

2013

*Pilot Watershed-Based Stormwater Approach in Ramsey -  
Washington Metro Watershed District*



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# Executive Summary

## Conclusions

1. Fourteen MS4 stormwater permit approaches across the United States were investigated for applicability in RWMWD in conjunction with Phase One, Task 1. The Phase I and Phase II co-permittee examples, especially two in Colorado reflected a watershed-based approach.
2. Legal and administrative framework issues reviewed in Phase One, Task 2 narrowed the focus toward an integrated planning and stormwater permit watershed-based approach.
3. A co-permittee approach with integrated planning and permitting was selected and examined further in Phase One, Tasks 3, 4 and 5.
4. In the spring of 2012 and Phase One, Task 6 several meetings with District member cities included a co-permittee watershed-based approach with planning integration presentation. Feedback from member cities staff indicated that cost-savings were not evident and MS4 staff workload remained the same. While integrated planning was evident it did not rise to a level of importance where member cities would support adopting a co-permittee watershed-based approach. A co-permittee approach was not pursued further.
5. The watershed-based approach was re-evaluated in the summer 2012 along with executing a project scope of work amendment. A new watershed-based approach called Strategy Implementation (SI) was developed and presented to state and federal regulatory agencies with initial positive feedback.
6. In Phase One, Task 7 on an annual basis for each of the 12 RWMWD member cities, cost savings for MPCA staff oversight are about \$16,650 or \$83,270 over the life of a five-year MS4 permit. Savings are \$200,000 per year or \$1,000,000 cumulatively for all 12 cities to the MPCA over the life of a five-year MPCA permit (Appendix D, p. 82).
7. In a Strategy Implementation approach as part of Task 7, the 12 RWMWD member cities cost savings ranged from 7.2% to 20.5% using two different methodologies for MCM compliance. Annual savings for all 12 member cities ranging from \$180,000 to \$513,000. Over the 5-year life of a Strategy Implementation watershed-based approach reveals a range of \$900,000 to \$2,565,000 in savings for all 12 member cities (Appendix D, pp. 84-86).

8. In conjunction with Phase One, Task 8, meetings with ten of the twelve member cities were held in November/December along with Capital Region WD staff to receive feedback on the Strategy Implementation watershed-based approach. Comments were generally favorable to the new approach.
9. In order to better corroborate member cities comments received during the meetings, an electronic survey was submitted to attendees during December 7<sup>th</sup> through 14<sup>th</sup>. Survey results were quite favorable to the Strategy Implementation approach.
10. There is support in moving Phase One *Pilot* study results to a Phase Two implementation program. Steps in a Phase Two implementation will be to develop a scope of work necessary to bring the Strategy Implementation watershed-based approach as a *Pilot* in Minnesota. It is envisioned Phase Two would be a two-year effort, commencing in the 4<sup>th</sup> quarter of 2013 and continuing to the end of 2015.
11. In conjunction with Phase One, Task 9, the following would be included in the Phase Two Implementation – Scope of Work:
  - a. Develop with MPCA/BWSR and regulated stakeholders, a detailed scope of work for a new watershed-based approach modeled after Strategy Implementation;
  - b. Develop with at least three District member cities, public works *Best Practices* and their integration into the Strategy Implementation approach;
  - c. Work with existing BWSR staff and regulated stakeholders group on amendments to M.S. 103B and M.R. 8410, if needed to accommodate the Strategy Implementation approach;
  - d. Explore, develop and implement new web-based tracking software/system addressing the EMS part of the Strategy Implementation approach integrating *Best Practices*; and
  - e. Work with BWSR and MPCA staff and regulated stakeholders on how to best move the Strategy Implementation approach statewide in conjunction with TMDL implementation plans as soon as 2015.
12. A recommendation from the Phase One study is a Phase Two implementation program is initiated in 2013. The timing for a Phase Two implementation effort is important due to interest by member cities in the RWMWD and regulatory agencies. Collaboration is key component, but more importantly is that all stakeholders involved keep the following in mind as a constant:

The goal of Strategy Implementation is to continue to foster innovation in stormwater management (MIDS, QLP, etc.) and public works *Best Practices* to assure receiving water quality improvement.



## Background

The Ramsey-Washington Metro Watershed District (RWMWD) is located in the eastern portion of the Minneapolis – St. Paul Metropolitan Area. The 64 square-mile District includes all or part of these 12 member cities in Ramsey and Washington Counties: St. Paul, Woodbury, Oakdale, Landfall, North St. Paul, Maplewood, Little Canada, White Bear Lake, Vadnais Heights, Gem Lake, Shoreview and Roseville. The District came into existence in 1975 and follows Minnesota’s Watershed Law.<sup>1</sup> The Law requires planning and implementation processes through the development of a Watershed Management Plan<sup>2</sup> and for RWMWD in conjunction with the Metropolitan Water Management Act.<sup>3</sup> The Act requires member cities to prepare Local Water Management Plans “in the degree of detail required by the watershed plan” and approved by RWMWD with review by the Metropolitan Council.<sup>4</sup> Annual reporting on Watershed Plan compliance is necessary by RWMWD to the Minnesota Board of Water and Soil Resources (BWSR).<sup>5</sup>

The RWMWD owns and operates stormwater conveyance structures and therefore is a small mandatory MS4 (Municipal Separate Storm Sewer System) by the Minnesota Pollution Control Agency (MPCA), (<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/municipal-stormwater/municipal-separate-storm-sewer-systems-ms4.html#whatis>). Stormwater general permit compliance is effectuated by the RWMWD and member cities each preparing a Storm Water Pollution Prevention Program or SWPPP.<sup>6</sup>

Over the past six years, the RWMWD actively investigated relationships between stormwater permitting with watershed and local planning, especially with the advent of the MS4 permit program in 1999.<sup>7</sup> Important aspects from two studies with which RWMWD had involvement, explored in varying detail program redundancy,

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<sup>1</sup> Minnesota Statutes, Chapter 103D et seq.

<sup>2</sup> Minnesota Statutes, §103D.401.

<sup>3</sup> Minnesota Statutes, Chapter 103B, et seq.

<sup>4</sup> Minnesota Statutes, § 103B.235.

<sup>5</sup> Minnesota Statutes, § 103B.231, Subd. 14.

<sup>6</sup> Minnesota Administrative Rules, § 7090.1040.

<sup>7</sup> Environmental Protection Agency. 1999. **Federal Register** / Vol. 64, No. 235. National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. Title 40, Code of Federal Regulations, Parts 9, 122, 123, and 124. Effective February 7, 2000.

implementation issues and potential solutions between both permit and planning programs. State Statutes referenced above and Federal law, primarily the Clean Water Act<sup>8</sup> along with associated regulations implement surface water management, specifically stormwater in Minnesota. This *Pilot* study furthers the discussion from the previous studies to a solution with better efficiency and measureable water quality outcomes in concert with the appropriate governing agencies and authorities.

### **2006 Framework for Integrated Watershed-Based Stormwater Permitting in Minnesota**

The RWMWD collaborated with the Minnesota Board of Water and Soil Resources (BWSR) in 2005-6 to complete the initial effort to address the watershed-based concept relating to stormwater permitting in Minnesota. The 2006 Framework Report<sup>9</sup> introduced the watershed-based approach as follows (paragraph two, page 5, emphasis added):

#### **“INTRODUCTION AND PURPOSE**

The purpose of this framework document is to describe the concept of and proposed process for integrated watershed-based stormwater permitting in Minnesota. Integrated watershed-based stormwater permitting is a proposed approach for streamlining federal and state regulatory and, in some cases, voluntary requirements for watershed and stormwater management. The approach addresses the existing overlaps and gaps in federal and state requirements that have the potential to burden regulated and regulating entities, as well as hamper the effectiveness of these regulatory programs. Successful development and implementation of an integrated watershed-based stormwater permitting approach will ensure compliance while producing both efficiencies and environmental results.”

The above language laid the groundwork for analysis of the existing federal stormwater permitting and other approaches together with water planning in Minnesota. At the conclusion of the 2006 Framework Report, it was evident other potential approaches were worth examination below (paragraph four, page 51):

#### **“SECTION FOUR: PROPOSED NEXT STEPS IN DEVELOPING AND PILOTING THE INTEGRATED WATERSHED-BASED STORMWATER PERMITTING FRAMEWORK**

In addition, project partners would like to further investigate the design of a framework that assesses the major components for a *hybrid* watershed management plan incorporating existing watershed plan components (M.S. 103B.201) and MS4 Stormwater Pollution Prevention Program (SWPPP) requirements, including administrative procedures and potential resource efficiencies.”

The Section Four suggestion along with the other approaches in the 2006 Framework Report invited further detailed analysis of related issues and administrative aspects.

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<sup>8</sup> 33 U.S.C. 1251 et seq.

<sup>9</sup> Ramsey-Washington Metro Watershed District. 2006. Framework for Integrated Watershed-Based Stormwater Permitting in Minnesota. Prepared by Tetra Tech, Inc. Cleveland, OH and Schilling Consultant Services LLC, Saint Paul, MN. Available at BWSR website (<http://www.bwsr.state.mn.us/publications/WBframework.pdf>).

## 2008 Integrating Stormwater Permitting and Watershed Management

During 2007 - 2008, BWSR continued the watershed-based effort by expanding the 2006 Framework Report. In fact the title for the 2008 Integrated Report<sup>10</sup> meant both permitting and planning would be explored in more detail. Other major issues from the 2006 Framework Report, Section Four were addressed in more detail such as the legal administrative and civil liability exposure to municipalities with a watershed-based/permitting approach. Two advisory groups were convened to provide feedback on watershed-based approach concepts. These and a host of other analysis and discussions completed the 2008 Integrated Report. Excerpts from the Executive Summary, Conclusions and Recommendations (headings only), [pp. 3 – 7] are below.

### A. **Conclusions:**

1. *No significant legal barriers;*
2. *Increased liability exposure from collaboration is manageable;*
3. *Cost savings are likely;*
4. *Options Explored:*
  - a. Recognize Another NPDES-Regulated Entity with Implementation Responsibility;
  - b. Individual Applicants (without and with WMO/MS4 partnering);
  - c. Co-permittee;
    - 1) Education and Outreach;
    - 2) Public Participation;
    - 3) Inspection;
    - 4) Maintenance of BMPs;
    - 5) Illicit Discharge Detection and Elimination;
    - 6) MPCA – Local Assumption.
  - d. Sole permittee approach;
  - e. Qualifying Local Program(QLP);
5. *Planning processes are not well aligned;*
6. *MPCA review resources are limited; and*
7. *2008 represents an important “Window of Opportunity”.*

### **Recommendations:**

1. Local collaboration among MS4s and watershed organizations should continue and expand;
2. BWSR, the MPCA, the Metropolitan Council, and the Minnesota Department of Health should collaborate to provide improved alignment of water planning processes
3. MPCA should evaluate potential changes to the General Permit to allow SWPPPs to be integrated into local water plans; and
4. The MPCA Commissioner and BWSR Executive Director should convene a Work Group to review and implement these recommendations through an interagency memorandum of understanding.

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<sup>10</sup> Minnesota Board of Water and Soil Resources. 2008. Integrating Stormwater Permitting and Watershed Management. Prepared also for the BWSR and Minnesota Stormwater Steering Committee by Smith Partners, PLLP, Minneapolis, MN and Emmons & Olivier Resources, Inc., Oakdale, MN. Available on the BWSR website (<http://www.bwsr.state.mn.us/publications/stormwater04-07-08.pdf>).

From the 2008 Integrated Report, it was evident there were some barriers (legal and administrative) that could impede moving ahead with a *Pilot* effort, but they were not insurmountable. Several discussions in the 2008 Integrated Report were very important in focusing upon whether to move ahead with the *Pilot* effort. The discussion headings and 2008 Integrated Report citations are shown as follows:

1. Alignment of Stormwater Planning Obligations (pp. 93-96);
2. MPCA General Permit Allowing Inclusion of SWPPP in Local Water Plan (pp. 96-98);
3. Framework for SWPPP Incorporation (pp.98-99);
4. Consistent Implementation and MPCA Program Control (pp. 99-101); and
5. Will the Proposed General Permit Be Attractive to MS4's? (pp. 101-102).

### **National Research Council Report, 2009**

At the national level and concurrent with the 2008 Integrated Report, the National Academy of Sciences, National Research Council completed a major study (NRC 2009 Report)<sup>11</sup> addressing how stormwater was managed, permitted and controlled in the United States. The NRC 2009 Report had a major impact, certainly at the Federal level with respect to stormwater NPDES permitting (municipal, industrial and construction activity) primarily from a 'receiving water outcome perspective. In other words, the Report did not deal with effectiveness minutia for best management practices, instead it deal with how could stormwater management be more effectively administered so that water quality improvement was assured. For example in the NRC 2009 Report:

Page 480, paragraph two;

#### **Watershed Management and Permitting Issues**

A true watershed-based approach would incorporate the full range of municipal and industrial sources, including:

- (1) public streets and highways;
- (2) municipal stormwater drainage systems;
- (3) municipal separate and combined wastewater collection, conveyance, and treatment systems;
- (4) industrial stormwater and process wastewater discharges;
- (5) private residential and commercial property; and
- (6) construction sites.

Page 482, paragraph one;

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<sup>11</sup> National Research Council, 2009. Urban Stormwater Management in the United States. ISBN: 0-309-12540-5, 610 pages (draft in 2008, final in 2009). National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242; Internet, <http://www.nap.edu>.

Significant disadvantages of the current system of separate permits for municipal, construction, and industrial activities are

- (1) the permits attack the problem on a piecemeal basis,
- (2) they are hard to coordinate because they expire at different times,
- (3) they are not designed to allow for long-term operation of SCMs<sup>1</sup>, and
- (4) they do not cover all discharges.

<sup>1</sup> The NRC/NAS report abandoned BMPs as a poor description, notwithstanding that the term was in the Clean Water Act and instead adopted the term Stormwater Control Measures (SCMs).

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### ***Steps Toward Watershed-based Permitting***

It is essential to clarify that watershed-based permitting as formulated in this chapter differs sharply from what has been termed watershed (or basin) planning. According to EPA, watershed planning “identifies broad goals and objectives, describes environmental problems, outlines specific alternatives for restoration and protection, and documents where, how, and by whom these action alternatives will be evaluated, selected, and implemented” (<http://www.epa.gov/watertrain/planning/planning7.htm>). Drawing up such a plan is a time consuming process, which has often become an end in itself, instead of a means to an end. Completing a full watershed plan, as usually construed, should not be a prerequisite to watershed-based permitting. Rather, the anticipated process would spring much more from comprehensive, advanced scientific and technical analysis of the water resources to be managed and their contributing catchment areas than from a planning framework.

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Effective watershed-based permitting as outlined in this report is composed of:

1. Centralizing responsibility and authority for implementation with a municipal lead permittee working in partnership with other municipalities in the watershed as co-permittees;
2. Adopting a minimum goal in every watershed to avoid any further loss or degradation of designated beneficial uses within the watershed’s component water bodies;
3. Assessing water bodies that are not providing designated beneficial uses in order to set goals aimed at recovering these uses;
4. Defining careful, complete, and clear specific objectives to be achieved through management and permitting;
5. Comprehensive impact source analysis as a foundation for targeting solutions;
6. Determining the most effective ways to isolate, to the extent possible, receiving water bodies from exposure to those impact sources;
7. Developing and appropriately allocating funding sources to enable the lead permittee and partners to implement effectively;
8. Developing a monitoring program composed of direct measures to assess compliance and progress toward achieving objectives and diagnosing reasons for the ability or failure to meet objectives, in support of active adaptive management; and
9. Developing a market system of trading credits as a tool available to municipal co-permittees to achieve watershed objectives, even if solutions cannot be uniformly applied.

Based upon the 2008 Integrated Report and the NRC 2009 Report, the RWMWD requested and participated in a conference call with stormwater permits and watershed staff persons from USEPA – Region V and Headquarters USEPA, MPCA on October 19, 2009. The meeting discussed outcomes from both reports and where Minnesota, the RWMWD and MPCA staff were with respect to the next potential steps towards a watershed-based permit or other approach. Region V, USEPA was delegated responsibility by Headquarters - USEPA for leading watershed-based approaches in the United States. At the October meeting, three potential *pilot* stormwater permits or approach efforts were identified by USEPA, Region V staff as follows in the United States:

1. Menomonee River Watershed, Milwaukee, Wisconsin (EPA – Region V);
2. Middle Rio Grande River, Albuquerque, New Mexico (EPA - Regions VI and VIII); and
3. Ramsey-Washington Metro Watershed District, Saint Paul, Minnesota (EPA – Region V).

Subsequent to the meeting, an initial draft scope of work for the *Pilot* Phase One Watershed-based Integrated Stormwater Approach project in the RWMWD was completed in February 2010 and finalized approximately one year later.

### **2012 *Pilot* Watershed-Based Stormwater Approach in RWMWD**

The background and facts detailed above led to the proposal and implementation of the 2012 *Pilot* Watershed-Based Stormwater Approach project. The RWMWD is an innovative water management organization in Minnesota having achieved local and national awards for ‘cutting edge’ nonpoint pollution control technologies and demonstrated receiving water quality improvement. Thus the scope of work design and implementation of this project fit nicely into its present and past repertoire.

The study began in April 2011 with a one-year completion date. Four project goals are enumerated below.

#### **Goal 1:**

Develop a watershed-based stormwater approach acceptable to stormwater dischargers resulting in greater efficiency through a sharing of responsibilities and tasks associated with implementing the MS4 permit, six Minimum Control Measures by local governments [Tasks 1 – 3 below].

#### **Goal 2:**

Demonstrate to MPCA and the USEPA such an approach will work and provide a stronger assurance of receiving water quality improvement [Tasks 4 – 7 below].

**Goal 3:**

Demonstrate that the Strategic Implementation (SI) watershed based approach is an efficient and cost effective program for stormwater management and will result in better receiving water quality [Task 8 below].

**Goal 4:**

Provide appropriate tools to assist MS4 partnering in a SI watershed-based approach and Final Phase 1 report [Task 9 below].

**Project Amendments**

Two amendments were encountered during project period.

1. The first amendment extended the project completion deadline to June 30, 2012 as a result of an administrative funding issue by the State of Minnesota during the summer of 2011. An approximate two-month delay occurred outside of RWMWD influence.
2. The second amendment was unique to the project scope of work. During Task 6 completion in March – April 2012, feedback from RWMWD member cities (discussed within the Task outcome) was received necessitating a significant change in the *Pilot Watershed-Based Approach Project*. While member cities responses could not have been anticipated, the feedback resulted in both a project scope of work and completion date amendment requests and approval.
3. Neither of the project amendments resulted in any change in the Contractor compensation.

# Task 1 – Review of Permit Examples

## Task 1 - Description

“Complete external review and personal communication with four or five co-permittee combination Phase 1 - Phase 2 (MS4) permit examples with respect to positive and negative outcomes or challenges [USEPA, Region V request of 04/02/2010 on *Draft Work Program*].”

## Individual Permit

Stormwater permitting under the National Pollutant Discharge Elimination System (NPDES) follows several options under the 1990 Phase I<sup>12</sup> or 1999 Phase II<sup>13</sup> regulations. Both the cities of Minneapolis and Saint Paul applied and received individual Phase I permits from the MPCA. The Phase I regulation allows for a system-wide, jurisdiction or watershed approach<sup>14</sup>. The language in the latter regulation citation § (v) is characteristic of a watershed permit approach. Neither of the Minneapolis or Saint Paul individual Phase I permits issued used either of these two approaches § (iv) or (v), however the use is not uncommon across the United States. Most often, the system-wide approach has taken on a watershed appearance when the lead permittee has been a sanitary sewer authority or county. There are no Phase II MS4 individual permits in Minnesota.

## General Permit

A **General Permit** under the Phase II<sup>15</sup> regulation allows two options for small MS4s seeking coverage.

**Option One:** the MS4 submits a Notice of Intent (NOI) to comply including those best management practices (BMPs) and measurable goals required by § 122.34(d) as part of a Storm Water Management Program (SWMP) [Note: in Minnesota the SWMP is known as a Storm Water Pollution Prevention Program or SWPPP]. Option One is most common implemented in Minnesota.

**Option Two:** the small MS4 (perhaps a ‘lead’ MS4, although the regulation is silent) and other municipalities or governmental entities may jointly submit an NOI. In this sharing responsibilities option, a ‘lead’ MS4 describes which minimum measures it will implement and which minimum measures other municipalities or governmental entities will implement within the ‘lead’ MS4 area. While Option Two may sound like a co-permittee approach, this exact term is not used in the federal regulation citation, but the regulatory language implies a watershed-based

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<sup>12</sup> Title 40, Code of Federal Regulations, § 122.26(a)(3) applicable to large and medium MS4s (e.g. Minneapolis and Saint Paul).

<sup>13</sup> Title 40, CFR, § 122.33(b)2(i) or (ii) applicable to small MS4s.

<sup>14</sup> Title 40, CFR, § 122.26(a)(3) (iv) and (v).

<sup>15</sup> Title 40, CFR, § 122.33(b)(1) applicable to small MS4s.



approach, assuming the ‘lead’ MS4 is also a watershed management authority. In Minnesota, the existing MPCA stormwater general permit does not specifically spell-out this option with respect to one NOI submitted by multiple MS4s, although sharing of minimum measures responsibilities is allowed.

### Co-Permittee

A **Co-Permittee** approach is accomplished in several ways. Under Phase I<sup>16</sup>, a large or medium MS4 can apply as either the permittee or co-permittee to accomplish either § (iv) or (v) under the individual permit previously discussed. Since Minneapolis and Saint Paul applied for and received Phase I individual stormwater permits, a co-permittee approach applying to either city is not discussed further. Under Phase II<sup>17</sup> the MS4 and another regulated entity can jointly apply as co-permittees under an individual permit in the following two regulatory citation scenarios.

- (b)(2) (i) The co-permittees agree to implement specific portions of a SWPPP incorporating the six Minimum Control Measures as described in § 122.34(b).
- (b)(2) (ii) The co-permittees implement a program that is different than required under § 122.34.

Both the two Phase II co-permittee approaches necessitate drafting and issuance of an individual permit by the regulatory agency. A watershed-based approach could work under either of the above two scenarios.

### Sole Permittee or Watershed-based Permit

**Sole Permittee or Watershed-based Permit.** The term: **Sole Permittee** arose out of the 2006 Report. A more appropriate term would be **Watershed-based Permit**. The latter term grew-out of a series of U.S. Environmental Protection Agency memoranda and reports from 1994 to 2007<sup>18 19 20 21 22 23</sup> where a stormwater or watershed

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<sup>16</sup> Title 40, CFR, § 122.26(a)(3) (iii).

<sup>17</sup> Title 40, CFR, § 122.33(b)2 (iii). “If allowed by your NPDES permitting authority, you and another regulated entity may jointly apply under either paragraph (b)(2)(i) or (b)(2)(ii) of this section to be co-permittees under an individual permit.”

<sup>18</sup> U.S. Environmental Protection Agency. 1994. Moving the NPDES Program to a Watershed Approach. (38 pp.) Office of Wastewater Management, Permits Division, 401 M Street S.W., Washington DC 20460.

<sup>19</sup> U.S. Environmental Protection Agency. 2003. Watershed-Based NPDES Permitting Policy Statement. G. Tracy Mehan III, Assistant Administrator. Memorandum to Regions I – X, January 3, 2003. (4 pp.).

<sup>20</sup> U.S. Environmental Protection Agency. 2003. Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance. (93 pp.) Water Permits Division, 401 M Street S.W., Washington DC 20460.

authority (e.g. water management organization in Minnesota, county, etc.) would develop and submit a watershed SWMP to the state regulatory agency along with the annual report. The stormwater or watershed authority is responsible for ensuring MCM implementation, but may or may not actually implement them. Such implementation responsibilities would be contractually determined between the stormwater authority and other MS4s, not in the SWMP. In Minnesota, such a process could be constructed from the existing watershed/local planning processes.

### **Stormwater Permit Approaches in the United States**

Fourteen (14) stormwater permit examples across the United States were examined in detail along with the administrative frameworks applicable to the permittees, regulatory requirements; other permits covered and associated websites. Appendix A is a table presenting analysis details for the 14 stormwater permit examples and the three *Pilot* projects. Appendix A has been updated, in part, to 2013 as there have been notable changes to many of the 14 examples. Table 1 below summarizes Appendix A and aggregates similar permit framework approaches which are discussed below. The three *Pilot* projects designated by USEPA are listed first. The **Permit Type** column reflects an interpretation of how the NPDES permit is structured not necessarily whether it is an individual (more common) or general permit. In addition, *hybrid* is added to some of the permit types to reflect slightly different approach.

#### **Pilot No. 1, Menomonee River Watershed, Wisconsin**

It is unique for several reasons as follows:

- The term “Group” is particular to Wisconsin. The state of Wisconsin was one of the first (if not the first) to regulate stormwater discharges under state regulation. The ‘Group’ term was an effort to reflect a watershed-based approach through the co-permittee framework;
- The City of Milwaukee (Phase I) is part of the Menomonee River ‘Group’ permit, but not a lead permittee.

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<sup>21</sup> U.S. Environmental Protection Agency. 2003. Watershed-Based NPDES Permitting – Rethinking Permitting as Usual. Brochure (3 pp.). Available at ([www.epa.gov/npdes/watersheds](http://www.epa.gov/npdes/watersheds)). EPA-833-F-03-004 May 2003.

<sup>22</sup> U.S. Environmental Protection Agency. 2007. Watershed-based National Pollutant Discharge Elimination System (NPDES) Permitting Technical Guidance. EPA 833-B-07-004. (84 pp.) Office of Wastewater Management, Water Permits Division, 1200 Pennsylvania Avenue, NW Washington, DC 20460.

<sup>23</sup> U.S. Environmental Protection Agency. 2008. Watershed-based NPDES Permitting. PPT presentation. (24 pp.). Stephan, D. May 14, 2008. Office of Wastewater Management, Water Permits Division, 1200 Pennsylvania Avenue, NW Washington, DC 20460.

The Group permit was issued by WDNR in late November 2012.

### Pilot No. 2, Middle Rio Grande River, New Mexico

It is a watershed-based and could be a co-permittee approach but the City of Albuquerque (Phase I) may not be the lead permittee. Public notice in the *Federal Register* occurred May 1, 2013<sup>24</sup>. The *draft* permit<sup>25</sup> and fact sheet<sup>26</sup> are available at USEPA, Region Six. Unique challenges includes agreements between permittees, low impact development (LID) and ‘western water law’ (prior appropriation doctrine). While well beyond this project scope, a simple rhetorical inquiry toward western water law and LID: Can you infiltrate stormwater when a ‘person’ downstream has pre-existing water rights? Minnesota subscribes to ‘eastern water law’ (riparian rights doctrine) which applies to *Pilot* No. 3 RWMWD and *Pilot* No. 1, Menomonee River, but the water use issue will become very important long-term.

### Phase I, co-permittee examples

Across the United States, initial stormwater regulatory approach in the early 1990s constituted a Phase I individual permit of which more than 1,000 were issued by USEPA. Phase I permits applied to the large<sup>27</sup> or medium<sup>28</sup> sized cities, counties or special purpose government units (e.g. sanitary district, flood control district, drainage authority or other) that owned or operated municipal separate storm sewer systems (coined: MS4s, but not really part of the vernacular till Phase II regulations in 1999). As discussed previously (page 9), two cities in Minnesota, Minneapolis and Saint Paul were designated by USEPA as “Large” cities and therefore applied and received Phase I, individual stormwater permits.

An exceptional Phase I stormwater permit and co-permittee example is the Los Angeles County Flood Control District stormwater permit (Table 1, No. 1) which reflects a geographically large, complex and essentially watershed-based approach in California. The Flood Control District has been in existence for nearly 100 years,

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<sup>24</sup> *Federal Register*. Vol. 78, No. 84. May 1, 2013, pp. 25435-25436.

<sup>25</sup> *Draft* Middle Rio Grande River, New Mexico stormwater permit, USEPA – Region Six (<http://epa.gov/region6/water/npdes/sw/ms4/april18-2013-genpermit.pdf>).

<sup>26</sup> Fact Sheet for Middle Rio Grande River, New Mexico stormwater permit, USEPA – Region Six (<http://epa.gov/region6/water/npdes/sw/ms4/april2013-factsheet.pdf>).

<sup>27</sup> 40 CFR, §§122.26(b)(4).

<sup>28</sup> 40 CFR, §§122.26(b)(7).

operated since 1985 under Los Angeles County Public Works Department<sup>29</sup> and is the lead-permittee along with 84 co-permittees managing eight major watersheds draining into the Pacific Ocean, Santa Monica Bay. By definition, the District and the operations are watershed-based for the nearly 100 years.

Ventura County Watershed Protection District (VCWPD)<sup>30</sup> in California (Table 1, No. 2) is a similar special purpose government unit in existence since 1944 (Ventura County Flood Control District till 2003, then name change). It operates in the similar manner as Los Angeles Flood Control District and the VCWPD is administratively under Ventura County. The VCWPD received a reissued Phase I individual stormwater permit<sup>31</sup> in July 8, 2010 along with ten co-permittees. It is important in understanding watershed-based stormwater permitting to recognize that both LACFCD and VCWPD were existing entities with a long history pre-dating the Clean Water Act, Section 402(p)<sup>32</sup>, stormwater permit authority. As federal and state laws were enacted, social moirés changed, health and ecological concerns arose, but the administrative framework of these two California agencies remained.

It is noteworthy that both watershed management plans and Total Maximum Daily Load (TMDL) implementation plans have been in place for five or more years for the LAFCD and VCWPD reissued Phase I permits. Results indicate Best Management Practices (BMPs) innovation development and installations driven by the TMDL plans with some receiving water quality improvements. In the two California examples: are Clean Water Act stormwater permits, TMDL implementation plans and/or Los Angeles Basin planning processes (the latter not discussed here) resulting in better water quality? Substantial challenges remain for most nonpoint source pollutants monitored in the LAFCD<sup>33</sup> receiving waters although very good progress has been made on the Trash TMDL<sup>34</sup>.

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<sup>29</sup> Los Angeles Flood Control District. 2013. (<http://dpw.lacounty.gov/wmd/dspFloodControlDist.cfm>).

<sup>30</sup> Ventura Watershed Protection District. 2013. ([http://portal.countyofventura.org/portal/page/portal/PUBLIC\\_WORKS/Watershed\\_Protection\\_District](http://portal.countyofventura.org/portal/page/portal/PUBLIC_WORKS/Watershed_Protection_District))

<sup>31</sup> Ventura County Watershed Protection District. 2010. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - LOS ANGELES REGION, ORDER R4-2010-0108 NPDES PERMIT NO. CAS004002.

<sup>32</sup> 33 U.S.C. § 1342(p).

<sup>33</sup> Los Angeles County 2011-12 Stormwater Monitoring Report, Executive Summary (<http://dpw.lacounty.gov/wmd/NPDES/2011-12tc.cfm>).

<sup>34</sup> A Trash Biography, 2011. *Friends of the Los Angeles River* Trash Report 2004 – 2011 (<http://folar.org/wp-content/uploads/2011/11/trashsortreport.pdf>).

For the VCWPD<sup>35</sup> results are more promising as shown from reference quote (Section 1.2 Program Effectiveness Assessment, 1-5: page21):

“Outcome Level 6 has already been observed in receiving waters. Concentrations of nine metals, E. coli, nutrients, salts, and one pesticide have significantly trended downward since 2001.”

Therefore, it would appear that the latter TMDLs and Basin or watershed plans are driving the water quality improvements. However, a larger challenge for LAFCD will be in identifying nonpoint control sources for the pollutants among the 84 co-permittees and bring about reductions.

The next three examples aggregated in Table 1 (Nos. 3, 4, and 5) are all sanitary sewer districts as Phase I or Phase II co-permittees. While not watershed-based per se, a sanitary district often follows a watershed basis because of gravity-flow sewers. Both of the Kentucky examples (Nos. 4 and 5)<sup>36,37</sup> reflect Ohio River water quality issues driven by historic Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs) in the various sewer-sheds along with the other co-permittee MS4 issues. In both, the sanitary sewer district is the lead co-permittee.

An advantage to the sanitary district permit framework is that industrial stormwater sources are generally included within the administrative framework either due to the Phase I regulatory requirement (Tualatin River Watershed, No. 3) and/or industrial process waters being discharged to the sanitary sewer, thus facilitating operational stormwater controls. Finally, the Kentucky, SD1 example has promoted green infrastructure and LID approaches driven by the need to reduce the CSO and SSO issues in conjunction with its long-term control program.

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<sup>35</sup> Ventura Countywide Stormwater Quality Management Program, Annual Report. 2011-2012 Permit Year (<http://www.vcstormwater.org/index.php/most-recent-publications>).

<sup>36</sup> Sanitary District No. 1. From the SD1 website (<http://www.sd1.org/default.aspx>) go to Documents & Forms.

<sup>37</sup> Louisville and Jefferson County MSD. Website (<http://www.msdlouky.org/insidemsd/wwwq/ms4/index.htm>) and MS4 permit program and 2012 Stormwater Quality Management Plan.

**Table 1– Stormwater Approaches Summary**

<b>Stormwater Permit Examples</b>	<b>Name and /or Entity</b>	<b>Permit Type</b>
<i>Pilot No. 1</i>	Menomonee River Watershed, WI	Phase I & II, co-permittee, <i>hybrid</i> (Group), 2012
<i>Pilot No. 2</i>	Middle Rio Grande River Watershed, NM	Phase I & II, co-permittee, <i>hybrid</i> (2013)
<i>Pilot No. 3</i>	RWMWD, MN	New <i>hybrid</i> approach
1	Los Angeles County Flood Control District, CA	Phase I & II, co-permittee, LACFCD - Phase I lead
2	Ventura County Watershed Protection District, CA	Phase I & II, co-permittee, VCWPD - Phase I lead
3	Tualatin River Watershed (Clean Water Services), OR	Phase I, co-permittee, CWS lead
4	Louisville/Jefferson County MSD, KY	Phase I & II, co-permittee, MSD lead
5	Northern KY Sanitation District No. 1(SD1), KY	Phase II, co-permittee, SD1lead
6	Cherry Creek Water Quality Basin Authority, CO	Phase II, co-permittee, <i>hybrid</i>
7	Southeast Metro Stormwater Authority, CO	Phase II, co-permittee, <i>hybrid</i>
8	City of South Lake Tahoe, El Dorado and Placer counties, CA	Phase II, co-permittee, no lead permittee
9	Western New York Stormwater Coalition, NY	Phase II, co-permittee, Erie Co. lead
10	Lake Lewisville Watershed, TX	Phase II, possible co-permittee
11	Neuse River Compliance Assn., NC	Watershed-based, <i>hybrid</i>
12	Madison Area Municipal Stormwater Partnership, WI	Phase II, co-permittee, <i>hybrid</i> (Group)
13	Chesapeake Bay Watershed, several states and the District	Watershed-based, <i>hybrid</i>
14	Michigan DEQ General Permit, <i>watershed</i> option	Watershed-based, <i>hybrid</i>

**Phase II, co-permittee examples**

Two examples in Colorado (Nos. 6 and 7, Table 1) are similar to the Minnesota’s metropolitan surface water management (M.S. 103B) program with respect to the administrative framework created and the planning requirements. Colorado legislation enacted in 1988 created the special drainage authority, known as Cherry Creek Water Quality Basin Authority (CCWQBA) along with an administrative rule, as amended to include more

specifics for stormwater management and the MS4 program. The CCWQBA has worked well with its various co-permittees, some of which are drainage and sanitary sewer authorities (similar to Minnesota’s watershed districts). The CCWQBA has accomplished good efforts to “hold the line” on nutrient loading to the receiving water: Cherry Creek Reservoir, although the challenges remain significant in achieving the water quality goals.

The Authority implements goals and objectives<sup>38</sup> within a watershed management plan (ibid). A CCWQBA-like approach could be a useful model in greater Minnesota, notwithstanding the nuances of ‘western water law’ versus ‘eastern water law’. One aspect of the CCWQBA approach is water quality trading<sup>39</sup> and the Authority’s MOA/MOU’s may likely be revisited in the future. The Southeast Metro Stormwater Authority (SEMSWA)<sup>40</sup> in Colorado is quite similar in framework and operation as the CCWQBA.

Example No. 8 in Table 1, City of South Lake Tahoe, El Dorado and Placer counties was included as an MS4 co-permittee approach, but with no lead permittee. The most recent MS4 permit<sup>41</sup> along with Attachments A – G spell-out in detail necessary implementation plan to satisfy an existing TMDL for several impairments to Lake Tahoe. The 2005-2010 MS4 permit required each co-permittee to develop a Storm Water Management Plan and the most recent permit requires the SWMPs to be updated. The Tahoe Regional Planning Agency has oversight of the Lake Tahoe and is mentioned in the MS4 permit and SWMP as a cooperating agency. While this is large geographic area with a TMDL implementation plan in-place, it would appear that ultimate compliance and control is driven entirely by California EPA, Lahontan Regional Water Quality Board through the MS4 permit. This approach is in contrast to other examples previously discussed above where a complex MS4 permit exists, a watershed plan and local watershed-based agency takes the lead.

Examples No. 9 and 10, Table 1 are provided not necessarily to be singled-out, but more to illustrate co-permittee approaches in which there is a lead permittee or one to be designated (Texas example). There are many similar co-

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<sup>38</sup> Cherry Creek Water Quality Basin Authority. Website: Goals and Objectives ([http://www.cherrycreekbasin.org/cc\\_goals.aspx](http://www.cherrycreekbasin.org/cc_goals.aspx)) and Cherry Creek Reservoir Watershed Plan ([http://www.cherrycreekbasin.org/cc\\_watershedplan.aspx](http://www.cherrycreekbasin.org/cc_watershedplan.aspx)).

<sup>39</sup> The Environmental Trading Network. Cherry Creek Basin ([http://www.envtn.org/Cherry\\_Creek.html](http://www.envtn.org/Cherry_Creek.html)).

<sup>40</sup> SouthEast Metro Stormwater Authority (<http://www.semswa.org/home.html>).

<sup>41</sup> California Environmental Protection Agency, Lahontan Regional Water Quality Board. Lake Tahoe Municipal MS4 Permit, Board Order RT6-2011-010A1 and Attachments A – G. ([http://www.waterboards.ca.gov/lahontan/water\\_issues/programs/tmdl/lake\\_tahoe/npdes.shtml](http://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/lake_tahoe/npdes.shtml))

permittee approaches across the United States like those in New York or Texas that operate and perform quite well, especially on Minimum Control Measure #1, Public Education and Outreach and to a less extent MCM #2, Public Participation and Involvement, MCM #3, Illicit Discharge Detection and Elimination and MCM #4, Construction Site Stormwater Runoff Control. Where such co-permittee examples are not as successful involves implementing regional (usually more than one local government) Best Management Practice(s) and where one or more of the co-permittees may not have the fiscal resources to participate in an identified cost-share allocation. Thus, often the project does not proceed and objectives within a SWMP and/or watershed plan are not accomplished.

A co-permittee stormwater approach essentially is a ‘partnership’ whether driven primarily by a general or individual permit or subsequent inter-government agreements between the co-permittees. Unfortunately, situations arise during the lifetime of any partnership in which one or more parties cannot or will not abide by either the Plan/SWMP/permit or the majority interest(s), often due to fiscal constraints, therefore dooming success.

### Watershed or Basin Approaches

The final aggregate examples in Table 1 are several watershed-based *hybrid* approaches. The Neuse River, North Carolina (No. 11) and Chesapeake Bay (No. 13) are Phase I permit examples reflecting multi- watersheds or basin approach along with a somewhat evolving institutional framework. While beyond the scope of the *Pilot* project, the large basin management effort in the Neuse River, North Carolina Chesapeake Bay is worthy of long-term tracking for success as a potential application in Minnesota’s minor watersheds and perhaps other states. The Madison Area Municipal Stormwater Partnership (No. 12, Table 1) reflects a cooperative (Group) effort where the City of Madison has taken a lead on outfall mapping surveys and Dane County on MCM #1. Of particular note, however, are the two TMDL implementation plans on the Rock River and Yahara River which involve considerable agricultural land use. Grant programs are an incentive for agricultural BMPs along with very generous implementation timelines.

Finally, the example with a fairly long implementation history (8 years) is the Michigan Department of Environmental Quality (MDEQ) stormwater general permits (2003 MS4 general permits provided for *jurisdictional* and *watershed* options), No. 14, Table 1. The 2003, five-year Michigan NPDES stormwater permits expired and were to be reissued in 2011 by MDEQ, however a legal challenge to an expanded general permit reissuance left the existing expired 2003 permit in-place. Of the 400+ Michigan MS4s, more than 60% chose the 2003 general stormwater permit - *watershed* option, most being partnerships or committee-driven efforts. Currently in Michigan, an approach being examined by MDEQ would be to issue individual stormwater permits on a basin



approach (i.e. generally a larger area or multiple watersheds). An expansion of the Michigan approach and background documentation discussion is found in Appendix B.

## Summary

Two of the three *Pilot* Watershed-based projects have or will be issued new stormwater permits. Both have are interesting approaches which are somewhat unique to the geographical and political locations.

The Phase I, co-permittee examples in Table 1 (Nos. 1, 2, 3, 4) have a stable enterprise revenue source(s) [i.e. Publicly Owned Treatment Works (POTW) sanitary district service area] or a stormwater utility allowing funding for monitoring receiving water improvements and implementing regional or watershed BMPs. It would appear that these examples and other similar across the United States have and will result in water quality improvements to receiving waters, primarily due to TMDL implementation and watershed/basin planning.

Phase II co-permittee stormwater approach options across the United States provide in some cases good examples (Nos. 5, 6, 7, 8, 9 and 10) of both BMP innovation and framework implementation. Several, such as (SD1-KY and the two in Colorado) are examples where the existing authority or lead co-permittee has seen measurable results. A large challenge remains for co-permittee approaches where there is not a stable source of funding encompassing all members so that the necessary BMPs can be implemented and water quality improved.

The *hybrid* watershed-based examples (Nos. 11, 12, 13, and 14) are noteworthy from several perspectives. First, geographic areas (Neuse River and Chesapeake Bay), TMDLs addressing agricultural runoff sources (Neuse River and Madison Area) and the statewide watershed permit option (Michigan).

It does appear, however, from review of the above 14 examples and many others across the United States, that the TMDL program implementation plans and watershed/basin planning is driving receiving water quality improvement, not necessarily by the MS4 permit program. This is born-out in the pilot approach discussion in the NRC 2009 Report<sup>42</sup>

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<sup>42</sup> National Research Council Report. 2009. Urban Stormwater Management in the United States. A Pilot Program as a Stepping Stone (pp. 519 – 524).

## TASK 2 – REVIEW AND RESEARCH IMPLEMENTATION ISSUES

### Task 2 - Description

Review and research implementation issues expected to be encountered with a Watershed-based approach, including permitting but in particular:

- i. Accountability (and enforcement liability) for individual permittees (e.g., what actions can be taken if one permittee within the watershed does not meet standards when most others do?).
- ii. What approaches can be used to address an MS4 with multiple minor watersheds within its boundaries? [USEPA, Region V request of 04/02/2010 on *Draft Work Program*].
- iii. Meet with MPCA staff and gather input on the actions and approaches.

#### i. Accountability and Enforcement Liability for Individual Permittees

Assuming a co-permittee or sole permittee approach, this inquiry was addressed, partially within the 2008 Integrated Report.<sup>43</sup> A similar question and discussion is posed (Ibid. Section IV. B. p. 29):

***If the SWPPP cleanly allocates responsibilities between the MS4 and WMO, can one entity avoid enforcement liability for the other party's failure to meet its SWPPP commitments?***

It is unlikely that the MPCA would allow a co-permittee to limit its exposure to sanctions by identifying in advance those activities for which it would not be subject to sanctions. We expect that the MPCA would opt to retain its enforcement discretion over the wider “net” of co-permittees. While it may choose in a specific enforcement context, with specific facts, to pursue only one co-permittee, it is unlikely that this can be assured at the time co-permittees sit down to establish the framework of their collaboration.

Conversely, if a sole permittee enters into an agreement with a second entity for the performance of certain SWPPP activities, it appears that the PCA will look for compliance solely to the party with formal permittee status [40 CFR §122.35(a) (3)]. It will be up to the permittee to ensure that the agreement of cooperation adequately protects it in this situation.

In the agreement, the parties can adjust the exposure to sanctions that attaches to the permitting arrangement chosen. To a degree, each party can protect itself from, or provide that it is reimbursed for, an outlay of resources that it bears due to enforcement triggered by a failure of the other party. See Section III.H, below. But if co-permittees cannot agree among themselves which of them will be the “named party” in an enforcement proceeding; the MPCA will retain its discretion in that regard. As a consequence, a co-permittee is likely to bear certain costs and burdens of enforcement even for activities for which it is not responsible.

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<sup>43</sup> Ibid. p. 5.

Collaboration or cooperation between MS4s within the watershed-based approach is facilitated by an agreement or contract (e.g. memorandum of agreement, understanding or similar). Collaboration between one or more co-permittees assumes it is being done for greater efficiency and achieves an equal or greater degree of nonpoint source control and MCM compliance within the SWPPP. Why would an agreement be executed into if this were not the case? The MPCA *draft* 2013 MS4 General Stormwater Permit contains new language pertaining to partnerships [Part II, D.1. and Part III, 2<sup>nd</sup> paragraph]. In the absence of an individual or general permit specific to a watershed-based approach (co-permittee or sole permittee), the existing draft MS4 permit has some application to the collaboration discussion.

But, this discussion in itself does not deal specifically with “What actions can be taken”. The MPCA *draft* 2013 MS4 General Stormwater Permit contains new language pertaining to Enforcement Response Procedures (ERP) [Part II, D. 3; Part III, B.; D.3.g.(3); and D.4.e.]. An agreement would need ERP would require a spelling-out of such actions anticipated to be taken-up by the regulatory authority, in this case either the MPCA or a lead permittee when one permittee within the watershed does not meet standards when most others do. An important part of the discussion recognizes the different nature or characteristics of the Phase II, MS4 permit versus other NPDES permits.

The 2008 Integrated Report includes an important discussion bearing upon compliance and enforcement, Chapter IV. §B4. Impressions as to Risk of Sanctions (pp. 30 – 32). The initial Report citation discussion is that the MS4 general permit has objective items requiring a clear distinction of compliance or non-compliance (e.g. develop a storm sewer map). Whether or not the storm sewer map has been completed as a SWPPP requirement by the MS4 is a simple question and answer. However, the majority of any MS4 general permit is based upon BMPs often enumerated within the SWPPP as activities requiring measureable goals. These measureable goals may well be less definitive compared to typical numeric effluent requirements in other NPDES permits. Therefore, whether there is SWPPP compliance involves more discretion and judgment by the MS4, lead co-permittee and MPCA.

The 2008 Integrated Report (pp. 31-32) discussion below is critical to this issue (emphasis added):

Second, typically the MPCA response to apparent noncompliance is gradual: mutual clarification of compliance status, after which voluntary compliance is sought or negotiated. Under this approach, monetary penalties and similar sanctions are pursued only after more cooperative efforts have failed. This approach is particularly applicable to permittees that are local units of government, as they are subject to fiscal and political considerations that differentiate them from private permittees.

Further, the municipal stormwater permit is somewhat unusual. Much of what an MS4 does to comply with permit requirements is to exercise its regulatory authority over other, private parties. Some of this is explicit in the general permit: an MS4 – at least a municipal MS4 – must regulate construction activity for erosion control, development for post-construction stormwater management, and non-stormwater discharges into the MS4. In other respects it is

implicit, for example in the ability of a municipal MS4 to apply its development code to meet municipal stormwater, TMDL and nondegradation goals.

In this respect, the program is a delegation of regulatory authority from the MPCA to MS4's, in which the delegation is mandatory and enforced through the municipal stormwater permit. Thus, there is an inherent element of partnership between the MPCA and municipal MS4's that is not present in the ordinary permitting situation. Further, to the extent an MS4's permit obligation involves exercising authority over third parties; there is more "play" in the outcome and a lesser ability of the permittee to reliably commit to that outcome. These circumstances, taken together, are reason to think that the MPCA will apply a "gradual" approach to enforcement. It suggests, again, that if MS4 and WMO permittees are working in good faith, they are unlikely to be surprised by unilateral enforcement action or substantial compliance liabilities.

The previous discussion points out, as the stormwater program continues to evolve, the importance of a watershed approach and collaborative partnerships will be more important to success.

#### ii. [Approaches to Address an MS4 with Multiple Minor Watersheds](#)

The issue of multiple MS4 minor watersheds is readily apparent for linear MS4s such as counties and Minnesota Department of Transportation (Mn/DOT) where requirements may vary or as infrastructure crosses watershed boundaries. Cities are not immune from this issue (e.g. Minneapolis, where multiple minor watersheds are within its jurisdiction). While the issue is not going to be eliminated, it has been ameliorated in varying degrees.

#### *A Level Playing Field*

From State perspective, a more uniform regulatory framework of requirements continues to evolve. The development in 2005 of the Minnesota Stormwater Manual ([http://stormwater.pca.state.mn.us/index.php/Main\\_Page](http://stormwater.pca.state.mn.us/index.php/Main_Page)) and current efforts under the Minimal Impact Design Standards (<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/stormwater-minimal-impact-design-standards-mids.html>) initiated in late 2009, both may create a gradual "level playing field" for MS4s.

There will always be differences between various WMO requirements for MS4s with multiple watersheds as receiving water characteristics and water quality standards protecting designated uses may not be identical (e.g. Minnesota River vs. St. Croix River). On a related matter, the alignment of watershed and local water planning and MS4 permitting discussed in Phase One, Task 3 will likely improve overall efficiency.

#### *Primary and Secondary Watersheds*

Another useful approach was suggested by Michigan DEQ in its withdrawn 2010 MS4 general permit (MIG 610000). The first generation 2003 and 2010 second generation 'withdrawn' watershed general permit required the development of Watershed Management Plans (WMP). In those MS4s where there are multiple WMPs within its

jurisdiction and an MS4 permittee finds it difficult to devote time and resources to participate in all watershed advisory committees, then it may designate a “primary watershed” and concentrate its efforts with such WMP. The remaining are called “secondary watersheds” and the MS4 permittee’s roles are significantly diminished, but still remain active. The MS4 permittee concentrates its efforts on the implementation requirements of the “primary watershed” WMP which are extensive (Part I.A.3.b. 1-8) and include them within the Stormwater Pollution Prevention Initiative (similar to Minnesota’s MS4 SWPPP).

iii. [Meet with MPCA staff on Watershed – Based Approach](#)

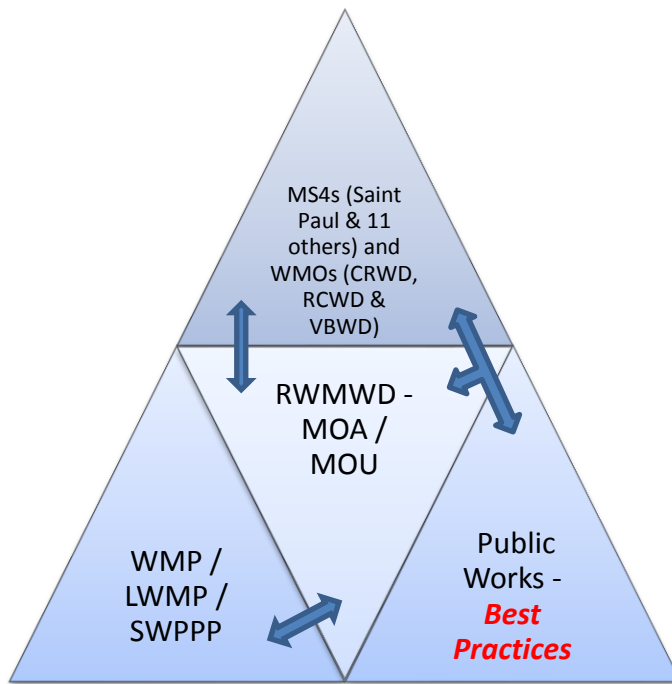
Within the Ramsey–Washington Metro Watershed District, two cities have portions of their jurisdictions in four minor watersheds and water management organizations in each: City of Saint Paul, a Phase I permittee (Capitol Region WD, RWMWD, Mississippi River WMO and Lower Mississippi River WMO) and the City of White Bear Lake, a Phase II MS4 permittee (RWMWD, Rice Creek WD, Vadnais Lake Area WMO and Valley Branch WD).

A watershed-based approach would likely be one the following below or a variation including aspects from each:

1. Co-permittee approach taking several aspects from several examples examined across the United States;
2. Michigan 2003 watershed MS4 permit and 2010 withdrawn permit (i.e. *primary* and *secondary watersheds* as related to the above paragraph);
3. Minnesota MS4 Phase I and II permits, *draft* 2013 MS4 permit and Metropolitan Surface Water Management Act process (M.S. 103B); and
4. National Research Council Report. 2009 *A Pilot Program as a Stepping Stone* and/or one or more of the Table 1 co-permittee examples.

Moving ahead from this point required input from MPCA staff. Therefore a quick graphic reflected some of the thinking at this stage in the *Pilot*. Figure 1 below is a general concept graphic of the approach which will evolve within the Phase One, Task 3 process.

Figure 1 – Watershed-based Approach Concept



At this Task level, the above illustration is only a concept which is a simplification of the actual actions that may or may not be anticipated to be either needed or warranted. The key is not to over-complicate an existing successful surface water management planning process in concert with a stormwater permit system.

## TASK 3 – FINAL REFINEMENT OF APPROACHES

### Task 3 - Description

Conduct final description and refinement for three alternative approaches:

- i. Co-permittee,
- ii. Sole-permittee, and
- iii. Integrated planning & permitting approach.

Each of the three approaches will be described within the context of project sponsor's relationship with the member cities and the watershed management planning process already in-place (M.S. 8410).

The Phase I (1990)<sup>44</sup> and Phase II (1999)<sup>45</sup> stormwater regulations issued by the USEPA now comprise twenty years of stormwater permit regulation and implementation in the United States for municipal separate storm sewer systems. Arguably, there's been a question whether receiving waters in the United States improved with the NPDES stormwater permit program.<sup>46</sup> Results to date with the stormwater permit program are in contrast to wastewater point source permitting and the large expenditures in federal and state(s) investment in treatment infrastructure during the late 1960's and 1970's ... water quality definitely improved with the latter program (many citations, e.g. Lake Minnetonka).

The present stormwater regulation and permitting system is not integrated on a watershed basis to assure measureable improvement in receiving water quality through program implementation<sup>47</sup>. The NRC 2009 Report emphasized that changes in urban stormwater management and regulation needed changing. What was suggested is a watershed-based approach to stormwater management and regulation, much like the definitive TMDL program<sup>48</sup>. Thus, the three options within the Phase One, Task 3 description are analyzed below.

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<sup>44</sup> *Federal Register*, 1990, Vol. 55 p. 47990 et seq.

<sup>45</sup> *Federal Register*, 1998, Vol. 64. p. 68722 et seq.

<sup>46</sup> Ibid. p. 6.

<sup>47</sup> NRC 2009 Report. Pages 79 - 84.

<sup>48</sup> Ibid. p. 18.

## Co-permittee Approach - 2012

There are no examples of Minnesota co-permittee approaches, although the Phase I permits for Minneapolis and Saint Paul could have explored such in the early 1990's, but for a variety of reasons it did not happen. The Minnesota stormwater program administered by the Minnesota Pollution Control Agency (MPCA) issued general permit coverage for 235 Phase II permits. Parallel to the MPCA stormwater permit program is a mature (circa. 1982) surface water management program (M.S. 103B) administered by the Minnesota Board of Water and Soil Resources (BWSR) directing water management organizations primarily in the metropolitan area to develop watershed management plans (WMPs) and require local water management plans (LWMPs) for member cities and towns.

The WMP process strongly resembles the federal TMDL program, especially when WMPs and LWMPs incorporate NPDES stormwater permit compliance. This duplication of federal and state permitting and regulating stormwater runoff is due for refinement or at least some better efficiency as noted and discussed in detail in the 2006 Framework Report and 2008 Integrated Report.<sup>49</sup> Federal stormwater permitting allows for a co-permittee approach.<sup>50</sup> The draft MPCA 2013 MS4 permit contains 'partnership' language<sup>51</sup> and while not a co-permittee approach, it shares similarities with such.

The 2006 Framework Report (pp. 39 – 40) spells-out in its co-permittee discussion one of two options available for implementation of a watershed-based approach. Option 2 in the 2006 Framework Report is shown graphically in Figure 2 which will be carried forward in 2012 for the watershed-based approach.

**NOTE:** the acronym SWMP (Stormwater Management Program) in Figures 2, 3 and 4 was proposed in the *Draft* 2011 MPCA MS4 general permit; the *Draft* 2013 MS4 general permit reverts back to SWPPP (Stormwater Pollution Prevention Program) within the expired 2006 MS4 general permit.

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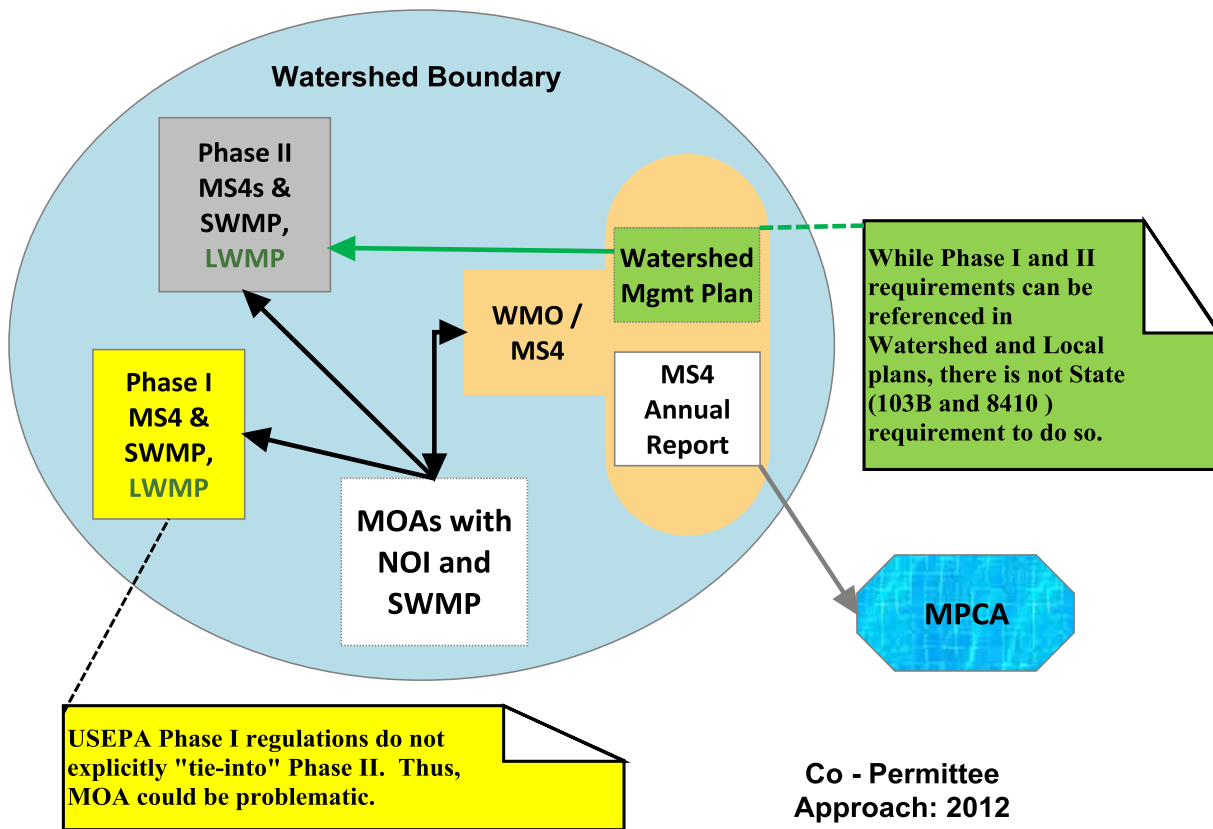
<sup>49</sup> Ibid. p. 4 and p. 5.

<sup>50</sup> Ibid. p. 10.

<sup>51</sup> Ibid. p. 20.



Figure 2 – Co-permittee Approach 2012



**2006 Framework Report, Option (2).** A participating WMO that is also a regulated small MS4 could act as the lead permittee for all regulated MS4s in its jurisdiction. The NOI and SWPPP would outline the delegation of responsibilities to the WMO as the lead co-permittee. Under this scenario, the co-permittees (as a group or individually) can rely on other non-regulated or regulated entities to implement one or more Minimum Control Measures (MCMs). This would be indicated NOI and SWPPP submission.

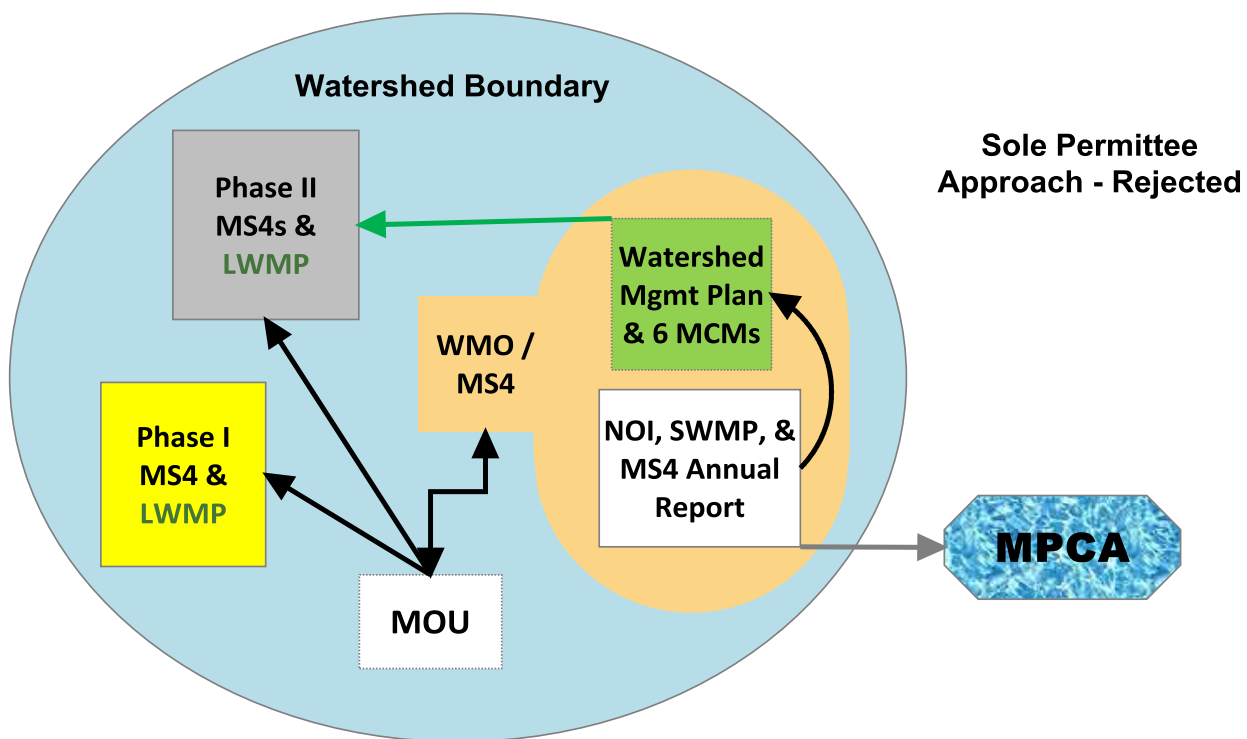
The above graphic while complex anticipates current MS4 permitting and surface water management process continuing with the one major change: the water management organization (WMO), presumably the RWMWD is the lead permittee and agreements are executed between all member MS4s within the District. Simplification is anticipated with only one annual report to the MPCA.

### Sole Permittee Approach

Initially, the sole permittee approach appears desirable because of its similarity to the co-permittee approach and “cleaner” layout with respect to regulatory and planning aspects of stormwater management. In Figure 3 below, the WMO/MS4 would be the lead entity similar to the co-permittee approach. A Memorandum of Understanding could be executed similar to ‘partnership’ in the *Draft 2013 MPCA* permit for Minimum Control Measure (MCM) implementation by each member. However ultimately, the WMO/MS4 would be responsible for implementation of the six MCMs within the MS4 general permit. The WMO/MS4 would have sole liability, but no direct control over day to day operations involving the MCMs by the various member cities. The sole permittee approach however reflects an expanded liability exposure to member cities operations (e.g. MCM 6) which may be uninsurable for the WMO/MS4.

Neither federal stormwater regulations nor the *MPCA Draft 2013 MS4* general permit contemplate or discuss a sole permittee approach. Therefore, this watershed based approach is rejected as a potential candidate.

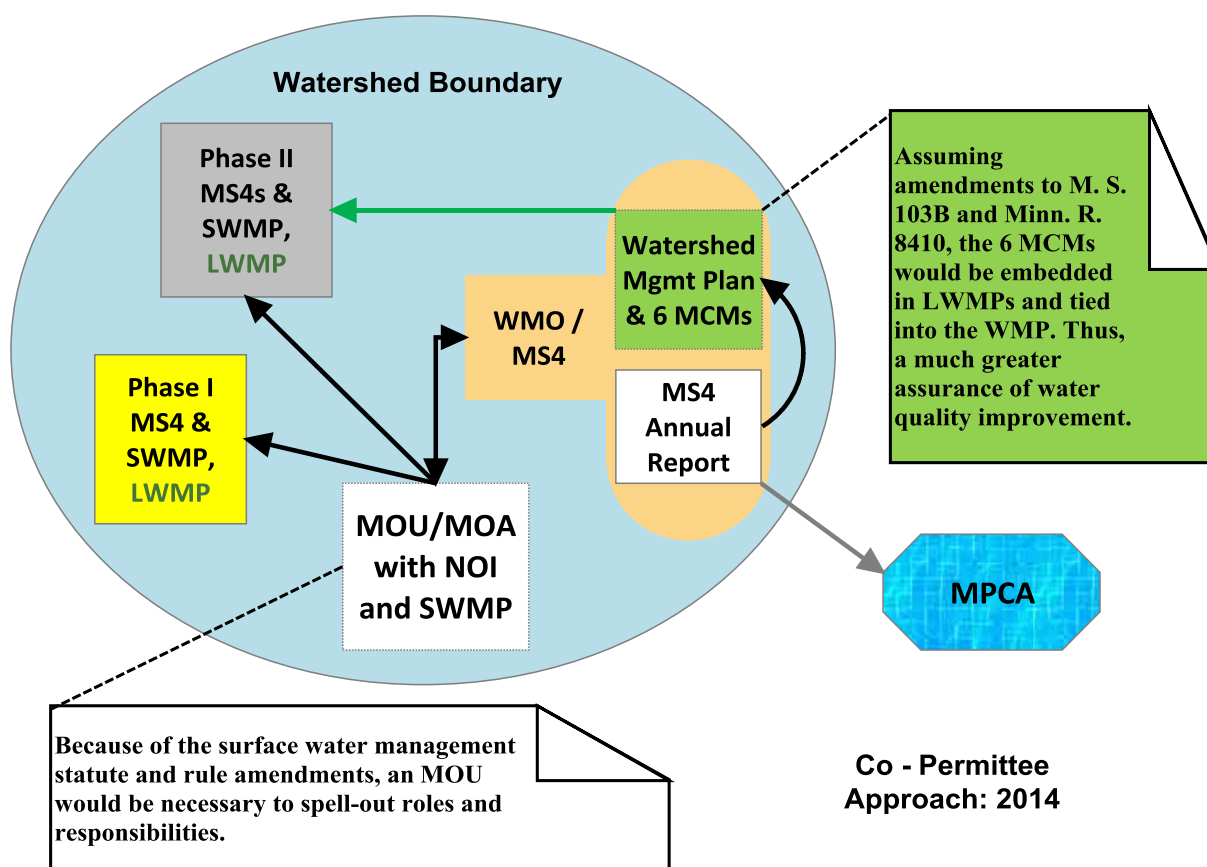
Figure 3 – Sole Permittee Approach



## Co-Permittee Approach: 2014

The co-permittee approach was revisited within the context of combining the regulatory and planning aspects discussed in the sole permittee example. If in Figure 4 the WMO/MS4 is the lead co-permittee, then it follows there must be a “tie-in” to the watershed management plan (WMP) and local water management plan (LWMP) processes. The Michigan *watershed* option permit discussed in Phase One, Task 2 links a WMP and the MS4 Storm Water Pollution Prevention Initiative (SWPPI). In Figure 4, co-permittee approach embeds the MS4 general permit SWMP (a.k.a. SWPPP in Minnesota) into the WMP as well as LWMP requirements. This merges both planning and regulatory aspects of two related stormwater programs. Within the callout of Figure 4, it is presumed amendments to administrative law (M.S. 103B) and rule (Minn. Rule 8410) would be necessary to provide for this co-permittee approach for the lead WMO/MS4.

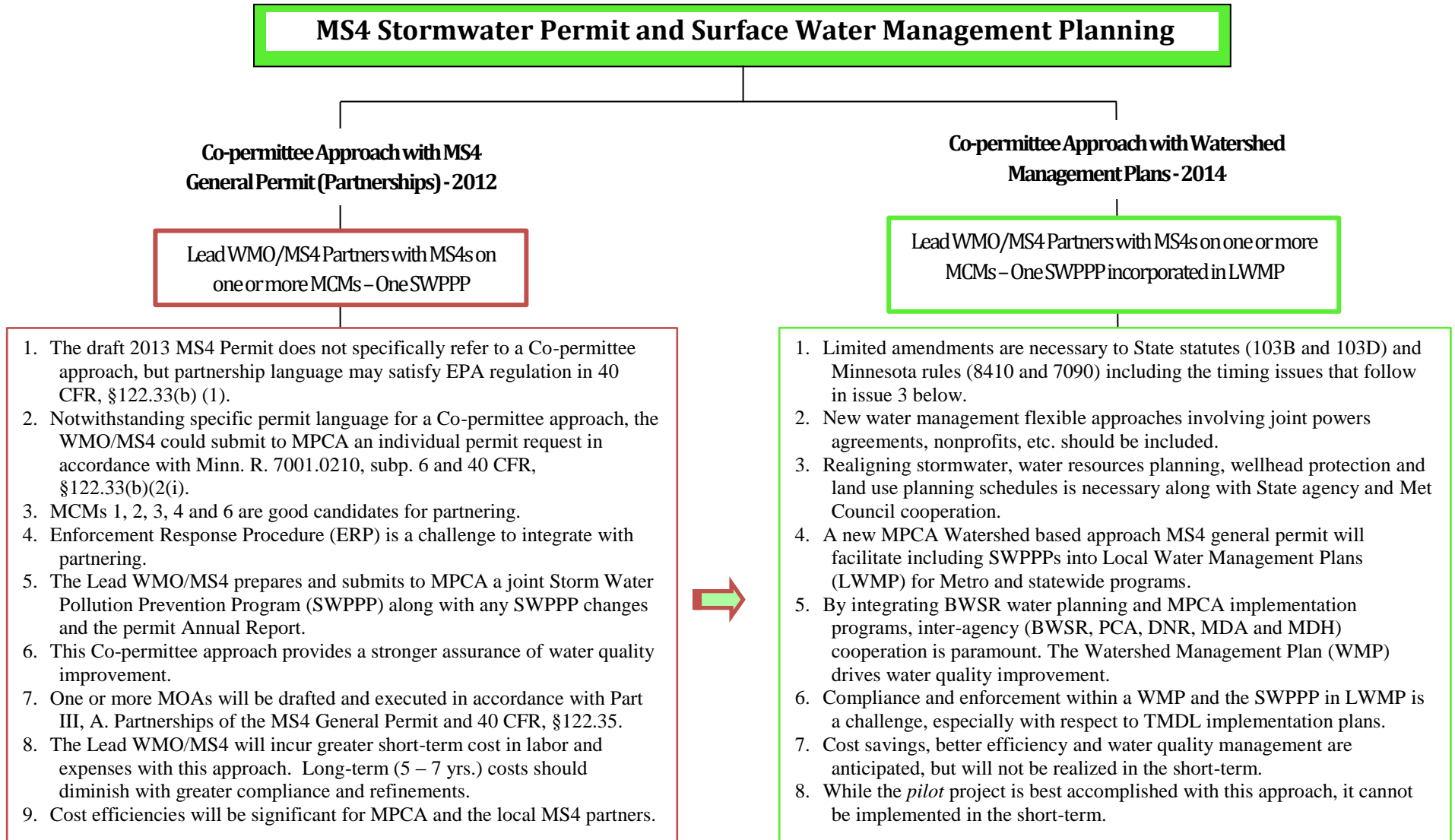
Figure 4 – Co-Permittee Approach 2014



Of particular importance in the co-permittee 2014 approach or similar would be the magnitude of efficiency and cost savings long-term in a statewide implementation. If the co-permittee 2014 approach or similar were to be expanded either in the Metropolitan Area or statewide in Minnesota, the framework for administrative law and rule amendments may include a variety of watershed permit administrative agencies at the local level as observed in Michigan. For example, joint powers agreements between local governments (county or soil & water conservation districts), traditional nonprofits, existing water management organizations and sanitary sewer districts could be options for co-permittee approaches.

If efficiency in government program implementation is sought along with greater assurance of receiving water improvement, then flexibility is necessary in the delivery mechanisms at the local level. Figure 5 below presents both co-permittee watershed-based approaches in 2012 and 2014. The necessary steps involving federal and state requirements along with negative and positives aspects of each are shown. The **main** difference between the 2012 and 2014 approaches is the merging of MS4 requirements into the WMP/LWMP processes within the latter.

Figure 5 – Watershed-based Approaches 2012 and 2014



## Summary

The Phase One, Task 3 deliverable achieved the following outcomes and/or conclusions.

1. Building upon the background research and analysis in the Phase One, Task 1 and Task 2 efforts and deliverables, three watershed based approaches were evaluated and narrowed to the best outcome.
2. A co-permittee approach in 2012 is recommended initially for the Ramsey – Washington Metro Watershed District and its member cities.
3. The sole permittee approach is rejected as shifting too much liability to the lead entity not having direct day to day responsibility in implementing the six MCMs and such approach is not reflected in federal regulation or state MS4 general permits (existing or draft).
4. Ultimately, the co-permittee watershed based approach should be integrated into the water management planning law and administrative rule for greatest efficiency and receiving water quality improvement.
5. The co-permittee approach - 2014 contemplates its applicability statewide in Minnesota using a variety of implementation options at the local government level.

## TASK 4 – RESEARCH, DEVELOP FINDINGS AND RECOMMEND IMPLEMENTATION STEPS

### Task 4 - Description

Review relevant research, develop findings and recommendations specifically on the topic of the RWMWD being a "lead permittee" (see recommendations in NAS-NRC report on the NPDES stormwater program). This will include review and summary of relevant legal issues and options and discussing advantages and/or disadvantages, implementation steps, and possible challenges in an approach where the District is a lead permittee for stormwater permit matters in the Watershed [USEPA, Region V request of 04/02/2010 on *Draft Work Program*].

### NRC 2009 Report – Relevant Conclusions

The outcomes from the NRC 2009 Report likely will have an impact upon the USEPA direction of the MS4 stormwater permit program across the United States. In concert with the discussion and potential effects from the NRC 2009 Report, several conclusions are addressed within the context of Phase One – Task 4.

**Chapter 6, Conclusion 1:** The Experts Committee of the National Academy of Sciences that participated in the 26-month, NRC 2009 Report strongly concluded a watershed-based approach provides the single greatest improvement at the federal EPA level for stormwater management. The Phase One - Task 3 suggestion of a “lead permittee” or an entity with planning, implementation, and revenue generating capacity within a designated drainage or catchment area that would more likely succeed in a watershed-based permit approach fits Conclusion 1. The Phase I stormwater permit program as discussed in Phase One – Task 1 illustrates that often the lead permittee is a large city, county, sanitary district or other special purpose entity. One or more watersheds or subwatersheds may be included within a catchment or permit coverage area described as a planning area, MS4 system or utility (e.g. sanitary sewer) service area. Several Phase I co-permittee examples shown in Table 1 illustrate that watershed-like approaches are working well within different administrative frameworks.

Urban Stormwater Management in the United States, 2009

<http://www.nap.edu/catalog/12465.html>

Chapter 6, **Innovative Stormwater Management and Regulatory Permitting** (pp. 552 – 553).

#### **CONCLUSIONS AND RECOMMENDATIONS**

- 1.** The greatest improvement to the EPA’s Stormwater Program would be to convert the current piecemeal system into a watershed-based permitting system.
- 2.** Integration of the three permitting types, such that construction and industrial sites come under the jurisdiction of their associated municipalities, would greatly improve many deficient aspects of the stormwater program.

The Phase II MS4 permit program reflects a variety of administrative approaches in which there are “lead permittee” examples (drainage authority, county, joint powers entity, groups or committees of local governments within a watershed area). Michigan’s stormwater permit program as an example of a statewide effort in which permittees may choose either a *watershed* or *jurisdictional* approach for coverage. An important aspect in the Michigan *watershed* permit option is that there is not a ‘one-size fits all approach’ for a lead permittee. This is a flexible feature because it fosters different administrative examples of how to attack the stormwater problem on a watershed basis.

The NRC 2009 Report discussion after **Conclusion 1** describes the watershed planning process already in place in Minnesota. The *Watershed Management Plan* identified in the Metropolitan Surface Water Management program (M.S. § 103B.231) or the similar requirement under the Comprehensive Local Water Management Act (M.S. § 103B.301) [County-based jurisdictional effort outside the Minneapolis/Saint Paul seven county metropolitan area]. In Michigan, a *Watershed Management Plan* is required by MS4’s choosing the *watershed* option in the general permit through collaborative partnerships.

#### Chapter 6, Conclusion 2:

The three stormwater general permits in Minnesota as administered by the MPCA:

1. **Construction Activity** (General Permit Authorization to Discharge Stormwater Associated with Construction Activity Under the NPDES/SDS Permit Program, MN R100001);
2. **Industrial Activity** (General Permit Authorization to Discharge Stormwater Associated with Industrial Activity Under the NPDES/SDS Permit Program, MN R050000); and
3. **Municipal [MS4] Activity** (General Permit Authorization to Discharge Stormwater Associated with Municipal Separate Storm Sewer Systems Under the NPDES/SDS Permit Program, MN R040000).

Integrating the three stormwater general permits on a watershed basis is not contemplated with the suggested co-permittee approach to be outlined in Tasks 5 and 6. It would only include the MS4 permit but integration is part of the discussion long-term in the watershed-based approach concept. The Ramsey – Washington Metro Watershed District website (<http://www.rwmwd.org/>), Permit Program details the District regulatory requirements. The District’s Erosion and Sediment Control, Rule F follows the MPCA Construction Activity permit. Regulatory integration at the local level has already occurred for larger construction sites within the City of North St. Paul (District member city) where the District issues the erosion and sediment control permit. The City issues a construction permit for small sites, less than 10,000 square feet.



Links to the MPCA Industrial Activity permit are provided at the District website location. The District has regulatory authority pertaining to volume control of urban runoff and wetland alterations and is an MS4 permit holder. So, there is effectively a parallel regulatory authority that has been administered by the District since inception in the mid-1970s.

Many of the deficiency aspects of the federal stormwater permit pointed out by the NRC 2009 Report are essentially eliminated with the day-to-day operations of the Ramsey-Washington Metro Watershed District and the year-to-year measured outcomes from the District's Watershed Management Plan (2006 – 2016).

### Legal and Administrative Challenges

Relevant legal issues and options were specifically discussed in Phase One, Task 2 (pp. 20-22).

Relating to the MS4 general permit, two administrative challenges are discussed. First, administrative variety in watershed-based approaches can present challenges for the permit authority. Within the MS4 permit, Minimum Control Measure (MCM-1) education and outreach fosters many opportunities (print and electronic mass media formats) to transcend jurisdictional boundaries and encourages collaborative efforts with member MS4s. A challenge for the MS4 and state authority is establishing MCM-1 performance measurements of behavioral change by the recipient public and their actions directly affecting stormwater management. Performance measures for the public in general are both difficult to devise much less observe that education has changed behavior. However, solid waste – recycling is an excellent example of behavioral change over time.<sup>52,53</sup> Of particular importance for a public works practice in operation for 30+ years, what has worked and does not? Can such knowledge be transferred or applied in some manner to stormwater management and MCM – 1?

Second, MCM-6, Pollution Prevention & Good Housekeeping, MCM for public works operations may lack or have inconsistent cross-jurisdictional performance measurements. The level of service in one MS4 may be quite different in another MS4 for a variety of reasons (political will, budget constraints affecting equipment upgrades, staff training or behavior: “this is way we’ve always done it”). Achieving receiving water quality is constrained not only by variable land use characteristics, particularly imperviousness, but often the maintenance of the

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<sup>52</sup> Viscusi, W. Kip, Huber, Joel, Bell, Jason and Cecot, Caroline. “Discontinuous Behavioral Responses to Recycling Laws and Plastic Water Bottle Deposits” (September 11, 2009). Vanderbilt Law and Economics Research Paper No. 09-37. Available at SSRN: <http://ssrn.com/abstract=1521105>.

<sup>53</sup> Schultz, Wesley P. “Promoting Recycling Behavior: What Works.” Presentation delivered at the October 2011 KAB Re:cycology symposium, Columbus, Ohio. Professor of Psychology, California State University ([http://www.kab.org/site/DocServer/2011Symposium\\_WesSchultz.pdf?docID...](http://www.kab.org/site/DocServer/2011Symposium_WesSchultz.pdf?docID...)).

interconnected stormwater infrastructure throughout the watershed. Inevitably, this leads to a planning function (i.e. WMP/LWMP) prior to implementing general stormwater permit requirements. It also invites the application of *Best Practices*, discussed below and later in the *Pilot*.

Historically, NPDES process permit compliance has been an “end of the pipe” approaches relying upon technology-based (municipal/industrial) effluent treatment standards. Technology-based effluent standards have achieved water quality improvements across both Minnesota and the other states. As addressed in the NRC 2009 Report (Water Quality Management, pp. 52 *et seq.*), stormwater management requires implementing best management practices (a.k.a. Stormwater Control Measures or SCMs in NRC) which have less certainty in achieving receiving water quality improvement. We agree and therefore suggest a new tool for consideration with the development of *Best Practices* for public works operations, specifically as it pertains to pollution control and water quality.

## **TASK 5 – ADOPT DRAFT OBJECTIVES FOR PWBSA PROGRAM**

### **Task 5 - Description**

Adopt draft objectives relating to permit coverage, roles, shared and/or sole responsibilities, costs and efficiencies, short & long-term paths for a *PWBSA* program based upon Tasks 1 and 2 outcomes. Inputs from RWMWD staff and MPCA staff will be included. Significant amount of work was put into this task in anticipation of the concerns that they Cities may have so more time and effort was required.

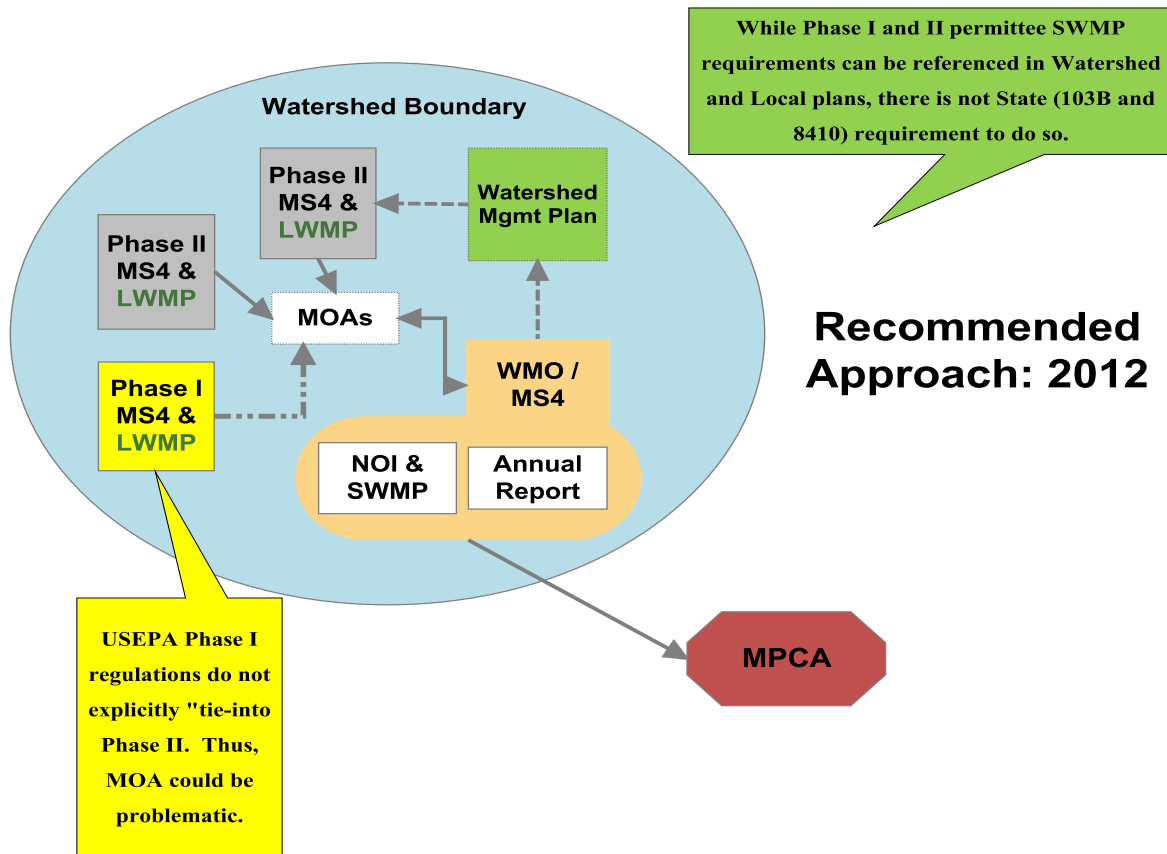
### **Draft Objectives, Roles, Responsibilities and Issues**

The draft Objectives were developed based upon the outcomes from the previous tasks.

1. Through integration, streamline stormwater management planning and MS4 permit implementation and compliance in the RWMWD.
2. The RWMWD will create and achieve collaborative partnerships among its members facilitating integration.
3. A co-permittee watershed-based approach will be prepared and presented to District member cities.
4. Administrative efficiency and cost-savings should be part of the co-permittee outcome.
5. Receiving water quality improvement is tied into the implementation.

The co-permittee approach shown in Figure 6 is similar to Figure 2 in Task 3, but integration of planning and permit requirements remained elusive.

**Figure 6 – Revised Figure 2**



In late 2011 from analyzing the many examples across the United States in some detail through Task 3, the co-permittee watershed-based approach still made the most sense along with the potential integration of the WMP/LWMP planning aspect. The Memoranda of Agreement (MOA) between member cities would include many aspects of integration.

Anticipated as part of the watershed-based effort was different roles and responsibilities between the District as lead MS4 in a co-permittee approach and the member cities as shown in Table 2.

**Table 2– Potential Roles and Responsibilities**

<b>Which MCMs make sense to partner?</b>			
<b>RWMWD is the Lead</b>		<b>Member City is the Lead</b>	
MCM No.1	Public Education & Outreach on Stormwater Impacts	MCM No. 2	Public Involvement / Participation
MCM No. 3	Illicit Discharge Detection and Elimination	MCM No. 5	Post Construction Stormwater Management in New Development and Redevelopment
MCM No. 4	Construction Site Stormwater Runoff Control	MCM No. 6	Pollution Prevention / Good Housekeeping for Municipal Operations

It’s anticipated that all of the MCMs to some degree would be shared responsibilities between the RWMWD and member cities. The shared or partnering arrangements would likely lead to efficiency and cost savings. The RWMWD would be lead on three MCMs while the member cities would be expected to lead the other three. The MOAs would spell-out the partnering arrangements based upon negotiation with member cities. It is anticipated that the RWMWD would have the strongest lead in MCM No.1, although education and outreach could continue as currently being done any member city. The member cities would have the strongest leadership role in MCM No. 6, although it is conceived that the RWMWD would play a role (perhaps financially) for example in enhanced street cleaning for the drainage area to a priority receiving water body.

It was evident there were potential positive and negative aspects to a co-permittee approach in Table 3 below.

**Table 3– Watershed-based Pros and Cons**

<b>What are the Watershed-Based Pros and Cons?</b>	
<b>Pros</b>	<b>Cons</b>
1. Greater collaboration between governments;	1. WMO (RWMWD) takes lead on stormwater
2. Administrative efficiency, cost savings, more \$;	2. New communication challenges – CHANGE;
3. Local government autonomy remains;	3. Short-term (~2 yrs.) staff commitment is greater;
4. Watershed / Local Plans integrate permitting; and	4. Loss of autonomy concern; and
5. Receiving water quality tied to implementation.	5. Policies, operations – <i>Best Practices</i> are necessary.

Therefore, convincing arguments were necessary in the Task 6 meetings with member cities. Notwithstanding the pros and cons in Table 3 above, issues remained which would be addressed as the framework moved ahead.

Some of the more prominent issues were depicted in Table 4 below.

**Table 4– Major Issues**

<b>What are some major issues?</b>
1. Partnering: Creating MOAs and MOUs
2. Which Minimum Control Measures (MCMs) will the WMO take the lead?
3. Liability issues between parties.
4. Grant funding to off-set some MCM requirements.
5. How does the MPCA fit into a Watershed-based permitting approach?
6. Relationships with Capital Region Watershed District, Saint Paul and Maplewood.

The above identified issues would not prevent moving ahead with presentation development of the co-permittee watershed-based approach and presentation to District member cities in Phase One, Task 6.

## TASK 6 – MEETINGS WITH CITIES AND RECEIVE INPUT ON OBJECTIVES

### Task 6 - Description

Conduct approximately 10 to 15 meetings with member cities within the RWMWD (Maplewood, Oakdale, North St. Paul, Woodbury, Landfall, White Bear Lake, Little Canada, Vadnais Heights, and St. Paul) involving elected officials, city managers, directors of public works, city engineers, and Public Works Forum members to review and comment on *PWBSA* program objectives. Refine objectives as necessary based upon input. This task required the completion of Task 4 and 5 and therefore occurred later than anticipated.

### Outcomes

During February thru late March, 2012; five meetings were held with staff from seven of the ten District member cities to review and provide comments upon the five draft objectives (Task 5, page 36) and the benefits, issues and concerns identified in Tables 2, 3, and 4. The co-permittee watershed-based approach in Figure 6 was presented. There were no preconceived outcomes expected and lively and serious comments were gathered from District member cities staff.

Several concerns raised during the meetings related primarily to the pros and cons issues in Table 3. Initially, feedback from half the cities indicated benefits from a co-permittee approach with the District as lead permittee, but it did not present clear labor and expense savings for them. In other words, the same labor and expense in an MS4's information gathering for its annual report to the MPCA would be largely the same information, labor and expense necessary to the District and its annual report to the MPCA. Some efficiency was apparent on MCM No. 1 Public Education and Outreach and MCM No. 2 Public Participation and Involvement. Benefits were recognized accruing mainly to MPCA for likely fewer MS4 audits with a co-permittee approach. Little or no feedback was provided for the Watershed Management Plan / Local Water Management Plan integration approach as it was difficult to grasp.

It appeared the co-permittee approaches (Figures 2, 4 and new Figure 6) were not significantly less complex than the current situation. From a positive standpoint, member cities had for the most part favorable opinions regarding the interrelationships with RWMWD staff, although there was serious concern over duplicative regulatory programs (e.g. MCM No. 4 and to some extent MCM No. 3). During April and late May, 2012 meetings were held with MPCA - MS4 audits staff to understand better feedback responses and problems being experienced from the permit program. In addition, positive input was received from a meeting with Capital Region Watershed District staff which had the cities of Saint Paul and Maplewood in common with RWMWD.

In summary however, it became apparent that without positive feedback from a majority of member cities, the co-permittee approach was **not** going to be further explored or eventually implemented in 2014.

**Refining the Objectives Process**

Phase One, Task 6 scope of work description concludes: “Refine objectives as necessary based upon (member cities) input”. From the cities input and RWMWD staff discussions, a new and innovative concept for a watershed-based approach began to develop. In mid- to late May 2012, three new items were introduced into the watershed-based concept development process having strong ties with greater efficiency:

1. Web-based tracking of permit compliance;
2. *Best Practices* for public works operations; and
3. Integration of planning and permitting.

The meetings feedback was quite clear, if anything came out of the Phase One *Pilot* project better efficiency had to be shown. The previous new items and others were combined into objectives listing that perhaps could be anticipated with a new watershed-based approach shown below in Table 5.

**Table 5– Refining Objectives**

What are potential efficiencies?
1. Less duplication in MCMs Nos. 1, 2, 3 and 4.
2. Web-based LWMPs / permit tracking (MS4, Construction and ISWP) for greater compliance.
3. Public works operations ( <i>Best Practices</i> ) are uniform.
4. One Annual Report submitted to the MPCA and BWSR.
5. Less audits due to partnering, potentially from ten audits to one.
6. Less complexity reduces state / local staff commitments.
7. Watershed and local water management plans and permits are integrated.

**Objectives Efficiencies**

With respect to Item 1 Table 5, the RWMWD has for a long time a strong Public Education and Outreach program. At least two or three of the member cities were receptive to the RWMWD implementing entirely MCM No. 1, although the city would continue providing some educational literature to their citizens. MCM No. 2 was also a



mixed response, some cities like the feedback (although extremely limited) in conjunction with the public involvement (public hearing) associated with the stormwater program or SWPPP. The RWMWD had no objection to such meetings continuing at the member city level. Regulatory overlap/duplication involved both MCMs 3 and 4, to the degree that anything could be done in this regard was seen as a benefit and accrued efficiency.

Item 2 Table 4, related primarily to design and implementation of Web-based permit tracking and/or WMP / LWMP tracking. The basis derived from a very successful erosion control software package system implemented by the City of Madison, Wisconsin.<sup>54</sup> The City of Rochester, Minnesota also uses such construction activity software, although not the Madison public viewable option. The City of North St. Paul uses similar web-based software to track its MS4 permit compliance. There are several ‘off-the-shelf’ vendors, all with similar software but not necessarily web-based. The point is that efficiency can clearly be found by such software for MCM No. 4 and tracking the progress of WMP / LWMP and eventually industrial stormwater permits (ISWP).

Item 3 Table 4 relates to the author’s twenty-year membership and leadership relationship with the American Public Works Association (APWA) and the APWA Accreditation process.<sup>55</sup> The City of Saint Paul, Minnesota is the only Minnesota municipality to have received APWA Accreditation.<sup>56</sup> The Federation of Canadian Municipalities (FCM)<sup>57</sup> development effort for *Best Practices* fits directly into Item 3. Both the APWA and Canadian Public Works Association in concert with FCM recognized the internal efficiencies, policy layout and employee benchmarking associated with the *Best Practices* approach.

Items 4, 5, and 6 seemed to be almost obvious in their efficiency achievement. Item 7 is the challenge: how to integrate permit and planning programs. Upon further discussion with RWMWD staff, it became quite apparent

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<sup>54</sup> City of Madison, Wisconsin. 2012. PermiTrack software for monitoring and tracking construction activity permits (erosion and sediment control) for all active projects on a web-based fashion and available to public viewing and tracking of compliance ‘real time’.

<sup>55</sup> American Public Works Association, 2012. The Accreditation and Self-Assessment Process. (<http://www2.apwa.net/about/accreditation/>).

<sup>56</sup> City of Saint Paul, Minnesota 2011. APWA Accreditation Award and City website explanation of best practices (<http://www.stpaul.gov/index.aspx?NID=3326>).

<sup>57</sup> Federation of Canadian Municipalities 2003. Developing Levels of Service, A Best Practice by the National Guide to Sustainable Municipal Infrastructure, ([http://www.fcm.ca/Documents/reports/Infraguide/Developing\\_Levels\\_of\\_Service\\_EN.pdf](http://www.fcm.ca/Documents/reports/Infraguide/Developing_Levels_of_Service_EN.pdf)).

that whatever watershed-based approach was decided upon, it had to benefit both the District and member cities in a clear fashion. The District's 30+ years of existence reflected a unique familiarity with the Watershed Management Plan (WMP) and Local Water Management Plan processes and success. Since 1983, the introduction of the Local Water Management Plan process began to influence the District's administrative planning process, but not to the degree that the WMP had in the past.

## **Refined Objectives and a New Watershed-Based Approach**

The 2008 Integrated Report<sup>58</sup> discussed at considerable length through a study team the benefits and difficulties in an administrative framework aligning the planning/permitting approach. Here are excerpts from it.

### 2. MPCA General Permit Allowing Inclusion of SWPPP in a Local Water Plan.

"If the planning processes of the NPDES municipal stormwater program and the metropolitan surface water management act are aligned, a further opportunity exists both to reduce inefficiencies and better integrate WMO and municipal water planning." [page 96]

A difficulty with a new Watershed – based approach was identified in the 2008 Integrated Report related to the merging concept as not possible because one document is a plan and the other is a permit, both have lists of conditions and requirements.

"The SWPPP and the local water plan are different creatures and their provisions cannot simply be merged." [page 98, para. 2].

"The second – which requires some implementation of the first – is to establish an MPCA general permit recognizing NPDES compliance on WMO approval of an MS4 local water plan meeting SWPPP criteria established in the general permit." [page 90, 1<sup>st</sup> para.]

If a local WMP/LWMP program has been operating in an efficient manner with successful outcomes, then it follows that building upon this framework, while difficult could continue in the same vain. A new watershed-based approach must recognize these differences and others, establish and/or build upon existing relationships and strengthen the collaborative process between the District and its member cities.

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<sup>58</sup> Ibid. page 5. Section VIII. Policy Recommendations (page 96).

Innovation is most often discussed within the context of new technology. There should be no limit on its application to the administrative / regulatory world of stormwater management. It was clear by the end of May 2012 the draft objectives developed in Task 5 would be amended, resulting in a new watershed-based approach.

So, the following Watershed-based approach objectives were established in Table 6.

**Table 6– Watershed-based Approach Objectives**

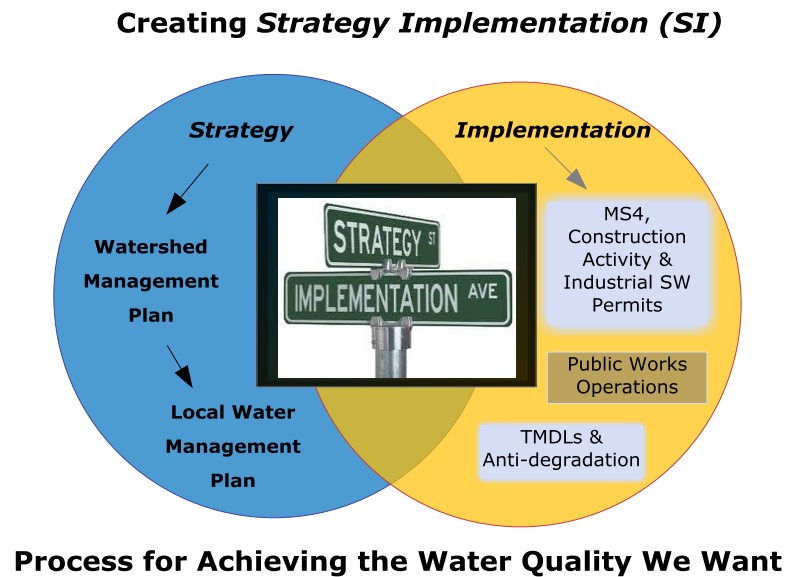
<b>Watershed-based Approach Objectives</b>
1. Integrate and streamline stormwater management planning and MS4 permit implementation and compliance in the RWMWD.
2. The RWMWD will create and achieve collaborative partnerships among its members facilitating the Watershed and local water management plans and permits integration.
3. As part of the Phase One Report, a new watershed-based approach will be presented to MPCA staff.
4. A new watershed-based approach will be prepared and presented to District member cities.
5. Administrative efficiency and cost-savings should be part of the new watershed-based approach outcome.
6. Receiving water quality improvement is tied into the implementation.

**Project Scope Amendment**

During June 2012 the new watershed-based approach was developed in concert with RWMWD staff. It was quite clear to all involved: “let’s build upon what has worked very well in the District, now and in the past to restore and protect water quality”. Thus, the Strategy Implementation (SI) watershed-based approach was developed. Figure 7 depicts graphically the Strategy Implementation approach, essentially the merging of both planning, permitting and public works operations for water quality.

**Figure 7 – Strategy Implementation**

Phase Two WB Approach 2013 - 2014	
The Strategy Implementation Process:	
➤	Builds upon existing programs;
➤	Shifts responsibility;
➤	Emphasizes <i>Best Practices</i> ;
➤	Eliminates redundancy, more cost-effective; and
➤	Achieves water quality improvement.



On July 3, 2012, the new watershed-based approach was presented in a meeting and conference call to MPCA and USEPA staff. The Strategy Implementation approach was further refined, but as the five arrows in Figure 7 spell-out: let’s do what we’ve been doing right, collaborate more at the local level with new tools and the final two outcomes are likely.

## **TASK 7 – Costs, Funding Sources and Staffing Requirements**

### **Task 7 - Description**

Prepare and summarize materials from Tasks 1 – 6. In consultation with member cities, define individual (member city) and shared responsibilities (member city and RWMWD) for completing tasks associated with the MS4 permit, six Minimum Control Measures (MCMs), then expanding to include other permit requirements as appropriate (e.g. anti-degradation, impaired waters, mapping and inventories). Determine costs, funding sources including staffing requirements together with flow chart and/or outline for the final PWBSA program.

Due to lack of interests by the Cities in the approach presented to them under Task 6 this task must be re-evaluated by the project team, MPCA staff and EPA before moving forward. Based upon the July 3, 2012 meeting results; develop and refine Strategic Implementation (SI) watershed based approach including analyses in the first two sentences above. Prepare SI documentation for presentations to District member cities in Task 8.

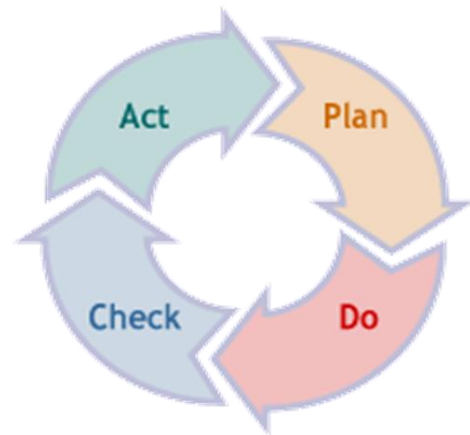
## The Strategy Implementation Approach

The bold, new Strategy Implementation watershed-based approach builds upon the existing Watershed Management Plan and Local Water Management Plan process. This process is familiar to member cities in RWMWD and more importantly, receiving water quality has demonstrably improved. An added feature to Strategy Implementation is the embodiment of the Environmental Management System (EMS) 14000 family of the International Organization for Standardization (ISO), endorsed by USEPA<sup>59</sup> particularly at the municipal level.

As shown in Figure 8, the quality management in ISO methodology embodies the Plan-Do-Check-Act process which is implemented on a regular periodic basis (e.g. quarterly, annually, etc.). The EMS is a continuous process with the onus upon each member city as well as the District. Full implementation of an EMS would necessitate third party independent audit to assure certification of the standards. While ISO systems for quality management most often been associated with the private sectors (i.e. manufacturing), there are public agencies that have EMS 14001 certification. More often, local governments with certification have been in the solid waste, wastewater and potable water service sectors. The City of Edmonton<sup>60</sup>, Alberta, Canada has been ISO 14001 certified since 2004, particularly wastewater and stormwater. For a large city (pop. 817,500), it will be useful to more fully understand the interface of ISO 14001 in day-to-day municipal operations.

**Figure 8 – EMS and Strategy Implementation**

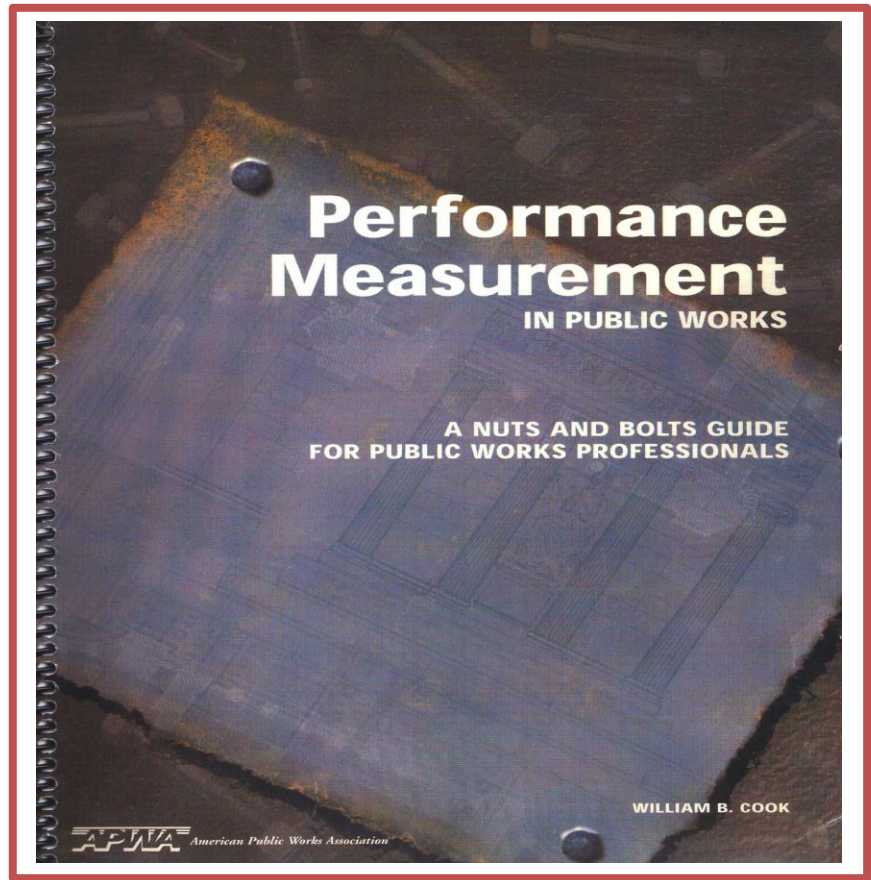
Strategy Implementation as an EMS (ISO 14001) →	
<b>Plan</b>	Identify environmental aspects and establish WQ goals, objectives and policies;
<b>Do</b>	Implement public works <i>Best Practices</i> and CIPs;
<b>Check</b>	Monitor Surface waters, take corrective action; and
<b>Act</b>	Annually review, how are we doing? Make needed changes.



<sup>59</sup> U.S. Environmental Protection Agency. (<http://water.epa.gov/polwaste/wastewater/Implementing-ISO-14001-Environmental-Management-Systems-at-the-Municipal-Level.cfm>).

<sup>60</sup> City of Edmonton. ((<http://water.epa.gov/polwaste/wastewater/Implementing-ISO-14001-Environmental-Management-Systems-at-the-Municipal-Level.cfm>), Drainage Strategies: ([http://www.edmonton.ca/environmental/wastewater\\_sewers/drainage-strategies.aspx](http://www.edmonton.ca/environmental/wastewater_sewers/drainage-strategies.aspx)).

Under the **Do** of Figure 8 and EMS/Strategy Implementation, it is intended to integrate or apply public works **Best Practices** to this ISO quality management system. The RWMWD intends to collaborate with member cities in the EMS process. How this would be accomplished would be laid-out in a possible Phase Two Implementation scope of work. As discussed in EMS, **Best Practices** for public works operations would be incorporated in the Strategy Implementation watershed-based approach. In Strategy Implementation, the development of **Best Practices** is included within the LWMP. Why **Best Practices**? In the



case, it comes primarily from the APWA's Accreditation Process for its public works members. While the Strategy Implementation watershed-based approach does not expect District member cities to become APWA accredited, it anticipates using references such as (Cook, William B., 2000, APWA) along with dialogue and collaboration between all parties taking place and agreed upon uniform practices as it relates to pollution control and water quality improvement. It should be noted that the City of Saint Paul received APWA Accreditation in 2011 ([http://www.youtube.com/watch?feature=player\\_embedded&v=q517Nt8GE54](http://www.youtube.com/watch?feature=player_embedded&v=q517Nt8GE54)).

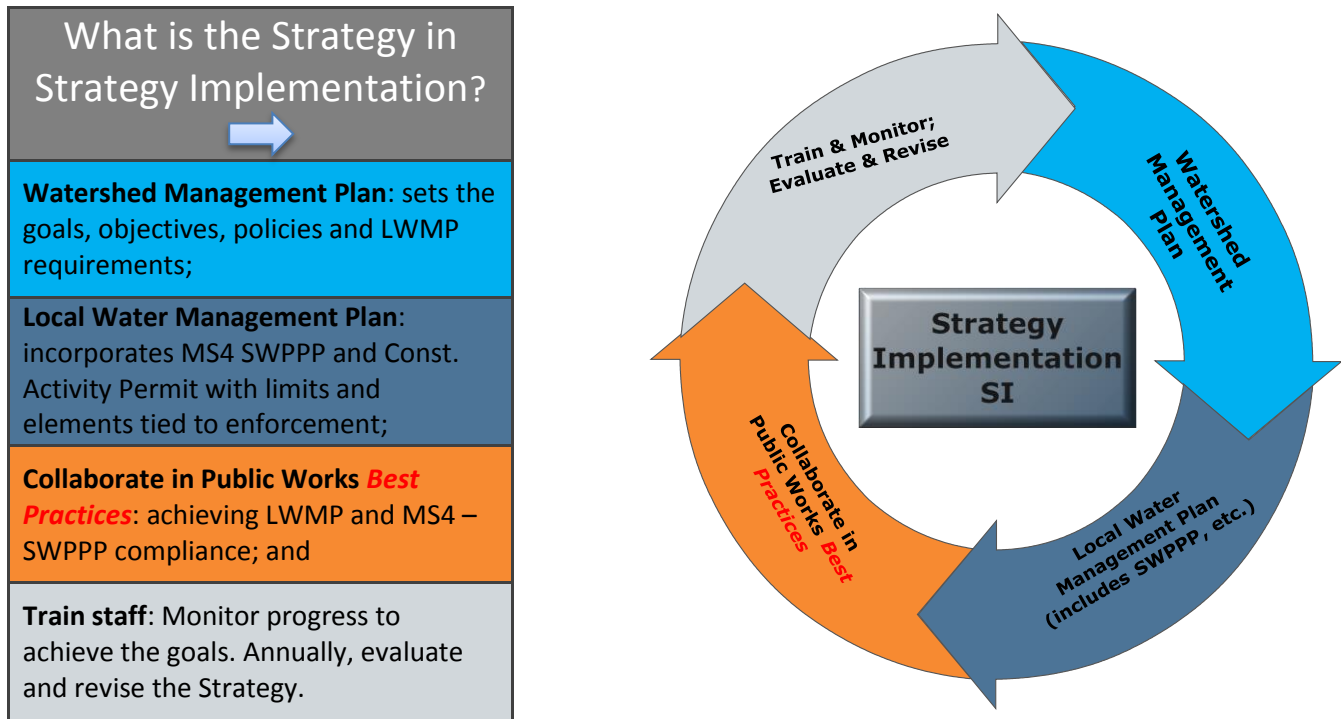
The intent is **Best Practices** and potentially ISO 14001 EMS will provide greater assurance within the LWMP process that public works operations are performed *day-in and day-out* to achieve industry recognized and Maximum Extent Practicable (MEP) pollution control. It is anticipated that with the Strategy Implementation approach, the LWMP will effectively include the MS4 SWPPP, but not necessarily verbatim in light of the above discussion.

In Figure 9, the WMP and LWMP include **Best Practices** within an EMS process. The concern raised in the 2008 Integrated Report relating to whether this can be achieved in a 'planning process' rather than 'permit process' flies



in the face of two results. First, as the NRC 2009 Report points out – water quality improvement cannot be documented with the current MS4 permit program.

Figure 9 – “Strategy” in Strategy Implementation



Second, receiving water quality has definitely improved in the RWMWD with the planning, collaboration, capital improvements processes and programs in place for an extended period of time. At least four receiving waters in the RWMWD have been *delisted* in conjunction with the Clean Water Act, Section 303(d) list and TMDL implementation program. Collaboration between the District, member cities and the immediately adjacent Water Management Organizations is a basic tenet of the RWMWD and continuing is paramount for success of the Strategy Implementation watershed-based approach.

**Simplification in Strategy Implementation Approach**

During the discussion of the co-permittee approach with member cities, they were not convinced it would result in efficiency and simplification. The Strategy Implementation approach in Figure 10 presents a clearer and more convincing argument for simplification.

Figure 10 – Watershed-based Strategy Implementation Approach

## The Watershed-Based SI Approach

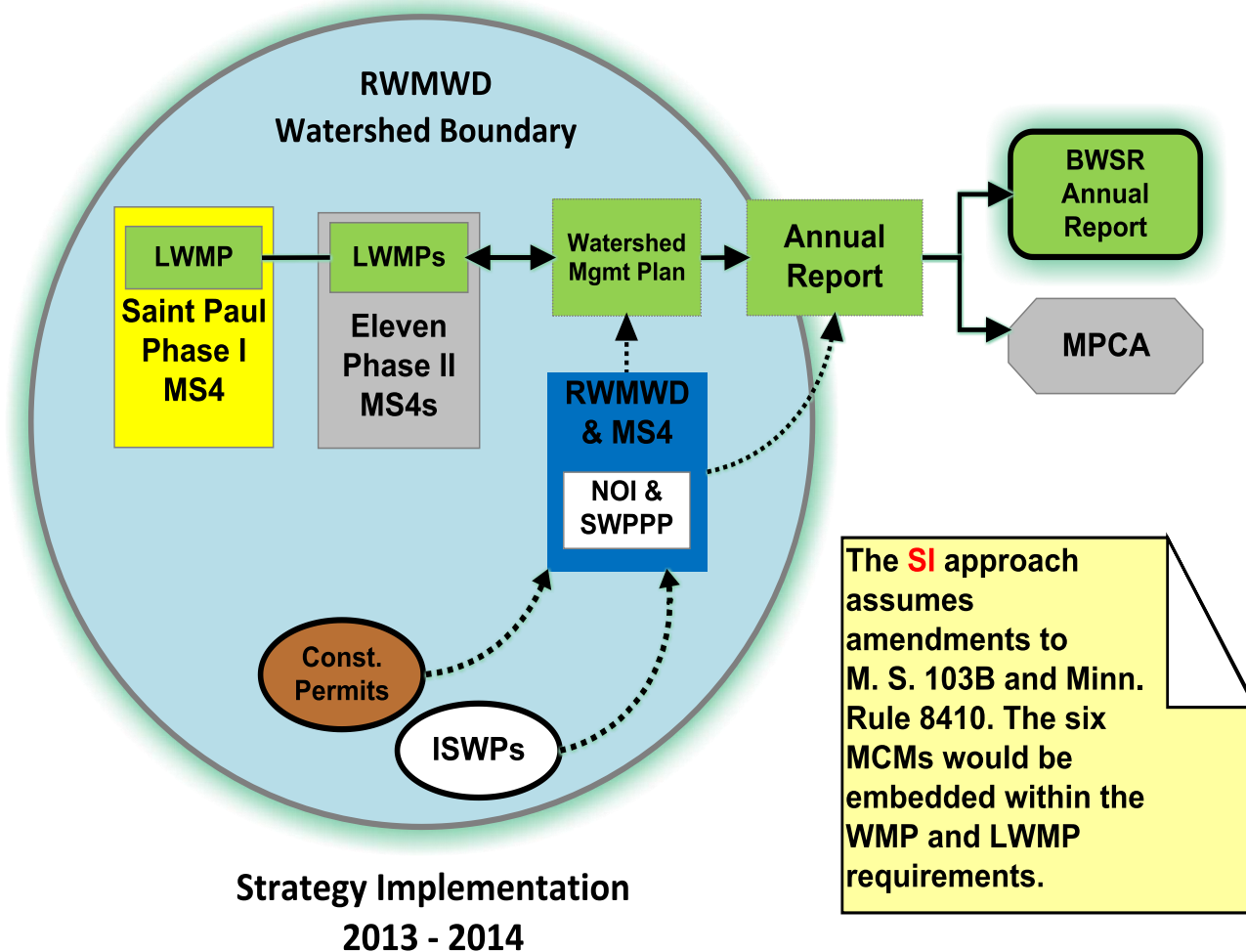


Figure 10 indicates only one NOI/SWPPP is anticipated to be submitted to MPCA by the District until a *Pilot* watershed-based or similar approach is incorporated into a new MS4 general permit issued in 2013 or possibly 2014. The MS4 SWPPP requirements or facsimile would be included in the WMP as well as the LWMPs. A future Strategy Implementation effort contemplates inclusion of Construction Activity and ISWPs permits with compliance at the local WMO level. Only one Annual Report would be submitted to both the MPCA and BWSR and would report outcomes and measurable goals of both the WMP, LWMPs and associated SWPPP components. This simplifies the processes and provides definitive on-going information on receiving water quality improvement.



## **Cost Savings with Strategy Implementation Approach**

The challenge with any cost savings effort is objectivity and predictability. Objectivity relates to what is the data or information used to determine savings. Predictability relates to the likelihood that the savings will happen either on a percent basis, real dollars or staff time. Estimates are presented for both the MPCA and RWMWD member cities. For each analysis, data and information was used in the 2008 Integrated Report (Chapter V, COST ANALYSIS [Tables 6 & 7] and Appendix B).

### **Minnesota Pollution Control Agency**

Cost analysis in the 2008 Integrated Report was based upon 2006 labor and benefits per staff person provided by MPCA. In order to update labor and expense rates, a cumulative inflation rate of 13.2% was used for the six-year period, 2007-12 using the Current [Consumer Price Index](#) published [monthly](#) by the Bureau of Labor Statistics ([BLS](#)). All six Permit tasks in Table 1, column one, Appendix B were updated: NOI Review; NOI Public Notice; Annual Report Review, Audits, Elevated Enforcement, Education and Technical Assistance. On an annual basis for each of the 12 RWMWD member cities, cost savings for MPCA staff are about \$16,650 or \$83,270 over the life of a five-year MS4 permit. Savings are \$200,000 per year or \$1,000,000 cumulatively for all 12 cities over the life of a five-year MPCA permit.

Several important savings or efficiency aspects are worthy of further discussion. First, information that went into the savings calculations is objective and based upon real numbers. Second, the above estimates are likely conservative because the City of Saint Paul, a Phase I permittee is treated as a small city or Phase II permittee in the calculations. This is important as MPCA estimated staff time (not provided in the 2008 Integrated Report) would be substantially higher due to a more complex Phase I permit. Third, the 2008 Integrated Report, Chapter VI - Cost Analysis presents considerable calculations and analyses for other permit approaches (joint application, co-permittee and sole permittee) [pp. 67 – 69]. While all are interesting and provide snapshots of what might happen with respect to all 236 Phase II permittees taking advantage of such approaches, it's difficult to derive predictable estimates for such option outcomes.

Further cost savings calculations attributing to the MPCA were not undertaken, herein. The savings calculations for the above estimates are included in Appendix D (pp. 82 - 83).

### **RWMWD Member Cities**

Cost analysis was a bit more complex for the 12 RWMWD cities than the MPCA. The 2008 Integrated Report was used in part for the cost analysis. Table 7 provides in a tabular format costs and anticipated savings for the six

MCMs. The MCM expense information on MS4 implementation was submitted by the City of Rochester in October 2012 in conjunction the MPCA public notice for the *Draft 2012 MS4* permit. Member cities expenses relate to implementing MCMs 1- 6 of the permit. The 2008 Integrated Report, Table 11 (p. 71) provides an implementation cost per MCM based upon responses from MS4 cities surveyed along with their MS4 expenses. These costs were converted to percentages and depicted in column three of Table 7. It should be noted that the distribution of MCM expenditure percentages is fairly typical from many other MS4 permit holders examined in conjunction with Phase One, Task 1.

**Table 7– Savings: Current versus Strategy Implementation (SI)**

Item		Member Cities		RWMWD	
MCMs Expend (%)		Current	SI Approach	Current	SI Approach
MCMs #1 & #2 / Publ. Ed & Publ. Involvement	(7%)	\$ (<10%)	< \$ 4.9%	\$	\$\$
MCM #3 / IDDE	(9%)	\$ (<10%)	< \$ 4.9%	\$	\$\$
MCM #4 / Const. Activity	(12%)	\$\$ (≤20%)	\$ 9.9%	\$\$	\$\$ (QLP)
MCM #5 / Post Constr. BMPs	(16%)	\$\$ (≤20%)	\$ 9.9%	\$	\$ (MIDS)
MCM #6 / PP & Good-house keeping	(56%) 100%	\$\$\$ (≥50%)	\$\$ 49.9%	\$	\$\$
City of Rochester: \$1,483,043 for 6 MCMs *			< 20.5% (goal)		+10 - 12 %
\$13.75/capita/year **			\$10.90/cap/yr.		\$75K–150K/yr.
* City of Rochester, 2012 (MCSC) ** MCM expenditures (2011 population)					

When MCM expenditure percentages from other MS4s (Task 1, not presented here) are compared to Rochester, there are some differences but not significant. For example, an MS4 city may choose to clean streets monthly versus twice per year, thus significantly affecting MCM No. 6 expenditures and relative percent distribution. Rochester expenses do not include permit administration staff time which is appropriate as such expense may be quite variable from MS4 to MS4. Total MS4 expenses for Rochester were converted to an annual per capita

expense (\$13.75/capita/year) based upon 2011 population estimate. This is a useful unit cost measure that is more comparative or transferable to other MS4s.

Cost savings estimates for the RWMWD member cities followed two possible options. First, in the 2008 Integrated Report, Table 13 (p. 73) expense estimates are shown for each of the six MCMs, if undertaken by other entities as allowed by federal regulation and MPCA MS4 general permit. In an Option 1, a quotient shows potentially a seven percent (7.2%) savings [\$21,833 from Table 13 divided into \$302,664 total MCM expenditures, Table 11] incurred by the MS4s choosing other entities for MCM compliance. The 2011 population estimates from the 12 member cities were used to convert to a RWMWD population served of approximately 182,000 persons. Then applying the Rochester per capita MS4 cost (\$13.75) against each member city gives annual expenditures of \$2,502,500 per year for MCM compliance. Option 1 savings estimate applies the 7.2% cost savings rate against total expenditures equaling about \$180,000 per annum (Appendix D, Table 2, p. 86). This is an objective and likely conservative cost savings amount.

Option 2 applies an estimated aggregate 20.5% savings goal (green cell) from Table 7 based upon the difference between the Rochester MCM percentage and the corresponding anticipated MCM savings. Several MCMs (Nos. 3, 4 and 5) likely will incur significant cost savings with the Strategy Implementation watershed-based approach. Applying the 20.5% rate to the 12 member cities arrives at slightly more than \$513,000 per annum (Table 2, Appendix D, p. 86). Therefore, over the life of a five-year MS4 permit, in total cost savings for the 12 member cities ranges from \$0.9 to \$2.56 million.

Additional cost savings are anticipated and shown in Table 8 (columns two and three) below relating to NOI/SWPPP/Annual Report development, audits and liability, but were not included in the above estimate. While it is anticipated that member cities will incur greater expense (staff time) devoted to the collaborative *Best Practices* efforts, overall less expenses are anticipated with audits, NOI/SWPPP/Annual Report unlikely in a Strategy Implementation watershed-based approach. Predictability for RWMWD member cities is more difficult than the projected MPCA administrative savings. However, providing a range of expectations is useful as well as leaving out some savings which potentially will be incurred. Finally, cost savings from *Best Practices* implementation is likely, but will happen over a longer time period (i.e. 5 years).

**Table 8– Additional Potential MS4 Cost Savings**

Item	Member Cities		RWMWD	
	Current	SI Approach	Current	SI Approach
<i>Best Practices</i>	0	\$ \$ short-term	0	\$ \$
NOI / SWPPP / Annual Report	\$	< \$	\$	\$ \$ or \$
Liability (3 <sup>rd</sup> Party)	< \$	<< \$	< \$	\$
Audits	< \$	0	< \$	< \$
Monitoring (Receiving Water & Stormsewer)	\$ [SS, Saint P.]	< \$	\$	\$
LWMPs	< \$	\$	0	\$ (assist the cities)
TMDLs	0	< \$	\$ \$	\$
		< \$ long-term		< \$ long-term
<b>Reduced administration &amp; liability exposure. Short-term increase in <i>Best Practices</i>.</b>				

There may be slight increases in member cities costs associated with LWMP changes, *Best Practices* development and potential TMDL implementation, although the latter appears unlikely due the receiving water gains occurring. The RWMWD intends to provide short-term financial assistance to member cities in this regard. Note that the City of Saint Paul, being a Phase I permit holder would have higher expenses due to having two extra MCMs, however, that was not factored into the savings. It appears quite likely that cost savings for member cities will accrue with respect to MS4 implementation expenses, but the magnitude remains within a fairly broad range.

While not discussed here, but shown in Appendix D the per capita cost for MCM implementation ranges from \$13.75 to \$17.79. Thus, the overall cost savings estimates for Options 1 and 2 are likely valid and useful for the Strategy Implementation approach.

## TASK 8 – CONDUCT MEETINGS WITH MEMBER CITIES REGARDING STRATEGIC IMPLEMENTATION APPROACH

### Task 8 - Description

Conduct approximately 5 to 10 meetings with member cities within the RWMWD (Maplewood, Oakdale, North St. Paul, Roseville, Shoreview, Woodbury, Landfall, White Bear Lake, Little Canada, Vadnais Heights, and Saint Paul) and present the Strategic Implementation (SI) watershed based approach. Meet with surrounding Water Management Organizations about the SI approach and potential implications to their programs.

Meetings with ten of the twelve RWMWD member cities were held on November 20 and 27<sup>th</sup>, 2012 at the District office. Also, a December 4<sup>th</sup> meeting was held with Capital Region Watershed District staff. Figures 7, 8, 9 and Tables 7 and 8 from Task 7 were included in the presentations and Tables 9 and 10 below. The Strategy Implementation watershed-based approach presentation showed the relationship with EMS – ISO 14000; a merging of planning-permitting-operations; and most important a simplification that is tied into improved receiving water quality. Table 9 summarizes the issues with the current MS4 permit and the factors favoring the Strategy Implementation approach.

**Table 9– Why the Strategy Implementation Approach?**

<b>Why the SI Watershed-based Approach?</b>	
<b>Current Situation</b>	<b>Strategy Implementation</b>
1. Program duplication;	1. RWMWD leads with WB stormwater mgmt.;
2. Greater cost by local and state governments;	2. Collaborate w/cities in PW <i>Best Practices</i> & W. Q.;
3. More confrontation, less collaboration;	3. MS4s status quo, clear cost savings;
4. Often perceived as useless exercises; and	4. Compliance is at the local level; and
5. Little or no evidence of water quality improvement.	5. Improving water quality.

Facts and information form the basis of Table 9 such as:

1. NRC 2009 Report
2. Cost analyses provided, herein
3. RWMWD history of strong positive relationships with member cities; and
4. RWMWD programs have successfully improved water quality.

Strategy Implementation watershed-based approach builds upon existing District programs while introducing new tools. An apparent ‘downside’ in moving ahead with a *Pilot* Strategy Implementation is not evident. Positive aspects of a *Pilot* Strategy Implementation watershed-based approach far outweigh any ‘downside’ risk. Water quality will continue to improve within the RWMWD resulting from existing programs and operations. Accepting that the Watershed Management Plan and Local Water Management Plan processes and implementation program is a success and operates effectively as a TMDL implementation plan; then introducing the Strategy Implementation approach adds overdrive to the District’s well-oiled machine and facilitates member cities to experience the same.

The concluding slide within the cities presentation and shown below as Table 10 poses the question, why do this? It is the right time to make this change because several programs seem to interface nicely with the Strategy Implementation approach. By this it is meant: ISO 14000 (EMS), *Best Practices* introduction and collaboration between local governments is increasing for a variety of reasons.

**Table 10– Why do this?**

<b>Seriously, why do this?</b>
1. It’s an EMS process (Continuous Improvement, TQM);
2. It emphasizes a <i>Best Practices</i> approach (City of Saint Paul (APWA Accreditation));
3. Collaboration already is being done (e.g. Little Canada, Maplewood, Roseville);
4. Water quality in the District ... it’s improving!
5. It’s time for a new approach ... “allowing states with equivalent stormwater programs to regulate in lieu of EPA.” <sup>61</sup>

Finally, as the NRC 2009 Report stressed, it is time for a new approach to addressing urban runoff and associated pollution. Positive feedback in-person from a majority of meeting (transcript available) attendees indicated that the RWMWD was on the right track with the Strategy Implementation watershed-based approach. Some attendees raised a number of questions while others asked for more information which was understandable. In order to elicit more objective feedback, it was decided and announced during the member cities meetings that a follow-up survey would be undertaken. Results from member cities would be anonymous and would be shared with respondents in conjunction with the Phase One report issuance.

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<sup>61</sup> Copeland, C. Stormwater Permits: Status of EPA’s Regulatory Program. Congressional Research Service, July 30, 2012. (p. 10) #7-5700,; [www.crs.gov](http://www.crs.gov) 97-290.

## Member Cities Staff - Survey

The design conducting a survey was not within the Phase One, Task 8 scope of work. The survey would provide objective outcome information on the Strategy Implementation watershed-based approach. SurveyMonkey (<http://www.surveymonkey.com/>) was used for the web-based effort. An email was sent to the 15 meeting attendees including a SurveyMonkey hyperlink. It's noteworthy that the cities of Roseville and Shoreview staff persons were not included in the initial co-permittee presentation in March 2012. The two cities were added by the MN BWSR with the Grass Lake Water Management Organization and the RWMWD merger during the summer of 2012. The survey email was sent out by RWMWD Administrator on December 9<sup>th</sup> with respondents given one week to complete it along with a reminder after five days. Below is the 10-question survey prepared for canvassing member cities staff that were meeting attendees.

### Survey Design

#### **Survey Title: Watershed Based Pilot Project**

#### **Introduction**

This survey is requested by Ramsey-Washington Metro Watershed District (RWMWD) for member cities staff to provide objective feedback on the Watershed-Based Approach Pilot Project. Your responses will be treated anonymously with survey results included in the final Project report.

Please take 10 – 15 minutes to complete the survey. You may find the presentation slides handout to be useful. The final Pilot Project Report should be available in January 2013 on the District website (<http://www.rwmwd.org/>), In Library: Technical Reports.

#### **1. How useful to your city was the Co-permittee MS4 approach (p. 4) presented in March 2012?**

Extremely useful		Slightly useful	
Very useful		Not at all useful	
Moderately useful		Not familiar	

2. With respect to Question 1 (co-permittee approach), was it evident that the items below were useful? (check all that apply)

	Very Evident	Somewhat Evident	Not Evident
Greater government collaboration			
Less program duplication			
Cost savings for cities			
Liability is shared			
Integration of planning and permitting			
Cities still responsible for MS4 permit			

3. The **Strategy Implementation (SI)** approach proposes merging watershed planning and stormwater permitting/PW operations (p. 7). Do you believe this approach would simplify or make matters more complex?

Simplify		More complex	
No change		Not sure yet, need more information	

4. The watershed based **SI** approach follows the Environmental Management System (Plan – Do – Check – Act), pp. 8-9. Do you see benefits to implementing this quality management system to your city’s public works operations?

Extremely important		Slightly important	
Very important		Not at all important	
Moderately important			

5. Are there benefits in strengthening the Watershed Management and Local Water Management plans by incorporating some MS4 SWPPP or SWMP elements and possibly other stormwater permits (p. 12)?

Yes	No	Need more information
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6. In the **SI** approach, a key factor for success is the District collaborating with member cities to document public works *Best Practices* for WQ. Do you see benefit in such an effort to your city’s operations?

Extremely important		Slightly important	
Very important		Not at all important	
Moderately important		Comments	



7. With what you know about the **SI** approach (pp. 14 – 15), could increase city efficiency and/or reduced costs be anticipated with each of the following below?

	Yes	No	Maybe	Do not know
MCM's 1 – 5				
MCM 6				
NOI/SWPPP/Annual Report				
Best Practices (development & implementation)				
Liability exposure				
MPCA audit				
LWMP implementation				
Comments				

8. With the **SI** approach, collaboration between the District and member cities is essential. Do you see value in this effort?

Extremely important		Slightly important	
Very important		Not at all important	
Moderately important			

9. Assuming the **SI** final framework can be accomplished in 2013 with implementation in 2014, would you approve dedicating city staff time to this implementation?

Yes		Not sure, need more information	
No		Comments	

10. In the future, how important would including transportation MS4s (Mn/DOT and counties) in the **SI** approach?

Extremely important	Very important
Moderately important	Slightly important
Not at all important	

## Survey Results

Eleven (11) of the 15 persons or 73% responded to SurveyMonkey. The intent of questions #1 and #2 was to provide more objectivity to the Outcomes from Phase One, Task 6 which changed during the Phase One study. Appendix E provides the output from SurveyMonkey. Table 11 below is a summary based upon the questions and synopsis of the results.

**Table 11– Survey Responses Summary**

Question	Respondents Summary
1	Less than one-third feels the Co-permittee approach is moderately or very useful, however 55% felt it is not at all useful or only slightly useful.
2	Nearly 73% believe “ <b>cost savings for cities</b> ” is not evident. An equal percentage believes “ <b>greater government collaboration</b> ” is somewhat evident with the Co-permittee approach, but 55% believe that is either evident or somewhat evident that cities would still be responsible for the MS4 permit.
3	There is no clear consensus on this question; one-third of respondents still “ <b>need more information</b> ”.
4	Nearly two-thirds of respondents feel the EMS is <b>moderately or very important</b> in a city’s public works operations.
5	Nearly two-thirds of respondents believe there are benefits in strengthening the WMP and LWMP by incorporating some MS4 elements and stormwater permits.
6	Slightly more than half (54%) of the respondents feel that it is “ <b>moderately to very important</b> ” in the <b>SI</b> approach for the District to collaborate in documenting PW Best Practices for WQ.
7	More than two-thirds of respondents believe the SI approach provides staff efficiency and/or cost savings for MCM’s 1-5; NOI/SWPPP/Annual Report; and Best Practices. Slightly more than half believes that liability exposure would not change and there is no efficiency or cost savings with MCM 6.
8	Two-thirds of respondents feel there is clear value in collaborating between the District and member cities in the <b>SI</b> approach.
9	There is no clear consensus by respondents in dedicating staff time to the <b>SI</b> effort on 2013 and 2014. However, one-third of respondents still require more information. The latter issue is strengthened by several of the comments given for Question #9.
10	Slightly more than half (54%) of respondents believe it is <b>moderately to extremely important</b> to include transportation (a.k.a. linear) MS4s in the SI approach. It is important to note that fully one-third, however, believe that it is <b>not at all important</b> to include such MS4s.

Certainly, one could argue that a survey population of 15 may not be representative of all member cities; however the survey was not intended to be either random or statistically significant. Because meetings were held mostly

staff with member cities that were the decision-makers, the responses strengthened comments made during the face-to-face meetings.

Questions 1 and 2, as mentioned earlier, clearly indicate a major change in direction for the watershed-based approach was necessary during outcomes from the Task 6 meetings with member cities. While it was clear cost-savings were not apparent with a co-permittee approach, two other issues are important. Collaboration is quite important to a strong majority, but the co-permittee approach failed to convince on the integration of planning and permitting which is an equally important outcome.

The responses from Question 3 are all over the place with no clear outcome. The affirmative outcome of the Questions 5 and 8 responses is interesting because it essentially asks Question 3 in another manner, but not specifically identifying the Strategy Implementation approach. Similarly, Questions 6 and 7 with respect to *Best Practices* provides a good indication that member cities like the idea and are willing to collaborate with RWMWD. Concerns were expressed in comments regarding surrounding Districts however the meeting with Capital Region Watershed District (CRWD) indicated full support of *Best Practices*. Question 7 also affirmed the cost-saving and staff efficiency issues with respect to MCMs 1-5, NOI/SWPPP/Annual Report and *Best Practices*.

## Summary

The meetings with ten of the twelve member cities and CRWD indicated an open willingness to listen to the new Strategy Implementation approach and raised many questions. Most questions related to what the regulatory agency would do with the Strategy Implementation approach and in a similar fashion concerns about cities with multiple water management organizations and their response to such an approach. The survey of member cities reaffirmed that the RWMWD and a new Strategy Implementation watershed-based approach was worthy of further exploration with regulatory agencies. While both the meetings and survey reflected concerns about needing more information particularly regarding the *Best Practices*, it nonetheless appears quite favorable that this new concept and tool for public works operations and pollution control definitely has potential promise.

Finally, while collaboration is important, it may not work everywhere. One cannot force either persons, agencies or the public to work together. However it's evident after Phase One, Tasks 6 and 8, benefits have to be clear and mutual interests need to be honored otherwise it's simply lip-service or unsupported by real conviction.

## **TASK 9 – Phase 1 Final Report and Evaluate Phase 2 Implementation**

The *Pilot* Watershed-Based Stormwater Approach project is important because it reduces uncertainty from outcomes in the 2006 Framework Report and 2008 Integrated Report. Both previous reports provided background and analysis of existing and potential permitting approaches for stormwater management. The *Pilot* effort looked at several approaches, sole permittee and co-permittee options, explored them with District member cities and ultimately decided to take a new approach. The NRC 2009 Report provided an in-depth analysis of the urban runoff problems and constructive criticism for federal regulatory agency on the need for new innovative approaches.

With the creation of the Strategy Implementation approach, a bold new direction in urban runoff management can be accomplished in the Ramsey-Washington Metro Watershed District and potentially statewide in Minnesota. The Strategy Implementation takes what has worked very well for 30+ years in the RWMWD, builds upon it with a new tools and strengthening collaboration. Efficiency and cost-savings are likely for all stakeholders (state and local governments) involved. Most important is that the Strategy Implementation approach, if successful over the next five years; it will set an example from the NRC 2009 Report as a new direction in urban runoff management.

### **Conclusions**

1. Fourteen MS4 stormwater permit approaches across the United States were investigated for applicability in RWMWD in conjunction with Phase One, Task 1. The Phase I and Phase II co-permittee examples, especially two in Colorado reflected a watershed-based approach.
2. Legal and administrative framework issues reviewed in Phase One, Task 2 narrowed the focus toward an integrated planning and stormwater permit watershed-based approach.
3. A co-permittee approach with integrated planning and permitting was selected and examined further in Phase One, Tasks 3, 4 and 5.
4. In the spring of 2012 and Phase One, Task 6 several meetings with District member cities included a co-permittee watershed-based approach with planning integration presentation. Feedback from member cities staff indicated that cost-savings were not evident and MS4 staff workload remained the same. While integrated planning was evident it did not rise to a level of importance where member cities would support adopting a co-permittee watershed-based approach.

5. The watershed-based approach was re-evaluated in the summer 2012 along with executing a project scope of work amendment. A new watershed-based approach called Strategy Implementation (SI) was developed and presented to state and federal regulatory agencies with initial positive feedback.
6. In Phase One, Task 7 on an annual basis for each of the 12 RWMWD member cities, cost savings for MPCA staff oversight are about \$16,650 or \$83,270 over the life of a five-year MS4 permit. Savings are \$200,000 per year or \$1,000,000 cumulatively for all 12 cities to the MPCA over the life of a five-year MPCA permit (Appendix D, p. 82).
7. In a Strategy Implementation approach as part of Task 7, the 12 RWMWD member cities cost savings ranged from 7.2% to 20.5% using two different methodologies for MCM compliance. Annual savings for all 12 member cities ranging from \$180,000 to \$513,000. Over the 5-year life of a Strategy Implementation watershed-based approach reveals a range of \$900,000 to \$2,565,000 in savings for all 12 member cities (Appendix D, pp. 84-86).
8. In conjunction with Phase One, Task 8 meetings with ten of the twelve member cities were held in November/December along with Capital Region WD staff to receive feedback on the Strategy Implementation watershed-based approach. Comments were generally favorable to the new approach.
9. In order to better corroborate member cities comments received during the meetings, an electronic survey was submitted to attendees during December 7<sup>th</sup> through 14<sup>th</sup>. Survey results were quite favorable to the Strategy Implementation approach.

### **Evaluate Phase Two Implementation**

On December 7, 2012, RWMWD staff convened a conference call with USEPA, Region V staff and the same Strategy Implementation presentation given to member cities. Also in attendance was an MPCA, Water Division, Watershed Unit staff. The conference call meeting did not include results from the member cities Survey which commenced later that day. Very favorable response was received from those in attendance on the Strategy Implementation approach. Region V, EPA staff suggested three future steps: first confer with MPCA Stormwater Unit staff in early January on the Strategy Implementation approach. Second, set-up a another conference call Strategy Implementation presentation with Region V and USEPA Headquarters staff in late January. Third, if favorable response from MPCA Stormwater staff begins discussion in March on next steps which may include developing a new MS4 general permit in 2014 for the *Pilot* Strategy Implementation approach.

1. There is support in moving Phase One *Pilot* study results to a Phase Two implementation program. Steps in a Phase Two implementation will be to develop a scope of work necessary to bring the Strategy Implementation watershed-based approach as a *Pilot* in Minnesota. It is envisioned Phase Two would be a two-year effort, commencing in the 4<sup>th</sup> quarter of 2013 and continuing to the end of 2015.
  
2. In conjunction with Phase One, Task 9, the following would be included in the Phase Two Implementation – Scope of Work:
  - a. Develop with MPCA/BWSR and regulated stakeholders, a detailed scope of work for a new watershed-based approach modeled after Strategy Implementation;
  - b. Develop with at least three District member cities, public works *Best Practices* and their integration into the Strategy Implementation approach;
  - c. Work with existing BWSR staff and regulated stakeholders group on amendments to M.S. 103B and M.R. 8410, if needed to accommodate the Strategy Implementation approach;
  - d. Explore, develop and implement new web-based tracking software/system addressing the EMS part of the Strategy Implementation approach integrating *Best Practices*; and
  - e. Work with BWSR and MPCA staff and regulated stakeholders on how to best move the Strategy Implementation approach statewide in conjunction with TMDL implementation plans as soon as 2015.
  
3. A recommendation from the Phase One study is a Phase Two implementation program is initiated in 2013. The timing for a Phase Two implementation effort is important due to interest by member cities in the RWMWD and regulatory agencies. Collaboration is key component, but more importantly is that all stakeholders involved keep the following in mind as a constant:

The goal of Strategy Implementation is to continue to foster innovation in stormwater management (MIDS, QLP, etc.) and public works *Best Practices* to assure receiving water quality improvement.

Appendix A - Stormwater Permit Approaches in the United States

Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
<b>Pilot No. 1</b>	Menomonee River Watershed Permittees (136 sq. mi. within northern Milwaukee area).	WDNR – new WPDES MS4 Group Permit issued <b>November 30, 2012</b> for eleven local govts. A co-permittee <i>hybrid</i> watershed-based permit.	Phase I - Phase II co-permittee	Milwaukee City & County, four cities and five villages.	MS4	Initial EPA grant, then local funding.	There are Group (MCMs 1, 2 & 3) and Individual (MCMs 4, 5, & 6) permit conditions. Watershed projects (joint or MS4) can be done. Annual reports and SWMPs by each MS4.
<b>Pilot No. 2</b>	Middle Rio Grande River Watershed, New Mexico (Albuquerque metro area).	City of Albuquerque issued a Phase I permit in 2003. Phase II permits in 2007. NM Dept. Environment has taken organizational lead. EPA Region 6, MS4 permits expired 6/30/12. A Watershed-based draft general permit was notice <b>May 1, 2013</b> in the <i>Federal Register</i> . Co-permittee approach possible, but reliance on partnering.	Phase I and Phase II	~8 cities; two counties; three tribal entities; three flood control entities, & federal facilities	MS4	Future issue	Issues: TMDL, Watershed Based Plan, stormwater volume control, monitoring, water rights, unregulated areas, DWSMA discharges, T&E species, and Tribal waters discharges. Future funding, data sharing and MOA top priorities.
<b>Pilot No. 3</b>	Ramsey-Washington Metro Watershed District, Minnesota (65 sq. mi. within northern Saint Paul metro area).	Evaluating and implementing third phase of WB efforts (2006, 2008, and 2012). Existing MS4 permit expired in 2012, WB approach provision possible. Co-permittee approach unlikely, <i>hybrid</i> or entirely new approach likely, but controversial.	Phase I and Phase II	Parts or all of 12 cities and two counties	MS4s, possibly Const. and MSGP	District property tax, cities (SWU)	Phase One study concentrated on final institutional framework, efficiencies and local govts. input. Phase 2 effort directed at public works <i>best practices</i> for W.Q. and incorporating other NPDES permits (Const. Activity, MSGP).

Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
1	Michigan Stormwater General Permit - 2003 (MIG610000) expires 2013. 80% of Phase II's have opted for Watershed Permit by MDEQ.	"Nested" MS4s owned or operated by a public body do not have to apply for permit coverage if a watershed permittee agrees to the authorized discharge. A Watershed Management Plan (WMP) with watershed partners developed first and reviewed by MDEQ. A community specific Stormwater Pollution Prevention Initiative (SWPPI) implements the WMP. Essentially, a co-permittee approach.	Phase I and Phase II	Many	MS4s	Sanitary sewer fee, stormwater utilities, property taxes.	Because of legal action, the existing 2003 General permit remains in effect. Likely new MS4 individual permits will be issued on a watershed (basin). Most difficult problems are institutional and financial. Building upon existing local government cooperative agreements is a key item.
2	Tualatin River Watershed, Clean Water Services (CWS) as lead co-permittee with Washington County, Oregon for surface water management.	Wastewater treatment entity used a "watershed-based" integrated permit (IP) to combine POTW and associated MSGP permits. The CWS owns and operates of the storm drain system while cities have the remainder. Western water law has some effect on BMP opportunities. Complex permit with a lot of monitoring, benchmarks, effluent standards, etc.	Phase I (primary) and Phase II	12 cities and Washington County	POTW (4), IPWW, MS4, and MSGP (2)	Sanitary sewer and surface water management (SWU) user fees	Significant administrative benefits to permit holder and permitting agency with integration. Permit tracking of multiple discharges an issue. User fee revenue being used outside service area for improvements. The CWS operates monthly street sweeping program in the 12 cities and County using SWU revenue.



Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
3	Northern Kentucky, Sanitation District No.1. The Agency operates both sanitary and stormwater systems for the combined sewer area. The SD1 is the lead agency in a co-permittee arrangement.	Regional wastewater agency required by 2007 Consent Decree to manage SSO's, CSO's and stormwater on a watershed basis. Large service area of 223 sq. mi. with four subwatershed basin plans now completed. The SD1, 2011 MS4 Permit Annual report is very well done. A green infrastructure plan is in place along with a 2030 Comp. Plan for the 3-county area.	Phase II (SD1 is lead)	30 cities and 3 counties	POTW, IPWW, MS4, CAFO, Const. and CSO	Sanitary sewer and storm water fees	Stormwater fee revenue to comply with MS4 and assist cities and counties with infrastructure costs. This is a very challenging effort considering the problems, but efforts to date are impressive. A co-permittee pollution prevention toolkit and SWPPP templates developed by SD1.
4	Louisville/Jefferson County MSD, Kentucky. The Agency operates both sanitary and stormwater systems for the combined sewer area.	The MSD explored sole and co-permittee approaches. A third generation permit issued in 2011. KY Transportation Cabinet, Dist. 5 will have separate MS4 permit.	Phase II (MSD is lead)	Four cities, Louisville Metro (city & Jefferson Co.) and MSD	POTW, IPWW, MS4, Const. and CSO	Sanitary sewer and storm water fees	The L/J MSD has not progressed quite as far as NKY SD1, but new permit and a good deal of green infrastructure approaches now being pushed. Stream monitoring and assessment included now.
5	Neuse River Compliance Assn. (NRCA), NC. Watershed "group" permit issued by NCDENR/DWQ in 2002 for 30% total nitrogen reduction (TMDL linked) from 22 POTWs. An overlay permit to	Very large Basin with 2009 Plan. Estuary N loading not met, despite NRCA limit being achieved. This may be due to legacy Ag loading, POTW solids, septic tanks, etc. Agriculture runoff efforts have been good. Overall Basin approach is complex, but doable with many stakeholder groups (i.e. NRKF, UNRBA, LNBA, etc.). Basin Oversight Committee	Phase I (primary), Phase II	NRCA Permit included 19 local govts. of the 33 within the Basin. Approx. 138 facilities	POTW, IPWW, MS4 and CAFOs	Variety of sources from enterprise funds to state and federal.	This is the "posterchild" for a large watershed with nearly all environmental problems and pressures. Overall efforts have been laudable to date. Long-term challenges remain. Summary efforts have been published, but much more information would be useful.

	the Assn. on top of individual permits.	oversees all efforts.		(2008).			
<b>Stormwater Permit Examples</b>	<b>Name and/or Entity</b>	<b>Description</b>	<b>Phase I or Phase II</b>	<b>Local Govts.</b>	<b>Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO</b>	<b>Revenue Sources</b>	<b>Comments</b>
6	City of South Lake Tahoe, El Dorado and Placer counties (all co-permittees), California. An individual (2012) MS4 permit issued to the group by California Regional Water Quality Control Board - Lahontan Region. Very tough permit.	Phase II stormwater permit covers municipal, industrial, commercial, residential landuses and construction activities. Permit is very comprehensive including receiving water monitoring, numeric runoff effluent stds., pollutant loads reductions assigned to each Tahoe Regional Planning Agency (TRPA) is bi-state entity charged with overall authority for environmental planning and outcomes(i.e. Basin Plan).	Phase II	one city, parts of two counties	MS4, MSGP, Const. , residential and commercial	General fund, road fund, possible Prop. 218 revenues, grants.	Individual reporting and monitoring, none of the co-permittees are a lead agency. Revenues are a long-term challenge. Overall coordination at the local level appears to be a drawback along with absence of legal authorities for aspects of the permit. Lake Tahoe W.Q. decreasing, TMDL (2010) in-place. The SWMPs are more stringent than Fed. Regs. A new Lake Clarity credit program tied to fine sediment discharges.
7	Chesapeake Bay Watershed. Multi-state (Maryland and Virginia) and District of Columbia.	General permit overlaying existing permits directed at nutrients (phosphorus and nitrogen). January 1, 2011 W.Q. deadline. W.Q. trading for non-point sources. Multi-state, one permit versus 125 individual NOI s for general permit. Large reductions necessary for nitrogen and phosphorus.	Phase I and Phase II	127 existing dischargers with an additional 12 new or expanded	POTWs, MS4s, MSGP, Const. and MSGP	Variety of sources from enterprise funds to state and federal.	W.Q. based effluent loading limits for nutrients. Similarities to NC and Neuse River with respect to Agriculture contribution, not necessarily CAFOs. Institutional arrangements and regulatory authority a challenge.

Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
8	Lake Lewisville Watershed, Texas. Texas Commission on Environmental Quality	Outgrowth from 319 grant project to explore watershed based effort. Lake is not impaired yet, however, at risk. Primary approach is to reduce nutrient loading from Hickory Creek arm of the Lake with BMPs.	Phase II	City of Denton and Denton County	All except CAFOs and CSO	Not applicable, yet.	Real-time W.Q. monitoring network along with Const. permits, ECOPLEX website (U. of N. Texas), not operating yet. Watershed Plan underway. Institutional arrangements need to be addressed. See Colorado examples.
9	Cherry Creek Water Quality Basin Authority, Colorado. The Authority created in 1988 by CO Legislature and reconstituted in 2001 to address Cherry Creek Reservoir water quality and source controls. The CDPHE, Water Control Commission promulgated the Cherry Creek Reservoir Control Regulation 72, as amended in 2010.	The CCWQBA is implementing a 1985 TMDL for the Reservoir. In 2001 MS4 permit requirements incorporated and a 2003 watershed plan completed. Total phosphorus Reservoir std. replaced by chlorophyll <i>a</i> std. Essentially an MS4 general permit with W.Q. based effluent standards for stormwater discharges to Reservoir. A <i>hybrid</i> co-permittee approach.	Initially Phase I, then Phase II	Eight cities, two counties and 7 special district govts.	POTWs, IPWW, MS4, and Const.	Authority property tax levy. Park user fees, wastewater fee surcharges, and building permit fees.	While nonpoint source loading and/or concentration of total phosphorus has remained steady, reservoir W.Q. has not met standards for CHLa. Implementation of BMPs has generally worked, however, volume control and LID appears to be the future direction. A revised watershed plan will be completed in 2011.

Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
10	Southeast Metro Stormwater Authority (SEMSWA), Colorado. Formed in 2006 pursuant to Colorado intergovernmental statute, the SEMSWA manages the MS4 permit requirements and other drainage and stormwater regulations.	The SEMSWA was formed primarily to address the MS4 permit requirements and replaced four to six existing intergovernmental agreements between other special purpose districts and subbasin areas. Both the City of Centennial and Arapahoe County are also members of CCWQBA. A <i>hybrid</i> co-permittee approach.	Phase II	City of Centennial, Arapahoe County and POTWs(non-voting)	MS4 and POTWs	Stormwater utility and development fees billed on property tax statement.	The SEMSWA agreement refers to CCWQBA as it relates to phosphorus credit trading. The SEMSWA requested by way of the agreement to have complete MS4 authority transferred to it by CDPHE.
11	Los Angeles County Flood Control District (Principal permittee), Los Angeles County and 84 co-permittees by California Regional W.Q. Control Board, Los Angeles Region. The District operates as a planning agency within LA County Public Works Department.	November 2012 Phase I permit is likely one of the more complex co-permittee examples in the U.S. at 154 pages. Several new BMPs emphasized such as biofiltration / bioretention over previous permit. A lot of TMDLs over and above the SWMP. A U. S. Supreme Court decision (January 8, 2013) while narrow in scope affirmed District's position regarding navigable waters and not a MS4 discharge to such.	Phase I and Phase II	Los Angeles County as lead Phase I along with 84 cities as co-permittees.	MS4, MSGP and Const.	Property taxes, benefit assessments and land development fees.	Due to Phase I permit, both industrial and sometimes commercial sources are included for inspection. BMP installation and success evaluation varies, but is strengthened by TMDL implementation plan. A drawback with this approach occasionally relates to regional implementation of stormwater BMP facilities and an overall watershed approach for receiving water improvements. Annual reporting demands better efficiency when the number of co-permittees is excessive.

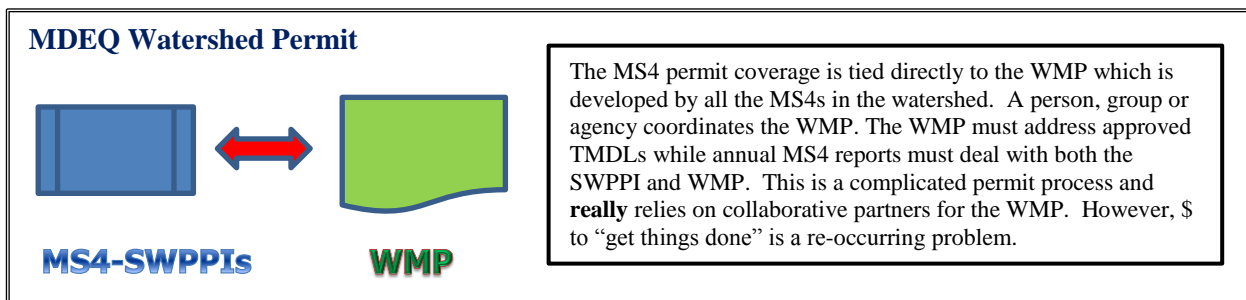
Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
12	Ventura County Watershed Protection District (VCWPD) under Ventura County and incorporated cities by California Regional W.Q. Control Board, Los Angeles Region. Phase I permit with the District as lead permittee and ten co-permittees.	There are four major subwatersheds that make-up VCWPD most of which have TMDLs in place. Essentially, the VCWPD operates as an "overlay" county agency which prior to 2003 was Ventura County Flood Control District since 1944.	Phase I and Phase II	VCWPD, Ventura County and ten cities	MS4, MSGP and Const.	Property taxes, benefit assessments and land development fees.	The 2010 permit requires stringent LID requirements. Many TMDLs in-place, several approved. Outfall and receiving W.Q. monitoring. BMP treatment performance standards.
13	Western New York Stormwater Coalition, New York. Compliance with New York State Department of Environmental Conservation, General Permit GP-0-10-002. Green infrastructure is an emphasis through training of MS4s and implementation.	The Coalition was formed in 2004 and Phase I stormwater permit incorporating Phase II co-permittees. Annual membership fee of \$2,500. The WNYSC focus has been on education/training and outreach efforts which have been extensive and well received. Erie County has been the lead permittee.	Phase I and Phase II	Two counties (Erie and Niagara) with 39 other MS4s.	POTW, MS4, CSO	Existing WNYSC funding through fees and grants. A 2010 study addressed a regional Stormwater Utility District. Not likely to move ahead.	This is one of several coalitions or groups in New York state. It's been very successful at education and outreach efforts for its member MS4s. However, lack of adequate funds, regional watershed focus and receiving water quality not tied into the stormwater permit outcomes.

Stormwater Permit Examples	Name and/or Entity	Description	Phase I or Phase II	Local Govts.	Point Sources: POTW, IPWW, MS4, CAFO, MSGP, Const. and CSO	Revenue Sources	Comments
14	Madison Area Municipal Storm Water Partnership, WI. The Partnership meets on a quarterly basis. Information mostly I/E on myfairlakes.com.	MS4 General "Group" Permit, WPDES WI-S058416-3. Permit compliance driven by N.R. 151 and 216 requirements from WDNR. City of Madison maintains outfall map with co-permittees and mtg agenda and minutes. Dane County has taken lead for I/E program efforts with staff. TMDLs are underway, Rock River and Yahara River. Biennial reports required by all co-permittees.	Phase II	20 cities, towns, villages, Dane County and UW-Madison	MS4	Individual revenue sources and grants.	Implements Dane County W.Q. Plan, Madison Area I & E Plan, priority watershed plans and SWMPs 40% reduction in TSS by 03/01/2013. Biennial reports required from each co-permittee, efficiency are warranted. Timeline for TMDL implementation plan (e.g. Rock River) is generous (15 yrs.) per N.R. 217. An Adaptive Mgmt Plan is underway. Challenges involve wastewater, stormwater and agriculture sources.

POTW: Publicly Owned Treatment Works  
 IPWW: Industrial Process Wastewater  
 MS4: Municipal Separate Storm Sewer System  
 CAFO: Confined Animal Feeding Operation  
 MSGP: Multi-Sector (industrial) General Permit  
 Const.: Construction Activity Permit  
 CSO: Combined Sewer Overflow

Appendix B: Michigan Watershed Permit Approach

Michigan has two stormwater MS4 general permits: a *jurisdictional* approach and a *watershed* approach since 2003-2008. Two second-generation general permits were public noticed in 2010, but met with considerable controversy with regulated stakeholders and were withdrawn by Michigan Department of Environmental Quality (MDEQ) late that year. The withdrawal was mainly related to Article IX of the Michigan Constitution (a.k.a. 1978 Headlee amendment) regarding unfunded mandates. Currently, Michigan MS4s operate under the expired 2003-2008 general permits. The MDEQ *watershed* approach (General Permit No. MIG619000) requires that an MS4 either Phase I (Storm Water Management Program or SWMP) or Phase II (Storm Water Pollution Prevention Initiative or SWPPI) may receive a Certificate of Coverage subject to an MDEQ approved Watershed Management Plan(WMP). The figure below is an approximation Michigan stormwater watershed approach.



The withdrawn 2010 second generation permit dealt with a number of clarifying issues arising in the first go-around. Notwithstanding, it appears from MDEQ website (FAQs) and personal communication (Bob Newport, USEPA 12/07/2012) that a Basin/MS4 individual permit process will likely evolve in place of the withdrawn second generation general permit. Following are synopses of conversations with interested persons associated with the Michigan MS4 program were conducted in mid-2011, primarily to further investigate the Michigan stormwater permit approaches as well as organizational structures in-place.

**Mr. Mark Fife, Michigan Department of Environmental Quality (MDEQ)**, Lansing (08/17/11, **Note:** Mr. Fife passed-away in September 2012). The MDEQ staff have been meeting since January with a committee of MS4s following the withdrawal of two revised general permits (*jurisdictional* and *watershed*) upon threat of a contested case hearing and potential future litigation. Four meetings have been held so far with another two anticipated. The *watershed* approach general permit has never been an issue, in fact it was chosen by 50 – 60% of the 300 MS4s in Michigan with respect to the expired 2003 permit. Participating MS4s perceived the watershed approach to have

cost savings. Significant issues involving the MS4/MDEQ dispute are Illicit Discharge Elimination Plans (IDEP) plus outfall mapping as a related issue and TMDLs. The former items came to the surface in the new permit as a result of compliance audits by MDEQ (MS4s had not done either or made little progress). It appears that as many as 100 MS4s may go the individual permit route as an outcome of the negotiations.

**Follow-up** (09/13/11), Mr. Fife indicated that the MDEQ has not adopted the use of a co-permittee approach because of compliance and enforcement concerns. While the MDEQ likely may move towards issuing many more individual stormwater permits, it's likely that 90% of the content of each permit will be identical, thus not creating a large administrative burden.

**Jim Smalligan, Principal with Fishbeck, Thompson, Carr & Huber**, Grand Rapids, 8/18/11. The firm provides consulting for about 60 MS4s in Michigan. "The watershed general permit approach has been very well received as providing significant benefits to MS4s. Collaboration towards a common goal is chief among them and motivation ... no MS4 wants to be the outlier that does not participate." While MS4 staff has strongly been supportive, it goes beyond this as the elected officials like it as well. Another although diminishing benefit has been the ability of a group of MS4S to attract grant funds.

The Lower Grand River Organization of Watersheds (3,000 sq. mi., ten counties, three tributary watersheds to the Grand and several subwatersheds) is an example of a grant recipient. A big challenge derives from the Watershed Management Plan required in the permit identifying all water quality impairments. However, implementing such Plans have imposed requirements on drainage areas outside of MS4 boundaries involving non-regulated nonpoint source land use (agriculture). With grant funds decreasing, there is no mechanism for MS4 watershed groups to fund capital stormwater projects. The organizations do not have taxing authority and MS4s in Michigan generally do not have stormwater utilities as a result of a State Supreme Court decision in the late 1990's.

**Erin Campbell, Tri-County Planning Commission**, 8/19/11. Ms. Campbell works with the Greater Lansing Regional Committee (GLRC) *for Stormwater Management*. The GLRC (metro area of Lansing, MI) is similar to Metropolitan Council of the Twin Cities, but the MS4 Committee is a joint powers organization underneath the GLRC. There are 18 MS4s within the Committee ([http://www.mywatersheds.org/about\\_us.html](http://www.mywatersheds.org/about_us.html)) each contributing \$5,500/yr. in dues. The Committee operates with essentially one full-time staff person as a fairly low-budget operation, but an impressive website. As the website indicates, there are a number of committees in the organization chart which are very effective at implementing the MS4 program in conjunction with its members.



This joint powers group is successful because of the historic good relationship of its members as part of the GLRC. The committee is established to guide the implementation of the entire Phase II Stormwater Program for the communities within three identified watersheds: the Grand, the Red Cedar and the Looking Glass River watersheds. There is significant cost savings with the multiple watersheds arrangement. While each of the MS4s is responsible for its own permit, the Committee staff person (Erin) drafts the annual MS4 report for each. Each MS4 adds minimal additional information and then sends their report into MDEQ.

Inquiring about MCM #6 which requires a good deal of local MS4 input from an implementation and reporting standpoint, Erin indicated that the Committee created its own Good Housekeeping Manual (<http://www.mywatersheds.org/housekeeping.html>) which the MS4s have closely followed.

On MCM#1, Education and Outreach, the Committee did an extensive survey of its members in 2006. In the new MS4 permit, MDEQ expects to see outcomes, thus the Committee will repeat the survey in 2012 with the intent of developing outcomes. The Committee has had a relationship with a large billboard owner in the Lansing area and purchased time on a half dozen billboards for a short period (less than a month). The cost was very nominal with the results on the Committee website showing dramatic increases in “hits”, thus a measureable and positive outcome.

Ms. Campbell believes the main issues for the contested case on the new MS4 permit were: unfunded mandates which violated a State law; outfall mapping issue; detention/volume control; and TMDL impairment requirement for an E. coli standard that will be impossible to meet in receiving waters. Erin’s biggest challenge has been with some of the larger MS4s with respect to internal “silo” issues between departments or divisions (parks versus, public works versus planning, etc.) ... they know about the MS4 permit, but do not communicate regarding issues which overlap the organizational layout. This past week, the City of Grand Ledge (Committee member) experienced the first MS4 audit by MDEQ staff since the watershed-based permit has been in effect. The 1.5 – 2 day audit went very well and MDEQ District staff was quite pleased.

Other Michigan examples (e.g. Huron River Watershed Council, established in 1965) could have been added to the investigation, but it appears statewide there are watershed based organizations that are and have been working very well with the MDEQ stormwater program. While there were concerns over the 2010 withdrawn MDEQ general permit, the watershed approach was not paramount among them.

# A Watershed – Based Stormwater Approach

Ramsey–Washington Metro Watershed District  
March 2012

3/11/2012



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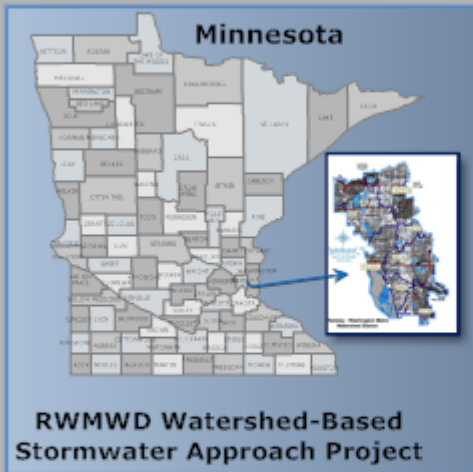
## Three *Pilot* Projects in the U.S.



3/11/2012



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## Phase One of a Two-Phase Effort

2011 – 2014

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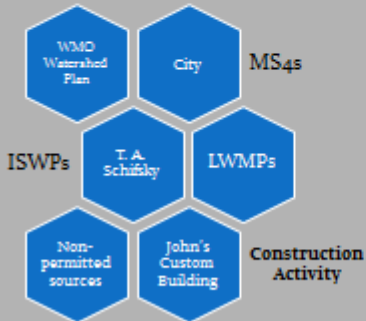
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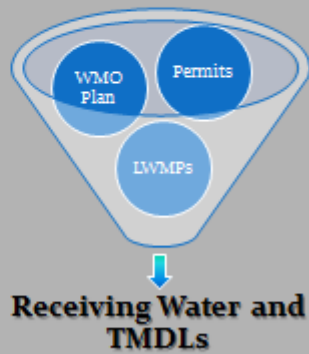
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## What is a Watershed-Based Approach?

### Current Situation



### With W-B Approach



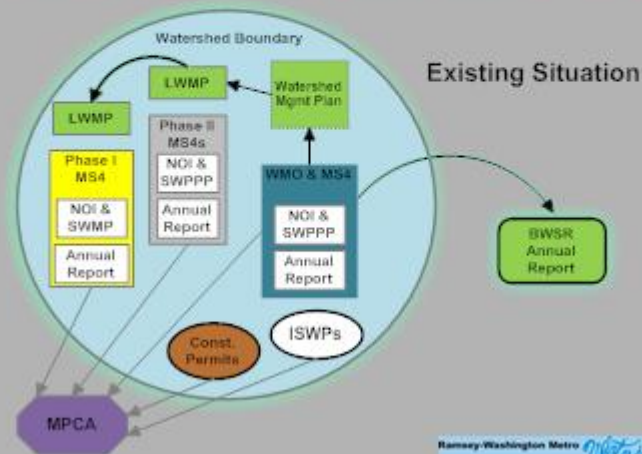
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Ramsey-Washington Metro Watershed District



4

# Minnesota's Watershed Planning and Stormwater Permitting



3/21/2012

Ramsey-Washington Metro Watershed District



5

## Watershed-Based Permitting Approaches

### I. Sole Permittee (approach rejected)

- One NOI/SWMP and Annual Report
- Lead MS4 (Phase I City, County or WMO) responsible for all MCMs.
- Lead MS4 has sole liability.

### II. Co-Permittee

- One NOI/SWMP and Annual Report by Lead MS4.
- Lead MS4 (Phase I City, County or WMO) partners for some or all MCMs.
- Shared liability for most MCMs, except perhaps MCM #6.

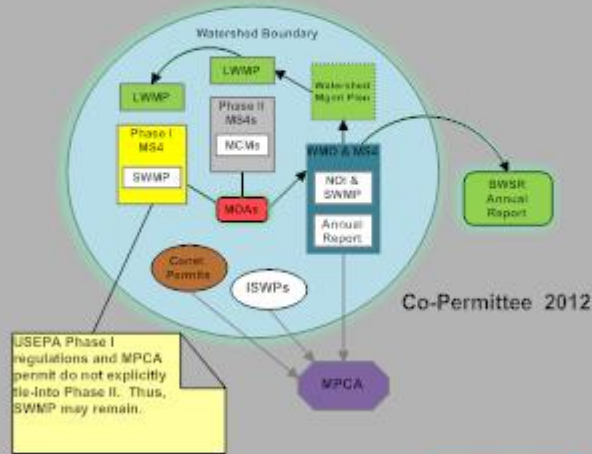
3/21/2012

Ramsey-Washington Metro Watershed District



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# Initial Watershed-Based Approach



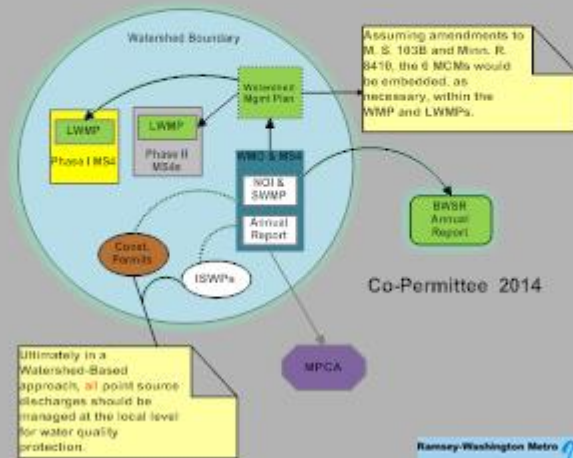
3/21/2012

Ramsey-Washington Metro Watershed District



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# Watershed-Based Stormwater Management Approach



3/21/2012

Ramsey-Washington Metro Watershed District



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# What are the Pros and Cons?

## Pros

1. Greater collaboration between governments;
2. Less duplication, cost savings and grants;
3. Integrates watershed planning and permitting;
4. Compliance at the local level; and
5. Liability is shared.

## Cons

1. WMO (RWMWD) takes lead on stormwater approach;
2. Short-term (~2 yrs.) staff commitment is greater;
3. Policies, operations - best practices are necessary; and
4. Member cities are still responsible for permit.

3/21/2012



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# What are some more issues?

- Partnering: need to create MOA template(s).
- Which Minimum Control Measures (MCMs) will the WMO or city "take the lead"?
- Liability issues between parties.
- Grant funding to off-set some MCM requirements with the objective of overall cost savings.
- How does the MPCA & BWSR fit into a WB approach?
- Collaboration with CRWD for Saint Paul & Maplewood **and** other WMOs(Rice Creek, Valley Branch, SWWD, etc.).

3/21/2012



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## What about Partnering?

- New *draft* MS4 permit contains more definitive language promoting partnering.
- Partnering may include, joint powers agreements (JPAs) and/or memoranda of agreements (MOAs), as may be necessary.
- However, partnerships (long-term) may not necessarily be desirable – one or both parties may simply decide to go a different direction!

3/12/2012

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## Which MCMs make sense to partner?

### RWMWD is the Lead

- MCM #1: Public Education & Outreach (**shared**).
- MCM #2: Public Participation & Involvement.
- MCM #3: Illicit Discharge Detection & Elimination (**shared**).

### Member City is the Lead

- MCM #4: Construction Site Stormwater Runoff Control (**shared**).
- MCM #5: Post Construction Stormwater Management (**shared**).
- MCM #6: Pollution Prevention / Good Housekeeping for Municipal Operations.

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## Where are potential efficiencies?

- Less duplication in MCMs #1, #2, #4 and #5.
- Greater compliance with partnering.
- More uniform operations and best practices.
- One SWMP & Annual Report submitted to the MPCA.
- Audits are less likely because of partnering.
- Accelerate web-based permit tracking (MS4, Construction & ISWP).
- Less complexity in permit compliance reduces staff commitment.
- Watershed/local plans and permits are integrated.

3/21/2012



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## What are the next steps?

1. Meet with member cities and staffs.
2. Meet with MPCA staff.
3. Assure cost analyses and staffing requirements make sense for all parties.
4. Draft templates for MOAs (cities and District) and possible MOU(s) with CRWD and other WMOs.
5. Execute MOAs and MOU with parties.
6. Move to implementation in 2013-2014 with Phase Two.

3/12/2012



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Appendix D: Cost Savings with SI Watershed-Based Approach - Calculations

**Minnesota Pollution Control Agency**

Updated Cost Savings calculations use baseline information from 2008 2<sup>nd</sup> Integrated Report, Table 1 Appendix B, page B2. There are six specific MS4 permit tasks. Only four of the six in Table 1 are likely applicable to the **SI** approach. Revised savings amounts are shown in red. The revised MPCA administrative costs would be applied to the 12 RWMWD member cities to reflect an **annual** basis amount of potential cost savings. **NOTE: The MPCA instituted new procedures for Audits in early 2013 reducing labor by ~50% (12 hrs. versus 24 hrs. or \$16,654).**

Table 1. Cost Equations for Individual Permit Applicant Scenario (MPCA)

Permit Tasks	Annual hours of effort per permittee	Annual Cost	Equations
NOI Review (1 every 5 yrs.)	11 hrs.	\$ 1,226	Cost = 11 hrs. multiplied by 12 individual applicant permits, divided by 5 to determine annual cost, multiplied by NOI reviewers average pay (\$46.45)
NOI Public Notice (every 5 yrs.)	4 hrs.	\$ 394	Cost = 4 hrs. multiplied by 12 individual applicant permits, divided by 5 to determine annual cost, multiplied by PCS Sr. pay (\$41.03)
Annual Report Review	2 hrs.	\$ 688	Cost = 2 hrs. multiplied by 12 individual applicant permits, multiplied by Annual Report reviewers average pay (\$28.66)
Audits (20%/yr.)	24 hrs.	\$ 2,676	Cost = 24 hrs. multiplied by 12 individual applicant permits, divided by 5 to determine annual cost, multiplied by NOI reviewers average pay (\$46.45)
Elevated Enforcement (1 in 120 annually)	50 hrs.	\$ 240	Cost = 50 hrs. multiplied by 12 individual applicant permits, divided by 120, multiplied by 94% time at NOI Reviewers average pay, 4% at Supervisor average pay and 2% at Manager average pay (weighted hourly rate of (\$48.04) x 1.96667
Education and Technical Assistance	6 hrs.	\$ 2,768 \$10,000	Cost = 6 hrs. multiplied by 12 individual applicant permits, multiplied by PCS, Analyst average pay (\$38.45), then add \$10,000 to account for contracts.
Total Full Time Equivalent Staff		1.84	Total FTE Staff = total number of permit task hours (~3,827) divided by 2,080 hrs.
Total Annual Cost for each permittee		\$17,992	

Labor and Benefits Rates (2006 updated to 2012 based upon aggregate CPI of 0.132), Table 6, page 57

Position	Labor and Benefits (2006)	Labor and Benefits (2012)
Pollution Control Specialist, Sr.	\$36.25	\$41.03
NOI Reviewer Average	\$41.03	\$46.45
Annual Report Reviewer Average	\$25.32	\$28.66
Pollution Control Specialist, Analyst	\$33.97	\$38.45
Manager	\$61.50	\$69.62
Supervisor	\$65.94	\$74.64

## RWMWD Member Cities

Table 11 (page 71) from the 2008 2<sup>nd</sup> Integrated Report was revised below with percentage distribution of costs per MCM. The total of the MCM average costs (\$302,664) is used later in the revision of Table 11.

Table 11. Average Cost per Minimum Control Measure (MCM)

MCM	Average Cost	%	Cost Range	Number of Respondents
#1 Public Education and #2 Public Involvement	\$15,871	5.2 %	\$250 - \$79,897	17
#3 Illicit discharge detection	\$19,454	6.4%	\$100 - \$101,000	13
#4 Construction site runoff	\$61,945	20.5%	\$1,000 - \$178,340	12
#5 Post-construction runoff control	\$54,130	17.9%	\$1,000 - \$179,000	11
#6 Pollution prevention & good housekeeping	\$151,265	50.0%	\$420 - \$528,600	12
<b>Total:</b>	\$302,664	100.0%		

Table 13 (ibid. page 73) below was revised to show the total MCM average cost savings (\$21,833) and the MCM percentage distribution similar to Table 11 above. It is noteworthy that the highest cost savings were for MCMs #1 & #2 along with #4. The quotient was is a cost savings percentage of 7.2%.

Table 13. Average Cost Savings for Sharing Responsibilities

MCM	Average Cost	%	Number of Respondents
#1 Public Education and #2 Public Involvement	\$ 4,125	18.9 %	5
#3 Illicit discharge detection	\$ 2,125	9.7%	4
#4 Construction site runoff	\$ 12,750	58.4%	4
#5 Post-construction runoff control	\$ 1,833	8.4%	3
#6 Pollution prevention & good housekeeping	\$ 1,000	4.6%	1
<b>Total:</b>	\$ 21,833	100.0%	
$\$21,833/\$302,664 = 0.07$ or 7.2%			

Table 2 below was generated by using existing estimated populations (MN State Demographer and Met Council) data for the 12 member cities and their estimated population within the RWMWD. Potential savings range uses the City of Rochester per capita MCM costs multiplied by either the 7.2% from the above calculation or 20.5% from Figure 10.

Table 2. RWMWD Member Cities 2010 Population Estimates

City	2010 Population	RWMWD %	RWMWD Population	Potential Annual Cost Savings Range (7.2% or 20.5%)
1. Gem Lake	393	50	196	\$194 - \$552
2. Landfall	686	100	686	\$679 - \$1,934
3. Little Canada	9,773	100	9,773	\$9,675 - \$27,548
4. Maplewood	38,018	90	34,216	\$33,874 - \$96,446
5. North St. Paul	11,460	90	10,314	\$10,211 - \$29,072
6. Oakdale	27,378	30	8,213	\$8,131 - \$23,150
7. Roseville	33,660	30	10,098	\$9,997 - \$28,464
8. Saint Paul	285,068	25	71,267	\$70,554 - \$200,884
9. Shoreview	25,043	50	12,521	\$12,396 - \$35,294
10. Vadnais Heights	12,302	25	3,325	\$3,292 - \$9,372
11. White Bear Lake	23,394	25	5,848	\$5,789 - \$16,484
12. Woodbury	61,961	25	15,490	\$15,682 - \$44,649
<b>Totals:</b>			181,947	\$180,474 - \$513,849

Potential Savings Calc: 182,000 persons x \$13.75/capita/yr. (Rochester) = \$2,502,500/yr.

Option 1 \$2,502,500 x 0.072 (Table 11) = ~\$180,000/yr.

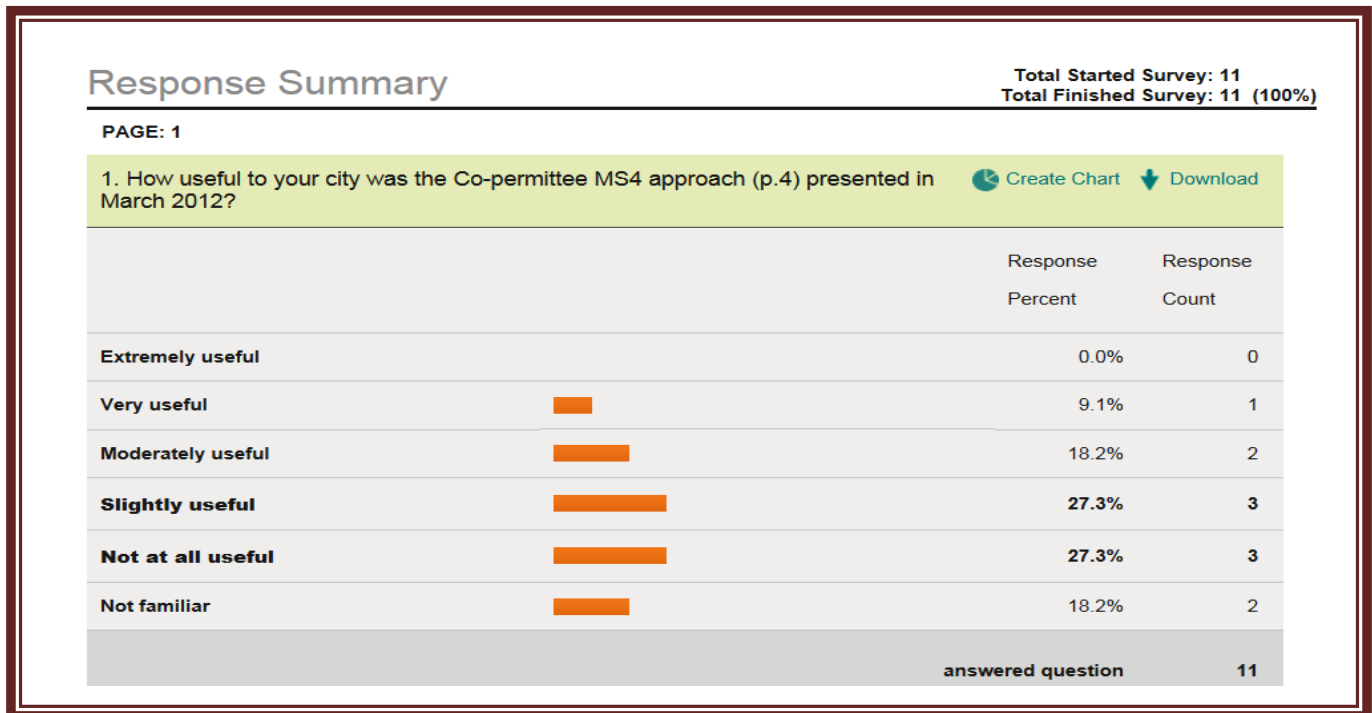
Option 2 \$2,502,500 x 0.205 (Figure 15) = ~\$513,000/yr.

Table 12 (pp. 71-72) from the 2008 Integrated Report was modified below to include provide a cost per capita for the six MCMs. Cost per household was converted based upon either 2.5 or 3 persons per household which is a typical range in Minnesota based upon the MN State Demographer’s data. While City of Rochester may appear quite low, it does not include administrative staff costs. Adjusting for the exclusion would add perhaps as much as \$4.50 to the household cost (~\$37.84) and \$1.89 to the per capita cost (~\$15.64). Therefore, additional analysis herein provides better predictability that the cost savings range, while significant is likely valid. In other words, Option 1 is conservative while Option 2 is liberal.

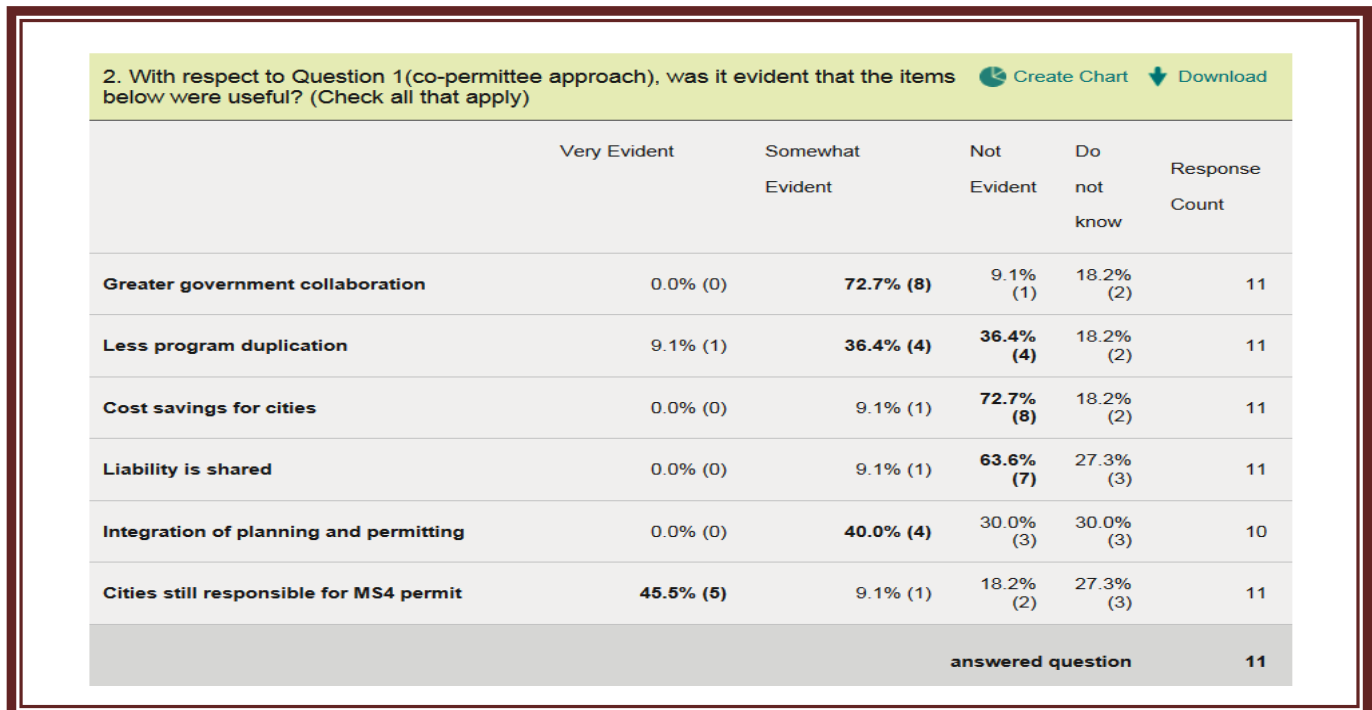
Table 12. Average Cost per Household

<b>Minimum Control Measure</b>	<b>Average Cost per Household</b>	<b>Number of Respondents</b>	<b>Per Capita Cost</b>
MCM #1 & #2	\$3.40	13	
MCM #3	\$3.89	12	
MCM #4	\$11.00	11	
MCM #5	\$6.49	10	
MCM #6	\$19.71	11	
<b>Total:</b>	\$44.48		
2.5 persons/household	\$44.48/2.5		\$17.79
3.0 persons/household	\$44.48/3		\$14.83
City of Rochester (2.42)	\$33.34 Cost per Household		\$13.75

Appendix E: Survey Monkey of Member Cities – Results







Less than one-third felt the Co-permittee approach was useful while 55% felt it was not useful or only slightly.







Nearly 73% felt “**cost savings for cities**” was not evident. An equal percentage felt “**greater government collaboration**” was somewhat evident with the Co-permittee approach.

3. The Strategy Implementation (SI) approach proposes merging watershed planning and stormwater permitting/PW operations (p. 7). Do you believe this approach would simplify or make matters more complex? [Create Chart](#) [Download](#)

		Response Percent	Response Count
<b>More complex</b>		36.4%	4
No change		9.1%	1
Not sure yet, need more information		27.3%	3
Simplify		27.3%	3
		<b>answered question</b>	<b>11</b>
		<b>skipped question</b>	<b>0</b>

There is no clear consensus on this question with one-third of respondents that “need more information”.

4. The watershed based SI approach follows the Environmental Management System (Plan - Do - Check - Act), pp. 8 - 9. Do you see benefits to implementing this quality management system in your city's public works operations? [Create Chart](#) [Download](#)

		Response Percent	Response Count
Extremely important		0.0%	0
Very important		27.3%	3
<b>Moderately important</b>		36.4%	4
Slightly important		27.3%	3
Not at all important		9.1%	1
		<b>answered question</b>	<b>11</b>
		<b>skipped question</b>	<b>0</b>

5. Are there benefits in strengthening the Watershed Management and Local Water Management plans by incorporating some MS4 SWPPP or SWMP elements and possibly stormwater permits (p.12)? [Create Chart](#) [Download](#)

		Response Percent	Response Count
<b>Yes</b>		<b>63.6%</b>	<b>7</b>
<b>No</b>		27.3%	3
<b>Not sure, need more information</b>		9.1%	1
		<u>Comments</u>	2

Nearly two-thirds of respondents feel the EMS is **moderately or very important** in a city's public works operations.

Nearly two-thirds of respondents believe there are benefits in strengthening the WMP and LWMP by incorporating some MS4 elements and stormwater permits.

Showing 2 text responses

No responses selected

Don't see a benefit in incorporating an implementation permit into a planning document creating complicating legal requirements for the LWMP

12/12/2012 9:26 AM [View Responses](#)

absolutely not. this adds additional legal requirements on the permittee..this is not at all helpful as it could WEAKEN the planning docs as no one will "dream big" anymore.

12/10/2012 10:57 AM [View Responses](#)

However, two comments in the negative indicate that more needs to be done to explain such an approach.





Slightly more than half (54%) of the respondents felt that it is “**moderately to very important**” in the SI approach for the District to collaborate in documenting PW Best Practices for WQ.

Showing 2 text responses No responses selected

Tjis would be helpful for an individual city but it seems unlikely that it would be effecient to get all cities in the district to agree to a set of best practices. how would this process work if the pilot is a success and other watershed districts want to implement the program?  
12/12/2012 9:26 AM [View Responses](#)

There is a big question as to what this means when all cities in the district are involved. things get very complicated when other watersheds are doing the same.  
12/10/2012 10:57 AM [View Responses](#)

However, the above two comments indicate that further work needs to be done in the Public Works Best Practices aspect of the SI approach.

7. With what you know about the SI approach (pp. 14 - 15), could increased staff efficiency and/or reduced costs be anticipated with each of the following below?

[Create Chart](#) [Download](#)

	Do not know	Maybe	No	Yes	Response Count
<b>MCM's 1 - 5</b>	0.0% (0)	<b>36.4% (4)</b>	27.3% (3)	<b>36.4% (4)</b>	11
<b>MCM 6</b>	9.1% (1)	18.2% (2)	<b>54.5% (6)</b>	18.2% (2)	11
<b>NOI / SWPPP / Annual Report</b>	0.0% (0)	<b>36.4% (4)</b>	27.3% (3)	<b>36.4% (4)</b>	11
<b>Best Practices (development &amp; implementation)</b>	0.0% (0)	<b>36.4% (4)</b>	<b>36.4% (4)</b>	27.3% (3)	11
<b>Liability exposure</b>	18.2% (2)	9.1% (1)	<b>54.5% (6)</b>	18.2% (2)	11
<b>MPCA audit</b>	18.2% (2)	0.0% (0)	<b>45.5% (5)</b>	36.4% (4)	11
<b>LWMP implementation</b>	18.2% (2)	18.2% (2)	<b>45.5% (5)</b>	18.2% (2)	11
				<a href="#">Comments</a>	2

More than two-thirds of respondents felt that SI approach provides staff efficiency and/or cost savings for MCM's 1-5; NOI/SWPPP/Annual Report; and Best Practices. Slightly more than half felt that liability exposure would not change and no efficiency or cost savings with MCM 6.

Showing 2 text responses

No responses selected

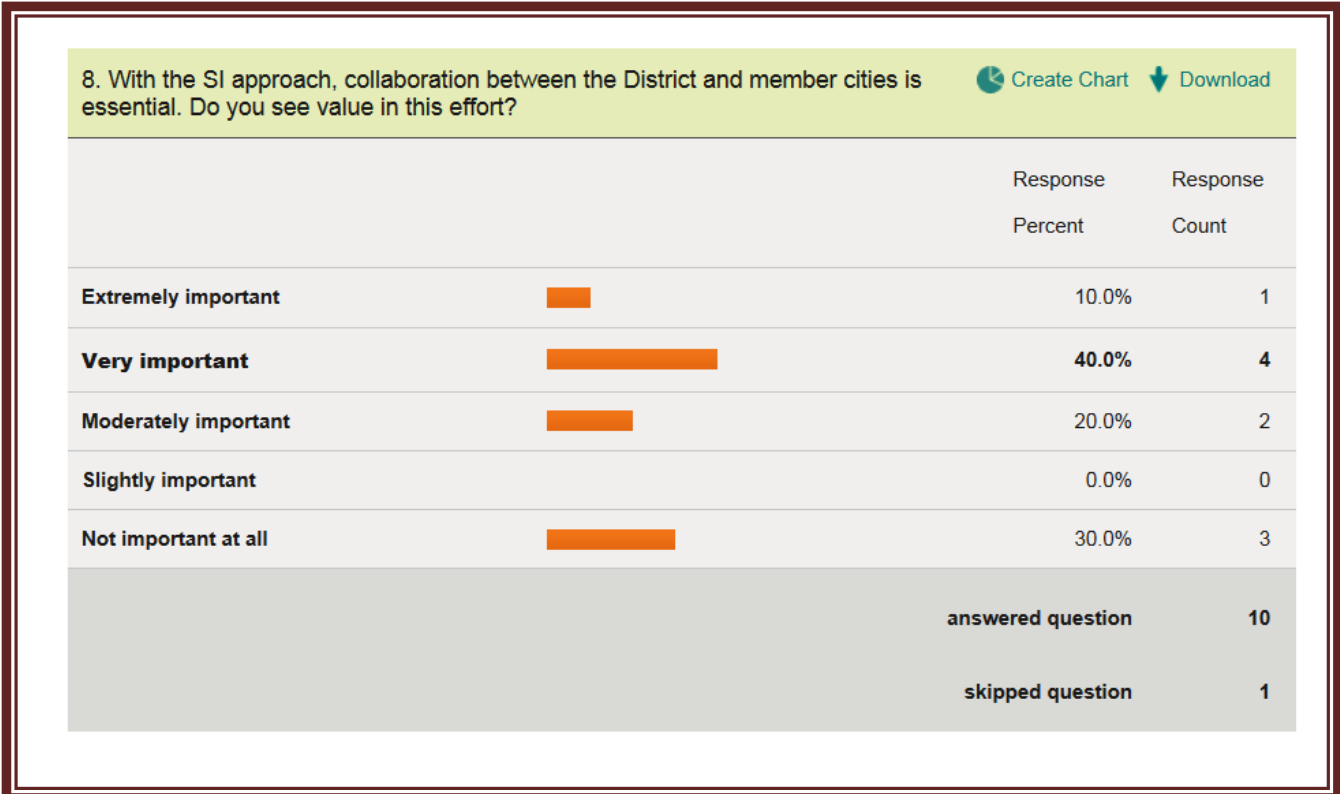
reaching agreement with other cities and then repeating the process in other watershed districts (thinking beyond the pilot program) could make this more costly and less effecient than the current approach

12/12/2012 9:26 AM [View Responses](#)

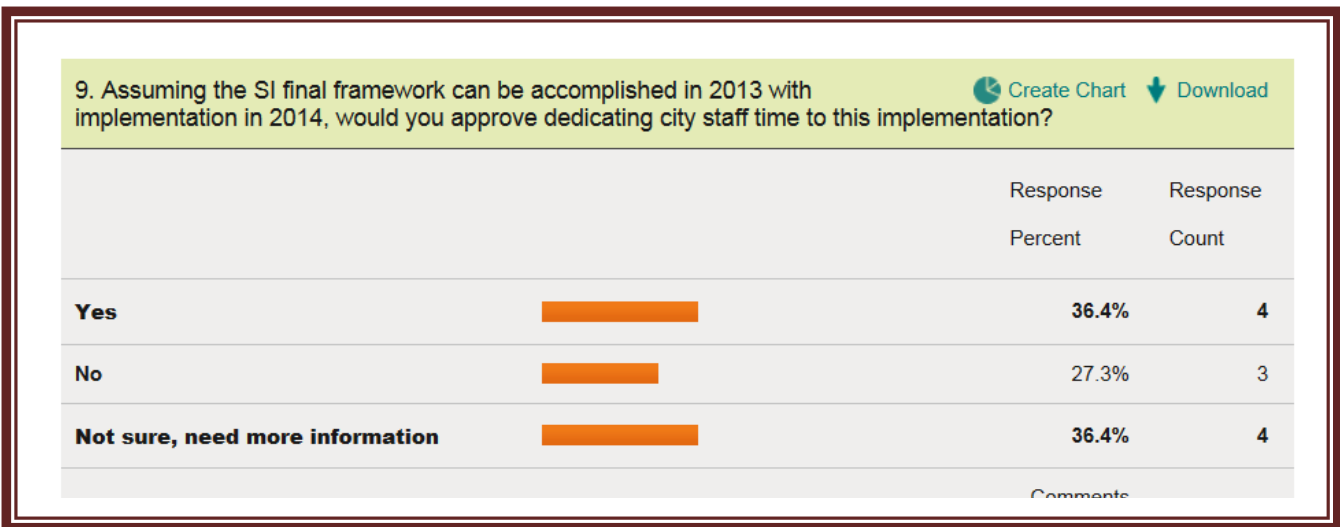
Must remember we'd have to agree with other cities, AND work with other districts--making everything potentially more complex. This whole approach is not scalable.

12/10/2012 10:57 AM [View Responses](#)

Two comments stressed that this approach may be difficult to implement beyond the pilot program or possibly be more costly and less efficient than current approach.



Two-thirds of respondents felt there was clear value in collaborating between the District and member cities in the SI approach.



There was no clear consensus by respondents in dedicating staff time to the SI effort on 2013 and 2014. However, one-third of respondents still require more information in this regard. The latter issue is strengthened by several of the comments given below for Question #9.

Showing 4 text responses

No responses selected

Need to understand time commitment for City staff.

12/20/2012 3:47 PM [View Responses](#)

Comment for #8 - is the question about the SI approach or collaboration? I believe collaboration with the district is very important.

12/12/2012 9:26 AM [View Responses](#)

This is not simpler it is much more complex when we remember that cities are generally in multiple districts, so there would be a need for virtually all the cities in multiple districts to agree to the same criteria/strategies. The pilot projec isNOT a good test of whether this program will work statewide, because it doesn't address this scaling issue.

12/10/2012 10:57 AM [View Responses](#)

It would be the same staff person, me.

12/7/2012 3:59 PM [View Responses](#)

10. In the future, how important would including transportation MS4s (Mn/DOT and counties) in the SI approach?

[Create Chart](#) [Download](#)

	Response Percent	Response Count
<b>Extremely important</b>	27.3%	3
<b>Very important</b>	18.2%	2
<b>Moderately important</b>	9.1%	1
<b>Slightly important</b>	9.1%	1
<b>Not at all important</b>	36.4%	4
	<b>answered question</b>	<b>11</b>
	<b>skipped question</b>	<b>0</b>

Slightly more than half (54%) of respondents believe it is **moderately to extremely important** to include transportation (a.k.a. linear) MS4s in the SI approach. It is important to note that fully one-third, however, believe that it is **not at all important** to include such MS4s.