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CRWD Stormwater Pollution Prevention Program

Draft 2008 Annual Report

May 6, 2009

"Our mission is to protect, manage, and improve the water resources of the Capitol Region Watershed District."

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1.0 INTRODUCTION

The Capitol Region Watershed District (CRWD) is a special purpose unit of local government established in 1998 to manage, protect and improve the water resources of the Capitol Region Watershed District in the Twin Cities metropolitan area of Minnesota. CRWD drains an area of 40.6 miles from the communities of Saint Paul, Roseville, Falcon Heights, Maplewood, and Lauderdale. A major responsibility of CRWD is to own, operate and maintain the Trout Brook Storm Sewer Interceptor System, a trunk conveyance stormwater system that collects and conveys runoff from the cities of Saint Paul, Roseville, Falcon Heights, and Maplewood (Figure 1). The Trout Brook subwatershed drains nearly 8,000 acres making it the largest subwatershed in CRWD. Land use in the subwatershed is highly urbanized with 42% imperviousness and a mix of residential, industrial, and commercial uses. The Trout Brook storm sewer interceptor is almost six miles in length and varies in size from a five-foot diameter round, reinforced concrete pipe to over 11-foot square cast-in-place box sections. The interceptor receives stormwater runoff from municipally-owned lateral pipes and conveys it to the City of Saint Paul's trunk storm sewer before eventually discharging to the Mississippi River.

CRWD is considered a regulated non-traditional operator of a small municipal separate stormwater sewer system (MS4) and is required to obtain a 5-year general stormwater discharge permit under Phase II of the National Pollutant Discharge Elimination System (NPDES) stormwater program of the federal Clean Water Act. The Phase II Rule requires MS4 operators to develop and implement an enforceable stormwater pollution prevention program (SWPPP) that will reduce the discharge of pollutants from their MS4 to the 'maximum extent practicable' to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act (US EPA, 2000).

In August 2006, CRWD submitted to the Minnesota Pollution Control Agency (MPCA) a permit application and the SWPPP, which outlines CRWD's best management practices (BMPs) to control and reduce stormwater pollution. Two years later in November 2008, the Minnesota Pollution Control Agency (MPCA) determined that the CRWD SWPPP is adequate and issued CRWD an MS4 General Permit under the NPDES program.

As part of the SWPPP, CRWD is required to prepare and submit an annual report of progress made-to-date on implementing the BMPs and meeting the measurable goals of the SWPPP and of any proposed revisions. This report summarizes the stormwater management work conducted for the Trout Brook storm sewer system and the entire watershed district in 2008. This is the second annual SWPPP report prepared by CRWD.

2.0 STORMWATER POLLUTION PREVENTION PLAN

As part of the Trout Brook Storm Sewer Interceptor System discharge permit, CRWD has prepared and is implementing the SWPPP to control and reduce the discharge of stormwater-related pollutants from the MS4 to protect water quality of local receiving waters. Appendix A includes the SWPPP. The SWPPP consists of a combination of six minimum control measures: 1) public education and outreach; 2) public participation and involvement; 3) illicit discharge

detection and elimination; 4) construction site stormwater runoff control; 5) post-construction runoff control; and 6) pollution prevention and good housekeeping. Based on consideration of the sources of pollutants, the potentially polluting activities in the watershed and the sensitivity of the receiving waters, CRWD has selected the best management practices for each minimum control measure to accomplish federal and state regulatory requirements and CRWD water quality goals. CRWD provides BMP summary worksheets that include practice descriptions, the measurable goals, the implementation schedule and procedures, and the responsible staff person for implementation. Table 1 lists the required BMPs for each minimum control measure.

CRWD refers to several supporting documents for carrying out the SWPPP which includes the Watershed Management Plan (CRWD, 2000), CRWD Rules (CRWD, 2009), and BMP Inspection and Maintenance Protocols (CRWD, 2007). The Watershed Management Plan, created in 2000, defines the watershed goals and policies of CRWD, describes the current watershed issues, provides an inventory of the land and water resources, and defines the activities and measures to protect and restore the watershed. CRWD has begun the process of updating the Watershed Management Plan and is targeting a completion date of summer 2010. In the fall of 2006, CRWD promulgated rules to minimize the water quality, erosion, sedimentation and flooding impacts of development and redevelopment on local waters. The latest revision to CRWD Rules was made and approved by CRWD Board of Managers in January 2009. CRWD's BMP Inspection and Maintenance Protocols outline the procedures and maintenance schedules for BMPs owned or under agreement for maintenance by CRWD.

3.0 2008 SWPPP ACTIVITIES

Below is a narrative description of the stormwater management accomplishments in 2008. Appendix B includes a draft of the completed MPCA Annual Report Form for 2008, which briefly summarizes CRWD's stormwater-related activities and accomplishments.

3.1 Public Education and Outreach – Minimum Control Measure No. 1

In 2008, CRWD implemented a variety of watershed education and outreach activities with a particular focus on local stormwater issues and behaviors and activities that will address these issues. CRWD raises awareness about the watershed and environmentally sensitive behaviors and activities through direct education of students and residents, CRWD newsletters, press releases to local newspapers and supportive partnerships with district councils and community organizations. CRWD also provides technical assistance through our Stewardship Grant Program for water quality improvement projects and when possible through environmental learning service projects in area schools.

Table 1. Best Management Practices for Each Minimum Control Measure

BMP ID	Best Management Practices for Each Minimum Control Measure
MCM #1: Public Education & Outreach	
1a-1	Distribute Educational Materials
1b-1	Implement an Education Program
1c-1.1	Education Program: Public Education and Outreach - District Website
1c-1.2	Education Program: Public Education and Outreach – Como Lake Water Festival
1c-1.3	Education Program: Public Education and Outreach – Join Metro WaterShed Partners
1c-1.4	Education Program: Public Education and Outreach – Media Communication
1c-2	Education Program: Public Participation
1c-3	Education Program: Illicit Discharge Detection and Elimination
1c-4	Education Program: Construction Site Runoff Control
1c-5	Education Program: Post Construction Stormwater Management
1c-6	Education Program: Pollution Prevention/Good Housekeeping
1d-1	Coordination of Education Program
1e-1	Annual Public Meeting
MCM #2: Public Participation/Involvement	
2a-1	Comply with Public Notice Requirements
2b-1	Solicit Public Input and opinion on SWPPP
2c-1	Consider Public Input
MCM #3: Illicit Discharge Detection and Elimination	
3a-1	Storm Sewer System Map
3b-1	Regulatory Control Program
3c-1	Illicit Discharge Detection and Elimination Plan
3d-1	Public and Employee Illicit Discharge Information Program
3e-1	Identification of Non-Stormwater Discharges and Flows
MCM #4: Construction Site Stormwater Runoff Control	
4a-1	Ordinance or other Regulatory Mechanism
4b-1	Construction Site Implementation of Erosion and Sediment Control
4c-1	Waste Controls for Construction Site Operators
4d-1	Procedure for Site Plan Review
4e-1	Procedure for Receipt of Reports of Stormwater Non-compliance
4f-1	Procedures for Site Inspection and Enforcement
MCM #5: Post Construction Stormwater Management for New Development/Redevelopment	
5a-1	Development and Implementation of Structural and/or Non-structural BMPs
5b-1	Regulatory Mechanism to Address Post Construction Runoff for Development
5c-1	Long-term Operation and Maintenance of BMPs
MCM #6: Pollution Prevention/Good Housekeeping for Municipal Operations	
6a-1	Municipal Operations and Maintenance Program
6b-2	Annual Inspection of All Structural Pollution Control Devices
6b-3	Inspection of MS4 Outfalls, Sediment Basins, and Ponds
6b-4	Inspection Follow-up
6b-5	Record Reporting and Retention of all Inspections and Responses to Inspections
6b-6	Evaluation of Inspection Frequency

2008 Outreach

CRWD staff visited ten schools in the watershed district, which included Twin Cities Academy, Phalen Lake Elementary, Crossroads Elementary, International Academy, Expo Elementary, City Academy, Webster School, Gordon Parks High School, Adams Spanish Immersion School, and Great River School. Over 500 students were reached with information on stormwater, raingardens, water monitoring, and the watershed district. CRWD also conducted a field trip to stormwater BMP sites in CRWD for eight student docents at the Kitty Anderson Youth Science Center at the Science Museum of Minnesota.

CRWD held seven raingarden design and maintenance workshops in 2008 for various audiences including landscape professionals, Saint Paul district planning councils, Metro State University maintenance staff and the general public. In addition, 48 people attended a public tour of CRWD's raingardens in the Como neighborhood of Saint Paul in September 2008.

Partnering with the University of Minnesota and Minnesota Department of Natural Resources, CRWD hosted a Project WET (Water Education for Teachers) workshop for educators of K-12 students in late winter 2008. Minnesota Project WET trains classroom and other educators in hands-on, interactive lessons that are focused on water and encourage critical thinking.

CRWD staff was also present at several community events to provide information about the watershed and stormwater. The events were the District 17 Planning Council Environmental Fair, Millard Filmore Dinner (annual dinner celebrating the Mississippi River in Saint Paul), Eco Yard tour, and Minnesota State Fair.

In 2008, another mechanism for disseminating information about stormwater, water quality improvement projects and CRWD's stewardship grant program and permitting program was print media including two CRWD newsletters, ten press releases about CRWD events and programs, and three newspaper articles on stormwater-related topics.

CRWD also hosts and maintains a website, www.capitolregionwd.org, that provides a variety of information about the watershed, the Trout Brook storm sewer system, stormwater quality including CRWD monitoring data, stormwater funding opportunities, BMP projects, CRWD's Permitting Program, ways homeowners can protect the watershed, and links to stormwater management guidance material. The website is currently being redesigned with an anticipated launch date of late spring 2009. The new website will include additional information about Trout Brook Storm Sewer Interceptor System and have a Stormwater 101 page that provides basic information about the natural and man-made water cycles, stormwater, and the pollutants found in stormwater. Also to be found on the new site will be tips on how different audiences (i.e., homeowners, businesses, developers and students) can reduce their impact on local water resources.

2008 WaterShed Partners Participation

CRWD also regularly attends monthly meetings of the Metro WaterShed Partners (WSP), a coalition of more than 50 public, private and non-profit organizations in the Twin Cities metro area. The Partners collaborate on outreach projects and share resources with the goal of

inspiring people to act within their watershed. The WSP website, www.cleanwatermn.org, is a source for public stormwater pollution prevention education materials and products for stormwater educators, students, municipal and watershed organization staff. The site also has seasonal clean water tips for residents.

WaterShed Partners Media Campaign

Staff also participated in quarterly meetings of the WSP subcommittee, *Minnesota Water — Let’s Keep It Clean!* media campaign. Since 2007, the collaborative has launched an annual media campaign that has included radio and cable television service announcement spots aimed at educating the public about polluted runoff prevention. Table 2 lists the 2008 WSP ads.

Table 2. 2008 WSP Media Campaign

Media Type/Channel	Number of Ads	Message
Twins Radio Network	60 ads on KSTP AM 1500 radio; Average per-game audience is 611,000	Protect lakes and streams by minimizing fertilizer use and keeping grass clippings off of streets and sidewalks
Minnesota Public Radio	26 public service announcements in the spring 2008	Message of “Streets Connect to Streams” for pollution prevention
Comcast Cable Television	More than 200 30-second ads played in the fall	“Rubber Ducks” and “Fish Bowl” ads to keep stormwater clean – rake, sweep and pick up
Billboards	16 Twin Cities metro area billboard ads posted in the spring	Message of “Streets Connect to Streams” for pollution prevention

2008 Blue Thumb™ Participation

Staff also participated in quarterly meetings of the Blue Thumb™ Partnership, a program that promotes the use of native plants to watershed residents as an alternative to turf in raingardens, native plant gardens, and shoreline restoration projects. Blue Thumb™ Partners created a website of gardening resources for use by residents, and share print materials for distribution to local residents. Partners also benefit from the shared technical assistance of partners, and the opportunity to cultivate a consistent message when communicating with watershed residents.

In 2008, CRWD funded three Blue Thumb™ billboards that were posted within CRWD to encourage the use of native plants to minimize potable water use and stormwater runoff. In addition, a total of 625 *Blue Thumb™ Guide to Raingardens*, a raingarden construction how-to guide, were distributed to CRWD residents upon request and free of charge.

3.2 Public Involvement and Participation

CRWD established a citizen's advisory committee (CAC) in 1998 to advise and assist the Capitol Region Watershed District Board of Managers with:

- CRWD organizational development, planning processes, and program implementation;
- CRWD communications between the citizenry and the Board of Managers;
- consensus building and conflict resolution; and
- additional roles as jointly determined by the CAC and the Board of Managers.

CAC meetings are held on a monthly basis and open to the public. CRWD provides program and project updates to CAC members and solicits their input on CRWD activities including stormwater management projects and CRWD rules and permitting. Currently there are 15 CAC members.

Public input on CRWD's SWPPP was solicited in the spring 2009. A 30-day public comment period on the SWPPP and CRWD's 2008 stormwater management activities was held from May 8, 2009 to June 7, 2009. In addition, a public meeting was held in conjunction with the Board of Manager's meeting on June 3, 2009. CRWD provided advanced notice of the public meeting on our website, www.capitolregionwd.org, the Saint Paul Pioneer Press, and two other local newspapers.

3.3 Illicit Discharge Detection and Elimination

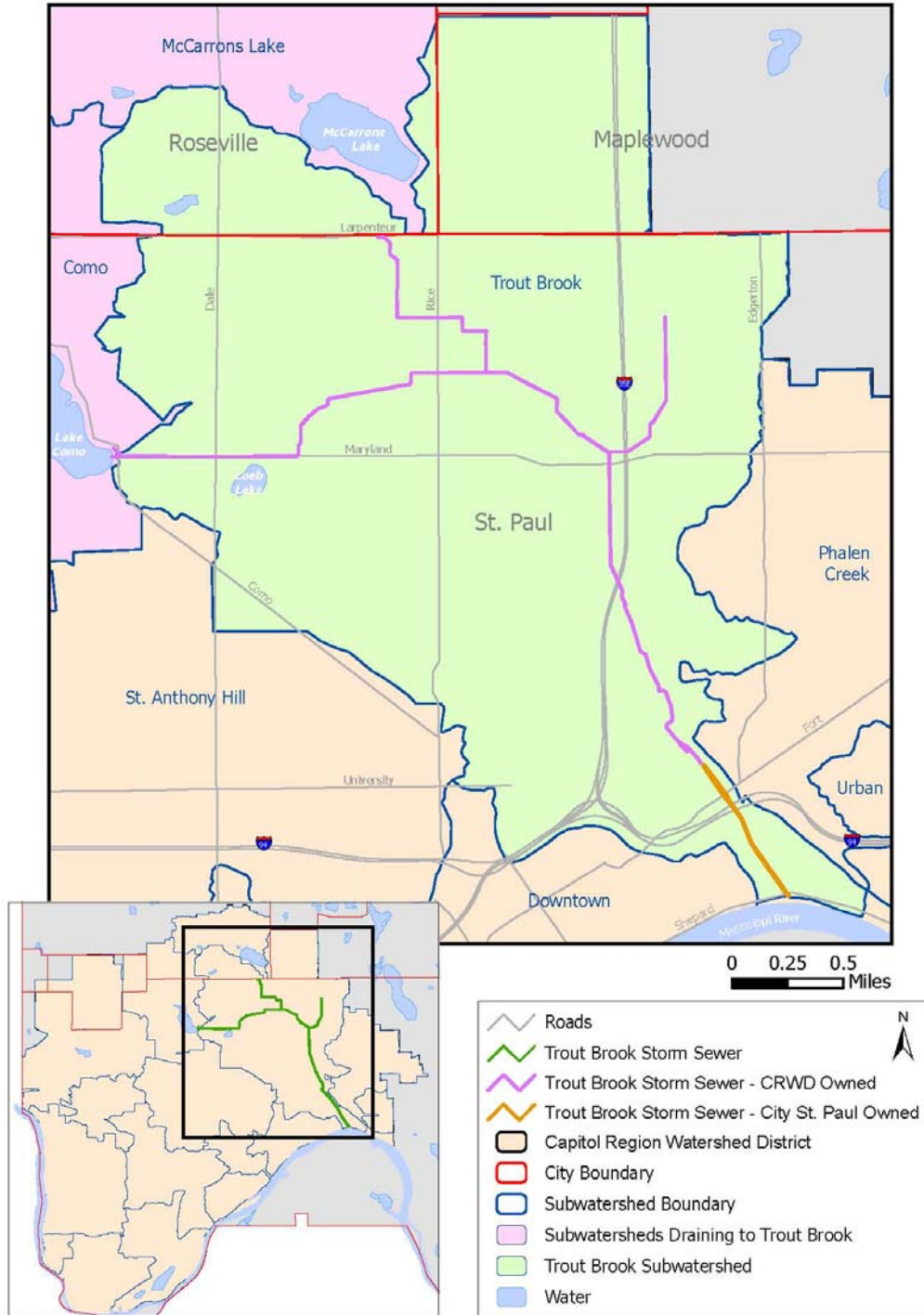
To better understand the components of the Trout Brook Storm Sewer Interceptor System and aid in identifying illicit discharges, CRWD has created a digital map of the storm sewer system that includes the conveyance pipe, subwatershed boundaries, waterbodies including lakes, ponds, and wetlands, outfall location, and city boundaries (Figure 2).

In late 2006, to ensure protection of local water quality and wetlands and reduce flooding, CRWD developed and promulgated a set of rules for its Permitting Program that regulates illicit discharges and connections (CRWD, 2006). Under Rule G, illicit connections and discharges to CRWD's MS4 are prohibited and any new direct connections are not allowed if the connection will cause or exacerbate water conveyance problems in the system. The rule also outlines the inspection and enforcement protocols for illicit discharges.

In spring 2008, CRWD staff observed paint in a storm drain connected to one of CRWD's infiltration trenches located in the Como Lake neighborhood just east of the MN State Fair. Using this incidence as an opportunity to educate the local neighborhood about preventing illicit discharges, CRWD created and disseminated over 600 educational postcards about the infiltration trenches, its purpose to minimize flooding and reduce stormwater runoff and the fact that dumping anything into storm drains is illegal. Appendix C is the illicit discharge postcard.

Figure 2. Trout Brook Storm Sewer System

Capitol Region Watershed District Trout Brook Storm Sewer



The public can report possible illegal stormwater discharges or improper dumping into storm drains or a waterbody on CRWD's website. In 2008, no illegal stormwater discharges were reported online.

Over the past several years, CRWD's stormwater monitoring data has indicated that there is a dry weather bacteria problem in at least one of the major subwatersheds of CRWD with individual bacteria concentrations as high as 200,000 colony forming units per 100 milliliters. In 2008, CRWD began development of an IDDE program to differentiate the source of bacteria as either human or non-human. CRWD anticipates completing development of the IDDE program and implementing it by the summer/fall of 2009.

3.4 Construction Site Stormwater Runoff Control

CRWD Rules have provisions for the control of erosion and sediment from any land disturbing activity equal to or greater than one acre. Developers are required to develop an erosion and sediment control plan for the construction period as part of their permit application. Erosion and sediment control measures shall be consistent with best management practices, and shall be sufficient to retain sediment onsite as demonstrated in the MPCA manual, "Protecting Water Quality in Urban Areas" (MPCA, 2000). The measures must meet the design, operation and maintenance standards outlined in the NPDES general permit for stormwater discharges from construction activities (US EPA, 2005). CRWD Erosion and Sediment Control Rule F also includes a provision for disposal of construction site waste.

CRWD has developed and initiated a permit review process for site plans of new developments and redevelopments projects that meet CRWD's size threshold of one acre of disturbance. The permit process flow chart outlines the steps for reviewing the permit application as well as lists who is involved, the timeline and deliverables. In 2008, 30 development projects equal to or greater than one acre were reviewed for compliance with CRWD's erosion and sedimentation control rule and were subsequently approved for a permit by CRWD's Board of Managers. Development sites were inspected by CRWD staff on a regular basis, typically twice a month and after a rain event, during the duration of construction. CRWD placed higher inspection priority on the development projects with greater potential of off-site sediment runoff and/or poor compliance history. CRWD completed inspection reports or checklists of the erosion and sediment control measures implemented, such as inlet protection, stabilized entrance measures, and dewatering activities.

This rule also has enforcement mechanisms to ensure compliance, which include verbal warnings, written warnings, stop-work orders, forfeiture of security bond money and court injunction to stop work. In 2008, CRWD issued 45 written warnings of violations to the erosion and sediment control rule. No other enforcement actions were needed to ensure compliance in 2008.

In addition, no outside reports of erosion and sedimentation issues were made to CRWD in 2008. A complaint can be brought to the attention of CRWD through our website, via email or by calling.

3.5 Post-Construction Stormwater Management

The requirements for post-construction stormwater management on new development and redevelopment sites equal to or greater than one acre are covered in CRWD's Rules (Rule C). Through the permitting process, CRWD encourages developers and property owners to select, design and implement innovative BMPs on their properties. These innovative BMPs filter and/or infiltrate stormwater runoff and mimic the natural water cycle by soaking water into the ground. They reduce stormwater volume and peak discharges, are more effective in removing pollutants, increase groundwater recharge, and aid in reducing flooding and erosion and sedimentation. CRWD requires permittees to reduce the stormwater volume generated from the first one-inch of rainfall because research indicates that this will address 90% of all precipitation events and about 87% of all rainfall volume in Minnesota.

Information on BMPs installed in 2008 and volume of stormwater treated and/or retained by each BMP are entered into the permits database. In 2008, 30 (re)development projects were issued a CRWD permit. The most common water quality treatment and/or volume reduction BMPs proposed were raingardens, infiltration trenches, and underground infiltration systems. The least common BMPs were green roofs and permeable pavement. These BMPs will control runoff from 64 acres of impervious area and treat and/or infiltrate a total of 120,400 cubic feet of stormwater runoff, which is nearly 50% more than is required by CRWD Rules.

CRWD's website provides information on innovative stormwater BMPs including a fact sheet on how to build a rain barrel, instructions on how to obtain the Blue Thumb Raingarden Guidebook, a link to the stormwater BMP section of the Minnesota Stormwater Manual (MPCA, 2005) and a fact sheet on permeable pavement. Also uploaded onto the website is information about stormwater BMP projects conducted by CRWD over the past several years including the Arlington-Pascal Stormwater Improvement Project of the underground storage/infiltration facility, infiltration trenches, raingardens, and the Como Park golf course stormwater pond. CRWD has established a BMP operation and maintenance program for these BMPs as well as the Villa Park wetland system in Roseville and the Sarita wetland and Sheep Pasture infiltration basin both located on the University of Minnesota-Saint Paul campus.

3.6 Pollution Prevention/Good Housekeeping for Municipal Operations

To ensure that BMPs operate according to design and achieve the highest level of pollutant removal, CRWD follows BMP operation and maintenance protocols that define the instructions and schedule for inspection and maintenance of the BMPs owned by CRWD or under agreement to be maintained by CRWD (CRWD, 2007). The eight raingardens, Villa Park wetland, and Como Park golf course stormwater pond are inspected and maintained on monthly basis while the eight underground infiltration trenches and an underground storage facility are inspected semi-annually. In addition, all BMPs including Sarita wetland and Sheep Pasture infiltration basin are inspected after a rainfall event equal to or greater than one inch. The inlets, catch basins and manholes to these BMPs are inspected and maintained semi-annually to ensure successful and effective operation. CRWD has created an EXCEL database for BMPs that lists the type of BMP, the date, time and number of hours of the inspection and/or

maintenance activity, the staff involved in the activity, and description of maintenance performed.

BMP maintenance activities in 2008 included sediment and debris removal in the spring and fall from the pretreatment chamber of the underground storage facility and the catch basins of the infiltration trenches. In addition, many of the gaskets for the hoods in the infiltration trench catch basins were replaced in 2008. From spring through fall, maintenance of the eight raingardens included removal of weeds and debris, replacement of plants, and placement of additional mulch material. Staff time on maintaining each raingarden ranged from 34 hours to 92 hours in 2008. No maintenance was conducted on the stormwater pond in the Como Park Golf Course.

4.0 ANTICIPATED KEY ACTIVITIES FOR 2009

Last year, CRWD had hoped to make significant progress on MCM #3 – Illicit Discharge Detection and Elimination. Unfortunately due to staffing constraints, CRWD was unable to complete development of an illicit discharge monitoring program in 2008. This year, CRWD anticipates completing development of the illicit discharge monitoring program and convening a meeting with the City of Saint Paul to discuss water quality issues, previous city IDDE work, new ideas for identifying the sources of illicit discharges, and resources available from the city. Implementing source identification of illicit discharges may begin as a pilot project in one subwatershed before applying the approach district-wide.

CRWD is partnering with the Minnehaha Creek Watershed District, the Minnesota Arboretum and others on a Green Infrastructure conference in the fall of 2009. The intent of the conference is to raise the awareness of green infrastructure as a sustainable, cost-effective, and environmentally-friendly approach to managing stormwater. The target audiences for the conference are municipal officials and other decision makers and employees from the planning department, department of public works and other departments involved in stormwater management.

For the Permitting Program, CRWD is conducting an analysis of lowering the development size threshold to less than an acre. This would require property owners of smaller sites to comply with the rules for construction site erosion and sediment control and post construction stormwater management. CRWD has established a technical advisory committee to assess the benefits, challenges and issues related to lowering the permit threshold.

In 2009, CRWD will create GIS maps of the locations of the permitted development projects and Stewardship Grant projects since 2006. These maps will geographically indicate where development impacts have occurred and where BMPs have been constructed to improve water quality.

5.0 RECOMMENDED MODIFICATIONS TO THE SWPPP

CRWD does not anticipate making any modifications to the SWPPP for 2009.

6.0 REFERENCES

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