

# **BROWN'S CREEK WATERSHED DISTRICT**

## **2005 ANNUAL REPORT**



Prepared by:

Brown's Creek Watershed District Board of Managers

Craig Leiser, President

Gail Pundsack, Vice-President

Connie Taillon, Treasurer

Gerald Johnson, Secretary

Rick Vanzwol

June 2006

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# 1. Introduction

The Brown's Creek Watershed District was established by order of the Board of Water and Soil Resources (BWSR) of the State of Minnesota under statutory authority in October of 1997. The Watershed District was formed following the dissolution of the Brown's Creek Watershed Management Organization (BCWMO), a joint powers agency. A board of five managers was initially appointed by the BWSR and subsequently re-appointed by the Washington County commissioners. From the appointed board of managers the positions of President, Vice-President, Treasurer, and Secretary was elected. In one of its first actions, the newly selected board adopted the Watershed Management Plan that had been developed by its predecessor: the BCWMO. This action included two flood relief capital improvement amendments.

Since its inception, the Brown's Creek Watershed District Board has been committed to the two primary objectives of any watershed: preservation of water quality, and, reduction of risk to property owners due to flooding. The initial challenge was directed solely at surface water, but later events have focused increasing attention on the groundwater resources of the Watershed District as well. The Watershed board has also been active in attempting to integrate its plans and actions with various interests in land use and development of the governmental units within the boundaries of the Watershed.

## 2. Organization and Budget

### a. Brown's Creek Watershed District – Board of Managers & Staff

#### BROWN'S CREEK WATERSHED DISTRICT - 2004 BOARD OF MANAGERS

<b>Manager/ Address</b>	<b>Position</b>	<b>Term Expires</b>	<b>Community Liaison</b>
<b>Craig Leiser</b> 10300 Kismet Lane Stillwater, MN 55082	President	10/22/07	Grant
<b>Gail Pundsack</b> 140 Northland Avenue Stillwater, MN 55082	Vice- President	10/22/07	Hugo May Township
<b>Connie Taillon</b> 3374 Staples Pl Stillwater, MN 55082	Treasurer	10/22/08	Oak Park Heights Lake Elmo
<b>Gerald Johnson</b> 302 Edgewood Avenue Stillwater, MN 55082	Secretary	10/22/06	City of Stillwater
<b>Rick Vanzwol</b> 9750 Jamaca Avenue North Grant, MN 55115	CAC Liaison	10/22/06	Stillwater Township

The BCWD does not have any employees. The BCWD does contract with several organizations for professional services. In December 2004, the BCWD solicited proposals for engineering and legal services. At that time the firms of Emmons Olivier Resources, Inc. and Smith Partners P.L.L.P. were retained for engineering and legal services respectively. The following is a list of all contract support staff utilized by the BCWD in 2005.

**BROWN’S CREEK WATERSHED DISTRICT CONTRACT SUPPORT STAFF**

<u><b>Administrator</b></u>	<u><b>Attorney</b></u>	<u><b>Engineer</b></u>	<u><b>Recording Secretary</b></u>
Karen Kill Washington Conservation District 1380 West Frontage Rd, Hwy 36 Stillwater, MN 55082 651.275.1136 x26 <a href="mailto:karen.kill@mnwcd.org">karen.kill@mnwcd.org</a>	Chuck Holtman/Louis Smith Smith Partners, P.L.L.P. 808 Colwell Building 123 North Third Street Minneapolis, MN 55401 612.344.1400 <a href="mailto:smith@smithparker.com">smith@smithparker.com</a> <a href="mailto:holtman@smithparker.com">holtman@smithparker.com</a>	Cecilio Olivier, P.E. Emmons Olivier Resources, Inc. 651 Hale Avenue Oakdale, MN 55128 651.770.8448 <a href="mailto:colivier@eorinc.com">colivier@eorinc.com</a>	Kim Grosenheider 612.625.7050

**b. District Information**

The Brown’s Creek Watershed District (BCWD) is the governmental unit with primary responsibility for protecting the water resources of the Brown’s Creek Watershed. The District was established in 1997 under the Minnesota Watershed District Act.

The District covers approximately 18,000 acres that drain into Brown’s Creek, which then enters the St. Croix River. The watershed includes Brown’s Creek—a DNR designated trout stream, and several small tributaries. The watershed includes twelve major lakes and numerous wetlands. The District includes portions of the Cities of Oak Park Heights, Grant, Hugo, Lake Elmo, and Stillwater along with portions of May and Stillwater Townships. The upper portion of the District is largely rural with farms, large-lot development and undeveloped grassland, cropland and forestland dominant. The lower portion of the District includes rapidly developing urban areas within the Cities of Stillwater and Oak Park Heights.

The goal of the BCWD is to protect the valuable natural resources of the watershed while protecting public and private property and infrastructure from the impacts of flooding. The BCWD seeks to achieve this goal through an increased understanding of water quality and quantity impacts on natural resources, public information and education, regulation of land use and capital improvement projects.

**c. 2005 BCWD Budget**

ACCT. #	FUND NAME	2005		
		GEN FUND (103D.905,3)	MNGMT PLAN (103B.241)	TOTAL
200-4000	Manager Per Diem and Expense	5,500.00		5,500.00
200-4220	Secretarial Services	1,500.00		1,500.00
200-4250	Dues & Subscriptions	3,200.00		3,200.00
200-4270	Bonding & Insurance	4,000.00		4,000.00
200-4280	Postage & Delivery	2,000.00		2,000.00
200-4290	Printing & Notices	750.00		750.00
200-4330	Accounting	5,500.00		5,500.00
200-4949	Misc., Other Expense	500.00		500.00
200-4320	Wash. Conservation District--Admin	30,600.00		30,600.00
200-4410	Legal Fees - General	13,000.00		13,000.00
300-4320	Wash. Conservation District--Project Admin		29,400.00	29,400.00
300-4410	Legal Fees - Mgmt Plan		30,000.00	30,000.00
300-4500	Staff Engineer		69,600.00	69,600.00
300-4701	Permit Processing & Inspection		8,300.00	8,300.00
300-4702	Permitting, Legal Review		5,700.00	5,700.00
300-4703	Permitting, Engineering Review		66,000.00	66,000.00
300-4710	Baseline Monitoring		44,600.00	44,600.00
300-4640	Equip. Maint. and Upgrades		2,000.00	2,000.00
300-4810	Community Relations/Education		3,000.00	3,000.00
300-4950	Misc., Other Expense		2,000.00	2,000.00
<b>SUBTOTAL, GENERAL &amp; MGMT PLAN EXP.:</b>		<b>\$66,550</b>	<b>\$260,600</b>	<b>\$327,150</b>

ACCT. #	FUND NAME	2005		
		GEN FUND (103D.905,3)	MNGMT PLAN (103B.241)	TOTAL
902-000	Second Generation Plan Projects Implementation			
	Education & Outreach		10,000.00	
	Volunteer Stream Monitoring		4,500.00	
	Capital Improv Project Feasibility Analysis			
	Benz Lake Flood Management Project			
	Long Lake Outlet Control			
	Lower Gorge Erosion Control			
	Long Lake Inflow/Hwy 36 Culvert			
	Hwy 36 Feasibility Study		28,000.00	
	Benz Lake Flooding Management		20,000.00	
	Groundwater Program		20,000.00	
	Demonstration Project		-	
	BMP Monitoring Program-Bradshaw		13,000.00	
	Invasive Species Control Program		18,000.00	113,500.00
903-000	Trout Habitat Preservation Project:			

	Contingency Reserve		-	
	Monitoring, O & M		8,000.00	8,000.00
904-000	Kismet Lake Stabil (Flood Damage Rlf)			
	Contingency Reserve		-	
	Monitoring, O & M		10,000.00	10,000.00
907-000	Long Lake Strategic Management Plan			
	Data Gathering--2 inlets sites		19,100.00	
	Data Gathering--Ponds, etc.		12,500.00	
	Watershed & Lake Modeling		15,000.00	
	Strategic Management Plan		7,500.00	
	Watershed Loading Plan		10,000.00	64,100.00
	TMDL		-	
908-000	Kern Center			
	Construction Observation & Follow up		3,500.00	
	Monitoring, O & M		7,500.00	11,000.00
300-2960	Permit Escrows		26,220.00	26,220.00
999-000	Miscellaneous Projects & Grant Preparation			
	(909) Rules Review/Evaluation		10,000.00	
	Lake Management Plans/ Water Quality Stand		-	
	Kern Center		-	
	H & H II-Phase III to EOR		10,716.75	
	H & H Model Upgrade		5,000.00	
	Market Place		-	
	Sunnybrook Lake Review		-	
	Grant Preparation, Acquisition		-	
	GIS Management Tool		5,000.00	30,716.75
	Rice Property Acquisition		-	
	Contingency Reserve		27,500.00	27,500.00
	Cash Flow Levy		-	-
<b>TOTAL MANAGEMENT PLAN PROJECT EXPENSES:</b>				<b>\$291,036.75</b>
<b>TOTAL, OPERATING EXP. &amp; MGMT. PLAN PROJECTS:</b>				<b>\$618,186.75</b>

<b>ESTIMATED REVENUES:</b>		<b>2005</b>
100-2910	Fund Balance - Designated Cash Flow	50,000.00
100-2900	Undesignated Funds Balance	70,000.00
100-2960	Reserved Fund Balance - Permit Escrow	26,220.00
100-3700	Interest Income	1,000.00
100-3600	Metropolitan Council Outlet Monitoring Grant	4,000.00
100-3400	Permits	68,000.00
100-3100	Tax Levy	\$398,966.75
<b>TOTAL, ESTIMATED REVENUES:</b>		<b>618,186.75</b>

**d. Audit Report**

The audit of financial management of the District for January 1-December 31, 2005 was performed by the firm of HLB Tautges Redpath, Ltd. This audit revealed that in all material respects, the respective financial position of the governmental activities, each major fund and the aggregate remaining fund information of the Brown’s Creek Watershed District, as of December 31, 2005, and the respective changes in financial position for the year ended in conformity with accounting principals generally accepted in the United States of America.” A full copy of the 2005 audit is enclosed in Appendix A.

**e. Citizens Advisory Committee**

Continued attempts to reactivate the Citizen’s Advisory Committee were successful in 2005. A list of CAC members follows.

<b>First Name</b>	<b>Last Name</b>	<b>Address</b>	<b>City/State/Zip</b>	<b>Community</b>
Jim	Bradshaw	1310 Hillcrest Drive	Stillwater, MN 55082	Stillwater
Norman Lee	Busse	12320 Dellwood Road	Stillwater, MN 55082	Stillwater Township
Gary	Faust	639 Hillside Lane	Stillwater, MN 55082	Stillwater
Brett	Frey	10083 Kerry Court	Hugo, MN 5038	Hugo
Tom	Henderson	1206 Eagle Ridge Trail	Stillwater, MN 55082	Stillwater
Iona	Holsten	10431 Lansing Avenue North	Stillwater, MN 55082	Grant
Richard	Huelsmann	12610 62nd Street North	Stillwater, MN 55082	Stillwater
Marvin & Paulette	Jones	11730 Dellwood road	Stillwater, MN 55082	Grant
Don	McKenzie	12620 72nd Street North	Stillwater, MN 55082	Stillwater
Lee	Miller	2962 Marine Circle	Stillwater, MN 55082	Stillwater
Renaë	Oswald Anderson	7789 Manning Avenue North	Stillwater, MN 55082	Stillwater Township
Carol & Perry	Parendo	2938 Marine Circle	Stillwater, MN 55082	Stillwater
Bill	Pelfrey	10503 North 117 <sup>th</sup> Street	Stillwater, MN 55082	Grant
Oliver	Reimer	14125 Irish Avenue North	Hugo, MN 5038	Hugo
Paul	Richtman	2854 Nightengale Court	Stillwater, MN 55082	Stillwater
Karen	Richtman	2854 Nightengale Court	Stillwater, MN 55082	Stillwater
Dan	Kalmon	309 East Willow St	Stillwater, MN 55082	Stillwater

### 3. Projects and Programs

a. **Capital Improvement Projects:** Two capital improvement projects were incorporated into the BCWMO management plan adopted by the BCWD in 1997. These were the mitigation of periodic flooding in the School Section/Goggins/Plaisted Lake basin, and, a similar though smaller project in the Kismet basin. A third capital improvement project was added in 2005; this was the design and financial assistance towards the construction of the Kern Center Pond expansion in Oak Park Heights.

#### 1) Trout Habitat Preservation Project

Design and construction of the Goggins/School Section/Plaisted Lake project was initiated in 1999 and completed in 2001. This project was not merely a “drainage” project. Rather, it became known as the Trout Habitat Preservation Project (THPP) owing to the fact that it focused on protection and enhancements of the sensitive spring-fed headwaters of Brown’s Creek, as well as stabilization of water levels in the landlocked basin of the lakes. In operation, overflow from the lakes flows through a system of wetlands and into an infiltration basin that provides significant groundwater recharge into the headwater springs from which Brown’s Creek rises. This project was continued to be monitored in accordance with the Operation & Maintenance Plan.

In 2004, the District resolved a flowage easement issue with a downstream landowner by purchasing flowage rights across the property through a flowage agreement recorded with the Washington County Records Office. After continued project monitoring, the District felt as though the project has proven effective. The District applied for and won the Minnesota Association of Watershed District’s 2004 project of the year award for the Trout Habitat Preservation Project.

In 2005, the BCWD Board authorized analysis to determine how to recover infiltration rates in one of the basins that was showing signs of some reduction as a part of the on-going maintenance of the project.

#### 2) Kismet Basin

The second project was the Kismet Basin project. After extensive negotiation with affected landowners, consideration of several alternate designs, each with varying degrees of drainage and infiltration, a final design was selected and the project ordered in 2001. The project called for selection of a contractor and completion of most of the earth moving and heavy equipment phase in late 2001. Planting and landscape alterations took place in early 2002. This project also has residual monitoring and review by the BCWD into the future.

#### 3) Kern Center Pond Expansion

In 2001, the BCWD was awarded \$25,000 from the Minnesota Board of Water and Soil Resources’ (BWSR) Local Water Planning Challenge Grant Program. The objective of the project *BCWD Rules Implementation — Demonstration Site*



*Plan* was to develop a demonstration site for the education of member communities, developers and citizens regarding the environmental controls and stormwater management standards required by the District's rules.

By 2002, the BCWD had identified the Kern Center Pond as a potential demonstration site for the District's rules. In order to ensure that future development within the Kern Center Commercial Area would meet the District's standards, and that peak flow rates and volumes under Hwy 36 were reduced, the BCWD offered to design the modifications that would achieve these goals. Since that decision was made, the BCWD and the City of Oak Park Heights have collaborated on the following: development of a Cooperative Agreement; design of the pond modifications; development of an Operation and Maintenance Plan; development of a Monitoring Plan; the construction process.

The construction of the Kern Center Pond modifications began in December of 2004. Final excavation and restoration of the site was completed in the spring of 2005. Modifications to the Kern Center Pond resulted in the following improvements: increased storage capacity; pretreatment of stormwater runoff; increased infiltration; and improved wildlife habitat.

**b. Rules and Permits:** In accordance with statutory authority, the BCWD has developed "Rules" which derive from the management plan and are directed at providing consistent evaluation and approval for development of land, modifications in land usage, and preservation of natural resources as they relate to water management. These rules apply to volume and rate of water movement, buffers adjacent to water resources, shoreline/streambank modifications, stream and lake crossings, floodplain delineation and erosion control in instances of significant surface construction. Private parties, developers, and governmental agencies are required to submit plans and calculations to show how the proposed activity will be managed to comply with the rules. The process results in the issuance of a permit, which also directs certain measurement and enforcement activities to insure compliance. BCWD processed seventeen (17) permits for construction and renovation projects in 2005.

BCWD began a review and update of rules to clarify and or incorporate new technology, as well as to make the rules more consistent with other Washington County watershed districts when possible and to incorporate groundwater issues. BCWD conducted an internal audit of the permit application and approval process. The findings will be considered as a part of the rule revision process.

**c. Hydraulic and Hydrologic Study Phase II:** The Brown's Creek Watershed District has invested approximately \$80,000 to develop a very exact Hydraulic and Hydrological study of the district watershed and sub-watersheds. The study incorporates the two-foot contour mapping, GIS location, a natural resources inventory, the North Washington Groundwater Study and an extensive update to the computerized modeling (XP-SWMM) necessary to manage the water resources of the District's lakes, ponds, wetlands, streams and Brown's Creek. This study was completed in 2004 and is being

used as a tool to evaluate and permit building sites, developments, conditional use permits or other projects that directly or indirectly affect the quality and quantity of the District's water resources. This information was also used to assist Washington County in assessing floodplains for a FEMA map update of the county. The hydrologic information is also available through a GIS tool developed in 2004. The GIS tool is an easy interface to access District geospatial information, such as the 100-year high water levels for each delineated subwatershed in the District. After such a significant investment, the District has made it a priority to budget an annual fund to update the model as new studies are conducted and more detailed information is available.

**d. Long Lake in City of Stillwater:** The District continued to assist the City of Stillwater in analyzing the installed outlet system on Long Lake. BCWD began to develop a Long Lake Strategic Lake Management Plan to improve the water quality of Long Lake in Stillwater. BCWD was awarded a 2006-07 BWSR Challenge Grant to implement the plan; \$ 150,000 worth of activities will be implemented through this grant.

Associated with this project, the District also analyzed the Stillwater Market Place Area to determine locations for beneficial storm water retrofits and look for opportunities to collaborate on these improvements with the City of Stillwater.

**e. Water Monitoring and Education Program:** The BCWD supported several education and monitoring projects during the year to develop a profile of healthy watershed system so as to support its management of rules and permits. In 2005, BCWD added two lakes and one stream sites to their baseline monitoring program: Benz Lake, South School Section Lake and an additional Brown's Creek stream site at Highway 15. In addition to these sites, BCWD continued to monitor Goggin's Lake, Kismet Basin, and Long Lake and Brown's Creek stream sites on McKusick Road and Highway 96. These additional monitoring stations are in preparation for potential TMDL studies on the MPCA listed impaired waters. A fourth macroinvertebrate site was also added at this location monitored by the Washington Conservation District. The other three-macroinvertebrate sites are monitored through the District's participation in the Volunteer Stream monitoring program; three area high school groups get the opportunity to do real science and the District gets quality-controlled data. . The monitoring projects are done in conjunction with the Metropolitan Council's Water Outlet Monitoring Program (WOMP) and the Citizen Assisted Monitoring Program (CAMP).

The District also began monitoring the infiltration basin at the Bradshaw project to determine the effectiveness of the stormwater management system over time.

The District continued to provide education of residents through the District website and also dedicated funding for the next three years for a shared stormwater educator position. BCWD began development of a best management practices cost-share program as a method to educate District residents regarding methods to improve water quality.

**f. Washington County Groundwater Plan:** As part of Washington County's adopted Groundwater Management Plan, the County has taken a lead role in coordinating

groundwater protection efforts. Brown's Creek Watershed District (BCWD) has been requested through the County Groundwater Plan to take a leading role in three activities.

The methods in which BCWD has working towards accomplishing the activities in 2005 are as follows:

***ROLE:*** *Develop and adopt rules or policies on the quantity of water used in areas where existing wells and/or groundwater dependent natural resources could be negatively impacted by overuse of groundwater. Negative impacts include reduced flow to surface water bodies, lowering of lake or wetland levels, or interference with other wells.*

**Accomplishments:**

1. The Washington County Water Consortium has recommended four new rules for watershed districts to adopt to increase protection for groundwater resources in its report titled "Incorporating Groundwater Protection into Watershed District Rules" (December 2004). These rules included volume control standards, standards for protecting groundwater dependent natural resources, groundwater quality protections, and groundwater appropriations standards.

Brown's Creek Watershed District is currently revising its rules and would like to provide enhanced surface and groundwater resource protection. The BCWD Board has decided to proceed in 2005-06 with the technical and legal review of two of the proposed rules: volume control and groundwater dependent natural resource protection.

2. BCWD has invited other watershed districts and water management organizations to participate with us in technical and legal review of the revised volume control rule and the rule for protecting groundwater dependent natural resources. The goal in working together is to derive a better product with more public support. So far, Middle St. Croix WMO and Carnelian Marine Watershed District have stated that they may be interested in working together. This would work towards the standardization of our agencies rules within common communities as well.

***ROLE:*** *Provide education to citizens and public officials on the inter-relation of surface and groundwater quality and quantity; 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.*

**Accomplishments:**

1. BCWD distributed brochures educating residents on the MN law requiring phosphorous-free fertilizers.

2. BCWD conducted watershed district tour in May 2005. Highlighted low-impact development, innovative means of complying with BCWD rules, which include volume control, and capital improvement projects that added outlets to

land locked basins in a way that would provide infiltration and reduce impacts to groundwater dependent natural resources.

3. BCWD participated in the Washington County Watershed District Fair Booth in August 2005.

4. BCWD participated in Washington County Water Consortium tour in September 2005. Presented at the Kern Center Pond—an infiltration pond that is a part of a regional storm water treatment system for the City of Oak Park Heights.

5. Presented ground water model at the Children’s Water Festival in September 2005. Educated over 300 fifth grade students from the metro area on the importance of groundwater and the inter-relation of surface and groundwater quality and quantity.

6. BCWD Board and staff periodically attend meetings of the municipalities within the district.

7. BCWD Board has committed \$15,000 towards a shared Stormwater Educator Position.

***ROLE:** For all new developments and re-developments, adopt rules controlling storm water runoff volume and establish performance standards based on issues identified in water resource plans, inventories or studies, and on available scientific literature.*

**Accomplishments:**

1. BCWD adopted rules controlling stormwater runoff volume in 1999. This rule has been effective since January 1, 2000. The BCWD is in the process of revising its rules and reviewing potential changes to the current volume control standard. These changes would include standard change from 1.5 yr rain event to 2 yr rain event, compare proposed post-development runoff to pre-settlement conditions vs. pre-development, and no impervious allowance.

**g. Washington County Water Consortium:** The BCWD has also been an active participant in the Washington County Water Consortium. The Water Consortium, which was identified in the County’s water governance study, is the process to be implemented to assure consistent performance between watershed districts in accounting, rules development, groundwater management, budgetary development and sharing of information regarding studies or research.

**h. Minnesota Association of Watershed Districts:** BCWD was an active participant in the Minnesota Association of Watershed Districts at the state level as well. Two managers and the administrator attended the annual meeting as well as several associated meetings during the year.

- i. **Third Generation Management Plan:** BCWD initiated the process of developing its next generation watershed management plan, which is due for submittal and approval in 2006.

## 4. Goals for 2006

### a. 2006 Work Plan

#### 1) Third Generation Management Plan

- o Begin process in January with help from CAC and TAC
- o Looking to have an approved plan by early 2007
- o Develop goals for:
  - o Land Conservation Program (would be a brand new program)
  - o Stormwater Management
  - o Stream Management
  - o Wetland Management
  - o Erosion Control
  - o Floodplain Management
  - o Groundwater Management
  - o Education, Outreach and Stewardship
- o Some new proposed implementation items could include:
  - o Brown's Creek Stream Corridor Plan: look at water quality and thermal impacts, subwatershed loading, regulations and other implementation actions to improve & protect the trout stream
  - o Lake Management Plans for all District Lakes and subsequent implementation
  - o Participation in a regional TMDL

#### 2) Long Lake Management Plan:

- o 35% Reduction in Total Phosphorus from subwatersheds over next 10 years
- o Received BWSR 2006-2007 Challenge Grant for a total of \$150,000 to implement the plan
- o Highest priority will be to improve the existing stormwater infrastructure

#### 3) BMP Cost-Share Program: Modeled after the WCD program

- o Have funds for 5-6 projects in 2006 with emphasis on landowner education
- o Direct mailing to all landowners within 300 feet of an MPCA impaired water body (Long Lake in Stillwater, Goggin's Lake, South School Section, and Brown's Creek)
- o Subcommittee will be meeting to evaluate potential projects within two weeks and authorize design phase

#### 4) Rule Revisions: working towards having revised rules effective Jan 1, 2007

- o Buffer Reclassification: now require buffers on all waterbodies >1 acre
- o Stormwater Management: Water Quality and change volume control standard to pre-settlement rather than pre-development
- o Land Locked Basin Policy
- o Groundwater Dependent Natural Resource Protection

5) Permits: The BCWD will continue to actively issue permits within the watershed and enforce the conditions of permits already issued, as well as review and revise the rules for the permitting program. The District will work harder to educate municipalities and citizens about the permitting program to avoid after-the-fact permits and permit violations. The BCWD will actively facilitate integration of the Washington County Groundwater management plan and the technical detail of the North Washington County Groundwater study into rules application, revision, and enforcement.

a. Initiate a Digital Inspection Program

b. Some large potential developments coming to the District:

- o Millbrook development on the old Palmer property at Manning and Hwy 96 proposes 270 units on 140 acres, which has both CMWD (South Twin Lake) and BCWD (Brown's Creek). Both contain MPCA impaired wafer bodies of great importance to both WDs.
- o Because utilities are being brought up to Millbrook, many other permits in its wake: Utility Permits, Brown's Creek Reserve, Junker proposal, Manning Station, Liberty West, etc.
- o Legacy on Long Lake: redevelopment of north side of Long Lake into 50 residential lots
- o Oak Park Heights Commercial Development: Wal-Mart Expansion & Lowe's Development (MSCWMO and BCWD)

6) Capital Improvement Project Maintenance: Continue to conduct project monitoring and maintenance on the capital improvement projects, which include the Kismet Basin project, the Trout Habitat Preservation Project (THPP) and Kern Center Pond. Continue monitoring the infiltration basin at the Bradshaw project and Kern Center to determine the ponds effectiveness over time.

7) Baseline Monitoring Program: In accordance with the management plan, the BCWD will continue the baseline monitoring program, which includes macroinvertebrate monitoring, conducting water quality and flow monitoring in Brown's Creek and monitoring the water quality and level of the District's lakes. The program will be expanded in 2006 by adding an additional long-term automated stream monitoring station at the City of Stillwater's diversion structure. The program will also be expanded to continue to run the two automated stream station on the inlets to Long Lake. These three sites will be very helpful in determining the success of implemented management strategies on Long Lake. Additional lakes will also be included to prepare to complete lake management plans on all the District's lakes in the next ten years.

**b. 2006 BCWD Budget**

<b>Contingency Reserve</b>		
100-2910	Contingency Reserve - Management Plan Projects	\$ 97,829
100-2900	Undesignated Funds Balance-(Levied under 103D.905)	\$ 97,503
<b>TOTAL, ESTIMATED Contingency Reserve</b>		<b>\$ 195,332</b>

<b>Sources of Funding</b>		
100-2910	Designated Fund Balance - Management Plan Projects	\$ 170,442
<b>Revenue</b>		
100-3700	Interest Income	\$ 2,400
100-3600	Metropolitan Council Outlet Monitoring Grant	\$ 4,000
100-3600	BWSR Challenge Grant 2006/07	\$ 50,000
100-3400	Permits	\$ 55,900
100-3100	Tax Levy	\$ 468,708
<b>TOTAL, ESTIMATED Sources of Funding</b>		<b>\$ 751,450</b>

<b>ACCT. #</b>	<b>General Expenses</b>	<b>2006 General Fund 103D.905</b>
200-4000	Manager Per Diem and Expense	\$ 7,500
200-4220	Secretarial Services	\$ 1,500
200-4250	Dues & Subscriptions	\$ 3,200
200-4270	Bonding & Insurance	\$ 3,000
200-4280	Postage & Delivery	\$ 2,000
200-4290	Printing & Notices	\$ 750
200-4330	Accounting	\$ 6,000
200-4949	Misc., Other Expense	\$ 500
200-4320	Wash. Conservation District--Admin	\$ 31,000
200-4410	Legal Fees - General	\$ 13,000
200-4500	Staff Engineer	\$ 18,975
	Contingency Reserve	\$ 13,500
	Cash Flow Reserve	\$ 25,000
<b>TOTAL GENERAL FUND EXPENSES:</b>		<b>\$ 125,925</b>

<b>ACCT. #</b>	<b>MANAGEMENT PLAN EXPENSES</b>	<b>2006 Management Plan 103B.241</b>
300-4320	Wash. Conservation District--Project Admin	\$ 31,000
300-4410	Legal Fees - Mgmt Plan	\$ 14,000
300-4501	Staff Engineer	\$ 56,925
300-4701	Permit Processing & Inspection	\$ 8,300
300-4702	Permitting, Legal Review	\$ 5,700
300-4703	Permitting, Engineering Review	\$ 72,000
300-4710	Baseline Monitoring	\$ 79,600
300-4640	Equip. Maint. and Upgrades	\$ 2,000

300-4810	Community Relations/Education	\$	3,000
300-4950	Misc., Other Expense	\$	2,000
903-0000	Trout Habitat Preservation Project:		
903-0001	Monitoring, O & M	\$	5,550
903-0002	Maintenance to increase infiltration	\$	9,450
904-0000	Kismet Basin Flood Stabilization-Monitoring O & M	\$	4,000
907-0000	Long Lake Strategic Management Plan	\$	-
	Data Gathering--2 inlets sites		
	Data Gathering--Ponds, etc.		
	Watershed & Lake Modeling		
	Strategic Management Plan		
	Watershed Loading Plan		
908-0000	Kern Center	\$	-
909-0000	Rules Review/Evaluation	\$	48,000
903-001	Contingency Reserve		
910-0000	Education & Outreach	\$	20,000
911-0000	Volunteer Stream Monitoring	\$	4,500
912-0000	Grant Preparation	\$	-
913-0000	Marketplace Analysis	\$	-
914-0000	Homeowner BMP Program	\$	40,000
	Contingency Reserve		
915-0000	Wetland Function & Value Assessment	\$	6,000
916-0000	BMP Monitoring Program-Bradshaw	\$	6,000
917-0000	Capital Improvement Feasibility Studies	\$	-
918-0000	Fen Management Plan	\$	-
919-0000	Groundwater Program	\$	-
920-0000	GW SONAR	\$	31,500
921-0000	County rd 15 drainage issues	\$	-
922-0000	Plan Reviews	\$	-
923-0000	H & H Model Upgrade	\$	2,000
924-0000	Kern Center Infiltration Monitoring, O & M	\$	6,000
925-0000	Internal Permit Audit	\$	-
926-0000	GIS Management Tool	\$	-
927-0000	Management Plan Update	\$	68,000
928-0000	Invasive Species Control Program	\$	-
929-0000	Long Lake Plan Implementaion	\$	100,000
930-0000	Long Lake Outlet Modeling	\$	-
999-0000	Miscellaneous	\$	-
<b>TOTAL MANAGEMENT PLAN PROJECT EXPENSES:</b>		<b>\$</b>	<b>625,525</b>
<b>TOTAL, OPERATING EXP. &amp; MGMT. PLAN PROJECTS:</b>		<b>\$</b>	<b>751,450</b>



# **APPENDIX A**

## **2005 AUDIT REPORT**

## APPENDIX B

### 2005 WATER MONITORING SUMMARY

This report focuses on the summary and comparison of the Brown's Creek Watershed District (BCWD) lake and stream water quantity and quality data collected by the Washington Conservation District (WCD) from 2000-2005 and previous monitoring seasons. In 2005, BCWD added two lakes and one stream sites to their baseline monitoring program: Benz Lake, South School Section Lake and an additional Brown's Creek stream site at Highway 15. In addition to these sites, BCWD continued to monitor Goggin's Lake, Kismet Basin, and Long Lake and Brown's Creek stream sites on McKusick Road and Highway 96. Four Brown's Creek stream sites were sampled for macroinvertebrates. Data was collected by the WCD at Hwy 15 and by volunteer stream monitoring groups at: (W4), just upstream from the mouth, (W3), about one mile from the mouth, and (W8) at the creek crossing with Neal Avenue. The purpose of the monitoring program was to assess and document the current water quality conditions of the lakes and streams and to continue a long-term monitoring program, which will enable the BCWD to identify trends associated with land use changes in their watershed.

#### Lake Water Quality

In 2005, the five lakes monitored had fair to very poor water quality ratings and were classified as eutrophic and hypereutrophic.

Lake	2005 Trophic Status	2005 Grade
Benz	Hypereutrophic	F
Goggin's	Hypereutrophic	C-
Kismet	Eutrophic	C+
Long	Hypereutrophic	C-
South School Section	Eutrophic	B-

Goggin's, Long, and Benz Lakes were considered worse than the ecoregion range for total phosphorus, total Kjeldahl nitrogen, chlorophyll-a, and Secchi disk transparency. Kismet Basin and South School Section Lake were within the ecoregion range for total phosphorus, total Kjeldahl nitrogen, chlorophyll-a, and Secchi disk transparency.

The past six years of water quality data has shown:

- o Goggin's Lake has shown some minor improvement going from an annual average of D+ to a C- water quality rating.
- o Kismet Basin's water quality average improved from 2000-2004 going from a D to a B+, but decreased slightly in 2005 to a C+.
- o Long Lake's has shown some improvement going from an F to a C- water quality rating.

Water quality in a lake depends on a number of different variables such as: size of the contributing watershed, depth of the lake, and current amount of nutrients available and periodically released from the lake bottom, as well as external nutrient sources. Low water

quality ratings of BCWD lakes are most likely due to the shallowness of the lakes and an abundant internal nutrient source. Shallow lakes do not completely stratify in the summer; therefore, they are capable of continually mixing. Mixing causes phosphorus to be distributed throughout the water column, causing more frequent heavy algal blooms.

Both WCD staff and volunteers monitored water levels on lakes and wetlands throughout the Brown's Creek Watershed District. Thirteen lakes and four wetlands were monitored for water surface elevation in 2005. Early season lake elevations were relatively low due to little snow, snowmelt, and rainfall in the spring. Elevations dropped throughout the summer until mid to late September when precipitation events began to increase in frequency. Lower amounts of evapotranspiration throughout late fall and a large storm in early October increased elevations near levels seen in the spring. Average water elevation in lakes, with the exception of Goggin's Lake (considered in the high impact flooding impact range), were in the low to moderate flooding impact ranges as compared to the Brown's Creek Watershed District's 2003 Hydrologic/Hydraulic Study.

### **Brown's Creek Water Quality**

The WCD has taken grab samples and flow-weighted samples during both baseflow and storm event conditions from March to November at two locations within Brown's Creek since 1998: McKusick Road (approximately 2.5 miles from the mouth) and at Highway 96/95 (0.3 miles from the mouth). A new stream-monitoring site was added to Brown's Creek in 2005 at Hwy 15 (approximately 4.5 miles from the mouth). Two additional sites were added at different drainage locations to Long Lake in efforts to provide data for the Long Lake Management Plan (Data not contained in this report).

The stream monitoring sites on Brown's Creek are producing valuable baseline water quality information that will be a helpful tool in determining a healthy balance of resources as the watershed continues to experience growth and changes in land use. Discharge (base and storm), chemical, physical and biological parameters are compared on a year-to-year basis and with other streams in the region to determine the health of the stream.

Using a combination of composite and grab samples, total phosphorus and total suspended solid loads were calculated. The results were compared to a chart of export coefficients in a variety of land use scenarios and show the Brown's Creek watershed within regional averages for total phosphorus at both sites. In 2003-2005, the total phosphorus and total suspended solids loading estimates greatly decreased from the loading levels of 2001-2002 due to lack in overall runoff 2003-2005. Less runoff can be attributed to lack of snow, snowmelt, and precipitation events throughout the year. A portion of the overall reduction in total flow and loads at the McKusick Road and Outlet site may also be a reflection of the City of Stillwater's diversion structure installed in June 2003, which redirects up to the 1.5-year storm into Lake McKusick and down the ravine, preventing the warmer waters from the urban Long Lake tributary from reaching Brown's Creek.

Brown's Creek, upstream of Hwy 15, has been listed as impaired by the Minnesota Pollution Control Agency in 2002 for fish biodiversity and in 2004 for macroinvertebrate diversity. Due to this impairment, BCWD installed a monitoring site at Hwy 15 to determine the water quality

impacts draining to this location. At Hwy 15, the maximum daily temperature exceeded the high-impact temperature threshold a total of 17 days during the 2005 monitoring season. As these temperatures suggest, this reach of stream is not known to contain trout and would need to remain cooler in order to support trout.

To support the analytical water quality data, macroinvertebrates were collected at Hwy 15 by the WCD in order to determine water quality and habitat impacts to the biological communities in this reach. In 1998 - 2005, volunteers from the Stillwater High School have collected macroinvertebrate samples at sites: W3, W4, and W8 (2003-2005 only). Teachers were able to use the sampling for environmental education, as well as to assist BCWD to assess other water quality and habitat impacts in different reaches of the stream. Using Hilsenhoff's Biotic Index, an average evaluation of water quality for the period of record at each site was completed using collected data. Water quality was assessed at each site as: W3—very good water quality, W4—very good water quality, W8—very good water quality, and Hwy 15—good water quality. The Hwy 15 site has different habitat than the other three sites, which may account for the “good” rating versus the “very good” rating of the other sites within Brown's Creek.

Fisheries data was collected by the DNR and temperature data was collected by the WCD to see how the trout population may be affected by temperature impacts to Brown's Creek. In 2003-2005, few days had stream temperatures that would be considered very stressful to the trout population. In 2003-2005, Brown's Creek experienced lower maximum daily water temperatures than in 2001 or 2002, which is likely due to the decreased surface runoff and larger proportion of groundwater keeping the stream cooler. The DNR has not yet published its most recent fish surveys to assess trout populations and natural reproduction, but 1,000 yearling trout were stocked in the stream during 2005.