

# BROWN'S CREEK WATERSHED DISTRICT

1380 West Frontage Road, Hwy 36, Stillwater, MN 55082  
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1  
2 **Minutes of the Regular Meeting of the Brown's Creek Watershed District Board of Managers,**  
3 **April 10, 2006.**

4  
5 **WCD Offices, 1380 W. Frontage Road, Hwy. 36**  
6 **Stillwater, MN**

**APPROVED**

7  
8 **ROLL CALL**

9 Present: Craig Leiser, President                      Others Present:                      Karen Kill, WCD, Administrator  
10                      Gerald Johnson, Secretary                      Chuck Holtman, Smith Partners  
11                      Connie Taillon, Treasurer                      Lisa Tilman, EOR  
12                      Rick Vanzwol                      Christa Bren, EOR  
13                      Gail Pundsack, Vice-President (*arrived 6:50 p.m.*)                      Pat Conrad, EOR  
14                      Shawn Sanders, Stillwater (*arrived 7:00 pm*)

- 15 **1. Call Regular Meeting to order**  
16 President Leiser called the Regular Meeting to order at 6:37 p.m.  
17
- 18 **2. Approve Regular Meeting Agenda and Discussion Agenda**  
19 The draft March 13, 2006 regular Board meeting minutes and the draft March 29, 2006 special Board  
20 meeting minutes were not distributed in time for ample Board review. It was requested to table the approval  
21 of these minutes until the regular May Board meeting. **Manager Leiser, seconded by Manager Taillon,**  
22 **moved to approve the agenda as amended. Vote 4/0.**  
23
- 24 **3. Approve minutes – Board Action – tabled until regular May Board meeting**
- 25
- 26 **4. Treasurer's Report**  
27     o Review Authorized Funds Spreadsheet – Board reviewed.  
28  
29     o Current Items Payable - **Board Action**  
30         Manager Taillon informed the board that the total items payable are in the amount of \$65,691.23. After  
31         payables, the total balance would be \$228,386.39. **Manager Taillon, seconded by Manager Vanzwol,**  
32 **moved to pay bills as amended. Roll call 4/0/1. Manager Pundsack was absent.**  
33
- 34 **5. THPP Infiltration Rehabilitation Project – Presentation by Christa Bren, EOR**  
35 Christa Bren, EOR, presented the results of exploratory soil borings in the western two infiltration basins of  
36 the Trout Habitat Preservation Project (THPP) to investigate potential opportunities for infiltration recovery.  
37 The soil boring investigation revealed an extensive lens of coarse sand, which is ideal for application of an  
38 infiltration trench. Ms. Bren stated that construction of an infiltration trench along the eastern side of the  
39 first infiltration basin will maximize contact with the sand lens. Conservative estimates suggest that the  
40 trench could infiltrate water at a sustained rate of approximately one inch per hour.  
41

42 *Manager Pundsack arrived 6:50 p.m.*  
43

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1 Basin 2 has had very low infiltration rates and allows the water in the pond to warm. Ms. Bren stated that  
2 because the location of the sandy lens close to the western edge of Basin 2, it is recommended that some  
3 additional soil boring exploration be conducted in Basin 2. Due to the depth of water in Basin 2, it would be  
4 necessary to pump the water out and then soil borings could be conducted using a hand auger. The  
5 additional soil borings in Basin 2 and develop soil profiles is estimated to cost \$5,200.  
6

7 If an opportunity to improve the infiltration rate in Basin 2 is found, then it would be more cost effective to  
8 construct both infiltration trenches at the same time.  
9

10 An additional level logger located in Basin 1 would be useful to document the separate performance of the  
11 first and last infiltration basins. EOR has a logger available for use of \$25 per month.  
12

13 The Board asked how much the infiltration trench in Basin 1 would cost. Ms. Bren stated that a detailed  
14 scope had not yet been developed, but thought that EOR could design the project in summer 2006 and  
15 construct it this coming winter. It would be approximately \$10-15,000 to design and construct. Ms. Bren  
16 requested that the Board authorize the development of a more detailed scope and engineers cost estimate to  
17 be billed under the general retainer for the design and estimated construction of one to two infiltration  
18 trenches.  
19

20 **President Leiser, seconded by Manager Johnson, authorized EOR to use the retainer to develop a**  
21 **scope for installing an infiltration trench in Basin 1 and include the cost for collecting soil borings**  
22 **from Basin 2 using a hand auger. Vote 5/0.**  
23

24 **Manager Vanzwol, seconded by Manager Johnson, authorized placing a level logger in Basin 1 of the**  
25 **THPP for the equipment cost of \$25 per month allocated out of the THPP Operations and**  
26 **Maintenance budget. Vote 5/0.**  
27

28  
29 **Manager Vanzwol, seconded by Manager Taillon, moved to move item 8 a) Old Business- Stillwater**  
30 **Stormwater Maintenance Agreement up on the agenda to accommodate Shawn Sanders, City of Stillwater.**  
31 **Vote 5/0.**  
32

33 **6. Old Business**

34 **a) Stillwater Stormwater Facility Maintenance Agreement -**  
35

36 Administrator Kill and Shawn Sander, City of Stillwater, gave a summary of the most recent staff  
37 meeting to discuss the maintenance agreement. It was proposed that the BCWD and Stillwater inspect  
38 Settler's Glen stormwater management facilities together according to the BCWD inspection and  
39 maintenance terms. This would serve as a means to share with the City the expected BCWD inspection  
40 protocol. The City will take the inspection and maintenance terms into great consideration when  
41 developing their MS4 permit and will have the BCWD involved in the review of both the MS4 permit  
42 and the local surface water management plan.  
43

44 Shawn Sanders stated that the City will still have some concern with the requirement in the current draft  
45 LOU of an exact deadline of 60 days or 30 days to maintain the facilities after the need is discovered. It  
46 was proposed by the BCWD that perhaps it could state that the City will complete the maintenance in the  
47 proposed 30 or 60 days or the City will notify the BCWD if it cannot meet the time deadline and then  
48 discuss the plan to maintain with the District if unable to complete within the stated timeline.  
49

50 Through discussion, both the City and the Board indicated that they are willing to cooperate on co-  
51 inspections and intend to work with each other. The Board did state that they do want one entity,  
52 preferably a governmental unit rather than a developer or homeowner's association, to be the ultimate

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1 responsible party. The Board felt that reporting of the inspection and maintenance is necessary. The  
2 Board is willing to assist the City in training City staff to inspect and maintain the facilities.  
3

4 The BCWD will revise the draft to better represent the Board's discussion for City review.  
5  
6

7 **7. Permit/Rules**

8 **a) Administrative Rules – Board Action**

9 Administrator Kill reviewed the proposed revisions to the Administrative rules.

10 The Board stated they would like to address the following items administratively:

- 11 ○ Language clarifications:
  - 12 ○ Rule 1.2: Update application address
  - 13 ○ Rule 1.10: Update regular meeting location
- 14 ○ Rule 1.3 Action by Managers - Consider making rule consistent with MN Statutes,  
15 which states that the District must approve or deny a permit within 60 days of receipt of  
16 a complete application.
- 17 ○ Rules 1.5 Notification Process and 1.9 Permit Renewals and Transfers
  - 18 ○ Include requirement for public notice for renewals and transfers
  - 19 ○ Create "Transfer of Permit form"
- 20 ○ Rule 1.9 Permit Renewals and Transfers - consider allowing permits to be valid for three years  
21 unless work is not initiated within one year or project is idle for one year.
- 22 ○ Rule 2.6 and Rule 4.0 – require preliminary plat of a subdivision as an additional required  
23 exhibit so that the legal description stated in the Declaration can be more effectively reviewed.  
24

25 *Recess 8:23-8:30 p.m.*  
26

27 **8. Project Review and Updates**

28 **a) Third Generation Management Plan**

29 Lisa Tilman, EOR, presented the five remaining draft issue sections to the Board: Erosion Control,  
30 Floodplain Management, Funding, Stormwater Management and Stream Management. Ms. Tilman  
31 distributed issue tables with sub-issues, policies, goals and implementation items. These tables will  
32 actually be incorporated into the final plan. The Board reviewed all of the presented information and  
33 prioritized all of the goals and implementation items for "high" priority goals. "High" priority  
34 ranking was given to those items that the Board felt should be completed within the first five years of  
35 the plan. "Medium" priority ranking was given to those items that the Board felt should be  
36 completed within the second five years of the plan. "Low" priority ranking was given to those items  
37 that the Board felt were still important to put in the plan, but would only be completed if time and  
38 funding allowed.  
39

40 See attached tables for the Board priority rankings given to the goals and implementation items of  
41 high priority goals.  
42

43 Other specific comments/recommendations for the issue sections:  
44

45 Floodplain Management—Change second goal to "Activities that lead to flooding of  
46 properties or exacerbate existing flooding problem shall be managed to prevent flooding."  
47

48 Stormwater Management—In the first goal of the St. Croix Basin Team, a 20% phosphorus  
49 reduction, clarify a reduction from what level. Move the goal of addressing the volume  
50 control standards into the implementation section and make "reduce volume related impacts  
51 to downstream water bodies" the goal of that section. Under the monitor any facilities  
52 constructed or installed by the BCWD..., add an implementation item to update the

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1 monitoring plan to continue monitoring based on results. In 1.3b-2 A, add “based on design  
2 specifications”. Replace “zoning” with “land use and development” in goal 1.3c-1D.  
3

4 Stream Management—Add implementation item of securing funding for development of a  
5 Brown’s Creek Corridor Plan.  
6

7 Although the Board of Managers feel that all the issues in the draft plan are important, each stated  
8 which issues they would give highest priority in the plan:

9 Manager Pundsack—Stormwater Management

10 Manager Taillon—Land Conservation

11 Manager Vanzwol—Rules for flood protection and land-locked basins. Long-term  
12 improvement of water quality.

13 Manager Johnson—Stream Management—preserve and improve Brown’s Creek.

14 Manager Leiser—Education  
15

16 **9. New Business**

17 a) Reminder: Special Meeting – Wednesday, April 26, 2006 at 6:30 pm at the WCD offices for following  
18 items:

19 ○ BCWD Permit #06-01 Liberty West Subdivision

20 ○ BMP Cost-share Agreement

21 ○ Third Generation Management Plan: Review Final Internal Draft

22 ○ Land Conservation Program – Presentation by Michael Pressman, Minnehaha Creek Watershed  
23 District  
24

25 Manager Vanzwol requested that a discussion regarding audio recording public hearings also be added to the  
26 April 26, 2006 special meeting.  
27

28 b) May 2006 BCWD Board Agenda

29 Pat Conrad, EOR, requested that Emmons and Olivier Resources, Inc. proposed rate changes for 2006 be  
30 added to an upcoming meeting agenda. The Board stated that it would be best to have a discussion regarding  
31 engineering rate changes at a regularly scheduled Board meeting.  
32

33 Manager Leiser stated that he would like the Board to consider Lee Miller for a citizen/community  
34 recognition award for environmental efforts. He would like to discuss this further at the regular May 8, 2006  
35 Board meeting.  
36

37 **10. Discussion Agenda-No Action Required**

38 a) Permit Review

39 • BCWD Permit #05-18 Chase Property – Erosion Control Only Permit Granted

40 • Current Inspection Update

41 b) Project Review and Updates

42 1) Shared Stormwater Educator Position

43 2) County Road 15 Drainage Issues

44 c) Subcommittee updates

45 ○ Technical Advisory Committee

46 ○ Citizen Advisory Committee

47 d) Communications & Reports

48 ○ BWSR – Notice of Intent to Adopt Rules without Public Hearing MN Rules Chapter 8415  
49

50 Manager Vanzwol gave an update on the Washington County Land Conservation language for the  
51 referendum in November 2006.  
52

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1 **11. Adjournment**

2 Manager Johnson, seconded by Manager Vanzwol, moved to adjourn at 10:17 p.m. Vote 5/0.

3  
4 Respectfully submitted by  
5 Karen Kill,  
6 BCWD Administrator

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## Erosion Prevention and Sediment Control DRAFT 3-31-06

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item
Existing Erosion Problems	2.3.a - 1	Protect the District's water bodies from the impacts of excessive streambank and shoreline erosion as well as adjacent upland erosion and sedimentation.	H M L	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 to control erosion.	H M L H M L H M L H M L	1 Conduct an inventory of existing erosion problems. 2 Prioritize potential projects based on cost-benefit analysis of the cost to complete the project and the potential long-term reduction in erosion. 3 Complete priority stabilization projects in cooperation with municipalities and other agencies. 4 Utilize the District's cost-share program to assist in the installation of erosion and sedimentation control by citizens of the District.
Development Related Land Disturbance	2.3.b - 1	The BCWD requires erosion and sediment controls in areas disturbed by development and construction related activities.	H M L	A Address erosion and sediment control for new development and redevelopment through the District's Rules.	H M L H M L	1 Implement erosion and sediment control through the District's Rules. 2 Continually track recommendations for improved usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
Agricultural Practices	2.3.c - 1	The BCWD encourages the use of stormwater runoff and erosion control best management practices on agricultural lands.	H M L	A Identify areas where increased use of erosion control and stormwater runoff best management practices on agricultural lands could improve adjacent to BCWD water bodies.	H M L H M L	1 Collaborate with the Washington Conservation District in an inventory of the use of erosion control and stormwater runoff management best management practices on agricultural lands adjacent to District water bodies. 2 Collaborate with the Washington Conservation District, University of Minnesota Extension Service, Natural Resources Conservation Service, and the Farm Bureau to implement solutions to identified problems.
			H M L	B Use BCWD programs to implement solutions to identified problems that cannot be addressed by existing agricultural programs of other organizations.	H M L	1 Develop an incentive program to assist agricultural landowners with the implementation of best management practices on sites that cannot be addressed by existing agricultural programs of other organizations.

## Floodplain Management DRAFT 3-31-06

Issue	Section – Policy #	Policy	PRIORITY	Goal	PRIORITY	Implementation Item	
Protection of Flood Storage Areas	6.3.a - 1	The BCWD is committed to the protection of natural flood storage areas in order to reduce the impacts of flooding.	H	A	H M L	1 Require no net loss of flood storage through the BCWD Rules.	
			M		H M L		2 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
Management of Flood Prone Areas	6.3.b - 1	The BCWD aims to protect structures and natural communities from flooding exceeding natural water level fluctuations.	H	A	H M L	1 Implement rate control and volume control standards through the District's Rules to minimize the impact of development	
			M		H M L		2 Implement low floor elevation standards for new developments through the District's Rules.
			L		H M L		3 Continually evaluate the usability, efficacy, and application of the BCWD flood protection Rules and evaluate the need to revise the Rules in 2012 and 2016.
			L		H M L		4 Monitor lake levels and groundwater levels to evaluate conditions that may cause impact to existing structures.
Management of Flood Prone Areas	6.3.b - 2	The BCWD desires to minimize the risks of flooding associated with development adjacent to landlocked basins.	H	A	H M L	1 Implement landlocked basin standards through the District's Rules.	
			M		H M L		2 Implement rate control and volume control standards through the District's Rules to minimize the impact of surrounding development on landlocked basins.
			L		H M L		3 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
			L		H M L		1 Implement landlocked basin outlet standards through the District's Rules.
Management of Flood Prone Areas	6.3.b - 2	The BCWD desires to minimize the risks of flooding associated with development adjacent to landlocked basins.	H	B	H M L	2 Continually evaluate the usability, efficacy, and application of the BCWD landlocked basin Rules and Evaluate the need to revise the Rules in 2011 and 2016.	
			M		H M L		
Management of Flood Prone Areas	6.3.b - 2	The BCWD desires to minimize the risks of flooding associated with development adjacent to landlocked basins.	L	B	H M L	2 Continually evaluate the usability, efficacy, and application of the BCWD landlocked basin Rules and Evaluate the need to revise the Rules in 2011 and 2016.	
			L		H M L		

## Funding DRAFT 3-31-06

Issue	Section - Policy #	Policy	Priority	Goal	Priority	Implementation Item
Funding	10.3.a - 1	The BCWD strives to maintain reasonable a tax levy adequate to conduct the activities of the District to protect and improve resources by supplementing the levy through other funding sources.	H M L	A Identify and acquire alternate sources of funding as possible for BCWD studies, projects, and capital improvements.	H M L  H M L	1 Identify and acquire, as possible, potential alternate funding sources for District studies, projects, and capital improvements.  2 Cost-share with municipalities and other agencies as applicable to certain studies, projects, and capital improvements.

**Stormwater Runoff Management  
DRAFT 3-31-06**

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item
Quality, Quantity, and Rate of Stormwater Runoff	1.3.a - 1	The BCWD is committed to improving the quality of stormwater runoff in order to reduce nutrient and sediment loadings to downstream water bodies.	H M L	A Achieve the goal set by the St. Croix Basin Planning Committee of a 20% reduction in total phosphorus loading to the St. Croix River.	H M L	1 Implement water quality control standards through the District's Rules.
					H M L	2 Continually track recommendations for improved usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
					H M L	3 Conduct continuous monitoring of TSS and TP in Brown's Creek at key points along the creek including at the downstream end of the District.
					H M L	4 Annually analyze progress toward the goal of 20% reduction in phosphorus loading based on evaluation of the collected monitoring data.
					H M L	5 Identify potential nutrient loading reduction regulatory or management actions or capital projects to provide phosphorus loading reductions in subwatersheds with elevated loading to Brown's Creek.
					H M L	6 Implement priority nutrient loading reduction actions or projects.
					H M L	7 Prioritize potential nutrient reduction projects and actions based on cost-benefit analysis of the cost to complete the project and the potential reduction in water quality impact.
					H M L	8 Implement the recommended retrofit, nutrient reduction, and volume reduction projects in order of priority.
					H M L	9 Implement retrofit projects to provide a reduction in phosphorus loading from the Long Lake subwatershed as outlined in the Long Lake Management Plan.
					H M L	10 Utilize the District's cost-share program to assist in citizen installation of nutrient control best management practices.
			H M L	B Use the findings of Total Maximum Daily Load (TMDL) and Lake Management studies to guide development and land conservation decisions.	H M L	1 Amend Rules and policies to set localized stormwater management requirements based on the results of Total Maximum Daily Load (TMDL) and Lake, Stream, and Groundwater Management studies.
1.3.a - 2	The BCWD is committed to ensuring that activities within the District provide for groundwater recharge, provide thermal protection to Brown's Creek, and reduce volume related impacts to downstream water bodies.	H M L	A Address volume control standards for new development and redevelopment through the District's Rules.	H M L	1 Implement volume control standards through the District's Rules.	
			H M L	2 Continually track recommendations for improved usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.		
			B Identify and implement projects to provide thermal protection to Brown's Creek and reduce volume related impacts to downstream water bodies.	H M L	1 Identify regulatory or management actions or capital projects to provide thermal protection to Brown's Creek.	
				H M L	2 Prioritize potential projects or management actions based on cost-benefit analysis of the cost to complete the project and the potential reduction in impact.	
				H M L	3 Implement the recommended projects in order of priority.	
				H M L	4 Utilize the District's cost-share program to assist in citizen installation of thermal protection best management practices.	
1.3.a - 3	The BCWD is committed to ensuring that the rate of stormwater runoff is controlled in order to reduce impacts to downstream water bodies.	H M L	A Address rate control standards for new development and redevelopment through the District's Rules.	H M L	1 Implement rate control standards through the District's Rules.	
			H M L	2 Continually track recommendations for improved usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.		
			B Identify and implement rate control projects to reduce rate-related impacts to downstream water bodies.	H M L	1 Identify regulatory or management actions or capital projects to provide rate control protection for impacted water bodies.	
				H M L	2 Prioritize potential projects or management actions based on cost-benefit analysis of the cost to complete the project and the potential reduction in impact.	
				H M L	3 Implement the recommended projects in order of priority.	
				H M L	4 Utilize the District's cost-share program to assist in citizen installation of rate control best management practices.	

**Stormwater Runoff Management  
DRAFT 3-31-06**

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item		
Monitoring and Maintenance of Stormwater Management Facilities	1.3.b - 1	The BCWD encourages monitoring of stormwater management facilities.	H M L	A Monitor at least two stormwater additional management facilities per year to evaluate long-term performance and provide design information on infiltration rates, suspended solids removal rates and phosphorus removal rates as appropriate to the facility.	H M L H M L H M L H M L	1 Conduct monitoring of TSS, TP, water level and flow as appropriate to evaluate nutrient and sediment removal and/or infiltration in the selected facilities. 2 Monitor the THPP, Kern Center Pond, and Bradshaw Pond as outlined in maintenance plans and agreements. 3 Observe facilities chosen for monitoring during construction to evaluate any conditions that would affect infiltration or removal rates. 4 Partner with municipalities in the development and implementation of monitoring programs for stormwater management facilities.		
			H M L		B Monitor any facilities constructed or installed by the BCWD for at least five years following installation of the facility.	H M L	1 Complete a five-year monitoring period for newly installed stormwater management facilities constructed or installed by the BCWD.	
	1.3.b - 2	The BCWD is committed to ensuring the long-term maintenance of stormwater management facilities in order to improve the water resources of the District through the continued achievement of the expected rate control, water quality treatment and infiltration goals of a facility.	H M L	A Each stormwater management facility in the District will be regularly inspected and maintained.	H M L H M L H M L H M L H M L H M L H M L H M L	1 Catalog the location and type of stormwater management facilities within the District. Continually update the database as new facilities are constructed. 2 Require long-term maintenance agreements on stormwater management facilities constructed under the District's Rules. 3 Revise maintenance agreement to require annual reporting of maintenance and inspection activities by the party responsible for maintenance of the facility. 4 Develop and follow an operations and maintenance plan for the stormwater management facilities operated by the BCWD. 5 Amend Rules as necessary to implement maintenance standards. 6 Continually track recommendations for improved usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016. 7 Work with municipalities within the District to identify issues and areas for collaboration with the maintenance of stormwater management facilities and to define criteria triggering the need for maintenance on installed stormwater management practices. 8 Review monitoring and maintenance reports prepared by MS4s through the defined review process. 9 Assist municipalities in developing operation and maintenance programs for municipal stormwater management facilities.		
			H M L		B Each municipality within the District will establish and follow an operation and maintenance program for municipal stormwater management facilities.	H M L H M L H M L H M L	1 Define criteria triggering the need for maintenance on installed stormwater management practices. 2 Work with municipalities within the District to identify issues and areas for collaboration with the maintenance of stormwater management facilities. 3 Review monitoring and maintenance reports prepared by MS4s through the defined review process. 4 Assist municipalities in developing operation and maintenance programs for municipal stormwater management facilities.	
Coordination with other Government Agencies	1.3.c - 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.	H M L	A Establish a process for BCWD involvement in each municipality's development review process starting with the concept phase.	H M L	1 Work with individual municipalities to establish a process for concept phase involvement in development review. The municipal partnership 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.		
			H M L		B BCWD reviews of municipal comprehensive plans and water resource management plans will specifically address the connection between the designated land uses and the goals and policies of the BCWD.	H M L	1 Specifically address the connection between the designated land uses and the goals and policies of the BCWD in each review of municipal comprehensive plans and water resource management plans.	
			H M L			C Increase consistency between BCWD and municipal standards for review of stormwater management practices.	H M L H M L	1 Conduct monitoring of local infiltration practices to develop recommended design infiltration rates as a tool for BCWD and Municipal permit review. 2 Develop a list of published and industry accepted total phosphorus and total suspended solids removal rates from innovative and standard stormwater management practices as a tool for BCWD and Municipal permit review.
			H M L				D Work with each municipality through the comprehensive plan and water resource management plan review process to develop and implement zoning policies that focus on preservation and protection of water and natural resources through the use of low impact development and land conservation techniques.	H M L

**Stream Management  
DRAFT 3-31-06**

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item
Water Quality, Aquatic Habitat, and Fisheries Protection	5.3.a - 1	The BCWD is committed to improvement of the water quality and ecological integrity of Brown's Creek and its tributaries.	H M L  A	Actively participate in the establishment of Total Maximum Daily Load standards for impaired waters within the District.	H M L	1 Increase monitoring efforts on stream reaches listed as impaired in coordination with municipalities, Washington County, and state agencies as appropriate to fully evaluate the condition of the reach.
					H M L	2 Support volunteer stream monitoring efforts.
					H M L	3 Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results.
	H M L	4 Develop GIS database of relevant current and historical monitoring data and provide the database to the public via the District website.				
	H M L	5 In coordination with the Northern Washington County TMDL and the MPCA, Washington County, the St. Croix Basin Team and other relevant agencies establish TMDL standards for each of the impaired waters of the BCWD.				
	H M L	6 Prioritize stream restoration projects/methods based on the magnitude of the issue, the cost of restoration projects/methods, and the magnitude of the potential benefit.				
	H M L	7 Implement priority capital improvements and management actions necessary to provide cost effective restoration of stream quality.				
	H M L	8 Amend District Rules as necessary to implement the recommendations of impaired stream analyses.				
	H M L	9 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.				
	H M L	B	Use the findings of Total Maximum Daily Load (TMDL) and Lake Management studies to guide development and land conservation decisions.	H M L	1 Amend Rules and policies to set localized stormwater management requirements based on the results of Total Maximum Daily Load (TMDL) and Stream studies.	
H M L	C	Support activities that, as appropriate, reduce the abundance and spread of invasive species in and along Brown's Creek and its tributaries.	H M L	1 Identify priority areas for implementation of invasive species control programs based on the local abundance of invasive species.		
H M L	2 Work with municipalities, Department of Natural Resources, Washington Conservation District, Natural Resources Conservation Service, and other agencies to implement invasive species control and native vegetation restoration projects.					
5.3.a - 2	H M L  A	The BCWD is committed to sustaining a viable cold-water fishery in Brown's Creek.	Maintain a Macroinvertebrate Index of Biological Integrity of 80 or higher, a Hilsenhoff Biotic Index of 4.5 or lower (good quality) and a Dominant Family Percentage of 50% or lower in the trout stream reach of Brown's Creek.	H M L	1 Continue to monitor macroinvertebrates within Brown's Creek.	
				H M L	2 Monitor fisheries at least every other year to evaluate trends and observe progress toward maintaining a viable fishery. Coordinate fisheries monitoring with the DNR.	
				H M L	3 Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results.	
				H M L	4 Develop GIS database of relevant current and historical monitoring data and provide the database to the public via the District website.	
				H M L	5 Establish a corridor plan to address the protection of fisheries and aquatic habitat.	
				H M L	6 Prioritize fisheries and aquatic habitat protection projects/methods based on the magnitude of the issue, the cost of protection, and the magnitude of the potential benefit.	
	H M L	7 Conduct priority protection projects based on the corridor plan.				
	H M L	8 Amend District Rules as necessary to implement temperature protections for Brown's Creek.				
	H M L	9 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.				
	H M L  B	Maintain a minimum daily Dissolved Oxygen concentration of 7 mg/L in the trout stream portion of Brown's Creek.	H M L	1 Monitor Dissolved Oxygen in Brown's Creek in coordination with municipalities, Washington County, and state agencies as appropriate.		
			H M L	2 Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results.		
			H M L	3 Develop GIS database of relevant current and historical monitoring data and provide the database to the public via the District website.		
H M L			4 Implement solutions to increase DO in reaches where DO is lower than the standard.			
H M L			5 Monitor fisheries at least every other year to evaluate trends and observe progress toward maintaining a viable fishery. Coordinate fisheries monitoring with the DNR.			
H M L			6 Amend District Rules as necessary to implement temperature protections for Brown's Creek.			
H M L			7 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.			
H M L  C	Maintain an instantaneous Total Suspended Solids concentration of 25 mg/L or lower in the trout stream portion of Brown's Creek.	H M L	1 Require erosion and sediment control through the District's Rules.			
		H M L	2 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.			
		H M L	3 Monitor fisheries at least every other year to evaluate trends and observe progress toward maintaining a viable fishery. Coordinate fisheries monitoring with the DNR.			
		H M L	4 Complete annual report on stream flow, water quality, and fisheries and aquatic habitat trends based on monitoring results.			
		H M L	5 Develop GIS database of relevant current and historical monitoring data and provide the database to the public via the District website.			
		H M L	6 Identify areas of excessive erosion along the stream channel and nearby ravines.			
		H M L	7 Conduct priority restoration projects as necessary to maintain a naturally stable stream channel.			
		H M L	8 Identify locations of high sediment input and implement priority regulatory and management actions or capital improvements as necessary to achieve the established TSS goal.			
		H M L	9 Amend District Rules as necessary to implement temperature protections for Brown's Creek.			
		H M L	10 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.			

**Stream Management  
DRAFT 3-31-06**

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item
			H M L	D Maintain in-stream water temperatures of 20°C (68°F) or lower in the trout stream reach of Brown's Creek. Temperatures should not be at or above the 20°C (68°F) limit for more than 12 hours in any 24-hour time period.	H M L H M L H M L H M L H M L H M L H M L H M L H M L	1 Monitor the temperature of Brown's Creek in coordination with municipalities, Washington County, and state agencies as appropriate. 2 Implement volume control standards through the District's Rules in order to maintain groundwater flow to Brown's Creek and to cool waters discharging to the creek. 3 Evaluate the effectiveness of the volume control standards as a tool to provide protection to Brown's Creek. 4 Conduct an inventory of areas with likely thermal impacts such as impervious surfaces in close connection to Brown's Creek or stream reaches with limited shade cover. 5 Identify retrofit projects to reduce thermal impacts from problem areas. 6 Prioritize thermal protection projects/methods based on the magnitude of the issue, the cost of the thermal protection project/method, and the magnitude of the potential benefit. 7 Implement priority capital improvements and management actions necessary to provide cost effective thermal protection. 8 Amend District Rules as necessary to implement temperature protections for Brown's Creek. 9 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
			H M L	E Expand the length of the trout stream portion of Brown's Creek to extend to Highway 96.	H M L H M L H M L	1 Evaluate methods to expand the length of viable trout habitat in Brown's Creek. 2 Prioritize projects/methods based on the cost of the project/method and the magnitude of the potential benefit. 3 Implement priority projects and methods to expand the trout habitat in Brown's Creek.

Issue	Section	Policy	PRIORITY	Goal	PRIORITY	Implementation Item
Maintenance of Flow and Geomorphology	5.3.b - 1	The BCWD strives to maintain natural flow and geomorphology of Brown's Creek and its tributaries.	H M L	A Maintain the range of flow conditions in Brown's Creek necessary to sustain the fisheries, aquatic habitat, and geomorphology of Brown's Creek.	H M L H M L H M L H M L H M L H M L H M L	1 Implement rate control and volume control through the District's Rules. 2 Continue to monitor flow in Brown's Creek to evaluate whether rate control and volume control standards are providing adequate controls to maintain natural flow conditions. 3 Annually evaluate the need for additional controls based on an analysis of the collected monitoring data. 4 Identify the need for capital improvement, management, or regulatory projects to maintain flow and geomorphology of Brown's Creek. 5 Prioritize potential projects based on the magnitude of the issue, the cost of the project, and the magnitude of the potential benefit. 6 Implement priority capital improvements and management actions necessary to provide cost effective protection/restoration. 7 Amend the District's Rules as necessary to implement regulatory solutions. 8 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.
			H M L	B Maintain the natural geomorphology of Brown's Creek and its tributaries.	H M L H M L H M L H M L H M L	1 Monitor sediment load in Brown's Creek in coordination with municipalities, Washington County, and state agencies as appropriate. 2 Identify the need for capital improvement, management, or regulatory projects to maintain the geomorphology of Brown's Creek. 3 Prioritize projects based on the magnitude of the issue, the cost of the project, and the magnitude of the potential benefit. 4 Implement priority capital improvements and management actions necessary to provide cost effective protection/restoration. 5 Amend the District's Rules as necessary to implement regulatory solutions. 6 Continually evaluate the usability, efficacy, and application of the BCWD Rules and evaluate the need to revise the Rules in 2011 and 2016.