of Medicine Lake representatives to identify the most-effective means to gather input from the public and other affected stakeholders.

Figure 1 shows the project area covered by this feasibility study. Below is a summary of the work scope components for this feasibility study:

## 1) Project Meetings

- a) Project kick-off meeting with BCWMC staff, and Medicine Lake representatives and preparation of meeting notes.
- b) Meeting with BCWMC staff, Medicine Lake representatives, USACE, MnDNR, and MPCA to discuss concept alternatives and review permit requirements for project, and prepare meeting minutes to confirm regulatory agencies’ discussion results.
- c) Up to two additional meeting with Medicine Lake representatives, as needed.
- d) Biweekly updates to the project team providing updates on work completed, upcoming work, and any outstanding data requests throughout the project

## 2) Field Investigations

- a) Environmental Investigations: Review of the Minnesota Pollution Control Agency’s (MPCA) “What’s in my Neighborhood?” database indicated the presence of a fuel tank on an adjacent residential property and the site is still currently active with the MPCA. However, because the

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historic land use of this area was primarily residential, we do not anticipate widespread contamination resulting from this site that would impact the proposed project at Jevne Park. As part of this feasibility project, we will request and review the information in the MPCA's file for this site. We assume that after review of the MPCA file, a Phase I environmental site assessment will not need to be completed for this project and the project should proceed with a contingency plan in place if contamination were to be encountered during construction.

- b) Wetland delineations –Barr will perform a wetland delineation within Jevne Park, the wetlands south of Peninsula Road within the project area, and the wetland located at the drainage from Jevne Park. We will perform the field wetland delineation in accordance with the Routine Level 2 procedures specified in the USACE's 1987 Wetland Delineation Manual ("1987 Manual", USACE, 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (USACE, 2010), and the 2013 Guidance for Submittal of Wetland Delineation Reports to the USACE and WCA LGUs in MN. We will identify/flag and record wetland boundaries using a GPS unit with sub-meter accuracy. We will amend the existing wetland delineation report that includes the wetland type classifications and descriptions of the delineated wetlands, a brief description of the proposed project, general environmental information, and a discussion of regulations and the administering authorities. The report will also include wetland data forms, precipitation analysis, and site photographs. Barr also will obtain a Wetland Type and Boundary Approval from the Local Government Unit (LGU). Our cost estimate includes a wetland functions and values assessment (i.e., a Minnesota Rapid Assessment Method, or MNRAM, analysis) of the wetland in Jevne Park.
- c) Topographic and utility location survey – We will complete a topographic and utility location survey for the project area, including detailed survey of the outlet structure and overflow from Jevne Park to Medicine Lake. As part of the topographic survey, we will also take elevation measurements of the top and bottoms of the banks to the wetland in Jevne Park and south of Peninsula road within the project area, along with the shallow wetland bottom. We will also perform topographic survey of the wetland and low area and channel downstream of Jevne Park. Although the City just recently completed some culvert work along Peninsula Road last year, we assume there is not survey data available and we will also survey any existing driveway culverts along Peninsula Road that may contribute flows to these areas. Underground utilities will be located based on the location of manhole structures in the field, as-built/construction plan drawings from the City, and utilization of a Gopher State One Call utility locate. We assume that HKGi will provide the sanitary sewer data in electronic format. We will conduct the survey in NAVD88 and use available City of Medicine Lake or City of Plymouth benchmarks.
- d) Tree location, diameter, species, and condition survey – As part of the topographic survey, we will also survey all trees with a diameter of 4 inches or greater, recording the diameter, species, and condition (e.g. dead/live, shaggy/peeling/deeply furrowed bark) of the trees. In addition to

helping with estimated project costs for the various scenarios (if tree removal is required), the tree survey will help determine if the trees within the project area could provide habitat for the northern long eared bat (endangered).

- e) Sediment Sampling – Because there is limited storm sewer infrastructure in the City of Medicine Lake and much of the runoff that enters the wetland in Jevne Park passes over turf and wetland buffer vegetation before reaching the wetland, it is unclear if significant sediment accumulation has occurred in the existing wetland. As part of the wetland delineation task, Barr field staff will screen the sediments in the wetland in Jevne Park during the wetland delineation to see if there appears to be layers of coarse sediment accumulation in the wetland bottom. If this screening indicates that there may be accumulated sediment in the Jevne Park wetland, we will conduct sediment sampling of up to four sediment cores to determine if the accumulated sediment is contaminated, thus restricting the use of the dredged material, and to estimate the location of the natural pond bottom.
- f) Threatened and endangered species desktop review –Barr will perform a desktop review of the available databases to determine the potential for adverse impacts to state and federally listed species.
- g) Cultural resources desktop review - Barr will request review of the existing database from the State Historic Preservation Office (SHPO) for information related to known historic and archaeological resources in the project vicinity and will summarize any available information in the feasibility report.
- h) Project easements – The proposed project in Jevne Park is located on public property, so no additional easement acquisition is anticipated. However, if the proposed feasibility project concepts extend to the low areas and channel south of Peninsula Road, the project would be located on private property and easements would be required. This will be identified as part of the feasibility study.

### **3) Evaluation and Concept Plans**

- a) Development of up to 3 concepts for development of a stormwater management pond in Jevne Park, considering input from stakeholders. The development of these concepts will consider tree removal estimates for each concept (if applicable), including removals needed to gain access to implement each concept.
- b) Use of the BCWMC Phase 2 XP-SWMM and P8 model to estimate impacts to peak flood elevations and pollutant removals, respectively, as a result of the project concepts.
- c) Identify permitting requirements for the concepts, based on wetland delineations and other compiled data, and one (1) meeting with USACE, MnDNR and MPCA staff (see task 1b).

- d) Develop cost estimates for the project, including a “30-year cost,” analysis of life expectancy, and annualized cost per pound of pollutant removal for the water quality treatment portion of the project.
- e) Evaluate the flood reduction benefits of the project, including acre-feet of additional flood storage provided, impact (if any) on Medicine Lake flood elevations and flooding that occurs during smaller storm events (e.g. 2-year and 10-year events), and impact on homes in the floodplain (e.g., are any homes removed from the floodplain, is there a reduction in the inundation depth at adjacent roadways).

#### 4) Public Engagement

- a) Coordinate with BCWMC Administrator and City representatives to determine the best means to gather public input, such as mailings, newspaper articles, open houses, etc. Primary group for public discussions will be the nearby residents and property owners, including residents living around and users of Jevne Park. The budget for this task includes time to prepare for and attend one public meeting early in the process, prior to development of concept plans. We assume that meeting coordination, expenses, and set-up will be largely completed by the BCWMC Administrator in close collaboration with the City. This task includes assistance with public involvement process as necessary – preparing handouts, boards, and/or presentation, and recording and compiling comments.

#### 5) Feasibility Report

- a) Prepare draft report for review by City representatives and BCWMC staff; revise report based upon review comments.
- b) Present draft feasibility study findings at BCWMC meeting.
- c) Prepare final report for approval at BCWMC meeting and for use at future project public hearing.
- d) Present final feasibility study findings at BCWMC meeting.

### Cost Estimate

Table 1 summarizes our cost estimate for the scope of work outlined above.

**Table 1. Jevne Park Stormwater Improvement Project Feasibility Study Costs**

Tasks	Estimated Total
<b>1) Project Meetings</b>	\$8,800
<b>2) Field Investigations</b>	\$23,500
<b>3) Evaluation and Concept Plans</b>	\$20,200
<b>4) Public Engagement</b>	\$ 4,200
<b>5) Feasibility Report</b>	\$13,500
<b>Total</b>	<b>\$70,200</b>

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

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## Schedule



We will complete the tasks and milestones outlined in the scope of work on the following schedule (assuming authorization at the July 2018 BCWMC meeting).

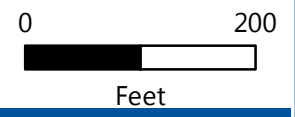
<b>Tasks and milestones</b>	<b>Estimated Schedule</b>
<b>Kick-off meeting with BCWMC and City of Medicine Lake Representatives</b>	August 2018
<b>Wetland delineations</b>	July/August 2018
<b>Combined agency field review/TEP review</b>	August/September 2018
<b>Environmental Review</b>	August 2018
<b>Topographic, utility, and tree survey</b>	August 2018
<b>Desktop Review – threatened and endangered species, cultural resources</b>	August 2018
<b>Sediment sampling</b>	September 2018
<b>Meeting with BCWMC, City, USACE, MN DNR and MPCA</b>	September/October 2018
<b>Develop concept alternatives and cost estimates</b>	October 2018 - January 2019
<b>Public meeting</b>	February 2019
<b>Submit draft feasibility report for City and BCWMC staff review</b>	March 8, 2019
<b>City and BCWMC staff complete review</b>	March 22, 2019
<b>Submit draft feasibility report for BCWMC review at Commission meeting</b>	April 10, 2019
<b>BCWMC completes review at Commission meeting</b>	April 18, 2019
<b>Submit final feasibility report for BCWMC review at Commission meeting</b>	May 8, 2019
<b>Final Feasibility Report – BCWMC approval at Commission meeting</b>	May 16, 2019



-  Subwatersheds
-  Legal Boundary
-  Parcels
-  Project Area

**Contour Type**

-  10-Foot Contour
-  2-Foot Contour



Jevne Park  
Project Area  
BCWMC

**FIGURE 1**

Barr Footer: ArcGIS 10.4, 2017-04-24 12:28 File: I:\Client\BassettCreek\Work\_Orders\2015\Phase2\_XPSWMM\_ModelUpdate\Maps\Reports\Basset\_Report\Figure 2-1\_Watershed.mxd User: rsm



Aerial Imagery: 2015 FSA