



Bassett Creek Watershed Management

MEMO

To: BCWMC Commissioners and Alternate Commissioners
From: BCWMC Technical Advisory Committee
Date: April 12, 2022

RE: Discussions and Recommendations From March 18th Meeting

The BCWMC Technical Advisory Committee met on March 18th via Zoom to discuss several items. Discussion and recommendations included below. Attendees included:

City/Partner	Technical Advisory Committee Members and Others
Crystal	Mark Ray, Chair
Golden Valley	Eric Eckman, RJ Kakach, Drew Chirpich
Medicine Lake	Susan Wiese
Minneapolis	Liz Stout, Katie Kowalczyk
Minnetonka	Sarah Schweiger, Leslie Yetka
New Hope	Nick Macklem
Plymouth	Ben Scharenbroich, Chris LaBounty
Robbinsdale	Richard McCoy
St. Louis Park	Erick Francis
Others	Laura Jester, Administrator; Karen Chandler and Jim Herbert, Commission Engineers; Commissioner Michael Welch

1. Review Latest Costs for Flood Control Project (FCP) Inspections and Consider Future Budgeting

At their meeting in December, the Commission approved the TAC recommendation to update the Flood Control Project (FCP) Inspection Program as shown in Table 1 below. The TAC and Commission also agreed that Commission Engineers should investigate the use of new technologies (e.g., cameras and drones) for tunnel inspections.

At this TAC meeting, Commission Engineer Herbert reviewed various tunnel inspection options that would utilize new and different techniques and technologies (such as radar, lasers, robots, drones, drilling). He noted that additional data and information could be gathered with most of these technologies, but rather than saving money, they all come at a higher cost than traditional inspection methods currently employed. However, Engineer Herbert also noted that the various technologies evaluated could collect helpful and essential information that is not gathered through the current inspection process.

Engineer Herbert described “destructive” vs. “non-destructive” inspection techniques, noting that destructive techniques require drilling holes into the tunnel wall to measure voids behind the wall. He recommended using non-destructive techniques to keep the tunnel wall intact. Engineer Herbert suggested that one option may be to pilot one non-destructive technique in a smaller section of the tunnel to determine effectiveness and assess cost benefit. The TAC agreed with this approach and the importance of using non-destructive techniques.

The TAC also reviewed the updated costs of the inspection program. Currently, the BCWMC Operating Budget includes \$25,000/year to be set aside to cover inspections over a 20-year period (for a total of \$500,000 in 20 years). The updated 20-year cost is \$650,000 - \$670,000 (Table 1).

Table 1. Updated Flood Control Project Inspection Program

Item	Current/ Recommended Inspection Cycle	Cost/Inspection ¹	20-Year Cost ^{1,2} Current/Recommended
Annual inspection of the FCP features, except double box culvert & the deep tunnel	Annually	\$15,000	\$200,000/\$300,000
Double box culvert inspection (NASSCO) ³	Every 5 years	\$45,000	\$128,000/\$180,000
Deep tunnel (2 nd St. & 3 rd Ave.) inspection (NAASCO) ³	Every 10 years	\$65,000	\$65,000/\$130,000
Two additional deep tunnel inspections of 3 rd Ave tunnel and unsubmerged portions of 2 nd St. tunnel (non-NASSCO) ⁴	Every 10 years – 5 years after full deep tunnel inspection above (two total inspections)	\$20,000	\$0/\$40,000
Total²			\$428,000/\$650,000-\$670,000

¹ 2021 dollars

² Simple summation (annualized or present worth not calculated)

³ Tunnel condition inspection based on pipeline assessment and certification program developed by the National Association of Sewer Service Companies (NASSCO)

⁴ Brief tunnel inspections looking for significant changes without coding existing or new defects or preparing detailed report, includes preparation of technical memorandum.

TAC Recommendations on Flood Control Project (FCP) Inspections:

- A. Employ only non-destructive inspection techniques in the Bassett Creek Tunnel, including no drilling of microphones into tunnel walls.

- B. With the next deep tunnel inspection in 2025 (3rd Ave tunnel and unsubmerged portions of 2nd St tunnel), pilot a new inspection technique using geophysical techniques, such as ground penetrating radar or multichannel analysis of surface waves, to look for voids behind the tunnel walls in a 500-ft unsubmerged portion of the tunnel. This pilot inspection method will serve as “proof of concept” for a method that could be used for longer tunnel lengths and in the deeper (submerged) tunnel sections locate voids there during future schedule inspections.
- C. Adjust the annual operating budget to set aside \$35,000 per year to cover the cost of the 20-year inspection program and to account for higher cost of pilot program in 2025. Reassess future costs after pilot program.

2. 2024 – 2028 Capital Improvement Program (5-year CIP)

The TAC annually reviews potential additions and changes to a rolling 5-year CIP (2024 – 2028). No new projects were proposed by cities for the 5-year CIP. However, the City of Plymouth requested that two Plymouth Creek restoration projects (2026CR-P and 2027 CR-P) be combined into one project and that the estimated budget for this combined project be adjusted to account for the current construction cost environment. There were no objections to these requests. The TAC also discussed adjusting estimated costs of other future CIP projects to account for inflation.

TAC Recommendations on 5-year CIP: (see attached CIP table and Plymouth Cr restoration fact sheet)

- A. Combine Plymouth Creek Restoration Projects 2026CR-P and 2027CR-P into one project and increase estimated cost from \$1.1M (total of individual projects) to \$2M (combined larger project).
- B. Increase estimated costs of other CIP projects including
 - a. BC-2,3,8,10 (2025 and 2026) from \$1.3M to \$1.6M
 - b. 2024CR-M from \$700,000 to \$800,000
 - c. BC-13 from \$700,000 to \$900,000

3. Outreach to Cities for WMP Development

TAC members briefly reviewed how they would gather input from city councils or commissions on the BCWMC 2025 Watershed Management Plan (WMP). TAC members requested additional information from BCWMC staff on what information and input the BCWMC seeks from cities. Administrator Jester and Commission Engineer Chandler agreed to develop a more formal request for city’s use.

4. Watershed Based Implementation Funding Convene Meetings

The TAC appointed Mark Ray and Erick Francis as city representatives for a future “convene” meeting regarding use of BWSR’s Watershed Based Implementation Funding for FY22-23. The convene meeting will likely be held in early May.

Project Category: Water Quality/Water Capacity

Project Title: Plymouth Creek Stream Restoration – Dunkirk to PIC

Total Estimated Cost: \$2,000,000

BCWMC Project Number: 2026CR-P

Description:

This project in the city of Plymouth will repair erosion and sedimentation that is occurring in Plymouth Creek from Dunkirk Lane to 37th Avenue North behind the Plymouth Ice Center (PIC). The project will likely include various erosion repair and buffer restoration techniques, removal of accumulated sediment, reduction of flood potential, and enhancement of riparian wetlands.

Source of Project Funding	2023	2024	2025	2026	2027
CIP Account – BCWMC ad valorem tax levy through Hennepin County				<u>\$1,000,000</u>	<u>\$1,000,000</u>

Justification:

This stream restoration project along 6,500 feet of Plymouth Creek will remove accumulated sediment from the stream channel and adjacent wetlands. Removing accumulated sediment in this area will result in lowering the flood potential for homes and stormwater infrastructure. Additionally, private landowners along this stretch will be contacted with the goal of expanding buffers along backyards.

Erosion along the stream channel would be repaired, reducing pollutants like total phosphorus and total suspended solids, and possibly improving riparian and in-stream habitats. Various methods of repairing erosion will be investigated including storm sewer pipe, bio engineering techniques, and rip rap. Natural restoration techniques will be followed as much as possible, however the need for hard armoring and rip rap is expected to be necessary in some locations.

As a part of the stream restoration project, educational efforts including outreach and signage along the trail will be included. Additional outreach will be done with students and staff at Plymouth Creek Elementary School, which is within the project area.

Scheduling and Project Status:

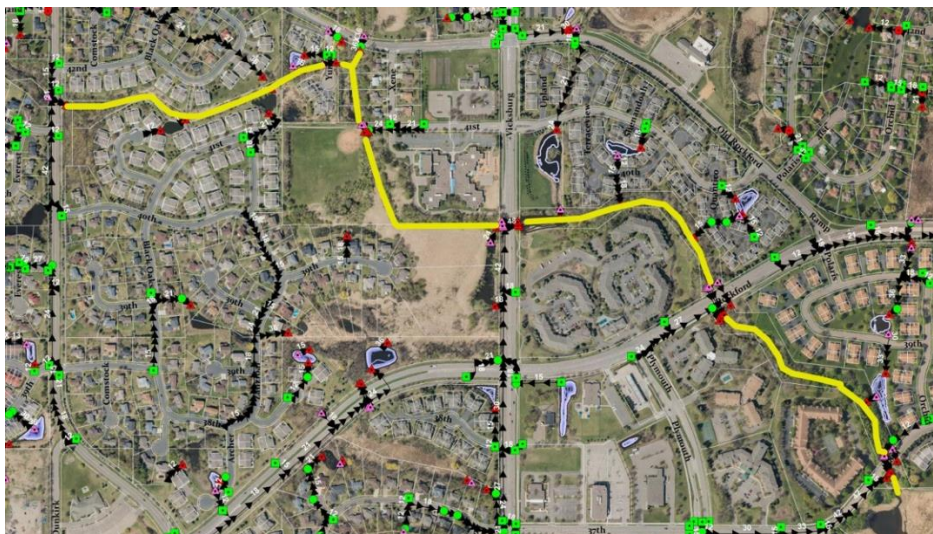
[Staff will provide this information.]

Relationship to BCWMC Plan and Other Projects:

This project is consistent with the goals and policies of the BCWMC Watershed Management Plan. This project would assist in meeting the goals of the Medicine Lake Total Maximum Daily Load study.

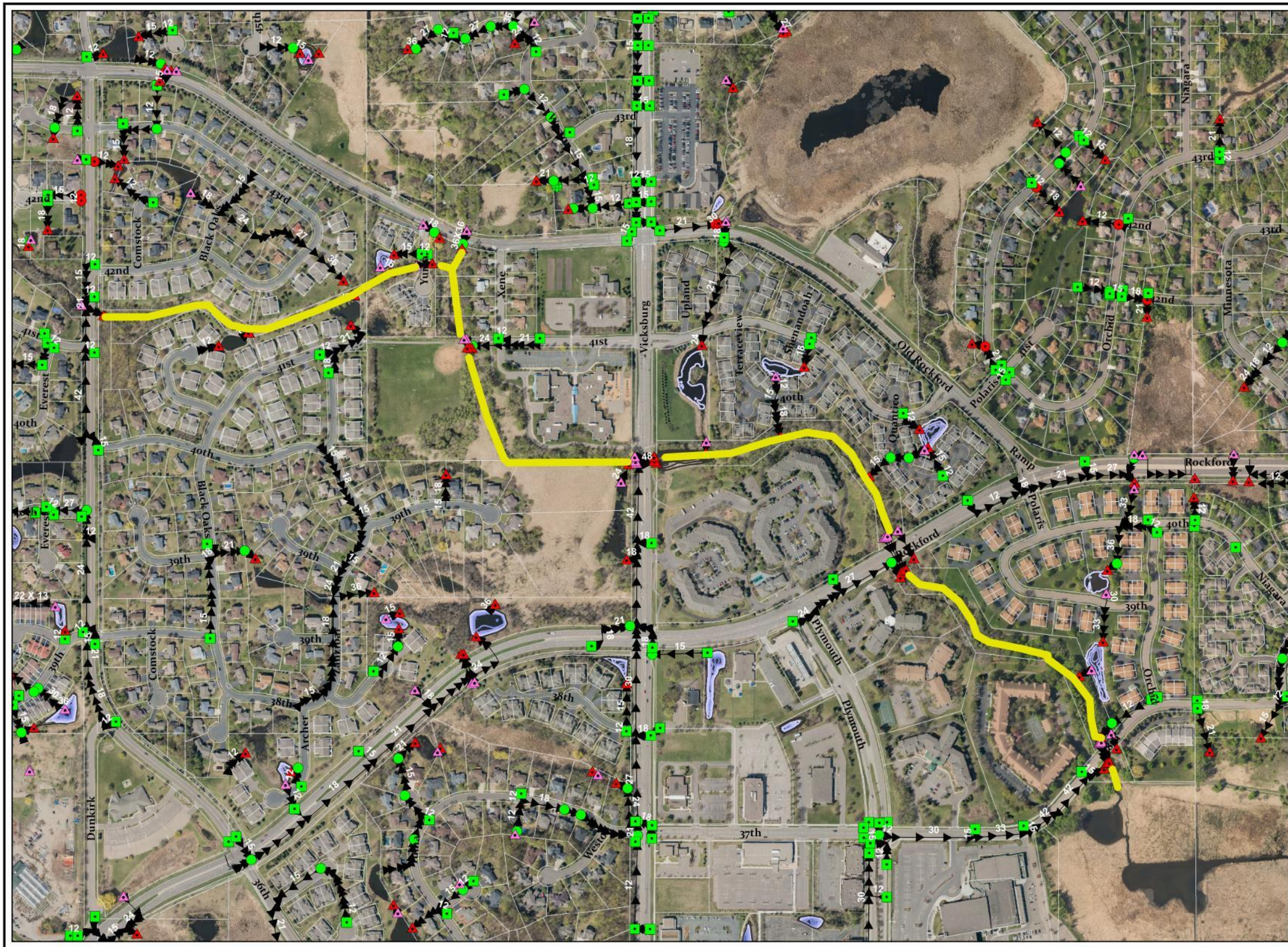
Effect on Annual Operations Costs:

This project has no effect on BCWMC Annual Operations Costs.

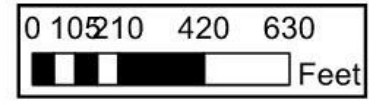
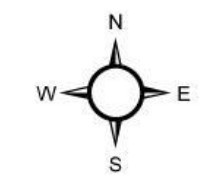


Plymouth Creek Stream Restoration

~6,500 lf



- Legend**
- BAP
 - EAP
 - Storm_CatchBasin
 - Storm_Manhole
 - Storm_Outlet
 - Storm_Sumps
 - Storm_Main
 - Storm_Culvert
 - Lakes
 - Parcels



DRAFT BCWMC 5-year Capital Improvement Program: 2024 – 2028 CIP List

Project Name	City	Number	2020	2021	2022	2023	2024	2025	2026	2027	2028	Totals
Medicine Lake Rd & Winnetka Ave Long Term Flood Mitigation Plan Project (DeCola Ponds B&C Improvement Proj. + DeCola Pond F Flood Storage & Diversion Project + SEA School Flood Storage)	GV, Crystal, New Hope	BC-2,3,8, 10	\$500,000		\$300,000	\$1,000,000		\$1,000,000 \$1,150,000	\$300,000 \$450,000			\$4,131,500 \$4,431,500 (inc. 2019 costs)
Water quality improvements in Bryn Mawr Meadows, Main Stem Watershed ¹	MPLS	BC-5	\$100,000	\$412,000		\$923,000						\$1,435,000
Medley Park Stormwater Treatment Facility ³	GV	ML-12			\$400,000	\$150,000	\$800,000					\$1,350,000
Mt. Olivet Stream Restoration Project	PLYM	ML-20		\$178,100								\$178,000
Dredging accumulated sediment in Main Stem Bassett Creek Lagoons, Wirth Park ⁴	GV/MPLS	BC-7		\$600,000	\$1,100,000	\$534,000	\$200,000					\$2,434,000
Stormwater Pond in Jevne Park to alleviate flooding/improve water quality	Medicine	ML-21	\$500,000									\$500,000
Crane Lake Improvement Project @ Ridgedale Dr.	Minnetonka	CL-3	\$380,000									\$380,000
Parkers Lake Drainage Improvement Project	Plymouth	PL-7		\$485,000								\$485,000
Bassett Creek Main Stem Restoration - Regent Ave to Golden Valley Rd	Golden Valley	2024-CR-M					\$100,000 \$200,000	\$600,000				\$700,000 \$800,000
Ponderosa Woods Stream Restoration	Plymouth	ML-22					\$475,000					\$475,000
Sweeney Lake Water Quality Improvement Project (alum + carp management)	Golden Valley	SL-8	\$20,000 ²	\$218,080 ²								\$238,080
Cost share purchase of high efficiency street sweeper	Plymouth	ML-23		\$81,600								\$81,600
Crane Lake Chloride Reduction Demonstration Project at Ridgedale Mall	Minnetonka	CL-4							\$300,000			\$300,000
Plymouth Creek Restoration Project Old Rockford Rd. to Vicksburg Ln. <u>Dunkirk Lane to Plym Ice Center</u>	Plymouth	2026CR-P							\$500,000 \$1,000,000	\$1,000,000		\$500,000 \$2,000,000
Cost share purchase of high efficiency street sweeper	Golden Valley	BC-12					\$100,000	\$50,000				\$150,000
Toledo Ave/Minnaqua Pond Stormwater Improvements & Flood Reduction	Golden Valley	BC-13								\$300,000 \$400,000	\$400,000 \$500,000	\$700,000 \$900,000
Plymouth Creek Restoration Dunkirk to Yuma and Vicksburg to Cty Rd 9	Plymouth	2027CR-P								\$600,000		\$600,000
Flood Control Project Double Box Culvert Repairs	Minneapolis	FCP-1								\$700,000 \$400,000	\$500,000 \$800,000	\$1,200,000
Estimated Total Project Cost			\$1,500,000	\$1,974,780	\$1,800,000	\$2,607,000	\$1,775,000	\$1,800,000	\$1,750,000	\$1,800,000	\$1,200,000	
Estimated Use of BCWMC Closed Project Account Funds			\$0	\$500,000	\$100,000	\$400,000	\$0	\$0	\$0	\$0	\$0	\$1,000,000
Estimated Total Levy			\$1,500,000	\$1,474,780	\$1,700,000	\$2,207,000	\$1,775,000	\$1,800,000	\$1,750,000	\$1,800,000	\$1,200,000	\$12,833,780

¹ Total project cost estimated at \$1,835,000, received \$400,000 Clean Water Fund grant.

² Total project cost estimated at \$568,080, received \$330,000 Federal 319 grant.

³ Estimated total project costs at \$2,150,000; Golden Valley to provide estimated \$500,000; \$300,000 Clean Water Fund Grant

⁴ Total project cost reduced by \$500,000 for lower-than-expected engineering; \$325,000 in grants received