BROWN'S CREEK WATERSHED DISTRICT

Preserving the integrity of the watershed for future generations

www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

REGULAR MEETING OF THE BOARD OF MANAGERS
Wednesday, June 10, 2026
Regular Meeting at 6:30 PM

MEETING LOCATION
Stillwater Township Hall
13636 90th Street North, Stillwater, MN 55082

1) Call Regular Meeting to order

2) Approve Agenda **-Board Action**

3) Public Comments

4) Consent Agenda – **Board Action** (*all items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion. There will be no separate discussion on these items unless a Manager removes an item from the consent agenda for discussion or there is a request to remove the item from the consent agenda, in which event the board will consider whether to remove the item from the consent agenda and consider it separately*.)
   a) Approve minutes of the May 13, 2026 regular meeting
   b) Accept Permit Fee Statement
   c) Accept Authorized Funds Spreadsheet and approve revised budget
   d) Authorize the payment of bills as presented
   e) Authorize administrator to enter into an agreement upon advice of counsel with Woodchuck Tree Care for tree removal services on the Brown's Creek Conservation Easement Area not to exceed $6,000 from account 935-0002
   f) Accept 2025 Audit and authorize distribution
   g) Authorize registration, lodging, and expenses for staff for the Minnesota Watersheds summer tour not to exceed $650 from account 200-4265
   h) Authorize registration, lodging, expenses, and per diems for board managers for the Minnesota Watersheds summer tour not to exceed $3,700 from account 200-4000

5) Permits
   a) BCWD Permit #26-03: 7Brew Engineer's Report – **Board Action**

6) Planning
   a) 2027-2036 Watershed Management Plan
      i) Public Hearing to receive comments
      ii) Submit draft for 90-day review – **Board Action**

7) Projects
   a) Brown's Creek Restoration Phase 2: Brown's Creek Cove agreements

Managers:
Klay Eckles, President • Chuck LeRoux, Vice-President • Celia Wirth, Treasurer • Luke Mattson, Secretary • Griffin Brod

8) Discussion Agenda - No Action Required
    a) Updates
        i) Administration
            (1) EMWREP 20th Anniversary Celebration –Thurs, Sept 29 at 5-7pm Rustic Roots
            (2) Award of Minnesota Department Health – Accelerated implementation planning grant
            (3) BCWD Upcoming Events
            (4) Impervious and land cover analysis – complete and sharing with communities
        ii) Legal
        iii) Engineer
            (1) BCWD Permit 25-30 Brixton Townhome Update
        iv) Managers
    b) July 2026 Regular Meeting BCWD Board Agenda

9) Adjournment

DRAFT Minutes of the regular meeting of the Brown's Creek Watershed District Board of Managers, Wednesday May 13, 2026

Roll call

Managers Present:	Others Present:
Klayton Eckles, President	Karen Kill, BCWD administrator
Chuck LeRoux, Vice President	Hannah Peterson, BCWD communications and project assistant
Celia Wirth, Treasurer	Michael Welch, Smith Partners, BCWD counsel
Griffin Brod, 2nd Vice President	Camilla Correll, EOR, BCWD engineer
Luke Mattson, Secretary	Alexander Furneaux, EOR
	Anne Wilkinson, EOR

1) Call to order

President Klayton Eckles called the regular meeting to order at 6:30 p.m.

2) Approve agenda

Manager Brod moved, seconded by Manager Mattson, to approve the agenda as presented. Motion carried 5/0.

3) Public comments

There were no public comments.

4) Consent agenda

Celia Wirth requested removing item 4g, authorize beaver informational signage not to exceed $500 from account 910-0000, and Michael Welch requested removing item 4k, authorize administrator to amend, on advice of counsel, the agreement for engineering services to update the rates as presented, from the consent agenda for discussion.

a) Approve minutes of the April 8, 2026, regular meeting as presented
b) Accept Permit Fee Statement as presented
c) Accept Authorized Funds Spreadsheet and approve revised 2026 Budget as presented
d) Authorize the payment of bills as presented, totaling $187,486.27
e) Authorize the apparel order for managers, staff, and community advisory committee not to exceed $1,000 from 200-4949 Miscellaneous Expenses
f) Authorize the Brown's Creek restoration signage scope not to exceed $5,000 for Emmons and Olivier Resources and $5,000 for Vacker Sign for a total not to exceed $10,000 from account 910-0000 Education and Outreach
h) Accept the groundwater trends summary report
i) Authorize the groundwater trend monitoring scope with Emmons and Olivier Resources not to exceed $4,160 from account 942-0004
j) Accept the macroinvertebrate monitoring summary report from 2016-2025

Manager Wirth moved, seconded by Manager Brod, to approve the consent agenda as amended/presented. Motion carried 5/0.

g) Authorize beaver informational signage not to exceed $500 from account 910-0000

Manager Wirth asked about the format of the signs proposed to be purchased by staff to educate the public on beaver activity, and the idea that people should "encourage" beaver activity. Hannah Peterson said that they would be 18-inch by 24-inch aluminum signs installed in three locations and that the language was influenced by University of Minnesota beaver researchers. Karen Kill said that landowners have been interested in beavers and the ecological benefits they provide. President Eckles shared that he has seen habitat benefits and wildlife activity from the dams by his property. He requested legal counsel to look into the trapping laws for beavers on public property. Manager Wirth requested a QR code to be added linking to beaver information on the BCWD website.

Manager Wirth moved, seconded by Manager Eckles, to authorize beaver informational signage with the language as presented not to exceed $500 from account 910-0000 and to direct legal counsel to research the legality of trapping on public property. Motion carried 5/0.

k) Authorize administrator to amend, on advice of counsel, the agreement for engineering services to update the rates as presented

Ms. Kill and Mr. Welch explained that Stu Grubb is listed in the updated scope of services at a higher rate for principals.

Manager Wirth moved, seconded by Manager Brod, to authorize the administrator to amend, on advice of counsel, the agreement for engineering service to update the rates as presented. Motion carried 5/0.

5) Selection of officers and designation of acting administrator June 5-21, 2026

a) Designation of acting administrator June 5-21, 2026

Ms. Kill said that she will be out of the office and country from June 5 to June 21, 2026, and recommended designating Hannah Peterson as acting administrator during her absence. Manager Eckles asked about designating an acting administrator for whenever Ms. Kill is out, and Mr. Welch recommended just doing for the timeframe noted since Ms. Kill will be unreachable, and to avoid potential confusion by adopting a more general designation.

Manager Mattson moved, seconded by Manager Wirth, to designate Hannah Peterson as administrator *pro tem* from June 5 to June 21, 2026. Motion carried 5/0.

b) Selection of officers

The managers discussed the responsibilities of the various officers and which roles they were interested in.

Manager Wirth moved, seconded by Manager Mattson, to designate Klayton Eckles as president, Celia Wirth as treasurer, Chuck LeRoux as vice president, Luke Mattson as secretary, and Griffin Brod as 2nd vice president. Motion carried 5/0.

6) Planning

a) 2027-2036 Watershed Management Plan

i) Draft responses to written comments

Alexander Furneaux presented an overview of the comments received on the draft watershed management plan and possible responses prepared by staff, engineers, and legal counsel. The managers shared appreciation for the comments and staff time spent developing responses. They discussed how the City of Stillwater did not provide comments, but staff was involved in the development of the plan, while the City of Oak Park Heights was not very involved in the planning process, but provided specific comments. The managers also discussed the comparison of monitoring budgets for BCWD and neighboring

Valley Branch Watershed District. Mr. Welch also shared updated language regarding city involvement in regional solutions. Ms. Peterson said that the tables in the plan will be updated to a more accessible format.

ii) Next steps – June 10, 2026 public hearing and finalize responses to comments

Mr. Welch presented the next steps in the plan-update process, noting that a public hearing on the draft plan will be held as part of the June regular meeting.

Manager Wirth moved, seconded by Manager Brod, to authorize the administrator to finalize and issue the proposed responses to comments, and duly notice the public hearing on the plan for the regular June meeting. Motion carried 5/0.

b) Brewer's Pond water quality improvement feasibility

Ms. Kill said that Brewer's Pond is one of the final water bodies for which BCWD will complete a management plan, in addition to Heifort Pond. The managers discussed the proposed process and costs and asked Anne Wilkinson for clarification on the benefit of conducting a sediment analysis. Dr. Wilkinson explained that the sediment analysis through University of Wisconsin-Stout, a more cost-effective choice than the few labs in the area that can perform such analysis, would determine which form of phosphorus is bound to sediment in the pond and indicate what the dose of alum would achieve the targeted results. She said that the cost of alum treatment has risen significantly and that the Minnesota Pollution Control Agency wants to see the due diligence of a study prior to treatment, rather than just treating the pond and seeing how it goes.

Manager Wirth moved, seconded by Manager LeRoux, to approve the scope of services not to exceed $24,939, of which $5,184 will be subcontracted with UW-Stout for sediment analysis, all from account 967-0000 after transferring $4,939 from the contingency reserve. Motion carried 5/0.

7) Projects

a) Brown's Creek Restoration Phase 2: Brown's Creek Cove land-use agreements

Ms Kill said that progress has been made with getting landowners to agree to all access to and use of their properties for the creek-restoration project. Brown's Creek Cove Homeowners' Association has given verbal support, and its officers are ready to sign an agreement. The other landowners asked about a non-permanent option, and Mr. Welch proposed an easement where there is a recorded easement for a set period, recommended as 10 years, but the landowner can request it be removed after that time. He also said it could be removed earlier if both parties are in agreement. The managers were supportive of this approach.

Manager Eckles moved, seconded by Manager LeRoux, to authorize the administrator to execute land-use agreements, on advice of counsel, with Brown's Creek Cove Homeowners' Association with a permanent easement and with the other landowners with an easement with a termination provision after 10 years, for the Brown's Creek Restoration Project Phase 2: Brown's Creek Cove. Motion carried 5/0.

8) Discussion agenda

a) Updates

iii) Administrator

Ms. Kill said the Minnesota Watersheds summer tour would be August 25-26 in Detroit Lakes and explained that Minnesota Watersheds is the membership organization for watershed organizations. She said that there are Community Advisory Committee minutes and a regulatory program update for review in the packet and that she has recently had

good communication with new city staff and homeowners' associations. She also shared about the July Long Lake art event with A House Unbuilt and three artists, that the Brown's Creek accessible fishing pier was a part of the governor's fishing opener, and that Stillwater Area High School released trout through the Trout in the Classroom program and did macroinvertebrate sampling. Additionally, Ms. Kill said that there was an upcoming tree planting event at the Brown's Creek restoration area, that the audit report should be ready by June, and that the board may request presentations on reports in the consent agenda. She also asked about date preferences for the East Metro Water Resource Education Program's 20th anniversary, and Manager Wirth and Manager Mattson indicated preference for Thursday, September 29.

iv) Legal

Mr. Welch said that he is tracking changes to state plumbing law that would prohibit using stormwater for irrigation.

v) Engineer

There were no updates.

vi) Managers

The managers discussed that registration fees for the Minnesota Watersheds summer tour would be brought to the board when available. Manager Brod said that he would be absent for the June regular meeting.

b) June 2026 Regular Meeting Agenda

9) Adjournment

Manager Mattson moved, seconded by Manager Brod, to adjourn the regular meeting at 8:39 p.m. Motion carried 5/0.

Respectfully submitted by Hannah Peterson, BCWD staff and Luke Mattson, Secretary

BROWN'S CREEK WATERSHED DISTRICT

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Permit Fee Statement

Financial Summary

Balance Due to BCWD	$120,637.72
Balance Due to Permit Applicants	-$156,543.35
Total Exempted	$159,026.08

Balance By Permit

Permit Number	Project Name	Permit Status	Permit Status Date	Rule 2.0	Rule 3.0	Rule 4.0	Rule 5.0	Rule 6.0	Rule 7.0	Rule 10.0	Project Type	Balance Exempt	Balance Due
05-12	Bergmann Development/Sanctuary	Permitted	10/14/05	☑	☑	☑	☐	☐	☑	☐	RES DEV		$0.00
15-07	Brown's Creek Cove	Permitted	05/05/16	☑	☑	☑	☐	☐	☑	☑	RES DEV		$8,238.52
16-03	The Ponds at Heifort Hills	Permitted	09/27/16	☑	☑	☑	☑	☐	☑	☑	RES DEV		$1,327.34
17-01	Farms of Grant/White Oaks Savannah	Permitted	10/08/18	☑	☑	☑	☐	☐	☑	☑	RES DEV		$26,162.59
17-04	The Lakes at Stillwater	Permitted	11/22/17	☑	☑	☑	☐	☐	☑	☐	COM		$4,843.95
17-17	West Ridge	Permitted	08/17/18	☑	☑	☑	☐	☐	☑	☐	RES DEV		$2,189.16
18-04A	Boutwell Farms	Permitted	09/28/18	☑	☑	☑	☐	☐	☑	☐	RES DEV		$785.69
18-05	Hazel Place/Heritage Ridge	Permitted	11/14/18	☑	☑	☑	☐	☐	☑	☐	RES DEV		-$1,679.20
18-06	Nottingham Village	Permitted	03/05/26	☑	☑	☑	☐	☐	☑	☐	RES DEV		$1,412.90
18-14	St Croix Valley Recreation Center Expansion	Permitted		☐	☑	☐	☐	☐	☑	☐	GOV DEV	$7,406.28	
19-05	Central Commons	Permitted	09/24/25	☑	☑	☑	☐	☐	☑	☐	COM		-$2,150.02
20-05	Neal Ave Road Reconstruction	Permitted	06/01/20	☑	☑	☐	☐	☐	☐	☐	ROAD	$19,088.31	
20-08	CSAH 15-36 Interchange	Permitted	03/24/21	☐	☑	☐	☐	☑	☑	☐	ROAD	$24,166.21	
20-12	White Pine Ridge	Permitted	06/07/21	☐	☑	☐	☐	☐	☐	☐	RES DEV		$2,904.47
21-13	Marylane Gateway Addition	Permitted	09/29/21	☑	☑	☐	☐	☐	☑	☐	RES DEV		-$611.00
21-15	Schwartz Residence	Permitted	09/07/21	☑	☑	☐	☐	☐	☐	☐	SF RES		-$319.38
21-34	Fahey Residence	Permitted	11/04/21	☐	☑	☐	☐	☐	☐	☐	SF RES		-$743.78
21-45	Norell Ave N Improvements	Permitted	06/15/22	☑	☑	☐	☐	☐	☑	☐	ROAD	$10,458.63	
22-11	7125 Lone Oak Trail (WOS L106)- Wiechman	Permitted	09/25/22	☐	☑	☐	☐	☐	☐	☐	SF RES		$8,607.88
22-18	Stillwater Oaks	Permitted	10/11/25	☑	☑	☑	☐	☐	☑	☐	RES DEV		-$5,029.21
22-20	Popeyes OPH	Permitted	11/09/22	☐	☑	☐	☐	☐	☐	☐	COM		-$189.62
22-31	Wash Co. CSAH 57 culverts	Permitted	02/02/23	☐	☑	☐	☐	☐	☐	☐	ROAD	$1,053.00	
23-01	Cty Rd 61 Re-alignment	Permitted	04/12/23	☑	☑	☐	☐	☐	☐	☐	ROAD	$8,147.40	
23-02	WOS L114 - Cates (7211 Lone Oak Trail Tweden)	Permitted	05/04/23	☐	☑	☑	☐	☐	☑	☐	SF RES		$0.00
23-11	7273 Lone Oak Trail- WOS Lot 122 - Freiroy Residence	Permitted	04/04/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,958.42
23-15	7085 Lone Oak Trail- WOS L102- Mensah Res/Cates	Permitted	09/06/23	☐	☑	☐	☐	☐	☐	☐	SF RES		$2,533.54
23-19	Liberty Classical Academy Expansion	Permitted	09/10/25	☑	☑	☑	☐	☐	☑	☐	COM		-$4,464.19
24-01	Take 5 Oil Change	Permitted	08/23/24	☑	☑	☐	☐	☐	☑	☐	COM		-$7.72
24-03	WOS L120- 7255 Lone Oak- Hilgert	Permitted	03/18/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$4,137.24
24-06	Rutherford Elementary	Permitted	08/29/24	☑	☑	☐	☐	☐	☑	☐	GOV DEV	$8,580.06	
24-07	Elliott Crossing	Permitted	04/29/25	☑	☑	☑	☐	☐	☑	☐	RES DEV		-$5,145.37
24-08	Altendorfer Residence - 13075 Lynch Rd	Permitted	05/08/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,127.85
24-09	Washington County CSAH 5 - Trails and Bridge	Permitted	01/28/25	☑	☑	☐	☑	☐	☑	☐	ROAD	$22,952.40	
24-11	WOS Lot 127 Karr Residence (Cates)	Permitted	08/29/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$2,370.01
24-12	WOS Lot 130-Carlson Residence	Permitted	10/15/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,401.10
24-15	Lornston Residence	Permitted		☐	☑	☑	☐	☐	☐	☐	SF RES		$9.05
24-16	Goodsell Residence	Permitted	12/10/24	☐	☑	☑	☐	☐	☐	☐	SF RES		$0.00
24-17	WOS Lot 129 - Weatherby	Permitted	12/03/24	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,644.83
24-18	Washington County CSAH 15B/South Frontage Rd	Permitted	04/09/25	☑	☑	☐	☑	☑	☑	☑	ROAD	$26,705.17	
25-01	Curve Crest Boulevard Utility Extension	Permitted	02/19/25	☐	☑	☐	☐	☐	☐	☐	UTILITY	$2,719.22	
25-02	Anderson Holdings Mass Grading	Ready to Close	06/04/26	☐	☑	☐	☐	☐	☐	☐	COM		$6,184.37
25-03	HealthPartners Lakeview Campus	Permitted	07/02/25	☑	☑	☑	☑	☐	☑	☐	COM		$8,163.72
25-04	Kranz Home Addition	Permitted	03/14/25	☑	☑	☐	☐	☐	☑	☑	SF RES		$1,396.94
25-05	St. Croix Rec Center Parking Lot Extension	Permitted	07/28/25	☑	☑	☐	☐	☐	☑	☐	GOV DEV	$14,020.48	
25-06	CSAH 15 Pavement Preservation	Permitted	03/18/25	☐	☑	☐	☐	☐	☐	☐	ROAD	$2,070.24	
25-07	WOS Lot 121 - Castillo Residence	Permitted	04/24/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$3,038.35
25-09	Marylane Lot 4 - Dockter Residence	Permitted	05/20/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$2,407.70
25-11	Stillwater Wellhead 10 PFAS Treatment	Permitted	06/27/25	☐	☑	☐	☐	☐	☐	☐	UTILITY	$8,313.43	
25-12	Doede Home Construction	Permitted	07/25/25	☐	☑	☑	☐	☐	☐	☐	SF RES		$1,176.37
25-13	Xcel Energy Steel Pole Replacement	Permitted	07/14/25	☐	☑	☐	☐	☐	☐	☐	COM		$2,435.43
25-14	119th St. N - Husnik Residence	Permitted	08/22/25	☑	☑	☐	☐	☐	☐	☐	SF RES		-$218.66
25-15	Elliott Crossing Lot 1 - Belin Residence	Permitted	07/07/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,629.98
25-17	WOS Lot 128 - Morud Residence	Permitted	08/22/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,806.37
25-18	Marylane Gateway Lot 3 - Deininger Residence	Permitted	07/24/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,272.03
25-19	Elliott Crossing Lot 3 - Kootenia	Permitted	09/03/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$747.91
25-21	Bryant Yard Extension	Permitted	09/10/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$121.88
25-22	WOS Lot #117- Upadhyaya	Permitted	10/02/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$1,514.47
25-23	10286 Kismet Ln N Septic	Permitted	10/17/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$0.00
25-24	Ziegler Pole Shed	Permitted	10/02/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$552.04
25-26	Elliott Crossing Lot 4 - Zawadski Homes	Permitted	10/23/25	☐	☑	☐	☐	☐	☐	☐	SF RES		$258.69
25-27	Elliott Crossing Lot 5 - Style & Structure	Permitted	12/01/25	☐	☑	☐	☐	☐	☐	☐	SF RES		-$408.27
25-28	Chick-fil-A Stillwater	Permitted	04/17/26	☑	☑	☐	☐	☐	☑	☑	COM		$913.43
25-29	Sunrise Park Trail	Conditionally Approvec	03/11/26	☑	☑	☐	☐	☐	☑	☐	GOV DEV	$3,345.25	
25-30	Brixton Townhomes	Conditionally Approvec	02/11/26	☑	☑	☑	☐	☐	☑	☐	RES DEV		$5,307.75
26-01	Elliott Crossing Lot 2 - Anderson	Permitted	01/14/26	☐	☑	☐	☐	☐	☐	☐	SF RES		$246.75

26-02	Sanctuary Wastewater Treatment Facility	Permitted	02/20/26	☐	☑	☐	☐	☐	☐	☐	RES DEV		-$648.33
26-03	7 Brew Coffee - Oak Park Heights (60th)	Assessing Completene	04/07/26	☑	☑	☐	☐	☐	☐	☐	COM		$8,406.75
26-04	Bergmann Residence Addition	Approved	06/08/26	☑	☐	☐	☐	☐	☐	☐	SF RES		$1,402.25
26-05	Nagle Property	Permitted	06/03/26	☐	☑	☐	☐	☐	☐	☐	SF RES		$0.00
26-06	Stillwater Fire Station Pavement Rehab Project	Approved	06/04/26	☐	☑	☐	☐	☐	☐	☐	GOV DEV	$0.00	

Brown's Creek Watershed District
2026 Budget -Approved 5-13-2026
6-10-2026

		Revised Carry Forward	2026 Grants	2026 Levy	Revised 2026 Total Budget	Allocated	Available
100-2910	Designated Funds - Management Plan Projects	*$ 816,057*			$ 816,057		$ 816,057
					$ -		$ -
Revenue					$ -		$ -
100-3700	Interest Income				$ -		$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		$ 5,000		$ 5,000		$ 5,000
100-3630	Washington County Cost-share Applewood Reuse		$ 60,000		$ 60,000		$ 60,000
100-3631	MPCA Small Watershed Grant 2023-2025				$ -		$ -
100-3400	Permits				$ -		$ -
100-3632	MPCA Small Watershed Grant 2025-2029		$ 310,191		$ 310,191		$ 310,191
100-3633	WCD HELP Grant 2025-2026				$ -		$ -
100-3635	Lower St Croix Parntership grant		$ 34,100		$ 34,100		$ 34,100
100-3634	Washington County AIS control grant		$ 4,000		$ 4,000		$ 4,000
100-3100	Tax Levy			$ 1,247,745	$ 1,247,745		$ 1,247,745
TOTAL, ESTIMATED Sources of Funding		**$ 816,057**	**$ 413,291**	**$ 1,247,745**	**$ 2,477,094**	**$ -**	**$ 2,477,094**

ACCT. #	General Expenses	Revised Carry Forward	2026 Grants	2026 Levy	Revised 2026 Total Budget	Allocated	Available
200-4000	Manager Per Diem and Expense			$ 10,000	$ 10,000	$ 6,500	$ 3,500
200-4210	Meeting Space	*$ 880*		$ 1,440	$ 2,320	$ 2,320	$ -
200-4250	Dues & Subscriptions (MN Watersheds 7200 and LMCIT 2800)			$ 10,000	$ 10,000	$ 10,000	$ -
200-4270	Bonding & Insurance			$ 6,500	$ 6,500	$ 6,500	$ -
200-4280	Postage & Delivery			$ 1,000	$ 1,000		$ 1,000
200-4290	Printing & Notices			$ 1,000	$ 1,000		$ 1,000
200-4330	Accounting			$ 5,040	$ 5,040	$ 5,040	$ -
200-4331	Audit			$ 11,500	$ 11,500	$ 11,500	$ -
200-4949	Misc., Other Expense			$ 2,000	$ 2,000	$ 1,000	$ 1,000
200-4320	Wash. Conservation District--Admin			$ 70,000	$ 70,000	$ 70,000	$ -
200-4265	Admin Conference Registrations			$ 3,500	$ 3,500	$ 200	$ 3,300
200-4410	Legal Fees - General			$ 29,100	$ 29,100	$ 29,100	$ -
200-4500	Staff Engineer			$ 33,000	$ 33,000	$ 33,000	$ -
	Equity Training	*$ 5,000*		$ (5,000)	$ -		$ -
	Contingency Reserve	*$ 5,939*		$ 40,000	$ 45,939		$ 45,939
TOTAL GENERAL FUND EXPENSES:		**$ 11,819**	**$ -**	**$ 219,080**	**$ 230,899**	**$ 175,160**	**$ 55,739**

ACCT. #	MANAGEMENT PLAN EXPENSES	Revised Carry Forward	2026 Grants	2026 Levy	Revised 2026 Total Budget	Allocated	Available
300-4320	Wash. Conservation District--Administrator			$ 256,500	$ 256,500	$ 256,500	$ -
300-4410	Legal Fees - Mgmt Plan			$ 60,000	$ 60,000		$ 60,000
300-4501	Staff Engineer	*$ 3,042*		$ 99,000	$ 102,042	$ 102,042	$ -
300-4702	Permitting, Legal Review			$ 17,500	$ 17,500		$ 17,500
300-4703	Permitting, Engineering Review	*$ 0*		$ 78,000	$ 78,000		$ 78,000
300-4704	Permitting, Inspection Database	*$ 4,000*		$ -	$ 4,000	$ 4,000	$ -
300-4710-1	Baseline Monitoring		$ 5,000	$ 162,500	$ 167,500	$ 167,500	$ -
300-4640	Equip. Maint. and Upgrades	*$ 10,000*		$ 15,000	$ 25,000	$ 4,015	$ 20,985
300-4810	Shared Educator Position			$ 25,500	$ 25,500	$ 25,480	$ 20
300-4950	Management Plan Implementation -future projects				$ -		$ -
903-0001	Trout Habitat Preservation Project: Monitoring,	*$ 6,592*		$ 340	$ 6,932	$ 6,932	$ -
909-0000	Rules Review/Evaluation	*$ 22,150*		$ (20,000)	$ 2,150	$ 2,150	$ -
909-0001	Groundwater Dep Nat Resource Inventory update			$ 8,400	$ 8,400		$ 8,400
909-0002	Permitting Program Internal Procedure updates	*$ 25,000*		$ (25,000)	$ -		$ -
910-0000	Education & Outreach	*$ 35,500*		$ 64,500	$ 100,000	$ 21,300	$ 78,700
911-0000	Volunteer Stream Monitoring			$ 5,000	$ 5,000		$ 5,000
914-0000	Homeowner BMP Program			$ 50,000	$ 50,000	$ 1,500	$ 48,500
923-0000	H & H Model Maintenance	*$ 48,863*		$ (8,000)	$ 40,863	$ 40,863	$ -
923-0002	Flood Risk Assessment			$ -	$ -		$ -
923-0003	Long Lake - Flood Risk - Weir Modification Assessment	*$ 30,000*			$ 30,000		$ 30,000
923-0004	Stormwater Structure Inventory			$ -	$ -		$ -
927-0000	Management Plan Update	$ 45,778			$ 45,778	$ 30,308	$ 15,470
929-0000	Long Lake Plan Implementation	*$ 103,700*		$ (100,000)	$ 3,700		$ 3,700
929-0012	Long Lake - Marketplace Reuse Feasibility			$ -	$ -		$ -
929-0013	Long Lake - Chloride Impairement Assessment	*$ 10,000*		$ -	$ 10,000		$ 10,000
929-0014	Long Lake - Brewer's Pond BMP/LGU cost-share	*$ 25,000*			$ 25,000	$ 25,000	$ -
935-0000	Land Conservation Program	*$ 200,000*		$ 50,000	$ 250,000		$ 250,000
935-0002	110th Street Property Implementation	*$ 50,000*			$ 50,000	$ 3,300	$ 46,700
935-0003	Develop Land Conservation Priorities	*$ 20,000*			$ 20,000		$ 20,000
940-0000	BMP Program – LGU/Community Demonstration Projects				$ -		$ -
942-0004	Measuring Trends in GW Elevations & Flow			$ 5,000	$ 5,000	$ 4,160	$ 840
942-0007	Groundwater - Browns Creek piezometers			$ 10,000	$ 10,000		$ 10,000
942-0008	Groundwater -recharge mapping			$ -	$ -		$ -
942-0011	Groundwater - Coordination with users			$ 8,500	$ 8,500		$ 8,500
947-0002	Fish Baffles - Hwy 95 & 96 Culverts			$ 7,500	$ 7,500		$ 7,500
947-0009	Browns Creek Trail Improvements			$ -	$ -		$ -
947-0017	Brown's Creek Implementation - Ecoli	*$ 10,000*		$ (10,000)	$ -		$ -
947-0018	Brown's Creek - Biological Survey (Macroinvert)			$ 4,160	$ 4,160	$ 4,160	$ -
947-0020	Brown's Creek - Stream Channel Survey			$ 7,500	$ 7,500		$ 7,500
947-0022	Brown's Creek - Buffer and Stream Restoration-BC Park				$ -	*$ -*	$ -
947-0025	Brown's Creek - Golf Course Reuse - SCC		$ 88,191	$ 12,000	$ 100,191		$ 100,191
947-0026	Brown's Creek - Brown's Creek Cove Reach	*$ 58,000*	$ 256,100	$ 124,800	$ 438,900	$ 112,550	$ 326,350
947-0027	Brown's Creek - McKusick Road rock crib feasibility	*$ 26,000*		$ (26,000)	$ -		$ -
947-0028	Brown's Creek - Millbrook Phase II			$ -	$ -		$ -
948-0000	CIP Maintenance	*$ 48,964*	$ 60,000	$ 115,300	$ 224,264	$ 116,048	$ 108,216
950-0001	South School Curly Leaf Treatment		$ 4,000	$ 6,000	$ 10,000	$ 7,640	$ 2,360
950-0003	Aquatic Vegetation Surveys			$ 12,000	$ 12,000		$ 12,000
953-0000	Fen Management Plan Implementation	*$ 435*		$ 4,200	$ 4,635	$ 4,635	$ -
957-0000	Weather Station	*$ 1,180*		$ 3,000	$ 4,180	$ 4,180	$ -
959-0004	Resource Assessment - AIS				$ -		$ -
960-0000	St Croix Phosphorus Reduction	*$ 10,000*		$ (10,000)	$ -		$ -
960-0001	DNR Gully Stabilization			$ -	$ -		$ -
961-0000	Mendel Wetland Restoration Feasiblity	*$ 7,535*		$ (7,535)	$ -		$ -
961-0001	Mendel Wetland Restoration -Vegetation Management			$ 5,500	$ 5,500		$ 5,500
964-0000	District-Wide Chloride Source Assessment	*$ 2,500*		$ (2,500)	$ -		$ -
967-0000	Brewers Pond Subwatershed Plan	*$ 4,939*		$ 20,000	$ 24,939	$ 24,939	$ -
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		**$ 804,238**	**$ 413,291**	**$ 1,028,665**	**$ 2,251,134**	**$ 969,201**	**$ 1,281,932**
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		***$ 816,057***	***$ 413,291***	***$ 1,247,745***	***$ 2,482,033***	***$ 1,144,361***	***$ 1,337,671***

BROWN'S CREEK WATERSHED DISTRICT
6/10/2026
CURRENT ITEMS PAYABLE-PAGE 1 of 2

	YES	NO	ABSTAIN	ABSENT
ECKLES	_____	_____	_____	_____
BROD	_____	_____	_____	_____
LEROUX	_____	_____	_____	_____
WIRTH	_____	_____	_____	_____
MATTSON	_____	_____	_____	_____

VENDOR		**ACCOUNT #**	ITEMS	TOTAL	**CK NO**
Emmons & Olivier Resources, Inc.	Inv. 41-0000-246 Retainer	300-4500	$ 8,249.25		
	Inv. 41-0000-246 Retainer	200-4500	$ 2,749.75		
	Inv. 41-0001-249 General Permitting	300-4703	$ 5,790.00		
	Inv. 41-0307-108 Permits 2017				
	Permit #17-01 Grant Holdings Subd	300-4703	$ 104.92		
	Inv. 41-0350-56 Permits 2019				
	Permit #19-05 Central Commons	300-4703	$ 148.16		
	Inv. 41-0402-49 Permits 2022				
	Permit #22-18 Stillwater Oaks	300-4703	$ 86.49		
	Inv. 41-0420-40 Permits 2023				
	Permit #23-02 WOS Lot 114	300-4703	$ 84.00		
	Permit #23-18 WOS Lot 124	300-4703	$ 104.92		
	Permit #23-19 Liberty Classical Academy Expansion	300-4703	$ 286.75		
	Inv. 41-0438-29 Permits 2024				
	Permit #24-01 Take 5 Oil Change	300-4703	$ 296.78		
	Permit #24-03 WOS Lot 120 Hilgert Residence	300-4703	$ 211.00		
	Permit #24-07 Elliott Crossing	300-4703	$ 371.12		
	Permit #24-08 Altendorfer Residence	300-4703	$ 106.08		
	Permit #24-09 CSAH 5 Phase 3	300-4703	$ 61.67		
	Permit #24-11 WOS Lot 127 Karr Residence	300-4703	$ 104.92		
	Permit #24-12 WOS Lot 120 Carlson	300-4703	$ 104.92		
	Permit #24-15 Lornston	300-4703	$ 86.78		
	Permit #24-17 WOS Lot 129 Weatherby	300-4703	$ 104.92		
	Inv. 41-0461-17 Permits 2025				
	Permit #25-01 Curve Crest Utility Extension	300-4703	$ 86.49		
	Permit #25-02 Anderson Holdings	300-4703	$ 148.16		
	Permit #25-03 Lakeview Hospital	300-4703	$ 200.77		
	Permit #25-05 St. Croix Rec Center	300-4703	$ 80.83		
	Permit #25-07 WOS Lot 121 Castille	300-4703	$ 211.00		
	Permit #25-08 CSAH 15B (Should be #24-18)	300-4703	$ 339.77		
	Permit #25-09 Dockter Residence	300-4703	$ 648.50		
	Permit #25-11 Stillwater PFAS Treatment	300-4703	$ 106.08		
	Permit #25-12 Doede Residence	300-4703	$ 110.00		
	Permit #25-13 Xcel Energy Steel Pole Replacement	300-4703	$ 144.17		
	Permit #25-14 Husnik Residence	300-4703	$ 86.78		

EOR Continued	Permit #25-15 Elliott Crossing Lot 1B	300-4703	$ 283.27	
	Permit #25-17 WOS Lot 128 Morud	300-4703	$ 106.08	
	Permit #25-18 Deininger Residence	300-4703	$ 346.03	
	Permit #25-19 Elliott Crossing Lot 3	300-4703	$ 173.27	
	Permit #25-21 Bass Lake West	300-4703	$ 106.08	
	Permit #25-22 WOS Lot 117 Upadhyaya	300-4703	$ 236.25	
	Permit #25-24 Ziegler Pole Shed	300-4703	$ 106.08	
	Permit #25-26 Elliott Crossing Lot 4	300-4703	$ 145.77	
	Permit #25-27 Elliott Crossing Lot 5	300-4703	$ 173.27	
	Permit #25-28 Chick-fil-A	300-4703	$ 131.33	
	Permit #25-30 80th & Manning Townhomes	300-4703	$ 930.00	
	Inv. 41-0475-5 Permits 2026			
	Permit #26-01 Elliott Crossing Lot 2	300-4703	$ 118.27	
	Permit #26-02 Sanctuary WWTF	300-4703	$ 104.92	
	Permit #26-03 7Brew Coffee	300-4703	$ 5,453.00	
	Permit #26-04 Bergmann Residence	300-4703	$ 193.25	
	Permit #26-05 Nagle Property	300-4703	$ 67.00	
	Inv. 41-0205-100 CIP Operation and Maintenance	948-0000	$ 857.00	
	Inv. 41-0399-5 2022 Rule Guidance	909-0000	$ 168.00	
	Inv. 41-0447-24 BCWD 2024 WMP Update	927-0000	$ 1,799.00	
	Inv. 41-0449-8 Brown's Creek Cove	947-0026	$ 17,981.49	
	Inv. 41-0463-11 AHGC O&M	948-0000	$ 488.00	
	Inv. 41-0465-6 2025 Groundwater Monitoring & Mgmnt	942-0004	$ 2,865.00	
	Inv. 41-0476-2 THPP Prescribed Burn 2026	903-0001	$ 128.00	
	Inv. 41-0482-1 Oak Glen GC Bank Repair	947-0022	$ 1,468.05	
	Inv. 41-0484-2 IESF O&M 2026	948-0000	$ 450.45	$ 56,093.84
Xcel Energy	Inv. 978922757 - Iron Enhanced Sand Filter Pump Operation	948-4500	$ 105.16	$ 105.16
Washington Conservation District	Inv. 7465 Q1 2026 VSMP	911-0000	$ 1,656.90	
	Inv. 7471 April 2026 Water Monitoring			
	Baseline Water Monitoring - Labor	300-4710	$ 11,529.66	
	Baseline Water Monitoring - Equipment	300-4640	$ 16.67	
	Baseline Water Monitoring - Expenses	300-4640	$ 192.37	
	Inv. 7480 April 2026 BMP Program			
	BCCA HELP Grant Planting	935-0002	$ 2,248.50	
	GIS Impervious Surface Analysis	Contingency	$ 430.00	
	BMP Maintenance	948-0000	$ 445.50	
	BMP Technical Assistance	914-0000	$ 1,034.00	$ 17,553.60
Smith Partners	Inv. 46688 Retainer - Meetings, Preparation	200-4410	$ 2,463.39	
	Inv. 46689 General Legal Services	300-4410	$ 151.50	
	Inv. 46690 Planning	300-4410	$ 3,152.64	

Smith Partners Continued	Inv. 46691 Contracts	300-4410	$ 273.33	
	Inv. 46692 Permits	300-4702	$ 879.51	
	Inv. 46693 Policy Issues	300-4410	$ 181.80	
	Inv. 46694 Lake McKusick Iron-Sand Infiltration	300-4410	$ 121.20	
	Inv. 46695 BC Cove	300-4410	$ 2,363.40	$ 9,586.77
Dave S. McCord, LTD	Inv. 4745 April 2026 Accounting Services	200-4330	$ 420.00	$ 420.00
Press Publications	Inv. 858964 Notice for Public Hearing	200-4290	$ 128.76	$ 128.76
City of Stillwater	Inv. 65742 Application Fee and Deposit for Long Lake Event	910-0000	$ 125.00	$ 125.00
Abdo LLP	Inv. 525375 Audit Services for Year Ended 12/31/25	200-4331	$ 2,375.00	$ 2,375.00
Heritage Embroidery	Inv. 110430 BCWD Apparel Order	200-4949	$ 339.00	$ 339.00
Denise Lau	Spring Painting Event Materials	910-0000	$ 175.00	$ 175.00
Total Amount Disbursed				**$ 86,902.13**

BROWN'S CREEK WATERSHED DISTRICT
6/10/2026
MONTHLY ITEMS DEPOSITED - Page 1 of 1

VENDOR	INVOICE/DESCRIPTION	ACCOUNT #	CK NO	DEPOSIT DATE	TOTAL
4M Fund	Dividend (Interest)	100-3700	Direct Deposit	5/31/2026	$ 1,772.04
Eventbrite	Spring Painting Event Payout	910-0000	Direct Deposit	6/3/2026	$ 118.23
TOTAL AMOUNT DEPOSITED:					**$ 1,890.27**

BROWN'S CREEK
WATERSHED DISTRICT
Preserving the integrity of the watershed for future generations
www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

MEMORANDUM

TO: Brown's Creek Watershed District Board
FROM: Karen Kill and Hannah Peterson
RE: Tree Removal at Brown's Creek Conservation Easement Area
DATE: June 4, 2026

Background

Landowners to the east of the Brown's Creek Conservation Area property reached out to BCWD with concerns about 11 dead trees on BCWD's property that pose risk of falling and damaging structures on the edge of their property.

Estimated Costs

BCWD received quotes from two tree removal companies to remove the 11 dead trees along the eastern property line.

Company	Quote
Woodchuck Tree Care	$6,000
BJ Haines Tree Service	$7,000

Requested Action

Authorize administrator to enter into an agreement, upon advice of counsel, with Woodchuck Tree Care for tree removal services on the Brown's Creek Conservation Easement Area not to exceed $6,000 from account 935-0002.

Managers:

Klay Eckles, President | Chuck LeRoux, Vice President | Celia Wirth, Treasurer
Luke Mattson, Secretary | Griffin Brod, 2nd Vice President



Executive Governance Summary

Brown's Creek Watershed District

Stillwater, Minnesota

For the year ended December 31, 2025

Abdo
Lighting the path forward

5201 Eden Avenue, Ste 250
Edina, MN 55436
P 952.835.9090

100 Warren Street, Ste 600
Mankato, MN 56001
P 507.625.2727

14500 N Northsight Blvd, Ste 321
Scottsdale, AZ 85260
P 480.864.5579

June 1, 2026

Management and Board of Managers
Browns Creek Watershed District
Stillwater, Minnesota

We have audited the financial statements of the governmental activities and each major fund of the Browns Creek Watershed District (the District), Stillwater, Minnesota, for the year ended December 31, 2025. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards, as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our letter to you dated November 25, 2025. Professional standards also require that we communicate to you the following information related to our audit.

Our Responsibility Under Auditing Standards Generally Accepted in the United States of America

As stated in our engagement letter, our responsibility, as described by professional standards, is to express opinions about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with accounting principles generally accepted in the United States of America. Our audit of the financial statements does not relieve you or management of your responsibilities.

Our responsibility is to plan and perform the audit to obtain reasonable, but not absolute, assurance that the financial statements are free of material misstatement. As part of our audit, we considered the internal control over financial reporting of the District. Such considerations were solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control over financial reporting. We are responsible for communicating significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures specifically to identify such matters.

Significant Audit Findings

In planning and performing our audit of the financial statements, we considered the District's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District’s internal control. Accordingly, we do not express an opinion on the effectiveness of the District’s internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity’s financial statements will not be prevented or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. We did identify a certain deficiency in internal control below as item 2025-001 which we consider to be a significant deficiency.

Finding	Description
2025-001	**Preparation of Financial Statements**
Condition:	We were requested to draft the audited financial statements and related footnote disclosures as part of our regular audit services. Ultimately, it is management's responsibility to provide for the preparation of your statements and footnotes, and the responsibility of the auditor to determine the fairness of presentation of those statements. However, based on auditing standards, it is our responsibility to inform you that this deficiency could result in a material misstatement to the financial statements that could have been prevented or detected by your management. Essentially, the auditors cannot be part of your internal control process.
Criteria:	Internal controls should be in place to provide reasonable assurance over financial reporting.
Cause:	From a practical standpoint, we both prepare the statements and determine the fairness of the presentation at the same time in connection with our audit. This is not unusual for us to do with organizations of your size.
Effect:	The effectiveness of the internal control system relies on enforcement by management. The effect of deficiencies in internal controls can result in undetected errors in financial reporting.
Recommendation:	It is your responsibility to make the ultimate decision to accept this degree of risk associated with this condition because of cost and other considerations. We have instructed management to review a draft of the auditor prepared financials in detail for accuracy; we have answered any questions that management might have and have encouraged research of any accounting guidance in connection with the adequacy and appropriateness of classification of disclosures in your statements. We are satisfied that the appropriate steps have been taken to provide you with the completed financial statements. While the District is reviewing the financial statements, we recommend a disclosure checklist is utilized to ensure all required disclosures are presented and the District should agree its financial software to the numbers reported in the financial statements.

Management Response:

For now, the District's management accepts the degree of risk associated with this condition and thoroughly reviews a draft of the financial statements.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the District's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements, and other matters noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported in accordance with Minnesota statues.

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by the District are described in Note 1 to the financial statements. There were no new requirements adopted for the year ended December 31, 2025. The application of existing policies was not changed during the year. We noted no transactions entered into by the District during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. The most sensitive estimates affecting the financial statements include depreciation on capital assets.

- Management's estimate of depreciation is based on estimated useful lives of the assets. Depreciation is calculated using the straight-line method.

We evaluated the key factors and assumptions used to develop these estimates in determining that they are reasonable in relation to the financial statements taken as a whole. The disclosures in the financial statements are neutral, consistent, and clear. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement users.

Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. Management has corrected all such misstatements. In addition, none of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to the financial statements taken as a whole.

We also assisted in preparing a number of year-end accounting entries. These were necessary to adjust the District's records at year end to correct ending balances. The District will receive better more timely information if the preparation of year-end entries is completed internally.

Disagreements with Management

For purposes of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated June 1, 2026.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the District's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Matters

We applied certain limited procedures to the required supplementary information (RSI) (Management's Discussion and Analysis, the respective budgetary comparison schedules and related note disclosures, which is information that supplements the basic financial statements. Our procedures consisted of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We did not audit the RSI and do not express an opinion or provide any assurance on the RSI.

We were not engaged to report on the introductory section, which accompanies the financial statements but is not RSI. We did not audit or perform other procedures on this other information, and we do not express an opinion or provide any assurance on it.

Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management prior to retention as the District's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Future Accounting Standard Changes

The following Governmental Accounting Standards Board (GASB) Statements have been issued and may have an impact on future District financial statements: [1]

GASB Statement No. 103 – *Financial Reporting Model Improvements* *Effective: 12/31/2026*

GASB Statement No. 104 – *Disclosure of Certain Capital Assets* *Effective: 12/31/2026*

Further information on upcoming GASB pronouncements.

* * * *

Restriction on Use

This purpose of this communication is solely for the information and use of the Board and management of the Watershed District and is not intended to be, and should not be used by anyone other than those specified parties.

Our audit would not necessarily disclose all weaknesses in the system because it was based on selected tests of the accounting records and related data. The comments and recommendations in the report are purely constructive in nature, and should be read in this context.

If you have any questions or wish to discuss any of the items contained in this letter, please feel free to contact us at your convenience. We wish to thank you for the continued opportunity to be of service and for the courtesy and cooperation extended to us by your staff.

Abdo

Abdo
Minneapolis, Minnesota
June 1, 2026

ANNUAL FINANCIAL REPORT

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

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Browns Creek Watershed District
Stillwater, Minnesota
Annual Financial Report
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For the Year Ended December 31, 2025

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INTRODUCTORY SECTION

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

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Browns Creek Watershed District
Stillwater, Minnesota
Board of Managers and Appointed Officials
For the Year Ended December 31, 2025

MANAGERS

Name	Title
Klayton Eckles	President
Chuck Leroux	Vice President
Griffin Brod	2nd Vice President
Celia Wirth	Treasurer
Debra Sahulka	Secretary

STAFF

Karen Kill	Administrator
Hannah Peterson	BCWD Communication & Project Assistant Technician

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FINANCIAL SECTION

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

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INDEPENDENT AUDITOR'S REPORT

Board of Managers
Browns Creek Watershed District
Stillwater, Minnesota

Opinions

We have audited the accompanying financial statements of the governmental activities and each major fund of the Browns Creek Watershed District, Minnesota (the District), as of and for the year ended December 31, 2025, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of the District as of December 31, 2025 and the respective changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the District and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the budgetary comparison schedule and the related note disclosures, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the District's basic financial statements. The accompanying individual fund schedule is presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and related directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the accompanying individual fund schedule is fairly stated, in all material respects, in relation to the basic financial statements as a whole.



Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory section but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.



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Minneapolis, Minnesota
June 1, 2026

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Management's Discussion and Analysis

As management of the Browns Creek Watershed District (the District), Stillwater, Minnesota, we offer readers of the District's financial statements this narrative overview and analysis of the financial activities of the District for the fiscal year ended December 31, 2025. We encourage readers to consider the information presented here in conjunction with the financial statements which follow this section.

Overview of the Financial Statements

This discussion and analysis are intended to serve as an introduction to the District's basic financial statements. The District's basic financial statements are comprised of three components: 1) government-wide financial statements, 2) fund financial statements, and 3) notes to the financial statements. This report also contains other required supplemental information in addition to the basic financial statements themselves.

The financial statements also include notes that explain some of the information in the financial statements and provide more detailed data. The statements are followed by a section of combining and individual fund financial statements and schedules that further explains and supports the information in the financial statements. Figure 1 shows how the required parts of this annual report are arranged and relate to one another.

Figure 1
Required Components of the
District's Annual Financial Report

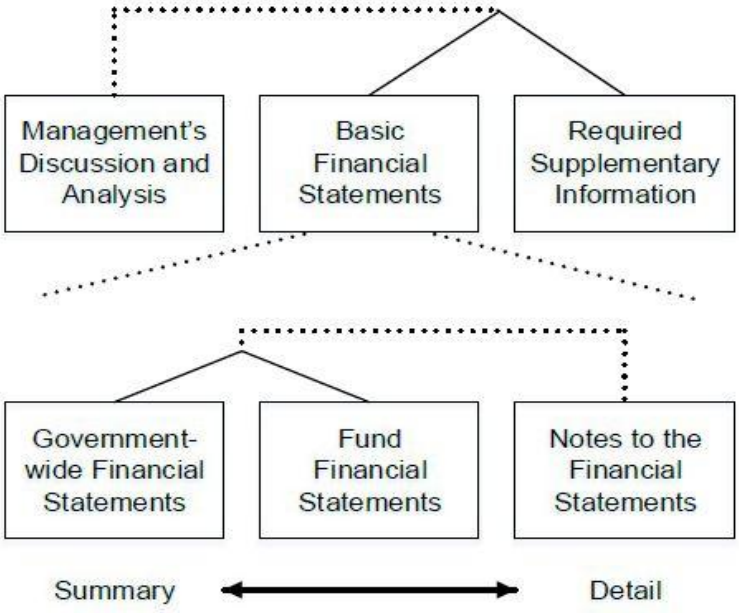


Figure 2 summarizes the major features of the District's financial statements, including the portion of the District they cover and the types of information they contain. The remainder of this overview section of management's discussion and analysis explains the structure and contents of each of the statements.

Figure 2
Major Features of the Government-wide and Fund Financial Statements

	Fund Financial Statements	
	Government-wide Statements	**Governmental Funds**
Scope	Entire District	The activities of the District
Required financial statements	• Statement of Net Position • Statement of Activities	• Balance Sheet • Statement of Revenues, Expenditures, and Changes in Fund Balances
Accounting basis and measurement focus	Accrual accounting and economic resources focus	Modified accrual accounting and current financial resources focus
Type of asset/liability information	All assets and liabilities, both financial and capital, and short-term and long-term	Only assets expected to be used up and liabilities that come due during the year or soon thereafter; no capital assets included
Type of deferred outflows/inflows of resources information	All deferred outflows/inflows of resources, regardless of when cash is received or paid	Only deferred outflows of resources expected to be used up and deferred inflows of resources that come due during the year or soon thereafter; no capital assets included
Type of inflow/out flow information	All revenues and expenses during year, regardless of when cash is received or paid	Revenues for which cash is received during or soon after the end of the year; expenditures when goods or services have been received and payment is due during the year or soon thereafter

Government-wide Financial Statements. The government-wide financial statements are designed to provide readers with a broad overview of the District's finances, in a manner similar to a private-sector business.

The *statement of net position* presents information on all of the District's assets and liabilities, with the difference between the two reported as *net position*. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the District is improving or deteriorating.

The *statement of activities* presents information showing how the District's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, *regardless of the timing of related cash flows*. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (e.g., grants and earned but unused vacation and sick leave).

The governmental activities of the District include general government and program costs.

The government-wide financial statements start on page 22 of this report.

Fund Financial Statements. A *fund* is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The District, like other state and local governments, uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. The District currently maintains two governmental funds.

***Governmental Funds*.** *Governmental funds* are used to account for essentially the same functions reported as *governmental activities* in the government-wide financial statements. However, unlike the government-wide financial statements, governmental fund financial statements focus on *near-term inflows and outflows of spendable resources*, as well as on *balances of spendable resources* available at the end of the fiscal year. Such information may be useful in evaluating a government's near-term financing requirements.

Because the focus of governmental funds is narrower than that of the government-wide financial statements, it is useful to compare the information presented for *governmental funds* with similar information presented for *governmental activities* in the government-wide financial statements. By doing so, readers may better understand the long-term impact by the government's near-term financing decisions. Both the governmental fund balance sheets and the governmental fund statements of revenues, expenditures and changes in fund balances provide a reconciliation to facilitate this comparison between *governmental funds* and *governmental activities*.

The District adopts an annual appropriated budget for its General fund and Management Planning fund. A budgetary comparison statement has been provided for the General fund and Management Planning fund to demonstrate compliance with this budget.

The basic governmental fund financial statements start on page 26 of this report.

Notes to the Financial Statements. The notes provide additional information that is essential to a full understanding of the data provided in the government-wide and fund financial statements. The notes to the financial statements start on page 31 of this report.

Government-wide Financial Analysis

As noted earlier, net position may serve over time as a useful indicator of a government's financial position. In the case of the District, assets exceeded liabilities at the close of the most recent fiscal year.

The largest portions of the District's net position are unrestricted and available to meet the ongoing needs of the District. 46 percent of the District's net position reflects its investment in capital assets (e.g., land, land improvements, and permanent easements). These assets are not available for future spending.

Browns Creek Watershed District's Summary of Net Position

	December 31, 2025	December 31, 2024	Increase (Decrease)
Assets			
Current	$ 1,180,956	$ 1,483,536	$ (302,580)
Capital	689,445	706,788	(17,343)
Total Assets	1,870,401	2,190,324	(319,923)
Liabilities			
Current	356,344	509,945	(153,601)
Net Position			
Investment in capital assets	689,445	706,788	(17,343)
Unrestricted	824,612	973,591	(148,979)
Total Net Position	$ 1,514,057	$ 1,680,379	$ (166,322)
Net Position as a Percent of Total			
Investment in capital assets	46 %	42 %	
Unrestricted	55	58	
	100.0 %	100.0 %	

Browns Creek Watershed District's Changes in Net Position

Governmental Activities. Governmental activities decreased the District's net position, as shown below.

	December 31, 2025	December 31, 2024	Increase (Decrease)
Revenues			
Program			
Charges for services	$ 233,083	$ 153,492	$ 79,591
Operating grants and contributions	74,243	267,899	(193,656)
General			
Property taxes	1,187,143	1,173,618	13,525
Unrestricted investment earnings	39,347	50,104	(10,757)
Total Revenues	1,533,816	1,645,113	(111,297)
Expenses			
General government	170,140	177,356	(7,216)
Program costs	1,014,846	858,616	156,230
Project costs	515,152	749,325	(234,173)
Total Expenses	1,700,138	1,785,297	(85,159)
Change in Net Position	(166,322)	(140,184)	(26,138)
Net Position, January 1	1,680,379	1,820,563	(140,184)
Net Position, December 31	$ 1,514,057	$ 1,680,379	$ (166,322)

Key elements of this decrease are as follows:

- Decreases in intergovernmental grant revenues.
- Increases in program costs.

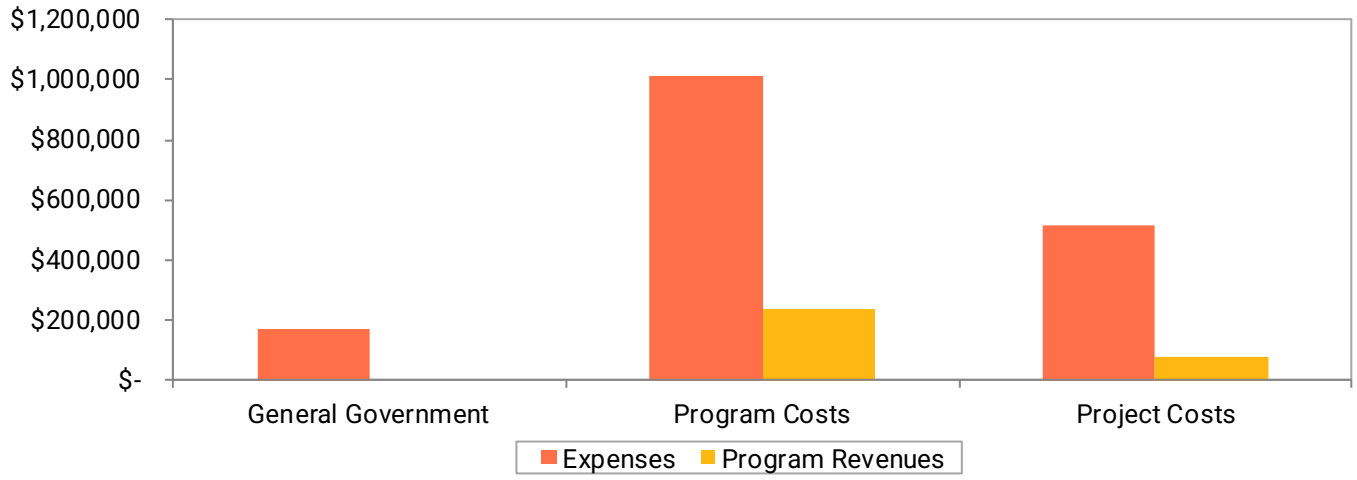
Decreases in intergovernmental grant revenues

District received more grant revenue in prior year related to ongoing projects.

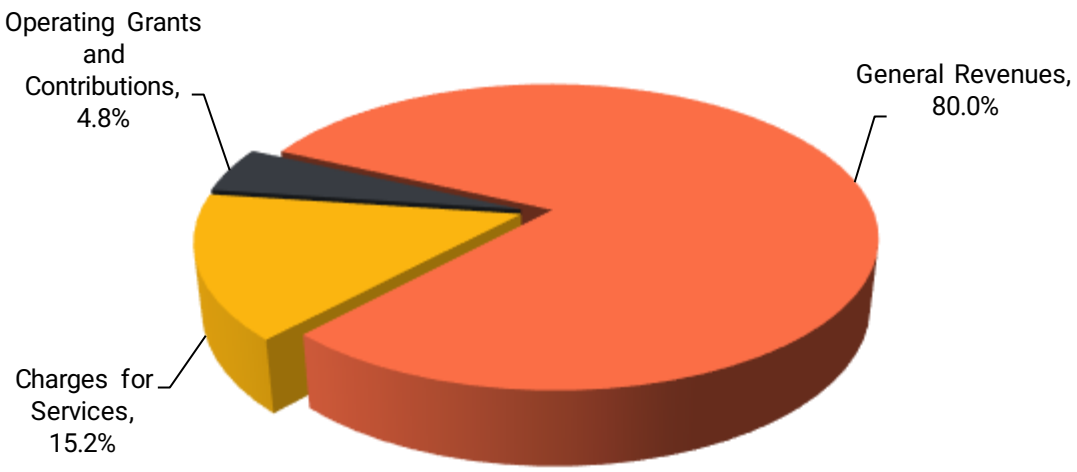
Increases in program costs

District spent more on general program engineering and permitting.

The following graph depicts various governmental activities and shows the revenue and expenses directly related to those activities.



Revenues by Source - Governmental Activities



Financial Analysis of the Government's Funds

As noted earlier, the District uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

***Governmental Funds*.** The focus of the District's *governmental funds* is to provide information on near-term inflows, outflows, and balances of *spendable* resources. Such information is useful in assessing the District's financing requirements. In particular, *unreserved fund balance* may serve as a useful measure of a government's net resources available for spending at the end of the fiscal year.

As of the end of the current fiscal year, the District's governmental funds reported combined ending fund balances of $812,563, a decrease of $150,662 in comparison with the prior year. Approximately 95 percent of this total amount, constitutes *unassigned fund balance*, which is available for spending at the District's discretion. The remainder of the fund balance is committed for the water resources management plan and nonspendable for prepaid items.

The General fund is the chief operating fund of the District. At the end of the current year, the fund balance of the General fund was $768,539. As a measure of the General fund's liquidity, it may be useful to compare total fund balance to total fund expenditures. Total fund balance represents 452 percent of 2025 actual expenditures and 343 percent of 2026 budgeted expenditures. The General fund balance increased by $98,343 during the current fiscal year.

The fund balance of the Management Planning fund at year end was $44,024 which is a decrease of $249,005 from the prior year. This was due to revenues decreasing by 12 percent compared to the previous year. The majority of the decrease was for property taxes and intergovernmental grants.

Capital Assets

The District's investment in capital assets for its governmental activities as of December 31, 2025 amounts to $689,445 (net of accumulated depreciation). This investment in capital assets includes land, easements, and land improvements.

Additional information on the District's capital assets can be found in Note 3B on page 38 of this report.

Browns Creek Watershed District's Capital Assets
(Net of Depreciation)

	December 31, 2025	December 31, 2024	Increase (Decrease)
Land and Permanent Easements	$ 316,555	$ 316,555	$ -
Land Improvements	372,890	390,233	(17,343)
Total	$ 689,445	$ 706,788	$ (17,343)

Economic Factors and Next Year's Budgets

The District goes through a multi-stage process to develop its annual budget.

- Staff reviews the ten-year Watershed Management Plan Implementation Plan and all completed water resource implementation plans for proposed activities.
- Staff contacts all municipalities and agencies to discuss potential cooperative projects and stakeholder priorities.
- Board meets as many times as necessary for a budget workshop to assess the previous year's work plan and consider projected projects and programs.
- Board holds a public hearing to receive public comment on the proposed draft levy and budget. .
- Board certifies initial levy to the County in September.
- The budget is presented to the County Commissioners in a public workshop.
- Between September through December, Board reviews projects and programs. The Board determines if the final budget and levy can be reduced at the regular December Board meeting.
- Prior to final certification, the Board of Managers took any additional public comment on the 2026 Budget and Levy.
- Final levy is certified in December.

For the 2026 budget, the District will continue implementing the 2017 - 2026 watershed management plan.

Requests for Information

This financial report is designed to provide a general overview of the District's finances for all those with an interest in the District's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to Karen Kill, Administrator, Browns Creek Watershed District, 455 Hayward Ave North, Oakdale, MN 55128.

GOVERNMENT-WIDE FINANCIAL STATEMENTS

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

Browns Creek Watershed District
Stillwater, Minnesota
Statement of Net Position
December 31, 2025

	Governmental Activities
Assets	
Cash and temporary investments	$ 970,672
Receivables	
Accounts	169,040
Taxes	15,049
Due from other governments	21,000
Prepaid items	5,195
Capital assets	
Nondepreciable assets	316,555
Depreciable assets, net of accumulated depreciation	372,890
Total Assets	1,870,401
Liabilities	
Accounts payable	64,086
Due to other governments	147,860
Deposits payable	144,398
Total Liabilities	356,344
Net Position	
Investment in capital assets	689,445
Unrestricted	824,612
Total Net Position	$ 1,514,057

The notes to the financial statements are an integral part of this statement.

Browns Creek Watershed District
Stillwater, Minnesota
Statement of Activities
For the Year Ended December 31, 2025

Functions/Programs	Expenses	Program Revenues: Charges for Services	Program Revenues: Operating Grants and Contributions	Program Revenues: Capital Grants and Contributions	Net (Expense) Revenue and Changes in Net Position: Governmental Activities
Governmental Activities					
General government	$ 170,140	$ -	$ -	$ -	$ (170,140)
Program costs	1,014,846	233,083	-	-	(781,763)
Project costs	515,152	-	74,243	-	(440,909)
Total	$ 1,700,138	$ 233,083	$ 74,243	$ -	$ (1,392,812)

General Revenues	
Property taxes	1,187,143
Unrestricted investment earnings	39,347
Total General Revenues	1,226,490
Change in Net Position	(166,322)
Net Position, January 1	1,680,379
Net Position, December 31	$ 1,514,057

The notes to the financial statements are an integral part of this statement.

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FUND FINANCIAL STATEMENTS

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

Browns Creek Watershed District
Stillwater, Minnesota
Balance Sheet
Governmental Funds
December 31, 2025

	General	Management Planning	Total Governmental Funds
Assets			
Cash and temporary investments	$ 768,031	$ 202,641	$ 970,672
Receivables			
Accounts	-	169,040	169,040
Taxes	-	15,049	15,049
Due from other governments	20,000	1,000	21,000
Prepaid items	-	5,195	5,195
Total Assets	$ 788,031	$ 392,925	$ 1,180,956
Liabilities			
Accounts payable	$ 19,492	$ 44,594	$ 64,086
Due to other governments	-	147,860	147,860
Deposits payable	-	144,398	144,398
Total Liabilities	19,492	336,852	356,344
Deferred Inflows of Resources			
Unavailable revenue - taxes	-	12,049	12,049
Fund Balances			
Nonspendable for			
Prepaid items	-	5,195	5,195
Committed for			
Water resources management plan	-	38,829	38,829
Unassigned	768,539	-	768,539
Total Fund Balances	768,539	44,024	812,563
Total Liabilities, Deferred Inflows of Resources and Fund Balances	$ 788,031	$ 392,925	$ 1,180,956

The notes to the financial statements are an integral part of this statement.

Browns Creek Watershed District
Stillwater, Minnesota
Reconciliation of the Balance Sheet
to the Statement of Net Position
Governmental Funds
December 31, 2025

Amounts reported for the governmental activities in the statement of net position are different because

Total Fund Balances - Governmental	$	812,563
Capital assets used in governmental activities are not financial resources and therefore are not reported as assets in governmental funds.		
Cost of capital assets		750,119
Less accumulated depreciation		(60,674)
Some receivables are not available soon enough to pay for the current period's expenditures, and therefore are unavailable in the funds.		
Delinquent taxes receivable		12,049
Total Net Position - Governmental Activities	$	1,514,057

The notes to the financial statements are an integral part of this statement.

Browns Creek Watershed District
Stillwater, Minnesota
Statement of Revenues, Expenditures and Changes in Fund Balances
Governmental Funds
For the Year Ended December 31, 2025

	General	Management Planning	Total Governmental Funds
Revenues			
Property taxes	$ 228,889	$ 955,004	$ 1,183,893
Intergovernmental			
Market value agricultural credit	298	1,269	1,567
Grants	-	74,243	74,243
Permit fees	-	233,083	233,083
Interest income	39,296	51	39,347
Total Revenues	268,483	1,263,650	1,532,133
Expenditures			
Current			
General government	170,140	-	170,140
Program costs	-	1,014,846	1,014,846
Project costs	-	497,809	497,809
Total Expenditures	170,140	1,512,655	1,682,795
Net Change in Fund Balances	98,343	(249,005)	(150,662)
Fund Balances, January 1	670,196	293,029	963,225
Fund Balances, December 31	$ 768,539	$ 44,024	$ 812,563

The notes to the financial statements are an integral part of this statement.

Browns Creek Watershed District
Stillwater, Minnesota
Reconciliation of the Statement of
Revenues, Expenditures and Changes in Fund Balances
to the Statement of Activities
Governmental Funds
For the Year Ended December 31, 2025

Amounts reported for governmental activities in the statement of activities are different because

Total Net Change in Fund Balances - Governmental Funds	$	(150,662)
Capital outlays are reported in governmental funds as expenditures. However in the statement of activities, the cost of those assets is allocated over the estimated useful lives as depreciation expense.		
Depreciation expense		(17,343)
Certain revenues are recognized as soon as they are earned. Under the modified accrual basis of accounting, certain revenues cannot be recognized until they are available to liquidate liabilities of the current period.		
Property taxes		1,683
Change in Net Position - Governmental Activities	$	(166,322)

The notes to the financial statements are an integral part of this statement.

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Note 1: Summary of Significant Accounting Policies

A. Reporting Entity

The Browns Creek Watershed District (the District), Stillwater, Minnesota was originally created in 1997 by the Minnesota Board of Water and Soil Resources (the Board) as provided in Minnesota statutes Chapter 103D. The District was established to promote public welfare and public interest and will advance the purpose of Minnesota statutes, chapters 103B and 103D. The District is operated by a five-member Board of Managers.

The District has considered all potential units for which it is financially accountable, and other organizations for which the nature and significance of their relationship with the District are such that exclusion would cause the District's financial statements to be misleading or incomplete. The Governmental Accounting Standards Board (GASB) has set forth criteria to be considered in determining financial accountability. These criteria include appointing a voting majority of an organization's governing body, and (1) the ability of the primary government to impose its will on that organization or (2) the potential for the organization to provide specific benefits to or impose specific financial burdens on the primary government. The District has no component units that meet the GASB criteria.

B. Government-wide and Fund Financial Statements

The government-wide financial statements (i.e., the statement of net position and the statement activities) report information on all of the non-fiduciary activities of the District. For the most part, the effect of interfund activity has been removed from these statements.

The statement of activities demonstrates the degree to which the direct expenses of a given function or segment are offset by program revenues. *Direct expenses* are those that are clearly identifiable with a specific function or segment. Amounts reported as p*rogram revenues* include 1) charges to customers or applicants who purchase, use, or directly benefit from goods, services, or privileges provided by a given function or segment and 2) grants and contributions that are restricted to meeting the operational or capital requirements of a particular function or segment. Other items not properly included among program revenues are reported instead as *general revenues*.

Separate financial statements are provided for governmental funds. Major individual governmental funds are reported as separate columns in the fund financial statements.

C. Measurement Focus, Basis of Accounting and Basis of Presentation

The government-wide financial statements are reported using the *economic resources measurement focus* and the *accrual basis of accounting*. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Grants and similar items are recognized as revenue as soon as all eligibility requirements imposed by the provider have been met.

Governmental fund financial statements are reported using the *current financial resources measurement focus* and the *modified accrual basis of accounting.* Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be *available* when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the District considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures generally are recorded when a liability is incurred, as under accrual accounting. However, expenditures related to compensated absences and claims and judgments, are recorded only when payment is due.

Charges for service, assessments to members, grants and interest associated with the current fiscal period are all considered susceptible to accrual and so have been recognized as revenues of the current fiscal period. All other revenue items are considered to be measurable and available only when cash is received by the organization.

Note 1: Summary of Significant Accounting Policies (Continued)

Revenue resulting from exchange transactions, in which each party gives and receives essentially equal value, is recorded on the accrual basis when the exchange takes place. On a modified accrual basis, revenue is recorded in the year in which the resources are measurable and become available.

Non-exchange transactions, in which the District receives value without directly giving equal value in return, include grants, entitlements and donations. Eligibility requirements include timing requirements, which specify the year when the resources are required to be used or the year when use is first permitted, matching requirements, in which the District must provide local resources to be used for a specified purpose, and expenditure requirements, in which the resources are provided to the District on a reimbursement basis. On a modified accrual basis, revenue from non-exchange transactions must also be available before it can be recognized.

Unearned revenue arises when assets are recognized before revenue recognition criteria have been satisfied. Grants and entitlements received before eligibility requirements are met are also recorded as unearned revenue.

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

The District reports the following major governmental funds:

The *General fund* is the District's primary operating fund. It accounts for all financial resources not accounted for in a different fund of the District.

The *Management Planning fund* was established pursuant to Minnesota statutes for funding related to the development and implementation of the District's watershed management plan. By law, this plan must contain a capital improvement plan which allows watershed districts to implement projects without petition. The District may impose an ad valorem levy over the entire watershed or sub-watershed to fund these projects or allow funds to accumulate to finance these capital improvement projects. The property tax levy is committed to execute the water resources management plan as filed with the Board of Water and Soil Resources.

As a general rule the effect of interfund activity has been eliminated from government-wide financial statements.

D. Assets, Liabilities, Deferred Inflows of Resources and Net Position/Fund Balance

Deposits and Investments

The District's cash and temporary investments are considered to be cash on hand, demand deposits and short-term investments with original maturities of three months or less from the date of acquisition.

Cash balances from all funds are pooled and invested, to the extent available, in certificates of deposit and other authorized investments. Earnings from such investments are allocated on the basis of applicable participation by each of the funds.

Note 1: Summary of Significant Accounting Policies (Continued)

The District may also invest idle funds as authorized by Minnesota statutes, as follows:

1. Direct obligations or obligations guaranteed by the United States or its agencies.

2. Shares of investment companies registered under the Federal Investment Company Act of 1940 and received the highest credit rating, rated in one of the two highest rating categories by a statistical rating agency, and have a final maturity of thirteen months or less.

3. General obligations of a state or local government with taxing powers rated “A” or better; revenue obligations rated “AA” or better.

4. General obligations of the Minnesota Housing Finance Agency rated “A” or better.

5. Obligation of a school district with an original maturity not exceeding 13 months and (i) rated in the highest category by a national bond rating service or (ii) enrolled in the credit enhancement program pursuant to statute section 126C.55.

6. Bankers’ acceptances of United States banks eligible for purchase by the Federal Reserve System.

7. Commercial paper issued by United States banks corporations or their Canadian subsidiaries, of highest quality category by at least two nationally recognized rating agencies and maturing in 270 days or less.

8. Repurchase or reverse repurchase agreements and securities lending agreements with financial institutions qualified as a “depository” by the government entity, with banks that are members of the Federal Reserve System with capitalization exceeding $10,000,000, a primary reporting dealer in U.S. government securities to the Federal Reserve Bank of New York, or certain Minnesota securities broker-dealers.

9. Guaranteed Investment Contracts (GIC's) issued or guaranteed by a United States commercial bank, a domestic branch of a foreign bank, a United States insurance company, or its Canadian subsidiary, whose similar debt obligations were rated in one of the top two rating categories by a nationally recognized rating agency.

The Minnesota Municipal Money Market Fund is regulated by Minnesota statutes and the Board of Directors of the League of Minnesota Cities and is an external investment pool not registered with the Securities Exchange Commission (SEC) that follows the regulatory rules of the SEC. In accordance with GASB Statement No. 79, the District’s investment in this pool is valued at amortized cost, which approximates fair value. There are no restrictions or limitations on withdrawals from the 4M Liquid Asset Fund. Investments in the 4M Plus must be deposited for a minimum of 14 calendar days. Withdrawals prior to the 14-day restriction period will be subject to a penalty equal to seven days interest on the amount withdrawn. Seven days' notice of redemption is required for withdrawals of investments in the 4M Term Series withdrawn prior to the maturity date of that series. A penalty could be assessed as necessary to recoup the Series for any charges, losses, and other costs attributable to the early redemption. Financial statements of the 4M Fund can be obtained by contacting the League of Minnesota Cities Finance Department at 145 University Avenue West, St. Paul, Minnesota, 55103-2044 or call (651) 281-1200.

Note 1: Summary of Significant Accounting Policies (Continued)

Property Tax Revenue Recognition

The Board of Managers annually adopts a tax levy and certifies it to the County in December of each year for collection in the following year. The County is responsible for billing and collecting all property taxes for itself, the District, the local School District, and other taxing authorities. Such taxes become a lien on January 1 and are recorded as receivables by the District at that date. Real property taxes are payable (by property owners) on May 15 and October 15 of each calendar year. Personal property taxes are payable by taxpayers on February 28 and June 30 of each year. These taxes are collected by the County and remitted to the District on or before July 7 and December 2 of the same year. The District has no ability to enforce payments of property taxes by property owners. The County possesses this authority.

Delinquent taxes receivable includes the past six years' uncollected taxes. Delinquent taxes have been offset by a deferred inflow of resources for taxes not received within 60 days after year end in the fund financial statements.

Accounts Receivable

Accounts receivable include amounts billed for services provided before year end. All the receivables are deemed collectible.

Capital Assets

Capital assets, which include land, land improvements and easements are reported in the applicable governmental activities columns in the government-wide financial statements. Capital assets are defined by the District as assets with an initial, individual cost of more than $2,500 (amount not rounded) and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at acquisition value at the date of donation.

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend assets lives are not capitalized.

Major outlays for capital assets and improvement are capitalized as projects are constructed.

Deferred Inflows of Resources

In addition to liabilities, the statement of financial position and fund financial statements will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources,* represents an acquisition of net assets that applies to a future period(s) and so will *not* be recognized as an inflow of resources (revenue) until that time. The government has only one type of item, which arises only under a modified accrual basis of accounting that qualifies for reporting in this category. Accordingly, the item, *unavailable revenue,* is reported only in the governmental funds balance sheet. The governmental funds report unavailable revenues from one source: property taxes. This amount is deferred and recognized as an inflow of resources in the period that the amounts become available.

Note 1: Summary of Significant Accounting Policies (Continued)

Fund Balance

In the fund financial statements, fund balance is divided into five classifications based primarily on the extent to which the District is bound to observe constraints imposed upon the use of resources reported in the governmental funds. These classifications are defined as follows:

Nonspendable - Amounts that cannot be spent because they are not in spendable form, such as prepaid items.

Restricted - Amounts related to externally imposed constraints established by creditors, grantors or contributors; or constraints imposed by state statutory provisions.

Committed - Amounts constrained for specific purposes that are internally imposed by formal action (resolution) of the Board, which is the District's highest level of decision-making authority. Committed amounts cannot be used for any other purpose unless the Board modifies or rescinds the commitment by resolution.

Assigned - Amounts constrained for specific purposes that are internally imposed. In governmental funds other than the General fund, assigned fund balance represents all remaining amounts that are not classified as nonspendable and are neither restricted nor committed. In the General fund, assigned amounts represent intended uses established by the Board itself or by an official to which the governing body delegates the authority.

Unassigned - The residual classification for the General fund and also negative residual amounts in other funds.

The District considers restricted amounts to be spent first when both restricted and unrestricted fund balance is available. Additionally, the District would first use committed, then assigned, and lastly unassigned amounts of unrestricted fund balance when expenditures are made.

Net Position

Net position represents the difference between assets and liabilities. Net position is displayed in three components:

a. Investment in capital assets - Consists of capital assets, net of accumulated depreciation.

b. Restricted net position - Consists of net position balances restricted when there are limitations imposed on their use through external restrictions imposed by creditors, grantors, laws or regulations of other governments.

c. Unrestricted net position - All other net position balances that do not meet the definition of "restricted" or "investment in capital assets".

When both restricted and unrestricted resources are available for use, it is the District's policy to use restricted resources first, then unrestricted resources as they are needed.

Note 2: Stewardship, Compliance and Accountability

Budgetary Information

The Board of Managers adopts an annual budget for the General and Management Planning fund of the District on an annual basis. During the budget year, supplemental appropriations and deletions are or may be authorized by the Board. There were amendments to the budget during 2025. The modified accrual basis of accounting is used by the District for budgeting data. All appropriations end with the fiscal year for which they were made.

The District does not use encumbrance accounting.

Note 3: Detailed Notes on Accounts

A. Deposits and Investments

Deposits

Custodial credit risk for deposits and investments is the risk that in the event of a bank failure, the District's deposits and investments may not be returned or the District will not be able to recover collateral securities in the possession of an outside party.

In accordance with Minnesota statutes and as authorized by the Board, the District maintains deposits at those depository banks, all of which are members of the Federal Reserve System.

Minnesota statutes require that all District deposits be protected by insurance, surety bond or collateral. The fair value of collateral pledged must equal 110 percent of the deposits not covered by insurance or bonds, which the exception of irrevocable standby letters of credit issued by Federal Home Loan Banks as this type of collateral only requires collateral pledged equal to 100 percent of the deposits not covered by insurance or bonds.

Authorized collateral in lieu of a corporate surety bond includes:

- United States government Treasury bills, Treasury notes, Treasury bonds.
- Issues of United States government agencies and instrumentalities as quoted by a recognized industry quotation service available to the government entity.
- General obligation securities of any state or local government with taxing powers which is rated "A" or better by a national bond rating service, or revenue obligation securities of any state or local government with taxing powers which is rated "AA" or better by a national bond rating service.
- General obligation securities of a local government with taxing powers may be pledged as collateral against funds deposited by that same local government entity.
- Irrevocable standby letters of credit issued by Federal Home Loan Banks to a municipality accompanied by written evidence that the bank's public debt is rated "AA" or better by Moody's Investors Service, Inc., or Standard & Poor's Corporation; and
- Time deposits that are fully insured by any Federal agency.

Minnesota statutes require that all collateral shall be placed in safekeeping in a restricted account at a Federal Reserve Bank, or in an account at a trust department of a commercial bank or other financial institution that is not owned or controlled by the financial institution furnishing the collateral. The selection should be approved by the District.

Note 3: Detailed Notes on Accounts (Continued)

At year end, the District's carrying amount of deposits, bank balance, FDIC coverage and pledges collateral are shown in chart below.

Carrying amount of deposits	$ (29,975)
Investments	1,000,647
Total cash and temporary investments	$ 970,672
Bank Balance	$ -
Covered by FDIC	(250,000)
Collateralized with securities pledged in District's name	$ -

Investments

As of December 31, 2025, the District had the following investments that are insured or registered, or securities held by the District's agent in the District's name:

Types of Investments	Credit Quality/ Ratings (1)	Segmented Time Distribution (2)	Fair Value and Carrying Amount
Pooled investments			
4M Money market	N/A	less than 6 months	$ 1,000,647

Ratings are provided by Standard & Poor's agency where applicable to indicate associated credit risk.

(1) Ratings are provided by various credit rating agencies where applicable to indicate associated credit risk.
(2) Interest rate risk is disclosed using the segmented time distribution method.
N/A Indicates not applicable or available.

Note 3: Detailed Notes on Accounts (Continued)

B. Capital Assets

Capital asset activity for the year ended December 31, 2025 was as follows:

	Beginning Balance	Increases	Decreases	Ending Balance
Governmental Activities				
Capital Assets, not Being Depreciated				
Land and permanent easements	$ 316,555	$ -	$ -	$ 316,555
Capital Assets, Being Depreciated				
Land improvements	433,564	-	-	433,564
Less Accumulated Depreciation for				
Land improvements	(43,331)	(17,343)	-	(60,674)
Total Capital Assets				
Being Depreciated, Net	390,233	(17,343)	-	372,890
Governmental Activities				
Capital Assets, Net	$ 706,788	$ (17,343)	$ -	$ 689,445

Depreciation expense was charged to programs of the District as follows:

Governmental activities	
Programs	$ 17,343

Note 4: Other Information

A. Risk Management

The District is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters for which the District carries insurance. The District pays annual premiums for its workers compensation and property and casualty insurance. Settled claims have not exceeded the District's coverage in any of the past three fiscal years.

Liabilities are reported when it is probable that a loss has occurred, and the amount of the loss can be reasonably estimated. Liabilities, if any, include an amount for claims that have been incurred but not reported (IBNRs). The District's management is not aware of any incurred but not reported claims.

B. Permit Collateral

The District issues permits to applicants who wish to make changes to land that may affect the water drainage or alter the lake shore within the boundaries of the District. The District requires collateral to be deposited to ensure the projects are completed in accordance with the permit application. As of December 31, 2025, the District was holding $144,398 of collateral deposits.

REQUIRED SUPPLEMENTARY INFORMATION

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

Browns Creek Watershed District
Stillwater, Minnesota
Required Supplementary Information
Budgetary Comparison Schedule
General Fund
For the Year Ended December 31, 2025

	Budgeted Amounts		Budget	Actual	Variance with
	Original	Final	Amendments	Amounts	Final Budget
Revenues					
Property taxes	$ 228,889	$ 228,889	$ -	$ 228,889	$ -
Intergovernmental					
Market value agricultural credit	-	-	-	298	298
Miscellaneous	-	-	-	39,296	39,296
Total Revenues	228,889	228,889	-	268,483	39,594
Expenditures					
Current					
General government					
Per diems	10,000	10,000	-	8,687	1,313
Engineering	31,289	31,289	-	31,159	130
Administrator services	65,000	65,000	-	61,600	3,400
Legal fees	32,100	32,100	-	27,106	4,994
Accounting	5,040	5,040	-	5,000	40
Audit	12,000	12,000	-	11,975	25
Postage	1,000	1,000	-	-	1,000
Office	1,060	1,060	-	980	80
Printing	1,000	1,000	-	363	637
Dues and subscriptions	10,000	10,000	-	9,480	520
Training and seminars	21,214	17,374	(3,840)	3,068	14,306
Insurance and bonds	6,500	6,500	-	5,009	1,491
Miscellaneous	2,000	2,000	-	5,713	(3,713)
Total Expenditures	198,203	194,363	(3,840)	170,140	24,223
Net Change in Fund Balances	30,686	34,526	3,840	98,343	63,817
Fund Balances, January 1	670,196	670,196	-	670,196	-
Fund Balances, December 31	$ 700,882	$ 704,722	$ 3,840	$ 768,539	$ 63,817

The notes to the financial statements are an integral part of this statement.

Notes to the Required Supplementary Information – Budgetary Reporting

A. Schedule of Revenues, Expenditures and Changes in Fund Balances – Budget and Actual

The schedule of revenues, expenditures and changes in fund balances – budget and actual presents the comparison of the original and legally amended budget with actual amounts for the General and Capital funds. The fund budgets are adopted on a basis consistent with the modified accrual basis of accounting. The fund balances report revenues in the period in which they become measurable and available.

B. Budget Amendments

In accordance with state statutes governing watershed district financial management and compliance with GASB Statement No. 103, the District's budget amendments were processed and approved through established legal and procedural frameworks. The Board of Managers exercised its authority as delineated in Minnesota Statutes Section 103D.911, ensuring that all modifications to the budget were deliberated and approved in public meetings, adhering to principles of transparency and accountability. Each amendment or group of amendments were documented and justified based on emergent fiscal requirements or reallocation of resources, following criteria that align with GASB 103 guidelines. This process underscores the District's commitment to maintaining financial integrity and regulatory compliance, providing a clear audit trail for citizens and auditors alike.

C. Summary of Significant Budget Variances

General Fund

The General fund revenues varied significantly from final budget amounts as noted below:

Revenues

- Miscellaneous revenues were over final budgeted amounts due to interest income, which is variable based off market value of investments held by the district

D. Budgetary Compliance

There were no budgetary compliance violations for the fiscal year ending December 31, 2025.

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INDIVIDUAL FUND FINANCIAL SCHEDULE

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

Browns Creek Watershed District
Stillwater, Minnesota
Supplementary Information
Budgetary Comparison Schedule
Management Planning Fund
For the Year Ended December 31, 2025

	Budgeted Amounts		Budget	Actual	Variance with
	Original	Final	Amendments	Amounts	Final Budget
Revenues					
Property taxes	$ 978,642	$ 978,642	$ -	$ 955,004	$ (23,638)
Intergovernmental					
Market value agricultural credit	-	-	-	1,269	1,269
Grants	171,307	191,307	20,000	74,243	(117,064)
Interest on investments	-	-	-	51	51
Permit fees	-	-	-	233,083	233,083
Total Revenues	1,149,949	1,169,949	20,000	1,263,650	93,701
Expenditures					
Current					
Program costs					
Baseline monitoring and equipment	202,465	202,465	-	175,343	27,122
Legal fees	60,000	60,000	-	53,271	6,729
Staff engineer	99,522	99,522	-	93,477	6,045
Permitting	101,250	101,250	-	421,855	(320,605)
Administrator services	250,000	250,000	-	246,400	3,600
East metro water resources educator	31,000	31,000	-	24,500	6,500
Project costs	1,413,723	1,437,563	23,840	497,809	939,754
Total Expenditures	2,157,960	2,181,800	23,840	1,512,655	669,145
Net Change in Fund Balances	(1,008,011)	(1,011,851)	(3,840)	(249,005)	762,846
Fund Balances, January 1	293,029	293,029	-	293,029	-
Fund Balances, December 31	$ (714,982)	$ (718,822)	$ (3,840)	$ 44,024	$ 762,846

The notes to the financial statements are an integral part of this statement.

OTHER REQUIRED REPORT

BROWN'S CREEK WATERSHED DISTRICT
STILLWATER, MINNESOTA

FOR THE YEAR ENDED
DECEMBER 31, 2025

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INDEPENDENT AUDITOR'S REPORT
ON MINNESOTA LEGAL COMPLIANCE

Board of Managers
Browns Creek Watershed District
Stillwater, Minnesota

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the governmental activities and each major fund of the Browns Creek Watershed District (the District), Stillwater, Minnesota, as of and for the year ended December 31, 2025, and the related notes to the financial statements which collectively comprise the District's basic financial statements, and have issued our report thereon dated June 1, 2026.

In connection with our audit, nothing came to our attention that caused us to believe that the District failed to comply with the provisions of contracting and bidding, tax increment financing, deposits and investments, conflicts of interest, claims and disbursements, and miscellaneous provisions section of the *Minnesota Legal Compliance Audit Guide for Other Political Subdivisions*, promulgated by the State Auditor pursuant to Minn. Stat. § 6.65, insofar as they relate to accounting matter. However, our audit was not directed primarily toward obtaining knowledge of such noncompliance. Accordingly, had we performed additional procedures, other matters may have come to our attention regarding the District's noncompliance with the above referenced provisions, insofar as they relate to accounting matters.

This report is intended solely for the information and use those charged with governance and management of the District and the State Auditor and is not intended to be and should not be used by anyone other than these specified parties.

Abdo
Minneapolis, Minnesota
June 1, 2026

2025 Financial Statement Audit

Brown's Creek Watershed District



Introduction

- Audit Results
- General Fund Results
- Management Planning Fund Results



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Audit Results

Auditor's Opinion

unmodified opinion under GAAP

Minnesota Legal Compliance

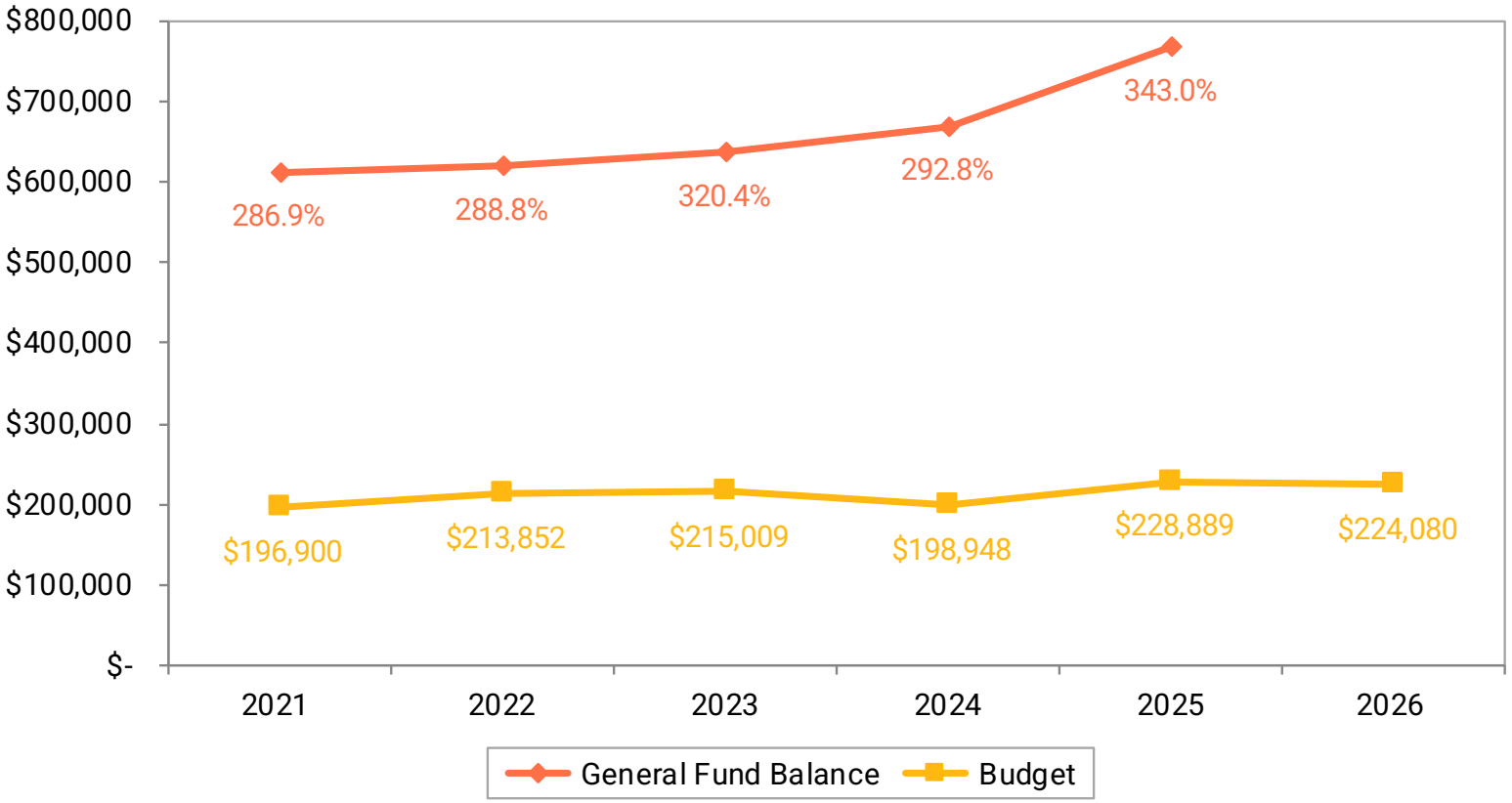
No instances of noncompliance

AUDIT RESULTS

Fiscal Year 2025 Findings

- Preparation of Financial Statements
  - *Internal Control Finding*

General Fund Balances
Compared to Future Year Budget



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General Fund Budget to Actual

	Final Budgeted Amounts	Actual Amounts	Variance with Final Budget
Revenues	$ 228,889	$ 268,483	$ 39,594
Expenditures	194,363	170,140	24,223
Net Change in Fund Balances	34,526	98,343	63,817
Fund Balances, January 1	670,196	670,196	-
Fund Balances, December 31	$ 704,722	$ 768,539	$ 63,817

abdosolutions.com

Management Planning Fund Budget to Actual

	Final Budgeted Amounts	Actual Amounts	Variance with Final Budget
Revenues	$ 1,169,949	$ 1,263,650	$ 93,701
Expenditures	2,181,800	1,512,655	669,145
Net Change in Fund Balances	(1,011,851)	(249,005)	762,846
Fund Balances, January 1	293,029	293,029	-
Fund Balances, December 31	$ (718,822)	$ 44,024	$ 762,846

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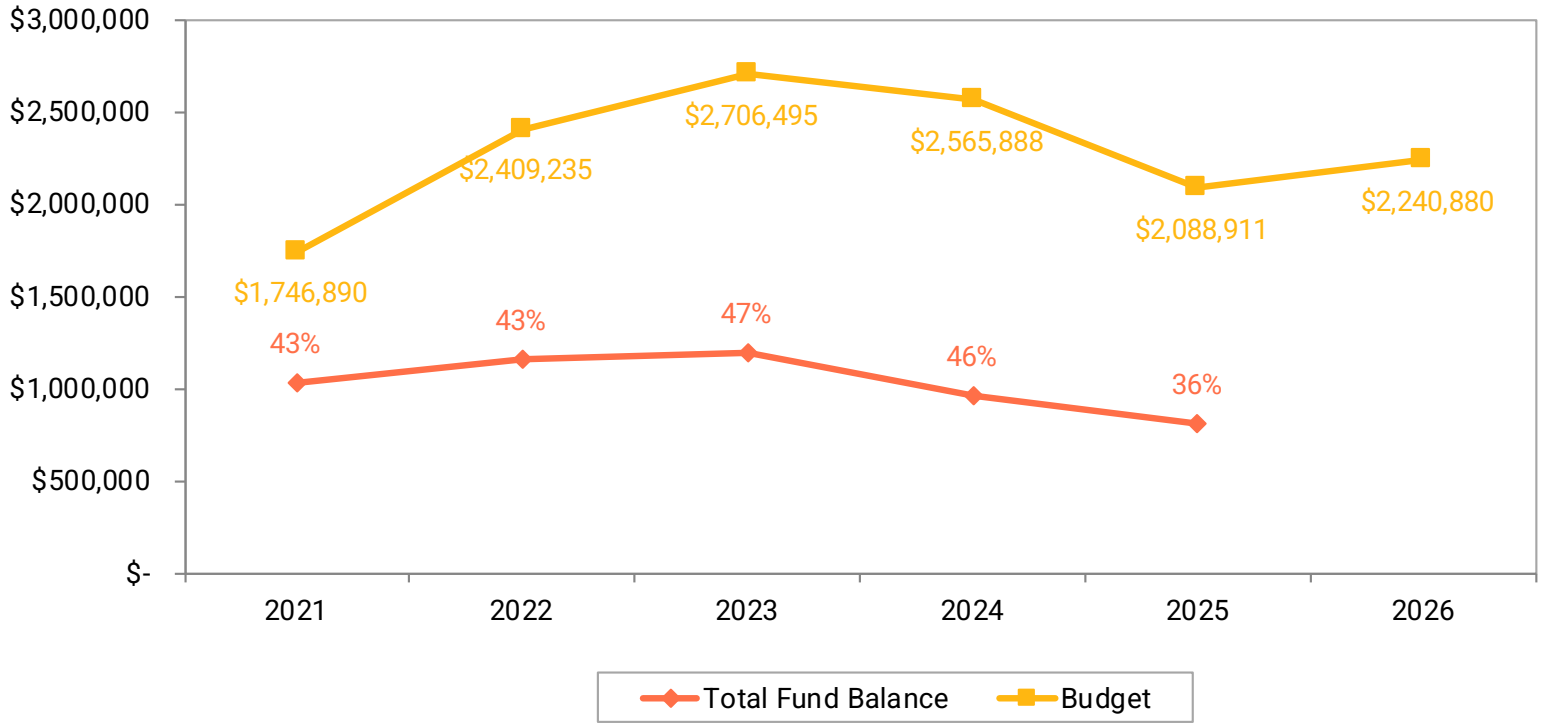
Total Fund Balances
Compared to Total Future Year Budget



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Grant Program Overview

	Grant Awarded	Earned	Received
Brown's Creek Restoration	$ 320,706	$ 309,742	$ 309,742
2024-25 Watershed Outlet Monitoring Program	10,000	10,000	9,000
DNR Get Out More	20,000	20,000	-

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Your Abdo Team



Andy
BERG
CPA - Partner



Tyler
SEE
CPA – Senior Manager



Kayley
O'LEARY
Associate

BROWN'S CREEK
WATERSHED DISTRICT
Preserving the integrity of the watershed for future generations
www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

MEMORANDUM

TO: Brown's Creek Watershed District Board
FROM: Hannah Peterson
RE: Minnesota Watersheds Summer Tour
DATE: June 8, 2026

Background:

Minnesota Watersheds hosts their annual tour each summer which is a great education opportunity for watershed staff and managers. The 2026 tour will take place in Detroit Lakes from Tuesday, August 25th to Wednesday, August 26th with networking opportunities beginning Monday, August 24th.

Issue:

The fees for the 2026 Conference, with an administrators meeting on 8/25 and the tour running 8/25-8/26, are as follows:

	8/25 MAWA Meeting	**Event Attendee**	**Per Diems**	**Lodging**
Karen Kill	$32.79	$132.54		$160+/night/room ($480+ for three nights)
Manager(s)		$132.54/manager	$125/day/manager	
Total	**$32.79**	**$132.54 + $132.54/manager**	**$125/day/manager**	**Up to $2.880+**

Requested Actions:

Authorize registration, lodging, and expenses for staff for the MN Watersheds summer tour not to exceed $650 from account 200-4265.

Authorize registration, lodging, expenses, and per diems for board managers for the MN Watersheds summer tour not to exceed $3,700 from account 200-4000.

Managers:

Klay Eckles, President | Chuck LeRoux, Vice President | Celia Wirth, Treasurer
Griffin Brod, 2nd Vice President | Luke Mattson, Secretary

memo

Project Name |	BCWD Permit 26-03 7 Brew Coffee	**Date** |	6/4/2026
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Toth Associates / Brian Van Rooyen, PE		
Cc / Contact info |	Karen Kill, Administrator / BCWD		
From / Contact info |	Camilla Correll, PE; Julia Lau, EIT / EOR		
Regarding |	Permit Application No. 26-03 Engineer's Report		

The following review of the above-captioned project located within the legal jurisdiction of Brown's Creek Watershed District (BCWD) was conducted to assess compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

Applicant: Quattro Oak Park LLC
Complete Permit Submittal Date: *5/13/2026*
Board Action Required By: *7/11/2026*
Review based on BCWD Rules effective April 1, 2020
Recommendation: Approve with Conditions

GENERAL COMMENTS

Existing Conditions: The applicant proposes to redevelop the property at 13375 60th Street North, which currently is the location of a Ruby Tuesday restaurant. There are existing stormwater inlets and piping on the site that run to a stormwater pond on the adjacent property to the west. Existing drainage flows generally from east to west through overland flow and the storm sewer system under the parking lot. Runoff from the project flows north to the ditch along 60th Street N or west to the pond located on the adjacent property. The existing 1.3-acre single-parcel site has a total impervious area of 0.985 acres.

Proposed Conditions: The applicant proposes to demolish the Ruby Tuesday building, reconfigure the east side of the parking lot, and construct a new 7 Brew Coffee building (Figure 1). Additional storm sewer and an iron-enhanced biofiltration basin will be connected to the existing storm sewer system. The general flow pattern will remain from east to west, discharging into the existing pond on the adjacent site to the west. The project will disturb 0.44 acres of the site, including 0.343 acres of existing impervious surface. The total proposed final impervious area on the parcel will be 0.982 acres (78% of the total site), which is a reduction of 0.003 acres of impervious area from existing conditions.

Given that this site is located within the City Oak Park Heights' Drinking Water Supply Management Area (DWSMA) which is classified as having high vulnerability, the BCWD engineer agrees that infiltration is not reasonably feasible. Stormwater treatment is provided by the iron-enhanced biofiltration basin, and by vegetation through interception, and evapotranspiration.

Recommendation: The BCWD engineer recommends that the Board approve the application with the conditions and stipulations outlined in the report.

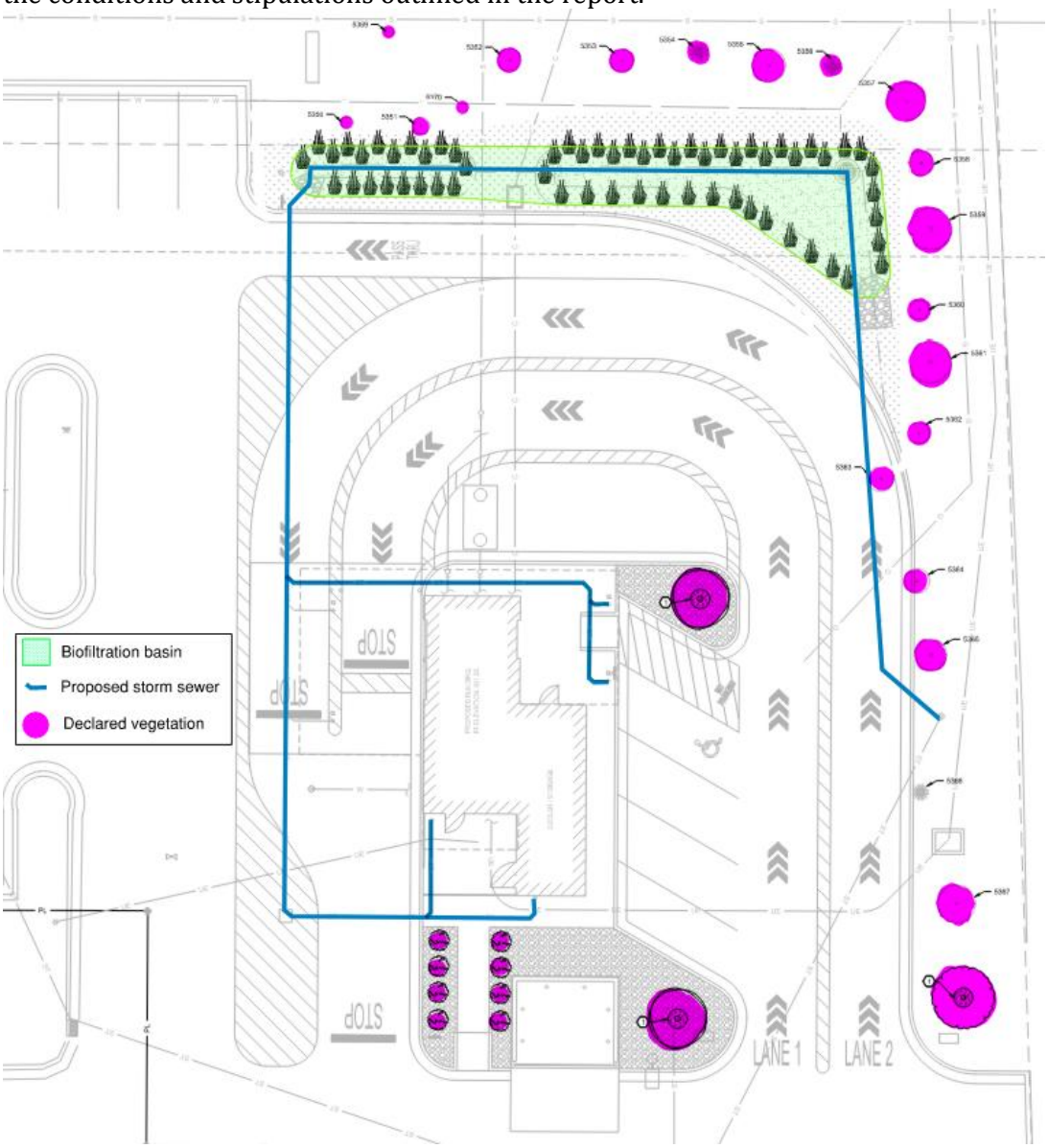

Figure 1: Site Plan

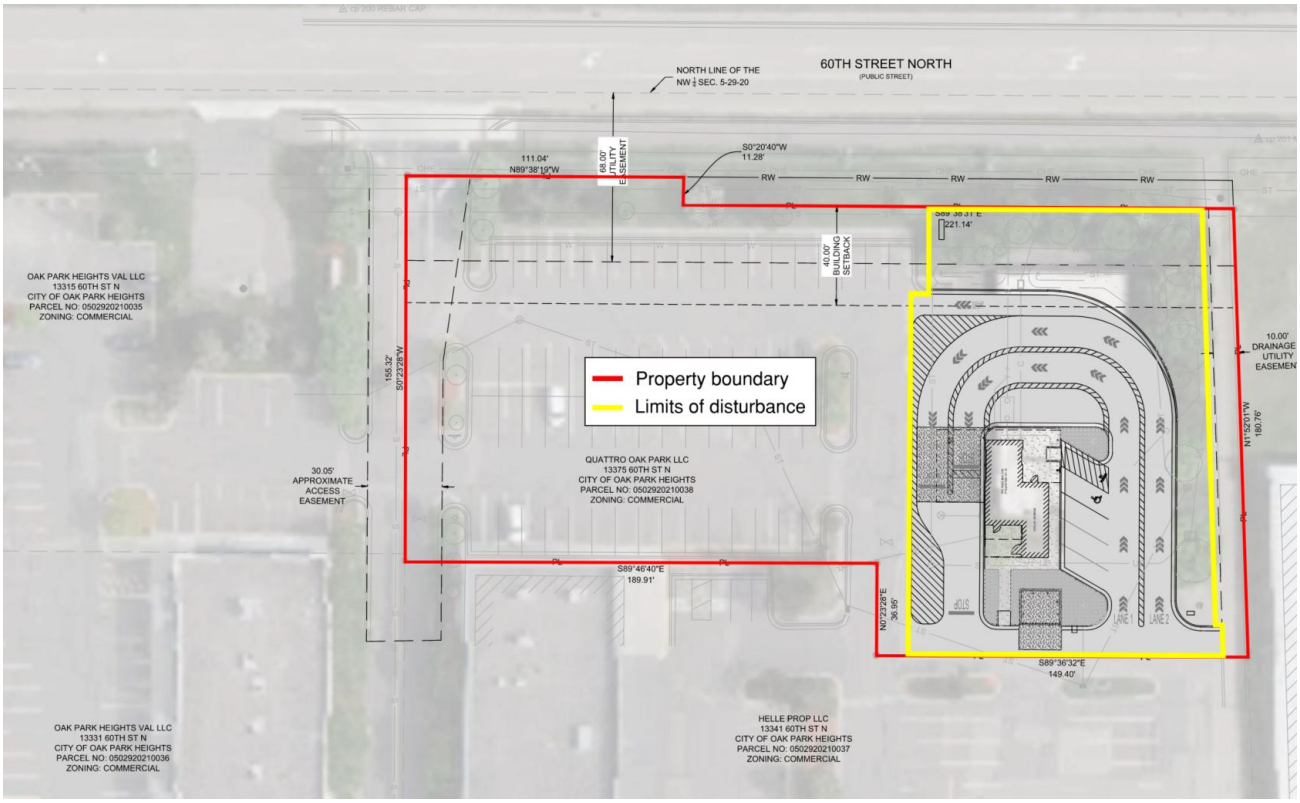

Figure 2: Site Boundaries

Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b) of the rule, the proposed project triggers the application of Rule 2.0 Stormwater Management because it creates more than 10,000 square feet of new and/or reconstructed impervious surface. The site is located within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(b) apply.

As stated above, the site has a total of 0.985 acres of existing impervious surface. Of that original impervious area, 0.44 acres (44.7% of the total impervious area) will be disturbed. Under 2.2(b)(ii), since the proposed activity will disturb less than 50 percent of existing impervious surface on the site, the criteria apply only to reconstructed and net additional impervious surface and disturbed areas on the project site. The total amount of reconstructed impervious surface proposed is 0.340 acres.

The stormwater management plan for the project includes:

- *Constructing 1 new lined biofiltration basin with an iron-enhanced sand layer and underdrains for stormwater treatment.*

Under both existing and proposed conditions, runoff leaves the site at the following discharge points:

- *"West" – The current drainage area is 1.023 acres and will expand to 1.060 acres in the proposed condition. Runoff will be routed through the proposed biofiltration basin before exiting the site through existing storm sewer, ultimately discharging to the detention pond on the adjacent site to the west.*

- *"North" – The current drainage area is 0.237 acres and will decrease to 0.200 acres in the proposed condition. Runoff will flow offsite to the north, discharging to the ditch along 60th Street North.*

Rate Control

According to BCWD Rule 2.4.1(b)(i), an applicant must submit a stormwater-management plan providing no increase in the existing peak stormwater flow rates from the site for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave the site.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using the rational method for existing and post-development site conditions. A comparison of the peak flow rate at each discharge point is included in Table and 2.

Table 1 - Peak Discharge Rate "West"

Event	*Existing Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.80")	1.64	1.03
10-year (4.17")	2.41	2.14
100-year (7.23")	3.70	3.56

Table 2 - Peak Discharge Rate "North"

Event	*Existing Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.80")	0.57	0.43
10-year (4.17")	0.84	0.64
100-year (7.23")	1.29	0.98

Volume Control

According to BCWD Rule 2.4.1(b)(ii), an applicant must submit a stormwater management plan providing retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface, except where section 2.4.3 – Flexible Treatment Options applies.

☒ Rule Requirement Met

Because this site is located in a Drinking Water Supply Management Area classified as having high vulnerability, the permit applicant asserts that retention of stormwater volume onsite via infiltration is not reasonably feasible and the BCWD engineer concurs. The applicant explored alternative methods for achieving volume control as described in the analysis below. Flexible Treatment Option A requires a 0.55-inch volume retention onsite, which is not feasible without the use of infiltration due to the constraints described below. Flexible Treatment Option B can be applied, which requires retention onsite of stormwater volume to the maximum extent practicable and removal of 60 percent of the annual total phosphorus loading (BCWD Rule 2.4.3(b)).

Alternative volume control options summarized in Table 3 were evaluated to identify how much volume control could be provided onsite.

Table 3 – BMPs Evaluated for Volume Control Requirement

BMP	Evaluated?	Utilized?	Why or why not?
Infiltration	Yes	No	DWSMA classified as having high vulnerability; no higher engineering analysis completed.
Harvest and Reuse	Yes	No	Limited green space for irrigation.
Green Roofs	Yes	No	Small building footprint, minimal treatment benefits, and high roof redesign Costs.
Evapotranspiration	Yes	Yes	Utilizing ET from proposed perennial vegetation.
Interception	Yes	Yes	Utilized by preserving existing trees.
Permeable Pavers/ Pavement	Yes	No	DWSMA classified as having high vulnerability; no higher engineering analysis completed.

The applicant's stormwater management plan proposes to provide volume control using the following techniques:

1. ***Evapotranspiration*** *(ET) from trees, shrubs and perennial vegetation incorporated as part of the landscaping plan. Evapotranspiration was calculated using guidance provided by the Minnesota Pollution Control Agency and will provide 184 cubic feet (CF) of storage. This equates to 13.5% of the total regulated volume.*
2. ***Interception*** *from existing trees incorporated as part of the landscaping plan. Interception can be calculated by estimating tree canopy cover for each tree species. The estimated total canopy cover is 3,280 square feet (SF), which provides 55 CF of storage. This equates to 4.1% of the total regulated volume.*

Table 4 – Summary of Volume Retention

Volume Control Requirement	***Provided Volume (cu-ft)***	***% of 1.1-inch Volume Retained***
FTO B, reduction to the extent practicable over 0.340 acres of impervious surface.	239	17.6%

As Table 4 demonstrates, the proposed stormwater management plan will achieve volume control 17.6% of the regulated impervious area once the vegetation is established. The permit applicant considered other volume control practices, including stormwater reuse and green roofs but deemed them inefficient due to the site's limited roof area and irrigatable green space available. As a more practical alternative, the proposed development will decrease the site's impervious area with proposed landscaped greenspaces and a biofiltration basin with an iron-enhanced sand layer to support stormwater management and to meet the 60% phosphorus reduction requirement, shown in Table 5 below. The biofiltration basin was designed with the largest possible footprint, accounting for constraints due to existing utilities and trees to be preserved. The BCWD engineer concurs that volume control is being proposed to the maximum extent practicable.

Table 5 – Summary of Phosphorus Reduction

Phosphorus Loading (lb/yr)	*Phosphorus Retained (lb/yr)*	*Percent P Reduction*
0.671	0.443	66%

Infiltration Pretreatment

According to BCWD Rule 2.5.2, surface flows to infiltration facilities must be pretreated for long-term removal of at least 50 percent of sediment loads.

☐ Rule Not Applicable to Permit. *There is no stormwater infiltration proposed for this site.*

The BCWD rule does not require pretreatment for bioretention or filtration practices.

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(b)(iii), an applicant must submit a stormwater-management plan providing no increase in the bounce in water level or duration of inundation for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☐ Rule Not Applicable to Permit. *There are no immediate downstream lakes or wetlands.*

Rule 2.0 Conditions:

2-1. Provide BCWD with the final Civil Plan Set. (BCWD 2.7.9)

2-2. Provide a draft stormwater facility maintenance declaration for approval by the District and proof of recordation with Washington County after approval. A template is available under the permit section of the District's website (BCWD Rule 2.6).

2-3. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota pollution Control Agency and provide the Storm Water Pollution Prevention Plan (SWPPP) (BCWD Rule 2.7.15).

Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, all persons undertaking any grading, filling, or other land-altering activities which involve movement of more than fifty (50) cubic yards of earth or removal of vegetative cover on five thousand (5,000) square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because more than 50 cubic yards of earth will be moved.

☒ Rule Requirements Met

The erosion and sediment control plan includes:

- *Rock construction entrance*
- *Compost filter sock*
- *Curb inlet sediment barriers*

The following conditions must be addressed in the erosion and sediment control plan to comply with the District's requirements:

Rule 3.0 Conditions:

3-1. Provide the contact information for the erosion and sediment control responsible party during construction once a contractor is selected. Provide the District with contact information for the Erosion Control Supervisor and the construction schedule when available (BCWD 3.3.2).

Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

☐ Rule Not Applicable to Permit. *There are no lakes, streams, or wetlands on or adjacent to the project site.*

Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed shoreline or streambank alterations.*

Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

The proposed discharge rates from the site are less than existing conditions so any excess volume above existing conditions will be discharged at a rate that allows the volume to be conveyed through the existing system. Given this, there is no alteration of stormwater flow at the property boundary triggering the rule. However, the freeboard criteria in subsection 7.3.2 apply through operation of subsection 2.5.4; the freeboard criteria are applied here:

☒ Rule Requirements Met

According to BCWD rule 7.3.2 all new and reconstructed buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow (EOF) of a constructed basin.

The 100-year high water elevations, EOFs, and lowest adjacent building elevations were evaluated and meet the District's low floor requirement as demonstrated in Table 5. Stormwater flows at property boundaries decrease from existing to proposed conditions.

Table 5 - Freeboard Requirement Summary

Stormwater Facility	*EOF*	*100-Year HWL*	*Allowable Lowest Floor*	*Lowest Proposed Floor*
Biofiltration Basin	929.95	929.00	931.00	931.00

Rule 8.0—FEES

Fees for this project as outlined below:

1. Stormwater management fee $3,000
2. Erosion control fee for grading $1,000

- **TOTAL FEES** **$4,000**

Rule 9.0—FINANCIAL ASSURANCES

Financial assurances for this project are as outlined below:

1. Grading or Alteration (0.44 acres disturbed x $2,000/acre) $880
2. Stormwater Management Facilities (125% of facility cost) $TBD

- **TOTAL FINANCIAL ASSURANCES ($5,000 Minimum Performance Financial Assurance)** **$TBD**

An engineer's estimate of the cost of stormwater management facilities has not been provided by the applicant. Once provided, this estimate will be used to determine the required financial assurance.

Rule 9.0 Conditions:

9-1. Provide the final estimate of stormwater management facility cost as agreed upon by applicant and BCWD engineer.

9-2. Provide the required financial assurances:
   a. Total grading or alteration assurance 0.44 acres ($880).
   b. Stormwater management facilities assurance (**$TBD**).

Rule 10.0—VARIANCES

According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of the circumstances unique to the property under consideration. The Board of Managers may

grant variances where it is demonstrated that such action will be keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

☒ Rule Not Applicable to Permit. *There are no requested variances.*

RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Demonstrate that the plan has received preliminary plat approval (BCWD Rule 1.3a).
2. Address all stormwater management requirements (Conditions 2-1 to 2-3).
3. Address all erosion control requirement(s) (Condition 3-1).
4. Replenish the Permit fee deposit to $4000 (BCWD Rule 8.0). If the permit fee deposit is not replenished within 60 days of receiving notice that such deposit is due, the permit application or permit will be deemed abandoned and all prior approvals will be revoked and collection proceedings will begin on unpaid balances.
5. Address all financial assurance requirements (Conditions 9-1 to 9-2).

STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)
2. To ensure that construction is carried out according to the approved plan, provide verification that construction standards have been met for the basin and that existing trees have been protected from construction activities. This includes but is not limited to confirmation that the vegetation establishment procedures have been followed per the landscaping/restoration plan.
3. Provide the District with As-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.
4. Provide contact information for the party responsible for long-term maintenance of proposed stormwater facilities.

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ACKNOWLEDGEMENTS

BCWD Board of Managers

- Klayton Eckles, President
- Chuck LeRoux, Vice President
- Celia Wirth, Treasurer
- Debra Sahulka, Former Secretary
- Griffin Brod, ~~Manager~~2nd Vice President
- Luke Mattson, Secretary

Community Advisory Committee

- Jyneen Thatcher, May Township
- Anne Maule-Miller, Stillwater
- George Vania, Stillwater
- Hal Udoli, Stillwater
- Yihong Gao, Stillwater
- Dory Herman, Stillwater
- Dennis Gervais, Grant
- David Wortman, Grant
- Mari Frederickson, Stillwater

Technical Advisory Committee

- Erik Peters, City of Oak Park Heights Engineer
- Jesse Farrell, City of Stillwater Public Works
- Josh Norman~~Michelle Jordan~~, Board of Water and Soil Resources
- Abby Shea, Minnesota Department of Health
- Anneka Munsell, Minnesota Department of Health
- Jen Kader, Metropolitan Council
- Steve Christopher, Metropolitan Council
- Lila Franklin, Metropolitan Council
- Mike Isensee, Carnelian Marine St. Croix Watershed District
- Jay Riggs, Washington Conservation District Administrator
- Matt Oldenburg-Downing, Middle St. Croix WMO
- Dan Scallon, Minnesota Department of Natural Resources
- Jessica Collin-Pilarski, Washington County
- Adriana Atcheson, Washington County
- Kevin Peterson, Washington County Engineer
- Miranda Nichols, Minnesota Pollution Control Agency
- Kate MacDonald, Minnesota Pollution Control Agency
- Angie Hong, East Metro Water Resource Education Program

Brown's Creek Watershed District Staff

- Karen Kill, Administrator
- Hannah Peterson, Communications & Project Assistant
- Camilla Correll, Emmons & Olivier Resources, Inc.
- Alexander Furneaux, Emmons & Olivier Resources, Inc.
- Michael Welch, Smith Partners PLLP

LETTER FROM THE BCWD PRESIDENT

The Brown's Creek Watershed District (BCWD) Board of Managers is pleased to present the attached 10-year plan for district operations. This plan builds off previous 10-year plans and serves as a guiding document for actions and improvements in coming years.

Why does BCWD exist? The Minnesota Legislature recognized that water is of vital importance to both humans and the environment. It also recognized that water does not abide by political boundaries; therefore, legislation was enacted decades ago to create this and many other water management organizations around the state. The boundaries of these organizations are based on the natural flow of water rather than city or county lines.

Water is both an essential component for life and wellness and a major challenge when it is polluted or when it goes where it shouldn't. This updated 10-year plan is intended to further protect, preserve, and improve our water resources without adding undue burden or complications.

The community members of the BCWD board serve the residents, flora, and fauna that work and live within the watershed. To that end the board and BCWD staff endeavor to achieve the goals spelled out in this 10-year plan by using the financial resources of the district wisely and efficiently; the board will strive to procure grants and to build governmental partnerships to benefit the watershed and surrounding areas. As part of this 10-year plan, the board will also revisit and re-evaluate our rules for managing activities in the watershed.

This document is a commitment to both the local and greater community to continue to manage the water resources in our charge and the land we live on. Past plans have brought about major successes in restoring impaired water resources, protecting sensitive resources, and preventing flooding. The board will use this plan to continue its efforts.

Klayton Eckles, President, Brown's Creek Watershed District



Restored segment of Brown's Creek off Neal Avenue North in 2025.

GLOSSARY

TERM	DEFINITION
Anthropogenic	Of, relating to, or resulting from the influence of human beings on nature.
Aquifer	A body of permeable rock or sand and gravel that can contain or transmit sufficient quantities of groundwater to wells~~A body of permeable rock that can contain or transmit groundwater.~~.
Aquitard	A low permeability unit that slowly transmits groundwater~~A low permeability unit that can store groundwater and slowly transmit it between aquifers.~~.
Baseflow	Water flow that comes from groundwater seeping into the stream.
H/H Model	A hydrologic and hydraulic model is a tool used to simulate how stormwater runoff is generated and transported across the landscape.
Bedrock Aquifer	Bedrock (consolidated) formation that yields groundwater.
Climate Change	A long-term change in climate measures such as temperature and rainfall. These changes have a large impact on water quality, water levels, and stream or river flows.
Community Assistance Program	Developed in conjunction with the Minnesota Pollution Control Agency's Minimal Impact Design Standards, this package includes performance goals, a stormwater credit calculator for best management practices, and ordinance guidance for communities.
Dissolved Oxygen	The level of free, non-compound oxygen present in water or other liquids. It is an important parameter in assessing water quality because of its influence on the organisms living within a body of water.
Diversion Structure	The diversion structure was installed in Stillwater in 2003. It is located approximately 600 feet west of Neal Avenue on the south side of the Brown's Creek State Trail and diverts all stormwater flow from the Long Lake drainage area from Brown's Creek into Lake McKusick. It was designed to preserve and enhance the integrity of Brown's Creek, improve the water quality and quantity in Lake McKusick, and allow the City of Stillwater to proceed with development as proposed in its comprehensive plan.
Ecological Health	The ecological integrity and connectivity of the Brown's Creek watershed's ecosystems.
Ecosystem	A biological community of interaction among animals, plants, and microorganisms as well as the physical and chemical environment in which they live.
E. coli	*Escherichia coli* (abbreviated as *E. coli*) is a fecal coliform bacterium that comes from human and animal waste. The Environmental Protection Agency uses *E. coli* measurements to determine whether fresh water is safe for recreation.
Environmental Justice	The recognition that historic and present decision making and environmental discrimination has caused low-income communities, communities of color, and Indigenous peoples to bear the disproportionate impacts of pollution and climate change. The Minnesota Pollution Control Agency's Environmental Justice Framework prioritizes projects and programs that will improve environmental quality in priority communities supported by authentic and open dialogue with these communities and gathering more complete data to support decision-making.
Equity	The active and intentional effort to pursue fair and just outcomes for individuals that recognizes differences in their identities.
Eutrophication	The enrichment of an ecosystem with nutrients (nitrogen and/or phosphorus), which can increase phytoplankton and algal blooms as well as deplete oxygen in the water (hypoxia), threatening aquatic animals.
Fen	A peat accumulating wetland that receives drainage from surrounding mineral soils and usually supports marsh-like vegetation. Fens are richer in nutrients and less acidic than bogs due to groundwater inflows.
Fill	Earthen fill or soil is sometimes placed in depressions or low points in the landscape to make sites more buildable and to reduce flood risk to an area.

Flood Mitigation	Reducing flood-related damages and effects that occur despite prevention efforts. Strategies can be structural or non-structural.
Flood Prevention	Methods used to reduce or prevent the detrimental effects of flood waters, usually reducing the rate and volume of stormwater runoff discharged from built property to downstream resources. Methods can be structural or non-structural.
Freeboard	The height of the watertight portion of a building or other construction above a given level of water.
Geomorphology	The study of the processes responsible for the shape and form (morphology) of water courses. It describes how sediment (e.g., silt, sand, gravel) and water are transported from the headwaters to the mouth of a watershed.
Green Infrastructure	The integration of the natural environment and engineered systems to provide multiple benefits and support resilient communities by reducing the effects of development on stormwater. Examples include underground storage, tree trenches along roads and sidewalks, bioswales along unimproved roads, permeable pavement, blue or green roofs, retention ponds in open areas, wetland preservation and restoration, stream re-meandering, and vegetation management in upland areas.
Groundwater-Dependent Natural Resources	A feature with surface emergence of groundwater at a spring or seepage area supporting plant communities or aquatic ecosystems.
Groundwatershed	An area that contributes groundwater flow to a given discharge point.
Healthy Watershed	A watershed with mostly natural land cover, especially near its waters; good water quality, quantity, and flow; and habitats with diverse aquatic life. These components support long-term, sustainable benefits to people and the environment.
Hydrology	The movement of water. Often used in reference to water movement as runoff over the soil after a rainfall event as it contributes to surface water bodies.
Hypoxia	Oxygen deficiency in a biotic environment.
Impaired Biota	When a stream is not supporting the aquatic organisms (biota) it should. The challenge is determining the stressors (conditions affecting the biota). The Environmental Protection Agency has defined protocol for identifying these stressors, and for each identified primary stressor, a Total Maximum Daily Load (TMDL) analysis must be conducted.
Impaired Waters	Streams or lakes that do not meet their designated uses because of excess pollutants or identified stressors.
Impervious	A hard surface that prevents or slows the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development.
Lake	A lake is an aquatic ecosystem that is generally at least ten acres in surface area and greater than six feet deep at some point.
Lake Management Plan	A plan to help protect a natural resource system, including the water quality of the lake and the associated fish, vegetative, and wildlife communities by identifying issues and/or concerns, setting realistic goals, and identifying the corrective actions needed.
Load Allocation	The portion of a pollutant load that is attributed to non-point sources.
Littoral Zone	Shallow area of a body of water that is closest to the shore.
Macroinvertebrate	Organisms without backbones, which are visible without the aid of a microscope. Aquatic macroinvertebrates live on, under, and around rocks and sediment on the bottoms of lakes, rivers, and streams.
Pervious	A surface that can be penetrated or permeated, allowing passage through.
Per- and polyfluoroalkyl substances (PFAS)	PFAS are a series of man-made chemical compounds that persist in the environment for long periods of time. They are often called “forever chemicals.” For decades PFAS chemicals have been used in industry and consumer products such as nonstick cookware, waterproof clothing, and stain resistant furniture. These chemicals have been important for certain industries and uses. The latest science shows that these chemicals are harmful to our health.

Pond	A small body of still water formed naturally or by hollowing or embanking.
Quaternary	Recent geologic period from 2.6 million years ago to the present.
Recharge Zone	An area where water readily infiltrates and recharges an aquifer.
Secchi Depth	The depth at which an opaque disk, called a Secchi Disk, ceases to be visible from the surface. It is used as a lake monitoring tool to gauge water transparency.
Shallow Lake	A lake with a maximum depth less than 15 feet or a littoral zone that covers at least 80% of the lake's surface area.
Shrub Carr/ Emergent Wetland	A wetland community that is transitional between open wetlands and forested wetlands. It often occurs in bands around lakes or ponds, on the margins of river floodplains, or, more extensively, in glacial lakebeds.
Social Vulnerability	The resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks.
Stormwater Management	Activities, rules, and infrastructure which intentionally influence the volume, rate, and direction of the runoff generated within the landscape.
Tolerance Value	A group of organism's relative tolerance to organic pollution on a 0-10 scale. 0 is the least tolerant to pollution and is a clean water indicator, while 10 is the most tolerant to pollution and can be found at very polluted sites.
Turbidity	The cloudiness of the water caused by large numbers of individual particles that are generally invisible to the naked eye.
Waste Load Allocation	The portion of a receiving water's assimilative capacity (ability to receive pollutants without deleterious effects) that is allocated to one of its existing or future point sources of pollution.
Watershed	A topographically defined area within which all water drains to a particular point.
Water Table	The underground surface beneath which earth materials such as soil or rock are saturated with water.
Wetland	Defined by the presence of (a) hydric soils, (b) surface or subsurface hydrology, and (c) hydrophytic vegetation (Minnesota Rules, part 8420.0110, subpart 52).



Macroinvertebrate samples collected from Brown's Creek in 2025.

ACRONYMS

ACRONYM	DESCRIPTION
1W1P	One Watershed One Plan
AIS	Aquatic Invasive Species
AQL	Aquatic Life
AQR	Aquatic Recreation
BCWD	Brown's Creek Watershed District
BMP	Best Management Practice
BWSR	Board of Water and Soil Resources
CAC	Community Advisory Committee
CAMP	Citizen Assisted Monitoring Program
CEC	Contaminants of Emerging Concern
~~**CFRNCECR**~~	~~Well completed in the aquifers between the Franconia (Tunnel City Group) and Eau Claire Formations.~~
CFS	Cubic Feet per Second
CIP	Capital Improvement Project
CJDN	Jordan Aquifer
~~**CJDNCSTL**~~**CJSL**	Jordan ~~/~~St. Lawrence Aquifer
CLP	Curly-leaf Pondweed
CMSCWD	Carnelian Marine St. Croix Watershed District
CMTS	Mount Simon Aquifer
CSAH	County State Aid Highway
CSTL~~**CMTS**~~	St. Lawrence Aquifer~~/Mount Simon Aquifer~~
CTCE	Tunnel City-Eau Claire Aquifer
CWA	Clean Water Act
CWI	County Well Index
CWP	Clean Water Partnership
DEIA	Diversity, Equity, Inclusivity, and Accessibility
DEED	(Minnesota) Department of Employment and Economic Development
DO	Dissolved Oxygen
DP	Dissolved Phosphorus
DWSMA	Drinking Water Supply Management Area
EAW	Environmental Assessment Worksheet
EIS	Environmental Impact Statement
EMWREP	East Metro Water Resource Education Program
EPA	Environmental Protection Agency
EQB	(Minnesota) Environmental Quality Board
EQIP	Environmental Quality Incentive Program

EWM	Eurasian Watermilfoil
FBI	Family Biotic Index
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
FVA	Function and Value Assessment
GIS	Geographic Information System
GPS	Global Positioning System
GPM	Gallons per Minute
GW	Groundwater
GWMA	Groundwater Management Area
HBI	Hilsenhoff's Biotic Index
HBV	Health Based Value
HOA	Homeowner's Association
HRL	Health Risk Level
HUC	Hydrologic Unit Code
IBI	Index of Biological Integrity
IESF	Iron Enhanced Sand Filter
LA	Load Allocation
LB/YR	Pounds per Year
LCWA	Lack of Cold-water Assemblage
LCCMR	Legislative-Citizen Commission on Minnesota Resources
LID	Low Impact Development
LGU	Local Unit of Government
LiDAR	Light Detection and Ranging
LOMA	Letter of Map Amendment
LOMR	Letter of Map Revision
LSC	Lower St. Croix
LSC1W1P	Lower St. Croix One Watershed One Plan
LSCWP	Lower St. Croix Watershed Partnership
LWMP	Local Water Management Plan
LWRI	Land and Water Resource Inventory
MBS	Minnesota Biological Survey
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MGS	Minnesota Geological Survey
M-IBI	Macroinvertebrate Based Index of Biological Integrity
MIDS	Minimal Impact Design Standards

MECA	Minnesota Erosion Control Association
MGY	Million Gallons per Year
MLCCS	Minnesota Land Cover Classification System
MNDOT	Minnesota Department of Transportation
MNDNR	Minnesota Department of Natural Resources
MNRAM	Minnesota Rapid Assessment Method for Evaluating Wetland Functions
MnGEO	Minnesota Geospatial Information Office
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MPARS	Minnesota Permitting and Reporting System
MRCC	Midwestern Regional Climate Center
MSCWMO	Middle St. Croix Watershed Management Organization
MS4	Municipal Separate Storm Sewer System
MSP	Minneapolis-St. Paul International Airport
MTPL	Multiple Aquifers
MUSA	Metropolitan Urban Services Area
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NHIS	Natural Heritage Information System
NHNRP	Natural Heritage and Nongame Research Program
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRI	Natural Resource Inventory
NWI	National Wetland Inventory
NWS	National Weather Service
OHWL	Ordinary High Water Level
OPDC	Prairie du Chien Aquifer
ORVW	Outstanding Resource Value Water
P8	Program for Predicting Polluting Particle Passage thru Pits, Puddles and Ponds
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PC-SWMM	Personal Computing Storm Water Management Model
PFC	Perfluorochemical
PFOS	Perfluorooctane Sulfonate
PLOAD	Pollutant Loading Modeling Software

PRAP	Performance Review and Assistance Program
PTM	Prioritize, Target, and Measure
PWI	Public Waters Inventory
RCWD	Rice Creek Watershed District
ROW	Right-of-Way
SAHS	Stillwater Area High School
SD	Secchi Disk Transparency
SDS	State Discharge System
SCS	Soil Conservation Service
SNA	Scientific and Natural Areas
SSTS	Subsurface Sewage Treatment Systems
SSURGO	Soil Survey Geographic Data Set from the Natural Resources Conservation Service
STATSGO	State Soil Geographic Data Base for the Conterminous United States
SWA	Subwatershed Analysis
SWBCA	Special Well and Boring Construction Area
SWCD	Soil and Water Conservation District
SWCS	Soil and Water Conservation Society
SWMM	Storm Water Management Model
SWPPP	Stormwater Pollution Prevention Program
~~**SWUDS**~~	~~Site-Specific Water Use Database~~
TAC	Technical Advisory Committee
TCE	Trichloroethylene
TCMA	Twin Cities Metropolitan Area
TEP	Technical Advisory Panel
THPP	Trout Habitat Preservation Project
TMDL	Total Maximum Daily Load
TMV	Taxable Market Value
TP	Total Phosphorus
TSI	Trophic State Indices
TSMP	Trout Stream Mitigation Project
TSS	Total Suspended Solids
TU	Trout Unlimited
TWP	Township
UG/L	Micrograms per Liter
URL	Uniform Resource Locator
USACE	United States Army Corps of Engineers
USGS	United States Geologic Survey

USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VBWD	Valley Branch Watershed District
VIC	Voluntary Investigation and Cleanup
VOC	Volatile Organic Compounds
VSMP	Volunteer Stream Monitoring Program
WBIF	Watershed-Based Implementation Funding
WCA	Wetland Conservation Act
WCD	Washington Conservation District
WD	Watershed District
WHO	World Health Organization
WHPP	Wellhead Protection Plan
WMat	Winter Maintenance Assessment Tool
WLA	Wasteload Allocation
WMO	Watershed Management Organization
WOMP	Watershed Outlet Monitoring Program
WRAPS	Watershed Restoration and Protection Strategy
XP-SWMM	XP software for the Storm Water Management Model developed by the Environmental Protection Agency



Students from Stillwater Area High School (SAHS) participating in the Volunteer Stream Monitoring Program (VSMP) in 2026.

HOW TO READ THIS PLAN

This watershed management plan outlines Brown's Creek Watershed District's priorities for the next 10 years. The structure of the plan identifies the district's context (section 2), priority concerns (section 3), issues facing the district's water resources (section 4), and how the district proposes to conduct activities to address these issues (section 5). Within this plan, certain sections may be more relevant and insightful to different audiences.

As a general starting point, everyone should review section 2 to understand this plan's context, including the accomplishments BCWD has achieved to date. The prioritization of restoration and protection needs (3.4) also provides important context on which water resources the board, with input from technical advisors and the community, identified as the most important resources to dedicate activities to.

Generally, all readers will benefit from an understanding of the issues by reading the issue statement (4.X.1), the relevance to the district (4.X.2), and sub-issue areas (4.X.3). Individuals wishing to dig deeper into issues of their own interest will find a list of implementation activities in each issue section (4.X.4) detailing how the district intends to address the issue. Specific issues may be of greater interest to certain audiences, as examples:

Member Communities:

- **4.1** Stormwater Runoff Management~~Stormwater Runoff Management~~ identifies priorities related to the district's water quality targets.
- **4.6** Floodplain and Flood Management~~Floodplain and Flood Management~~ identifies how the district is supporting communities in their flood adaptation.
- **4.10** Regulations~~Regulations~~ identifies rules and regulations the district sets to address water quality, rate, and volume control.

Development Community:

- **4.1** Stormwater Runoff Management~~Stormwater Runoff Management~~ identifies priorities related to the district's water quality targets.
- **4.2** Erosion Prevention and Sediment Control~~Erosion Prevention and Sediment Control~~ identifies how the district is encouraging efforts to minimize erosion and sediment transport.
- **4.10** Regulations~~Regulations~~ identifies rules and regulations the district sets to address water quality, rate, and volume control.

Residents, Businesses, and the General Public:

- **4.11** Recreation~~Recreation~~ identifies how we protect resources for people to enjoy.
- **4.12** Education, Outreach, and Stewardship~~Education, Outreach, and Stewardship~~ identifies programs the district intends to implement to raise awareness about its work and involve community members.
- **4.13** Land Conservation~~Land Conservation~~ identifies opportunities for community members to get involved in protecting important natural areas for a variety of benefits including water quality and habitat.

The final section of the plan relates to implementation and details how BCWD, through its roles and responsibilities established by Minnesota statute, will implement the activities described in section 4 through its programs and capital projects. This section also identifies connections with other guidance documents from the state and county, and opportunities for partnerships that help advance the district's work.

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Implementation plan tables at the end of this plan account for the costs associated with district activities as a planning level. Each year, BCWD uses these planning level estimates to develop annual budgets that are reviewed and approved by the Board of Managers.

1 EXECUTIVE SUMMARY

1.1 Purpose of the Watershed Management Organization

Recognizing the need to manage water on a broader basis than municipal or county boundaries, the Watershed Act was passed by the Minnesota Legislature and signed by the governor in 1955. This act provided the means to create watershed districts in the state. As stated in statute, among the purposes of watershed districts is:

> *To conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of the public health and welfare and the provident use of the natural resources.*

Brown's Creek Watershed District was established in 1997 after Brown's Creek Watershed Management Organization was unable to resolve flooding issues in Goggins Lake, Plaisted Lake, School Section Lake, and Kismet Basin. Since these flooding issues were addressed in the early 2000s, BCWD has taken an active role in protecting and restoring Brown's Creek, one of the few remaining designated trout streams in the Twin Cities Metropolitan Area. Over the last 25 years, BCWD has transitioned from focusing on protecting a single species to focusing on the ecological health of the entire watershed. BCWD recognizes that a healthy watershed supports high-quality resources including Brown's Creek and the lakes, ponds, and wetlands that support the constant source of groundwater to this cold-water fishery. BCWD also recognizes its contributions to the St. Croix River, which is designated as a National ~~Scenic Riverway~~Wild and Scenic River.

1.1.1 Vision Statement

Brown's Creek Watershed District is made up of communities interlaced with natural corridors that improve the function and value of the district's water resources and support a diverse population of plants, wildlife, and fish. The district brings people and the environment together to preserve and enhance recreational opportunities, the connection between surface water and groundwater in a changing environment, and the quality of these resources for future generations.

1.1.2 Mission Statement

Brown's Creek Watershed District works with the community to:

- Preserve and improve the quality of the district's water and natural resources;
- Educate residents about the value of this ecosystem and advise residents of their potential impacts on the functions and values of the district's water and natural resources;
- Implement acceptable solutions to water-related issues;
- Sustainably accommodate development; and
- Assure that the integrity of the watershed is preserved for future generations.

1.2 Location

The Brown's Creek watershed is in Washington County, Minnesota. It includes portions of the City of Grant, the City of Hugo, the City of Lake Elmo, May Township, the City of Oak Park Heights, the City of Stillwater, and Stillwater Township. Figure 1~~Figure 1~~ identifies the city and township boundaries located within the watershed. Table 1 identifies each city and township, its total population, and how much of its area is in BCWD. These areas were determined using the legal boundary of the district, last updated in 2022.

Figure 1. Jurisdictional Boundaries of BCWD.

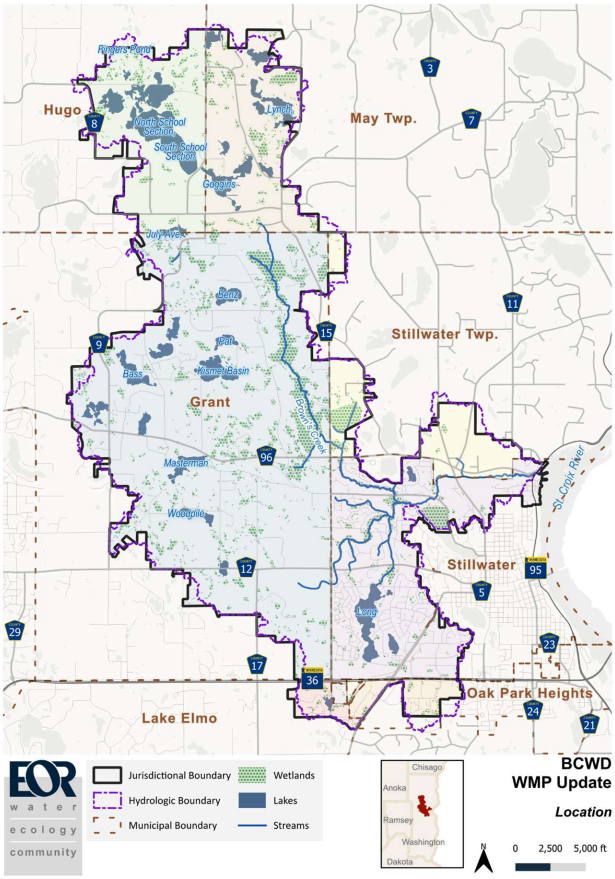

Table 1. Communities located in Brown's Creek Watershed District

City/Township	Total Population (2020 Census)	Area in BCWD [Acres]	Area in BCWD [Square Miles]	Percentage of Total BCWD Area [%]
Grant	3,970	9,353	14.6	51%
Hugo	15,766	2,133	3.3	12%
Lake Elmo	11,335	225	0.4	1%
May Township	2,670	2,023	3.2	11%
Oak Park Heights	4,849	328	0.5	2%
Stillwater	19,394	3,172	5.0	17%
Stillwater Township	1,866	1,041	1.6	6%
TOTAL	**59,850**	**18,276**	**28.6**	**100%**

1.3 Primary Issues Addressed in the Plan

There are 15 issue categories identified in the 2027-2036 Watershed Management Plan, summarized below. Each category is broken down into sub-issue areas and is described in more detail in section 4, *ISSUES, POLICIES, GOALS, AND IMPLEMENTATION ACTIVITIES TO ADDRESS PRIORITY CONCERNS*~~*Issues, Policies, Goals, and Implementation Activities to Address Priority Concerns*~~. As section 3, *Assessment of Priority Concerns*, describes, many of the categories and sub-issue areas are the same as those identified in previous watershed management plans. Pollutants of Emerging Concern is a new category in the 2027-2036 plan, and Climate Resilience has been removed as a separate category, instead incorporated within each issue.

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1. **Stormwater Runoff Management (Section 4.1)**

   Proper management of runoff from impervious surfaces can reduce common environmental impacts including increased runoff rates, decreased water quality, and reduced groundwater recharge. Urbanization and land-use changes often involve an increase in imperviousness, compaction of native soils, and removal of existing vegetation. Unless land-use changes are properly managed, these activities will increase the rate and volume of stormwater runoff generated in the watershed and will decrease the quality of surface water resources and the quantity of groundwater resources. These urbanized areas contribute additional runoff volume and increased runoff rates to local water bodies compared to pre-settlement conditions.

2. **Erosion Prevention and Sediment Control (Section 4.2)**

   Unless properly managed, land-disturbing activities can intensify erosion and negatively impact soil health, leading to increased transport of sediment into surface waters. Increased erosion can also cause the formation of gullies in areas with unstable soils. Sedimentation in waterways can lead to fish kills, clogged streams, reduced storage volume of reservoirs, and reduced stormwater infiltration by sealing permeable soils.

3. **Stream Management (Section 4.3)**

   Land-use alterations disrupt the hydrology and ecology of stream ecosystems. For example, increased imperviousness in a resource's contributing drainage area inhibits infiltration of rainfall and snowmelt. This results in reduced baseflow, larger and more frequent stormwater discharges, and increased temperature and pollutant loads. These factors contribute to channel enlargement, changes to instream habitat, decreased aquatic diversity, and overall resource degradation. A portion of Brown's Creek does not meet the state's water quality standards and is impaired for aquatic life due to a lack of cold-water fish assemblage and high turbidity.

4. **Lake Management (Section 4.4)**

   The Brown's Creek watershed contains a few small, shallow lakes and several large open-water wetlands and ponds that are locally regarded as lakes. Most of the lakes in the watershed have been impacted by land-use changes that have resulted in degraded water quality, changes in water level, and/or the spread of aquatic invasive species. Other lakes have not seen dramatic changes in land-use but are at risk of having impacts on water quality, water level, fisheries, and recreational use if current or future land-use practices are not managed properly.

5. **Wetland Management (Section 4.5)**

   The wetland resources in the watershed are at risk of encroachment from development. They are also at risk of degradation from land-use practices that increase stormwater input and decrease groundwater contributions, thereby decreasing wetland water quality, altering hydrologic patterns, and limiting

wildlife habitat within and adjacent to wetlands. The watershed contains several unique wetlands areas that support critical functions and values worth preserving.

6. **Floodplain and Flood Management (Section 4.6)**

   BCWD risks losing flood storage areas through land and basin alterations. This loss of flood storage can increase the frequency, elevation, and duration of flooding and can increase impacts to infrastructure, property, and the natural environment.

7. **Groundwater Management (Section 4.7)**

   Land-altering activities can impact both groundwater resources and groundwater-dependent natural resources. Without proper land-use and water resource management, reduced groundwater recharge, reduced groundwater quality, reduced drinking water supply, increased groundwater flooding, and alterations to the functions and values of groundwater-dependent natural resources may occur.

8. **Ecological Health (Section 4.8)**

   The restoration and protection of BCWD's surface water resources requires a healthy watershed where natural land cover supports hydrologic and geomorphic processes, habitat of sufficient size and quality to support native aquatic and riparian species, and water quality that supports healthy biological communities. Protecting these resources requires ongoing work to improve the district's understanding of the interrelationships between land and water resources.

9. **Monitoring and Data Collection (Section 4.9)**

   Monitoring and research data are needed to understand the watershed, evaluate issues, and determine appropriate watershed-management approaches. In addition, long-term monitoring provides the district with the ~~information~~ data needed to demonstrate performance towards meeting the goals and objectives of the watershed management plan and the Brown's Creek total maximum daily load (TMDL) implementation plan. BCWD will continue to ensure that collected data and assessments are in a format that is understandable to the public.

10. **Regulations (Section 4.10)**

    Under Minnesota Statutes section 103D.341, subdivision 1, watershed districts must adopt rules "to accomplish the purposes of [the watershed act] and to implement the powers of the managers." These purposes include conservation of water for public use; controlling erosion and siltation of lakes, streams, and wetlands; and protecting water quality in these water bodies. Presenting rules in a clear, understandable fashion facilitates compliance by permit applicants. Coordination with district partners on regulatory issues is needed for more efficient and effective stormwater and wetland-protection regulation across the watershed.

11. **Recreation (Section 4.11)**

    The Brown's Creek corridor and other natural areas within the watershed provide opportunities for fishing, wildlife viewing, and outdoor learning. As the district implements projects that provide more opportunities for people to engage with resources like Brown's Creek, ongoing monitoring is critical to ensure these resources are protected from overuse.

12. **Education, Outreach, and Stewardship (Section 4.12)**

    Successful efforts to achieve BCWD's goals will require the involvement of residents, businesses, and municipalities. These groups will be most interested in active participation in district projects, and in water and natural resource protection in general, if they understand the issues and the benefits of water resource management.

13. **Land Conservation (Section 4.13)**

    Changes in land-use threaten to degrade the quality of water resources and limit wildlife habitat. Land-use practices can reduce the area of land covered with native vegetation, increase erosion and stormwater runoff, and break wildlife habitat into small, disconnected areas unable to support high-quality, diverse populations. The development of a land conservation program allows entities to set aside critical parts of the landscape for the protection and restoration of downstream surface and groundwater resources and protect recharge areas for groundwater.

14. **Funding (Section 4.14)**

    Funding is necessary to operate the programs and to complete the projects that protect and improve the resources of the Brown's Creek watershed.

15. **Pollutants of Emerging Concern (Section 4.15) –** ***NEW to 2027-2036 plan***

    A growing body of research and monitoring activity has identified risks to water quality posed by new pollutants in surface and groundwater resources. Prominent pollutants of emerging concern include per- and polyfluoroalkyl substances (PFAS) and microplastics.



A painted turtle and white water lilies found during a vegetative survey of South School Section Lake in 2025.

1.4 Primary Goals in the Plan

The primary goal of Brown's Creek Watershed District is to restore and protect the surface water resources located in the watershed. The list of surface water resources is included in Appendix A. Because of the watershed's geologic setting, many of the resources are groundwater-dependent. As a result, BCWD is very interested in managing land-use in a manner that mimics the natural hydrology of the system, thereby protecting both the surface water and groundwater resources. The main goal for each of the issue categories can be synthesized as follows:

1. **Stormwater Runoff Management:** Improve the quality and quantity of stormwater runoff to reduce impacts (e.g., pollutant loadings, loss of groundwater recharge, alterations to wetland hydrology) to downstream waterbodies.
2. **Erosion Prevention and Sediment Control:** Protect the water bodies in the watershed from the impacts of sedimentation, excessive streambank and shoreline erosion, and adjacent upland erosion.
3. **Stream Management:** Improve the water quality and ecological integrity of Brown's Creek and its tributaries.
4. **Lake Management:** Restore the water quality of degraded lakes and protect the water quality in lakes that meet state water quality standards.
5. **Wetland Management:** Maintain or improve the quality of the watershed's wetland systems.
6. **Floodplain and Flood Management:** Protect and manage flood storage areas to reduce impacts of flooding and promote groundwater recharge.
7. **Groundwater Management:** Protect the quantity and quality of groundwater to maintain baseflow to the groundwater-dependent natural resources in the watershed and contribute to protecting drinking water supply for human health benefits.
8. **Ecological Health:** Promote the ecological integrity and connectivity of the ecosystems in the watershed.
9. **Monitoring and Data Collection:** Collect high-quality monitoring data that can be used to support cost-effective management decisions and evaluate performance in achieving the goals of this plan.
10. **Regulations:** Maintain a clear and effective permitting program to protect surface water and groundwater resources and prevent flooding in the watershed.
11. **Recreation:** Manage the natural resources in the watershed to enhance their recreational value.
12. **Education, Outreach, and Stewardship:** Provide education and outreach services to all audiences to promote good stewardship of the water and natural resources.
13. **Land Conservation:** Identify and pursue opportunities to preserve and restore land in the watershed to protect the quality of downstream resources.
14. **Funding:** Maintain a tax levy that is adequate to conduct the activities of the district but minimizes impact on taxpayers.
15. **Pollutants of Emerging Concern:** Collaborate with watershed partners to further collective understanding of how these pollutants are impacting the watershed and steps that can be taken to mitigate these impacts.

1.5 Major Actions in the Plan

One of the primary actions of the plan is establishing a realistic and attainable implementation plan. The BCWD Board of Managers very deliberately projected an annual budget that requires only a moderate annual tax levy increase, and the managers were equally deliberate in directing how the annual budget was allocated to the district's programs. The managers decided that approximately 35% of the annual budget should be allocated to the district's Capital Improvement Program, which means that a third of BCWD's budget goes to construction projects that have a direct benefit to the surface water or groundwater resources in the watershed. In addition, the managers decided that the Capital Improvement Program budget should be allocated to the watershed's impaired resources in the following manner (as described in more detail in section 3.4):

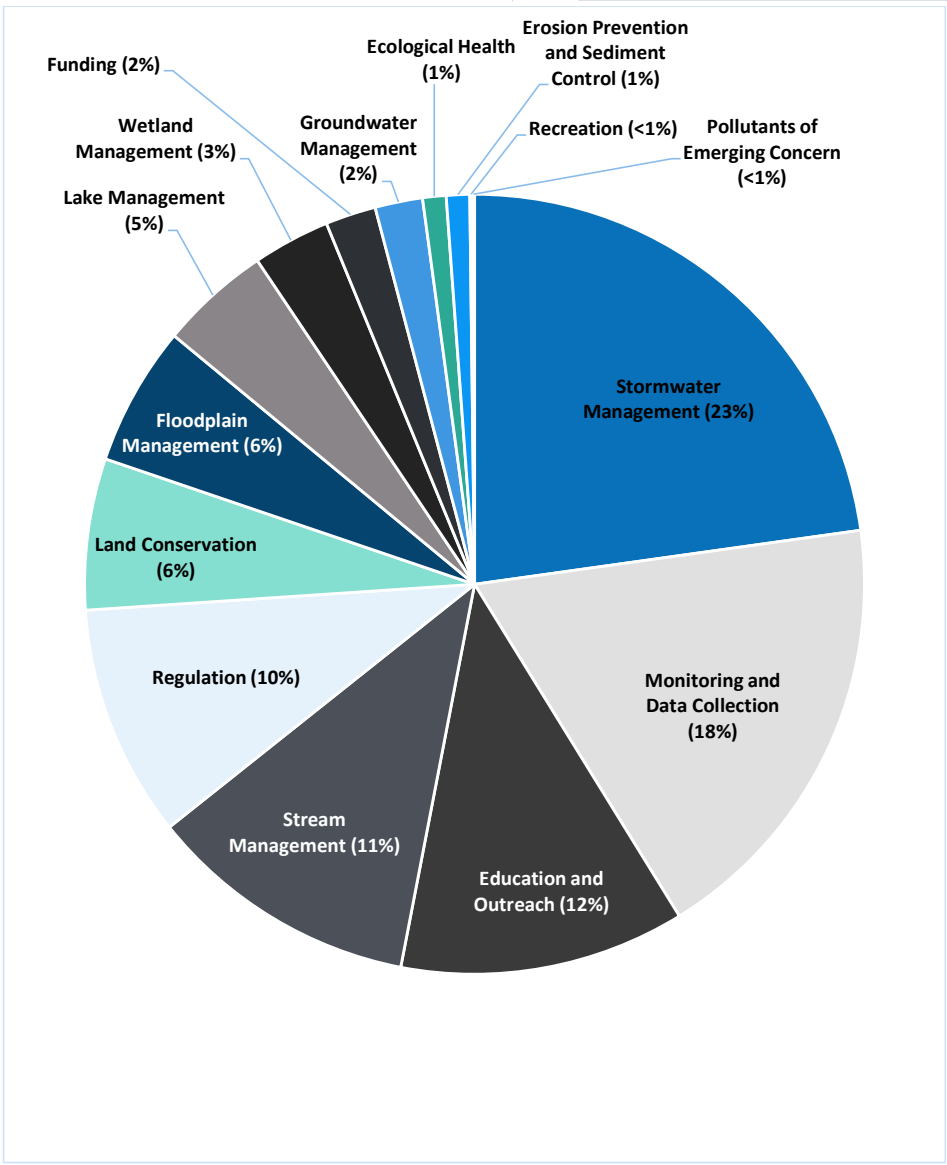
- 40% to Brown's Creek
- 30% to lakes and ponds
- 15% to wetlands
- 10% to uplands and ecological health
- 5% to groundwater

The plan accounts for $15,599,400 worth of programs and projects over 10 years (or on average $1,559,940 in spending each year). Additionally, $544,000 worth of programs and projects were identified by the board as lower priority initiatives to pursue if additional funding is available.

Figure 2~~Figure 2~~ on the following page illustrates the percentage of the annual budget allocated to each issue category on average over the 10-year timeframe of the plan. It shows that the majority of BCWD's annual expenditures are for Stormwater Management, Monitoring and Data Collection, Education and Outreach, Stream Management, and Regulations. These highest-expenditure issues closely match the 2017-2026 plan with the exception of Education and Outreach which has a significant increase. The increase reflects recognition by BCWD that educating and engaging the community in stewardship is a critical piece to attaining its water and natural resource goals. The district continues to manage restoration and protection activities identified for the surface water resources in the watershed. Capital improvement projects identified in the Brown's Creek TMDL Implementation Plan and the various lake management plans are included in these issue categories.

A smaller portion of the annual expenditures are allocated to Land Conservation, Floodplain and Flood Management, Lake Management, Wetland Management, Groundwater Management, Funding, Erosion Prevention and Sediment Control, Ecological Health, Recreation, and Pollutants of Emerging Concern. For Wetland Management, Erosion Prevention and Sediment Control, and Floodplain and Flood Management, many of the goals identified under these categories are addressed by BCWD's regulatory program. For the other categories, the total amount of budget identified for implementation is lower or implementation will rely more on partnerships with member communities, Washington County, and/or state agencies. Opportunities to coordinate shared services such as this reflect a lower cost for the issue category in the annual expenditures.

Figure 2. BCWD Annual Budget Percentage Allocation per Plan Issue Category



Commented [HP1]: Alex, I'm not able to update this, but the erosion control label is missing the "(" before the percentage.

Commented [HP1R2]: Also, did any percentages change after we moved things around in response to comments?

Commented [AA1R3]: Updated

1.6 Responsibilities of Local Governments Related to Implementation of the Plan

The watershed management plan includes strategies and programs that the district may pursue to fulfill its water resource mission. Many of these will involve local government participation (as described in more detail in section 5.7). Examples include:

- Inventory of local stormwater control standards
- Review of local land use ordinances for water resource impacts
- Education and outreach programs
- Monitoring and data acquisition programs

However, the programs identified in the plan generally do not compel local government involvement. In pursuing a specific activity under the plan, the district will seek to develop a partnership with affected local governments, allowing each entity to contribute as befits its interests and objectives that can be cost-effectively pursued in common with BCWD.



State and local government leaders at the Brown's Creek restoration site during the 2026 Governor's Fishing Opener.

2 INTRODUCTION AND PLAN REQUIREMENTS

2.1 History

Brown's Creek Watershed District was established in 1997 when Brown's Creek Watershed Management Organization was unable to resolve flooding issues in Goggins Lake, Plaisted Lake, and School Section Lake. The lakes had merged due to rising water levels to form one large shallow basin of approximately 440 acres. The flooding of homes and septic systems surrounding the expanded lake basin caused property damage and threatened lake water quality.

The Trout Habitat Preservation Project (THPP), the first capital improvement project of the newly formed BCWD, was designed to alleviate flooding in the Goggins-School Section chain of lakes while protecting the temperature-sensitive resources of Brown's Creek. This award-winning project took a sustainable approach to addressing the flooding concerns by mimicking the natural hydrology of the watershed and routing excess surface water back into the groundwater system near the headwaters of Brown's Creek through a series of created wetlands and infiltration basins.

Since this project, BCWD has taken an active role in protecting and restoring Brown's Creek, one of the few remaining designated trout streams in the Twin Cities Metropolitan Area. ~~Located in the state's smallest watershed,~~ Brown's Creek stretches from the large wetland complexes in the northern portion of the watershed through a landscape dominated by rural development and hobby farms to the more urban portion of the system where it traverses a steep, heavily wooded ravine before entering the St. Croix River.

Commented [HP2]: Technically the smallest watershed district, but not watershed

Historically, BCWD's focus has been on protecting the trout stream from the impacts of development by adopting stormwater management rules and retrofitting those portions of the watershed that were developed before stormwater management rules were in place. BCWD was managing the creek for a single species, namely the declining trout population. In 2002, Brown's Creek was listed on the federal 303(d) list as impaired for biota (fish and macroinvertebrates). In 2008, after further research and data collection, Brown's Creek (from 110th Street to the St. Croix River) was deemed impaired for lack of cold-water assemblage. This meant that Brown's Creek, as an aquatic ecosystem, was unable to support a healthy population of fish and the macroinvertebrates (aquatic insects) that form an important part of its food chain. Once this impairment was assigned, BCWD shifted its focus to managing the entire ecosystem: the cold-water resource that supports an abundance of flora and fauna that relies on a constant source of cold, clean water to survive.

As this plan highlights, the overall health of the resources in Brown's Creek watershed is improving. Since the last plan, Plaisted Lake has been delisted, and water quality in Long Lake has improved to the point that it may also qualify for delisting. Stakeholders in the planning process have expressed strong support for continuing the district's successful work.

In preparing this plan, the district evaluated its programs, policies, and projects through both climate change and equity lenses to ensure that future actions not only strengthen resilience in natural systems, people, and infrastructure, but also address historical gaps in equity.

Looking ahead, one of the highest priorities for the next decade is ecological health. The discovery of rare aquatic plant species, the identification of high-quality wetland systems, and the restoration of the land conservation area all underscore the importance of protecting these resources for future generations. By improving upland functions and values, BCWD is enhancing the management of downstream resources and the diverse plant and animal communities they sustain.

2.2 Accomplishments

As the previous section describes, BCWD has gone from an organization established to respond to a crisis to one that strategically addresses its resource protection and restoration needs. Figure 3~~Figure 3~~ summarizes the main projects and programs undertaken by Brown's Creek Watershed District since its inception in 1997.

Figure 3. BCWD Projects and Programs Timeline



2.3 General Purpose and Requirements of Watershed Districts (Statutory Background)

Minnesota Statutes chapters 103B and 103D specify the responsibilities and authorities of watershed districts. Specifically, section 103D.201 states that the general purpose of watershed districts is "to conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of the public health and welfare and the provident use of the natural resources."

Minnesota Statutes section 103B.201 provides further purposes for metropolitan watershed districts:

- Develop watershed plans, projects, and programs to protect, preserve, and use natural surface and groundwater storage and retention systems.
- Minimize public capital expenditures needed to correct flooding and water quality problems.
- Identify and plan for means to effectively protect and improve surface and groundwater quality.
- Establish more uniform local policies and official controls for surface and groundwater management.
- Prevent erosion of soil into surface water systems.
- Promote groundwater recharge.
- Protect and enhance fish and wildlife habitat and water recreational facilities.
- Secure the other benefits associated with the proper management of surface and ground-water.

BCWD has the responsibility to assess and manage land and water resources for the purposes listed above and as indicated elsewhere in chapters 103B and 103D.

2.4 BCWD Vision and Mission

2.4.1 Vision Statement

Brown's Creek Watershed District is made up of communities interlaced with natural corridors that improve the function and value of the district's water resources and support a diverse population of plants, wildlife, and fish. The district brings people and the environment together to preserve and enhance recreational opportunities, the connection between surface water and groundwater in a changing environment, and the quality of these resources for future generations.

2.4.2 Mission Statement

Brown's Creek Watershed District works with the community to:

- Preserve and improve the quality of the district's water and natural resources;
- Educate residents about the value of this ecosystem and advise residents of their potential impacts on the functions and values of the district's water and natural resources;
- Implement acceptable solutions to water-related issues;
- Sustainably accommodate development; and
- Assure that the integrity of the watershed is preserved for future generations.

2.5 District Boundaries (Jurisdictional Area)

Brown's Creek Watershed District shares legal jurisdiction with seven municipalities: the City of Stillwater, City of Oak Park Heights, City of Lake Elmo, City of Grant, City of Hugo, May Township, and Stillwater Township. Figure 1 showed the legal boundaries of the district and the hydrological boundaries of the watershed. The hydrologic boundary delineates areas that drain to Brown's Creek. The legal boundary shows the jurisdiction of the district; it corresponds as closely as possible to the hydrologic boundary while following established property lines.

2.6 Board of Managers

Brown's Creek Watershed District is governed by a five-member board of managers appointed by the Washington County Board of Commissioners and serve staggered three-year terms. Watershed district managers must be voting residents of the watershed and cannot be public officers of the county, state, or federal government, except that a soil and water conservation district supervisor may be a manager. The managers involved in the development of this plan included Klayton Eckles (President), Celia Wirth (Treasurer), Chuck LeRoux (Vice President), Debra Sahulka (former Secretary), Griffin Brod (~~Manager~~2nd Vice President), Luke Mattson (Secretary), and Larry Odebrecht (former Manager). All managers, past and present, are listed in Table 2~~Table 2~~ in reverse chronological order.

Table 2. Board of Managers and Terms in Office

Manager	Term
Luke Mattson	2026 - present
Griffin Brod	2025 - present
Larry Odebrecht	2024 - 2025
Debra Sahulka	2024 - 2025
Celia Wirth	2021 - present
Rob McKim	2021 - 2022
Chuck LeRoux	2020 - present
Klayton Eckles	2018 - present
Anne Maule Miller	2016 - 2020
Sharon Schwarze	2013 - 2020
Rick Vanzwol	2005 - 2013
Connie Taillon	2004 - 2018
Gail Pundsack	2004 - 2016
Gerald Johnson	2003 - 2024
Barb Medinger	2002 - 2004
Tim Freeman	2002 - 2003
Jerry Turnquist	2001 - 2001
Don Peterson	1999 - 2001
Craig Leiser	1997 - 2021
Karen Kilberg	1997 - 2004
Ned Gordon	1997 - 2003, 2003 - 2004
Dan Potter	1997 - 2000
Jon Michaels	1997 - 1999

2.7 Summary of Issues, Goals, and Strategies

Many of BCWD's issues have been consistent from plan to plan because many of the resource protection and restoration needs have been the same. Concerns related to development impacts continue to be articulated under Stormwater Runoff Management, Erosion Prevention and Sediment Control, Floodplain and Flood Management, and Regulations, while concerns related to specific resources are articulated under Lake Management, Stream Management, Wetland Management, Groundwater Management, Ecological Health, and Monitoring and Data Collection. While the issue categories have remained fairly consistent, the policies, goals, and implementation activities have changed more significantly. As state water quality standards have evolved and the district has collected more data on the quality of its resources, BCWD's goals and activities have become more targeted.

New to this plan is the use of both climate change and equity as lenses in all other issue categories to recognize the intersection of environmental and social factors. Rather than being presented as standalone issue categories, these perspectives, as described below, have been considered at each stage of the planning process to ensure that the strategies included in the implementation plan not only achieve BCWD's watershed management goals but are also equitable and build resilience in the face of climate change.

2.7.1 Climate Change

Within the last ten years, the watershed has experienced several climate-related impacts. The ~~According to Kenny Blumenfeld, Senior Climatologist with the~~ Minnesota Department of Natural Resources notes that ~~,~~ 2010 to 2020 was the wettest decade on record (Blumenfeld, 2020). More precipitation is coming from larger storm events (One inch or more per day), and the frequency of three-inch per day storm events is increasing. These conditions resulted in flooding throughout Washington County, including Kimbro Basin, which overtopped County Road 12 and encroached on neighboring properties, raising concerns about access to and flooding of homes and public safety. Similarly, changes in temperature patterns are impacting the watershed's resources. Winter nights are warming ten times faster than summer temperatures, and the lowest temperature of winter is also increasing. This means that liquid precipitation during winter is increasing and days with snow are decreasing. The winter of 2023 was the warmest on record throughout the state. The warm conditions during the early winter delayed ice formation on lakes with many experiencing their latest ice-in dates on record. These types of changes have wide-ranging consequences for water quality, fisheries, recreational activities, and local economies. A list of climate impacts and their indicators are summarized in Appendix B.

Climate change impacts have been considered and summarized for each issue in the watershed management plan in Appendix B. Implementation activities to enhance the resilience of the watershed's natural and built systems are indicated with ~~the following icon.~~ icon shown here:



2.7.2 Equity

Government agencies are increasingly acknowledging that historical decision-making generated outcomes that have advantaged some while disadvantaging others, predominately along lines of social-vulnerability factors such as race, age, gender, as well as other individual and intersecting identities. To address these historic inequalities, the BCWD Board of Managers adopted the following policy at its August 2024 meeting:

Equity Policy

Brown's Creek Watershed District is a special-purpose unit of government established under Minnesota Statutes chapters 103B and 103D to mitigate damage from flooding and improve Brown's Creek and the wetlands, lakes, and streams in the watershed. As a public entity working on fundamental water issues that affect everyone in the watershed, BCWD is obligated to ensure its expenditure of tax funds accrues to the benefit of all. In pursuit of this goal, BCWD will ensure diversity, equity, inclusion, and accessibility influence development and implementation of its programs and projects and will work toward addressing current and historical inequities in how land and waters have been managed and improved in the watershed. BCWD will incorporate diverse views in its decision-making, robustly communicate and engage with historically underserved communities, provide equitable access to information and resources, and use social vulnerability and related indices in developing and implementing its programs and projects.

The policy has informed BCWD's stakeholder outreach and plan development and will be reflected in its implementation. Implementation activities to address social vulnerability are indicated with the icon shown here:



Community members attending BCWD's annual community event at Brown's Creek Park in 2025.

3 ASSESSMENT OF PRIORITY CONCERNS

This section of the plan describes the process BCWD undertook to identify its priority concerns.

3.1 Plan Notification Process

Brown's Creek Watershed District initiated the plan-development process on December 14, 2023, by notifying the designated state plan-review agencies, Washington County, adjacent watershed management organizations, and watershed communities that it was starting the plan update process and soliciting their priority issues, summaries of relevant water management goals, and water resource information. BCWD received feedback from the Board of Water and Soil Resources, Metropolitan Council, Minnesota Department of Natural Resources, Minnesota Department of Agriculture, Minnesota Department of Health, Minnesota Pollution Control Agency, Washington County, and the City of Hugo. This information was reviewed against BCWD's issue statements for consistency and discussed with the district's Technical Advisory Committee (which includes representation from each plan review agency, Washington County, and watershed communities) during its initial planning meeting on July 9, 2024.

3.2 Review of Existing Plans and Policies

The first step to determine BCWDs' priority concerns was to review the issues, policies, and goals established in the previous watershed management plans. While many of the issues remain the same today, information collected over the last ten years allowed BCWD to modify the policies and goals by making them more specific and, in many cases, more readily measurable. Much of this new information was compiled from plans and feasibility studies conducted by BCWD, Washington County, state agencies, and other entities, and it informed BCWD's assessment of priority concerns. Information collected during these existing plan and policy reviews was supplemented with information collected from the plan notification process and the stakeholder and public involvement process described here. The table summarizing all the information collected during this stage of the plan development process can be found in Appendix C – Summary of Civic Engagement Input.

3.3 Stakeholder and Public Involvement

BCWD held several events throughout the plan update process to review its issues, policies, goals, and ~~actions~~ implementation activities and to collect new information from stakeholders and the public to inform priorities.

BCWD held an open house on July 9, 2024, at the Stillwater Public Library to publicly kick off the watershed management plan update process. This event was held after the Technical Advisory Committee's first meeting, the plan initiation meeting. Input on the plan update was sought from groups as described in Table 3~~Table 3~~. Information collected during the stakeholder and public engagement process is summarized in Appendix C.

While much of the feedback received supported the issues, policies, and goals from previous plans, new information was introduced that led to refining existing or developing new issues, policies, and goals. For example, the Community Advisory Committee identified the importance of continuing and expanding land conservation and re-naturalization in the interest of water quality and quantity management while also providing co-benefits. Through proposed efforts, such as planting native vegetation, the district seeks to encourage landscapes that retain more water and require fewer fertilizers, while simultaneously improving ecological health through the creation of habitat for native species. Examples of this appear throughout the plan, whether it be cost-sharing turf conversions (Stormwater Runoff Management), shoreline restoration (Lake Management), and habitat creation (Ecological Health). This change

represents an example of efforts within this plan to identify and make it easier to take actions that deliver multiple benefits through investments by the district.

Table 3. Summary of BCWD Stakeholder and Public Involvement Process for the 2027-2036 Plan

Audience	Meeting Date	Meeting Goals/Objectives
BCWD Community Advisory Committee	June 10, 2024	Introduce the plan update process and timeline and begin discussion to solicit feedback on plan issues Education and Outreach and Recreation
	August 12, 2024	Solicit feedback on plan issues Education and Outreach and Recreation.
	October 14, 2024	Solicit feedback on plan issues Land Conservation and Ecological Health.
	December 9, 2024	Utilize a climate storytelling approach to understand how people are experiencing the impacts of climate change on the watershed and its resources.
	April 14, 2025	Discuss program and project priorities, capital improvement project allocations, and implementation actions.
	October 13, 2025	Review the implementation plan.
BCWD Technical Advisory Committee	July 9, 2024	Introduce the plan update process and timeline, review BCWD's accomplishments across all issue areas, review notification letter feedback, and solicit feedback on key takeaways from the 2017-2026 plan, agency plans/ programs/ initiatives, partnership opportunities, and priorities.
	August 20, 2024	Solicit feedback on plan issues Stormwater Management and Stream Management.
	October 22, 2024	Solicit feedback on plan issues Lake Management and Wetland Management.
	February 25, 2025	Solicit feedback on plan issues Groundwater Management, Floodplain and Flood Management, and Erosion and Sediment Control
	April 22, 2025	Discuss program and project priorities, capital improvement project allocations, and implementation actions.
	October 28, 2025	Review the implementation plan.
Board Workshops	June 3, 2025	Review historic implementation priorities, identify priorities for the next 10 years, and review issue implementation plan items.
	August 26, 2025	Continue review of issue implementation plan items from June meeting.
Community Events	September 21, 2024	Use BCWD's annual community event at Brown's Creek Park on the Brown's Creek State Trail to inform community members about the watershed management plan update process and discuss their priorities to incorporate into the plan.
Community Meetings	September to October 2025	Meet with the City of Stillwater, City of Oak Park Heights, City of Hugo, City of Grant, Stillwater Township, May Township, and Washington County to discuss opportunities for collaboration on projects supporting water quality improvement and floodplain/flood Management.
Development Community	November 21, 2024	Meet with resident representatives, HOAs, permittees, developers, BCWD communities, agency partners, and neighboring watershed districts to discuss the regulatory program's rules, processes, outreach, and information.
	April 4, 2025	Report on findings from the November meeting and identify next steps.

3.4 Prioritization of Restoration and Protection Needs

The BCWD Board of Managers participated in a series of plan review sessions as part of their monthly meetings and special workshops that refined their priorities for watershed management issues, goals, and implementation activities over the 10-year timeframe of this plan.

During these plan review sessions, the managers discussed how they would like to address new issues such as Pollutants of Emerging Concern. These sessions provided an opportunity to review and adjust direction for the district's work to address existing issues and adjust their prioritization based on how these issues are evolving. The key findings of these discussions are summarized below:

- BCWD had multiple discussions about resources with rare and unique species – particularly in wetland and upland areas where initial surveying has taken place. Discussions centered on opportunities to achieve water quality and quantity benefits while simultaneously achieving co-benefits that improve the ecological health of resources. This plan proposes actions that incorporate improvements to ecological health such as re-naturalization, land conservation, and soil health improvements that help protect or restore the district's water resources.
- BCWD developed an equity policy, identifying the need to ensure equitable development and implementation of projects and programs and the importance of engaging diverse and underserved communities.
- BCWD integrated their response to climate change throughout all the issues rather than as its own category. Climate change impacts every aspect of the district's water management role – whether through changes to flooding potential, the spread of terrestrial or aquatic invasive species, or changes in water resource dynamics due to seasonal changes in precipitation and temperature.
- BCWD developed policies and goals to further understand the pollutants of emerging concern impacting watershed resources and to collaborate with partners to address this issue. By adding additional monitoring parameters to the district's existing monitoring program, BCWD will provide its state agency partners with data to make better decisions.
- BCWD developed policies and goals to address the management of groundwater recharge and supply within its roles and responsibilities as a partner in broader groundwater management work being undertaken at the county, regional, and state scale. Meetings with the Technical Advisory Committee highlighted the high priority BCWD places on groundwater resource management in partnership with Washington County, the Metropolitan Council, the Minnesota Department of Health, and the Minnesota Department of Natural Resources.
- BCWD revised its flood management policies and goals to reflect an updated flood vulnerability assessment discussed with member communities. Results from these discussions were incorporated into the Flooding and Floodplain Management Plan (Table 83).
- BCWD explored how to prioritize the management of its surface water resources. The lakes in the watershed do not have public access, and many are shallow lake systems that may not support the recreational activities lakeshore residents have come to expect. BCWD remains committed to improving and preserving water quality in its lakes and ponds as part of its system-wide approach to tackling water quality in pursuit of its total maximum daily load (TMDL) goals.

Due to current water resource impairments in the watershed (Brown's Creek, Long Lake, Benz Lake, Lynch Lake, South School Section Lake, Goggins Lake, and the St. Croix River) and completed plans that identify pollutant-reduction goals, the BCWD Board of Managers decided to allocate its Capital Improvement Program budget as identified in

Table 4~~Table 4~~.

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Table 4. Capital Improvement Program Allocation by Resource

CIP Budget Allocation	Resource Allocation
40%	**Brown's Creek and its tributaries** Feedback emphasized exploring opportunities upstream of the creek and tributaries to improve downstream conditions, ultimately contributing to improving the St. Croix River.
30%	**Lakes and Ponds** Feedback prioritized restoration of impaired lakes (Long, South School Section, Benz, Lynch, and Goggins Lakes) more than protection of non-impaired lakes (Plaisted, Bass, Masterman, Pat, and Wood Pile Lakes) while also recognizing that reactive restoration activities are generally more costly than proactive protection activities.
15%	**Wetlands** Feedback was equally divided on prioritizing wetlands to restore and protect.
10%	**Uplands and Ecological Health** Feedback focused on continued improvements to the Brown's Creek Conservation Easement Area (110th St Property), identifying similar conservation easements, and broader uptake of ecologically beneficial practices to the landscape.
5%	**Groundwater** Feedback emphasized considering where BCWD is best positioned to contribute to addressing this issue relative to partners with a broader regional mandate.

This allocation represents BCWD's best effort to make a definitive, forthright, and doable funding plan to address the priorities articulated in this plan. A key element of the implementation of the plan, though, is continuing to learn more about the stresses and challenges on watershed resources, and BCWD will remain open and willing to reassess its funding priorities in light of new data, additional analysis, and the successes and setbacks that are necessarily a part of pursuing goals and priorities in a dynamic system. If and when major shifts in funding allocations are necessary, BCWD will seek input from stakeholders as it amends the plan in accordance with the procedures provided in Minnesota law and section 5.8.

3.5 Adaptive Management Strategy

Minnesota's resources require restoration and protection strategies to ensure they meet their designated uses in the future. As this plan indicates, several resources in the watershed are listed on the federal 303(d) list as impaired while others are of relatively high quality. In addition, Brown's Creek drains to the St. Croix River, a National Wild and Scenic Riverway, with a portion impaired for excess phosphorous. Restoration activities have been identified to address the impairment of all resources that do not meet state water quality standards. For all other resources, protection strategies have been identified to maintain and/or improve the status quo. This section explains BCWD's approach for managing the resources that have been evaluated to date, either through a total maximum daily load (TMDL) study and implementation plan or a lake management plan.

While the estimated cost to achieve Brown's Creek's pollutant load reduction goals are significant and unachievable over the 10-year timeframe of this plan, BCWD has committed to allocating a majority of its budget to address the restoration needs of this resource. Since its inception, the BCWD Board of Managers

has recognized the value of Brown's Creek as an ecological treasure and has taken significant steps to ensure its protection. Protection and restoration of this resource have evolved over BCWD's existence, now taking an ecosystem-wide approach to improving the resources upstream of Brown's Creek and work towards achieving its TMDL goals. The Brown's Creek State Trail's development exposed a larger audience to investing in this resource. Numerous trail users and long-time residents of the watershed have commented on the beauty of Brown's Creek, noting that they had not known how it flowed through downtown Stillwater into the St. Croix River. Now that they can see the creek and experience all that the Brown's Creek corridor has to offer, they have expressed the desire to restore and protect this resource for generations to come.

The Minnesota Pollution Control Agency updated Brown's Creek's impaired status in 2022, adding impairments for aquatic life (fish bioassessments). While BCWD has developed a TMDL Implementation Plan, thermal study, and sediment source assessment which identify a multitude of projects designed to address the sediment and thermal loads to the system, the impairment is for aquatic biota and lack of cold-water assemblage. This means that the creek will meet state water quality standards when it supports a healthy fish and macroinvertebrate community. As BCWD continues to implement management strategies to improve in-stream habitat, it will also monitor the biology of the resource to see how the expenditure of public dollars is making a difference. Over time, the district may learn that improvements to monitoring programs, existing regulations, and/or climate changes may shift the resource restoration and protection goals. As this information becomes available, the BCWD Board of Managers will reassess the goals and strategies identified in this plan and change its course of action as appropriate.

BCWD's management strategy for its impaired lakes is to address the pollutant reduction goals on those lakes that have the most potential to improve downstream resources. The degraded water quality of Long Lake in the early 2000's sparked local concerns for resource management. As a result, a lake management plan was developed to identify projects that should be implemented to meet state water quality standards. In addition, improvements in the Long Lake subwatershed have a direct impact on pollutant loads to all downstream waterbodies such as Sinnet's Pond, Brown's Creek, Lake McKusick, and the St. Croix River, which will assist the district and member communities in meeting their load reduction allocations and/or goals. Similarly, lakeshore residents in the northern portion of the watershed have indicated a strong desire to address the declining water quality on the northern chain of lakes. BCWD developed a Northern Chain of Lakes Watershed Restoration and Protection Plan which identifies numerous watershed-wide and in-lake management strategies to meet state water quality standards. These improvements have been incorporated into this plan as ~~implementation item~~implementation activities under the Lake, Pond, and Wetland Management implementation plan (Table 82~~Table 82~~). Improvements made to the northern chain of lakes will have a direct impact on downstream resources such as the headwaters of Brown's Creek. As BCWD implements management strategies to restore and protect its lake systems, it will find that improvements to monitoring programs, changes in climate, and/or changes in attitudes and behaviors may shift the resource and protection goals. Again, as this information becomes available, the BCWD Board of Managers will reassess the goals and strategies identified for its lake systems and change its course of action as appropriate.

4 ISSUES, POLICIES, GOALS, AND ~~OBJECTIVES~~ IMPLEMENTATION ACTIVITIES ~~FOR~~ TO ADDRESS~~ING~~ PRIORITY CONCERNS

Brown's Creek Watershed District developed a set of issue statements and corresponding policies and goals for managing water and natural resources in the watershed. These were based on input from the Community Advisory Committee, the Technical Advisory Committee, residents, and members of the development community. These issue statements, policies, and goals serve as a guide for the BCWD Board of Managers and were used to develop the implementation program in section 5.

This plan contains issue statements, policies, goals, and implementation activities grouped by issue area. Because issues naturally flow into policies, goals, and implementation ~~strategies~~activities, this is more intuitive and user-friendly than having separate chapters for ~~issues, policies, goals, and implementation~~each. Section 5, *Implementation,* pulls together all the issue-specific implementation strategies that BCWD may undertake within the timeframe of the plan. This format will make the plan more of a working document, providing clear guidance for BCWD's decision-making and an understandable description of the district's direction for interested residents, businesses, and local and state officials.

The format of this section and how it translates into section 5, *Implementation,* is described as follows:

- The first table in each issue category identifies the sub-issue area(s) and the supporting policies, goals, and implementation activities. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the numbered implementation ~~items~~activities for that goal. This format is intended to clearly display how each policy and goal will be addressed.
- The second table in each issue category identifies the projected expenditures, reflecting implementation activities that BCWD intends to accomplish in the 10-year timeframe of the plan. Implementation activities that are *italicized* in these tables are the lower priority implementation activities that can be found in the Lower Priority Implementation Plan table (Table 84~~Table 84~~).
- Subsequent tables identify the implementation activities that are addressed under another program or are repeated under another issue category. It should be noted that not every issue category will contain all these tables. The list of potential tables is as follows:
    - Implementation Activities covered by Administration and/or Project Development
    - Implementation Activities ~~addressed~~covered by Baseline Monitoring Program
    - Implementation Activities covered by Regulatory Program
    - Implementation Activities ~~addressed~~covered by East Metro Water Resource Education Program (EMWREP)
    - Implementation Activities covered by Capital Improvement Program
- Implementation activities are repeated in the Implementation Plan table (Table 80~~Table 80~~). Some implementation activities can be found in a second Lower Priority Implementation Plan table (Table 84~~Table 84~~)

Issues, concerns, or priority changes that have not been identified in the development of this watershed management plan can be brought to the Board of Managers' attention over time. The district can then evaluate new issues as they arise, determine how an issue might affect the work plan, and determine what entity (e.g., cities, Washington County, or other agencies) is best suited to respond to the specific need.

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I feel like there should be consistency between "addressed" and "covered", unless you intend them to mean different things.

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4.1 Stormwater Runoff Management

4.1.1 General Issue Statement

Properly managed impervious surfaces can reduce common environmental impacts, such as increased runoff rates, decreased water quality, and reduced groundwater recharge. Urbanization and land-use changes often involve an increase in imperviousness, compaction of native soils, and removal of existing vegetation. Unless land-use changes are properly managed, these activities will increase the rate and volume of stormwater runoff generated in the watershed and will decrease the quality of surface water resources (and groundwater resources receiving infiltrated runoff) and the quantity of groundwater resources. Many of the best management practices used to provide stormwater management require long-term maintenance to ensure their performance. Existing urbanized areas already contribute additional runoff volume and increased runoff rates to local water bodies, compared with pre-settlement conditions.

4.1.2 Relevance to the District

Development and redevelopment activities have occurred within the watershed and are expected to continue. Given the amount of development that has occurred in the urban portions of the watershed, it is expected that redevelopment will be the predominant land development activity in this portion of the watershed. In the last five years, the watershed has seen increased development pressure in rural areas including the Cities of Grant and Hugo. Areas of special concern remain development and redevelopment around landlocked basins, groundwater-dependent natural resources, wetlands, and tributaries to Brown's Creek and the St. Croix River. Many areas of the watershed developed prior to adoption of BCWD's rules and represent stormwater runoff management retrofit opportunities. Additionally, many of the stormwater management practices constructed to meet the district's rules or installed as retrofit projects need maintenance to ensure that they continue to function as designed.

There are also portions of the watershed that have been hydrologically altered. Surface waters listed by the Minnesota Pollution Control Agency as impaired for various pollutants (including the growing issue of chloride impairment) and resources that are approaching an exceedance of state water quality standards can benefit from additional stormwater management efforts.

4.1.3 Sub-Issue Areas

4.1.3.1 Quality, Quantity, and Rate of Stormwater Runoff

Increases in runoff rate, usually caused by increases in impervious surfaces or changes in vegetative cover (e.g., forested areas converted to turf grass), can intensify erosion and raise flood levels. Similarly, increases in runoff volumes, often caused by increases in impervious surface cover and soil compaction, can cause flooding and can reduce the landscape's ability to infiltrate surface water to groundwater.

The quality of runoff entering water bodies such as lakes, streams, and wetlands is affected by land management practices. Practices that degrade water quality include, among others, connecting impervious surfaces to water bodies, soil disturbance leading to erosion, excessive fertilizer and chloride use, and lack of terrestrial invasive species management. Increases in runoff rate and volume also lead to decreased water quality because of increased erosion, direct connection of impervious surface to water bodies, increased water temperature, and increased volume of water carrying pollutants to water bodies.

Various management techniques can be used to limit the downstream effect of rate and volume increases and to limit the impact on water quality. These management techniques are typically constructed as part of the district's regulatory program, stormwater retrofit program, or capital improvement program. Opportunities for additional treatment through retrofit projects in older neighborhoods or partnering with the business and development community in going above and beyond the rule requirements would further help to address stormwater-related impacts.

4.1.3.2 Monitoring and Maintenance of Stormwater Management Facilities

Stormwater management facilities are constructed to limit the effects of increased runoff rates and volumes and to collect pollutants that could degrade downstream resources. To fully achieve these purposes, stormwater management facilities require regular inspections and periodic maintenance. Cities, towns, and homeowners' associations generally have responsibility for the operation and maintenance of stormwater management facilities; some have greater capacity than others to perform the monitoring and maintenance activities needed on a routine basis.

4.1.3.3 Coordination with Other Government Agencies

Municipalities have the authority to make land-use decisions on where and how development can take place, making them key partners in achieving BCWD's goals. This development activity and population growth has the potential to threaten the health of lakes, wetlands, and streams. Coordinated planning and control of development and redevelopment activities can reduce the impact of land-use changes on the water resources in the watershed. Opportunities to partner with the member communities during the comprehensive planning process to integrate comprehensive water management into land-use decision-making and planning for climate resiliency that can be implemented through stormwater improvement projects would further help to address stormwater-related impacts. This also provides opportunities to realize co-benefits from projects such as increased tree canopy, native vegetation, and more.

4.1.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation activities related to these sub-issue areas are summarized in the following tables.

Table 5. Stormwater Runoff Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Quality, Quantity, and Rate of Stormwater Runoff**		
POLICY 1:	**BCWD is committed to improving the quality of stormwater runoff to reduce pollutant loadings to downstream water bodies.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~ITEMS~~**	
A	Achieve the revised TMDL load reduction for phosphorous of 848 lb./yr. assigned to Brown's Creek in the *Implementation Plan for the Lake St. Croix Nutrient TMDL (February, 2013).*	**1**	Annually analyze progress toward the phosphorus reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
		2	Utilize the district's cost-share or stewardship programs to assist residents in installing water quality improvement projects (including thermal best management practices) and water quantity (e.g., volume control) practices.
		3	Work with the county, the Minnesota Department of Transportation, and member communities to improve operation and maintenance practices.

		4	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
B	Reduce total suspended solid (TSS) loads within the contributing drainage area to Brown's Creek (including both the regulated and nonregulated portions of municipalities) by 74% on average to meet loading limits. *(Brown's Creek TMDL Implementation Plan, 2012)*.	**1**	Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
		2	Annually track pollutant load reductions for water quality improvement projects.
		3	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
C	Restore impaired lakes to meet state standards for total phosphorous, chlorophyll A, and Secchi depth.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, PONDS, AND WETLANDS MANAGEMENT PLANS (Table 82~~Table 82~~).**
D	Achieve the total phosphorus (TP) load reduction goal of 148 lbs. established at the diversion structure as identified in the *McKusick Lake and Lily Lake Mgmt. Plan.*	**1**	*Addressed through Monitoring and Data Collection.*
		2	Revisit sampling at the Long Lake inlet and three locations within the Zephyr tributary for six to eight rain events to evaluate possible phosphorus sources and recent data trends.
		3	Investigate more opportunities for erosion control or sediment remediation in the north branch, west branches one and two, and the direct drainage to the diversion structure to further improve phosphorus loading to Lake McKusick.
E	Identify possible contamination sources of heavy metals contributing to Brown's Creek.	**1**	Further investigate heavy metals in the north branch drainage area and the direct drainage to the diversion structure, especially focused on possible contributions of contamination from the historic railroad.
		2	Further investigate heavy metals at the Long Lake inlet and opportunities for erosion control within the wetland adjacent to the Long Lake inlet.
F	Ensure lakes and ponds meet their designated uses through the management of water levels and nutrient inputs in the following lakes, ponds, and wetlands: • Bass Lakes (East and West) • Benz Lake • Goggins Lake • Lynch Lake (North and South) • Lake Masterman • Pat Lake • Plaisted Lake • North School Section Lake • South School Section Lake • Woodpile Lake • Kismet Basin • July Avenue Pond • Heifort Pond • Brewers Pond • Sinnets Pond	**1**	Manage watershed loads, internal loads, and water levels through best management practices. **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKES, PONDS, AND WETLANDS MANAGEMENT PLANS (** Table 82~~Table 82~~**).**

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G	Identify sources of chloride contamination contributing to existing impairments and resource nearing impaired status for chloride concentration.	1	Determine sediment and chloride loading rates from the gravel roads and parking lots within the watershed and work with municipalities and townships to address the issue.
POLICY 2:	**BCWD is committed to ensuring that activities within the watershed support groundwater recharge, provide thermal protection to Brown's Creek, and reduce volume related impacts to the water bodies in the watershed.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Protect and maintain the quantity and quality of groundwater recharge to build resilience.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
B	Identify and implement methods to provide thermal protection to Brown's Creek to achieve the thermal loading reductions identified in the Brown's Creek TMDL Implementation Plan.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
C	Reduce volume-related impacts to the watershed's water bodies (e.g., stormwater impacts such as wetland bounce and duration).	**1**	~~Promote stormwater reuse, where safe and feasible for human health, by~~ Partner~~working~~ with local businesses (e.g., golf courses like Stillwater Country Club and/or Logger's Trail) to implement stormwater capture and reuse, where safe and feasible for human health ~~incorporate in new development or redevelopment projects~~.
		2	*Addressed through administration of BCWD's regulatory standards and criteria.*
D	Reduce flood hazards in basins under development.	**1**	*Addressed through Floodplain and Flood Management.*
POLICY 3:	**BCWD is committed to ensuring that the rate of stormwater runoff is controlled to reduce impacts on its water bodies.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Ensure no-net increase in runoff rate from new development and redevelopment.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
B	Identify and implement rate control projects to reduce rate-related impacts to water bodies and build resilience.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**

SUB-ISSUE 2:	Monitoring and Maintenance of Stormwater Management Facilities		
POLICY 1:	**BCWD is committed to ensuring the long-term maintenance of stormwater management facilities to improve the water resources of the watershed through the continued achievement of the expected rate control, water quality treatment, and volume control goals of a facility.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Ensure BCWD-owned stormwater best management practices (BMPs) meet the performance standards and design criteria. 	**1**	Maintain BCWD-owned stormwater management facilities identified in the *BCWD Capital Improvement Project Standard Operating Procedures Manual.* Evaluate performance as needed including: • Observe facilities chosen for monitoring during construction to evaluate any conditions that would affect infiltration or removal rates. • Evaluate long-term performance and obtain design information on infiltration rates, suspended solids removal rates, phosphorus removal rates, and chloride concentrations as appropriate to the facility. • Monitor the iron enhanced sand filter medium after replacement. • Update the *BCWD CIP Standard Operating Procedures Manual*. • Develop and follow an operations and maintenance plan for stormwater management facilities operated by BCWD.
B	Ensure BMPs constructed to meet the BCWD's rules requirements achieve their performance standards and design criteria, through proper inspection and maintenance.~~Regularly inspect and maintain each stormwater management facility in the watershed as appropriate to the type of facility.~~	**1**	Continue to require permanent maintenance commitments for stormwater management facilities constructed under BCWD's rules.
		2	Collaborate with member communities to maintain stormwater management facilities and to define criteria triggering the need to maintain installed stormwater management practices.
		3	Develop communication materials to convey the benefits of routine maintenance and operation of facilities and the consequences if these are not met.
		4	Provide stormwater management maintenance resources to HOAs to support them in understanding their maintenance responsibilities for stormwater runoff infrastructure.
SUB-ISSUE 3:	**Coordination with Other Government Agencies**		
POLICY 1:	**BCWD will partner with municipalities early in the land use and development planning processes to ensure that BCWD and municipal standards are met within a community and within a development.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Establish a process for BCWD involvement early in each municipality's development review process.	**1**	Work with individual municipalities, townships, and Washington County to establish a process for early involvement in development review. These partnerships will establish a process that allows cost-effective and efficient review of development projects and ensures the incorporation of stormwater management practices as an integral part of development plans that protect surface and groundwater resources (including drinking water supplies).

		2	Conduct a pre-permit meeting that is free of charge with potential permit applicants and their design teams and city staff - *Costs identified in Implementation Activity identified under Regulations.*
		3	Share new stormwater management facility locations annually with the Metropolitan Mosquito Control District.
B	~~BCWD reviews of municipal comprehensive plans, local water management plans and water resource management plans will~~ Specifically address the connection between ~~the~~ designated land-uses and the district's goals and policies ~~of the district~~in BCWD reviews of municipal comprehensive plans, local water management plans, and water resource management plans.~~.~~	**1**	Work with each municipality through the comprehensive plan and water resource management plan review process to develop and implement land use policies that focus on preservation and protection of water and natural resources.
C	Ensure application of consistent standards for review of stormwater management practices.	**1**	Work with the Washington County W~~w~~ater ~~consortium~~ Consortium to align standards for stormwater management review across watersheds in the Lower St. Croix Partnership.
		2	Develop industry-accepted total phosphorus and total suspended solids removal rates for stormwater management practices as a permitting tool.
D	Increase stormwater management treatment by establishing incentives and partnerships that lead to measurable implementation of new or enhanced stormwater management practices.	**1**	Establish a cost-share program that will allow BCWD to partner with the business/development community on best management practices that help a site go above and beyond the rule requirements.
		2	Establish a cost-share program that will allow BCWD to partner with its member communities to implement water quality improvement/retrofit projects.

Table 6. Projected Expenditures (in 1,000's) for Stormwater Runoff Management

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Utilize the district's cost-share or stewardship programs to assist residents in installing water quality improvement projects (including thermal best management practices) and water quantity (e.g., volume control) practices.	50	50	50	50	50	50	50	50	50	50	500
Revisit sampling at the Long Lake inlet, and three locations within the Zephyr tributary for six to eight rain events to evaluate possible phosphorus sources and recent data trends.	6	6									12

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Investigate more opportunities for erosion control or sediment remediation in the north branch, west branches one and two, and the direct drainage to the diversion structure to further improve phosphorus loading to Lake McKusick.				60							60
Further investigate heavy metals in the north branch drainage area and the direct drainage to the diversion structure, especially focused on possible contributions of contamination from the historic railroad.			*60*								*60*
Further investigate heavy metals at the Long Lake inlet and opportunities for erosion control within the wetland adjacent to the Long Lake inlet.	*10*	*10*	*10*	*10*							*40*
Determine sediment and chloride loading rates from the gravel roads and parking lots within the watershed and work with municipalities and townships to address the issue.			*10*								*10*
Partner with local businesses (e.g., golf courses like Stillwater Country Club and/or Logger's Trail) to implement stormwater capture and reuse, where safe and feasible for human health.		150					50				200

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Maintain BCWD-owned stormwater management facilities identified in the *BCWD Capital Improvement Project Standard Operating Procedures Manual.* Evaluate performance as needed including: • Observe facilities chosen for monitoring during construction to evaluate any conditions that would affect infiltration or removal rates. • Evaluate long-term performance and obtain design information on infiltration rates, suspended solids removal rates, phosphorus removal rates, and chloride concentrations as appropriate to the facility. • Monitor the iron enhanced sand filter medium after replacement. • Update the *BCWD CIP Standard Operating Procedures Manua*l. • Develop and follow an operations and maintenance plan for stormwater management facilities operated by BCWD.	200	150	150	150	200	150	150	150	150	150	1,650
Develop communication materials to convey the benefits of routine maintenance and operation of facilities and the consequences if these are not met.	*9*										*9*
Establish a cost-share program that will allow BCWD to partner with the business/development community on best management practices that help a site go above and beyond the rule requirements.			10	100			100			100	310

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Establish a cost-share program that will allow BCWD to partner with its member communities to implement water quality improvement/retrofit projects.	25	25	25	25	25	25	25	25	25	25	250
Total for Stormwater Runoff Management	**300**	**~~241~~391**	**3~~10~~5**	**395**	**275**	**225**	**~~325~~375**	**225**	**275**	**325**	**~~2,891~~3,101**

Table 7. Stormwater Runoff Management Implementation Activities covered by Administration and/or Project Development

Work with each municipality through the comprehensive plan and water resource management plan review process to develop and implement land use policies that focus on preservation and protection of water and natural resources.

Table 8. Stormwater Runoff Management Implementation Activities covered by Baseline Monitoring Program

Annually analyze progress toward the phosphorus reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
Annually track pollutant load reductions for water quality improvement projects.

Table 9. Stormwater Runoff Management Implementation Activities covered by Regulatory Program

Continue to require permanent maintenance commitments for stormwater management facilities constructed under BCWD's rules.
Work with individual municipalities, townships, and Washington County to establish a process for early involvement in development review. These partnerships will establish a process that allows cost-effective and efficient review of development projects and ensures the incorporation of stormwater management practices as an integral part of development plans that protect surface and groundwater resources (including drinking water supplies).
Conduct a pre-permit meeting that is free of charge with potential permit applicants and their design team and city staff.
Develop industry-accepted total phosphorus and total suspended solids removal rates for innovative and standard stormwater management practices as a permitting tool.

Table 10. Stormwater Runoff Management Implementation Activities covered by Capital Improvement Program

Manage watershed loads, internal loads, and water levels through best management practices.
~~Promote stormwater reuse, where safe and feasible for human health, by working with local businesses to incorporate in new development or redevelopment projects.~~
Collaborate with member communities to maintain stormwater management facilities and to define criteria triggering the need to maintain installed stormwater management practices.
~~Develop industry-accepted total phosphorus and total suspended solids removal rates for innovative and standard stormwater management practices as a permitting tool.~~

Table 11. Stormwater Runoff Management Implementation Activities covered by Education and Outreach

Work with the county, the Minnesota Department of Transportation, and member communities to improve operation and maintenance practices.
Provide stormwater management maintenance resources to HOAs to support them in understanding their maintenance responsibilities for stormwater runoff infrastructure.
Share new stormwater management facility locations annually with the Metropolitan Mosquito Control District.

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Work with the ~~water consortium~~Washington County Water Consortium to align standards for stormwater management review across watersheds in the Lower St. Croix Partnership.

4.2 Erosion Prevention and Sediment Control

4.2.1 General Issue Statement

Unless properly managed, land-disturbing activities can intensify erosion and lead to increased transport of sediment into surface waters. Land-disturbing activities include both physical changes to land when it is modified by human activity (e.g., agriculture, urban development), but also the introduction of contaminants which alter soil quality such as chlorides (e.g., road salt and dust suppressant applications). Disturbances can also include invasive species, such as buckthorn, which result in more exposed soils subject to greater potential for erosion. These disturbances alter the soil's functions and values, impacting its resilience to erosion and its ability to retain moisture.

Extreme dry, wet, and windy conditions have the potential to weaken soil structure, especially during sudden shifts. Areas with a greater slope and degraded soils pose significant risks to erosion. Riparian areas are most at risk to the impacts of increased erosion and sedimentation through removal and deposition of sediments. Sedimentation in waterways can lead to degraded fish and macroinvertebrate habitat, reduced storage volume of stormwater management facilities, and reductions in stormwater infiltration by sealing permeable soils.

4.2.2 Relevance to the District

The erosion that occurs naturally throughout the watershed and because of land-disturbing activities has the potential to transport sediment and associated nutrients into the watershed's surface waters. Waters of particular concern include Brown's Creek, which is impaired for aquatic life due to a lack of cold-water fish assemblage. Through the stressor identification process, high suspended solids were identified as one of the primary stressors to the biota in the impaired reach of Brown's Creek. To date, the origins of the total contribution of suspended solids to Brown's Creek have not been identified, and the district continues to evaluate sources from the landscape as well as near-channel erosion. Several lakes in the watershed are impaired due to excess nutrient loading, which is associated with erosion as nutrients are generally bound to sediment particles.

4.2.3 Sub-Issue Areas

4.2.3.1 Existing and Anticipated Erosion Problems

Excessive erosion near water bodies can add sediment and nutrients that degrade water quality. Changes to the climate that impact soil moisture (extreme dry periods, intense rain events, and frequent, rapid snowmelt) and functions and values are anticipated to accelerate bluff instability and headcutting erosion. Identifying problem areas, performing cost-benefit analyses, and implementing long-term solutions can limit the impact of these issues on water quality in the watershed.

4.2.3.2 Development ~~-~~ Related Land Disturbance

Soil disturbance during development activities can lead to high levels of erosion that result in sudden impacts to downstream water bodies if the sediment is transported offsite. Proper control of sediment and erosion during development activities can limit impacts to downstream resources. Development activities can also lead to an increase in stream flow velocity and volume which can alter stream geomorphology, accelerating in-stream erosion.

4.2.3.3 Soil Health Practices

Human activities, such as deforestation, agriculture, and urbanization, have disturbed pre-settlement soils, impacting their function and value. This disturbance lowers the resilience of these soils to the flow of water, resulting in higher degrees of erosion and sediment transport offsite in more disturbed areas. Efforts to re-establish soil function and value have the potential to control sediment and erosion of disturbed lands, limiting effects on downstream resources. Soil health best practices can include limiting disturbance, armoring soil, increasing plant diversity, maintaining living roots in the ground year-round, and integrating livestock. These practices, although developed for agriculture, have broader applicability to improve the health of non-agricultural soils. Healthier soil practices present broad co-benefits such as improved benefits to groundwater. Mechanisms to implement these practices may include both incentives and enforcement of topsoil and soil compaction.

4.2.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation item~~implementation activities related to these sub-issue areas are summarized in the following tables.

Table 12. Erosion Prevention and Sediment Control Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	Existing and Anticipated Erosion Problems		
POLICY 1:	Protect BCWD's water bodies from the impacts of sedimentation, excessive stream bank and shoreline erosion, and adjacent upland erosion.		
GOAL		IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~	
A	~~Provide long-term stabilization of the five highest priority erosion problem areas through stormwater management and stabilization projects including the establishment of native vegetation.~~ Provide stabilization of the five highest priority erosion problem areas through stormwater management and stabilization projects, including the establishment of native vegetation, such that erosion is minimized, and channel/bank stability is maintained under design storm conditions (e.g., 2-, 10-, and 100-year events). *Stabilization shall be in perpetuity, recognizing natural disturbances may necessitate occasional maintenance. Constructed stabilization practices shall be designed for a 25-year lifespan.* ~~over the next 10-20 years.~~	1	Conduct stream channel assessments from the headwaters to the St. Croix River to identify in-stream or near channel instabilities and active headcutting. Conduct biennial drone flights (every other year) upstream of Manning Avenue where large wetland complexes occur, and biennial foot surveys downstream of Manning Avenue, including the three tributaries south of Brown's Creek State Trail (South Central, Zephyr, and Long Lake tributaries). Conduct additional observations during walk throughs including: • Fish barrier assessment (see Ecological Health) • Footpath formation (see Recreation)
		2	Identify shoreline restoration opportunities (e.g., using the Minnesota Department of Natural Resources' "Score Your Shore" tool).
		~~3~~	~~Determine sediment and chloride loading rates from the gravel roads and parking lots within the watershed and work with municipalities and townships to address the issue.~~
		~~4~~ 3	Support the Minnesota Department of Natural Resources in addressing Brown's Creek bluff instability projects and five-year assessment.
		~~5~~ 4	*Addressed through the implementation of the district's capital improvement program.*
		~~6~~ 5	SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, PONDS, AND WETLANDS MANAGEMENT PLANS (

			Table 82~~Table 82~~).

SUB-ISSUE 2:	Development-Related Land Disturbance		
POLICY 1:	**BCWD requires erosion and sediment controls in areas disturbed by development and construction related activities.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Erosion and sediment control practices meet required performance standards during construction.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	Incentivize natural landscapes as a stormwater best management practice in new development to meet permit requirements.
SUB-ISSUE 3:	**Soil Health Practices**		
POLICY 1:	**BCWD is committed to improving soil health, recognizing the importance of protecting and improving soil function to enhance water quality, reduce erosion, and build climate resilience.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Improve soil health throughout the watershed.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	Continue to incentivize soil restoration as part of BCWD's regulatory standards and criteria.
		3	*Addressed through Education and Outreach.*
B	Reduce non-native plant cover and replace with high-value and functional native landscaping.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	*Addressed through Ecological Health.*

Table 13. Projected Expenditures (in 1,000's), for Erosion Prevention and Sediment Control Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Conduct stream channel assessments from the headwaters to the St. Croix River to identify in-stream or near channel instabilities and active headcutting. Conduct biennial drone flights (every other year) upstream of Manning Avenue where large wetland complexes occur, and biennial foot surveys downstream of Manning Avenue, including the three tributaries south of Brown's Creek State Trail (South Central, Zephyr, and Long Lake tributaries). Conduct additional observations during walk throughs including: • Fish barrier assessment (see Ecological Health) • Footpath formation (see Recreation)		7.5		7.5		7.5		7.5		7.5	37.5

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Identify shoreline restoration opportunities (e.g., using the Minnesota Department of Natural Resources' "Score Your Shore" tool).	15			15			15			15	60
~~*Determine sediment and chloride loading rates from the gravel roads and parking lots within the watershed and work with municipalities and townships to address the issue.*~~			~~*10*~~								~~*10*~~
Support the Minnesota Department of Natural Resources in addressing Brown's Creek bluff instability projects and five-year assessment.			7.5					7.5			15
Total for Erosion and Sediment Control	**15**	**7.5**	**~~1~~7.5**	**22.5**		**7.5**	**15**	**15**		**22.5**	**11~~2~~2.5**

Table 14. Erosion Prevention and Sediment Control Implementation Activities covered by Regulatory Program

Incentivize natural landscapes as a stormwater BMP in new development to meet permit requirements.
Continue to incentivize soil restoration as part of BCWD's regulatory standards and criteria.



Brown's Creek restoration work completed in 2024 to address streambank erosion, among other concerns.

4.3 Stream Management

4.3.1 General Issue Statement

Alterations in land-use disrupt the hydrology and ecology of stream ecosystems. For example, increased imperviousness in the drainage area contributing to a resource results in inhibited infiltration of rainfall and snowmelt. This reduction in infiltration results in reduced baseflow, larger and more frequent stormwater discharges, and increased temperature and pollutant loads. These factors contribute to channel enlargement, changes to instream habitat, decreased aquatic diversity, and degradation of the resource.

4.3.2 Relevance to the District

Brown's Creek is comprised of two reaches: the north branch (from 110th Street to Manning Avenue) and the main branch (Highway 96 near Manning Avenue to the St. Croix River). Both branches are impaired for aquatic recreation and aquatic life due to low levels of dissolved oxygen, lack of cold-water fish assemblage, high turbidity, and high levels of *E. coli* (Escherichia coli) bacteria. Through the stressor identification process, the primary stressors to the biota in these impaired reaches of Brown's Creek were identified as high suspended solids and elevated temperatures. Although high copper concentrations were identified in previous stressor identification processes, a follow-up investigation ruled out copper as an ongoing concern. While these impairments have been addressed by the Brown's Creek TMDL Report and Implementation Plan (the latter of which identifies specific goals for restoration activities), additional impairments in the system for *E. coli* and dissolved oxygen are under investigation. The north branch is also impaired due to a low (but improving) score, on the Minnesota Macroinvertebrate Index of Biological Integrity (M-IBI). While the M-IBI scores in Brown's Creek are improving at all three locations where samples are being collected, total suspended solids (TSS) concentrations remain very high, exceeding the TSS standard for cold-water streams at all monitoring locations. Currently, chloride concentrations in Brown's Creek are not near the chronic threshold for chloride, but chloride loads and concentrations are increasing at every monitoring station in Brown's Creek. While data collected from 2015-2024 indicates an overall upward (improving) trend in stream health and macroinvertebrate community quality, further improvements are still necessary.

In addition to Brown's Creek, there are several small tributaries in the southern portion of the watershed, all of which drain to the diversion structure ~~(Figure A-12b),~~ and ultimately either Brown's Creek under large storm events or Lake McKusick under baseflow conditions and small storm events. These tributaries include the Long Lake tributary, South Central tributary, and Zephyr tributary. Land-use changes in the drainage area to the diversion structure have resulted in changes in flow conditions, headcutting of the tributaries, and water quality concerns. While the surface water contribution from this drainage system has been altered by the diversion structure, these tributaries are an important source of recharge and groundwater baseflow to Brown's Creek.

The St. Croix River is a ~~Wild and Scenic Waterway~~ National Wild and Scenic River administered by the National Park Service. While BCWD focuses much of its efforts on the protection and restoration of its surface water bodies, it is important to remember that the watershed is a tributary to this national treasure. As a partner in the Lower St. Croix River *One Watershed, One Plan*, BCWD recognizes its projects will contribute to downstream improvements in the Lower St. Croix River. This includes addressing total phosphorus concentrations and sources to comply with the latest state standards.

4.3.3 Sub-Issue Areas

4.3.3.1 Water Quality, Aquatic Habitat, and Fisheries Protection

The flora and fauna of Brown's Creek require a specific range of conditions to complete their life cycles and maintain viable populations. The lower reaches of Brown's Creek currently support an assemblage of organisms that require cold water and clean substrates (e.g., stoneflies, trout, and rainbow darters). Additionally, the cool microclimate of the lower gorge supports unique flora species not found elsewhere in the watershed. The wetland conditions of the upper reaches of Brown's Creek do not support many of the species found in the lower reaches due to differences in vegetative cover, water quality, and temperature. While the management requirements in this portion of the watershed differ from those in the lower portions of the watershed (as described in the unique species inventory), the groundwater discharge within the upper reaches feed the lower reaches of the creek and are instrumental in maintaining the health and baseflow of the creek.

4.3.3.2 Maintenance of Flow and Geomorphology

The shape and course of a stream is determined by slope, topography, vegetation, and flow conditions. Changes in vegetation quality and type, particularly from invasive to native vegetation, and in flow conditions can alter the size and course of a stream. Urbanization near a stream can lead to bank erosion, undercutting, and stream widening if rates and volumes of runoff are not managed. Additionally, over pumping of groundwater can reduce stream baseflow.

4.3.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation item~~implementation activities related to these sub-issue areas are summarized in the following tables.

Table 15. Stream Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Water Quality, Aquatic Habitat, and Fisheries Protection**		
POLICY 1:	**BCWD is committed to the improvement of the water quality and ecological integrity of Brown's Creek and its tributaries, including maintaining a viable cold-water fishery.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Achieve and maintain the Macroinvertebrate Index of Biological Integrity (IBI) for southern cold-water streams of 46 or higher and the fish IBI for southern cold-water streams of 45 or higher in the trout stream portion of Brown's Creek (or revised standard as determined by Minnesota Pollution Control Agency).	**1**	Continue to implement volunteer stream monitoring program by providing financial support to the Stillwater Area High School science program.
		2	Reassess the fish and macroinvertebrate community health at representative sites in three portions of Brown's Creek (Headwaters, Central, and Lower Gorge) in September. ~~*Cost identified under Monitoring and Data Collection*~~
		3	Conduct fish sampling on Brown's Creek, if not completed by the Minnesota Department of Natural Resources, to determine the population status and distribution of the rainbow darter in the gorge.
		4	Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results - *Cost identified under baseline monitoring program under Monitoring and Data Collection*.
		5	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**

B	Maintain a minimum daily dissolved oxygen concentration of 7 mg/L in the trout stream portion of Brown's Creek.	**1**	Continue to monitor dissolved oxygen in Brown's Creek, and expand monitoring and evaluation efforts as needed to evaluate changes along the length of the creek.
C	Maintain an instantaneous total suspended solids (TSS) concentration of 10 mg/L or lower in at least 90% of samples collected between April 1 and September 30 in the trout stream portion of Brown's Creek.	**1**	Monitor sediment load and sediment concentration in Brown's Creek in coordination with municipalities, Washington County, and state agencies as appropriate to evaluate locations of excessive sediment input and to measure progress toward the TSS goal.
		2	Implement TSS implementation projects as identified in the Brown's Creek Management Plan -**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
D	Achieve and maintain in-stream water temperatures of 18.3°C (65°F) or lower in the trout stream portion of Brown's Creek.	**1**	Monitor Brown's Creek temperature in coordination with municipalities, Washington County, and state agencies as appropriate.
		~~3~~ 2	Conduct a feasibility study to address discharge from the Neal Avenue valve to the diverted system or Brown's Creek - Evaluate options for reducing the thermal load to the creek.
		4 3	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
E	Manage and protect Brown's Creek to support the long-term viability of brook trout populations.	**1**	Coordinate with Minnesota Department of Natural Resources on developing and implementing a fisheries management plan for Brown's Creek that would establish stocking rates and species and plan for expanding the trout stream portion of the creek.
F	Identify source(s) of *E. coli,* and implement reduction actions.	**1**	Continue to conduct *E. coli* source investigation to evaluate bacteria sources to Brown's Creek and to guide best management practice selection.
G	Facilitate the implementation of the Brown's Creek Total Maximum Daily Load (TMDL) Implementation Plan.	**1**	Hold meetings every three years with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals, and opportunities for partnerships.
		2	Track performance towards Brown's Creek TMDL goals annually.
H	Achieve and maintain the water quality and ecological integrity of upper Brown's Creek (headwaters to Manning Avenue) to achieve the state's goals.	**1**	Maintain native vegetation, pools, riffles, and woody debris within the stream corridor through protection and restoration projects.

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SUB-ISSUE 2:	Maintenance of Flow and Geomorphology		
POLICY 1:	**BCWD strives to maintain the hydrology and geomorphology of Brown's Creek and its tributaries required for stream equilibrium and health.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Manage the watershed to mimic natural (pre-settlement) hydrologic conditions.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	Support beaver activity in the watershed, and utilize pond levelers in beaver dams to maintain habitat and flow to prevent flooding of infrastructure and property.
		3	*Addressed through Education and Outreach.*
B	Evaluate system-wide geomorphology on a five-year basis and identify and execute restoration opportunities.	**1**	Monitor geomorphology of Brown's Creek and its tributaries on a five-year basis to understand the creek's response to restoration activities and to detect changes within unrestored reaches.
		2	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**
		3	Implement the recommendations of tributary resource assessment by addressing improvements needed in the Long Lake tributary, which is experiencing channel incision and bank erosion below Boutwell Road. **SEE BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**

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Table 16. Projected Expenditures (in 1,000's) for Stream Management Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Continue to implement volunteer stream monitoring program by providing financial support to the Stillwater Area High School science program.	5	5	5	5	5	5	5	5	5	5	50
Reassess the fish and macroinvertebrate community health at representative sites in three portions of Brown's Creek (Headwaters, Central, and Lower Gorge) in September. ~~*Cost identified under Monitoring and Data Collection.*~~	5	5	5.5	5.5	6	6	6.5	6.5	7	7	60
Conduct fish sampling on Brown's Creek, if not completed by the Minnesota Department of Natural Resources, to determine the population status and distribution of the rainbow darter in the gorge.	5			5			6			6	22

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Implement TSS implementation projects as identified in the Brown's Creek Management Plan - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (**Table 81~~Table 81~~**).**	68.4	228.6	21.5	20	160	272	15	64	134	152	1,135.5
~~Evaluate the feasibility of stormwater capture and use (e.g., capturing more runoff at the diversion structure and reusing it at the Oak Glen Golf Course, designing reuse system at the Stillwater Country Club) to reduce surface water contributions to Brown's Creek and to maintain baseflow contributions.~~							~~50~~				~~50~~
Conduct a feasibility study to address discharge from the Neal Avenue valve to the diverted system or Brown's Creek - Evaluate options for reducing the thermal load to the creek.	50										50
Continue to conduct E. coli source investigation to evaluate bacteria sources to Brown's Creek and to guide best management practice selection.	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*50*
Hold meetings every three years with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals and opportunities for partnerships.	8.5			8.5			8.5			8.5	34
Support beaver activity in the watershed, and utilize pond levelers in beaver dams to maintain habitat and flow to prevent flooding of infrastructure and property.	1	1	1	1	1	1	1	1	1	1	10

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Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Monitor geomorphology of Brown's Creek and its tributaries on a five-year basis to understand the creek's response to restoration activities and to detect changes within unrestored reaches.			7.5					9			16.5
Total for Stream Management	**147.9**	**244.6**	**45.5**	**50**	**177**	**289**	~~97~~47	**90.5**	**152**	**184.5**	~~1,478~~1,428

Table 17. Stream Management Implementation Activities covered by Administration and/or Project Development

Coordinate with the Minnesota Department of Natural Resources on developing and implementing a fisheries management plan for the creek that would establish stocking rates and species, and plan for expanding the trout stream portion of the creek.

Table 18. Stream Management Implementation Activities covered by Baseline Monitoring Program

Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results.
Continue to monitor dissolved oxygen in Brown's Creek, and expand monitoring and evaluation efforts as needed to evaluate changes along the length of the creek.
Monitor sediment load and sediment concentration in Brown's Creek in coordination with municipalities, Washington County, and state agencies as appropriate to evaluate locations of excessive sediment input and to measure progress toward the TSS goal.
Monitor Brown's Creek temperature in coordination with municipalities, Washington County, and state agencies as appropriate.
Track performance towards Brown's Creek TMDL goals annually.

Table 19. Stream Management Implementation Activities covered by Capital Improvement Program

Maintain native vegetation, pools, riffles, and woody debris within the stream corridor through protection and restoration projects.
Implement the recommendations of tributary resource assessment by addressing improvements needed in the Long Lake tributary, which is experiencing channel incision and bank erosion below Boutwell Road.



Stocking rainbow trout in Brown's Creek in 2025 with the Minnesota Department of Natural Resources.

4.4 Lake Management

4.4.1 General Issue Statement

The Brown's Creek watershed is home to a few small, shallow lakes and several large open water wetlands and ponds that are locally regarded as lakes. While lake water quality trends are improving, many continue to face moderate-to-severe algal blooms occurring throughout the summer. Other issues facing the watershed's lakes include drastic fluctuations in water levels, excessive aquatic plant communities, and threats to unique biological resources. Some of the lakes and ponds in the watershed appear to have unique soft water chemistry that provides habitat for rare and uncommon aquatic plants, yet little is understood about the unique chemistry of these lakes and how it shapes their ecology and resilience to changes in the landscape. BCWD is committed to protecting and improving water quality and the biological integrity of its lakes and large ponds and makes a concerted effort to manage these resources through the development and implementation of lake specific management plans.

4.4.2 Relevance to the District

Five of the lakes and large ponds in the watershed are listed as impaired by the Minnesota Pollution Control Agency for nutrient concentration: Long Lake, Benz Lake, Goggins Lake, South School Section Lake, and Lynch Lake. Additionally, Long Lake received a new impairment for chloride in 2022. Impaired lakes do not meet state water quality standards for maintaining "fishable and swimmable" conditions. Other lakes within the watershed are not listed as impaired but have some level of degradation and could benefit from management or restoration actions to improve their water quality. Lakes with higher water quality, such as the recently delisted Plaisted Lake, require protection from impacts that could decrease water quality, fisheries habitat, or recreational enjoyment of the lake. Since the last iteration of the watershed management plan, specific lake management plans have been developed to direct initiatives to maintain or improve these resources.

Many of the lakes in the watershed are categorized as "shallow lakes" (defined as having a depth of less than 15 feet over most of the lake). The ecology of shallow lakes is more dynamic because of more frequent mixing events, complex dissolved oxygen dynamics, and stronger interactions between the biological community. These lakes typically are either dominated by aquatic plants due to their shallow nature or have become over-nutrified and are dominated by algae. Accordingly, shallow lakes are typically referred to as being in either a clear or turbid state. Nutrient management can transition lakes from a turbid algae dominated-state to a clear aquatic plant dominated-state. In its outreach efforts with lakeshore residents and lake users, the district focuses on explaining this phenomenon and its implication on lake management strategies.

4.4.3 Sub-Issue Areas

4.4.3.1 Water Quality Protection and Restoration

Naturally occurring and/or anthropogenic factors can impact lake water quality.

Excess inputs of nutrients, especially phosphorus, can cause accelerated eutrophication with symptoms that include excessive algae growth, decreased water clarity, and decreased levels of dissolved oxygen. These factors change the habitat in the lake and decrease public enjoyment of a lake. There are multiple ways in which phosphorus is added to lakes and ponds. This includes internal and external loading. Internal loading is when phosphorus is released from sediment within a water body. External loading is when phosphorus comes from a source outside of the water body.

Sediment is another common contributor to lake water quality degradation. Excess sediment can cause high turbidity, sediment deltas that cause clog inlets/outlets, changes in lake bottom spawning

and macroinvertebrate habitat, and internal nutrient loading. Sources of excess sediment to lakes include unstable sediments in upstream landscapes, stream bank erosion, and lake shoreline erosion.

Chloride is a pollutant of growing concern as it is very harmful to aquatic ecosystems. Once it is introduced into water resources, there is no economically feasible removal technology. Application of road salt during winter to manage ice, spray treatments on gravel roads during summer to manage dust, and water softener solutions contribute to chloride pollution through stormwater runoff.

Protecting high-quality lakes and restoring lakes that are already being impacted by land-use change is important to BCWD.

4.4.3.2 Lake Level Management

Lakes naturally fluctuate in water level, and this fluctuation is beneficial for the lake and the surrounding upland habitat. However, during drought conditions, water levels could shift the littoral zone, which could be a potential mechanism for increased plant abundance driven by water level changes that host additional plant species. Conversely, extreme flood conditions can impact adjacent trees, structures, and infrastructure (e.g., subsurface sewage treatment systems and roads). Managing excessively high lake levels may be necessary in some cases (e.g., Goggins and South School Section Lakes) but should be conducted in a manner that accounts for the ecological function of the lake and natural lake level fluctuations. Lake level management is expected to become more challenging in the future as precipitation patterns trend toward more extreme wet and dry periods.

4.4.3.3 Lake Functions and Values

Each lake within the watershed is unique in many respects. Thus, each lake provides different functions and is valuable to the community in different ways. Lakes provide aesthetic value, habitat, flood storage and groundwater recharge functions, and recreational value, each to varying degrees. Many of the shallow lakes in the watershed display improving trends, though risks associated with algae domination and excessive aquatic vegetation, including invasive species persist. Several lakes possess unique water chemistry and/or plant communities of high biodiversity value supported by the presence of rare aquatic plants. Evaluating the natural condition of the lake, educating residents about the natural condition, and determining local interests can assist in implementing effective lake management plans.

4.4.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation item~~implementation activities~~s~~ related to these sub-issue areas are summarized in the following tables.

Table 20. Lake Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:		**Water Quality Protection and Restoration**	
POLICY 1:		**BCWD is committed to restoring water quality in degraded lakes and to protecting water quality in lakes that meet state water quality standards.**	
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Restore the water quality in watershed lakes and large ponds that do not currently meet state standards or their designated uses.	**1**	Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**

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		2	Conduct water quality monitoring of lakes in cooperation with municipalities, Washington County, and state agencies.
B	Protect the water quality in watershed lakes and large ponds that currently meet state standards and their designated uses.	**1**	Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (** Table 82~~Table 82~~**).**
		2	Support legislative efforts to reduce chloride contamination, and smart salting initiatives throughout the watershed.
		3	*Addressed through administration of BCWD's regulatory standards and criteria.*
		4	Consider adopting and implementing regulatory provisions to reduce chloride contamination to watershed lakes.
SUB-ISSUE 2:	**Lake Level Management**		
POLICY 1:	**BCWD supports managing lake levels in a way that balances the ecological functions of a lake with flood protection.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Meet the goals and objectives for water levels identified in BCWD's lake management plans. 	**1**	Continue to conduct lake level monitoring to track lake level trends.
		2	Evaluate options to address high water levels on Long Lake for the existing and projected 100-year rainfall event to provide additional protection for the residences with less than adequate freeboard and for the protection of roads (Mid Oaks, 62nd St, & 72nd St inundated for current 100-year event) [2021 Long Lake Flood Reduction Risk Evaluation].
		3	*Addressed through administration of BCWD's regulatory standards and criteria.*
SUB-ISSUE 3:	**Lake Function and Values**		
POLICY 1:	**BCWD supports establishing ecologically reasonable goals for the functions and values and recreational opportunities of watershed lakes based on the natural condition of each lake.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Establish shoreline vegetation improvement goals for lakes.	**1**	Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (** Table 82~~Table 82~~**).**
		2	Highlight shoreline conservation efforts of specific properties, and showcase these through shoreland property outreach materials.
		3	Implement a community science initiative using the Minnesota Department of Natural Resources' "Score Your Shore" tool to gather data and track shoreline health across the district.
B	Achieve clear water state conditions in the watershed's shallow lakes and ponds.	**1**	Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES**

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			IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~**).**
C	Increase awareness of unique features of the lakes in the watershed to inform basin-specific management activities.	**1**	Inventory surface and groundwater resources for unique and notable features, identify protection strategies, and integrate findings with community conversations.
D	Increase understanding of the distribution and growth of aquatic plant communities and how to manage them.	**1**	Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (** Table 82~~Table 82~~**).**
		2	*Addressed through Education and Outreach.*

Table 21. Projected Expenditures (in 1,000's) for Lake Management Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (** Table 82~~Table 82~~**).**			66	66	66	66	66	66	66	66	528
Evaluate options to address high water levels on Long Lake for the existing and projected 100-year rainfall event to provide additional protection for the residences with less than adequate freeboard and for the protection of roads (Mid Oaks, 62nd St, & 72nd St inundated for current 100-year event) [2021 Long Lake Flood Reduction Risk Evaluation].	15	20									35
Inventory surface and groundwater resources for unique and notable features, identify protection strategies, and integrate findings with community conversations.	1	1	4	1	1	4	1	1	4	1	19
Total for Lake Management	**16**	**21**	**70**	**67**	**67**	**67**	**67**	**67**	**67**	**67**	**582**

Table 22. Lake Management Implementation Activities covered by Administration and/or Project Development

Support legislative efforts to reduce chloride contamination and smart salting initiatives throughout the watershed.

Table 23. Lake Management Implementation Activities covered by Baseline Monitoring Program

Conduct water quality monitoring of lakes in cooperation with municipalities, Washington County, and state agencies.
Continue to conduct lake level monitoring to track lake level trends.

Table 24. Lake Management Implementation Activities covered by Capital Improvement Program

Implement watershed improvements in the relevant lake management plans

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Table 25. Lake Management Implementation Activities covered by Regulatory Program

Consider adopting and implementing regulatory provisions to reduce chloride contamination to watershed lakes.

Table 26. Lake Management Implementation Activities covered by Education and Outreach

Highlight shoreline conservation efforts of specific properties, and showcase these through shoreland property outreach materials.
Implement a community science initiative using the Minnesota Department of Natural Resources' "Score Your Shore" tool to gather data and track shoreline health across the district.

4.5 Wetland Management

4.5.1 General Issue Statement

The watershed contains a diversity of wetland types of varied condition that perform essential functions and values. Although many wetlands are degraded, high-quality wetlands remain due to the many isolated basins and low-intensity development present in portions of the watershed. Several wetlands include plant communities unique to the metropolitan area, located at the southern fringes of their known range (e.g., coniferous and open peatlands, soft water ponds). The Minnesota Department of Natural Resources maintains a record of Rare Natural Communities (RNCs) with special considerations under the Wetland Conservation Act, and it provides guidance on RNCs.

Many wetlands serve as source water for downstream water resources. All the wetlands in the watershed are at risk of encroachment from various land-uses to some degree. They are also at risk of degradation from land-use practices that increase stormwater input and decrease groundwater contributions thereby decreasing wetland water quality, altering hydrologic patterns, and limiting wildlife habitat within and adjacent to wetlands.

4.5.2 Relevance to the District

The Brown's Creek watershed contains numerous wetlands that provide important functions such as filtering and treating runoff, storage and flood attenuation, groundwater recharge, thermoregulation, carbon sequestration, plant diversity, and wildlife, fisheries, and amphibian habitat. Many of the larger, open-water wetlands in the watershed have homes surrounding them and are valued as natural amenities like watershed lakes. Wetland quality is linked to the surrounding environment. Minimizing the effect of land-use changes (including changes in surficial and groundwater hydrology, topography, soils, and land cover) has the potential to maintain or improve the functions and values of a wetland.

4.5.3 Sub-Issue Areas

4.5.3.1 Wetland Functions and Values

BCWD is committed to no net loss of wetland functions and values. The watershed contains a variety of wetland systems that have the potential to be degraded by land-use activities, agricultural practices, hobby farms, recreation, and the proliferation of aquatic invasive species such as common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), and hybrid cattail (*Typha* x *glauca*). For example, increased runoff may alter hydrology and water quality of a wetland with effects on capacity for water quality treatment and flood attenuation, as well as impact plant diversity and habitat quality by favoring invasive species. Altered hydrology can also affect functions such as thermoregulation and carbon sequestration. BCWD needs to protect and enhance these resources' functions and values.

Identification of wetland restoration, enhancement, and preservation opportunities requires a more in-depth understanding of the specific functions and values these wetlands provide. Inventory work to-date provides an indication that the watershed's wetlands possess unique plant communities and water chemistry that is unique to the metropolitan area. Further study would help benefit the district's understanding of these resources and how best to prioritize future investments in restoration, enhancement, and preservation projects.

4.5.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation item~~implementations activities related to these sub-issue areas are summarized in the following tables.

Table 27. Wetland Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Wetland Functions and Values**		
POLICY 1:	**BCWD is committed to maintaining the functions and values of high-quality wetlands and improving the functions and values of degraded and drained wetlands in the watershed.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Ensure no net loss of wetland functions and values within the watershed.	**1**	Maintain the high-level functions and values of the watershed's fen through vegetation management to control the encroachment of invasive vegetation on the wetland and through protection of the fen groundwater recharge area.
		2	SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (**Table 82~~Table 82~~).**
		3	~~Consider~~ Evaluate the impact of a proposed rule amendments for additional protection of wetlands with regionally important plant communities (e.g., open bogs, coniferous bogs, sedge mats, calcareous fens).
		4	Select two to five sentinel wetlands[1] to conduct five-year monitoring for land-use and climate change implications, and assess ten different wetlands on a bi-annual basis to expand the function and value assessment.
		5	Evaluate the feasibility of creating a wetland bank in the watershed.
		6	*Addressed through administration of BCWD's regulatory standards and criteria.*
B	Enhance the functions and values of the watershed's degraded wetlands.	**1**	Restore wetland on Mendel Road tributary with landowner collaboration.
		2	Improve the quality of buffers in priority wetlands as identified in the district's wetland functions and values assessment through preservation, restoration, and enhancement projects - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**
		3	Utilize the land conservation program to pursue easement opportunities on high-quality wetlands, identified through ongoing wetland function and value inventory updates.

[1] Sentinel wetlands refer to wetlands assessed with specific characteristics that make them useful indicators of changes to their environment over time.

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C	Continue to support the Wetland Conservation Act (WCA).	**1**	Continue to serve on the Technical Evaluation Panel for WCA.
D	Protect the quantity and quality of buffers around the wetlands in the watershed.	**1**	Conduct routine evaluations of wetland buffers recorded via the district's regulatory program to ensure the quantity and quality of recorded buffers are being maintained.
		2	*Addressed through administration of BCWD's regulatory standards and criteria.*
E	Contain and reduce the spread of invasive wetland plants, including aquatic invasive species (AIS).	**1**	*Addressed through Ecological Health.*

Table 28. Projected Expenditures (in 1,000's) for Wetland Management Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Maintain the high-level functions and values of the watershed's fen through vegetation management to control the encroachment of invasive vegetation on the wetland and through protection of the fen groundwater recharge area.	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	45
Select two to five sentinel wetlands to conduct five-year monitoring for land-use and climate change implications, and assess ten different wetlands on a bi-annual basis to expand the function and value assessment. ~~*Select two to five sentinel wetlands to conduct five-year monitoring for land use and climate change implications and assess ten different wetlands on a bi-annual basis to expand the FVA.*~~	*10*		*10*		*10*	*5*	*10*		*10*	*5*	*60*
Evaluate the feasibility of creating a wetland bank in the watershed.			*25*								*25*
Restore wetland on Mendel Road tributary with landowner collaboration.								*50*	*100*	*20*	*170*
Improve the quality of buffers in priority wetlands as identified in the district's wetland functions and values assessment through preservation, restoration, and enhancement projects - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (** Table 82~~Table 82~~**).**	7.5	7.5	8	8	8	8.5	8.5	8.5	9	9	82.5

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Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Conduct routine evaluations of wetland buffers recorded via the district's regulatory program to ensure the quantity and quality of recorded buffers are being maintained.	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25
Total for Wetland Management	**24.5**	**14.5**	**50**	**15**	**25**	**20.5**	**25.5**	**65.5**	**126**	**41**	**407.5**

Table 29. Wetland Management Implementation Activities covered by Administration and/or Project Development

Continue to serve on the Technical Evaluation Panel (TEP) for WCA.
Utilize the land conservation program to pursue easement opportunities on high-quality wetlands, identified through ongoing wetland function and value inventory updates.

Table 30. Wetland Management Implementation Activities covered by Regulatory Program

Evaluate the impact of a proposed~~Consider~~ rule amendments for additional protection of wetlands with regionally important plant communities (e.g., open bogs, coniferous bogs, sedge mats, calcareous fens).



BCWD's consultant biologists conducting a wetland inventory in 2024.

4.6 Floodplain and Flood Management

4.6.1 General Issue Statement

Historically, localized flooding within the watershed has damaged or threatened to damage private properties and public infrastructure. Hydrologic and hydraulic model updates using updated Atlas 14 rainfall data show that there are now properties with inadequate freeboard, putting them at increased risk of flood damage. BCWD recognizes that the risk of flooding now and into the future will increase because of climate trends and events. Flooding can subject properties to damage (including damage that may not be covered by insurance) and pose health risks when flood waters~~ing~~ intersect~~s~~ with drinking water wells~~private well overtopping~~.

These threats pose unique challenges in the watershed, which contains numerous landlocked basins. The loss of flood storage areas through land and basin alterations~~. The loss of flood storage areas~~ can increase the frequency, elevation, and duration of flooding and can result in increased impacts on infrastructure, property, as well as the natural environment.

4.6.2 Relevance to the District

Flooding is a natural occurrence that is vital to the health of many ecosystems. Natural water bodies and constructed stormwater management facilities within the watershed function as flood storage areas. As Minnesota's climate continues to change, there will continue to be an increase in the frequency of flooding. During the next century, spring rainfall and annual precipitation are likely to increase, and severe rainstorms are likely to intensify. These wetter conditions will result in elevated groundwater levels, which limits stormwater infiltration, thereby increasing the rate and volume of runoff traveling downstream. In addition, alterations to the floodplain, outlets of water bodies, or stormwater management facilities can change flooding characteristics and impact properties and natural resources. According to the landlocked basin analysis the district performed in 2025 (using the updated NOAA Atlas 14 Precipitation-Frequency Atlas of the United States), the 108 subwatersheds within the watershed that are landlocked for the 100-year, 10-day event may be at an elevated risk for flooding if changes in adjacent land uses cause increased volumes of runoff to enter the basins. Additionally, existing or proposed structures in and around flood storage areas require protection from damage caused by flooding.

4.6.3 Sub-Issue Areas

4.6.3.1 Flood Prevention

Maintaining the hydrologic balance of the watershed is critical to addressing impacts of flooding. As precipitation patterns change, the ~~watershed~~ management approach must adapt to promote resiliency.

4.6.3.2 Protection of Flood Storage Areas

The natural process of flooding can threaten public safety and damage private property and structures if the areas that naturally store ~~floodwaters~~floodwater are filled. Filling flood storage areas (with earthen fill) increases the frequency of flooding and increases the water surface elevation of a flood.

4.6.3.3 Flood Mitigation and Management of Flood-Prone Areas

Areas prone to flooding, as identified in the hydrologic and hydraulic model, such as lands adjacent to lakes, streams, and wetlands or within landlocked basins, should be managed to avoid impacts to infrastructure and structures. Development within these flood-prone areas can remove critical stabilizing features, such as vegetation and shoreline structure. Instability along the shoreline of

streams and lakes leads to negative ecological impacts, such as erosion and loss in biodiversity. Structures should be placed where the risk of flooding is low to avoid damage.

4.6.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation item~~implementation activities~~s~~ related to the sub-issue areas stated above are summarized in the following tables.

BCWD's overarching policy regarding flooding is two-pronged:

The district uses its rules and permitting program to set clear standards for protecting flood-storage capacity throughout the watershed. For example, current rules require new and existing structures to be at least two feet above the 100-year flood level and prohibit loss of storage volume within the floodplain. These standards must be consistently applied by all regulatory entities throughout the watershed.

The district collaborates with private property owners, watershed cities and townships, Washington County, and state agencies to identify flood risks, then undertakes projects and programs to mitigate those risks. This policy recognizes that while the district will continue to strive to be a primary source for flood-risk and climate-change data and analysis in the watershed, it cannot address all current and future flood risks on its own, especially as rain events increase in intensity and duration.

It is important to note that ~~the Brown's Creek~~this watershed management plan is intended to support and be consistent with Washington County's All-Hazard Mitigation Plan by identifying and advancing flood risk-reduction strategies that reduce impacts on people, property, infrastructure, and natural resources.

Table 31. Floodplain and Flood Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Flood Prevention**		
POLICY 1:	**BCWD will collect, analyze and publish watershed flooding and rainfall data, including water elevations and other hydrological information, to serve as a technical resource for district communities.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Operate with the most current data on flooding and climate change impacts to water resources and infrastructure.	**1**	Conduct routine updates to the district's hydrologic and hydraulic model including conducting flood vulnerability assessments for current and future storm forecasts, stormwater design performance, critical infrastructure, and to inform analysis of BCWD's rules. *Cost reflected in Monitoring.*
		2	Develop and implement a community flood reporting campaign that generates documented flood reports for model validation and public awareness.
POLICY 2:	**BCWD recognizes the need to balance flood prevention and mitigation by integrating upstream runoff reduction, floodplain management, and infrastructure improvements. The district will collaborate with property owners, local communities, and state and federal agencies to reduce flood risk under current and future conditions.~~BCWD will collaborate with property owners, watershed communities, and state and federal agencies to reduce risk of flood damage.~~**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	

A	Mitigate flood risk in the watershed by partnering with local governments and agencies to implement flood mitigation strategies.	**1**	Increase watershed resilience to flooding by enhancing flood storage and flow management through coordinated implementation of wetland restoration, outlet improvements, and smart outlet technologies.
		2	Acquire properties vulnerable to flooding, subject to technical review demonstrating public benefit provided through the district's action. ~~Consider the acquisition of properties vulnerable to flooding.~~
B	Ensure the district's rules address future flood impacts under Atlas 15.	**1**	Continually evaluate the usability, efficacy, and application of BCWD's rules, and evaluate the need to revise the rules every five years.
		2	Implement rate control and volume control standards through the district's rules to minimize the impact of development.
		3	Implement low floor elevation standards for new developments through the district's rules.
C	Encourage resident adoption of adaptation measures that reduce their flood risk.	**1**	*Addressed through Education and Outreach.*
POLICY 3:	**BCWD will plan and implement projects with public and private partners to increase flood resilience in the watershed, providing flood storage and hazard mitigation through regional stormwater management to reduce the impacts of flooding and promote recharge.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase the use of climate-resilient strategies in the watershed contributing to the Lower St Croix *One Watershed, One Plan's* runoff retention goal by increasing flood storage across the watershed by 0.4 inches.	**1**	Encourage utilizing regional stormwater management provisions in BCWD's rules.
		2	Implement regional stormwater management projects with municipal partners.
		3	Restore flood storage capacity and construct, if feasible, additional flood storage capacity in critical locations with public and private partners.
SUB-ISSUE 2:	**Protection of Flood Storage Areas**		
POLICY 1:	**BCWD is committed to protecting flood storage areas to reduce the impacts of flooding and promote recharge.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Ensure no net loss of flood storage capability within the watershed.	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	Maintain the flood-risk mitigation functionality of Kismet Basin and the Trout Habitat Preservation Project (THPP) while evaluating and implementing opportunities to enhance storage and/or infiltration capacity where feasible. *Addressed through administration of the Capital Improvement Program Standard Operating Procedures.*
		3	Promote natural asset management by supporting member communities in identifying, valuing, and protecting natural features that provide flood storage and contribute to stormwater management and watershed resilience.
		4	Review and, as necessary, amend BCWD's rules to require no net loss of flood storage from permitting activities. *Costs reflected in Regulations.*

SUB-ISSUE 3:	Flood Mitigation and Management of Flood Prone Areas		
POLICY 1:	**BCWD will continue to protect structures and natural communities from flooding exceeding natural water level fluctuations.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Assess the potential for flooding properties when evaluating land management activities. 	**1**	*Addressed through administration of BCWD's regulatory standards and criteria.*
		2	Expand mapping of flood intersections with infrastructure beyond the work completed to assess lakes (e.g., at culverts and low points in the landscape).
		3	Continue to monitor lake levels and shallow aquifer groundwater levels to evaluate conditions that may cause impacts to existing structures.
POLICY 2:	**BCWD will collaborate with property owners, watershed communities, and state and federal agencies ~~to prepare for flooding.~~on structural and non-structural strategies that balance reducing flood risk under current conditions while adapting to increased precipitation intensity and frequency associated with future climate scenarios.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
~~B~~ A	Acquire at-risk properties with opportunities for public co-benefits associated with this plan's goals. 	**1**	Utilize the land conservation program to acquire properties with a floodplain management co-benefit.
~~C~~ B	Support property owners' efforts to manage their flood risk. 	**1**	Provide technical assistance to homeowners experiencing or at risk of flooding.
		2	Develop outreach and guidance materials related to flood-risk management, and conduct community meetings to disseminate flood-risk assessment data and guidance.
		3	Develop a homeowner's packet for at-risk properties.
		4	Develop a request for proposals template for homeowners seeking engineering design and construction services.
		5	Evaluate the impact of a proposed rule change to allow mitigation without exacerbating onsite flood risk.
		6	Explore expansion of BCWD's cost-share program to include water quantity as well as water quality projects.
POLICY 3:	**BCWD will maintain and enhance existing BCWD capital improvement projects that provide storage and hazard mitigation.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEM~~**	
A	Ensure capital improvement projects are meeting their flood storage design specifications. 	**1**	Evaluate and implement changes to existing BCWD projects that provide opportunities for adaptive management, upscaling retrofits, and use of innovative technology to improve performance under a changing climate.

Table 32. Projected Expenditures (in 1,000's) for Floodplain and Flood Management Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Promote natural asset management by supporting member communities in identifying, valuing, and protecting natural features that provide flood storage and contribute to stormwater management and watershed resilience.	50	75	75	75	75	75	75	75	75	75	725
~~Develop GIS database of relevant current and historical groundwater-dependent natural resources monitoring data and provide the database to the public via the district website.~~	–	–	–	–	–	–	–	–	–	~~10,000~~ 10	~~10,000~~10
Total for Floodplain and Flood Management	**50**	**75**	**75**	**75**	**75**	**75**	**75**	**75**	**75**	~~85~~75	~~735~~725

Table 33. Floodplain and Flood Management Implementation Activities covered by Administration and/or Project Development

Provide technical assistance to homeowners experiencing or at risk of flooding.
Utilize the land conservation program to acquire properties with a floodplain management co-benefit.

Table 34. Floodplain and Flood Management Implementation Activities covered by Baseline Monitoring Program

Conduct routine updates to the district's hydrologic and model including conducting flood vulnerability assessments for current and future storm forecasts, stormwater design performance, critical infrastructure, and to inform analysis of BCWD's rules.
Continually evaluate the usability, efficacy, and application of BCWD's rules, and evaluate the need to revise the rules every five years.
Continue to monitor lake levels and shallow aquifer groundwater levels to evaluate conditions that may cause impacts to existing structures

Table 35. Floodplain and Flood Management Implementation Activities covered by Regulatory Program

Develop and implement a community flood reporting campaign that generates documented flood reports for model validation and public awareness.
Implement rate control and volume control standards through the district's rules to minimize the impact of development.
Implement low floor elevation standards for new developments through the district's rules.
Encourage utilizing regional stormwater-management provisions in BCWD's rules.
Review and, as necessary, amend BCWD's rules to require no net loss of flood storage from permitting activities.
Expand mapping of flood intersections with infrastructure beyond the work completed to assess lakes.
Evaluate the impact of a proposed rule change to allow mitigation without exacerbating onsite flood risk.~~Consider changes to the rule language to allow mitigation without exacerbating onsite flood risk.~~
~~Utilize the land conservation program to acquire properties with a floodplain management co-benefit.~~

Commented [HP8]: Alex - this item is not in the table above? Is it old or just missing? Should anything else be in this table?

Commented [HP8R2]: Not even a flood-related issue

Commented [AA8R3]: Updated so that it only comes up in Groundwater Management.

Table 36. Floodplain and Flood Management Implementation Activities covered by Capital Improvement Program

Increase watershed resilience to flooding by enhancing flood storage and flow management through coordinated implementation of wetland restoration, outlet improvements, and smart outlet technologies.
Acquire properties vulnerable to flooding, subject to technical review demonstrating public benefit provided through the district's action.~~Consider the acquisition of properties vulnerable to flooding.~~
Implement regional stormwater-management projects with municipal partners.
Restore flood-storage capacity and construct, if feasible, additional flood-storage capacity in critical locations with public and private partners.
Maintain the flood-risk mitigation functionality of Kismet Basin and the Trout Habitat Preservation Project (THPP) while evaluating and implementing opportunities to enhance storage and/or infiltration capacity where feasible. Addressed through administration of the Capital Improvement Program Standard Operating Procedures.
Explore expansion of BCWD's cost-share program to include water quantity as well as water quality projects.
Evaluate and implement changes to existing BCWD projects that provide opportunities for adaptive management, upscaling retrofits, and use of innovative technology to improve performance under a changing climate.

Table 37. Floodplain and Flood Management Implementation Activities covered by Education and Outreach

Develop outreach and guidance materials related to flood-risk management and conduct community meetings to disseminate flood-risk assessment data and guidance.
Develop a homeowner's packet for at-risk properties.
Develop a request for proposals template for homeowners seeking engineering design and construction services.



Goggins Lake in 2025, one of the water bodies benefitted by flood prevention in BCWD's first capital improvement project.



~~Kismet Basin Aerial~~

4.7 Groundwater Management

4.7.1 General Issue Statement

Land-altering activities and climate change have the potential to impact groundwater resources as well as groundwater-dependent natural resources. Without proper land-use and water resource management, reduced groundwater recharge, reduced groundwater quality, alterations to drinking water supply, potential for groundwater flooding, and alterations to the functions and values of groundwater-dependent natural resources may occur.

Climate change is impacting groundwater. Research suggests climate change will impact groundwater recharge through reduced infiltration during high-intensity precipitation events. Emerging research suggests warmer surface waters infiltrating into groundwater have the potential to raise groundwater temperatures, impacting groundwater-dependent natural resources.

As a regional issue that crosses multiple communities and watershed districts, BCWD recognizes that partnership with the Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, Minnesota Department of Health, Metropolitan Council, and local communities is critical to understanding this complex issue.

4.7.2 Relevance to the District

Brown's Creek Watershed District has been proactively managing its unique groundwater-dependent natural resources since its inception in 1997. While Brown's Creek was the focal point initially, BCWD has come to recognize the value in protecting the other high-quality and highly sensitive groundwater-dependent natural resources in the watershed, including:

- Wetlands
- Fens (rare wetlands with high pH)
- Springs and spring creeks
- Most lakes

The impairment of Brown's Creek, declining groundwater levels, and reduced baseflow in the creek highlight the need to protect, conserve, and utilize the region's groundwater in ways that protect public health, protect groundwater as a source of all the publicly-supplied drinking water in the watershed, support economic growth and development, maintain habitat and ecosystem health, and provide for recreational opportunities. The increasing use and reliance on artificial intelligence systems and the growing need for data centers poses new threats to groundwater management, drinking water supplies, and groundwater-dependent natural resources. The Midwest is an emerging market for data center development with at least 12 technology giants and third-party developers seeking to build data centers in Minnesota in 2025.

Historic high flooding in Kimbro Basin in summer 2020 exposed that there remain significant gaps in our understanding of how groundwater impacts the watershed. Developing a greater understanding of the watershed's groundwater resources plays a key role in monitoring change and providing more informed decision-making on how to manage groundwater and its dependent resources. The Washington County Groundwater Plan (2025-2035) lists several actions that should be addressed by watershed management organizations (WMOs) including BCWD.

4.7.3 Sub-Issue Areas

4.7.3.1 Management of Groundwater Quality

Groundwater supplies all the drinking water within the watershed and Washington County. Pollution prevention is the key to maintaining this vital resource. The cleanup of aquifers is expensive, takes a long time, and is often not even possible with current technology. Ensuring that volume control and infiltration practices installed within the watershed will not lead to contamination of groundwater aquifers is important to the protection of drinking water sources.

4.7.3.2 Management of Groundwater Recharge, Supply, and Groundwater-Dependent Natural Resources

Drinking water supplies and groundwater-dependent natural resources need a sustainable supply of groundwater to remain viable. Impervious surfaces can reduce the amount of water that infiltrates and recharges aquifers. Excessive groundwater withdrawals from wells can alter groundwater flow and limit the availability of groundwater for other purposes. Groundwater sustainability can generally be defined as groundwater withdrawals and natural discharges being equal to groundwater recharge, with no negative impacts to surface water bodies. Groundwater recharge occurs on a large scale throughout the watershed. In fact, some groundwater within the watershed boundaries may be recharged by areas outside the watershed.

BCWD intends to proactively manage groundwater resources in the watershed rather than reactively responding to a crisis. Groundwater elevations and flow are controlled by long-term trends in climate, recharge, and groundwater withdrawal. By the time low groundwater elevations or discharges become a problem, it may be too late to implement a timely solution. BCWD will not only monitor trends in groundwater elevations and water use but also try to recognize and predict when and where issues could arise in the future and implement policies to avoid adverse effects on natural resources and water supplies.

4.7.3.3 Groundwater Flooding

Flooding of groundwater-dependent natural resources represents an emerging concern highlighted by historic flooding in Kimbro Basin in 2020. Managing groundwater flooding is a new area for BCWD to consider as climate change continues to alter the water supply. Understanding future groundwater flooding and monitoring groundwater levels will inform the district's role in protecting properties from flooding and communicating the impacts of this type of flooding to watershed partners.

4.7.4 Policies, Goals, and Implementation

The policies, goals, and implementation activities related to these sub-issue areas are summarized in the following tables.

Table 38. Groundwater Management Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Management of Groundwater Quality**		
POLICY 1:	**BCWD supports protecting groundwater quality.**		
GOALS		**IMPLEMENTATION ACTIVITIES**	**IMPLEMENTATION ITEMS**
A	Establish controls to reduce the potential for transport of pollutants into the groundwater.	**1**	Support Washington County and the Minnesota Pollution Control Agency on regional groundwater programs including well-sealing, addressing potential contamination from septic systems, contaminants of emerging concern (e.g., PFAS), and well water testing.
		2	*Addressed through administration of BCWD's regulatory standards and criteria.*
		3	*Addressed through Education and Outreach.*
B	Cooperate with the wellhead protection and source water assessment efforts of municipalities and others.	**1**	Review water appropriation permits for potential impacts to groundwater levels in other wells and groundwater flow to groundwater dependent natural resources to provide input on the Minnesota Department of Natural Resources' review process.
		2	Collaborate with the Minnesota Department of Health to review and resolve differences related to BCWD-identified areas of contamination concern and recharge protection in the drinking water supply management areas (DWSMA) and aquifer vulnerability assessments delineated by Stillwater and Oak Park Heights.
		3	Share relevant data on groundwater resources and resource protection areas with municipalities for use in comprehensive plan updates, wellhead protection plans, and source water assessments.
SUB-ISSUE 2:	**Management of Groundwater Recharge, Supply, and Groundwater-Dependent Natural Resources**		
POLICY 1:	**BCWD is committed to sustaining the quantity of groundwater within the watershed to support its groundwater resources in response to land use and climate change.**		
GOALS		**IMPLEMENTATION ACTIVITIES**	**IMPLEMENTATION ITEMS**
A	Work with state and other local partners to achieve pre-settlement recharge conditions within the watershed.	**1**	Utilize the land conservation program to identify and protect groundwater recharge areas.
		2	Continue to participate in the North and East Metro Groundwater Management Area Plan Project Advisory Team by attending meetings.
		3	Ensure future rule and policy updates reflect a commitment to "no-net loss" of recharge due to the construction of impervious surfaces.
		4	Address issues related to modern water utility management by leading the development of an integrated water utility roadmap with financial support from district communities. This roadmap will explore opportunities to break down the silos among water, wastewater, and stormwater to create a more sustainable water future. It will establish a framework for member communities so that as opportunities to upgrade or repair systems arise, utilities are not only

			examining existing needs but making changes to modernize and make systems more resilient.
		5	*Addressed through administration of BCWD's regulatory standards and criteria.*
B	Protect Brown's Creek and other groundwater-dependent natural resources from the negative impacts of groundwater overuse.	1	Utilize a cost-share approach to assist businesses, residents, and local governments in reducing their groundwater use and encouraging reuse where feasible (e.g., Stillwater Country Club, Loggers Trail). *Cost reflected in Stormwater Management.*
C	Gather information to support the district's understanding of groundwater quantities and groundwater flow.	1	Collect groundwater elevation data from residential wells, monitoring wells, high-capacity wells, and near landlocked basins at least annually. Install data recorders to collect more frequent measurements where possible. Share information with Washington County and the Metropolitan Council.
		2	Work with the Minnesota Department of Natural Resources' observation well program and others to install deep observation wells near Brown's Creek to monitor bedrock aquifers.
		3	Conduct groundwater monitoring and research aligning with the Minnesota Department of Health, Washington County, and Metropolitan Council priorities. Opportunities include but are not limited to: • Groundwater elevation data in Brown's Creek reaches • Chemistry monitoring near groundwater dependent natural resources • Dye tracing • Inventorying seepage points • Pumping tests
SUB-ISSUE 3:	**Groundwater Flooding**		
POLICY 3:	**BCWD is committed to understanding the conditions that can lead to groundwater flooding and communicating this to Washington County, local government units (LGUs), and property owners.**		
GOALS		**IMPLEMENTATION ACTIVITIES**	**IMPLEMENTATION ITEMS**
A	Identify areas susceptible to groundwater flooding. 	1	Conduct a GIS analysis intersecting low-lying areas and areas of high groundwater elevations to identify areas susceptible to groundwater flooding.
		2	*Addressed through Floodplain and Flood Management.*
B	Work with private property owners to reduce groundwater-related flooding. 	1	Utilize the district's cost-share program to install best management practices that mitigate groundwater flooding.
		2	*Addressed through Education and Outreach.*

Commented [HP9]: This is also in Floodplain section, but where is cost accounted for?

Commented [hp9R2]: See other comments related to the GIS analysis and where/how it should be costed. It appears to be in two sections, but there is a different item in the costing tables. It should either be costed here or referenced where it is costed if we are leaving in both sections.

Commented [AA9R3]: Updated to be the only location where this cost shows up.

Table 39. Projected Expenditures (in 1,000's) for Groundwater Management Practices

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Review water appropriation permits for potential impacts to groundwater levels in other wells, and groundwater flow to groundwater dependent natural resources to provide input on the DNR's review process. ~~*Review water appropriation permits for potential impacts to groundwater levels in other wells and groundwater flow to groundwater dependent natural resources.*~~	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*10*
Collaborate with the Minnesota Department of Health to review and resolve differences related to BCWD-identified areas of contamination concern and recharge protection in the drinking water supply management areas (DWSMA) and aquifer vulnerability assessments delineated by Stillwater and Oak Park Heights.	1	1	1	1	1	1	1	1	1	1	10
Continue to participate in the North and East Metro Groundwater Management Area Plan Project Advisory Team by attending meetings.	2	2	2	2	2	2	2	2	2	2	20
Address issues related to modern water utility management by leading the development of an integrated water utility roadmap with financial support from district communities. This roadmap will explore opportunities to break down the silos among water, wastewater, and stormwater to create a more sustainable water future. It will establish a framework for member communities so that as opportunities to upgrade or repair systems arise, utilities are not only examining existing needs but making changes to modernize and make systems more resilient.	*10*	*10*									*20*

Commented [hp10]: This no longer appears to be included in the low priority table at the end.

Commented [AA10R2]: Added at the end.

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Collect groundwater elevation data from residential wells, monitoring wells, high-capacity wells, and near landlocked basins at least annually. Install data recorders to collect more frequent measurements where possible. Share information with Washington County and the Metropolitan Council.	5	5	5	5	5	5	5	5	5	5	50
Work with the Minnesota Department of Natural Resources' observation well program and others to install deep observation wells near Brown's Creek to monitor bedrock aquifers.	1	1	1	1	1						5
Conduct groundwater monitoring and research aligning with the Minnesota Department of Health, Washington County, and Metropolitan Council priorities. Opportunities include but are not limited to: • *Groundwater elevation data in Brown's Creek reaches* • *Chemistry monitoring near groundwater dependent natural resources* • *Dye tracing* • *Inventorying seepage points* • *Pumping tests*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*12.5*	*125*
Conduct a GIS analysis intersecting low-lying areas and areas of high groundwater elevations to identify areas susceptible to groundwater flooding.	–	–	–	–	–	–	–	–	10	-10-	10
Total for Groundwater Management	**32.5**	**32.5**	**22.5**	**22.5**	**22.5**	**21.5**	**21.5**	**21.5**	**21.5**	**231.5**	**2540**

Table 40. Groundwater Management Implementation Activities covered by Administration and/or Project Development

Support Washington County and the Minnesota Pollution Control Agency on regional groundwater programs including well-sealing, addressing potential contamination from septic systems, contaminants of emerging concern (e.g., PFAS), and well water testing.
Share relevant data on groundwater resources and resource protection areas with municipalities for use in comprehensive plan updates, wellhead protection plans, and source water assessments.
Utilize the land conservation program to identify and protect groundwater recharge areas.

Table 41. Groundwater Management Implementation Activities covered by Regulatory Program

Ensure future rule and policy updates reflect a commitment to "no-net loss" of recharge due to the construction of impervious surfaces.

Table 42. Groundwater Management Implementation Activities covered by Capital Improvement Program

Utilize the cost-share program to assist businesses, residents, and local governments in reducing their groundwater use and encouraging reuse where feasible (e.g., Stillwater Country Club, Loggers Trail). *Cost reflected in Stormwater Management.*
Utilize the district's cost-share program to install best management practices that mitigate groundwater flooding.



Marsh marigolds growing in a groundwater seepage area near Brown's Creek in 2026.

4.8 Ecological Health

4.8.1 General Issue Statement

Restoring and protecting the district's surface water resources requires a healthy watershed where natural land cover supports hydrologic and geomorphic processes; there is habitat of sufficient size and quality to support native upland, aquatic, and riparian species; and there is water quality that supports healthy biological communities. Native plants provide important benefits: their deep roots help control runoff, reduce erosion, and reduce flooding; they provide shelter and food for wildlife, including pollinators; they require little--to--no fertilizer, which keeps nutrients out of the water system; and they are generally well-adapted to local climate conditions. BCWD shares discoveries of unique and sensitive plants and animals to increase awareness of the value of protecting healthy watersheds and to improve understanding of management actions needed to avoid adverse impacts to rare species.

4.8.2 Relevance to the District

BCWD is home to several unique ecosystems which provide habitat for rare and sensitive plant and animal communities. Despite the rate at which land-use changes have occurred in the eastern part of the Twin Cities Metropolitan Area, the watershed still has several high-quality resources which warrant protection. To date, BCWD has focused a significant amount of effort on protecting and restoring Brown's Creek. Given its designation as a cold-water fishery, Brown's Creek has been actively managed by the Minnesota Department of Natural Resources as a trout stream, with a focus on the trout population of the creek. In addition to trout, the Brown's Creek corridor supports a variety of unique and rare species such as lesser purple fringed orchid (*Platanthera psycodes*), lance-leaved violet (*Viola lanceolata)*, rainbow darter (*Etheostoma caeruleum*), Blanding's turtle (*Emydoidea blandingii*), and cold-water-dependent macroinvertebrates. The steep topography, geologic setting, and high-quality vegetation of the Brown's Creek gorge supports walking fern (*Asplenium rhizophyllum*), butternut (*Juglans cinerea*), kittentails (*Besseya bullii*), and foraging and nesting habitat for the state-listed Louisiana waterthrush (*Parkesia motacilla*).

More recently, BCWD has been focusing on its lakes, ponds, wetlands, and associated upland areas. Lake management activities have resulted in the discovery of snailseed pondweed (*Potamogeton bicupulatus*), an endangered aquatic plant, in addition to other unique aquatic plants typically found farther north and east. These aquatic plants specialize in lakes with soft water chemistry and indicate the need to better understand the water chemistry of these lakes and the management activities needed to sustain these sensitive species. Similarly, a wetland inventory conducted in 2024 resulted in the discovery of a cranberry bog (northern shrub shore fen) which is home to carnivorous round-leaved sundew (*Drosera rotundifolia*), bog cranberry (*Vaccinium oxycoccos*), and a continuous carpet of sphagnum moss. Recent upland species discovered include hooded warbler (*Setophaga citrina*) and northern groundcedar (*Diphasiastrum complanatum*). The presence of these uncommon species and plant communities is an indication of the watershed's health and the need for protection by BCWD as well as private landowners.

4.8.3 Sub-Issue Areas

4.8.3.1 Sustaining Healthy Ecosystems

Identifying and protecting healthy ecosystems is a cost-effective approach to sustainable watershed management. The watershed is home to numerous high-quality ecosystems that provide a range of services, including climate regulation, flood regulation, groundwater recharge, water purification, pollination, recreation, aesthetic value, and wildlife habitat. By protecting the quality and quantity of these systems, BCWD is maintaining the services they provide for future generations.

4.8.3.2 Protect and Restore the Function of Upland Areas

The watershed is home to several plant and animal species that are sensitive and valuable from an ecological standpoint. These plant and animal species are indicators of a healthy watershed which reflects the land-use that supports them. BCWD intends to protect and enhance the upland areas to maximize the ecosystem services (e.g., soil health, infiltration, groundwater recharge, drinking water protection, wildlife habitat, rate control) provided by the landscape.

4.8.3.3 Invasive Species Management

Invasive species continue to spread throughout the region. Some invasive species pose direct risks to water resources within lakes and wetlands, while others pose impacts to upland areas where they negatively affect native vegetation, land cover, and soil health. For example, common buckthorn *(Rhamunus cathartica)* negatively impacts the understory, which results in soil erosion and increased nutrient and sediment load inputs to downstream resources. Managing species that negatively impact water resources plays an important role in maintaining the ecological integrity of the watershed.

4.8.3.4 Aquatic Plant Management

Aquatic vegetation plays a critical role in healthy lakes. The BCWD Board of Managers adopted an aquatic plant management policy in December 2025, which informs goals and implementation ~~items~~ activities in several subsections of the plan:

- **Goal 4.4.D Lake Functions and Values:** Increase understanding of the distribution and growth of aquatic plant communities and how to manage them.
- **Goal 4.5 A Wetland Functions and Values:** Ensure no net loss of wetland functions and values within the watershed.
- **Goal 4.5 E Wetland Functions and Values:** Contain and reduce the spread of invasive wetland plants, including aquatic invasive species.
- **Goal 4.8 A Invasive Species Management:** Initiate and support AIS-management projects on private and public lands to improve water quality.

Generally, BCWD takes a holistic approach to aquatic plant management that aims to improve water quality and support growth of native vegetation that can effectively compete with invasive aquatic plants. BCWD does not manage native or invasive aquatic plants for recreational or aesthetic purposes. Management of aquatic vegetation in public waters is regulated by the Minnesota Department of Natural Resources, and generally, BCWD manages aquatic plants in the watershed in close collaboration with the agency, lakeshore property owners, and other stakeholders. BCWD's Aquatic Plant Management Policy is included in Appendix D.

4.8.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 43. Ecological Health Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Sustaining Healthy Ecosystems**		
POLICY 1:	**BCWD will manage its surface waters, groundwater, wetlands, and associated upland areas with consideration for their ecological functions including increased biodiversity and wildlife habitat.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Continue to develop and refine the unique species inventory by identifying and mapping plants and animals in the watershed.	**1**	Create and maintain a unique species database using shared observation tools that allow community scientists, BCWD, the Minnesota Department of Natural Resources, and other volunteers to pool their observations. Regularly publish updates of the unique species inventory and incorporate findings into educational and outreach materials.
		2	Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique species inventory survey area. Many riffles in the lower gorge have not been surveyed.
B	Use the unique species inventory to evaluate impacts on watershed management.	**1**	Review updated data on unique species with the CAC every four years, and provide recommendations to the board to inform policies, projects, and programs. Share outcomes with member communities to inform land use planning.
		2	Conduct fish barrier assessment of Brown's Creek through the first creek walkthrough of this plan to identify barriers and develop projects. *Cost reflected in Erosion and Sediment Control stream walkthrough*.
C	Promote the conservation of beavers as a keystone species that supports healthy, resilient ecosystems, and encourage coexistence with beavers where compatible with public safety, infrastructure, and land-use needs.	**1**	Develop a beaver management plan to inform how the district can maintain habitat and flow while preventing flooding of infrastructure and property.
SUB-ISSUE 2:	**Protect and Restore the Function of Upland Areas**		
POLICY 1:	**BCWD is committed to maintaining the ecological integrity and connectivity of intact ecosystems.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Reduce non-native plant cover, and replace it with high-value and functional native landscaping.	**1**	Implement native plant community preservation and restoration projects (e.g., kittentail restoration work with Washington County and Mendel Wetland restoration).
		2	Enhance the management of the watershed's ecosystem services by implementing pollinator conservation strategies (e.g., recognize and support exemplar projects which restore and enhance habitat for pollinator species, work with road authorities to control invasives and promote establishment of pollinator species, work with county and municipalities to develop mowing plans and schedules that is more conducive to stormwater management and pollinator species).
		3	Lead a tour of high-quality rural wetland, pond, and lake ecological resources with the Minnesota Department of Natural Resources, Washington County, Washington Conservation District, communities (including staff and city councilors and officials), and other stakeholders to increase support for these features in regional planning and conservation activities.

		4	Work with the City of Stillwater and area residents to develop a plan and conduct on-going monitoring and maintenance of the oak forest found on the west side of Long Lake (identified as a rare feature) to evaluate its quality and if any management activities are needed to ensure its sustainability.
		5	Coordinate with the Minnesota Department of Natural Resources on future Minnesota Biological Survey assessments to share unique systems for data gathering and sharing. For example, addressing the under-ranked Minnesota Biological Survey site in Grant.
		6	Connect landowners with forestry-related technical assistance and implementation support from the Washington Conservation District.
		7	Work with landowners to diversify their land through woodland, grassland, and wetland management plans to help reduce the impacts of climate change (such as flooding, heat islands, and soil erosion) through the promotion of ecosystem services.
		8	Develop an incentive program to assist property owners with the conversion of non-native to native species.
		9	Work with homeowners' associations to pilot native species planting in their landscape management processes.
		10	Update the district's rules to provide greater incentive to incorporate and maintain native plantings as a condition of obtaining a permit.
		11	Collaborate with EMWREP on turf conversion public education and outreach.
B	Improve soil health through less intensive stewardship practices.	**1**	Partner with city parks departments to pilot rotational livestock grazing (by sheep, goats, or similar) of public parks to maintain turf areas.
SUB-ISSUE 3:	**Invasive Species Management**		
POLICY 1:	**The district takes an active role in preventing the spread of invasive species through education, partnerships, monitoring, and invasive species management projects.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Initiate and support aquatic invasive species (AIS) management projects on private and public lands when connected to water quality management and/or co-benefit towards other beneficial goals.	**1**	Conduct point-intercept surveys at each lake/pond > 20 acres in size every five to ten years with flexibility to buffer for management action and more frequent surveys as needed.
		2	Support initiatives by the county and other regional partners on AIS management.
		3	Record the location of invasive species, and implement control measures.
		4	Address aquatic invasive species management by providing education and outreach to residents and individuals recreating in the watershed. (e.g., bait disposal and discouraging pet release).

		5	Utilize the cost-share program to assist with invasive species management.
B	Initiate and support terrestrial invasive species management projects on private and public lands when connected to water quality management and/or co-benefit towards other beneficial goals.	**1**	Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of five wetland and five upland plots should be established for long-term monitoring.
		2	Provide public and private landowners with guidance, tools, and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse (LSCR1W1P).

Table 44. Projected Expenditures (in 1,000's) for Ecological Health

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Create and maintain a unique species database using shared observation tools that allows community scientists, BCWD, the Minnesota Department of Natural Resources, and other volunteers to pool their observations. Regularly publish updates of the unique species Inventory and incorporate findings into educational and outreach materials.	~~9.5~~	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	~~14~~13.5
Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique species inventory survey area. Many riffles in the lower gorge have not been surveyed.			4					4			8
Review updated data on unique species with the CAC every four years and provide recommendations to the board to inform policies, projects, and programs. Shared outcomes with member communities to inform land use planning				7.5				7.5			15
Develop a beaver management plan to inform how the district can maintain habitat and flow while preventing flooding of infrastructure and property.		5	10								15
Implement native plant community preservation and restoration projects (e.g., kittentail restoration work with Washington County, Mendel Wetland restoration).	7	3			7	3					20

Commented [hp11]: The implementation plan table is showing 9k in year one and a 10-year total of 13.5k

Commented [AA11R2]: Corrected - it was 13.5k in the implementation table at the end.

Commented [hp12]: Does not match costing in implementation plan table

Commented [AA12R2]: Updated in the implementation plan table.

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr. Total
Lead a tour of high-quality rural wetland, pond, and lake ecological resources with the Minnesota Department of Natural Resources, Washington County, Washington Conservation District, communities (including staff and city councilors), and other stakeholders to increase support for these features in regional planning and conservation activities.	*6*										*6*
Work with the City of Stillwater and area residents to develop a plan and conduct on-going monitoring and maintenance of the oak forest found on the west side of Long Lake (identified as a rare feature) to evaluate its quality and if any management activities are needed to ensure its sustainability.	1.5	10		1.5			1.5			1.5	16
Coordinate with the Minnesota Department of Natural Resources on future Minnesota Biological Survey assessments to share unique systems for data gathering and sharing. For example, addressing the under-ranked Minnesota Biological Survey site in Grant.	1.5										1.5
Support initiatives by the county and other regional partners on AIS management.	5	3	1	1	1	1	1	1	1	1	16
Conduct ongoing vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of five wetland and five upland plots should be established for long-term monitoring.			6					6			12
Total for Ecological Health	**30~~.5~~**	**21.5**	**21.5**	**10.5**	**8.5**	**4.5**	**3**	**19**	**1.5**	**3**	**123~~.5~~**

Table 45. Ecological Health Implementation Activities covered by Administration and/or Project Development

Enhance the management of the watershed's ecosystem services by implementing pollinator conservation strategies (e.g., recognize and support exemplar projects which restore and enhance habitat for pollinator species, work with road authorities to control invasives and promote establishment of pollinator species, work with county and municipalities to develop mowing plans and schedules that is more conducive to stormwater management and pollinator species).

Table 46. Ecological Health Implementation Activities covered by Baseline Monitoring Program

Conduct point-intercept surveys at each lake/pond > 20 acres in size every five to ten years with flexibility to buffer for management action and more frequent surveys as needed.
Record the location of invasive species, and implement control measures.

Table 47. Ecological Health Implementation Activities covered by Education and Outreach

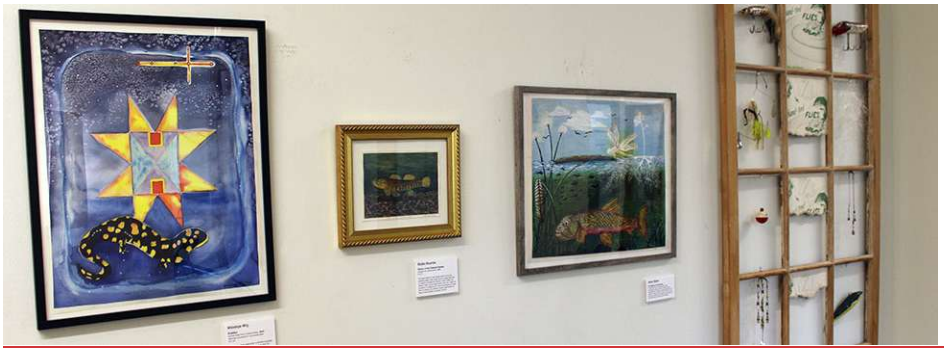
Connect landowners with forestry-related technical assistance and implementation support from the Washington Conservation District.
Collaborate with EMWREP on turf conversion public education and outreach
Address aquatic invasive species management by providing education and outreach to residents and individuals recreating in the watershed (e.g., bait disposal and discouraging pet release).
Provide public and private landowners with guidance, tools, and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse (LSCR1W1P).

Table 48. Ecological Health Implementation Activities covered by Regulatory Program

Update the district's rules to provide greater incentive to incorporate and maintain native plantings as a condition of obtaining a permit.

Table 49. Ecological Health Implementation Activities covered by Capital Improvement Program

Work with landowners to diversify their land through woodland, grassland, and wetland management plans to help reduce the impacts of climate change (such as flooding, heat islands, and soil erosion) through the promotion of ecosystem services.
Develop an incentive program to assist property owners with the conversion of non-native to native species.
Work with homeowners' associations to pilot native species planting in their landscape management.
Partner with city parks departments to pilot rotational livestock grazing (by sheep, goats, or similar) of public parks to maintain turf areas.
Utilize the cost-share program to assist with invasive species management.



Artwork on display in 2026 of some of the rare species in the watershed as part of BCWD's "The Water Where We Live" exhibit in partnership with A House Unbuilt.

4.9 Monitoring and Data Collection

4.9.1 General Issue Statement

Monitoring and research data are needed to understand the watershed, evaluate issues, and determine appropriate watershed management approaches within the watershed. In addition, long-term monitoring provides the district with the ~~information~~ data needed to demonstrate performance towards meeting the goals and objectives of the watershed management plan as well as the Brown's Creek TMDL Implementation Plan. BCWD should ensure that collected data and assessments are in a format that is understandable to the public.

4.9.2 Relevance to the District

BCWD has an extensive monitoring program that it conducts in partnership with the Metropolitan Council, Minnesota Department of Natural Resources, Washington Conservation District, Stillwater Area High School, and local volunteers. The monitoring data help determine the type and quantity of pollutants discharged to surface waters of the watershed as well as fluctuations in flow, lake levels, and groundwater levels. This baseline data can be used to assess progress towards management goals. As best management practices are implemented, it is important to measure their effectiveness in managing and treating stormwater runoff. Monitoring data should be used to guide future management decisions and to calibrate the district's hydrologic, hydraulic, and water quality loading models. The monitoring program also serves as a useful tool to help tell the story of change in the watershed by communicating how resources are responding to management activities facilitated by BCWD and its partners.

BCWD's monitoring program is described in detail in Appendix F. Monitoring reports are published annually on the BCWD website under the Monitoring and Data Collection page

4.9.3 Sub-Issue Areas

4.9.3.1 Monitoring Needs

Ongoing monitoring and research data are needed to understand the watershed, evaluate issues and concerns, determine watershed management needs, and track performance towards meeting goals.

4.9.3.2 Accessibility of Monitoring and Research Data

Monitoring and research data are difficult for the public to access and understand. The district needs to improve the way in which information is delivered to the public by making monitoring data available in user-friendly formats.

4.9.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 50. Monitoring and Data Collection Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Monitoring Needs**		
POLICY 1:	**BCWD prioritizes cost-effective monitoring and research that measures the progress made towards achieving the district goals to conserve, protect, and restore natural resources.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Collect and analyze valuable information about the watershed's water resources and natural resources including climate change impacts to implement adaptive changes as needed. *Aligning with the LSCR1W1P: "Monitoring is completed to evaluate the condition of resources, target implementation and calibration of models, and evaluate our progress towards goals."*	**1**	Continue to implement the Brown's Creek and lake baseline monitoring program at existing monitoring stations to track changes in the watershed and provide baseline data for modeling and other uses. Continue to collect data on water quality, continuous discharge, thermal monitoring, and local climatology. Includes costs for equipment, maintenance and upgrades.
		2	Develop comprehensive database for storm sewer and structures located in the watershed by compiling what has been surveyed to date, coordinating with member communities, and evaluating the need to supplement with future structure inventory surveys. Require, as a condition of permitted projects, the submittal of as-built electronic GIS files to keep the database up to date with new development.
		3	Conduct biennial drone flights (every other year) of the Brown's Creek corridor upstream of Highway 96 to monitor beaver dams and changes to the system. *Cost reflected in Erosion and Sediment Control.*
B	Conduct an assessment of the monitoring data to evaluate water quality trends and determine any necessary changes to the baseline monitoring program.	**1**	*Addressed through administration of the BCWD Baseline Monitoring Program.*
		2	Update the watershed conditions report every five years to assess the impact of BCWD programs on water quality, evaluate trends in watershed conditions (including impacts related to climate change and groundwater-dependent natural resources), and evaluate the need to make course corrections in strategy including updating the frequency of data collection where appropriate in the interest of cost effectiveness for resource monitoring.
C	Develop, maintain, and support the use of hydrologic, hydraulic, and water quality modeling tools that enhance understanding of the watershed's drainage systems and water quality dynamics, and provide member communities with reliable data to inform planning, project development, and decision-making.	**1**	Conduct biennial updates to the district's hydrologic and hydraulic model to reflect new development activity and incorporate any new information collected by the district and/or member communities (e.g., structure inventories).
		2	Develop BATHTUB models for district monitored lakes to characterize internal and external pollutant loads (cost reflects one lake/year). **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**
D	Monitor and understand the behaviors, practices, and perceptions of residents, businesses, developers, and communities within the watershed to identify opportunities to strengthen	**1**	Conduct surveys and field observations every three years to assess residents and businesses in watershed-friendly practices (e.g., raingardens, fertilizer use, shoreline management).

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	community stewardship, inform targeted outreach efforts, and guide the development and implementation of effective conservation and stormwater management projects.	**2**	Continue evaluating business and community chloride use, and identify salt use reduction strategies to limit chloride loading.
		3	Continue identifying cooperative opportunities with landowners to implement stream shading projects through site assessments, landowner outreach, and preparing project development materials.
		4	Continue implementing the enhanced stakeholder engagement process.
SUB-ISSUE 2:	**Accessibility of Monitoring and Research Data**		
POLICY 1:	**BCWD values information sharing among agencies and stakeholder groups and will make format and content of its data resources accessible.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Continue to monitor stormwater management facilities to evaluate long-term performance and obtain design information on infiltration rates, suspended solids removal rates, and phosphorus removal rates as appropriate to the facility.	**1**	*Addressed through administration of the BCWD ~~CIP~~ Capital Improvement Program.*
B	Make district best management practice information, collected data, and analysis available to everyone to inform greater adoption and evaluate long-term performance.	**1**	Provide district collected data and analysis through the BCWD website, EQUIS database, annual report, newsletter, and partnerships with EMWREP and St. Anthony Falls Laboratory.
		2	Share district collected data and analysis through events such as tours, advisory events, conferences, and the Washington County Water Consortium.
		3	Publish a plain-language watershed story update every five years aligning with the update to the watershed conditions report.
C	Meet Web Content Accessibility Guidelines (WCAG) 2.1 AA by April 26, ~~2027~~2028.	**1**	Audit and make necessary updates to the BCWD website to meet accessibility compliance guidelines.

Table 51. Projected Expenditures (in 1,000's) for Monitoring and Data Collection

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Continue to implement the Brown's Creek and lake baseline monitoring program at existing monitoring stations to track changes in the watershed and provide baseline data for modeling and other uses. Continue to collect data on water quality, continuous discharge data thermal monitoring, and local climatology data. Includes costs for equipment, maintenance and upgrades.	200	200	200	200	200	200	200	200	200	200	2,000

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Develop comprehensive database for storm sewer and structures located in the watershed by compiling what has been surveyed to date, coordinating with member communities and evaluating the need to supplement with future structure inventory surveys. Require, as a condition of permitted projects, the submittal of as-built electronic GIS files to keep the database up to date with new development.	*8*	*8*	*8*	*8*	*20*	*8*	*8*	*8*	*8*	*20*	*104*
Update the watershed conditions report every five years to assess the impact of BCWD programs on water quality, evaluate trends in watershed conditions (including impacts related to climate change and groundwater dependent natural resources), and evaluate the need to make course corrections in strategy.				15					15		30
Conduct biennial updates to district's hydrologic and hydraulic model to reflect new development activity annually and incorporate any new information collected by the district and/or member communities (e.g., structure inventories) before the next plan update.	7	7	7	7	7	7	7	120	7	7	183
Continue identifying cooperative opportunities with landowners to implement stream shading projects through site assessments, landowner outreach, and preparing project development materials.	1			1			1			1	4
Publish a plain-language watershed story update every five years aligning with the update to the watershed conditions report.					6.5					6.5	13
Total for Monitoring and Data Collection	**216**	**215**	**215**	**231**	**233.5**	**215**	**216**	**328**	**230**	**234.5**	**2,334**

Table 52. Monitoring and Data Collection Implementation Activities covered by Education and Outreach

Conduct surveys and field observations every three years to assess residents and businesses in watershed-friendly practices (e.g., raingardens, fertilizer use, shoreline management).~~Conduct regular surveys and field observations to assess residents and businesses in watershed-friendly practices (e.g., raingardens, fertilizer use, shoreline management).~~
Continue to evaluate business and community chloride use and identify salt use reduction strategies to limit chloride loading.
Continue implementing the enhanced stakeholder engagement process.
Provide district collected data and analysis through the BCWD website, EQUIS database, annual report, newsletter, and partnerships with EMWREP and St. Anthony Falls Laboratory.
Share district collected data and analysis through events such as tours, advisory events, conferences, and the Washington County Water Consortium.
Audit and make necessary updates to the BCWD website to meet accessibility compliance guidelines.

Table 53. Monitoring and Data Collection Implementation Activities covered by Lake Management

~~Implementation Activity~~
Develop BATHTUB models for district monitored lakes to characterize internal and external pollutant loads (cost reflects one lake/year). **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**

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Brown's Creek, one of the primary water bodies monitored, flowing north of Brown's Creek Park in 2026.

4.10 Regulations

4.10.1 General Issue Statement

Under Minnesota Statutes section 103D.341, subdivision 1, watershed districts must adopt rules "to accomplish the purposes of [the watershed act] and to implement the powers of the managers." These purposes include conserving water for public use; controlling erosion and siltation of lakes, streams, and wetlands; and protecting water quality in these water bodies. Presenting rules in a clear, understandable fashion facilitates compliance by permit applicants. Coordination with district partners on regulatory issues is needed for more efficient and effective stormwater regulation across the watershed.

4.10.2 Relevance to the District

The district's current rules were adopted March 11, 2020, and were effective April 1 of the same year. The rules address stormwater management; erosion control; lake, stream, and wetland buffers; shoreline and streambank alterations; watercourse and basin crossings; and floodplain and drainage alterations. The district's permitting program is structured to provide clear guidance on requirements to a broad audience including developers, property owners, the design community, and residents. Regular inspections of construction activity ensure compliance and prevent impacts on downstream resources. While BCWD has always been interested in establishing partnerships to streamline watershed management (e.g., EMWREP), recent legislation promoting a *One Watershed, One Plan* approach to the management of surface water and groundwater resources has heightened the evaluation of other opportunities to make watershed management more efficient and cost-effective. For example, the district's standards, which are developed to mimic the natural hydrology of the landscape, will be examined to determine whether they can be effectively modified or amended to more closely align with those of adjacent watershed districts.

The district held two meetings with its member communities, regulatory agencies, development community, and homeowners' associations during the watershed management plan update process as a check-in on its rules ahead of a formal rule update process. These meetings identified several considerations for the rule update process including improving transparency, developing permittee resources, exploring innovative approaches, and creating greater consistency across municipalities in the watershed.

Anticipated evolution of the rules may seek to address the following topics through further discussion:

- Defining contributing area to groundwater-dependent natural resources.
- Reviewing development triggers.
- Applying water quality and volume management requirements to on-site stormwater flow alterations.
- Exemptions for routine agricultural activities.
- Language to address installation of geothermal practices.
- Maintenance standards.
- Assessing whether current stormwater management rules and regulations remain effective and resilient under projected future climate conditions, with the goal of identifying necessary updates to protect infrastructure, water quality, and natural resources.
- Providing credit toward compliance for the establishment of native vegetation.

BCWD's current rules are included in Appendix E.

4.10.3 Sub-Issue Areas

4.10.3.1 Coordination

BCWD will work closely with community planners, property owners, and the development community to get involved earlier in the plan development process and to make sure rules are properly understood.

4.10.3.2 Permit Program

The district intends to routinely evaluate its permitting program and to make improvements to the permitting, inspection, and permit closure process.

4.10.3.3 Rule Language

Rule thresholds, standards, and criteria will be revised to provide a consistent level of protection of water resources from risks presented by redevelopment projects.

4.10.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 54. Regulations Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Coordination**		
POLICY 1:	**BCWD will coordinate its rules with other local, state, and federal regulatory requirements.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Coordinate with district partners early in the permit application stage.	**1**	Work with ~~develoeprs~~developers and municipalities to coordinate permit applications early in the design stage.
		2	Utilize local water management plan review and approval process to ensure implementation of water resource protection standards consistent with or more protective than district standards.
		3	Evaluate options for regional solutions with the development community and municipalities, with whom BCWD must coordinate for both construction of infrastructure (e.g., stormwater management facilities) and planning, zoning, and permitting. *Cost reflected in Floodplain and Flood Management.*
		4	Develop practical, non-technical guidance materials for the development and design communities and municipalities that support the design and implementation of stormwater management facilities - including green infrastructure - clarifying the permitting process and permit application submittal requirements. Guidance materials may include reference to adaptation necessary for projected climate conditions, with the aim ~~of enhancing~~to enhance system resilience, protect~~ing~~ water quality, and support~~ing~~ sustainable development across the watershed.

B	Ensure consistency of rules and use in partnership with surrounding watershed management organizations and interested parties.	**1**	Meet with the ~~water consortium~~Washington County Water Consortium prior to rule revisions to discuss opportunities to streamline watershed management by partnering on programs and activities and by minimizing inconsistencies among regulatory programs. ~~*Cost reflected in Stormwater Management.*~~
C	Educate residents and landowners about BCWD's rules and other municipal/agency regulatory programs. 	**1**	Work with member municipalities to incorporate links to permit requirements of BCWD and other watershed districts and watershed management organizations in their jurisdiction on their planning/economic development pages.
		2	Share plain-language information and frequently asked questions about the rules through the district's website, annual reports, and partnership with EMWREP.
SUB-ISSUE 2:	**Permit Program**		
POLICY 1:	**BCWD strives to maintain a clear and effective permit program.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Conduct five-year evaluations of the district's permitting program.	**1**	Conduct a regulatory program evaluation by hosting workshops with local partners, surrounding watershed management organizations, developers, and the engineering design community.
B	Make improvements to the permit program that enhance the permittees' experience and streamline the permit approval process. 	**1**	Implement an online application portal and electronic payment process.
		2	Review permit fee structure every five years to ensure fees are clearly communicated and equitable.
		3	Conduct, as necessary, boundary review and revision with Rice Creek Watershed District, Carnelian Marine St. Croix Watershed District, Valley Branch Watershed District, and Middle St. Croix Watershed Management Organization by 2030 to ensure consistent application of water resource protections.
C	Provide technical and non-technical guidance to developers, the design community, and homeowners' associations to streamline the permitting process.	**1**	Administer BCWD's permit program. including activities such as: • Assisting applicants with permits and conducting a single consultation meeting that is free-of-charge early in the project-development process to identify which rules are triggered by the development activity and to discuss permit submittal and applicable regulatory requirements. • Conducting steep slope analysis for those permits that will trigger buffer requirements applicable to such landscapes.
D	Collaborate with partners to ensure that proper best management practice construction, and erosion and sediment control techniques are being implemented.	**1**	Maintain best management practice inspection database and permit inspection database.

E	Collaborate with district partners to improve the enforcement process for noncompliance with BCWD rules.	**1**	Meet with district partners to review current enforcement practices and explore collaborative approaches to achieve the most effective outcomes for protecting water resources.~~Conduct, as necessary, boundary review and revision with Rice Creek Watershed District, Carnelian Marine St. Croix Watershed District, Valley Branch Watershed District, and Middle St. Croix Watershed Management Organization by 2030 to ensure consistent application of water resource protections.~~

SUB-ISSUE 3:	Rule Language		
POLICY 1:	BCWD will focus on keeping rules clear and up to date with revisions as needed.		
GOAL		IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~	
A	Review the rules every five years to identify the need for revisions.	1	Continually track recommendations for improved usability, efficacy, and application of BCWD's rules, and evaluate the need to revise the rules every five years.
B	Regulate to provide a consistent level of resource protection for redevelopment projects by 2027 and revisit in 2032.	1	~~Undertake a rulemaking in accordance with Minnesota Statutes section 103D.341 to~~ Conduct a review and revision of~~develop changes to the present~~ BCWD's rules (adopted in 2020) in accordance with Minnesota Statutes section 103D.341. Further evaluate the need to develop and adopt rule language regulating to a simplified performance goal like the Minimal Impact Design Standard.

Table 55. Projected Expenditures (in 1,000's) for Regulatory Program

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Utilize local water management plan review and approval process to ensure implementation of water resource protection standards consistent with or more protective than district standards.	2	2	2	2							8
Develop practical, non-technical guidance materials for the development and design communities and municipalities that support the design and implementation of stormwater management facilities - including green infrastructure - clarifying the permitting process and permit application submittal requirements. Guidance materials may include reference to adaptation necessary for projected climate conditions, with the aim ~~of~~ to ~~enhancing~~ enhance system resilience, protect~~ing~~ water quality, and support~~ing~~ sustainable development across the watershed.		20	20								40

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Work with member municipalities to incorporate links to permit requirements of BCWD and other watershed districts and watershed management organizations in their jurisdiction on their planning/economic development pages.				15					15		30
Conduct a regulatory program evaluation by hosting workshops with local partners, surrounding watershed management organizations, developers, and the engineering design community.				15					15		30
Implement the online application portal and electronic payment process.	5	5	5	5	5	5	5	5	5	5	50
Review permit fee structure every five years to ensure they are clearly communicated and equitable.				3					3		6
Administer BCWD's permit program, including activities such as: • Assisting applicants with permits and conducting a single consultation meeting that is free-of-charge early in the project-development process to identify which rules are triggered by the development activity and to discuss permit submittal and applicable regulatory requirements. • Conducting steep slope analysis for those permits that will trigger buffer requirements applicable to such landscapes.	100	100	100	100	100	100	100	100	100	100	1,000

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Conduct a review and revision of BCWD's rules (adopted in 2020) in accordance with Minnesota Statutes section 103D.341. Further evaluate the need to develop and adopt rule language regulating to a simplified performance goal like the Minimal Impact Design Standard.~~Undertake a rulemaking in accordance with Minnesota Statutes section 103D.341 to develop changes to the present BCWD rules (adopted in 2020). Further evaluate the need to develop and adopt rule language regulating to a simplified performance goal like the Minimal Impact Design Standard.~~	30					30					60
Total for Regulatory Program	**137**	**127**	**127**	**140**	**105**	**135**	**105**	**105**	**138**	**105**	**1,~~194~~224**

Table 56. Regulations Implementation Activities covered by Regulatory Program

Work with the developers and municipalities to coordinate permit applications early in the design stage.
Conduct, as necessary, boundary review and revision with Rice Creek Watershed District, Carnelian Marine St. Croix Watershed District, Valley Branch Watershed District, and Middle St. Croix Watershed Management Organization by 2030 to ensure consistent application of water resource protections.
Maintain best management practice inspection database and permit inspection database.
Continually track recommendations for improved usability, efficacy, and application of the BCWD rules, and evaluate the need to revise the rules every five years.

Table 57. Regulations Implementation Activities covered by Education and Outreach

Share plain-language information and frequently asked questions about the rules through the district's website, annual reports, and partnership with EMWREP.
Meet with district partners to review current enforcement practices and explore collaborative approaches to achieve the most effective outcomes for protecting water resources.~~Meet with district partners to discuss existing enforcement methods and the need for additional measures.~~
Meet with the Washington County Water Consortium prior to rule revisions to discuss opportunities to streamline watershed management by partnering on programs and activities and by minimizing inconsistencies among regulatory programs.

Table 58. Regulations Implementation Activities covered by Floodplain and Flood Management

Evaluate options for regional solutions with the development community and municipalities.

~~**Table 59. Regulations Implementation Activities covered by Stormwater Management**~~

~~Meet with the Washington County Water Consortium prior to rule revisions to discuss opportunities to streamline watershed management by partnering on programs and activities and by minimizing inconsistencies among regulatory programs.~~



A permitted construction project in the watershed in 2025 using erosion control best management practices.

4.11 Recreation

4.11.1 General Issue Statement

The Brown's Creek corridor and other natural areas within the watershed provide opportunities for fishing, wildlife viewing, and outdoor learning. As the district implements projects that provide more opportunities for people to engage with resources like Brown's Creek, ongoing monitoring is critical to ensure these resources are protected from overuse.

4.11.2 Relevance to the District

Recreational and tourism activities are two primary ecosystem services provided by the natural environment. The Brown's Creek corridor has an appealing aesthetic and has the potential to attract more frequent fishing, birdwatching, and environmental education or eco-tourism programs. Existing trails (e.g., Gateway Trail, Brown's Creek Trail, and roadside trails) and associated public access areas within the Brown's Creek corridor and the recent acquisition of the Brown's Creek Conservation Area property provides the necessary infrastructure to support increased outdoor recreation.

As greater public access to naturalized green spaces occurs, ensuring natural resources are enjoyed responsibly is critical to protecting the investments made by the district to improve watershed health. Greater access may increase the public's appreciation and desire to care for natural areas, helping supplement the district's existing and future efforts to protect and restore natural resources. BCWD's role should focus on the recreational co-benefits that can come from watershed resource improvement, and coordination with local units of government and state agencies on their public recreational resources.

4.11.3 Sub-Issue Areas

4.11.3.1 Recreational Opportunities

The watershed has several resources designated for recreational use, and there is interest in greater recreation opportunities throughout it. Improving water quality and enhancing wildlife habitat will increase the recreational value of the resources for the public's use.

To provide greater connectivity to certain resources, the district may need to be more flexible with its rules to permit the creation of new trails or sidewalks to formalize access.

Additionally, access to high-quality naturalized green spaces has well-documented benefits to peoples' physical and mental health. Improving access to opportunities to interact with improved natural resources presents the opportunity to achieve indirect co-benefits such as improved health outcomes and greater care for the resources they have access to.

4.11.3.2 Responsible Use

As opportunities to recreate in the watershed increase, individuals utilizing the resources for fishing, canoeing, biking, etc. need to do so responsibly.

By fostering opportunities to access improved natural resources, through areas such as the Brown's Creek Conservation Area, people are exposed to what healthy ecosystems look like, which may spark behavioral change to support the district's work.

4.11.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 595960. Recreation Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Recreational Opportunities**		
POLICY 1:	**BCWD supports access to natural areas for a diversity of outdoor recreation activities throughout the watershed for all its residents and visitors.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Enhance passive recreation opportunities through improvements to water resources.	**1**	Implement best management practices, shoreline improvements, and other management recommendations found in lake management plans. **SEE IMPLEMENTATION ACTIVITIES IN THE LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**
B	Develop and leverage partnerships which increase awareness and access to natural resources recreation in the watershed.	**1**	*Addressed through administration of the East Metro Water Resource Education Program (EMWREP).*
		2	Develop a mapped inventory of current and desired recreation activities and locations with watershed partners.
SUB-ISSUE 2:	**Responsible Use**		
POLICY 1:	**BCWD is committed to playing a strong leadership role in creating a culture that encourages environmental stewardship.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Improve public knowledge and appreciation for the watershed's water resources through an increase in passive and active voluntary stewardship activities.	**1**	*Addressed through administration of the East Metro Water Resource Education Program (EMWREP).*
		2	Utilize the cost-share program to assist residents in best management practice installation.
B	Protect areas of investment from recreation-related degradation.	**1**	Monitor public access and use of Brown's Creek and evaluate the need to provide formal dedicated access points and the need to mitigate new impacts (e.g., erosion from foot traffic). *Cost reflected in Erosion Prevention and Sediment Control stream walkthrough.*
		2	Meet every three years with municipalities to review recreation-related issues to understand impacts and develop responses to emerging issues. *Costs identified in St~~ormwater~~ream Management.*
		3	Prioritize projects/watershed resources which add the co-benefit of improving resources in areas of the watershed not previously served by improvements.

Table 606061. Projected Expenditures (in 1,000's) for Recreation Activities

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Develop a mapped inventory of current and desired recreation activities and locations with watershed partners.			15								15
Total for Recreation			**15**								**15**

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Table 6161~~62~~. Recreation Implementation Activities covered by Administration and/or Project Development

~~Meet every three years with municipalities to review recreation-related issues to understand impacts and develop responses to emerging issues.~~
Prioritize projects/watershed resources which add the co-benefit of improving resources in areas of the watershed not previously served by improvements.

Table 626~~263~~7 Recreation Implementation Activities covered by Capital Improvement Program

Implement best management practices, shoreline improvements, and other management recommendations found in lake management plans.
Utilize the cost-share program to assist residents in best management practice installation.



Community members using the ADA path and fishing platform constructed in 2025 near Neal Avenue and the Brown's Creek State Trail.

Commented [hp14]: These costs were identified under stream management. Also for that issue - this leads me to believe that the every 3 years is the correct interval.

Field Code Changed

4.12 Education, Outreach, and Stewardship

4.12.1 General Issue Statement

Successful efforts to achieve BCWD's goals will require the involvement of residents, businesses, and municipalities. These groups will be most interested in active participation in district projects, or in water and natural resource protection in general, if they understand and relate to the issues and the benefits of water resource management. Engagement and outreach resonates with individuals and communities that experience the impacts of environmental degradation and subsequent conservation directly. Finding creative and relevant connections for audiences indirectly impacted and "upstream" of impacts serves an important role in positioning watershed stewardship as a shared responsibility. BCWD continues its efforts to broaden relationships to work with communities throughout the watershed, so they understand the district's responsibilities and roles in their communities. In particular, BCWD continues to think about who is being served by its work and the co-benefits this work can generate.

4.12.2 Relevance to the District

Since BCWD's inception, public involvement and public information efforts have played a strong role in directing project implementation. BCWD has a history of ~~citizen~~ community participation in watershed management planning and implementation. Renewed engagement with watershed partners continues to develop relationships with existing organizations and connect BCWD to new audiences through education, stewardship, and volunteerism.

4.12.3 Sub-Issue Areas

4.12.3.1 Municipality and Developer/Construction Contractor Education and Outreach

Municipalities, as the land-use authority, have great potential to impact and improve water resources. They also own and operate roads, stormwater management facilities, and other stormwater infrastructure in the watershed. Additionally, municipalities are often the first point of contact for residents, businesses, and developers interested in local water resource management. Developers and contractors, as the individuals conducting the change in land-use, can directly impact and improve water resources through, among others, development planning and construction techniques. Educating municipal officials can lead to better planning, zoning, and ordinances, as well as changes to operations and maintenance policies and programs. Training municipal staff allows them to more effectively install and maintain stormwater systems and best management practices, reduce impacts on water resources from other operations and maintenance activities (e.g., road and park maintenance), and more effectively interface with the development community.

4.12.3.2 Business Community Education and Outreach

Historically, BCWD has had a weaker relationship with the local business community, including maintenance and operations (e.g., private contractors doing maintenance). These watershed partners play an important role in maintenance practices tied to their properties and operations. Greater collaboration with the business community can create opportunities to involve these watershed partners in initiatives targeting BCWD priorities, such as chloride management and water capture and reuse, by establishing clearer connections between the business community's operational practices and watershed impacts. Ensuring that proposed operational opportunities emphasize cost impacts will be key to making these alternatives resonate with the business community.

4.12.3.3 Homeowners' Association and Property Manager Education and Outreach

Growing communities across the watershed have led to the establishment of more homeowners' associations (HOAs). These associations are responsible for the management and maintenance of the stormwater management practices of their development; however, these responsibilities are susceptible to neglect or improper maintenance. Ensuring long-term maintenance of stormwater best management practices through enforcement has been challenging to achieve compliance. The presence of many HOAs makes ~~determining~~ identifying a point of contact, combined with management turnover, challenging to maintain and develop deeper relationships with HOAs. Opportunities exist to reciprocate information sharing to better understand interest in natural resource management, share strategies to conduct more efficient management of resources in their care, and develop a network of organizations capable of learning and supporting each other.

4.12.3.4 Public-Focused Education, Outreach, and Project Assistance

The public at large is the largest group of constituents of BCWD comprising of people who live, work, and play within the watershed. They make everyday decisions about their relationship to the landscape that impact the quality of resources. They can protect and enhance water resources through stewardship in their communities and everyday management decisions. The public also acts to influence the policies of BCWD, state agencies, and municipalities. BCWD can serve as a valuable resource for its residents by ensuring its role continues building relationships through shared priorities. Connections to the broader public should be pursued through community organizations and non-profit organizations who have existing reach into the community.

4.12.3.5 Youth Education and Outreach

BCWD improves the water resources of the watershed so they can be managed sustainably for the benefit of future generations. As future stewards of this landscape, supporting the involvement of young people in efforts to care for these resources plays an important role in nurturing the next generation of advocates, volunteers, and stewards.

4.12.3.6 BCWD Board of Managers

Ensuring the board is aware of new issues, concerns, opportunities, and ways of thinking about watershed resources is vital to their role as decision-makers for the district.

4.12.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 6363~~64~~. Education, Outreach, and Stewardship Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Municipality and Developer/Contractor Education and Outreach**		
POLICY 1:	**BCWD is committed to providing education and outreach services to municipalities in the watershed to promote good stewardship of water and natural resources.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	**1**	Coordinate BCWD education and outreach efforts with those of municipalities and other local watershed organizations by continuing to support the East Metro Water Resource Education Program (EMWREP).

		2	Encourage attendance at training sessions regarding ordinances, development planning strategies, and development techniques that protect natural resources and benefit water quality by providing stipends so that two people from each district community can attend once every three years.
		3	Promote the Minnesota Pollution Control Agency's Smart Salt training for winter maintenance professionals to promote chloride reduction activities.
B	Increase municipal official and staff capacity for regular maintenance of stormwater management and infiltration practices and increase the implementation of maintenance practices. 	**1**	Encourage attendance at training sessions regarding stormwater management facility maintenance schedules and procedures and the relation to water quality improvement (e.g., best practices to reduce impacts to water resources from parks and road maintenance activities - road salt application, fertilizer use, irrigation practices) by providing stipends so that two people from each district community can attend once every three years.
		2	Work with municipalities to develop operation and maintenance plans for stormwater management facilities.
C	Increase municipal official and municipal staff awareness of the BCWD and the assistance it can provide to municipalities.	**1**	Develop demonstration projects to highlight best management practices and stewardship.
		2	Recognize municipal programs or projects and/or developer and contractor programs or projects that exemplify water and natural resource stewardship (e.g., newsletter, social media).
		3	Educate municipalities about the district's rules.
		4	Create a packet of information that summarizes the impacts related to climate change for each community including impacts to surface waters, groundwater, and natural systems.
		5	Work with member communities to make sure contracting includes requirements for smart salting certification.
		6	Help communities adopt dust suppressant practices that minimize water-quality impacts, such as: • Application timing (avoid rain events to prevent immediate runoff). • Proper dosage (prevent over-application). • Identifying road sections near wetlands, streams, or shallow groundwater where alternatives or setbacks should be used. • Promoting improved gravel road structures that reduce dust at the source (e.g., fines content, proper crown, drainage improvements).
POLICY 2:	**BCWD promotes good stewardship of water and natural resources through education and outreach opportunities for developers and managers conducting work within the watershed to promote good stewardship of water and natural resources.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase developers' and contractors' awareness and use of development techniques that protect natural resources and benefit water quality.	**1**	Conduct workshops targeted to developers and realtors about marketing lakeshore properties based on BCWD analysis of lake functions and values.

		2	Educate developers regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).
B	Increase developers' and contractors' awareness of the importance of construction, installation, and maintenance techniques on the long-term functionality of stormwater management practices, and increase the implementation of these techniques.	**1**	Promote training sessions on stormwater management practice construction and installation techniques and the relationship to the continued functionality of the practice.
		2	Educate the development community and watershed communities about the risks and consequences of groundwater overuse and degradation and the importance of maintaining recharge.
		3	*Addressed through the implementation of the BCWD permitting process through meetings, on-site inspection engagement and timely inspection reports.*
C	Increase developer and contractor awareness of BCWD and the assistance it can provide.	**1**	Educate developers and the local design community about the district's rules.
		2	Increase outreach opportunities with the development community by hosting a bi-annual developers meeting/focus group.
		3	Present on the district rules at the American Public Works Association (APWA) Conference and/or City Engineers Association Conference.
SUB-ISSUE 2:	**Business Community Education and Outreach**		
POLICY 1:	**BCWD is committed to working with businesses to make informed decisions about their responsibilities related to operations and maintenance that can reduce impacts to water resources.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase the business community's awareness of the importance of construction, installation, and maintenance techniques on the long-term functionality of stormwater management practices, and increase the implementation of these techniques.	**1**	Educate lawn care companies, golf courses, kennel operations, and county and local community public works departments on how to use best management practices to minimize the effects on groundwater caused by the use and storage of fertilizers, pesticides, dust suppressants, and road salt, while properly maintaining their properties.
		2	Provide targeted educational messages to local businesses, local organizations, and areas experiencing specific challenges (e.g., chloride impairment in Long Lake).
SUB-ISSUE 3:	**Homeowners' Association (HOA) and Property Manager Education and Outreach**		
POLICY 1:	**BCWD is committed to helping HOAs and property managers make informed decisions about their responsibilities to promote good stewardship of water and natural resources.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase homeowners' associations' and property managers' awareness of the importance of construction, installation, and maintenance techniques on the long-term functionality of stormwater management practices, and increase the implementation of these techniques.	**1**	Provide HOAs with stormwater management maintenance resources when a development is completed, and follow-up at five-year intervals to better inform maintenance approaches.
		2	Educate HOAs regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).

		3	Improve "hand-off" from developers to HOAs by providing HOA guidance on the website, including more information on obligations, processes, and resources.
SUB-ISSUE 4:	**Public-Focused Education, Outreach, and Project Assistance**		
POLICY 1:	**BCWD will provide clear and accessible information highlighting existing efforts to share the story of watershed accomplishments that compel public involvement in watershed management planning and implementation contributing to good stewardship of water and natural resources.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Increase public awareness of surface water, groundwater, and natural resource protection, restoration, and stewardship.	**1**	~~Regularly~~ Annually promote BCWD's events and accomplishments through multiple communication channels (e.g., mailings, newsletters, social media) to reach audiences, and share information about topics such as groundwater recharge, wetland and lake aesthetics and natural condition, home and yard care practices, and shoreline and wetland stewardship.
		2	Engage non-profits and community organizations to partner in events and conservation efforts (e.g., buckthorn removal).
		3	Provide education to residents on the importance of groundwater issues including: the interaction between groundwater and surface water, risks associated with overuse and degradation, the value of and need to protect groundwater recharge areas and wetlands, and implementation of best management practices and low impact development and redevelopment strategies to protect groundwater resources.
		4	Host information sessions on education topics of interest (e.g., estate planning).
		5	Maintain an updated list of partners and event participants – update the list annually to reflect new information on partners and participants.
		6	Establish one permanent information kiosk with permanent and rotating information that is geographically relevant to resources near the kiosk (e.g., chloride impairment in Long Lake).
		7	Pilot an artist in residency program to creatively engage the public in conversations about their watershed.
		8	Educate residents regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).
		9	Provide homeowner education on the proper use and maintenance of septic systems to preserve their function and reduce water quality impacts.
		10	Host an annual event celebrating a watershed resource (e.g., BCWD on the Lake could provide an opportunity for small watercraft to explore a lake and learn about improvements and challenges facing the resource).

		11	Conduct best management practice installation and implementation training workshops to provide residents with the knowledge to install and implement best management practices on their properties. Programs could include workshops on topics such as rain barrels, rain gardens, shoreline restoration, fertilizer use, and native vegetation buffer establishment and maintenance.
B	Increase volunteer education and participation to aid in the delivery of education and community projects. 	**1**	Provide educational support to volunteers (e.g., communication, training, branded materials) so they can serve as ambassador stewards of the watershed's mission.
		2	Engage volunteers to assist in implementation of education and outreach work.
		3	Collaborate with the CAC to assist in the implementation of education and outreach work.
C	Promote public-led efforts in water and natural resource restoration, protection, and stewardship. 	**1**	Recognize resident efforts in water resource and natural resource protection every two years.
		2	Conduct a survey of best management practice implementation and knowledge in partnership with EMWREP every five years.
		3	Utilize the cost-share program to assist residents in best management practice installation.
		4	Develop demonstration projects to highlight stormwater management practices, natural resource protection methods, and resource stewardship.
D	Increase public awareness of BCWD, its role, and the functions and assistance it provides.	**1**	Update the district website and social media pages to include easy-to-use information on resource protection and stewardship.
		2	Educate residents about the district's permitting program.
		3	Host an annual community watershed event and smaller events to highlight local projects and to engage residents in scientific and recreational activities.
E	Stay informed on the topic of pollutants of emerging concern in lakes, streams, and groundwater by monitoring future studies completed by the Minnesota Pollution Control Agency and sharing information with the public.	**1**	Educate the public about the effects of pollutants of concern on surface and groundwater resources, pathways for these pollutants to enter the water system, and methods to prevent contamination of the water system. Specific pollutants being targeted include: • Pharmaceuticals • Cosmetic products • PFAS • Microplastics • Chlorides • Pet waste • Household hazardous waste

Commented [HP15]: Where is this accounted for? CIP?

Commented [AA15R2]: Yes - added as a new table on Page 97.

SUB-ISSUE 5:	Youth Education and Outreach		
POLICY 1:	BCWD will support the work of its partners in furthering opportunities for youth to learn about watershed resources and get involved in stewardship.		
GOAL		IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~	
A	Support watershed partners specializing in youth education that encourage stewardship and increase awareness of the interconnected nature of land, surface water, and groundwater.	1	Partner with Belwin Conservancy to provide educational content for grade school lessons in the classroom in Stillwater schools.
		2	Partner with Trout Unlimited to provide education content for grade school Trout in the Classroom sessions.
		3	Partner with Stillwater Area High School to conduct volunteer stream monitoring. *Cost reflected in Stream Management.*
		4	Participate in school community education events (e.g., DaVinci Fest).
		5	Promote the annual community event at public and private schools.
SUB-ISSUE 6:	BCWD Board of Manager Education		
POLICY 1:	The BCWD will provide its Board of Managers with opportunities to further their understanding of emerging topics to help inform decision-making.		
GOAL		IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~	
A	Provide continuous learning opportunities for the board to further their understanding of current and emerging watershed issues.	1	Develop a board training plan annually, identifying training opportunities and ongoing learning.
		2	Collaborate with Washington County on new board member orientation.
		3	Support attendance at external trainings (e.g., Water Consortium, Minnesota Association of Watershed Districts, EMWREP, Lower St. Croix Partnership).

Table 646465. Projected Expenditures (in 1,000's) for Education, Outreach, and Stewardship Activities

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Administrative contribution to Education and Outreach	65	65	65	65	65	65	65	65	65	65	650
Coordinate BCWD education and outreach efforts with those of municipalities and other local watershed organizations by continuing to support the East Metro Water Resource Education Program (EMWREP).	32	32	35	35	35	38	38	38	41	41	365

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Encourage attendance at training sessions regarding ordinances, development planning strategies, and development techniques that protect natural resources and benefit water quality by providing stipends so that two people from each district community can attend once every three years.			2			2			2		6
Encourage attendance at training sessions regarding stormwater management facility maintenance schedules and procedures and the relation to water quality improvement (e.g., best practices to reduce impacts to water resources from parks and road maintenance activities - road salt application, fertilizer use, irrigation practices) by providing stipends so that two people from each district community can attend once every three years.		2			2			2			6
Increase outreach opportunities with the development community by hosting a bi-annual developers' meeting/focus group.		2		2		2		2		2	10
~~Regularly~~ Annually promote BCWD's events and accomplishments through multiple communication channels (e.g., mailings, newsletters, social media) to reach audiences, and share information about topics such as groundwater recharge, wetland and lake aesthetics and natural condition, home and yard care practices, and shoreline and wetland stewardship.	10	10	10	10	10	10	10	10	10	10	100
Host information sessions on education topics of interest (e.g., estate planning).	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	15

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Establish one permanent information kiosk with permanent and rotating information that is geographically relevant to resources near the kiosk (e.g., chloride impairment in Long Lake).					40	0.5	0.5	0.5	0.5	0.5	42.5
Pilot an artist in residency program to creatively engage the public in conversations about their watershed.	15	15	15	15	15	15	15	15	15	15	~~105~~150
Host an annual event celebrating a watershed resource. (e.g., BCWD on the Lake could provide an opportunity for small watercraft to explore a lake and learn about improvements and challenges facing the resource).	4	4	4	4	4	4	4	4	4	4	40
Recognize ~~citizen~~ resident efforts in water resource and natural resource protection every two years.	0.5		0.5		0.5		0.5		0.5		2.5
Host an annual community watershed event and smaller events to highlight local projects and to engage residents in scientific and recreational activities.	3	3	3	3	3	3	3	3	3	3	30
Partner with Belwin Conservancy to provide educational content for grade school lessons in the classroom in Stillwater schools.	5	5	5	5	5	5	5	5	5	5	50
Partner with Trout Unlimited to provide education content for grade school Trout in the Classroom sessions.	1	1	1	1	1	1	1	1	1	1	10
Participate in school community education events (e.g., DaVinci Fest).	1	1	1	1	1	1	1	1	1	1	10
Develop a board training plan annually, identifying training opportunities and ongoing learning.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Support attendance at external trainings (e.g., Water Consortium, Minnesota Watersheds, EMWREP, Lower St. Croix Partnership).	1	1	1	1	1	1	1	1	1	1	10
Total for Education	**139.5**	**143**	**144.5**	**144**	**184.5**	**149.5**	**146**	**149.5**	**151**	**150.5**	**1,502**

Table 6565~~66~~. Education, Outreach, and Stewardship Implementation Activities covered by Administration and/or Project Development

Maintain an updated list of partners and event participants – update the list annually to reflect new information on partners and participants.
Provide educational support to volunteers (e.g., communication, training, branded materials) so they can serve as ambassador stewards of the watershed's mission.
Engage volunteers to assist in implementation of education and outreach work.
Collaborate with the CAC to assist in the implementation of education and outreach work.
Update the district website and social media pages to include easy-to-use information on resource protection and stewardship.
Promote the annual community event at public and private schools.
Collaborate with Washington County on new board member orientation.
Create a packet of information that summarizes the impacts related to climate change for each community including impacts to surface waters, groundwater, and natural systems.
Work with member communities to make sure contracting includes requirements for smart salting certification.
Help communities adopt dust suppressant practices that minimize water-quality impacts, such as: • Application timing (avoid rain events to prevent immediate runoff). • Proper dosage (prevent over-application). • Identifying road sections near wetlands, streams, or shallow groundwater where alternatives or setbacks should be used. • Promoting improved gravel road structures that reduce dust at the source (e.g., fines content, proper crown, drainage improvements).
Present on the district rules at the American Public Works Association conference and/or City Engineers Association conference.
Engage non-profits and community organizations to partner in events and conservation efforts (e.g. Buckthorn removal).
Develop demonstration projects to highlight best management practices and stewardship.

Table 6666~~63~~ Education, Outreach, and Stewardship Implementation Activities covered by Capital Improvement Program

Utilize the cost-share program to assist residents in best management practice installation.

Table 67. Education, Outreach, and Stewardship Implementation Activities covered by Regulatory Program

Work with municipalities to develop operation and maintenance plans for stormwater management facilities.
Recognize municipal programs or projects and/or developer and contractor programs or projects that exemplify water and natural resource stewardship (e.g., newsletter, social media).
Educate municipalities about the district's rules.
Educate developers and the local design community about the district's rules.
Educate residents about the district's permitting program.

Commented [hp16]: This feels like more of a BCWD than EMWREP item. Although our shared office has a few and maybe EMWREP plans to lead more.

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Improve “hand-off” from developers and HOAs by providing HOA guidance on the website, including more information on obligations, processes, and resources.

Table 6868. Education, Outreach, and Stewardship Implementation Activities covered by East Metro Water Resource Education Program

Promote the Minnesota Pollution Control Agency’s Smart Salt training for winter maintenance professionals to promote chloride reduction activities.
best management practice
Conduct workshops targeted to developers and realtors about marketing lakeshore properties based on BCWD analysis of lake functions and values.
Educate developers regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).
Promote training sessions on stormwater management practice construction and installation techniques and the relationship to the continued functionality of the practice.
Educate the development community and watershed communities about the risks and consequences of groundwater overuse and degradation, and the importance of maintaining recharge.
Educate lawn care companies, golf courses, kennel operations, and county and community public works departments on how to use best management practices to minimize the effects on groundwater caused by the use and storage of fertilizers, pesticides, dust suppressant, and road salt, while properly maintaining their properties.
Provide targeted educational messages to local businesses, local organizations, and areas experiencing specific challenges (e.g., chloride impairment in Long Lake).
Provide HOAs with stormwater management maintenance resources when a development is completed and follow-up at five-year intervals to better inform maintenance approaches.
Educate HOAs regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).
Provide education to residents on the importance of groundwater issues including: the interaction between groundwater and surface water, risks associated with overuse and degradation, the value of and need to protect groundwater recharge areas and wetlands, and implementation of BMPs and LID and redevelopment strategies to protect groundwater resources.
Educate residents regarding the value of biodiverse and resilient landscapes which can achieve multiple co-benefits (e.g., habitat, stormwater management, aesthetics, improved water quality).
Provide homeowner education on the proper use and maintenance of septic systems to preserve their function and reduce water quality impacts.
Conduct best management practice installation and implementation training workshops to provide residents with the knowledge to install and implement best management practices on their properties. Programs could include workshops on topics such as rain barrels, raingardens, shoreline restoration, fertilizer use, and native vegetation buffer establishment and maintenance.
Conduct a survey of best management practice implementation and knowledge in partnership with EMWREP every five years.
Educate the public about the effects of pollutants of concern on surface and groundwater resources, pathways for these pollutants to enter the water system, and methods to prevent contamination of the water system. Specific pollutants being targeted include: • Pharmaceuticals • Cosmetic products • PFAS • Microplastics • Chlorides • Pet waste • Household hazardous waste

4.13 Land Conservation

4.13.1 General Issue Statement

Changes in land-use threaten to degrade the quality of water resources and limit wildlife habitat. Land-use practices can reduce the area of land covered with native vegetation, increase erosion and stormwater runoff, and break wildlife habitat into small, disconnected areas unable to support high-quality, diverse populations. The development of a land conservation program allows entities to set aside critical parts of the landscape for the protection and restoration of downstream waterbodies.

4.13.2 Relevance to the District

Land-use changes in the watershed are often made adjacent to and encroaching on water resources and natural areas. Proper management of stormwater runoff and erosion will limit the water quality and quantity impacts to ~~these~~ surface and groundwater resources but will not fully maintain the ecological quality or function and value of the resources if adjacent lands are managed in a way that does not maintain native vegetative communities and wildlife habitat. In 2017, BCWD acquired a parcel of land so that it may be protected by a conservation easement. This acquisition adds a new role for the BCWD Board of Managers as they consider the management needs and potential uses for this property.

4.13.3 Sub-Issue Areas

4.13.3.1 Preservation of Natural Areas, Connections Between Natural Areas, and Groundwater Recharge Zones

While the impacts of development can be managed, key natural resources can be lost in the process. Conservation of groundwater recharge zones, surface water resources, and natural resources can be effectively accomplished through preservation of key natural areas. Land conservation can preserve and restore resource quality, provide stormwater benefits, protect groundwater recharge, ensure the sustainability of wildlife habitat connections, and create spaces that allow people access to natural spaces they do not have access to otherwise.

4.13.4 Policies, Goals, and Implementation Activities

The policies, goals, and ~~implementation items~~ implementation activities related to these sub-issue areas are summarized in the following tables.

Table 69. Land Conservation Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Protection of natural areas, connections between natural areas, and groundwater recharge zones**		
POLICY 1:	**BCWD will work with communities, agencies, homeowners' associations, developers, residents, and non-profits, as appropriate, to protect land throughout the watershed to preserve and restore the resource quality, stormwater benefits, groundwater recharge, wildlife habitat connection, and access to natural spaces provided by key upland and lowland areas.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Identify and pursue opportunities to preserve and restore land within the watershed that protects and restores high-quality native plant communities and/or connect critical habitat areas.	**1**	Review and revise land protection corridors and priorities to reflect current resource protection needs (e.g., recharge areas, unique resources, headwaters of Brown's Creek, and land adjacent to the watershed's resources).
		2	Work with member communities during the comprehensive planning process to evaluate protection strategies near and within priority land conservation areas.

		3	Purchase property or easements as land conservation opportunities arise within priority areas.
		4	Partner with EMWREP on workshops. (e.g., estate planning workshops connecting interested residents to land trusts). *Cost identified under Education and Outreach.*
		5	Lead a tour of high-quality wetland, pond, and lake ecological resources with the Department of Natural Resources, Washington County, Washington Conservation District, and other stakeholders to support these features in regional planning and conservation activities.
B	Preserve and restore district-owned easements to achieve a condition that maintains ecological health and native biodiversity..	**1**	Restore the Brown's Creek Conservation Area by implementing the activities identified in the management plan.
		2	Develop and implement management plans for new district-owned easements.
		3	Work with adjacent landowners to create additional buffer to the district easements.
C	Utilize district-owned easements for public engagement/outreach. 	**1**	Share and educate the public about the restoration activities and unique species.

Table 70. Projected Expenditures (in 1,000's) for Land Conservation

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Review and revise land protection corridors and priorities to reflect current resource protection needs (e.g., recharge areas, unique resources, headwaters of Brown's Creek, and land adjacent to the watershed's resources).						20					20
Work with member communities during the comprehensive planning process to evaluate protection strategies near and within priority land conservation areas.	2.5	2.5									5
Purchase property or easements as land conservation opportunities arise within priority areas.	50	50	50	50	50	50	50	50	50	50	500
Restore the Brown's Creek Conservation Area by implementing the activities identified in the management plan.	25	25	25	25	25	25	25	25	25	25	250
Develop and implement management plans for new district-owned easements.										20	20
Total for Land Conservation	**77.5**	**77.5**	**75**	**75**	**75**	**95**	**75**	**75**	**75**	**95**	**795**

Table 71. Land Conservation Implementation Activities covered by Administration and/or Project Development

Work with adjacent landowners to create additional buffer to the district easements.

Table 72. Land Conservation Implementation Activities covered by Education and Outreach

Partner with EMWREP on workshops. (e.g., estate planning workshops connecting interested residents to land trusts)
Lead a tour of high-quality wetland, pond, and lake ecological resources with the Minnesota Department of Natural Resources, Washington County, Washington Conservation District, and other stakeholders to promote support of these features in regional planning and conservation activities.
Share and educate the public about the restoration activities and unique species.



~~Wetland along County Road 57~~Brown's Creek flowing through the Brown's Creek Conservation Area off of 110th St in 2026.

4.14 Funding

4.14.1 General Issue Statement

Funding is necessary to operate the programs and to complete the projects that protect and improve the resources of Brown's Creek Watershed District.

4.14.2 Relevance to the District

Watershed districts are primarily funded through tax dollars. To keep the burden on the individual watershed taxpayer as low as possible, resource management goals need to be prioritized: it is not always possible to address a particular resource-restoration need within the timeframe of the plan. While BCWD intends to look for additional sources of funding (e.g., county, state, federal, and private grant programs) to supplement its budget, it recognizes the financial limitations to protecting and/or restoring local and regional resources on a 10-year time scale. Additionally, BCWD recognizes the efforts of other entities with common environmental protection, stewardship, and education goals. Leveraging partnerships with these entities will result in more innovative and cost-effective management.

4.14.3 Sub-Issue Areas

4.14.3.1 Funding

Brown's Creek Watershed District strives to maintain a low tax rate while providing adequate protection and improvements to the resources of the watershed. To do this, unique funding solutions may be necessary.

4.14.3.2 Leveraging Partnerships

The district recognizes that there are untapped opportunities to leverage partnerships to help BCWD accomplish its mission.

4.14.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 73. Funding Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	Funding		
POLICY 1:	BCWD strives to maintain a tax levy that is adequate to conduct the activities of the district but minimizes the impact on taxpayers by supplementing the levy through other funding sources.		
GOAL		IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~	
A	Actively seek and acquire alternate sources of funding as possible for BCWD studies, projects, and capital improvements.	1	Actively seek and acquire, as possible, alternate sources of funding for district studies, projects, and capital improvements through grants and other outside monies.
		2	Evaluate progress on goals and implementation activities, including the capital improvement program, to determine if amendments to the implementation plan are necessary.
		3	Cost-share with municipalities and other agencies or use subwatershed or special assessment taxation as applicable to certain studies, projects, and capital improvements.
		4	Explore options to get property owners to provide additional stormwater treatment on site through retrofits outside of the site redevelopment process.

		~~5~~	~~Allocate funds in anticipation of the 2037-2046 Watershed Management Plan.~~
SUB-ISSUE 2:	**Leveraging Partnerships**		
POLICY 1:	**BCWD seeks to leverage partnerships with entities that share common goals to achieve more innovative and cost-effective management.**		
GOALS		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEM~~**	
A	Develop partnerships to leverage activities currently being performed by other entities in the watershed	**1**	*Addressed through Education and Outreach.*
B	Continue to coordinate with local and regional entities to achieve water quality protection and restoration goals.	**1**	Hold meetings every two years with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals and opportunities for partnerships.

Table 74. Projected Expenditures (in 1,000's) for Funding Activities

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Actively seek and acquire, as possible, alternate sources of funding for district studies, projects, and capital improvements through grants and other outside monies.	5	5	5	5	5	5	5	5	5	5	50
Evaluate progress on goals and implementation activities, including the capital improvement program, to determine if amendments to implementation plan are necessary.			2.5		10			2.5			15
~~Allocate funds in anticipation of the 2037-2046 Watershed Management Plan.~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~40~~	~~40~~	~~40~~	~~40~~	~~40~~	~~200~~
Total for Funding	**5**	**5**	**7.5**	**5**	**15**	**~~45~~5**	**~~45~~5**	**~~4~~7.5**	**~~4~~5**	**~~4~~5**	**~~2~~65**

Table 75. Funding Implementation Activities covered by Administration and/or Project Development

Cost-share with municipalities and other agencies or use subwatershed or special assessment taxation as applicable to fund certain studies, projects, and capital improvements.
Explore options to get property owners to provide additional stormwater treatment on site through retrofits outside of the site redevelopment process.
Hold meetings with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals, and opportunities for partnerships.

4.15 Pollutants of Emerging Concern

4.15.1 General Issue Statement

Pollutants of emerging concern refer to a variety of chemical and biological substances that have been detected in the environment but are not commonly monitored or regulated, and ~~whose~~ their potential effects on human health and ecosystems are not yet fully understood. These pollutants are often introduced into the environment through human activities and can accumulate in the landscape. Pollutants of emerging concern affect the quality of our water resources, which poses challenges for watershed management. Major pollutants of emerging concern in BCWD include per- and polyfluoroalkyl substances (PFAS), microplastics, 6PPD-Quinone, and polycyclic aromatic hydrocarbons.

4.15.2 Relevance to the District

Per- and polyfluoroalkyl substances (PFAS), previously called perfluorochemicals or PFCs, are a large family of chemicals that are widely present in the environment. Over the last 20 years, PFAS have been considered important "contaminants of emerging concern," and actions have been taken around the world to study them. Minnesota was one of the first states to identify PFAS pollution when these "forever chemicals" reached the groundwater aquifers serving east metro communities and has been a leader in studying their health effects and in responding to contamination. Lake Elmo, Stillwater, and Oak Park Heights have drinking water wells with varying levels of PFAS. It is important to note that PFAS is present throughout the environment and in thousands of products including food packaging, stain resistant fabrics, water resistant clothing, cleaning products, non-stick cookware, personal care products and cosmetics, paints, varnishes and sealants, fire-fighting foam, and industrial processes.

Microplastics constitute a wide variety of small plastic particles that are intentionally or unintentionally produced and released into the ecosystem. They are primarily transported through the atmosphere, runoff, wastewater treatment, and land application. Ultimately, these particles settle in sediments and soils or are ingested by wildlife. Microplastics pose risks related to toxicity in both animals and humans.

6PPD-Quinone is a substance released through the environment through car tire wear releasing particles that are washed into water resources by runoff. Research on impacts and mitigation practices is in its infancy, however studies have shown this substance is lethal to salmon, making its impacts on other fishery populations a concern.

Polycyclic aromatic hydrocarbons (PAHs) are substances originating from diesel fuel, motor/crude oil, lubricants, and sealants that can become deposited in waterbodies, especially stormwater ponds, through the flow of water. This deposition impacts operations and maintenance of stormwater ponds as dredged material must be tested to conform with disposal requirements, adding cost to this process.

4.15.3 Sub-Issue Areas

4.15.3.1 Improving Understanding of Emerging Pollutants

Research on these pollutants is in its infancy with federal and state agencies, and researchers continually advancing the state of science on the origins, pathways, and impacts of these pollutants. Preparing a response to these pollutants and their impacts will require BCWD to be informed to the best of its ability to take actions that are appropriate for the district's scale and level of responsibility.

4.15.3.2 Collaborating with Partners

The complexity and scale of pollutants of emerging concern extends far beyond the boundaries of BCWD's jurisdiction and therefore puts federal agencies such as the Environmental Protection Agency, and state agencies such as the Minnesota Pollution Control Agency and the Minnesota Department

of Health in more optimal position to spearhead addressing these pollutants through comprehensive strategies and regulations. Collaboration with these partners through information sharing, involvement in regulatory and legislative updates, and where appropriate implementation of local improvement projects.

4.15.4 Policies, Goals, and Implementation Activities

The policies, goals, and implementation ~~items~~ activities related to these sub-issue areas are summarized in the following tables.

Table 76. Pollutants of Emerging Concern Policies, Goals, and Implementation Activities

SUB-ISSUE 1:	**Improving Understanding of Pollutants of Emerging Concern**		
POLICY 1:	**BCWD will monitor the work being done by state agencies and support research on the effects of pollutants of emerging concern on human health and ecosystems.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Stay informed about pollutants of emerging concern (PECs) to assess the district's role in monitoring, mitigating, and managing their impact on water quality and ecosystem health.	**1**	Provide a bi-annual update summary on the state of science on pollutants of emerging concern to the board (e.g., report on updates to Minnesota's PFAS Blueprint).
		2	Evaluate the district's role in monitoring, mitigating, and managing the impact of PECs every five years.
SUB-ISSUE 2:	**Collaboration with Partners**		
POLICY 1:	**BCWD will collaborate with state agencies.**		
GOAL		**IMPLEMENTATION ACTIVITIES~~IMPLEMENTATION ITEMS~~**	
A	Contribute monitoring data to partners.	**1**	Incorporate PFAS sampling into stream and lake monitoring program. *Cost included in Baseline Monitoring Program.*
		2	Conduct a PFAS trend analysis after five years of data has been collected.

Table 77. Projected Expenditures (in 1,000's) for Pollutants of Emerging Concern

Implementation Activities	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Yr Total
Evaluate the district's role in monitoring, mitigating, and managing the impact of PECs every five years.					2.5					2.5	5
Conduct a PFAS trend analysis after five years of data has been collected.					2.5					2.5	5
Total for Pollutants of Emerging Concern					**5**					**5**	**10**

Table 78. Pollutants of Emerging Concern Implementation Activities covered by Administration and/or Project Development

Provide a bi-annual update summary on the state of science on pollutants of emerging concern to the board (e.g., report on updates to Minnesota's PFAS Blueprint).

Table 79. Pollutants of Emerging Concern Implementation Activities covered by Baseline Monitoring Program

Incorporate PFAS sampling into stream and lake monitoring program.

5 IMPLEMENTATION

This section describes the actions Brown's Creek Watershed District will take to implement the plan over the next ten years, including the programs, projects, and collaborations it will pursue to address its identified priorities and goals. This section is critical because it both charts BCWD's path for the coming decade and allows watershed cities and townships to confidently plan for water resource management, knowing BCWD's detailed plans for providing comprehensive and diligent protection and improvement of those resources. Since the cities, townships, and several agencies have jurisdiction over water resources within the watershed, their roles and responsibilities relevant to the management of water resources are briefly discussed in this section.

5.1 BCWD Roles and Responsibilities

BCWD serves many water resource management roles in fulfilling the purposes articulated in Minnesota Statutes chapters 103B and 103D. BCWD has assumed many specific responsibilities as detailed in this plan. Primary responsibilities of BCWD include:

- Establishing resource-protection and flood risk-mitigation standards and contributing to implementation of such standards in BCWD rules through its permitting program.
- Developing lake management plans and implementing programs and projects to fulfill goals established in such plans.
- Managing nutrient loads to lakes to achieve state water-quality standards.
- Contributing to the development and implementation of total maximum daily load studies and implementation plans.
- Performing studies to better understand resource protection needs and to inform the development of cost-effective solutions.
- Constructing capital improvement projects to protect and improve water quality and the ecological health of water resources and to provide flood storage.
- Supporting local units of government and watershed residents with planning and design related to resource protection needs and promoting resiliency of infrastructure to withstand changes in climate such as rainfall events of increasing intensity and volatility.
- Reporting and evaluation to inform local units of government, state agencies, and watershed residents of the district's activities and current health of the resources.
- Monitoring to collect baseline data~~information~~ about the quality of resources and to measure improvements resulting from management activities.
- Protecting and restoring the ecological health of upland areas in support of water quality goals through land conservation.
- Providing education about the impacts of non-point source pollution on local lakes, rivers, streams, wetlands, and groundwater resources to address homeowner contributions to watershed health.
- Collaborating with the other members of the Lower St. Croix Watershed Partnership in the implementation of the Lower St. Croix Comprehensive Watershed Management Plan.

While BCWD takes organizational responsibility for these initiatives, in almost every specific instance BCWD looks for opportunities to form partnerships with its cities, townships, and residents; county, state, and federal agencies; and other entities to achieve its goals.

5.2 Prioritization of Programs and Projects

As BCWD's Board of Managers evaluated the implementation activities identified during the plan development process, they applied the following criteria (listed by order of importance to them) to determine which activities should be eliminated, implemented first, or implemented later in the 10-year timeframe of the plan and which should be implemented if additional funding sources become available:

- **Maximizes Opportunities for Partnership:** Can the activity be done in conjunction with other projects and/or initiatives (e.g., municipal capital improvement projects, projects or programs of adjacent watershed management organizations or nonprofit organizations)?
- **Suitable Entity:** Is BCWD the most appropriate entity to implement the activity in question or is another entity more appropriate (e.g., Washington County might be better situated for a project addressing a regional issue)?
- **Maximizes Co-Benefits:** How does the project or program generate additional benefits that help the district achieve other goals or actions?
- **Increases Climate Change Resilience:** How does the action better inform decision-making ~~about resources~~ or increase the resilience of resources projected to be impacted by future climate conditions?
- **Funding:** What are BCWD's goals for its total annual budget over the 10-year timeframe of the plan and levy amounts? These decisions establish the total amount of money available for the district's various programs and projects.
- **Measurable Water Quality Improvement (Restoration) Impact:** Has the activity been identified in an existing water resource plan? Does it significantly reduce nutrients to the water resource?
- **Flood Reduction/Mitigation:** How does the activity contribute to flood reduction or mitigation?
- **Addresses a Gap in the Knowledge Base:** Does the activity enhance the district's understanding of the resource protection and/or restoration needs, thereby allowing BCWD to make more effective management decisions?
- **Allocation of Resources:** Related to funding, the BCWD Board of Managers prioritized the distribution of the annual budget to its various programs, dedicating approximately 35% of the budget to "shovel-ready" water quality improvement projects.
- **Protection Activities Related to Conservation:** Is the activity best accomplished through acquisition of easements, and are there other entities that could assist BCWD in acquiring them for the restoration and/or protection of resources?
- **Recommendation from the Civic Engagement Process:** Was the activity recommended by member communities or residents of the watershed involved in the plan-development process?
- **Equity:** How does the activity serve a community or communities that have been excluded or harmed by past decision-making? Does it help address injustices?

As BCWD moves forward with the implementation of the 2027-2036 Watershed Management Plan, the board will have to make decisions about which projects to implement from the Capital Improvement Program, TMDL Implementation Plan, lake management plans, Brown's Creek thermal study, BCWD sediment source assessment, and/or assessments which have not yet been conducted. In addition to using the criteria identified above, BCWD will consider the following:

- Costs and benefits of conducting a project after a completed feasibility analysis
- Landowner willingness
- Alternative sources of funding available (e.g., grants, Washington County Land Conservation Program, Minnesota Land Trust)
- Innovative approaches that could advance stormwater management

- Best management practices that provide stacked functions and/or multiple benefits

5.3 Implementation Plan

The implementation plan includes both structural (capital improvement) and programmatic elements. Including an ~~action~~ activity in the implementation plan is a statement of intent by BCWD. Implementation rests on further board decisions to budget for and fund the ~~action~~activity, which will be made in keeping with the priorities described in section 5.2 *Prioritization of Programs and Projects* and in response to BCWD's regular analysis of the results of its work. In some cases, project implementation may require further legal procedure and/or the participation of other parties.

Similarly, as priorities evolve, new concerns emerge, or new approaches are developed over the period of ten years, the board may choose to undertake an ~~action~~ activity not included in the implementation plan. The listing of ~~actions~~ activities in the implementation plan is not intended to exclude other ~~actions~~ activities consistent with the issues, goals, and policies identified in section 4. In such cases, undertaking an ~~action~~ activity not in the implementation plan may require first amending the plan or other procedures.

Table 80~~Table 80~~ is BCWD's 2027-3036 Implementation Plan. It includes the activities identified as a high priority through the plan development process and reflects what BCWD plans to accomplish within the 10-year timeframe of the plan. Capital improvement projects specific to Brown's Creek and the lakes for which management plans have been developed are referenced in Table 80~~Table 80~~ but identified more specifically in Table 81~~Table 81~~ and

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Table 82~~Table 82~~.

Table 84~~Table 84~~ is BCWD's lower priority implementation plan. It includes activities that are considered lower priority relative to the implementation activities included in Table 80~~Table 80~~. These activities will be reviewed on an annual basis, reprioritized as needed, and completed as time and resources allow.



Artwork of the rose-breasted grosbeak created in 2025 as part of BCWD's "The Water Where We Live" exhibit in partnership with A House Unbuilt.~~[IMAGE]~~

5.4 Programs and Projects

5.4.1 Capital Improvement Program

BCWD implements capital improvement projects to address issues such as water quality and quantity as identified in its watershed management plan. For projects led by BCWD, the first step is to perform studies to identify capital projects that are most likely to address the identified concern and achieve the relevant goals. The Implementation Plan (Table 80~~Table 80~~), Brown's Creek Management Plan (Table 81~~Table 81~~), and Lake, Pond, and Wetland Management Plans (

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Table 82~~Table 82~~) identify the studies and capital projects BCWD intends to implement to address the priority issues and goals identified in this plan.

When BCWD leads the implementation of a capital project, a detailed engineering feasibility study will be completed to ascertain the viability of the project. The study will identify the most cost-effective and efficient configuration of constructed best management practices and/or facilities to achieve the stated goal. The board of managers will then review the study findings and engineers' recommendations to determine whether to further develop the project for implementation. If so, the managers will direct the administrator to take the steps required by Minnesota Statutes section 103B.251 to complete the public-input process, including conducting ~~of~~ a public hearing (usually as part of a regular meeting of the managers). After receiving input from local government representatives, watershed property owners, and other stakeholders, the managers must determine if the project will be conducive to public health, promote general welfare, and comply with the Metropolitan Surface Water Management Act. If so, they will order design and construction.

As part of BCWD's regular progress review and annual budgeting, the managers will review the status of all capital projects. Based on the results achieved to date, they will allocate funds and adjust the priority of and schedule for capital projects.

5.4.1.1 Cost-Share Projects

The plan identifies cost-share projects as an option for BCWD to make cost-effective progress toward its watershed goals. BCWD has and will continue to provide funding and technical support to watershed landowners for projects and programs that demonstrate progressive resource stewardship. This funding's primary purposes are education and engagement – to show others that effective resource management and attractive landscaping can go hand-in-hand and to encourage wider adoption of land-use practices and management that align with BCWD goals. (Section 5.4.5 describes this stewardship program in more detail.)

Beyond these efforts, BCWD is interested in leveraging its technical and financial resources to support private and public partners' capital projects that contribute to the district's water-resource protection, flood-risk mitigation, and – when they align with watershed district purposes and powers – ecological health and public health goals. The contribution of land-use rights by cities and townships in the watershed has long been a critical collaboration for implementing district capital projects. For many capital projects in this plan, BCWD will lead the implementation (e.g., conducting feasibility studies, developing plans and specifications, and contracting for the work), and the work will follow Minnesota Statutes section 103B.251's standard capital improvement implementation structure and related public-contracting law.

BCWD also intends to expand its established partnerships and form new ones to incorporate flexible cost-sharing strategies into implementing capital projects led by another entity. For some projects, BCWD engagement will not constitute capital work and may only require district resources such as:

- Assessing options for or feasibility of options to address a water-resources management or flood-risk mitigation issue.
- Contributing district staff and/or BCWD engineer expertise.
- Contributing funding for completing a scope of work.
- Providing access to BCWD data.

For such projects, the partner would lead the contracting and oversee project completion. Watershed cities are the most likely partners, but Washington County, state agencies, and even private property owners could have project plans that serve as an appropriate venue for expanding BCWD's capacity to improve water resources, mitigate flood-risk, or improve ecological health.

In other cases, BCWD engagement will constitute capital work, and the district will pursue such projects under one of two procedures designed to ensure congruence with its purposes and powers:

5.4.1.1.1 Programmatic Cost-Share Projects

For small contributions of BCWD fiscal resources (either actual funding or in-kind technical support), the district will establish by board action program criteria for participation based on an assessment of the district engineer showing specific need for water-resources, flood-risk mitigation, or ecological health improvements that align with watershed district purposes and powers, and specific benefits that will be achieved by projects to be supported by BCWD. For example, an analysis by the BCWD engineer that shows an increased risk of flooding around a particular water body such that mitigation measures undertaken by property owners proximate to the resource will contribute to diminishing the risk. Such support programs will be established only after a duly-noticed hearing before the board and comment period. Such programs will be included in the annual budget and will provide no more than $25,000 in funding for any one specific project or $100,000 in total annually for a program.

5.4.1.1.2 Major Cost-Share Projects

For larger individual cost-share projects (contributions of BCWD funding greater than $25,000), the board will make a record determination that the project implements a capital improvement already in its plan or will authorize the pursuit of the minor plan-amendment process consistent with Minnesota Rules 8410.0140 to add the project. Either decision will be based on a record determination by the BCWD engineer that the project has the potential to contribute to the achievement of BCWD goals. From there, the project will be the subject of a hearing conducted in accordance with Minnesota Statutes section 103B.251 prior to ordering by board of managers and supported by a feasibility assessment by the engineer. After ordering by the board of managers, major cost-share projects will be conducted in accordance with a cooperative agreement among the partners that outlines the roles and responsibilities of each as they relate to the district-funded work. Long-term maintenance of structural best management practices and vegetative improvements will be provided for in the cooperative agreement, and for work on privately owned property, a maintenance declaration will be recorded on the title.

BCWD will budget funding and staff and engineering time annually for special cost-share projects. Projects that require resources exceeding a given budget cycle's available funding will be multiyear endeavors, for which specific budget and resource allocations will be made after initial development under the baseline annual program. This structure reflects the fact that projects requiring greater resources will also have longer planning timelines, allowing the district to budget accordingly.

The structure outlined here will be carefully followed to ensure BCWD's expenditure of levied funds is consistent with the Public Purposes Doctrine established in article 10, section 1 of the Minnesota Constitution, which requires that such expenditures demonstrably accrue to the public benefit and proceed under the authorities provided to watershed district by the Legislature (most importantly, the capital-project ordering requirements in Minnesota Statutes section 103B.251). Under no circumstances will BCWD contribute funds to capital work required by application of BCWD regulatory requirements or the requirements of another regulatory entity.

5.4.1.2 Maintenance

BCWD maintains a *Capital Improvement Program Standard Operating Procedures Manual* for projects that it owns, operates, and/or maintains. The manual consolidates key project information in a single location, enabling staff to efficiently track and manage the activities required for proper operation and maintenance. The manual includes:

- **Project Information**: Location, description, background, and funding
- **Maintenance and Inspection**: Requirements and responsible parties
- **Cooperative Agreements**
- **Maintenance Records and Reporting**
- **Emergency Plans and Operating Procedures**
- **Appendices**: Record drawings and other relevant project information

To date, BCWD provides operation and maintenance activities on 20 projects. The *Capital Improvement Program Standard Operating Procedures Manual* can be found on BCWD's website.

5.4.2 Information and Education Program

BCWD has been a partner in the East Metro Water Resource Education Program (EMWREP), a shared educator program, since its inception in 2006. EMWREP is a partnership of 29 local units of government, hosted by the Washinton Conservation District. The program's goal is to educate community residents, businesses, staff, and decision-makers about issues affecting local lakes, rivers, streams, wetlands, and groundwater resources and to engage people in projects to protect and improve their health.

BCWD also implements its own education through BCWD events, tabling at local partner events, creating and sharing BCWD-specific education and outreach materials, and giving presentations to community groups and organizations.

5.4.3 Data Collection Programs

BCWD will continue to monitor water quantity and quality of water bodies within the watershed, focusing on high-priority waterbodies. BCWD's water quality, streamflow, water level, and groundwater monitoring programs are described in the Land and Water Resource Inventory (Appendix F). BCWD submits quality-controlled and -assured monitoring data to the following state agency databases annually: Metropolitan Council Environmental Services' Environmental Information Management System (EIMS), Minnesota Pollution Control Agency's Environmental Quality Information System (EQuIS), Minnesota Department of Natural Resources' LakeFinder database (lake elevations), and the Minnesota Climatology Working Group (precipitation). BCWD submits weather station data to the WCD annually and to partners on an as-requested basis. BCWD submits groundwater data to partners including the Minnesota Department of Health, Metropolitan Council, and member communities on an as-requested basis.

5.4.4 Regulatory Program

To fulfill Minnesota Statutes section 103D.341, BCWD has developed and adopted rules and associated procedures to review and permit activities that present a potential risk to water resources.

Any development activity that meets certain thresholds ("triggers") must receive a permit from BCWD prior to project implementation. BCWD's rules (2020) (to be updated during this plan's implementation) specify the requirements and performance standards applicable to these activities. BCWD works in collaboration with city and township representatives to encourage communication early in the project development process to provide potential applicants with guidance on which BCWD rules may apply to a given activity and how plans can be designed to achieve the applicable standards and criteria. When applicable, BCWD coordinates its review with other agencies or watershed districts. The procedures for permit application and complete submittal requirements are included in BCWD's rules (2020).

Continued rigorous and effective administration of the BCWD regulatory program will be central to BCWD's efforts to address the priorities and achieve the goals articulated in the plan. In conjunction with finalization of the plan, BCWD facilitated partner meetings to gain feedback on the current BCWD regulatory program and recommendations for the BCWD Board of Managers to consider when developing the updated (2027-2036) Watershed Management Plan and future initiatives of the regulatory program. Participants were asked to consider the three components of the regulatory program: rules, processes, and outreach and information. The following themes emerged from these partner discussions:

- **Theme 1**: The BCWD regulatory program should be transparent, efficient, equitable, consistent, and not unduly complicated.
- **Theme 2**: The BCWD regulatory program should protect and improve the resources and properties in the district, and there should be accountability.
- **Theme 3**: Communication is critical, should be consistent, and should lead to improved engagement and understanding with the public, partners, permittees, and other specific audiences including engineers representing permittees and the business community.
- **Theme 4**: BCWD should collaborate with other entities including neighboring watershed districts, cities, counties, and private partners to improve its programs.

Specific recommendations from these partner discussions have either been implemented by district staff or have been included as actions in the implementation plan. The BCWD Regulatory Review: Report and Recommendations can be found in the appendices.

Minnesota Statutes section 103B.211, subdivision 1(a)(3), provides the framework for watershed cities to determine whether to authorize BCWD to exercise the regulatory authority necessary to achieve the water resource protections provided by the thresholds, standards and criteria of the BCWD rules. Under any circumstances, BCWD will continue to exercise regulatory authority for permitting under those rules that apply to activities affecting water resources in more than one city and/or township.



Partners gathered in 2024 for a facilitated discussion about BCWD's Regulatory Program.~~[IMAGE]~~

5.4.5 Incentive Programs

Beyond the cost-share structure described above for BCWD support for capital improvements undertaken by others, BCWD has established and will continue to utilize cost-share programs to incentivize the implementation of projects aimed at promoting stewardship.

The **Stewardship Program** enables landowners (including residents, churches, schools, communities, and businesses) to identify and implement projects that improve water quality, reduce runoff, and improve habitat in the watershed. Eligible applicants receive up to a $500 reimbursement for materials used for projects including native plant/pollinator gardens, small buffer strips, turf alternatives, waterspout gardens, rain barrels, or targeted water education, information, or outreach activities. After project completion, the landowner must maintain the project for a minimum of five years and be willing to share information and photos on the project for BCWD's education and outreach. The program is designed to encourage property owners to demonstrate best practices for land use and resource improvement rather than to achieve specific resource improvements or flood-storage enhancement. Funding amounts and qualifying criteria for the program will be modified by action of the board of managers over the course of implementation of the plan to best serve program goals considering community interests and capacity.

5.4.6 Waters Restoration and Protection Program

Several water bodies in the watershed are included in the Minnesota Pollution Control Agency (MPCA)'s impaired water 303(d) list (see the Land and Water Resource Inventory in Appendix F). To address impairments and restore resources so they can provide designated uses, the MPCA completes a total maximum daily load (TMDL) analysis. In recent years, the MPCA has also shared guidance for developing and implementing watershed restoration and protection strategies (WRAPS) to address impairments and protect waters not currently listed as impaired. Specific projects and programs to improve and/or protect the water quality of assessed waterbodies can be found in the implementation plan as a result of TMDLs and WRAPS. In 2010, BCWD completed the Brown's Creek Impaired Biota TMDL, which was approved by the Environmental Protection Agency (EPA) on December 21, 2010. The Minnesota Pollution Control Agency approved the Brown's Creek TMDL Implementation Plan in February of 2012.[2]

BCWD has also developed a few lake management plans that assess the quality of the resources relative to the state's water quality standards and identify the required activities to meet the state's water quality standards. To date, lake management plans have been developed for Bass Lake East, Bass Lake West, Benz Lake, Goggins Lake, Kismet Basin, Long Lake, Lynch Lake North, Lynch Lake South, Lake Masterman, Lake McKusick, North School Section Lake, Pat Lake, Plaisted Lake, South School Section Lake, and Wood Pile Lake. BCWD is in the process of developing a targeted subwatershed improvement plan for Brewer's Pond.

Because Brown's Creek discharges to the St. Croix River, the watershed has been assigned a load reduction in the implementation plan for the Lake St. Croix nutrient total maximum daily load (848 lbs./TP/yr.), which was revised in February of 2013. Projects BCWD undertakes to reduce sediment and nutrient loading to Brown's Creek will contribute to efforts to reduce such loading to downstream Lake St. Croix.

[2] BCWD is not a Municipal Separate Storm Sewer System (MS4) owner or operator and therefore is not required to hold a permit under the Clean Water Act. BCWD has led the development and implementation of the Brown's Creek TMDL voluntarily, in keeping with its statutory water resources protection and improvement purposes.

This plan's development has been informed and directed by the TMDL implementation plans and lake management plans. Each plan contains a prioritized list of potential projects that could be undertaken to address the resource-specific water quality issue(s). BCWD has integrated a number of these projects – as well as nonstructural programmatic efforts – into Table 80~~Table 80~~. Before undertaking these capital projects, BCWD will conduct a more detailed feasibility study to evaluate the cost-effectiveness of each. If the board of managers determines, after gathering input from stakeholders and conducting a public hearing, that a project will be conducive to public health, promote the general welfare, and comply with the Metropolitan Surface Water Management Act in Minnesota Statutes chapter 103B and the plan, it will order the project to be designed and constructed.

As BCWD continues to gather data on and assess threats to water resource health in the watershed, it may undertake or participate in developing new lake or subwatershed management plans. As such plans are completed and implementation items identified, BCWD will consider expanding its programs and adding capital improvement projects to its implementation plan.

Finally, BCWD's regulatory program provides a baseline level of protection and contributes to restoration of water resources by ensuring that development and redevelopment in the watershed does not degrade water quality, allowing capital investments to fully accrue to the restoration benefits.

5.5 Funding of District Activities

BCWD obtains most of its revenues for water resource programs and projects from taxes assessed to real property in the watershed. Other sources of revenue include grants or cost-share participation from other governmental bodies, expenditures by program or project partners, and permit fees, which are used to cover the cost of administering permits by the district.

Minnesota Statutes section 103D.905 specifies funds a watershed district in Minnesota may maintain, along with limits on the amount of tax a district may levy for that fund, how frequently it may levy, and other requirements. BCWD also utilizes the funding mechanisms in chapter 103B of Minnesota law to ensure a balanced and transparent approach to funding the implementation of its plan.

The fund for basic BCWD operations is the general fund, for which BCWD may levy up to 0.096 percent of taxable market value of real property in the watershed or $500,000 annually – whichever is less. This fund is used "for general administrative expenses and for the construction or implementation and maintenance of projects of common benefit to the watershed district." BCWD levies annually under this authority to fund administrative staff, consultant retainers, office space and equipment, insurance, manager per diems, and similar basic administrative expenses.

In addition, for BCWD and other metropolitan watershed districts, Minnesota Statutes section 103B.241 provides authority to "levy a tax to pay the increased costs of preparing a plan and for projects identified in an approved and adopted plan necessary to implement the purposes of [chapter 103B]." This levy authority is not subject to a structural limitation, and funds may be accumulated to pay for projects and programs. Section 103B.251, subdivision 9, authorizes a separate levy for maintenance of constructed projects. It has been BCWD's practice to provide that the public or private entity that contributes the necessary property for a project takes ownership of the project when complete. Nonetheless, BCWD has retained maintenance responsibility in many cases, and its ability to fund such work via the 103B.251 levy is a resource BCWD may contribute, via the cooperative agreement among the participating entities for the project, to implementation of a project. While BCWD has not utilized this authority to date, it may do so in the future as it continues to add to the roster of completed facilities.

This levy authority highlights the importance of the plan for BCWD activities because it defines the programs and projects for which BCWD may exercise its taxing authority. While implementing this plan,

the district will consider consolidating its levy under the authority in Minnesota Statutes section 103B.241, as other watersheds in the metro area do, rather than levying under both 103D.905 and 103B.241. The board will coordinate closely with Washington County to ensure that such a consolidated approach will retain transparency for the public and achieve administrative efficiencies.

A subwatershed assessment is another capacity BCWD has not used to date but could deploy as stormwater management infrastructure in the watershed ages and maintenance needs intensify. BCWD retains a watershed-wide view of its resource protection and improvement role and funds its work accordingly. The board's judgment has been that BCWD's programs and projects are directed toward watershed-wide goals in which all watershed residents have a stake, and that over time, any localized benefits of specific BCWD actions tend to distribute themselves roughly equally among residents. However, the interests of fairness may press for imposing a subwatershed-based stormwater utility as provided in Minnesota Statutes sections 103D.729-.730 and 444.075. This levy may be appropriate, for example, where a BCWD expense relates predominantly to certain properties within the watershed or the benefits of a program or project will fall disproportionately on certain properties.

The board of managers must approve a budget and certify it to Washington County by September 15 each year. This levy may decrease before it is finalized in December. The county then includes BCWD's levy in its tax statement, collects the levy, and distributes the proceeds to BCWD, half the following July and half the January thereafter. (See Washington County Financial and Budget Policy #2403).

If BCWD unexpectedly requires funds outside of the levy cycle, it may obtain loans from Washington County or a commercial lender on negotiated terms. County loans were instrumental in the first two years of BCWD's existence but were paid off before their due date and have not been required since.

BCWD also pursues grants, in-kind services, and/or participation by other government units or agencies. BCWD has had tremendous and fortunate success in securing $1.9 million since 2016 in grant funds from the Minnesota Board of Water and Soil Resources, the Minnesota Pollution Control Agency, Washington County, and the Metropolitan Council; sharing project responsibility with the Cities of Stillwater and Oak Park Heights; and securing low- or no-cost easements needed for capital projects from public and private property owners. While BCWD cannot plan for such success going forward, it will continue to explore these types of funding opportunities as it implements this plan.

Additionally, BCWD is a member of the Lower St. Croix Watershed Partnership. As a planning partner, it may use *One Watershed, One Plan* (1W1P) implementation funding to carry out activities included in the LSCWP's implementation program if they align with the watershed capital improvements program. The state provides 1W1P implementation funds biennially, and they are allocated by the LSCW partnership.

Finally, watershed law section 103D.345 authorizes watershed districts to recover processing, inspection, and enforcement costs from watershed permittees. This has allowed BCWD to recover a substantial portion of its permit program implementation cost. BCWD has established an actual-cost recovery schedule, ensuring that permittees pay exactly and only the costs incurred by BCWD in reviewing application materials, issuing the permit, and inspecting permitted work. A permit fee is submitted at the time of application, held in escrow by BCWD, and applied to the cost of permit review. Upon permit approval, the permittee must replenish the deposit to the original required amount before the permit will be issued, to facilitate BCWD's recovery of the actual costs it incurs to monitor the work and address any permit non-compliance. When the work has been completed, the escrow balance is returned to the permittee. If BCWD has incurred costs exceeding the escrow deposit, the permittee is billed for the additional amount. This intensive management approach is consistent with BCWD's commitment to a transparent and equitable financial management structure.

5.6 Plan Administration and Coordination

5.6.1 Decision-making and Staffing

BCWD contracts with the Washington Conservation District for full-time administrative services. The district administrator acts exclusively at the discretion and direction of the BCWD Board of Managers in implementing BCWD's mission, goals, and priorities and is supported by a full-time communications and project assistant.

5.6.2 Advisory Committees

5.6.2.1 Community Advisory Committee

To fulfill Minnesota Statutes section 103D.331, BCWD has an advisory committee to advise and assist the board of managers on all matters affecting the interests of the watershed and to make recommendations to the managers on all projects, programs, and activities. BCWD's Community Advisory Committee meets six times per year (in even months) and helps host events throughout the year. The group was called on more often and intensively during the development of this plan and provided invaluable input, as described in section 3.3 *Stakeholder and Public Involvement.* Community Advisory Committee members support BCWD by supporting monitoring efforts, assisting with community outreach and networking, and advising the district of noteworthy change in the watershed. Interested parties may visit the district website to find information on the current Community Advisory Committee and how to become a member. Information is available in the "Get Involved" section of the website.

5.6.2.2 Technical Advisory Committee

To fulfill Minnesota Statutes section 103D.337, BCWD's Technical Advisory Committee (TAC) includes representatives of its cities and townships, Washington County, state agencies, and the Washington Conservation District. The entire TAC is rarely called together outside of plan development but will be engaged in the development of draft regulatory updates and improvements. The BCWD administrator also works closely with colleagues representing the various TAC member entities, especially as relates to construction and maintenance of specific capital projects (cities, townships, the Minnesota Department of Natural Resources); ongoing regulatory, project-development, and monitoring efforts (the Washington Conservation District); and regarding groundwater-protection and restoration work (Washington County).

5.6.3 Identification and Coordination of Shared Services

To increase efficiency and gain effectiveness, BCWD strives to identify opportunities to achieve its goals without the need to independently develop the expertise, services, or programs. Shared services that BCWD utilizes include:

- A shared educator through partnership in the East Metro Water Resource Education Program (EMWREP)
- A shared educator and program support through the Lower St. Croix Watershed Partnership
- A youth education program in partnership with Stillwater Area Public Schools and Belwin Conservancy
- Administrative services, technical assistance, water monitoring services, and project maintenance through contracts with the Washington Conservation District

5.6.4 Work Planning

The BCWD Board of Managers has set an annual budget target. Each year, BCWD will review the prior year's performance against the budget (including success in obtaining grants) and adjust, in its annual budgeting process, in accordance with the priorities identified in section 3 of the plan. The annual budget sets the general framework for the activities that will occur in the upcoming year to address BCWD's priorities and may be adjusted as additional monitoring and assessment is completed.

5.6.5 Assessment and Evaluation

5.6.5.1 Implementation Accomplishment

This annual evaluation includes reviewing the implementation plan and confirming which activities have been accomplished. This information is used to develop BCWD's annual budget, annual report, and biennial evaluation.

5.6.5.2 Annual Reporting

Each year, BCWD evaluates its progress towards achieving its goals and performing the ~~items~~ activities identified in the implementation plan (Table 80~~Table 80~~). One step BCWD takes is to meet with its member communities to discuss progress towards implementing local surface water management plans and TMDL implementation plans, achieving other mutual goals, and partnership opportunities.

BCWD documents its progress in achieving its goals in an annual report which is published on the district's website. As required in Minnesota Rules 8410, BCWD must submit an activity report for the previous calendar year within the first 120 days of the calendar year. BCWD must also submit an audit report for the previous fiscal year within 180 days of the end of its fiscal year.

The BCWD annual report and financial statement reports on the following categories:

- **Administration:** budget management, income and expenditures for the previous year, board meetings, and contact information.
- **Monitoring and Data Analysis:** lake water quality report card and stream monitoring data.
- **Annual Accomplishment Highlights:** management plans, capital improvement projects, feasibility studies, inventories and assessments, BMP cost-share programs, and education and outreach activities.
- **Planned Projects for the Upcoming Year:** management plans, capital improvement projects, feasibility studies, inventories and assessments, BMP cost-share programs, and education and outreach activities**.**

5.6.5.3 Biennial Evaluation

BCWD will conduct a biennial evaluation of the previous years' work to assess performance in meeting its goals. This evaluation will assess the need to make changes in the district's work plan due to new information, landowner willingness to participate in projects, new opportunities to apply for grant funding, and other significant new developments. BCWD will evaluate implementation of 2027-2036 Watershed Management Plan activities by assessing the following categories:

- **Staff functions:** Covering many of the same activities as the annual report and financial statement, this evaluates each of BCWD's issue categories, including progress toward implementing policies and achieving goals. It includes metrics associated with ongoing programs (e.g., number of best management practices installed via BCWD's stewardship or cost-share programs and/or the efficiency of BCWD's permitting program) and an evaluation of data about funding leveraged from outside sources (e.g., grant funding and/or partner contributions).

- **Pollutant reductions:** Actions taken under the Brown's Creek Management Plan (Table 81~~Table 81~~) and Lake, Pond, and Wetland Management Plans (

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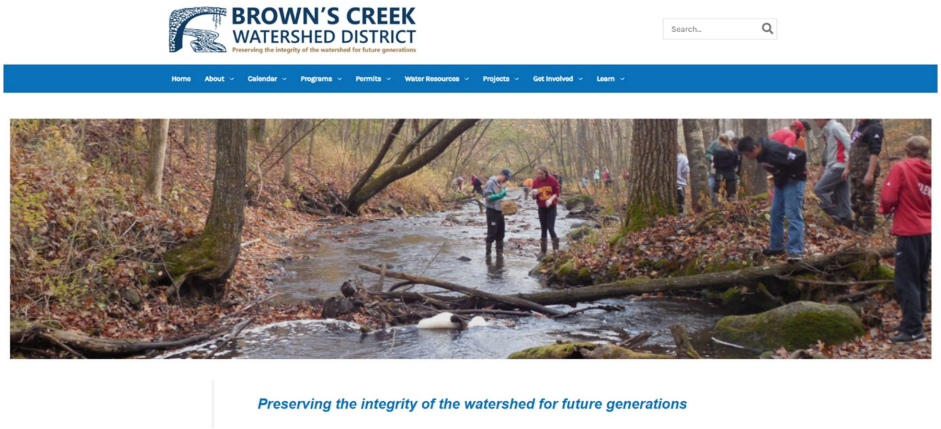
- Table 82~~Table 82~~) and completed during the reporting year will include pollutant-reduction estimates based on commonly accepted pollutant-reduction calculators. BCWD also intends to update the watershed conditions report every five years. This report will assess the impact of district's programs on water quality, evaluate trends in watershed conditions, and evaluate the need to make course corrections in watershed management strategy. Biennial evaluations that fall on or just after these years (2030 and 2035) will take a closer look at the trend analysis, adaptive management strategies, and the need to perform a plan amendment to include new restoration and/or protection projects.
- **New initiatives:** Actions taken to develop, implement, and measure new programs, projects, and initiatives will be evaluated in terms of process, participation, and outcomes.

5.6.5.4 BCWD Website

BCWD will continue to maintain its website with current information, including the location, time, agenda, and minutes for organization meetings; the current watershed management plan; annual activity reports; rules and regulations; a list of the BCWD Board of Managers and designated officers; and a list of staff including contact information. BCWD is in the process of ensuring the website meets the Americans with Disabilities Act (ADA) Title II requirements by April 26, ~~2027~~2028.

Commented [HP17]: This deadline has been extended, but we will still aim to make accessible ASAP

BCWD hosts many other resources on its website. The website provides information and direct access to management plans; programs related to funding, education, and district monitoring reports; and direction to information hosted by other related agencies. The district, in providing these materials, hopes the website serves as a resource for businesses looking for pre-development permitting guidance and residents seeking to remain educated on district news, assist the district in outreach efforts, or help protect and improve water resources the watershed. The website is located at: http://bcwd.org/.



Screenshot of the BCWD's website home page.

5.7 Impacts on Local Government

BCWD's watershed management plan includes many strategies and programs that the district may pursue to fulfill its water resource mission that will involve local government participation. Examples include:

- Establishing and implementing standards for water-resource protection and flood-risk mitigation
- Inventorying of local stormwater-control standards
- Reviewing land-use ordinances for water resource impacts
- Implementing education and outreach programs
- Implementing monitoring and data acquisition programs

Most of the programs identified in the plan do not compel local government involvement. Rather, in pursuing a specific activity under the plan, the district will typically seek to develop a partnership with affected local governments, allowing each entity to contribute as befits its interests, capacities, and objectives that can be cost-effectively pursued in partnership with BCWD. To facilitate these partnerships, BCWD will ensure that a manager will be appointed to be a community liaison. Current managers and their liaison appointments can be found at bcwd.org/contact-us/.

5.7.1 Local Water Management Plan Schedule

Minnesota Rules chapter 8410 establishes the relationship between the schedule for cities' and towns' local water management plan updates and their comprehensive-planning process, mandating updates to local water plans within two years of the corresponding comprehensive plan. Prior to adoption, a municipality must prepare its local water plan, distribute it for comment, and have it approved by the organizations with jurisdiction in the municipality. Updated local comprehensive plans are due December 31, 2028. As a result, all cities and townships in BCWD must complete and adopt their local water plan between January 1, 2027, and December 31, 2028.

5.7.2 Local Water Management Plan Requirements and BCWD Review

Minnesota Rules 8410.0105 requires that the plan provides a procedure to evaluate the implementation of local water plans and procedures to address a local government unity failing to implement all or part of its local water plan. As noted, cities and townships in the Brown's Creek watershed must complete and adopt a local water management plan between January 1, 2027, and December 31, 2028. Under Minnesota Statutes section 103B.235, draft local water management plans must be submitted to BCWD for review and approval. (Local water management plans must also be submitted to the Metropolitan Council and, because it has a state-approval groundwater management plan, Washington County at the same time they are submitted to BCWD). A city or township may, at its discretion, choose to adopt the 2027-2036 Watershed Management Plan in whole or part to satisfy its statutory local water management plan requirement.

After BCWD reviews and approves a local water management plan, the city or township must adopt and implement the plan within 120 days and determine whether to amend its official controls (ordinances) and policies to provide protection of water resources at least as effective as provided by the BCWD rules or defer exercise of sole regulatory authority to BCWD. If a watershed city or township elects to update its ordinances and implement water-resources protections via its land-use regulatory program, the city or township and BCWD will enter into a memorandum of understanding (MOU) detailing the scope of each entity's exercise of regulatory authority (i.e., who will regulate what). Such an MOU would also establish a process and schedule for exchanging progress reports and describe procedures and a timeline for BCWD's reengagement of its regulatory authority if the city or township is found to have not adopted the necessary controls or not implemented a complete and effective regulatory program.

Consistent with this regulatory framework, BCWD will require as a condition of approval that the local water management plan state that the city or township will update its ordinances to maintain conformity to the BCWD rules or defer exercise of regulatory authority for the work covered by the revised rule within one year after BCWD provides notice that it has significantly revised a rule.

With each city or township, BCWD will discuss the option that best addresses its circumstances, and the parties will collaboratively determine the most practical approach to meeting the requirements of this plan and Minnesota Rules chapter 8410. BCWD understands the need to be sensitive to consistency and coordination with its adjacent watershed districts and water management organizations in the implementation of watershed standards and projects while pursuing BCWD's goals. BCWD will work closely with cities and townships as requested in their preparation of an updated local water management plan and wishes to take a collaborative approach to review and implementation as well. BCWD will rely on its close working relationship with cities, townships, and other local government units to collaborate on solutions and the resolution of any conflict. There are no implementation activities in the 2027-2036 Watershed Management Plan that depend solely on local units of government implementing their local water plans for implementation.

Regarding the state Wetland Conservation Act (WCA) and implementing rules in chapter 8420: Presently BCWD does not administer WCA in any portion of its jurisdiction and expects that each city and township will continue to serve as the WCA local governmental unit (LGU) in its jurisdiction. BCWD has been and remains amenable to serving as LGU at a city or township's request but would prefer to serve as the LGU throughout the watershed if asked to do so rather than taking on administration in only one or a couple of areas. (Note that BCWD's regulatory requirements pertinent to wetland protection continue to apply even when BCWD is not the WCA LGU for a particular property or project.) Under any circumstances, the Washington Conservation District will continue to serve as a key source of expertise and assistance with wetland management and improvement efforts.

5.7.3 Plans and Water-Related Agreements

There are county and state agency plans that identify policies and initiatives that will impact local government units. Where these policies and initiatives overlap with BCWD's watershed management policies and goals, they have been included in the plan as a goal, implementation activity, project partner, or source of funding. The main planning documents reviewed during the development of this plan include:

- Minnesota's Climate Action Framework - Draft (Draft 2025)
- Lower St. Croix Comprehensive Watershed Management Plan (adopted October 28, 2020; Amended August 2025)
- Washington County 2025-2035 Groundwater Plan
- Metropolitan Council's Imagine 2050 (adopted ~~May 28, 2014~~February 12, 2025)
- Metropolitan Council's 2050 Water Plan (adopted February 12, 2025~~May 20, 2015~~)
- Lower St. Croix River Watershed Groundwater Restoration and Protection Strategies Report (June 2018)
- MNDNR North & East Metro Groundwater Management Area (November 2015)

BCWD also has two water-related agreements with its member communities: one with the City of Stillwater and one with the City of Oak Park Heights. These agreements have implications for stormwater management as explained below.

5.7.3.1 Cooperative Agreement for a Project to Manage Stormwater and Protect Water Quality in the Brown's Creek Watershed

The City of Stillwater completed an alternative urban areawide review (AUAR) in May 1997. The AUAR evaluated potential environmental impacts from development of an area west of the city that was proposed to be annexed, and proposed a mitigation plan to avoid, minimize, and/or mitigate for these impacts. The AUAR indicated that several important regional natural resources are potentially affected by proposed development in the area: Brown's Creek, the Brown's Creek ravine, Sinnet's Pond, and the St. Croix River. Other resources of local significance such as Long Lake and Lake McKusick were also identified as areas that might be affected by proposed development.

The Stillwater AUAR Mitigation Plan, completed in July 1997, specifies measures or procedures that will be used to protect the environment and natural resources from the potential impacts of development in the annexation area. The cornerstone of the mitigation plan is the diversion of stormwater flowing from Long Lake and other portions of the annexation area to Lake McKusick and from there through a constructed outlet to the St. Croix River. The goals of the Lake McKusick diversion are to: (1) preserve and enhance the integrity of Brown's Creek, (2) improve the water quality and quantity conditions in Long Lake, and (3) allow the City of Stillwater to proceed with the development as proposed in the city's comprehensive plan. One of the implications of the cooperative agreement among Stillwater, Oak Park Heights, and BCWD is that the diversion structure constructed to serve as a regional treatment facility was deemed sufficient to meet the stormwater management requirements of BCWD's rules. The agreement stated that the diversion structure provided runoff volume control sufficient to meet the standard in the BCWD stormwater management rule for land-disturbing activity in the contributing drainage area.

In the course of implementing its 2017-2027 plan and updating its rules according, BCWD reached an understanding with Stillwater and Oak Park Heights that the agreement's carve-out for the diversion structure subwatershed was no longer sufficient to meet resource-protection goals, and that the revised rules' new Minimal Impact Design Standards-based volume standard should apply to land-disturbing activities that triggered BCWD rules in the subwatershed.

5.7.3.2 Cooperative Agreement between BCWD and the City of Oak Park Heights

The City of Oak Park Heights has a cooperative agreement with BCWD for a regional stormwater facility that provides stormwater management for the Kern Center drainage area (a 92-acre area bound by Highway 5 on the east and Highway 36 to the north). A copy of this cooperative agreement can be found in Appendix G of the plan.

The performance of Kern Center facility will be assessed against the updates to the BCWD stormwater management rule as the amendments to the rule are developed. The BCWD engineer anticipates that the design and function of the facility – which significantly post-dates the Long Lake diversion structure – continues to provide necessary infiltration and treatment.

5.7.3.3 Lower St. Croix Watershed Partnership

Additionally, BCWD is a member of the Lower St. Croix Watershed Partnership. From 2017-2020, 15 local government partners worked to create a collaborative and comprehensive plan to guide the protection and restoration of priority natural resources in the Lower St. Croix Watershed. This *One Watershed, One Plan (1W1P)* process was part of a statewide program led by the Minnesota Board of Water and Soil Resources. The 10-year comprehensive watershed management plan was approved on Oct. 28, 2020, and partners are now working to implement the plan's priority projects and programs. In this capacity, BCWD coordinates with the partnership to implement projects in pursuit of shared goals, leveraging 1W1P planning area funding, as applicable.

5.8 Plan Revision and Amendment

This plan, as may be amended, will guide BCWD activities through 2036, when it will be superseded by approval and adoption of a subsequent plan pursuant to Minnesota Statutes chapter 103B and Minnesota Rules chapter 8410. In the meantime, significant changes to goals, policies, standards, administrative procedures, or capital improvements as described in the plan will be undertaken in accordance with the process provided in Minnesota Rules 8410.0140.

5.8.1 General Amendment Procedure

All amendments to a plan will be initiated only by action of the board of managers acting as a body, but BCWD anticipates that any amendments needed will involve only the addition of detail on projects and programs, and the addition of specific projects to fulfill goals already established in the plan. (BCWD intends to specify criteria for entering into cost-share projects with public and private partners through adoption of resolutions that fulfill goals and purposes established in the plan, i.e., without amending the plan.) As such, BCWD anticipates that any amendments needed will be subject to the "minor amendment" process provided in Minnesota Rules 8410.0140, subpart 2. That said, BCWD will not shrink from a major change to the plan if circumstances and developments on the ground and in the waters mandate it. In such instance, BCWD will amend the plan in accordance with the procedures prescribed by Minnesota Statutes section 103B.231, subdivision 11.

5.8.2 Amendment Format and Distribution

Unless the entire document is reprinted, all amendments proposed by BCWD will be distributed in ~~strikeout~~/underline form of replacement pages for the plan. Draft amendments will be distributed electronically to the list of agencies and individuals who are either required to receive amendments or who have asked for same. If a recipient requests, BCWD will distribute proposed amendments as hard copy, but in the first instance BCWD will distribute amendments and receive comments electronically. BCWD's plan is available on its website – http://bcwd.org – and will post draft amendments whenever such changes are proposed.

5.8.3 Local Water Management Plan Amendment

Local water management plans should be amended in accordance with Minnesota Statutes section 103B.235, subdivision 5, and Minnesota Rules 8410.0160, subpart 4. Amendments will be timely-reviewed and, in accordance with applicable requirements of state law, approved on a determination by BCWD that the amendment ensures that the local water plan remains consistent with BCWD's plan.



Community members gathered in 2025 for a tour led by the Community Advisory Committee.



Canoeing through the lily pads for an aquatic plant survey on Long Lake in 2025.~~[IMAGE]~~

Table 80. Implementation Plan – Higher Priority

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
ADMINISTRATION - INTERNAL SERVICES	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**250,000**	**2,500,000**										
Annual administration costs include manager per diems and expenses, secretarial services, dues and subscriptions, bonding and insurance, postage and delivery, printing and notices, accounting, Washington Conservation District administration, conference registrations, legal fees, and staff engineer fees	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000	BCWD ad valorem									
PROJECT DEVELOPMENT	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**230,000**	**2,300,000**										
Washington Conservation District, legal, and staff engineer	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	230,000	2,300,000	BCWD ad valorem									
WATERSHED MANAGEMENT PLAN						40,000	40,000	40,000	40,000	40,000	200,000										
Allocate funds in anticipation of the 2037-2046 watershed management plan update.						40,000	40,000	40,000	40,000	40,000	200,000	BCWD ad valorem									Funds set aside for the development of the 2037-2046 watershed management plan.
STORMWATER RUNOFF MANAGEMENT	**281,000**	**~~231~~381,000**	**235,000**	**385,000**	**275,000**	**225,000**	**~~325~~375,000**	**225,000**	**225,000**	**325,000**	**2,~~782~~982,000**										
Utilize the district's stewardship and cost-share programs to assist residents in installing water quality improvement projects (including thermal best management practices) and water quantity (e.g., volume control) practices.	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	500,000	BCWD ad valorem	√		√	√					Conduct two to ten projects per year assuming $25,000 cap and 10-12 hours of Washington Conservation District technical assistance per project.
Revisit sampling at the Long Lake inlet, and three locations within the Zephyr tributary for six to eight rain events to evaluate possible sources of phosphorus and recent data trends.	6,000	6,000										BCWD ad valorem				√				√	Report summarizing sampling results and trend analysis.
Investigate more opportunities for erosion control or sediment remediation in the north branch, west branches one and two, and the direct drainage to the diversion structure to further improve phosphorus loading to Lake McKusick.				60,000							60,000	BCWD ad valorem				√	√				Report recommending opportunities for erosion control.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Partner with local businesses (e.g., golf courses like Stillwater Country Club and/or Logger's Trail) to implement stormwater capture and reuse, where safe and feasible for human health.		150,000					50,000				200,000	BCWD ad valorem			√						Reuse projects completed.
Maintain BCWD-owned stormwater management facilities identified in the *BCWD Capital Improvement Project Standard Operating Procedures Manual*. Evaluate performance as needed including: • Observe facilities chosen for monitoring during construction to evaluate any conditions that would affect infiltration or removal rates. • Evaluate long-term performance and obtain design information on infiltration rates, suspended solids removal rates, phosphorus removal rates, and chloride concentrations as appropriate to the facility. • Monitor the iron enhanced sand filter medium after replacement. • Update the *BCWD CIP Standard Operating Procedures Manual*. • Develop and follow an operations and maintenance plan for stormwater management facilities operated by BCWD.	200,000	150,000	150,000	150,000	200,000	150,000	150,000	150,000	150,000	150,000	1,650,000	BCWD ad valorem						√		√	Report best management practice performance for evaluation criteria.
Establish a cost-share program that will allow BCWD to partner with the business/development community on best management practices that help a site go above and beyond the rule requirements.			10,000	100,000			100,000			100,000	310,000	BCWD ad valorem			√						Conduct four to ten projects assuming $25,000 cap and 10-12 hours of Washington Conservation District technical assistance per project.
Establish a cost-share program that will allow BCWD to partner with its member communities to implement water quality improvement/retrofit projects.	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	250,000	BCWD ad valorem					√				Conduct five to ten projects per year assuming $5,000 cap and 10-12 hours of Washington Conservation District technical assistance per project.
EROSION PREVENTION & SEDIMENT CONTROL	**15,000**	**7,500**	**7,500**	**22,5000**		**7,500**	**15,000**	**15,000**		**22,5000**	**112,500**										

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Identify shoreline restoration opportunities. For example, using the Minnesota Department of Natural Resources' "Score Your Shore" tool.	15,000			15,000			15,000			15,000	60,000	BCWD ad valorem	√					√	√	√	Number of future shoreline restoration opportunities and shoreline restoration opportunities where work has been completed. Distance of restored shoreline.
Conduct stream channel assessments from the headwaters to the St. Croix River to identify in-stream or near channel instabilities and active headcutting. Conduct biennial drone flights (every other year) upstream of Manning Avenue where large wetland complexes occur, and biennial foot surveys downstream of Manning Avenue, including the three tributaries south of Brown's Creek State Trail (South Central, Zephyr, and Long Lake tributaries). Conduct additional observations during walk throughs including: • Fish barrier assessment (see Ecological Health) • Footpath formation (see Recreation)		7,500		7,500		7,500		7,500		7,500	37,500	BCWD ad valorem								√	Report documenting findings of assessment and corrective actions if needed.
Support the Minnesota Department of Natural Resources in addressing Brown's Creek bluff instability projects and five-year assessment.			7,500					7,500			15,000	BCWD ad valorem								√	Report documenting assessment of bluff conditions and improvements from bluff stabilization projects.
STREAM MANAGEMENT	**142,900**	**239,600**	**40,500**	**45,000**	**172,000**	**284,000**	**42,000**	**85,500**	**147,000**	**179,500**	**1,378,000**										
Continue to implement volunteer stream monitoring program by providing financial support to the Stillwater Area High School science program.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem				√					Annual presentation to the BCWD Board of Managers on the results of the macroinvertebrate survey.
Reassess the fish and macroinvertebrate community health at representative sites in three portions of Brown's Creek (Headwaters, Central, and Lower Gorge) in September.	5,000	5,000	5,500	5,500	6,000	6,000	6,500	6,500	7,000	7,000	60,000	BCWD ad valorem								√	Results will be used to evaluate stream health. Cost estimates assume that the Minnesota Pollution Control Agency will be conducting assessments of both fish and macroinvertebrates in2027 as part of its reassessment.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Conduct fish sampling on Brown's Creek, if not completed by the Minnesota Department of Natural Resources, to determine the population status and distribution of the rainbow darter in the gorge.	5,000			5,000			6,000			6,000	22,000	BCWD ad valorem								√	Improved population status and distribution in the gorge compared to previous samplings.
Implement TSS reduction projects based on the findings of the BCWD's sediment evaluations (e.g., PTMapp Analysis and McKusick Stormwater Feasibility Analysis) – **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (Table 81~~Table 81~~).**	68,400	228,600	21,500	20,000	160,000	272,000	15,000	64,000	134,000	152,000	1,135,500	BCWD ad valorem					√	√			Improved biological community in Brown's Creek as determined by the IBI (Index of Biological Integrity) scores.
~~Evaluate the feasibility of stormwater capture and use (e.g., capturing more runoff at the diversion structure and reusing it at the Oak Glen Golf Course, designing reuse system at the Stillwater Country Club) to reduce surface water contributions to Brown's Creek and to maintain baseflow contributions.~~							~~50,000~~				~~50,000~~	~~BCWD ad valorem~~			~~√~~						~~Feasibility report~~
Conduct a feasibility study to address discharge from the Neal Avenue valve to the diverted system or Brown's Creek - Evaluate options for reducing the thermal load to the creek	50,000										50,000	BCWD ad valorem						√		√	Reduced thermal load to the creek.
Hold meetings every three years with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals and opportunities for partnerships.~~Hold annual meetings with member communities to discuss progress toward local surface water management plan implementation, TMDL Implementation Plan goals, other mutual goals, and opportunities for partnerships.~~	8,5002,750	~~2,750~~	~~2,750~~	8,5002,750	~~2,750~~	~~2,750~~	8,5002,750	~~2,750~~	~~2,750~~	8,5002,750	34,00027,500	BCWD ad valorem					√	√	√	√	Annual meeting minutes.

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Commented [HP19]: This doesn't match the Implementation item in the issue section, which says $8,500 every three years. Not sure which was correct.

Commented [AA19R2]: 8.5k every three years is correct - this is good.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Support beaver activity in the watershed, and utilize pond levelers in beaver dams to maintain habitat and flow to prevent flooding of infrastructure and property.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem		√				√	√		Instances of pond levelers and other management practices utilized to support beaver activity while preventing negative flood impacts.
Monitor geomorphology of Brown's Creek and its tributaries on a five-year basis to understand the creek's response to restoration activities and to detect changes within unrestored reaches.			7,500					9,000			16,500	BCWD ad valorem						√		√	Report documenting comparative response of restored and unrestored reaches.
LAKE MANAGEMENT	**16,000**	**21,000**	**70,000**	**67,000**	**67,000**	**~~67~~70,000**	**67,000**	**67,000**	**~~67~~70,000**	**67,000**	**582,000**										
Implement watershed improvements in the relevant lake management plans - **SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (**Table 82~~Table 82~~**).**	~~18,300~~	~~15,250~~	~~4,500~~66,000	66,000~~10,000~~	66,000~~15,500~~	66,000~~28,500~~	66,000~~35,000~~	66,000~~49,250~~	66,000~~71,800~~	66,000~~75,000~~	~~323,100~~528,000	BCWD ad valorem			√		√	√		√	Improved water quality in Long Lake as determined by long-term trend analysis of BCWD's annual water quality monitoring data. Specifically, in-lake phosphorus concentrations will decrease, there will be less frequent nuisance algal blooms, and the transparency of the lake water will increase as determined by secchi depth measurements.
Evaluate options to address high water levels on Long Lake for the existing and projected 100-year rainfall event to provide additional protection for residences with less than adequate freeboard and for the protection of roads (Mid Oaks, 62nd St, & 72nd St inundated for current 100-year event) [2021 Long Lake Flood Reduction Risk Evaluation].	15,000	20,000									35,000	BCWD ad valorem	√				√	√		√	Evaluation report
Inventory surface and groundwater resources for unique and notable features, protection strategies, and integrated findings with community conversations.	1,000	1,000	4,000	1,000	1,000	4,000	1,000	1,000	4,000	1,000	19,000	BCWD ad valorem	√					√		√	Surface and groundwater inventories.
WETLAND MANAGEMENT	**14,500**	**14,500**	**15,000**	**15,000**	**15,000**	**15,500**	**15,500**	**15,500**	**16,000**	**16,000**	**152,500**										
Maintain the high-level functions and values of the watershed's fen by managing the vegetation to control the encroachment of invasive vegetation on the wetland and protecting the fen groundwater recharge area.	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	45,000	BCWD ad valorem			√	√		√		√	Control of the invasive species within the fen.

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IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Improve the quality of buffers in priority wetlands as identified in the district's wetland functions and values assessment through preservation, restoration, and enhancement projects. **- SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE, POND, AND WETLAND MANAGEMENT PLAN (Table 82~~Table 82~~).**	7,500	7,500	8,000	8,000	8,000	8,500	8,500	8,500	9,000	9,000	82,500	BCWD ad valorem			√		√	√		√	Improvement in buffer quality.
Conduct routine evaluations of wetland buffers recorded via the district's regulatory program to ensure the quantity and quality of recorded buffers are being maintained.	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	25,000	BCWD ad valorem					√	√		√	Quantity and quality of recorded buffers remain the same or improve.
FLOODPLAIN & FLOOD MANAGEMENT	**50,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**7235,000**										
Promote natural asset management by supporting member communities in identifying, valuing, and protecting natural features that provide flood storage and contribute to stormwater management and watershed resilience.	50,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	725,000	BCWD ad valorem			√		√	√	√		Implementation of projects identified by communities/in the Flooding and Floodplain Management Plan (Table 83)
~~Develop GIS database of relevant current and historical groundwater-dependent natural resources monitoring data and provide the database to the public via the district website.~~										~~10,000~~	~~10,000~~	~~BCWD ad valorem~~					~~√~~	~~√~~	~~√~~	~~√~~	~~Database.~~
GROUNDWATER MANAGEMENT	**9,000**	**9,000**	**9,000**	**9,000**	**9,000**	**8,000**	**8,000**	**8,000**	**8,000**	**18,000**	**8595,000**										
Collaborate with the Minnesota Department of Health to review and resolve differences related to BCWD-identified areas of contamination concern and recharge protection in the Drinking Water Supply Management Areas (DWSMA) and aquifer vulnerability assessments delineated by Stillwater and Oak Park Heights.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem								√	Resolution of areas of contamination differences
Continue to participate in the North and East Metro Groundwater Management Area Plan Project Advisory Team by attending meetings.	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	20,000	BCWD ad valorem						√	√	√	Attendance at Advisory Committee meetings and updates to BCWD Board and staff.

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IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Collect groundwater elevation data from residential wells, monitoring wells, high-capacity wells, and near landlocked basins at least annually. Install data recorders to collect more frequent measurements where possible. Share information with Washington County and the Metropolitan Council.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem						√	√	√	Annual report on water level trends.
Work with the Minnesota Department of Natural Resources' Observation Well program and others to install deep observation wells near Brown's Creek to monitor bedrock aquifers.	1,000	1,000	1,000	1,000	1,000						5,000	BCWD ad valorem								√	Long-term observation wells.
Conduct a GIS analysis intersecting low-lying areas and areas of high groundwater elevations to identify areas susceptible to groundwater flooding.										10,000	10,000	BCWD ad valorem					√	√	√	√	Database.
ECOLOGICAL HEALTH	**24,000**	**21,500**	**21,500**	**10,500**	**8,500**	**4,500**	**3,000**	**19,000**	**1,500**	**3,000**	**117,000**										
Create and maintain a unique species database by using shared observation tools that allows community scientists, BCWD, the Minnesota Department of Natural Resources, and other volunteers to pool their observations. Regularly publish updates of the unique species inventory and incorporate findings into education and outreach materials.	9,000	500	500	500	500	500	500	500	500	500	13,500	BCWD ad valorem	√	√		√					Number of unique species and sightings added to the inventory.
Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique species inventory survey area. Many riffles in the lower gorge have not been surveyed.			~~2,500~~4,000							~~2,500~~4,000	~~5~~8,000	BCWD ad valorem				√					Determine presence of mussels, potential monitoring of mussel population
Review updated data on unique species with the Community Advisory Committee every four years, and provide recommendations to the Board to inform policies, projects, and programs. Share outcomes with member communities to inform land use planning.				7,500				7,500			15,000	BCWD ad valorem					√	√	√		Report to the board on unique species.
Develop a beaver management plan to inform how BCWD can maintain habitat and flow while preventing flooding of infrastructure and property.		5,000	10,000								15,000	BCWD ad valorem	√		√					√	Develop a plan.

Commented [HP22]: Update totals after reviewing this section. There were some inconsistencies and an item no longer in the plan

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IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
~~Compile a herptile record database developed from available records and initiate community volunteer amphibian and reptile survey.~~				~~3,500~~							~~3,500~~	~~BCWD ad valorem~~				~~√~~					~~Determine list of species present in the watershed district and relative abundance~~
Implement native plant community preservation and restoration projects (e.g., Kittentail restoration work with Washington County, Mendel Wetland restoration).	7,000	3,000			7,000	3,000					20,000	BMP Cost Share Program and Ad Valorem	√		√			√			Coordinate volunteer planting days or terrestrial invasive species removal projects including the coordination of disposal activities.
Work with the City of Stillwater and area residents to develop a plan and conduct ongoing monitoring and maintenance of the oak forest found on the west side of Long Lake (identified as a Rare Feature) to evaluate its quality, and if any management activities are needed to ensure its sustainability.	1,500	10,000		1,500			1,500			1,500	16,000	BCWD ad valorem					√	√		√	Develop a plan and report monitoring.
Coordinate with the Minnesota Department of Natural Resources on future Minnesota Biological Survey (MBS) assessments to share unique systems for data gathering and sharing. For example, addressing the under-ranked MBS site in Grant.	1,500										1,500	BCWD ad valorem								√	Data shared with DNR
Support initiatives by the county and other regional partners on aquatic invasive species (AIS) management.	5,000	3,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	16,000	BCWD ad valorem						√	√	√	Staff support of county and regional partner AIS managment initiatives
Conduct ongoing vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of five wetland and five upland plots should be established for long-term monitoring.			6,000					6,000			12,000	BCWD ad valorem	√								Establish minimum 10 vegetation plots, monitoring reports.
MONITORING AND DATA COLLECTION	**208,000**	**207,000**	**207,000**	**223,000**	**213,500**	**207,000**	**208,000**	**320,000**	**222,000**	**214,500**	**2,230,000**										
Continue to implement the Brown's Creek and lake baseline monitoring program at existing monitoring stations to track changes in the watershed and provide baseline data for modeling and other uses. Continue to collect data on water quality, continuous discharge data thermal monitoring, and local	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000	BCWD ad valorem						√		√	Board approved annual monitoring reports.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
climatology data. Includes costs for equipment, maintenance and upgrades.																					
Update the watershed conditions report every five years to assess the impact of BCWD programs on water quality, evaluate trends in watershed conditions (including impacts related to climate change and groundwater-dependent natural resources), and evaluate the need to make course corrections in strategy.				15,000					15,000		30,000	BCWD ad valorem						√			Data and summation of results incorporated into board approved monitoring report.
Conduct updates to BCWD's hydrologic and hydraulic model to reflect new development activity annually, and incorporate any new information collected by BCWD and/or member communities (e.g., structure inventories) before the next plan update.	7,000	7,000	7,000	7,000	7,000	7,000	7,000	120,000	7,000	7,000	183,000	BCWD ad valorem			√		√				Updated hydrologic and hydraulic model with improved functionality.
Continue identifying cooperative opportunities with landowners to implement stream shading projects through site assessments, landowner outreach, and preparing project development materials.	1,000			1,000			1,000			1,000	4,000	BCWD ad valorem			√						Inventory of outreach and cooperative opportunities
Publish a plain-language watershed story update every five years aligning with the update to the watershed conditions report.					6,500					6,500	13,000	BCWD ad valorem	√								Publication of the watershed story update.
REGULATIONS	**137,000**	**127,000**	**127,000**	**~~125~~140,000**	**105,000**	**135,000**	**105,000**	**105,000**	**~~123~~138,000**	**105,000**	**1,~~194~~224,000**										
Utilize local water management plan review and approval process to ensure implementation of water resource protection standards consistent with or more protective than district standards.	2,000	2,000	2,000	2,000							8,000	BCWD ad valorem					√				Review and comment on local surface water management plans.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Develop practical, non-technical guidance materials for the development and design communities and municipalities that support designing and implementing stormwater management facilities - including green infrastructure - clarifying the permitting process and permit application submittal requirements. Guidance materials may include reference to adaptation necessary for projected climate conditions, with the aim of enhancing system resilience, protecting water quality, and supporting sustainable development across the watershed.		20,000	20,000								40,000	BCWD ad valorem	√		√		√	√	√	√	Development of guidance materials.
Work with member municipalities to incorporate links to permit requirements of BCWD and other watershed districts and watershed management organizations in their jurisdiction on their planning/economic development pages.				15,000					15,000		30,000	BCWD ad valorem					√				Updated municipal permitting pages
Conduct a regulatory program evaluation by hosting workshops with local partners, surrounding watershed management organizations, developers, and the engineering design community.				15,000					15,000		30,000	BCWD ad valorem					√	√	√	√	Workshop attendance.
Implement the online application portal and electronic payment process.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem									Permits processed. Improving number of applications deemed complete on first submission.
Review permit fee structure every five years to ensure they are clearly communicated and equitable.				3,000					3,000		6,000	BCWD ad valorem									Report to the board on the permit fee structure review

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Administer the BCWD Permit Program including activities such as: • Assisting applicants with permits and conducting one free consultation meeting early in the project-development process to identify which rules are triggered by the development activity and to discuss permit submittal and applicable regulatory requirements. • Conducting steep slope analysis for permits that will trigger buffer requirements applicable to such landscapes.	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	1,000,000	Permit fees or BCWD ad valorem (for projects with exempt fees)			√						Effective, efficient permitting program.
Conduct a review and revision of BCWD's rules (adopted in 2020) in accordance with Minnesota Statutes section 103D.341. Further evaluate the need to develop and adopt rule language regulating to a simplified performance goal like the Minimal Impact Design Standard.~~Undertake a rulemaking in accordance with Minnesota Statutes section 103D.341 to develop changes to the present BCWD rules (adopted in 2020). Further evaluate the need to develop and adopt rule language regulating to a simplified performance goal similar to the Minimal Impact Design Standard (MIDS).~~	30,000					30,000					60,000	BCWD ad valorem					√	√	√	√	Board approved Rules and Statement of Need and Reasonableness.
RECREATION			**15,000**								**15,000**										
Develop a mapped inventory of current and desired recreation activities and locations with watershed partners.			15,000								15,000	BCWD ad valorem	√		√	√	√	√			Creation of an inventory map
EDUCATION, OUTREACH, & STEWARDSHIP	**139,500**	**143,000**	**144,500**	**144,000**	**184,500**	**149,500**	**146,000**	**149,500**	**151,000**	**150,500**	**1,502,000**										
Coordinate BCWD education and outreach efforts with those of municipalities and other local watershed organizations by continuing to support the East Metro Water Resource Education Program (EMWREP).	32,000	32,000	35,000	35,000	35,000	38,000	38,000	38,000	41,000	41,000	365,000	BCWD ad valorem					√	√			EMWREP events in BCWD.
Administrative contributions to Education and Outreach	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	650,000	BCWD ad valorem									

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Encourage attendance at training sessions regarding ordinances, development planning strategies, and development techniques that protect natural resources and benefit water quality by providing stipends so that two people from each district community can attend once every three years.			2,000			2,000			2,000		6,000	BCWD ad valorem			√		√				Attendance at training sessions.
Encourage attendance at training sessions regarding stormwater management facility maintenance schedules and procedures and the relation to water quality improvement (e.g., best practices to reduce impacts on water resources from parks and road maintenance activities - road salt application, fertilizer use, irrigation practices) by providing stipends so that two people from each district community can attend once every three years		2,000			2,000			2,000			6,000	BCWD ad valorem			√		√				Attendance at training sessions.
Increase outreach opportunities with the development community by hosting a bi-annual developers meeting/focus group		2,000		2,000		2,000		2,000		2,000	10,000	BCWD ad valorem rem					√				Attendance at meetings/focus groups.
~~Regularly~~ Annually promote BCWD's events and accomplishments through multiple communication channels (e.g., mailings, newsletters, social media) to reach audiences, and share information about topics such as groundwater recharge, wetland and lake aesthetics and natural condition, home and yard care practices, and shoreline and wetland stewardship.	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,000	BCWD ad valorem	√	√	√	√	√	√	√	√	Quantity of print and digital media issued. Engagement metrics with digital media.
Host information sessions on education topics of interest (e.g., estate planning)	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	15,000	BCWD ad valorem						√			Attendance at information sessions.
Establish one permanent information kiosk with permanent and rotating information that is geographically relevant to resources near the kiosk (e.g., chloride impairment in Long Lake).					40,000	500	500	500	500	500	42,500	BCWD ad valorem					√	√		√	Establishment of the kiosk.
Pilot an artist in residency program to creatively engage the public in conversations about their watershed.	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	150,000	BCWD ad valorem						√	√		Attendance at events.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Host an annual event celebrating a watershed resource (e.g., BCWD on the Lake could provide an opportunity for small watercraft to explore a lake and learn about improvements and challenges facing the resource).	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	40,000	BCWD ad valorem					√				Attendance at event.
Recognize community member efforts in water and natural resource protection every two years	500		500		500		500		500		2,500	BCWD ad valorem					√				Record of recognition recipients.
Host annual community watershed event and smaller events to highlight local projects and to engage residents in scientific and recreational activities	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	30,000	BCWD ad valorem	√			√	√				Attendance at events.
Partner with Belwin Conservancy to provide educational content for grade school lessons in the classroom in Stillwater area schools.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem				√					Attendance at events.
Partner with Trout Unlimited to provide education content for grade school Trout in the Classroom sessions.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem	√			√					Attendance at events.
Participate in school community education events (e.g., DaVinci Fest).	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem				√					Attendance at events.
Develop a board training plan annually, identifying training opportunities and ongoing learning.	500	500	500	500	500	500	500	500	500	500	5,000	BCWD ad valorem									Record of board training topics and attendance.
Support manager attendance at external trainings (e.g., Water Consortium, Minnesota Watersheds, EMWREP, Lower St. Croix Partnership).	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem						√	√	√	Attendance at trainings.
LAND CONSERVATION	**77,500**	**77,500**	**75,000**	**75,000**	**75,000**	**95,000**	**75,000**	**75,000**	**75,000**	**95,000**	**795,000**										
Review and revise land protection corridors and priorities to reflect current resource protection needs (e.g., recharge areas, unique resources, headwaters of Brown's Creek, and land adjacent to watershed resources).						20,000					20,000	BCWD ad valorem					√	√		√	Document that identifies land conservation priorities and establishes sound practices for restoration, inspection, and management of lands held by BCWD in conservation easements.
Work with member communities during the Comprehensive Planning process to evaluate protection strategies near and within priority land conservation areas.	2,500	2,500									5,000	BCWD ad valorem	√		√		√	√	√	√	Development of land conservation standards.

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IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Purchase property or easements as land conservation opportunities arise within priority areas	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	500,000	BCWD ad valorem	√		√		√	√	√	√	Increase area of conservation property and easements.
Restore the Brown's Creek Conservation Area by implementing the activities identified in its management plan.	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	250,000	BCWD ad valorem	√			√		√		√	• Preserved and enhanced stream health across the property. • Maintained or improved width to depth ratios. • Maintained or improved bank stability. • Improved floristic quality and richness (diversity) across the property. • Successfully executed prairie restoration with pollinator focus (Unit 1). • Managed invasive species and promoted Oak Woodland-Brushland succession (Units 3, 4, & 7). • Managed invasive species and diversify floristic quality (Units 2, 5, & 6).
Develop and implement management plans for new district-owned easements.										20,000	20,000	BCWD ad valorem	√		√		√	√	√	√	Increase the number of easements found in the BCWD.
FUNDING	**5,000**	**5,000**	**7,500**	**5,000**	**15,000**	**45,000**	**45,000**	**47,500**	**45,000**	**45,000**	**265,000**										
Actively seek and acquire, as possible, alternate sources of funding for district studies, projects, and capital improvements through grants and other outside monies.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem									Value of grants and other monies obtained.
Evaluate the progress on goals and implementation activities, including the capital improvement program, to determine if amendments to the implementation plan are necessary.			2,500		10,000			2,500			15,000	BCWD ad valorem	√		√		√	√		√	Increase the number of community led projects and/or community demonstration projects that achieve the goals of the plan (e.g., groundwater conservation strategies).
~~Allocate funds in anticipation of the 2037-2046 watershed management plan update.~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~40,000~~	~~40,000~~	~~40,000~~	~~40,000~~	~~40,000~~	~~200,000~~	~~BCWD ad valorem~~									~~Funds set aside for the development of the 2037-2046 watershed management plan.~~
POLLUTANTS OF EMERGING CONCERN					**5,000**					**5,000**	**10,000**										
Evaluate the district's role in monitoring, mitigating, and managing the impact of PECs every five years.					2,500					2,500	5,000	BCWD ad valorem		√			√	√	√	√	Report to the board on PEC management.

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES / AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/Community Groups /Volunteers	U of M Extension	Businesses/Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Conduct a PFAS trend analysis after five years of data has been collected.					2,500					2,500	5,000	BCWD ad valorem		√			√	√	√	√	Report to the board on PEC trend analysis.
Total	**1,599,400**	**1,~~658808~~,600**	**1,529,500**	**1,696,000**	**1,699,500**	**1,801,000**	**1,6~~50~~9,500**	**1,687,000**	**1,~~713653~~,500**	**1,~~791801~~,000**	**16,~~755935~~,000**										

Table 81. Brown's Creek Management Plan (see Figures 4 and 5 for a map of reaches for implementation)

IMPLEMENTATION ACTIVITIES	SEGMENT ID	ESTIMATED COST	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
THERMAL IMPROVEMENTS / RATE CONTROL Many of these projects are intended to slow overland flow, promote infiltration, and reduce runoff temperatures as water moves across the landscape. These improvements provide distributed rate control by reducing peak flow rates, while also stabilizing soils, minimizing erosion and sediment transport, and lowering thermal loads to the creek.												
Improve buffer on 131 feet upstream of Wolf Marine.	1	$5,000			●	●						
Improve buffer on 392 feet upstream of Wolf Marine.	2	$10,000			●	●						
Improve buffer on 325 feet upstream of County Road 5.	3	$5,000			●	●						
Improve buffer on 653 feet on Schubert property.	4	$20,000			●	●						
Improve buffer on 1,800 feet on Oak Glen LLC and Minnesota Department of Natural Resources	6	$20,000	●	●								
Stream geomorphology + thermal buffer improvements (e.g., Millbrook Phase II) Project Development – Outreach with the HOA, development of concept plans and renderings for landowner engagement. Improve bank stabilization (i.e., Brown's Creek Cove Restoration).	10	$57,000		●	●							
Removal of buckthorn at the road crossing.	11	$3,000		●	●							
Improve buffer 950 feet upstream of Hwy 96 (Mendel Wetland)	12	$120,000								●	●	
Improve buffer 1,045 feet on Costa Lorraine M Properties (Mendel Wetland).	13	$190,000									●	●
Improve buffer along approximately 1,000 feet on Grogan property.	14	$15,000							●			
Explore feasibility of using property adjacent to the Oak Glen Golf Course for the location of a large-scale rock crib (as identified in McKusick Road Stormwater Feasibility Analysis), as well as design and construct the rock crib.	NA	$200,000					●	●				
Explore options for addressing thermal loads from the drainage area in Zone D from the McKusick Road Stormwater Feasibility Analysis.	NA	$40,000								●		
Evaluate options to treat stormwater contributions to Brown's Creek and/or Lake McKusick from gate valve in the storm sewer along Neal Avenue (e.g., pre-treatment, split flows between Brown's Creek, Oak Glen Golf Course, and Lake McKusick).	NA	$30,000	●	●								
Subtotal		**$715,000**										
TSS LOAD REDUCTION PROJECTS (DOWNSTREAM OF MANNING AVENUE)* **												
Evaluate the need for rate control and water quality treatment to address discharge from the ravine downstream of Oak Glen Golf Course cart washing facility.		$15,000					●					
Re-evaluate the need for rate control and gully stabilization at Oak Glen Golf Course.		$ 2,000					●					
Long Lake tributary from 400 feet upstream of south central tributary to Boutwell Road: ~ 1,110 LF; canopy thinning and removal of woody invasives; grade control to address remaining incision and reconnect floodplain; restore hydrology in wetland below Boutwell Road.		$217,000	●	●								
Boutwell Road pond (upstream end) to County Road 12: ~ 1,800 LF; limited inputs, mostly canopy thinning and removal of woody invasives; floodplain connectivity and grade control.		$215,000					●	●				
Implement the recommendations of tributary resource assessment by addressing improvements needed in the Long Lake tributary, which is experiencing channel incision and bank erosion below Boutwell Road.		$20,000										
Subtotal		**$469,000**										
ECOLOGICAL HEALTH PROJECTS												
Fish barrier removal projects based on walk through assessment.		$25,000										
Subtotal		**$25,000**										

Commented [CC25]: @Alexander Furnesh We need to connect these recommended BMPs to the figure which illustrates where they the segments are located. I can help with this.

Figure 4. Stream Geomorphology and Thermal Buffer Improvements 2012 (Page 1)

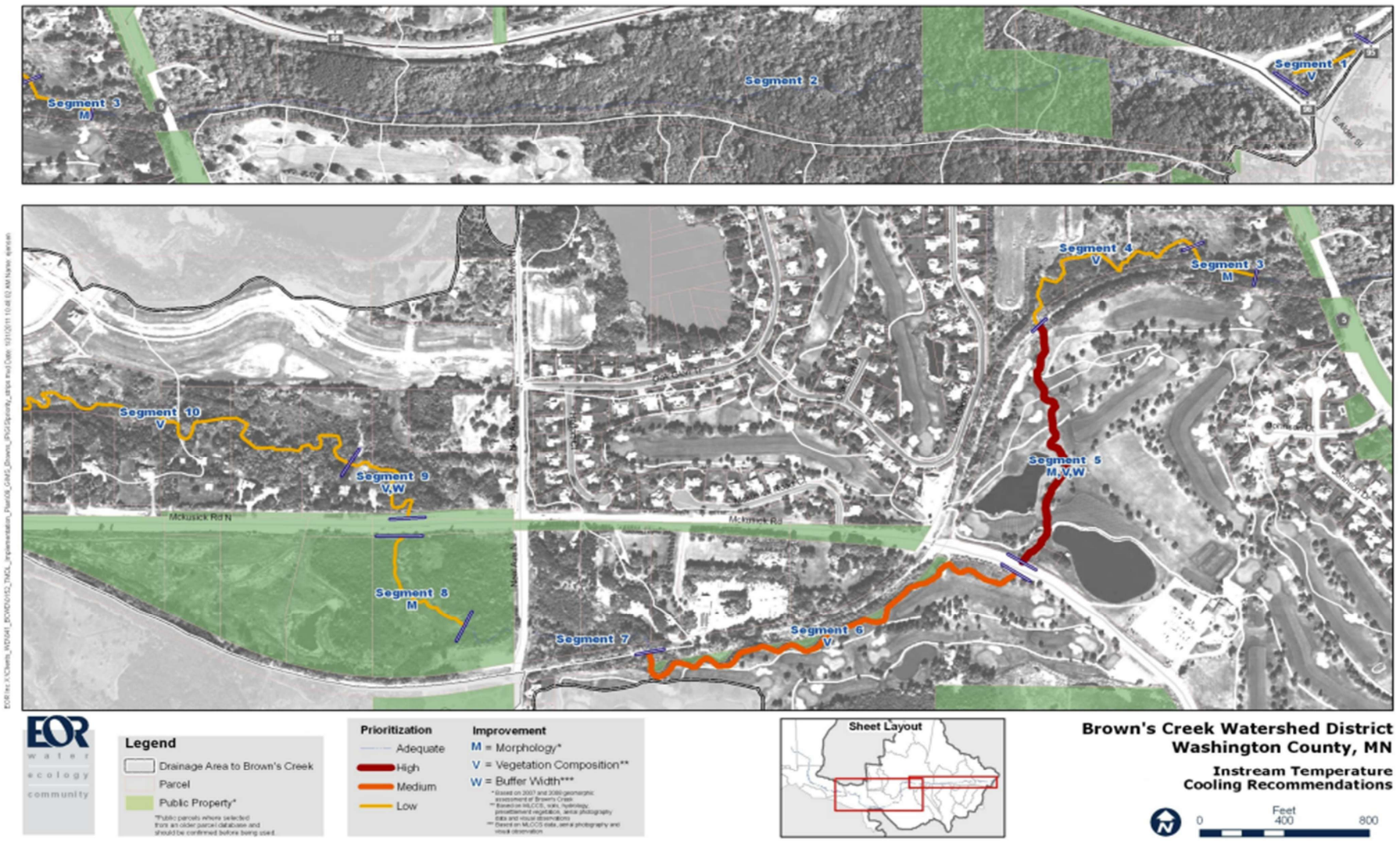

Figure 5. Stream Geomorphology and Thermal Buffer Improvements 2012 (Page 2)

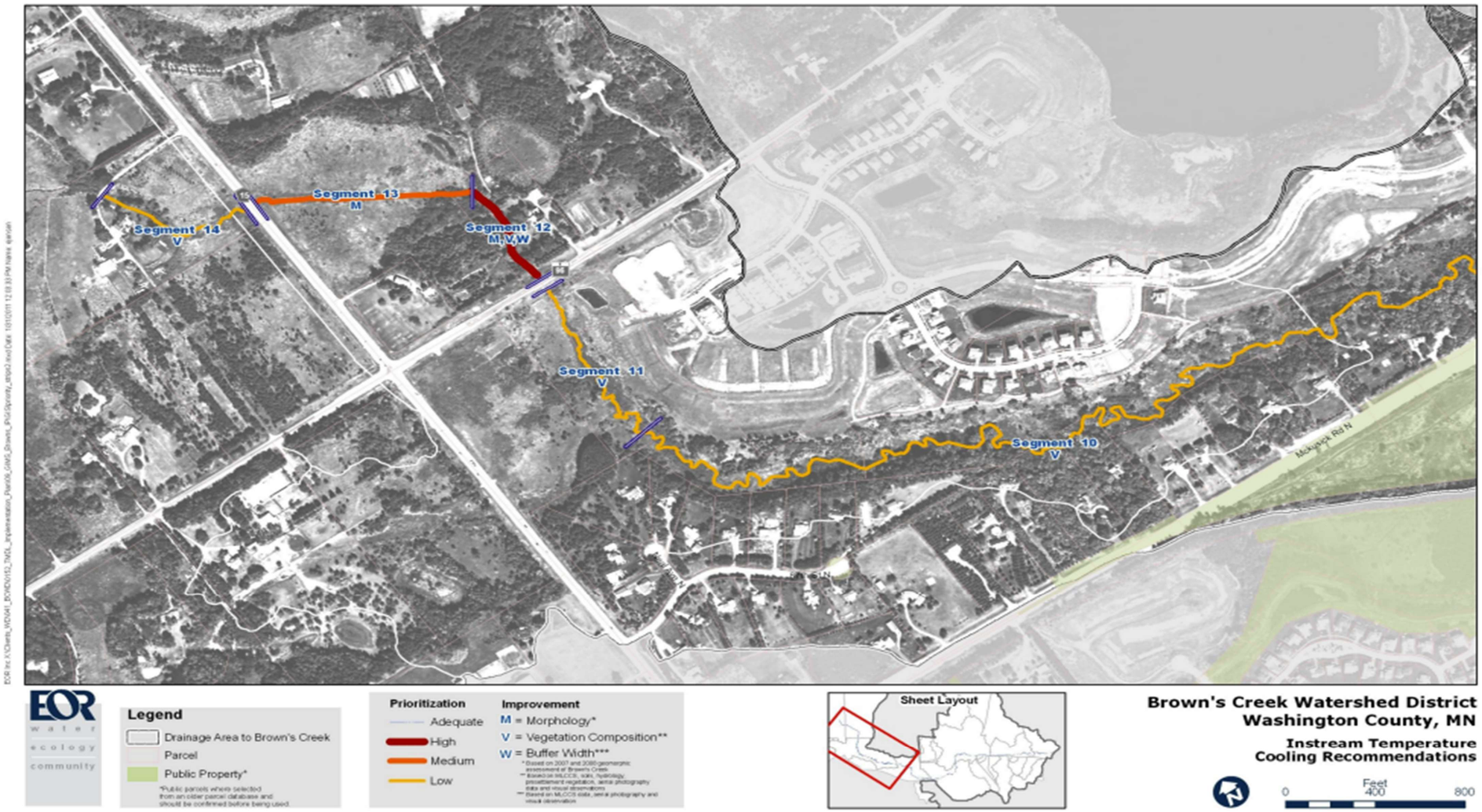

Table 82. Lake, Pond, and Wetland Management Plans

IMPLEMENTATION ACTIVITIES	ESTIMATED COST**	FREQUENCY	LAKES										PONDS								SPECIFIC TIMING COMPONENTS
			Bass Lake East	Benz Lake	Long Lake	Lynch Lake North	Lynch Lake South	Masterman Lake	Plaisted Lake	South School Section Lake	Wood Pile Lake	Bass Lake West	Brewers Pond	Goggins Lake	Heifort Pond	July Avenue Pond	Kismet Basins	Pat Lake	North School Section	Sinnit's Pond	
			B+	B	B	D	B	B+	B+	C	A	B-	C-	C	D+	D	B+	B-	B+	B	
DATA COLLECTION/EDUCATION																					
Conduct routine shoreline surveys using the "Score Your Shore" assessment process, compare results to previous surveys, and provide landowners with feedback on changes observed along their shoreline and recommended actions to improve shoreline quality.	$500/year	2X	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Send them the "Score Your Shore" report. Let them know how they are doing. (18 total/six per year) - 1st assessment in first three years; do it again in the last three years.
Subwatershed Assessment/Evaluate pollutant loading to the waterbodies.	$15,000/year	1X				●	●			●			●	●	●	●					Brewers (2026); Heifort (2027); South School Section (2028).
PROTECTION STRATEGIES																					
Implement the following protection strategies as opportunities arise: • shoreline management • stormwater best management practices in riparian areas • agricultural conservation practices	$20,000/year		●	●	●			●	●		●	●					●	●	●	●	Do the community and residents want to move forward with these voluntary action.
RESTORATION STRATEGIES																					
Implement the following restoration strategies as opportunities arise: • chloride management • nutrient reduction • wetland restoration • sediment basins • grassed waterways	$20,000/year					●	●			●			●	●	●	●					
CLIMATE RESILIENCE/FLOOD PROTECTION																					

IMPLEMENTATION ACTIVITIES	ESTIMATED COST**	FREQUENCY	LAKES										PONDS								SPECIFIC TIMING COMPONENTS
			Bass Lake East	Benz Lake	Long Lake	Lynch Lake North	Lynch Lake South	Masterman Lake	Plaisted Lake	South School Section Lake	Wood Pile Lake	Bass Lake West	Brewers Pond	Goggins Lake	Heifort Pond	July Avenue Pond	Kismet Basins	Pat Lake	North School Section	Sinnit's Pond	
			B+	B	B	D	B	B+	B+	C	A	B-	C-	C	D+	D	B+	B-	B+	B	
Provide technical support to residents whose homes or structures abut or are within the critical flood event footprint by determining the level of protection needed, providing permitting assistance.	$2,500/year	1X			●						●										$5,000 per house - Three homes on Long Lake and Two homes on Wood Pile.
Provide technical support to residents whose homes or structures are within 16.5 feet of the High-Water Level (HWL).	$250/year	1X		●					●	●	●			●		●	●				
Provide technical support to residents with a well entirely within the critical flood event footprint.	$250/year	1X												●							
Work with member communities to address roads inundated by the critical event HWL.	NA	1X						●	●	●	●			●		●	●				Address with the permitting program. Find out more during the community meetings.
AQUATIC VEGETATION MANAGEMENT																					
Engage with new residents through welcome packets, workshops, and community events to increase understanding of shallow lake dynamics, the ecological role of aquatic plants, and concerns about plant management.	$1,000/year	2X	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Conduct aquatic vegetation point-intercept surveys every three to five years to monitor curly-leaf pondweed treatment efficacy, plant community composition and trends, and providing data to guide future management actions.	$6000/year	3X							●	●				●							2025 costs - South School, Goggins, Long, Benz (last completed in 2022) - $4,500, $3,700, $3,000 - Assume $3K each and assume every five years
Provide outreach and technical support to landowners with rare species present on or adjacent to their lakeshore.	$500/year		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				

Table 83. Flooding and Floodplain Management Plan

IMPLEMENTATION ACTIVITIES	ESTIMATED COST	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
DATA COLLECTION/EDUCATION											
Study the use of active management through approaches such as smart outlets (e.g., on Long Lake), implement this technology if cost-beneficial.	TBD										
Develop a decay curve for infiltration basins with an associated maintenance protocol.	TBD										
Conduct flood hazard assessments and make the information available to local partners to support local decision-making. This includes involvement in local community comprehensive planning processes.	TBD										
Develop a community flood reporting campaign to ground-truth the H&H model and raise awareness about flooding.	TBD										
Conduct a flood sensitivity analysis for a 200-year impact on the freeboard.	TBD										
PROTECTION STRATEGIES											
Implement reuse within the Marketplace drainage area.	TBD										
Maintain the flood-risk mitigation functionality of Kismet basin and Trout-Habitat Preservation Project, and consider enhancing such capacity.	TBD										
Partner with the City of Stillwater in the implementation of recommendations made in the Marylane Avenue North Drainage Easement Assessment.	TBD										
Hugo											
Lynch Road - Subject to flooding under smaller events. No specific comment/request from the city.	TBD										
Lynch Lake - Residential structure subject to flooding under projected conditions. No specific comment/request from the city.	TBD										
July Avenue experiencing flooding for the 25-year event and some structures projected to experience flooding for the 100-year event. No specific comment/request from the city.	TBD										
Keystone Avenue projected to flood for the 25-year event (south of Withrow Ballroom). No specific comment/request from the city.	TBD										
120th flooding.	TBD										
124th Street isolated depression that has potential flood impacts to two residential structures.	TBD										
Lake Elmo											
Manning Avenue south of Hwy 36 managed by the City of Lake Elmo. There has been flooding in this area.	TBD										
Road reconstruction on Linden Avenue scheduled for 2033.	TBD										
Flooding of County Road 10.	TBD										
Grant											
Residential flooding due to flooding of the wetland north of Dellwood Road (Brabender residence). Karen noted she has gotten calls about flooding in the past. Paul noted this is a landlocked basin.	TBD										
Intersection of 88th and Dellwood near Lake Masterman. This gravel road was in rough shape after the flooding of 2018/2019 (i.e., rutting). City received a lot of complaints.	TBD										
McKusick Road North west of Lofton Avenue North, hasn't experienced any flooding in the last 10-15 years. Is this an area that was an issue prior to this time period?	TBD										
Flooding along Kimbro Avenue North, north of County Road 12 near Grant Pond.	TBD										
Subtotal		**50,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**

TBD: Level of funding is not provided due to the large number of potential projects available. Expenditures to be determined as any potential projects are considered for implementation.

Table 84. Implementation Plan – Lower Priority

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES OR AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/ Community Groups /Volunteers	U of M Extension	Businesses/ Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
STORMWATER MANAGEMENT																					
Develop communication materials to convey the benefits of routine maintenance and operation of facilities and the consequences if these are not met.	9,000										9,000	BCWD ad valorem									Development of communication materials
Further investigate heavy metals in the north branch drainage area and the direct drainage to the diversion structure, especially focused on possible contributions of contamination from the historic railroad.			60,000								60,000	BCWD ad valorem					√	√			Report summarizing heavy metal investigation results.
Further investigate heavy metals at the Long Lake inlet and opportunities for erosion control within the wetland adjacent to it.	10,000	10,000	10,000	10,000							40,000	BCWD ad valorem					√	√			Report summarizing heavy metal investigation results.
Determine sediment and chloride loading rates from the gravel roads and parking lots within the district and work with municipalities and townships to address the issue.			10,000								10,000	BCWD ad valorem					√	√			Sediment and chloride loading rates.
~~**EROSION PREVENTION AND SEDIMENT CONTROL**~~																					
~~Determine sediment and chloride loading rates from the gravel roads and parking lots within the district and work with municipalities and townships to address the issue.~~	~~--~~	~~--~~	~~10,000~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~--~~	~~10,000~~	~~BCWD ad valorem~~					~~√~~	~~√~~			~~Sediment and chloride loading rates.~~
STREAM MANAGEMENT																					
Continue to conduct *E. coli* source investigation to evaluate bacteria sources to Brown's Creek and to guide best management practice selection.	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	BCWD ad valorem					√	√		√	E.Coli counts
WETLAND MANAGEMENT																					
Select two to five sentinel wetlands to conduct five-year monitoring for land use and climate change implications and assess ten different wetlands on a bi-annual basis to expand the function and value assessment.	10,000		10,000		10,000	5,000	10,000		10,000	5,000	60,000	BCWD ad valorem						√		√	Completion of monitoring assessments

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES OR AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/ Community Groups /Volunteers	U of M Extension	Businesses/ Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
Evaluate the feasibility of creating a wetland bank in the watershed.			25,000								25,000	BCWD ad valorem						√		√	Feasibility report
Restore wetland on Mendel Road tributary with landowner collaboration.								50,000	100,000	20,000	170,000	BCWD ad valorem						√		√	Completion of wetland restoration project
GROUNDWATER MANAGEMENT																					
Review water appropriation permits for potential impacts to groundwater levels in other wells, and groundwater flow to groundwater dependent natural resources to provide input on the DNR's review process.	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	10,000	BCWD ad valorem						√		√	Well, flow, and groundwater dependent natural resource levels.
Address issues related to modern water utility management by leading the development of an integrated water utility roadmap with financial support from District communities. This roadmap will explore opportunities to break down the silos among water, wastewater, and stormwater to create a more sustainable water future. It will establish a framework for member communities so that as opportunities to upgrade or repair systems arise, utilities are not only examining existing needs but making changes to modernize and make systems more resilient.	10,000	10,000									20,000	BCWD ad valorem					√				Development of a water utility roadmap
Conduct groundwater monitoring and research aligning with the Minnesota Department of Health, Washington County, and Metropolitan Council priorities. Opportunities include but are not limited to: • Groundwater elevation data in Brown's Creek reaches • Chemistry monitoring near groundwater-dependent natural resources • Dye tracing • Inventorying seepage points • Pumping tests	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	12,500	125,000	BCWD ad valorem						√		√	Sharing monitoring and research with partners

IMPLEMENTATION ACTIVITY	SCHEDULE AND ESTIMATED COST											POTENTIAL FUNDING SOURCES OR AUTHORITY	PARTNERS								MEASURABLE OUTCOMES
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	10-Year Total		Non-Profit/ Community Groups /Volunteers	U of M Extension	Businesses/ Landowners	School District	Cities/Townships	Counties/SWCDs	Adjacent WMOs	State/Federal Agencies	
ECOLOGICAL HEALTH																					
Lead a tour of high-quality rural wetland, pond, and lake ecological resources with the Minnesota Department of Natural Resources, Washington County, Washington Conservation District, communities (including staff and city councilors and officials), and other stakeholders to increase support for these features in regional planning and conservation activities.	6,000										6,000	BCWD ad valorem	√	√	√		√	√	√	√	Lead a tour
MONITORING AND DATA COLLECTION																					
Develop comprehensive database for storm sewer and structures located in the watershed by compiling what has been surveyed to date, coordinating with member communities, and evaluating the need to supplement with future structure inventory surveys. Require, as a condition of permitted projects, the submittal of as-built electronic GIS files to keep the database up to date with new development.	8,000	8,000	8,000	8,000	20,000	8,000	8,000	8,000	8,000	20,000	104,000	BCWD ad valorem					√	√		√	Development of the database
TOTALS:	**$71,500**	**$46,500**	**$141,500**	**$36,500**	**$48,500**	**$31,500**	**$36,500**	**$76,500**	**$136,500**	**$63,500**	**$689,000**										

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APPENDIX A:
Surface Water Resource Summary Table

Summary of Existing Information on District Waterbodies for Use in Board Prioritization Exercise

Waterbody	PWI #	MN Public Waters Inventory Classification	DNR Lake Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use Support	BCWD Monitored	Meets Standard (MPCA Assessment Report)	2024 District WQ Grade	3-Year Average Grade (WD Monitoring)	Watershed Load Reduction Target (lbs/yr)	Internal Load Reduction Target (lbs/yr)	Recreational Use	Lakeshore Resident Density
DISTRICT LAKES															
Bass Lake East	82-0124-00	Wetland	NA	2022 Bass East & West Management Plan	Y	Shallow	FS	Y	Meets	B+	B+	NA	NA	M	H
Bass Lake West	82-0123-00	Wetland	NA	2022 Bass East & West Management Plan	Y	Shallow	FS	Y	Meets	B-	B+	NA	NA	L	L
Benz Lake	82-0120-00	Wetland	Natural Environment	2009 Benz Lake Management Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	B	B-	NA	NA	M	H
Goggins Lake	82-0077-00	Wetland	NA	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	N	NA	NA	Y	Greatly exceeds Nutrient Impairment	C	C+	55.1	37	L	L
Kismet Western Basins Kismet Eastern Basins	82-0333-00 82-0334-00	Wetland	NA	2024 District-Wide Pond Management Plan	Y Y	Shallow	FS	Y	Meets	B+	B+	NA	NA	L	L
Long Lake	82-0021-00	Water	Recreational Development	2006 Long Lake Management Plan 2024 Assessment Update	Y	Shallow	NS	Y	Exceeds Chloride & Nutrient Impairment	B	B+	157	NA	H	H
Lynch Lake North	82-0042-00	Water	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	D	D	5.5	108.4	L	L
Lynch Lake South	82-0042-00	Water	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	B	C+	3.5	172.1	L	L
Masterman Lake	82-0126-00	Wetland	Natural Environment	2010 Masterman Lake Management Plan 2024 Assessment Update	Y	Shallow	FS	Y	Meets	B+	B+	NA	NA	M	L
North School Section Lake	82-0149-00	Water	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	N	NA	NA	N	NA	B+	B+	15.1	4.9	L	L
Pat Lake	82-0125-00	Wetland	NA	2024 District-Wide Pond Management Plan	Y	Shallow	FS	Y	Nearly meets	B-	B	NA	NA	L	L
Plaisted Lake	82-0148-00	Wetland	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Exceeds Delisted 2022	B+	B+	18.7	0	L	L
South School Section Lake	82-0151-00	Water	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	General	NS	Y	Exceeds Nutrient Impairment	C	B-	10.6	22.3	H	H
Wood Pile Lake	82-0132-00	Wetland	NA	2011 Woodpile Lake Management Plan 2024 Assessment Update	Y	Shallow	FS	Y	Meets	A	A	NA	NA	L	L

Waterbody	PWI #	MN Public Waters Inventory Classification	DNR Lake Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use Support	BCWD Monitored	Meets Standard (MPCA Assessment Report)	2024 District WQ Grade	3-Year Average Grade (WD Monitoring)	Watershed Load Reduction Target (lbs/yr)	Internal Load Reduction Target (lbs/yr)	Recreational Use	Lakeshore Resident Density
NATURAL PONDS & OPEN WATER WETLANDS (PUBLIC WATER INVENTORY)															
Sinnits Pond (Jackson WMA)	82-0305-00	Wetland	NA	2024 District-Wide Pond Management Plan	N	Shallow	NA	Y	Nearly meets	B	B	NA	NA	L	L
July Ave Pond	82-0318-00	Wetland	NA	2024 District-Wide Pond Management Plan	N	Shallow	NA	Y	Greatly exceeds	D	D	NA	NA	L	L
Heifort Pond	82-0485-00	Wetland	NA	2024 District-Wide Pond Management Plan	N	NA	NA	N	Not Assessed	D+	D	NA	NA	L	H
Fingers Pond	82-0256-00	Wetland	NA	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan	N	NA	NA	N	Not Assessed			NA	NA	L	L
Brewers Pond	82-0022-00	Wetland	NA	2024 District-Wide Pond Management Plan	N	NA	NA	N	Not Assessed	C-	D+	NA	NA	L	H
Keystone Pond	82-0039-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Kimbro Ponds	82-0349-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Northland Pond	82-0309-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Stillwater Country Club Ponds (3)	82-0317-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Vanzwol Pond	82-0128-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 152 West of Plaisted	82-0152-00	Wetland	Natural Environment	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 40 North of Lynch	82-0040-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 51 East of Goggins	82-0051-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 150 West of N School	82-0150-00	Wetland	Natural Environment	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 332 North of Bass East	82-0332-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 127 NW of Masterman	82-0127-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 269 North of Goggins	82-0269-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 270	82-0270-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 267 West of Lynch	82-0267-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 268	82-0268-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 251 North of Plaisted	82-0251-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 316 West of Kern Center	82-0316-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un- Named Pond 250	82-0250-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Un-Named Pond 253	82-0253-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L

Waterbody	PWI #	MN Public Waters Inventory Classification	DNR Lake Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use Support	BCWD Monitored	Meets Standard (MPCA Assessment Report)	2024 District WQ Grade	3-Year Average Grade (WD Monitoring)	Watershed Load Reduction Target (lbs/yr)	Internal Load Reduction Target (lbs/yr)	Recreational Use	Lakeshore Resident Density
Un-Named Pond 255	82-0255-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
DISTRICT WETLANDS (PUBLIC WATERS INVENTORY)															
Wetland: 319 Brown's Creek Headwaters	82-0319-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 304 McKusick to 96	82-0304-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 41 North of Lynch Lake	82-0041-00	Wetland	Natural Environment	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 324 SW of July Ave Pond	82-0324-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 252 West of Plaisted	82-0252-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 303	82-0303-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 335 East of Masterman	82-0335-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 322 West of Benz	82-0322-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 323 SE of July Ave Pond	82-0323-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 321 East of Withrow	82-0321-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 336 NE of Masterman	82-0336-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 248 Keystone	82-0248-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 266 North of North School	82-0266-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland: 263	82-0263-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Wetland:249	82-0249-00	Wetland	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
REGIONAL STORMWATER PONDS															
Menards Pond	NA	NA	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Kern Center Pond	NA	NA	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Cottages Pond	NA	NA	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L
Herberger’s Pond	NA	NA	NA	NA	N	NA	NA	N	Not Assessed	NA	NA	NA	NA	L	L

Department of Natural Resources Shoreland Classification System: This classification system has been in effect since the early 1970's when the shoreland management program was originally established. It includes public waters basins (lakes) down to 25 acres in size in unincorporated areas and ten acres in size in incorporated areas that have Department of Natural Resources-approved shoreland ordinances. Lakes are divided into the following classes based on a combination of factors:

- **Natural Environment Lakes** usually have less than 150 total acres, less than 60 acres per mile of shoreline, and less than three dwellings per mile of shoreline. They may have some winter kill of fish; may have shallow, swampy shoreline; and are less than 15 feet deep.
- **Recreational Development Lakes** usually have between 60 and 225 acres of water per mile of shoreline, between 3 and 25 dwellings per mile of shoreline, and are more than 15 feet deep.
- **General Development Lakes** usually have more than 225 acres of water per mile of shoreline, 25 dwellings per mile of shoreline, and are more than 15 feet deep.

Public Waters Inventory: Public waters are all waterbasins and watercourses that meet the criteria set forth in Minnesota Statutes, Section 103G.005, subd. 15 that are identified on Public Water Inventory maps authorized by Minnesota Statutes, Section 103G.201. Public waters wetlands include all type 3, type 4, and type 5 wetlands (as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition) that are 10 acres or more in size in unincorporated areas or 2.5 acres or more in size in incorporated areas (see: Minnesota Statutes Section 103G.005, subd. 17b, Wetland Type). Currently, the Minnesota Department of Natural Resources Waters utilizes scanned mylar county-scale maps printed on paper to show the general location of the public waters and public waters wetlands (lakes, wetlands, and watercourses) under its regulatory jurisdiction. These maps are commonly known as Public Waters Inventory (PWI) maps. The regulatory "boundary" of these waters and wetlands is called the ordinary high-water level (OHWL).

APPENDIX B:
Summary of Climate and Precipitation Projections

Table B1. Climate Impacts and Indicators

Changing Condition and Description	Resource Impacts	Indicators
More Extreme Water-Related Events By late century (2060-2079), Washington County is projected to experience: • Between 0.5 to 3.3 inches more annual precipitation compared to historical simulations (1995-2014). These increases are projected to vary seasonally with more precipitation occurring in the Spring and Fall seasons, with modest increases in Winter, and precipitation decreases in Summer of between 0.6 to 1.4 inches. • Between 8.2 to 9.0 days where precipitation is greater than 1 inch (an increase of 0.1 to 0.9 days) and 2.8 to 3.4 days (an increase of 0 to 0.7 days) where precipitation is greater than 2 inches. Source: *climate.umn.edu v1.0 beta*	• **Increased Variation in Water Levels:** Particularly in wetlands, too much water can create lifeless zones reducing the ability of this resource to support wildlife and plant life that performs water quality and quantity management functions. • **Increased Change in Water Chemistry:** Changes in water chemistry, particularly in lakes and wetlands, can occur with the rapid introduction of more water and when water levels are lower. • **Increased Thermal Loading:** Warm runoff water entering lakes, rivers, creeks, and wetlands raises the temperature of these waters impacting species that depend upon cool or cold-water habitats to survive. • **Increased Erosion and Sediment Transport:** Erosion destroying habitat for aquatic and semi-aquatic animals (such as amphibians, fish, and birds) particularly in rivers, creeks, and lakes. This includes the disruption of fish, amphibian, reptile, and insect spawning sites due to smothering of eggs and larvae by deposited sediments. Loss of topsoil and plant cover providing crucial shelter and food sources. These impacts are worse in sloped and deforested areas. • **Decreased Ecological Health:** Disturbed landscapes and flooded areas can become ideal for invasive species to spread, often outcompeting native plants. Wildlife and plant species that require specific conditions (e.g., dry soil, stable hydrology) may be outcompeted by more generalist species, leading to a decline in biodiversity. • **Increased Introduction of Pollutants:** Extreme rainfall washes nutrients (like nitrogen and phosphorus from fertilizers) and pollutants (like pesticides, heavy metals, and waste) into water bodies. • **Increased Infrastructure Stress and Flooding Potential:** Extreme rainfall and rapid snowmelts push the functional capacity of existing infrastructure to or beyond their intended design which can result in failure. • **Increased Stream Channel Instability:** Large precipitation and melt events increasing channel forming flows (bank-full flows) increasing erosion and sediment transport potential. Channel erosion resulting in accelerated channel migration impacting adjacent riparian areas. • **Increased Erosion and Sediment Transport:** Erosion destroying habitat for aquatic and semi-aquatic animals (such as amphibians, fish, and birds) particularly in rivers, creeks, and lakes. This includes the disruption of fish, amphibian, reptile, and insect spawning sites due to smothering of eggs and larvae by deposited sediments). Loss of topsoil and plant cover providing crucial shelter and food sources. These impacts are worse in sloped and deforested areas. • **Decreased Groundwater Recharge:** High volume precipitation events occurring over a short period of time are poorly suited to slowly infiltrate to recharge groundwater. Rapid saturation of near surface soil resulting in runoff preventing more thorough groundwater infiltration to recharge aquifers.	• Increased risk of flooding • Increased variability of streamflow • Increased velocity of water during high flow periods • Increased evaporation • Reduced temperature regulations • Reduced oxygen levels • Increased waterbody stratification • Increased pollutant levels at monitoring sites • Changes in precipitation impacts wetland hydrology (bounce and duration)
Warming Temperatures By late century (2060-2079), Washington County is projected to experience: • Between 29.0 to 41.8 fewer days below 32 degrees Fahrenheit compared to historical simulations (1995-2014). • Winter temperatures are projected to increase by 6.6 to 8.4 degrees Fahrenheit, an increase that is more than any other season. • Between 15.2 to 22.0 fewer days with snow cover depth greater than 1 inch compared to historical simulations (1995-2014). • Between 1.1 to 1.5 degrees Fahrenheit increase in the annual temperature at lake bottom. With the greatest increases in Spring and Fall ranging from 1.2 to 3.4 degrees Fahrenheit warmer. Source: *climate.umn.edu v1.0 beta*	• **Decreased Water Retention:** Precipitation that would normally fall as snow delivered as rain. Reduced snowpack results in immediate runoff, which may not be stored as effectively as snow increasing the risk of spring flooding. • **Increased Thermal Loading:** As water temperatures rise, the balance of species in freshwater ecosystems can shift, with consequences for the entire aquatic food web, including fish, aquatic insects, and the animals that depend on them. • **Increased Introduction of Pollutants:** Faster snowmelt and increased rain during winter can wash pollutants such as fertilizers, pesticides, and urban runoff into downstream waterbodies. • **Increased Evaporation:** Without ice cover, lakes may experience higher rates of evaporation during the winter, leading to reduced water levels and changes in water chemistry. • **Decreased Temperature Regulation:** Many aquatic species depend on ice cover for temperature regulation and protection from predators. Fewer cold days can increase stress on these species, particularly cold-water fish. • **Decreased Oxygen Content:** Longer summer stratification contributes to declines in dissolved oxygen leading to hypoxic conditions that can stress or kill aquatic species. • **Decreased Winter Stratification Time:** Water bodies like lakes typically experience a process called thermal stratification, where layers of water of different temperatures form during the summer and winter. Fewer cold days can shorten winter stratification and longer summer stratification, disrupting the cycles of mixing of nutrients and oxygen between winter and summer stratifications. This can lead to oxygen-deprived "dead zones" in lakes and reservoirs, harming fish and other aquatic organisms. • **Decreased Ecological Health:** Fewer cold days may promote the spread of invasive species, which are often better adapted to warmer conditions. This can affect native wildlife by altering habitat structure and resource availability. Plants and insects that emerge earlier due to fewer cold days may not synchronize with the life cycles of their pollinators or herbivores.	• Reduced snow cover depth • Increased average daily temperature • Reduced days meeting minimum temperature thresholds • Later ice-in and earlier ice-out dates • Harmful algae blooms (HABs) • Species die-off • Increased *E.Coli* advisory days on lakes

Changing Condition and Description	Resource Impacts	Indicators
Drought By late century (2060-2079), between May and September (growing season) Washington County is projected to experience: • A maximum of between 16.5 to 16.9 consecutive days of less than 0.01 inches of precipitation. This represents an increase of 1.8 to 2.2 consecutive days compared to historical simulations (1995-2014). Source: *climate.umn.edu v1.0 beta*	• **Increased Variation in Water Levels:** Extended period(s) of no or minimal precipitation impacting the supply of water. • **Decreased Ecological Health:** Lower water levels affect plant species accustomed to being fully or partially submerged resulting in plant die off. Plant die-off reduces habitat and ecosystem functions; these plants provide for water filtration. Drought can also lead to long-term shifts in species composition and biodiversity, favoring drought-tolerant species over more sensitive ones. Reduced water levels and higher temperatures can drastically affect fish, amphibians, and invertebrates. • **Increased Erosion and Sediment Transport:** Drought weakens plant root systems, increasing soil erosion and leading to long-term vegetation loss. The loss of vegetation increases soil erosion, which can lead to the degradation of habitats, particularly in areas prone to wind or water erosion. • **Decreased Soil Quality:** Heat and drought can degrade soil health, leading to erosion, reduced fertility, and the loss of organisms that contribute to nutrient cycling. This can have long-term consequences for ecosystem productivity and resilience • **Decreased Groundwater Recharge:** Drought prevents the recharge of groundwater resources. • **Increased Habitat Fragmentation:** Increased development in the watershed leads to further habitat fragmentation that directly or indirectly affects wildlife (e.g., more roads lead to increased vehicle strikes, forest or prairie fragmentation may disrupt breeding and survival of offspring).	• Decreased precipitation • Increased evaporation rates
Extreme Heat By late century (2060-2079), Washington County is projected to experience between 23.9 to 35.3 more days that exceed 90 degrees Fahrenheit than historical simulations (1995-2014). Source: *climate.umn.edu v1.0 beta*	• **Increased Heat Stress:** Higher temperatures lower reproductive success and offspring survivability. For example, heat waves can cause nest abandonment or reduce the success of the hatching eggs in birds, reptiles, and amphibians. Cold-water fish in the trout stream depend on colder water temperatures for fish survival, as these waters warm they survivability of these cold-water dependent species decreases. • **Increased Variation in Water Levels:** Water resources drying up due to lack of surface and groundwater recharge. This carries the compounding impact of concentrating pollutants in water resources due to decreased water volume. Increase in water loss due to evaporation. • **Increased Demand for Water:** Higher demand for water for drinking water, irrigation, agriculture, and cooling energy production impacting surface and groundwater sources where water is drawn from. • **Decreased Ecological Health:** Reduced water levels in rivers, lakes, and streams can threaten macrophytes, fish and other aquatic organisms, as these species depend on specific water conditions for survival. • **Decreased Oxygen Content:** Warmer water temperatures can reduce dissolved oxygen levels, stressing or killing aquatic life. • **Increased Spread of Invasive Species:** Some invasive species, including certain plants, insects, and animals, thrive in hotter conditions and may outcompete native species, altering ecosystems and threatening biodiversity. Invasive insects, such as bark beetles, have devastated forests weakened by heat stress. • **Increased Public Health Risk:** Vector-borne diseases can be spread through warm waters that support the proliferation of bacteria and disease hosts (e.g., mosquitoes) that can spread to humans and animals.	• Increased evaporation rates • Reduced water levels • Increased presence of invasive species • Lower in-stream temperature • Lower fish IBI • Lower macroinvertebrate IBC • Decrease in stream oxygen levels. • Decreasing groundwater depth in municipal wells • Lower baseflows in groundwater supplied resources

Table B2. Severity of Climate Change Impacts by Watershed Management Plan Issue Area

Changing Condition	Stormwater Runoff Management	Erosion Prevention and Sediment Control	Stream Management	Lake Management	Wetland Management	Floodplain Management	Groundwater Management	Ecological Health	Monitoring and Data Collection	Regulations	Recreation	Education, Outreach and Stewardship	Land Conservation	Funding	Pollutants of Emerging Concern
More Extreme Water-Related Events	High	High	Medium	Medium	Medium	High	Medium	Medium	High	High	Low	High	Medium	High	Medium
Warming Temperatures	High	Low	Medium	High	Medium	High	Low	High	High	Low	Low	Low	Low	Medium	Low
Increases in Water Pollution Problems	High	Low	High	High	Medium	Low	Medium	Medium	Medium	High	Medium	High	Low	High	High
Water Boundary Movement and Displacement	Medium	High	High	High	High	High	Low	Low	High	High	Low	Medium	Low	High	Low
Changes to availability of Drinking Water Supplies	Low	Low	Low	Low	Low	Low	High	Low	High	High	Low	High	Low	Medium	High
Drought	Medium	Low	High	Medium	High	Low	High	Medium	Medium	Low	Low	High	Medium	Low	Low
Extreme Heat	Low	Low	Medium	Medium	Medium	Low	High	Medium	Medium	Low	High	Medium	Medium	Low	Low

APPENDIX C:
Summary of Civic Engagement Input

1. **BCWD CAC Minutes 06-10-2024**
2. **BCWD Initial Planning Meeting Summary 07-09-2024**
3. **BCWD CAC Minutes 08-12-2024**
4. **BCWD TAC Minutes 08-20-2024**
5. **BCWD CAC Minutes 10-14-2024**
6. **BCWD TAC Minutes 10-22-2024**
7. **BCWD CAC Minutes 12-09-2024**
8. **BCWD TAC Minutes 02-25-2025**
9. **Brown's Creek Watershed District Regulatory Review: Report and Recommendations**
10. **CAC-TAC Prioritization Memo 05-28-2025**
11. **Flood Vulnerability Assessment and Community Meetings Summary**

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	06-10-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Watershed management planning process; issues and goals overview; Education and Outreach issue category discussion		
Attendee(s) + Info. |	CAC – Anne Maule-Miller, George Vania, Jyneen Thatcher, Yihong Gao Board Liaison - Celia Wirth District Staff – Karen Kill, Cameron Blake, Camilla Correll (EOR), Alexander Furneaux (EOR) Public - Quinn Judge		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Community Advisory Committee (CAC) to provide an introductory presentation on the BCWD Watershed Management Plan (WMP) update. Camilla explained the purpose of the WMP, described the roles and responsibilities of those involved in the planning process, what is new to this fifth-generation plan, and the plan development schedule as well as touchpoints for engagement with the CAC and other stakeholders. The remainder of the meeting was used to begin the discussion of the issue category "Education and Outreach", one (1) of five (5) issues identified by EOR and BCWD staff for discussion during CAC meetings over the WMP update lifespan.

CAC members were invited and encouraged to attend the Project Initiation meeting on July 9th, 2024 (in the afternoon/early evening). More details to come.

Discussion

- Concern regarding the inclusion of measuring PFAS. This was viewed as a city problem and beyond the scope of the watershed district. Acknowledged that the State is the lead through the County groundwater plan and therefore may acknowledge the presence of the issue but not assign responsibility to the watershed district to address it beyond monitoring (potentially) to identify presence in District resources (i.e., VBWD's involvement in monitoring for PFAS in Lake McDonald).
- Interest in ideas to measure and track goals going forward, noted that it is challenging to view accomplishments. Some discussed a dashboard or dots on a map recording points of improvement.
    - Washington County Parks has an annual report of accomplishments. CAC members suggested that some metrics the BCWD could report include: Millbrook stormwater flows into Brown's Creek, Buckthorn removal, bird inventory at 110th Street.
    - Anne Maule-Miller volunteered to help with this initiative.
- Concern about vagueness of "Ecological Health" issue.
- Curious to know if the District is aware of the "pain points" faced by municipalities and/or the development community. It would be good to share these so the CAC can review the concerns against the Sub-Issue Area statement for *Municipality and Developer/Contractor Education and Outreach* as well as the goals and the actions.
- Should businesses be added as an audience or Sub-Issue Area.
- Important to value and maintain the momentum of CAC interests so that documentation does not fall off over time if the expertise of certain individuals is no longer available. Possible

strategies discussed included expanding the CAC to create opportunities for more people to get involved on initiatives, and demonstrating the value of CAC activities to the BCWD Board so that if the CAC is unable to meet a need this can be filled by staff.

- CAC has excellent technical expertise at events, but struggles to communicate this with watershed district residents to get people involved/interested (aware that some event attendees come from outside the watershed). They are struggling to tell the story of the watershed improvements so that it captures peoples' attention.
    - There is a mailing list, but no method of capturing information at events currently.
    - Public member noted that it is challenging tracking down the BCWD and was unaware of many events (e.g. Croixwood Blvd rain garden).
    - Consider business outreach and sponsorship-style projects like "Adopt-a-Highway" to boost involvement.
    - Consider outreach to similar interest groups (i.e., Trout Unlimited, Pheasants Forever) so the District can leverage their networks by having them share the BCWD's accomplishments when highlighting a resource like Brown's Creek in their communications.

Actions

The following actions stem from this discussion:

- BCWD following up with Washington County Parks regarding their annual report of accomplishments.
- CAC members to provide Cameron with additional information on the "Education and Outreach" worksheet.
- EOR will continue to lead the "Education and Outreach" conversation at the next CAC meeting along with "Ecological Health" and "Land Conversation".
    - EOR will provide information on these issues in advance (i.e., a month) of the next CAC meeting.

meeting summary

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	07-09-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Initial Planning Meeting		
Attendee(s) + Info. |	TAC members, Board Members, BCWD Staff, EOR Staff, and Members of the Public Full list documented separately in **BCWD WMP Update Participation Record**		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Initial Planning Meeting as a kick-off to the Watershed Management Plan Update (the "Plan Update"). This meeting involved two parts including a meeting with the Technical Advisory Committee (TAC) comprising municipalities and state agencies in the Brown's Creek Watershed, followed by a public Open House.

During the TAC meeting, EOR and BCWD staff provided an introductory presentation on the Plan Update. BCWD staff provided a review of the BCWD's accomplishments from the 2017-2026 Plan. Small group discussions followed these presentations to discuss reflections on the 2017-2026 plan and how they apply to the Plan Update, TAC member plans for the next 5-10 years with opportunities for coordination with the BCWD, and opportunities for partnership and relationship evolution.

During the Open House, members of the public were invited to circulate amongst three stations with maps displaying: a general overview of the watershed, locations of monitoring programs, and locations of projects completed and events held in the past 10 years. Prompt questions for each map focused on gathering feedback to understand how people interact with watershed resources, their concerns and aspirations for these resources, opportunities for involvement, and positive or negative changes in watershed resources. Open House participants were also encouraged to complete the "Are You Watershed Wise?" survey.

Technical Advisory Committee Feedback

2017-2026 Watershed Management Plan Accomplishments

TAC members identified accomplishments from the 2017-2026 Watershed Management Plan that stood out to them. Participants were instructed to sort these accomplishments into three categories:

Start – New (or previously identified but not enacted) ideas

- Increasing funding for education and outreach
- Creating better name recognition, awareness, and visibility in the watershed
    - Share success stories, accomplishments
- Developing stronger research partnerships (UMN, Met Council)
- Using more plain language in plans and permitting requirements
- Greater involvement in Wellhead Protection Planning – there is an added co-benefit of the opportunity access funding through wellhead protection to implement BCWD projects.
- Work emphasizing chloride management
- Creating a shareable list of stormwater projects and locations

- Analyzing PFAS in groundwater management by BCWD and USAS

Stop – Ideas that were less effective to consider reworking or abandoning

- Existing as 1.5 full-time staff – the work to-be completed requires more support.

Continue – Ideas that have proven effective to work to replicate

- Adaptive management projects and implementation project successes, such as: stream improvements, rock cribs, thermal stormwater management, lake and stream buffer protection and management, BMP maintenance
- Increase emphasis on climate change resilience and adaptation, such as: flood risk assessment
- Partnership and relationship building with watershed partners such as development review
- Innovative approaches to engagement, education, and outreach opportunities
- Considering all the funding sources to write a plan that achieves broad eligibility
- Good that the BCWD didn't create another groundwater model – several exist from the Metro, WBL USGS, WBL DNR, and 3M settlement and community specific models
- Improvements to streamline permits
- Strengthen relationships with neighboring watershed districts
- Developing a partner list/identified liaison
- Involving the CAC with identifying and promoting events and educational opportunities

Plans for the Next 5-10 Years

TAC members identified several plans for the next 5 to 10 years that present opportunities for alignment with BCWD actions, including:

- **Road Reconstruction:** Washington County Road 5/96 is being returned to the County, 58th Street N reconstruction, Memorial Avenue reconstruction, Washington Avenue & North Frontage Road realignment, miscellaneous street reconstructions.
- **Site Redevelopment:** Long Lake development, Lakeview Hospital, Central Commons, Anderson Parcel, Gadient property, miscellaneous parking lot reconstructions
- **Programs:** DWAMP Water Ambient Monitoring Program (MDH), Met Council relaunching subregional engagement with a "One Water" perspective, Met Council creating/updating technical tools and information trainings for planning and implementation with municipalities
- **Data and Monitoring:** Mulberry Ravine (MSC-WMO partnership), flood plain mapping, flood forecasting management

Partnering with the BCWD

TAC members identified opportunities for how relationships between watershed partners and the BCWD could evolve over the next 10 years, including:

- Training and education for realtors and developers, HOAs, UMN practitioners
    - Topics for education referenced included: water reuse practices, BMPs, regulation and registration, operations and maintenance, PFAS

- Proactively engaging with watershed partners by going out to meet these partners where they are and connecting with them (e.g. calling with questions)
- Coordination of rules across watershed districts to reduce the burden on municipalities managing rule compliance in multiple watersheds.
- Work with municipalities to understand potential areas of flexibility on regulations based on their application – Oak Park Heights referenced a recent permit for a Panera development.
- Attendance at regular meetings, such as a standing TAC meeting.
- Ensure materials are provided in Plain Language so they are accessible and easy to understand (not dumbed down).
- Minnesota Department of Health is eager to improve relationships and help watershed districts.
- Relationships should address environmental justice, equity, and inclusion through the planning and implementation stages.

Open House Feedback

Staff conducted one-on-one conversations with participants during the Open House to gather information about watershed experiences. Common themes that emerged from these conversations included:

- Interest in stream restoration opportunities and improvements to water access.
- Support for the projects BCWD is leading to improve water resources and interest to learn more about the environmental value of these projects in addition to their recreational value.
- Opportunities may exist for the BCWD to collaborate with Washington County on an upcoming CIP road reconstruction of Highway 96 which is now under County ownership.
- Projects implemented from over 10 years ago are still in place in places such as the Stillwater Country Club and there may be further opportunities for outreach
- Interest in understanding what is within the BCWD's jurisdiction for permitting, specifically related to the Liberty Classical Academy campus near the North Chain of Lakes
- Support for BCWD's involvement in the East Metro Water Resources Education Program (EMWREP).

Impacts on the Plan Update Process

Relating these experiences and perspectives on the watershed provides helpful information that can inform the following aspects of the Plan Update process:

- Watershed partners are eager to collaborate with the BCWD on projects, evolving relationships so that the BCWD is involved early (such as the case of the Highway 96 CIP road reconstruction) and involved regularly (such as the case of re-establishing the relationship with previous partners at the Stillwater Country Club).
- Watershed partners are supportive of the BCWD's efforts to protect and restore watershed resources and are eager to work together.
- Many watershed residents continue to have a low understanding of the BCWD's role, the work being done, and opportunities to get involved. Opportunities for education, outreach,

and awareness of BCWD actions and work remains a priority with multiple pathways to address this Issue area.

- Watershed partners are interested in the intersections of their work with the watershed, particularly in areas of site redevelopment, wellhead protection, and flood management.
- Watershed partners are supportive of the direction to pursue initiatives with mindfulness towards environmental justice, equity, and inclusion.

This feedback will be considered through the review of the Issues in the Plan Update process.

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	8-12-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Watershed Management Plan Update; Education, Outreach, and Stewardship; Recreation		
Attendee(s) + Info. |	CAC – Anne Maule-Miller, George Vania, Jyneen Thatcher, Hallie Chasensky, Sandy Noreen-Ruben, Dory Herman Board Liaison - Celia Wirth District Staff – Karen Kill, Cameron Blake, Alexander Furneaux (EOR) Public - Quinn Judge		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Community Advisory Committee (CAC) to lead a discussion on two issues in the BCWD Watershed Management Plan (WMP) update. Alexander provided a summary of the initial plan meeting of the WMP, the work completed since the CAC last met, and the list of issues to be discussed with the CAC. The remainder of the meeting was used to discuss two issue categories "Education, Outreach, and Stewardship" and "Recreation".

CAC members were asked to identify concerns/threats, management strategies, monitoring opportunities, and engagement opportunities associated with these issues. Of importance was understanding how these issues are evolving and what updates are required to ensure the relevance of the Issue for the coming 10 years.

Discussion

The following summary of the meeting discussion includes input received from the CAC during the meeting, input on these Issues received following the meeting (if any), and input on the issue received through prior engagement as part of the Watershed Management Plan update.

This input is summarized in **Table 1**and **Table 2** and separated by content discussed that is Within the Plan Currently[1], New to the Update, or Out of Scope of the District's authority (if applicable)

Information from these tables will be used to update the following subsections of the issue statements in the plan in the following ways:

- **Concerns/Threats –** Informs potential updates to the General Issue Statement (3.X.1), Relevance to the District (3.X.2), and Sub-Issue Areas (3.X.3).
- **Management Strategies –** Informs potential Goals (new or updated).
- **Monitoring Opportunities -** Informs potential Implementation Items (new or updated).
- **Engagement Opportunities –** Informs potential Implementation Items (new or updated).

[1] This refers to content within the Plan currently that was discussed by CAC members. More content on the Issue is available but was not referenced by participants.

Table 1. Education, Outreach, and Stewardship (EOS)

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Challenge of how to make communication more impactful.	• Broader public should know they can connect and trust the BCWD. *Consider how to incorporate this as a metric.*	• Documenting participant information. *Consider how to incorporate this as a metric.* • Maintaining a list of partners. *Consider how to incorporate this as a metric.*	• Continue building the BCWD's potential partners through relationships that help further name recognition (e.g. Master Gardeners) • Explore opportunities for innovative engagement o Geographically focused outreach targeting for specific Issues (e.g chloride in Long Lake); could include a kiosk with rotating information. o Tote of BCWD information and material to bring or provide to events. o Combine multiple techniques to reach people (e.g. kiosk and local outreach directing people to attend virtual webinar or meeting). • Opportunity for involvement in Summer Tuesdays . o May require Stillwater Chamber membership. o Weekly involvement time intensive.
New to the Update	• Poor name recognition of the BCWD and awareness of its role; BCWD is often encountered late in the process because people aren't aware of its role. • Loss of knowledge and expertise from retiring CAC members. • Struggle to communicate the story of watershed improvements to watershed partners and broader public. • More HOAs have emerged meaning fewer centralized points to contact (previously was builders) making it more resource intensive to conduct outreach. • HOAs struggle to understand their responsibilities with stormwater management.	• Expanding the CAC to create more opportunities for involvement and ways to pass on knowledge/expertise • Integrate the CAC into coordination with watershed partners to share information and partner on EOS opportunities.	•	• Work to highlight project achievements so people recognize work as BCWD led/involved. • Continue to develop business and organizational outreach. • Online information sessions during COVID-19 pandemic attracted interest; consider a directory to meeting recordings; consider online webinars. • Consider developing a directory to the State's Stormwater BMP guide.

Table 2. Recreation

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Private land barrier to lake access.	• Recreation can be a pathway to greater knowledge, pride of place, and desire for stewardship of a resource. • Coordination with enforcement authorities to manage recreation-related resource degradation. • Goal of the BCWD to provide recreation improvements with public benefit.	•	
New to the Update	• Habitat degradation from recreation activities (e.g. unofficial mountain bike trails, tree clearing).	• Goal of the BCWD is not to become a park manager.	• Tracking recreation-related degradation impacts. *Consider how to incorporate this as a metric.*	• Coordination with landowners near resources where there is recreation potential (creek, 110th St property). • Outreach to local HOAs to coordinate lake tour event. • Developing greater understanding of how watershed partners are using resources for recreation; this may include small interactions (e.g. ECFE summer series in Brown's Creek). • Connecting recreational opportunities to changes in water quality.

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	8-20-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Watershed Management Plan Update; Stormwater Management; Stream Management		
Attendee(s) + Info. ***Full attendance in Appendix A*** |	TAC Members CAC Members Board Members District Staff and Consultants		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Technical Advisory Committee (TAC) to lead a discussion on two Issues in the BCWD Watershed Management Plan (WMP) update. Camilla and Alexander provided a summary of the Initial Plan Meeting of the WMP, the work completed since the TAC last met, and the list of Issues to be discussed with the TAC. The remainder of the meeting was used to discuss two Issue categories "Stormwater Management" and "Stream Management".

TAC members were asked to identify concerns/threats, management strategies, monitoring opportunities, and engagement opportunities associated with these Issues. Of importance was understanding how these Issues are evolving and what updates are required to ensure the relevance of the Issue for the coming 10 years.

Discussion

The following summary of the meeting discussion includes input received from the TAC during the meeting, input on these Issues received following the meeting (if any), and input on the Issue received through prior engagement as part of the Watershed Management Plan Update.

This input is summarized in **Table 1** and **Table 2,** and separated by content discussed that is Within the Plan Currently[1], New to the Update, or Out of Scope of the District's authority (if applicable).

Information from these tables will be used to update the following subsections of the Issue Statements in the Plan in the following ways:

- **Concerns/Threats –** Informs potential updates to the General Issue Statement (3.X.1), Relevance to the District (3.X.2), and Sub-Issue Areas (3.X.3).
- **Management Strategies –** Informs potential Goals (new or updated).
- **Monitoring Opportunities -** Informs potential Implementation Items (new or updated).
- **Engagement Opportunities –** Informs potential Implementation Items (new or updated).

[1] This refers to content within the Plan currently that was discussed by TAC members. More content on the Issue is available but was not referenced by participants.

Table 1. Stormwater Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Poor maintenance record of BMPs, some residents find maintenance challenging; HOAs not investing in maintenance. • Developers under-designing stormwater management for property alterations (e.g. pool, larger driveway). • Infill becoming more challenging to proactively address needed changes. • Stormwater is considered late in the development process. • Increasing impervious surface, generally.	• Improving relationships between township leadership and BCWD Board. • Retrofit opportunities remain on areas before watershed rules (stormwater treatment in Croixwood for Long Lake). • Reviewing rule triggers to reflect current state of infill development. • Continue conservation easement/credits. • Below-ground storage with optiRTC. • Maintenance cost-sharing with BCWD.	• Examine monitoring to optimize data efficiently. • Continue partnering with SAFL connecting monitoring to latest research.	

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
New to the Update	• Greater consideration of the ramifications (cost) if operation and maintenance needs are not met. *BCWD has not conducted a cost-benefit analysis.*	• Revisiting rules regarding infiltration, MDH willing to review/strength with guidance for ground/drinking water protection. • Encouraging oversizing BMPs based on anticipated climate change impacts to precipitation. • Targeted restorations that would reduce flooding. • Encouraging natural landscaping for new large lot developments; developing rules to discourage blue grass lawns. • Sensitivity analysis ensuring freeboard is sufficient for 200-year events. ***Tie-in to Floodplain Management***. • Incorporate larger scale water reuse opportunities (challenging for internal use due to code).	• Support/partner on efforts to understand impacts of infill groundwater quality. ***Tie-in to Groundwater Management.*** • Groundwater monitoring in response to pumping/wells in north. ***Tie-in to Groundwater Management.*** • PFAS surface water monitoring.	• Educating new HOA owners when the development is completed, plus a 5-year follow-up. • Sharing stormwater management resources with approachable language. ***Tie-in to Groundwater Management.*** • Using multiple communication approaches (e.g. signage, social media) to share information. ***Tie-in to Groundwater Management.*** • Personalizing stormwater management experiences to make them more relatable. ***Tie-in to Groundwater Management.***

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Out of Scope		• Ordinance change to encourage preferred development patterns/outcomes. *BCWD does not have land use authority, can work with municipalities to explore and encourage other development patterns* • Protect mature trees in development (conservation development approach), strengthen tree replacement policies. *BCWD cannot regulate this but can work with municipalities to establish goals.* ***Tie-in to Land Conservation.***		

Table 2. Stream Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Climate change resulting in more short but intense storms, less infiltration, more runoff (TSS, nutrient runoff, erosion, water temperature issues). • Increased impervious surface and turfgrass conversion. • Over pumping of groundwater due to increased development. • Denuded soils in floodplains and gorge slopes due to Buckthorn, TSS impacts.	• Promoting natural landscapes, reduce turf grass. • Habitat, wetland, and floodplain preservation. • Remediating the Brown's Creek buffer zone to improve water quality.	• Most critical: TSS, stream temperature, dissolved oxygen, flow monitoring, and nutrient concentrations. • Habitat monitoring surveys (birds and plants).	• Demonstration projects for native plantings and education about turf alternate options. • Involving leaders, attending Council meetings. • Support for local permit reviews. • Engaging community development and land use planners (Met Council subregional engagement).
New to the Update	• PFAS contamination • Chloride from SSTS (water softener). • Areas of unknown legacy loading, CMSCWD working on this.	• Separate areas of concern by the north and south portions of the watershed, different concerns. *Would create a new format for the Plan.* • Reduce irrigation *from the groundwater system. Water conservation strategy.* ***Tie-in to Groundwater Management.***	• Important to monitor trends in PFAS and chlorides. • Challenge to determine frequency of monitoring.	• Continuing education credits and targeted engagement for developers, HOA maintenance management companies. • Education on soil health.

Appendix A – Attendance

Roles	Name	Organization
Board	Klayton Eckles	
	Celia Wirth	
CAC	George Vanya	
	Anne-Maule Miller	
TAC	Abby Shea	Minnesota Department of Health
District Staff	Karen Kill	Brown's Creek Watershed District
	Cameron	
	Camilla Correll	Emmons & Olivier Resource Inc. (EOR)
	Alexander Furneaux	

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	10-14-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Watershed Management Plan Update; Land Conservation and Ecological Health		
Attendee(s) + Info. |	CAC – Anne Maule-Miller, George Vania, Yihong Gao, Sandy Noreen-Ruben, Board Liaison - Celia Wirth District Staff – Karen Kill, Cameron Blake, Camilla Correll (EOR), Alexander Furneaux (EOR)		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Community Advisory Committee (CAC) meeting to lead a discussion on two issues being revised as part of the BCWD Watershed Management Plan (WMP) update. Alexander provided a summary of Plan progress input received from the TAC on the Issues of Stormwater Management and Stream Management. Alexander noted that the BCWD Board provided initial comments on the Issues discussed with the CAC and TAC in August. EOR also shared the approach to considering climate change impacts and DEI in the planning process. The remainder of the meeting was used to discuss two Issue categories "Land Conservation" and "Ecological Health".

CAC members were asked to identify concerns/threats, management strategies, monitoring opportunities, and engagement opportunities associated with these Issues. Of importance was understanding how these Issues are evolving and what updates are required to ensure the relevance of the Issue for the coming 10 years.

Discussion

The following summary of the meeting discussion includes input received from the CAC during the meeting, input on these Issues received following the meeting (if any), and input on the Issue received through prior engagement as part of the Watershed Management Plan Update.

This input is summarized in **Table 1** and **Table 2** and separated by content discussed that is Within the Plan Currently[1], New to the Update, or Out of Scope of the District's authority (if applicable).

Information from these tables will be used to update the following subsections of the Issue Statements in the Plan in the following ways:

- **Concerns/Threats –** Informs potential updates to the General Issue Statement (3.X.1), Relevance to the District (3.X.2), and Sub-Issue Areas (3.X.3).
- **Management Strategies –** Informs potential Goals (new or updated).
- **Monitoring Opportunities -** Informs potential Implementation Items (new or updated).

[1] This refers to content within the Plan currently that was discussed by CAC members. More content on the Issue is available but was not referenced by participants.

- **Engagement Opportunities –** Informs potential Implementation Items (new or updated).

Prior to the small group discussion, EOR shared revisions to the Ecological Health Issue Statement and Relevance to the District. The group agreed that characterizing the issue as a watershed health issue and speaking to the ecosystem services of upland areas was an important revision to this section of the Plan. The CAC was supportive of the changes presented at the meeting.

Table 1. Land Conservation

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Habitat loss/fragmentation. • Loss of groundwater recharge zones. • Climate change.	• Standards for development near/within land protection corridors. • Prairie, wetland, and woodland restoration. • Buckthorn and invasive species management.	• January 2017 BCWD Conservation Easement Baseline Report. • Bird and plant species sampling/surveying. • Unique Species Inventory. • Continue to measure stream flows to understand if the water is cold enough at the Conservation Easement to support trout and other cold-water dependent species. • Trail camera capturing mammal species mostly.	• Collaboration with partners to protect land. • CAC and community stewardship.

New to the Update	• DEI in this Issue should read "Equitable access *and protection* to land and natural resources"
	• More new development and subdivision potential as agriculture in the area decreases.
	• People who want to put their properties into conservation easement when they pass away but don't formalize it. Inheritors selling the land against their family's wishes.
		• Developing tree preservation goals with municipalities.
		• Consider developing an incentive program for native plantings along shorelines.
		• Engagement with homeowners who live next to the Conservation Easement.
		• Encouraging native planting as an adaptation strategy to more extreme wet/dry conditions.
		• Where possible conserve land without having to purchase the property, help people understand what they can do themselves on their property.
			• Macroinvertebrate sampling	• Relationship building between BCWD and community, and BCWD as a facilitator of connecting the community with other resources. E.g:
				  ○ BCWD working with people to get them to participate in entering an easement (newsletter, neighbor outreach).
				  ○ BCWD connecting people to representatives at the County and Minnesota Land Trust.
				• Engagement at the Conservation Easement. Discussion of extent to which BCWD opens the Conservation Easement to broader public access. Also discussed during the August meeting.

				○ Add "Who to contact" portion to the property sign if people want a tour. ○ Consider a geocaching event on the property, locations show comparison between now and past. ○ Tie-in to *Recreation* with opportunities for tours with organization (e.g. scouts) to learn about conservation activities. ○ Consider *Recreation* potential of squirrel hunting, recognized as a practice in the area. ○ Engage Conservation Easement neighbors to collaborate on the management of the area (Nature Conservancy model), protect land without having to buy it all

Table 2. Ecological Health

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Degraded fisheries. • Aquatic and terrestrial invasive species (AIS & TIS). • Lack of understanding of ecosystem services. ○ CAC noted it would be helpful to have a graphic in the plan conveying interrelated elements contributing to a healthy watershed. • Climate change. • Habitat fragmentation.	• Native plant preservation and restoration. • Cost-sharing invasive species management where there is water quality benefit. • Upland management.	• Bird and plant species sampling/surveying • TSS monitoring • Pollutant loading monitoring • Unique Species Inventory • Routine monitoring of fish in lakes and streams, increased frequency would be a value-add.	• Invasive species management *Education and Outreach* • Collaboration on vegetation maintenance practices • Citizen amphibian and reptile survey
New to the Update	• DEI in this Issue should read "Equitable access *and protection* to clean water" • People releasing pets (e.g. bullfrogs and goldfish) into water resources, e.g Long Lake. • "Unique features" currently captures trails and scenic areas, compared to biological unique areas (Section 1.2.6.)	• How to wean people off seeing BCWD as the "doer" so that people take action on their own/assume the actions BCWD undertakes.	• Fish surveys on lakes and ponds conducted when Lake Management Plan developed	• How do we define "Ecological Health"; what ways the district help convey the components of a healthy watershed. • *Education and Outreach*, invasive species information on the website • Sharing stories of what is being monitored, what needs improvement, and how landowners can contribute to these improvements on their properties. Could include attending township board meetings to share these stories. • *Education and Outreach*, work with the Gateway Trail Association along the trail. • Ongoing discussion of increasing name recognition, how the BCWD should engage renters, businesses, etc…

				• *Education and Outreach*, connecting with more diverse audiences.

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	10-22-2024
Meeting Location |	Washington County Conservation District Office		
Regarding |	Watershed Management Plan Update; Lake Management; Wetland Management		
Attendee(s) + Info. ***Full attendance in Appendix A*** |	TAC Members CAC Members District Staff and Consultants		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Technical Advisory Committee (TAC) meeting to lead a discussion on two Issues that will be revised as part of the BCWD Watershed Management Plan (WMP) update. Camilla and Alexander provided a summary of the work completed since the TAC last met, including updating them on the CAC and Board meetings, and the list of Issues to be discussed with the TAC. EOR also shared the approach to considering climate change impacts and DEI in the planning process. The remainder of the meeting was used to discuss two Issue categories "Lake Management" and "Wetland Management".

TAC members were asked to identify concerns/threats, management strategies, monitoring opportunities, and engagement opportunities associated with these Issues. Of importance was understanding how these Issues are evolving and what updates are required to ensure the relevance of the Issue for the coming 10 years.

Discussion

The following summary of the meeting discussion includes input received from the TAC during the meeting, input on these Issues received following the meeting (if any), and input on the Issue received through prior engagement as part of the Watershed Management Plan Update.

This input is summarized in **Table 1** and **Table 2.** Information from these tables will be used to update the following subsections of the Issue Statements in the Plan in the following ways:

- **Concerns/Threats –** Informs potential updates to the General Issue Statement (3.X.1), Relevance to the District (3.X.2), and Sub-Issue Areas (3.X.3).
- **Management Strategies –** Informs potential Goals (new or updated).
- **Monitoring Opportunities -** Informs potential Implementation Items (new or updated).
- **Engagement Opportunities –** Informs potential Implementation Items (new or updated).

Table 1. Lake Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Nutrient impairment. • *E. Coli* impairment. • TSS. • Invasive aquatic species. • Lake level fluctuation, worsening due to climate change.	• Lake management (subwatershed, shoreline, in-lake, containment). • Lake management plans and implementation.	• Water quality. • Water level. • Lynch and Goggins aquatic macrophyte (plant) surveys which have uncovered some rare plant species.	• Meetings with lakeshore owners during the Pond/Lake Management Plans.

New to the Update	• PFAS contamination.
	• Chloride impairment.
	• Loss of natural shoreline and native shoreline vegetation (habitat degradation).
	• Little or no enforcement of shoreland ordinances.
	• Increased flood elevations from larger storms.
	• Increased intensity of lake use; more boats, bigger motors, bigger wakes.
	• Interest in understanding if development patterns around lakes are impacting the lakes, how is zoning influencing land use and land cover near lakes?
	• Lack of public access to most lakes.
	• Encroachment on the Long Lake public trail by private landowners.
		• Shoreline bioengineering only, no rock or sand; alternates including vegetation and stormwater management for shoreland lots.
		• Rip rap and sand blankets being installed without a permit requirement, DNR rule issue; desire to see more BCWD oversight.
		• Set a measurable goal for native shoreline per lake; informed by current status and tied to monitoring activities.
		• Consider where investments are being made relative to the people who have access to the benefits; are there ways to increase equitable access to lakes?
		• AIS not a watershed issue, leave it alone unless there is a direct water quality benefit. BCWD can help people stay informed on AIS; clearly define the BCWD's role on AIS to manage expectations (define where the BCWD stops and where DNR and Washington County lead); partner with these organizations.
		  ○ Acknowledge AIS as an issue but not necessarily a priority for BCWD to lead.
		• Learn more about Lake Improvement Districts to see if this would be a good fit for some lakes.
		• Consider dust suppressants and water softeners as additional sources of chlorides, in addition to road salt.
		• Will the H/H model map the floodplain in the developed parts of
			• DNR score the shore monitoring.
			• Conduct monitoring routinely; 3-year rotations.
			  ○ While it was suggested that BCWD could do the public-access and impaired resources, and use citizen science to assist with the other resources, the group concluded that the use of volunteers may create too much inconsistency in the data (something that needs to be weighed)
			• Aerial and on-lake monitoring.
			• Evaluate potential pollutant loads from septic systems including the impact of water softeners.
			• Set a goal of a % of natural shoreline.
			• Look for a reference that ties lake score to an understanding of the status of the lake.
				• Setting expectations about the ecosystem functions of wetlands compared to lakes; people wanting to cut down shoreline vegetation for a better view.
				• Increased public education about these resources; consider signage near lakes, direct HOA outreach and outreach to shoreline properties.
				  ○ Realtor workshops – ensuring these individuals are representing these resources responsibly and accurately.
				  ○ Shoreland owner workshops – what can these property owners do with their land.
				• Coordination with LGUs protection and enforcement.
				• Formalize lake names.
				• Native shoreline restoration/management cost-share.
				• Free/discounted/cost-shared shoreline rehabilitation design from a landscape architect.
				• Highlighting shoreline conservation efforts of specific properties as good examples for others to replicate.

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
		the city and in landlocked portions of the watershed? What events are we running?		• Partnership to determine how to address discharge to Lake McKusick

Table 2. Wetland Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities

Within the Plan Currently	• Encroachments, such as development, filling, and vegetation removal.
	  ○ Loss of wetland area, type, and value; important to consider.
	• Aquatic invasive species.
	  ○ Loss of wetland plants to invasive species (phragmites, thin leaf cattails).
	• Decreased groundwater contributions.
	  ○ As appropriations increase, do we anticipate wetlands drying up?
	• Nutrient loading.
	  ○ Historically nutrient loaded wetlands releasing Phosphorus.
		• Vegetation management, UMN phragmites management.
		• Pond management plans.
		• Restoration and enhancement of high priority wetlands.
		• Wetland buffer quality.
			• GIS database of recorded buffers.	•

New to the Update	• Chloride impacts. • Failing septic systems with a lack of back-up sites needing intervention. • Flooding, depending on the wetland type.	• WCD invasive species control needs funding. • High replacement ratios for high quality wetlands, localize mitigation so replacements occur within the watershed. • BCWD taking on some WCA responsibilities through permitting? Is this possible with staff capacity? • Sub-issue regarding loss of wetland area and type; degradation and loss, degradation can be more nuanced (e.g. wetlands that have too much water causing aquatic species die-off).	• New and emerging invasive species monitoring. • Monitoring loading including historic high loading review • H/H future flood footprint.	• Managing expectations of ecosystem functions for wetlands and lakes. • Pollinator and wildlife wetland workshops. • Locker with stand-up paddleboards. • Ducks Unlimited – connect people that aren't normally connected within the watershed; don't normally see ducks any more. • City of Stillwater partnership to provide boating opportunities off the pier/dock in the Liberty Development. • Trout Unlimited and Pheasants Forever connection. • DNR fishing in the neighborhood program, connect with this program. • Increase public access to small lakes and large wetlands. • Stillwater in support of reuse, especially with redevelopment of the athletic center.

Appendix A – Attendance

TAC Members

- Jay Riggs, WCD
- Mike Isensee, CMSCWD
- Jessica Collin-Pilarski, Washington County
- Daniel Scollan, DNR
- Michelle Jordan, BWSR
- Abby Shea, MDH Wellhead Protection
- Steve Christopher, Metropolitan Council
- Matt Oldenburg-Downing, Middle St. Croix Watershed Management Organization
- Jesse Farrell, City of Stillwater
- Miranda Nichols, MPCA

CAC Members

- George Vania
- Jyneen Thatcher
- Anne Maule Miller

Staff

- Karen Kill
- Cameon Blake
- Hannah Peterson
- Camilla Correll
- Alexander Furneaux

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	12-9-2024
Meeting Location |	Stillwater Public Library		
Regarding |	Watershed Management Plan Update; Land Conservation and Ecological Health		
Attendee(s) + Info. |	CAC –George Vania, Jyneen Thatcher, Yihong Gao, Aimee Eberle, Sandy Noreen-Ruben, Board Liaison - Celia Wirth District Staff –Cameron Blake, Hannah Peterson Camilla Correll (EOR), Alexander Furneaux (EOR)		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Community Advisory Committee (CAC) meeting to lead a discussion on climate change impacts as part of the BCWD Watershed Management Plan (WMP) update. Alexander provided a summary of the Plan's progress, including input received from the TAC on the Issues of Lake Management and Wetland Management. Alexander noted that the BCWD Board provided initial comments on the Issues discussed with the CAC and TAC in October. The remainder of the meeting was used to discuss applying a climate change impact lens to the WMP update through a climate change storytelling workshop process, inspired by Climate Stories Project's approach.

CAC members were asked to share personal observations of climate change, drawing upon sensory experiences such as sight, smell, sound, and touch to communicate how these changes are unfolding. CAC members were encouraged to draw on observations they have experienced in areas within the BCWD, however they often spoke to more geographically broader experiences from places they have lived in Minnesota and elsewhere. CAC members were invited to share a recorded climate story with EOR following the CAC meeting.

Discussion

A climate change storytelling approach utilizes three modules to construct a narrative of individual's stories. These modules are based on understanding places, resources, and experiences that people care about, an exploration of the experiences of climate change on the things people care about, and how the impacts of climate change move people to be motivated or take action to help address climate change. Responses from the CAC are organized as follows according to these modules.

Places, Resources, and Experiences the CAC Cares About

- Recreational opportunities such as cross-country skiing, ice fishing, sledding, running, biking, and getting out on the water.
- Access to clean air and water.
- Scenery.
- Animals and their habitats.
- Seeing the life in Brown's Creek.

Experiences of Climate Change

- Losing a sense of the Minnesota identity of braving/bragging about cold tolerance, and loss of winter traditions for outdoor activities.
    - People used to have skating rinks in their yards as an afterschool activity.
    - Shorter and more inconsistent cross country ski season – used to be December to April, now January to early March.
- Change in bird species.
    - More Northern Cardinals singing year-round.
    - House Finches displacing House Sparrows – House Sparrows now seen mostly in non-residential areas, while House Finches seen in residential areas.
- Inconsistent rainfall resulting in conditions that are too dry for plants to produce nectar for bees, the pollen is still there but the nectar can be lacking.
- Snowplow only came once in 2024. There is less consistent snowfall generally.
- Smokey summers present concerns about health impacts, reducing opportunities to enjoy time outside in summer.
- Observing the increased growth of Buckthorn due to warming temperatures.
- Observing the change in selection of plant species for the area as the hardiness zone changes, assisted migration.
- Shift towards extremes such as the big snow in 2023 followed by no snow in 2024.
- Precipitation and temperature variation creating bigger snows, bigger melts, and potential for bigger flooding and flash freezing.

Motivations and Actions to Address Climate Change

Motivations

- Personal costs of living.
- Feeling like we are doing our part to address climate change as individuals.
- Inspired by people's innovation to adapt.
- Inspiring a culture and mindset change, "if you do it, the neighbors will catch on".

Actions

- Tree preservation.
- Participating in the Climate Impact Corps (AmeriCorps).
- Communicating environmental issues to family, friends, colleagues, and the broader public.
- Driving less.
- Planting prairie instead of turfgrass.
- Reducing energy use through efficient appliances and passive cooling (shade trees on home).
- Taking steps to get off the grid (solar panels, geothermal).
- Recycling.
- Advocating internally within organizations to change behavior. For example, planting native seed mixes instead of turfgrass.

minutes

Project Name |	Brown's Creek Watershed District (BCWD) Watershed Management Plan Update	**Date** |	2-25-2025
Meeting Location |	Washington County Conservation District Office		
Regarding |	Watershed Management Plan Update; Floodplain Management; Groundwater Management; Erosion Prevention and Sediment Control		
Attendee(s) + Info. ***Full attendance in Appendix A*** |	TAC Members CAC Members District Staff and Consultants		
Recorded By |	Alexander Furneaux, EOR		

Meeting Overview

EOR staff attended the Technical Advisory Committee (TAC) meeting to lead a discussion on three Issues that will be revised as part of the BCWD Watershed Management Plan (WMP) update. Camilla and Alexander provided a summary of the work completed since the TAC last met, including updating them on the CAC and Board meetings, and the list of Issues to be discussed with the TAC. EOR also shared the approach to considering climate change impacts and DEI in the planning process. The remainder of the meeting was used to discuss three Issue categories "Floodplain Management", "Groundwater Management", and "Erosion Prevention and Sediment Control".

TAC members were asked to identify concerns/threats, management strategies, monitoring opportunities, and engagement opportunities associated with these Issues. Of importance was understanding how these Issues are evolving and what updates are required to ensure the relevance of the Issue for the coming 10 years.

Discussion

The following summary of the meeting discussion includes input received from the TAC during the meeting, input on these Issues received following the meeting (if any), and input on the Issue received through prior engagement as part of the Watershed Management Plan Update.

This input is summarized in **Table 1, Table 2,** and **Table 3.** Information from these tables will be used to update the following subsections of the Issue Statements in the Plan in the following ways:

- **Concerns/Threats –** Informs potential updates to the General Issue Statement (3.X.1), Relevance to the District (3.X.2), and Sub-Issue Areas (3.X.3).
- **Management Strategies –** Informs potential Goals (new or updated).
- **Monitoring Opportunities -** Informs potential Implementation Items (new or updated).
- **Engagement Opportunities –** Informs potential Implementation Items (new or updated).

Other Topics

Through discussions on these Issues, additional considerations were noted related to the Lake Management issue:

- Follow-up with landowners to understand where well and septic systems are located. Most people responded during previous outreach efforts however there are a few the BCWD didn't hear back from. These are the 180 gaps noted in the presentation table under "Accomplishments: Floodplain Management" (Slide 10).
- MDH noted private wells are not included in the County well index.

    - EOR used the County Well Index and MN Well Index Data layers, and acknowledged there are gaps. For example, location reporting was not required until the 1970s meaning some wells pre-dating the requirement may not be captured.
- MDH has educational materials on well protection they can share. This should be referenced in the Plan. Also included risks and steps homeowners can take from community meeting presentations.
- Consider in the Land and Water Resource Inventory (LWRI). There are no Nonmunicipal Community Water Supply Systems servicing residential properties in the BCWD. They are just servicing workplaces and schools. If we want more information about which workplaces and which schools, contact MDH.
- Verify DWSMA for City of Minneapolis drinking water system. Include in LWRI if applicable.

Table 1. Floodplain Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Loss of flood storage • Groundwater contributing to flooding • Urban flash flooding • Determining roles and responsibilities of the District (e.g. Kimbro Basin flooding) • More severe precipitation events and prolonged wet cycles • Flooding in landlocked basins	• Ensuring no net loss of flood storage through regulatory standards • Assessing potential for flooding • Special attention to minimizing flood risk in landlocked basins	• Lake level and stream flow monitoring	

New to the Update	• Inadequate freeboard • Insurance companies pulling coverage • Changes to FEMA floodplain footprints • Soil compaction during development still an issue • Deteriorating soil health • Flooding impacts to wells • Reduced infiltration in high intensity storm events • DEI consideration: days without clean drinking water when wells flooded	• Flood vulnerability assessment with H/H model updates to NOAA Atlas 14 • Greater regional stormwater management • Acquisition of at-risk properties where there are co-benefits, identifying qualifying co-benefits • Rule language change; allow mitigation without exacerbating on-site flood risk • Partnering with cities to implement stormwater management retrofits or regional treatment solutions • Green infrastructure and soil health BMPs • Turf reduction programs • Public ownership of stormwater facilities (stormwater ponds in outlots) • Update to Atlas 15 when it comes out • Requiring planning for existing conditions in the Rules while providing information about projected conditions ○ High value, critical, and infrequently replaced infrastructure should be futureproofed to projected conditions • Consider active management with a smart outlet system • Discussion of cost-benefit of maintaining water levels for some on Long Lake while risking flooding to others	• Identify large waterbodies where rising water levels could threaten infrastructure • Mapping areas of flooding and intersections with infrastructure (e.g. septic systems, lift stations, and other infrastructure)*, to date only done for lakes in the District* • Collaboration with HOAs on monitoring and identifying flooding issues • Met Council Blue Dot Model/Localized Flood Map Screening Tool	• Help landowners better understand their changing flood vulnerabilities (requiring mitigation to current levels, while informing about projected levels) • Using updated H/H model in municipal comprehensive review process to understand vulnerabilities and develop a comprehensive approach. • Sharing data with communities, neighborhoods, and County as a technical resource, including emergency management • Engage emergency management professionals in floodplain mapping review • Community reporting. Social media campaign to get pictures of where flooding is happening to help ground-truth the model • Determine watershed role in emergency flood preparedness and resident education

Table 2. Groundwater Management

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan	• Groundwater flooding • Maintaining baseflow to groundwater dependent natural resources	• Working towards pre-settlement conditions • Sealing unused wells • Regulatory standards • Groundwater preservation practices	• Groundwater data collection (only monitoring level currently) • Groundwater data sharing with municipalities	• Lawn and road maintenance BMPs
New to the Update	• PFAS contamination • Chloride loading changing soil structure, sealing off infiltration • Data centers and high-volume water users • Reduced groundwater availability in drought • Potential for increase groundwater temperature (warmer water infiltrating) impacting baseflow temperature to resources • Soil compaction during development still an issue • Deteriorating soil health • Flooding impacts to wells • Reduced infiltration in high intensity storm events due to climate change • Pet waste • Potential impacts of geothermal heat exchange from buildings to ground and groundwater system; *adoption of the technology is still low so impact is likely small but may evolve in future, not studied well.*	• Abatement of unused septic systems • Limiting infiltration and pollution generating development in high vulnerability DWSMAs • Soil amendments and enhancements • Incentivize healthy soil systems to reduce irrigation needs (e.g. native and drought-tolerant landscaping) • Ordinances for groundwater conservation • Discouraging groundwater-based irrigation systems • Incentives for septic inspection	• Groundwater monitoring in landlocked basins • Consider monitoring groundwater temperature	• Promoting mindful use of groundwater; education regarding septic systems, salt storage and application, overuse and degradation of groundwater; water testing resources • PFAS engagement • Promoting water harvest and re-use rather than groundwater pumping for irrigation • Support local governments in drought plan development • Identify groundwater impacts for local plan reviews • Engagement with MPH

Table 3. Erosion Prevention and Sediment Control

	Concerns/Threats	Management Strategies	Monitoring Opportunities	Engagement Opportunities
Within the Plan Currently	• Soil disturbance due to development • Soil disturbance due to agriculture, *being deemphasized in the Plan given declining agriculture in BCWD*	• Cost-share erosion and sediment control retrofits by private properties • Addressing bluff instability projects • Assistance for agricultural landowners implementing soil BMPs, *supporting WCD work going forward*	• Annual stream channel assessments (alternative foot surveys and drone flights) • Determining sediment and chloride loading from gravel roads and parking lots • Site inspection during construction to monitor erosion and sediment control	
New to the Update	• Soil moisture variation impacting its functions and values • Shoreline erosion under climate change and wind erosion ○ DNR noted ice ridges/heaving can have benefits, residents have the option to leave these in-place. **Cross reference in Lake Management.** • Deteriorating soil health • Upland and shoreline invasive species increasing erosion • Soil movement due to development and HOA landscaping • Chlorides in dust suppressants	• Rule revision allowing natural landscapes as a stormwater BMP in new development to meet permit requirement • Rotational livestock (sheep, goats) grazing to maintain turf in parks/HOAs • Incentive program for turf conversion retrofits • Invasive species management • Enforcement of topsoil and soil compaction mitigation regulations • Manage utilities (including irrigation) to better facilitate soil restoration and protection to promote health	• Soil chlorides • Inventory degraded soil areas e.g. Buckthorn denuded slopes • Soil restoration load reduction benefits study	• Share MDA, BSWR, DNR and other actions related to limiting soil disturbance; e.g. new homeowner packets, Lawns to Legumes promotion • Work with HOAs to see value in biodiverse and resilient landscapes and their ongoing habitat, stormwater management, and improved water quality • Educate developers and HOAs regarding value of low disturbance landscapes • Buckthorn removal events • Working with County Master Gardeners • Hobby farm education regarding BMPs

Appendix A – Attendance

TAC Members

- Jen Kader, - Met Council
- Debra Sahulka- BCWD board
- Celia Wirth-BCWD Board
- Dan Scallon- MN DNR
- Jay Riggs-WCD
- Abby Shea- MDH
- Anneke Munsell - MDH
- Jesse Farrell- City of Stillwater
- Michelle Jordan- BWSR
- Kate MacDonald- MPCA

Staff

- Karen Kill
- Hannah Peterson
- Camilla Correll
- Alexander Furneaux

BROWN'S CREEK
WATERSHED DISTRICT
Preserving the integrity of the watershed for future generations
www.bcwd.org | 455 Hayward Ave N, Oakdale, MN 55128 | 651-330-8220

Browns Creek Watershed District Regulatory Review: Report and Recommendations

May 5, 2025

Facilitator: Beth Carreño

Browns Creek Watershed District Regulatory Review: Report and Recommendations

Purpose Statement

The purpose of the Brown's Creek Watershed District (BCWD) regulatory review and facilitated partner meetings was to gain feedback on the current BCWD regulatory program and recommendations for the BCWD Board of Managers to consider when developing the updated (2026-2035) Watershed Management Plan and future initiatives of the regulatory program. Participants were asked to consider the three components of the regulatory program: rules, processes, and outreach and information.

Summary

The purposes of watershed districts are to conserve the natural resources of the state by land use planning, flood control, and conservation projects by using sound scientific principles for the protection of the public health and welfare and the use of the natural resources. BCWD has rules required by Minnesota Statute to conserve the natural resources of the State and Watershed. The regulatory program addresses stormwater management, erosion and sediment control, buffers, shoreline alterations, water crossings, and flood control.

The BCWD regulatory review process included a facilitated partner meeting held November 21, 2024; a presentation and discussion of initial recommendations with the Board on January 8, 2025; and a second facilitated partner meeting on April 4, 2025. Thirty-nine individuals attended the November meeting, and 19 individuals attended the April meeting. Recommendations in this report are based on feedback from all three sessions. While not all-encompassing, the feedback from the Board and partners was accompanied by a review of the website and existing processes of the District. This was to improve and provide context to the recommendations.

BCWD staff put a great deal of planning and effort to ensure attendance and participation at the meeting. They worked with a facilitator for planning and hosting partner meetings and reporting to the Board. Partner meetings benefit from a facilitator who ensures balanced participation, guides discussions and activities, manages the group and conflicts, improves communication and collaboration, and provides non-biased recommendations for problem solving. It builds trust in a process, allows staff and Board members to listen, and increases the likelihood of achieving the desired outcomes.

Appendix One provides an overview of the planning process. Appendix Two is the BCWD Regulatory Review: Amended Partner Meeting Feedback Summary, and it contains the initial feedback summary from the first partner meeting, additional comments received after the first partner meeting, and the feedback from the second partner meeting. It has been updated from earlier draft versions of the report to include all comments from the second partner meeting in April 2025. Appendix Three is a review of the icebreaker activity, "Defining Simple," which was designed to encourage participants to focus on providing detailed feedback with specific strategies.

The recommendations included in this report are based on specific feedback, identification of themes in the feedback, and an interpretation of the information received from partners. BCWD will likely require additional staff to support the recommendations related to the rules review, changes to processes, and

improved outreach. It's notable that BCWD is already allocated additional resources and staff to support and improve delivery of its programs.

Recommendations with Board Direction

Participants were asked multiple questions during the facilitated exercises at the November and April meetings and were frequently reminded to consider the three components of the regulatory program: rules, processes, and outreach and information.

Participants provided detailed feedback and specific strategies for improving the BCWD regulatory program. However, *participants also consistently complimented current BCWD staff, BCWD efforts to protect water resources and provide good service, and this process.* This is a good foundation for building the next stage of BCWD efforts.

All comments from both sessions were recorded and reviewed. Three themes emerged during the first meeting and the synthesis of the feedback:

- **Theme** 1: The BCWD regulatory program should be transparent, efficient, equitable, consistent, and not unduly complicated.

- **Theme 2**: The BCWD regulatory program should protect and improve the resource and properties in the District, and there should be accountability.

- **Theme 3**: Communication is critical, should be consistent, and should lead to improved engagement and understanding with the public, partners, permittees, and other specific audiences including engineers representing permittees and the business community.

A fourth theme emerged after the second partner meeting:

- **Theme 4:** BCWD should collaborate with other entities including neighboring watershed districts, cities, counties, and private partners to improve its programs.

The Board will ultimately decide the degree to which these can be implemented. For example, it may not be possible to have rules that are in plain language and can be understood at or below the standard 7th grade comprehension standard for public documents. Instead, the Board may consider guidance documents and allocate staff support for some applicants to ensure better understanding of the rules.

Board Direction: Direct staff to begin implementing

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Website	Review the General Permitting Info page of the website and identify opportunities for improvement Improve transparency on the program by including a statement of how many applications, permits, projects, pre-app meetings, how the program is paid for, and estimated costs Complete FAQs Continuously look for opportunities to increase readability, plain speak, and user experience on the website		Outreach & Information	1,3
Annual Reports & Newsletters	Include information on regulatory program in newsletters and annual reports Mission and purpose – why is there a regulatory program? Improve transparency and perspective on the program by including a statement of how many applications, permits, projects, pre-application meetings, how the program is paid for, and estimated costs		Processes	3

Board Direction: Direct staff to explore issue and get more information (cost, time commitment, consequences, limitations)

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Develop and implement a process for follow-up on closed projects, additional inspections, and enforcement			Processes	2
Assess the viability of an application portal and electronic payment process	Complete a cost-benefit analysis to determine feasibility Consider fixed *and* variable costs, number of applications, risks, and opportunities – *there were 20 permit approvals in 2023* Identify other practices to communicate permit status to applicants (or to improve current communication)	Improve transparency and perspective on the program by communicating on the number of applications, permits, projects, and pre-app meetings; how the program is paid for; and estimated costs If you choose not to develop an application portal or electronic payment process, be transparent and communicate "why." Return on investment (ROI)?	Processes	1

Board Direction: Take the recommendation into the WMP process for more consideration

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
HOAs – identify and implement strategies to improve "hand-off" from developers and HOAs	Require a meeting with a checklist with HOA obligations Improve HOA guidance on website to include more information on obligations, processes, and resources	Board direction included a desire to identify some additional ideas / information that could be considered during the WMP process	Processes, Outreach & Information	2, 3, 4
Develop guidance documents for permittees and potential permittees	Rules guidance document Videos / vlogs to provide guidance / instruction Flow charts to explain permitting requirements and/or process		Outreach & Information	1, 3

Board Direction: Take the recommendation into the WMP process and future rules revisions

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Review permit fee structure to ensure they are clearly communicated and equitable	Consider caps on fees and other requirements for single family projects Identify opportunities to increase transparency, full-cost accounting, and standardized fees Determine who should bear the weight of the regulatory program and permits	Can't make money on the regulatory program; permit fees have to match the level of review required	Processes	1, 4

Board Direction: Direct staff to explore and prepare for future rule revisions

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Prepare for future rule revisions	Review the specific rules that were identified by participants at partner meeting – are there opportunities to make changes? Create an inventory of rules that could be considered during a formal rules update Complete a comparison of rules to those of nearby and/or similar watersheds – look for opportunities to align, ideas for clarity Identify opportunities to clarify rules or allow for increased flexibility in meeting the rules	Review the specific rules that some partners identified for change during the engagement process This would include things that staff have noted or were noted by partners	Rules	1, 2, 3, 4
Begin rule revision process after the watershed management plan is completed, selected process/ outreach strategies have been implemented, and additional partner meetings have been held *and* only if specific rules have been identified		Estimated timeline: 2026 – 2029 • This work requires a commitment from partners • Continue engagement & outreach to see how this improves and/or addresses some concerns • When and how do partners want to give time, meet, or do this shared work? *See comments from 2nd meeting*	Rules	1, 2, 3

Board Direction: Request additional information or clarification from partners

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Identify opportunities in the rules to increase administrator / Board's ability to provide flexibility without increasing the number of variances	Identify opportunities to engage additional feedback from partners / permittees	*Offering "regional" solutions was recommended in feedback. BCWD currently offers regional solutions. QUESTION: is the flexibility we offer good, and people just don't know OR is there a different flexibility wanted? What does flexibility mean to you? Examples / demonstrate where BCWD offers, but ask if there is more wanted from partners and get specific examples	Rules, Processes	1,3,4
Review the current appeals process and assess opportunities to improve the process, timeline, and communication; ensure that applicants are provided with information on the appeals process		There is not appeals process. What do partners want to appeal, when, and why? What needs to be fixed?	Rules	1,3,4

Synthesis of Feedback from 2nd Partner Meeting - Flexibility

Partners spent a significant amount of time discussing "flexibility" and providing specific ideas for consideration in the regulatory program at BCWD. There was also significant overlap with the discussion on "regional solutions." Full responses are included in the appendixes.

- Variances – review variances and identify trends
    - Determine if a rule change should be considered
- Communication – use existing and improving communication strategies to present, promote, and explain the District's flexible solutions and opportunities to meet rules
    - Guidance documents and explanations for specific rules, options for erosion control, showcasing standards and examples of *how* rules could be met, coordinate language (and possibly approach) with other watershed districts and local government units (LGUs)
- Determine if administrator approval can be expanded
- Determine if there are alternatives or lesser requirements for applications that can demonstrate protection of the resource, clear stormwater disconnect, etc
    - Consider reduced fees or credit when a project results in improved habitat, restoration, or other resource benefit
- Review MIDs and MIDs+ for potential expanded flexibility

Synthesis of Feedback from 2nd Partner Meeting - Appeals

Some participants encouraged the District to look to other LGUs for possible appeals processes. However, there was significant consensus that addressing other recommendations from the regulatory review and the following ideas would be a possible alternative to address "what needs to be fixed" instead of a formal appeals process:

- Improved communication
    - Promotion of timelines and processes
    - Options for coordination, discussion, and the pre-application process
    - Identifying processes for how to address disagreements on the interpretation of rules and how to meet them

Board Direction: Request additional information or clarification from partners and have staff explore issue and get more information (cost, time commitment, etc.)

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Allow regional solutions	Review how other watershed districts (and State partners) support regional solutions and identify opportunities for BCWD – *this may require a rules change*	*BCWD does offer opportunities for regional solutions / treatments; utilize outreach / information strategies to communicate this and including this in future partner meetings • Regional solutions is tied to flexibility. Are the regional solutions / flexibility we offer good, and people just don't know about it OR is there a different flexibility / regional solution wanted? • Monitor future feedback on this to determine if rules or process changes are needed • What regional solutions are you looking for? Wetland banking? Larger stormwater management facilities?	Rules, Processes, and Outreach & Information	1, 2, 3, 4

Synthesis of Feedback from 2nd Partner Meeting – Regional Solutions

Partners spent a significant amount of time discussing "regional solutions" and providing specific ideas for consideration in the regulatory program at BCWD. There was also significant overlap with the discussion on "flexibility." Full responses are included in the appendixes.

- Collaborate and coordinate
    - Work with land use authorities, the county, LGUs, developers to plan, identify, and promote regional solutions; consider agreed upon priorities or methodology

- Mapping
    - Map existing regional solutions and potential locations
- Communication
    - Promote regional solutions and awareness of the options, coordination, share success stories
- Consider the feasibility of the watershed district purchasing properties to become a regional system / solution – evaluate pros and cons

Board Direction: Request additional information or clarification from partners and then include in WMP process

Recommendation	Strategies	Notes	Rules, Processes, or Outreach & Information	Theme
Host ongoing engineering workshops / meetings	Initial facilitated conversation / focus group Ongoing discussions / training	Additional ideas: Continuing ED? Opportunities to meet staff and learn about rules, processes, expectations, obligations, and opportunities *and provide feedback – could this be done regionally (EMWREP)* Lunch and learns, virtual sessions, breakfasts Incentivize their participation	Outreach & Information	1,3, 4
Increase outreach opportunities	Inventory where touchpoints are and look for opportunities to share BWCD info - city billing inserts, realtor communication Create information cards or standard language (for documents / websites) for other permitting LGUs to provide to applicants Schedule consistent meetings with partners – city-county partner meetings, city coordination meetings, partner meetings – determine a schedule that is do-able and set expectation	Incentivize participation	Outreach & Information	1, 3, 4

Increase outreach opportunities – cont.	Opportunities for developers and/or contractors to meet staff and learn about rules, processes, expectations, obligations, opportunities – lunch and learns, virtual sessions, breakfasts			
Committee membership	Provide opportunities for developers, contractors, and the regulatory audience to participate in the District This could include Board, CAC, and/or TAC appointments, inviting them to information sessions with members of the above groups, and staff presenting at meetings where business leaders are present Provide opportunity for this group to identify ways they want to participate	Integrate them and don't leave them on an island.	Outreach & Information	1, 2, 3, 4

Synthesis of Feedback from 2nd Partner Meeting – Combined Feedback on Increased Participation by Engineers and All Partners

- Host ongoing engineering workshops / meetings
- Increase outreach opportunities
- Committee membership

The feedback from these questions is best summarized together. This is in part due to the limitation of time for discussion in the second partner meeting and the overlap of ideas. Also, there were no engineers in attendance at the second partner meeting; this presented a challenge to determine what would be most successful from their perspective.

- Continue to consistently engage and strengthen relationships
    - Follow best practices for meetings including consistently held meetings, varying meeting times, alternative participation options, and expanded invitations (consider public notice)
    - Attend partner meetings (ex: staff or Board members attend city council meetings)
    - Invite participation at "change moments" (rule making, plan development)
    - Resource: IAP2 (International Association for Public Participation – www.iaps.org)

- Collaborate with other organizations including the county and other watershed districts to reduce the separate asks on cities, developers, and engineers
    - Identify and use existing partnerships like Water Consortium to convene communities around watershed topics
        - Work with multiple partners to co-deliver events for specific audiences (engineers, developers)
    - Co-host meetings, events, trainings
    - Co-create outreach materials (general watershed, specific solutions, fact sheets, videos)
- Continue to seek feedback from multiple audiences
    - Use tools like surveys to get feedback from permit applicants after the permitting process or to get information from individuals that did not attend facilitated partner meetings

Initial Recommendations reviewed by the BCWD Board of Managers:

Rules	Recommendation	Theme(s)

	Prepare for future rule revisions
	• Review the specific rules that were identified by participants of the partner meeting
	  ○ Are there opportunities to make changes?
	• Create an inventory of rules that could be considered during a formal rules update
	• Complete a comparison of rules to those of nearby and/or similar watersheds
	  ○ Look for opportunities to align, ideas for clarity
	• Identify opportunities to clarify rules or allow for increased flexibility in meeting the rules
		1,2,3

	Identify opportunities in the rules to increase administrator / Board's ability to provide flexibility without increasing the number of variances • Identify opportunities to engage additional feedback from partners / permittees • May include some process opportunities	1,3
	Begin rule revision process after watershed management plan is completed, selected process / outreach strategies have been implemented, and additional partner meetings have been held ***and*** only if specific rules have been identified • Estimated timeline: 2026 – 2029	1,2,3

	Allow regional solutions – rules, processes, & outreach • Review how other watershed districts (and State partners) support regional solutions and identify opportunities for BCWD – *this may require a rules change* • Note: BCWD does offer opportunities for regional solutions / treatments; utilize outreach / information strategies to communicate this and including this in future partner meetings ○ Monitor future feedback on this to determine if rules or process changes are needed	1,2,3
Processes		
	Develop and implement a process for follow-up on closed projects, additional inspections, and enforcement	2
	HOAs – identify and implement strategies to improve "hand-off" from developers and HOAs – *this also requires implementation of improved outreach and information strategies* • Require a meeting with a checklist with HOA obligations • Improve HOA Guidance on website to include more information on obligations, processes, and resources	2,3
	Allow regional solutions – rules, processes, & outreach • Review how other watershed districts (and State partners) support regional solutions and identify opportunities for BCWD – *this may require a rules change* • Note: BCWD does offer opportunities for regional solutions / treatments; utilize outreach / information strategies to communicate this and including this in future partner meetings ○ Monitor future feedback on this to determine if rules or process changes are needed	1,2,3
	Assess the viability of an application portal and electronic payment process • Complete a cost-benefit analysis to determine feasibility • Consider fixed *and* variable costs, number of applications, risks, and opportunities – *there were 20 permit approvals in 2023* • Identify other practices to communicate permit status to applicants (or to improve current communication)	1

	• Improve transparency and perspective on the program by communicating on the number of applications, permits, projects, and pre-app meetings; how the program is paid for; and estimated costs	
	Review permit fee structures to ensure they are clearly communicated and equitable • Consider caps on fees (and other requirements) for single family projects • Identify opportunities to increase transparency, full-cost accounting, and standardized fees • Determine who should bear the weight of the regulatory program and permits	1
	Review the current appeals process and assess opportunities to improve the process, timeline, and communication; ensure that applicants are provided with information on the appeals process	1,3
Outreach & Information		
	Host ongoing engineering workshop / meeting • Initial facilitated conversation • Ongoing discussions / training	1,3

	Increase outreach opportunities
	• Inventory where touchpoints are and look for opportunities to share BCWD info (city billing inserts, realtor communications)
	• Create information cards or standard language (for documents / websites) for other permitting LGUs to provide to applicants
	• Schedule consistent meetings with partners
	  ○ City-county partner meetings; city coordination meetings; partner meetings – determine a schedule that is do-able and set an expectation
	  ○ Identify opportunities to collaborate with regional groups – county, neighbor watersheds, etc.
	  ○ Opportunities for developers and/or contractors to meet staff and learn about rules, processes, expectations, obligations, and opportunities
	  ▪ Lunch and learns, virtual sessions, breakfasts
	  ▪ Incentivize their participation
	  ▪ Ex: A city with two watersheds within its borders co-hosts a developer / contractor breakfast with both watersheds; rules presentation highlighting requirements
		1,3

	Develop guidance documents for permittees and potential permittees • Rules guidance document • Videos / vlogs to provide guidance / instruction	1,3
	Website • Review the General Permitting Info page of the website and identify opportunities for improvement ○ Improve transparency on the program by including a statement of how many applications, permits, projects, pre-app meetings, how the program is paid for, and estimated costs • Complete FAQs • Continuously look for opportunities to increase readability, plain speak, and user experience on the website	1,3

	Annual Reports and Newsletters
	• Include information on regulatory program in newsletters and annual reports
	  ○ Mission and purpose focus – why is there a regulatory program?
	  ○ Improve transparency and perspective on the program by including a statement of how many applications, permits, projects, pre-app meetings, how the program is paid for, and estimated costs
		3

	Committee membership
	• Provide opportunities for developers, contractors, and the regulatory audience to participate in the District.
	  ○ This could include Board, CAC, and/or TAC appointments, inviting them to information sessions with members of the Board, CAC, and/or TAC, and staff providing presentations at meetings where business leaders will be present.
	  ○ Provide opportunity for this group to identify ways that they want to participate at follow-up meeting(s).
		1,2,3

Appendix 1
Process

For the November partner meeting, Staff developed the invitation list based on local and regional partners, individuals and companies with a history of participating in the permitting process, individuals who have interacted with the watershed district in the past, and through an additional equitable partner engagement review. A survey was conducted to select the date of the meeting, invitations were emailed with multiple reminders, and staff reached out directly through email and phone calls to improve attendance. The same process was followed for the April meeting.

Thirty-nine individuals attended the November meeting; this was 33% of the 118 invited. Participants represented residents, homeowner associations, permittees, developers, BCWD communities, Washington County, state agency partners, other watershed districts, and members of the Citizen Advisory Committee and Board of Managers. It was noted during the meeting that many of the engineers that were invited weren't in attendance. This is noteworthy because engineers often work with clients during the permitting process, and their feedback would have been valuable. Recommendations related to this audience are included later in the report.

The participants represented diverse audiences with often differing priorities. This diversity was essential to get a full range of feedback. It also provided an opportunity to gather feedback from partners that may not have the same ability or opportunity to communicate with the watershed district but still have a perspective that should not be overlooked.

The meeting included introductions, an icebreaker, an overview of the current BCWD regulatory program, and multiple facilitated large and small group discussions. Multiple techniques were used so participants would interact with different people throughout the morning. In addition to BCWD capturing feedback, it was important that participants also heard the perspectives of the others in the room.

To ensure transparency and accountability, staff sent the initial draft of meeting feedback to all participants and invitees with a request that they provide any additional clarification or feedback and to provide those that had not attended an opportunity to give feedback.

The feedback form the first partner meeting with recommendations was presented to the BCWD Board of Managers at the January 8, 2025, Board Meeting. **The Board had the opportunity to review the feedback and recommendations, discuss and identify priorities, provide direction for obtaining additional clarification from partners, and ultimately incorporate selected priority activities into the watershed management plan and BCWD work plans.** Another partner meeting was always planned to present Board direction on the recommendations. However, the Board requested additional partner feedback on several recommendations, and this was integrated into the April meeting.

Nineteen individuals attended the April meeting with less representation of the partner groups than the first. This was noted with participants and ideas for engagement of different audiences was discussed. The meeting included an overview of the process to date, a review of Board direction for the initial recommendations, and small group discussions on recommendations where the Board had asked for additional partner feedback.

After the April meeting, staff met with the facilitator again to review the partner feedback and a final report was prepared.

Appendix 2

BCWD Regulatory Review: Amended Partner Meeting Feedback Summary

The original Partner Meeting Feedback Summary has been amended to include comments received by email in the extended comment period from December 6, 2024, through December 13, 2024. An additional amendment to feedback summary was made in May 2025 to include comments received during the second partner meeting on April 4, 2025.

Meeting Overview

A partner meeting was held November 21, 2024, to gain feedback on the current Browns Creek Watershed District (BCWD / the District) regulatory program and recommendations for future activities for the BCWD Board of Managers to consider when developing the updated (2026 – 2035) Watershed Management Plan.

The meeting included an overview of the current BCWD regulatory program including information on its regulatory authority, past updates, current processes and rules, and accomplishments due in part to the District's regulatory program.

There were 118 individuals invited and 39 individuals, or 33% of those invited, in attendance with participants representing residents, homeowner associations, permittees, developers, BCWD communities, Washington County, state agency partners, other watershed districts, and members of the Citizen Advisory Committee and Board of Managers. Participants were asked to introduce themselves, who they represent, and how they interact with BCWD. Several participants noted that there weren't many engineers at this meeting. It's important to note that engineers were invited, and staff are continuing to develop and implement strategies to engage this critical audience.

An icebreaker was led to create a definition for the word "simple." Simple and its variations are frequently used to provide direction for what the BCWD rules and regulatory program should be. Seventy-eight responses were offered with many of these unique. It was established that "simple" would not be a word used in the day's feedback, and participants would focus on providing specific strategies and detailed feedback.

Participants were asked to consider the BCWD regulatory program as its rules, processes, and outreach and information. Activities focused on getting feedback around these three components. Multiple facilitation approaches were used to increase engagement, encourage participants to interact with different people, allow participants to hear multiple perspectives, and for everyone to share their ideas in multiple conversations.

There were three facilitated discussions. The first was done with the whole group, the second was completed in small groups, and the third had participants moving around the room in changing small groups (a variation of a known facilitation technique called World Café). Participants were asked to respond to multiple questions or prompts. After each activity, participants reported back to the entire group and shared ideas. The meeting ended with a brief wrap-up discussion, and participants were asked if they felt anything was missed in the questions asked or the conversation. Individuals were asked to share something they heard another participant say that was a new perspective for them.

Questions & Response Summary

A summary of the questions and a generalization of the responses follow. A complete list of all answers is included in this report and were used to inform recommendations.

Who and what benefits from the regulatory program?

The answers reflected the group's shared beliefs that the community, property owners, and the resources benefited from this program. Half of all responses identified individuals (in the community or property owners) as beneficiaries as a result of a healthy resource or protection from harm (flooding, etc). Of nearly 100 responses given, only five identified engineers, consultants, and watershed staff as the beneficiaries of the regulatory program.

What are the most important factors or components of a successful regulatory program?

Themes that were present in the answers focused on consistency and fairness; flexibility; efficiency; clarity; value and cost; public engagement, awareness, and communication; effectiveness and enforcement; the process; and a focus on the resource.

There was broad agreement that a successful regulatory program has sound and clearly communicated processes that are applied fairly and consistently while also valuing flexibility, cost-effectiveness, and efficiency. Public engagement and informational materials should be used to increase knowledge and understanding of the regulatory program and the applicable rules. Enforcement was identified in addition to a number of process suggestions.

What are improvements or changes that you would like to see in the regulatory program?

A significant amount of feedback focused on changes in communication, outreach materials, administrative efforts, and fees. There was less focus on the specific topics identified for possible rule changes; however, one individual provided a list of items for consideration.

What would those improvements or changes result in?

Responses could be categorized into improved communication and engagement, efficiency and expense, administration, and the resource and water quality. They identified outcomes for resident and permit applicant experiences, processes or activities of the watershed district, and the effect on the resource.

What is working in the current BCWD regulatory program?

Participant responses identified current success with resource protection and improvement; administrative practices and staff; current flexibility; and communication and engagement. Many of these were implemented after the last facilitated effort around the regulatory program. All of the things identified serve as a strong foundation for the regulatory program and future changes.

Provide specific suggestions and strategies for BCWD rules, processes, and outreach and information.

There were many similarities between what participants wanted to keep or build upon and aspects of the regulatory program that were identified as "working."

Suggestions for the District's rules encouraged flexibility and innovation; consistency; and some specific rules that could be reviewed.

Suggestions for the District's processes focused on steps to improve communication and transparency; cost-effectiveness; efficiencies; and permittee resources.

Suggestions for the District's outreach and information efforts included the continuation of partner meetings and community engagement; ideas for what and how to share the BCWD story and requirements; and identification of audiences.

Questions and All Responses

Large Group Facilitated Discussion: Idea Pools

Large Group Question One: *Who and what benefits from the regulatory program?*

Topic Areas	Specific Comments

COMMUNITY	• Community – 2
	  ○ Reduced flooding
	• Individuals in the watershed – 2
	  ○ Users in the watershed district
	• Individuals downstream
	• Residents - 6
	  ○ Current residents
	  ○ All residents within the District
	• Future
	  ○ Property owners
	  ○ Generations – 2
	  ○ Future residents
	• Citizens - 4
	  ○ Of state, watershed, etc.
	  ○ "Citizens should"
	• The public (in general) - 2
	• People near the water
	• Those who use the resource
	  ○ Recreationists - 2
	• Anyone drinking water
	• Public health

PROPERTY OWNERS	• Homeowners
	• Property owners - 3
	  ○ Flooding
	• Landowners - 2
	  ○ Downstream landowners
	• Old homesites that were built before planning for runoff
	• Taxpayer
	  ○ Property values - 2
	  ○ Resource quality
	• Business owners

OTHER PEOPLE	• The watershed district employees, staff, engineers
	  ○ Watershed district employees
	• Consultants – 2
	  ○ Consultants / engineers currently benefit
	  ○ Engineers and their firms
	Economics

THE RESOURCE	• Resources – 3 ○ The resource

	- Shared resources - Natural resources – 2 - Natural resources should - Water - Water resources – 4 - Lakes, streams, wetlands, groundwater - Lakes - Browns Creek Water Quality - Browns Creek - Water quality - 2 - Groundwater – 2 - Surface water - Lakes, rivers, streams, wetland - Ecosystems - Ecosystem health - The environment - 8 - Habitat – 2 - Aquatic environment - Aquatic life - Trout - Animals near the water - Fish, bugs, plants - Wildlife - Nature
Additional comments and questions	- Recreation - Who suffers if not enforced? - How do the rules account for climate change? - Rules not enforced versus when rules are enforced - Benefit: environment, landowners, future residents

Large Group Question Two: ***What are the most important factors or components of a successful regulatory program?***

Topic Areas	Specific Comments
CONSISTENCY	• Consistent – 3 ○ Consistency - 2 • Predictable • Implemented consistently
FAIRNESS	• Fair – 6 ○ Applied Consistently • Fairness • Fair implementation • Fair application • Implemented equally • Equitable
FLEXIBILITY	• Flexibility ○ Flexibility for landowners • Nimble / flexible – 2

EFFICIENT	• Efficient – 4
	  ○ Efficient for BCWD, applicant, municipality
	  ○ Efficient to administer
	• Timely - 3
	• Timeliness

COST / VALUE	• Cost-effective
	• Pre-determined fees
	  ○ Fees that do not require calculations
	  ○ 1 garden = $100
	• Demonstrated value to stakeholders
	• Minimum cost for the most value
	• Technical assistance at low cost
	• Area wide fees and developer fees

UNDERSTANDABLE	• Clear
	  ○ Clear rules
	• Clarity
	• Straightforward
	• Decipherable
	• Understandable
	• Easy to understand
	  • Easily understandable by all
	  • Easy to understand by all parties
	  • Easy
	  • Easy to accomplish
	  • Step by step notice
	• Easy to implement

PUBLIC ENGAGEMENT & AWARENESS	• Shared understanding of long-term maintenance / limitations (stormwater BMPs + buffers)
	• Buy-in by watershed residents
	  ○ Buy-in
	  ○ Buy-in from both the regulator and the regulated
	• Awareness of rules that can be followed
	• Community involvement
	• Value to stakeholders
	• Educated public
	• Participation by all parties – with clear responsibilities
	  ○ BCWD
	  ○ Applicant
	• Municipality

COMMUNICATION	• Communication • Open communication of permittee and regulator • Clear communication between staff and applicant • Well-communicated and clear rules that applicants can understand • Clear guidance materials (contributes to streamlined processes)
ENFORCEMENT & FOLLOW-UP	• Enforced • Enforcement with leverage and a process • Follow-up and reporting – w/out lose benefit of project / plan • Ensuring permit requirements are enforced both short and long term • Way to establish accountability for maintenance and potential negative impacts

EFFECTIVENESS	• Effective
	  ○ Permits issued, permits closed)
	• Regulations are effective
	  ○ Ex: when applied they protect the resource they are meant to
	• Provides intended results
	• Successful best management practices
	  ○ Ensure solutions are / can be perpetual
	• Implementable
	• Does it actually produce the desired result and at what cost – accountability

PROCESS	• Process • Shared regulatory authority • Local government participation and involvement ○ Local / county involvement • LGU implemented • A succinct end point with a clear punch list • Data driven • Streamlined process • Everyone knows their role • Everyone involved understands the process • Workshop with the engineering community to see what they need; what formulas to use; what steps to take; it's not clear to them • Good plan (BMPs) • One online access portal for permits

	• Accountability - 2 • Appeals Processes ○ Ease of appeals
RESOURCE	• Protective of resource ○ Protect / improve the resources • Adequate protection of water resources (quantity / quality) for future generations • Objective resource protection
OTHER	• Purposeful • Supported • Appropriate rules • Comprehensive and well thought out rules • Not unduly burdensome – 2 • Projects able to occur without harming the environment • The program is forward thinking (looking ahead for changes in population, climate, etc)

Small Group Facilitated Discussion

Small Group Question One: ***What are improvements or changes that you would like to see in the regulatory program? Think rules, processes, and outreach / information.***

Topic Areas	Specific Comments

COMMUNICATION / INFORMATION / OUTREACH / RESOURCES	• Better targeting
	• Better guidance / expectation setting
	  ○ Communicate expectations
	  ○ Increased communication for buyers who are responsible for maintenance of stormwater / sediment control structures
	• Conciseness of rules
	• Ease of access to rules
	• Better follow-up
	• Portal – submit permits; monitor status
	• Engineering
	  ○ Clear calculations for engineers
	  ○ Better engineer information
	• Resources online for permittee
	  • Link to well index, watershed health assessment tool, etc.

ADMINISTRATIVE / FEES / FLEXIBILITY / EFFICIENCY	• More pre-permit coordination • More administrative approvals • 30 day staff review instead of 60 day • Appeals ○ Clearly defined appeals process • Fee structure – easy to calculate • Create rules that place high value on alternative improvement efforts • Flexibility • Regional ponding • Efficiency • LGU implementation of WMO rules w/ WMO support (or WMO does if LGU prefers) • Consistency among watershed districts
DEFINITIONS	• Rule 7 defined • Re-use calculator defined
DEVELOPMENT	• Should not be in charge of land use planning – leave to townships / cities • Hold developers responsible for their part in stormwater structure maintenance and protection of features during construction
OTHER RULE REVISION SPECIFIC TOPICS	• Site specific analysis – setback review on a cliff but not near a creek • Change “steep slope” criteria • Remove “landlocked versus not” rules difference • Enable farming to remain ○ How to permit / address? • Reduce setbacks by 25 – 50% • More stormwater controls for shoreland development (single lots) • MID – watershed wide (higher standard for / if trout & flooding) • SINGLE FAMILY and SMALL PROJECTS

	○ Less rigorous process for small individual projects (homes) ▪ Very expensive • WCA ○ Support WCA plus ○ Local mitigation priority sequence ○ Higher replacement ratio for high quality wetlands • DRINKING WATER, GROUNDWATER, PRIVATE WELLS • Drinking water protection • More rules tied to drinking water / private wells (SWSMA) ○ Limitations of infiltration near wells or in SWSMA ○ Floodplain & well considerations An individual provided this feedback during the process: • Consultant fees ○ Create transparency of fees collected • Create a quick appeal process when consultants disagree • Endeavor to appoint at least one manager with a background in real estate • Limit requirements of declarations and extractions • Buffers in excess of 20' • Any rule prohibiting buffer averaging • Allow reasonable activities in buffer zones • Requirement to mimic pre-settlement conditions • Allow variances based on practical difficulties • Eliminate landowners obligation to demonstrate that landowner facilities will not have an adverse impact – very subjective standard • Release financial assurances and eliminate need for posting LOL and then paying fees

Small Group Question Two: *What would those improvements or changes result in?*

Topic Areas	Specific Comments
COMMUNICATION / ENGAGEMENT	• Communicated expectations • Clearer communication – the HOA receives outlining the rules when they assume responsibility from the developer / seller / title • Acceptance of enforcement

EFFICIENCY / TIME / COST / EXPENSE / FEES	• Faster / shorter review timeline will reduce $ for waiting and eventually obtaining permits
	• Less rigorous program for small projects would save time and money
	  ○ Also might get more protection with “un-engineered” solutions
	• Less costs - 3
	  ○ Less upfront costs
	  ○ Predetermined fees / precalculated
	• Efficiency
	• Simplification / consolidation of rules
	  ○ Watershed district wide rule would result in increased regulations but simplification
	• Increased complexity

ADMINISTRATION	• More staff (needed to speed up processes)
	• Faster approval process
	• Faster timelines
	• A more fair and equitable system
	• Less variances required
	• On-line portal
	  ○ Permit & submission
	  ○ Follow-up in portal
	  ○ Appeal application
	• Appeal process
	  ○ Ability to appeal a permit decision in a reasonable time
	• More cities as LGU
	• More direct involvement of the Board in rule making
	  ○ Less engineer and legal review / comments

RESOURCE	• Better follow up keeps integrity of projects / plan
	• Increased / regulated
	  ○ Protection of groundwater
	  • Increased costs
	  • Increased water quality of groundwater
	• Limit potential contamination / liability of drinking water

Small Group Question Three: ***What is working in the current BCWD regulatory program?***

Topic Areas	Specific Comments

RESOURCE	• Water quality is improving! – 2
	• Protection / improvement of Browns Creek
	• Surface water quality in areas of watershed
	  ○ Meeting goals – phosphorus, temperature, sediment
	• Volume control is being achieved
	• Resources are being protected
	  ○ Resource protection
	• Phosphorus reduction and improvement of resources

ADMINISTRATIVE	• More administrative review – efficient • Staff wants to help you through the process • Staff is proactive, but restrictive / inflexible • Good staff that cares about the community • Staff is approachable • Application process
FLEXIBILITY	• Flexibility on reconstruction vs. rehabilitation (roads projects) • Board flexible but responsible

COMMUNICATION / ENGAGEMENT / OUTREACH	• Pre-application meetings
	  ○ Initial free meeting
	• Collaboration
	  ○ WCDs
	  ○ Cities
	  ○ Developers
	• Board of managers understanding of projects / reality
	• Communications / connections
	• Listening to feedback / outreach
	  ○ This type of collaboration and asking for input
	• Partnerships
	  ○ Good with partnerships
	• Processes on website
	• Information is accessible and available
	• Trying to make it easy for the applicant

OTHER	• Consistent • Rules are good • Attentiveness to rules

Facilitated Discussion: World Café Variation

Instructions:

- ***Rotate through tables - provide comments - Be Specific***
- ***What is good / important to keep? Suggest changes - don't use the word "simple"***

Topic Areas	Specific Comments

PROCESSES	• Grant opportunities for BCWD priorities
	• Appeal process
	  ○ Implement an appeal process
	• Portal to see where the permit is at in the process – 4
	  ○ Coon Creek has permit portal now online (as an example)
	• Fees
	  ○ Easier fee or automated calculator
	  ○ Fee caps as a % of total cost for single families or ?????
	• Small, medium, large projects
	• Shorten process as much as possible
	• Interagency coordination of permits – 2
	• Less legal review
	  ○ Let engineers / admin review and approve
	  ○ Administrative approval
	  ○ Less attorney review by staff
	• Developer maintain integrity of stormwater feature during construction
	  ○ District enforce
	• KEEP
	  ○ Keep Citizen Advisory Committee – 2 (could also apply to outreach & info)
	  ○ Admin review
	  ○ Pre-application meetings
	  ○ Stakeholder engagement &involvement (could also apply to outreach & info)
	  ○ Continue these meetings with cross-education exercises (could also apply to outreach & info)
	• CHANGE
	  ○ Landlocked basins
	  ○ Better communication
	  ○ Easier to figure out if it applies
	  ○ Less rigorous process for solo single family permits
	  ○ Change undue hardship on variances to practical difficulty
	  ○ Simplify appeal of technical / consultant / disputes
	  ○ Strengthen maintenance agreements
	  ○ Communicate expectations better
	  ○ Make release of financial assurances easier / quicker

OUTREACH & INFORMATION	• Keep partnership meetings – 2 • Keep attending project-specific public project meetings • Keep pre-meetings (free) – 2

	• Community events
	• Maintain Citizen Advisory Committee – 2
	  ○ More CAC outreach / communication to increase attendance at events
	• Share outcomes of implementation
	• Highlight uniqueness of BCWD
	• Identify conflict and highlight positives
	• Maintain relationship with the WCD
	  ○ Utilize shared services
	• Improve relationships with land use authorities
	• Share what BCWD does with tax bill, benefits, programs
	• Budget process
	• Knowledge of needing a permit
	• Clear permitting authority when multiple entities have regulations
	• Give explanation / justifications for each role
	• Links to more resources like MN Well Index, watershed health assessment framework tool, etc
	• Engineer list for stormwater / flood mitigation projects
	• Have $$ available
	• Videos - 2
	  ○ Permit application video for builders / owners
	  ○ Target primarily homeowners / HOAs
	  ▪ How-tos
	  ▪ Overview
	  ▪ Importance
	• Website works
	  ○ Well laid out
	  ○ Rules are easy to find on website

RULES	• Encourage flexibility – options - 2
	  ○ Encourage flexible options
	  ○ Innovative practices
	  ○ Regional ponding – 2
	  ▪ Prioritize regional ponding opportunities
	  • Stormwater credits?
	  ○ Look for multi-benefit projects / extra flexibility
	• More flexibility for recon projects – especially public
	  ○ Keep rehab versus recon
	• Consistency with other watershed districts – 3
	• Equitable application of rules
	• Reconsider decompaction – 2
	• Rule 7 defined – 2
	• Re-word re-use
	• Less engineering required for homeowners
	• Farm friendly rules
	• Pre-settlement (?)

	○ Pre-settlement conditions a challenge to meet; existing conditions preferred • Buffers in excess of 25' • Provide clear responsibilities for HOA stormwater facility maintenance - 2 ○ Include enforcement ○ City versus watershed district • Protect private / drinking wells / source not just public supplies – 2 ○ Both could be explicit in rule – thinking regarding stormwater & floodplain • KEEP ○ Permit Threshold triggers ○ Volume control – maintain standards • CHANGE ○ Single family home rules – 3 ○ Where statute does not define specific language, make it less technical ○ Forcing landowners to solve MNDOT runoff issues with no compensation

Additional Feedback:

Participants and the invitee list were emailed the "Partner Meeting Feedback Summary" on December 6, 2024, and encouraged to provide comments on the summary and/or submit additional feedback on the BCWD regulatory program. The email requested that additional comments be sent by December 13, 2024; a reminder was sent on the morning of December 13, 2024. Limited feedback was received and has been considered in preparing the final report and report and recommendations.

Summary of those comments is below:

Attended	• Document captures the comments well • Many may support comments even if they were shared by one individual • The Board will have to determine what to focus on and in what order
Could not attend	Enforcement and Follow-up • Enforcement and follow-up are lacking • An example was provided (and has been shared with staff) • Would like to see resources and tools made available to improve enforcement
Attended	Follow-up on the rules for stronger protections for groundwater and drinking water and that the specific suggestions provided during the meeting were opportunities / possibilities and not dictated expectations. • Specific ideas were presented to staff

All comments received during April 4, 2025, partner meeting:

Request Clarification from Partners:

1. Regarding Recommendation:

Identify opportunities in the rules to increase administrator / Board's ability to provide flexibility without increasing the number of variances

Strategy:

- Identify opportunities to engage additional feedback from partners / permittees

*Offering "regional" solutions was recommended in feedback. BCWD currently offers regional solutions. QUESTION: is the flexibility we offer good, and people just don't know OR is there a different flexibility wanted?

What does flexibility mean to you?

- Flexible treatment options *
- Flexibility opportunities must be based on data / habitat protection
    - Not political desires / protest or developers ROI
- Examine buffer rules; allow more averaging
- Put process costs towards other solutions (ex: native prairie)
- Create process to allow credit for creating restored areas
    - Native habitat
    - Restoration = volume control credit
    - Adding computation credit system for open space
- Review variances – what are the most common variances? Variance review- what is common? Rule change necessary?
    - Review variance request for common challenges – how did the Board approve or deny
    - Variance request – how did the board approve or deny; work that into the rule
- Record instances of previous variances to use as references of precedence
- Loosen variance needs
- Instead of a variance process --- a *mitigation* process
- Ongoing Communications Improvement
    - Guidance document or website section on flexibility
    - Providing / directing applicants to information on approaches that they can use to meet regulations
        - Eg: people may not know they could do 6 – 10 things to meet their permit requirements
    - Clear communication of FTOs (Field Testing Operations) for stormwater
    - Communicating other options for erosion control
    - Clear curve number definitions & assumptions (to avoid hydrocad games)
    - Include the "why" for the individual standard requirements for the developer and resident to understand
    - Simplified explanation of each specific rule that is understood by regular people
    - Include indicators that these standards are working
- For education/outreach: What flexibility do we have in rules
    - Also have buffer averaging

    - Regional treatment
    - MIDS in diversion drainage
    - HOW you meet (various ways like decompaction, erosion control types are not all same expense)
- Consistency – coordinate language and approach with neighboring watersheds and cities
- Consider what benefits the rule has for the resource and if that protection is there for a lesser requirement
- More stringent that state standard – prove benefit to the resource or allow more flexibility
    - Meet full rule versus less than but adequate
- Need to be aware of setting precedents
- Allow staff / engineers to provide flexibility in certain circumstances without variance
    - Interpretation flexibility – process to allow consensus *
        - Stormwater / engineering rules that allow benefit to the resources breaking down overly prescribed / prescriptive rules *
- Higher level of engineering review? Frequency? Could add complexity
- MIDS (like VBWD) – Staff availability + staff authority + District wide connecting
    - MIDS in general and MIDS+ for sensitive features (addressing need may require greater than 1.1 inch
    - Treatment flex per MIDS – watershed district wide (alt treatment standard for trout stream and landlocked)
- Staff availability and authority (private & public) collaboration on higher level of watershed*
- Communicate and potentially expand Admin approval
- Additional things / processes that go through a quicker review
- Review other watershed district rules for flexibility options
- Flexibility between different watersheds
- Cost flexibility for different types of projects for permits
    - Cost flexibility – less expensive for certain types of projects
- Interpretation flexibility if the engineers don't agree on the interpretation of rules; is there a process that can be implemented to facilitate healthy solutions
- Easier permitting for sites that can demonstrate clear stormwater disconnect
- Clear demonstration of stormwater; topography does not make it to resource
- Reduction in fees if treatment exceeds a certain threshold
- Permit threshold review fees in lieu
- Rate of water flow; taking a higher overview of water from a larger perspective
    - De minimis (a legal doctrine by which a court refuses to consider trifling matters)*
- For sites that drain in multiple directions, apply rate control & water quality protection to the overall site not necessarily on a subdrainage drainage basis. Particularly if overall discharge is less post development and dnst (?) properties are not impacted
- Justification of changes in real time versus designed plans *
- Evaluating old design capacity and creating projects to incorporate new design capacity
- *When getting rule comparison data…also ask what flexibility others feel they have in rules, how many permits they issue per year, what variances they have given in past x years, what regional treatment options…looking at cities/county appeal process (Jay says cities have to appeals process)*

*identified as priorities in group

Request additional information or clarification from partners and have staff explore issue and get more information (cost, time commitment, etc)

1. Regarding Recommendation:

Allow regional solutions

Strategies:

- Review how other watershed districts (and State partners) support regional solutions and identify opportunities for BCWD – *this may require a rules change*

Tied into "what does flexibility mean to you?"

*BCWD does offer opportunities for regional solutions / treatments; utilize outreach / information strategies to communicate this and including this in future partner meetings

- Is the flexibility we offer good, and people just don't know about it OR is there a different flexibility / regional solution wanted?
- Monitor future feedback on this to determine if rules or process changes are needed

What regional solutions are you looking for? Wetland banking? Larger stormwater management facilities?

- Regional solutions summit / planning with LGUs
- Survey developers for ideas
- Work with local land use authorities
- Collaborative effort – how can planning be accomplished together; looking into broader area
- Chicken and egg game – how to streamline the process so all who should be involved are?
- City or township has a plan; approved by watershed district
    - Watershed district encouraging and support
- Task Washington County to build master plan for watershed subareas – then developers can work into prelim plan
- Map existing regional solutions
- Increase cohesiveness of previously approved regional solutions
    - Website
    - Signage
- Stillwater Milbrook Development has been a great success –
    - "I've found no overflow to Browns Creek or Carnelian Watershed District"
- Review historic experience of Cub / Walmart development
    - 1st class como after rigid rules failed politically
- Map out and protect / predefine lands for regional solutions
    - Develop regional methodology
- Increase awareness of regional stormwater approaches
- Provide list of recommended ideas – perhaps location specific
- Allow native habitat creation as a solution to volume control
- Prepare outreach to prevent NIMBY-ism
- Not understanding how the regional solutions impact large areas
- Watershed purchase the land for the stormwater BMP (regional) in advance
- Future of planning based upon 50 year
    - Buying land before; capital project; area needs bond; imminent domain, already in place
- Folks do cash in lieu to pay in for areas already on a regional system

    - This is a great option but shouldn't be used when great treatment on site exists
    - Communications issue: some people feel like that is extortion
- Prioritize and reward regional solutions - 2
- Overlay of where in the watershed regional solutions already exist
    - Storymap to click, see, pursue
- Diversion drainage
- Wetland banking –
    - Timed out; consistent regional solutions & honoring
    - Expensive – site is developable; other options for creative solutions

2. Regarding Recommendation:

Review the current appeals process and assess opportunities to improve the process, timeline, and communication; ensure that applicants are provided with information on the appeals process

There is not appeals process

What do you want to appeal, when, and why?
What needs to be fixed?

- Approach from a position of partnership
- Be consistent with other appeals processes of other kinds of LGUs
- Get ahead of appeals
    - Early coordination
    - Purposeful communication
    - Co-decision
- If working together, appeals aren't needed
- An appeal aims at doing something not allowed – current process is ok
- When there are clashes between attorney and/or between engineers – how do we have a conversation that isn't always "our guy is right?"
- What happens when a permit is denied? Can an applicant reapply?
- Who is being appealed to? The engineers who don't agree? The board? Attorneys? At what point in the process?
- Can a third party be brought in?
- Developers to share w/ board – more discussion
- Zoning - appeal decision – appeal meeting
    - Planning + town board
    - Discrepancy between parties
        - Made decision
        - Appeal
        - Reasoning entered into at a different meeting
    - Land use, engineers
- Staff level or board
- Watershed district – 60 days or 120 days rarely deny – disconnect between board
    - Work with applicants
- Variance requests or what process are in place

- Process/Education- discussion to board is possible if engineers don't agree on interpretation of rules or how to meet

Request additional information or clarification from partners and then include in WMP process

1. Regarding Recommendation:

Host ongoing engineering workshops / meetings

Strategies:

- Initial facilitated conversation / focus group

Ongoing discussions / training

Additional ideas:

Continuing ED? Opportunities to meet staff and learn about rules, processes, expectations, obligations, and opportunities *and provide feedback – could this be done regionally (EMWREP)*

Lunch and learns, virtual sessions, breakfasts

Incentivize their participation

Is there value in this? Do the partners support it? Someone has to pay for engineers to attend, so would the partners support sending their engineers?

- The best people to ask this question are (maybe) not in the room
- Other ideas for increasing outreach opportunities & committee membership / participation

2. Regarding Recommendation:

Increase outreach opportunities

Strategies:

- Inventory where touchpoints are and look for opportunities to share BWCD info - city billing inserts, realtor communication
- Create information cards or standard language (for documents / websites) for other permitting LGUs to provide to applicants
- Schedule consistent meetings with partners – city-county partner meetings, city coordination meetings, partner meetings – determine a schedule that is do-able and set expectation
- Opportunities for developers and/or contractors to meet staff and learn about rules, processes, expectations, obligations, opportunities – lunch and learns, virtual sessions, breakfasts

Additional ideas:

- Continuing Ed? Opportunities to meet staff and learn about rules, processes, expectations, obligations, and opportunities and provide feedback – could this be done regionally (EMWREP)?
- Lunch and learn, virtual sessions, breakfasts
- Incentivize their participation

What are you interested in? What activities are you most likely to attend?

- Participatory planning + rule making = invite us back at change moments
- Outside of BCWD
    - Met Council's subregional engagement process may be a good additional venue
- Water consortium already does this to some extent; get us back in the room again (how do you get developers' engineers in the room?)

- Flowcharts could be helpful for communication ("dichotomous key"). Flowcharts are useful, but could that end up complicating?
    - Examples:
        - Regs A, B, C
            - Reg B – Options to Achieve Pre Approval (1., 2., 3., 4., etc)
                - If not, not approved or variance required
        - Starting point questions
            - If yes, continue to (permit app or other step) ---- etc
            - If no, revisit x, y, or z ---- verify function ---- back to s

3. Regarding Recommendation:

Committee membership

Strategies:

- Provide opportunities for developers, contractors, and the regulatory audience to participate in the District
    - This could include Board, CAC, and/or TAC appointments, inviting them to information sessions with members of the above groups, and staff presenting at meetings where business leaders are present
- Provide opportunity for this group to identify ways that want to participate

Additional Note: Integrate them and don't leave them on an island

What kind of involvement are you looking for? Would you be willing and interested in participating? What would you be willing to do?

- Committee Membership
    - Engineers – private entities; watershed district(s) to hire full time engineers, show up to meetings
    - What's the motive of each party involved
    - Public notice for all to allow time to communicate w/ Board or people
    - Boards and leaders – technical experts; generalist leaders – strategic direction; allow for more people to participate
    - When asking for more specific feedback, provide questions in advance
    - Hold meetings at different times to accommodate various schedules
- Continued Involvement / Engagement
    - People show up when they are mad about something
    - Meet w/ cities fairly often (quarterly, sometimes want less)
    - Relationship building between meetings (CLFLWD)
    - Board members to attend city/township council meetings (at least once per year)
    - Staff liaisons – help determine which meeting(s) to attend – look at agenda
    - Diversity of people in the room makes more valuable discussions
- Close the loop – build trust, build understanding
- Make collaborative efforts focused
- IAP2 – International Association for Public Participation (www.iap2.org)
- Quick survey to those who didn't attend asking why not? Would they still like to be included? Bad timing? Not applicable? Feels pointless? Invite back when change opportunities?

Appendix 3
Defining Simple

The icebreaker at the facilitated partner meeting was designed to demonstrate that using single words, like simple, to provide direction on complex issues provided very little benefit to decision makers. The activity also showed that people meant many different things even though they are using the same word. Participants were asked to share what "simple" means or what they mean when they use it.

"Simple" was the word selected for the activity, because the word and its variations are frequently used to provide direction for the BCWD rules and regulatory program. Seventy-eight responses were offered; many of the responses were unique.

During the wrap-up of the icebreaker, participants were encouraged to focus on providing detailed feedback and specific strategies they wanted the Board to consider.

Defining SIMPLE

- Easy - 4
    - Easy to perform, enact, do
    - Easily done
    - Easy to implement
    - Easy to achieve or understand
    - To explain
- Not complicated / uncomplicated- 5
- Easily understood / easy to understand / understandable- 13
    - Understandable to all -2
    - Easily understood at all knowledge levels
- Plain language
- Concise
- Not hard
- Quick – 2
    - quickest
    - Fast
- Practical
- Clear Language
    - Clear definitions
    - Clearly defined terms / rules that don't encourage discussion
- Nothing more than what is essential
- Can be described within one paragraph
- Efficient – 5
- Effective
- To the point
- Straightforward - 2
- Predictable

- General - 2
- Basic
- Minimal details
- Not specific -2
- Transparent
- Opposite of complex
- Down to essentials
- Least number of steps
    - Most direct way
    - Minimal steps
- Instinctual
- Flexible
- Conservative
- Economical
- Not targeted
- Not unduly burdensome
- Doesn't require technical expertise
- Planned, local input, qualified implementors
- MIDS; MIDS + for cold water fisheries and landlocked basins (so not totally simple…)
- Captured above, "something that is efficient and easily understood by all."
- Process
- Question someone added:
    - For who? How to serve the resource?
    - Feedback

memo

Project Name |	BCWD Watershed Management Plan Update	**Date** |	05/28/2025
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill <kkill@mnwcd.org> Camilla Correll <ccorrell@eorinc.com>		
From / Contact info |	Alexander Furneaux <afurneaux@eorinc.com>		
Regarding |	CAC and TAC WMP Prioritization		

Purpose

BCWD and EOR staff met with the Community Advisory Committee on April 14th, 2025 and the Technical Advisory Committee on April 22nd, 2025. The purpose of these meetings was to discuss how priorities have evolved over the past 10 years with the goal of identifying priorities for the 2027-2036 Watershed Management Plan (WMP) from the perspective of community representatives involved in watershed work and technical partners. The input gathered through these meetings and summarized in this memo is intended to help the Board of Managers understand perspectives on what priorities to establish for the WMP's next generation as the Plan's implementation plan and schedule is developed and reviewed.

The CAC and TAC were asked to provide feedback through three activities on:

- **Issue Prioritization** – Looking at all the issue areas identified in the Plan, what issues or sub-issues do participants feel are the most critical to address imminently and prepare the District to address in the next 10 years?
- **Community Improvement Plan (CIP) Prioritization** – How and where should the District spread funding for shovel ready projects across different resources?
- **Program and Project Prioritization Approaches** – What values to we hold most strongly when considering which approaches are most important when determining whether or not to pursue?

Feedback

Issue Prioritization

The CAC and TAC were asked to identify what they feel are the most critical issues (or sub-issues within an issue) for the WMP to address. These priorities are summarized in Table 1. Issues were assigned a prioritization score by tallying the number of comment slips received for each issue where "critical" comment slips were assigned a point value of 1, and "concerning" comment slips were assigned a point value of 0.5.

Table 1. Issue Priorities

Issue	Prioritization Score	Priorities
Stormwater Management	4.5	• Important to meet TMDL goals • Issue will require proactive planning for rainfall impacts with projected climate change conditions • Threat to water quality from increased impervious surfaces • Stormwater infrastructure needs to be consistently maintained
Stream Management	6	• Creek is a keystone resource at the heart of the district that has seen a lot of improvement and is so close to being healthy • Creek is where you will see the outcomes of upstream work but not necessarily the place that needs the most investment • Restoration and habitat projects will remain important, for trout as well as other species
Lake Management	3	• It is important to prioritize/incentivize natural shorelines and plant buffers for filtration and habitat • Lakes also a place where you will see outcomes of upstream/upland work • Concerns related to invasive species, chlorides, and other contaminants
Wetland Management	2.5	• Important surface and groundwater connections • Wetlands haven't been a major focus in the past however they have the potential to deliver major water quality and habitat improvements downstream, prioritize projects with legacy loading and greatest opportunity for downstream improvements • Consider taking WCA administration so permitees only need to coordinate with one entity to get permitted
Floodplain Management	4.5	• Issue will require proactive planning for flood impacts with projected climate change conditions, will benefit from ongoing study and modelling • Co-benefit opportunities with floodplain restoration to enhance ecological health and connected corridors • District has a good handle on the issue including strong processes to manage flooding, but will need to continue to adapt
Groundwater Management	4.5	• Closely tied to improvements/degradation in other resource areas • Important to coordinate with the county on roles, projects, and priorities • Identified as a community concern overheard through informal conversations with community members

Issue	Prioritization Score	Priorities
Erosion Prevention and Sediment Control	2	• Concerns related to land destabilization and vegetation changes • Opportunities to manage the issue through stormwater ponds and stream meander projects
Monitoring and Data Collection	4	• Valued for its role in contributing to better decision-making, even though it's not the most exciting thing • Desire for groundwater monitoring and data
Regulations	7.5	• Important to continue focusing on pollutant removal • Greatest opportunity to reduce pollutant loads is during development rather than retrofits • Developing rule consistency region-wide • Set the bar, help people meet it
Land Conservation	3	• Development is constant so it remains important to find ways and place to preserve habitat corridors and natural spaces, enforcement of buffer protection, invasive species removal, replanting, supporting local conservation priorities
Ecological Health	2.5	• Should provide value to all residents not just waterside residents • Watershed contains unique ecosystems under threat, important to
Recreation	0	Participants identified that the lack of public access poses a barrier to the District pursuing more recreation work that is typically handled by the state or local government. Collaboration with these partners to increase public will and interest remains important. Recreation can be a helpful method to deliver education and outreach.
Education and Outreach	5.5	• Harder to meet goals without community involvement, important to increase community buy-in and support • Need for improved communication of the actions and benefits provided through District work
Pollutants of Emerging Concern	2	• Concerns with chlorides and PFAS
General	N/A	• Partnerships will remain an effective way to deliver projects

Participants attributed the highest prioritization scores to Regulations, Education and Outreach, and Stream Management. Subsequent conversations revealed that many participants view the overarching priority of the plan to be the outcome of improved water quality in Brown's Creek. They identified that taking a watershed-wide approach, particularly at projects across multiple resources in the headwaters that provide downstream benefits to the creek. Understanding which specific resources to target in the headwaters as evidence from monitoring of projects and programs will help achieve desired outcomes.

They identified that an emphasis on regulations (particularly considering how regulations will guide future development) and community involvement through education and outreach will play important roles to achieve improved creek outcomes. For some, improvements to the creek may be seen as indicative of improvements upstream helping to demonstrate the work the District is involved in.

CIP Prioritization

The CAC and TAC were asked to review the CIP priorities developed by the Board for the 2017-2026 WMP to determine if specific resources warranted greater allocations of the CIP budget for shovel-ready projects aimed at improving water quality. In the 2017-2026 WMP the Board allocated:

- 70% to Brown's Creek
- 15% to Long Lake
- 5% to South School Section Lake
- 10% to all other impaired waterbodies

Participants were asked to allocate an imaginary $100 across eleven resource areas using dot stickers in denominations of $20, $10, and $5. Resources were separated between restoration (of impaired or degraded resources) and conversation (protection of resources) to distinguish between these two types of activities. The results of this exercise are summarized in Figure 1.

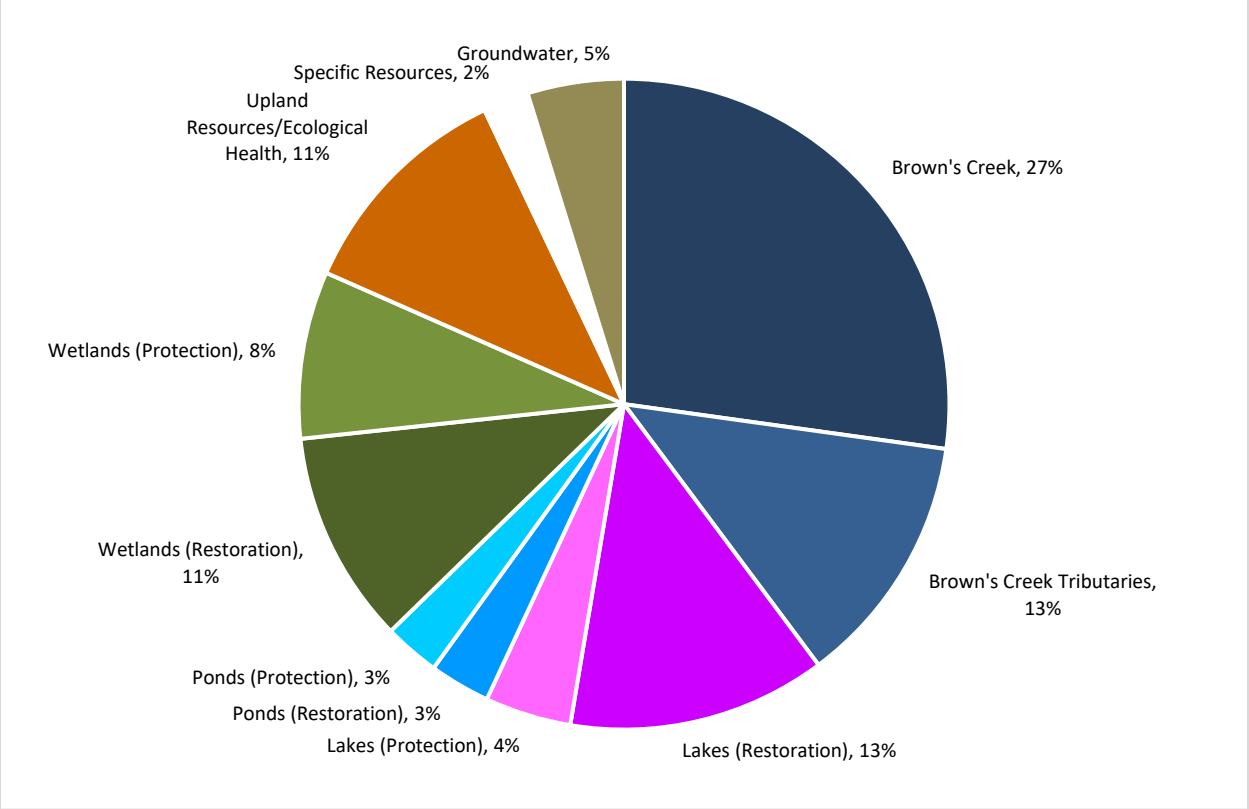


Figure 1. CAC and TAC CIP allocations

Some considerations regarding the data gathered in this exercise include:

- Most CAC and TAC participants placed their high-value dot stickers ($20 and $10) under Brown's Creek and its tributaries, and Lakes (Restoration). This represents feedback consistent with the previous plan - **work to improve the creek, its tributaries, and lakes remains a priority** for these stakeholders.
- TAC members noted that it is important to **consider indirect benefits to downstream resources through investments in upstream resources** – for instance achieving improvements to Brown's Creek's TMDL loads may be achieved through upstream wetland, lake, and upland projects.
    - Some participants noted that some resources, such as wetlands, have greater potential to achieve these stacked benefits for downstream resources which should be a priority.
- TAC participants noted they were confused what was meant by ponds, and assumed "stormwater ponds" was implied here, rather than small waterbodies. Following the discussion, TAC members indicated that they would spread more of their funding to these small waterbodies, seeing investments in ponds and wetlands as closely associated to each other given that the distinction between ponds, small lakes, and wetlands is often misunderstood or subjective to members of the public. Again **participants were most interested in understanding where investments in conservation and restoration could help contribute to downstream improvements in the creek.**

Prioritization Approaches

The CAC and TAC were asked to review the eight prioritization approaches developed by the Board for the 2017-2026 WMP to evaluate which projects and programs it funds, three additional prioritization approaches were also included to review stemming from discussions on the management plan issues, and two other approaches added by participants through these discussions Table 1. Participants were asked to identify the degree of priority these approaches should used to inform how projects and programs are selected for the next 10 years of the watershed management plan. The results of these selections is summarized in Figure 1.

Table 2. Prioritization Approaches

2017-2026 WMP Prioritization Approach	New approaches to consider	Participant suggested approaches
• Maximizes opportunities for co-benefits • Protection activities related to conservation • Suitable entity • Maximizes opportunities for partnership • Addresses knowledge gap • Recommendation from engagement • Measurable water quality improvement (restoration) impact • Allocation of resources • Funding	• Advances DEIA • Increases the District's climate resilience • Flood reduction/mitigation	• Level of effort relative to the degree of importance • Public will/understanding

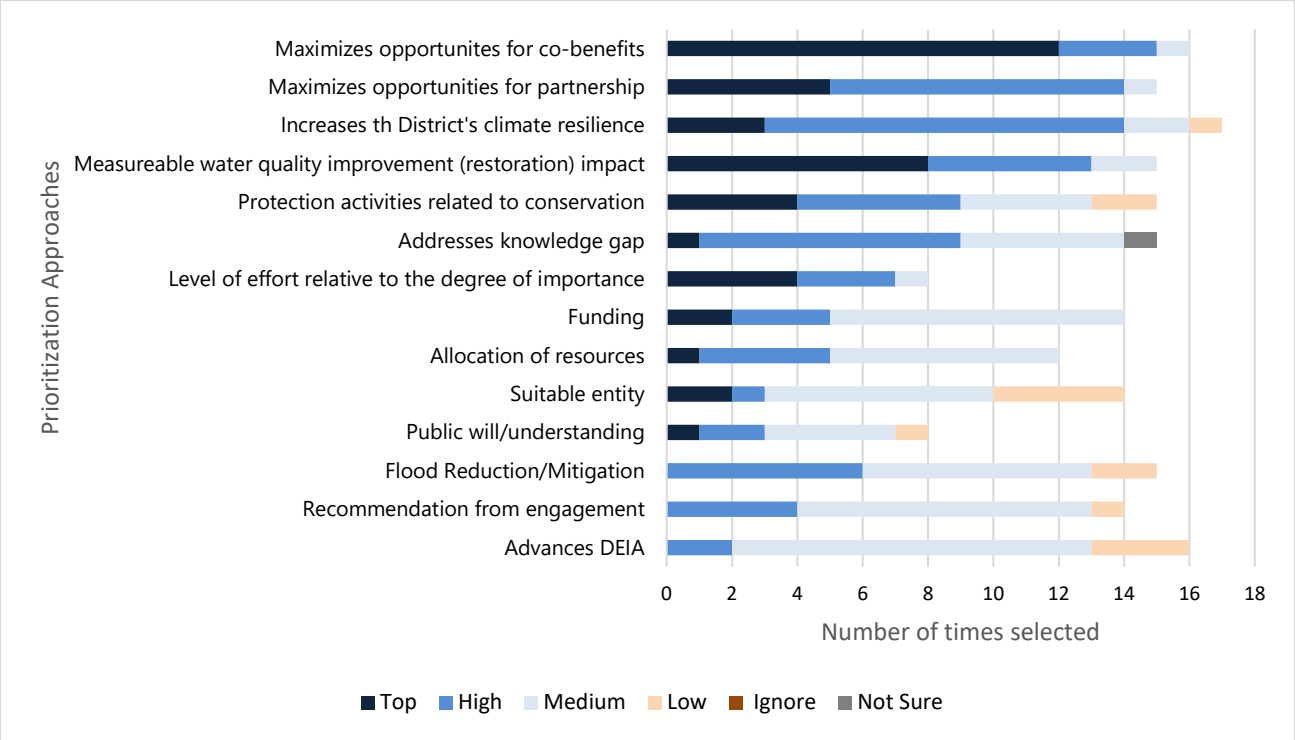


Figure 2. CAC and TAC Feedback on Project and Program Prioritization

Aggregating the "Top" and "High" priority responses, **participants prioritized approaches that maximize co-benefits, partnerships, increasing climate resilience, achieving water quality improvement (restoration) impacts and protection activities relating to conservation.** Across the prioritization approaches participants generally emphasized that these approaches are all valuable ways of examining the merit of projects and programs, however these top and high priorities are important considerations. Participants expanded upon their selection of these approaches, noting the following key themes in their responses:

- Project and program priorities should help communicate the District's role and how/where it targets investments.
- Increasing climate resilience ties into multiple aspects of the Districts work including flood management, biodiversity, stream temperature.
- Partnerships remain important to getting projects done. Coordination with partners, local municipalities in particular, is very important to achieving this.
- Water quality improvement in specific resources is important, however projects should not exacerbate or create new issues elsewhere
- Important to communicate to communities how investment decisions are made so people understand the District's role and priorities.
- Being responsive to public requests is an important balance between individual requests (which can help foster involvement) and ensuring the District's remains aligned with its plan priorities.
- Several participants noted "allocation of resources" was unclear.

- Participants noted that it is challenging to get projects done without funding sources, however this shouldn't mean that the District loses sight of projects are more challenging to fund but meet other priorities.
- Consider how low effort, high-impact and low-effort, low-impact projects can serve as stepping stones for future efforts through scaling, relationship development, and increasing public awareness/involvement.

Attendance

CAC Meeting (4/14/2025)	TAC Meeting (4/22/2025)
George Vania	Jessica Collin-Pilarski (Washington County PHE)
Jyneen Thatcher	Abby Shea (MDH)
Yihong Gao	Jay Riggs (WCD)
Dory Herman	Mike McMahon (Stillwater Township)
Jeff Young (Stillwater resident)	Kevin Peterson (Washington County)
	Kate MacDonald (MPCA)
	Dan Scollan (DNR
	Jen Kader (Met Council)
	Michelle Jordan (BWSR)
	Angie Hong (WCD)
	Mike Isensee (CMSCWD)
	George Vania (CAC)
Hannah Peterson (BCWD)	Karen Kill (BCWD)
Camilla Correll (EOR)	Camilla Correll (EOR)
Alex Furneaux (EOR)	Alex Furneaux (EOR)

technical memo

FLOOD VULNERABILITY ASSESSMENT + WMP COMMUNITY MEETINGS

Date |	11/24/2025
To / Contact info |	BCWD Board of Managers | Karen Kill, District Administrator
From / Contact info |	Camilla Correll, and Paul Nation
Regarding |	Community Meetings Summary

Background

One of the final tasks of the Flood Vulnerability Assessment was to host a series of meetings with member communities to share the results of the modeling analysis and identify opportunities to partner of flood reduction strategies as needed. The objective of this memorandum is to summarize the main discussion points that took place in these meetings and to make recommendations for the flood management section of the Watershed Management Plan update.

Meetings

Karen Kill, Camilla Correll, and Paul Nation participated in a series of five meetings with the following communities. As of the date of this memorandum, BCWD has not met with Washington County but is scheduled to do so prior to completing this exercise.

Table 1. Summary of meetings held for the Flood Vulnerability Assessment

Community	Attendees	Meeting Date
City of Oak Park Heights	Andrew Kegley, Director of Public Works Lee Mann, Stantec Erik Peters, Stantec	October 8, 2025
Stillwater Township	Barbara Riehle, TWP Clerk J Maurer, CJ Sycks, TKDA	October 8, 2025
City of Stillwater	Shawn Sanders, Public Works Director Jesse Farrell, Deputy Director of Public Works Jason Zimmerman, Community Development Director	October 9, 2025
City of Lake Elmo	Marty Powers, Public Works Director Nathan Stanley, Stantec	October 15, 2025
City of Hugo and May Township	Rachel Juba, Community Development Director John Pazlar, May Township Board Supervisor Bobbi Hummel, Town Clerk Mark Erichson, WSB Nate Sparks, WSB Kendra Fallon,	October 27, 2025

The main agenda items for these meetings included:

- Introductions
- Purpose of the Meeting
- Modeling Methods and Criteria
- Flood Vulnerability Results (by community)
- Comments/Feedback/Ground Truthing

- Potential Solutions/Priorities
- Topics Related to WMP Update

Meeting Summary

Purpose of the Meeting

Karen Kill explained that the Flood Vulnerability Assessment is a planning level exercise. The BCWD wanted to know what flooding would look like under a higher rainfall scenario recognizing that precipitation patterns are changing and that we are projected to see more extreme precipitation events in the future. The BCWD is sharing the findings of this analysis so communities are aware of areas that are vulnerable to flooding under existing and projected conditions and so opportunities to collaborate on flood reduction projects can be identified for inclusion in the WMP update.

During this portion of the meeting, Camilla Correll explained how the BCWD is applying a climate lens to the Watershed Management Plan update. She asked the communities how they are addressing impacts related to climate change and showed them what information was available in the Plan for incorporation in the comprehensive planning process. For the most part, the communities are planning to address impacts related to climate change as part of the comprehensive planning process. They prefer to use science-based information in evaluating impacts (i.e., Atlas 14) and are aware of the tools that the Metropolitan Council has available to improve resilience.

Modeling Methods and Criteria

The City of Oak Park Heights asked how the BCWD will update the H/H model as new precipitation information (i.e., Atlas 15) becomes available. Karen Kill shared the BCWD's commitment to keeping a live, up-to-date H/H model that reflects the latest land use changes as well as design storm information.

A couple of the communities noted that they have critical infrastructure (i.e., lift stations and wellhouses) that are missing from the data set.

Stillwater Township and the City of Hugo were interested in knowing if groundwater was accounted for in the H/H model. It was explained that the model reflect surface drainage (hydrology and hydraulics) only.

Flood Vulnerability Results (by community)

City of Stillwater noted that they haven't gotten any calls regarding flooding of roads or basements beyond complaints related to groundwater seepage. The City also noted that they haven't seen flooding along County Road 5. They would like more time to review the technical memorandum and the flood vulnerability maps before the BCWD makes any modifications to the H/H model or finalizes opportunities for partnerships.

Potential Projects/Partnerships

The following table summarizes the projects discussed during the series of meetings. Some of the projects are already in Capital Improvement Plans while most were flagged as areas that may need further evaluation. This table identifies which community the potential project is located in, includes a brief description of the concern, and identifies the type of opportunity it is.

Table 2. Summary of potential project/feasibility study locations

Community	Project Location/Description	Type of Opportunity
City of Oak Park Heights	53rd Street	
	9th Addition Pond	

Stillwater Township	Roundabout at Hwy 96, Dellwood Road, and County Road 5.	Permitting Program
	Annexation of the Schubert Property.	TBD
City of Hugo	Lynch Road - Subject to flooding under smaller events. No specific comment/request from the city.	Potential Flood Reduction Project
	Lynch Lake - Residential structure subject to flooding under projected conditions. No specific comment/request from the city.	Potential Flood Reduction Project
	July Avenue experiencing flooding for the 25-year event and some structures projected to experience flooding for the 100-year event. No specific comment/request from the city.	Potential Flood Reduction Project
	Keystone Avenue projected to flood for the 25-year event (south of Withrow Ballroom). No specific comment/request from the city.	Potential Flood Reduction Project
	120th flooding	Potential Flood Reduction Project
	124th Street isolated depression that has potential flood impacts to two residential structures.	Potential Flood Reduction Project
City of Lake Elmo	Manning Avenue south of Hwy 36 managed by the City of Lake Elmo. There has been flooding in this area.	Potential Flood Reduction Project
	Road reconstruction on Linden Avenue scheduled for 2033.	Potential Flood Reduction Project
	Flooding of County Road 10.	Potential Flood Reduction Project
City of Grant	Residential flooding due to flooding of the wetland north of Dellwood Road (Brabender residence). Karen noted she has gotten calls about flooding in the past. Paul noted this is a landlocked basin.	Potential Flood Reduction Project
	Intersection of 88th and Dellwood near Lake Masterman. This gravel road was in rough shape after the flooding of 2018/2019 (i.e., rutting). City got a lot of complaints.	Potential Flood Reduction Project
	McKusick Road North west of Lofton Avenue North, hasn't	Potential Flood Reduction Project

	experienced any flooding in the last 10-15 years. Is this an area that was an issue prior to this time period?	
	Flooding along Kimbro Avenue North, north of County Road 12 near Grant Pond.	Potential Flood Reduction Project

Other Opportunities

- Do the communities need resources or want to share resources with potentially impacted landowners?
- Are there Education and Outreach needs?
- Access to the model (or assistance with the model) to vet infrastructure upgrades?

Topics Related to Watershed Management Plan Update

Camilla Correll introduced the work conducted by the BCWD to update the wetland management classifications using the MN-WI Rapid Assessment Method and the groundwater dependent natural resource classifications using additional data sources. Karen Kill explained that the results of these initiatives were going to be included in the 2027-2036 Watershed Management Plan which means that the communities would have to incorporate this information in their Local Surface Water Management Plans (as part of the Comprehensive Plans). She also explained that these management classifications wouldn't apply to the District's rules until the rule revision process which is scheduled for 2027.

All of the communities we talked to agreed that there is a need for a central repository for stormsewer/drainage infrastructure.

- Stillwater TWP is working with Braun Intertec to collect storm sewer infrastructure and save in a central location. They will assess gaps after Braun is done with their work and would need to talk to the Town Board about interest in saving in a central repository.
- The City of Stillwater would be supportive of having Washington County be the entity housing the infrastructure/GIS data.
- Hugo and May TWP see a lot of value in a database of storm sewer infrastructure.
- Lake Elmo is interested in GIS coordination for storm sewer infrastructure, which would help identify data gaps.

Karen Kill asked if the cities have training or resource needs that the BCWD should be aware of for the plan update.

- City of Stillwater offered to host an education event, and nearby communities can come here.
- Lake Elmo is interested in having Angie come to the City to provide training sessions (i.e., a lunch and learn) specifically on the topic of illicit discharge, and stormwater maintenance and inspections. The public works director will check in with the other departments to see if they have needs related to ESC inspections.
- Lake Elmo shared regular meetings that Washington County holds with communities.
- City of Stillwater could use help with smart salting education and outreach to homeowners.

During these discussions, Karen asked member communities about the salt application practices where we learned the following:

- Miller Excavating performs maintenance and/or plowing for the City of Oak Park Heights and Stillwater Township. Oak Park Heights will consider asking Miller Excavating to get Smart Salting Certifications. Stillwater Townships contract language does not include smart salting certification. Invoices come with a salt ticket, so they know how much is applied. City of Hugo and May Township do not include language regarding smart salting certification in their current contracts, but this is something they could include in the future.

- Oak Park Heights has budget for smart salt training.
- City of Stillwater is good with brine usage and getting better as they improve/replace their fleet.
- Stillwater TWP has 6.4 miles of gravel roads. Information is not in a GIS database. Township conducted a cost-benefit analysis of dust suppression versus paving and found it would be cost-prohibitive to pave the roads. The apply dust suppressants on their gravel roads.
- Hugo and May TWP can share the location of their gravel roads. City of Hugo plow the roads themselves and May Township contracts with Dresel Contracting out of Chisago City. Lake Elmo has one gravel road in BCWD (Manning Ave). The City of Hugo and May Township use dust suppression about once a year on their gravel roads. Lake Elmo doesn't use dust suppression on Manning Ave since only 1 resident and maintenance staff use the road. They use the "precise" software for their salting. They have cut their salt usage in half.
- The City of Lake Elmo sweeps everything in the spring. They do chip seal areas throughout the year. In the fall they do chip seals again and a high leaf route. They see the street sweeping needs increasing as the trees in the new development areas grow. City of Stillwater goes above and beyond for street sweeping.

Highlights Specific to Certain Communities

- The City of Lake Elmo has asked staff to consider water conservation efforts. The City requires stormwater reuse as a method of irrigation. In the last year they have seen 5 to 6 systems go in. Currently they have irrigation restrictions limiting irrigation to two days a week and limiting it to certain times of the day. They have zoned off parts of the city, so they aren't pumping at the same time. These requirements help with new development activity. The City of Lake Elmo developed a management plan that the developer needs to complete and hand over to the HOA. Karen requested a copy of this management plan.
- City of Grant is no longer an MS4 community.
- City of Stillwater is interested in the Marketplace Reuse Study and continuing to explore this option as a regional treatment option. The City of Stillwater has contacts that they can share with Karen Kill. The City is also interested in learning more about a One Water approach to manage water more sustainably.

Next Steps

- Share the information including the presentation, Flood Vulnerability Assessment Technical Memorandum and maps shared during the meetings. The member communities are also interested in accessing the District's H/H model. Karen Kill was going to make sure that all of the communities have the agreements in place needed to access the model.
- City of Hugo and May Township are interested in knowing what the starting water levels looked like in their communities. City of Hugo would like to share the information with Public Works.
- Barbara Riehle, TWP Clerk offered to share the information with residents to get feedback on local flooding issues.
- Update the vulnerability assessment to reflect missing infrastructure (i.e., City of Oak Park Heights lift station, City of Stillwater lift station, and City of Lake Elmo well house and PFAS treatment system).
    - City of Grant is concerned with the accuracy of the information. They would like culvert sizing and conditions to be verified to make sure the information included in the model is as accurate as possible. Karen Kill noted that the Flood Vulnerability Assessment does not include budget for revisions to the model. The City of Grant suggested that the BCWD share a map/culvert inventory with the City so they can make sure the District has the most current information.
    - City of Grant noted that the model is missing a culvert on 110th Street,
    - Add missing critical infrastructure to the assessment.

- Facilitate a discussion on levels of service for road and drainage infrastructure prior to the Comprehensive Planning process so communities understand their risk tolerance moving forward.
- It was suggested that the BCWD come to city council meetings to share the types of plant communities that are being found in the watershed.
- Stillwater Townships staff (CJ Sykes) will provide Karen Kill with a presentation which shows the location of gravel roads.

Recommendations for WMP Update

The following table includes a list of implementation activities that should be retained or added to the watershed management plan update based on the discussions held with member communities. The have been organized by the issue and goal that they support.

Table 3. Implementation Activities to include in the watershed management plan update

Issue / Sub-Issue	Goal	Implementation Activity
Floodplain and Flood Management / Flood Prevention	A. Operate with the most current data on flooding and climate change impacts to water resources and infrastructure.	Update the model/Flood Vulnerability Assessment to include all critical infrastructure and missing infrastructure. [NEW]
Floodplain and Flood Management / Protection of Flood Storage Areas	A. Ensure no net loss of flood storage capability within the watershed.	Consider the acquisition of properties vulnerable to flooding in landlocked basins. [NEW]
Floodplain and Flood Management / Protection of Flood Storage Areas	B. Reduce flood hazards under existing 100-year event and the projected 100-year event.	WHAT TO DO WITH THE LIST OF PROJECTS IDENTIFIED ABOVE? WHAT TO INCLUDE IN THE WMP UPDATE?
Monitoring and Data Collection / Monitoring Needs	A. Collect and analyze valuable information about the District's water resources and natural resources.	Work with Washington County and local watershed districts/watershed management organizations to develop a comprehensive database for storm sewer and drainage structures located in the County. [RETAIN]
Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	A. Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	Create a packet of information that summarizes the impacts related to climate change for each community including impacts to surface waters, groundwater, and natural systems. [NEW]
Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	A. Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	Work with member communities to make sure contracting includes requirements for smart salting certification. [NEW]
Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	A. Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	Coordinate multi-community guidance on dust suppressant practices.

Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	A. Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	Help communities adopt dust suppressant practices that minimize water-quality impacts, such as: • Application timing (avoid rain events to prevent immediate runoff). • Proper dosage (prevent over-application). • Identifying road sections near wetlands, streams, or shallow groundwater where alternatives or setbacks should be used. Promoting improved gravel road structures that reduce dust at the source (e.g., fines content, proper crown, drainage improvements).
Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	C. Increase developer, contractor, awareness of the BCWD and the assistance it can provide.	Present on the District rules at the American Public Works Association (APWA) Conference and/or City Engineers Association Conference. Attendees need Professional Development Hours (PDH's) and can select what they want to learn. [RETAIN / MODIFIED]
Stream Management / Water Quality, Aquatic Habitat, and Fisheries Protection	G. Facilitate the implementation of the Brown's Creek TMDL Implementation Plan.	Individual annual meetings with member communities to discuss partnership opportunities as part of budget discussion (April-May timeframe). [RETAIN / MODIFIED]
Stream Management / Water Quality, Aquatic Habitat, and Fisheries Protection	G. Facilitate the implementation of the Brown's Creek TMDL Implementation Plan.	Group meeting with member communities every three years to share updates and explore partnership opportunities. [RETAIN]
Ecological Health / Protect and Restore the Function of Upland Habitat	A. Reduce non-native plant cover and replace it with high-value and functional native landscaping.	Host a tour of high-quality wetlands and invite city council members and staff to attend. [RETAIN]

Board Action

Provide feedback on the implementation activities included in Table 3. These are not the only implementation activities that will be in the 2027-2036 Watershed Management Plan. These are the implementation activities that we recommend keeping in the plan based on the interest expressed by member communities or they are new implementation activities identified during our conversations.

memo

Project Name |	Flood Vulnerability Assessment	**Date** |	3/31/2026
To / Contact info |	County and Municipal Staff Karen Kill / BCWD Administrator		
From / Contact info |	Bill Yu, P.Eng.; Paul Nation, PE; Camilla Correll, PE / EOR		
Regarding |	Comments received on draft report		

Background

The Brown's Creek Watershed District (BCWD) recently completed a flood vulnerability assessment using the watershed's updated hydrologic and hydraulic (H&H) model. This assessment used the model to assess flooding impacts from both existing and future rainfall conditions. Resulting flood maps and the assessment report were shared with member communities following meetings with community staff to introduce and discuss the results. The following sections outline the comments received and BCWD's response.

County

Comments were received from Toni Ajala on 1/12/2026.

- For Table 4 in the draft report, consider including a percentage change column to show the difference between the existing and future 100-year HWL, as well as another column detailing the municipality location of the basin.

  A column for municipality has been added. Since percent change is small in all cases (<0.2%), a column for "Increase in HWL" was added instead.

- Regarding the maps:
  - The "no overtopping marker" is generally difficult to see on "<15% streams".
  - Consider including the municipality boundaries in the small-scale map of the Brown's Creek Watershed in the legend.

  The map set has been updated to incorporate these changes.

City of Hugo

Comments were received from Kendra Fallon, PE and Mark Erichson, PE (WSB) on 1/12/2026.

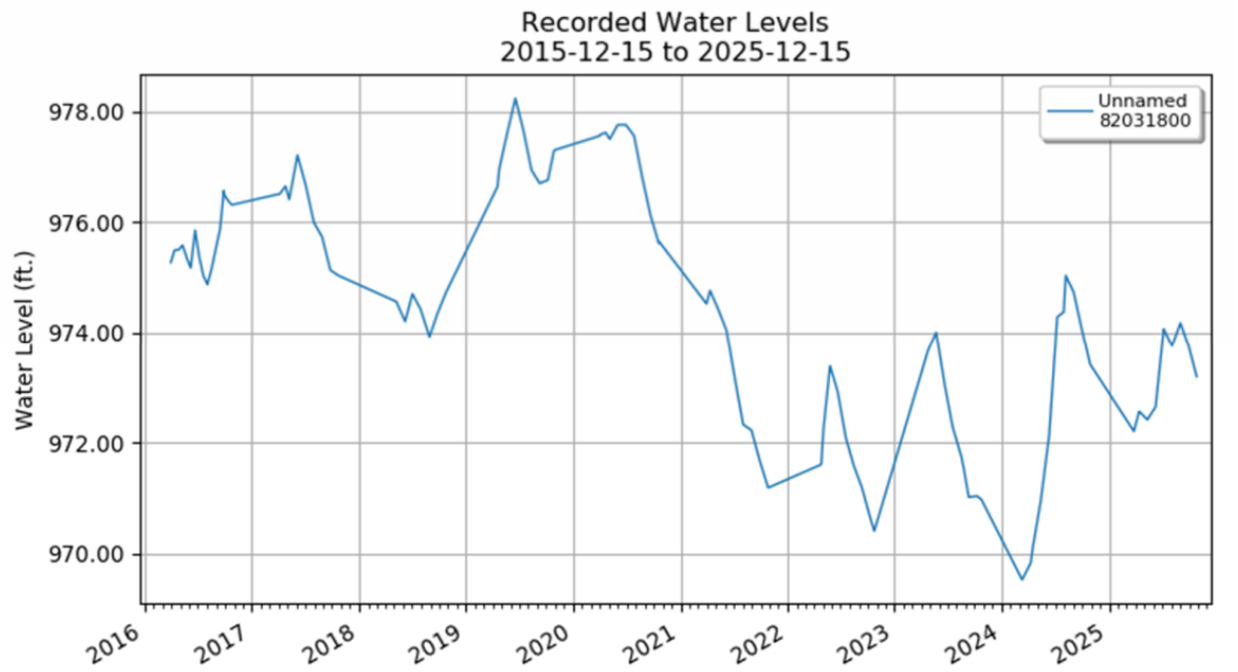
1. H-21 crossing near July Avenue starting elevation (977.86)
   a. EOR provided the starting elevation for waterbodies adjacent to the H-21 crossing after it was requested by the City. The starting elevation in the model is 977.86. Is this based on a structural outlet or what is being used to determine the starting elevation?

      Water levels from April 2020 (DNR Lake Finder) were used to illustrate what would happen under wetter-than-normal conditions (i.e., conservative assumption). This represents what conditions could look like if a major storm event happened in spring 2020 when water levels were already high. For example, the wetland located at Kimbro Ave and CSAH 12 had a water level of 933.55 in April 2020. After 14 inches of rainfall over the next three months, water levels rose to their highest recorded level of 934.73. This is one of the hazards we expect to see more frequently in the future.

If member communities would prefer to see results related to a range of scenarios (i.e., range of starting water levels that reflect normal, wetter-than-normal, etc. conditions, this is something the BCWD could plan for when it makes future revisions to the Flood Vulnerability Assessment.

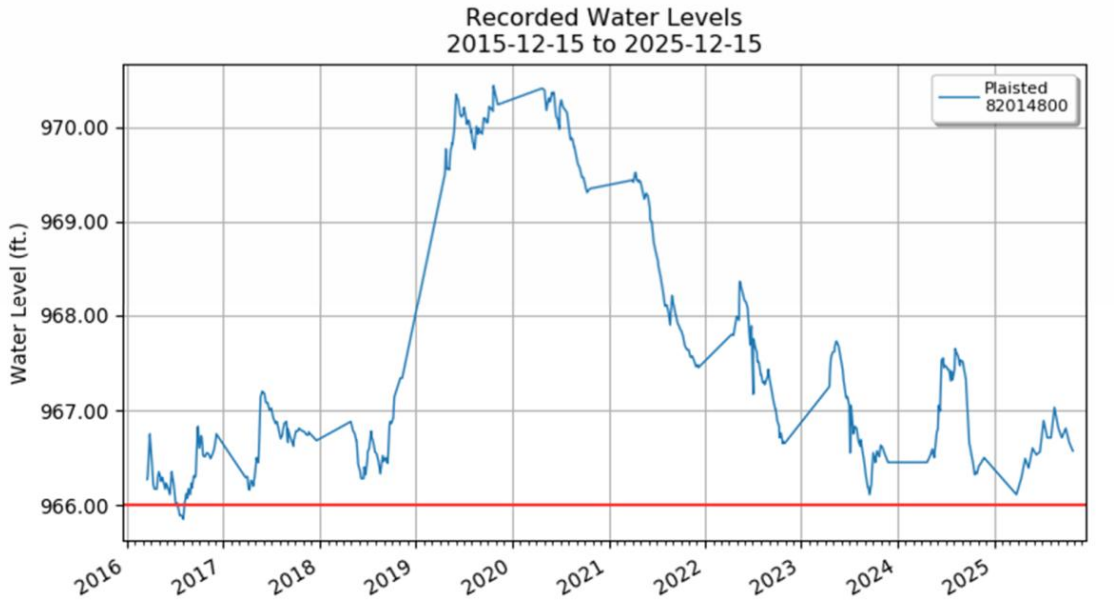
b. DNR Lake Finder shows the waterbody elevation has fluctuated over the last decade but seems to be consistently below a 976 elevation.
Noted. This is one of the scenarios that could be modeled next time.

c. The starting elevation of 977.86 should be confirmed and is recommended to be lowered based on recorded water levels over the past decade. This would reduce the anticipated overtopping frequency of the roadway.
BCWD's goal for this project was to identify vulnerable locations that would be sensitive to extreme situations driven by high water levels including back-to-back storm events and/or high groundwater levels. As stated previously, the model could be rerun using a lower starting water level for this wetland to address the city's interest in understanding road overtopping frequency under more typical conditions.



2. Plaisted Lake starting elevation (970.67)
   a. Similar to comment 1, what is being used to determine the starting elevation for Plaisted Lake?
   See answer to #1 above.
   b. DNR Lake Finder shows the waterbody elevation has fluctuated over the last decade but seems to be consistently below a 969/968 elevation. Note the OHWL for Plaisted Lake is 966.0.
   Noted. This is one of the scenarios that could be modeled next time.

c. The starting elevation of 970.67 should be confirmed and is recommended to be lowered based on recorded water levels over the past decade. This would reduce the anticipated overtopping frequency of the roadway.
See answer to #1 above.



3. EOR noted that H-02 and H-20 are both governed by downstream Plaisted Lake elevations and the two crossing have the same overtopping elevation (971.90). Based on this, shouldn't both of these crossing have the same symbology (road overtopping existing: 25-year, road overtopping future: 10-year)? They are currently shown with differing symbology.
The map has been updated to correct this error. Both locations are now shown with existing overtopping for the 25-year storm and future overtopping for the 10-year storm.
4. Will proposed improvements at the identified areas of concern be provided to the communities prior to the assessment finalization? Will communities have the opportunity to provide feedback on any proposed improvements?
The goal of this project was to identify potential vulnerabilities in the system and share them with member communities to see if there was interest in evaluating flood reduction strategies for incorporation in the 2027-2037 Watershed Management Plan. If the City of Hugo would like the BCWD to include an evaluation of future improvements at the identified areas of concern, the District would appreciate it if the City made this request so it can be included in the Plan or future amendments.

City of Oak Park Heights

Comments were received from Lee Mann, PE (Stantec) on 1/12/2026.

Community Meetings Summary (dated 12/1/2025):

1. The City has data security concerns regarding sharing utility maps for public use on a BCWD managed central repository for storm sewer and drainage infrastructure. The City does not see such a central repository as a need (see statement on page 3, clip below).

> All of the communities we talked to agreed that there is a need for a **central repository for stormsewer/drainage infrastructure**.

Noted. To clarify, the BCWD was asking the City of Oak Park Heights if they would be interested in exploring a central repository that an entity such as Washington County would host. BCWD will modify the meeting summary to clarify that the City of Oak Park Heights does not see a need for sharing this information.

2. BCWD staff at the meeting with Oak Park Heights staff in October stated that this analysis would not lead the BCWD to change its design basis for flood protection. City staff recommended that the BCWD not include this flood vulnerability analysis into BCWD's watershed management plan, but doing so is listed as a BCWD staff recommendation (clip from page 5 below).

Recommendations for WMP Update

The following table includes a list of implementation activities that should be retained or added to the watershed management plan update based on the discussions held with member communities. The have been organized by the issue and goal that they support.

Table 3. Implementation Activities to include in the watershed management plan update

Issue / Sub-Issue	Goal	Implementation Activity
Floodplain and Flood Management / Flood Prevention	A. Operate with the most current data on flooding and climate change impacts to water resources and infrastructure.	Update the model/Flood Vulnerability Assessment to include all critical infrastructure and missing infrastructure in 2026 to incorporate Atlas 15 design storms and every five years thereafter. [NEW]

The Flood Vulnerability Analysis was conducted during the watershed management planning process to identify potential vulnerabilities that could lead to future flood reduction projects. If a community identified a potential project that it would like to explore in partnership with the BCWD, it would be included in the 2027-2036 Watershed Management Plan. During our discussion with the City of Oak Park Heights, we stated that we would not include the Flood Vulnerability Assessment report and figures in the appendices. References to projects identified as a result of this project or to future updates on the model/Flood Vulnerability Assessment (i.e., when Atlas 15 becomes available) are included in the plan so the BCWD can budget for these planned activities.

BCWD regulations will continue to rely on Atlas-14 design standards until more current information is made available by NOAA.

City staff recommended not to include this vulnerability assessment in the BCWD's Plan update for the following reasons:

a. A watershed boundary error was identified in the modeling.
As noted during the meeting with city staff, subcatchment S_OPH-3 incorrectly includes 1.2 acres along 58th Street that would be conveyed downstream via storm sewer instead of draining to storage node OPH-3. This artificially increases the HWL for this storage node, but should have minimal influence on the downstream system. This boundary will be refined in the next model update.

b. The analysis and design storm event selection was done without community input.

Community input was solicited in 2021 when BCWD developed a technical memo and conducted a workshop on how best to conduct flood vulnerability assessments. During this workshop, options for simulating future conditions (i.e., storm transposition, using the 90% Confidence Interval from Atlas 14, increasing the existing 100-year design event by 10%) were discussed with Washington County, adjacent watershed districts, and member communities in an effort to agree on a standard modeling approach for communities in Washington county. Additionally, city staff have been invited to participate in Technical Advisory Committee meetings throughout the watershed plan development process.

c. Road and structure flood vulnerability criteria were not developed with City input or agreement.

The road and flood vulnerability criteria were selected using state requirements and typical engineering design guidelines. In addition, the criteria used for the BCWD analysis match the criteria used for Flood Vulnerability Assessments conducted for the CLFLWD and the CMSCWD. Given the uncertainty related to climate change, it is our understanding that communities may be changing these design standards to meet Level of Service expectations. One of the goals of the meeting with member communities was to better understand how existing criteria are being applied/changed in response to changing precipitation patterns.

d. The selection of 9.5-inches has no foundational basis outside BCWD. Only when Atlas 15 is complete and published will there be a basis for estimating future trends in precipitation. Even then probabilities will be involved, and probability selection will require a joint discussion.

As noted above, feedback on rainfall event selection was requested in 2021. The 9.5" rainfall depth (90th percentile 100-year, 24-hour Atlas 14 storm event) was selected under advisement of Minnesota's Senior Climatologist and is consistent with the approach being applied by other watershed districts in the Twin Cities Metropolitan Area.

e. Most of the arguments for global warming producing increased rainfall depend on the argument about the atmosphere "holding" more water as temperatures increase. But many other factors modulate the location, intensity, longevity of storms and their ability to produce heavy precipitation.

Noted.

3. Creating a packet of information on climate change based on this analysis is premature (see clip below from page 5). Given there wasn't a discussion with member communities on whether this assessment was desired and there isn't a consensus on the modeling approach, using its results will not be a collaborative effort with member communities.

Education, Outreach, and Stewardship / Municipality and Developer/Contractor Education and Outreach	A. Increase municipal official and staff capacity for and use of development techniques and regulatory strategies that protect natural resources and benefit water quality.	Create a packet of information that summarizes the impacts related to climate change for each community including impacts to surface waters, groundwater, and natural systems. [NEW]

The Metropolitan Council's minimum requirements for addressing Climate Mitigation and Adaptation includes the "Identification of social, built, and natural systems vulnerabilities for the following climate hazards: Extreme Heat and Localized Flooding". They also require the inclusion of "strategies to address social, built, and natural systems vulnerabilities for the following climate hazards: Extreme Heat and Localized Flooding". Since the BCWD's 2027-2036 Watershed Management Plan includes information regarding vulnerabilities to social, built, and natural systems, it is offering to compile and share this information with member communities in an effort to streamline the planning process and address these requirements.

Flood Vulnerability Assessment Report (dated 12/12/2025):

1. Eliciting input from the City of Oak Park Heights regarding the BCWD's decision to conduct this flood vulnerability assessment would have been an opportunity for collaboration.

   As noted above, feedback was elicited during the workshop in 2021 along with Technical Advisory Committee meetings throughout the planning process. We value Oak Park Heights and all our partner input and collaboration. The BCWD administrator appreciated the discussion during our meeting regarding scheduling regular check-ins with the city staff to better coordinate in the future.

2. Incorporating the report into BCWD's Plan update is a concern due to the lack of collaboration. Issues and questions the City would like to resolve with BCWD before incorporating into the Plan update include the following:

   As noted above, the report is not included explicitly in the plan but instead informs plan implementation activities. We look forward to continued collaboration on these issues.

   a. New flood risk criteria for roads and structures are described without community consensus. These criteria may not be supported under current stormwater regulations.

      See response to this concern above.

   b. The storm event basis for this assessment appears to be premature with the anticipated 2026 publication of Atlas 15. Only when Atlas 15 is complete and

published will there be a basis for estimating future trends in precipitation. Consequently, is there value for incorporating this assessment into the Plan update?

See response to this comment above.

c. Is BCWD certain that the criteria for unacceptable road flooding should be the same across the entire watershed? City staff know their residents and neighborhoods better than BCWD. Cities may prioritize roads differently.

See response to this comment above.

3. Will BCWD make funding available for Cities to conduct additional hydrologic and hydraulic modeling should a climate change resiliency exercise be desired by BCWD in the future? Having redundant models between the BCWD and Cities may not be cost effective.

BCWD's H&H model is always available for partner use, and we welcome collaboration on refinement of the model in the future. BCWD has included cost-share funding for communities, which includes both water quality improvement and flood reduction projects.

APPENDIX D:
BCWD Aquatic Plant Management Policy

Overview

Aquatic vegetation serves a critical role in healthy lakes. Aquatic plants absorb nutrients limit algae growth, stabilize shorelines to prevent erosion, and create habitat for fish and wildlife. Aquatic invasive plants are a concern for many members of the public. Brown's Creek Watershed District has developed a policy of implementing and supporting (e.g., through cost-share or technical support) aquatic plant management in BCWD lakes and wetlands to facilitate efficient decision-making and provide clarity to the public.

BCWD takes a holistic approach to aquatic plant management that aims to improve water quality and support growth of native vegetation that can effectively compete with invasive aquatic plants. BCWD does not manage native or invasive aquatic plants for recreational or aesthetic purposes. Management of aquatic vegetation in public waters is regulated by the Minnesota Department of Natural Resources, and generally, BCWD manages aquatic plants in the watershed in close collaboration with the agency, lakeshore property owners, and other stakeholders.

Background

Surveys of lakes, ponds, and wetlands have indicated the presence of both healthy native plant communities, including rare species, and aquatic invasive plants in the watershed. Historically, the BCWD has provided outreach to landowners with known rare native aquatic plant species along their shorelines and has been involved with invasive species management when there was a water quality benefit. This policy was developed to address aquatic vegetation concerns and meet the goals and objectives of the BCWD's Watershed Management Plan.

Aquatic Invasive Species

Aquatic invasive plants present within BCWD lakes and ponds include curly-leaf pondweed and Eurasian watermilfoil. This does not include invasive shoreline plants such as purple loosestrife and non-native phragmites.[1] Curly-leaf pondweed is present in Benz, Goggins, Pat, Plaisted, Long, South School Section, and Woodpile lakes. Eurasian watermilfoil is present in Goggins, Long, Masterman, and South School Section lakes and Sinnets Pond. Potential threats include starry stonewort and flowering rush, among others.[2]

The unique lifecycle of curly-leaf pondweed includes winter growth beneath the ice, with plant maturation and die-off by late June/early July. In some lakes, the mid-summer die-off can increase nutrient availability for algal blooms and reduce water quality. Treating dense curly-leaf pondweed in late spring may limit spread of curly-leaf pondweed and summer-die off events while minimizing impacts to native vegetation. BCWD has treated South School Section Lake to reduce presence of curly-

[1] Shoreline management is addressed through BCWD Shoreline and Streambank Alteration rule and various goals and implementation items in the Watershed Management Plan within Erosion Prevention and Sediment Control, Lake Management, Recreation, and Education/Outreach/Stewardship sections.
[2] See Invasive aquatic plants | Minnesota DNR and Early detection of aquatic invasive plants | Minnesota DNR

leaf pondweed to improve water quality, and has taken rapid-response steps to diminish small curly-leaf pondweed infestations in Goggins Lake.

Eurasian watermilfoil may grow intermixed with native vegetation with minimal detrimental impacts or form dense mats at the water surface that negatively impact native habitat and impede recreational access. Eurasian watermilfoil is not known to negatively affect water quality, although it is tolerant of poor clarity and thrives in moderately eutrophic lakes.

Native Aquatic Plant Communities

Based on aquatic vegetation survey data collected since 2021, the watershed appears to be home to unique and rare aquatic plant communities in at least seven lakes and small ponds. These plant communities include two populations of a state-endangered aquatic plant, several Washington County records (first observations), and species not observed in the county since the early 20th century. Many of the observations are the farthest south occurrences of the species in the state. These species all share an affinity for soft-water (low-pH) waters, although the underlying factors driving their apparent concentration in the watershed are not yet understood. Soft-water lakes are generally isolated from groundwater, providing a contrast to the many groundwater-dependent resources of the watershed and highlighting its distinctive landscape setting. Protecting these unique native plant communities is important to conserve their immense biodiversity value to the watershed, region, and state. BCWD is currently conducting outreach to partners on state and local levels to better understand these plant communities and the best protection measures for their conservation.

Management Plan Context

Brown's Creek Watershed District's 2027-2036 Watershed Management Plan includes specific goals related to aquatic plant management. These include:

Goal 4.4.D Lake Functions and Values

- Increase understanding of the distribution and growth of aquatic plant communities and how to manage them.

Goal 4.5 A Wetland Functions and Values

- Ensure no net loss of wetland functions and values within the watershed.

Goal 4.5 E Wetland Functions and Values

- Contain and reduce the spread of invasive wetland plants, including aquatic invasive species.

Goal 4.8 A Invasive Species Management

- Initiate and support AIS-management projects on private and public lands to improve water quality.

Aquatic Plant Management Policy

In general, BCWD takes a holistic approach to aquatic plant management that aims to improve water quality and environmental conditions favoring native vegetation that can compete with invasive aquatic plants.

The guiding principles include:

- **Primary focus to protect and improve water quality:** Good water quality supports more robust native plant communities and reduces the competitive advantage of certain invasive aquatic plants.
- **No aquatic native or invasive aquatic plant management for recreational or aesthetic purposes:** BCWD focuses on water and natural resources. Enhanced recreational value will be a secondary result, achieved through improved water quality and sound natural resources management.
- **Only manage curly-leaf pondweed for internal nutrient release, unless supported by a specific lake vegetation management plan:** Curly-leaf pondweed is widespread and impossible to eradicate. Research supports improved water clarity and healthy native plant communities as critical to reducing established curly-leaf pondweed infestations. Management is most effective in lakes that are not eutrophic and where a native plant community is present. BCWD will consider integrated management approaches as part of a lake vegetation management plan to improve water quality.
- **May manage aquatic plants to enhance plant diversity and wildlife habitat:** When clear management goals and outcomes are established and feasible, BCWD may engage in aquatic plant management for plant diversity and habitat enhancement.
- **May lead or engage with partner activities identified in the Washington County Aquatic Invasive Species plan:** This may include prevention and rapid response efforts or other activities identified in the plan.
- **Will use science-based control strategies and methods:** Aquatic plant management is an evolving field and require use of the latest scientific frameworks for decision making.
- **Will routinely monitor watershed lakes to assess existing invasive aquatic plant populations, search for new infestations, and evaluate the health of the native plant community:** Point-intercept surveys will be completed for watershed lakes on a minimum 5-10 year cycle. Managed invasive aquatic plant communities (e.g., South School Section Lake) may require more frequent monitoring.
- **Will rely on education and outreach as prevention strategies:** None of the lakes in the watershed have a public boat launch. However, it is important for lakeshore owners/users to understand best practices for minimizing risk of spreading invasive aquatic plants and the value of native plants.
- **Will not implement or fund chemical treatments if a state-listed rare aquatic plant is in a waterbody unless supported by a lake vegetation management plan:** Brown's Creek watershed is home to state-listed rare aquatic plants and unique aquatic plant communities. Presence of

unlisted soft-water indicator plants or water chemistry data may also warrant additional planning prior to management.

- **Will further assess rare aquatic plant populations and habitat with partner support:** Little is understood about the rare and unique soft-water plant communities found within the watershed. BCWD will work with partners such as the state Department of Natural resources and local government units to identify suitable environmental conditions and strategies to protect and enhance habitat for these communities.

State Regulation

All aquatic plant management actions by BCWD will comply with state law. Generally under Minnesota law, aquatic plants growing in public waters are the property of the state. Because of their value to lake ecosystems, aquatic plants may not be destroyed or transplanted unless authorized by the DNR (*see* Minnesota Rules chapter 6216). BCWD will obtain authorization for control methods from the Minnesota DNR.

APPENDIX E:

BROWN'S CREEK WATERSHED DISTRICT RULES

Adopted January 10, 2018
Effective February 1, 2018, except
Rule 2.0 – Stormwater Management Rule amendments
adopted March 11, 2020, effective April 1, 2020

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DEFINITIONS

"Agricultural activity" means the use of land for the production of agronomic, horticultural or silvicultural crops, including nursery stock, sod, fruits, vegetables, flowers, forages, cover crops, grains, and Christmas trees. Agricultural activity also includes grazing.

"Best Management Practices (BMPs)" means measures taken to control erosion and sedimentation caused by construction and impacts from stormwater runoff on receiving waters and/or groundwater.

"Better Site Design practices" means development design oriented to conserve natural areas, limit hard cover, use natural pervious areas and integrate stormwater management features to more effectively manage stormwater runoff.

"Buffer" means an upland area adjacent to a lake, stream or wetland that is maintained in or restored to primarily native vegetation.

"Distributed CN-value approach" means an approach that assigns a curve number to each land use to more accurately reflect volume and timing of site-generated runoff.

"Emergency Overflow" means a high-capacity weir, spillway, or natural overflow placed at or above the 100-year storage elevation waterbody or constructed pond. It must not be prone to clogging and stabilized such that flow of water does not cause erosion at the waterbody, pond, or downstream.

"Facility" means any part of a natural or constructed system contributing under the stormwater management plan to meeting a standard of section 2.4.

"Feasible" means technically achievable at a cost, in the District's determination, not substantially disproportionate to the water resource-protection benefit expected to be gained.

"Floodplain" means the area adjoining a watercourse, or a natural or constructed water basin, including the area around lakes, wetlands, stormwater ponds, depressions, and intermittent and perennial streams, that is inundated by the 100-year 24-hour rainfall event or, for landlocked basins, the 100-year 10-day rainfall event.

"Groundwater-dependent natural resource" (GDNR) means a feature with surface emergence of groundwater at a spring or seepage area, sufficiently mineral rich to support a plant community or aquatic ecosystem listed in the Appendix to these Definitions.

"Hot Spot" means a point source or potential pollution-generating land use, such as a gas station or chemical-storage facility.

"Impervious surface" means a surface that has been compacted or covered with a layer of material, or is likely to become compacted from expected use, so that it is highly resistant to infiltration by water. Impervious surfaces include, but are not limited to: roofs, parking lots, roads, paved or gravel driveways, sidewalks, pools.

"Lake," within the District, means Bass East, Bass West, Benz, Goggins, Kismet, Long, Lynch, Masterman, North School Section, South School Section, Pat, Plaisted and Woodpile basins.

"Land-altering activity" means any disturbance of the ground surface or vegetation that could result, through the action of wind and/or water, in soil erosion, substantial compaction or the movement of sediment into waters, wetlands or storm sewers or onto adjacent property. Land-altering activity includes but is not limited to soil stripping, clearing, grubbing, grading, excavating, filling and the storage of soil or earth materials. Routine farming operations (e.g., plowing, harvesting) are not land-altering activities for purposes of the rules.

"Landlocked basin" means a basin or localized depression that does not have a natural outlet at or below the water elevation of the 10-day precipitation event with a 100-year return frequency, using the 2000 Washington County Topographic Survey for the pre-event elevation.

"Linear Project" means a roadway, sidewalk, trail, rail line or utility within right-of-way that is not a component of a larger development or redevelopment project.

"Manage 1," as a wetland classification, means a wetland that does not qualify as a "Preserve" wetland but that meets one or more of the following rating levels pursuant to the Minnesota Rapid Assessment Method (MnRAM) 3.0 or other method approved by the District:

Function or Value	**Rating**
Vegetative Diversity	High
Wildlife Habitat	High
Fish Habitat	High
Aesthetics/education/recreation/cultural AND Wildlife Habitat	High Medium

Stormwater Sensitivity AND Vegetative Diversity	High Medium
Vegetative Diversity AND Maintenance of Hydrologic Regime	Medium High

"Manage 2," as a wetland classification, means a wetland that does not qualify as a "Preserve" or "Manage 1" wetland but that meets one or more of the following rating levels pursuant to the Minnesota Rapid Assessment Method (MnRAM) 3.0 or other method approved by the District:

Vegetative Diversity	Medium
Wildlife Habitat	Medium
Fisheries Habitat	Medium
Aesthetics/education/recreation/cultural AND Wildlife Habitat	Medium Low

"Manage 3," as a wetland classification, means a wetland that does not qualify as a "Preserve," "Manage 1" or "Manage 2" wetland.

"Mapped natural community" means a natural community identified in "Natural Communities and Rare Species Map for Washington County" (Minnesota Department of Natural Resources, Natural Heritage Program, 1990), or in a natural resources inventory using the same protocol as established by the Minnesota Department of Natural Resources.

"Middle zone" is a vegetative buffer zone that extends from the upland edge of the streamside zone to the interior edge of the outer zone of a watercourse.

"Natural environment lake" means a lake so designated by the Minnesota DNR pursuant to Minn. Rules 6120.3000.

"Ordinary high-water level" or "OHWL" means the boundary of a public water or wetland, and is an elevation indicating the highest water level that has been maintained for a sufficient period of time to leave evidence on the landscape, commonly indicated

by a change from predominantly aquatic to predominantly terrestrial vegetation. For watercourses, the ordinary high-water level is the elevation of the top of bank of the channel. For basins and flowages, it is the operating elevation of the summer pool.

"Outer zone" is a vegetative buffer zone that extends from the upland edge of the middle zone of a watercourse to a point specified in these rules.

"Preserve," as a wetland classification, means a wetland meeting any of the following rating levels pursuant to the Minnesota Rapid Assessment Method (MnRAM) 3.0 or other method approved by the District:

Function or Value	**Rating**
Vegetative Diversity	Exceptional
Wildlife Habitat	Exceptional
Fish Habitat	Exceptional
Aesthetics/education/recreation/cultural AND Wildlife Habitat	Exceptional High
Stormwater Sensitivity AND Vegetative Diversity	Exceptional Medium or greater
Vegetative Diversity AND Maintenance of hydrologic regime	High High or greater

"Pre-settlement" means soil permeability conditions existing before European settlement.

"Public water" has the definition at Minnesota Statutes section 103G.005, subdivision 15.

"Pre-development" means soil permeability conditions at the time preceding the proposed creation of impervious surface or substantial change in site hydrology or infiltration by alteration of site vegetation or contour.

"Receiving water" means the first of the following encountered by stormwater flow from the site: Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; or a wetland.

"Reconstruction" means alteration of existing surfaces in manner or to extent that exposes underlying soils. The following do not constitute "reconstruction" for purposes of these rules: impervious surface mill, reclamation or overlay; paving of an existing rural section gravel road; catch basin or pipe repair/replacement that maintains existing hydraulic capacity.

"Redevelopment" means any land-altering activities on an already developed site or any substantial change to existing structures on a parcel or alteration of existing surfaces that exposes underlying soils.

"Revegetation" means the planting of native indigenous species.

"Shore impact zone" means land located between the OHWL of a public water and a line parallel to it at a setback of 50 percent of the structure setback applicable under the governing shoreland ordinance.

"Steep slope" means land with an average slope exceeding 12 percent over a distance of 50 feet or more upgradient of the water resource, calculated using a reasonably precise topographic surface model, except that the District engineer may find, based on assessment of site-specific conditions and the capacity of the resulting buffer (under Rule 4.0) to protect water resources and provide habitat, that an existing contour change or changes constitute a break in a steep slope.

"Stream" means Brown's Creek or any tributary to Brown's Creek.

"Stream buffer zone" means a streamside zone, middle zone or outer zone.

"Streamside zone" is a vegetative buffer zone that extends from the ordinary high-water mark of a watercourse to the interior edge of the middle zone.

"Structure" means anything that is constructed or placed on the ground and that is, or is intended, to remain for longer than a brief, temporary period of time.

"Subwatershed" means the drainage area of the receiving water for the site.

"Utility" means a facility, or part thereof, that conveys water, wastewater, steam, gas, electricity or a similar commodity, including but not limited to cable access television and data transmission lines, but excluding stormwater management facilities.

"Waterbody" means a watercourse or waterbasin.

"Waterbasin" means an enclosed natural depression with definable banks, capable of retaining water.

"Watercourse" means a natural channel that has definable beds and banks capable of conducting confined runoff from adjacent land.

"Wetland" means land transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. A wetland (a) is predominated by hydric soils; (b) is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions; and (c) under normal circumstances, supports a prevalence of hydrophytic vegetation. A wetland is a waterbasin if it meets the definition of that term.

(All references to state statutory and regulatory provisions are to the current adopted and effective text.)

DEFINITIONS – APPENDIX

Groundwater-Dependent Natural Resource Types
(Following Minnesota Land Cover Classification System protocol)

Cold water trout stream

Spring creek

Groundwater-dependent lake

Tamarack swamp seepage subtype

Tamarack swamp minerotrophic subtype

Tamarack swamp sphagnum subtype

White cedar swamp seepage subtype

Black spruce bog

Black spruce bog intermediate subtype

Black spruce bog raised subtype

Black ash swamp seepage subtype

Mixed hardwood swamp seepage subtype

Scrub tamarack poor fen

Birch bog, spiraea temporarily flooded shrubland

Shrub fen

Poor fen shrub subtype

Rich fen shrub subtype

Wet brush-prairie seepage subtype

Shrub swamp seepage subtype

Alder swamp - saturated soils

Birch bog, spiraea shrubland - saturated soils

Alder swamp

Birch bog, spiraea shrubland - seasonally flooded

Birch bog, spiraea shrubland - semipermanently flooded

Wet prairie seepage subtype - saturated soils

Calcareous seepage fen

Calcareous seepage fen boreal subtype

Calcareous seepage fen prairie subtype

Poor fen

Poor fen sedge subtype

Poor fen patterned fen subtype

Rich fen

Rich fen sedge subtype

Rich fen floating-mat subtype - saturated soils

Rich fen patterned fen subtype

Open bog Open sphagnum bog schlenke subtype

Graminoid bog

Wet meadow floating mat subtype

Rich fen floating-mat subtype - semipermanently flooded

Rich fen floating-mat subtype - intermittently exposed

Rich fen floating-mat subtype - permanently flooded

Talus slope algific subtype

Seepage meadow

Wet cliff

Moderate cliff

Midwest sedimentary dripping cliff

Saline spring mud flats

1.0 PROCEDURAL REQUIREMENTS

1.1 Application Required. Any person undertaking any activity for which a permit is required by these rules must first submit for review a permit application, engineering-design data and such other information to the District as may be required by these rules to determine whether the improvements are in compliance with the criteria established by these rules. All permit applications must bear the original signature of the landowner.

1.2 Forms. Permit applications must be submitted using forms provided by the District. Forms are available from the District office and on the District website at www.bcwd.org. Permit applications must be delivered to:

Brown's Creek Watershed District
455 Hayward Ave N
Oakdale MN 55128
or
bcwdpermits@mnwcd.org

1.3 Conformity with Local Requirements. The District will review applications for permits involving land–altering activity. The permit will be issued only after the applicant demonstrates that the plan has received preliminary approval from each local government in which development is to take place and completion of the Wetland Conservation Act (WCA) approval process, if applicable. The requirement of preliminary approval means:

(a) Preliminary plat approval if required for the development; or

(b) approval by the local planning commission or a written statement from the responsible local official that, on preliminary review, the development appears to meet local approval requirements.

1.4 Notification Process. District staff will send notice of applications, transfers or renewals to the property owners within at least 600 feet of the project for the applicant at the applicant's expense. A copy of the list will be retained with the application at the District office.

(a) Notification is required only for an application to be submitted to the Board of Managers for approval.

1.5 Time for Submittal. A complete permit application which includes all required exhibits must be received by the District at least 28 full days prior to the scheduled meeting date of the Board of Managers. Late submittals or submittals with incomplete exhibits will be scheduled to a subsequent meeting date.

1.6 Permit Renewals and Transfers. Unless specified otherwise by action of the board of managers, a permit is valid for one year from the date the applicant is advised in writing that the Board has approved the permit unless it is otherwise suspended or revoked. To renew or transfer a permit, the permittee must notify the District in writing, prior to the permit expiration date, of the reason for the renewal or transfer request. The request will be reviewed by the BCWD Board of Managers at the next available board meeting provided all information submitted to the District is current. The board, in its discretion, may grant a permit of a duration longer than one year if a request to do so is included in the duly-noticed application. In accordance with section 1.4 of these rules, District staff will send notice of the proposed project to the individuals within 600 feet of the project for the applicant at the applicant's expense.

2.0 STORMWATER MANAGEMENT

2.1 Purposes and Policy. It is the policy of the District to:

2.1.1 Preserve natural infiltration, groundwater recharge and subsurface flows that support groundwater dependent resources including lakes, streams, wetlands, plant communities and drinking water supplies;

2.1.2 Work toward restoration of natural hydrology by limiting peak off-site stormwater flow to pre-settlement rates;

2.1.3 Limit off-site stormwater flow volume to prevent down-gradient flooding and thermal impacts to Brown's Creek and its tributaries;

2.1.4 Require management of stormwater flow to limit sediments, phosphorus and other pollutants conveyed to ground and surface waters and promote water quality;

2.1.5 Minimize connectivity of impervious surfaces to stormwater conveyance systems and preserve the natural hydrology of landlocked basins to minimize basin and downgradient flood risk; and

2.1.6 Create regulatory consistency to the greatest extent possible with neighboring watershed organizations and cities within the Brown's Creek watershed.

2.2 Applicability. Subject to the exceptions in subsection 2.8, the requirements of this rule apply to:

(a) Subdivision of four or more lots;

(b) Development or redevelopment creating impervious surface that, aggregated with existing impervious surface on the site, equals 10,000 square feet or more or creating impervious surface that, aggregated with existing impervious surface on the site, equals 6,000 square feet or more on a site within the surface water contributing area of a groundwater-dependent natural resource. For redevelopment:

(i) If the proposed activity will disturb more than 50 percent of existing impervious surface, the applicable criteria of subsection 2.4 will apply to all impervious surface and disturbed areas on the project site.

(ii) If the proposed activity will disturb less than 50 percent of existing impervious surface, the criteria will apply only to reconstructed and net additional impervious surface, and all disturbed areas on the project site.

(c) Linear projects that create one or more acres of new and/or reconstructed impervious surfaces or that create 6,000 square feet or more of new and/or reconstructed impervious surface within the surface water contributing area of a groundwater-dependent natural resource.

2.3 Regulation. Before any activity subject to this rule commences, a stormwater management plan must be submitted to the District. The plan must conform to the requirements of this rule, and a permit must be secured from the District.

2.4 Standards.

2.4.1 Management Standards – Subdivision, Development, Redevelopment.

(a) Outside the Diversion Structure Subwatershed, an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not:

(i) Increase peak stormwater flow from the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave a site. (ii) Increase stormwater flow volume from all points where discharge leaves the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two years, or five years within a landlocked basin or a subwatershed draining to a landlocked basin. (iii) At the downgradient property boundary or to an onsite receiving waterbody or wetland, increase annual phosphorus loading as compared with the pre-development condition. (iv) Increase the bounce in water level or duration of inundation, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

(b) Within the Diversion Structure Subwatershed shown in Appendix 2.2,1 which is incorporated into this rule as a term hereof, an applicant must submit a stormwater-management plan providing:

(i) No increase in the existing peak stormwater flow rates from the site for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave a site.

(ii) Retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface, except where section 2.4.3 – Flexible Treatment Options applies.

[1] There is a small portion of the City of Grant that drains to the Diversion Structure but is not included within the Diversion Structure subwatershed for purposes of the BCWD rules, except that state-owned right-of-way (Trunk Highway 36) within Grant that drains to the subwatershed is included. The map in Appendix 2.2 shows subwatershed within Stillwater and Oak Park Heights this is subject to the Diversion Structure subwatershed standards.

(iii) No increase in the bounce in water level or duration of inundation for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limits specified in Appendix 2.1.

2.4.2 Management Standards – Linear Projects

(a) Outside the Diversion Structure Subwatershed an applicant must provide a stormwater-management plan meeting the criteria in 2.4.1(a)(i), (iii) and (iv), and provide retention of larger of the following:

(i) 100 percent of the required volume per 2.4.1(a)(ii) from the net additional impervious surface; or

(ii) 50 percent of the required volume per 2.4.1(a)(ii) from all new and reconstructed impervious surfaces.

Notwithstanding, where the applicant can demonstrate that greater than 50 percent of the soil area within the linear project site is categorized as Hydrologic Soil Group D, the stormwater-management plan must provide retention in accordance with 2.4.2(a)(i).

(b) Within the Diversion Structure Subwatershed an applicant must provide a stormwater-management plan meeting the criteria in 2.4.1(b)(i) and (iii), and provide retention of larger of the following, except where section 2.4.3 – Flexible Treatment Options applies:

(i) 1.1 inches of stormwater volume from the net new impervious surface created; or

(ii) 0.55 inches of stormwater volume from the new and fully reconstructed impervious surfaces.

2.4.3 Flexible Treatment Options Within the Diversion Structure Subwatershed. Where an applicant demonstrates that retention of stormwater volume onsite is not reasonably feasible because of soil conditions or other inherent site conditions and/or is reasonably likely to cause or exacerbate migration of underground contaminants or create risk to drinking water, the applicant must provide rate and bounce control, and management of volume and water quality from the regulated impervious surface in accordance with the following priority sequence:

(a) Retention onsite of 0.55 inches of runoff and removal of 75 percent of the annual total phosphorus loading;

(b) Retention onsite of stormwater volume to the maximum extent practicable and removal of 60 percent of the annual total phosphorus loading.

A determination that compliance with the applicable stormwater-retention standard is not reasonably feasible requires a demonstration of an assessment by the applicant of the viability of relocation of project elements to address varying soil conditions.

2.4.4 Obligation to Ensure Performance. A permit granted by the District on a finding that stormwater management facilities, as they are to be constructed and maintained under the permit, will meet applicable performance standards under Rule 2.0 does not require additional steps if the permit is complied with but standards are not met. Notwithstanding, as a specific condition to a permit, the District may impose monitoring, performance evaluation, additional compliance measures or other requirements for the purpose of meeting performance standards.

2.5 Management.

2.5.1 Calculating Off-Site Stormwater Flow. To calculate runoff under pre-settlement condition, pre-development condition or the stormwater management scenario proposed for approval, Soil Conservation Service TR-20 method is to be used. Pre-settlement CN-values will be as follows:

Hydrologic Soil Group	Curve Number
A	30
B	57
C	70
D	77

All assumptions for CN-values and impervious surface area estimates must be clearly stated. A distributed CN-value approach must be used to calculate runoff flows.

An area of the site to be disturbed during construction will be assigned a CN-value corresponding to a soil permeability class one step below that of the undisturbed soil unless the permit specifies a District-approved method to restore soil structure.

2.5.2 Infiltration Pretreatment. Surface flows to infiltration facilities must be pretreated for long-term removal of at least 50 percent of sediment loads. In the event an infiltration facility is constructed in the vicinity downstream of a potential Hot Spot, a skimmer must be installed to facilitate cleanup.

2.5.3 Basin in Contributing Area to Groundwater-Dependent Natural Resource. A stormwater basin within the surface contributing area to a groundwater-dependent natural resource must contain and infiltrate the volume generated by a two-year, 24-hour storm event, if feasible. The basin bottom must be at least three feet above the seasonally high water table, bedrock or other impeding layer. If this infiltration standard is determined infeasible, basin outflow must be non-erosive and routed through a subsurface system, flow spreader or other device that discharges water through or across the ground to lower discharge temperature to that of the ambient soil.

2.5.4 Conformance to Floodplain and Drainage Alteration Requirements. Land-altering activities subject to this rule must comply with lowest-floor elevation requirements in subsection 7.3.2 of these rules.

2.6 Maintenance. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. Permit applicants must provide a maintenance, inspection and, if required, monitoring plan that identifies and protects the design, capacity and functionality of onsite and offsite stormwater management facilities; provides specifications, methods and a schedule for the inspection and maintenance in perpetuity of the facility, with documentation retained onsite and available to the District on reasonable notice; and contains at a minimum the requirements in the District's standard maintenance declaration. The maintenance plan will be recorded on the deed in a form acceptable to the District. A public applicant may comply with this requirement by entering an agreement with the District in lieu of a recorded document.

2.7 Required Exhibits. The following items, certified by a professional engineer licensed in the State of Minnesota, licensed land surveyor, or other appropriate professional, may be required to support a permit application submitted to the District pursuant to Rule 2.0:

2.7.1 BMP Design and Construction Standards. Stormwater management BMPs must be designed and constructed in accordance with the most recently amended editions of the following:

(a) Minnesota Pollution Control Agency, Stormwater Manual.

(b) Minnesota Pollution Control Agency, Protecting Water Quality in Urban Areas Manual

(c) Minnesota Department of Transportation, Erosion Control Handbook II.

2.7.2 Property lines and delineation of lands under applicant's ownership;

2.7.3 For existing and proposed conditions, topography showing all on- and off-site subwatersheds contributing to surface flows onto or from the site;

2.7.4 The location, alignment and elevation of proposed and existing stormwater facilities;

2.7.5 Delineation of existing on-site wetland, shoreland, drain tiling and floodplain areas as defined in the 2010 FEMA study;

2.7.6 Existing and proposed normal and 100-year water elevations on site;

2.7.7 Existing and proposed site contour elevations at two-foot intervals, related to NAVD88 (geoid09) vertical datum.

2.7.8 Elevation of the OHWL of each public water on the site, if determined by the Minnesota Department of Natural Resources;

2.7.9 Construction plans, specifications and a maintenance schedule for all proposed facilities;

2.7.10 Stormwater runoff rate analyses for the two-, 10- and 100-year critical events and runoff volume for the two-year event (or five-year event for a landlocked basin) under pre-settlement and proposed conditions, using Appendix 2.3 to simulate infiltration losses in designed practices OR stormwater runoff rate analysis for the two-, 10-, and 100-year critical events under existing and proposed conditions and runoff volume for 1.1-inch generated from impervious surfaces;

2.7.11 Water-quality analysis for the average annual year.

2.7.12 Logs of soil borings, pits and grain size analysis within the proposed boundary of the BMP(s) designed to infiltrate stormwater, showing data in accordance with the table in Appendix 2.4;

2.7.13 Soil-type analysis for purposes of demonstration of predominantly Hydrologic Soil Group D soils, where applicable.

2.7.14 Delineation of any flowage and drainage easements and other property interests dedicated to stormwater management purposes.

2.7.15 Documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota Pollution Control Agency and provide the Storm Water Pollution Prevention Plan (SWPPP) as it becomes available;

2.7.16 Thermal impact analysis demonstrating compliance with paragraph 2.5.3, if applicable.

2.7.17 Additional required exhibits for proposed stormwater reuse systems:

(a) Completed analysis using Metropolitan Council Stormwater Reuse Guide 'Water Balance Tool Irrigation Constant Demand' spreadsheet for irrigation practices or 'Water Balance Too Non-Irrigation Constant Demand' Spreadsheet for nonirrigation practices. The tools are available for download at: http://www.metrocouncil.org/Wastewater-Water/Planning/Water-Supply-Planning/Stormwater-Reuse-Guide-Tools-zipped-file.aspx

(b) Documentation demonstrating suitability of soils, storage system and delivery system;

(c) Operations and maintenance plan; and

(d) Performance monitoring plan.

2.8 Exceptions. No permit under this rule is required for:

2.8.1 Single-Family Home Sites. Construction or reconstruction on a single-family home site consistent with a subdivision, development or redevelopment plan and stormwater management implemented in accordance with a District permit issued after February 1, 2018.

2.8.2 Land-disturbing activities that do not involve creation of new impervious surface or reconstruction of existing impervious surface.

2.9 Regional Treatment. An applicant may comply with applicable BCWD stormwater rate-control, volume-retention and water-quality standards by providing equal or greater peak rate control, volume control and phosphorus control through a regional or subwatershed plan approved by the District. A regional plan must provide for an annual accounting to the District of treatment capacity created and utilized by projects or land-altering activities within the drainage and treatment area to which the plan pertains. District approval of a regional or subwatershed plan will be based on a determination that:

(a) the use of a regional facility in place of onsite stormwater management will not result in adverse impacts to local groundwater or natural resources located upstream of the regional facility, including, but not limited to, reduced water quality, altered wetland hydrology, changes to stream velocities or base flow, erosion, or reduced groundwater recharge; and

(b) the plan incorporates onsite BMPs to mitigate impacts and provide local benefits not provided by the regional facility.

The applicant, before commencing any land-altering activity, must demonstrate that downgradient stormwater conveyance structures and facilities will be adequate to handle proposed increased peak flow or flow volume from the site, it holds the legal rights necessary to discharge to the stormwater facility or facilities in the regional plan,

and that the facility or facilities are subject to a maintenance document satisfying the requirements of paragraph 2.6.

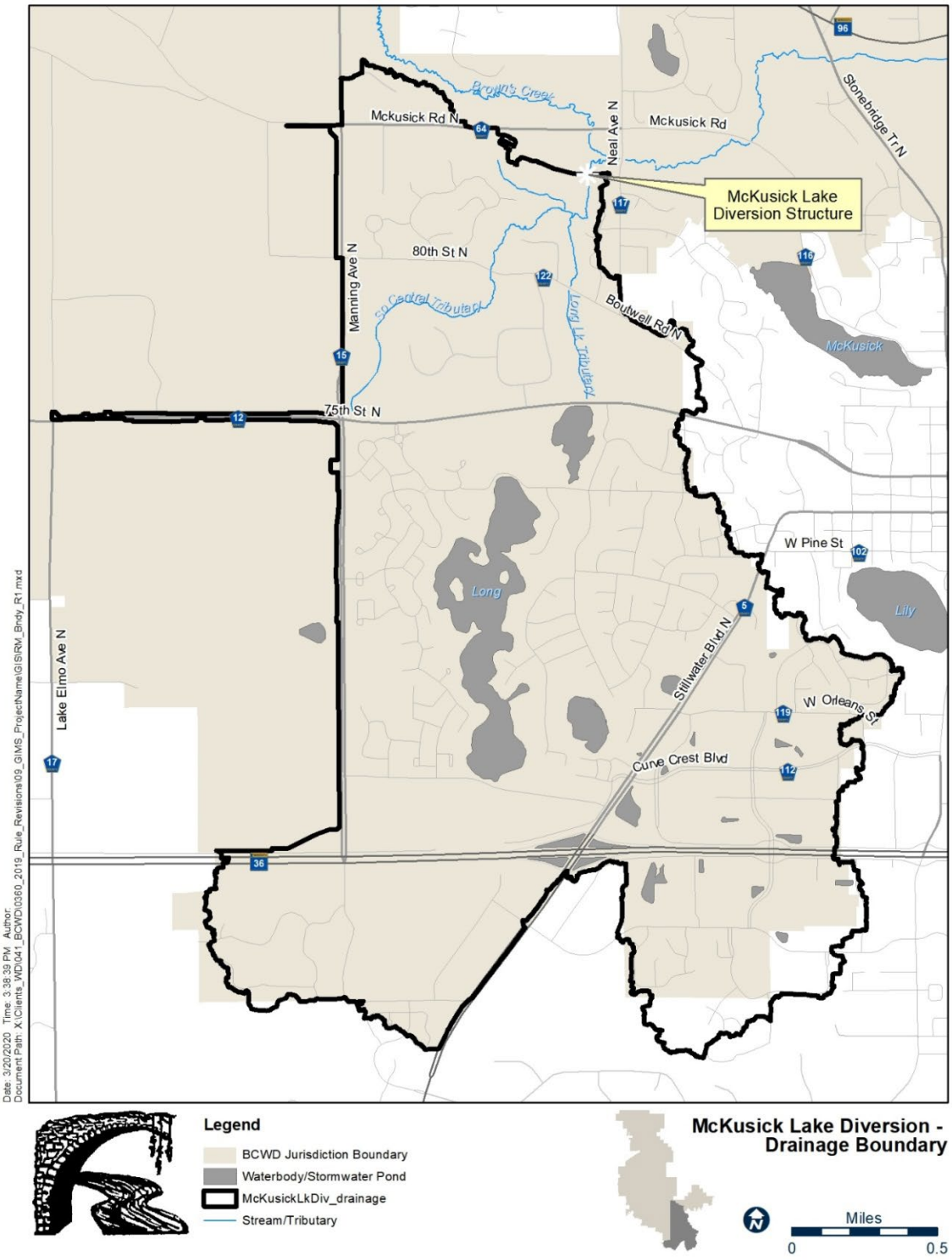
2.10 Groundwater-Dependent Natural Resource Management Plans. If the District has prepared a management plan for a groundwater-dependent natural resource and incorporated management standards in that plan into its rules through a formal rulemaking process, any land-altering activity within the surface contributing area or overlying the groundwater recharge area of that resource must conform to applicable standards in the plan.

APPENDICES

APPENDIX 2.1 **Bounce and Inundation Period Standards**

Management Classification	Permitted Bounce	Inundation Period for Two-Year Event	Inundation Period for 10-Year or Greater Event
Preserve wetland	Pre-development	Existing	Existing
Manage 1 wetland	Pre-development plus 0.5 feet	Existing plus 1 day	Existing plus 2 days
Manage 2 wetland	Pre-development plus 1.0 feet	Existing plus 2 days	Existing plus 14 days
Manage 3 wetland/Lake	No limit	Existing plus 7 days	Existing plus 21 days

APPENDIX 2.2 **Diversion Structure Subwatershed**



APPENDIX 2.3 **Design Infiltration Rates**

HSG	USCS Major Divisions				Letter Symbol	Group Name	USDA Textural Classification	Design Rate (in/hr)
A	Gravel and Gravelly Soils. *More than 50% retained on No. 4 sieve*	Gravel with <5% fines	Well graded		GW	Well graded gravel		1.63
			Poorly graded		GP	Poorly graded gravel		
		Gravel with between 5% and 12% fines	Well graded	Silty	GW-GM	Well graded gravel with silt		
			Well graded	Clayey	GW-GC	Well graded gravel with clay		
			Poorly graded	Silty	GP-GM	Poorly graded gravel with silt		
			Poorly graded	Clayey	GP-GC	Poorly graded gravel with clay		
		Gravel with >12% fines		Silty	GM	Silty gravel		
				Clayey	GC	Clayey gravel		
				Both	GC-GM	Silty, clayey gravel		
A	Sand and Sandy Soils. *More than 50% passing No. 4 sieve and less than 50% passing No. 200 sieve*	Sand with <5% fines	Well graded		SW	Well graded sand	Sand	1.63
			Poorly graded		SP	Poorly graded sand	Sand	0.8
		Sand with between 5% and 12% fines	Well graded	<5% Clay	SW-SM	Well graded sand with silt	Sand-loamy sand	0.8
			Well graded	>5% Clay	SW-SC	Well graded sand with clay	Loamy sand	0.8
			Poorly graded	<5% Clay	SP-SM	Poorly graded sand with silt	Sand	0.8
			Poorly graded	>5% Clay	SP-SC	Poorly graded sand with clay	Loamy sand	0.8
B		Sand with >12% fines		<5% Clay	SM	Silty sand	Sandy loam	0.45
				5-7% Clay	SC-SM	Silty, clayey sand	Sandy loam	0.45
D				>7% Clay	SC	Clayey sand	Sandy loam - loam	0.06
C	Fine Grained Soils.	Liquid Limit <50	Inorganic	<5% Clay	ML	Silt		0.2
D				5-7% Clay	CL-ML	Silty clay		0.06
				>7% Clay	CL	Lean clay		0.06
	More than 50% passing No. 200 sieve		Organic		OL	Organic soils		0.06
B		Liquid Limit >50	Inorganic	<5% Clay	MH	Elastic silt		0.3
D				>5% Clay	CH	Fat clay		0.06
			Organic		OH	Organic soils		0.06

Note: If soils highlighted in grey are encountered on the site, perform hydrometer analysis.

APPENDIX 2.4 **Required number of soil borings, pits or permeameter tests for BMP design**

Surface area of stormwater control measure (BMP)(ft^2)	Borings	Pits	Permeameter tests
< 1,000	1	1	5
1,000 to 5,000	2	2	10
5,000 to 10,000	3	3	15
>10,000	4[1]	4[1]	20[2]

[1] an additional soil boring or pit should be completed for each additional 2,300 ft^2 above 12,500 ft^2

[2] an additional five permeameter tests should be completed for each additional 5,000 ft^2 above 15,000 ft^2

Source: Minnesota Stormwater Manual

3.0 EROSION CONTROL

3.1 Policy. It is the policy of the Board of Managers to require erosion control for land-altering activities to prevent the siltation and sedimentation of streams, lakes, wetlands, and groundwater recharge areas in the District.

3.2 Regulation. All persons undertaking any grading, filling, or other land-altering activities which involve movement of more than fifty (50) cubic yards of earth or removal of vegetative cover on five thousand (5,000) square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The plan must meet the following standards:

3.2.1 An erosion control plan must be prepared by a qualified individual showing proposed methods of retaining waterborne sediments on site during the period of construction and showing how the site will be restored, covered, or revegetated after construction, including a timetable for completion;

3.2.2 The erosion control plan must be consistent with the specifications of the Minnesota Stormwater Manual (published by the MPCA) and its current revisions, and specifically must conform to manual recommendations on the following subjects, as applicable:

(a) Implementation schedule and construction sequencing

(b) Critical erosion areas

(c) Limits of disturbed areas

(d) Stabilizing exposed and soil stockpile areas

(e) Stabilizing waterways and outlets (including managing five-year, 24-hour event)

(f) Temporary sediment basins

(g) Protecting adjacent properties from erosion

(h) Storm sewer inlet protection

(i) Riprap at culvert outfalls

(j) Rock construction entrances

(k) BMP design and construction details

(l) Horizontal slope grading

(m) Permanent erosion control;

3.2.3 Sites with high erosion potential characterized by steep slopes or erodible soils may require the permit applicant to post a surety pursuant to Rule 9.0.

3.2.4 Temporary sediment basins must provide live storage for construction phase calculated volume of runoff from a two-year, 24-hour storm from each acre drained to the basin, except that in no case may the basin provide less than 1,800 cubic feet of live storage from each acre drained to the basin. Basin dewatering must not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

3.3 Site Maintenance Practices

3.3.1 All erosion and sediment control measures must be installed, and the District must be given written notice three business days before land-altering activity commences.

3.3.2 The permittee is responsible at all times for the maintenance and proper operation of all erosion and sediment control measures. On any property on which land-altering activity has occurred pursuant to a permit issued under this rule, the permittee must at a minimum inspect, maintain and repair all disturbed surfaces and all erosion and sediment control facilities and soil stabilization measures every day work is performed on the site, and at least weekly, until land-altering activity has ceased. Thereafter, the permittee must perform these responsibilities at least weekly until vegetative cover is established.

3.3.3 All disturbed areas must be stabilized with erosion control measures, or temporary or permanent cover within seven calendar days after land-altering activity has temporarily or permanently ceased on a property that drains to an impaired water, within 14 days elsewhere.

3.3.4 All exposed soil areas and soil stockpiles within 200 lineal feet of a wetland, a waterbody, a discernable surface drainage feature or a stormwater system inlet, and with a continuous positive slope to that water feature, must be stabilized with erosion control measures, or temporary or permanent cover, within 24 hours of connecting to a surface water or property edge.

If an area is not permanently stabilized, it must be managed in accordance with paragraphs 3.3.3 and 3.3.4 above, or 3.3.5 below.

3.3.5 The weekly inspection requirement of paragraph 3.3.2, above, may be reduced to monthly between November 15 and snowmelt if site management conforms to the following:

(a) Exposed soils are stabilized with established vegetation, straw or mulch, matting, rock or other approved product such as rolled erosion control product. Seeding is encouraged, but alone is not sufficient.

(b) Temporary and permanent ponds and sediment traps are graded to capacity before spring snowmelt. This does not include infiltration/filtration facilities, which must be kept free of sediment until the site is fully stabilized.

(c) Sediment barriers are properly installed at necessary perimeter and sensitive locations.

(d) Slopes and grades are properly stabilized with approved methods. Rolled erosion control products must be used on slopes greater than 3:1 (H:V) and where erosion conditions dictate.

(e) Stockpiled soils and other materials subject to erosion are protected by established vegetation, anchored straw or mulch, rolled erosion control product or other durable covering; a barrier prevents movement of eroded materials from the location.

(f) All construction entrances are properly stabilized.

(g) Snow management protects erosion and sediment control measures.

3.3.6 If a site is actively worked after November 15, all steep slope measures, downgradient and perimeter sediment controls, stockpile stabilization and sediment control measures, swales, channels, culvert outfalls and storm sewer inlets must be maintained in proper working condition at the end of each work day.

3.3.7 After construction is complete, design contours must be established for permanent wet detention basins used as sediment basins during construction.

3.3.8 Erosion control measures such as silt fences must not be removed until after the project is complete and the District determines that all disturbed areas have been fully stabilized, and must be removed within 14 days thereafter.

4.0 LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

4.1 Purposes and Policy. Natural vegetation bordering the bed and banks of lakes, streams and wetlands serves a critical role in maintaining the ecological function of and societal benefits deriving from those water resources. Purposes served by vegetative buffers include bank and shoreline stabilization; erosion prevention; filtration of nutrients, sediments and other pollutants from storm flows; protection of stream beds and banks and mitigation of downstream flooding through moderation of peak flows both into and within the resource; regulation of in-stream temperatures; preservation of aquatic and terrestrial habitat; protection of scenic resources; and maintenance of property values. The purpose of Rule 4.0 is to afford the greatest possible protection to these buffers, and to the water quality, flow regime and habitat of Brown's Creek and its tributaries, consistent with the interest in avoiding undue disturbance to established public and private activities in littoral and riparian zones.

4.2 Applicability.

4.2.1 Rule 4.0 applies to land:

(a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and

(b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

4.2.2 Before any disturbance of ground vegetation or contour subject to a District permit, or placement of any structure on the ground, a declaration or other instrument incorporating the applicable buffer-maintenance requirements pursuant to Rule 4.0 must be recorded in the office of the county registrar or recorder. On public land or right-of-way, buffer areas and maintenance requirements may be documented in a written agreement with the District in lieu of a recorded document.

4.2.3 A buffer must be indicated by permanent, free-standing markers at the buffer's upland edge, with a design and text approved by District staff in writing. A marker must be placed at each lot line, with additional markers at an interval of no more than 200 feet. If a District permit is sought for a subdivision, the monumentation requirement will apply to each lot of record to be created. On public land or right-of-way, the monumentation requirement may be satisfied by the use of markers flush to the ground, breakaway markers of durable material, or a vegetation maintenance plan approved by District staff in writing.

4.2.4 Rule 4.0 applies in addition to, and not in place of, any local shoreland ordinance.

4.2.5 Minnesota Department of Agriculture requirements governing herbicide and pesticide application adjacent to water bodies preempt District regulation.

4.3 Zone Widths.

4.3.1 Subject to the special provisions in subsections 4.3.2 through 4.3.5, buffer zones are as follows:

(a) Stream/Tributary

(1) Streamside zone 25 feet

(2) Middle zone 50 feet from upland edge of streamside zone

(3) Outer zone from upland edge of middle zone to structure setback line under applicable shoreland ordinance

(b) "Preserve" wetland type 100 feet

(c) "Manage 1" wetland type 75 feet

(d) "Manage 2" wetland type 50 feet

(e) "Manage 3" wetland type 25 feet

(f) Lake 75 feet

If a lake or wetland is a groundwater-dependent natural resource, the buffer will be 100 feet. If a stream is a groundwater-dependent natural resource, the streamside zone will be 50 feet, and the middle zone 100 feet.

4.3.2 Where a mapped natural community is associated with a stream, lake or wetland subject to Rule 4.0, the upland edge of the buffer or, for a stream, the middle zone must be as specified in subsection 4.3.1 or contiguous with the upland edge of the mapped natural community, whichever is greater.

4.3.3 Where a lake or wetland buffer, or a streamside or middle zone of a stream buffer, encompasses all or part of a steep slope, the zone or buffer must extend to the distance specified in subsection 4.3.1 or to the top of the steep slope, whichever is greater. An existing contour alteration or artificial structure on a steep slope constitutes a break in slope only if it indefinitely will dissipate upgradient velocity and trap upgradient pollutant loadings.

4.3.4 Where the 100-year floodplain extends further than the upland edge of the middle zone, the lake buffer or the wetland buffer specified in subsection 4.3.1, the zone or buffer must extend to the upland edge of the floodplain.

4.3.5 Buffer width may vary where the applicant can clearly demonstrate the need to vary from the District's rule or when there is a potential to provide benefits to the resources of the District, provided that the average width at least equals the applicable width of subsection 4.3.1, the buffer is at least half of that width at all points, and the buffer provides water resource and habitat protection at least equivalent to that of a uniform buffer of the required width. Buffer area calculation will exclude any part of the buffer exceeding twice the width specified in subsection 4.3.1. Where required buffer width is set by operation of paragraph 4.3.2, 4.3.3 and/or 4.3.4, buffer width may not be averaged.

4.4 Limitations in Buffer Zones.

4.4.1 At the time a buffer is created under Rule 4.0, the District may require a planting or landscaping plan to establish adequate native vegetative cover for area that:

(a) Has vegetation composed more than 30 percent of undesirable plant species (including, but not limited to reed canary grass, common buckthorn, purple loosestrife, leafy spurge, bull thistle, and other noxious weeds); or

(b) Consists more than 10 percent of bare or disturbed soil or turf grass.

4.4.2 Lake and Wetland Buffers; Streamside Zone of Stream Buffer. The following activities are prohibited within a lake or wetland buffer, and within the streamside zone of a stream buffer:

(a) Creating impervious cover.

(b) Excavating fill or placing fill or debris, except for temporary placement of fill or debris pursuant to duly-permitted work in the associated watercourse, in compliance with all conditions of the permit, and in compliance with section 4.6.

(c) Altering vegetation, except for (i) vegetative enhancements, as approved in writing by staff; and (ii) the removal of invasive exotic species or of trees for disease control or revegetation. A tree larger than six inches in diameter at a point two feet above the ground may be removed only on written authorization from District staff on a determination that the function of the buffer will not be diminished.

(d) Applying phosphorus-containing fertilizers, except on written authorization from District staff on a determination that phosphorus application is appropriate and will not injure the waterbody.

(e) Locating roads or utilities, except pursuant to a crossing of the associated watercourse in accordance with section 4.7. Structures and appurtenances associated with the road or utility must not be located within the streamside zone unless no feasible alternative exists. Outlet, flood control and stormwater treatment facilities may be located within the zone if so approved under Rule 2.0, except that a stormwater basin is not permitted:

(i) within the streamside zone of a stream buffer; or

(ii) within the buffer of a groundwater-dependent natural resource, unless the basin bottom is at least three feet above the seasonal high water table, bedrock or other impeding layer and the basin and associated facilities are designed and maintained to infiltrate the two-year, 24-hour precipitation event.

4.4.3 Middle Zone of Stream Buffer. The streamside zone prohibitions of subsection 4.4.2 apply in the middle zone of a stream buffer, except that dead trees, limbs or branches may be removed from the buffer for any reason and without District approval.

4.4.4 Outer Zone of Stream Buffer. The following are prohibited in the outer zone of a stream buffer:

(a) Creating impervious cover.

(b) Placing fill or excavation, except in accordance with section 4.6 and other applicable law.

(c) Locating roads or utilities that involve the creation of impervious surface within the outer zone, except pursuant to a crossing of the watercourse and in accordance with section 4.7. Outlet, flood control and stormwater treatment facilities may be located within the zone if so approved under Rule 2.0.

4.5 Shoreline and Bank Stabilization. A measure to stabilize a shoreline or bank otherwise regulated under Rule 5.0 must comply with subsection 4.6.1 but otherwise is excepted from the prohibitions of section 4.4.

4.6 Temporary Alterations.

4.6.1 Compliance with Rule 3.0 is required, irrespective of the area or volume of earth to be disturbed.

4.6.2 Buffer zones and the location and extent of vegetation disturbance must be delineated on the erosion control plan.

4.6.3 Alterations must be designed and conducted to ensure only the smallest amount of disturbed ground is exposed for the shortest time possible. Mulches or similar materials must be used for temporary soil coverage and permanent native vegetation established as soon as possible.

4.6.4 Fill or excavated material may not be placed to create an unstable slope.

4.6.5 When construction, land-altering activity, fill or excavation activity occurs within the outer zone, the boundary between the outer and middle zones must be demarcated with siltation or other fencing to prevent disturbance of vegetation within the middle

zone. When construction, land-altering, fill or excavation activity occurs within the middle zone, the boundary between the middle and streamside zones must be demarcated with siltation or other fencing to prevent disturbance of vegetation within the streamside zone.

4.7 Roads and Utilities.

4.7.1 Construction of a structure, impervious cover or right-of-way maintained permanently in conjunction with a crossing of the waterbody or wetland must minimize associated permanent vegetative disturbance. Minimization includes, but is not limited to, approach roads and rights-of-way that are perpendicular to the crossing and of a minimum width consistent with use and maintenance access needs.

4.7.2 All work must be in accordance with section 4.6.

4.8 Exceptions.

4.8.1 An impervious surface, road or utility in existence on April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters), its maintenance, and maintenance of its existing right-of-way are excepted from the operation of Rule 4.0. Any increase in area or reconstruction of a surface, road or utility excepted under this subsection is subject to the Rule. A public road or a utility may be located within a buffer zone on a finding that avoiding the buffer is infeasible and in accordance with the standards of section 4.7.

4.8.2 Access to a waterbody or wetland for a lawful private or public use of the resource may be created and maintained. All access surfaces within the buffer zone must be pervious and permanent vegetative disturbance must be limited to that necessary for access in light of the nature and extent of the permitted use. No facility, other than a footpath or a facility accessory to a permitted use of the waterbody or wetland and required by its nature to be adjacent to the water, may be located within the streamside zone.

4.8.3 The District may grant a variance from any requirement of Rule 4.0 pursuant to Rule 10.0 of these rules. In determining the appropriateness of a variance, the District may consider, among other factors, the parcel or lot of record as of the date Rule 4.0 was adopted; the common ownership of the property in question and adjacent property; and the availability of clustering, density compensation, variances and other means under applicable land use law that would allow desired uses to be located on portions of the parcel or lot not within buffer zones. Grant of a variance will be limited to the extent necessary to put the property to a reasonable or economically viable use, and may be conditioned to actions or terms deemed necessary by the Board of Managers to ensure performance of the buffer to protect water resources.

5.0 SHORELINE & STREAMBANK ALTERATIONS

5.1 Policy. It is the policy of the District to:

5.1.1 Limit alteration of a shoreline or streambank under Rule 5.0 to instances where erosion of the shoreline or streambank is occurring or likely to occur.

5.1.2 Assure that improvements or alterations of shoreline and streambank areas comply with accepted engineering principles to prevent erosion; and

5.1.3 Preserve and, wherever feasible, enhance the ecological integrity and natural appearance of shoreline and streambank areas.

5.2 Regulation. No person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District and posting a surety. Disturbance of a shoreline or streambank wholly above the ordinary high water mark of a waterbody may require a permit under Rule 7.0. A permit will issue only on a demonstration that erosion is occurring or likely to occur.

5.3 Criteria for Bioengineering. Bioengineering techniques must be used to the extent possible under the following criteria.

5.3.1 The resultant project must be structurally stable. Special emphasis will be given to the stability of the toe of slope where traditional engineering techniques may be more appropriate.

5.3.2 Native vegetation must be used in all cases. Preferable species include those that form dense root systems or can be planted from cuttings.

5.3.3 Bioengineering projects must include a long-term maintenance plan that will ensure that small erosion spots are corrected and native plant materials are successful.

5.4 Criteria for Riprap Placement. Riprap placement must comply with the following criteria:

5.4.1 Riprap material should be durable, natural stone common to the setting and of a gradation that will result in a stable shoreline embankment able to withstand ice and wave action.

5.4.2 The finished slope must be no steeper than 3:1 (horizontal to vertical). Any rock/boulder stabilization project with a proposed finished slope steeper than 3:1 (horizontal to vertical) will be evaluated in accordance with the conditions for retaining walls.

5.4.3 No riprap or filter materials may be placed more than 10 feet waterward of the shoreline measured from the ordinary high water level (OHWL) elevation under normal conditions. The encroachment into the water is the minimum amount necessary to provide protection and does not unduly interfere with the flow of water.

5.4.4 A transitional layer consisting of graded gravel, at least 6 inches deep, or an appropriate geotextile filter fabric must be placed between the soil material of the existing shoreline and the riprap to prevent erosion of the embankment and to prevent settlement.

5.4.5 Riprap placement may not be attempted when underlying soils are not capable of supporting resulting loads. In these cases, a professional engineer registered in Minnesota should be consulted.

5.4.6 The thickness of the riprap layers must be at least 1.25 times the maximum stone diameter, exclusive of toe boulders at least 50 percent buried.

5.4.7 The riprap must conform with the natural alignment of the shoreline (i.e., maintaining an undulating or meandering shoreline).

5.4.8 The design must reflect the engineering properties of the underlying soils and any soil corrections or reinforcements. For a shoreline, the design must conform to engineering principles for wave energy dispersion and resistance to deformation from ice pressure and movement, considering prevailing winds and fetch. For a streambank, the design must conform to engineering principles for the hydraulic behavior of open channel flow, considering channel slope, velocity, tractive forces and upstream and downstream impacts.

5.4.9 Riprap-placement projects must contain a native vegetation planting.

5.5 Criteria for Retaining Walls.

5.5.1 A shoreline or streambank structure with a finished slope steeper than 2:1 (H:V), including but not limited to a rock, boulder or masonry installation, seawall, sheetpile structure or gabion basket, is subject to this section. A single course of riprap or other permanent material less than 18 inches in height is excepted.

5.5.2 A new retaining wall, or repair/reconstruction of an existing retaining wall that increases floodplain encroachment beyond that required by technically sound and accepted repair/reconstruction methods, is permitted only pursuant to a variance. The applicant must demonstrate there is no adequate stabilization alternative.

5.5.3 The applicant must file with the District a certificate of survey prepared by a registered land surveyor locating the finished wall.

5.6 Criteria for Laying Sandblankets. All permitted sandblanketing must comply with the following standards.

5.6.1 The sand or gravel used must be clean prior to being spread. The sand must contain no toxins or heavy metal, as defined by the MDNR, and must contain no weed infestations such as, but not limited to, purple loosestrife, glossy buckthorn, reed canary grass and Eurasian watermilfoil, or animal life infestations such as, but not limited to, zebra mussels or their larva.

5.6.2 The sand layer must not exceed six inches in thickness, 50 feet in width along the shoreline, or one-half the width of the lot, whichever is less, and may not extend more than ten (10) feet waterward of the ordinary high water mark.

5.6.3 Only one installation of sand or gravel to the same location may be made during a four-year period. After the four years have passed since the last blanketing, the location may receive another sandblanket.

5.6.4 Beaches that are operated by governmental entities, and available to the public, will be exempted from the following restrictions: (i) that sandblankets be no more than 50 feet in width and (ii) that sandblankets be installed no more frequently than once every four years. Permits will be required for all public beach sandblankets.

5.6.5 A natural zone of native shoreline plants of the same depth and equal to 20 percent of the width of the sandblanket must be maintained adjacent to the sandblanket.

5.7 Required Exhibits. In addition to the District's standard application form, fees and sureties, the following exhibits must accompany a permit application (one full-size; one set-reduced to maximum size of 11" x 17"):

5.7.1 A riprap application must include the following:

(a) Site plan showing property lines, delineation of lands under ownership of the applicant; delineation of the existing shoreline; delineation of wetland within the project area; existing contour elevations (if available); and locations and lineal footage of the proposed riprap treatment;

(b) Cross-section detailing the proposed riprap, drawn to scale, with the horizontal and vertical scales noted on the drawing. The detail should show the finished riprap slope, transitional layer design and placement, distance lakeward of the riprap placement, ordinary high water level elevation and material specifications;

(c) Description of the underlying soil materials that will support the riprap and, if the underlying soils will not support the riprap, the recommendations of a professional engineer registered in the State of Minnesota;

(d) Gradation, average diameter, quality and type of riprap material to be used (need must be demonstrated for use of rock larger than a Class III gradation, other than for buried toe boulders);

(e) Gradation, quality and type of filter blanket material to be used (normally, Type I gradation is sufficient);

(f) Manufacturer's material specifications for proposed geotextile fabric(s); and

(g) Materials used must be non-polluting.

(h) Detailed planting plan for native vegetation planting element of the project.

5.7.2 An application for a streambank structure or installation must contain the following:

(a) Site plan prepared by a professional engineer registered in the State of Minnesota showing property lines; the ordinary high water level (OHWL) elevation and 100-year floodplain elevation; and existing streambank and contour elevations up to the 100-year elevation, for at least 50 feet upstream and downstream of the project location or for the reach for which the project will affect flow conditions, whichever greater, or as otherwise required by District staff;

(b) Cross-section of proposed project including slope dimensions (length, width, height) and distance waterward;

(c) Material specifications including plant species and whether species are rooted, seed or cutting;

(d) Design calculations and documentation of structural stability, accounting for physical and flow characteristics of the watercourse, by a professional engineer registered in the State of Minnesota; and

(e) Detail of proposed site-specific erosion and sediment control practices.

5.7.3 A bioengineering application must contain the following:

(a) Complete set of project plans that details project setting in relation to adjacent water body;

(b) Information sufficient to demonstrate ability of installation to withstand wind fetch-induced waves and current, including orientation of installation relative to fetch distance and current;

(c) Planting plan, planting list with species and planting density, and specifications;

(d) Project timeframe and schedule, including any work contingencies or restrictions due to high water; and

(e) Inspection and maintenance schedule to ensure project success.

5.7.4 A retaining wall application must contain a structural/geotechnical analysis prepared by a professional engineer, practicing in civil engineering and registered in the State of Minnesota, showing that the design conforms to accepted engineering principles and will withstand expected ice and wave action and earth pressures.

5.7.5 A sandblanket application must contain the following:

(a) Site plan showing property lines, delineation of the work area, existing elevation contours of the adjacent upland area, delineation of wetland within the project area, ordinary high water elevation, and regional flood elevation (if available), with all elevations reduced to NGVD (1929 datum);

(b) Profile, cross-sections and topographic contours (intervals no more than one foot) showing existing and proposed elevations and proposed side slopes in the work area; and

(c) Planting plan and site plan indicating area to be maintained in native shoreline plants.

5.8 Guidelines. The engineer will publish or make available to interested persons a typical riprap cross-section for shoreline protection in compliance with this Rule.

5.9 Other Shoreline Improvements. Shoreline improvements not specifically addressed by Rule 5.0 must comply with accepted engineering principles.

6.0 WATERCOURSE & BASIN CROSSINGS

6.1 Policy. It is the policy of the District to discourage the use of lake beds and beds of waterbodies for the placement of roads, highways, and utilities.

6.2 Regulation. No person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

6.3 Criteria. Use of the bed must:

6.3.1 Meet a demonstrated public benefit;

6.3.2 Retain adequate hydraulic capacity;

6.3.3 Retain adequate navigational capacity;

6.3.4 Not adversely affect water quality; and

6.3.5 Represent the "minimal impact" solution to a specific need with respect to all other reasonable alternatives.

6.4 Required Exhibits. The following exhibits must accompany the permit application (one set - full size; one set - reduced to maximum size of 11"x17"):

6.4.1 Construction plans and specifications;

6.4.2 Analysis prepared by a professional engineer or qualified hydrologist showing the effect of the project on hydraulic capacity and water quality; and

6.4.3 An erosion control and restoration plan.

6.5 Maintenance. A declaration or other recordable instrument stating terms for maintenance of hydraulic and navigational capacity and approved by the District must be recorded in the office of the county recorder or registrar before permit issuance. In place of recordation, a public permittee or a permittee without a property interest sufficient for recordation may assume the maintenance obligation by means of a written agreement with the District. The agreement must state that if the ownership of the structure is transferred, the owner must require the transferee to comply with this subsection.

7.0 FLOODPLAIN AND DRAINAGE ALTERATIONS.

7.1 Policy. It is the policy of the District to:

7.1.1 Promote the reasonable use of water resources, such that a landowner may dispose of surface water only in a manner that does not unreasonably burden downstream landowners;

7.1.2 Preserve existing water storage capacity in the hundred-year floodplain of all waterbodies and wetlands in the watershed to minimize the frequency and severity of high water;

7.1.3 Promote rational land development and protect property investments by limiting development within and adjacent to the 100-year floodplain; and

7.1.4 Preserve the natural hydrology of landlocked basins to minimize flooding risks to structures and ecological impacts within or downgradient of those basins.

7.2 Regulation. No person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

7.3 Criteria for Floodplain or Drainage Alterations.

7.3.1 Floodplain filling must be accompanied by a replacement of flood volume between the ordinary water level and the 100-year flood elevation. The floodplain mitigation area must be calculated by a professional engineer registered in the State of Minnesota or by a qualified hydrologist.

7.3.2 All new and reconstructed buildings must be constructed such that the lowest floor is:

(a) At least two feet above the 100-year high water elevation or one foot above the natural overflow of a waterbody;

(b) At least two feet above the 100-year high water elevation of any open stormwater conveyance; and

(c) At least two feet above the 100-year high water elevation or one foot above the emergency overflow of a constructed basin.

In addition, no stormwater management facility may be constructed at an elevation that brings an adjacent permanent building into noncompliance with a standard in this subsection 7.3.2.

7.3.3 Within a landlocked basin, the separation cited in paragraph 7.3.2(a), above, must be at least three feet, unless the building is at least one foot above the natural, operating basin overflow.

7.3.4 The separation required by paragraphs 7.3.2 and 7.3.3 may be measured to the lowest grade elevation in contact with the structure rather than the lowest basement floor elevation if the following criteria are met:

(a) Geologic mapping and all available data sources indicate the adjacent waterbody is not a surface expression of a regional water table but is a perched groundwater system;

(b) The basement floor elevation will be four (4) feet above the currently observed ground water elevations in the area as demonstrated by two borings or observation wells located between each structure and the waterbody or basin; and

(c) The basement floor elevation will be two (2) feet above the elevation of any known historic high groundwater elevation for the area.

7.3.5 The District will issue a permit to alter surface flows under paragraph 7.2, above, only on a finding that the alteration will not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

8.0 FEES

8.1 Policy Findings. The Board of Managers finds that:

8.1.1 public awareness of and compliance with the permitting process will be served by a policy of not charging a permit application fee. By encouraging applicants to seek permits for potential projects, the public benefits by reduced inspection and enforcement costs;

8.1.2 it is in the public interest that certain projects, involving larger scale development or development in sensitive locations, be inspected and analyzed by District staff to provide the Board of Managers sufficient information to evaluate compliance with District rules and applicable law. The District's annual tax levy should not be used to pay such costs for these development projects; and

8.1.3 from time to time persons perform work requiring a permit from the District without a permit, and persons perform work in violation of an issued District permit. The costs of engineering inspection and analysis in such cases exceeds those costs where the applicant has complied with District requirements. The District's annual tax levy should not be used to pay such costs which are incurred because of a failure to meet District requirements.

8.2 Site Inspections. A site inspection by District staff will be performed in the following cases:

8.2.1 commercial, industrial, or multi-family residential developments;

8.2.2 single family residential developments greater than five (5) acres;

8.2.3 any alterations of a floodplain;

8.2.4 where any person performs any work for which a permit is required under these rules without having first obtained a permit from the District, or, performs any work in violation of any terms or conditions of a permit issued by the District under these rules; or

8.2.5 any project which, due to its location, scope, or construction techniques, requires inspection in order to determine compliance with District rules and applicable law.

8.3 Calculation of Fees. In all cases described in section 8.2, the applicant, or person responsible for the violation, must pay to the District a fee equal to the District's actual costs of field inspection of the work, including investigation of the area affected by the work, analysis of the work, services of a consultant, including engineering and legal consultants, and any subsequent monitoring of the work, which in the case of a

violation are incurred after notice of violation from the District. Inspection fees will be at least $35.

8.4 Recovery of Fee. The fee provided for in this rule may be recovered by the District by any legal action authorized by law.

8.5 Governmental Agencies Exempt. The fee provided for in this rule will not be charged to any agency of the United States or any governmental unit in the State of Minnesota.

9.0 FINANACIAL ASSURANCES

9.1 Policy. It is the policy of the District to protect and conserve the water resources of the District by assuring compliance with the District's rules in the performance of activities within the District, and to assure compliance where necessary by requiring a bond or other financial assurance to secure performance of the authorized activities and compliance with District rules.

9.2 Form and Conditions of a Financial Assurance.

9.2.1 The District may require a performance bond, letter of credit, escrowed funds or other financial assurance in a form approved by the District for an activity regulated under these rules. A commercial financial assurance must be issued by an entity licensed and authorized to do business in Minnesota. The financial assurance must be submitted by the permit applicant but the principal may be either the landowner or the individual or entity undertaking the proposed activity.

9.2.2 The financial assurance must be issued in favor of the District and conditioned on the applicant's performance of the activities authorized in the permit in compliance with all applicable laws, including the District's rules, the terms and conditions of the permit and payment when due of any fees or other charges authorized by law, including the District's rules. The financial assurance must state that in the event the conditions of the financial assurance are not met, the District may make a claim against it. In the event the District makes a claim against a financial assurance, the District may require that the full or partial amount of the financial assurance be restored within 45 days.

9.2.3 The financial assurance must be valid and in force for at least a one-year period and must contain a provision that it may not be canceled without at least 30 days' written notice to the District.

9.2.4 When escrowed funds will be provided to fulfill a District financial assurance requirement, the applicant/escrow provider will be required as a condition of permit issuance, transfer or renewal to enter into an escrow agreement with the District. Permit approval may be revoked for failure to comply with this requirement. A cash escrow agreement template will be maintained on the District website (http://www.bcwd.org) and also will be available from the District office.

9.2.5 The Board of Managers will establish by resolution a schedule of financial assurance rates, which will set rates the board deems necessary to cover the following potential liabilities to the District:

(a) Application, field inspection, monitoring and related fees authorized under Minn. Stat. § 103D.345;

(b) The cost of maintaining and implementing protective measures set forth in or incorporated into the permit; and

(c) The cost of remedying damage resulting from permit noncompliance or for which the permittee otherwise is responsible.

9.3 Release of a Surety. On written notification of completion, the District will inspect the project to determine if the project is constructed in accordance with the terms of the permit and District rules. If the project is completed in accordance with the terms of the permit and District rules and there is no-outstanding balance for unpaid inspection fees, the District will release the financial assurance. If the District has not inspected the project and made a determination about the project's compliance with the above criteria within 45 days of District receipt of written notification of project completion, the financial assurance is deemed released unless the District notifies the permittee that compliance matters remain outstanding. In the event a financial assurance is released through expiration of time for confirmation of final inspection compliance, the District will provide a writing releasing the surety if needed to meet the issuer's requirements.

10.0 VARIANCES

10.1 Variances Authorized. The Board of Managers may hear requests for variances from the literal provisions of these rules in instances where their strict enforcement would cause undue hardship because of circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

10.2 Standard. In order to grant a variance, the Board of Managers must determine that the special conditions that apply to the structure or land in question do not apply generally to other land or structures in the District, that the granting of the variance will not merely serve as a convenience to the applicant, and that the variance will not impair or be contrary to the intent of these rules. A hardship cannot be created by the landowner, the landowner's agent or representative, or a contractor, and must be unique to the property. Economic hardship alone is not grounds for issuing a variance.

10.3 Term. A variance will become void after one year after it is granted if not used.

10.4 Violation. A violation of any condition set forth in a variance will be a violation of the District rules and will constitute grounds for termination of the variance.

11.0 ENFORCEMENT

11.1 Investigation of noncompliance. District staff and agents may enter and inspect a property in the watershed to determine whether a violation of one or more District rules, a permit or an order exists or whether land-altering activities have been undertaken in violation of District regulatory requirements.

11.2 Administrative compliance order. On finding a probable violation and failure of the property owner to apply or permittee to take necessary corrective actions, the District may immediately issue a compliance order. A District compliance order may require a property owner to apply for an after-the-fact permit and/or effect corrective or restorative actions. A District compliance order may require that land-altering activities on the property cease.

11.2.1 The Board of Managers may delegate the authority to issue compliance orders to the District administrator.

11.3 Board hearing; administrative compliance order. A property owner or permittee will be provided with reasonable notice of a compliance hearing and an opportunity to be heard by the Board of Managers on a finding of probable violation and failure of the property owner to apply for a permit or a permittee to take necessary corrective actions. At the conclusion of the hearing, the District may issue a compliance order. A District compliance order may require a property owner to apply for a permit after the fact and/or effect corrective or restorative actions. A District compliance order may require that land-altering activities on the property cease until corrective or restorative actions take place.

11. 4 District court enforcement. The Board of Managers may exercise all powers conferred upon it by Minnesota Statutes chapter 103D in enforcing these rules, including criminal prosecution, injunction, action to compel performance, restoration, abatement or other appropriate action, along with recovery of associated legal costs and fees, as provided by Minnesota Statutes chapter 103D, through a civil or criminal action pursuant to Minnesota Statutes sections 103D.545 and 103D.551.

11.5 Liability for enforcement costs. The permittee or owner of a property that is the subject of District enforcement action will be liable for associated costs incurred by the District, including but not limited to the costs of inspection and monitoring of compliance, engineering and other technical analysis, legal fees and costs, and administrative expenses.

APPENDIX F:
Land and Water Resource Inventory

Introduction

This Land and Water Resource Inventory (LWRI) is intended to catalog and briefly summarize the data available for Brown's Creek Watershed District (BCWD). The name, location, and publisher or agency of any relevant datasets are included within each section of the LWRI. Datasets can be accessed through the URL links provided in the Datasets Referenced section or through inquiring at the agency websites or offices. In many cases, hyperlinks to referenced reports are provided in the body of the text. This section of the plan conforms to the requirements of Chapter 8410.0060 Land and Water Resource Inventory as revised January 30, 2024.

1 Physical Environment

1.1 Location

Brown's Creek Watershed District is in Washington County, Minnesota. It was formed from the Brown's Creek Watershed Management Organization in October of 1997. It includes portions of the City of Grant, the City of Hugo, the City of Lake Elmo, May Township, the City of Oak Park Heights, the City of Stillwater, and Stillwater Township. Table F1~~Table F1~~Table F1. Communities Located in Brown's Creek Watershed District identifies each city and township, its total population, and how much of its area is in BCWD. These areas were determined using the legal boundary of the district, last updated in February 2023.

Table F1. Communities Located in Brown's Creek Watershed District

City/Township	Total Population (2020 Census)	Area in BCWD [Acres]	Area in BCWD [Square Miles]	Percentage of Total BCWD Area [%]
Grant	3,970	9,353	14.6	51%
Hugo	15,766	2,133	3.3	12%
Lake Elmo	11,335	225	0.4	1%
May Township	2,670	2,023	3.2	11%
Oak Park Heights	4,849	328	0.5	2%
Stillwater	19,394	3,172	5.0	17%
Stillwater Township	1,866	1,041	1.6	6%
TOTAL	**59,850**	**18,276**	**28.6**	**100%**

1.2 Climate and Precipitation

The climate of the Brown's Creek watershed is consistent with the climate for the seven-county metropolitan area. In Washington County, the average summer temperature is 70 degrees Fahrenheit while the average winter temperature is 18 degrees Fahrenheit. The average annual temperature is 45 degrees Fahrenheit. The average annual precipitation of the county is 34.4 inches. On average the county has 83 days annually with a snow cover depth greater than one inch.

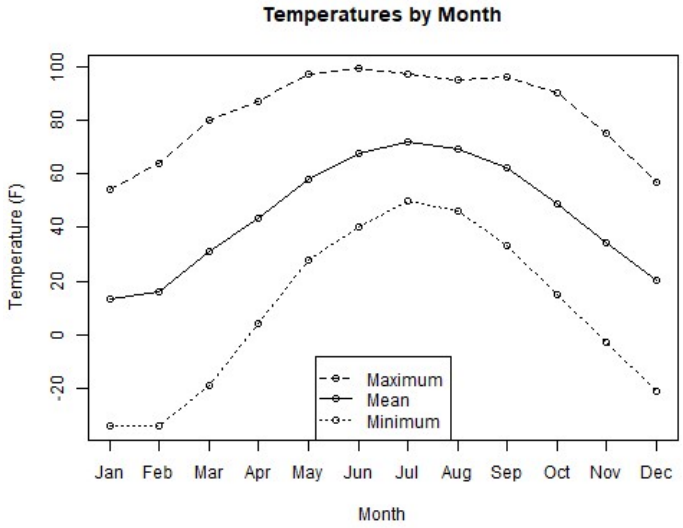
The previous long-term trend analysis relied on daily weather data from the National Weather Service station STILLWATER 1 SE[(1)], covering the period from 1959 to 2005. That analysis was included in the 2017 - 2026 Water Management Plan. Since this station ended operation in 2006, a new station STILLWATER 2 SW[(1)], located about three miles away at Long Lake within the district boundary has been used. This new

station began operating in July 2006, and its data were used to complete the most recent trend analysis through 2024. The recent trends are generally similar to those observed in the earlier long-term analysis, but because the record is shorter, the results are not as strongly supported by the statistical data. Similarly, a longer record of precipitation and general climate data (current annual and monthly precipitation records as well as historic precipitation records) can be obtained from the Minnesota Climatology Working Group[2]. Climate data, including long-term trends, can be obtained from the National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center[3]. The Minnesota Geospatial Commons also contains data on climate and precipitation from local stations across Minnesota[4].

1.2.1 Analysis of Near-Term Trends (2006-2024): Temperature

A near-term analysis of temperature data recorded in the watershed was performed to assess trends related to climate change. Figure F1~~Figure F1~~ averages the monthly temperature observations from 2006 to 2024. The warmest month on average is July and the coldest month on average is January. For the period of record, the average annual temperature was 45.0 degrees F. Observed daily extremes were 99 degrees F and -34 degrees F.

Figure F1~~1~~ Monthly temperature statistics at the National Weather Service station STILLWATER 2 SW (2006-2024)



The main findings of the temperature trend analysis are highlighted below. An extensive summary of climate and precipitation trends within the watershed is available in Appendix B of the plan.

- Air temperatures were observed to increase over the periods of record (2006-2024), but the evidence is not strong enough to conclude that the trends are statistically significant.
- Winter temperatures appear to be warming, especially for average winter temperatures, though the signal is not strong enough to say with certainty.

1.2.2 Analysis of Near-Term Trends: Precipitation

A near-term analysis of precipitation data recorded in the watershed was performed to assess trends related to climate change. Figure F2~~Figure F2~~ averages the monthly precipitation observations from 2006

to 2024. For precipitation, an 18-year (2007-2024) record was available for annual analysis. Rainfall data for 2006 were only available starting in July and are therefore excluded from the annual analysis. For the period of record, the average annual rainfall was 29.7 inches and ranged from 23.8 inches (2017) to 37.0 inches (2016).

Figure F2~~2~~. Monthly rainfall statistics at the National Weather Service station STILLWATER 2 SW (2006-2024)

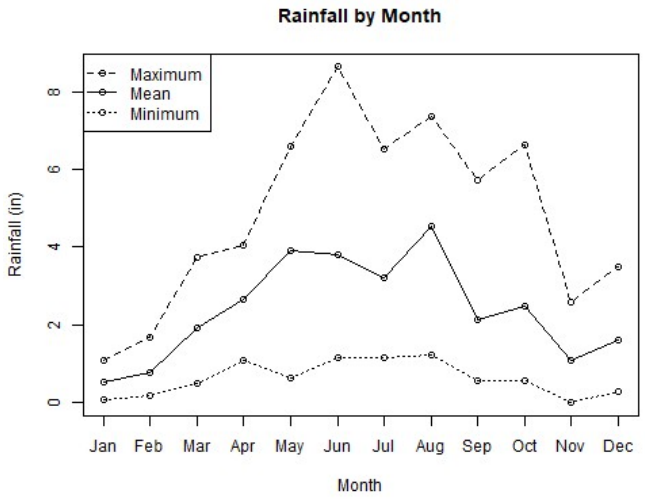
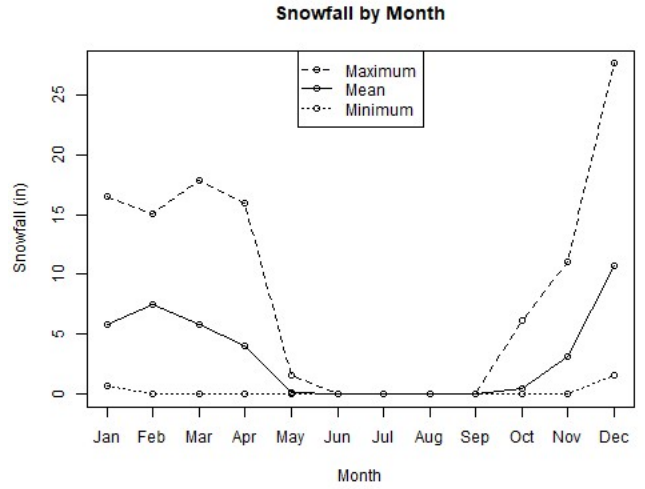


Figure F3~~Figure F3~~ averages the monthly snowfall observations from 2006 to 2024. Most snowfall occurs in December and January. Average annual snowfall for the same period of record (2006-2024) was 38.6 inches and ranged from 20.9 inches (2017) to 58.2 inches (2013).

Figure F3~~3~~. Monthly snowfall statistics at the National Weather Service station STILLWATER 2 SW (2006-2024)



The main findings of the precipitation trend analysis for this period are highlighted below. Overall, the results are consistent with the previous long-term analysis, though based on a shorter record. An extensive summary of climate and precipitation trends within the watershed is available in Appendix B.

- Rainfall amounts show a slight tendency to increase over time. Monthly patterns suggest that spring months (March-May) and late autumn (November) show the strongest signals of increasing rainfall.
- Some measures of maximum amounts of rainfall during 1-, 2-, 3- and 5-day wet periods (periods of consecutive wet days) also suggest a possible increase, though the evidence is not conclusive for the 2006–2024 period, especially considering the short length of record.
- Longer dry spells appear to have remained about the same over time, with no clear pattern of becoming longer or shorter.
- Both the total amount of snow and the deepest snow each year have remained fairly steady, with no clear long-term change.

1.2.3 Climate Change

In the foreseeable future, the approach to watershed management could shift because of climate change. As local monitoring data indicates, BCWD is already experiencing shifts in temperature and precipitation. Washington County identifies climate hazards including winter storms, tornadoes, and wildfire as high and medium priorities primarily due to the destructive potential of these hazards and their implications on recovery[5]. Winter storms and wildfire hazards are closely tied to temperature and precipitation trends, while there is inconclusive evidence on the impact of climate change to the formation of tornadoes. Hazards such as flooding, extreme heat, and drought are directly connected to climate changes related to Brown's Creek's water resources.

Climate modeling from the Minnesota Climate Adaptation Partnership (MCAP) utilizes dynamically downscaled data from the Climate Intercomparison Project 6 (CMIP6) to provide high resolution data (2.5-mile spatial scale) to simulate climate change at regional or city scales. This process helps produce more localized, relevant, and usable data for anticipating future climate scenarios and undertaking adaptation planning. Late century (2060-2079) projections under the intermediate emissions scenario (SSP 245) and very high emissions scenario (SSP 585) provide a useful window of the range of changes anticipated in Washington County. These changes include[6]:

- Increased annual precipitation with seasonal variation resulting in more precipitation in the Spring and Fall seasons, and less precipitation in the summer season.
- More days per year where daily precipitation exceeds one inch and two inches (representing major precipitation events).
- Fewer days annually below 32°F and overall warmer winter temperatures, fewer days of snow cover, and warmer lake bottom temperatures.
- More consecutive days of less than 0.01 inches of precipitation.
- More days exceeding 90°F.

While Appendix B summarizes the projected changes to Washington County's precipitation and temperature due to climate change, this trend of increased extreme rainfall events is expected to continue and is exceeding climate model projections. Evidence suggests precipitation may be twice as sensitive to warming as is reflected by models. Climate scientists do not anticipate a significant reduction in the uncertainty of long-term climate projections[5].

1.3 Geology and Topographic Data

The topography of the Brown's Creek watershed was formed by glacial and post-glacial processes. The significant geomorphologic formations in the watershed are Brown's Creek and the St. Croix Moraine, which is characterized by glacial moraine and glacial lake deposits. Brown's Creek gently meanders through the northern and middle portions of the watershed. Within its lower reach, Brown's Creek descends over 200 feet through what can be characterized as a narrow rock gorge. Bedrock is often exposed along the lower gorge portion of the creek. Geomorphologic and topographic data, including LiDAR and topographic maps, can be obtained from the Minnesota Department of Natural Resources and Minnesota Geospatial Commons. Additional sources include maps released by the Minnesota Geologic Survey[7] and the Washington County Geologic Atlas[8].

The entire watershed was covered by glacial sediments, termed ~~quaternary~~ Quaternary deposits, which range from zero to 150 feet in thickness and consist of unsorted sediment including boulders, gravel, clay, sand and silt. As a result, depth to bedrock throughout the watershed ranges from approximately zero feet to 150 feet[8]. The Northern Washington County Groundwater Study[9], drillers' logs available through the Minnesota Well Index[10], and the Department of Transportation's Geotechnical log website contain technical information on the surficial depositional materials and hydrogeology[8].

Bedrock units in the Brown's Creek watershed are (from youngest to oldest):

- St. Peter Sandstone (this has been eroded away in most areas except the western part of the watershed district)
- Prairie du Chien Formation
- Jordan Sandstone
- St. Lawrence Formation
- Tunnel City Group/Wonewoc Formation, formerly known as the Franconia/Ironton/Galesville Formation
- Eau Claire Formation (Aquitard)
- Mt. Simon/Hinckley Formation

The watershed sits on the eastern edge of the "Twin Cities Basin," resulting in bedrock formations that dip slightly to the west. Erosion in the St. Croix Valley has removed some of the upper bedrock layers found in other parts of the basin. Consequently, the watershed is one of only a few areas in the Twin Cities where deeper bedrock formations such as the Tunnel City/Wonewoc are exposed at the ground surface. Additional GIS data for these geologic features and others, such as hydrogeologic assessment, aggregate resources, karst, and peat, are available through the Minnesota Geospatial Commons[4]. Similar data, including shapefiles for bedrock geology, surficial geology and aggregate resources, geophysics, and geochemistry, is available through the Minnesota Minerals Coordinating Committee[8].

1.4 Soils

Soils in the Brown's Creek watershed are typically characterized as unconsolidated glacial lake deposits of sand, gravel, clay, and silt. Soil data are available from the database for Washington County at SSURGO by the Natural Resources Conservation Service (NRCS)[11]. The hydrologic soil groups documented in the watershed are summarized in Table F2~~Table F2~~.

Table F2. Description and Distribution of Hydrologic Soil Groups in the BCWD

Hydrologic Soil Group	Description	Percent Distribution							
		BCWD	Grant	Hugo	Lake Elmo	May Township	Oak Park Heights	Stillwater	Stillwater Township
A	Soils having high infiltration rates when thoroughly wet (low runoff potential). Deep, well drained to excessively drained sand or gravelly sand.	21.1%	71.2%	8.4%	0.5%	5.4%	0.4%	10.3%	3.8%
B	Soils having a moderate infiltration rate when thoroughly wet. Moderately deep or deep, moderately well drained or well drained with moderate to moderately coarse texture.	28.1%	35.0%	10.7%	2.6%	12.7%	3.9%	24.4%	10.7%
C	Soils having a slow infiltration rate when thoroughly wet: soils have a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture.	24.3%	58.9%	14.4%	0.8%	8.3%	1.3%	13%	3.3%
D	Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.	<0.1%	0%	0%	0%	0%	0%	100%	0%
A/D	Soils having very slow rates of infiltration when thoroughly wet (high runoff potential): soils consist of clays with high shrink-swell potential; soils have a high permanent water table; soils that have a claypan or clay layer at or near the surface and soils that are shallow over nearly impervious material, mixed with soils of another hydrologic soil group.	4.2%	71.0%	3.2%	0%	1.6%	0%	12.7%	11.5%
B/D		10.4%	47.8%	14.2%	0.1%	19.7%	0.9%	14.4%	2.9%
C/D		4.3%	31.7%	10.7%	4.2%	29.5%	1.4%	9.5%	13.0%
N/A	Areas without enough information.	7.5%	35.3%	17.2%	1%	12.7%	0.5%	32.7%	0.6%

Source: Soil Survey of Ramsey and Washington Counties, 1977

1.5 Land Cover

Land cover plays a major role in determining what happens to precipitation when it hits the landscape. Vegetation intercepts precipitation, slows the rate at which it travels, and returns moisture to the atmosphere via transpiration. Water use by different types of vegetation varies significantly. Trees and native grasses, with their extensive root systems, allow more water to soak into the soil, resulting in less runoff than pastures or lawns, which have very shallow roots. Impervious surfaces significantly increase the volume of water that runs off the landscape and the rate at which this water enters downstream waterbodies.

The Minnesota Land Cover Classification System (MLCCS)[12] is a tool that provides valuable information for natural resource managers and planners as it categorizes the landscape in terms of its land cover. Between 2024 and 2025, BCWD updated it hydrologic and hydraulic model using TCMA 1-meter land cover data (2015) but has historically used MLCCS land cover data. This information has been used to conduct natural resource inventories and to define input parameters for the district's hydrologic and hydraulic models. The percentage breakdown of land cover within the watershed is shown in Figure F4~~Figure F4~~[12] and Figure F5~~Figure F5~~[13]. Prominent land covers present in the TCMA dataset for the watershed include Grass/Shrub (29.98%) and Deciduous Tree Canopy (29.58%). Impervious surfaces account for a total of 9.48% of the watershed with most of the development located in the southeast portion of the watershed.

Major changes in land cover since the previous plan include:

- Increase in areas with imperviousness greater than 10% from 13 to 23 percent of the watershed.
- Decrease in wetland area from 16 to 12 percent of the watershed.

Figure F~~4~~4. Land Cover Types in BCWD Based on the 2024 MLCCS

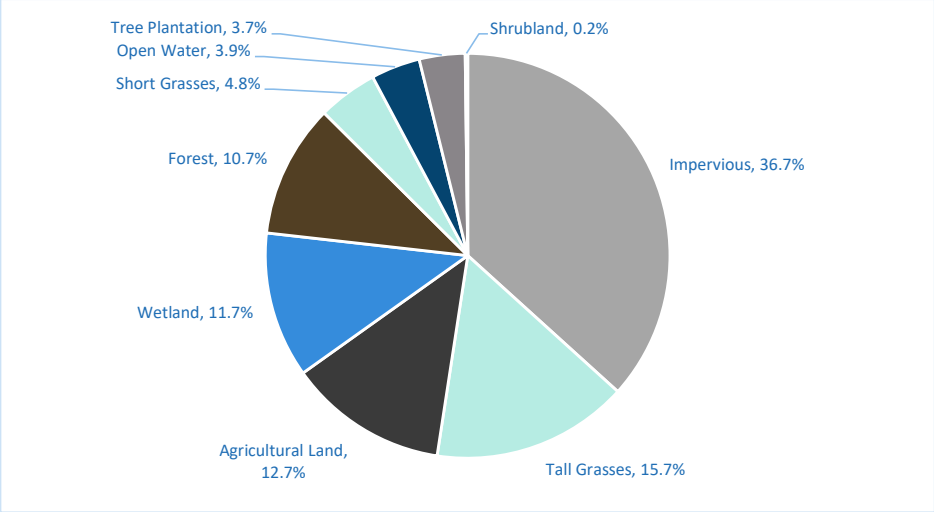
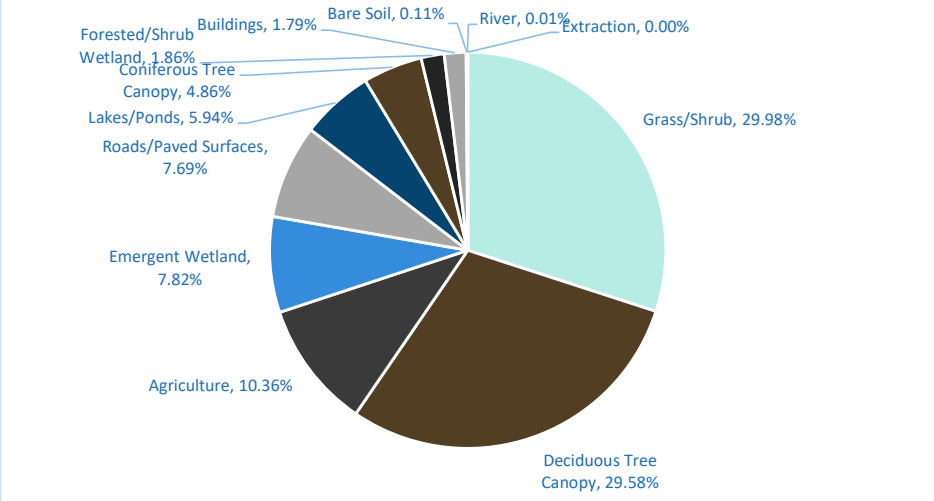


Figure F5. Land Cover Types in BCWD Based on the 2015 TCMA.



1.6 Unique Features and Scenic Areas

The Brown's Creek watershed contains unique features and scenic areas which contribute to the overall quality of life within the watershed. Due to its location within an area of historic settlements and diverse ecosystems, there are unique historic and natural areas within the district, as summarized in Table F3~~Table F3~~. Additional data for unique features and scenic areas include Scientific and Natural Areas (SNAs), Natural Area Registry, Wild and Scenic Rivers, Minnesota Biological Survey (MBS) Sites of Biodiversity Significance, all of which is available through the Minnesota Geospatial Commons[4].

Table F3. Summary of Unique Features and Scenic Areas Located in the Brown's Creek Watershed

Feature	Description
12 Minnesota Biological Survey Sites of Biodiversity Significance	Minnesota Biological Survey ranks each site of biodiversity significance. One site was ranked as "high", three as "moderate", and eight as "below", which indicates areas of conservation value at the local level.
Brown's Creek	Minnesota Department of Natural Resources designated trout stream, Washington County Priority Conservation Area, and State Aquatic Management Area.
Brown's Creek Nature Preserve	Included within the Brown's Creek State Trail, the preserve is adjacent to approximately two miles of Brown's Creek and includes historical markers and educational signage.
Brown's Creek State Trail	5.9-mile multiple-use paved trail connecting to local parks and trails.
City of Stillwater	On the National Registry of Historic Places and is known as the birthplace of Minnesota.
City of Stillwater Trails	Paved, multi-use trails along Boutwell and McKusick roads that parallel lake and wetland habitats.
Gateway State Trail	18.3-mile multiple-use paved trail as part of the Rail-to-Trail Program.
Locations of Indigenous Cultural Significance	The St. Croix watershed is the traditional territory of the Ojibwe and Dakota nations. The watershed may contain archaeological records and culturally significant places associated with the past and present connection to the area's land and waters as a source of shelter, spirituality, food, community, and more.

Feature	Description
Lower Gorge	Portion of Brown's Creek characterized by steep side slopes and valuable trout habitat.
Old Stone Bridge	A historic roadway bridge on the National Registry of Historic Places is located on private property and can be viewed from the Brown's Creek State Trail.
St. Croix River	Wild and Scenic Waterway administered by the National Park Service.
Tripoli clay	A poorly drained loamy clay that was mined commercially for polish sometimes used by dentists; most notably by Minnesota Tripoli Co., established 1866.
Washington County Trails	Paved, multi-use trails along CR 12 and CR 55 that connect with the Gateway and Brown's Creek State Trail systems.

2 Hydrologic System

2.1 Surface Water Resources

The Brown's Creek watershed contains valuable water resources including streams, lakes, ponds, and wetlands. The distinction between them is somewhat arbitrary as is seen in the narrative that follows. Refer to Figure F10~~Figure F10~~ (at the end of the Land and Water Resource Inventory) for the surface water resources of the Brown's Creek watershed. The length of Brown's Creek and its tributaries are as follows:

- Brown's Creek is 0.95 miles long.
- Long Lake Tributary is 0.13 miles long, slightly less than the distance to walk across the Stillwater Lift Bridge.
- South Central Tributary is 0.17 miles long, slightly less than the distance to walk across the Stillwater Lift Bridge.
- Zephyr Tributary is 0.04 miles long.

2.1.1 Streams

The primary resource of the watershed is its namesake Brown's Creek, a Minnesota Department of Natural Resources designated trout stream. While many are familiar with the steep gradients of the lower reaches of Brown's Creek, the resources are quite diverse. There are several distinct reaches of the stream that extend from its mouth at the St. Croix River upstream to the headwaters region. The reaches of Brown's Creek have been grouped by their character and functional assessment into two main sections; the main branch and the north branch. Refer to Figure F11~~Figure F11~~ and Figure F12~~Figure F12~~ (at the end of the Land and Water Resource Inventory) for the reaches of Brown's Creek and its tributaries.

2.1.1.1 North Branch Brown's Creek

The north branch of Brown's Creek consists of eight distinct reaches. The reaches are defined by changes in geomorphology or segmentation of the creek by road crossings. The north branch begins with two reaches above 110th Street. Reach one generally runs through the center of a shrub carr/emergent wetland, which is an area of groundwater discharge. Reach two runs through a dense, disturbed lowland hardwood forest and appears to be degraded, displaying moderate erosion. The specific path of the creek in this reach appears to be continually changing in response to changes within the wetland. There is evidence of past ditching within the wetland. Two tributary reaches from Goggins Lake (Goggins tributary reaches one and two) drain to north branch reach one. Goggins tributary reach two is similar in nature to north branch reach one. The Goggins tributary reach one runs through a relatively steep wooded ravine and has intermittent flow. BCWD built three infiltration basins at the outlet of Goggins Lake to alleviate local flooding issues, promote groundwater recharge, and decrease water temperatures in the north branch of Brown's Creek as part of the Trout Habitat Preservation

Project (THPP). In 2006, an infiltration trench was added to increase recharge rates. These THPP projects created partially landlocked areas that are hydrologically connected only during large precipitation events.

Downstream of 110th Street, the north branch starts as a moderate-gradient stream, flowing for about one-quarter mile through a narrow floodplain of shrub swamp and mixed hardwood swamp (reach three). The north branch then enters a large emergent marsh wetland complex where it crosses the Gateway Trail (reach four). Downstream from the Gateway Trail, Brown's Creek reenters a mixed hardwood-tamarack swamp (reaches five and six). It then flows for approximately one mile before crossing Manning Avenue (reach seven). Downstream of Manning Avenue (Manning reach of the north branch), the creek flows through a ditched wetland where it joins the Mendel Road tributary. This tributary provides the outlet for the large wetland complex to the north, along the east side of Manning Avenue. Both the Manning reach of the north branch and the Mendel Road tributary flow through ditches that were excavated through the Mendel wetland complex in the early 1900s.

2.1.1.2 Main Branch Brown's Creek

The main branch of Brown's Creek flows through a deep valley where the creek channel has cut into the Tunnel City Group bedrock formation. It is within these reaches that cold groundwater discharge provides a major component of the baseflow to Brown's Creek, thus providing one of the key elements necessary to support a cold-water fishery. The main branch has been subdivided into twelve distinct reaches extending from Highway 96 near Manning Avenue east to the St. Croix River. The McKusick reach runs from Highway 96 to the intersection of McKusick Road, where it winds through sedge meadow and shrub carr wetlands. Downstream of the McKusick Reach, the Minnesota Department of Natural Resources' reach nine runs from McKusick Road to Neal Avenue. Below Neal Avenue, the main branch is divided into the Neal Avenue reach and the golf course realignment reach. This reach was realigned by the Minnesota Department of Natural Resources in 1999 to replace a reach of the creek running through the Lake McKusick wetland. The purpose of the realignment was to improve fisheries habitat and reduce thermal pollution. Below the golf course realignment reach, the main branch is divided into seven reaches (Minnesota Department of Natural Resources reaches one through seven). This portion of Brown's Creek is bordered by steeply sloped hardwood forests and is impaired for aquatic life due to lack of cold-water assemblage and high turbidity and is impaired for aquatic recreation due to elevated levels of *E. coli*.

2.1.1.3 Brown's Creek Tributaries

In addition to the tributaries described above, there are several small tributaries in the southern portion of the watershed, including four reaches of the Long Lake tributary, two reaches of the south central tributary, and the Zephyr tributary. Long Lake tributary reach one flows from Highway 12 to Boutwell Road, and reach two flows from Boutwell Road to the confluence with the south central and Zephyr tributaries. The Zephyr tributary flows in from the west and has the least amount of discharge.

The south central tributary runs from the intersection of Manning Avenue and County Road 12 towards the northeast. South central tributary reach one is a very small tributary that winds through a wetland that stretches from County Road 12 to Boutwell Road. Reach two begins downstream of Boutwell Road and flows to the confluence with the Long Lake and Zephyr tributaries. At this point, the south central and Zephyr tributaries combine with Long Lake tributary reaches three and four and flow downstream to the Lake McKusick diversion structure located at the former railroad bed (City of Stillwater Trout Stream Mitigation Project – TSMP). Additional information about the TSMP can be found in section 2.4 Stormwater System.

Additional information about the specific reaches of Brown's Creek can be found in the BCWD Natural Resource Inventory Report[14]. A summary of the Rosgen assessment and information on fisheries can be found in the Brown's Creek Stream Classification Geomorphic Survey and Analysis[15]. More current information can be found in the routine visual (drone flight) stream assessments[16,17] and the geomorphic stream survey conducted at historic locations to monitor channel change over time[18].

2.1.1.4 Stream and Tributary Water Quality

The main water quality concerns for Brown's Creek and its tributaries are total suspended solids (TSS), total phosphorus (TP), thermal loads, and *E. coli* bacteria. The Brown's Creek and Long Lake Trend Analysis (2020) reviewed these water quality parameters and showed that concentrations of these pollutants exceeded standards for each reach during the time period for which each standard applies (e.g., Class 2A or Class 2B standards). Total suspended solids concentrations were above the regional water quality standard (10 mg/L for Class 2A stream reaches, 30 mg/L for Class 2B) in 27% to 79% of water quality samples taken at various sampling stations along the creek; total phosphorus concentrations were above the water quality standard (0.1 mg/L) in 19% to 59% of the samples; and *E. coli* concentrations were above the water quality standard (126 org/100 mL) in 60% to 90% of the samples. Temperatures exceeded the daily maximum critical temperature for trout (23.9C) two to 38 times a year from 2007 through 2014. Temperatures also exceeded the daily mean critical temperature for trout (23.9C) three to five times in 2011 and 2012.

While water quality is a concern and BCWD is working to address the load reduction targets assigned in the TMDL Implementation Plan, it's important to remember that the creek is impaired for aquatic recreation and aquatic life due to low levels of dissolved oxygen, lack of a cold-water fish assemblage, and high levels of *E. coli* (*Escherichia coli*) bacteria. Data from BCWD's macroinvertebrate sampling program (2015-2024) indicates an overall improving trend in stream health and macroinvertebrate community quality. section 3 Biological Environment describes the trends in macroinvertebrate community quality by region.

The Washington Conservation District has collected water quality samples at the diversion structure since 2006 to measure pollutant loads to Lake McKusick. In addition to characterizing nutrient loads, this sampling identified the episodic presence of heavy metals. In 2025, BCWD conducted a water quality analysis of the data collected in the drainage area to the diversion structure. This analysis found that both the phosphorus and heavy metals are associated with particulate sources, and that concentrations have decreased from 2020-2024 because of the work done to address erosion within the drainage area. The metals, which are concentrated in the Zephyr tributary drainage area and Long Lake tributary reach four area, are likely due to contamination from the historic railroad[19].

2.1.2 Lakes, Ponds, and Wetlands

In addition to Brown's Creek and its tributaries, the watershed includes lakes, large ponds, and wetlands.

2.1.2.1 Lakes

The most prominent lakes in the watershed are Long Lake in Stillwater, Lake Masterman in Grant, and North and South School Section Lakes in Hugo. Lesser-known lakes include Bass Lake East and West, Benz Lake, Goggins Lake, Kismet Basin, Lynch Lake, Pat Lake, and Plaisted Lake. Table F4~~Table F4~~ includes a summary of the physical characteristics of the lakes in the watershed.

Many of BCWD's lakes, ponds, and wetlands are included in the Minnesota Department of Natural Resources' Public Waters Inventory (PWI). These resources include public waters, which are all water basins and watercourses that meet the criteria set forth in Minnesota Statutes, Section 103G.005, subd. 15 that are identified on PWI maps authorized by Minnesota Statutes, Section 103G.201. These

are what would typically be considered "lakes." In BCWD, the following water bodies are identified as public waters in the PWI: Long Lake, South School Section Lake, Lynch Lake, and North School Section Lake. There are also several large ponds and open water wetlands that provide many of the same recreational and aesthetic benefits as lakes, and in many cases are locally referred to and managed as lakes. These resources include Lake Masterman, Bass Lake East and Bass Lake West, Benz Lake, Goggins Lake, Kismet Basin, Pat Lake, and Plaisted Lake.

2.1.2.2 Ponds

The ponds and open water wetlands that provide recreational and aesthetic benefits and are also locally referred to and managed as lakes include Brewers Pond, Heifort Pond, July Avenue Pond, and Sinnets Pond (formerly the Jackson WMA). Table F6~~Table F6~~ includes a summary of the physical characteristics of these natural ponds and open water wetlands. In addition to these resources, there are 21 other named and unnamed ponds and open water wetlands in the watershed (see Figure F13~~Figure F13~~).

2.1.2.3 Aquatic Vegetation Management

BCWD has conducted point-intercept aquatic plant surveys on several of its lakes and ponds. This method is considered the standard protocol by Minnesota Department of Natural Resources for sampling macrophytes because it offers a methodology that is quantitative (e.g., frequency of occurrence), repeatable (can be used to track trends in aquatic plant communities over time), and georeferenced (can be used to compare plant communities within different areas of a lake). From this data, a Floristic Quality Index (FQI) is calculated to measure the diversity and health of the aquatic plant community. The FQI calculation is based on both the quantity of species observed (species richness) and the quality of each individual species. Every aquatic plant in Minnesota has been assigned a coefficient of conservatism value (c-value) ranging from zero to 10. The c-value of all aquatic plants sampled from a lake is used to determine the FQI for a given lake. Species with a c-value of zero include non-native species such as curly-leaf pondweed (*Potamogeton crispus*) that are indicative of a highly disturbed environment. In comparison, the native species Oakes pondweed (*Potamogeton oakesainus*) has a c-value of 10.

Recent aquatic plant surveys have resulted in the discovery of snailseed pondweed (*Potamogeton bicupulatus*), a state-listed endangered aquatic plant, in at least two waterbodies. Including BCWD waters, snailseed pondweed has only been documented at 16 sites out of over 2,000 surveyed by the Department of Natural Resources in the entire state. Out of these 16 sites, BCWD lakes represent the southernmost populations of snailseed pondweed in Minnesota. In addition to snailseed pondweed, point-intercept surveys and wetland surveys have documented additional rare and unique aquatic plant species in small lakes and ponds. These include county records of slender naiad (*Najas gracillima;* state-listed special concern), Vasey's pondweed (*Potamogeton vaseyii*; former state-listed special concern) and forked stonewort (*Nitella furcata)* along with regional rarities such as spiny coontail (*Ceratophyllum echinatum;* state-listed watch list) and spiral pondweed (*Potamogeton spirillus*). These species share the common trait of affinity for lakes and ponds with soft water chemistry (low alkalinity), and the Brown's Creek Watershed represents the southern range extent for most of these plants. Additional lakes and ponds within the watershed likely support these species, but the drivers of their habitat are not well understood. It appears there may be unique geology and/or water chemistry that can support these species within the watershed. The presence of these rare and uncommon species is a testament to the biodiversity value of district waters, but further knowledge of their distribution within the watershed and suitable environmental conditions is necessary to best preserve and protect these unique species for the future.

2.1.2.4 Lake Water Quality

Overall lake water quality in the Brown's Creek watershed appears relatively stable. According to the Lake Water Quality Summary provided in the 2024 Baseline Monitoring Report, the lake grades have remained within certain grade ranges over the last 10 years (e.g., A and B, C and D, or D and F), as follows. Further description of lake water quality can be found in section 2.3 Impairments and TMDL.

- Five of the lakes' water quality grades have remained consistently within the A-B range, indicating sustained high water quality [Bass Lake East, Bass Lake West, Lake Masterman, Plaisted Lake, and Wood Pile Lake]
- Seven of the lakes' water quality grades have remained within the B-C range, suggesting moderate but stable conditions [Benz Lake, Sinnets Pond, Kismet Basin, Long Lake, North School Section Lake, Pat Lake, and South School Section Lake]
- Six of the lakes' water quality grades have stayed within the C-D or the D-F range, reflecting persistently poor water quality without significant change [Brewer's Pond, Goggins Lake, Heifort Pond, July Avenue Pond, Lynch Lake South, and Lynch Lake North]

2.1.2.5 Lake Management Plans

BCWD has developed management plans for all its lakes and ponds (see Table F5~~Table F5~~ and

Table F7~~Table F7~~). Each plan included an assessment of the lake and its watershed and a stakeholder engagement process that included a series of meetings with lakeshore residents. Residents were educated on lake and watershed management issues, were asked to provide first-hand observations related to the condition of their lake, and helped define future lake management objectives.

In the 2017-2026 Watershed Management Plan, the district adopted a strategy to develop management plans for large ponds and wetlands that residents' value and, in some cases, utilize as lakes. Given the size of the resources, public access, and the number of landowners using these resources, these management plans are a scaled-down version of a typical lake management plan and focus on reducing watershed nutrient loading and internal phosphorous loading.

Most recently, the district identified the need to re-engage with residents living on previously evaluated lakes. Some of the residents involved in the original planning efforts are no longer living on the lakes, and new residents have moved in. District staff have noted that the new residents have not been educated on shallow lake dynamics and have expressed concerns about the abundance of aquatic plants within the lakes. Many of the lakes that had been previously assessed were revisited to provide outreach and updated lake assessment data. In addition, the district has updated their approach to developing lake management plans to include a flood risk assessment element (see Table F13~~Table F13~~).

2.1.2.6 Wetlands

The watershed is also home to numerous small wetland basins. The PWI also includes public waters wetlands, which include all type 3, type 4, and type 5 wetlands (as defined in U.S. Fish and Wildlife Service Circular No. 39, 1971 edition) that are 10 acres or more in size in unincorporated areas or 2.5 acres or more in size in incorporated areas. These are wetlands that would typically be referred to as large ponds. Refer to Appendix A of the plan for a complete listing of the district resources that are included in the PWI. These resources are also shown in Figure F13~~Figure F13~~ (at the end of the Land and Water Resource Inventory).

Beyond the PWI wetlands, there are 619 smaller wetlands throughout the watershed mapped by the National Wetland Inventory (NWI). These include 293 wetlands >1 acre, and 326 wetlands < 1 acre. Many large wetland complexes comprised of several wetland types and likely do not include smaller, seasonally flooded/saturated wetlands undocumented by the NWI. To document the wetland resources within the watershed, the district conducted a wetland inventory and assessment in 1998 with an update in 2005 and 2024 (see Figure F14~~Figure F14~~ through Figure F17~~Figure F17~~ at the end of the Land and Water Resource Inventory). Each of these inventories are described below:

- The wetland function and value assessment conducted in 1998 was based on the Minnesota Routine Assessment Method (MnRAM) for evaluating wetland functions - Version 2.0 developed by the Minnesota Interagency Wetlands Group. Wetland communities greater than 2.5 acres were selected for inclusion in the function and value assessment portion of the inventory. All wetlands below 2.5 acres were included within the inventory, but a function and value assessment was not performed. The methodology used assessed nine functions or values of wetland communities including vegetative diversity and integrity, maintenance of characteristic hydrologic regime, flood and stormwater storage/attenuation, water quality protection, shoreline protection, ground-water interaction, wildlife habitat: maintenance of characteristic animal communities, fishery habitat, and aesthetics/recreation/education/cultural and science.
- For the 2005 inventory, all wetlands within the watershed regardless of their size were inventoried using aerial photography and existing wetland databases and inventories (including NWI). The wetlands were mapped and field verified as needed. In addition to the mapping, a

function and value assessment (FVA) was conducted on all wetlands over one acre in size. The FVA evaluated the general conditions of wetlands in terms of the functions they serve on the landscape and the value they provide. The information from the FVA was used to develop a management classification system which is used in the district's regulatory program.

- In 2024, an update to the FVA was conducted using the Board of Water and Soil Resources' and Wisconsin Department of Natural Resources' draft Wisconsin-Minnesota Rapid Assessment Method (RAM). The use of this tool provided additional function and value categories through which wetland areas could be refined. Twelve wetlands were assessed using the RAM protocol and then extrapolated across the watershed to update the management classifications of all wetlands greater than one acre in size within the watershed according to existing district rules (See Figure F14~~Figure F14~~ through Figure F17~~Figure F17~~).

Table F4. Physical Characteristics of BCWD Lakes and Ponds

Waterbody	PWI #	PWI Classification	Lake/Pond Size [Acres]	Maximum Depth [feet]	% Littoral Area	Eutrophication Status	Aquatic Invasive Plant Presence
Bass Lake East	82-0124-00	Wetland	29	18	99	Mesotrophic	Unknown
Bass Lake West	82-0123-00	Wetland	72	15	100	NA	None
Benz Lake	82-0120-00	Wetland	36	7	100	Hypereutrophic	CLP
Goggins Lake	82-0077-00	Wetland	54	15	100%	NA	CLP, EWM
Kismet Western & Eastern Basins	82-0333-00 & 82-0334-00	Wetland	70	11	100%	Eutrophic	Unknown
Long Lake	82-0021-00	Water	110	21	0.95	NA	EWM
Lynch Lake North	82-0042-00	Water	14	6	100	Hypereutrophic	Unknown
Lynch Lake South	82-0042-00	Water	32	16	100	Hypereutrophic	Unknown
Lake Masterman	82-0126-00	Wetland	40	7	100	NA	EWM
North School Section Lake	82-0149-00	Water	72	12	100%	NA	Unknown
Pat Lake	82-0125-00	Wetland	20	16	99%	Eutrophic	CLP
Plaisted Lake	82-0148-00	Wetland	41	11	100	Bordering on Hypereutrophic	CLP, EWM
South School Section Lake	82-0151-00	Water	109	12	50	NA	CLP, EWM
Wood Pile Lake	82-0132-00	Wetland	15	27	8	Mesotrophic	CLP

Table F5. BCWD Lakes and Ponds Management Summary

Waterbody	DNR Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use	BCWD Monitored	Meets Standard	3-year Average WQ Grade (22-24)	Watershed Load Reduction Target (lbs/year)	Internal Load Reduction Target (lbs/year)
Bass Lake East	NA	2022 Bass East & West Management Plan	Y	Shallow	FS	Y	Meets	B+	NA	NA
Bass Lake West	NA	2022 Bass East & West Management Plan	Y	Shallow	FS	Y	Meets	B+	NA	NA

Waterbody	DNR Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use	BCWD Monitored	Meets Standard	3-year Average WQ Grade (22-24)	Watershed Load Reduction Target (lbs/year)	Internal Load Reduction Target (lbs/year)
Benz Lake	Natural Environment	2009 Benz Lake Management Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	B-	NA	NA
Goggins Lake	NA	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	N	NA	NA	Y	Greatly exceeds	C+	55.1	37
Kismet Western & Eastern Basins	NA	2024 District-Wide Pond Management Plan	Y Y		Nutrient Impairment			B+	NA	NA
Long Lake	Recreational Development	2006 Long Lake Management Plan 2024 Assessment Update	Y	Shallow	FS	Y	Meets	B+	157	NA
Lynch Lake North	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	FS	Y	Meets	D	5.5	108.4
Lynch Lake South	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	C+	3.5	172.1
Lake Masterman	Natural Environment	2010 Masterman Lake Management Plan 2024 Assessment Update	N	NA	NA	Y	Greatly exceeds Nutrient Impairment	B+	NA	NA
North School Section Lake	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	N	Shallow	FS	Y	Meets	B+	15.1	4.9

Waterbody	DNR Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use	BCWD Monitored	Meets Standard	3-year Average WQ Grade (22-24)	Watershed Load Reduction Target (lbs/year)	Internal Load Reduction Target (lbs/year)
Pat Lake	NA	2024 District-Wide Pond Management Plan	Y	Shallow	NS	Y	Exceeds Chloride & Nutrient Impairment	B	NA	NA
Plaisted Lake	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	B+	18.7	0
South School Section Lake	Natural Environment	2015 Northern Chain of Lakes Watershed Restoration & Protection Plan 2024 Assessment Update	Y	Shallow	NS	Y	Greatly exceeds Nutrient Impairment	B-	10.6	22.3
Wood Pile Lake	NA	2011 Woodpile Lake Management Plan 2024 Assessment Update	Y	Shallow	FS	Y	Meets	A	NA	NA

Table F6. Physical Characteristics of BCWD Natural Ponds and Open Water Wetlands*

Waterbody	PWI #	PWI Classification	Lake/Pond Size [Acres]	Maximum Depth [feet]	% Littoral Area	Eutrophication Status	Aquatic Invasive Plant Survey
Brewers Pond	82-0022-00	Wetland	9	15	100%	Eutrophic	None
Heifort Pond	82-0485-00	Wetland	6	8	100%	Hypereutrophic	None
July Ave Pond	82-0318-00	Wetland	12	9	100%	Hypereutrophic	None
Sinnits Pond (Jackson WMA)	82-0305-00	Wetland	14	7	100%	Eutrophic	EWM

***This table includes information for the natural ponds and open water wetlands that are being monitored for water levels only.**

Table F7. BCWD Natural Ponds and Open Water Wetlands Management Summary*

Waterbody	DNR Shoreland Management Classification	BCWD Lake Management Plan	MPCA Assessed	Applicable WQ Standard	Aquatic Recreation Use	BCWD Monitored	Meets Standard	3-year Average WQ Grade	Watershed Load Reduction Target	Internal Load Reduction Target	Aquatic Plant Management
Brewers Pond	NA	2024 District-Wide Pond Management. Plan	N	NA	NA	N	Not Assessed	D+	NA	NA	
Heifort Pond	NA	2024 District-Wide Pond Management. Plan	N	Shallow	NA	Y	Greatly exceeds	D	NA	NA	
July Ave Pond	NA	2024 District-Wide Pond Management. Plan	N	Shallow	NA	Y	Nearly meets	D	NA	NA	
Sinnits Pond (Jackson WMA)	NA	2024 District-Wide Pond Management. Plan	Y	Shallow	FS	Y	Nearly meets	B	NA	NA	

* **This table includes information for the natural ponds and open water wetlands that are being monitored for water levels only.**

~~IMAGE~~

Table F8. Critical Event Analysis for Lakes and Ponds assessed in 2024 District-Wide Pond Management Plan

Waterbody	PWI #	Critical Event	HWL [feet]	Buildings (#)		Wells (#)		Septic Systems (#)		Roads/Driveways (LF/Depth)
				HWL Footprint	w/in 15 ft	HWL Footprint	w/in 15 ft	HWL Footprint	w/in 15 ft	HWL Footprint
Bass Lake East	82-0124-00	10-day Snowmelt	963.7	0	1	0	0	0	0	90/1.0
Benz Lake	82-0120-00	100-year 24-hour	956.51	0	0	1	1	0	0	0
Long Lake	82-0021-00	100-year 24-hour	895.1	5	8	0	0	0	0	380/1.3
Lynch Lake North	82-0042-00	100-year 24-hour	1008.65	1	1	0	0	0	0	0
Lynch Lake South	82-0042-00	100-year 24-hour	1008.65	0	0	0	1	0	0	0
Lake Masterman	82-0126-00	100-year 24-hour	965.4	0	0	0	0	0	0	225/1.6
Plaisted Lake	82-0148-00	10-day Snowmelt	974.5	0	1	0	0	0	0	2780/2.8
Wood Pile Lake	82-0132-00	100-year 24-hour	972.5	2	3	0	0	1	2	1450/2.5
South School Section Lake	82-0151-00	10-day Snowmelt	974.5	0	0	0	0	0	0	1070/1.4
North School Section Lake	82-0149-00	10-day Snowmelt	974.5	0	0	0	0	0	0	0
Bass Lake West	82-0123-00	10-day Snowmelt	957	0	957	0	0	0	0	0
Goggins Lake	82-0077-00	10-day Snowmelt	974.5	0	0	3	5	0	0	1070/1.4
Kismet Western & Eastern Basins	82-0333-00 82-0334-00	100-year 24-hour	946.81	3	4	1	1	0	0	280/0.3
Pat Lake	82-0125-00	10-day Snowmelt	948.61	0	0	0	0	0	0	0
Sinnits Pond (Jackson WMA)	82-0305-00	100-year 24-hour	894.94	0	0	0	0	0	0	0
July Ave Pond	82-0318-00	10-day Snowmelt	980.66	3	4	0	0	0	0	490/2.2
Heifort Pond	82-0485-00	100-year 24-hour	887.62	1	1	0	0	0	0	0
Brewers Pond	82-0022-00	100-year 24-hour	894.1	1	1	0	0	0	0	0

2.2 Landlocked Basins

BCWD defines a landlocked basin as a basin or localized depression that does not have a natural outlet at or below the water elevation of the 10-day precipitation event with a 100-year return frequency. Approximately 71 percent of the watershed flows overland to the St. Croix River. The remaining 29 percent of the watershed is composed of landlocked and semi-landlocked basins producing no regular overland flow. Of the landlocked areas, 66 percent of this area is located along the western border of the watershed, 16 percent is located in the central portion of the watershed, 12 percent is located in the northern portion of the watershed and 6 percent is located in the lower portion of the watershed (see Figure F18~~Figure F18~~ at the end of the Land and Water Resource Inventory).

Landlocked basins can only lose water through evaporation, transpiration, and infiltration. As a result, landlocked basins are a special concern because conditions such as alterations in land use or a changing climate can result in drastic and lasting alterations to water surface elevations. As water tables rise during periods of above-average precipitation, seepage out of landlocked basins cannot compensate for the increase in volume, and structures and property below the natural outlet elevation may be at risk of flooding. Continuous seepage from landlocked basins plays an important role in the hydrologic cycle by providing groundwater recharge. While outlets could be provided to address issues related to high water levels, they may result in impacts to the downstream hydrological conditions of the system (e.g., flooding on downstream waterbodies as more water is transferred from one depression to the next, infrastructure capacity and drainage issues, and lower groundwater elevations).

A Landlocked Basin Study was first completed in 2006 to guide decisions on balancing flooding, property rights, and environmental considerations while maintaining natural hydrology[20]. That study used the 100-year, 10-day rainfall event (10.8 inches) to identify landlocked basins within the watershed. It determined that 28 subwatersheds were landlocked and led to the development of a policy for structures and outlets in these areas. The analysis was updated in 2015 using the district's revised H/H model[21]. This update applied the Atlas 14 depth of 9.83 inches along with the NRCS MSE3 rainfall distribution over 10 days. The results were generally consistent with the 2006 study, though additional LiDAR-based detail revealed that portions north of the gorge area should also be classified as landlocked. With these refinements, the total number of landlocked subwatersheds increased to 53. Subwatershed boundaries were also modified to reflect outcomes from lake management studies and permitted developments.

A new landlocked basin analysis was completed in 2024 using the most recent H/H model. The updated model produced results very similar to the 2015 analysis, with only minor boundary adjustments based on higher-resolution LiDAR data. In addition, catchment delineations were refined, resulting in 86 landlocked subwatersheds being identified in the updated model, covering a total area of 30%.

It is the policy of the district to minimize the connectivity of impervious surfaces to stormwater conveyance systems and preserve the natural hydrology of landlocked basins to minimize basin and downgradient flood risk. This policy is implemented through the application of BCWD's Stormwater and Floodplain and Drainage Alteration Rules. With this, the volume control rule 2.4.1 prohibits increases of runoff volume to landlocked basins for events up to the 5-year 24-hour rainfall. Similarly, the district's Floodplain and Drainage Alteration Rule require additional freeboard for buildings being constructed within a landlocked basin. Additional information regarding the district's landlocked basin policy is available in BCWD's Rules (Appendix E).

2.3 Impairments and TMDLs

2.3.1 Inventory of Impairments and TMDL Schedule

The watershed contains four stream reaches and six lakes that are included on the MPCA 2024 303d (Impaired Waters) list[22]. Both branches of Brown's Creek, the north branch (from 110th Street to Manning Avenue) and main branch (Highway 96 near Manning Avenue to the St. Croix River) are impaired for aquatic recreation and aquatic life due to low levels of dissolved oxygen, lack of a cold-water fish assemblage, and high levels of *E. coli* (*Escherichia coli*) bacteria. The north branch is also impaired due to a low score of the Minnesota Macroinvertebrate Index of Biological Integrity (M-IBI). The reach of the Long Lake tributary (-767) impaired for aquatic recreation stretches from 80th Street North/Boutwell Road to the diversion structure, and the reach of the Long Lake tributary (-765) impaired for aquatic life stretches from the ravine south of 62nd Street to Long Lake.

Table F9. Impaired Reaches of Brown's Creek as Identified on the MPCA 2024 Impaired Waters List.

Reach Name	Reach Description	Reach ID	Affected Use	Approved Plan	Needs Plan
Brown's Creek North Branch	T30 R21W S12, north line, to T30 R21W S13, east line	07030005-587	AQR, AQL	None	M-IBI, E. coli, LCWA, DO
Brown's Creek Main Branch	T30 R20W S18, west line to the St. Croix River	07030005-520	AQR, AQL	LCWA, T	E. coli, DO
Long Lake Tributary	T30 R20W S19, south line to underground diversion	07030005-767	AQR	None	E. coli
Long Lake Tributary	Unnamed cr to Long Lk (82-0021-00)	07030005-765	AQL	None	Chloride

[1] AQR-aquatic recreation; AQL = aquatic life
[2] T = turbidity; DO= dissolved oxygen; M-IBI = aquatic macroinvertebrate bioassessments; LCWA = lack of cold-water assemblage

Benz Lake, Long Lake, Lynch Lake, South School Section Lake, and Goggins Lake are all impaired for aquatic recreation due to high levels of nutrients. Long Lake is also impaired for aquatic life due to high chloride concentrations. According to the Brown's Creek and Long Lake 2020 Trend Analysis[23], Long Lake may be eligible for delisting as it is meeting the North Central Hardwoods Shallow Lake standard with total phosphorus and Secchi depth transparency meeting the standard. Chlorophyll-a concentrations remain above the water quality standard as does chloride concentrations.

In 2022, the Minnesota Department of Natural Resource removed Plaisted Lake's impairment for aquatic recreation due to high levels of nutrients.

Table F10. Impaired Lakes of Brown's Creek Watershed as Identified on the MPCA 2024 Impaired Waters List.

Lake Name	Lake ID	Water Quality Impairment	Approved Plan	Needs Plan
Benz	82-0120-00	AQR	None	Nutrients
Long	82-0021-00	AQR, AQL	None	Nutrients, Chloride
Lynch	82-0042-00	AQR	None	Nutrients
South School Section	82-0151-00	AQR	None	Nutrients
Unnamed (Goggins)	82-0077-00	AQR	None	Nutrients

2.3.2 Brown's Creek TMDL and Implementation Plan

In October 2010, BCWD completed the Brown's Creek Impaired Biota TMDL Report and Stressor Identification[24]. Through the stressor identification process, the primary stressors to the biota in the impaired reach of Brown's Creek were identified as high suspended solids, high temperatures, and high copper concentrations. The TMDL is based on total suspended solids, which also serves as the surrogate measure for the turbidity impairment, and thermal load, which addresses the temperature stressor. Due to uncertainties related to the reliability of the copper monitoring data, copper loading allocations were not developed. The TMDL report was approved by the Environmental Protection Agency (EPA) in December 2010.

In February 2012, BCWD completed the Brown's Creek TMDL Implementation Plan[25]. This document presents the implementation plan for the Brown's Creek Impaired Biota TMDL and is intended to assist member communities in meeting the goals for waste load allocations (WLAs) and load allocations (LAs). BCWD has been tracking progress towards meeting the goals established in the TMDL Implementation Plan by periodically checking in with member communities and maintaining a TSS accounting spreadsheet.

2.3.3 Lake St. Croix TMDL

Lake St. Croix, the lower 25 miles of the St. Croix Basin between Stillwater, MN and Prescott, WI, was designated as an impaired water body in 2008 for excess phosphorus. A TMDL for phosphorus in Lake St. Croix was developed through a collaborative effort among the Minnesota Pollution Control Agency (MPCA), the Wisconsin Department of Natural Resources (WDNR) and the Basin Team. The Lake St. Croix Nutrient TMDL underwent public notice, review and comment, and agency approval (approved by EPA in August 2012). The primary components of the TMDL were based on the results of past lake and nutrient loading studies. The entire report and supplemental reports are available at the MPCA TMDL website[26].

To meet the goals for Lake St. Croix and improve water quality throughout the watershed, communities and landowners in the St. Croix Basin need to reduce phosphorus in wastewater treatment facility discharges and stormwater runoff from urban, residential, agricultural, and forestry land. The Lake St. Croix Implementation Plan[15] recommends implementation activities to restore Lake St. Croix and its tributary streams from the impacts of excessive phosphorus loadings. This plan also calls for a baseline load reduction of 1,947 pounds of phosphorous for BCWD based on the area of the watershed and a baseline phosphorous export coefficient. This recommended load reduction has since been adjusted to reflect the nine years of BCWD monitoring data, which indicate that the actual phosphorous loading is less than half of the baseline estimate and excludes the landlocked (non-contributing) portion of the watershed. This revised phosphorous load reduction is 848 pounds per year. In addition to prioritizing local best management practice (BMP) retrofits, this plan emphasizes civic engagement and adaptive management as critical components to implementation.

2.3.4 Lake McKusick TMDL

The McKusick and Lily Lake Management Plan[27] was developed by the City of Stillwater and Brown's Creek Watershed District to provide a framework for the restoration and protection of Lily, Long, and McKusick Lakes. This plan is available on the City of Stillwater website. As a component of this project, water quality data from 1994 to 2006 were assessed for Lake McKusick, and a computer model on phosphorous loading was generated. The model identified areas prone to high phosphorous loading and future pollution reduction projects. During plan development, the city convened several meetings with government agencies and area residents to develop management objectives and implementation activities.

Lake McKusick has a surface area of 45 acres, an average depth of three feet, and a total drainage area of approximately 6,800 acres. Of this drainage area, 5,670 acres reside in the Brown's Creek Watershed and is comprised of the tributaries conveying flow to the Lake McKusick diversion structure (McKusick Direct – 30 acres, Zephyr tributary – 190 acres, Long Lake tributary – 2,290 acres, and southwest tributary – 3,160 acres). A significant portion of the western drainage area in the watershed is landlocked for the 100-year, 10-day rainfall event, and therefore does not contribute runoff to Lake McKusick. The remaining drainage comes from Lily Lake as well as that which is directly connected via storm sewer.

The McKusick and Lily Lake Management Plan stated that Lake McKusick had, in general, fairly good water clarity for an urban shallow lake. However, both total phosphorus and chlorophyll-a exceeded the state standards over the ten years before the plan was published. Water clarity was likely maintained by the presence of a relatively healthy aquatic vegetation and zooplankton community. Lake McKusick was listed on the 303(d) impaired waters list for nutrient concentration which inhibits aquatic recreation for Minnesota in 2006.

The McKusick and Lily Lake Management Plan establishes the load reductions needed to meet the state standard for total phosphorus. These load reductions are assigned to the various drainage areas contributing to the lakes. The load reduction assigned to BCWD comes from what the plan refers to as the "annexed areas" which is the drainage area to the diversion structure. This load reduction is 148 lbs. of total phosphorus. The management activities listed in the plan are a set of capital projects and ongoing maintenance and operations activities slated to achieve the management goals. Some of the activities are scheduled to be completed by the City of Stillwater, while many other recommendations are provided to supplement BCWD's watershed management plan. Most of the plan's implementation activities within the BCWD boundary have been completed or are scheduled for implementation. While Lake McKusick has since been delisted, it is important that BCWD and additional stakeholders continue to work to maintain or improve the water quality in the lake and ensure that it is not relisted.

2.4 Stormwater System

Beginning at the top of the watershed and working towards the outlet to the St. Croix River, the stormwater system as it exists today can be described as follows. The rural and landlocked nature of the northern and western portions of the watershed has resulted in limited constructed stormwater management features. Impervious coverage in these areas is primarily conveyed via roadside ditches, centerline crossing culverts, and driveway culverts where flow accumulates in the landscape. Roadway centerline culvert crossings of County Road 57, 110th Street, the Gateway Trail, Manning Avenue, and Trunk Highway 96 are the creek conveyances of significance. Constructed stormwater ponds and storm sewer systems are encountered where Brown's Creek enters the Stillwater orderly annexation area south of Trunk Highway 96. A detailed description of the stormwater treatment and conveyance systems can be found in the Local Surface Water Management Plans identified in Table F11~~Table F11~~. Most of Brown's Creek and tributary conveyance structures are included in the 2025 BCWD H/H Model. Portions of municipal systems located within the watershed are also included in the 2025 BCWD H/H Model but only to the degree that information has been made available through development reviews, district studies, and district projects. Regional stormwater management facilities are listed in Appendix A.

Table F11. Stormwater System Area Reference

Municipality	Publication	Stormwater System Section
City of Grant	2019 Comprehensive Plan Update	Appendix B: Surface Water Management Plan
City of Hugo	2019 Comprehensive Plan	Chapter 8: Surface Water Management

Municipality	Publication	Stormwater System Section
City of Lake Elmo	2030 Comprehensive Local Surface Water Management Plan	Figure 16B: Storm Water System (NE Area)
City of Oak Park Heights	2009 Local Surface Water Management Plan	Map 1: Storm Sewer System Map
City of Stillwater	2007 Local Surface Water Management Plan	Appendix D: Local Surface Water Management Plan
May Township	2024 Comprehensive Plan	Surface Water Management Plan
Stillwater Township	2013 Local Water Management Plan	Section 3: Land and Water Resource Inventory

Major alterations to the hydrology of the watershed are described below in chronological order:

- In 1955, the Minnesota Department of Natural Resources fisheries managers decided to reroute Brown's Creek from Lake McKusick to relieve temperature stress on the trout population. Subsequent projects continued to target stream temperature reductions.
- In 1999, the Minnesota Department of Natural Resources rerouted the creek along the Minnesota Zephyr Rail Line and through the Oak Glen Golf Course. This reduced the water temperature by shortening the stream length and reducing the water residence and solar exposure time.
- In 2000, BCWD modified the drainage system with the Trout Habitat Preservation Project (THPP). This project involved building three infiltration basins at the outlet of Goggins Lake to alleviate flooding while reducing impacts to the headwaters of Brown's Creek. This was accomplished by promoting groundwater recharge and decreasing water temperatures in the North Branch of Brown's Creek. To enhance recharge rates, an infiltration trench was added to the basins in 2005-2006. The THPP created partially landlocked areas that are hydrologically connected to the stream system during extreme precipitation events. Most of the time this area is connected to Brown's Creek by infiltrating the water that drains to this portion of the watershed, thereby recharging the groundwater system.
- In 2002, BCWD constructed a controlled outlet to provide flood attenuation throughout the series of wetlands that make up the Kismet Basin in the central portion of the watershed. This project conveys flow beneath Lansing Avenue North to Brown's Creek just north of the Gateway Trail. Additional details on this project are available on the BCWD website.
- In 2003, the City of Stillwater built the Lake McKusick diversion structure that rerouted stormwater runoff and altered the hydrologic connectedness of the Long Lake, South Central, and Zephyr Tributary areas. The diversion pipe channels the runoff from storms with a magnitude of three inches or less into Lake McKusick instead of Brown's Creek. In addition, the environmental review report *Stillwater Annexation Area Alternative Urban Areawide Review (May 1997)* for the City of Stillwater provides valuable information related to the Stillwater Annexation Area. This report is available at the district and city offices.

2.5 Water Quantity, Watershed Loading, and In-Lake Water Quality Modeling

To further define the hydrologic and hydraulic system of the watershed, BCWD has prepared water quantity electronic models (see Table F12~~Table F12~~). The first of these models, the Hydrologic and Hydraulic XP-SWMM model (H/H model), was developed in 1998. Over time, the H/H model has been updated to reflect land use changes in the watershed that occurred since the original publication. Many of the updates to the H/H model have been born out of development reviews for the district's stormwater rule. In addition, modifications have been made to reflect newly acquired survey data and higher resolution topographic and land cover data. BCWD is committed to performing routine updates to the

H/H model to maintain as realistic and up to date a model of the system as possible. The timeline and a brief description of these revisions are provided below.

BCWD's H/H Model has been used to assist in the district's permitting program, to design water quantity and water quality improvement projects, to update the county's flood hazard map, and to conduct scenario planning to address flood impacts. District and member community staff frequently request model results for several purposes including assessing capital improvement project feasibility and design, as well as assisting with management decisions through the BCWD permitting process. The 2025 H/H Study describes modeling methodology, water resource management issues, and potential impacts from future development activities. A copy of this study can be obtained from the BCWD office.

- The H/H Model was upgraded in 2003 to evaluate the impact of the district's capital improvement projects and development in the watershed, and to further refine the existing model using new landform and landcover data developed by Washington County and the Minnesota Department of Natural Resources. The study presents water management issues resulting from past land use changes and seeks to define the impact of future changes in land use while recommending how BCWD can address these changes. A copy of this study can be obtained from the district office.
- In 2015, BCWD conducted a major overhaul of the model, basing catchment areas and hydraulics on the 2011 LiDAR elevation data and NRCS terrain analysis tools. The model platform was changed from XP-SWMM to the EPA SWMM5 Engine. Its runoff methodology was also updated from SCS Curve Number to utilizing Green-Ampt based on soil texture. The purpose of these transitions in model platform and runoff method was to more easily facilitate the transfer of model information to outside entities as well as to more accurately model soil moisture response during long-term simulations and back-to-back events.
- Aligning with the district's goal to maintain and share updated hydrologic, hydraulic, and floodplain data, in 2025 the model was updated with the 2022 LiDAR elevation data, the 2015 Twin Cities Metro Area 1-meter land cover data supplemented with development land cover changes in the district to date, and to include hydraulic structures and stormwater features that have been permitted within the watershed. It was calibrated and validated to 2020 and 2022 growing seasons and thereafter run for design events and the upper bound of the 90 percent confidence interval for the 100-year 24-hour event (9.5 inches).

To define the cleanliness of the stormwater runoff being generated in the watershed and discharged to waterbodies, BCWD has prepared water quality models to estimate pollutant loads (see Table F12~~Table F12~~).

Watershed loading models have been constructed in support of the district's lake management plans. A P8 watershed loading model was built for Long Lake and PLoad models were built for all other Lakes. The P8 model is better suited to urban/developed watersheds where impervious surfaces are the primary driver of water quality. Its strength lies in its ability to simulate the performance of water quality treatment practices such as detention basins and swales. PLoad is a model that relies upon literature values for pollutant contributions generated off various land cover and is more appropriate for the rural areas of the watershed. The Long Lake P8 Model was originally built for the Long Lake Management Plan. It was updated in 2012 to include several water quality practices and was calibrated to water quality monitoring data. The model was refined based on more detailed information collected as part of the Oak Park Heights Retail Subwatershed Study. A P8 model was built by the City of Stillwater to characterize the drainage area to Lake McKusick including that portion of its watershed that is within the Brown's Creek Watershed.

Models have also been constructed that simulate the nutrient dynamic that occur within lakes. WiLMS and BATHTUB Models have been developed for many of the lakes in the watershed as shown in Table F12~~Table F12~~ during the development of lake management plans. These models characterize the internal loading of nutrients within the lake which assists in developing appropriate nutrient reduction strategies.

Table F12. Summary of District Models

Model	Model Platform	Date of last update	Update Frequency	Scale/Size
Water Quantity Models				
H&H Model	EPA-SWMM	2025	Annually	Entire Watershed
Watershed Loading Models				
Long Lake Watershed Loading Model	P8	2014	As-needed	Lake shed
Woodpile Lake Watershed Loading Model	PLoad	2011	As-needed	Lake shed
Benz Lake Watershed Loading Model	PLoad	2008	As-needed	Lake shed
Masterman Lake Watershed Loading Model	PLoad	2010	As-needed	Lake shed
Northern Chain of Lakes Watershed Loading Model	PLoad	2015	As-needed	Northern Lake sheds
Brown's Creek Thermal Model		2015	Initial construction 2015	Creek contributing drainage area south of 110th Street.
McKusick Lake Watershed Loading Model (City of Stillwater)	P8	2007	NA	McKusick Lake shed
In-Lake Water Quality Models				
Long Lake	WiLMS	2006	As-needed	Lake
Benz Lake	BATHTUB	2008	As-needed	Lake
Masterman Lake	WiLMS	2010	As-needed	Lake
Woodpile Lake	WiLMS	2011	As-needed	Lake
Northern Chain of Lakes	BATHTUB	2015	As-needed	Lake

2.6 Floodplain and Shoreland

A flood hazard map was developed by the Washington Conservation District in conjunction with the development of the first watershed management plan (September 1990). This map, which consists of the Federal Emergency Management Agency (FEMA) map reconstructed over an aerial map of the watershed, identified the 100-year flood plain along the stream corridor and for the major lakes and water bodies of the watershed. A copy of this map can be obtained from the Washington Conservation District.

Washington County, with BCWD's input having recently completed the 2004 Hydrologic and Hydraulic Study, completed an evaluation of flood elevations for all the Minnesota Department of Natural Resources' protected water bodies in the county as part of the FEMA map revision which became effective 2010. The Washington County Flood Insurance Study (FIS) supersedes previous flood insurance maps for the area. All flood related studies, revisions, and mapping are available through FEMA's Flood Map Service Center (http://msc.fema.gov/).

BCWD has addressed known flooding issues through its capital improvement projects, such as the THPP and Kismet Basin Outlet, and recently completed a flood vulnerability assessment identifying areas of greater risk for localized flooding, in addition to the Minnesota Department of Natural Resources'

protected waterbodies that are included in the FEMA study. The district has also collected conveyance structure information through permitting, lake management plans, and capital improvement projects. The extent of the district's structure inventory is not comprehensive in all areas within the watershed. Since flood-prone areas in the watershed are known through current publications, the impetus to complete a structure inventory is born out of its usefulness for current district programs and would assist in more accurately describing flooding at the local level or for longer duration rainfall simulations. It is reasonable to assume a three-year window for completion of this database, which presumably is ahead of future FEMA map publication.

In 2013, the National Weather Service Hydrometeorological Design Studies Center released NOAA Atlas 14, Volume 8. This volume supersedes precipitation frequency estimates contained in Technical Paper 40 and 49 for Minnesota. In 2015, NOAA developed the MSE3 MN type rainfall distribution for a dimensionless unit hydrograph to replace the NRCS Type II used in previous flood studies. In general, these changes result in higher peak intensity and a greater 100-year 24-hour depth of rainfall than was considered in previous studies. NOAA is in the process of developing Atlas 15 which will serve as the new authoritative, spatially continuous National Precipitation Frequency Atlas of the United States. As with previous precipitation frequency atlases, NOAA Atlas 15 will provide spatially independent estimates of expected precipitation depth (or intensity) for a specified storm duration (e.g., six hours) at a particular location of interest (e.g., Stillwater, Minnesota). In contrast to NOAA Atlas 14, NOAA Atlas 15 will, for the first time, account for future temporal trends through the year 2100. It is anticipated that NOAA Atlas 15 will be published within the timeframe of this watershed management plan. When published, NOAA Atlas 15 will be the authoritative source for precipitation frequency information across the United States.

The BCWD rules reference design events based on the frequency of occurrence and do not specify the depth or rainfall distribution. Since the release of new information by NOAA, the district has applied the revised standards to new development and redevelopment for which the stormwater and floodplain and drainage alteration rules are triggered.

The available 100-year flood levels and peak discharges in the watershed are included in Table F13~~Table F13~~. Revision of flood profiles and elevations at the FEMA level will be necessary to reflect the information in NOAA Atlas 14, Volume 8, and the district will be well positioned to assist in this effort. However, the FEMA map revision timeline is not known at the time of writing. The existing flood insurance study can be viewed using the FEMA Flood Map Service Center at: https://msc.fema.gov/portal.

Table F13. Available Flood Level Studies

Entity	Source Data	Year
MnDOT	S.P. 8210-70,71 Effect of 100 Year Flood – Vicinity of T.H. 95 & T.H. 96 Washington County	1986
BCWD	BCWD Hydrologic & Hydraulic Study Appendix C:XP-SWMM Output/Results	2004
FEMA	Flood Insurance Study, Washington County, MN	2010

Table F14. Status of approved shoreland ordinances in the BCWD

City or Township	Floodplain Ordinance	Shoreland Ordinance Required	State Approved Shoreline Ordinance	Within St. Croix Riverway Boundary	Comments
City of Grant	Current to 2023 Chapter 14	Yes	Chapter 12, Art VII Adopted in 2003 – DNR approval status unknown	No	Adopted and not approved by state

City or Township	Floodplain Ordinance	Shoreland Ordinance Required	State Approved Shoreline Ordinance	Within St. Croix Riverway Boundary	Comments
City of Hugo[2]	Sec. 90-137 Current to 2025	Yes	Sec. 90-138 Approved in 1995 – updates in progress.	No	Adopted and approved in 1995. Changes have been made since 1995 approval that have not been approved by MNDNR.
City of Lake Elmo[1]	Title 100 Current to 2010	Yes	Title 105.04-XIII Approved as amended in 2017	No	Adopted and approved in 1993.
May Township	Art. 803 Current to 2023	Yes	Art. 806 Adopted – DNR approval status unknown	No	Township is regulated under Washington County Lower St. Croix Bluffland and Shoreland Management Ordinance (updated July 2018).
City of Oak Park Heights[4]	Sec. 401.34 Current to 2023	No	Sec. 401.34 Approved	Yes	DNR last approved an ordinance in 1979 that sets minimum zoning standards aligning with the Lower St. Croix Riverway rules. Contains only one designated public water in the municipal boundary
City of Stillwater	Sec. 28-296 Current to 2025	Yes	Sec. 28-296 Approved in 2002	Yes	DNR last approved an ordinance in 1989 that sets minimum zoning standards aligning with the statewide shoreland and the Lower St. Croix Riverway rules.
Stillwater Township	Current to 2017	Yes	Ord. 107 Adopted in 1993 - approved	Yes	Township is regulated under Washington County Lower St. Croix Bluffland and Shoreland Management Ordinance (updated July 2018).

[1] City is a priority 1 community for the Shoreland Program
[2] City is a priority 2 community for the Shoreland Program
[4] City is a priority 4 community for the Shoreland Program

2.7 Groundwater Resources

The groundwater system within the watershed is complicated and dynamic. Unlike the surface watershed, the groundwatershed does not always follow watershed boundaries. Therefore, it is important to first understand regional geology and hydrogeology before focusing on local groundwater resources. Basic information on the groundwater system is summarized in the following sections.

2.7.1 Aquifers

Aquifers in the Brown's Creek watershed can be classified as either ~~a~~Quaternary (glacial) or bedrock. The Quaternary aquifer is typically the shallowest aquifer throughout the watershed. An important exception is the area around the lower reaches of Brown's Creek where bedrock is exposed.~~The quaternary aquifer is typically the water table aquifer throughout the watershed. An important exception is the area around~~

~~the lower reaches of Brown's Creek.~~ The ~~q~~Quaternary aquifer has some residential wells, but it is usually bypassed in favor of the deeper bedrock aquifers.

The uppermost bedrock aquifer is the St. Peter Sandstone, but it is present only in limited areas in the western portion of the watershed. The Prairie du Chien Group underlies the St. Peter. This unit is found in most of the watershed except for areas where erosion has cut into deeper bedrock. The Prairie du Chien Group is underlain by the Jordan Sandstone. Both the Prairie du Chien and Jordan are significant drinking water aquifers, and they are often listed on well logs as a single hydrologic unit. Below the Prairie du Chien-Jordan is the St. Lawrence Formation that is generally considered an aquitard but can be used as an aquifer where it has been fractured and eroded. Below the St. Lawrence is the Tunnel City Group. It is used as an aquifer in areas where the more productive Prairie du Chien-Jordan is not present. Below the Tunnel City Group is the Eau Claire Formation (aquitard) and the Mount Simon-Hinckley Formation. Both are regionally important aquifers but have very few, if any, wells within Brown's Creek watershed.

There are two reports that use groundwater contours to delineate the groundwatersheds of the two primary aquifers that discharge groundwater to Brown's Creek. The *Watershed hydrology of Valley Creek and Brown's Creek: Trout streams influenced by agriculture and urbanization in eastern Washington County, Minnesota, 1998-99* report delineated the groundwatershed of the water table aquifer using 50 foot contours from the Washington County Geologic Atlas[8]. The *Brown's Creek Groundwatershed Report*[28] delineated the groundwatersheds for both the surficial aquifer and Prairie du Chien- Jordan aquifer. The delineated groundwatersheds are approximations of the groundwatersheds and were created to resolutions obtainable using existing available data. The groundwater contours and groundwatersheds developed for these maps and reports were primarily generated from groundwater elevation data provided in the Minnesota Well Index.

The Minnesota Department of Natural Resources observation well network monitors groundwater elevation of aquifers throughout the state with the observation well program. Groundwater level data is collected from wells in the observation well program to determine trends in aquifer level over time, to determine impacts from groundwater and surface water appropriations, and to determine the interaction of aquifers with each other (for use in the determination of groundwater flow). The observation well program currently has four active observation wells within the Brown's Creek watershed. One of the wells, well 83039, is set in the Prairie Du Chien aquifer and has a period of record from 1994 to 2011. The other well, 82047, is set in the Tunnel City Group aquifer and has a period of record from 2000 to 2011. The Minnesota Department of Natural Resources monitored a well set in the St. Peter aquifer within the Brown's Creek watershed boundary, well 82009, from 1977 through 1981. The Minnesota Department of Natural Resources monitors an additional well, 82032, set in the Prairie Du Chien aquifer located outside of the district boundary in the northwest near Hugo. The period of record for this well is 1984 - 2010.

2.7.2 Groundwater Flow

Groundwater flow in the watershed is characterized by the ~~q~~Quaternary and bedrock aquifer systems. Both systems provide for the movement of groundwater toward discharge areas.

A portion of the groundwater within the ~~q~~Quaternary system discharges to surface water bodies supplying "base flow" to the surface water system. Brown's Creek above the historic Old Stone Bridge maintains a base flow mostly from ~~q~~Quaternary aquifer groundwater discharge. Direct measurement of water levels from sampling points in portions of the upper stream have shown strong upward gradients which is an indication of groundwater discharge. Quaternary aquifers discharge to the bedrock aquifers in regions where connections exist between the two. The principal bedrock aquifer that would receive groundwater from the ~~q~~Quaternary system would be the Prairie Du Chien Group. This would occur in areas where the Prairie Du Chien is the uppermost bedrock beneath permeable ~~q~~Quaternary sediment.

The bedrock aquifers of principal importance in the Brown's Creek watershed are the combined Prairie Du Chien - Jordan and the Tunnel City Group. These formations are a major source of drinking water and also provide discharge to lower Brown's Creek and the St. Croix River.

The recharge zone for the Prairie Du Chien-Jordan aquifer occurs both within and outside the surface watershed. As noted above, recharge to the Prairie Du Chien-Jordan Aquifer occurs where this formation is the uppermost bedrock beneath coarse-grained ~~q~~Quaternary sediment. The general groundwater flow within the Prairie Du Chien-Jordan aquifer is from the central part of Washington County east and south across the watershed to the St. Croix River. Deflection of flow is noted in areas where large pumping centers are located (Stillwater and Oak Park Heights Municipal wells). Flow is also deflected towards the lower gorge of Brown's Creek where discharge occurs.

Groundwater from the bedrock aquifers discharges to the St. Croix River, to Brown's Creek, and to private and municipal wells. Stillwater and Oak Park Heights use bedrock wells for their water supply.

2.7.3 Groundwater Quality and Quantity

The Washington County Groundwater Plan identifies contaminants above established health risks in several aquifers, specifically perfluoro-alkyl substances (PFAS), volatile organic compounds (VOCs) and nitrates[29]. Chloride is a much more present contaminant across the County in well and spring samples.[30] Groundwater modelling under theoretical steady state conditions shows that pumping may result in portions of the County experiencing 20 to 30 feet of groundwater drawdown over the next 20 years – this is generally concentrated in higher population, faster growing areas of the County such as Cottage Grove, Oakdale, Woodbury, and Hugo[29]. The Brown's Creek watershed has not experienced groundwater quality or quantity problems to the extent that have been observed in other parts of Washington County.

The quantity of groundwater flowing to groundwater-dependent natural resources is the subject of several ongoing studies. ~~Wellhead Protection Areas~~The Drinking Water Supply Management Area (DWSMA) for the Stillwater Municipal Water Supply wells include areas within the Brown's Creek watershed. Low water levels in nearby White Bear Lake have prompted the Metropolitan Council, the Minnesota Department of Natural Resources, and United States Geological Survey to study groundwater recharge, groundwater flow, and groundwater pumping throughout northern Washington County. Groundwater flow to Brown's Creek is important for maintaining its thermal regime. Studies are ongoing to determine whether reduced groundwater discharges have contributed to the lack of cold-water assemblage in the creek.

There are two DWSMAs located within the Brown's Creek watershed, ~~these ar~~Stillwater (DWSMA ID 1024) and Oak Park Heights (DWSMA ID 645). MDH has identified southern portions of the BCWD watershed as a moderate ~~-~~ to ~~-~~ high vulnerability to contamination[31]~~[1]~~. Projects that improve surface water quality can present opportunities for co-benefits to groundwater and drinking water. More information on the mapped extent of these DWSMAs and their Source Water Assessments (SWA) is available through the MDH's Source Water Protection Web Map Viewer.

In 2023, the City of Stillwater learned that some of its drinking water wells produce water that exceeds the Minnesota Department of Health's Health Based Guidance Values (HBVs) and the Maximum Contaminant Levels (MCLs) for per- and polyfluoroalkyl substances (PFAS) established by the Environmental Protection Agency (EPA). Two wells, ~~(~~Well #6 (located within BCWD) and well #10 (located just outside BCWD)~~) within Stillwater~~ contain PFAS at levels above the EPA's drinking water standards. ~~An additional well (Well #9) contains~~Other Stillwater municipal supply wells show PFAS at levels just below these standards. T~~All t~~hree wells are currently inactive and are not providing water for the community. To meet the community's water demands and provide the safest drinking water possible, the city is taking quick, proactive action on a short-term solution while also taking a strategic approach to long-term water

treatment needs. A temporary treatment facility at Well #10 will ensure this well can safely be put back into service.

Groundwater resource data includes groundwater/well water quality data that is available from the Minnesota Pollution Control Agency[32]. The Washington County Hydrogeologic Atlas is available from the Minnesota Geological Survey (MGS)[7]. Groundwater level data is available from the Minnesota Climatology Working Group[2]. The Minnesota Department of Health provides maps and data for wellhead protection areas and the Minnesota well index[10]. BCWD has compiled information about many local groundwater-related projects into a comprehensive "Groundwater State of Knowledge Report".

2.7.4 Groundwater-Dependent Natural Resources

Groundwater function within the watershed supports a viable cold-water trout fishery by discharging cool water to the surface stream environment, thus Brown's Creek is groundwater-dependent. Lakes are classified as groundwater-dependent based on the "Lake Data and Groundwater Function" table from the report *Integrating Groundwater and Surface Water Management – Northern Washington County*.

Groundwater seepage to the surface environment provides highly specialized hydrologic conditions that support numerous plant species and natural communities, in addition to ecosystem functions such as surface water supply and thermoregulation (e.g., discharge of cold water). In the upper watershed, groundwater seepage areas in wetlands create favorable conditions for hardwood seepage swamps, fens, wet meadows, shrub swamps, tamarack swamps, and floating sedge mats. These wetlands often harbor unique and regionally rare plant communities. In the lower creek gorge stretch of Brown's Creek, specialized natural communities, including trout populations, are dependent on groundwater seepage.

BCWD's rules define groundwater-dependent wetlands based on expression of a groundwater dependent plant community. Table F15 lists the Minnesota Land Cover Classification System (MLCCS) plant communities that are considered groundwater-dependent for purposes of the BCWD rules. BCWD recognizes that this vegetation-based definition lacks clarity when stressors - such as invasive species, vegetation clearing (e.g., cultivation), or historical overgrazing – degrade the plant community. Plant communities may be dominated by plants (e.g., cattails) that do not necessarily indicate groundwater dependency but conversely do not rule out the wetland's groundwater-dependent hydrology. It is important to account for these "masked" groundwater dependent wetlands, as they still provide other ecosystem functions independent of vegetation and may harbor small remnants of groundwater-dependent plant communities or have potential as high quality restorations. For example, the 2024-2025 Brown's Creek stream restoration integrated buckthorn removal within seepage wetlands that would have not have met the plant community standard for groundwater-dependent wetlands.

The 2024 Wetland Function and Value and Groundwater Dependent Reclassification study used multiple sources to better define likelihood of watershed wetlands' groundwater dependence. These sources included groundwater dependency classifications from the 2007 function and value assessment, National Wetland Inventory Hydrogeomorphic Classification, Minnesota Department of Natural Resources Native Plant Community mapping, the MLCCS dataset, and the 2003 North Washington Groundwater Study. Based on composite scoring using this source data, wetlands were scored as "likely groundwater-dependent", "partially groundwater-dependent", or "surface water-dependent" (Figure F20 through Figure F23 serves as a preliminary classification of groundwater dependence. The actual groundwater dependence of a particular wetland should be assessed on a case-by-case basis.

Table F15. Groundwater Dependent Natural Resource Types According to Existing District Rules (following MLCCS protocol).

Groundwater-Dependent Wetlands	Groundwater and Surface Water-Dependent Wetlands
• Shrub fen • Poor fen shrub subtype • Rich fen shrub subtype • Shrub swamp seepage subtype • Wet meadow shrub subtype* • Willow swamp* • Wet prairie seepage subtype • Poor fen* • Poor fen sedge subtype • Rich fen • Rich fen sedge subtype • Wet meadow* • Sedge meadow* • Seepage meadow* • Shallow emergent marsh* • Mixed emergent marsh* • Deep emergent marsh* • Trout stream • Lake* • Limnetic open water* • Shallow open water* • Shallow open water with floating vascular vegetation*	• Lowland hardwood forest • Mixed hardwood swamp seepage subtype • Willow swamp - saturated soils • Wet meadow shrub subtype* • Willow swamp* • Mesic prairie • Wet meadow* • Cattail marsh • Poor fen* • Sedge meadow* • Seepage meadow* • Shallow emergent marsh* • Mixed emergent marsh* • Deep emergent marsh* • Shallow creeks* • Lake* • Limnetic open water* • Shallow open water* • Shallow open water with floating vascular vegetation*

***These wetland types can be either completely "Groundwater-Dependent" or "Both" groundwater and surface water-dependent and therefore are listed in both categories.**

2.8 Surface Water and Groundwater Appropriations

Water appropriations in the Brown's Creek watershed are primarily from groundwater. No surface water appropriations are large enough to require a Minnesota Department of Natural Resources Appropriations Permit (10,000 gallons per day or 1,000,000 gallons per year). The largest groundwater appropriations in the Brown's Creek watershed come from municipal water supply wells and golf course irrigation wells. The municipal water supply wells are part of the Stillwater municipal water system, which has wells both inside and outside of the watershed. Much of the watershed is outside of the Stillwater water system service area. Residents and businesses in those areas have private wells.

Groundwater appropriations affect groundwater levels below groundwater dependent natural resources. In 2014, a BCWD groundwater appropriations study found that large pumping wells were lowering groundwater levels in bedrock aquifers below Brown's Creek by more than two feet[33]. Further studies are required to determine the connection between the creek and the bedrock aquifers and the effect of the pumping on groundwater dependent natural resources.

Active water use permit information can be accessed online through the Minnesota Department of Natural Resources Minnesota Permitting and Reporting System (MPARS)[34] which can be categorized according to municipality, permitted water use type, among additional attributes. Table F16 identifies the active water use permits located in the Brown's Creek watershed.

Table F16. Summary of Water Appropriations Permits in the BCWD (No surface water permits)

Permit Number	Well Unique ID Number	Permittee	Well Number	Aquifer	Maximum Pumping [MGY]	Maximum Pumping [GPM]
Municipal Wells						
1975-6207	127284	STILLWATER CITY WELL	9	MTPL	72.00	137.0
1975-6207	208785	STILLWATER CITY WELL	1	UNKNOWN	45.76	87.1
1975-6207	208786	STILLWATER CITY WELL	5	MTPL	86.46	164.5
1975-6207	208787	STILLWATER CITY WELL	6	CJDN	224.46	427.1
1975-6207	224608	STILLWATER CITY WELL	8	CJDN	69.95	133.1
1975-6207	481662	STILLWATER CITY WELL	10	MTPL	82.00	156.0
1975-6207	580338	STILLWATER CITY WELL	11	CJDN	358.00	681.1
1975-6207	686297	STILLWATER CITY WELL	12	CJDN	52.00	98.9
Golf Course Wells						
2005-3012	515171	APPLEWOOD HILLS GC	1	OPDC	35.30	160.2
1990-6325	504168	SAWMILL GOLF CLUB	1	OPDC	14.70	66.7
1990-6325	242819	SAWMILL GOLF CLUB	2	CJDN	12.20	55.4
1990-6325	566145	SAWMILL GOLF CLUB	3	OPDC	29.50	133.9
1990-6325	151581	OAK GLEN COUNTRY CLUB	2	CFRNCECR	13.80	62.6
1990-6325	151580	OAK GLEN COUNTRY CLUB	1	CJDNCSTL	32.10	145.7
1990-6325	208038	STILLWATER COUNTRY CLUB	1	CSTLCMTS	26.30	119.4
1986-6106	208515	MOGROW, INC (INDIAN HILLS)	1	OPDC	37.41	169.8

~~2.7~~2.9 Monitoring

BCWD has a comprehensive monitoring program that consists of flow and water quality measurements throughout Brown's Creek, its tributaries, and in-lake sampling on all the prominent lakes in the watershed (see Figure F19~~Figure F19~~ at the end of the Land and Water Resource Inventory). BCWD also has a weather station, which it installed at the City of Stillwater's public works facility in 2011 to collect local climate data (precipitation, air temperature, dew point, relative humidity, solar radiation, wind speed, gust speed, and wind direction) in support of future modeling efforts. In addition to its routine monitoring program, the district undertakes special monitoring activities to address specific issues and to answer watershed management questions as needed. For example, the district began collecting in-stream temperature data upon completing the Brown's Creek TMDL Implementation Plan. The objective of this monitoring effort is to better understand in-stream temperature patterns related to shading, directly connected ponds and stormwater management facilities, groundwater pumping, and untreated impervious areas. Over time, the district has also developed a groundwater monitoring program to better understand and evaluate baseflow contributions to its groundwater-dependent natural resources.

While the district's water quality data is summarized annually by the Washington Conservation District and made available on BCWD's website, a more comprehensive, analytical review of the data collected to date was conducted in 2014 and completed in 2015. This evaluation was conducted to provide a critical review of the data, determine if statistically valid trends can be detected and to evaluate the factors that are likely causing the trends in water quality. This trend analysis was updated for Brown's Creek and Long

Lake in 2020. Table F17~~Table F17~~ through Table F21~~Table F21~~ summarize the district's existing monitoring activities.

Groundwater elevation monitoring is important for identifying changes in groundwater quantity and flow patterns over time. The Minnesota Department of Natural Resources maintains three observation wells in the watershed, but that is not enough information for planning purposes. In 2002, BCWD established a network of residential and golf course wells for measuring water levels as part of the North Washington Groundwater Study. Water levels in the wells have been measured annually since 2012 in August and September and analyzed in annual reports.Table F21-Table F21~~Table F21~~ summarizes the programs that have provided information on groundwater resources in the watershed.

Table F17. Lake Monitoring Data Inventory

Lake ID	Lake Management Plan	Aquatic Plant Survey	DO & Temperature	Total Phosphorus	Chlorophyll-*a*	Secchi Depth
Bass Lake East 82-0124-00	2022	2019	2006-2025	2006-2025	2006-2025	2006-2025
Bass Lake West 82-0123-00	2022	2019	2006-2025	2006-2025	2006-2025	2006-2025
Benz Lake 82-0120-00	2009	2008, 2022	1998, 2005-2025	2005-2025	2005-2025	1998, 2005-2025
Goggins Lake 82-0077-00	2015	2014, 2022	1999-2025	1999-2025	2001-2025	1999-2025
Sinnits Pond 82-0305-00	2023	2009	2010-2025	2010-2025	2010-2025	2010-2025
July Ave Pond 82-0318-00	2023		2006-2025	2006-2025	2006-2025	2006-2025
Kismet Basin 82-0334-00	2023		2007-2025	2007-2025	2007-2025	2007-2025
Long Lake 82-0021-00	2006	2009	1998-2025	1995-2025	2001-2025	1987, 1989, 1991-2025
Lynch Lake North 82-0267-00	2015	2014, 2019	2010-2025	2010-2025	2010-2025	2010-2025
Lynch Lake South 82-0042-00	2015	2014, 2019	2006-2025	2006-2025	2006-2025	2006-2025
Lake Masterman 82-0126-00	2010	2009	2006-2025	2006-2025	2006-2025	2006-2025
Pat Lake 82-0125-00	2023		2006-2025	2006-2025	2006-2025	2006-2025
Plaisted Lake 82-0148-00	2015	2014	2008-2025	2008-2025	2008-2025	2008-2025
South School Section Lake 82-0151-00	2015	2014, 2022	1998, 2005-2025	1995, 1996, 1998, 2005-2025	2005-2025	1995, 1996, 1998, 2005-2025
Wood Pile Lake 82-0132-00	2011	2009	2006-2025	2006-2025	2006-2025	2006-2025

Table F18. Stream monitoring stations by stream reach in BCWD, 1999-2024

Stream Reach/AUID	Reach Description	Reach Length (mi)	Use Class	Water Quality Monitoring Station(s)	Biological Monitoring Station(s)
Brown's Creek (Lower) 07030005-520	T30 R20W S18, west line to St. Croix River	4.76	2A	S004-719 S006-114 S004-925 S006-528 S004-457 S006-113	99SC002 99SC006 06SC055 07SC002 11SC010
Brown's Creek (Upper) 07030005-586	Headwaters to T30 R21W S1, south line	1.1	2B	S004-458	n/a
Brown's Creek (Middle) 07030005-587	T30 R21W S12, north line to T30 R21W S13, east line	2.39	2A	S001-974 S004-726 S004-456	07SC001 96SC066
Unnamed Creek (Trib to Long Lake) 07030005-765	T30N/R20W/S31	0.07	2B	S004-473	n/a
Unnamed Creek (Trib to Lake McKusick) 07030005-767	T30 R20W S19, south line to underground diversion	0.68	2A	S004-475	n/a

Table F19. Inventory of flow data records for streams in BCWD

Year	WOMP	Stone-bridge	McKusick Rd	Hwy 15 (Manning Ave)	Gateway Trail	Headwaters, 110th	Diversion Structure	Inlet #1 to Long LK (62nd St)	Inlet #2 to Long Lake (Marketplace)
2000	Aug-Dec		May-Oct						
2001	Jan-Dec*		Mar-Nov						
2002	Jan-Dec		Mar-Nov						
2003	Jan-Dec		Mar-Nov						
2004	Jan-Dec		Mar-Nov						
2005	Jan-Dec		Mar-Nov	Mar-Nov					Apr-Nov
2006	Jan-Dec		Mar-Oct	Mar-Oct			Apr-Oct		May-Oct
2007	Jan-Dec		Mar-Oct	Mar-Oct	Apr-Jun	Apr-Oct	Mar-Oct		Apr-Oct
2008	Jan-Dec	Apr-Nov	Apr-Nov	Apr-Nov		Apr-Nov	May-Nov		Apr-Nov
2009	Jan-Dec	Apr-Nov	Apr-Nov	Apr-Nov			Sep-Nov		Apr-Nov
2010	Jan-Dec	Mar-Nov	Mar-Nov	Mar-Nov			Mar-Nov		Apr-Aug
2011	Jan-Dec	Apr-Nov	Apr-Oct	Apr-Nov			Apr-Nov		Apr-Nov
2012	Jan-Dec	Mar-Nov	Mar-Nov	Mar-Nov			Mar-Nov	Mar-Nov	Mar-Nov
2013	Jan-Dec	Apr-Nov	Apr-Nov	Apr-Nov			Apr-Nov	Apr-Nov	Apr-Oct
2014	Jan-Dec	Apr-Nov	May-Nov	Apr-Nov			Apr-Oct	Apr-Oct	Apr-Oct
2015	Jan-Dec	Apr-Oct	Apr-Oct	Apr-Oct			Apr-Oct	Apr-Oct	Apr-Oct
2016	Jan-Dec	Apr-Oct	Mar-Oct	Mar-Oct			Mar-Nov	Apr-Nov	Apr-Nov

Year	WOMP	Stone-bridge	McKusick Rd	Hwy 15 (Manning Ave)	Gateway Trail	Headwaters, 110th	Diversion Structure	Inlet #1 to Long LK (62nd St)	Inlet #2 to Long Lake (Marketplace)
2017	Jan-Dec	Apr-Oct	Apr-Oct	Apr-Oct			Apr-Oct	Mar-Oct	Apr-Oct
2018	Jan-Dec	May-Oct	May-Oct	May-Oct			Apr-Oct	May-Oct	Apr-Oct
2019	Jan-Dec	Mar-Oct	Apr-Oct	Apr-Oct			May-Oct	Apr-Oct	May-Oct
2020	Jan-Dec	Apr-Nov	Apr-Nov	Apr-Nov			Apr-Nov	Apr-Oct	May-Nov
2021	Jan-Dec	Apr-Oct	Apr-Oct	Apr-Oct			Apr-Oct	Apr-Oct	Apr-Oct
2022	Jan-Dec	Apr-Oct	May-Oct	Apr-Oct			Apr-Oct	Apr-Oct	May-Oct
2023	Jan-Dec	Apr-Oct	Apr-Oct	Apr-Oct			May-Oct	Apr-Oct	May-Oct
2024	Jan-Dec	Apr-Oct	Apr-Oct	Apr-Oct			May-Oct	Apr-Oct	May-Oct

Table F20. Stream Temperature Monitoring Stations Along Brown's Creek and Adjacent Stormwater BMPs

Stream Location	Year(s)	Monitoring Goals
Headwaters	2011-2015	Monitor long-term changes in stream temperature
110th Street	2001, 2003-2009, 2011	Monitor long-term changes in stream temperature
Gateway Trail	2011-2015	Monitor long-term changes in stream temperature
Highway 96	2011-2015	Monitor long-term changes in stream temperature
Millbrook Pond	2013-2015	Determine potential thermal impacts from Millbrook pond discharge
Downstream Millbrook Pond	2011-2015	Determine potential thermal impacts from Millbrook pond discharge
Oak Glen East Pond	2010-2015	Determine potential thermal impacts from East Pond discharge
Downstream Oak Glen East Pond	2011-2015	Determine potential thermal impacts from East Pond discharge
Shaded Control	2011-2015	Stream temperature control site in a shaded reach
Oak Glen West Pond	2010-2015	Determine potential thermal impacts from West Pond discharge
Downstream Oak Glen Ponds	2012-2015	Determine potential thermal impacts downstream of East and West pond discharge sites
Open Control	2011-2015	Stream temperature control site in a non-tree canopy "open" reach
Oak Glen Stormwater Pond	2010-2015	Determine potential thermal impacts from a stormwater pond
Stormwater Swale Confluence	2010-2015	Determine potential thermal impacts downstream of stormwater pond swale discharge

Table F21. Summary of BCWD Groundwater Monitoring Activities

Name	Data Collection Points	Year(s)	Monitoring Goals
Brown's Creek Dye Study	Brown's Creek lower reaches	1998	Determine groundwater inflows to Brown's Creek
N. Washington County Groundwater Study	Wells, springs, lakes	2002	Identify groundwater flow patterns and groundwater-dependent natural resources.
Identifying Trends in Groundwater Flow	Residential wells	2012-2025	Track changes in groundwater levels over time
Identifying Trends in Groundwater Flow	Golf course wells	2012-2025	Track changes in groundwater levels over time

Name	Data Collection Points	Year(s)	Monitoring Goals
Brown's Creek In-Stream Piezometers	Piezometers	2015, 2018	Determine gaining and losing reaches of the Creek
Springs near Brown's Creek	Piezometers	2015	Determine thermal impacts of groundwater discharges
Oak Glen Golf Course	Golf course wells	2024	Install flow monitors
Diversion Structure Groundwater Study	Soil borings	2020	Calculate groundwater contribution to flow through the diversion structure

~~2.7.1 Surface Water and Groundwater Appropriations~~

~~Water appropriations in the Brown's Creek watershed are primarily from groundwater. No surface water appropriations are large enough to require a Minnesota Department of Natural Resources Appropriations Permit (10,000 gallons per day or 1,000,000 gallons per year). The largest groundwater appropriations in the Brown's Creek watershed come from municipal water supply wells and golf course irrigation wells. The municipal water supply wells are part of the Stillwater municipal water system, which has wells both inside and outside of the watershed. Much of the watershed is outside of the Stillwater water system service area. Residents and businesses in those areas have private wells.~~

~~Groundwater appropriations affect groundwater levels below groundwater dependent natural resources. In 2014, a BCWD groundwater appropriations study found that large pumping wells were lowering groundwater levels in bedrock aquifers below Brown's Creek by more than two feet[28]. Further studies are required to determine the connection between the creek and the bedrock aquifers and the effect of the pumping on groundwater dependent natural resources.~~

~~Active water use permit information can be accessed online through the Minnesota Department of Natural Resources Site-Specific Water Use Database (SWUDS)[29] which can be categorized according to municipality, permitted water use type, among additional attributes. Table 20 identifies the active water use permits located in the Brown's Creek watershed.~~

~~**Table 20. Summary of Water Appropriations Permits in the BCWD (No surface water permits)**~~

~~Permit Number~~	~~Well Unique ID Number~~	~~Permittee~~	~~Well Number~~	~~Aquifer~~	~~Maximum Pumping [MGY]~~	~~Maximum Pumping [GPM]~~
~~**Municipal Wells**~~						
~~**1975-6207**~~	~~127284~~	~~STILLWATER CITY WELL~~	~~9~~	~~MTPL~~	~~72.00~~	~~137.0~~
~~**1975-6207**~~	~~208785~~	~~STILLWATER CITY WELL~~	~~1~~	~~UNKNOWN~~	~~45.76~~	~~87.1~~
~~**1975-6207**~~	~~208786~~	~~STILLWATER CITY WELL~~	~~5~~	~~MTPL~~	~~86.46~~	~~164.5~~
~~**1975-6207**~~	~~208787~~	~~STILLWATER CITY WELL~~	~~6~~	~~CJDN~~	~~224.46~~	~~427.1~~
~~**1975-6207**~~	~~224608~~	~~STILLWATER CITY WELL~~	~~8~~	~~CJDN~~	~~69.95~~	~~133.1~~
~~**1975-6207**~~	~~481662~~	~~STILLWATER CITY WELL~~	~~10~~	~~MTPL~~	~~82.00~~	~~156.0~~
~~**1975-6207**~~	~~580338~~	~~STILLWATER CITY WELL~~	~~11~~	~~CJDN~~	~~358.00~~	~~681.1~~
~~**1975-6207**~~	~~686297~~	~~STILLWATER CITY WELL~~	~~12~~	~~CJDN~~	~~52.00~~	~~98.9~~
~~**Golf Course Wells**~~						
~~**2005-3012**~~	~~515171~~	~~APPLEWOOD HILLS GC~~	~~1~~	~~OPDC~~	~~35.30~~	~~160.2~~
~~**1990-6325**~~	~~504168~~	~~SAWMILL GOLF CLUB~~	~~1~~	~~OPDC~~	~~14.70~~	~~66.7~~

Permit Number	Well Unique ID Number	Permittee	Well Number	Aquifer	Maximum Pumping [MGY]	Maximum Pumping [GPM]
1990-6325	242819	SAWMILL GOLF CLUB	2	CJDN	12.20	55.4
1990-6325	566145	SAWMILL GOLF CLUB	3	OPDC	29.50	133.9
1990-6325	151581	OAK GLEN COUNTRY CLUB	2	CFRNCECR	13.80	62.6
1990-6325	151580	OAK GLEN COUNTRY CLUB	1	CJDNCSTL	32.10	145.7
1990-6325	208038	STILLWATER COUNTRY CLUB	1	CSTLCMTS	26.30	119.4
1986-6106	208515	MOGROW, INC (INDIAN HILLS)	1	OPDC	37.41	169.8

2.7.2 Groundwater Resources

The groundwater system within the watershed is complicated and dynamic. Unlike the surface watershed, the groundwatershed does not always follow watershed boundaries. Therefore, it is important to first understand the regional geology and hydrogeology before focusing on local groundwater resources. Basic information on the groundwater system is summarized in the following sections.

2.7.2.1 Aquifers

Aquifers in the Brown's Creek watershed can be classified as either quaternary (glacial) or bedrock. The quaternary aquifer is typically the water table aquifer throughout the watershed. An important exception is the area around the lower reaches of Brown's Creek. The quaternary aquifer has some residential wells, but it is usually bypassed in favor of the deeper bedrock aquifers.

The uppermost bedrock aquifer is the St. Peter Sandstone, but it is present only in limited areas in the western portion of the watershed. The Prairie du Chien Group underlies the St. Peter. This unit is found in most of the watershed except for areas where erosion has cut into deeper bedrock. The Prairie du Chien Group is underlain by the Jordan Sandstone. Both the Prairie du Chien and Jordan are significant drinking water aquifers, and they are often listed on well logs as a single hydrologic unit. Below the Prairie du Chien Jordan is the St. Lawrence Formation that is generally considered an aquitard but can be used as an aquifer where it has been fractured and eroded. Below the St. Lawrence is the Tunnel City Group. It is used as an aquifer in areas where the more productive Prairie du Chien Jordan is not present. Below the Tunnel City Group is the Eau Claire Formation and the Mount Simon Hinckley Formation. Both are regionally important aquifers but have very few, if any, wells within Brown's Creek watershed.

There are two reports that use groundwater contours to delineate the groundwatersheds of the two primary aquifers that discharge groundwater to Brown's Creek. The *Watershed hydrology of Valley Creek and Brown's Creek: Trout streams influenced by agriculture and urbanization in eastern Washington County, Minnesota, 1998-99* report delineated the groundwatershed of the water table aquifer using 50 foot contours from the Washington County Geologic Atlas[8]. The *Brown's Creek Groundwatershed Report*[30] delineated the groundwatersheds for both the surficial aquifer and Prairie du Chien Jordan aquifer. The delineated groundwatersheds are approximations of the groundwatersheds and were created to resolutions obtainable using existing available data. The groundwater contours and groundwatersheds developed for these maps and reports were primarily generated from groundwater elevation data provided in the Minnesota Well Index.

The Minnesota Department of Natural Resources observation well network monitors groundwater elevation of aquifers throughout the state with the observation well program. Groundwater level data is collected from wells in the observation well program to determine trends in aquifer level over time, to determine impacts from groundwater and surface water appropriations, and to determine the interaction

of aquifers with each other (for use in the determination of groundwater flow). The observation well program currently has four active observation wells within the Brown's Creek watershed. One of the wells, well 83039, is set in the Prairie Du Chien aquifer and has a period of record from 1994 to 2011. The other well, 82047, is set in the Tunnel City Group aquifer and has a period of record from 2000 to 2011. The Minnesota Department of Natural Resources monitored a well set in the St. Peter aquifer within the Brown's Creek watershed boundary, well 82009, from 1977 through 1981. The Minnesota Department of Natural Resources monitors an additional well, 82032, set in the Prairie Du Chien aquifer located outside of the district boundary in the northwest near Hugo. The period of record for this well is 1984 - 2010.

2.7.2.2 Groundwater Flow

Groundwater flow in the watershed is characterized by the quaternary and bedrock aquifer systems. Both systems provide for the movement of groundwater toward discharge areas.

A portion of the groundwater within the quaternary system discharges to surface water bodies supplying "base flow" to the surface water system. Brown's Creek above the historic Old Stone Bridge maintains a base flow mostly from quaternary aquifer groundwater discharge. Direct measurement of water levels from sampling points in portions of the upper stream have shown strong upward gradients which is an indication of groundwater discharge. Quaternary aquifers discharge to the bedrock aquifers in regions where connections exist between the two. The principal bedrock aquifer that would receive groundwater from the quaternary system would be the Prairie Du Chien Group. This would occur in areas where the Prairie Du Chien is the uppermost bedrock beneath permeable quaternary sediment.

The bedrock aquifers of principal importance in the Brown's Creek watershed are the combined Prairie Du Chien - Jordan and the Tunnel City Group. These formations are a major source of drinking water and also provide discharge to lower Brown's Creek and the St. Croix River.

The recharge zone for the Prairie Du Chien Jordan aquifer occurs both within and outside the surface watershed. As noted above, recharge to the Prairie Du Chien Jordan Aquifer occurs where this formation is the uppermost bedrock beneath coarse-grained quaternary sediment. The general groundwater flow within the Prairie Du Chien-Jordan aquifer is from the central part of Washington County east and south across the watershed to the St. Croix River. Deflection of flow is noted in areas where large pumping centers are located (Stillwater and Oak Park Heights Municipal wells). Flow is also deflected towards the lower gorge of Brown's Creek where discharge occurs.

Groundwater from the bedrock aquifers discharges to the St. Croix River, to Brown's Creek, and to private and municipal wells. Stillwater and Oak Park Heights use bedrock wells for their water supply.

2.7.2.3 Groundwater Quality and Quantity

Groundwater quality in both the private and public wells is good to excellent. At present, groundwater quantity is sufficient to provide adequate volume to private and public sources. The quantity of groundwater flowing to groundwater dependent natural resources is the subject of several ongoing studies. Wellhead Protection Areas for the Stillwater Municipal Water Supply wells include areas within the Brown's Creek watershed. Low water levels in nearby White Bear Lake have prompted the Metropolitan Council, the Minnesota Department of Natural Resources, and United States Geological Survey to study groundwater recharge, groundwater flow, and groundwater pumping throughout northern Washington County. Groundwater flow to Brown's Creek is important for maintaining its thermal regime. Studies are ongoing to determine whether reduced groundwater discharges have contributed to the lack of cold water assemblage in the creek.

In 2023, the City of Stillwater learned that some of its drinking water wells produce water that exceeds the Minnesota Department of Health's Health Based Guidance Values (HBVs) and the Maximum

Contaminant Levels (MCLs) for per- and polyfluoroalkyl substances (PFAS) established by the Environmental Protection Agency (EPA). Two wells (Well #6 and well #10) within Stillwater contain PFAS at levels above the EPA's drinking water standards. An additional well (Well #9) contains PFAS at levels just below these standards. All three wells are currently inactive and are not providing water for the community. To meet the community's water demands and provide the safest drinking water possible, the city is taking quick, proactive action on a short-term solution while also taking a strategic approach to long-term water treatment needs. A temporary treatment facility at Well #10 will ensure this well can safely be put back into service.

Groundwater resource data includes groundwater/well water quality data that is available from the Minnesota Pollution Control Agency[31]. The Washington County Hydrogeologic Atlas is available from the Minnesota Geological Survey (MGS)[7]. Groundwater level data is available from the Minnesota Climatology Working Group[2]. The Minnesota Department of Health provides maps and data for wellhead protection areas and the Minnesota well index[10]. BCWD has compiled information about many local groundwater related projects into a comprehensive "Groundwater State of Knowledge Report".

2.7.2.4 Groundwater-Dependent Natural Resources

Groundwater function within the watershed supports a viable cold-water trout fishery by discharging cool water to the surface stream environment, thus Brown's Creek is groundwater-dependent. Lakes are classified as groundwater-dependent based on the "Lake Data and Groundwater Function" table from the report *Integrating Groundwater and Surface Water Management – Northern Washington County*.

Groundwater seepage to the surface environment provides highly specialized hydrologic conditions that support numerous plant species and natural communities, in addition to ecosystem functions such as surface water supply and thermoregulation (e.g., discharge of cold water). In the upper watershed, groundwater seepage areas in wetlands create favorable conditions for hardwood seepage swamps, fens, wet meadows, shrub swamps, tamarack swamps, and floating sedge mats. These wetlands often harbor unique and regionally rare plant communities. In the lower creek gorge stretch of Brown's Creek, specialized natural communities, including trout populations, are dependent on groundwater seepage.

BCWD's rules define groundwater-dependent wetlands based on expression of a groundwater dependent plant community. Table 21 lists the Minnesota Land Cover Classification System (MLCCS) plant communities that are considered groundwater-dependent for purposes of the BCWD rules. BCWD recognizes that this vegetation-based definition lacks clarity when stressors – such as invasive species, vegetation clearing (e.g., cultivation), or historical overgrazing – degrade the plant community. Plant communities may be dominated by plants (e.g., cattails) that do not necessarily indicate groundwater dependency but conversely do not rule out the wetland's groundwater-dependent hydrology. It is important to account for these "masked" groundwater-dependent wetlands, as they still provide other ecosystem functions independent of vegetation and may harbor small remnants of groundwater-dependent plant communities or have potential as high quality restorations. For example, the 2024-2025 Brown's Creek stream restoration integrated buckthorn removal within seepage wetlands that would have not have met the plant community standard for groundwater-dependent wetlands.

The 2024 Wetland Function and Value and Groundwater Dependent Reclassification study used multiple sources to better define likelihood of watershed wetlands' groundwater dependence. These sources included groundwater dependency classifications from the 2007 function and value assessment, National Wetland Inventory Hydrogeomorphic Classification, Minnesota Department of Natural Resources Native Plant Community mapping, the MLCCS dataset, and the 2003 North Washington Groundwater Study. Based on composite scoring using this source data, wetlands were scored as "likely groundwater-dependent", "partially groundwater-dependent", or "surface water-dependent" (Figure 20 through

~~Figure 23 serves as a preliminary classification of groundwater dependence. The actual groundwater dependence of a particular wetland should be assessed on a case-by-case basis.~~

~~Table 21. Groundwater Dependent Natural Resource Types According to Existing District Rules (following MLCCS protocol).~~

~~Groundwater Dependent Wetlands~~	~~Groundwater and Surface Water Dependent Wetlands~~
~~Shrub fen~~	~~Lowland hardwood forest~~
~~Poor fen shrub subtype~~	~~Mixed hardwood swamp seepage subtype~~
~~Rich fen shrub subtype~~	~~Willow swamp - saturated soils~~
~~Shrub swamp seepage subtype~~	~~Wet meadow shrub subtype*~~
~~Wet meadow shrub subtype*~~	~~Willow swamp*~~
~~Willow swamp*~~	~~Mesic prairie~~
~~Wet prairie seepage subtype~~	~~Wet meadow*~~
~~Poor fen*~~	~~Cattail marsh~~
~~Poor fen sedge subtype~~	~~Poor fen*~~
~~Rich fen~~	~~Sedge meadow*~~
~~Rich fen sedge subtype~~	~~Seepage meadow*~~
~~Wet meadow*~~	~~Shallow emergent marsh*~~
~~Sedge meadow*~~	~~Mixed emergent marsh*~~
~~Seepage meadow*~~	~~Deep emergent marsh*~~
~~Shallow emergent marsh*~~	~~Shallow creeks*~~
~~Mixed emergent marsh*~~	~~Lake*~~
~~Deep emergent marsh*~~	~~Limnetic open water*~~
~~Trout stream~~	~~Shallow open water*~~
~~Lake*~~	~~Shallow open water with floating vascular vegetation*~~
~~Limnetic open water*~~	
~~Shallow open water*~~	
~~Shallow open water with floating vascular vegetation*~~	

~~*These wetland types can be either completely "Groundwater Dependent" or "Both" groundwater and surface water dependent and therefore are listed in both categories.~~

~~IMAGE~~

3 Biological Environment

In 2015, Brown's Creek Watershed District conducted a unique species inventory to assess the quantity and quality of natural habitat in the watershed. The goal of the unique species inventory was to better characterize the flora and fauna found in the Brown's Creek corridor so that watershed management decisions could be made taking the ecological health of the entire system into consideration. Given that the watershed can be broken into unique landforms (areas that have very different qualities due to geologic and topographic features), the unique species inventory was performed to characterize the flora and fauna found in the Brown's Creek corridor within these distinct areas.

The Brown's Creek watershed has four distinct landforms: Brown's Creek Headwaters, Central or Middle Brown's Creek, Lower Brown's Creek Ravine (Gorge) and the Long Lake Tributary areas (see Figure F11~~Figure F11~~and Figure F12~~Figure F12~~. The unique species inventory placed emphasis on the three landform regions directly connected to the creek, with limited resources placed on the Long Lake Tributary area which periodically contributes to Brown's Creek following the installation of the diversion structure. The boundary of these four landforms can generally be described as follows:

- **Headwaters Region of Brown's Creek**: This area includes the northern portion of the watershed from Minnesota State Highway 96 to the Goggins-School Section Chain-of-Lakes (Figure F6~~Figure F6~~).
- **Brown's Creek Middle Reach**: This area includes the Brown's Creek corridor in the central portion of the watershed south of Minnesota State Highway 96 to County Road 5 (Figure F7~~Figure F7~~).
- **Long Lake Tributary Area**: This area includes the drainage area to the four tributaries described in section 2.1.1.3 including Long Lake tributary, two reaches of the South Central Tributary and the Zephyr Tributary.
- **Brown's Creek Gorge**: This area includes the Brown's Creek corridor and its drainage area downstream of County Road 5 to the St. Croix River (Figure F8~~Figure F8~~).

The following is a discussion of each of the four landform areas as it relates to the biological environment. For those landforms directly connected to the creek and part of the unique species inventory, cross sections have been developed to display the unique attributes of these regions. Additional sources of information describing the Brown's Creek watershed's natural environment include: Brown's Creek Unique Species Inventory (2015); BCWD Natural Resource Inventory (2001); MLCCS mapping and continued data collection by the Minnesota Pollution Control Agency and the Minnesota Department of Natural Resources.

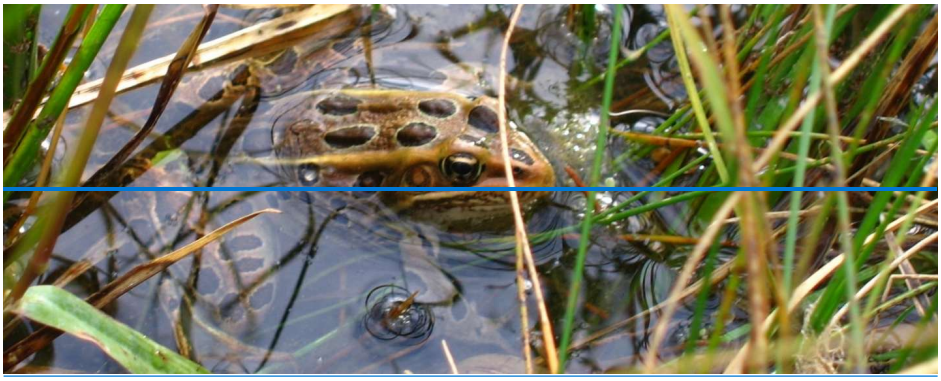
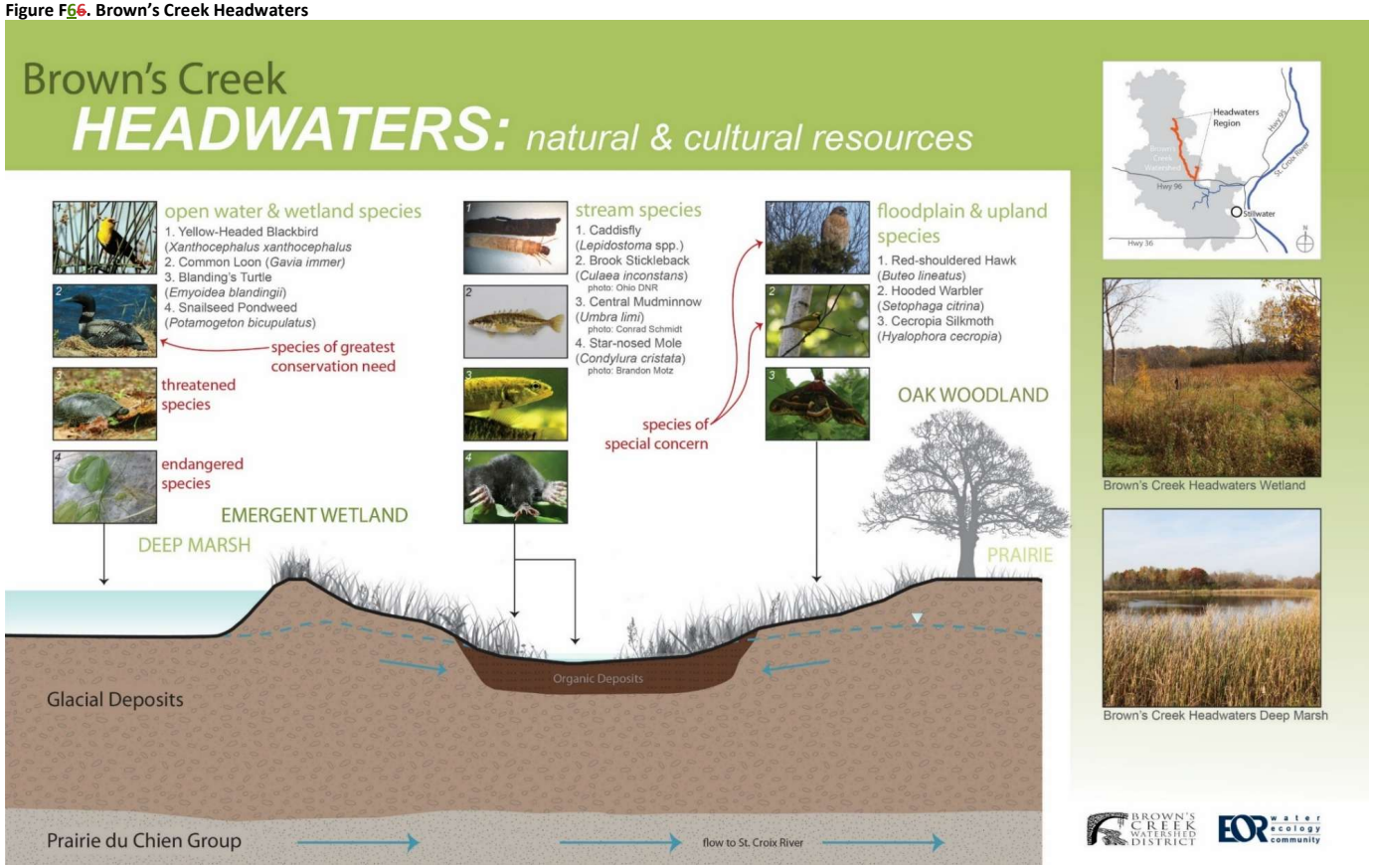


Figure F66. Brown's Creek Headwaters



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3.1 Brown's Creek Headwaters

The headwaters includes the northernmost portion of the Brown's Creek watershed with its many lakes and the peripheral landlocked and semi landlocked areas. The topography in the area is characterized by a mostly level to gently rolling landscape with numerous depressions. Soils are highly variable, ranging from well-drained sand to deep, poorly drained peat within wetlands and drainage swales.

3.1.1 Native Plant Community Description

The headwaters area contains numerous large, forested communities with the most prevalent being oak-dominated forests and woodlands. Other wooded communities include conifer plantations, maple-basswood, and aspen-dominated forests. The natural communities are typically adjacent to lakes and large wetlands and provide significant habitat and form a wildlife corridor. Natural communities benefit the lakes by providing recharge of groundwater, preventing erosion of steep slopes, and providing water quality treatment. The many depressional lakes and wetlands provide for significant recharge to the water table, which, in turn, supports flows in Brown's Creek. At least two lakes support populations of snailseed pondweed, a state-listed endangered aquatic plant species. Lakes and open water wetlands in the area support additional rare and unique aquatic and wetland plant species typically found farther north and east, with the Brown's Creek watershed occupying the southern and/or western limit of their range.

The broad lowland corridor contains a variety of high-quality wetland communities, including hardwood swamp, emergent marsh, hardwood seepage swamp, and tamarack swamp. Associated with these wetlands are several wooded upland communities, especially oak forest and oak woodland. Several of these are in good condition, and do not contain a dense understory of buckthorn that frequently characterizes oak communities within the region.

Many communities within this area are mapped on the Washington County Map of Natural Communities and Rare Features that was produced by the Minnesota Department of Natural Resources, and there are Blanding's turtle records within the area. In addition, because of the quality and size of the wetland communities, the potential for additional rare species is high. In 2015 three sites in the headwaters area were surveyed. Table F22~~Table F22~~ summarizes the findings of these surveys.

Table F22. Headwaters Natural Communities Surveyed in 2015

Site ID (as identified in 2001 NRI)	2015 Site Description	Results/2001 to 2015 Comparative Analysis*
1H		Site determined to be low quality in 2001 and of similar quality in 2015 due to presence of buckthorn. Ongoing buckthorn management is helping to improve community quality and species diversity.
3B	Near site 3B on an esker west of Brown's Creek	Site was free of buckthorn but did contain two other invasive species; smooth brome and reed canary grass. Since the 2015 plot was not within the boundary of site 3B surveyed in 2001, no comparative analysis can be made.
4I		Site described in 2001 to have buckthorn but also exhibiting a significant amount of oak regeneration and a diverse vegetative community. 2015 survey confirms a robust assemblage of native species persist at this site along with continued presence of buckthorn. Invasive Garlic mustard was found in the 2015 survey.

*** Three Minnesota Department of Natural Resources data sheets including natural community descriptions and plant species lists document findings of the 2015 survey. These data sheets can be found in the Unique Species Inventory (2016).**

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3.1.2 Bird Habitat Description

The mosaic of lake, wetland, forest, and grassland communities within the headwaters region provides important breeding and foraging habitats for many resident and migratory bird species. Bird surveys conducted along the Gateway Trail have identified 88 species of birds in 2015, including red-shouldered hawk, which is listed as a species of special concern by the Minnesota Department of Natural Resources. Mature forested areas around lakes provide suitable nesting habitat for red-shouldered hawks and this species likely nests in the headwaters region of the watershed. A male prothonotary and hooded warbler were photographed along the Gateway Trail approximately ¼ mile north of Highway 96. Hooded warblers are classified as a "Rare Regular" species by the Minnesota Ornithologists Union (MOU). In 2013, yellow-headed blackbirds were observed nesting in one of the wetlands in the Trout Habitat Preservation Project (THPP) located near the town of Withrow. This is the first known breeding record for this species in Washington County. Trumpeter swan, a species of greatest conservation need, has been observed at Goggins Lake as recently as 2024 and may be nesting in the lake.

A periodic birding survey has been carried out annually at the 13-acre BCWD 110th Street property since 2018. Unique species have included field and clay-colored sparrows, eastern kingbirds, eastern towhee, ovenbirds, Swainson's and hermit thrush, and ruby crowned and gold crowned kinglets.

3.1.3 Macroinvertebrate Habitat Description

Macroinvertebrates were sampled from several habitat types downstream of 110th Street. Of the three sites sampled for the unique species inventory (Headwaters, Central, and Gorge), the headwaters site contained the highest taxon richness (39 taxa represented). The headwaters site contained one lepidostoma caddisfly, glossosomatid caddisflies, and a large number of limnephilidae caddisflies. These taxa have a low pollution tolerance and are indicative of good water quality and sufficient dissolved oxygen. The single lepostomatidae caddisfly was the only specimen collected from all three sites and had the lowest pollution tolerance of all the specimens collected during this study.

3.1.4 Fish and Fresh Water Mussel Habitat Description

Fish surveys conducted by the Minnesota Department of Natural Resources for the headwaters area of Brown's Creek are limited to a short reach just north of 110th Street. Within this reach, brook stickleback, a species associated with clear, cool streams are found. Another fish species documented in this reach and often found in cool bog streams is central mudminnow; two other fish species, fathead minnow and creek chub, have also been documented in the upper reach. No trout species have been observed in the upper reach by Minnesota Department of Natural Resources Fisheries. Although water temperatures in the upper reach are generally cool enough to support trout, the low gradient and peaty substrates characteristic to most of this reach provide for poor trout habitat.

3.1.5 Amphibian and Reptile Habitat Description

Blanding's turtles have been found in numerous locations within the Brown's Creek watershed with the most sightings in the headwaters area. The large wetlands and shallow lakes provide excellent habitat for Blanding's turtles. These aquatic habitats also support healthy populations of painted and snapping turtles, and several species of herptiles including wood frog, boreal chorus frog, green frog, northern leopard frog, gray tree frog, American toad, and tiger salamander.

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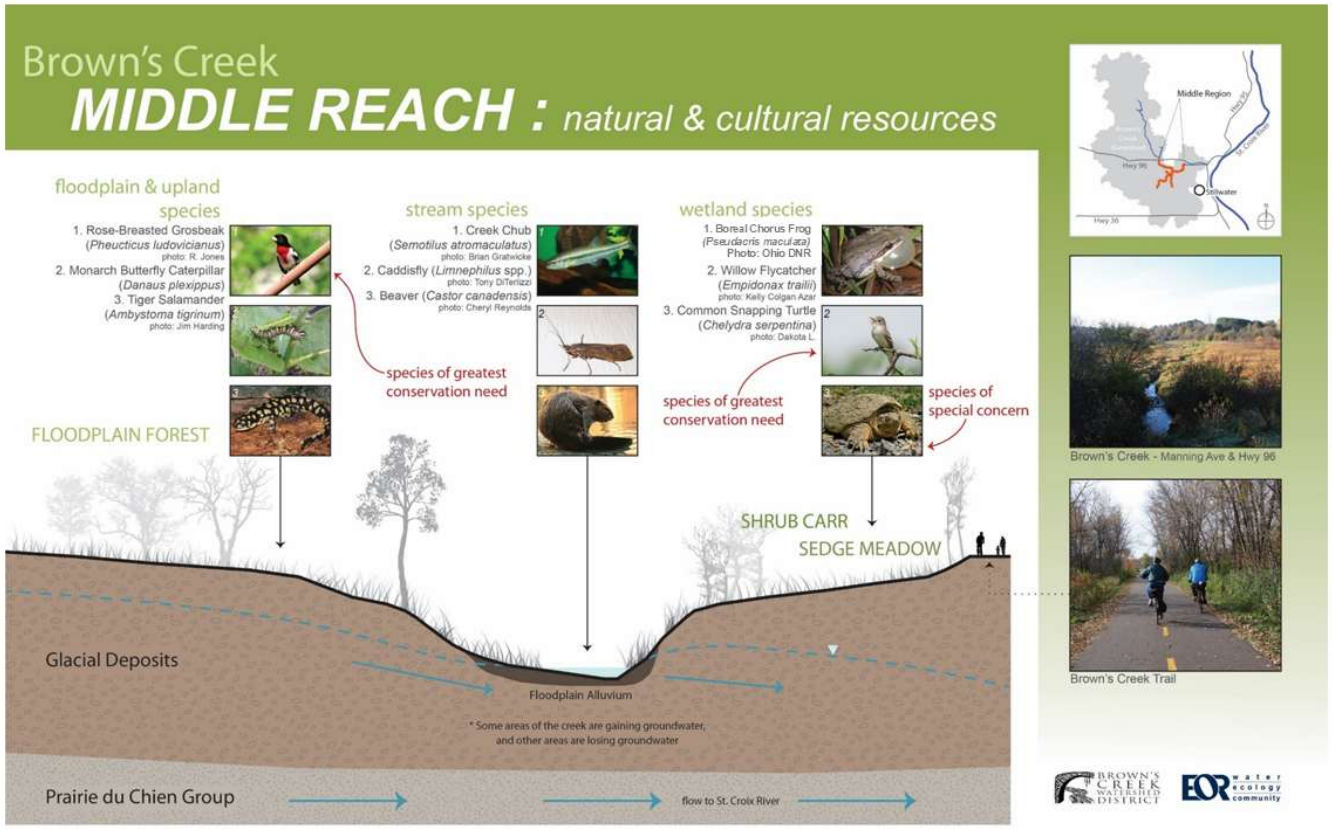
Figure F7. Brown's Creek Middle Reach



3.2 Central or Middle Brown's Creek

The topography in the central area is characterized by a gently rolling to level landscape with numerous depressional wetlands and seeps at the base of slopes near the creek. Much of the area is currently residential development with some wetlands bordering Brown's Creek. The Oak Glen golf course is in this reach downstream of Neal Avenue. The geographic scope for the central area is defined by the Brown's Creek Reach spanning from Manning Avenue to Norrell Avenue.

3.2.1 Native Plant Community Description

The central area contains scattered forested communities with the most prevalent being oak-dominated. Other wooded communities include conifer plantations, maple-basswood, and aspen-dominated forests. No native plant communities have been identified in this area. The creek restoration projects at Brown's Creek Park and Oak Glen golf course provide excellent examples of how natural resource restoration projects can be incorporated into a developed landscape.

3.2.2 Bird Habitat Description

The wetland and shrub-carr communities within the central region provide important breeding and foraging habitats for many resident and migratory bird species. Open water habitat is also an important component utilized by waterfowl and shorebirds. Although no specific bird surveys were conducted in this area, ring-necked duck, mallard, green heron, broad-winged hawk, killdeer, pileated woodpecker, chimney swift, alder flycatcher, great-crested flycatcher, American redstart and barn swallow have been observed in this area.

3.2.3 Macroinvertebrate Habitat Description

Macroinvertebrates were sampled from several habitat types downstream of Highway 96. Of the three sites sampled for the unique species inventory (Headwaters, Central, and Gorge), the central site contained the second highest taxon richness (33 taxa represented). The central site contained glossosomatid caddisflies and many limnephilidae caddisflies. These taxa have a low pollution tolerance and are indicative of good water quality and sufficient dissolved oxygen.

3.2.4 Fish and Fresh Water Mussel Habitat Description

Surveys and assessments in this reach have identified brook stickleback, central mudminnow, fathead minnow, creek chub, and several warm water species including black bullhead, pumpkinseed, and hybrid sunfish. The presence of warm water species reflects the sluggish characteristics of Brown's Creek within this reach. Fingernail clams have been observed in riffle habitat downstream of Highway 96 and within the Oak Glen golf course.

3.2.5 Amphibian and Reptile Habitat Description

Common herptile species such as painted turtle, common garter snake, green frog, boreal chorus frog, and northern leopard frog occupy the various wetland complexes along this reach.





Northern Leopard Frog in the water.

~~Northern Leopard Frog in the water.~~

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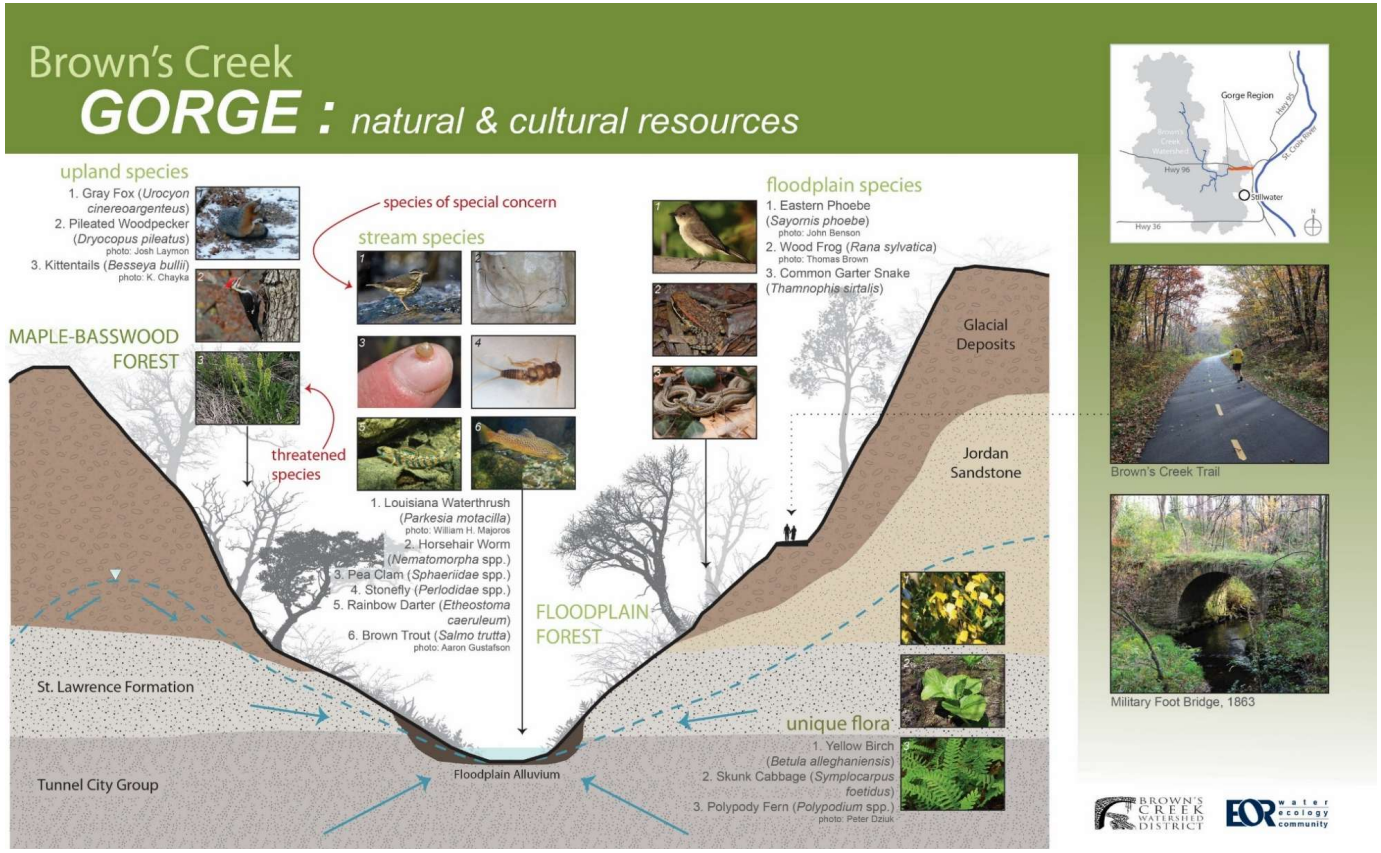
Figure F88. Brown's Creek Lower Reach/Ravine



3.3 Lower Brown's Creek Ravine (Gorge)

The gradient of Brown's Creek changes dramatically as it descends into the St. Croix Valley downstream of the historic Stone Arch Bridge. Within this reach, Brown's Creek flows through a steep, wooded valley where the creek channel has cut into the Tunnel City Group bedrock formation, hence the name Lower Gorge. It is within this reach that cold groundwater provides a major component of the base flow to Brown's Creek, thus providing one of the key elements necessary to support a cold-water fishery. The direct drainage area within this subwatershed is limited to a relatively small drainage area adjacent to Brown's Creek. Most of this drainage area is forested with low density large-lot residential development. The lower gorge generally consists of two types of vegetative communities: maple-basswood forest and mixed hardwood seepage swamp.

3.3.1 Native Plant Community Description

Five native plant communities occur within the ravine: dry bedrock bluff prairie, red oak - white oak - (sugar maple) forest, sugar maple - basswood - (bitternut hickory) forest, willow - dogwood shrub swamp, and black ash - (red maple) seepage swamp. These natural communities support high biodiversity and ecological value in the lower gorge and help protect Brown's Creek by preventing erosion of the steep slopes and by shading the water.

The rare features value for this reach of the creek is high. Several communities within the ravine are mapped on the Natural Communities and Rare Species Map for Washington County and support a small population of kittentails, a state-listed threatened plant. In 2015, surveys were conducted in high-quality vegetation communities identified in the MLCCS mapping and at site 6D in the 2001 NRI. Table F23~~Table F23~~ summarizes the findings of the survey at site 6D.

In 2025, site 6D was revisited to assess the population of kittentails and four individuals were documented. Woody invasive species continue to degrade this area and will require management to protect the kittentails population at this location.

Table F23. Lower Ravine Natural Communities Surveyed in 2015

Site ID (as identified in the 2001 NRI)	2015 Site Description	Results/2001 to 2015 Comparative Analysis*
6D		In 2015, one sample site was selected based on landscape position and ease of access. Two MNDNR releve data sheets including natural community descriptions and plant species lists document findings of the 2015 survey. Vegetation data from 2015 confirm a diverse plant community exists although buckthorn and Tartarian honeysuckle were found in 2015 which were not documented in the 2001 survey.

*** Two Minnesota Department of Natural Resources data sheets including natural community descriptions and plant species lists document findings of the 2015 survey. These data sheets can be found in the Unique Species Inventory (2016).**

3.3.2 Bird Habitat Description

Three bird species that prefer mature forests associated with streams include the Louisiana waterthrush, Acadian flycatcher, and cerulean warbler. These three species are listed by the Minnesota Department of Natural Resources as "species of special concern" and also listed as Species of Greatest Conservation Need (SGCN). In 1988, the Minnesota County Biological Survey (MCBS) documented a pair of Louisiana waterthrushes along the Brown's Creek gorge. Although no nest was found during the survey, the surveyors concluded there was good evidence of breeding occurring in the area. In May 2019, EOR staff found an active Louisiana waterthrush nest in the middle of the gorge with two adults tending to the nest,

and another pair was observed in this area in 2024, but no nest was found. Additionally, tufted titmice have been wintering over in the gorge area. Wood pewee and wood thrush have also been observed.

There has been no documented evidence of Acadian flycatchers and cerulean warblers in the lower gorge, but it is possible sufficient habitat exists to support them during the breeding season. It should be noted that all three of these species have been observed at Falls Creek SNA in northern Washington County. Falls Creek SNA is like the Brown's Creek gorge since both areas contain steep wooded ravines with swift-flowing creeks. The relative proximity of these two areas increases the likelihood of these species utilizing the Brown's Creek corridor during the breeding season and migration.

3.3.3 Macroinvertebrate Habitat Description

Macroinvertebrates were sampled from several habitat types within the Brown's Creek Gorge. Of the three sites sampled during the 2015 unique species inventory (Headwaters, Central, and Gorge), the gorge site contained the lowest taxon richness (26 taxa represented). It contained one Perlodid stonefly and large numbers of Uenoidae and Limnephilidae caddisflies. These taxa have a low pollution tolerance and are indicative of good water quality and sufficient dissolved oxygen. The single Perlodidae stonefly was the only specimen collected from all three sites.

BCWD has been conducting routine fish and macroinvertebrate assessments since 2015 to monitor changes in the biological community of Brown's Creek following implementation of several water quality projects in the watershed. Data collected from 2015-2023 indicate an overall upward (improving) trend in stream health and macroinvertebrate community quality.

The calculated IBI scores from all three sites indicate a stable and improving macroinvertebrate community from 2015 to 2023, with most macroinvertebrate IBI scores occurring between the general use and exceptional use thresholds for the Southern Coldwater Streams region. In particular, the gorge IBI scores have improved the most during the study and have remained above the exceptional use threshold since 2019. Of the 17 samples that have scored above the exceptional use threshold over the course of the project, 14 of those samples have occurred since 2019. Most notably, all three fall 2019 samples were above the exceptional use threshold.

The total number of taxa sampled from 2015-2023 indicates a diversity of species present across all three sites (140 unique taxa, with the three most dominant taxa having a medium-level tolerance to pollution. However, good numbers of intolerant taxa (species intolerant of pollution) are also present, indicating ample stream habitat and water quality to support these sensitive species. The Perlodid stonefly has been collected every year from the gorge site, indicating the creek provides ample habitat and oxygen levels for this pollution-intolerant species. Perlodid stoneflies were also collected from the middle reach from 2020-2022.

The average pollution tolerance score has decreased since 2015, indicating the creek is supporting a greater number of species that are considered intolerant to pollution. This trend is also reflective in the population size of intolerant species, with the number of pollution intolerant specimens steadily increasing since 2015. Pollution intolerant taxa are present in good numbers at all three sampling sites and suggest Brown's Creek is providing suitable habitat and water quality for macroinvertebrates throughout the creek corridor.

3.3.4 Fish and Fresh Water Mussel Habitat Description

The Minnesota Department of Natural Resources has conducted fish population assessments in the lower gorge dating back to 1966. Fish species documented over the years have included northern pike, creek chub, white sucker, burbot, brook stickleback, central mudminnow, bluntnose dace, longnose dace, fathead minnow, rainbow darter, green sunfish, pumpkinseed, bluegill, rainbow trout, and brown trout.

Interestingly, while conducting the mussel survey in 2015, a rainbow darter was captured and photographed in the lower gorge. This individual represents only the 2nd record of this species in Brown's Creek. The first known record of a rainbow darter in Brown's Creek was sampled by the Minnesota Department of Natural Resources in 1976.

The Minnesota Department of Natural Resources began stocking brook trout in the creek in 1951 with a second stocking effort conducted in 1955. The success of this initial stocking was apparently low, so they switched to stocking brown trout starting in the 1960's. Since this time, the brown trout population had been supported by routine stocking efforts as little natural reproduction occurred in the creek. However, over the last decade, evidence of naturally reproducing brown trout was documented in the lower gorge, so they switched to stocking rainbow trout to bolster recreational fishing opportunities in the creek. In addition, Stillwater Area High School recently began raising fingerling rainbow trout to release in the creek based on input from the Minnesota Department of Natural Resources. However, with the thermal reductions measured in the creek since 2021, BCWD has requested that the Minnesota Department of Natural Resources start stocking Minnesota native strain brook trout when sufficient stock is available.

A mussel survey was conducted in the lower gorge on October 13, 2015. Survey efforts focused on riffles in the lower gorge where the potential for mussel occurrence would be greatest due to proximity of the St. Croix River. No live specimens of mussels were found, but numerous fingernail clams in the family Sphaeriidae were observed in the riffles. This is a common species found in many Minnesota streams. Interestingly, an old mussel valve (shell) was found upstream of the Highway 96 box culvert. Regional malacologists from the Minnesota Department of Natural Resources concluded that the identity of this specimen was likely a plain pocketbook. The origin of this specimen is unknown, but it is possible Brown's Creek once supported at least one species of native mussel in the lower gorge. If host fish from the St. Croix River can freely swim upstream into Brown's Creek, it is possible glochidia (young mussles) from certain mussel species could be dispersed by their fish hosts and colonize the riffles that occur in the lower gorge.

3.3.5 Amphibian and Reptile Habitat Description

The steep wooded bluffs, rock outcroppings, riparian wetlands, and groundwater seeps provide cool, moist conditions that support herptiles such as wood frog, gray tree frog, American toad, and tiger salamander but generally do not support overwintering habitat for turtles.



The Brown's Creek Gorge

3.4 Long Lake Tributary Area

Predominant land-uses in the Long Lake Tributary drainage area include old fields, row crops, forest and low to moderate density residential. South of Long Lake, along the Highway 36 corridor, land-use includes a mixture of light industrial and office space, along with retail business. The Highway 36 corridor has experienced the highest amount of urban growth in the Brown's Creek watershed.

3.4.1 Native Plant Community Description

The natural communities within the Long Lake Tributary are limited to the areas adjacent to Long Lake and two small areas to the west of Manning Avenue. The natural communities in this area face pressure from development and are likely to decrease in quality. The largest natural community within this area, a mesic oak forest, is currently being developed into residential housing. In addition to this area, there are small conifer plantations and oak woodlands of varying quality. These natural communities provide an excellent buffer for Long Lake.

Rare features value for the oak forest on the west side of Long Lake is high. The 2001 NRI identified this site as 8B. This community is mapped on the Natural Communities and Rare Species Map for Washington County.

As documented in the 2001 Groundwater Dependent Natural Resource Management Plan, a fen is located on a sloping, east facing hillside in the southwestern portion of Section 26 of Township 30, Range 21. This shallow wetland community is dominated by sedges and grasses on a deep (>2 feet) peat substrate. The ground layer is dominated by tussock sedge, lake sedge, wooly sedge, and other sedges and grasses along with swamp saxifrage, water hemlock, and sensitive fern. Although a generally open community, this fen also contains pockets of woody shrubs including willows and dogwoods. This fen has retained its status as being high quality and high functioning. However, several areas of this fen have been partially degraded where scattered pockets of reed canary grass, an invasive plant species, occur. Iron-rich groundwater discharges at the base of the slope where the fen is located. This is an indication of groundwater discharging into the fen. In total over 50 native plant species have been documented at the site during numerous field visits, making it one of the most diverse wetlands in the Brown's Creek watershed. Most of the plant species found within the wetland are not encountered in any other wetland in the watershed, and many of the species are somewhat unique to rich fens. The drainage area to the fen is currently being developed into single-family residential area. While the fen is being protected by the district's rules, BCWD will continue to monitor the quality of the fen through its vegetation management activities.

3.4.2 Bird Habitat Description

No bird surveys were conducted in this area.

3.4.3 Macroinvertebrate Habitat Description

No macroinvertebrate work was conducted in this area.

3.4.4 Fish and Fresh Water Mussel Habitat Description

No fish or mussel work was conducted in this area.

3.4.5 Amphibian and Reptile Habitat Description

Like the developed central reach of Brown's Creek, common herptile species such as common garter snakes and northern leopard frogs are most likely to be prevalent here. The lakes and wetlands also provide habitat for common turtle species such as the painted turtle and snapping turtle. There are no Blanding's turtle records in this area of the watershed.

3.5 Exotic and Invasive Species

Exotic and invasive species are an on-going threat in the Brown's Creek watershed which can degrade native plant communities, wildlife habitat, and water quality. Table F24~~Table F24~~ was developed from the Minnesota Department of Natural Resources terrestrial and aquatic invasive species database. The terrestrial species database is an inventory across the Minnesota Department of Natural Resources (MNDNR) administered lands of selected invasive terrestrial plants derived from a multi-divisional effort to collect consistent information across all MNDNR-administered lands. The aquatic species are derived from a MNDNR effort to record the locations of aquatic invasive species in waterbodies throughout the state. To develop the table below, the GIS database for both terrestrial and aquatic species was queried for Washington County and intersected with the watershed boundary to identify documented species in the watershed. There are several species documented in Washington County that are likely present in the watershed for which the MNDNR does not have a record.

Table F24. List of Exotic and Invasive Species Documented by the Minnesota Department of Natural Resources in Washington County and BCWD. Species listed as unregulated and/or added by EOR for known presence but not listed in MNDNR dataset are noted with *.

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Absinth Wormwood	Y		Y	
Alsike Clover	Y		Y	
Amur Maple	Y	Y	Y	
Amur Silvergrass	Y		Y	
Annual Sowthistle	Y		Y	
Asiatic Dayflower	Y	Y	Y	
Asparagus	Y	Y	Y	
Autumn Olive	Y		Y	
Banded Mystery Snail	Y			Y
Barnyard Grass	Y		Y	
Biennial Campion	Y		Y	
Bighead Carp	Y			Y
Bigleaf Lupine	Y		Y	
Bird Vetch	Y		Y	
Birdsfoot Trefoil	Y	Y	Y	
Bittersweet Nightshade	Y	Y	Y	
Black Bullhead	Y			Y
Black Locust	Y	Y	Y	
Black Medic	Y	Y	Y	
Black Mustard	Y		Y	
Black Swallowwort; Black dog-strangling vine	Y		Y	
Bladder Campion	Y		Y	
Bohemian Knotweed; Hybrid Japanese	Y	Y	Y	
Bouncingbet	Y		Y	

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Bristly Bellflower	Y		Y	
Bristly Locust	Y	Y	Y	
Brown Knapweed	Y		Y	
Brown Marmorated Stink Bug	Y	Y	Y	
Brown Trout*	Y	Y		Y
Bull Thistle	Y	Y	Y	
Bullfrog*	Y	Y		Y
Burnet-Saxifrage	Y		Y	
Canada Bluegrass	Y		Y	
Canada Thistle	Y	Y	Y	
Carpetweed	Y		Y	
Catnip	Y	Y	Y	
Cheatgrass Grass; Downy Brome	Y	Y	Y	
Chickpea Milkvetch; Cicer	Y		Y	
Chicory	Y		Y	
Chinese Mystery Snail	Y			Y
Chukar*	Y		Y	
Common Buckthorn	Y	Y	Y	
Common Burdock	Y		Y	
Common Carp	Y			Y
Common Chickweed	Y		Y	
Common Comfrey	Y		Y	
Common Earthworm	Y		Y	
Common Flax	Y		Y	
Common Groundsel	Y		Y	
Common Hempnettle	Y		Y	
Common Mallow	Y		Y	
Common Mouse-ear Chickweed	Y		Y	
Common Mullein	Y	Y	Y	
Common Purslane	Y		Y	
Common Selfheal	Y	Y	Y	
Common Speedwell	Y		Y	
Common St. Johnswort	Y	Y	Y	
Common Tansy	Y	Y	Y	
Common Valerian	Y	Y	Y	
Common Vetch	Y		Y	

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Common Yarrow	Y	Y	Y	
Corn Speedwell	Y	Y	Y	
Cow Vetch	Y	Y	Y	
Creeping Bellflower	Y	Y	Y	
Creeping Charlie	Y	Y	Y	
Creeping Yellow Loosestrife; Creeping Jenny	Y		Y	
Crimson Clover	Y		Y	
Curly Dock	Y	Y	Y	
Curly-Leaf Pondweed	Y	Y		Y
Cutleaf Teasel	Y		Y	
Cypress Spurge	Y		Y	
Dame's Rocket	Y	Y	Y	
Dandelion	Y		Y	
Deptford Pink	Y		Y	
Dock Broadleaf	Y		Y	
Dotted Loosestrife	Y		Y	
Dutch Elm*	Y	Y	Y	
Elecampane	Y		Y	
Emerald Ash Borer	Y	Y	Y	
Eurasian and Northern Watermilfoil Hybrid	Y			Y
Eurasian Watermilfoil	Y	Y		Y
European common reed, Phragmites	Y	Y		Y
European Starling	Y	Y*	Y	
Everlasting Peavine	Y		Y	
False Strawberry	Y		Y	
Field Bindweed	Y		Y	
Field Pennycress	Y	Y	Y	
Flat Peavine	Y	Y	Y	
Flowering Rush	Y			Y
Freshwater Golden Clam	Y			Y
Garlic Mustard	Y	Y	Y	
Giant Chickweed	Y			Y
Giant Foxtail	Y	Y	Y	
Glossy Buckthorn	Y	Y	Y	
Golden Chamomile	Y		Y	
Goldfish	Y			Y

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Goutweed	Y	Y	Y	
Grass Carp	Y			Y
Gray partridge*	Y		Y	
Great Burdock	Y		Y	
Greater Celandine	Y		Y	
Grecian Foxglove	Y	Y	Y	
Green Bristlegrass	Y		Y	
Green Foxtail	Y		Y	
Hairy Galinsoga	Y	Y	Y	
Hairy Vetch	Y	Y	Y	
Hedge Bindweed	Y		Y	
Helleborine	Y	Y	Y	
Herb-Robert	Y		Y	
Hoary Alyssum	Y	Y	Y	
Hop Clover	Y		Y	
House Sparrow*	Y	Y	Y	
Hybrid Barberry	Y		Y	
Japanese Angelica Tree	Y		Y	
Japanese Barberry	Y	Y	Y	
Japanese Beetle	Y	Y	Y	
Japanese Brome	Y		Y	
Japanese Hedge-Parsley; Erect Hedge-Parsley	Y		Y	
Japanese Hop	Y		Y	
Japanese Knotweed	Y	Y	Y	
Japanese Lilac Tree	Y		Y	
Jimsonweed	Y		Y	
Jumping Worm	Y	Y	Y	
Kentucky Bluegrass	Y		Y	
Knapweed Weevil	Y	Y	Y	
Ladysthumb	Y		Y	
Lambsquarters	Y		Y	
Large Clover	Y		Y	
Large Crabgrass	Y		Y	
Leafy Spurge	Y	Y	Y	
Lesser Knapweed Flower Weevil	Y		Y	
Lily Leaf Beetle	Y		Y	

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Lily of the Valley	Y		Y	
Little Starwort	Y		Y	
Littleleaf Linden	Y		Y	
Longleaf Speedwell	Y		Y	
Low Cudweed	Y		Y	
Meadow Foxtail	Y		Y	
Meadow Salsify	Y		Y	
Morrow's Honeysuckle	Y		Y	
Moth Mullein	Y		Y	
Motherwort	Y	Y	Y	
Mugwort	Y		Y	
Multicolored Asian Lady Beetle	Y		Y	
Muscovy Duck	Y		Y	
Musk Thistle; Nodding	Y	Y	Y	
Mute Swan*	Y			Y
Narrowleaf Bittercress	Y		Y	
Narrowleaf Hawksbeard	Y		Y	
Narrow-Leaved Cattail	Y			Y
Norway Maple	Y	Y	Y	
Oak Wilt	Y	Y	Y	
Oakleaf Goosefoot	Y		Y	
Orange Hawkweed	Y	Y	Y	
Orchardgrass	Y	Y	Y	
Oxeye Daisy	Y	Y	Y	
Perennial Sowthistle	Y	Y	Y	
Pineapple-Weed	Y	Y	Y	
Plantain Broadleaf	Y		Y	
Plantain Buckhorn	Y		Y	
Poison Hemlock	Y		Y	
Prickly Lettuce	Y	Y	Y	
Prostrate Knotweed	Y		Y	
Purple Carrot-Seed Moth	Y		Y	
Purple Crown Vetch	Y	Y	Y	
Purple Loosestrife	Y	Y		Y
Quackgrass	Y	Y	Y	
Rabbitfoot Clover	Y	Y	Y	

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Rainbow Smelt	Y			Y
Rainbow Trout*	Y			Y
Red Clover	Y	Y	Y	
Red Hailstone	Y		Y	
Red Sorrel	Y	Y	Y	
Redtop	Y		Y	
Reed Canary Grass	Y	Y		Y
Ring-necked Pheasant*	Y	Y	Y	
Rock Dandelion	Y		Y	
Rock Pigeon*	Y	Y	Y	
Round Leaf Bittersweet	Y	Y	Y	
Russian Olive	Y		Y	
Russian Thistle	Y		Y	
Rusty Crayfish	Y			Y
Scots Pine	Y		Y	
Shepherd's-Purse	Y	Y	Y	
Siberian Elm	Y	Y	Y	
Siberian Peashrub	Y		Y	
Silver Carp	Y			Y
Silvery Cinquefoil	Y		Y	
Small-Leaf Bramble	Y	Y	Y	
Smooth Brome	Y	Y	Y	
Spiny Plumeless Thistle	Y		Y	
Spotted Knapweed	Y	Y	Y	
Spotted-Wing Drosophila	Y	Y	Y	
Squill	Y	Y	Y	
Stinging Nettle	Y	Y	Y	
Sulfur Cinquefoil	Y	Y	Y	
Sweetwilliam	Y		Y	
Tall Buttercup	Y		Y	
Tar Spot of Corn	Y	Y	Y	
Tatarian Honeysuckle	Y	Y	Y	
Tawny Daylily	Y	Y	Y	
Thymeleaf Speedwell	Y	Y	Y	
Timothy	Y		Y	
True Forget-me-not	Y	Y	Y	

Species Common Name	Washington County	BCWD	Terrestrial	Aquatic
Velvetleaf	Y		Y	
Venice Mallow	Y		Y	
Viburnum Cranberry; European highbush	Y		Y	
Wallflower Mustard	Y		Y	
Watercress	Y			Y
Western Salsify	Y	Y	Y	
White Cabbage; Imported Cabbage Worm	Y		Y	
White Campion	Y	Y	Y	
White Clover	Y	Y	Y	
White Mulberry	Y	Y	Y	
White Poplar	Y	Y	Y	
White Sweetclover	Y	Y	Y	
Wild Buckwheat	Y	Y	Y	
Wild Carrot Queen Anne's Lace	Y	Y	Y	
Wild Mustard	Y		Y	
Wild Parsnip	Y	Y	Y	
Winged Burning Bush	Y	Y	Y	
Woodland Forget-me-not	Y		Y	
Woolly Cupgrass	Y		Y	
Yellow Clover	Y	Y	Y	
Yellow Flag Iris; Pale Yellow Iris	Y			Y
Yellow Foxglove	Y		Y	
Yellow Foxtail	Y	Y	Y	
Yellow Iris*	Y		Y	
Yellow Nutsedge	Y		Y	
Yellow Rocket	Y	Y	Y	
Yellow Toadflax	Y	Y	Y	
Zebra Mussel	Y			Y

Data from the vegetation surveys conducted in the Brown's Creek watershed for the unique species inventory were analyzed to develop a baseline assessment of invasive species abundance. In the 696 (mostly wetland) vegetation data points within the watershed, 65% of them had one or more invasive species identified. Reed canary grass was present in 49% of the plots and the second-most common species was glossy buckthorn at 12%. Common buckthorn was also found in 8% of the plots, but it should be noted that most of the plots were within wetlands and that common buckthorn is more prevalent in upland sites. Past and ongoing vegetation surveys in the Brown's Creek watershed confirm that smooth and glossy buckthorn are a problematic invasive species.

4 Human Environment

Humans have inhabited the watershed for thousands of years. Prior to the arrival of European settlers and the establishment of Minnesota in 1858, the Dakota and Ojibwe were the primary stewards of these lands. A series of land cessions in 1837, 1842, 1854, and the Dakota Expulsion Act of 1863 led to increased exploitation of the watershed's resources and widespread neglect by government of treaty obligations to Indigenous rights.

Indigenous peoples shaped their environment to sustain their communities through practices such as controlled fires to improve oak savanna habitat for game and foraging grounds for bison. Rivers, streams, lakes, and wetlands provided important corridors for transportation and food from fish, *manoomin* (wild rice), and other food sources. Settlement by Europeans and subsequent waves of migrants has dramatically reshaped the environment of the St. Croix watershed through forestry, agriculture, and expansion of built-up areas such as cities, suburbs, and towns.

Today, many communities call the watershed home and have varying interests in the future of the watershed. An enhanced engagement effort begun in 2023 identified and mapped stakeholder groups considering their representation, type, reach, level of interaction with the environment, and their impact on the environment. Groups were sorted by level of interest and level of influence in watershed decision-making. The enhanced engagement effort's stakeholder mapping provides the basis for ongoing engagement with watershed communities aimed at broadening awareness and involvement in watershed activities.

4.1 Demographics

The 2020 Decennial Census included tabulations of housing units, total population, and adult population by race and Hispanicity, which is available at the Minnesota Geospatial Commons[4]. In addition, the Metropolitan Council has published files for 2020 blocks, block groups, and tracts.

The total population of Minnesota is projected to grow from 5.78 million in 2024 to 6.11 million in 2075. Washington County is one of the counties projected to experience the most significant population growth with the addition of 110,647 individuals or an approximately 41% increase in this same timeframe. This projected growth may increase further due to the emerging phenomenon of climate migration to the state. By 2075, Minnesota's population in the over 65+ age group will more than double, while the population in the younger age groups (0-19 years) will remain stable/decline slowly. Black and Indigenous communities and other communities of color are projected to grow at a faster rate than the white population.

Table F25. Population Growth by Municipality

Community	2020*	2030 (Projected)	2040 (Projected)
Grant	3,970	4,160	4,260
Hugo	15,766	22,800	29,900
Lake Elmo	11,355	18,480	22,450
May Township	2,670	3,490	3,950
Oak Park Heights	4,894	5,300	5,700
Stillwater	19,394	22,240	23,240
Stillwater Township	1,866	2,230	2,360

Source: *U.S. Census, Metropolitan Council

4.2 Historical Land-Use

The Historical Generalized Land Use dataset encompasses the seven county Twin Cities (Minneapolis and St. Paul) Metropolitan Area in Minnesota, which is available at the Minnesota Geospatial Commons[4] . The dataset was developed by the Metropolitan Council, and the data were interpreted from 1984, 1990, 1997, 2000, 2005, 2010, 2016, and 2020 air photos and other source data, with additional assistance from county parcel data and assessor's information.

4.3 Present Land-Use

Land-use data can be obtained from a multitude of geospatial datasets available at Minnesota Geospatial Commons[4] and the respective agency websites. The National Land Cover Database (NLCD), 2021[35] and the Minnesota Land Cover Classification System (MLCCS)[12] provide similar land use information first published in 2014 with various updates as recent as August 2024. The USDA Cropland Data Layer, 2023, which can be attained through Minnesota Geospatial Commons[4] provides land-use information as it relates to agriculture, which occupies approximately 9.4% percent of land cover within the Brown's Creek watershed. Metropolitan Council Local Planning Handbook[36], provides present land use related to development types.

4.4 Future Land-Use

The Minnesota State Demographic publishes population data from the U.S. Census Bureau's American Community Survey in 1-, 3-, or 5- year estimates based on Minnesota city, township, and county[37]. Also provided are population projections and a variety of trend analyses. Population projections for Washington County for the time frame of this plan, 2027-2036, indicate a 32% growth in population between 2015 and 2040.

This significant projected growth for Washington County implicates additional development and redevelopment within Brown's Creek watershed. The Metropolitan Council's 2050 Land Use Policy[38] identifies most the watershed in its diversified rural policies. Diversified rural areas are primarily concerned with cost-effective expansion of urban infrastructure, and the protection of natural and water resources. The comprehensive plans for BCWD cities and townships contain more information about future development and redevelopment areas. Several cities within the watershed have completed comprehensive plans that forecast how their cities will look by the year 2040. Table F26~~Table F26~~ lists each city, township, and county that lies within the watershed and the date of its most current comprehensive plans.

Table F26. Status of Local Comprehensive Plans in the Brown's Creek Watershed

City or Township	Planning Horizon	Date Plan Approved
Grant	2040	Submitted 2019; no approval date listed
Hugo	2040	Adopted November 18, 2019
Lake Elmo	2040	Approved and adopted November 5, 2019
May Township	2040	Updated January 5, 2025; no approval date listed
Oak Park Heights	2040	Dated February 2020; no approval date listed
Stillwater	2040	Completed 2018; no approval date listed
Stillwater Township	2040	Adopted May 10, 2018
Washington County	2040	Adopted by County Board 9 January 7, 2020.

Future and planned land-use data within the Brown's Creek watershed can be attained through two outlets. The Metropolitan Council provides a compilation of individual land use plans and plan amendments from communities within the seven county metropolitan area, which is available through the Minnesota Geospatial Commons[4]. The Metropolitan Urban Service Area (MUSA) composite dataset depicts current and future boundaries of the Urban Service Areas (sewer service areas) based on communities' comprehensive plans for the seven-county metropolitan area. The dataset does not depict the precise location of current urban services, however, it provides a framework in which known urban development and anticipated future development can exist with adequate sewer capacity at efficient service levels. This dataset provides a good metric for the potential of future land use within areas planned for development. Both the 2030 and 2040 MUSA within the Brown's Creek watershed is limited to the City of Stillwater and Oak Park Heights. Future development in the watershed is therefore anticipated to be unsewered in the diversified rural areas.

4.5 Water-Based Recreation Areas

There are no lakes within the watershed with a public boat ramp. No Minnesota Department of Natural Resources fishing piers are located within the Brown's Creek watershed. Public access is available to Long Lake, Brewers Pond, and Brown's Creek through the City of Stillwater parks. Public access is available to Bass Lake West and a wetland north of 101st Street through the City of Grant parks. Public access is available for much of the trout stream portion of Brown's Creek through public land and easements. The exception is the private property on either side of the stone arch bridge. The Department of Transportation maintains parking places for anglers in the lower portion of the stream near the intersection of Highway 96 and Highway 95. Data for water-based recreation areas is available through Minnesota Geospatial Commons[5].

4.6 Open Space and Recreational System

All municipalities within the watershed have at least one public park or recreational space, and the specific locations of these open spaces are not available on a universal database. Each city website and comprehensive plan was consulted for public park information as it relates to BCWD. Table F27~~Table F27~~ lists the public parks and open spaces within the watershed and does not include public waters. Most parks listed are within the City of Stillwater and additional information on these parks can be attained at the City of Stillwater Parks website.



Biker in the watershed

Table F27. Recreational Spaces and locations within BCWD

Recreational Space	Agency	Location
Autumn Hills	Oak Park Heights	Norwich parkway, Hugo MN
Bass Lake Park	City of Grant	May Ave N and 150th St N, Grant, MN
Benson Park	City of Stillwater	North side of West Orleans Street, Stillwater, MN
Bergman Park Bergmann Drive	City of Stillwater	Judd Trail and Timber Way, Stillwater, MN
Brown's Creek Park	City of Stillwater	South of McKusick Road on Neal Avenue N, Stillwater, MN
Brown's Creek Reserve	City of Stillwater	McKusick Road and Neal Avenue, Stillwater, MN
Brown's Creek State Trail	MnDNR	Dellwood Road moving east to hwy 95
Creekside Park	City of Stillwater	Creekside Crossing and Creekside Circle, Stillwater, MN
Croixwood Open Space	City of Stillwater	Nightingale Boulevard, north of Marine Circle, Stillwater, MN
Gateway State Trail	MnDNR	Hwy 36 moving northeast to Norrell Avenue
Heritage Square Park	City of Stillwater	Liberty Parkway and Heritage Court, Stillwater, MN
Legends Gazebo	City of Stillwater	Legends Boulevard and Ilo Way, Stillwater, MN
Legends Park	City of Stillwater	Barons Way and Delano Way, Stillwater, MN
Liberty Square	City of Stillwater	Settlers Way & New England Place, Stillwater, MN
Long Lake Nature Area	City of Stillwater	Staples and Sawyers Place, Stillwater, MN
Long Lake Open Space	City of Stillwater	South end of Nightingale Boulevard, Stillwater, MN
Millbrook Open Space	City of Stillwater	Hwy 96 and Millbrook Circle, Stillwater, MN
Millbrook Park	City of Stillwater	Hwy 96 and Millbrook Circle, Stillwater, MN
Millbrook West Fields	City of Stillwater	SE corner of Hwy 96 and Manning Avenue, Stillwater MN
Nightingale Park Open Space	City of Stillwater	Nightingale Blvd and Northland Avenue, Stillwater, MN
Northland Park	City of Stillwater	25 Northland Avenue (County Road 12), Stillwater, MN
Prairie Park	City of Stillwater	Macey Way in Settlers Glen Development, Stillwater, MN
Public Works Park	City of Stillwater	3325 Boutwell Avenue, Stillwater, MN
Schulenberg Park	City of Stillwater	N. 2nd Street and Hazel Street, Stillwater, MN
Settlers Park	City of Stillwater	Rutherford Rd and Settlers Way in Liberty Development, Stillwater, MN
St. Croix Sanctuary Park	City of Lake Elmo	11544 58th St N, Lake Elmo, MN
Sunrise Park	City of Stillwater	Sunrise Avenue and Hidden Valley Lane, Stillwater, MN
Withrow School	City of Hugo	10158 122nd St N, Hugo, MN

5 Land Conservation and Greenway Corridors

In 2008, BCWD initiated the development of land conservation priorities and explored options for developing a Land Conservation Program. Priorities identified by BCWD were approved by the Board of Managers in 2009 and submitted to Washington County for inclusion in its Land and Water Legacy Program Conservation Priorities[39]. The conservation priorities outlined in this plan include a Priority Land Protection Areas Map, which identifies the highest priority land protection areas for the Land and Water Legacy Program. As a component to this program, Washington County included Brown's Creek Central as one of the top ten Conservation Priority Areas. Washington County also has several planned regional trails that lie within or traverse the watershed. These planned trail corridors are specified in the parks and open spaces section of the 2040 comprehensive plan[40]. In 2017, BCWD acquired property on 110th Street as a conservation easement. The property borders Brown's Creek and serves as a demonstration site of improvements that can be made to manage stormwater runoff and erosion and improve the ecological quality of the landscape.

Additional Conservation Priorities have been mapped by the Minnesota Department of Natural Resources as a component to the 2007 Natural Resources Conservation Corridors Program[41]. Metro Conservation Corridors is modeled on the Minnesota Habitat Corridors Partnership funded through the Legislative-Citizen Commission on Minnesota Resources starting in 2001 for focus areas outside of the metro area. More than 8,000 acres of Minnesota Department of Natural Resources Conservation Corridors land lies within the Brown's Creek watershed.

~~5.1~~6 Pollutant Sources

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There are Minnesota Pollution Control Agency (MPCA)-permitted sites, hazardous waste generators, and contaminated sites within the Brown's Creek watershed. The MPCA maintains a database of these sites, which includes permitted sites (air, industrial stormwater, construction stormwater, and wastewater discharge), hazardous waste generating sites, leak sites, petroleum brownfields, tank sites, unpermitted dump sites, and sites enrolled in the Voluntary Investigation and Cleanup (VIC) program. This information can be accessed from the MPCA What's in My Neighborhood Database[42]. The location of these potentially contaminated or hazardous waste sites should be considered as sites are redeveloped and stormwater best management practices (BMPs) are implemented. While there are a limited number of feedlots in the watershed, data on feedlots can be obtained from the Minnesota Geospatial Commons[4].

In addition to localized sources of pollutants (commonly referred to as point sources), non-point source pollution is a major contributor of pollutants. Non-point source pollution cannot be traced to a single source or pipe and are carried from land to water in stormwater or snowmelt runoff, seepage through the soil, and atmospheric transport. Where point sources frequently discharge continuously throughout the year, non-point sources discharge in response to precipitation or snowmelt events. Some areas of the Brown's Creek watershed are served by subsurface sewage treatment systems (SSTS). Non-compliant SSTS is also considered a non-point source of pollutants. The MPCA and Washington County implement SSTS regulatory programs to manage the environmental and public health impacts related to SSTS.

~~5.2~~6.1 Contaminants of Emerging Concern

Recent advancements in analytical characterization have led to the identification of new chemicals and pathogens that are commonly referred to as contaminants of emerging concern (CEC). Contaminants of emerging concern generally fall into one of three areas: endocrine disrupting chemicals, pharmaceuticals, or pathogens. The primary concern is the effect that these chemicals, which mimic the actions of naturally occurring hormones, may have on the hormone regulation of aquatic organisms, especially fish. However, identifying these contaminants and their effect on organisms is in its infancy.

Due to the complexity of understanding these contaminants and the large amount of capital needed to characterize them, the primary investigators of CECs tend to be state agencies, research institutions, and federal agencies. The Minnesota Department of Health (MDH) currently develops human health-based guidance for contaminants that have already been found in groundwater in Minnesota. Under the CEC program, MDH is able to take a proactive approach to the protection of drinking water by considering contaminants that have been found in groundwater, surface water, or soil, or have the potential to enter our waters. T~~Under the CEC program, MDH protects groundwater resources through the consideration of which contaminants have not been assessed and which contaminants have been found in soil, surface water, or groundwater. T~~his CEC program is also informed by the MPCA groundwater monitoring and assessment program[32] A list of the most recent studies by federal agencies related to Endocrine-active compounds (EACs), or chemicals that can affect organismal hormones, can be found in an article on the MPCA website.



Washed up pharmaceuticals in the watershed

Figure F99. Map of the Brown's Creek Watershed

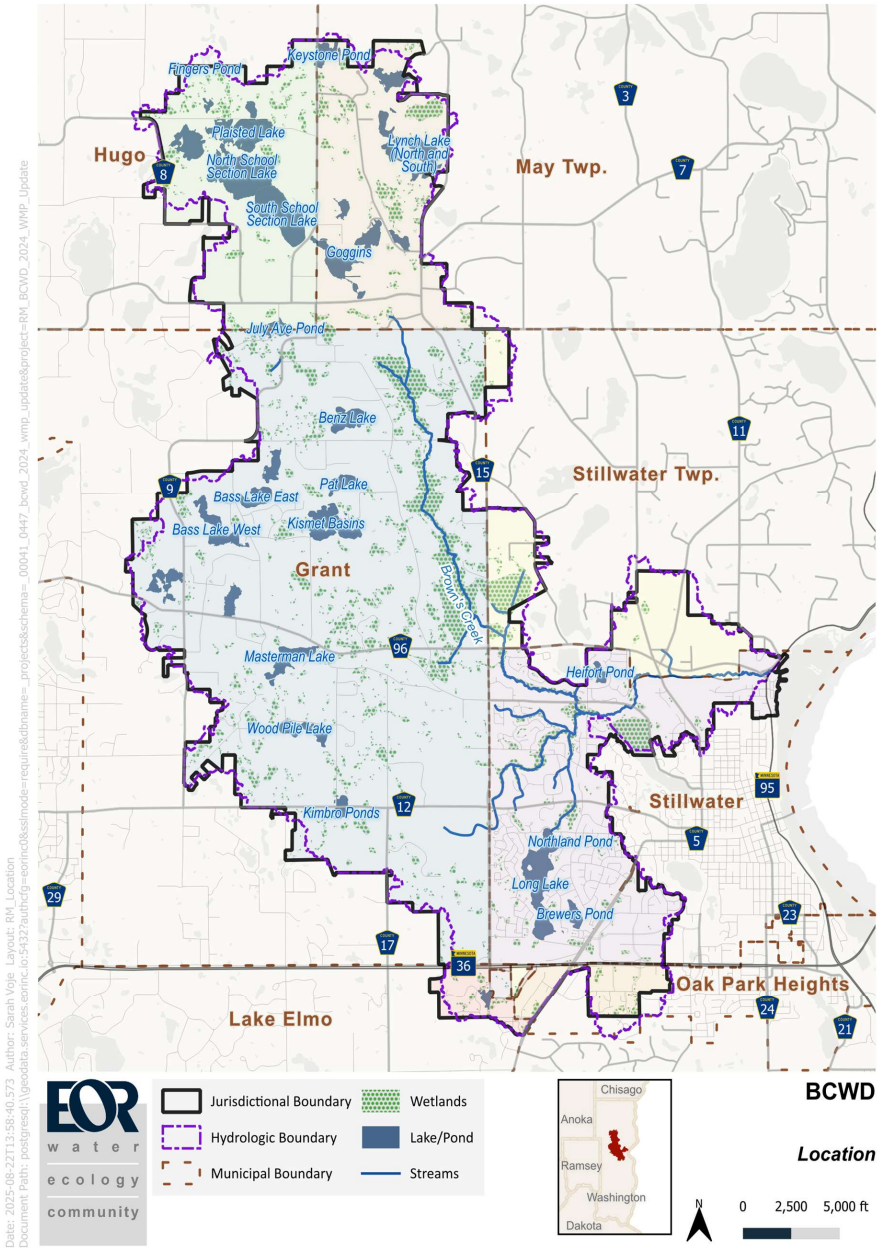


Figure F10~~10~~. Surface Waters of the Brown's Creek Watershed

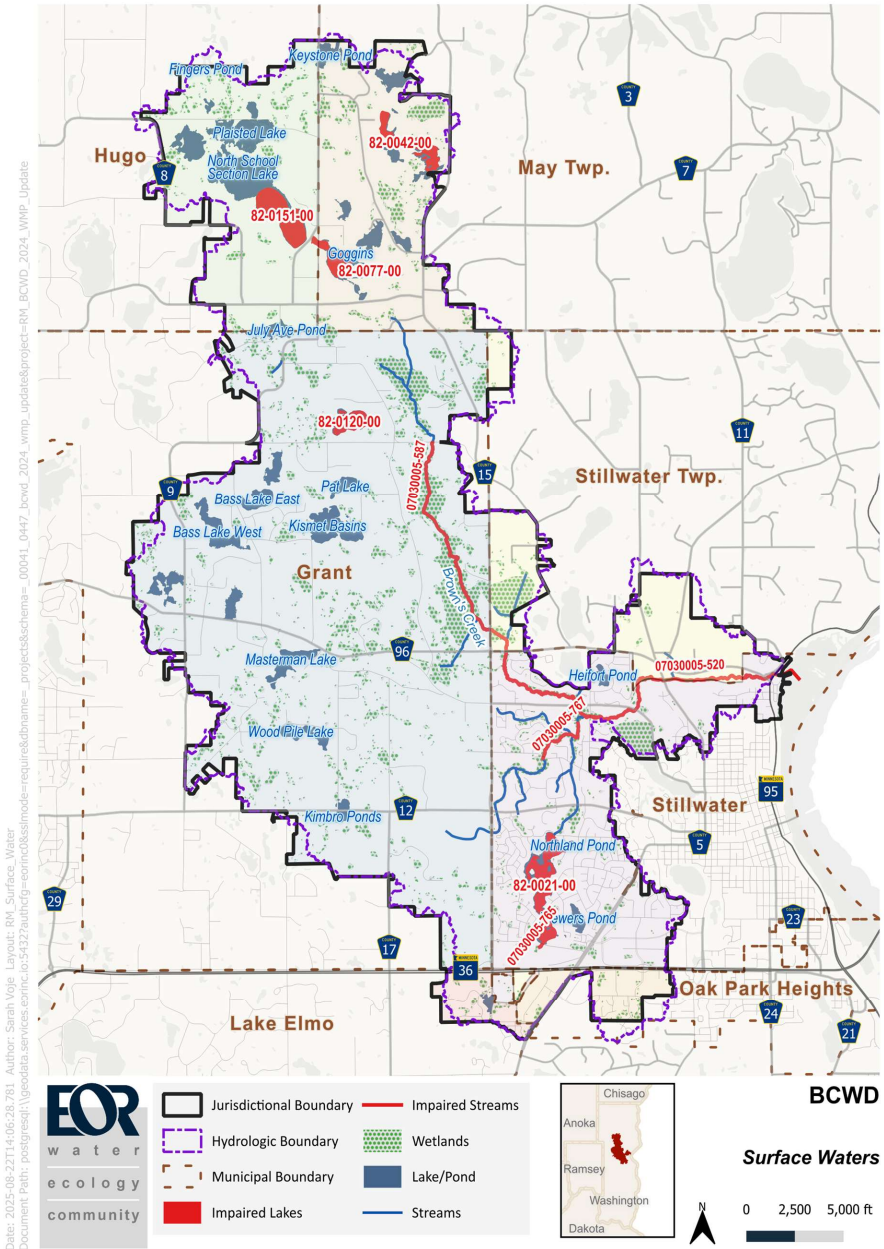


Figure F11~~11~~. Reaches of Brown's Creek and its Tributaries (Headwaters Region – North Branch)

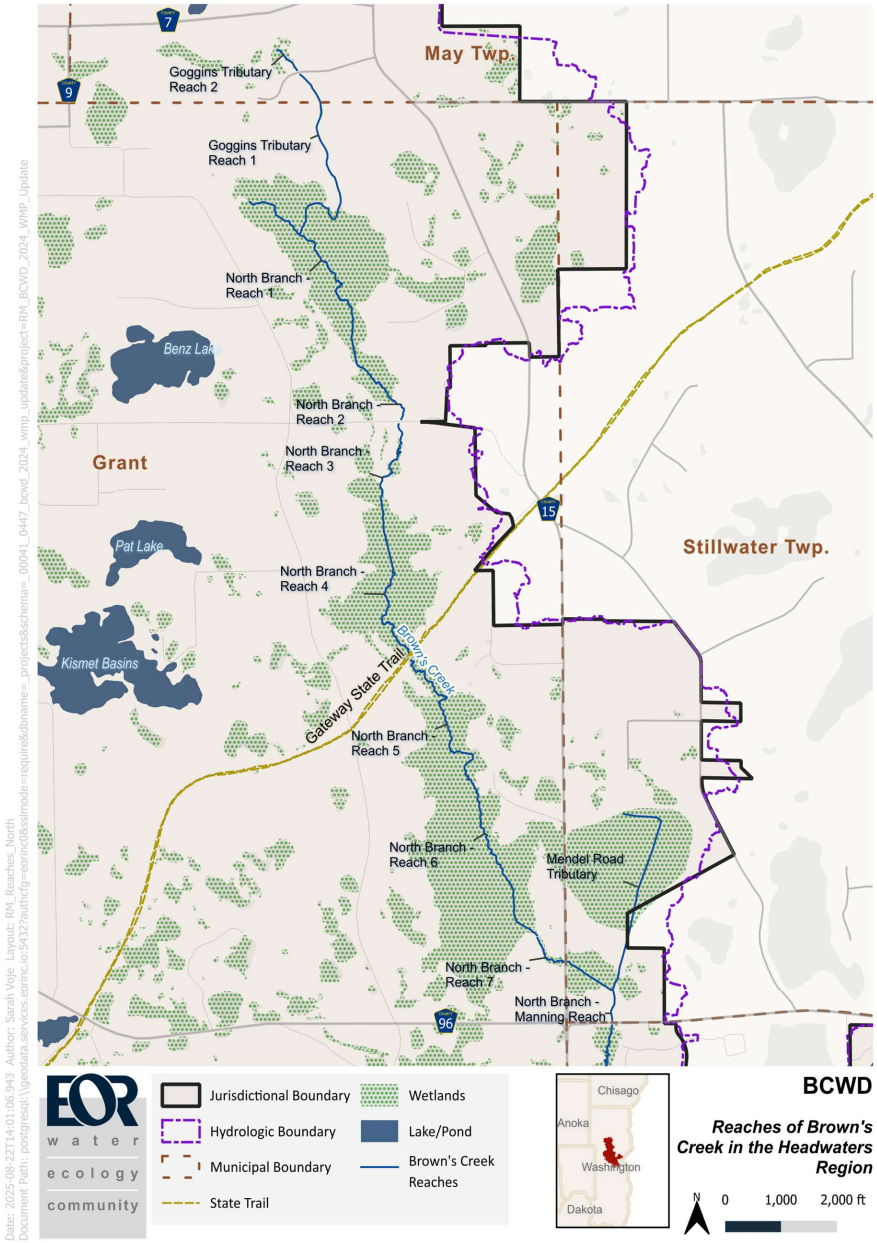


Figure F12~~12~~. Reaches of Brown's Creek and its Tributaries (Middle Section, Long Lake Tributary, & Gorge Regions – Main Branch)

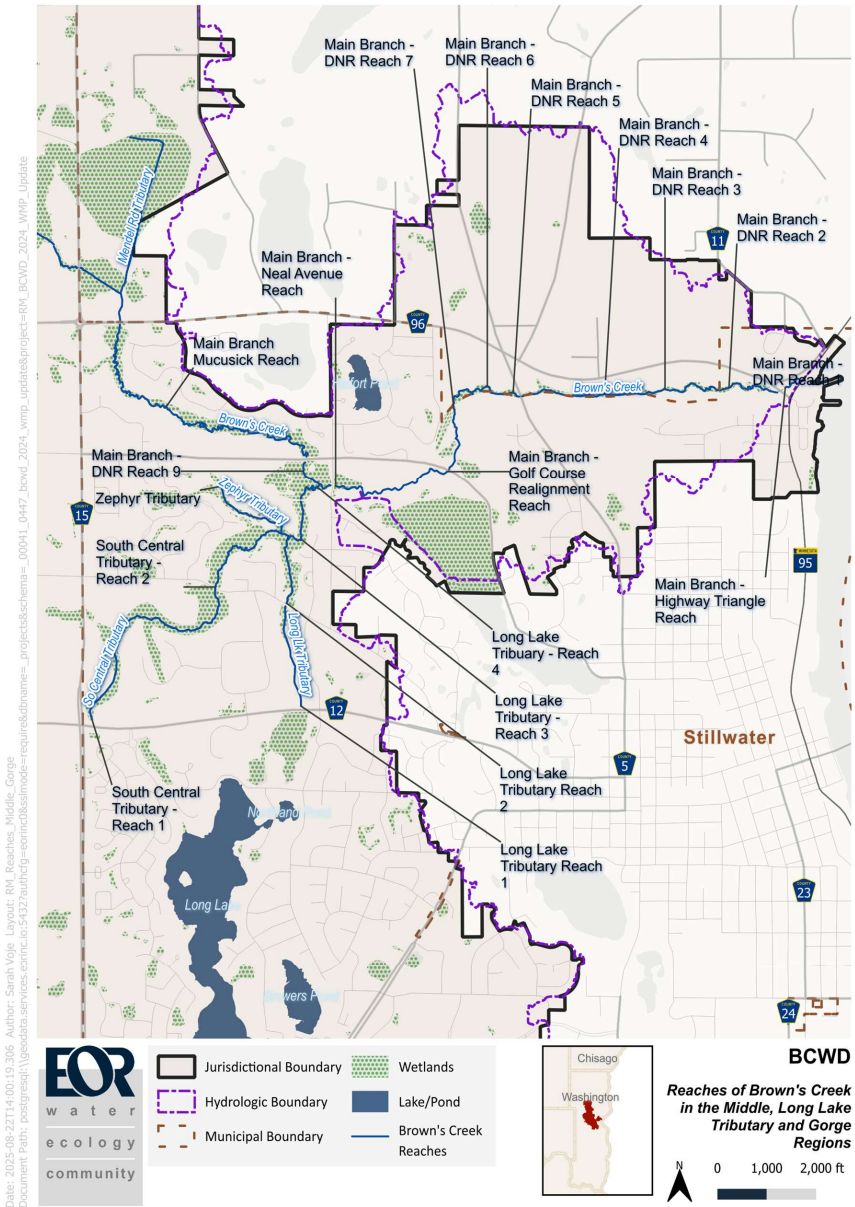


Figure F13~~13~~. Public Waters and Public Waters Wetlands within the Brown's Creek Watershed

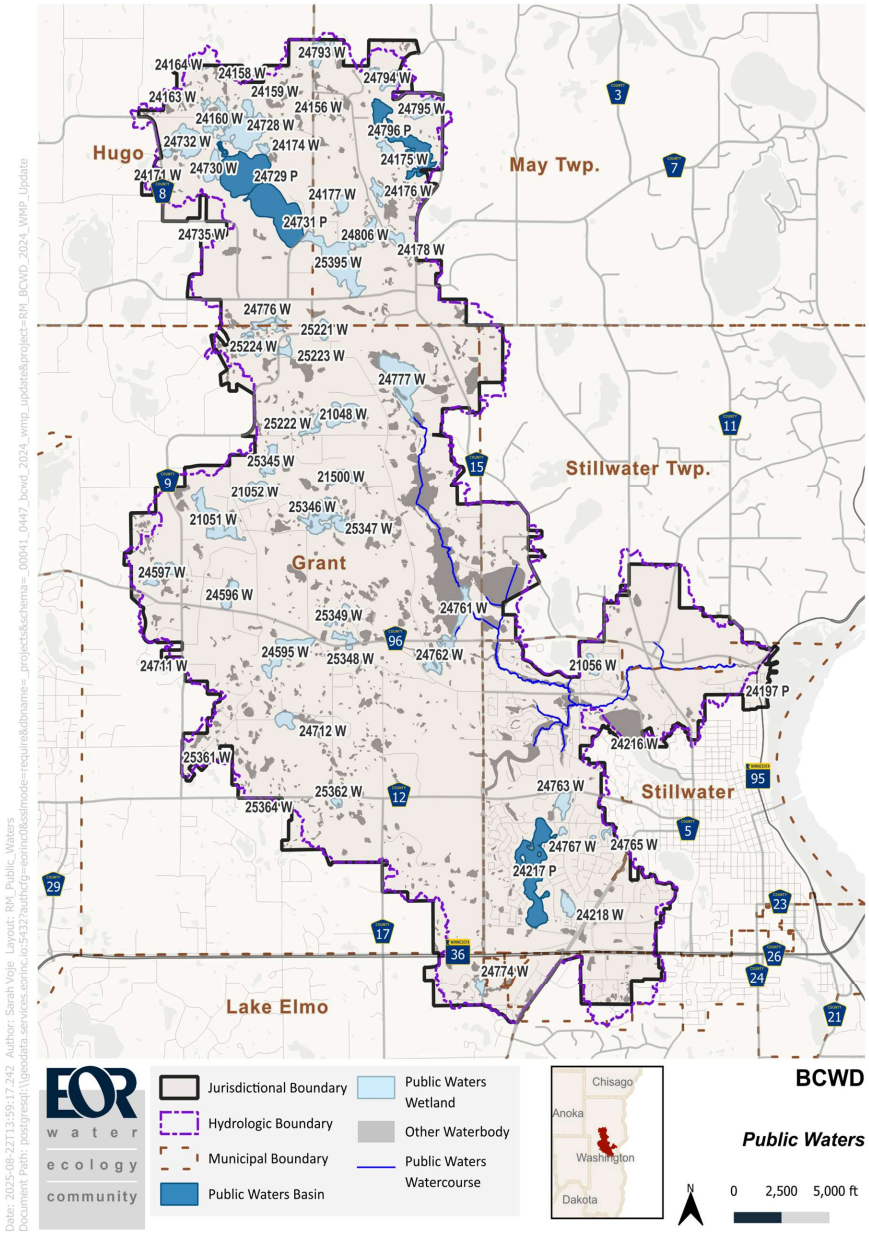


Figure F14~~14~~. Brown's Creek Watershed Wetland Inventory and Assessment (Full Map)

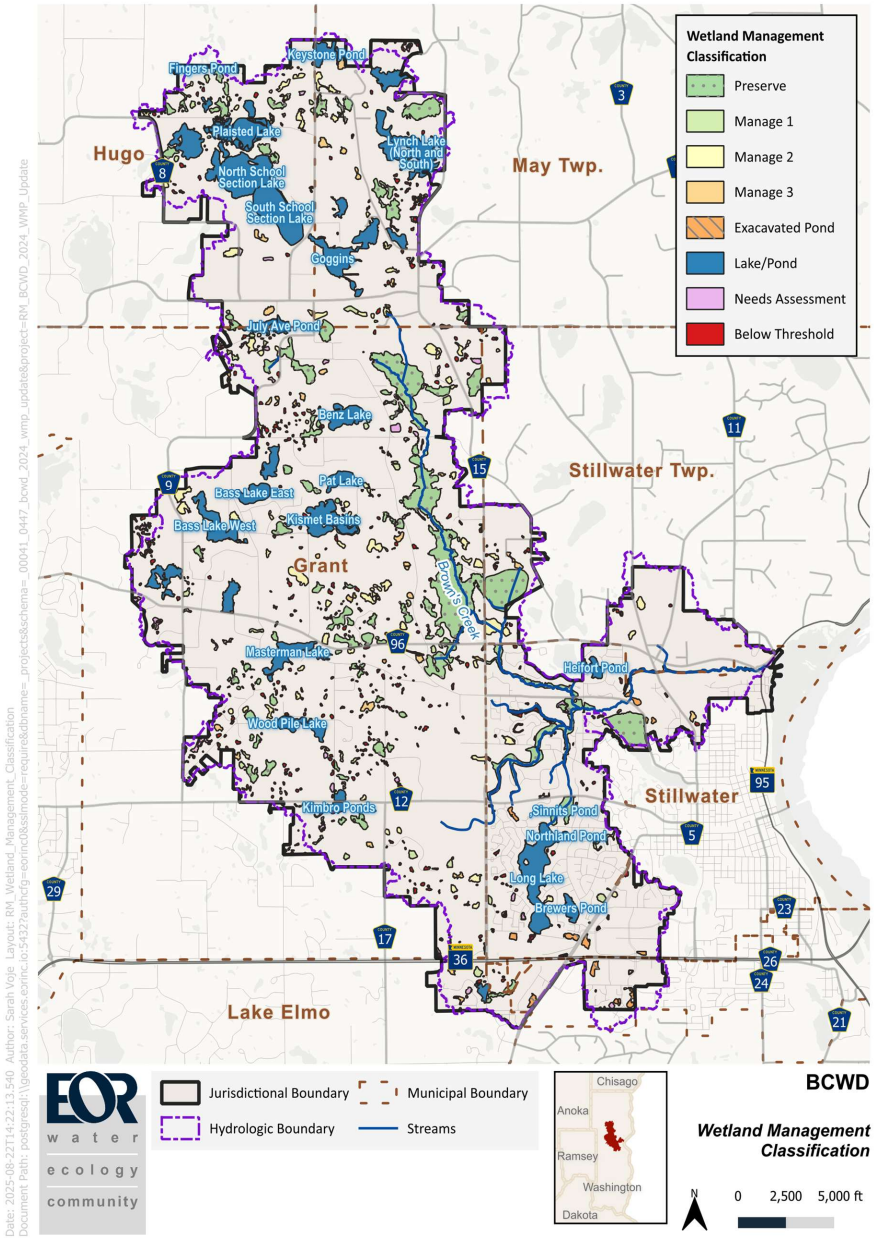


Figure F15~~15~~. Brown's Creek Watershed Wetland Inventory and Assessment (Partial Map A)

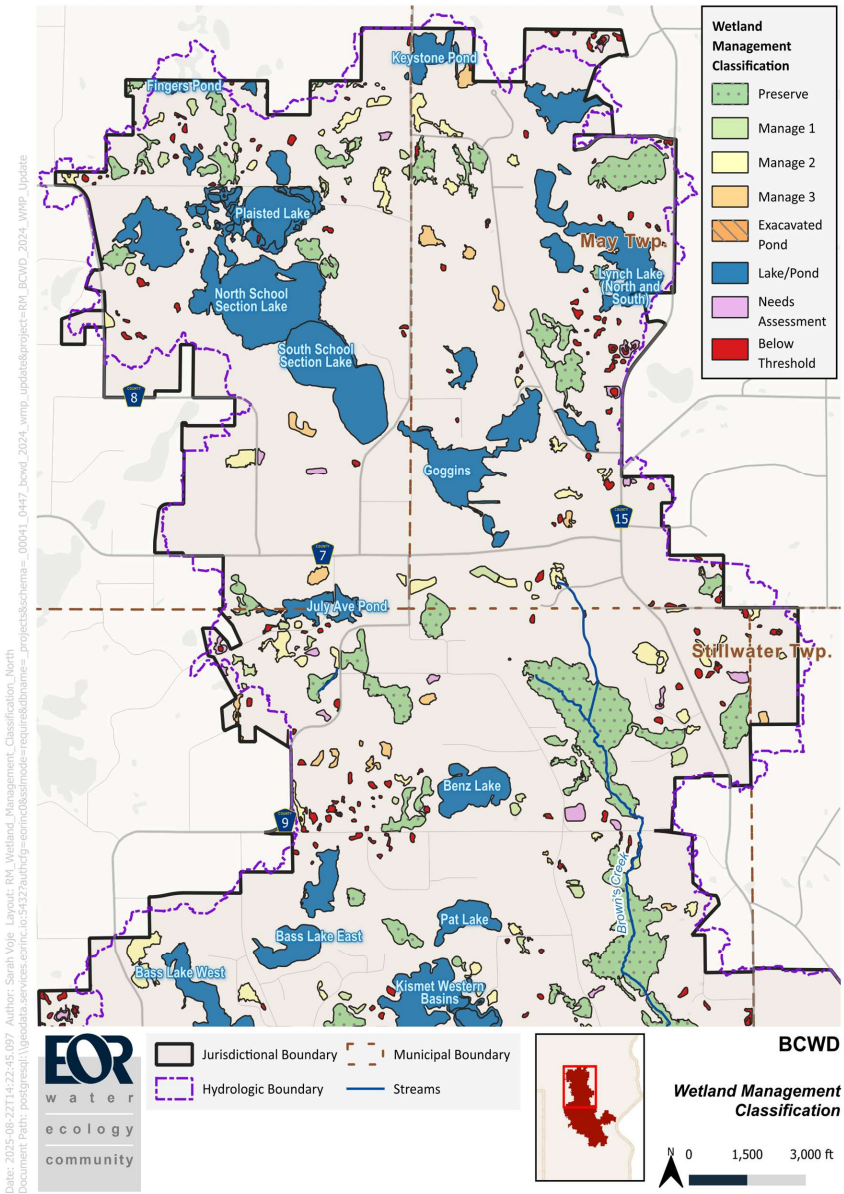


Figure F16~~16~~. Brown's Creek Watershed Wetland Inventory and Assessment (Partial Map B)

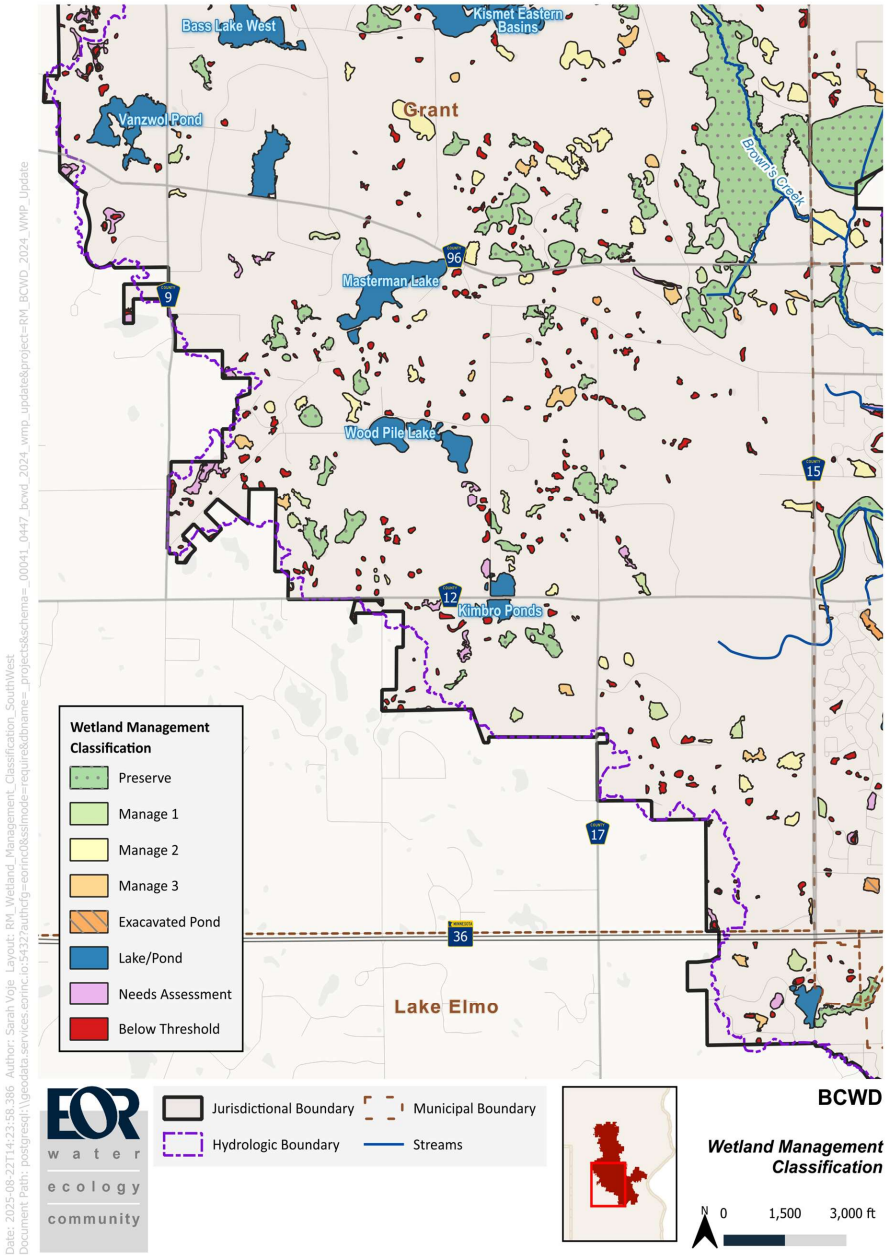


Figure F17~~17~~. Brown's Creek Watershed Wetland Inventory and Assessment (Partial Map C)

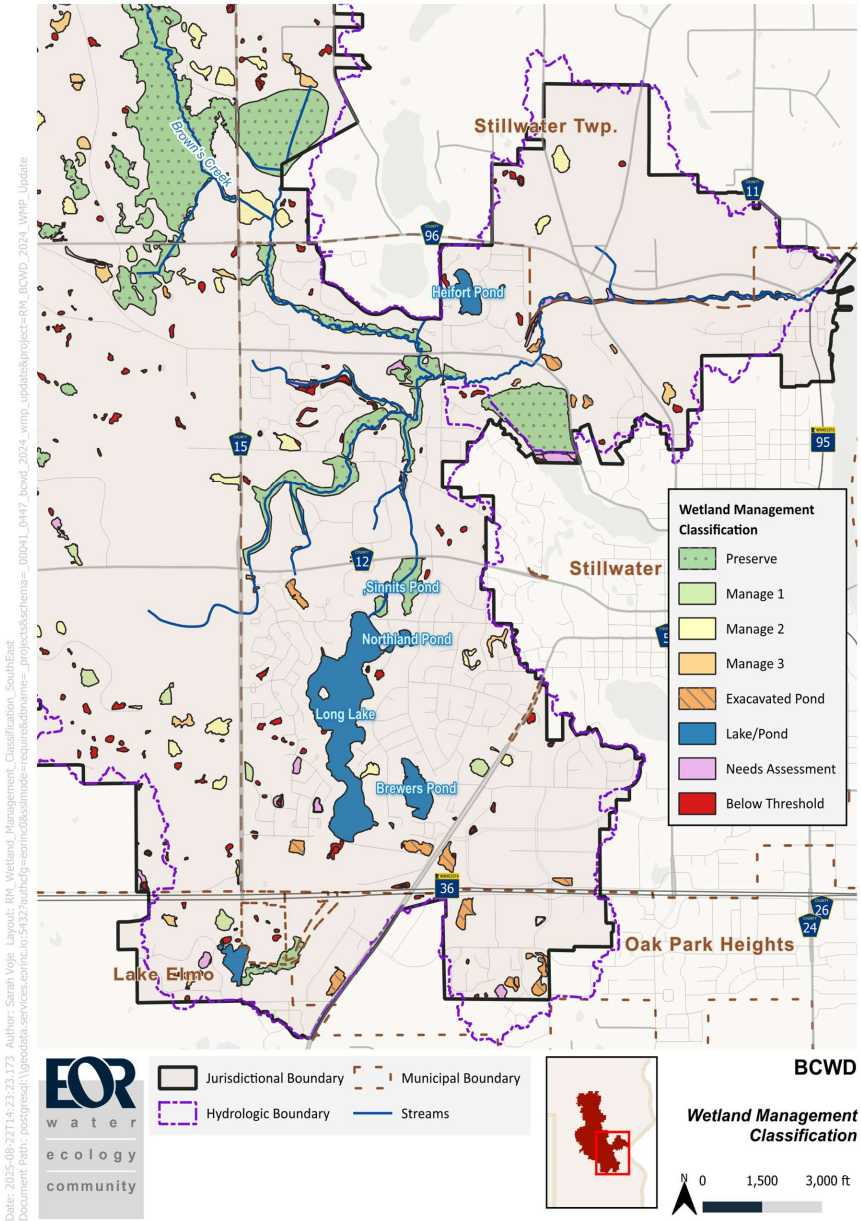


Figure F18~~18~~. Landlocked Basins in the Brown's Creek Watershed

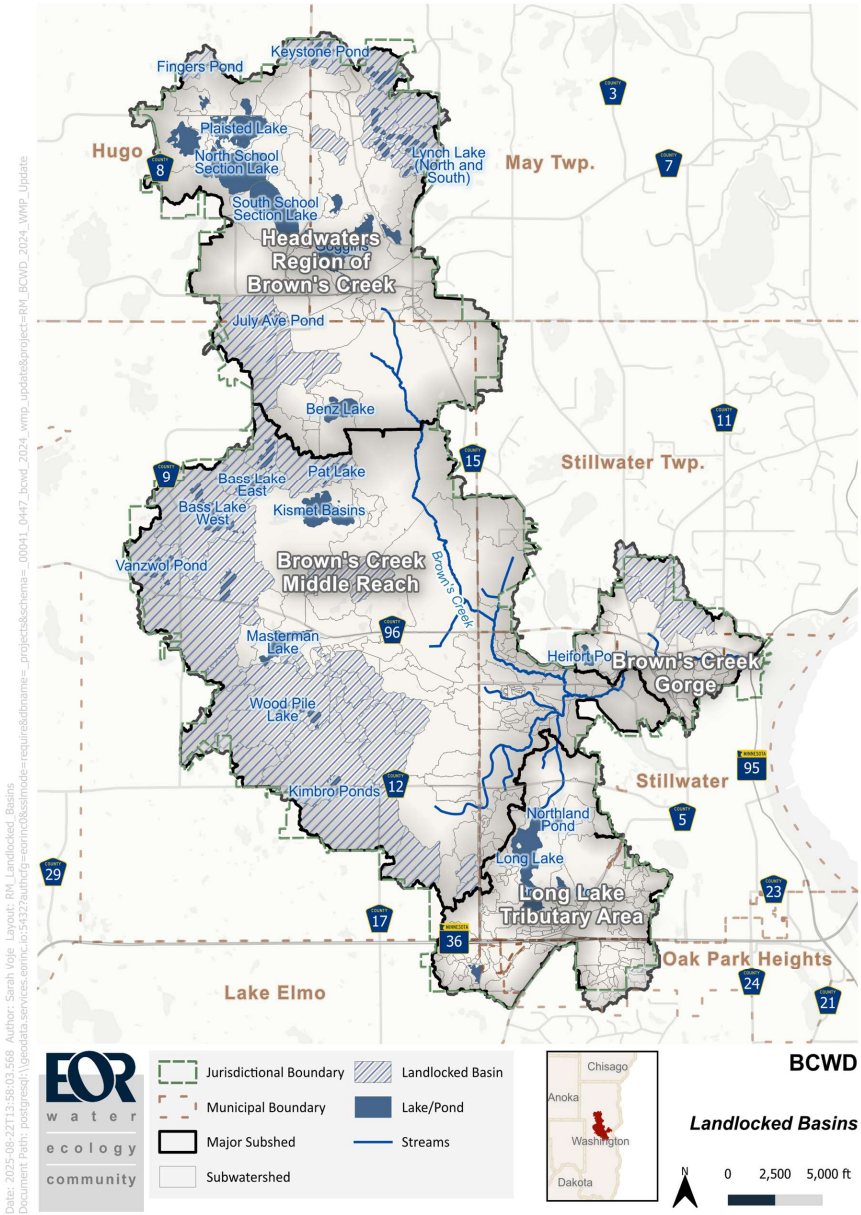


Figure F19~~19~~. Location of Lake and Water Quality Monitoring Stations in the Watershed

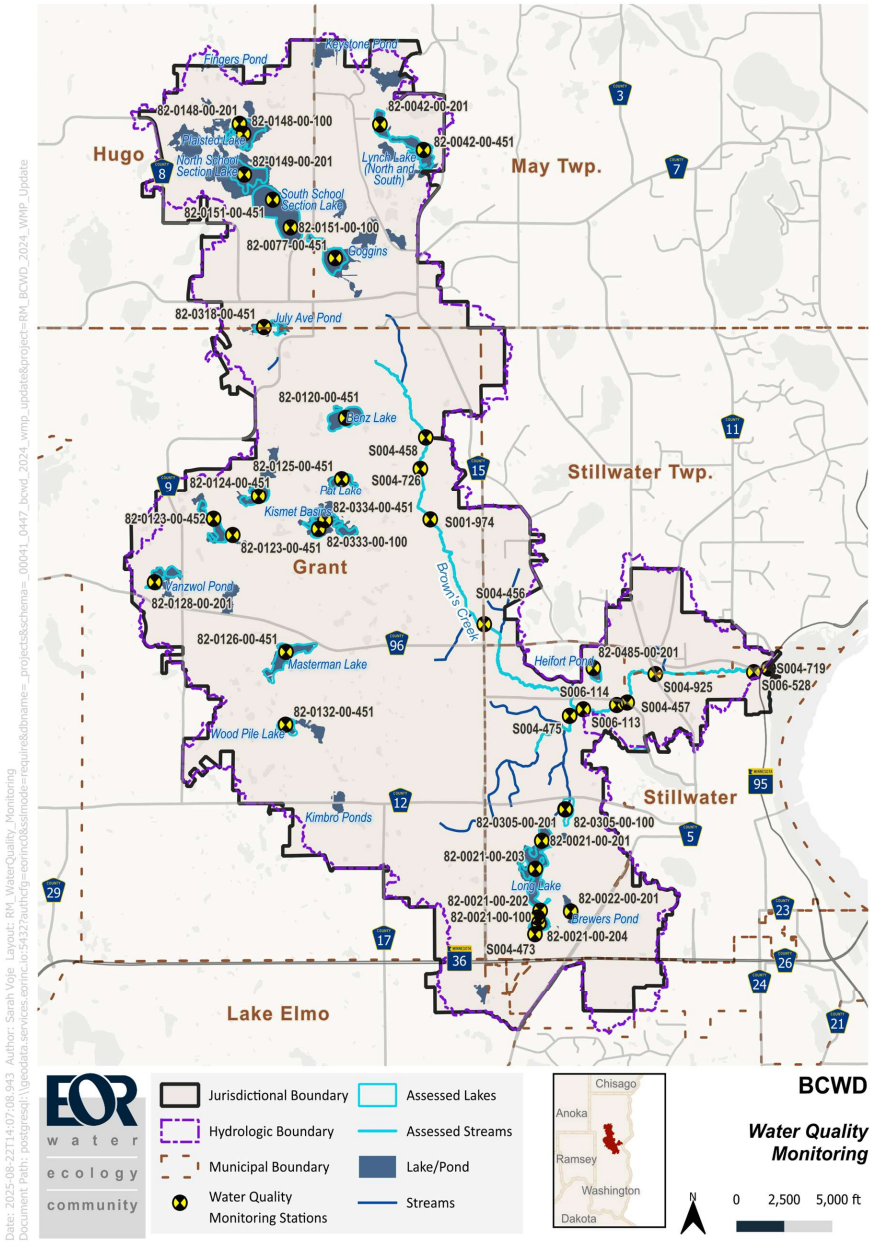


Figure F20~~20~~. Groundwater-dependent Natural Resources in the Brown's Creek Watershed (Full Map)

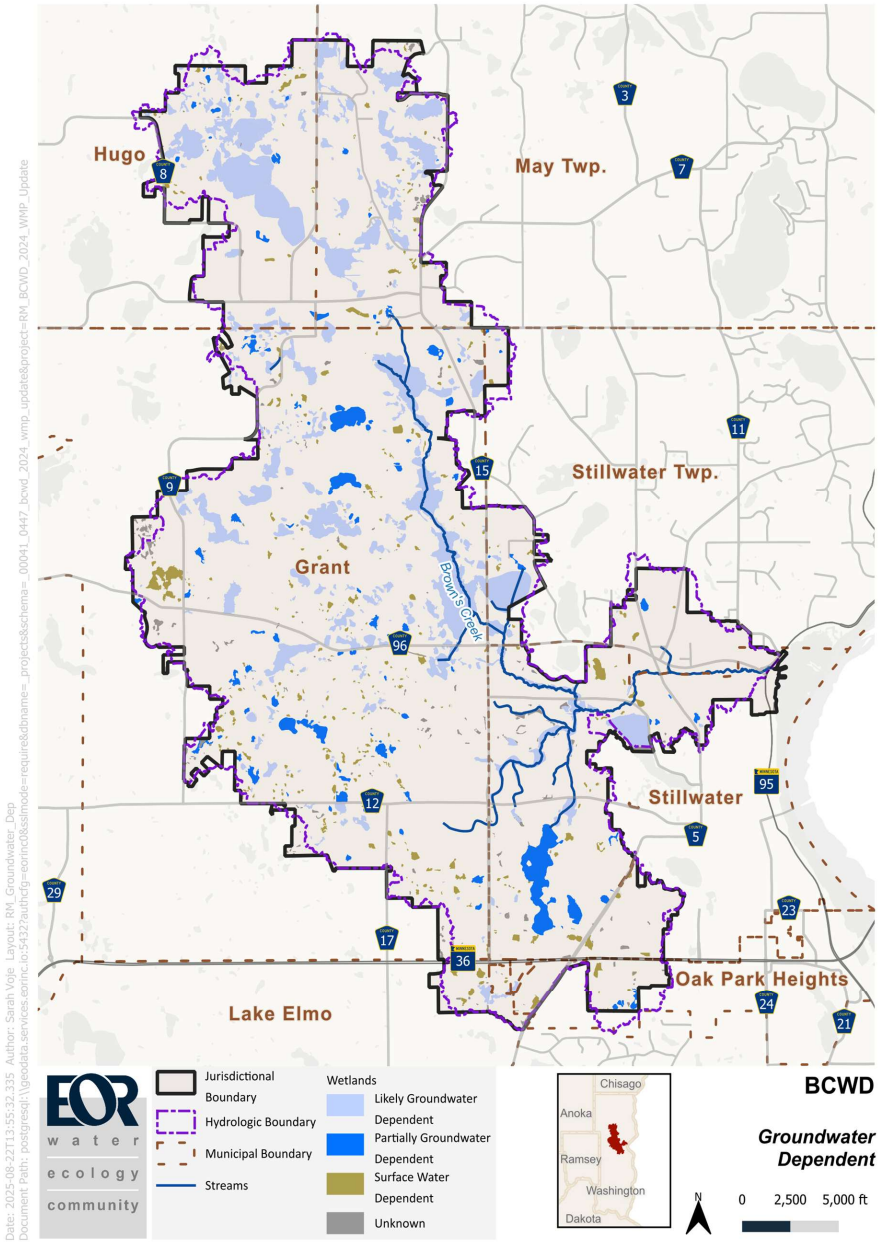


Figure F21~~21~~. Groundwater-dependent Natural Resources in the Brown's Creek Watershed (Partial Map A)

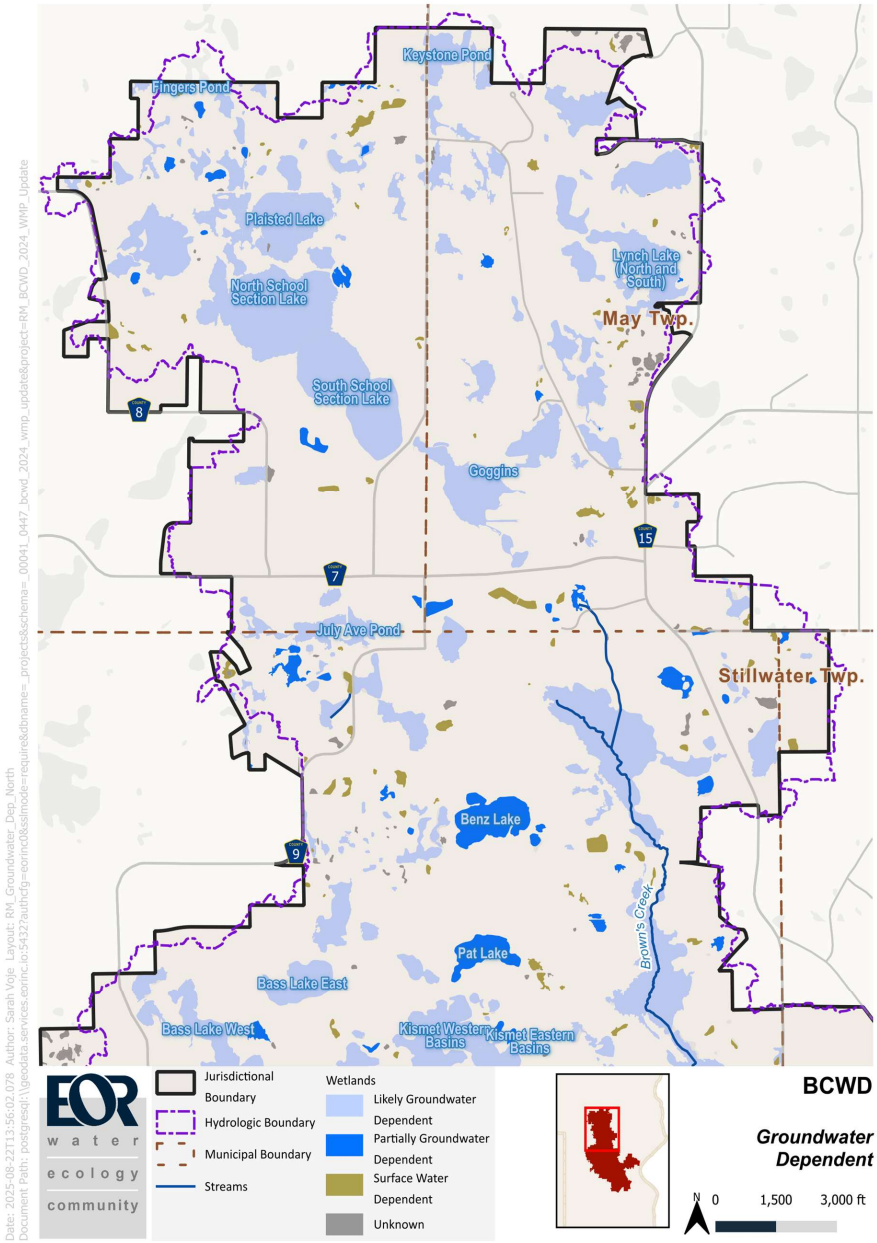


Figure F2222. Groundwater-dependent Natural Resources in the Brown's Creek Watershed (Partial Map B)

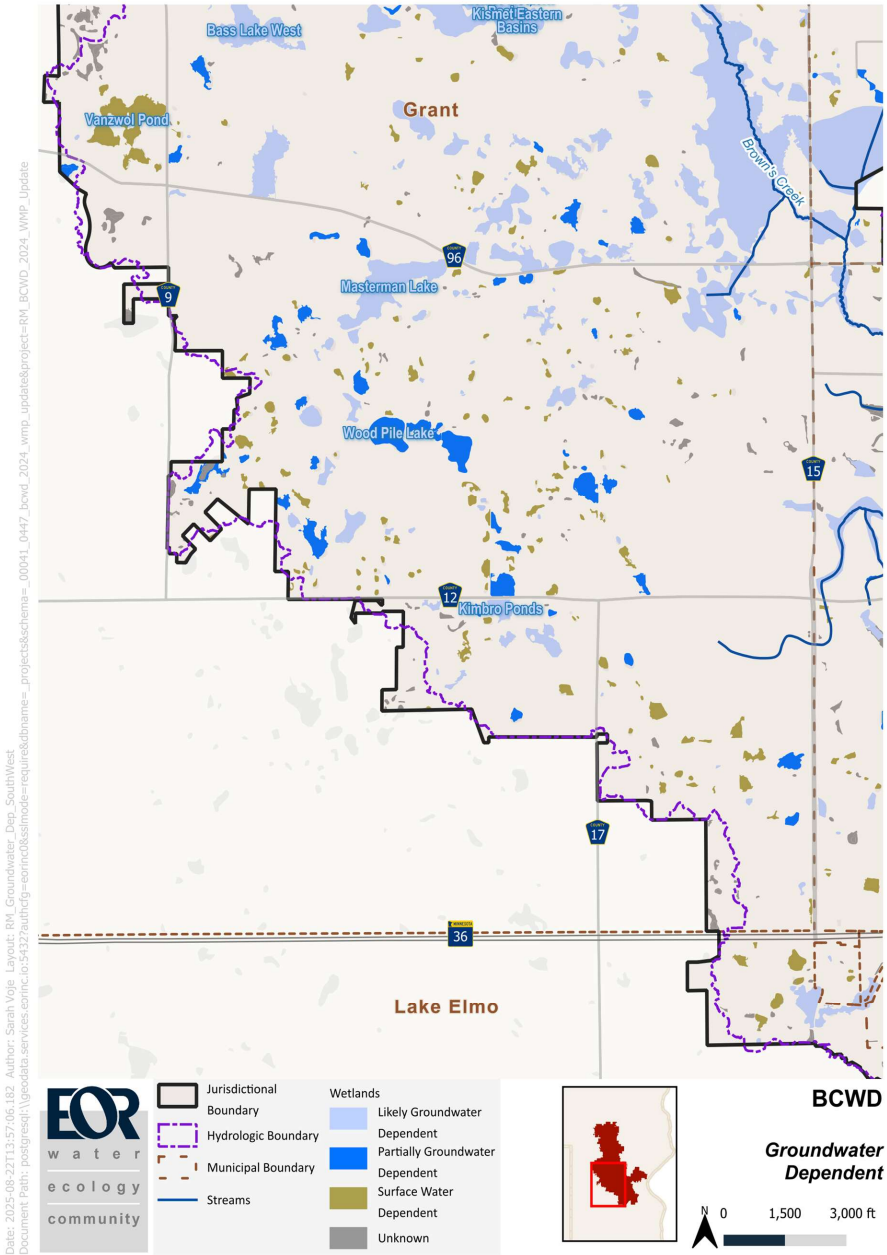


Figure F2323. Groundwater-dependent Natural Resources in the Brown's Creek Watershed (Partial Map C)

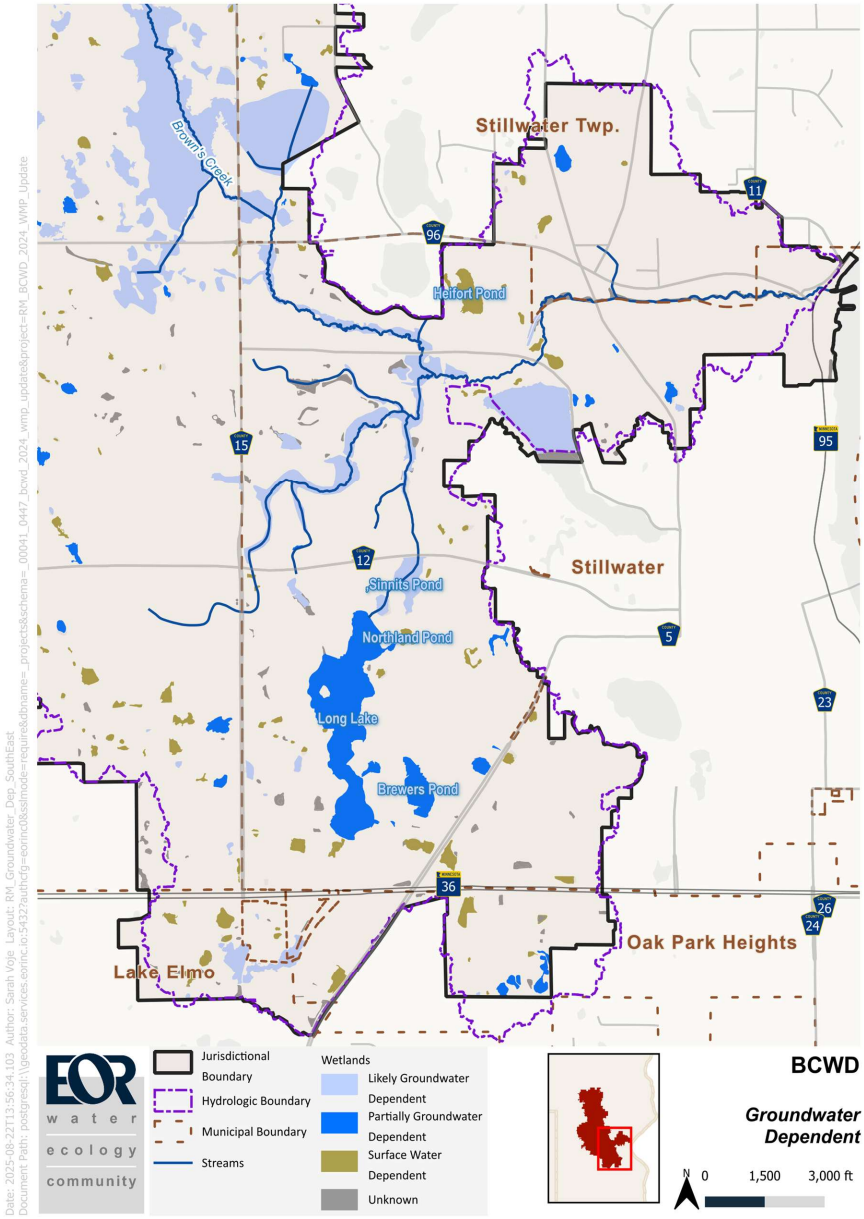


Figure 24. Drinking Water Supply Management Areas (DWSMAs) in the Brown's Creek Watershed

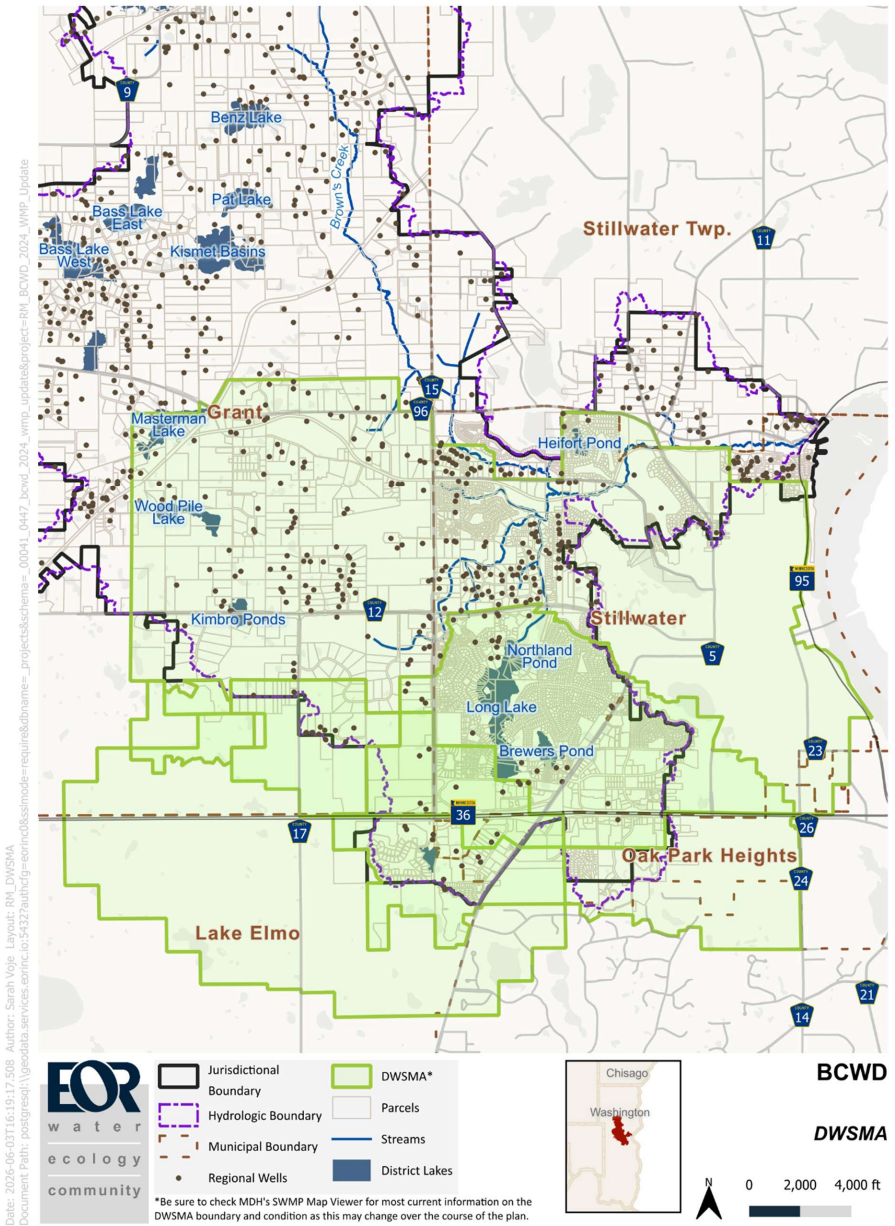
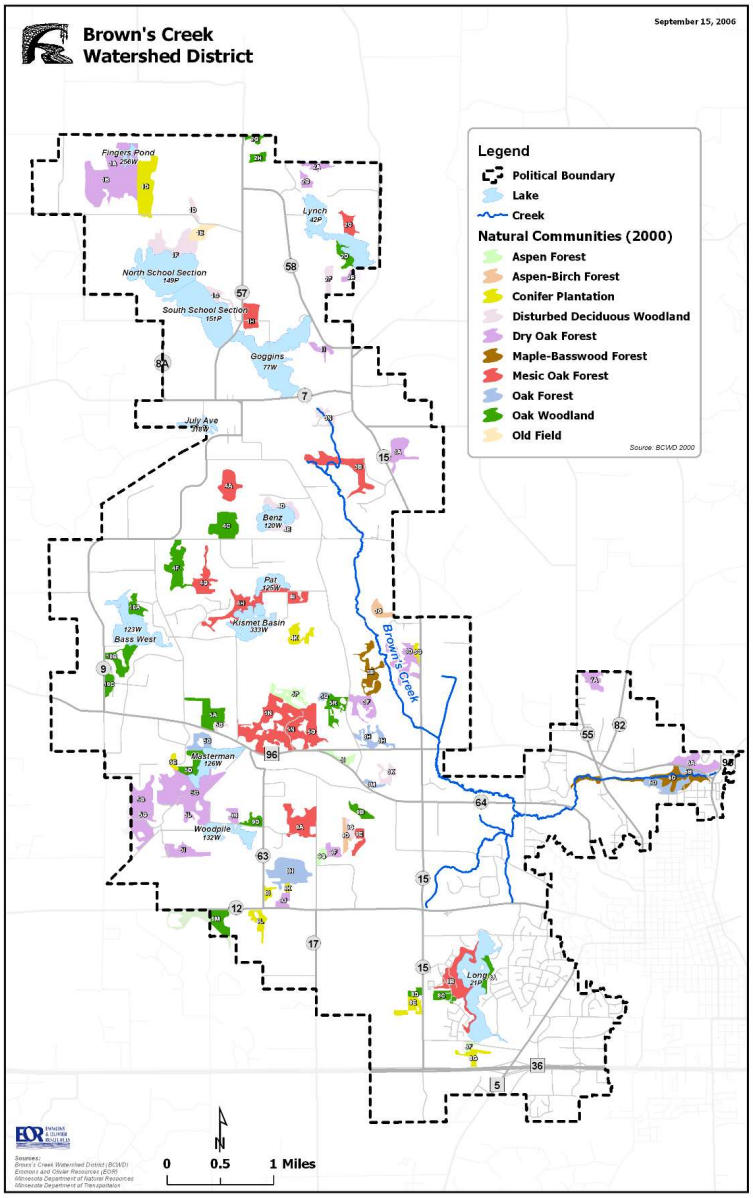


Figure F2524. Natural Communities Identified in 2000



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Filename:	Appendix F - Land and Water Resource Inventory
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Author:	Luke Johnson
Keywords:	
Comments:	
Creation Date:	6/5/2026 3:34:00 PM
Change Number:	3
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Total Editing Time:	1 Minute
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As of Last Complete Printing	
Number of Pages:	90
Number of Words:	33,330 (approx.)
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APPENDIX G:
Cooperative Agreements

1. **Kern Center Pond**
2. **Trout Stream Mitigation Project (TSMP)**
3. **Brown's Creek Conservation Area**

COOPERATIVE AGREEMENT
Between the Brown's Creek Watershed District
and the City of Oak Park Heights

Kern Center Pond, Oak Park Heights

This Agreement is made by and between the Brown's Creek Watershed District ("BCWD"), a watershed district with powers pursuant to Minnesota Statutes Chapters 103B and 103D, and the City of Oak Park Heights (hereinafter referred to as "City"), a political subdivision of the State of Minnesota.

Recitals and Statement of Purpose

WHEREAS the BCWD has an approved Watershed Management Plan that identifies regional stormwater detention as a priority need for reducing stormwater flow rates, localized flooding and water quality degradation within the watershed and establishes a program for the demonstration of infiltration and related stormwater management practices;

WHEREAS the Kern Center Pond ("Pond") is a regional ponding facility constructed and maintained by the City for stormwater management;

WHEREAS Pond redesign, including the incorporation of regional infiltration, will further the purposes and goals of the BCWD and provide a useful site to educate and inform interested persons about innovative stormwater management concepts and water resource matters generally;

WHEREAS the City and the BCWD wish to collaborate in a redesign of the Pond for the purpose of regional infiltration, and the City agrees to assume responsibility for construction and maintenance, as defined in the "Kern Center Commercial Area Drainage Facility Operation and Maintenance Plan" (together, the "Project");

WHEREAS BCWD Rule 2.7.4 allows for regional stormwater management in place of site-based management if pursuant to a cooperative agreement with the BCWD, and the City would like to invoke this rule through regional management for the Kern Center Drainage Area, as shown in Exhibit B, which comprises 92.1 acres draining to the Pond (of which 17.7 +/- acres lies within the City of Lake Elmo);

WHEREAS the parties acknowledge that their ability to achieve Project objectives depends on each party satisfactorily and promptly performing its individual obligations and working cooperatively with the other party;

WHEREAS the Project will be funded in part through a Local Water Planning Challenge Grant of the Minnesota Board of Water and Soil Resources, and the grant agreement imposes certain requirements on the BCWD, the Local Governmental Unit and Fiscal Agent, referred to as "Grantee" in said grant;

THEREFORE the parties enter into this agreement to document their understanding of the scope of and responsibilities for the Project and facilitate communication and cooperation to ensure successful completion of the Project.

Agreement

1. The design plans have been prepared and signed by the BCWD Engineer and provided in both electronic and hard copy to the City's Engineer. The specifications based on the design plans have been prepared by the City's engineering consultant. These design plans, dated 11/03/04, are attached as **Exhibit A** to this agreement and incorporated herein.

2. The final bid documents have been prepared and signed by the City's Engineer. The City shall construct or provide for construction in accordance with **Exhibit A**. The City shall acquire all property rights and permits as needed, including a BCWD permit as applicable. The BCWD shall waive any administrative or permit fees to the City associated with the Project. Bid preparation and evaluation, contract administration and construction management shall be the City's responsibility, subject to grant reimbursement if applicable. At the City's request, the BCWD shall assist the City in the cost-effective disposition of excavated materials.

3. The BCWD shall be given notice of pre-construction and construction meetings and shall be permitted access to the site and to Project documents in order to perform construction observation. Notwithstanding, it shall be the responsibility of the City to ensure that construction conforms to **Exhibit A**. When construction is completed, the City shall provide the BCWD as-built drawings certified by a professional engineer. The BCWD shall bear its own costs for its activity under this paragraph.

4. On a written determination by the BCWD that the construction is complete in accordance with the final plans and specifications and the terms of the BCWD permit, the provisions of BCWD Rules, paragraph 2.7.4(c), shall be deemed to be met for all parcels within the Kern Center Drainage Area, which area is bounded as shown in **Exhibit B**, attached hereto and incorporated herein. Notwithstanding, paragraph 2.7.4 shall be deemed to apply to a proposed activity only if:

(a) At the time land disturbance for an activity described at BCWD Rule paragraph 2.2 occurs, the Pond is being maintained in accordance with the

operation and maintenance plan, **Exhibit C**, attached hereto and incorporated herein; and

(b) The proponent of such an activity has established, and the BCWD in writing has confirmed, that the hard surface created by the activity falls within the 74.4 acres of hard surface within the Kern Center Commercial Area to which the City has allocated Pond capacity.

Compliance with paragraph 2.7.4(c) under this paragraph does not apply to any land presently within the City of Lake Elmo, which is not a party to this agreement and shall not receive any exemption under BCWD rules relating to development.

5. Water level, discharge and water quality monitoring, at the expense of the BCWD, shall be performed in accordance with the monitoring plan, **Exhibit D**, attached hereto and incorporated herein. Each party may do other monitoring as it wishes.

6. The BCWD shall develop materials to inform interested persons about the Project and related water resource matters. The cost to prepare and install signage and other information structures shall be the responsibility of the BCWD. The BCWD shall maintain these structures at its expense. Any materials or other publicity regarding the Project shall identify the State, the City and the BCWD as sponsoring bodies. Placement of any such structures shall be subject to the approval of the City. The City and the BCWD will cooperate to determine the location of signage and information structures.

7. The City shall be responsible for the removal of accumulated sediments according to the terms of **Exhibit C**, "Routine Maintenance," subject to paragraph 12(a), below.

8. Each party shall bear the cost of those actions for which it is responsible under this agreement, except as explicitly stated otherwise herein.

9. Any communications specified herein shall be addressed as follows:

TO THE BCWD:	TO THE CITY:
Karen Kill, Administrator Brown's Creek Watershed District 1380 West Frontage Road, Highway 36 Stillwater, MN 55082	Eric Johnson, Administrator City of Oak Park Heights P.O. Box 2007 Oak Park Heights, MN 55082

10. The City shall provide a copy of this agreement to its contractor. By entering into this agreement and acting pursuant hereto, the BCWD is assuming no duty of care with respect to the contractor or any other third party, and nothing herein shall create any right

of action by the contractor or any other third party against the BCWD. Nothing herein shall be construed as a waiver of any immunity otherwise possessed by the City or the BCWD with respect to any third party or each other.

11. Neither the BCWD nor the City shall be deemed to be an agent or representative of the other in performing any action under this agreement. This agreement is not intended as and shall not be construed as a joint powers agreement under Minnesota Statutes section 471.59. The allocation of rights in materials and intellectual property under this Project shall conform to the grant agreement.

12. The City and the BCWD recognize certain risks inherent in the construction of the proposed facilities, and intend to address those risks cooperatively, should they occur, as follows:

(a) The BCWD assumes no liability to the City related to the design other than that liability, if any, derivative of a failure of the BCWD engineer to exercise a professional standard of care in preparing the design. If the Pond fails to demonstrate performance per **Exhibit C**, the City and the BCWD will consult on corrective measures. The City's obligation for removal of accumulated sediments under paragraph 7, above, will not commence until performance has been demonstrated, but the BCWD will not otherwise be compelled to take corrective action. The City assumes no liability for the design of the project as prepared by the BCWD consulting engineer.

(b) The City shall manage the construction contract to avoid a deviation from the plans and specifications that may affect the volume control performance of the Pond. If circumstances arise that may result in an unforeseeable construction cost increase or delay, the parties will consult on how to proceed. Neither party will be liable to the other for any project cost increase resulting from such circumstances except as agreed to following consultation. The City, in its discretion, will be responsible to manage the contract to avoid or minimize contract cost increases in the event that such circumstances arise.

(c) If after the City's maintenance obligation has commenced the Pond fails to perform effectively per **Exhibit C**, the City and the BCWD will consult on corrective measures. The City will not otherwise be compelled to take corrective action beyond the maintenance specified in **Exhibit C**.

(d) If in the future the City and the BCWD agree that the Pond has ceased to provide meaningful volume control and that measures will not be taken to restore meaningful control, this agreement will be amended to relieve the City of its maintenance obligation for removal of accumulated sediments under paragraph 7,

above. This would not affect any City obligation deriving from a source other than this agreement to maintain the Pond for water quality or other purposes.

13. This agreement shall take effect on full execution and expire five years thereafter, except that paragraphs 4 through 12 shall survive expiration. The agreement may be amended only in writing signed by both parties.

IN WITNESS WHEREOF, the parties have executed this Cooperative Agreement.

BROWN'S CREEK WATERSHED DISTRICT

By: Craig F Geiser
President

Date: Nov. 30, 2004

APPROVED AS TO FORM
AND EXECUTION

By _____
Smith Parker, P.L.L.P.

CITY OF OAK PARK HEIGHTS

By: _____
Mayor

Date: Dec 12, 2004

APPROVED AS TO FORM
AND EXECUTION

By _____
Eckberg, Lammers, Briggs, Wolff &
Vierling, P.L.L.P.
City Attorney

Appendix B

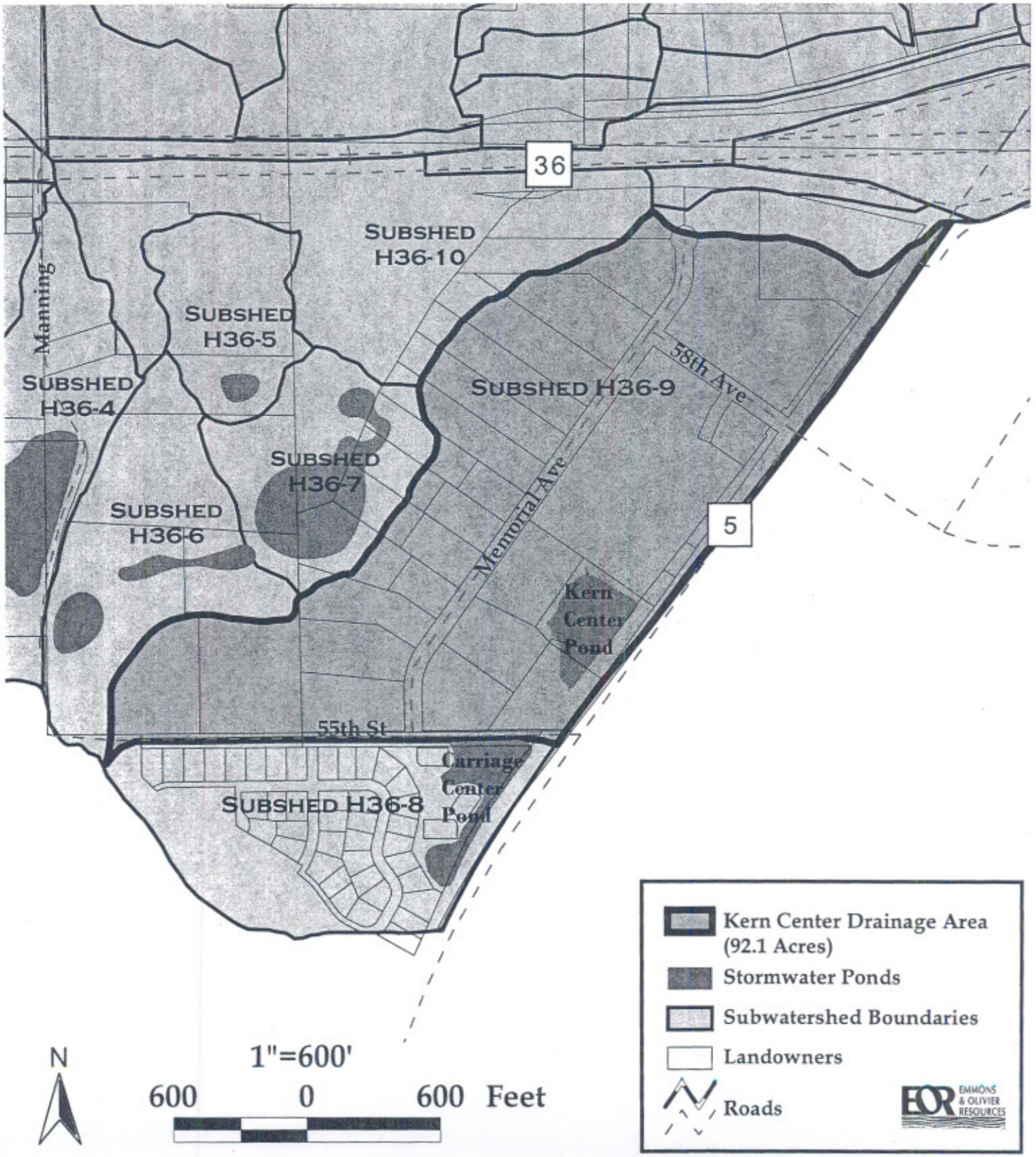

36
SUBSHED H36-10
SUBSHED H36-5
SUBSHED H36-4
SUBSHED H36-9
SUBSHED H36-7
SUBSHED H36-6
SUBSHED H36-8
Manning
58th Ave
Memorial Ave
5
Kern Center Pond
55th St
Carriage Center Pond
N
1"=600'
600 0 600 Feet
Kern Center Drainage Area (92.1 Acres)
Stormwater Ponds
Subwatershed Boundaries
Landowners
Roads
EOR EMMONS & OLIVIER RESOURCES

EXHIBIT C

Kern Center Commercial Area Drainage Facility
Operation and Maintenance Plan

Purpose

The overall objective of this Operation and Maintenance (O&M) Plan is to ensure the successful long-term operation of the Kern Center infiltration basin (Basin) that has been designed as part of the storm water plan for the Kern Center Commercial Area in the City of Oak Park Heights (City).

The purpose of the O&M Plan is to identify the tasks that will be needed for operation and maintenance of this facility, and standards for evaluating successful operation and maintenance. The City of Oak Park Heights will be responsible for financing and carrying out these tasks. The Brown's Creek Watershed District (BCWD) will be responsible for monitoring the infiltration basin, at its expense.

Background

The Basin for the Kern Center Commercial Area is designed to retain and infiltrate storm water runoff generated on the approximately 74 acres of commercial area that drains to the basin. The site is located within the City and Brown's Creek Watershed District.

Basin Performance Targets and Monitoring

The BCWD has determined that the Kern Center Basin has been designed to provide the additional 6.8 acre-feet of retention/infiltration required to accommodate existing and future development, up to 80 percent imperviousness, within its drainage area, while meeting the BCWD's volume control requirements. The requirements will be achieved by expanding the pond to approximately 3.6 acres, and by managing the pond at a new normal water level (NWL) that is on average 1.5 to 2 feet below the invert of the existing 12-inch orifice outlet. The BCWD estimates that given the soil types identified during the geotechnical investigation, the 1.5 to 2 feet of storage below the invert will infiltrate within a 3 to 4 day period after a storm event.

The BCWD will develop a monitoring plan that will evaluate the infiltration capacity of the basin over time. Under the monitoring plan, the BCWD will monitor pond performance for at least one year, at which time performance will be evaluated, taking annual precipitation into account. The BCWD will continue to monitor performance thereafter at a frequency and for a period it finds appropriate. For each year in which monitoring is performed, an annual monitoring report summarizing the monitoring activities completed and findings for the Kern Center Basin will be submitted to the City of Oak Park Heights.

Construction Inspection

The City will bear responsibility for inspection of the Basin construction and working with the contractor to assure that the Basin is constructed according to the plans. The BCWD will participate in on-site inspection, and will identify any concerns regarding construction-related issues to the City during construction or the warranty period. The BCWD will have no authority to direct the contractor.

Basin Performance Warranty Period

After construction is completed, the BCWD will monitor the performance of the Basin for a period of time deemed adequate by the City engineer and BCWD engineer, given precipitation patterns, plant rooting and other relevant factors, to calibrate actual performance in relation to the design target. The BCWD will report to the City on the function of the Basin during this time, identify actual performance in comparison to the target infiltration rate, and identify any other issues related to performance of the Basin. The BCWD and the City will discuss the outcomes of the monitoring, and determine whether the Basin is functioning successfully, whether changes are needed to achieve the target infiltration rate, or the target rate needs to be modified.

Vegetation Establishment Period

The City and BCWD will monitor vegetation establishment during the first year after construction is completed. Maintenance during the first year will be included in the construction contract, and will be completed by the contractor.

The City will provide in the contract that maintenance requirements and evaluation of native seeding at the Basin will conform to *Guidelines for Restoring & Managing Native Wetland Vegetation* (Minnesota DOT and Minnesota BWSR) and *MN/DOT Seeding Manual 2003.*

The City will provide in the contract that tree and shrub plantings will be monitored as well and that those that die or are in poor condition within one year after planting will be replaced by the contractor at his/her expense, and a second 1-year establishment period will begin.

Maintenance Period

The Maintenance Period for the Basin will begin after construction is completed, and after the BCWD and City agree that the design is functioning successfully in meeting the target infiltration rate identified for the Basin.

Routine Maintenance

The City will complete the following routine maintenance activities at its expense:

1. Annual inspection

The City will complete an annual inspection of the Basin to identify maintenance issues.

2. Removal of accumulated sediments

The City will remove accumulated sediments from the smaller "forebay" cells at the north and southeast sides of the large basin when the depth of sediment reaches half the depth of the basin. Sediment will be removed with light equipment that will be operated from outside the basin to the degree possible to minimize compaction and damage to plantings.

3. Vegetation maintenance

Maintenance of plantings will include the following:

a. Seeded areas—Maintenance will conform to *Guidelines for Restoring & Managing Native Wetland Vegetation* (Minnesota DOT and Minnesota BWSR) and *MN/DOT Seeding Manual 2003.* This maintenance typically includes mowing 2-3 times per season, and spot spraying weeds as needed. When sufficient litter is available, a controlled burn may replace mowing at the City's discretion.

b. Trees and shrubs – Trees and shrubs will be inspected annually. Pruning or replacement may be completed for dead or diseased plants.

c. The City will use no fertilizer near the Basin. Herbicide application will be limited to spot spraying of noxious weeds with herbicides approved for use near water bodies.

4. Erosion Control

If areas of erosion are identified within the site, the City will use appropriate methods such as fabric, seeding, plantings, or structural methods if necessary to stabilize these areas.

5. Best Management Practices

The City will encourage landowners in the drainage area to the Basin to control sediment and pollutants that may affect the operation of the Basin, including the following:

a. Use the minimum amount of sand and salt needed to maintain hard surfaces in the winter months

b. Sweep hard surfaces as early as possible in the spring

Additional Maintenance

The following criteria indicate the need to perform additional maintenance activities:

1. The Basin is no longer returning to a normal water level that is 1.5 to 2 feet below the invert elevation of the 12-inch orifice between storm events during a normal precipitation year, indicating that the available storage in the system has been reduced.

2. The time that it takes the Basin to reach its normal water level (1.5 to 2 feet below invert elevation) after a rainfall event is longer than a 3 to 4 day period, unless another rainfall event occurs during this period.

If the BCWD monitoring finds either or both of the conditions identified above, it will notify the City, and provide the results of the monitoring to the City. The BCWD and City will discuss the findings of the monitoring, and determine the actions to be taken, the responsibility for those actions, and time frame for completion of the actions.

EXHIBIT D

KERN CENTER MONITORING PLAN

This monitoring plan has been developed to determine the infiltration capacity of the Kern Center Pond. It will also enable the Brown's Creek Watershed District (BCWD) to evaluate how this stormwater management facility meets the District's volume control standard by measuring how often the water level exceeds the outlet elevation (928.6 feet).

Identification of the infiltration rates (depth/time) and the volumetric infiltration rates (cfs/time) will also enable the BCWD and the City of Oak Park Heights to evaluate the performance of this basin. This information will be valuable in determining the potential long-term maintenance requirements for this facility.

The following tasks outline the major components of this monitoring plan:

Task 1. Data Collection

1.1 Purchase Equipment. Purchase an automatic water level recorder and a staff gage for the Kern Center Pond.

1.2 Installation. Monitoring equipment will be installed prior to the spring melt. Equipment will be calibrated and checked for defects or other hardware problems prior to installation in the field. Permission will be obtained from land owners. Equipment and staff gauges will be surveyed for exact locations and elevations during installation and removal of equipment.

1.3 Maintenance. Equipment will be maintained in the field during the field season. If necessary, equipment will be sent to the manufacturer for repair.

1.4 Field Visits. Site will be visited once every two weeks during the field season for the purposes of installing equipment, visual recording (photos), staff gauge readings, verification of measured data and electronic transfer of data.

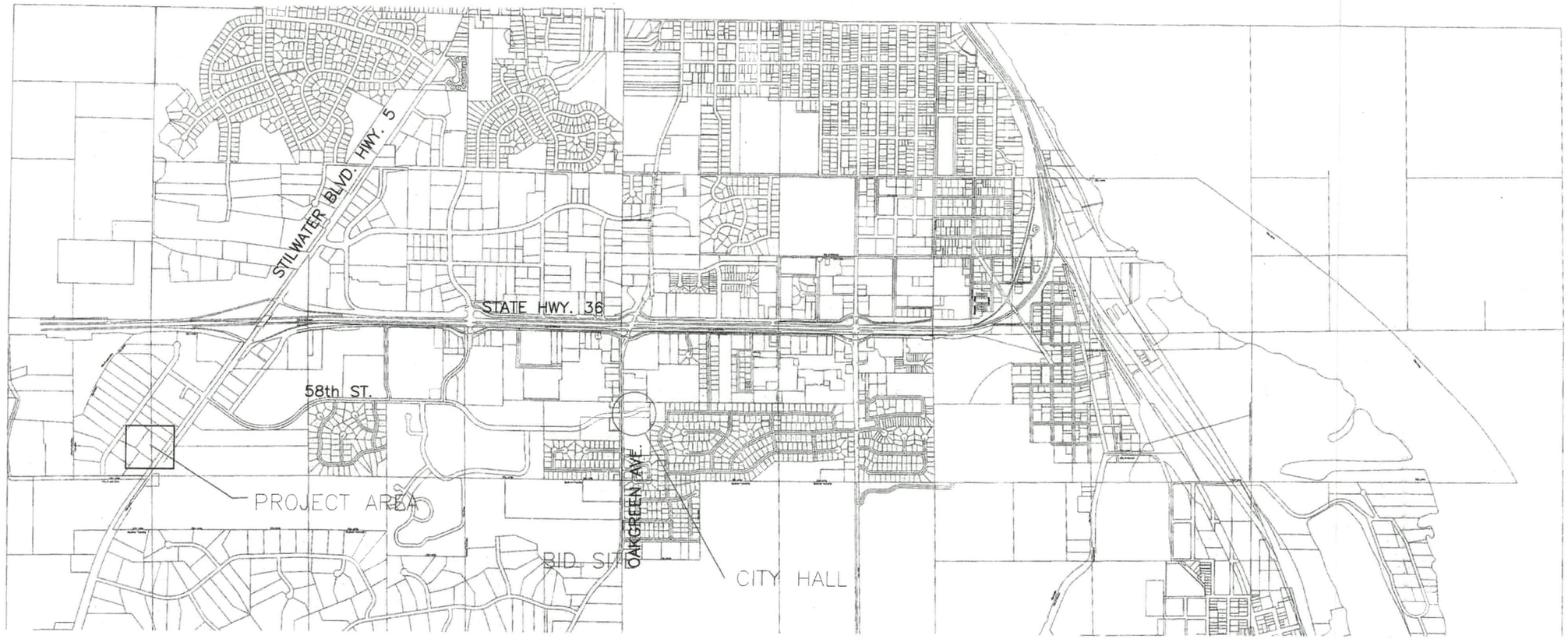
Task 2. Data Analysis and Monitoring Report

2.1 **Infiltration Data Analysis.** Data collected over the field season (time and water level recordings) will be imported into a database which will be tabulated and analyzed for infiltration rates. These infiltration rates will enable the District and the City to evaluate the performance of the Kern Center Basin over time.

2.2 **Report.** A Monitoring Report will be produced at the end of the field season that will identify trends in infiltration performance and state appropriate recommendations to effectively manage the system for long-term operation and viability.

PROJECT TIMELINE

Begin Implementation	March 2005
Final 2005 Report Submitted to BCWD	November 2005



VICINITY MAP

DAVE BEAUDET	MAYOR
LES ABRAHAMSON	COUNCILMEMBER
JACK DOERR	COUNCILMEMBER
MARY McCOMBER	COUNCILMEMBER
MARK SWENSON	COUNCILMEMBER
ERIC JOHNSON	CITY ADMINISTRATOR
MARK VIERLING	ATTORNEY

SHEET INDEX

G1.01	TITLE SHEET
1	EOR TITLE SHEET
2	EXISTING CONDITIONS
3	PROPOSED CONTOURS
4	EROSION CONTROL
5	PLANTING AND SEEDING
6	SECTIONS AND DETAILS

OAK PARK HEIGHTS, MINNESOTA

KERN CENTER POND EXPANSION

B.R.A. PROJECT NUMBER 55-04-135

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: Dennis M. Poplar

SIGNATURE: [signature]

DATE: 11/3/04 LIC. NO. 22011

SURVEY
DRAWN
DESIGNED
APPROVED
DATE
PROJ. NO. 55-04

St. Paul Office
2335 West Highway 36
St. Paul, MN 55113
Phone: 651-636-4600
Fax: 651-636-1311

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Engineers & Architects
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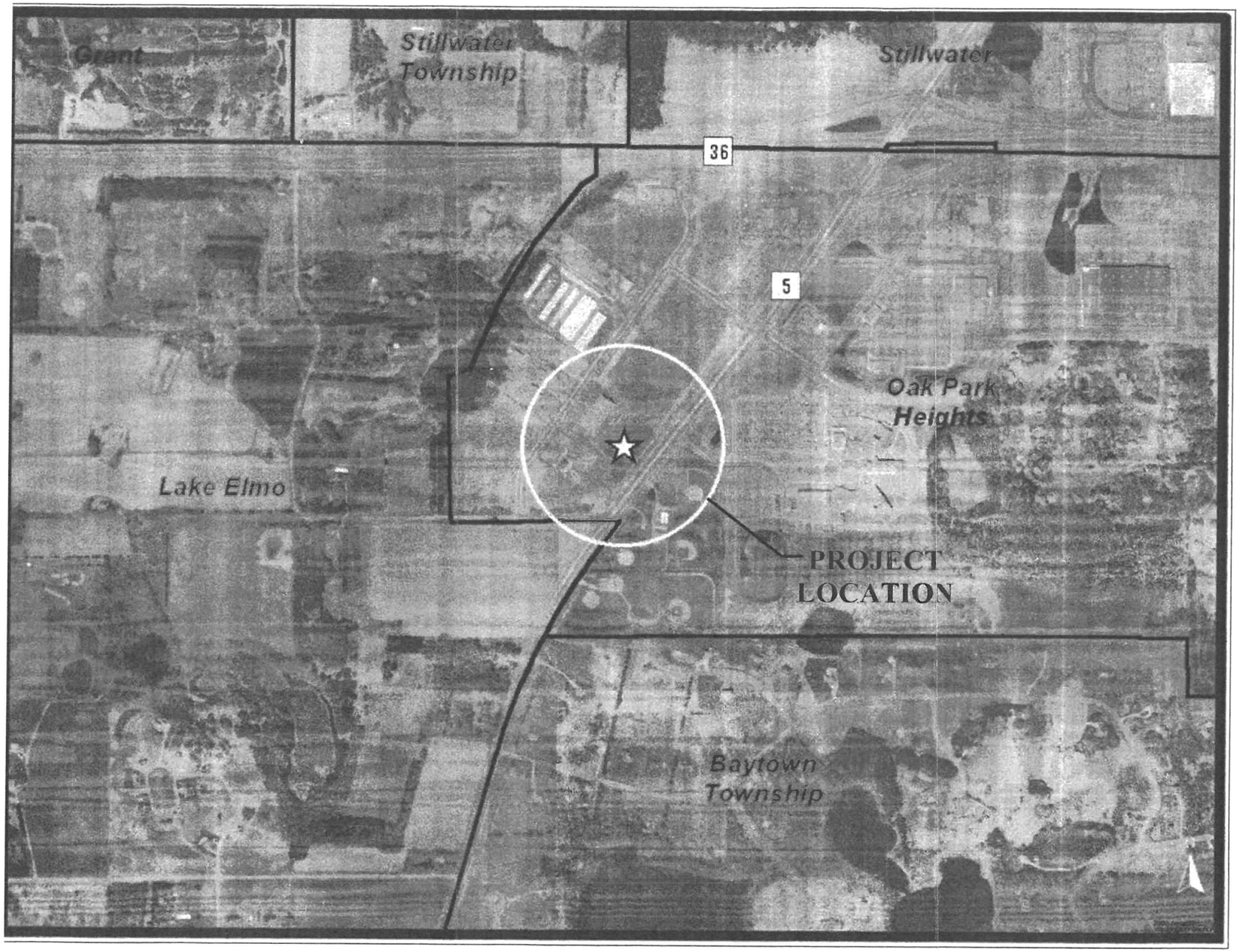
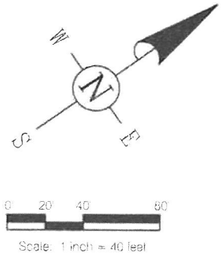
CITY OF OAK PARK HEIGHTS, MINNESOTA
KERN CENTER POND EXPANSION
TITLE SHEET

55041356101
SHEET NUMBER
G1.01

KERN CENTER
MMERCIAL AREA DRAINAGE FACILITY
OAK PARK HEIGHTS, MINNESOTA

TITLE SHEET





SHEET INDEX

SHEET	DESCRIPTION
1	TITLE SHEET
2	EXISTING CONDITIONS
3	PROPOSED CONTOURS
4	EROSION CONTROL
5	PLANTINGS AND SEEDING
6	SECTIONS AND DETAILS

BENCHMARK

TOP OF OUTLET CASTING
ELEVATION 935.08
(SEE NOTE ON SHEET 2)

THE LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AT THE TIME THE PLANS WERE PREPARED AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. CONTRACTOR IS RESPOSIBLE FOR CONTACTING ALL UTILITIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION OF SAID UTILITIES DURING THE COURSE OF WORK.

NO.	REVISION DESCRIPTION	D

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Michael L. Johnson

Sign Name: [signature]

Date 11-3-04 License No. 40454

Date 10-23-03

Designed By MLJ

Drawn By JRJ

EMMONS & OLIVER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
WEBSITE: www.eorinc.com

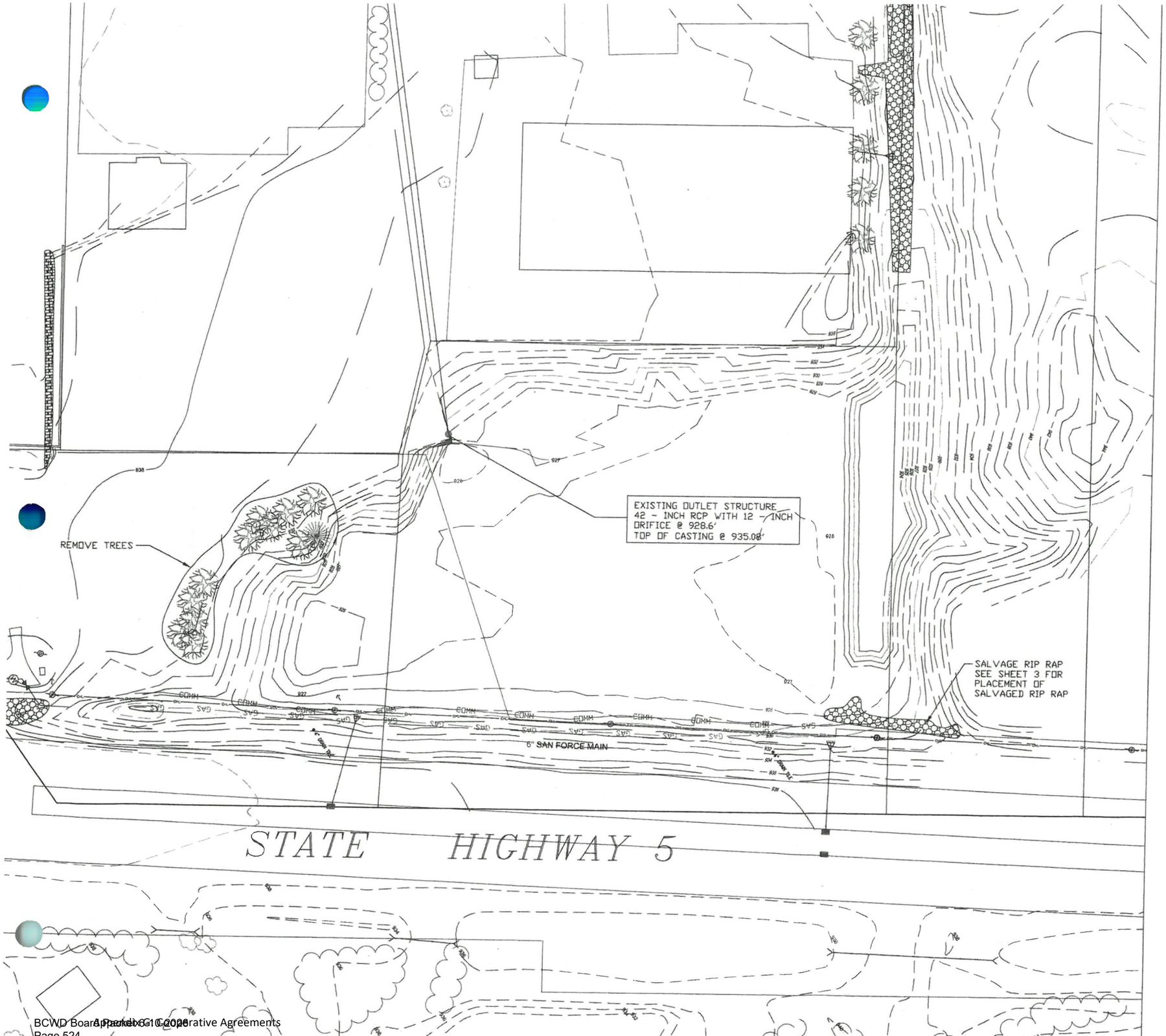
BROWN'S CREEK WATERSHED DISTRICT

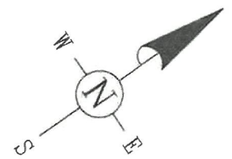
KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OAK PARK HEIGHTS, MN

Sheet No. 1 of 6 Sheets

G15

EXISTING CONDITIONS AND REMOVALS





0' 20' 40' 80'

Scale: 1 inch = 40 feet

LEGEND

- EXISTING CONTOURS
- EXISTING SANITARY SEWER
- PROPERTY LINES
- EXISTING BURIED ELECTRIC
- BURIED TELEPHONE
- EXISTING STORM SEWER
- WATERMAIN
- EXISTING FENCE LINE
- BURIED GAS
- EXISTING BURIED COMM.
- PROPOSED CONTOURS
- EXISTING SPOT ELEVATIONS
- PROPOSED SPOT ELEVATIONS
- PROPOSED SILT FENCING
- TEMPORARY ORANGE CONSTRUCTION FENCE
- NEW CEDAR SPLIT RAIL FENCE
- EXISTING RETAINING WALL
- EXISTING RIPRAP
- EXISTING TREES

NOTE:

1. INSTALL TEMPORARY EROSION CONTROL PRIOR TO THE START OF ANY WORK SEE SHEET 4

NO.	REVISION DESCRIPTION	DATE

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Michael L. Johnson

Sign Name:

Date 11-23-20 License No. 40454

Date 10-23-03

Designed By MLJ

Drawn By JRJ

EMMONS & OLIVER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
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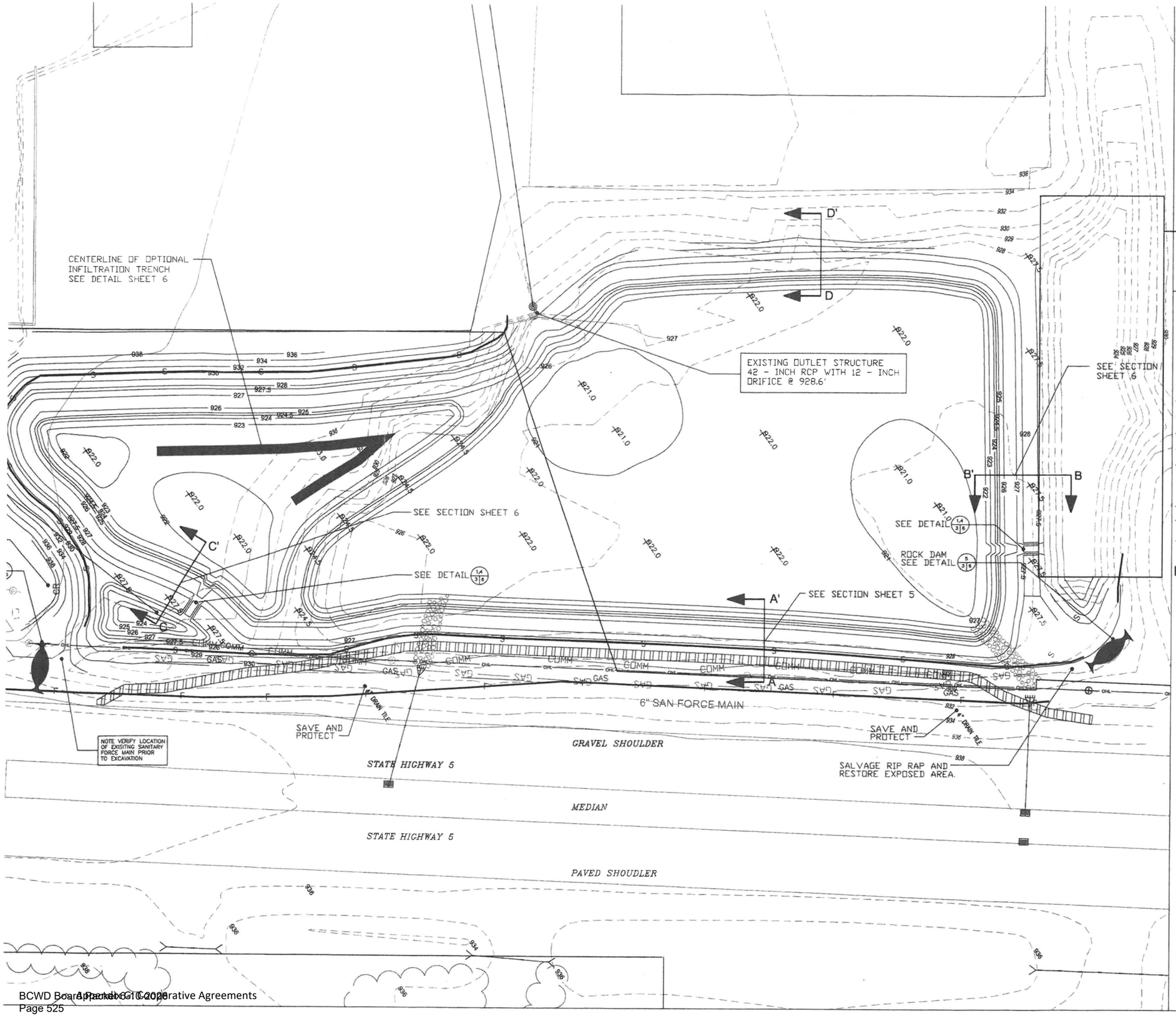
BROWN'S CREEK WATERSHED DISTRICT

KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OAK PARK HEIGHTS, MN

Sheet No. 2 of 6



PROPOSED CONTOURS

0' 15' 30' 60'

Scale: 1 inch = 30 feet

EXISTING POND CONTOURS BASED ON SURVEY DATA AND ON DESIGN DRAWINGS BY METRO LAND SURVEYING FOR OAK PARK STATION SITE GRADING. NORTHERLY POND CELL WILL ALSO REQUIRE DEWATERING TO CONSTRUCT PROPOSED IMPROVEMENTS.

LEGEND

922	EXISTING CONTOURS
	EXISTING SANITARY SEWER
	PROPERTY LINES
E	EXISTING BURIED ELECTRIC
T	BURIED TELEPHONE
	EXISTING STORM SEWER
	WATERMAIN
X	EXISTING FENCE LINE
GAS	BURIED GAS
COMM	EXISTING BURIED COMM.
938	PROPOSED CONTOURS
924.5	EXISTING SPOT ELEVATIONS
924.5	PROPOSED SPOT ELEVATIONS
S	PROPOSED SILT FENCING
F	TEMPORARY ORANGE CONSTRUCTION FENCE
CR	NEW CEDAR SPLIT RAIL FENCE
	CENTERLINE LOCATION FOR OPT. INFILTRATION TRENCH SEE NOTE 12 AND DETAILS
	PROPOSED 6' TRAIL BENCH

NOTES

1) EVERY MEASURE SHOULD BE TAKEN TO PREVENT COMPACTION OF SOILS DUE TO VEHICULAR TRAFFIC OR MASS-GRADING EQUIPMENT.
2) ALL EXCAVATION AND GRADING WORK SHALL BE PERFORMED WITH WIDE-TRACKED LOW COMPACTION EQUIPMENT.
3) SILT FENCE ON POND SLOPES TO BE INSTALLED IMMEDIATELY AFTER GRADING OF SLOPES IS COMPLETED.
4) ALL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES NEED TO BE IN-PLACE AND PROPERLY MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL THE ENTIRE SITE BECOMES PERMANENTLY STABILIZED. (SEE SHEETS 3 & 4).
5) REMOVAL OF SILT FENCE SHALL BE AT THE DISCRETION OF THE ENGINEER.
6) GRADE BASIN TO POND BOTTOM TO SHOW CONTOUR ELEVATIONS. FURTHER EXCAVATION MAY BE REQUIRED TO EXPOSE NATURALLY OCCURING PERMEABLE MATERIAL AS DIRECTED BY THE ENGINEER. (SEE NOTE 12).
7) SEE SHEET 5 FOR PLANTING AND EROSION CONTROL PLAN AND SHEET 6 FOR DETAILS
8) SEDIMENT WASHED INTO THE INFILTRATION BASIN FROM THE SIDE SLOPES NEEDS TO BE REMOVED IMMEDIATELY.
9) CARE MUST BE TAKEN WHEN GRADING AROUND OR NEAR EXISTING OUTLET MANHOLE NOT TO DISTURB THE ESTABLISHED VEGETATION OR RIP-RAP AREA.
10) INFILTRATION TRENCH TO BE INSTALLED AS DIRECTED BY THE ENGINEER. SIZING AND EXACT LOCATION WILL BE BASED ON LOCATION AND DEPTH OF NATURALLY OCCURING PERMEABLE MATERIALS.

NO.	REVISION DESCRIPTION	DATE

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Mitchell L. Johnson

Sign Name: [signature]

Date 11-03-04 License No. 40454

Date 10-23-03

Designed By MLJ

Drawn By JRJ

EMMONS & OLIVER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
WEBSITE: www.eorinc.com

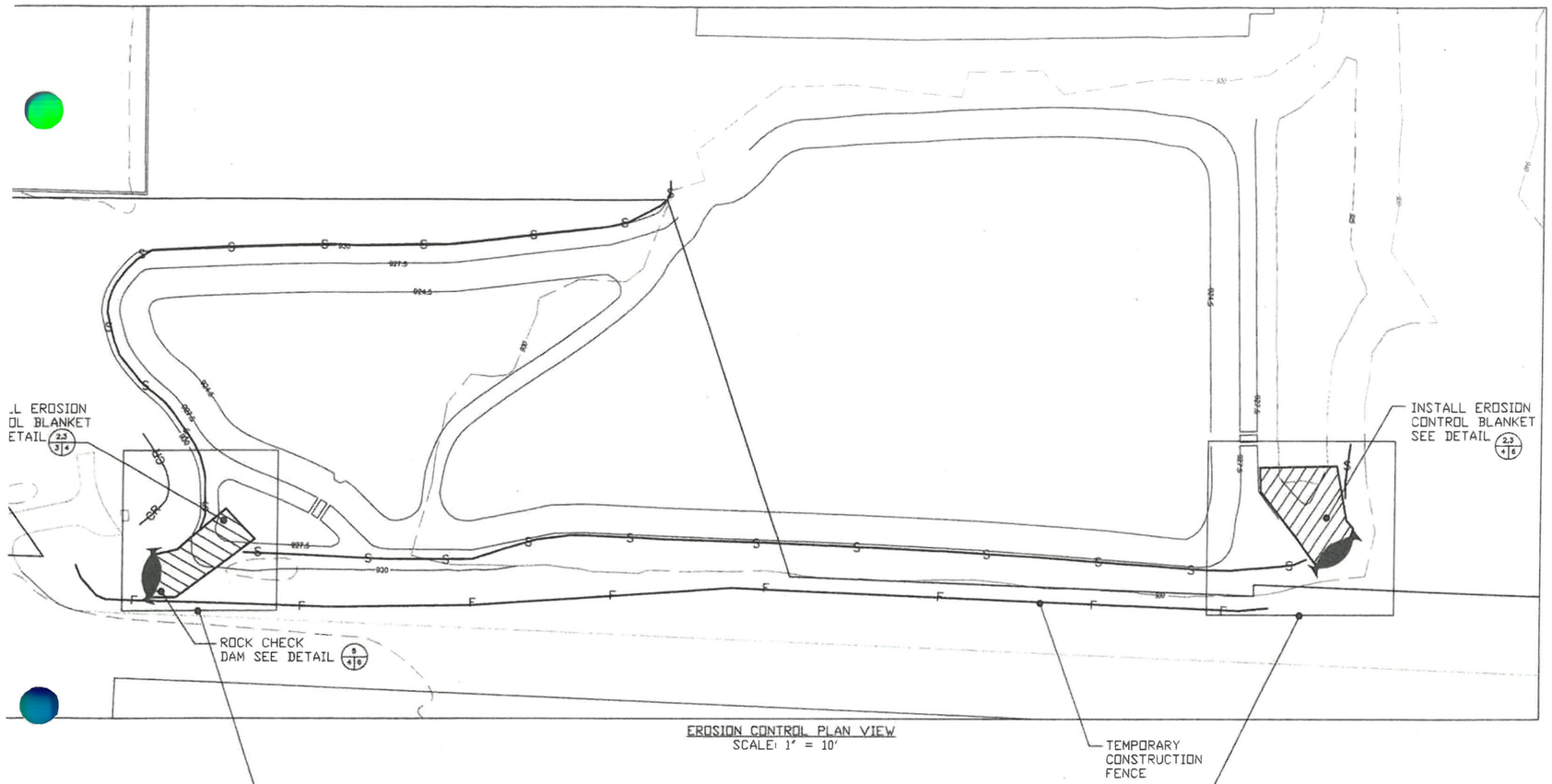
BROWN'S CREEK WATERSHED DISTRICT

KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OAK PARK HEIGHTS, MN

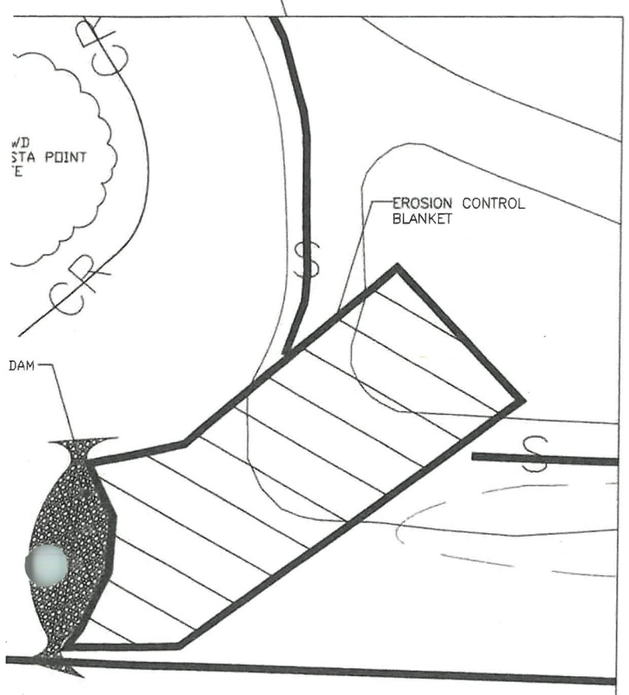
Sheet No. 3 of 6 Sheets

G17

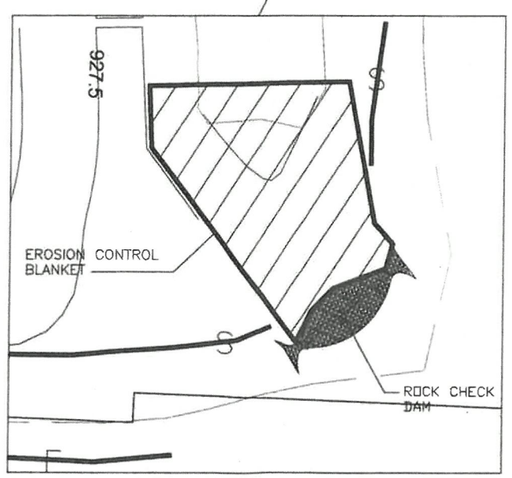
TEMPORARY EROSION CONTROL & FENCING PLAN



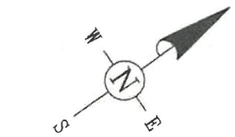
EROSION CONTROL PLAN VIEW
SCALE: 1" = 10'



EROSION CONTROL BLANKET INSET
SCALE: 1" = 10'



EROSION CONTROL BLANKET INSET
SCALE: 1" = 10' - 0"



0' 20' 40' 80'
Graphic scale: 1 inch = 40 feet
For overview map

0' 5' 10' 20'
Graphic scale: 1 inch = 10 feet
For inset maps

LEGEND

922	EXISTING CONTOURS
938	PROPOSED CONTOURS
S S	PROPOSED SILT FENCING
F F	TEMPORARY ORANGE CONSTRUCTION FENCE
CR CR	NEW CEDAR SPLIT RAIL FENCE

NOTES

1) SILT FENCING SHALL BE INSTALLED AS SOON AS THE INFILTRATION BASIN SLOPES ARE CONSTRUCTED TO ENSURE SEDIMENT DOES NOT CONTAMINATE THE BASIN SUBSOILS.

2) TEMPORARY CONSTRUCTION FENCING SHALL BE INSTALLED BEFORE CONSTRUCTION BEGINS.

3) THE ROCK CHECK DAM SHALL BE CONSTRUCTED FROM CLASS II RIP-RAP.

4) THE BERM PILOT CHANNELS SHALL BE CONSTRUCTED OF CLASS II RIP-RAP. DETAILS SHEET 5.

5) TEMPORARY HYDROMULCH SHALL BE PLACED AT ALL DISTURBED AREAS.

NO.	REVISION DESCRIPTION	D

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Mitchell L. Johnson

Sign Name: [signature]

Date 11-03-04 License No. 40454

Date 10-23-03

Designed By MLJ

Drawn By JRJ

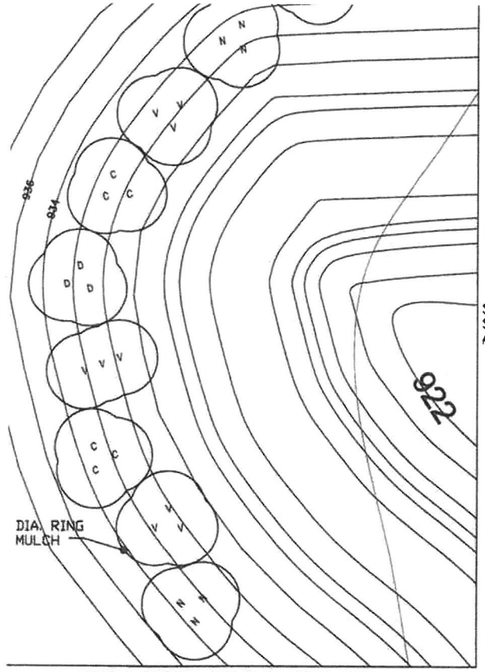
EMMONS & OLIVIER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
WEBSITE: www.eorinc.com

BROWN'S CREEK WATERSHED DISTRICT

KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OAK PARK HEIGHTS, MN

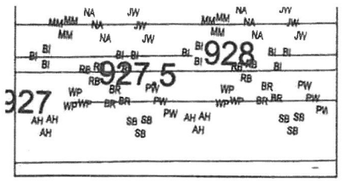
Sheet No. 4 of 6 Sheets

PERMANENT EROSION CONTROL PLANTING AND SEEDING PLAN



SOUTH WESTERN SHRUB PLANTING AREA
SCALE: 1" = 10'

1) 3' SPACING B/T PLANTS
2) 10' SPACING B/T GROUPS
3) #2 POT SIZE

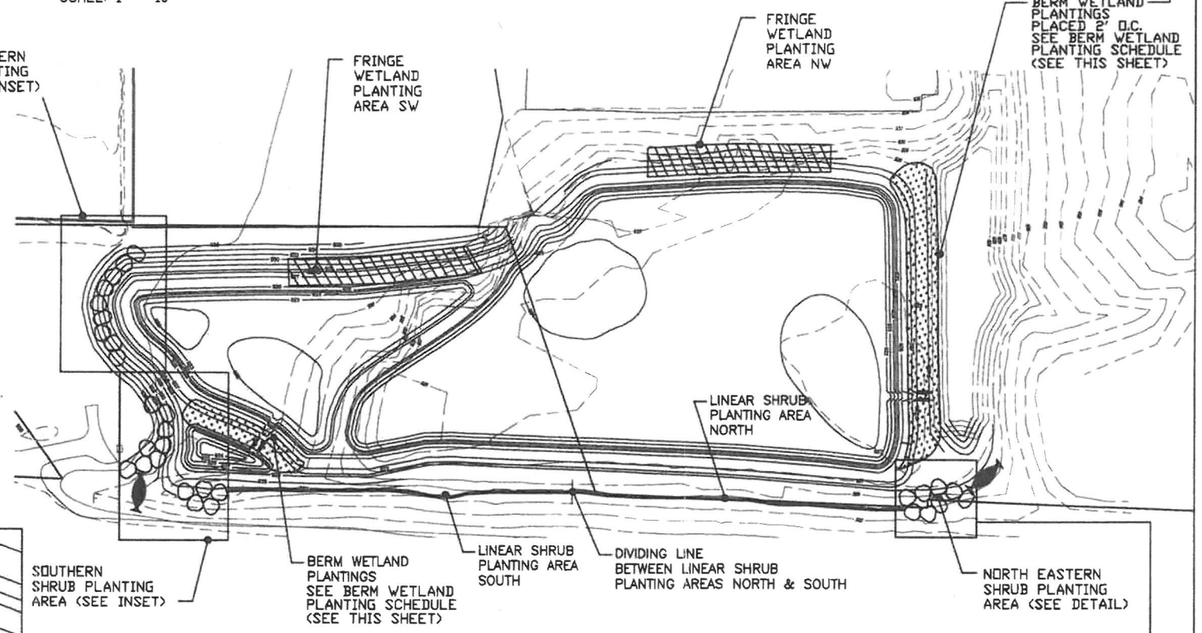


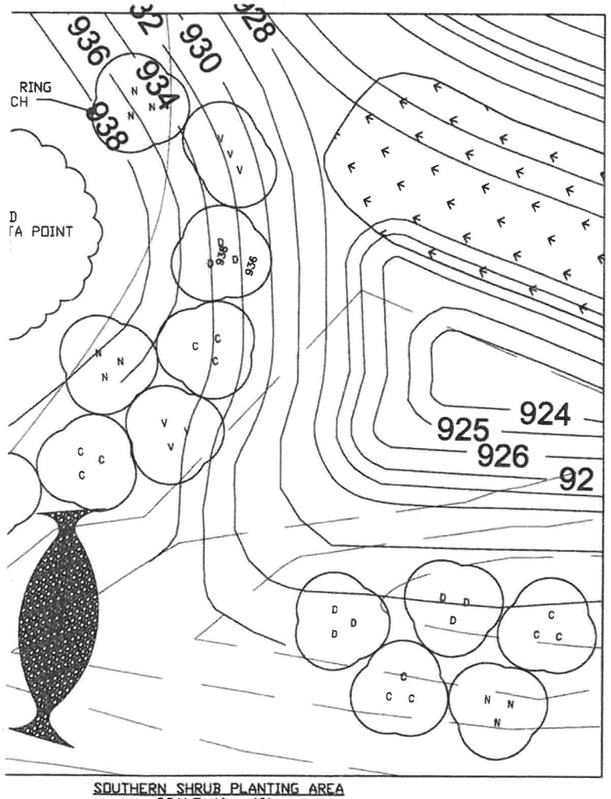
1) 2' SPACING B/T PLANTS
2) 3' SPACING B/T GROUPS

TYPICAL FRINGE WETLAND PLANTING AREAS NW & SW
SCALE: 1" = 10'

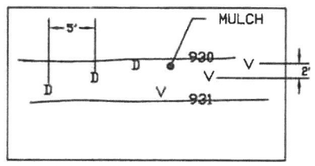
Common Name	Botanical Name	Plan Symbol	Approx. No. of plants
River bullrush	Scirpus fluviatilis	BB	40
Broad-leaved arrowhead	Sagittaria latifolia	AH	40
Softstem bulrush	Scirpus validus	SB	40
Water plantain	Alisma subcordatum	WP	40
Pickerelweed	Pondederia cordata	PW	40
Giant bur-reed	Sparganium eurycarpum	BR	40
Marsh milkweed	Asclepias incarnata	MM	40
New England aster	Aster novae-angliae	NA	40
Joe-pye weed	Eupatorium maculatum	JW	40
Blue-flag iris	Iris virginica shrevei	BI	40
	Total		400

Planting List		
Common Name	Botanical Name	Apprx. No. of plants
River bullrush	Scirpus fluviatilis	460
Broad-leaved arrowhead	Sagittaria latifolia	460
Softstem bulrush	Scirpus validus	460
Water plantain	Alisma subcordatum	460
Pickerelweed	Pondederia cordata	460
Giant bur-reed	Sparganium eurycarpum	460
	Total	2760

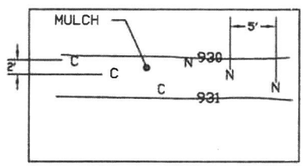




SOUTHERN SHRUB PLANTING AREA
SCALE: 1" = 10'



LINEAR SHRUB PLANTING AREA SOUTH
NOT TO SCALE



LINEAR SHRUB PLANTING AREA NORTH
NOT TO SCALE

Shrub Plantings		
Planting List		
Common Name	Botanical Name	Plan Symbol
Red Osier Dogwood	Cornus stolonifera	D
Common Ninebark	Physocarpus opulifolius	N
Eastern Sand Cherry	Prunus pumila	C
Mapleleaf Viburnum	Viburnum acerifolium	V

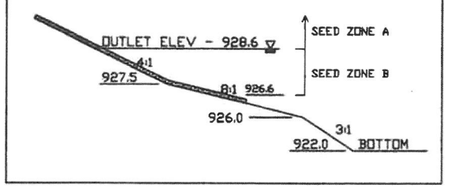
1) 3' SPACING B/T PLANTS
2) 10' SPACING B/T GROUPS
3) #2 POT SIZE

SEED ZONE A: ALL DISTURBED AREAS ABOVE ELEVATION 928.6. (MN/DOT 15B)

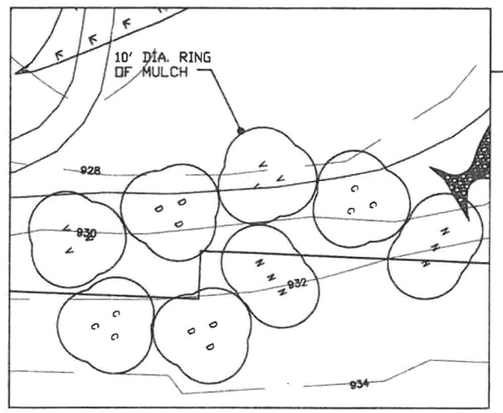
SEED ZONE B: ALL DISTURBED AREAS BETWEEN 926.6-928.6. (MN/DOT 25B)

SEE SHEET 6 FOR SEEDING MIX TABLE.

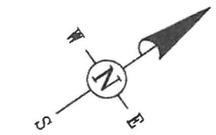
SEEDING TO BE APPLIED TO ENTIRE DISTURBED POND PERIMETER.



POND EDGE SEEDING PLAN SECTIONAL VIEW
NOT TO SCALE



NORTH EASTERN SHRUB PLANTING AREA
SCALE: 1" = 10' - 0"



0 30' 60' 120'
Graphic scale: 1 inch = 60 feet
For overview map

0 5' 10' 20'
Graphic scale: 1 inch = 10 feet
For inset maps

LEGEND

- 922 — EXISTING CONTOURS
- 938 — PROPOSED CONTOURS
- FRINGE WETLAND PLANTINGS
- SHRUB PLANTINGS ZONE A
- LINEAR SHRUB PLANTINGS ZONE A & B
- BERM WETLAND PLANTINGS

NOTES

1) PERMANENT SEEDING, WETLAND PLANTING AND SHRUB PLANTING TO OCCUR BETWEEN MAY 1 AND JUNE 15.
2) ALL AREAS ABOVE ELEVATION 928.6 (ZONE A) SHALL BE SEEDED WITH MNDOT 15B AT 30 LBS PER ACRE.
3) ALL AREAS BETWEEN ELEVATION 928.6 AND 926.6 (ZONE B) SHALL BE SEEDED WITH MNDOT 25B AT 30 LBS PER ACRE.
4) WATER LEVELS IN THE POND AND INFILTRATION BASIN MUST BE MAINTAINED BELOW 926.6 DURING THE PLANT ESTABLISHMENT PERIOD (FIRST GROWING SEASON). IF WATER LEVELS EXCEED 926.6 FOR LONGER THAN 5 DAYS, PUMPING MAY BE NECESSARY TO ENSURE VIABILITY OF WETLAND PLANTINGS. SEE SPECIFICATION.
5) CATEGORY II STRAW FIBER BLANKET SHALL BE INSTALLED ON BOTH THE BERM AND FRINGE AREAS TO BE SEEDED AND PLANTED WITH WETLAND PLANTS.
6) WOOD MULCH SHALL BE APPLIED TO ALL AREAS IDENTIFIED FOR SHRUB PLANTING TO A DEPTH OF 4".
7) ALL SHRUBS SHALL BE #2 POTS AND PLANTED AS SHOWN IN PLAN DETAILS.
8) ALL WETLAND PLANTS SHALL BE THRIVING ROOT STOCK AND PLANTED AS SHOWN IN PLAN DETAILS.

NO.	REVISION DESCRIPTION	D

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: MITCHELL L. JOHNSON
Sign Name:
Date: 11-3-04 License No. 40454

Date	Designed By	Drawn By
10-23-03	MLJ	JRJ

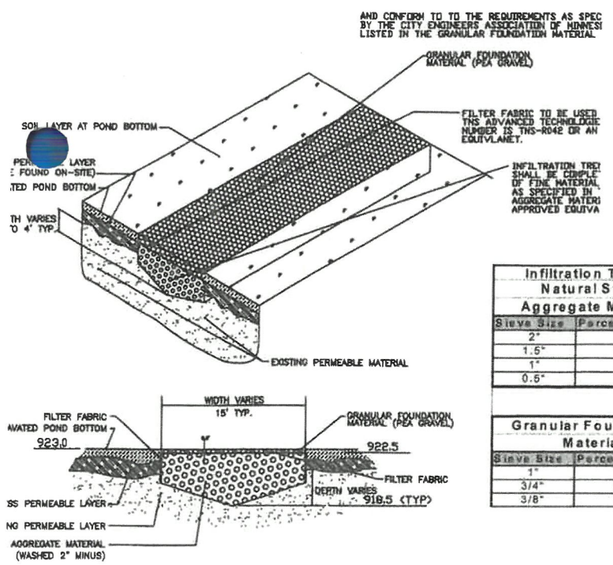
EMMONS & OLIVER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
WEBSITE: www.eorinc.com

BROWN'S CREEK WATERSHED DISTRICT

KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OF PARK HEIGHTS, MN

Sheet No. 5 of 6 Sheets

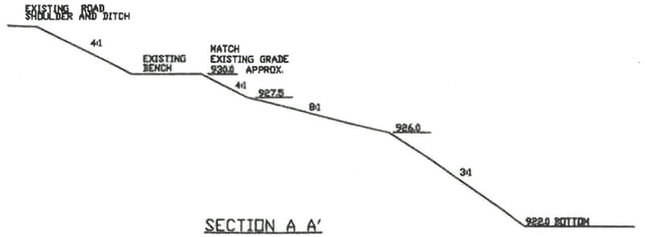
SECTIONS AND DETAILS



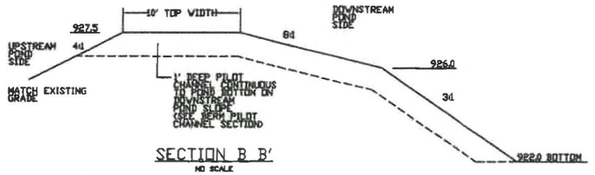
Infiltration Trench Natural Stone Aggregate Material	
Sieve Size	Percent Passing
2"	100
1.5"	85-100
1"	30-60
0.5"	0-10

Granular Foundation Material	
Sieve Size	Percent Passing
1"	100
3/4"	85-100
3/8"	30-60

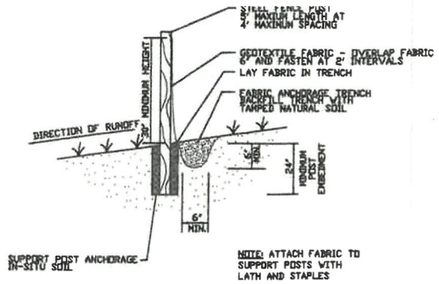
LINEAR INFILTRATION TRENCH DETAILS
NO SCALE



SECTION A A'
NO SCALE



SECTION B B'
NO SCALE



6/4/6 SILT FENCE DETAIL
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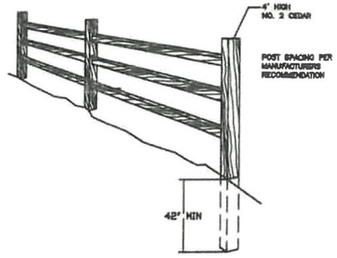

7/4/6 TYPICAL CEDAR SPLIT RAIL FENCE DETAIL
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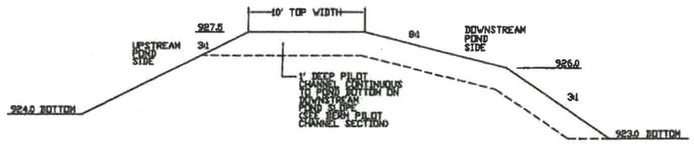

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SECTION D D'
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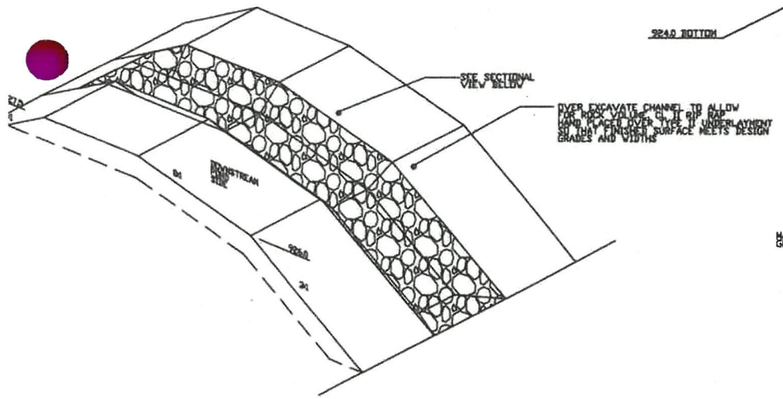

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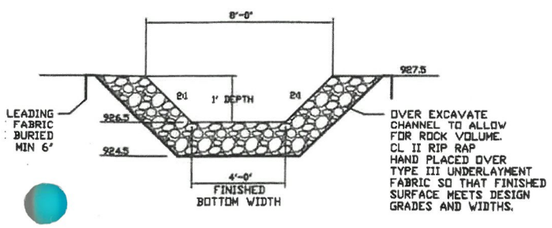

1/3/6 BERM PILOT CHANNEL SECTION
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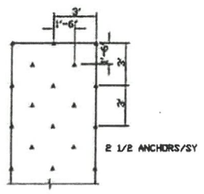

2/3/6 EROSION CONTROL BLANKET ANCHOR PATTERN
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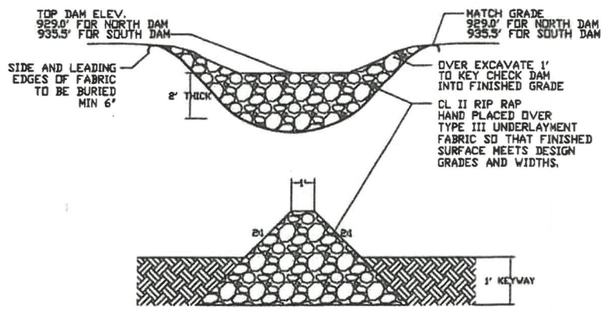

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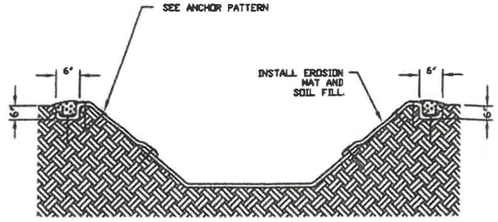


3/3/6 EROSION CONTROL BLANKET DETAIL
NO SCALE

Seed Zone A Seeding List MNDOT Mixture 25A Modified (25B): Rate 30 lbs/acre		
Common Name	Botanical Name	% of Mix
Bluestem, big	Andropogon gerardi	5
Orama, sideoats	Bouteloua curtipendula	10
Wild rye, Canadian	Elymus canadensis	5
Wheat grass, slender	Elymus trachycaulus	5
Rye grass, annual	Lolium italicum	10
Rodtown	NA	34
Switch grass	Panicum virgatum	2
Bluestem, little	Schizachyrium scoparium	12
Indian grass	Sorghastrum nutans	12
Milkweed, butterfly	Asclepias tuberosa	0.25
Aster, heath	Aster ericoides	0.25
Aster, smooth-blue	Aster laevis	0.25
Milkvetch, Canada	Astragalus canadensis	0.25
Partridge pea	Chamaecrista fasciculata	0.25
Prairie clover, white	Dalea candidum	0.25
Prairie clover, purple	Dalea purpureum	0.25
Tick-trefoil, showy	Desmodium canadense	0.25
Ox-eye, common	Heliopsis helianthoides	0.25
Blazingstar, rough	Liatris aspera	0.25
Blazingstar, tall	Liatris pycnostachya	0.25
Bergamot, wild	Monarda fistulosa	0.25
Penstemon, showy	Penstemon grandiflorum	0.25
Coneflower, gray-headed	Ratibida pinnata	0.25
Black-eyed Susan	Rudbeckia hirta	0.25
Goldenrod, stiff	Solidago rigida	0.25
Spiderwort, Ohio	Tradescantia ohiensis	0.25
Vervain, blue	Verbena hastata	0.25
Vervain, hoary	Verbena stricta	0.25
Alexanders, golden	Zizia aurea	0.25
	Total:	100

Seed Zone B Seeding List Mixture 25A Modified (25B) – Rate: 30 lbs/acre (33 kg/ha)		
Common Name	Botanical Name	% of Mix
Bluestem, big	Andropogon gerardi	5
Canada anemone	Anemone canadensis	0.1
Marsh milkweed	Asclepias incarnata	0.5
New England aster	Aster novae-angliae	0.6
Swamp aster	Aster puniceus	0.6
Fringed brome	Bromus ciliata	5
Blue-joint grass	Calamagrostis canadensis	0.1
Bottlebrush sedge	Carex comosa	1
Tussock sedge	Carex stricta	0.5
Fox sedge	Carex vulpinoidea	0.4
Showy tic-trefoil	Desmodium canadense	0.4
Wheat grass, slender	Elymus trachycaulus	6
Virginia wild-rye	Elymus virginicus	6
Joe-pye weed	Eupatorium maculatum	0.4
Boneset	Eupatorium perfoliatum	0.3
Reed manna grass	Glyceria grandis	0.3
Fowl manna grass	Glyceria striata	0.2
Early sunflower	Helianthus helianthoides	0.7
Blue-flag Iris	Iris virginica shrevei	0.5
Common rush	Juncus effusus	0.2
Meadow blazingstar	Liatris ligulistylis	0.4
Tall blazingstar	Liatris pycnostachya	0.4
Great blue lobelia	Lobelia siphilitica	0.1
Rye grass, annual	Lolium italicum	10
Monkey flower	Mimulus ringens	0.1
Wild Bergamot	Monarda fistulosa	0.6
ReGreen	NA	42
Switch grass	Panicum virgatum	1
Fowl bluegrass	Poa palustris	5
Black-eyed Susan's	Rudbeckia hirta	0.8
Green bulrush	Scirpus atrovirens	0.3
Wool grass	Scirpus cyperinus	0.3
Soft-stem bulrush	Scirpus validus	1
Grass-leaved goldenrod	Solidago graminifolia	0.2
Indian grass	Sorghastrum nutans	6
Prairie cord grass	Spartina pectinata	2
Blue vervain	Verbena hastata	0.5
Ironweed	Veronia fasciculata	0.2
Culver's root	Veronicastrum virginicum	0.1
Golden Alexander's	Zizea aurea	0.4
	Total:	100

NO.	REVISION DESCRIPTION	DATE

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: MICHAEL L. JORDAN

Sign Name:

Date: 11-3-21 License No. 49514

Date: 10-23-03 | Designed By: MLJ | Drawn By: JRJ

EMMONS & OLIVIER RESOURCES
651 HALE AVENUE NORTH
OAKDALE, MN 55128
PHONE: (651) 770-8448
FAX: (651) 770-2552
WEBSITE: www.eorinc.com

BROWN'S CREEK WATERSHED DISTRICT

KERN CENTER COMMERCIAL AREA DRAINAGE FACILITY OAK PARK HEIGHTS, MN

Sheet No. 6 of 6 Sheets

EXHIBIT C

Kern Center Commercial Area Drainage Facility
Operation and Maintenance Plan

Purpose

The overall objective of this Operation and Maintenance (O&M) Plan is to ensure the successful long-term operation of the Kern Center infiltration basin (Basin) that has been designed as part of the storm water plan for the Kern Center Commercial Area in the City of Oak Park Heights (City).

The purpose of the O&M Plan is to identify the tasks that will be needed for operation and maintenance of this facility, and standards for evaluating successful operation and maintenance. The City of Oak Park Heights will be responsible for financing and carrying out these tasks. The Brown's Creek Watershed District (BCWD) will be responsible for monitoring the infiltration basin, at its expense.

Background

The Basin for the Kern Center Commercial Area is designed to retain and infiltrate storm water runoff generated on the approximately 74 acres of commercial area that drains to the basin. The site is located within the City and Brown's Creek Watershed District.

Basin Performance Targets and Monitoring

The BCWD has determined that the Kern Center Basin has been designed to provide the additional 6.8 acre-feet of retention/infiltration required to accommodate existing and future development, up to 80 percent imperviousness, within its drainage area, while meeting the BCWD's volume control requirements. The requirements will be achieved by expanding the pond to approximately 3.6 acres, and by managing the pond at a new normal water level (NWL) that is on average 1.5 to 2 feet below the invert of the existing 12-inch orifice outlet. The BCWD estimates that given the soil types identified during the geotechnical investigation, the 1.5 to 2 feet of storage below the invert will infiltrate within a 3 to 4 day period after a storm event.

The BCWD will develop a monitoring plan that will evaluate the infiltration capacity of the basin over time. Under the monitoring plan, the BCWD will monitor pond performance for at least one year, at which time performance will be evaluated, taking annual precipitation into account. The BCWD will continue to monitor performance thereafter at a frequency and for a period it finds appropriate. For each year in which monitoring is performed, an annual monitoring report summarizing the monitoring activities completed and findings for the Kern Center Basin will be submitted to the City of Oak Park Heights.

Construction Inspection

The City will bear responsibility for inspection of the Basin construction and working with the contractor to assure that the Basin is constructed according to the plans. The BCWD will participate in on-site inspection, and will identify any concerns regarding construction-related issues to the City during construction or the warranty period. The BCWD will have no authority to direct the contractor.

Basin Performance Warranty Period

After construction is completed, the BCWD will monitor the performance of the Basin for a period of time deemed adequate by the City engineer and BCWD engineer, given precipitation patterns, plant rooting and other relevant factors, to calibrate actual performance in relation to the design target. The BCWD will report to the City on the function of the Basin during this time, identify actual performance in comparison to the target infiltration rate, and identify any other issues related to performance of the Basin. The BCWD and the City will discuss the outcomes of the monitoring, and determine whether the Basin is functioning successfully, whether changes are needed to achieve the target infiltration rate, or the target rate needs to be modified.

Vegetation Establishment Period

The City and BCWD will monitor vegetation establishment during the first year after construction is completed. Maintenance during the first year will be included in the construction contract, and will be completed by the contractor.

The City will provide in the contract that maintenance requirements and evaluation of native seeding at the Basin will conform to *Guidelines for Restoring & Managing Native Wetland Vegetation* (Minnesota DOT and Minnesota BWSR) and *MN/DOT Seeding Manual 2003*.

The City will provide in the contract that tree and shrub plantings will be monitored as well and that those that die or are in poor condition within one year after planting will be replaced by the contractor at his/her expense, and a second 1-year establishment period will begin.

Maintenance Period

The Maintenance Period for the Basin will begin after construction is completed, and after the BCWD and City agree that the design is functioning successfully in meeting the target infiltration rate identified for the Basin.

Routine Maintenance

The City will complete the following routine maintenance activities at its expense:

1. Annual inspection

The City will complete an annual inspection of the Basin to identify maintenance issues.

2. Removal of accumulated sediments

The City will remove accumulated sediments from the smaller "forebay" cells at the north and southeast sides of the large basin when the depth of sediment reaches half the depth of the basin. Sediment will be removed with light equipment that will be operated from outside the basin to the degree possible to minimize compaction and damage to plantings.

3. Vegetation maintenance

Maintenance of plantings will include the following:

a. Seeded areas—Maintenance will conform to *Guidelines for Restoring & Managing Native Wetland Vegetation* (Minnesota DOT and Minnesota BWSR) and *MN/DOT Seeding Manual 2003.* This maintenance typically includes mowing 2-3 times per season, and spot spraying weeds as needed. When sufficient litter is available, a controlled burn may replace mowing at the City's discretion.

b. Trees and shrubs – Trees and shrubs will be inspected annually. Pruning or replacement may be completed for dead or diseased plants.

c. The City will use no fertilizer near the Basin. Herbicide application will be limited to spot spraying of noxious weeds with herbicides approved for use near water bodies.

4. Erosion Control

If areas of erosion are identified within the site, the City will use appropriate methods such as fabric, seeding, plantings, or structural methods if necessary to stabilize these areas.

5. Best Management Practices

The City will encourage landowners in the drainage area to the Basin to control sediment and pollutants that may affect the operation of the Basin, including the following:

a. Use the minimum amount of sand and salt needed to maintain hard surfaces in the winter months

b. Sweep hard surfaces as early as possible in the spring

Additional Maintenance

The following criteria indicate the need to perform additional maintenance activities:

1. The Basin is no longer returning to a normal water level that is 1.5 to 2 feet below the invert elevation of the 12-inch orifice between storm events during a normal precipitation year, indicating that the available storage in the system has been reduced.

2. The time that it takes the Basin to reach its normal water level (1.5 to 2 feet below invert elevation) after a rainfall event is longer than a 3 to 4 day period, unless another rainfall event occurs during this period.

If the BCWD monitoring finds either or both of the conditions identified above, it will notify the City, and provide the results of the monitoring to the City. The BCWD and City will discuss the findings of the monitoring, and determine the actions to be taken, the responsibility for those actions, and time frame for completion of the actions.

RECEIVED
JAN 26 2004
WASHINGTON SWCD

REVISED COOPERATIVE AGREEMENT

For a Project to Manage Stormwater and Protect Water Quality in the Brown's Creek Watershed, Washington County, Minnesota

The parties to this Revised Cooperative Agreement ("Revised Cooperative Agreement") are the City of Stillwater, a Home Rule City of the Third Class, existing under the constitution and laws of Minnesota ("Stillwater"), the City of Oak Park Heights, a statutory city ("Oak Park Heights") and Brown's Creek Watershed District ("BCWD"), a watershed district created pursuant to Minn. Stat. §103D.

Recitals and Statement of Purpose

WHEREAS Brown's Creek is a unique and important natural resource and a designated trout stream located within the Twin Cities metropolitan area, the ecological health and habitat viability of which depend on the maintenance of water quality, water temperature, and stable flow character.

WHEREAS, Stillwater conducted an Alternative Urban Areawide Review (AUAR) for areas proposed to be annexed by Stillwater between now and the year 2020 and produced a Report (May 1997) and Final Report (December 16, 1997) (together, the "AUAR Reports") reviewing impacts to water resources from development in the annexation area consistent with the Stillwater comprehensive plan and proposing means of mitigating those impacts.

WHEREAS, the implementation and use of regional measures to manage stormwater may serve to allow properties within the drainage area to meet the requirements of BCWD rules, the AUAR, and Stillwater and Oak Park Heights ordinances in a more cost-effective way than managing stormwater on an individual site basis.

WHEREAS, the parties desire to implement measures recommended in the AUAR to protect Brown's Creek and its tributaries and acknowledge that their ability to do so requires that each party satisfactorily and promptly perform its obligations and cooperate with the other party on those tasks. As used in this Revised Agreement, the Regional Treatment System that will be designed, constructed, owned and maintained by Stillwater is described as the Brown's Creek Trout Stream Mitigation Project ("TSMP").

WHEREAS, on August 7, 2003, Stillwater and Oak Park Heights have reached an agreement establishing terms on which land within Oak Park Heights may drain to the TSMP, entitled "Memorandum of Understanding Between The City of Oak Park Heights and The City of Stillwater With Regard to Storm Water Management Issues Within the City of Oak Park Heights' Central Business District and adjoining lands, Lying South of Trunk Highway 36, West of Oakgreen Avenue and East of Trunk Highway 5" ("Stillwater/Oak Park Heights MOU") and Stillwater and the BCWD have determined the TSMP as designed will manage surface water flows from the areas described in this Revised Agreement so as to protect Brown's Creek, its tributaries and the other water resources within the watershed.

NOW, THEREFORE, the parties enter into this Revised Agreement to document their understanding as to the scope of their undertaking; reaffirm the commitment of each party as to the responsibilities and tasks to be undertaken by each party; establish procedures for performing these tasks and responsibilities; and facilitate communication and cooperation among the parties to ensure successful completion of the undertaking.

AGREEMENT

1. General Responsibilities and Performance Guidelines

1.1 A Work Plan describing the tasks and schedule anticipated in performance of the TSMP is incorporated in this Revised Agreement by reference (Exhibit "A"). Consistent with its obligations under this Revised Agreement, Stillwater will retain final authority as to the manner in which it implements the responsibilities assigned to it but will provide the BCWD and Oak Park Heights the opportunity for review and comment with regard to the design, construction, operation and maintenance of the TSMP by timely providing any documents that another party requests and will cooperate with each other party in good faith to achieve goals of this Revised Agreement.

1.2 With respect to compliance with paragraph 2.4.1(b) of the BCWD Rules, the TSMP, within the area subject to the terms of this Revised Agreement, constitutes a regional facility pursuant to paragraph 2.7.4(c) of those rules.

1.3 The area of Stillwater that is subject to this Revised Agreement is limited to Phase I, Phase II, Phase III, and Phase IV as described in the Orderly Annexation Agreement between the City of Stillwater and Town of Stillwater dated August 16, 1996. Areas not described in this section, and areas that become

part of the City in the future by reasons of annexation or other expansion, are not subject to the exception unless this Revised Agreement is amended to include those areas. The orderly annexation area is described in Exhibit "B," Phase I on Exhibit "C," Phase II on Exhibit "D," and Phase III on Exhibit "E." Phase IV is that part of the orderly annexation area (Exhibit "B") not shown on Exhibit "C," "D" or "E."

1.4 Also subject to this Revised Agreement is that part of Oak Park Heights labeled on Exhibit F as "Remaining Parcels in the BCWD to be Developed Subject to the Revised Cooperative Agreement." Oak Park Heights recognizes that a portion of this area lies within the BCWD hydrological boundary but currently outside the BCWD legal boundary, and therefore that development of this portion may be subject to the stormwater management review of another watershed management organization.

1.5 All designs, written materials, technical data, research or any other work in progress concerning implementation of the TSMP must be available for review and copying by the other party, except to the degree limited by law.

1.6 Review and comment as provided for in this Revised Agreement means distribution of the documents or materials in question to each other party for a 30-day opportunity to review and comment. This period shall begin on the later of (a) the other party's receipt of documents under paragraph 1.1; or (b) the other party's receipt of documents pursuant to a request under paragraph 1.4 made within 15 business days of the Administrator's initial receipt under paragraph 1.1. Stillwater will in its discretion ensure that review occurs at a time when any comments may be meaningfully considered and implemented by Stillwater. The parties agree to consider all timely comments fully and to modify documents or materials to the extent feasible.

1.7 In the event of conflict between the terms of the Stillwater/Oak Park Heights MOU and this Revised Agreement, the Stillwater/Oak Park Heights MOU, specifying the terms by which land within Oak Park Heights may drain to the improvements described at paragraph 2.1 of this Revised Agreement, shall supersede the terms of this Revised Agreement as to the rights and obligations of Stillwater and Oak Park Heights with respect to each other. Nothing in the Stillwater/Oak Park Heights MOU shall affect the rights and obligations of the BCWD as set forth in this Revised Agreement, nor shall Stillwater deny any lands credited by the BCWD under paragraph 4.1 of this Revised Agreement the use of the improvements to the extent contemplated in the plans for development of those lands incorporated into a BCWD permit.

1.8 This Revised Agreement shall apply to land within Oak Park Heights, and to the rights and obligations of Oak Park Heights, effective retroactive to August 7, 2003.

2. Structural Improvements

2.1 Stillwater will prepare plans and specifications for the construction, operation and maintenance of the proposed improvements and distribute them for review and comment in accordance with paragraph 1.5.

2.2 Stillwater will be responsible for selecting the contractor or contractors to perform the construction of the improvements, negotiating construction contracts and supervising project construction. It will be responsible for obtaining any governmental permits and conducting any environmental reviews necessary for the construction, operation and maintenance of the improvements, and for acquiring any property or access rights needed to design, construct, operate and maintain the improvements.

2.3 Stillwater will take all reasonable and feasible measures to minimize impacts on Long Lake and Brown's Creek that are caused by development that takes place before and following complete construction and operation of the TSMP and all elements thereof.

3. Responsibility for Costs.

3.1 Stillwater will be responsible for all project costs for the design, construction and maintenance of the TSMP. Nothing in this section will limit the right of Stillwater to seek contributing funds from any entity other than BCWD that contributes flows to the TSMP on any basis allowed by law.

3.2 Stillwater and BCWD will exercise reasonable efforts to secure outside means of funding for activities under section 2. The parties will assist and cooperate in these efforts.

4. Application of BCWD Rules to Areas Affected by the Improvements.

4.1 It is the intent of the parties that the improvements constructed pursuant to this Revised Agreement constitute a regional facility for managing stormwater flow volume within the area described at Paragraphs 1.3 and 1.4 of this Revised Agreement. Therefore, pursuant to Paragraph 2.7.4(c) of the BCWD

rules, development within the area described in this Revised Agreement is deemed to be in compliance with the standard at Paragraph 2.4.1(b) of the rules.

4.2 Stillwater will cooperate with the BCWD on any monitoring the BCWD may undertake with respect to TSMP performance and water resource conditions, and will provide a location for a BCWD monitoring facility as identified jointly by the parties. This shall not obligate Stillwater to pay the cost of any such monitoring, except as may be specified in the monitoring plan referenced in paragraph 5.1 of this Revised Agreement.

4.3 Nothing in this Revised Agreement affects the authority or responsibility of the BCWD to revise paragraph 2.4.1(b) of its rules as appropriate. In the event a revision of paragraph 2.4.1(b) should impose a stricter standard than presently applicable to the Orderly Annexation Area as described in Paragraph 1.3 of this Revised Agreement, or the area of Oak Park Heights described in Paragraph 1.4 of this Revised Agreement, any permit applicant subsequent to adoption of the revised standard would be required to meet that standard, after consultation and agreement of the municipalities within the drainage area of the Regional Treatment System or TSMP as defined in Paragraphs 1.3 and 1.4 of this Revised Agreement. An applicant within the area described in Paragraphs 1.3 and 1.4 of this Revised Agreement will receive compliance credit for that degree of volume control that the TSMP is providing, but also shall be required to provide for such additional volume control as is necessary to meet the standard. A revised standard would operate only as to applications considered after adoption of the revision, and would not operate retroactively to any existing development.

5. Monitoring Plan

5.1 The parties, with the participation of other interested governmental bodies, jointly will develop and implement a monitoring plan ("Monitoring Plan") that will identify specific sampling procedures, analytic methods, detection limits, and quality assurance and quality control procedures to facilitate the accurate measurement of baseline data and any water quality or quantity impacts within the Long Lake drainage area and areas downstream. The specific monitoring activities for which each party is responsible will be identified in the Monitoring Plan.

6. Remedies.

6.1 In the event that periodic sampling or analysis done by BCWD or the Monitoring Plan reveals that the TSMP or any associated improvements are not functioning to meet BCWD volume control standards, the BCWD will meet and confer with Stillwater and Oak Park Heights to determine appropriate curative action.

6.2 In the event the parties cannot agree on an appropriate curative action, BCWD may send a notice to Stillwater and Oak Park Heights entitled "Notice to Cure," describing the curative action necessary. The notice must allow Stillwater six (6) months to cure.

6.3 If curative action is not taken, or for any other dispute between the parties arising under this Revised Agreement, the parties agree to mediation for a minimum of ninety (90) days before seeking redress in the District Court of Washington County, Minnesota. Mediation shall be conducted pursuant to procedures, and with a mediator, agreed on by the parties. The 90-day period shall commence on the written request of either party for mediation under this paragraph.

7. Indemnification

7.1 Stillwater agrees to defend, indemnify and hold harmless the BCWD against claims including those made by third parties that arise out of the design, construction or maintenance of the TSMP, whether during construction of the system or after its completion.

8. Notice.

8.1 Notices to the parties to this Revised Agreement shall be given by hand delivery or first-class mail addressed to an elected or appointed representative of a party or a person as the party may designate. Documents required to be provided pursuant to paragraph 2.1 must be addressed to the BCWD Administrator at the BCWD's designated address and to the City Administrator, Oak Park Heights, unless otherwise specified by either party in writing.

9. Amendments.

9.1 This Revised Agreement may be amended only by agreement of the parties in writing.

10. Effect and Binding Nature.

10.1 This Revised Agreement replaces and supersedes the August 18, 2000 Cooperative Agreement executed by Stillwater and the RCWD as of the date on which this Revised Agreement has been fully executed by all parties.

10.2 This Revised Agreement will be binding on the parties and their respective successors, whether by merger, consolidation or transfer of authority to another government agency, to the fullest extent permitted by law.

11. Termination.

11.1 This Revised Agreement shall remain in effect in perpetuity. Any party may withdraw its participation under this Revised Agreement on two (2) years' written notice to the other parties. Before termination is finalized, the parties shall meet in good faith to attempt to resolve the reasons for the noticed withdrawal.

IN WITNESS WHEREOF, the parties hereto have executed this Revised Cooperative Agreement.

CITY OF STILLWATER

1.20.04
Date

By: _____
Jay L. Kimble, Mayor

1.20.04
Date

And: _____
Diane F. Ward, City Clerk

CITY OF OAK PARK HEIGHTS

_____
Date

By: _____
David Beaudet, Mayor

1-22-04
Date

And: _____
Eric Johnson, City Administrator

BROWN'S CREEK WATERSHED DISTRICT

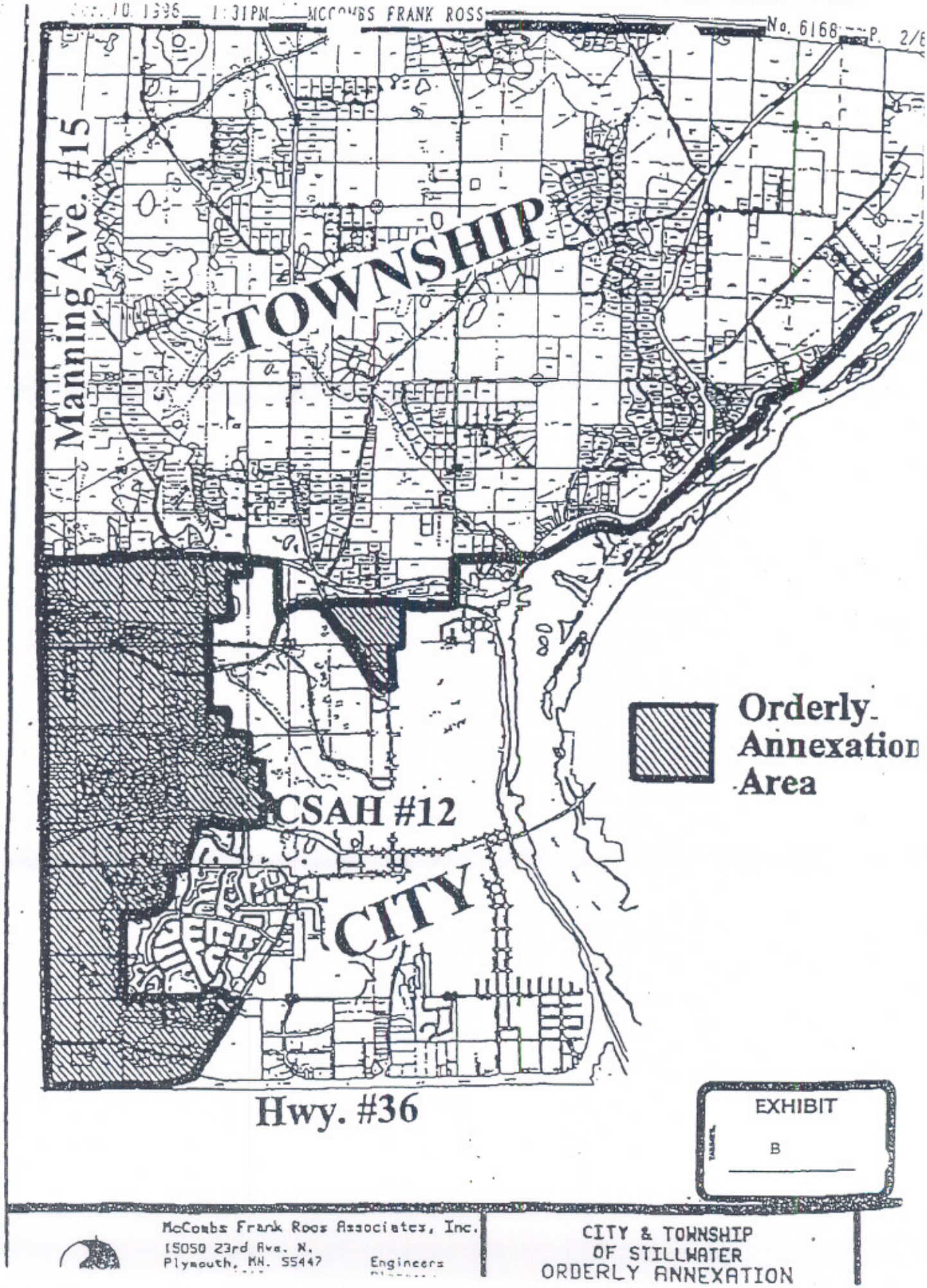
12/30/03
Date

By: Craig F Leiser
Craig Leiser, President

EXHIBIT "A"

Work Plan for TSMP

Item	7/1/2000 Status	Estimated Completion Date
Trout Stream Realignment – Oak Glen Segment	Completed Spring 2000	Completed
McKusick Downstream Conveyance Improvement	Out for bid	Fall 2002
McKusick Lake Diversion Construction	Partially Complete	Fall 2003
Long Lake Outlet Control	Conceptual Design	2005
Long Lake Conveyance System Improvements	Partially Complete	2007


Manning Ave. #15
TOWNSHIP
CSAH #12
CITY
Hwy. #36
Orderly Annexation Area
EXHIBIT
B
McCombs Frank Roos Associates, Inc.
15050 23rd Ave. N.
Plymouth, MN. 55447
Engineers
CITY & TOWNSHIP
OF STILLWATER
ORDERLY ANNEXATION

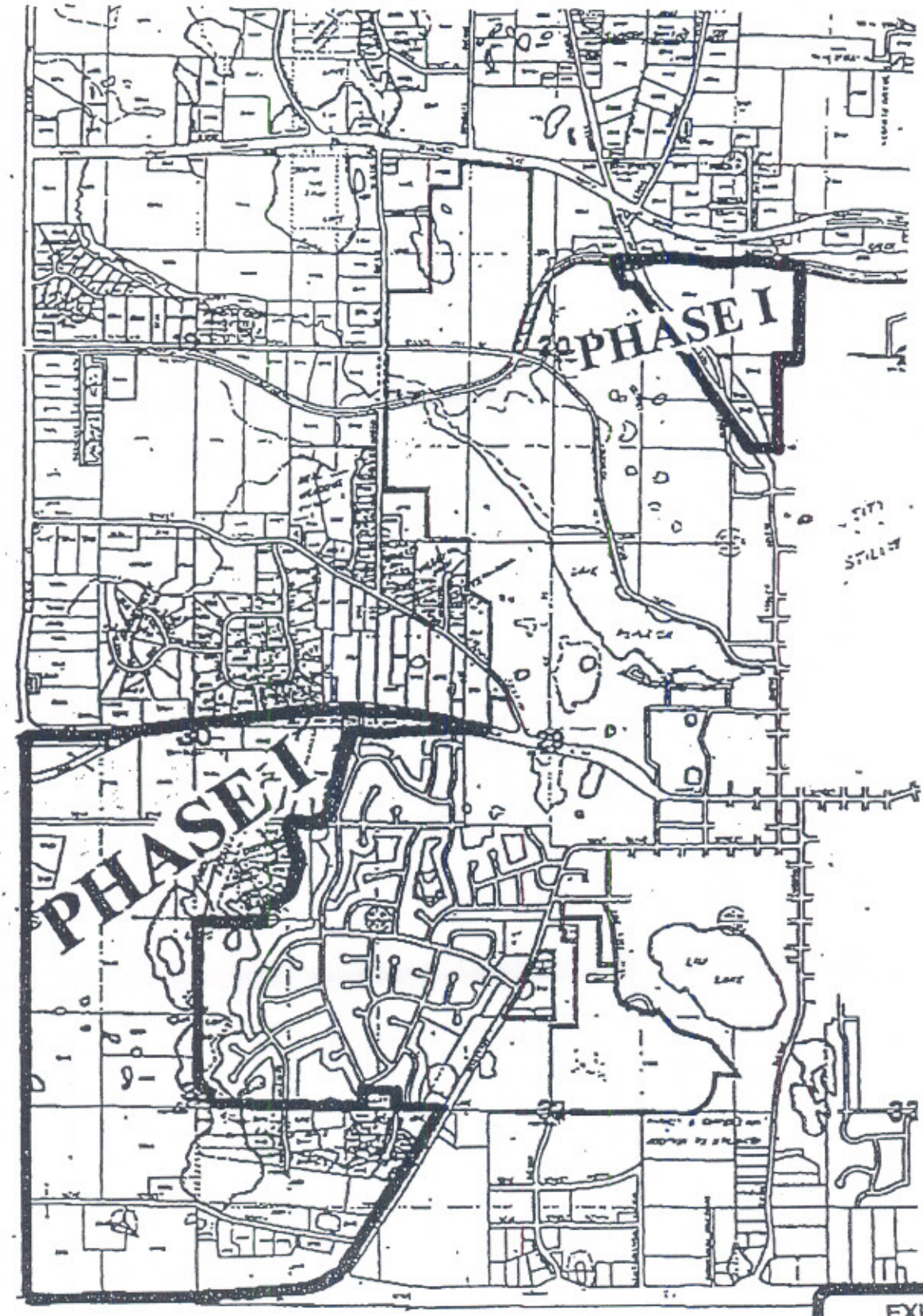
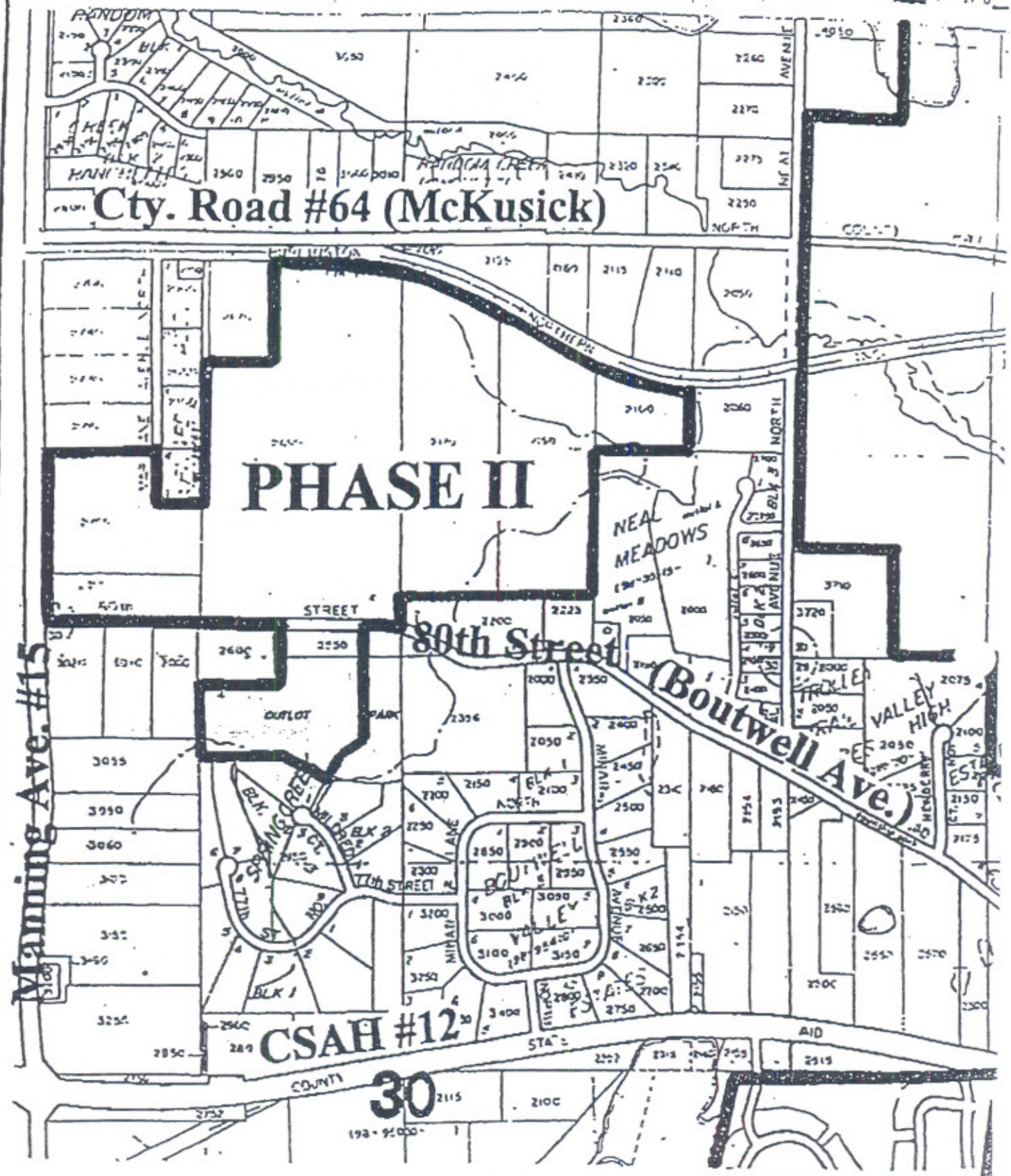


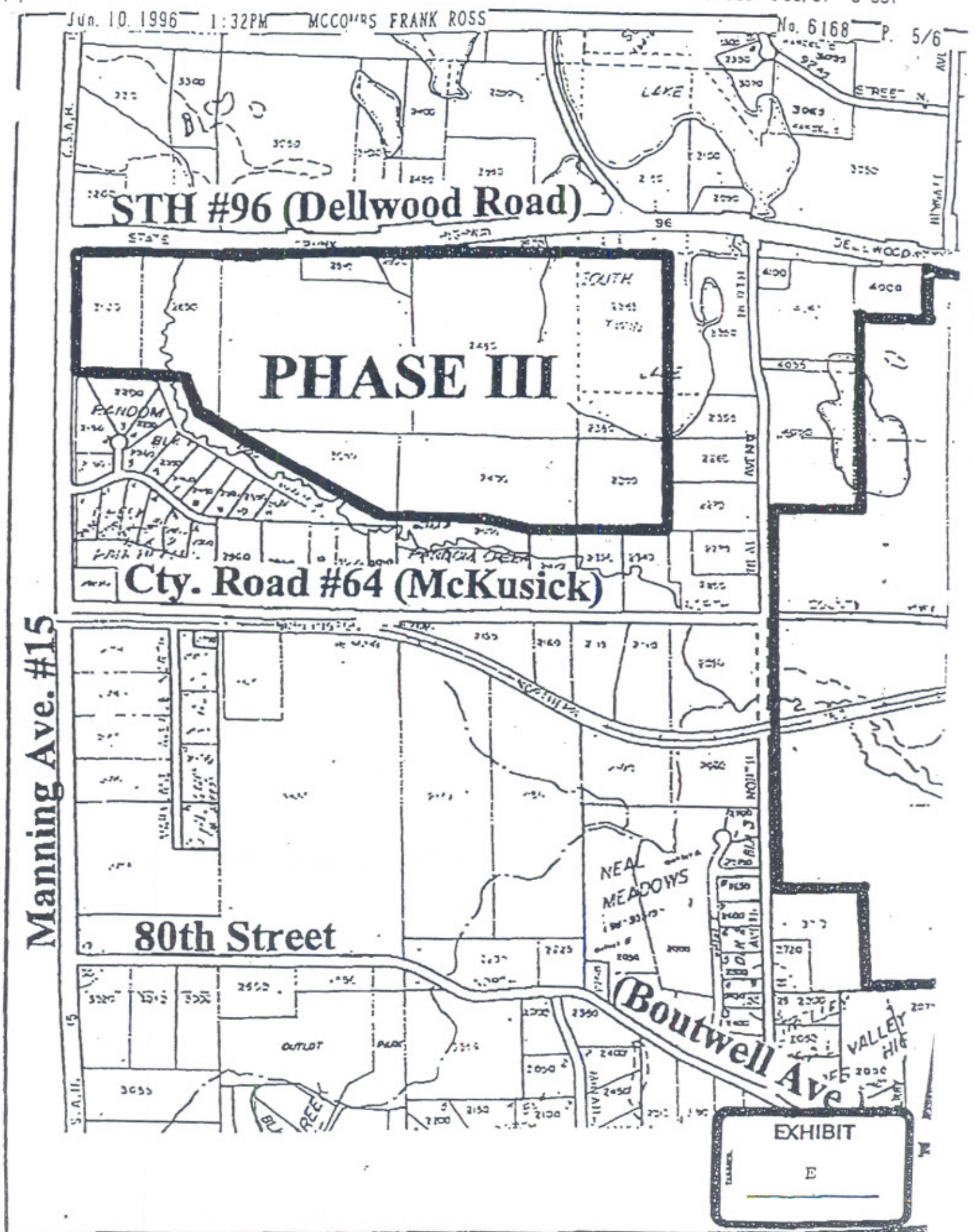
EXHIBIT
C

McCombs Frank Roos Associates, Inc.

CITY & TOWNSHIP



McCoubs Frank Ross Associates, Inc. CITY & TOWNSHIP



McCombs Frank Ross Associates, Inc.
15050 23rd Ave. N.

CITY & TOWNSHIP
OF STILLWATER


EXHIBIT F:
December 1, 2003
FIGURE NO. 1
LEGEND
DRAINAGE AREA BOUNDARIES AND DESIGNATIONS
POND HWL BOUNDARIES AND DESIGNATIONS
WATER QUALITY PONDS
PROPOSED PIPE SIZES, ALIGNMENTS AND FLOW DIRECTIONS
EXISTING PIPE SIZES, ALIGNMENTS AND FLOW DIRECTIONS
REMAINING PARCELS IN THE BOND TO BE DEVELOPED SUBJECT TO THE REVISED COOPERATIVE AGREEMENT
BOND HYDROLOGIC BOUNDARY
BOND JURISDICTIONAL BOUNDARY
Bonestroo Rosene Anderlik & Associates
NORTHERN STATES POWER COMPANY EASEMENT
NORTHERN NATURAL GAS COMPANY PIPELINE EASEMENT
STILLWATER HIGH SCHOOL
STATE HWY. 36
OAKGREEN AVE. N.
OAK PARK HEIGHTS BOTTOMS
56TH STREET N.
55TH STREET N.
MOUNT AVE. N.
NORTHERN NATURAL GAS CO. PIPELINE EASEMENT
Scale in feet

AGREEMENT BETWEEN
WASHINGTON COUNTY AND
BROWN'S CREEK WATERSHED DISTRICT

LAND AND WATER LEGACY PROGRAM
LAUENSTEIN PARCEL ACQUISITION

This Agreement is made and entered into in furtherance of the provisions of the Washington County Land and Water Legacy Program by and between Washington County, 14949 62nd Street North, Stillwater, Minnesota 55082, hereinafter referred to as the "County," and Brown's Creek Watershed District, whose principal place of business is 1875 Northwester Avenue, Stillwater, MN 55082, hereinafter referred to as the "BWCD"; both parties are governmental and political subdivisions of the State of Minnesota.

WHEREAS, pursuant to Minnesota Statutes Chapter 84C, Minnesota Statutes Section 373.40 and Minnesota Statutes Section 394.25, Washington County is authorized to acquire and improve land and interests in land for the purposes of preserving open space, including natural and scenic areas and agricultural land; and

WHEREAS, Washington County has enacted the Acquisition of Development Rights Ordinance #175 to establish a program for the preservation of open space, parks and public water, commonly referred to as the Land and Water Legacy Program and has established the policies, rules and official controls governing such acquisitions; and

WHEREAS, Washington County has issued general obligation bonds to acquire land and interests in land to provide long-term stable funding to purchase interests in land for the purpose of preserving open space; and

WHEREAS, the County and BCWD have identified a 13-acre parcel – located in the City of Grant and identified in Washington County property records by identification number 12-030-21-21-0005, shown in Exhibit A and legally described in Exhibit B, both of which are attached to and incorporated into this Agreement – which contains 1,300 feet of Brown's Creek and 2.4 acres of wetland and is presently owned by Michael and Kristin Lauenstein (referred to herein as "the Property"); and

WHEREAS, Washington County has determined that acquisition of the Property meets the criteria and purposes of the Land and Water Legacy Program, and has reached an agreement in principle with Michael and Kristin Lauenstein for sale of the Property; and

WHEREAS, Minnesota Statutes section 103D.335, subd. 11, authorizes the BCWD to acquire, maintain and manage land for water resource-protection and -improvement purposes; and

WHEREAS BCWD has adopted the 2017-2016 Watershed Management Plan (hereinafter, the Plan) pursuant to Minnesota Statutes chapter 103B, and the plan describes BCWD's commitment to working in

partnership with public and private entities to protect and restore water resources in the Brown's Creek watershed through protection of natural areas, connections between natural areas and groundwater recharge zones; and

WHEREAS the capital improvement program in the Plan states that BCWD will identify conservation priorities and pursue opportunities to purchase fee ownership or easements on critical lands consistent with these priorities to preserve and restore land in the watershed; and

WHEREAS the BCWD Board of Managers has adopted criteria guiding its land-conservation work; and

WHEREAS on October 12, 2016, the BCWD Board of Managers, after conducting a duly-noticed public hearing in accordance with Minnesota Statutes section 103B.251, subdivision 3, to give interested members of the public an opportunity to comment on the proposed collaboration with the County to purchase the Property and addressing the comments received, adopted Resolution 16-07, ordering the purchase of the Property as a project implementing, in part, the Plan;

WHEREAS BCWD has provided the County with a conceptual recreational-use and natural-resources management plan for the Property, requested by the County as a critical precursor to a complete plan for the Property; and

WHEREAS, the County and BCWD are authorized by Minnesota Statutes section 471.59 to enter into this cooperative agreement for the Project.

NOW, THEREFORE, in consideration of the mutual promises and agreements contained herein, the parties agree as follows:

I. County and BCWD Rights and Duties

A. BCWD will provide the County with a certified copy of BCWD Resolution 16-07, whereby BCWD ordered the Project and authorized the president to enter into the Agreement;

B. On receipt of BCWD Resolution 16-07 and receipt and acceptance by the County of BCWD's conceptual recreational-use and natural-resources management plan for the Property, the County will enter into a purchase agreement with Michael and Kristin Lauenstein setting forth the terms and schedule for purchase of the Property by the County, at a cost not to exceed $254,400.

C. The County will conduct, in consultation with BCWD, due diligence, title review and other analysis of the Property prior to closing the purchase of the Property in accordance with the terms of the purchase agreement between the County and Michael and Kristin Lauenstein. The County will require Michael and Kristin Lauenstein, as sellers, to represent and warrant to the County that:

i. No actions, suits or proceedings at law or in equity, administratively or otherwise, have been instituted or, to the best of Michael or Kristin Lauenstein's knowledge, threatened against or affect the Property. No condemnation or eminent domain proceedings are now pending or, to the best of sellers' knowledge, are contemplated against the Property.

ii. Sellers have not received any notices, orders, suits, judgments or other proceedings relating to violations of zoning, subdivision, platting or building laws with respect to the Property.

iii. There are no mortgages encumbering the Property.

iv. Michael and Kristin Lauenstein have full power to enter into and to perform the purchase agreement according to its terms and the execution and the delivery of the Property and the consummation of the transactions contemplated will not constitute a default under any mortgages or other instruments or agreements to which Michael and Kristin Lauenstein are, individually or together, a party, and this purchase agreement is not in contravention of any law, order, ordinance, or regulation by which Michael and Kristin Lauenstein are bound or subject.

v. Michael and Kristin Lauenstein have not used, handled, stored, generated, treated, emitted, manufactured, transported or disposed of any hazardous materials on or affecting the Property in any manner which violates any federal, state or local law, statute, regulation, requirement, ordinance, rule or policy, and to the best of their knowledge, no prior or current owner, tenant, subtenant, occupant or licensee of the Property has used, handled, stored, generated, treated, emitted, manufactured, transported or disposed of any hazardous materials on or affecting the Property in any manner which violates any federal, state or local law, ordinance, rule, regulation or policy. For purposes of the purchase agreement, "hazardous materials" should be defined to mean any asbestos, urea formaldehyde foamed in place insulation, polychlorinated biphenyl, petroleum, crude oil or any dangerous, toxic or hazardous pollutants, chemicals, wastes or substances as defined in the Federal Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended, the Federal Resource Conservation and Recovery Act of 1976, as amended, the Minnesota Environmental Response and Liability Act, as amended, or any other federal, state or local laws, statutes, regulations, requirements, ordinances, rules or policies.

The purchase agreement between the County and Michael and Kristin Lauenstein will explicitly extend the above warranties from Michael and Kristin Lauenstein to BCWD.

D. Within 10 days of its obtaining fee title ownership of the Property, the County will convey title to the Property by quit-claim deed to BCWD, and BCWD will execute and record in the Office of the Washington County Recorder a conservation easement defining and protecting the Property's conservation values. A draft conservation easement that will serve as the template for a final easement fulfilling this purpose is attached hereto and incorporated herein as Exhibit C.

E. After receipt of fee title ownership of the Property, BCWD will reimburse the County 50 percent of the purchase price, not to exceed $127,200, in five equal annual payments, the first of which will be due January 31, 2017. The remaining payments will be due on the same date each year. If the event BCWD fails to make payments as scheduled, the County will withhold the amount due from tax-levy proceeds collected by the County on BCWD's behalf.

F. BCWD will complete, in consultation with the County, a plan for the management of the recreational use and natural resources of the Property within 18 months of the date the Property is conveyed to BCWD. In the event that BCWD fails to timely complete the recreational use and natural resource management plan, the County may, at its election, complete or contract for the completion of the management plan and withhold the costs thereof from tax-levy proceeds collected by the County on BCWD's behalf. On completion of the management plan, BCWD will manage and maintain the Property in conformity therewith.

G. Each party will comply with all applicable state and federal laws and regulations in the fulfillment of its obligations under this Agreement.

H. In the event BCWD elects to sell the Property, the County will have 45 days from the receipt of notification from BCWD of such intent to elect to repurchase the Property. In the event the County elects to repurchase the Property, BCWD will timely convey the Property to the County by quit-claim deed at a cost not to exceed the amount BCWD has paid the County pursuant to paragraph I.E of this Agreement.

I. Except as specified otherwise herein, each of the parties will bear its own costs of fulfilling its duties under this Agreement.

II. Term and termination

This Agreement becomes effective when fully executed. The Agreement will remain in force for six years. Any responsibility or obligation that has come into being before expiration, specifically including obligations under paragraphs I.E and I.H, will survive expiration.

III. Notice; Authorized Representatives

The parties designate the following authorized representatives, each to serve as the liaison to the other party for purposes of administration of the duties and rights established by the Agreement. Any written communication required under this Agreement will be addressed to the other party as follows, except that either party may change its representative or address for notice by so notifying the other party in writing:

A. The County's authorized representative for the purposes of administration of this Agreement and the specific obligations under paragraph I.E herein is:

June Mathiowetz, Land and Water Legacy Program
Washington County, Office of Administration
Government Center
14949 62nd Street North
Stillwater, MN 55082
651-430-6016
june.mathiowetz@co.washington.mn.us

B. BCWD's authorized representative for the purposes of administration of this Agreement and the specific obligations under paragraph I.E herein is:

Karen Kill, Administrator
Brown's Creek Watershed District
455 Hayward Ave North
Oakdale, MN 55128
651-330-8220, ext. 26
Karen.Kill@mnwcd.org

IV. Independent Relationship; Indemnification

It is agreed that nothing within this Agreement is intended to be or should be construed in any manner as creating or establishing the relationship of co-partners between the parties or as

constituting that either party is the agent, representative, or employee of the other party for any purpose or in any manner whatsoever.

Each party to this Agreement will secure, at its own expense, all personnel required to perform its responsibilities and obligations under this Agreement. Any and all personnel of either party to this Agreement or other persons, while engaged in the performance of any work or services required under this Agreement shall have no contractual relationship with the other party and shall not be considered employees of the other party to this Agreement.

This Agreement does not create a joint powers board or organization within the meaning of Minnesota Statutes section 471.59. Each party agrees that it will be responsible only for its own acts and the results thereof to the extent authorized by the law and will not be responsible for the acts or omissions of the other party or the results thereof. This Agreement creates no right in and waives no immunity, defense or liability limitation with respect to any third party. Only contract remedies are available for a breach of this Agreement. Neither party will be liable for special, indirect, incidental, punitive, exemplary or unforeseeable consequential damages arising out of or in connection with its respective obligations under this Agreement. Specific performance explicitly is an available remedy for the failure of a party to perform any obligation hereunder and does not require a demonstration that other remedies are inadequate. Remedies are non-exclusive.

The County and BCWD enter this Agreement solely for the purposes of purchase, management and maintenance of the Property.

Nothing herein will be construed to constitute approval of any permit or other regulatory approval required by either party, nor does this Agreement in any way modify or delegate any party's regulatory authority

V. Audits, Reports, Records and Monitoring Procedures

Pursuant to Minnesota Statutes section 16C.05 Subd. 5, the County and BCWD will:

A. Maintain records that reflect all revenues, costs incurred and services provided in the performance of this Agreement.

B. Agree that the County, the State Auditor, or legislative authority, or any of their duly authorized representatives at any time during normal business hours, and as often as they may deem reasonably necessary, shall have access to and the right to examine, audit, excerpt, and transcribe any books, documents, papers, records, etc., and accounting procedures and practices of the other party that are relevant to the contract for six (6) years.

VI. Data Practices

All data collected, created, received, maintained, or disseminated for any purposes by the activities of the County or BCWD, because of this Agreement, are governed by the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, as amended, the Minnesota Rules implementing such Act now in force or as adopted, as well as applicable federal regulations on data practices.

VII. Equal Employment Opportunity – Civil Rights

During the performance of this Agreement the parties agree to the following:

A. No person shall, on the grounds of race, color, religion, age, sex, disability, marital status, public assistance status, criminal record, creed or national origin, be excluded from full employment rights in, participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program, service, or activity under the provisions of any and all applicable federal and state laws against discrimination including the Civil Rights Act of 1964.

B. If during the term of the Agreement it is discovered that either party is not in compliance with the applicable regulations as aforesaid, or if either party engages in any discriminatory practices, the Agreement may be cancelled as provided by the cancellation clause of this Agreement.

VIII. Insurance Requirements

Any contract BCWD executes for improvement of the Property will:

A. Require the contractor to indemnify, defend and hold harmless the County, its officers, commissioners, employees and agents from any and all actions, costs, damages and liabilities of any nature arising from the contractor's negligent or otherwise wrongful act or omission, or breach of a specific contractual duty, or a subcontractor's negligent or otherwise wrongful act or omission, or breach of a specific contractual duty;

B. Require that for any claim subject to indemnification by an employee of selected contractor or a subcontractor, the indemnification obligation is not limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the contractor or a subcontractor under workers' compensation acts, disability acts or other employee benefit acts.

C. Require that the contractor name the County as an additional insured for general liability and provide a certificate showing same prior to construction.

IX. Complete Agreement; Modifications

Any material alteration, modification, or variation shall be reduced to writing as an amendment and signed by the same parties who executed and approved the original agreement or their successors in office. The recitals stated at the outset are incorporated into and made a part of the Agreement.

X. Waiver

The waiver by the County or BCWD of any breach or failure to comply with any provision of this Agreement by the other party will not be construed as nor will it constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this Agreement.

(signature page follows)

COUNTY
COUNTY OF WASHINGTON

By _____ 11/1/16
County Board Chair Date

By _____ 11/1/16
County Administrator Date

Approved as to form:

_____
Asst. Washington County Attorney

WATERSHED DISTRICT
BROWN'S CREEK WATERSHED DISTRICT

By _____ 12/2/16
By Craig Leiser, its President Date

Approved as to form and execution:

_____
BCWD Counsel

This instrument was drafted by:
Washington County Attorney's Office and
Washington County Dept. of Public Works
11660 Myeron Road North
Stillwater, MN 55082

EXHIBIT A

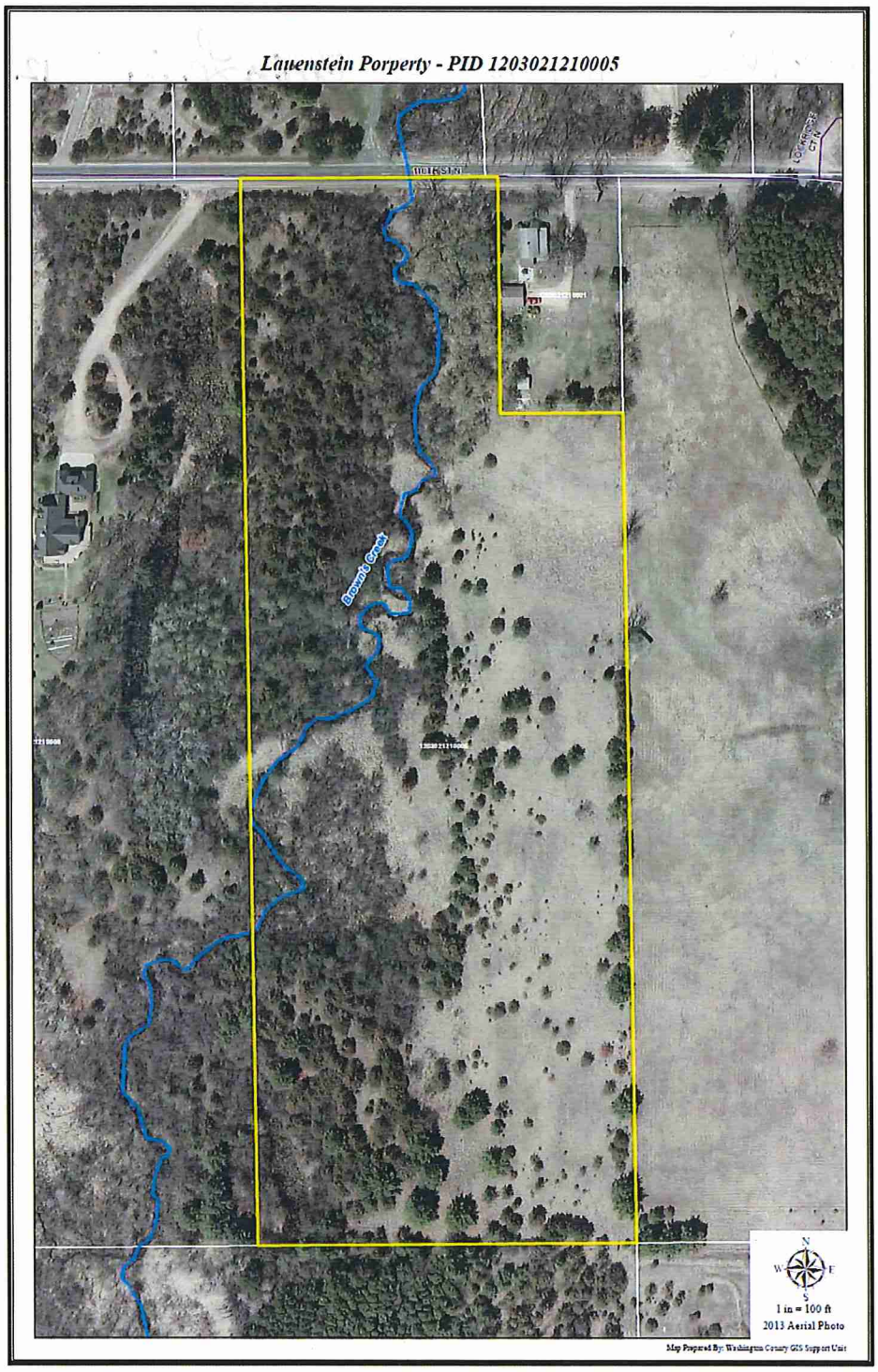

Lauenstein Porperty - PID 1203021210005
110TH ST N
Brown's Creek
N
W
E
S
1 in = 100 ft
2013 Aerial Photo
Map Prepared By: Washington County GIS Support Unit

EXHIBIT B
Legal Description

The east 466.20 feet of the Northeast Quarter (NE ¼) of the Northwest Quarter of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West, Grant Township, Washington County, Minnesota, subject to the right-of-way of 110th Street North, except:

Beginning at the Northeast corner of the Northwest Quarter (NW ¼) of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West and running South at right angles with the North line of said Section Twelve (12), a distance of Two Hundred Ninety and Four-tenths (290.4) feet; thence West and parallel to the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet; thence North at right angles to the last described line a distance of Two Hundred Ninety and Four-tenths (290.4) feet to the north line of said Section Twelve (12), thence East on the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet to the place of beginning.

EXHIBIT C

CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT is conveyed on _____ by Brown's Creek Watershed District ("Grantor"), a special purposes local unit of government with powers and duties under Minnesota Statutes chapters 103B and 103D, to the County of Washington, a body politic and corporate ("Grantee") in accordance with the terms and conditions outlined herein.

I. RECITALS

A. Grantors

Grantor is the sole owner in fee simple of 12.76 acres of real property, herein referred to as the "Protected Property," in Washington County, Minnesota, which is particularly described in Exhibit A and generally depicted in the property map in Exhibit B. Both exhibits are attached to this conservation easement and incorporated herein by this reference.

B. County of Washington

The County of Washington is qualified to acquire and hold conservation easements under Minnesota Statutes Chapter 84C and Section 170(h)(3) of the Internal Revenue Code of 1986 and regulations promulgated thereunder.

C. Protected Property

The Protected Property consists of 12.76 acres located south of 110th Street between Manning Trail North and Lansing Avenue N in Grant, MN (Washington County PIN 12.030.21.21.0005) in the Northeast Quarter of Section 12, Township 30 North, Range 21 West.

The Protected Property is located in the headwaters area of Brown's Creek, a tributary stream to the St. Croix River and designated cold-water trout stream. Brown's Creek enters the property from the north along 110th Street and runs 1,300 feet before exiting the parcel on the west.

The Protected Property is currently vacant land without any structures or outdoor recreation facilities.

The property is located within one mile north of the Gateway State Trail.

D. Conservation Values

1. Collectively and individually the following natural, scenic and ecological qualities and the open space character of the Protected Property comprise "Conservation Values" the parties wish to protect by this easement:

   a. The protection of this property maintains its undeveloped and natural character, contributing to a large current and anticipated complex of open space along Brown's Creek Trout Stream, within the City of Grant and in the St. Croix Valley.

   b. The protection of this property contributes to a larger scale effort to provide ecological connectivity and support biological diversity along Brown's Creek Trout Stream and in the St. Croix River Watershed.

   c. The protection of this property helps protect air quality through its preservation of trees.

   d. The protection of this property helps remove pollutants from surface water flowing into Brown's Creek and groundwater resources by preserving its generally undisturbed nature, wetland filtering functions and other ecosystem services.

   e. The protection of this property prevents privatization of access to this segment of Brown's Creek.

2. These Conservation Values have not been and are not likely to be significantly impaired by the continuous use of the Protected Property as described above or as authorized in this Conservation Easement.

3. The preservation and protection of these Conservation Values will provide significant benefit to the public.

E. Conservation Policy

Preservation of the Protected Property will advance the following government policies:

1. Minnesota Statutes Chapter 84C authorizes the State of Minnesota and political subdivisions thereof, as well as nonprofit organizations to preserve, acquire or hold lands for open-space uses, which specifically include farmland, wetlands, native or restored prairie, or lands deemed critical to protecting soil and water quality, and enhancing fish and wildlife habitat; and that actions pursuant to these purposes are for the public health, safety, and general welfare of the citizens of the State of Minnesota and for the promotion of sound land development by preserving suitable open spaces.

2. The Washington County Board of Commissioners through adoption of Ordinance 175 Acquisition of Development Rights has declared that public open-space benefits result from the protection and conservation of natural areas. This includes the protection of scenic areas for public visual enjoyment from public rights-of-way; that the conservation and protection of restored natural areas as valued natural and ecological resources provide needed open spaces for clean air and clean water as well as for aesthetic purposes; that public benefit will result from the conservation, protection, management and improvement of natural areas; and that the preservation of open-space is vital to the public interest of Washington County through its economic, environmental, cultural and scenic benefits.

3. The *Geologic Atlas of Washington County* assigns the Protected Property a rating of "very high" and "high" sensitivity of the groundwater systems to pollution, meaning that pollutants in this area can reach the groundwater in a very short time. This Conservation Easement protects surface and groundwater resources

by limiting the physical degradation caused by soil movement and increase in the extent of impervious surface on the Protected Property through, for example, cover with asphalt, and reducing the volume of runoff and potential flooding. It further supports the ecosystem's ability to clean water and reduce concentrations of substances produced by society by maintaining an area for infiltration and natural treatment of stormwater in the watershed.

4. The City of Grant's comprehensive plan indicates the Protected Property is located in the Minnesota Department of Natural Resources' Metro Conservation Corridor and includes wetland forest, dry grassland and planted or cultivated areas. The City of Grant's zoning map indicates the Protected Property is in an area designated as A2, Agricultural Small Scale. The topography map incorporated into the City of Grant's comprehensive plan identifies the area's slopes as between 12 percent and 18 percent. As host to Brown's Creek and its streambank, the area offers significant benefit for wildlife and water quality protection and forms an important buffer. There are 2.4 acres of wetlands on the site. The City of Grant's comprehensive plan cites goals of: 1) Protecting the natural resource base of the community; 2) Ensuring the long-term quantity and quality of water supplies; and 3) Protecting groundwater and surface water bodies from erosion and other degradation.

F. Conservation Intent

1. Grantor desires and intends that the open-space character of the Protected Property be preserved, protected and maintained in perpetuity.

2. Grantor desires and intends to place restrictions upon the use of the Protected Property and effects, in part, this intent by transferring to the Grantee this Conservation Easement on, over and across the Protected Property, conferring rights to ensure the conservation of the natural elements and values of the Protected Property.

3. Grantor conveys to Grantee the right to protect the ecological values of the Protected Property in perpetuity and to prevent or to remedy activities or uses that are inconsistent with the terms of this Conservation Easement.

II. CONVEYANCE OF CONSERVATION EASEMENT

A. Conveyance

The Grantor in consideration of the facts recited above, the mutual covenants contained herein and other good and valuable consideration and pursuant to Minnesota Statutes Chapter 84C and other applicable Minnesota laws, does hereby grant and convey to the Grantee, its successors and assigns, forever, a Conservation Easement in perpetuity over the Protected Property, the specific rights, terms and restrictions of which are detailed herein.

B. Conservation Values and Purposes

The Conservation Purpose of this Conservation Easement is to preserve and protect in perpetuity the Conservation Values of the Protected Property and the Public Benefit, as defined in section II.C. By confining the development, management and use of the Protected Property to activities that are consistent with the preservation of these Conservation Values, by prohibiting activities that significantly impair or interfere with these Conservation Values, and by providing for remedies in the event of any violation of this Conservation Easement. These Conservation Values have not been and are not likely to be adversely affected to any substantial extent by the continued use of the Protected Property as authorized below or by the use,

maintenance, or construction of those structures and improvements that presently exist on the Protected Property or that are authorized below.

C. Public Benefit

This Conservation Easement is specifically intended to provide a significant public benefit by furthering the following recreational and conservation purposes:

1. Protect Brown's Creek, a designated trout stream in Washington County.

2. Protect a natural and open space area in the City of Grant.

3. Provide public recreation and outdoor education opportunities.

3. Reduce impervious surface and provide for infiltration and natural stormwater treatment for the purposes of protecting groundwater aquifers and surface water.

III. AFFIRMATIVE RIGHTS

In order to accomplish the Conservation Purposes of this Conservation Easement and to preserve and protect the Conservation Values of the Protected Property, the Grantor conveys to the Grantee and its successors and assigns the following rights.

A. Right of Enforcement and Remedies

The Grantee has the right to enforce by proceedings at law or in equity the covenants contained in this Conservation Easement. This right includes, but shall not be limited to, the right to bring an action in any court of competent jurisdiction to enforce the terms of this Conservation Easement; to require the restoration of the Protected Property to its prior or more natural condition; to enjoin non-compliance by temporary or permanent injunction; and to recover any damages arising from non-compliance. Such damages when recovered may be applied by the Grantee in its discretion to corrective action on the Protected Property, if necessary. If such court determines that the Grantor has failed to comply with this Conservation Easement, Grantor shall reimburse Grantee for any reasonable costs of enforcement including costs of restoration, court costs, and reasonable attorney's fees in addition to any other payments ordered by such court. These remedies are cumulative and are available without requiring the Grantee to prove actual damage to the Conservation Values and Conservation Purposes of the Protected Property. The Grantee is entitled to seek expedited relief ex parte if necessary and shall not be required to post any bond applicable to a petition for such relief.

B. Written Notice

If the Grantee becomes aware of an event or circumstance of noncompliance with the terms and conditions set forth in this Conservation Easement, the Grantee shall give written notice to the Grantor at the address set forth below of such event or circumstance of noncompliance. Failure by the Grantor to cause discontinuance, abatement or such other corrective action as may be requested by the Grantee within thirty (30) days after receipt of notice shall entitle Grantee to bring an action as authorized in this Conservation Easement. The written notification requirements contained in this section, III.B., shall not apply if in the sole discretion of the Grantee, immediate judicial action is necessary to prevent or mitigate significant damage to the Protected Property or if reasonable, good faith efforts to notify the Grantor are unsuccessful.

C. Discretionary Enforcement

The Grantee does not waive or forfeit the right to take action as may be necessary to ensure compliance with the covenants and purposes of this Conservation Easement on the Protected Property by any failure to act.

D. Acts beyond Owner's Control

Nothing in this Conservation Easement shall be construed to entitle the Grantee to institute any enforcement proceeding against the Grantor for any changes to the Protected Property due to causes beyond the Grantor's control, such as changes caused by fire, flood, storm, civil authorities undertaking emergency action or third parties not under the control or supervision of, or not acting with the consent of, the Grantor. This provision does not preclude the Grantor or the Grantee from recovering damages or bringing an action against any third party for trespass or other violation of its respective rights in this Conservation Easement or in the Protected Property.

E. Right to Enter

The right is granted for designated representatives of and chosen by the Grantee to enter the Protected Property to conduct monitoring and management evaluations annually at a time mutually agreed to by the parties and at such other times with reasonable notice to Grantor to determine easement compliance; to obtain evidence for use in seeking judicial or other enforcement of this Conservation Easement; and to otherwise exercise its rights under this Conservation Easement. In exercising its rights to enter and inspect under this paragraph, the Grantee will not unreasonably interfere with Grantor's use and quiet enjoyment of the Protected Property.

F. Right to Report

The Grantee in addition to other remedies shall have the right to report any environmental concerns or conditions or any actual or potential violations of any environmental or other laws to appropriate regulatory or law enforcement agencies.

G. Enforcement Rights of Others

Nothing in this Conservation Easement is intended to create any right to enforce this Conservation Easement in any third party.

IV. RESERVED RIGHTS

A. Recreational Facilities and Resource-Management Works

Grantor reserves the right to implement, plant, construct and maintain the following where appropriate and pursuant to a management plan for the Protected Property approved by Grantor's Board of Managers (hereinafter the Management Plan), as may be updated and amended from time to time:

1. Native vegetation.
2. Permeable connector trails.
3. Water quality- or quantity-improvement and management facilities and associated utilities and temporary access routes and staging areas.
4. Streambank stabilization and improvement systems or structures.

B. All Other Rights

Grantor reserves all rights as owner of the Protected Property inclusive of rights to locate and maintain facilities as noted in Section IV.A., except the right to undertake any activities that are expressly and specifically prohibited by this Conservation Easement. The Grantor may not exercise these rights in a manner that would adversely impact the Conservation Values of the Protected Property.

C. Notification

Grantor agrees to notify the Grantee in writing before exercising any reserved right that may have an adverse impact on the natural characteristics or ecological and aesthetic features of the Protected Property protected by this Conservation Easement.

V. COVENANTS

IN FURTHERANCE of the foregoing affirmative rights, Grantor intends that rights under this Conservation Easement conveyed to the Grantee on behalf of the public shall continue to exist in perpetuity. Grantor makes the following covenants on behalf of the Grantee, which covenants shall run with and bind the Protected Property in perpetuity.

A. Required Management Plan

All natural resource management, agricultural practices and recreational uses on the Protected Property shall be in accordance with the Management Plan. The Grantor may prepare revisions for the Management Plan as desired.

B. Land Use

1. Any activity on or use of the Protected Property that is inconsistent with the Conservation Purposes and Public Benefit identified in sections II.B. and II.C. of this Conservation Easement is prohibited.

2. No residential use or development of the Protected Property is allowed.

3. No industrial or commercial activity shall be undertaken or allowed on the Protected Property.

4. No agricultural use of the Protected Property is allowed except as allowed for in the approved Management Plan.

C. Development Rights

1. No development rights in or to the Protected Property or any part thereof that have been encumbered or extinguished by this Conservation Easement shall be transferred by Grantor or Grantee to any location outside the Protected Property, whether pursuant to a cluster development plan or any other agreement or plan for transferable development rights or used to obtain any regulatory mitigation credits.

2. No portion of the Protected Property shall be used by Grantor or Grantee to satisfy land area requirements for other property not subject to this Conservation Easement for purposes of calculating building density, lot coverage, or open space under otherwise applicable laws, regulations or ordinances controlling land use.

D. Division of Property

Grantor shall not divide, subdivide, or partition, either legally or physically, the Protected Property for any reason without the prior written approval of the Grantee except for the purpose of correcting or adjusting a boundary line to resolve a marketable title or ownership dispute. If written approval is granted, any conveyance of the Protected Property is subject to the following terms. The enforceability or validity of this Conservation Easement shall not be impaired or limited by any failure of the Grantor to comply with this section (V.D).

1. Any conveyance or encumbrance of the Protected Property is subject to this Conservation Easement.

2. The Grantor will notify the Grantee of any conveyance within thirty (30) days after closing and will provide the Grantee with the name and address of the new owner and any party that has acquired an interest in the Protected Property and a copy of the deed transferring title or mortgage conveying an interest.

E. Right-of-Way

No new right of way or passage across or upon the Protected Property shall be allowed or granted in conjunction with any residential, industrial or commercial use for development of other land not protected by this Conservation Easement without prior written approval of the Grantee. This provision does not affect any rights of way existing at the time of this conveyance.

F. Structures and Improvements

1. No house, garage, barn, mobile homes, or other structures or buildings shall be constructed or placed on the Protected Property except as needed to carry out activities permitted by this Conservation Easement and as specifically allowed for in the approved Management Plan or specially permitted by Section IV. A. of this agreement.

2. No poles, antennae, lights, towers, water towers or any other temporary or permanent structures shall be constructed or installed on the Protected Property without prior approval of the grantee, unless permitted by Section IV.A. of this agreement.

3. New sanitary and storm sewers and electric and gas lines, not presently existing and needed to serve the Protected Property or other properties nearby may be permitted with the prior written approval of the Grantee and shall be constructed in a sensitive manner with minimal disturbance of vegetation and minimal grading. The land surface shall be restored to a condition consistent with the Conservation Values and Conservation Purpose of the Conservation Easement and within a reasonable time frame agreed to in writing by the Grantee. All permanent utility easements shall be recorded.

4 No roads or parking lots of asphalt, bituminous, gravel, concrete or other materials shall be constructed or installed on the Protected Property except as to carry out activities permitted by this Conservation Easement and as specifically allowed for in the approved Management Plan or otherwise approved in writing by the Grantee or permitted by Section IV.A of this agreement.

5. Fencing may be constructed and maintained for the purposes of marking boundaries, securing the Protected Property, or carrying out activities permitted by this Conservation Easement or specifically allowed by Section IV.A. of this agreement or allowed by the approved Management Plan or otherwise approved in writing by the Grantee.

6. Any outdoor light fixtures must minimize light emitted above the plane of the horizon of the fixture through the use of earthward directed or full cut-off fixtures or lamps with single or minimal-color light sources, or other equally effective fixtures designed to minimize light pollution.

7. Signs, billboards, and outdoor advertising structures shall not be placed or erected on the Protected Property except for small, unlighted signs for the following informational or interpretive purposes. For all signs permitted by this section, the location, number, size and design shall not significantly diminish the natural and scenic qualities of the Protected Property and shall be allowed in accordance with the approved Management Plan or otherwise approved in writing by the Grantee. Signs may be allowed for the following purposes:

a. Displaying the name of the Protected Property.
b. Announcing the existence of this Conservation Easement.
c. Providing educational information to commemorate the importance of the Protected Property.
d. Providing the name and address of the owner.
e. Delineating the boundaries in order to prohibit trespass and to manage the Protected Property.
f. Advertising any on-site activities permitted herein.

G. Water Bodies and Courses

1. Reasonable manipulation or alteration of natural watercourses, lakes, shorelines, wetlands, springs or other surface or subsurface bodies of water is allowed to restore or enhance wildlife habitat or native biological communities or to improve or enhance the function and quality of existing wetlands and in accordance with the approved Management Plan.

2. No activities on or uses of the Protected Property that cause significant erosion or are seriously detrimental to water quality or purity are allowed.

H. Mining

No mining, drilling, exploring for, or removing any minerals, sand, gravel, rock, or fossil fuels from the Protected Property is allowed.

I. Surface Alteration

1. The commercial extraction of minerals by surface mining and the extraction and removal of topsoil from the Protected Property is prohibited. The extraction of subsurface or deep-mined minerals from the Protected Property, including natural gas and oil, and the noncommercial extraction of minerals, including limestone, shale, gravel, sand and other minerals is prohibited.

2. The topography of the Protected Property shall not be altered or changed in any manner, including ditching, draining, filling, excavation or removal of soil, sand, gravel rock or other materials except as incidental and reasonably required in the course of activities or uses permitted by this Conservation Easement or as specifically allowed for in the approved Management Plan. Any permitted alteration shall be undertaken with minimal grading and disturbance to vegetation and with the surface restored in a timely manner to a condition consistent with the Conservation Values and Purposes of this Conservation Easement.

J. Forest and Habitat Management

1. No removal, destroying, burning, cutting, mowing or altering of vegetation is allowed except as follows:

a. To prevent or control insects, noxious weeds, invasive species, diseases, fire, personal injury, or property damage.

b. As reasonably required to construct and maintain permitted buildings, structures, roads, trails and other improvements and provided that vegetation shall be restored following any construction to a condition consistent with the Conservation Values and Purposes of this Conservation Easement.
c. To remove downed or dead timber.
d. In conjunction with activities permitted by this Conservation Easement and as specifically allowed for in the approved Management Plan.

2. Timber and other wood products may be removed and vegetation may be managed on the Protected Property in accordance with the approved Management Plan.

3. Habitat for wildlife and native biological communities may be created, maintained, restored, or enhanced on the Protected Property in accordance with the approved Management Plan.

4. No plant or animal species shall be introduced on the Protected Property except those native species that are consistent with the protective purposes of this Conservation Easement and consistent with the approved Management Plan.

K. Animals

No livestock or feedlots shall be permitted on the Protected Property except for draft animals used to pull wagons or sleds or used in the course of activities or uses permitted by this Conservation Easement or as specifically allowed for in the approved Management Plan. A feedlot is defined as open ground or buildings or a combination of open ground and buildings intended for the confined feeding, breeding, raising or holding of animals and specifically designed as a confinement area in which manure may accumulate or where the concentration of animals is such that a vegetative cover cannot be maintained. Open lots for feeding and rearing poultry are considered feedlots. Areas immediately adjacent to supplemental feeding and watering areas are not considered feedlots.

L. Waste Removal

Use of the Protected Property for dumping, storage, processing or landfill of solid or hazardous wastes is prohibited, including without limitation, municipal sewage sludge and/or bio-solids application. This does not prohibit burning or composting of excess brush or other plant material resulting from activities permitted by this Conservation Easement or conducted in accordance with the Management Plan.

M. Recreational Use

1. Unpaved paths or foot trails may be established and maintained on the Protected Property for recreational uses and shall be established, maintained and used in a manner that does not result in significant erosion or have an adverse impact on the Conservation Values and Conservation Purposes of the Protected Property. Unpaved paths or foot trails may be established and maintained on the Protected Property in accordance with the Management Plan or as allowed by Section IV.A. of this Conservation Easement.

2. Snowmobiles, dune buggies, golf carts, motorcycles, all-terrain vehicles, horses, or any other motorized vehicles may be operated by or with the consent of the Grantor on the Protected Property only in the following manner:

a. On trails designated for their use.
b. For administrative, emergency, and management purposes.
c. In conjunction with management operations or for habitat restoration or enhancement as prescribed in the approved Management Plan.

d. In a manner that does not result in significant erosion or have an adverse impact on the Conservation Values and Purposes of the Protected Property.

3. The Protected Property may be used for hiking, cross-country skiing, camping, picnicking, nature observation and interpretation or study, and other similar low impact recreational and educational programs or activities.

4. The Protected Property may not be used for more than minimal commercial recreation purposes. It is the intent of the parties to prevent the Protected Property from becoming the site of a commercial recreational enterprise, such as a commercial campground, a golf course, a commercial ski area, an exclusive hunting grounds or club, a commercial site for a snowmobiling, ATV motocross or other race track, a dressage field, or other similar intensive or predominantly commercial use, but this restriction shall not be construed to mean the occasional or casual use of or access to the Protected Property for purposes of low-impact outdoor recreational uses.

VI. GENERAL PROVISIONS

A. Binding Effect

This Conservation Easement creates a property right immediately vested in the Grantee, its successors and assigns that cannot be terminated or extinguished except as set out herein. This Conservation Easement shall run with and burden the Protected Property in perpetuity and shall bind and inure to the benefit of the Grantor, its successors and assigns, and the Grantee, its successors and assigns.

B. Property Transfer

The Grantor agrees that the terms, conditions, restrictions, and purposes of this Conservation Easement will be referenced by the Grantor in any subsequent deed or other legal instrument by which the Grantor transfers or divests the Grantor of all or any part of the Grantor's interest in the Protected Property, and that the Grantor will give the Grantee written notice of any such transfer within thirty (30) days after closing.

C. Notice and Approval

1. Any notice or request for approval required in this Conservation Easement shall be sent by certified mail or other courier providing reliable proof of delivery to the following addresses, such address(es) as may be subsequently specified by notice in writing, and the party of record at the address of record in the Washington County Recorder's Office.

Grantee	Grantor
Washington County June Mathiowetz Office of Administration 14949 62nd Street North Stillwater, MN 55082-0006 651-430-6000	Brown's Creek Watershed District Karen Kill, Administrator 455 Hayward Ave North Oakdale, Minnesota 55128 651-330-8220, ext. 26 Karen.kill@mnwcd.org

2. Unless otherwise specified in this Conservation Easement any required notice or request for approval must be delivered at least thirty (30) days prior to the date proposed for initiating the subject activity.

3. The notice or request for approval must include sufficient information to allow the Grantee to make an informed decision on whether any proposed activity is consistent with the terms and Conservation Values and Conservation Purposes of this Conservation Easement. At a minimum this should include: the location, nature, and scope of the proposed activity; the proposed use, design, and location of any building, structure or improvement; and the potential impact on the Conservation Values and Purposes of the Protected Property.

4. Approval of the Grantee must be in writing to be effective.

D. Severability

If any provision of this Conservation Easement or the application thereof to any person or circumstance is found to be invalid, the remainder of the provisions of this Conservation Easement and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid shall not be affected thereby.

E. Controlling Law

1. This Conservation Easement shall be governed by the laws of the State of Minnesota.

2. This Conservation Easement shall be enforceable by the Grantee, its successors or assigns and/or by such other relief as may be authorized by law. Any ambiguities in this Conservation Easement shall be construed in a manner that best effectuates the purposes of protecting soil, improving water quality, and enhancing fish and wildlife habitat.

F. Assignment

The Grantee may assign or transfer this Conservation Easement and the rights conveyed herein, provided that (1) the Grantee requires as a condition of such transfer that the original conservation purposes of this Conservation Easement continue to be carried out in perpetuity; and (2) any assignment shall be made only to an organization qualified to acquire or hold a conservation easement at the time of the transfer under the provisions of Section 170(h)(3) of the Internal Revenue Code of 1986, as it may be amended from time to time, and any regulations promulgated thereunder. This Conservation Easement is fully valid and enforceable by any assignee or successor of the Grantee whether assigned in whole or in part. The Grantee will notify in writing the Grantor of the assignment and will provide the Grantor with the name and address of new holder.

G. Definition

The terms "Grantor" and "Grantee" as used in this Conservation Easement shall be deemed to include with respect to Grantor, its successors, and assigns; and with respect to the Grantee, its successors and assigns.

H. Warranties

The Grantor represents and warrants as follows:

1. The Grantor is the sole owner of the Protected Property in fee simple and has the right and ability to convey this Conservation Easement to the Grantee.

2. Grantor is aware of no rights, restrictions and encumbrances on the Protected Property.

3. The Grantor has no actual knowledge of any use or release of hazardous waste or toxic substances on the Protected Property.

I. Amendment

This Conservation Easement may be amended only in the event of unanticipated circumstances not specifically addressed by this Conservation Easement and only in the sole and exclusive judgment of the Grantee that such amendment (i) furthers the purpose of this Conservation Easement, (ii) is not inconsistent with and will not adversely impact the conservation values protected by this Conservation Easement, (iii) does not affect the perpetual duration of the Conservation Easement or (iv) does not affect the validity of the Conservation Easement under Minnesota law or the status of Washington County under section 170(h) of the Internal Revenue Code. Any amendment or modification must be in writing and recorded in the same manner as this Conservation Easement.

J. Ownership Responsibilities, Costs and Liabilities

The Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep and maintenance of the Protected Property. The Grantor agrees to indemnify and hold the Grantee harmless from any and all costs or liability for any personal injury or property damage occurring on or related to the Protected Property or the existence of this Conservation Easement.

1. Taxes: Grantor shall pay all taxes and assessments levied against the Protected Property including any taxes or assessments levied against the interest of the Grantee established by this Conservation Easement. The Grantee may, but is not obligated to, make any payment of taxes or assessments levied against the Protected Property or the interest established by this Conservation Easement and shall have a right of reimbursement against Grantor, its successors or assigns, for such amounts.

2. Regulatory Compliance: All activities or construction permitted by this Conservation Easement shall be undertaken in accordance with applicable federal, state and local laws, regulations and ordinances and related agreements and nothing in this Conservation Easement shall be construed to exempt the Protected Property or the Grantor, its successors or assigns, from otherwise applicable laws or regulations. The Grantor, its successors or assigns, is solely responsible for obtaining any required governmental permits.

3. Future Environmental Condition: The Grantor, its successors or assigns, is solely responsible for the Grantor's, its successors or assigns, use or release on the Protected Property of any hazardous or toxic substances as defined by the Comprehensive Environmental Response, Compensation and Liability Act, The Minnesota Environmental Response and Liability Act, or other similar successor federal, state or local law or regulation regarding responsibility for environmental conditions associated with contamination. The Grantor, its successors or assigns, shall take steps necessary to assure any needed containment or remediation resulting from any release of such substance and has the legal right to pursue any person or entity responsible for any such discharge.

4. Future Economic Condition: In conveying this Conservation Easement the Grantor has considered the possibility that uses of the Protected Property prohibited by this Conservation Easement may in the future become more economically valuable than uses permitted by this Conservation Easement and that neighboring properties may be put entirely to such prohibited uses. Such changes are not deemed to be circumstances justifying the extinguishment of this Conservation Easement as otherwise set forth above.

K. Termination

If circumstances arise in the future such as to render the purposes of this easement impossible to accomplish, this easement can only be terminated or extinguished whether in whole or in part by judicial proceedings in a court of competent jurisdiction or by agreement executed by the parties, their successors or assigns.

L. Proceeds

If this easement is extinguished, terminated, transferred, or sold in whole or in part then the Grantee is entitled to a portion of any proceeds in an amount equal to the fair market value of this Conservation Easement at the time of the extinguishment but no less than an amount equal to the proportionate value that this easement bears to the value of the Protected Property as a whole at the time of this conveyance, excluding the value of any permitted improvements made after the conveyance of this Conservation Easement.

M. Termination of Rights and Obligations

A party's rights and obligations under this Conservation Easement terminate upon transfer or termination of that party's interest in the Conservation Easement or the Protected Property; provided, however, that any liability for acts or omissions occurring prior to the transfer or termination will survive that transfer or termination; provided further that the terms and conditions of this Conservation Easement shall continue to run with the land.

N. Re-recording

The Grantor shall execute, acknowledge and record or file any instruments necessary to assure the perpetual enforceability of this Conservation Easement. The Grantee may re-record this Conservation Easement or any other documents necessary to protect its rights under this Conservation Easement or to assure the perpetual enforceability of this Conservation Easement.

O. Additional Documents

The Grantor agrees to execute or provide any additional documents reasonably needed by the Grantee, its successors or assigns, to carry out in perpetuity the provisions and the intent of this Conservation Easement, including but not limited to any documents needed to correct any legal description or title matter or to comply with any federal, state, or local law, rule or regulation.

P. Entire Agreement

This document and the cooperative agreement entered into by Grantor and Grantee for purposes of acquisition of the Protected Property together set forth the entire agreement of the parties with respect to this easement and collectively supersede all prior discussions or understandings.

APPROVED AS TO FORM:

_____
Assistant County Attorney

Drafted by:
Washington County
Office of Administration
14949 62nd Street N.
Stillwater, MN 55082 – 0006

In witness whereof, the Grantor has executed this Conservation Easement this _____ day of _____, 2016.

GRANTOR

_____
Craig Leiser
President

NOTARY PUBLIC

The foregoing instrument was acknowledged before me this _____ day of _____, 2016, by Craig Leiser as president of Brown's Creek Watershed District.

_____.
Notary Public
My Commission Expires:

The foregoing Conservation Easement is hereby accepted by Washington County this _____ day of _____, 2016.

COUNTY OF WASHINGTON

_____ _____

County Board Chair County Administrator

NOTARY PUBLIC

The foregoing instrument was acknowledged before me this _____ day of _____, 2016 by _____ as chair of the Washington County Board of Commissioners and by _____ as Washington County administrator.

_____.
Notary Public
My Commission Expires:

EXHIBIT A

LEGAL DESCRIPTION OF THE PROPERTY

The east 466.20 feet of the Northeast Quarter (NE ¼) of the Northwest Quarter of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West, Grant Township, Washington County, Minnesota, subject to the right-of-way of 110th Street North, except:

Beginning at the Northeast corner of the Northwest Quarter (NW ¼) of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West and running South at right angles with the North line of said Section Twelve (12), a distance of Two Hundred Ninety and Four-tenths (290.4) feet; thence West and parallel to the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet; thence North at right angles to the last described line a distance of Two Hundred Ninety and Four-tenths (290.4) feet to the north line of said Section Twelve (12), thence East on the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet to the place of beginning.

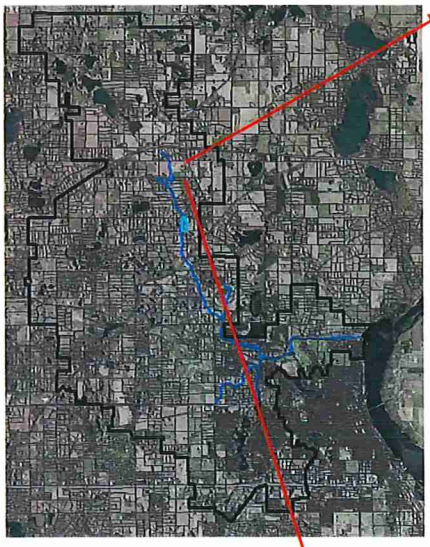
EXHIBIT B

BROWN'S CREEK WATERSHED DISTRICT

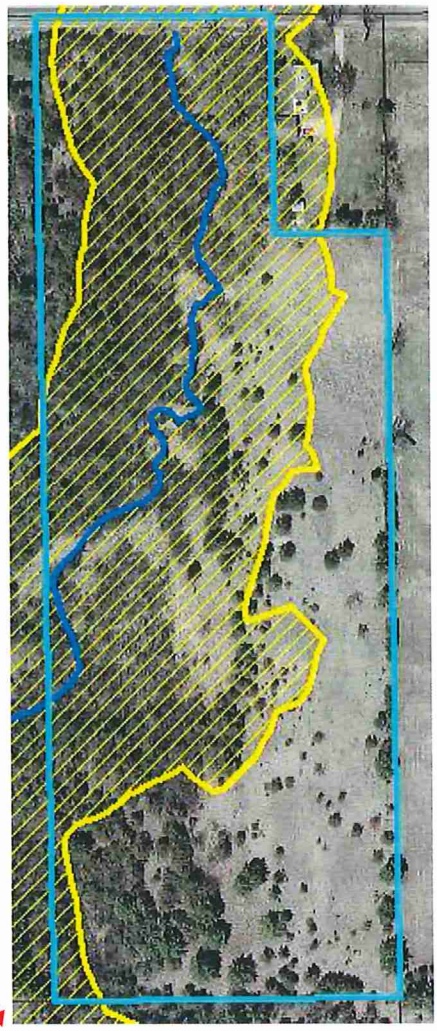
455 HAYWARD AVE N
OAKDALE, MN
55128

651.330.8220 X26 [PHONE]
651.330.7747 [FAX]
WWW.BCWD.ORG

Washington County Property Identification Number 12.030.21.21.0005
Concept Plan – October 12, 2016



Browns' Creek Watershed District



12.030.21.21.0005 – 110th Street, Grant, MN

Blue Border = 13 acres - Property boundary

Yellow hatching = ~7.5 acre Natural Area to be managed in a way that is consistent with BCWD Buffer requirements

Possible Natural Resource Management/Restoration Opportunities:

- Brown's Creek flows through the site from north to south. It has retained natural sinuosity; however, the creek is slightly overwidened and somewhat shallow. Removing buckthorn (primarily glossy) will help reestablish an herbaceous ground cover to minimize erosion. Ideally this stream corridor would be narrowed and allowed to deepen to provide better in-stream habitat.
- The east side of the creek has seepage wetlands in the southern part of the parcel. These wetlands are not of high quality but they do function as sources of groundwater to the creek. Reed canary grass and glossy buckthorn are problematic invasive species found within these wetland communities.
- The west side of the creek is heavily wooded and has a dense buckthorn shrub layer. The east-facing slope could be restored to a mesic woodland, but would require buckthorn removal. Reestablishing a healthy woodland community on this slope would help minimize soil loss and sedimentation in the creek caused by the sparse herbaceous layer.
- The upland area on the north east side of the creek has scattered bur oaks in the northerly portions. Clearing buckthorn to restore oak savanna.
- The open uplands on the east side of the creek are dominated by smooth brome. Scattered juniper (red cedar) are also found throughout. This relatively high topographic area would make an excellent prairie reestablishment project.

Managers:

Craig Leiser, President • Sharon Schwarze, Vice-President • Gerald Johnson, Secretary
• Connie Taillon, Treasurer • Gail Pundsack, Vice-President

Property, except for those warranties expressly contained in this Agreement and as identified in the Affidavit Regarding Seller attached hereto and incorporated herein as Exhibit B, which Sellers agree to execute at closing, as defined and specified in paragraph 3 of the Agreement.

And except as specifically modified herein, the Agreement remains fully in effect and in force.

IN WITNESS WHEREOF, Seller and Purchaser have executed this amendment, effective upon complete execution by the parties.

SELLER:

Michael Lauenstein
Date: 11.22.16

Kristin Lauenstein
Date: 11-22-16

PURCHASER:

WASHINGTON COUNTY

By: _____
Its: Board Chair
Washington County Commissioners
Date: _____

By: _____
Molly F. O'Rourke
Its: Washington County Administrator
Date: _____

APPROVED AS TO FORM:

_____
Assistant County Attorney

The Agreement was approved pursuant to Washington County Board Resolution No. 2016-146, dated the 25th day of October, 2016.

AMENDMENT
REAL ESTATE PURCHASE AGREEMENT

This amends the September 27,2016, real estate purchase agreement (the "Agreement"), fully executed by Michael Lauenstein and Kristin Lauenstein, married spouses (together, "Seller") and Washington County, a public body corporate and politic ("Purchaser") on October 25, 2016. In consideration of the terms and conditions set forth herein, including the obligations of mutual consideration, the sufficiency of which is hereby acknowledged by the parties, Seller and Purchaser amend the revised by this amendment as follows:

A. Exhibit A, attached to and incorporated into the Agreement, is deleted in its entirety and replaced with Exhibit AA, attached hereto and incorporated into this amendment and the Agreement as a term thereof.

B. Paragraph 3 of the Agreement is revised as follows:

3. **Closing**. The closing ("Closing") shall occur on or before ~~December 31, 2016~~, January 31, 2017 (the "Closing Date"), at the offices of Purchaser's attorneys, 15015 62nd Street North, Stillwater, MN 55082. Purchaser will be responsible for all closing costs. Seller will be responsible for the cost to furnish appropriate title documentation (either updated abstract or title commitment) as identified in item 6 below.

C. Paragraph 7a of the Agreement is revised to read as follows:

7. **Contingencies to Sale**. This Agreement is contingent upon the following:

a. Purchaser having satisfied itself of the environmental condition of the Property on or before December 31, 2016. Purchaser shall have access to the Property to conduct, at its expense, such environmental tests as Purchaser deems appropriate; provided, however, that Purchaser hereby agrees to indemnify and hold Seller harmless from any and all costs, liens and damages resulting from such environmental tests and inspections and, provided further, that Purchaser restores the Property to the condition that existed prior to commencement of the tests and inspection. If Purchaser does not elect to terminate this Agreement on or before December 31, 2016, then this condition shall be deemed satisfied and this Agreement shall no longer be subject to this contingency. If Purchaser elects to terminate this Agreement pursuant to the terms of this paragraph, Purchaser shall execute and deliver to Seller a quit claim deed to the Property.

D. Paragraph 10 of the Agreement is revised to read as follows:

10. **"AS IS" Sale**. Currently the property is vacant land. Seller and Purchaser agree that Purchaser is purchasing the Property from Seller in its "as is" condition. Purchaser agrees that its decision to purchase the Property is based upon its own experience and its own inspection and investigation of the Property, and is not based upon any representation or warranty of Seller. Purchaser acknowledges that there are no warranties, express or implied, with respect to the

EXHIBIT AA

Legal Description

The east 466.20 feet of the Northeast Quarter (NE ¼) of the Northwest Quarter (NW ¼) of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West, Grant Township, Washington County, Minnesota, subject to the right-of-way of 110th Street North, except:

Beginning at the Northeast corner of the Northwest Quarter (NW ¼) of Section Twelve (12), Township Thirty (30) North, Range Twenty-one (21) West and running South at right angles with the North line of said Section Twelve (12), a distance of Two Hundred Ninety and four-tenths (290.4) feet; thence West and parallel to the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet; thence North at right angles to the last described line a distance of Two Hundred Ninety and four-tenths (290.4) feet to the north line of said Section Twelve (12), thence East on the North line of said Section Twelve (12), a distance of One Hundred Fifty (150) feet to the place of beginning.

EXHIBIT B
AFFIDAVIT REGARDING SELLERS

STATE OF MINNESOTA)
: ss.
COUNTY WASHINGTON)

MICHAEL LAUENSTEIN and KRISTIN LAUENSTEIN, being first duly sworn, on oath say that:

1. They are the persons named as grantees in the document dated June 17, 2014, and filed for record July 15, 2014, as Document No. 3993927 in the office of the County Recorder of Washington County, Minnesota.

2. Each of the Affiants is of legal age and under no legal disability, with place of business at: Navico, Inc.
(for Michael Lauenstein)
St. Croix Prep Academy
(for Kristin Lauenstein)

and for the last ten years they have resided at:

2005-2014
1676 Hickory Lane
Eagan, MN 55122

2014-2016
555 2nd St. N
Bayport, MN 55003

2016-present
4730 McDonald Dr. Pl.
Stillwater, MN 55082

3. There have been no:
   a. Bankruptcy, divorce or dissolution proceedings involving Affiants during the time the Affiants have had an interest in the premises legally described in Exhibit A, attached to and incorporated into the agreement to which this affidavit is attached (the "Premises");
   b. Unsatisfied judgements of record nor any actions pending in any courts which affect the Premises;
   c. Tax liens against said Premises; except as herein stated:

4. Any bankruptcy, divorce or dissolution proceedings of record against parties with the same or similar names, during the time period in which the above named persons have had any interest in the Premises, are not against the above named persons.
5. Any judgements, or tax liens of record against parties with the same or similar names are not against the Affiants.

6. There has been no labor or materials furnished to the Premises for which payment has not been made.
7. There are no unrecorded contracts, leases, easements, or other agreements or interests relating to the Premises except as stated herein;

8. There are no persons in possession of any portion of the Premises other than pursuant to a recorded document, except as stated herein:

9. There are no encroachments or boundary line questions affecting the Premises of which Affiants have knowledge.
10. Affiants have not received medical assistance from the State of Minnesota or any county medical assistance agency.
11. To the best of each of Affiants' knowledge:
    a. No actions, suits or proceedings at law or in equity, administratively or otherwise, have been instituted or, to the best of Affiants' knowledge, threatened against or affect the Premises. No condemnation or eminent domain proceedings are now pending or, to the best of Affiants' knowledge, are contemplated against the Premises.
    b. Affiants, individually and together, have not received any notices, order, suits judgments or other proceedings relating to violations of zoning, subdivision, platting or building laws with respect to the Premises.
    c. Affiants acknowledge that the existing mortgage is to be paid in full at closing.
    d. Affiants together have full power to enter into and to perform the purchase agreement according to its terms and the execution and the delivery of the Premises and the consummation of the transactions contemplated therein will not constitute a default under any mortgages or other instruments or agreements to which Affiants are, individually or together, a party, and the purchase agreement is not in contravention of any law, order, ordinance or regulation by which Affiants are bound or subject.
    e. Affiants have not used, handled, stored, generated, treated, emitted, manufactured, transported or disposed of any hazardous materials on or affecting the Property in any manner which violates any federal, state or local law, statute, regulation, requirement, ordinance, rule or policy, and to the best of their knowledge, no prior or current owner, tenant, subtenant, occupant or licensee of the Property has used, handled, stored, generated, treated, emitted, manufactured, transported or disposed of any federal, state or local law, ordinance, rule, regulation or policy. For purposes of the purchase agreement, "hazardous materials" should be defined to mean any asbestos, urea formaldehyde foamed in place insulation, polychlorinated biphenyl, petroleum, crude oil or any dangerous, toxic or hazardous pollutants, chemicals, wastes or substances as defined in the Federal Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended, the Federal Resource Conservation and Recovery Act of 1976, as amended, the Minnesota Environmental Response and Liability Act, as amended, or any other federal, state or local laws, statutes, regulations, requirements, ordinances, rules or policies.

Affiants know the matters herein stated are true and make this Affidavit for the purpose of inducing the passing of title to the Premises and also for the purpose of inducing the issuance of title insurance policy(ies) in connection with the transfer of title.

Further Affiants sayeth naught.

Michael Lauenstein

Kristin Lauenstein

Subscribed and sworn to before me this
22 day of November, 2016.

Notary Public

Notary Stamp or Seal

NANCY LYNN REISTAD
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/2021

This instrument was Drafted By:
Washington County Dept. of Public Works and
Washington County Attorney's Office
11660 Myeron Road North
Stillwater, MN 55082

WASHINGTON CONSERVATION DISTRICT
455 HAYWARD AVE N
OAKDALE, MN 55128
651-330-8220 [PHONE]
651-330-7747 [FAX]
WWW.MNWCD.ORG

MEMORANDUM

TO: BCWD Board of Managers and Karen Kill, District Administrator

FROM: Aaron DeRusha, Washington Conservation District (WCD)

DATE: 5/20/2026

RE: BCWD Impervious Surfaces GIS Layer Development

Background

Staff at the City of Stillwater have noted increased numbers of variance requests for impervious surface coverage on residential lots in recent years. Through conversations with Administrator Kill, the City is interested in knowing how adjusting zoning regulations to provide better consistency with variance requests would affect the amount of impervious surface allowed on a lot by City ordinance and BCWD's permitting process for stormwater treatment. Administrator Kill noted developers receive approval from BCWD to construct a specific amount of impervious surface and are required to provide stormwater treatment for those areas on site, but the amount of treatment required for a development is often less that the maximum amount of impervious surface allowed by City ordinance when considering each individual lot. As lots develop or re-develop after initial permitting and construction, it is possible for the total impervious surface in a development to exceed the permitted capacity of the stormwater treatment practices and potentially have negative impacts on water quality and flooding. In order to answer these questions around development in the City, and all other areas of BCWD, a better understanding of the permitted impervious surfaces versus the as-built impervious surfaces in developments is needed.

A geographic information systems (GIS) based desktop analysis is well suited to inform these questions. Many available land cover layers, such as the National Land Cover Dataset (NLCD) or Minnesota Land Cover Classification System (MLCCS) are too coarse to make determinations of impervious cover on a lot by lot scale. The University of Minnesota published a 1-meter resolution land cover classification dataset for the Twin Cities Metropolitan Area in 2016 based on 2015 aerial images, but this dataset would be out of date for some newer developments, and no other ready-for-use GIS based products for this scale are known to exist.

BCWD amended its service agreement with the WCD to include development of a new digital impervious surface layer using the most recent 2025 spring leaf-off aerial photos with 1-foot resolution, made available by the Minnesota Geospatial Information Office in early 2026. The scope of service included delivering a digital impervious surface layer, other land cover classes such as tree canopy and turf coverage dependent upon accuracy, a web-based application for easy viewing of the data, and an accuracy assessment.

Methods

After examining feasibility of several image classification methods, it was determined a supervised object-based image analysis (OBIA) conducted using ESRI's ArcGIS Pro would be best suited for development of these layers. In simplest terms, this method groups pixels of the image according to their reflectivity, or color, in various spectral bands, and according to their shape, i.e. rectangularity or circularity, into polygons called objects. This process is called segmentation. The user tells the software what land cover type, or class, a

sample of these objects belong to, called training samples. The training samples are used to train algorithms that automatically assign the rest of the objects in the image to a class. Specific classes are then merged together into more general classes to obtain a classified image. This classification can then be further refined with corrections and reclassifications until an adequate end product is achieved, on which an accuracy assessment may be conducted.

For this type of analysis, false-color aerial images are often used because the sensors collecting the images also collect data in near-infrared wavelengths, which we cannot see with our eyes. When viewing these images the near-infrared image band is assigned to the red color, which makes different types of vegetation more visible depending on the vegetation's growth vigor, i.e. the redder the color, the more healthy or active the vegetation is. Other land covers like asphalt or concrete may appear as shades of white, blue, or gray, which also helps algorithms separate pixels into classes. For identifying impervious surfaces it is important to use spring leaf-off aerial photos to minimize the amount of impervious surfaces that would otherwise be obscured by tree canopy.

A general workflow for this analysis is:

1. Obtain false-color leaf-off photos of the study area.
2. Extract spectral bands to display the near-infrared wavelengths.
3. Segment the image into objects.
4. Create land cover classes and collect training samples for each class.
5. Choose and train an image classification algorithm.
6. Classify the image.
7. Merge and reclassify similar classes.
8. Review the classified image and reclassify areas that were misclassified by the algorithm.
9. Generate random points throughout the image and classes.
10. Update the random points with the correct class by reviewing the image, and conduct accuracy assessment.

For this analysis a spring 2025 leaf-off, false-color infrared image with 1-foot resolution was obtained from the Minnesota Geospatial Information Office. An example of the image with true-color and false-color bands displayed can be seen below.



Figure 1. True-color bands displayed on the left side of the image, and false-color bands displayed on the right.

Using ESRI's Image Classification Wizard, the image was then segmented into objects with a Spectral Detail setting of 16 (on a zero to 20 scale) and a Spatial Detail setting of 12 (on a zero to 20 scale). The minimum object size was set to 52 pixels, which equates to roughly 50 square feet.

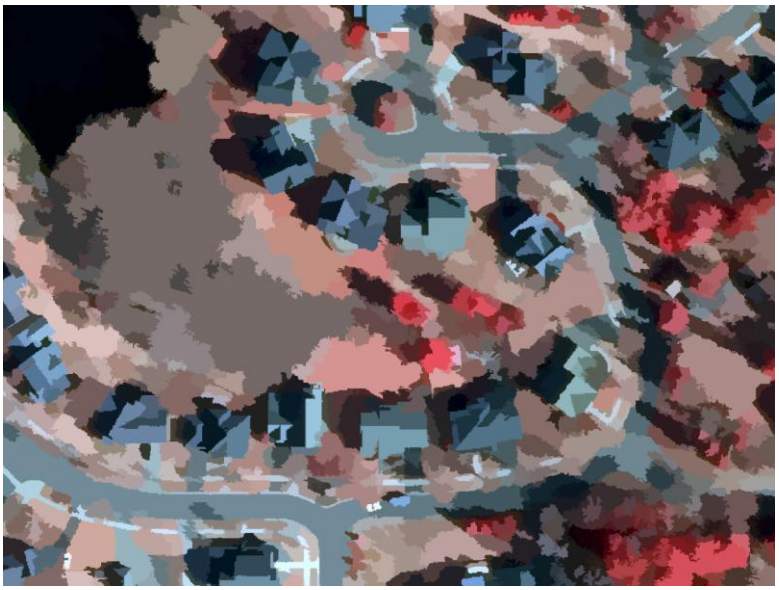
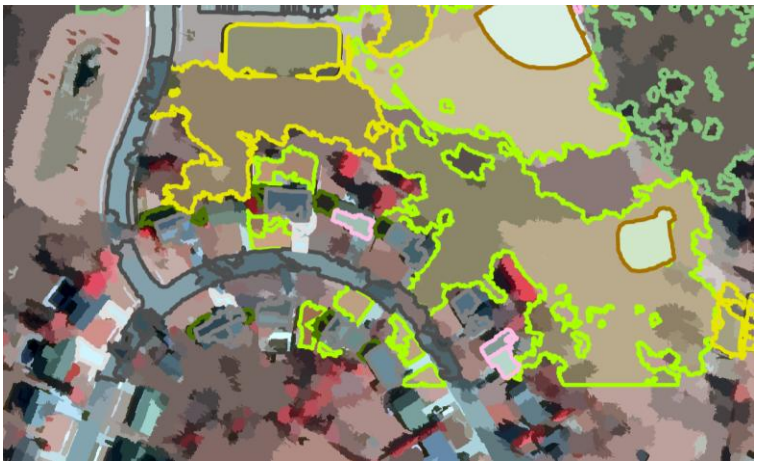


Figure 2. Example of the segmented image at fine scale.

Following segmentation, classes were created and training samples were collected throughout the image. It is important to have highly specific classes at this stage of the analysis to make the algorithm more accurate. Where buildings and trees cast shadows onto other land cover types it is important to create classes for the shadowed areas because they will be darker than their actual land cover class, and may later be misclassified as an impervious surface or water.



Class	# Samples	Pixels (%)
Dead Grass Shadow	9	0.02
Deciduous	78	6.11
Evergreen	111	0.57
Turf	138	15.64
Turf Shadow	122	0.41
Asphalt	90	8.55
Dead Grass	103	17.03
Bright Roof	60	2.60
Concrete	107	1.81
Asphalt Shadow	115	0.91
Other Roof	82	0.91
Bare	38	19.47
Water	156	22.33
Green Roof	88	0.76
Dark Roof	86	2.91

Figure 3. Example of training samples being collected in the image, and initial classes used to train the algorithm.

Once training samples were collected attempts were made to train the Support Vector Machine (SVM) and Random Trees classification algorithms. Due to extremely long processing time for the SVM method, the Random Trees method was used. The model was trained and the classifier was executed. Like classes were then merged, producing the initial classified image below. Note the errors in the image where portions of the streets and rooftops that are partially obscured by tree canopy are misclassified as dead grass or deciduous canopy. There are also portions of roofs and driveways misclassified as water.

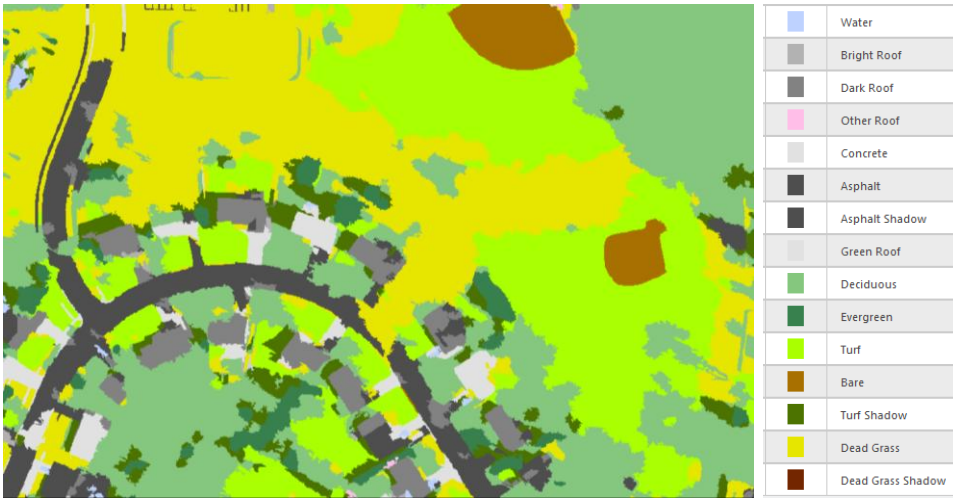


Figure 4. Initial classified image.

Portions of the image where errors were present, such as impervious surfaces being classified as water, or roofs being classified as deciduous canopy, were manually reclassified. The specific classes were also combined into seven generalized classes. Finally, in order to ensure the maximum amount of misclassified portions of impervious surfaces were corrected, road centerline and building footprint data layers were used to reclassify these areas. The County developed a building footprint layer derived from LIDAR elevation data in 2024, and a road centerline layer is continuously updated. The building footprints and a 10-foot buffer from the centerline of the roads were used to overwrite these areas of the classified image to increase the accuracy of the impervious surfaces. These areas can be seen in the image below.

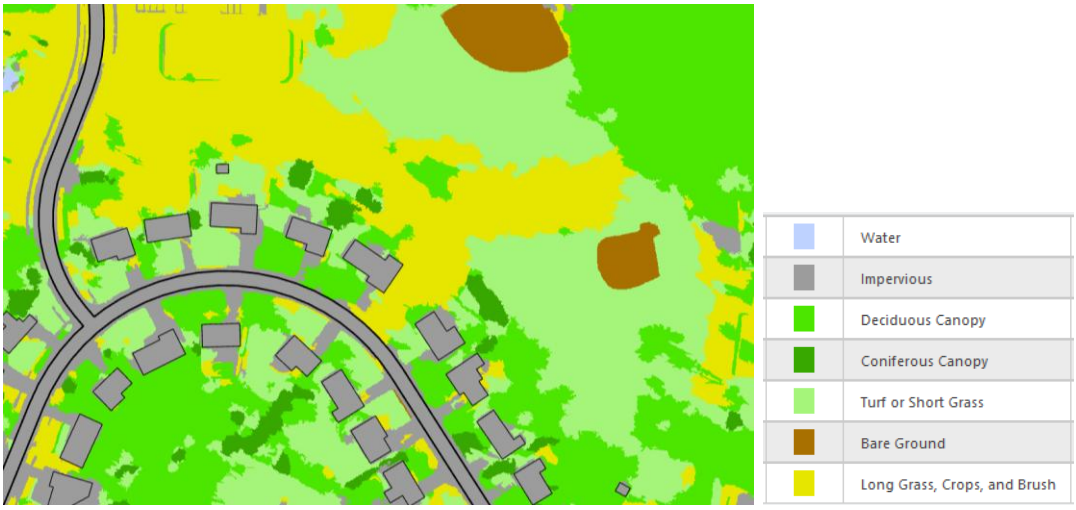


Figure 5. Example of final classified image with building footprint and street buffers overlaid.

In order to provide information on the amount of impervious surface in terms of square footage and percent cover on each parcel, the classified image was summarized using the County's parcel data, and joined back to the parcel data. This allows the end user to view the area and percent cover for each parcel, or summarize the amount of impervious surface for an entire development. Note the methods described in this memo are a simplified workflow, and documentation on specific processes may be provided upon request.

Accuracy Assessment

Assessing the accuracy of classified imagery is an important step to ensure the model represents real world conditions as accurately as possible. Errors will exist in every image classification due to spectral and spatial similarities between land covers, but a high degree of accuracy can be expected. It should be noted the data developed through this process is intended to provide general information on development status at the parcel scale, but real world conditions should be verified through finer review of aerial images or in-field surveys.

In order to assess the accuracy of the classified image 505 randomly stratified points were generated throughout the image. This distributes the amount of random points by class depending on the total area covered by each class. The random points were then manually updated with the actual land cover class and used to compute a confusion matrix and overall accuracy score. In the confusion matrix below, the cells along the green diagonal line represent random points that were accurately classified by the model. Cells off the diagonal represent random points that were misclassified, i.e. the model classified the pixel as impervious, but it was actually water. These provide details on errors of commission (false positives) and errors of omission (false negatives), where classes may include pixels that aren't actually in that class (commission) or classes do not include pixels that should be in that class (omission). The confusion matrix also provides an accuracy score for each class, and a kappa statistic that represents the overall accuracy of the classification. This statistic ranges from zero to one, with one representing perfect accuracy. The most accurate classes are water, impervious surfaces, and coniferous canopy. The least accurate classes are bare ground and deciduous canopy. Bare ground was most commonly misclassified as long grass, crops, and brush, and deciduous canopy errors were most commonly misclassified as turf or short grass, or long grass, crops, and brush. The overall accuracy score of the image is 0.856, which is considered excellent agreement between the model and real world conditions.

Table 1. Confusion matrix for randomly distributed points on the final classified image.

Class	Water	Impervious	Deciduous Canopy	Coniferous Canopy	Turf or Short Grass	Bare Ground	Long Grass, Crops, and Brush	Total	User Accuracy	Kappa
Water	33	1	0	0	0	0	0	34	0.971	0
Impervious	0	42	0	0	0	0	0	42	1.000	0
Deciduous Canopy	0	0	113	2	4	0	9	128	0.883	0
Coniferous Canopy	0	0	0	36	0	0	0	36	1.000	0
Turf or Short Grass	2	1	5	2	47	0	6	63	0.746	0
Bare Ground	0	0	0	0	0	3	2	5	0.600	0
Long Grass, Crops, and Brush	0	2	13	0	3	3	176	197	0.893	0
Total	35	46	131	40	54	6	193	505	0.000	0
Producer Accuracy	0.943	0.913	0.863	0.900	0.870	0.500	0.912	0.000	0.891	0
Kappa	0	0	0	0	0	0	0	0	0	0.856

Deliverables

In order to make use of this classification as convenient as possible a web application was developed using ArcGIS Online Experience Builder to host the data. This application can be used to view the amount of impervious surface on each parcel in the watershed, as well as export selections of parcels to other formats for further analysis. The application can be accessed by clicking the following link or by typing in the URL: BCWD Impervious Surface and Land Cover Viewer or tinyurl.com/4c9fx8ym. The raw underlying data can also be provided directly in various formats by contacting Aaron DeRusha at aderusha@mnwcd.org.

memo

Project Name |	BCWD Permit #25-30 Brixton Townhomes	**Date** |	6/3/2026
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, Administrator		
From / Contact info |	Julia Lau, EIT / EOR		
Regarding |	Site Plan and Amenity Updates		

Background

The BCWD Board of Managers approved the application for Permit #25-30 with the conditions and stipulations recommended in the engineer's report (attached to this memo) at the February 11th, 2026, board meeting. Conditions 2, 3, 4, 5, 7, and 8 are outstanding.

The applicant submitted a site-layout plan to BCWD on April 24, 2026, that had been revised to meet Stillwater City Council land-use requirements.

Summary of Changes

The updated site layout contains the following deviations from the approved plan:

1. The removal of two townhome units, one from Block 1 and one from Block 5.
2. The addition of a pedestrian trail along the north side of the reuse pond.
3. The addition of an amenity area in the southeast corner of the development.



Rule Analysis

While the modifications to the design and layout of the proposed project modify the analysis of the project's compliance with applicable BCWD requirements (as summarized below), the changes do not mandate, and the applicant is not seeking, approval of a modified erosion and sediment-control plan or stormwater-management plan. That is, the plans that were the basis for BCWD's February conditional approval continue to meet applicable BCWD regulatory requirements.

The total site impervious area is proposed to increase by 0.11 acres (2%) from the plan. Table 1 below outlines the numerical changes in compliance with the stormwater rule under flexible treatment option A.

Table 1: Summary of stormwater analysis compliance

Compliance Category	*Original*	*New*
Total Phosphorus Reduction *(75% required for FTO A)*	76%	75%
Volume retention *(0.55" required for FTO A)*	0.67"	0.65"
Wetland 1, 2-year Discharge Rate *(Existing = 11.53 cfs)*	4.47	4.42
Wetland 1, 10-year Discharge Rate *(Existing = 24.75 cfs)*	6.97	6.87
Wetland 1, 100-year Discharge Rate *(Existing = 57.99 cfs)*	13.46	13.26
Wetland 2, 2-year Discharge Rate *(Existing = 3.95 cfs)*	1.26	1.26
Wetland 2, 10-year Discharge Rate *(Existing = 8.41 cfs)*	2.32	2.32
Wetland 2, 100-year Discharge Rate *(Existing = 19.50 cfs)*	4.76	4.76

Conclusion

The applicant has submitted a layout revision for the townhome development. All BCWD requirements are met under the revised layout. No action needs to be taken by the BCWD board.

Red text indicates updates made per discussion at the 2/11/2026 BCWD board meeting.

memo

Project Name |	BCWD Permit 25-30 Brixton Townhomes	**Date** |	2/17/2026
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Dan Sjoblom, PE / Alliant Engineering		
Cc / Contact info |	Karen Kill, Administrator / BCWD		
From / Contact info |	Paul Nation, PE; Julia Lau, EIT / EOR		
Regarding |	Permit Application No. 25-30 Engineer's Report		

The following review of the above mentioned project located within the legal jurisdiction of the Brown's Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

Applicant: Magellan Land Development
Complete Permit Submittal Date: *1/14/2026*
Board Action Required By: *3/14/2026*
Review based on BCWD Rules effective April 1, 2020
Recommendation: Approve with Conditions

GENERAL COMMENTS

The project is located on 14.52 acres at the southeast corner of the intersection of 80th Street N and Manning Ave N and proposes the subdivision of three existing parcels into 21 townhome blocks, demolition of three existing single-family homes and the construction of a new townhome development.

Existing Conditions: The project area includes sections of two Manage 2 wetlands. Wetland 1 and Wetland 2 are 4.05 and 0.40 acres respectively. Existing drainage is generally from north to south overland flow through grass over D soils and discharging to the 2 wetlands in the southeast and southwest corners of the site. The existing impervious surface on the site consists of 3 residential homes.

Proposed Conditions: The applicant proposes construction of 21 townhome blocks, seven tree trenches, bituminous roadways, 0.61 acres of native vegetative buffers, and an irrigation reuse pond with irrigation system. (Figure 1). The general flow pattern would remain from north to south and into the adjacent wetlands to the south. The project would disturb 12.43 acres, and the total proposed impervious area would be 6.83 acres (47.0%).

Recommendation: The BCWD engineer recommends that the board approve the application with the conditions outlined in the report.



Figure 1: Proposed Site Plan

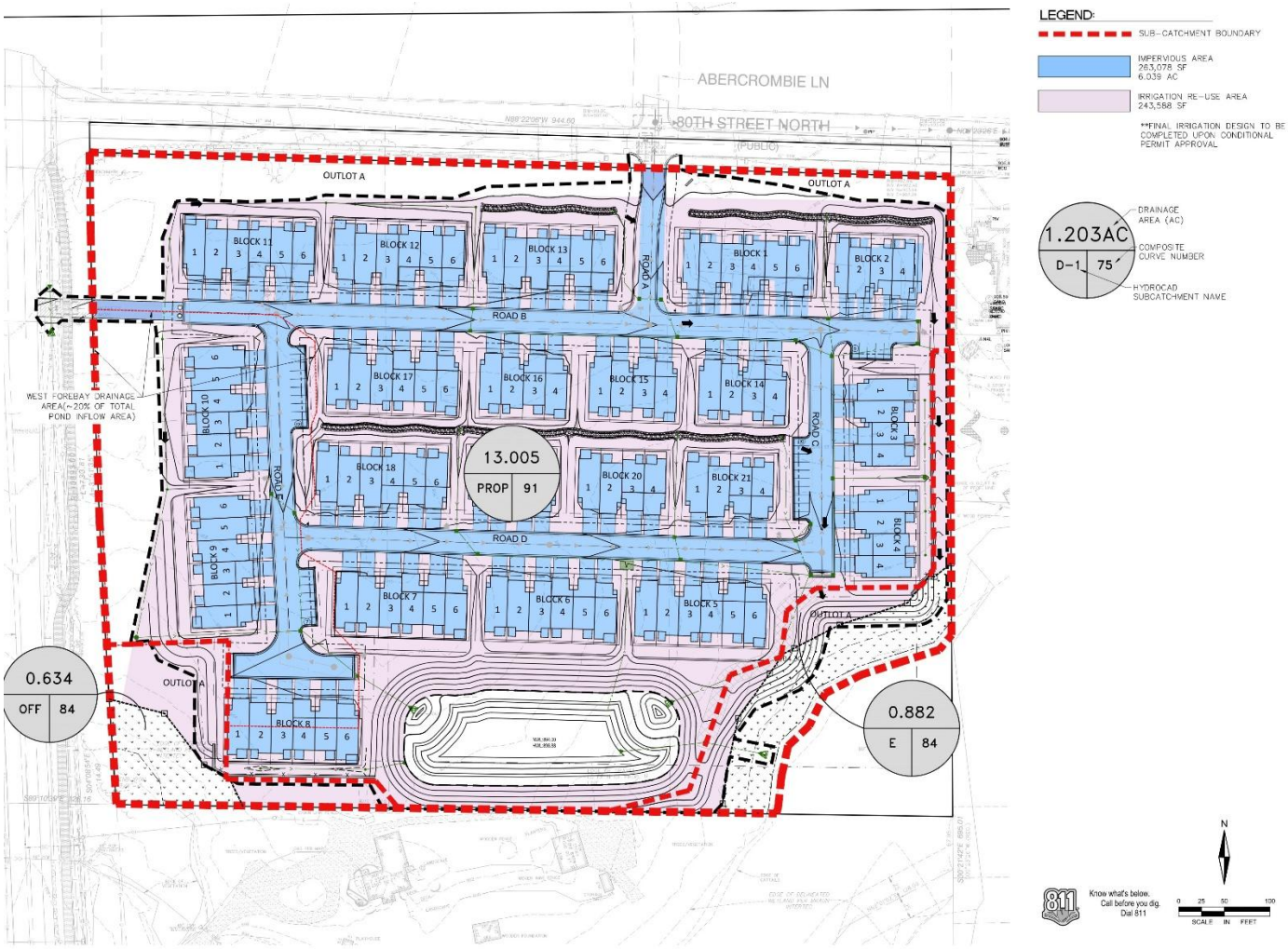


Figure 2: Irrigation Reuse Map

Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b) of the rule, the proposed project triggers the application of Rule 2.0 Stormwater Management because it creates one or more acres of new and/or reconstructed impervious surface. The site is located within the Diversion Structure Subwatershed, so the stormwater criteria in subsection 2.4.1(b) apply.

The stormwater management plan for the project includes:

- *Constructing a stormwater reuse pond and associated irrigation system for 5.59 acres of green space*
- *Constructing 7 tree trenches with 109 trees*

Under both current and proposed conditions, runoff leaves the site at the following discharge points:

- *"Wetland 1" – The current drainage area is 11.59 acres and will expand to 13.89 acres in the proposed condition, which will include all impervious surface on the site. Runoff will be routed to the reuse basin before reaching Wetland 1.*

- *"Wetland 2" – The current drainage area is 3.27 acres and will decrease to 0.63 acres in the proposed condition, just including the onsite area directly upgradient of the wetland.*

Rate Control

According to BCWD Rule 2.4.1(b)(i), an applicant must submit a stormwater-management plan providing no increase in the existing peak stormwater flow rates from the site for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave the site.

☒ Rule Requirement Met

Existing residential homes were omitted from stormwater modeling calculations, resulting in a conservative estimate in rate control design.
The stormwater management plan developed for the site was evaluated using a HydroCAD model of existing and post-development site conditions. A comparison of the modeled peak flow rate is included in Tables 1 and 2.

Table 1 - Peak Discharge Rate "Wetland 1"

Event	*Existing Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.80")	11.53	4.47
10-year (4.17")	24.75	6.97
100-year (7.23")	57.99	13.46

Table 2 - Peak Discharge Rate "Wetland 2"

Event	*Existing Runoff Rate (cfs)*	*Proposed Runoff Rate (cfs)*
2-year (2.80")	3.95	1.26
10-year (4.17")	8.41	2.32
100-year (7.23")	19.50	4.76

Volume Control

According to BCWD Rule 2.4.1(b)(ii), an applicant must submit a stormwater-management plan providing retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface.
Flexible treatment options within the diversion structure subwatershed apply when an applicant demonstrates that retention of 1.1 inches of stormwater volume onsite is not reasonably feasible.

☒ Rule Requirement Met

A geotechnical evaluation for the site confirmed the information provided in the Washington County geologic atlas, that the area is a former glacial lake predominantly consisting of clay deposits. All soil borings show clay soils fall into hydrologic soil group D. The applicant explored alternative methods for achieving volume control as described in the analysis in Table 3 below.

Table 3 – BMPs Evaluated

BMP	Utilized?	**Why or why not?**
Infiltration	No	Hydrologic soil group D.
Harvest and Reuse	Yes	Irrigating all available green space across the site (see Figure 2).
Green Roofs	No	Buildings have pitched roofs which are not conducive to green roofs.
ET/Tree Trenches	Yes	Utilizing ET with 109 tree plantings by creating depressional storage for uptake.
Interception	Yes	Utilized with 109 trees.
Permeable Pavers/ Pavement	No	Hydrologic soil group D.

The permit applicant asserts, and the BCWD concurs, that it is not reasonably feasible to meet the 2.4.1(b)(ii) standard of retention onsite of 1.1 inches of stormwater volume from the regulated impervious surface, and the flexible treatment options in subsection 2.4.3 apply to determine the volume-control (and water-quality) requirements for the project: "… management of volume and water quality from the regulated impervious surface must be provided in accordance with the following priority sequence:

a. Retention onsite of 0.55 inches of runoff and removal of 75 percent of the annual total phosphorus loading;

b. Retention onsite of stormwater volume to the maximum extent practicable and removal of 60 percent of the annual total phosphorus loading.

The applicant proposes, and the BCWD engineer concurs, that Flexible Treatment Option A can be applied, which requires retention onsite of 0.55 inches of runoff and removal of 75 percent of the annual total phosphorus loading (BCWD Rule 2.4.3(a)).Total phosphorus removal analysis is shown in the Water Quality section and Table 5 below. Volume retention is proposed to be achieved by evapotranspiration and tree interception with the seven tree trenches, and irrigation reuse.

The applicant proposes the following practices to provide volume control:

1) ***Evapotranspiration*** *(ET) from 109 newly planted trees incorporated as part of the landscaping plan. Stormwater runoff from the buildings will be directed to tree trenches with depressional storage surrounding the base of planted trees that will utilize that stormwater runoff for evapotranspiration. Evapotranspiration was calculated using guidance provided by the Minnesota Pollution Control Agency and accounts for 4,141 cubic feet (CF) of volume control. One of the assumptions made in calculating the volume-control achieved from ET is that the vegetation is 100% mature, which will not be the case for the first five to 10 years.*
2) ***Interception*** *from 109 newly planted trees incorporated as part of the tree trench facilities on site. Using the interception calculation from the Minnesota Pollution Control Agency, the newly planted trees will provide 1,694 CF of volume control.*

3) ***Stormwater Reuse*** *from the development will be sourced from the reuse basin onsite with a total storage volume of 1.62 ac-ft and used for irrigation on 5.59 acres of the development. It is assumed that an average of 1.15 inch/week during the growing season will be irrigated (1 inch/week during May, June and August, with 1.5 inches/week in July). The reuse system will provide 8,803 CF of volume control. As Table 4 demonstrates, the stormwater management plan exceeds the 0.55-inch requirement in 2.4.3 FTO(a).*

Table 4 - Discharge Volume

Volume Control Requirement	*Required Volume (cf)*	*Provided Volume (cf)*	*% of Required Volume*
2.4.1(b)(ii) 1.1" over 6.04 acres of impervious	24,118	14,638	61%
2.4.3(a) FTO(a) 0.55" over 6.04 acres of impervious	12,059	14,638	121%

Water Quality

Flexible Treatment Option A requires removal of 75 percent of the annual total phosphorus loading (BCWD Rule 2.4.3(a)).

☒ Rule Requirement Met

Runoff is being treated for phosphorus with a constructed stormwater re-use pond. The Permit Applicant submitted MIDS modeling demonstrating compliance with Rule 2.4.3(a). The MIDS model uses a Design Level 3 pond which assumes 60% TP removal for the areas draining to the pond. Additional treatment is provided by the tree trenches and irrigation reuse system. The phosphorus removal requirement is met as demonstrated by the results in Table 5.

Table 5 – Total Phosphorus Removal

Practice	*TP Inflow Loading (lb/yr)*	*TP Outflow Loading (lb/yr)*	*TP Reduction (%)*
Stormwater Reuse Pond with Cistern	14.57	3.56	76%

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(b)(iii), an applicant must submit a stormwater-management plan providing no increase in the bounce in water level or duration of inundation for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☒ Rule Requirement Met

The Manage 2 wetlands have a permitted bounce for all storm events of pre-development bounce plus 1 foot. To demonstrate compliance, the increase in stormwater volume for the 100-yr storm was divided by the surface area of wetlands onsite to calculate the increase in bounce.

$$Change\ in\ bounce = \frac{Increase\ in\ 100\ year\ runoff\ volume\ (acre-ft)}{Wetland\ surface\ area\ (acres)}$$

The downstream high water level summary shown below in Table 6 demonstrates that the increase in bounce meets the BCWD rules, since the bounce for the 2-year and the 10-year would be less than the 100-year event.

Table 6 - Change in Bounce ~~(ft)~~

		100-year		
Waterbody	Management Category	Pre-development (af)	Proposed (af)	Change in bounce (ft)
Wetland 1	2	4.36	7.08	0.67
Wetland 2	2	1.13	0.28	-2.13

A HydroCAD model was provided to demonstrate compliance with Rule 2.4.1(b)(iii). A comparison of the hydrographs in Table 7 demonstrates that the period of inundation meets the standards from existing to post-development conditions. Increases in duration of inundation are below the allowable existing plus 2 days (2-year storm) and existing plus 14 days (10-year storm or larger) for Manage 2 wetlands.

Table 7 - Downstream Wetland Inundation Periods (hrs)

	2-year		10-year		100-year	
Waterbody	Pre-development	Proposed	Pre-development	Proposed	Pre-development	Proposed
Wetland 1	13	45	14	48	16	45
Change in Inundation	+32		+34		+29	
Wetland 2	13	9	14	13	16	17
Change in Inundation	-4		-1		+1	

Rule 2.0 Conditions:

2-1. Provide BCWD with the final civil plan set (BCWD 2.7.9) with the following revision:

- Demonstrate the presence of infrastructure (supply lines, sprinkler heads) to irrigate the highlighted areas on the Proposed Drainage map.

2-2. Provide a draft stormwater facility maintenance declaration for BCWD approval, then, after approval, provide proof of recordation with Washington County (BCWD 2.6). A template is available under the permit section of the District's website. The maintenance declaration must include the following.

- Protection of all vegetated areas that must be preserved for irrigation use on the property, and
- Annual documentation of the volume of water used for irrigation along with the dates during which the irrigation system was active.

2-3. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota pollution Control Agency and provide the Storm Water Pollution Prevention Plan (SWPPP) as it becomes available (BCWD Rule 2.7.15).

Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, all persons undertaking any grading, filling, or other land-altering activities which involve movement of more than fifty (50) cubic yards of earth or removal of vegetative cover on five thousand (5,000) square feet or more of land must submit an erosion control plan to the District, and secure a permit from the District approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because the project will include activities that involve the movement of more than 50 cubic yards and remove vegetative cover on more than five thousand square feet.

☒ Rule Requirements Met with Conditions

The erosion and sediment control plan includes:

- *Silt Fence*
- *Erosion Control Blanket*
- *Rock Construction Entrance*
- *Catch Basin Inlet Protection*
- *Temporary Sediment Basin w/ Skimmer*

To meet the criteria of BCWD Rule 3.2, the erosion and sediment control plan must include:

- *Provide a detail for the Faircloth Skimmer device.*

The following conditions must be addressed in the erosion and sediment control plan to comply with the District's requirements:

Rule 3.0 Conditions:

3-1. Provide BCWD with the revised final civil plan set with the detail for the Faircloth Skimmer device (BCWD 3.2.2).

Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

☒ Rule Requirements Met with Conditions

Rule 4.0 applies to the site because it is adjacent to Wetland 1 and Wetland 2 and the property is being subdivided after April 9, 2007 (triggers Rule 4.2.1(b)). Under Rule 4.3, a buffer width of 50 feet applies to both Wetland 1 and Wetland 2 because they are Manage 2 wetlands (BCWD 4.3.1). Fifty-foot buffers

are proposed around both wetlands 1 and 2, indicated by permanent, free-standing markers at the buffer's upland edge and no more than an interval of 200 feet, with a design and text approved by District staff.

Under Rule 4.4.1, at the time a buffer is created under Rule 4.0, the District may require a planting or landscaping plan to establish adequate native vegetative cover for area that (a) has vegetation composed more than 30 percent of undesirable plant species (including, but not limited to reed canary grass, common buckthorn, purple loosestrife, leafy spurge, bull thistle, or other noxious weeds); or (b) consists more than 10 percent of bare or disturbed soil or turf grass.

Rule 4.0 Conditions:

4-1. Provide a buffer declaration in a form acceptable to the District and proof of recordation with Washington County. A template is available under the permit section of the District's website. The buffer declaration must be recorded with the County after a draft is approved by the District (BCWD Rule 4.2.2).

4-2. Conduct an assessment of the proposed buffer zone area to determine the vegetative composition of undesirable plant species, bare, disturbed soil or turf grass. Modify the landscaping plan to restore these areas with native vegetation and submit for District review and approval.

Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed shoreline or streambank alterations.*

Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person may use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person may alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person may alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

The proposed discharge rates from the site are less than existing conditions so any excess volume above existing conditions will be discharged at a rate that allows the volume to be conveyed through the existing wetland complex and tributary system. Given this, there is no alteration of stormwater flow at the property boundary triggering the rule. However, the freeboard criteria in subsection 7.3.2 apply through operation of subsection 2.5.4; the freeboard criteria are applied here:

☒ Rule Requirements Met

According to BCWD rule 7.3.2 all new and reconstructed buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow (EOF) of a constructed basin.

The 100-year high water elevations, EOFs, and lowest adjacent building elevations were evaluated and meet the District's low floor requirement as demonstrated in Table 8. Stormwater flows at property boundaries remain the same from existing to proposed conditions.

Table 8 - Freeboard Requirement Summary

Stormwater Facility	*EOF*	*100-Year HWL*	*Allowable Lowest Floor*	*Lowest Proposed Floor*
Stormwater Reuse Pond	899.80	898.88	900.8~~80~~	904.7

Rule 8.0—FEES

Fees for this project as outlined below:

1. Stormwater management fee	$3,000
2. Erosion control fee for grading	$1,500
3. Floodplain and drainage alterations fee	$500
▪ **TOTAL FEES**	**$5,000**

Rule 9.0—FINANCIAL ASSURANCES

Financial assurances for this project are as outlined below:

1. Grading or Alteration (12.43 acres disturbed x $2,000/acre)	$24,860
2. Stormwater Management Facilities (125% of facility cost)	$TBD
▪ **TOTAL FINANCIAL ASSURANCES ($5,000 Minimum Performance Financial Assurance)**	$TBD

An engineer's estimate of the cost of stormwater management facilities has not been provided by the applicant. Once provided, this estimate will be used to determine the required financial assurance.

Rule 9.0 Conditions:

9-1. Final estimate of stormwater management facility cost as agreed upon by applicant and BCWD engineer.

Rule 10.0—VARIANCES

According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of the circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be keeping with the spirit and intent of

these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

☒ Rule Not Applicable to Permit. *There are no requested variances.*

RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Demonstrate that the plan has received preliminary plat approval (BCWD Rule 1.3a).
2. Address all stormwater management requirements (Conditions 2-1 to 2-3).
3. Address erosion control requirements (Condition 3-1).
4. Address all buffer requirements (Conditions 4-1to 4-2).
5. Address financial assurance condition (Condition 9-1).
6. Replenish the Permit fee deposit to $5,000 (BCWD Rule 8.0). If the permit fee deposit is not replenished within 60 days of receiving notice that such deposit is due, the permit application or permit will be deemed abandoned and all prior approvals will be revoked and collection proceedings will begin on unpaid balances.
7. Provide the required financial assurances (BCWD Rule 9.0):
    a. Total grading or alteration assurance 12.43 acres ($24,860).
    b. Stormwater management facilities assurance ($TBD).
8. Conditions as requested by the Managers of the Board:
    a. Determine if any of the heritage silver maples on the site are capable of being saved for their evapotranspiration and infiltration values as part of the stormwater management system.
    b. Include native vegetation along the south property boundary and around the pond slopes to the extent practicable and include this amendment in the buffer and stormwater declaration.

STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)
2. To ensure that construction is carried out according to the approved plan, provide verification that construction standards have been met for all tree trenches and reuse basin. This includes but is not limited to confirmation that under drains, reuse and irrigation, and vegetation establishment procedures have been followed per the approved plan. This can be achieved by scheduling a BCWD inspection during the excavation of the basins, independent geotechnical engineer observation and note of confirmation, or well-documented photographic evidence by the onsite engineer along with collected survey elevations of the basins.
3. Provide the District with As-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.
4. Provide contact information for the party responsible for long-term maintenance of proposed stormwater facilities.

memo

Project Name |	BCWD Permit Program	**Date** |	06/05/2026
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	John Sarafolean; Julia Lau EIT, EOR		
Regarding |	May Permit Inspection Update		

Background

BCWD has an on-going permit review process in support of the District Rules. Developments within the District Jurisdictional Boundary are reviewed for compliance with the Rules and conditions of the permit. This memo documents inspections from 05/06/2026 to 06/05/2026.

Inspection of Existing Permits

Project Name	Permit ID	Date	Grade
WOS Development	17-01	5/27/2026	B
Central Commons	19-05	5/20/2026	A
		6/03/2026	A
Stillwater Oaks	22-18	5/20/2026	B
		6/03/2026	B
WOS Pennylane	23-18	5/27/2026	A
Liberty Classical Academy Expansion	23-19	5/14/2026	B
		5/27/2026	A
Take 5 Oil Change	24-01	5/13/2026	A
WOS Lot 120 Hilgert Residence	24-03	5/14/2026	A
		5/27/2026	A
Elliot Crossing Development	24-07	5/20/2026	C
Altendorfer Residence	24-08	5/14/2026	A
WOS Karr Residence	24-11	5/27/2026	A
WOS Carlson Residence	24-12	5/27/2026	A
Lornston Residence	24-15	5/13/2026	A
WOS Weatherby Residence	24-17	5/27/2026	A
Curve Crest Utility	25-01	5/20/2026	A
		6/03/2026	A
Anderson Holdings	25-02	5/20/2026	A
		6/03/2026	A
HealthPartners Lakeview Hospital	25-03	5/13/2026	A
		5/20/2026	B

		6/03/2026	A
St. Croix Valley Rec Center Parking Lot	25-05	5/14/2026	A
WOS Lot 121 Castillo	25-07	5/14/2026	A
		5/27/2026	B
CSAH 15B	25-08	5/13/2026	A
		5/20/2026	A
		6/03/2026	A
Dockter Residence	25-09	5/14/2026	C
		5/27/2026	B
Stillwater PFAS	25-11	5/14/2026	B
Doede Residence	25-12	5/14/2026	A
		5/27/2026	B
Husnik Residence	25-14	5/13/2026	A
Elliot Crossing Lot 1 Block 1	25-15	5/13/2026	A
		5/20/2026	C
		6/03/2026	B
WOS Lot 128 Morud	25-17	5/14/2026	B
Deininger Residence	25-18	5/14/2026	C
		5/27/2026	A
Elliot Crossing Lot 3 Block 1	25-19	5/13/2026	A
		5/20/2026	A
		6/03/2026	A
Bryant Tree Clearing	25-21	5/14/2026	A
Upadhyaya Residence	25-22	5/14/2026	B
		5/27/2026	B
Ziegler Residence	25-24	5/14/2026	A
Elliot Crossing Block 1 Lot 4	25-26	5/13/2026	B
		5/20/2026	B
		6/03/2026	A
Elliot Crossing Block 1 Lot 5	25-27	5/13/2026	A
		5/20/2026	B
		6/03/2026	A
Chick-Fil-A	25-28	5/14/2026	A
Elliot Crossing Block 1 Lot 2	26-01	5/13/2026	A
		5/20/2026	A

		6/03/2026	B
Sanctuary WWTF	26-02	5/27/2026	A
Nagle Residence Soil Remediation	26-06	6/03/2026	A

Permit No.	Applicant/Permit Name	Status
15-07	Brown's Creek Cove	Active
16-03	The Ponds at Heifort Hills	Active
17-01	White Oaks Savanna	Active
17-04	The Lakes of Stillwater	Active
17-17	Westridge	Active
18-02	Heifort Hills Estates	Active
18-04	Boutwell Farm	Active
18-05	Heritage Ridge	Active
18-06	Nottingham Village	Active
20-05	Neal Avenue Reconstruction	Active
20-12	White Pine Ridge	Active
21-13	Marylane Gateway	Active
21-15	Schwartz Residence	Active
21-21	Millbrook West Park	Active
22-02	White Pine Ridge, remaining lots	Active
22-03	Westridge, remaining lots	Active
22-05	13290 Boutwell Rd N	Active
22-18	Stillwater Oaks	Active
23-17	Sundance Stillwater	Pending
24-06	Rutherford Elementary	Active
24-09	CSAH 5 Phase 3	Active
24-10	Boutwell Farms Lot 1	Active
25-06	CSAH 15 Pavement Preservation	Active
25-09	Dockter Residence	Active
25-12	Doede Residence	Active
25-18	Deininger Residence	Active
25-30	Brixton Townhomes	Review
26-04	Bergmann Residence	Review
26-06	Stillwater Firehouse Pavement	Active

Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
June 6th, 2026

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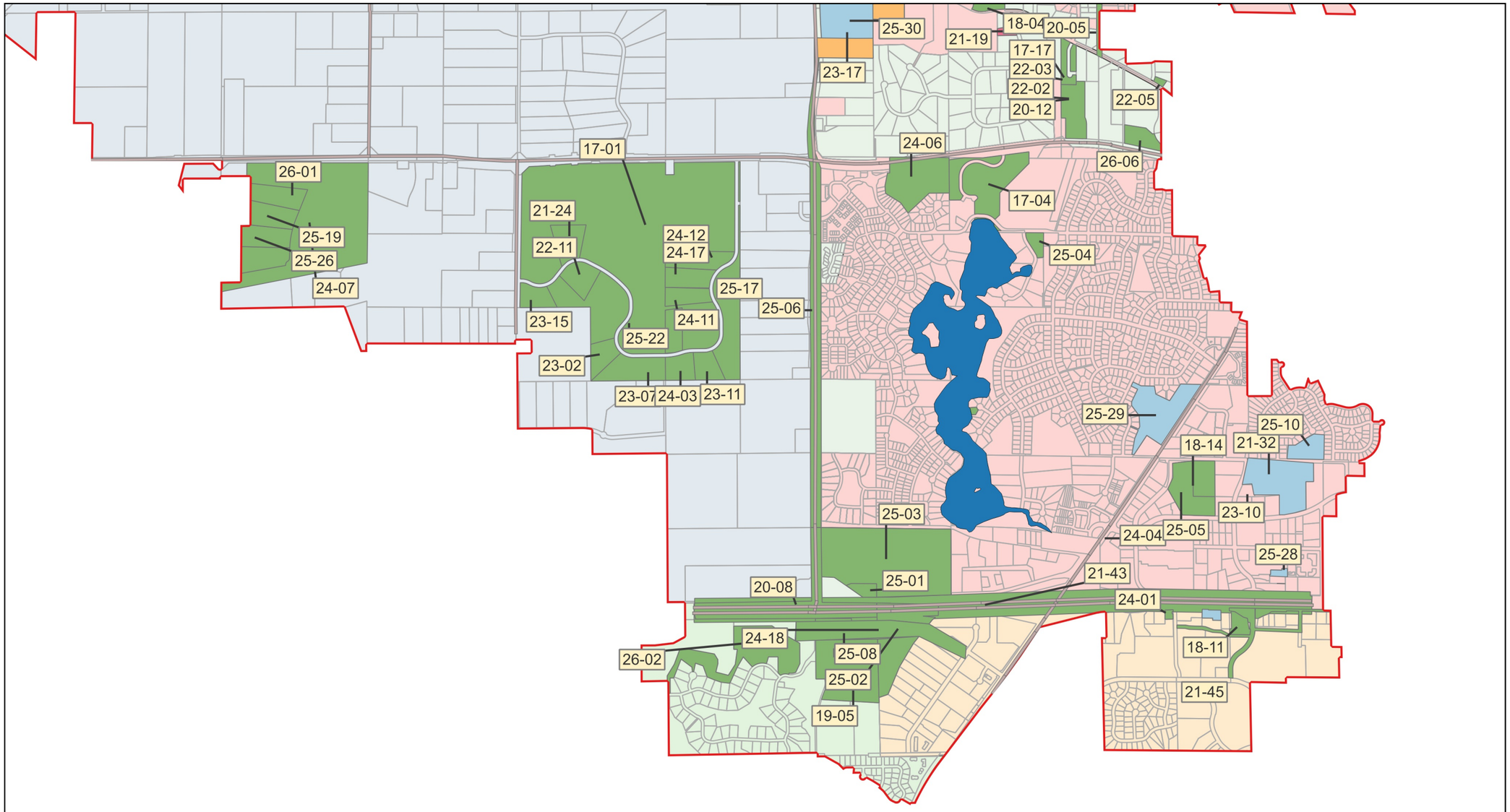

Permit No.	Applicant/Permit Name	Status
17-01	White Oaks Savanna	Active
17-04	The Lakes of Stillwater	Active
17-17	Westridge	Active
18-04	Boutwell Farm	Active
18-11	Ridgecrest	Active
18-14	St. Croix Valley Recreation Center Expansion	Active
19-05	Central Commons	Active
20-05	Neal Avenue Reconstruction	Active
20-08	TH36 CSAH 15 Interchange	Active
20-12	White Pine Ridge	Active
21-24	Nepal Residence - WOS B1L3	Active
21-32	Lakeview EMS	Review
21-43	MnDOT TH-36	Active
21-45	Norell Avenue Improvements	Active
22-02	White Pine Ridge, remaining lots	Active
22-03	Westridge, remaining lots	Active
22-05	13290 Boutwell Rd N	Active
22-11	Wiechmann Residence	Active
22-19	Miller Flood Protection	Active
23-02	Tweden Residence	Active
23-10	Curio Dance Studio	Active
23-11	Freiroy Residence	Active
23-15	Mensah Residence	Active
23-17	Sundance Stillwater	Pending
24-01	Take 5 Oil Change	Active
24-03	WOS Lot 120 Hilgert Residence	Active
24-06	Rutherford Elementary	Active
24-07	Elliot Crossing/ Indian Hills	Active
24-11	WOS Lot 127 Karr Residence	Active
24-12	Carlson Residence	Active
24-17	WOS Lot 129 Weatherby	Active
24-18	CSAH 15 Frontage Road	Active
25-01	Curve Crest Utility	Active
25-02	Anderson Holdings	Active
25-03	Lakeview Hospital	Active
25-04	Kranz Residence Addition	Active
25-05	St. Croix Recreation Center	Active
25-06	CSAH 15 Pavement Preservation	Active
25-07	Castillo Residence	Active
25-08	CSAH 15B Construction	Active
25-10	Stillwater Wellhead 10 PFAS Treatment	Review
25-17	WOS Lot 128 Morud	Active
25-19	Elliot Crossing Lot 3 Block 1	Active
25-22	WOS Lot 117 Upadhyaya	Active
25-26	Elliot Crossing Lot 4 Block 1	Active
25-27	Elliot Crossing Block 1 Lot 5	Active
25-28	Chick-fil-A	Review
25-29	Sunrise Park Trail	Review
25-30	Brixton Townhomes	Review
26-01	Elliott Crossing Lot 2 Block 1	Active
26-02	Sanctuary WWTF	Active
26-03	7Brew Coffee	Review
26-06	Stillwater Firehouse Pavement	Active

Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
June 6th, 2026

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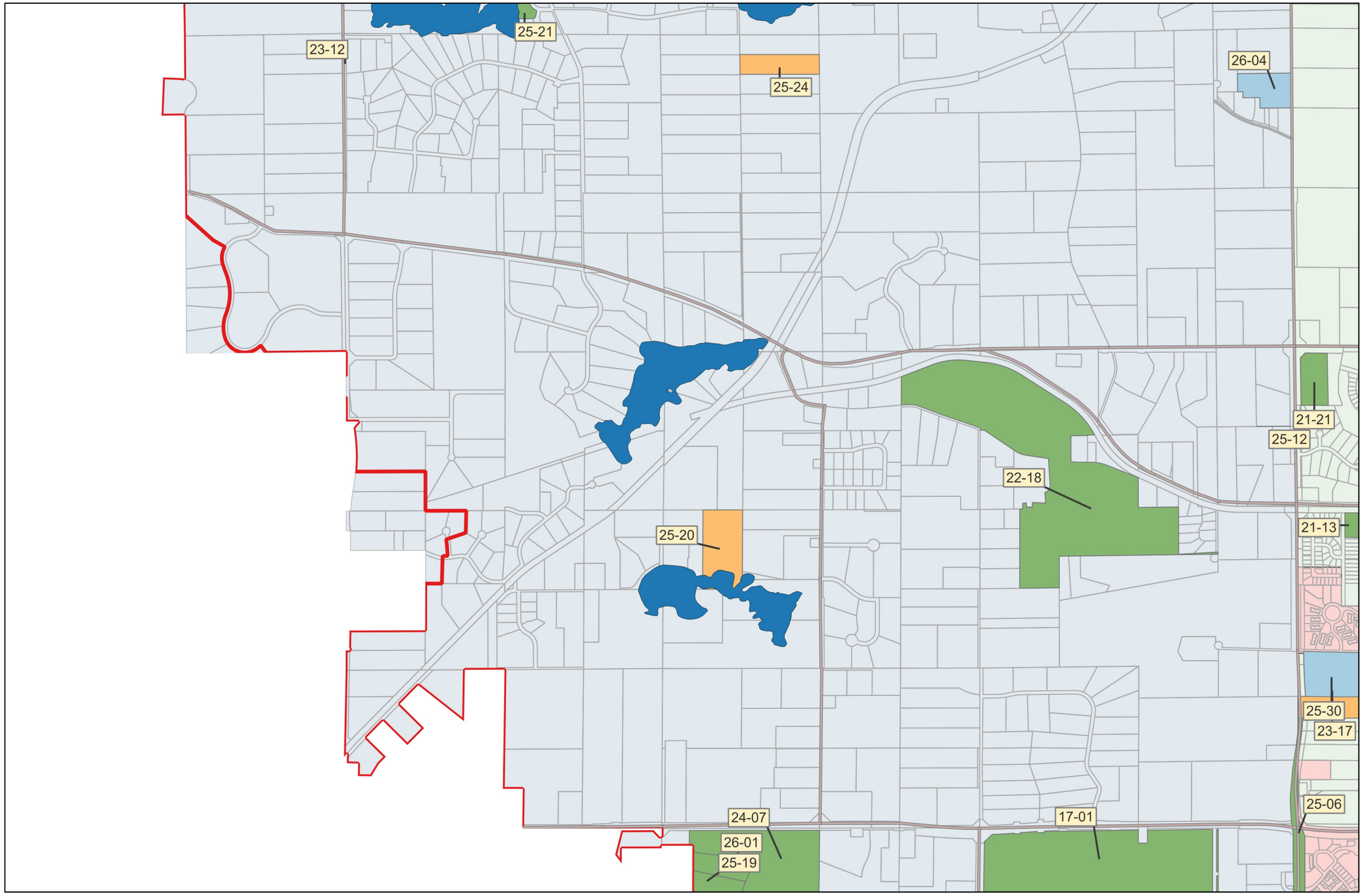

Permit No.	Applicant/Permit Name	Status
17-01	White Oaks Savanna	Active
21-13	Marylane Gateway	Active
21-21	Millbrook West Park	Active
22-18	Stillwater Oaks	Active
23-17	Sundance Stillwater	Pending
24-07	Elliot Crossing/ Indian Hills	Active
25-06	CSAH 15 Pavement Preservation	Active
25-12	Doede Residence	Active
25-19	Elliot Crossing Lot 3 Block 1	Active
25-20	Nike Henry Pool	Pending
25-21	Bryant Tree Removal	Active
25-24	Ziegler Pole Shed	Pending
25-30	Brixton Townhomes	Review
26-01	Elliott Crossing Lot 2 Block 1	Active
26-04	Bergmann Residence	Review

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EOR water ecology community

- Active Permit
- Conditional Approval
- Under Review
- BCWD Political Boundary

BCWD Permit Sites
June 6th, 2026

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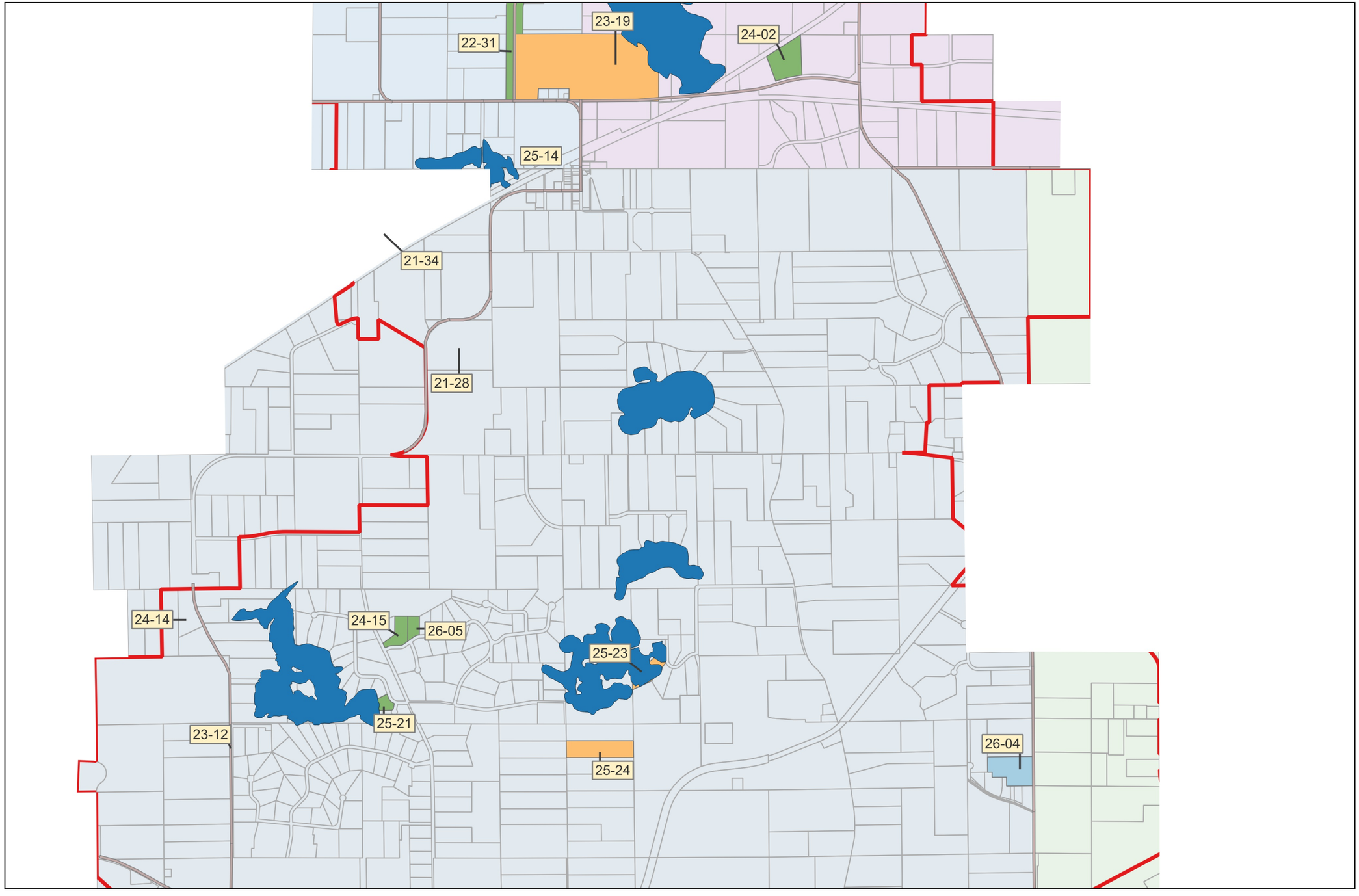

Permit No.	Applicant/Permit Name	Status
21-28	Guerrino Residence	Active
21-34	Fahey Residence	Active
22-31	County Road 57 Culverts	Active
23-19	Liberty Academy Expansion	Pending
24-02	Schuster Residence	Active
24-14	Wick Residence	Active
24-15	Lorntson Property	Active
25-14	Husnik Residence	Active
25-21	Bryant Tree Removal	Active
25-23	Kismet Basin Septic System	Pending
25-24	Ziegler Pole Shed	Pending
26-04	Bergmann Residence	Review
26-05	Nagle Soil Remediation	Active

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EOR water ecology community

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BCWD Permit Sites
June 6th, 2026

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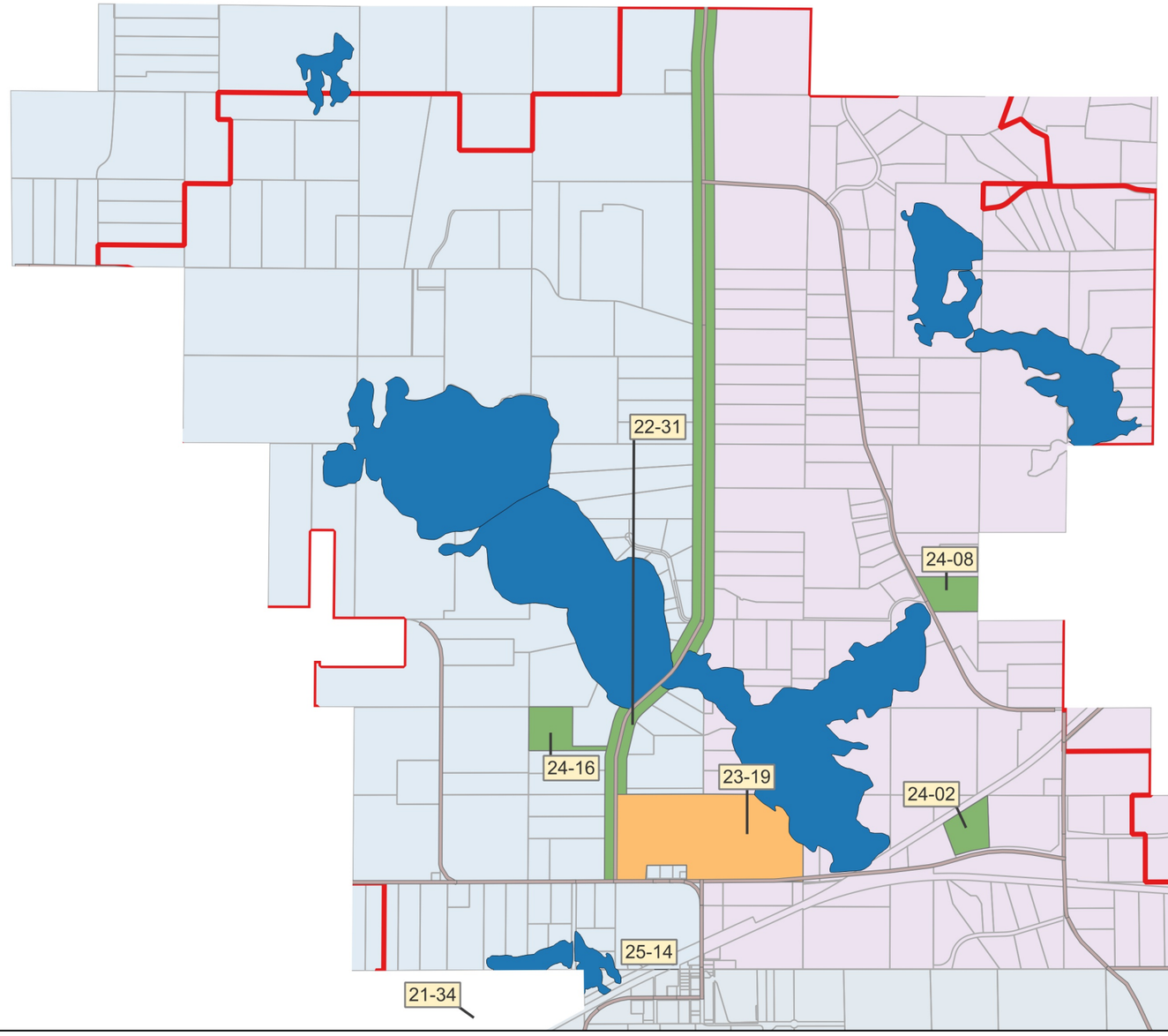
Permit No.	Applicant/Permit Name	Status
21-34	Fahey Residence	Active
22-31	County Road 57 Culverts	Active
23-19	Liberty Academy Expansion	Pending
24-02	Schuster Residence	Active
24-08	Altendorfer Residence	Active
24-16	Goodsell Residence	Active
25-14	Husnik Residence	Active



Active Permit
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BCWD Permit Sites
June 6th, 2026

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