BROWN'S CREEK WATERSHED DISTRICT

2007 ANNUAL REPORT

Prepared by:

Brown's Creek Watershed District Board of Managers
Craig Leiser, President
Rick Vanzwol, Vice-President
Connie Taillon, Treasurer
Gerald Johnson, Secretary
Gail Pundsack, Manager

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2007 Brown's Creek Watershed District Annual Report

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 - 2006 BOARD OF MANAGERS

Manager/ Address	Position	Term Expires	Community Liaison
Craig Leiser 10300 Kismet Lane Stillwater, MN 55082	President	10/22/10	Grant
Rick Vanzwol 9750 Jamaca Avenue North Grant, MN 55115	Vice-President/ CAC Liaison	10/22/09	Stillwater Township
Connie Taillon 3374 Staples Pl Stillwater, MN 55082	Treasurer	10/22/08	Oak Park Heights Lake Elmo
Gerald Johnson 302 Edgewood Avenue Stillwater, MN 55082	Secretary	10/22/09	City of Stillwater
Gail Pundsack 140 Northland Avenue Stillwater, MN 55082	Manager	10/22/10	Hugo May Township

The BCWD does not have any employees. The BCWD does contract with several organizations for professional services. In January 2007, 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 2007.

BROWN'S CREEK WATERSHED DISTRICT CONTRACT SUPPORT STAFF

Administrator	Attorney	**Engineer**	**Recording Secretary**
Karen Kill Washington Conservation District 1380 West Frontage Rd, Hwy 36 Stillwater, MN 55082 651.275.1136 x26 karen.kill@mnwcd.org	Chuck Holtman/Louis Smith Smith Partners, P.L.L.P. Old Republic Title Building 400 Second Avenue South, Suite 1200 Minneapolis, MN 55401 612.344.1400 smith@smithpartners.com holtman@smithpartners.com	Cecilio Olivier, P.E. Emmons Olivier Resources, Inc. 651 Hale Avenue Oakdale, MN 55128 651.770.8448 colivier@eorinc.com	Paula Guetter (2007) Debbie Meister (2008)

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.

As a part of the Third Generation Management Plan development, the BCWD Board of Managers adopted a vision statement and a mission statement, which were developed with input from the Citizens Advisory Committee and the Technical Advisory Committee.

Vision Statement

The Brown's Creek Watershed District is made up of communities interlaced with natural corridors. These natural corridors 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 accommodate development that preserves the connection between surface water and groundwater and enhances the quality of these resources.

Mission Statement

The 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;
- Find and implement acceptable solutions to water-related issues; and
- Assure that the integrity of the watershed is preserved for future generations.

c. Audit Report

The audit of financial management of the District for January 1-December 31, 2007 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, 2007, 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 2007 audit is enclosed in Appendix A.

d. Citizens Advisory Committee

A list of the appointed Citizen's Advisory Committee members are as follows:

First Name	Last Name	Address	City/State/Zip	Community
Norman Lee	Busse	12320 Dellwood Road	Stillwater, MN 55082	Stillwater Township
Tom	Henderson	1206 Eagle Ridge Trail	Stillwater, MN 55082	Stillwater
Lee	Miller	2962 Marine Circle	Stillwater, MN 55082	Stillwater
Bill	Pelfrey	10503 North 117th Street	Stillwater, MN 55082	Grant
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

The CAC opted not to elect officers. The District CAC met:

February 2007 – discussed District education program
April 2007 – District tour
August 2007 – cancelled meeting due to lack of attendance
November 2007 – postponed meeting to early 2008

e. Final 2007 & Approved 2008 BCWD Budget

Contingency Reserve		**2007**	**2008**
100-2910	Contingency Reserve - Management Plan Projects	$ 97,829	$ 97,829
100-2900	Undesignated Funds Balance-(Levied under 103D.905)	$ 97,503	$ 97,503
	Contingency Reserve - Capital Improvement Project Maintenance	$ 10,000	$ 10,000
TOTAL, ESTIMATED Fund Balance			
	Less Designated Funds Carried Forward		
	Plus Overbudget Expenses		
TOTAL, ESTIMATED Contingency Reserve		$ 205,332	$ 205,332
Sources of Funding		**2007**	**2008**
100-2910	Designated Funds - Management Plan Projects	$ 83,868	$ 124,500
Revenue			
100-3700	Interest Income	$ 2,400	$ 1,200
100-3600	Metropolitan Council Outlet Monitoring Grant	$ 4,000	$ 4,000
100-3600	BWSR Challenge Grant 2006/07	$ 25,000	$ -
100-3603	Brown's Creek Biological TMDL-MPCA pass through	$ 47,494	$ 135,000
100-3604	Washington County Funding for GWDNR Comp Plans		$ 10,000
100-3400	Permits	$ 58,500	$ 58,500
100-3100	Tax Levy	$ 776,180	$ 819,717
TOTAL, ESTIMATED Sources of Funding		**$ 997,442**	**$ 1,152,917**

ACCT. #	**General Expenses**	**2007 General Fund 103D.905**	**2008 General Fund 103D.905**
200-4000	Manager Per Diem and Expense	$ 8,000	$ 9,000
200-4220	Secretarial Services	$ 2,000	$ 3,375
200-4250	Dues & Subscriptions	$ 3,350	$ 3,500
200-4270	Bonding & Insurance	$ 3,000	$ 4,500
200-4280	Postage & Delivery	$ 2,000	$ 2,000
200-4290	Printing & Notices	$ 750	$ 750
200-4330	Accounting	$ 8,000	$ 10,800
200-4949	Misc., Other Expense	$ 500	$ 1,000
200-4320	Wash. Conservation District--Admin	$ 31,000	$ 34,680
200-4410	Legal Fees - General	$ 16,125	$ 16,125
200-4500	Staff Engineer	$ 19,924	$ 21,119
	Contingency Reserve	$ 14,331	$ 25,000
TOTAL GENERAL FUND EXPENSES:		**$ 108,980**	**$ 131,849**

ACCT. #	MANAGEMENT PLAN EXPENSES	2007 Management Plan 103B.241	2008 Management Plan 103B.241
300-4320	Wash. Conservation District--Project Admin	$ 31,000	$ 55,280
300-4410	Legal Fees - Mgmt Plan	$ 32,250	$ 32,250
300-4500	Staff Engineer	$ 58,983	$ 63,358
300-4701	Permit Processing & Inspection	$ 8,300	$ 10,000
300-4702	Permitting, Legal Review	$ 6,128	$ 7,500
300-4703	Permitting, Engineering Review	$ 75,600	$ 90,000
300-4710	Baseline Monitoring	$ 71,200	$ 75,000
300-4640	Equip. Maint. and Upgrades	$ 12,400	$ 7,850
300-4810	Community Relations/Education	$ 1,500	$ 1,500
300-4950	Misc., Other Expense	$ -	$ 2,500
903-0000	Trout Habitat Preservation Project:		
903-0001	Monitoring, O & M	$ 6,000	$ 6,360
903-0002	Maintenance to increase infiltration	$ 9,920	$ -
904-0000	Kismet Basin Flood Stabilization-Monitoring O & M	$ -	$ -
907-0000	Long Lake Strategic Management Plan	$ -	$ -
908-0000	Kern Center Construction Observation		
909-0000	Rules Review/Evaluation	$ -	$ -
910-0000	Education & Outreach	$ 18,300	$ 22,000
911-0000	Volunteer Stream Monitoring	$ 5,900	$ 6,000
912-0000	Grant Preparation	$ 5,000	$ 5,000
913-0000	Marketplace Analysis	$ -	
914-0000	Homeowner BMP Program	$ 50,000	$ 60,000
915-0000	Wetland Function & Value Assessment	$ -	$ -
916-0000	BMP Monitoring Program-Bradshaw	$ 6,000	$ 6,500
920-0000	GW SONAR	$ -	$ -
922-0000	Plan Reviews	$ 10,000	$ 20,000
923-0000	H & H Model Upgrade, including structure inventory	$ 13,500	$ 5,000
924-0000	Kern Center Infiltration Monitoring, O & M	$ 6,000	$ 6,500
926-0000	GIS Management Tool/Web-Mapping	$ 107	$ 1,000
927-0000	Management Plan Update	$ -	$ -
929-0000	Long Lake Plan Implementation		
929-0001	Market Place-Ponds 9,8, &1	$ 43,880	$ -
929-0002	Next feasibility study & implem -Menard's Drainage & BMPs	$ 34,671	$ 100,000
929-0003	Education-Long Lake Specific (BWSR Grant requirement)	$ 12,000	$ -
929-0004	62nd St Culvert Replacement - 50% cost-share w/ Stillwater	$ 151,449	$ 7,500
929-0005	Hwy 36 Century Power Ravine rate control project		$ 25,000
929-0006	Washington Ave Pond- Filter Replacement ($3,000/year)		$ 3,000
929-0007	Long Lake Sediment Deltas Survey		$ 5,000
931-0000	Benz Lake -monitoring	$ 2,500	$ 2,500
932-0000	McKusick Lake Management Plan	$ 29,500	$ -
932-0001	McKusick Lake Management Plan-Implementation		$ 50,000
933-0000	Stormwater Management Facility Inventory	$ 6,250	$ -
934-0000	TMDL Cooperation	$ 2,000	$ 2,000
935-0000	Land Conservation Program-Open Space Plan/Community Assistance	$ 25,000	$ 5,000
937-0000	Brown's Creek Biological TMDL-MPCA pass through	$ 52,227	$ 135,000

938-0000	Buffer Mapping	$ 7,030	$ 2,970
939-0000	Benz Lake Management Plan		$ 20,000
940-0000	BMP Program – LGU Demonstration Projects		$ 10,000
941-0000	Brown's Creek Erosion Inventory		$ 10,000
942-0000	Groundwater Monitoring Program Development/GDNRRMP planning		$ 10,000
943-0000	Additonal BMP Monitoring - determine sites and monitor (Herberger's)		$ 25,000
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		**$ 794,594**	**$ 896,568**
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		**$ 903,574**	**$ 1,028,417**

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. A fourth capital improvement project was added in 2007 to improve water quality in Long Lake in the City of Stillwater.

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 Recorders 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. Infiltration recovery project designed in winter 2006 and was installed in January 2007.

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 as 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. Continued to monitor the infiltration basin at the Kern Center to determine the ponds effectiveness over time.

4) Long Lake Management Plan Implementation

The District developed the Long Lake Strategic Lake Management Plan to reduce total phosphorus by 35% from the subwatershed loading. This plan was developed with the guidance of a stakeholders group and a citizen task force made up of residents in the subwatershed. The District approved the plan in May 2006 began implementation, utilizing a 2006-07 Board of Water and Soil Resources Challenge Grant to fund $75,000 of the implementation and is actively working towards obtaining additional grant funding. The total cost over 10 years will be approximately $1.2 million to fully implement the subwatershed loading reductions from the Long Lake Management Plan.

In 2007, the District designed and installed two implementation projects. The North Marketplace pond improvements to the Cottage Pond and Wildwood pond will reduce the amount of total phosphorous loading to Long Lake by a total of 11 pounds per year. The total cost of these improvements were $57,250 for a cost of $5,204.55 per pound of total phosphorous removed.

In 2007, the District designed and executed the Herberger's Pond improvement. The project is projected to reduce the annual total phosphorous load to Long Lake

by 35 pounds. The total cost of the project was $120,064 and calculates to a cost of $3,440.40 per pound of total phosphorous removed.

In 2007, the Tower Drive Pond Improvement was implemented in collaboration with the City of Stillwater for an additional 4 pounds per year reduction in total phosphorous to Long Lake. The installation was less than $200.

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 forty (40) permits for construction and renovation projects in 2007. Continued a Digital Inspection Program in 2007. For the first time the District had a Seasonal Permit Inspector. The inspector has been effective in gaining compliance on the sites.

BCWD continued its 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. This rule revision was done with the guidance of the Citizen Advisory Committee and a Technical Advisory Committee. The District adopted the new rules effective May 1, 2007.

Some of the significant revisions include:

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

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. 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. Continued 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 District continued its 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 continued 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. Specific BCWD activities included two "Blue Thumb House Parties," Blue Thumb presentation to HOA's, and Stormwater U trainings. BCWD continued the best management practices cost-share program as a method to educate District residents regarding methods to improve water quality.

The District began participating in a partnership to fund a shared stormwater educator position. This position was filled in July 2006 and the District has entered into a three-year commitment to partially fund the position. The District participated in the Washington County Watershed District Fair Booth in August 2007.

The District initiated an award program entitled "Conservationist of the Year" to recognize exemplary watershed conservation efforts. The first annual award was given to Mr. Lee Miller. Notification of this award was distributed to local papers to promote the program and provide positive outreach for the watershed.

e. 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 2007 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 revised its rules, effective as of May 1, 2007. Many of these revisions provide enhanced surface and groundwater resource protection, specifically regarding additional volume control and groundwater dependent natural resource protection.

2. The BCWD will be working with Washington County and others to develop a Groundwater Dependent Natural Resource (GWDNR) Comprehensive Management Plan for the fen in Grant, MN. The methodology will be documented and approved by a Technical Advisory Panel with hopes of being able to cost-effectively duplicate this work for other wetland GWDNRs . This work will likely begin in late 2007 and into 2008.

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 Board has continued to partner in the shared Stormwater Educator Position. The District participated in the Stormwater U training to educate municipal technical staff on volume control standards. BCWD will also be holding its own municipal training on the specific BCWD rule revisions in 2008.
2. BCWD BMP Cost-share Program was in its second year in 2006. Cost sharing on 15 rain gardens, increasing infiltration in an area developed prior to the District's volume control rules.
3. BCWD participated in the Washington County Watershed District Fair Booth in August 2007.
4. BCWD Board and staff periodically attend meetings of the municipalities within the district.
5. Reviewed City of Stillwater Local Water Management Plan.

ROLE: *For all new developments and re-developments, adopt rules controlling stormwater 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 revised its rules, effective May 1, 2007. The volume control standard was revised from using a 1.5 yr rain event (2.6 inches) to 2 yr (2.8 inches) in 24 hours rain event, now compares proposed post-development runoff to pre-settlement conditions vs. pre-development, now promotes soil amendments to alleviate construction site soil compaction, and no longer gives an impervious allowance.

f. 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.

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

h. Third Generation Management Plan: BCWD Third Generation management plan was adopted by BWSR in January 2007 and by the BCWD Board in February 2007. The District developed goals for:

- Land Conservation Program
- Stormwater Management
- Stream Management
- Wetland Management
- Erosion Control
- Floodplain Management
- Groundwater Management
- Education, Outreach and Stewardship

Some new proposed implementation items include:

- 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
- Lake Management Plans for all District Lakes and subsequent implementation
- Participation in a regional TMDL

i. BCWD Homeowner BMP Cost-share Program: Cost share program encouraged 15 homeowners to plan new raingarden projects and 1 homeowner to plan a new shoreline restoration project. The Board approved all 16 plans. In addition, the

District continued to work with 2 landowners that started raingarden projects and 8 landowners that started shoreline restoration projects in 2006.

j. Brown's Creek TMDL for Biota Impairment: Phase I and Phase II Stressor Identification

- BCWD completed the Phase I Biota Impairment Stressor Identification in conjunction with the Minnesota Pollution Control Agency and the Washington Conservation District.
- BCWD funded the continued monitoring between Phase I and Phase II.
- Began Phase II in November 2007, looking at the entire stream.

k. Plan Reviews: Reviewed the reviewed Stillwater Local Water Management Plan. BCWD Board and staff periodically attend meetings of the municipalities within the district. Stormwater U trainings for planners to incorporate natural resources into the municipalities comprehensive plans.

l. McKusick Lake Management Plan: The District worked with the City of Stillwater to create the McKusick Lake Management Plan, which was completed in December 2007.

m. Brown's Creek Erosion Inventory: District conducted an erosion inventory along Brown's Creek. The data will be used by the District Board as well as shared with the MN DNR in preparation for potential state trail development along the Zephyr Rail Road line.

4. Goals for 2008

- *Capital Improvement Projects:*
  - Continue monitoring of THPP, Kismet Basin Stabilization, Kern Center Infiltration, Bradshaw Infiltration.
  - Begin performance monitoring of the Herberger's Pond improvements.
  - Begin Long Lake drawdown feasibility study.
- *Rule Revisions & Permitting*:
  - Continue to implement the revised rules adopted in May 2007 through existing permitting program.
  - Conduct rules training for municipalities within District to give better understanding of how rules have changes, how rules apply to projects within the municipalities, how rules apply to municipal projects and how we can better work together through reviews.
  - Groundwater Dependent Natural Resource Protection –. Received partial funding from Washington County to develop a GWDNR Comprehensive Management Plan in 2008.
- *Monitoring*:
  - Continue the District's baseline monitoring program to prepare for future lake management plans and TMDL studies. Monitor effectiveness of capital improvement projects. Use collected data to develop better management strategies.
- *Education*:
  - Continue to work with residents to implement the best management practices cost-share program. Develop a storm water education program through the shared stormwater education position, targeting municipal & developer education as well as the general public. Continue to work with the area high school students to monitor the macroinvertebrates in Brown's Creek. Upgrade website with interactive mapping tools. Develop a Stormwater Audit Program with the Washington Conservation District and Middle St. Croix WMO through Clean Water Legacy grant.
  - Continue "Conservationist of the Year" award program.
- *Land Conservation Program & Plan Reviews:*
  - Develop land conservation priorities for the District.
  - Review municipalities comprehensive plans and local water management plans, assisting them with the integration of natural resource/open space planning.
- *McKusick Lake Management Plan:*
  - Intend to work with the City of Stillwater and Middle St. Croix Water Management Organization to obtain additional monitoring data and begin implementation of the McKusick Lake Management Plan within the legal boundaries of the District.
- *Benz Lake Management Plan:*
  - Work with the Benz Lake Association and the City of Grant to develop a Benz Lake Management Plan.
- *Brown's Creek TMDL for Biota Impairment:*

    - Work with the Washington Conservation District and the Minnesota Pollution Control Agency on the Brown's Creek Biota TMDL – Phase II. The work will continue through August 2009.
- *Modeling upgrades:*
    - Upgrades to Hydrologic and Hydraulics Model and additional inventory information collection, including structure and stormwater facility inventories
- *BCWD Homeowner BMP Cost-share Program:*
    - Continue the BMP Cost-share program with a goal of 15 new raingarden projects in 2008.
- *Infiltration Research:*
    - Infiltration analysis at two volume control practices

APPENDIX A

2007 AUDIT REPORT

See Attached

APPENDIX B

2007 WATER MONITORING SUMMARY

This report focuses on the summary and comparison of the lake and stream water quality data collected by the Washington Conservation District (WCD) from 2000-2007 and previous monitoring seasons. In 2007, two stream monitoring sites were added to the monitoring program as part of the larger Brown's Creek TMDL (Total Maximum Daily Load) study; Brown's Creek Headwaters (at 110th St.) and Brown's Creek at Gateway Trail. In addition to these sites, BCWD continued to monitor Masterman Lake, Bass Lake East (82-0124), Bass Lake West (82-0123), Lynch Lake, July Avenue Wetland, Wood Pile Lake, Pat Lake, Goggins Lake, Kismet Basin, Long Lake, South School Section Lake, and Benz Lake and Brown's Creek stream sites at Headwaters, Gateway Trail, Highway 15, McKusick Road, and Highway 96, and Long Lake drainage sites at 62nd St. and the Marketplace Pond. Three stream sites on Brown's Creek were sampled for macroinvertebrate data collected by volunteer stream monitors. 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.

In 2007, the 12 lakes monitored had good to very poor water quality ratings and were classified as mesotrophic (Bass Lake West), eutrophic (Kismet, Bass Lake East, Long Lake, Masterman Lake, Pat Lake, and Wood Pile Lake) and hypereutrophic (Benz Lake, Goggins Lake, South School Section Lake, July Avenue Wetland, and Lynch Lake). The overall 2007 lake grades for BCWD lakes were: Bass Lake West – B, Bass Lake East – B-, Wood Pile Lake – B-, South School Section Lake – D+, Masterman Lake – C+, Pat Lake – C+, Kismet Basin – C, Goggins Lake – F, Long Lake – C-, Benz Lake – F, July Avenue Wetland – F, Lynch Lake – F. Of the lakes with historical data available, four lakes showed a slight deterioration in water quality for the 2007 season (Bass Lake West, Benz Lake, Goggins Lake, and South School Section Lake), two lakes maintained their water quality (July Avenue and Lynch Lake), and six lakes improved in water quality (Bass Lake East, Kismet Basin, Long Lake, Masterman Lake, Pat Lake, and Wood Pile Lake). Goggins Lake, Long Lake, South School Section Lake, July Avenue Wetland, Lynch Lake, and Benz Lake were considered worse than the ecoregion range for total phosphorus, total Kjeldahl nitrogen, chlorophyll-*a*, and Secchi disk transparency. Bass Lake East, Bass Lake West, Masterman Lake, and Pat Lake were within the ecoregion range for total phosphorus, total Kjeldahl nitrogen, chlorophyll-*a*, and Secchi disk transparency. In 2007, the Washington Conservation District conducted Kendal Tau statistical analysis of all lakes monitored by WCD for the first time to determine any long-term water quality trends. For Brown's Creek Watershed District lakes, only three lakes had a significant trend. Goggins Lake had a statistically significant decreasing Secchi transparency trend ($p<0.10$) and Kismet Basin and Long Lake both had significantly increasing Secchi disk transparency trends.

2007 Lake Grades, Trophic State Index, and Trophic Status

Lake	Summer TP Grade & TSI	Summer CLA Grade & TSI	Summer Secchi Grade & TSI	Summer Average Grade & TSI	Trophic Status
Goggins	F	F	F	**F**	Hypereutrophic
	77	75	67	**73**	
Kismet	C	C	C	**C**	Eutrophic
	59	61	54	**58**	
Long	C	C	D	**C-**	Eutrophic
	65	63	59	**62**	
S School Sec	C	D	D	**D+**	Hypereutrophic
	64	69	59	**64**	
Benz	F	F	F	**F**	Hypereutrophic
	79	79	68	**76**	
Bass East	C	B	B	**B-**	Eutrophic
	58	57	48	**54**	
Bass West	B	B	B	**B**	Mesotrophic
	52	54	47	**51**	
July Ave	F	F	F	**F**	Hypereutrophic
	86	90	89	**88**	
Lynch	F	F	F	**F**	Hypereutrophic
	90	88	84	**87**	
Masterman	C	B	C	**C+**	Eutrophic
	58	58	50	**55**	
Pat	C	B	C	**C+**	Eutrophic
	59	52	52	**54**	
Wood Pile	C	B	B	**B-**	Eutrophic
	61	55	48	**55**	

In 2007, BCWD added two stream monitoring stations to its existing network of stream monitoring sites as part of the Brown's Creek TMDL. New stations were installed to measure discharge, water chemistry, and water quality along Brown's Creek at the Browns' Creek Headwaters and at the Gateway Trail. BCWD continued monitoring stream/stormwater sites at: Brown's Creek at the mouth (Hwy 96), Brown's Creek at the Diversion Structure, Brown's Creek at McKusick Road, Brown's Creek at Hwy 15, Long Lake Inlet at 62nd St., and Long Lake Inlet at Marketplace Pond.

Of the stream/stormwater sites monitored in BCWD, Brown's Creek at Hwy 15 and Brown's Creek at Highway 96 showed decreased total discharges in 2007 compared to 2006 (Figure 1). Of these six sites, Brown's Creek at Highway 15 and at Highway 96, Brown's Creek at the Diversion Structure, and Long Lake Inlet at 62nd St. showed reductions in total loads of TSS during the 2007 season compared to 2006 as well. Brown's Creek at McKusick Road, at Highway 15, and at the Diversion Structure showed reduced TP loads in 2007 compared to 2006 (Figure 1).

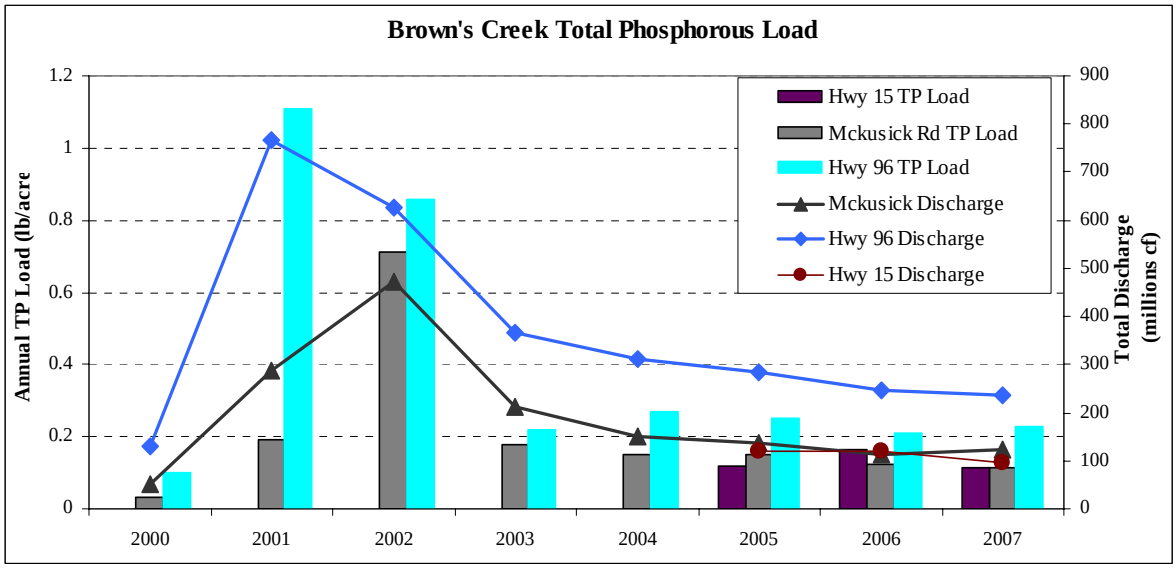

Figure 1: Brown's Creek Annual Total Phosphorous Loads

Temperatures in Brown's Creek in 2007 displayed some interesting results when looking at thermal impacts. The minimum daily temperature at Brown's Creek at the mouth's never exceeded 20° C, which is the temperature threshold where low impacts to trout survival are observed. Surprisingly, the Hwy 15 and McKusick Road sites recorded no daily minimum temperatures above 20° C. One important and equally interesting note is that the Headwaters and Diversion Structure sites have the highest daily maximum temperatures. These large diurnal temperature swings are difficult to explain, but may be due to the lack of stream channel confinement in the wetland complexes upstream of Diversion Structure and Brown's Creek Headwaters. This lack of confinement may be allowing more surface area of water to be affected by atmospheric diurnal warming and cooling temperatures. The average daily temperature at the Hwy 15 site and the McKusick Road site had a little more variability in daily temperature fluctuation when compared to 2006. The main change seen in these 2007 data was the large divergence between each site compared Highway 96. Another interesting find in 2007 was that Brown's Creek at the Diversion Structure daily average temperatures were cooler than both the Hwy 15 site and the McKusick Road site during early summer months and substantially warmer from August to October.

The MPCA and the MN DNR, as part of the Brown's Creek TMDL, conducted fisheries surveys in 2007 as well as historically as part of their biological monitoring programs. Data pertaining to historical fisheries surveys can be found by contacting the MPCA Biological Monitoring Section (http://www.pca.state.mn.us/water/biomonitoring/bio-staffdirectory.html) or MN DNR Division of Fish and Wildlife area fisheries office (http://www.dnr.state.mn.us/areas/fisheries/eastmetro/index.html). Due to differences in sampling procedures between agencies, variation in results, and the complexity of reporting these results while not being organization that collected the data, those data are not shown in this report. Annual fish stocking occurred as it usually does on a yearly basis. In 2007, 1000 brown trout were stocked in Brown's Creek. This stocking follows the MN DNR long-term management plan for trout stocking efforts in Brown's Creek.