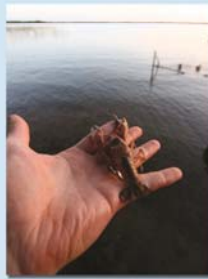


# Tracking Minnesota's Clean Water Legacy Effectiveness

January 2011 Progress Report  
Draft



## Acknowledgements

The agency staff time for this work was paid for by Clean Water Legacy money.

Minnesota participated as a pilot state in the U.S. Environmental Protection Agency's State Implementation Tracking Project. Under this project, Tetra Tech provided technical support for work related to development of the Minnesota performance measures and effectiveness tracking framework.

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# Tracking Minnesota’s Clean Water Legacy Effectiveness

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## Executive Summary

### *The Charge*

Minnesotans care deeply about their waters. In 2008 they voted to raise their own taxes to pass the Clean Water, Land and Legacy Amendment and provide 25 years of constitutionally-dedicated funding for clean water, habitat, parks and trails, and the arts. With that vote came the expectation of accountability for results. In addition, the 2006 Clean Water Legacy Act (CWLA) requires state agencies to “establish and report outcome-based performance measures that monitor the progress and effectiveness of protection and restoration measures.”



The Clean Water Fund supports activities that protect, enhance, and restore water quality in Minnesota. One proposed environmental measure will track changes in key water quality parameters for lakes, streams, and wetlands.

### *The Response: The Clean Water Effectiveness Tracking Framework*

Representatives from the Minnesota state agencies that receive funding through the CWLA and the Clean Water, Land and Legacy Amendment (i.e., the Clean Water Fund) are collaborating on the Clean Water Legacy Effectiveness Tracking Project (Project). The Project’s goal is to develop a multi-agency clean water effectiveness tracking framework that will help clarify the connections between funds invested, actions taken, and clean water outcomes achieved. The heart of the effectiveness tracking framework is a suite of quantifiable performance measures that tell a cohesive, meaningful story about the pressures on Minnesota’s waterbodies, the state of Minnesota’s watershed health, and the response of agencies and partners working to restore and protect Minnesota’s waters. In addition to the measures compiled under the effectiveness tracking framework, each agency has agency-specific measures that are tracked on an agency-by-agency basis.

The Inter-Agency Effectiveness Measures and Outcome Team (Team) identified a set of performance measures that will convey the most meaningful information about clean water activities to key audiences across Minnesota. The Team used four primary guidelines to develop the effectiveness tracking framework:

- 1) Good information is critical for informing water resource decisions. Performance measures in the effectiveness framework should help us simplify and summarize complex data and statewide efforts to measure and communicate progress and support an adaptive management approach.
- 2) Some clean water outcomes may take several decades to be achieved. The effectiveness framework should include performance measures that reflect progress achieved over shorter timeframes.
- 3) A collaborative, coordinated, effort between state agencies, local communities, businesses, and individual land users is critical to achieving clean water outcomes. The effectiveness



tracking framework should include measures that help track the coordinated effort of all partners in ways that will help inform all participants;

- 4) To the extent practicable and feasible, performance measures are to be developed using existing data sources to complement existing agency-specific tracking efforts and to minimize costs.

To date, the effectiveness tracking framework contains 42 performance measures under the following six categories:

- Environmental and Drinking Water Outcome Measures (EDWOM)
- Partnership and Leveraging Measures (PLM)
- Social Measures (SM)
- Organizational Performance Measures (OPM)
- Financial Measures (FM)
- Pressure Measures (PM)

### ***Performance Measure Development and Support***

The Team has developed detailed metadata worksheets for many of the performance measures. These worksheets serve as the foundation of the performance measures and provide the documentation necessary to collect consistent and accurate data for the measures over time. Developing and refining performance measures is an iterative process and will take continued effort and investment. Agencies currently face a number of challenges related to improving the performance measures including collecting and managing the supporting data and effectively communicating results. Support from all agencies' leadership is necessary to keep this project a priority in terms of staff time and resources.

### ***Next Steps***

The Team has identified several next steps to address in 2011:

- Make the effectiveness tracking framework operational through strong agency management support
- Complete and revise metadata sheets and collect data for current performance measures
- Identify and prioritize future data collection needs
- Automate data collection
- Develop communication tools

The effectiveness tracking framework provides a coherent system for making Clean Water Fund investments transparent, and holding agencies and partners accountable for the effectiveness of these investments. Making the effectiveness tracking framework operational is an ambitious next step, demanding high-level support and guidance from the Clean Water Fund Interagency Coordination Team and other Clean Water Fund agency leaders.



**One proposed measure will track water quality trends for nitrates and pesticides in groundwater and additional proposed measures will track other key water quality parameters for groundwater.**

## Introduction

In 2007, representatives from the Minnesota state agencies that receive funding through the Clean Water Legacy Act (CWLA) and the Clean Water, Land and Legacy Amendment (i.e., Clean Water Fund) joined together to kick-off the Clean Water Legacy Effectiveness Tracking Project (Project). The goal of the Project is to develop a multi-agency clean water effectiveness tracking framework that will help clarify the connections between funds invested, actions taken, and clean water outcomes achieved. The effectiveness tracking framework and its performance measures were conceived to address major questions and concerns of all stakeholders and provide information that is meaningful and understandable.

This progress report presents the current state of the Clean Water Legacy Effectiveness Tracking Framework (Framework). To date, the Framework contains 42 measures under six categories. While these are core performance measures and unlikely to undergo significant changes, it is important to note that the Framework and the performance measures are not static. As information become available, the Framework and the performance measures could evolve over

time. In addition, as agencies and partners have the opportunity to provide feedback on the performance measures as a tracking and communications tool, adaptive management mechanisms will allow for continuous improvement. The long-term vision is to have performance measures developed through this project to help focus the data and information collection and integration efforts from multiple agencies and create mechanisms to communicate the results to various stakeholders.

Developing and refining these measures to create the overall Framework has only been possible due to the commitment and energy of the participating staff representing the agencies with CWLA responsibilities: Board of Water and Soil Resources (BWSR), Minnesota Department of Agriculture (MDA), Department of Natural Resources (DNR), Minnesota Department of Health (MDH), and Minnesota Pollution Control Agency (MPCA).

### Common Questions that the Clean Water Effectiveness Framework Aims to Answer

- How much money is being spent?
- Where are the clean water dollars being spent across the state of Minnesota?
- Are state agencies working together?
- Is our water getting cleaner?
- Can we swim in Minnesota lakes and rivers?
- Can we eat fish caught in Minnesota lakes?
- Is our drinking water safe?
- How much local participation do we have on Clean Water Fund projects?
- How much money is being spent on the ground and how much is being spent on research?
- How much money is being leveraged in matching dollars from local, state, and federal monies?

This group of dedicated agency staff, referred to collectively as the Interagency Effectiveness Measures and Outcomes Team (Team), have collaborated and achieved broad consensus on the performance measures contained in this report.

This report contains the following information:

**Section One: Overview of the Process for Developing Performance Measures and the Clean Water Legacy Effectiveness Tracking Framework.** This section provides a brief history of the Project, including a description of the Team and its activities, as well as the approach to developing the performance measures in the Framework.

**Section Two: Clean Water Legacy Effectiveness Tracking Framework: Performance Measures and Findings.** This section presents a summary of the performance measures and the overall Framework. Because the Framework is evolving, there are currently gaps in the data associated with several performance measures. This section identifies gaps and planned strategies for addressing these gaps over time.

**Section Three: Effectiveness Tracking Coordination Issues.** The performance measures under the Framework relate to other ongoing effectiveness tracking efforts at the federal and state levels. This section identifies how the Framework integrates with other ongoing efforts, including EPA’s interim implementation measures and MPCA’s Watershed Data Integration Project.



One proposed measure will track the number of lake biological assessments completed with Clean Water Funds. These assessments will classify lakes according to their ability to support aquatic life.

**Section Four: Framework Communications Strategy.** A key element of tracking effectiveness is communication. It is essential to reach a diverse group of stakeholders with messages that will raise awareness about efforts to protect and restore Minnesota’s waters. This section addresses options for communicating the performance measures under the Framework, including identifying target audiences, crafting messages associated with measures, and options for reaching different audiences.

**Section Five: Next Steps.** This section will identify the near- and long-term activities to refine the Framework, including filling gaps in the overall Framework and obtaining feedback on the completed measures and associated messages.

## Section One: Overview of the Process for Developing Performance Measures and the Clean Water Legacy Effectiveness Tracking Framework

The 2006 CWLA requires state agencies to “establish and report outcome-based performance measures that monitor the progress and effectiveness of protection and restoration measures.” In addition, the CWLA established the Clean Water Council (CWC) to advise on the administration and implementation of the CWLA and specified that the CWC “must recommend methods of ensuring that awards of grants, loans, or other funds ... specify the outcomes to be achieved as a result of the funding and specify standards to hold the recipient accountable for achieving the desired outcomes.” In response to these requirements, MPCA initiated an inter-agency effort involving the University of Minnesota for developing the required performance measures and associated framework that would quantify outcome-based progress over time. This section provides an overview of the Team and the process used for developing the performance measures and the Framework.

### *Inter-Agency Effectiveness Measures and Outcomes Team*

The Team includes state agencies with CWLA responsibilities. These agencies are as follows: BWSR, MDA, MDNR, MDH, and MPCA. The charge of the Team is to create performance measures to report Minnesota’s progress implementing the CWLA and the Clean Water, Land and Legacy Amendment.

The Team has been meeting on a regular basis since January 2009. Despite team member turnover, commitment to the process and the work has remained strong. The following people have participated in the work to date:

- Marcey Westrick (BWSR)
- Andy Holdsworth (DNR)
- David Wright (DNR)
- Adam Birr (MDA)
- Margaret Mangan (MDA)
- Rob Sip (MDA)
- Barbara Weisman (MDA)
- Randy Ellingboe (MDH)
- Tannie Eshenaur (MDH)
- Sheila Grow (MDH)
- Suzanne Hanson (MPCA)
- Brian Livingston (MPCA)
- Shannon Lotthammer (MPCA)
- Jeff Risberg (MPCA)
- Dana Vanderbosch (MPCA)
- Deb Swackhamer (U of MN)



Restoring wetlands in critical agricultural areas is considered a best management practice (BMP) that conserves soil resources and restores native habitat. One proposed measure will track the percent of Clean Water Funds spent or BMPs implemented in targeted areas.





**The Clean Water Fund aims to both protect and restore Minnesota's waters. One proposed measure will track the percentage of watershed restoration and protection strategies that are in progress or completed.**

### **Summary of Development Activities**

In 2007, the MPCA contracted the Water Resources Center (WRC) at the University of Minnesota to lead and facilitate the development of a reporting framework. In early 2008, the WRC facilitated a series of three meetings with an initial group of state agency representatives (BWSR, MDA, DNR, MPCA), as well as additional partners including the U.S. Environmental Protection Agency (EPA), United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), University of Minnesota faculty, a local government representative, and a private TMDL contractor. In addition to facilitating meetings and writing up results, the WRC

staff researched other environmental reporting frameworks, interviewed state agency staff and stakeholder groups, and more fully developed the draft frameworks and measures.

The effort facilitated by WRC culminated in a July 2008 report *Developing an Effectiveness Tracking and Reporting Framework for Implementing the Clean Water Legacy Act*. This report presents a suite of measures in three core measure categories: Monitoring/Assessment, TMDL Development, and Implementation. Under each core measure category, measures were further subdivided under the following categories: Partnerships/Leveraging, Environmental Indicators, Social Indicators, and Organizational Performance.

In early 2009, the Team became involved in U.S. EPA's State Implementation Tracking Project as a pilot state. Through this effort, the Team had an opportunity to further refine and streamline the suite of measures and the overall Framework presented in the 2008 report. It also added measures to address groundwater and drinking water, two important funding areas for the Clean Water Fund created by the 2008 Clean Water, Land and Legacy Amendment. The Team participated in a facilitated exercise to identify key target audiences and the questions that the measures should answer for each audience. The Team then looked at the existing suite of measures to ensure that the measures effectively answered the anticipated questions from each target audience. Where the measures did not address these questions, the Team crafted new measures and determined if any of the original measures were no longer relevant.

After refining both the suite of performance measures and the overall Framework, the Team then identified quantifiable targets associated with each measure where appropriate. Targets serve as a relative benchmark for whether a trend is improving or declining (e.g., water quality standard). The next step was to select major watersheds for testing the measures. The Team selected the following watersheds: Buffalo, Cannon, Elm Creek, Hawk Creek, Snake, and Sauk. With targets in place and watersheds identified, the Team then made the effort to collect the data and information necessary to complete the measure. This

activity demonstrated to the Team the challenges associated with completing the performance measures and the need for a more integrated information management system. With a baseline understanding of data availability and needs, the Team then developed metadata worksheets for each measure to document the existing data, the data collection methodology, the data source, and key assumptions. This report is the culmination of the most recent development phase for the Clean Water Legacy Effectiveness Tracking Project.

## Section Two: Clean Water Legacy Effectiveness Tracking Framework: Performance Measures and Findings

This section presents the suite of performance measures by category and the Framework. In addition, this section offers a preliminary progress report on activities using a sub-set of performance measures from the Framework.

### *Summary of the Performance Measures*

To date, the Team has developed and refined a suite of approximately 42 performance measures under six categories. The suite of performance measures is likely to evolve over time as the Team works to address gaps in the Framework. The Team developed performance measures that track activities related to assessment and monitoring, Total Maximum Daily Loads (TMDLs), protection and restoration strategy development, implementation, and drinking water protection. The measures are grouped in the following categories:

- **Environmental and Drinking Water Outcome Measures (EDWOM).** This category contains measures that quantify changes in the health or condition of a watershed and drinking water (i.e., surface and groundwater supplies used for drinking water), as well as changes in inputs to the watershed (e.g., pollutant loads), over time.
- **Partnership and Leveraging Measures (PLM).** The CWLA specifically calls for increasing agency cooperation and coordination, improving capacity of local governments, and leveraging other resources to improve water quality in Minnesota. Measures in the Partnerships/Leveraging category address how well agencies are coordinating with other state agencies, local units of government, citizens, and other organizations (e.g., University of Minnesota).
- **Social Measures (SM).** Measures under this category seek to quantify changes in awareness and behavior of stakeholders as a result of outreach and increased local participation efforts related to restoration and protection activities.
- **Organizational Performance Measures (OPM).** This category focuses on measures related to key activities that serve as indicators of the progress each agency is making toward restoration and protection goals.
- **Financial Measures (FM).** Measures in this category track allocations and expenditures of Clean Water Funds for restoration and protection activities.
- **Pressure Measures (PM).** Potential measures under this category are intended to provide context for the long-term trends illustrated by the measures in the Environmental category (i.e., increasing amounts of imperviousness and population growth provide challenges to improving water quality over time, despite restoration and protection efforts).



Local partnerships are essential and make it possible for state agencies to collect consistent and reliable water quality information. One proposed financial measure will track the amount of Clean Water Fund dollars passed through to local partners.



The Clean Water Fund supports many on the ground projects. One proposed measure will track the number of previous impairments now meeting water quality standards due to management actions.

### Summary of Metadata Worksheets

An important aspect of developing and maintaining a framework of performance measures is compiling the data that supports each measure, as well as documenting information about the supporting data set, referred to as metadata. Developing a consistent approach for documenting the metadata associated with each performance measure will ensure that the coordinating agency staff can update the measures over time and produce consistent trend lines.

The Team has developed detailed metadata worksheets for most performance measures.

Potential measures in the Pressure category, as well as the Social Measure category, do not yet have metadata worksheets. These worksheets have served as the foundation and provide the documentation necessary to replicate the measures over time. The metadata worksheet documents how the visual presentation of the measure, the supporting dataset, and details on data collection methodology. The categories of information documented in the metadata worksheets include the following:

- Measure Background
  - ✓ **Visual depiction:** Suggestions or draft images (i.e., map, graph, report card, etc.) recommended to visually communicate measure; at a minimum, describe intended visual depiction
  - ✓ **Measure description:** Brief summary of what the measure is intended to convey, why the measure is important for tracking effectiveness over time
  - ✓ **Associated terms and phrases:** Terms and phrases from the measure text or measure description that might be ambiguous or need defining to make the measure more understandable to the target audience
  - ✓ **Target:** Numeric target that serves as a relative benchmark for whether a trend is improving or declining (e.g., water quality standard). In the case of some categories (e.g. organizational performance), the target is how much of a given measure agencies and partners want to achieve by when.
  - ✓ **Baseline:** Initial period of time for data and information collection for the measure to establish a starting point for relative assessment of trends over time
  - ✓ **Geographical coverage:** Spatial scale for assessing trends through a measure (e.g., statewide, watershed, or both)
- Data and Methodology
  - ✓ **Methodology for measure calculation:** Description of the method/formula used to calculate the data for this measure; describe any changes in method over time
  - ✓ **Data source:** Primary data source/database and contributing agencies



- ✓ **Data collection period:** Start date to end date, explanation of any data gaps
  - ✓ **Data collection methodology and frequency:** Description of methodology for data and information collection or links to database descriptions
  - ✓ **Supporting data sets:** Tabular data used to support measure
  - ✓ **Caveats and limitations:** Description of assumptions, limitations, considerations associated with the measure, methodology, and/or supporting data set
  - ✓ **Future improvements:** Description of planned changes to the measure over time; particularly important for measures that are short-term in nature until new data sets become available
- **Financial Considerations:** Amount of resources necessary to sustain tracking of this measure
  - **Communication Strategy**
    - ✓ **Target audiences:** Stakeholders who will have the most interest/concern about this measure
    - ✓ **Associated messages:** Description of what this measure conveys and why it is important to communicate this measure to the target audiences
    - ✓ **Outreach format:** Description of where this measure will be used, such as newsletters, websites, reports, etc.; include frequency of each format and any specifics about how presentation of the measure should vary for each outreach format
    - ✓ **Other measure connections:** Description of related measures to provide a more comprehensive, integrated picture of the interconnections between measures

Appendix A of this report contains the metadata worksheets for the suite of performance measures. Each agency representative has volunteered to coordinate one or more measure. The coordinating agency is responsible for developing a comprehensive metadata worksheet for each assigned measure and working with others on the Team to collect the appropriate information. Table 1 presents the current suite of performance measures organized by category, as well as the coordinating agency for each measure, and the status of the measure’s metadata worksheet in Appendix A.

**Table 1. Performance Measures and Coordinating Agencies by Category**

Performance Measure	Coordinating Agency	Metadata Worksheet Status (see draft/completed sheets in Appendix A)
<b>Category: Environmental and Drinking Water Outcome Measures (EDWOM)</b>		
EDWOM 1: Statewide and watershed impairment/unimpairment rate	Minnesota Pollution Control Agency	Early draft
EDWOM 2: Changes over time in key water quality parameters for lakes, streams, and wetlands	Minnesota Pollution Control Agency with support from Department of Natural Resources and Minnesota Department of Agriculture	Early draft
EDWOM 3: Water quality monitoring trends for nitrates and pesticides	Minnesota Department of Agriculture	To be developed

<b>Performance Measure</b>	<b>Coordinating Agency</b>	<b>Metadata Worksheet Status</b> (see draft/completed sheets in Appendix A)
EDWOM 4: Raw water data from community water supplies	Minnesota Department of Health	To be developed
EDWOM 5: Aquifer level trend data	Minnesota Department of Natural Resources	To be developed
EDWOM 6: Groundwater age component in trend analysis	Minnesota Department of Health Minnesota Department of Natural Resources	To be developed
EDWOM 7: Measures of agricultural nitrogen use efficiency	Minnesota Department of Agriculture	To be developed
EDWOM 8: Number of previous impairments now meeting water quality standards due to management actions	Minnesota Pollution Control Agency	Complete
EDWOM 9: Number of BMPs Implemented with Clean Water Funding and Estimated Pollutant Load Reductions	Board of Water and Soil Resources with support from Minnesota Department of Agriculture	Complete
EDWOM 10: Amount of municipal wastewater pollution reductions achieved to meet TMDL requirements	Minnesota Pollution Control Agency	Early draft
EDWOM 11: Municipal wastewater phosphorus trends	Minnesota Pollution Control Agency	Complete
<b>Category: Partnership and Leveraging Measures (PLM)</b>		
PLM 1: Number of new public water supply systems assisted with developing and implementing source water protection plans	Minnesota Department of Health	Early draft
PLM 2: Number of community public water supply systems and population that are involved in source water planning	Minnesota Department of Health	To be developed
PLM 3: Percent of intensive watershed monitoring performed by local partners	Minnesota Pollution Control Agency	Early draft
PLM 4: Number of sites monitored by citizen volunteers through the Citizen Lake and Stream Monitoring Programs	Minnesota Pollution Control Agency	Early draft
PLM 5: Percent of locally-led watershed restoration and protection strategies	Minnesota Pollution Control Agency	Early draft
PLM 6: Number of local government partners participating in Clean Water funded nitrate monitoring and reduction activities	Minnesota Department of Agriculture	To be developed
<b>Category: Social Measures (potential)</b>		
[See Appendix C for social measures under development.]	All agencies	To be developed

Performance Measure	Coordinating Agency	Metadata Worksheet Status (see draft/completed sheets in Appendix A)
<b>Category: Organizational Performance Measures (OPM)</b>		
OPM 1: Percent of state's major watersheds intensively monitored through the watershed approach	Minnesota Pollution Control Agency	Complete
OPM 2: Percent of major watersheds with stream flow monitoring	Department of Natural Resources	To be developed
OPM 3: Cumulative number of waterbodies sampled annually for fish contaminant concentrations	Department of Natural Resources	Early draft
OPM 4: Cumulative number of lake biological assessments completed	Department of Natural Resources	Early draft
OPM 5: Number of counties completing a county geologic atlas for groundwater sustainability	Department of Natural Resources	To be developed
OPM 6: Percent of groundwater monitoring well networks installed and monitored	Minnesota Pollution Control Agency with support from Minnesota Department of Agriculture	To be developed
OPM 7: Percentage of watershed restoration and protection strategies that are in-progress/completed	Minnesota Pollution Control Agency	Complete
OPM 8: Number of MDH grants awarded for source water protection	Minnesota Department of Health	To be developed
OPM 9: Number of new health-based guidance values for contaminants of emerging concern	Minnesota Department of Health	Early draft
OPM 10: Number of unused groundwater wells sealed	Minnesota Department of Health	To be developed
OPM 11: Percent of groundwater wells constructed in compliance the well code	Minnesota Department of Health	To be developed
OPM 12: Percent of research projects meeting research efficiency goals	Minnesota Department of Agriculture	Early draft
OPM 13: Percent of minor watersheds with targeted areas mapped	All agencies	To be developed
OPM 14: Percent of targeted areas addressed with Clean Water Funds	All agencies	To be developed
<b>Category: Financial Measures (FM)</b>		
FM 1: Percent of funds spent or BMPs implemented in targeted areas	All agencies	To be developed
FM 2: Percent of total funds by category of expenditure (monitoring/assessment, TMDL development, protection and restoration, and drinking water protection)	All agencies	Complete
FM 3: Dollars spent per watershed on monitoring/assessment, planning and implementation.	All agencies	Early draft
FM 4: Dollars passed through to local partners	All agencies	Early draft

Performance Measure	Coordinating Agency	Metadata Worksheet Status (see draft/completed sheets in Appendix A)
FM 5: Dollars leveraged by Clean Water Fund	All agencies	Complete
FM 6: Average dollar per unit of pollutant reduced	Board of Water and Soil Resources	To be developed
<b>Category: Pressure Measures (potential)</b>		
PM 1: Percentage of impervious surface within watershed	All agencies	To be developed
PM 2: Number of watersheds statewide with impervious surface less than 10 percent, between 10 and 25 percent, greater than 25 percent	All agencies	To be developed
PM 3: Statewide and watershed population increase over time from specified baseline	All agencies	To be developed
PM 4: Amount of developed area (acres) statewide and by watershed over time from baseline	All agencies	To be developed
PM 5: Rate of development (i.e., conversion of rural to urban) compared to rate of population increase statewide and by watershed	All agencies	To be developed

### Summary of the Framework

To help communicate performance measures to key audiences, the Team has organized the measures into the Framework that helps define success and theories of change. It helps to clarify the expected relationships between investments, actions taken, and results achieved. The Framework illustrates some of the relationships among the measures using the categories of inputs, outputs, and outcomes. Definitions for each of these terms are as follows:

- Inputs are investments, such as funds, data, and staff resources. In the context of the Framework, inputs are different aspects of Clean Water funding.
- Outputs are what agencies and partners produce as a result of inputs. There are two categories of outputs: activities and participants.
  - ✓ Activities are the programmatic actions taken by agencies and partners and the associated products resulting from investments using Clean Water funding.
  - ✓ Participants, in the context of the Framework, are the audiences and partners that are most affected by the activities conducted using Clean Water funding. In turn, participants are also the audiences and partners that agencies would like to inform, educate, and involve in implementation efforts over time.
- Outcomes are quantifiable changes to a condition in the short, medium, and long-term. In the context of the Framework, outcomes are benefits to people and water-environment conditions resulting from agencies’ and partners’ work. Outcomes typically relate to changes in people (awareness, knowledge, attitudes, behavior, and satisfaction) and changes in water and other environmental conditions.



- ✓ Short-term outcomes are defined, for purposes of the Framework, as how learning changes. A suite of social measures to be developed by the Civic Engagement sub-group will integrate into these boxes on the Framework.
- ✓ Medium-term outcomes are defined as how action or behaviors change, measured by changes in environmental performance.
- ✓ Long-term outcomes are defined as how environmental conditions change.

Figure 1 illustrates the context of the performance measures in the Framework. When reviewing the Framework, it is important to keep in mind that the suite of performance measures is not comprehensive for all agencies and all programs. The Team has worked diligently to identify and select a suite of measures that will convey the most meaningful information about protection and restoration to key audiences. While the Framework attempts to show connections and interrelationships among the performance measures, the intent is not to create a suite of measures that have a definitive one-to-one relationship.

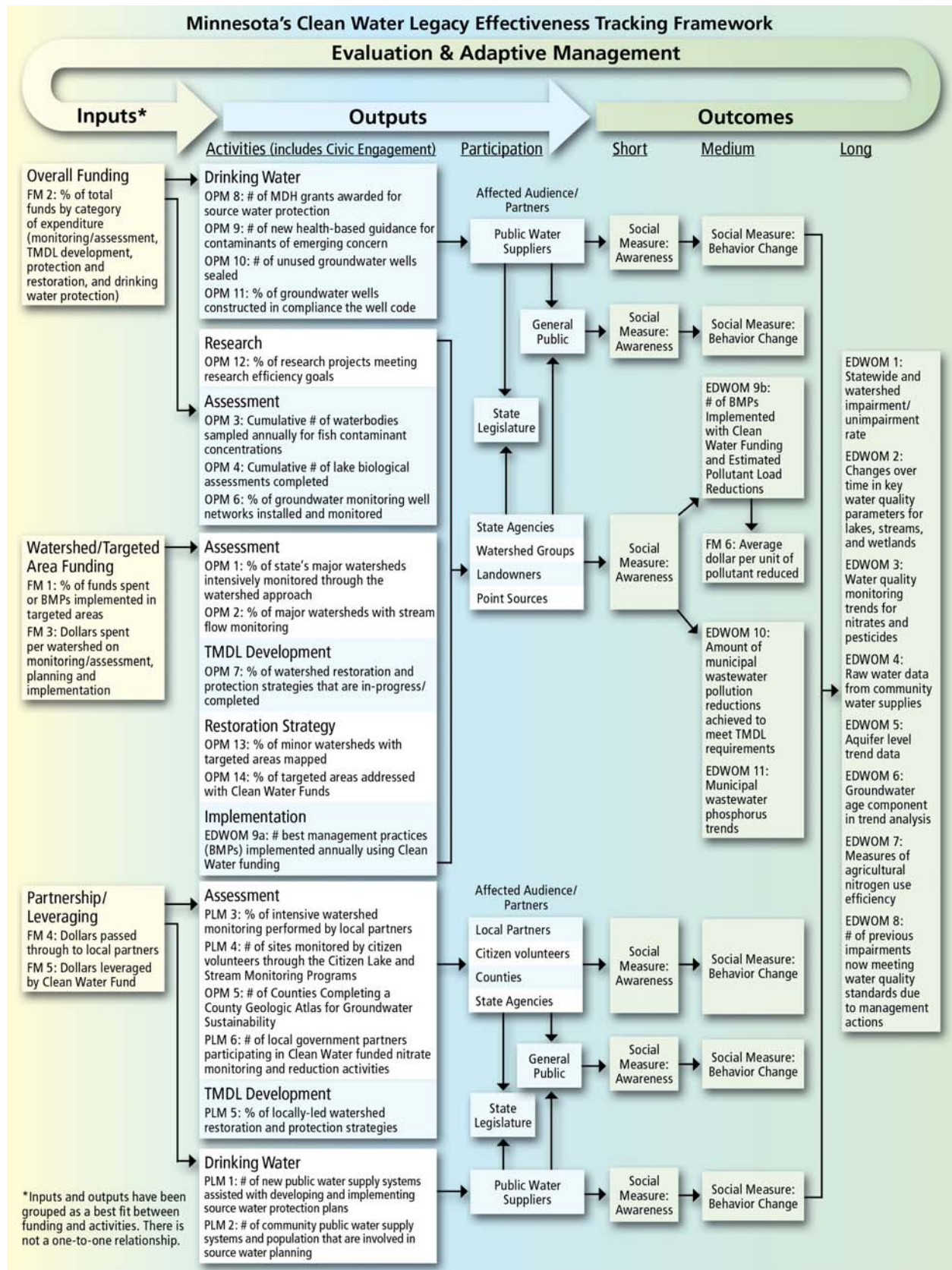


Figure 1. Performance Measures in Effectiveness Tracking Framework

## Summary of Performance Measure Findings

The Team has selected a sub-set of the 42 performance measures to highlight in this progress report. These measures reflect various categories, agencies, and types of measure in the context of the Framework. These highlighted performance measures are intended to provide an idea of how the Team envisions it might be possible to present measures to different audiences. The highlighted performance measures are as follows:

- EDWOM 8: Number of previously impaired waters now meeting water quality standards due to management actions
- EDWOM 9(a&b): Estimated pollutant load reductions resulting from BMPs implemented with Clean Water funding
- EDWOM 11: Municipal wastewater phosphorus trends
- OPM 1: Percent of State's major watersheds intensively monitored through the watershed approach
- OPM 7: Percentage of watershed restoration and protection strategies that are in progress and completed
- FM 2: Percent of total funds by category of expenditure (monitoring/assessment, watershed restoration/TMDLs and protection strategy development, protection and restoration strategy development, implementation, and drinking water protection)
- FM 5: Dollars leveraged by Clean Water Fund for monitoring, implementation, and research

The Team has provided brief descriptions of the highlighted performance measures that summarize key points, as well as a visual depiction that communicates progress over time. More technical information about each highlighted performance measure is available in the metadata worksheets provided in Appendix A.

- **EDWOM 8: Number of previous impairments now meeting water quality standards due to management actions** (*see graphic on page 17*). A lake or stream is considered impaired if monitoring data reveal that it is not meeting a water quality standard for a particular parameter. Each state updates a list of these impaired waters every two years. As of the 2010 draft list, 3,049 impairments have been identified and approximately 20 percent of waters have been assessed statewide. This measure identifies waters restored due to a management action, such as installation of best management practices or an upgrade to a wastewater treatment facility. When a previously impaired waterbody meets water quality standards, the MPCA's Environmental Outcomes Division's Delisting Committee conducts a delisting review process to delist the waterbody, or remove it from the impaired waters list (subject to final EPA approval). Delisting decisions are made according to the MPCA's assessment and delisting methodology. This measure is significant because it represents delistings resulting from actions taken to fix a pollution problem, rather than delistings due to factors unrelated to actual restoration activities, such as better monitoring data.
- **EDWOM 9: Number of BMPs Implemented with Clean Water Funding and Estimated Pollutant Load Reductions** (*see graphic on page 18*). This measure communicates the number of best management practices (BMPs) implemented with funding from Clean Water Fund grants from multiple state grant and loan programs. Using information provided by grant recipients, this

measure also provides the estimated associated reduction in sediment and phosphorus reaching surface waters from these BMPs. It does not reflect BMPs implemented with State general fund dollars or federal farm bill dollars. Clean Water Fund Grants are for two years, resulting in a lag time between when funds are awarded and when BMPs are fully implemented and recorded in eLINK. This measure reports only BMPs that are fully implemented; it does not report on those that are planned or in progress. It is an indirect or surrogate measure of environmental response. While this performance measure does not provide information on watershed health, it does provide information on efforts to reduce pollutant loads over time that are likely to improve watershed health over time.

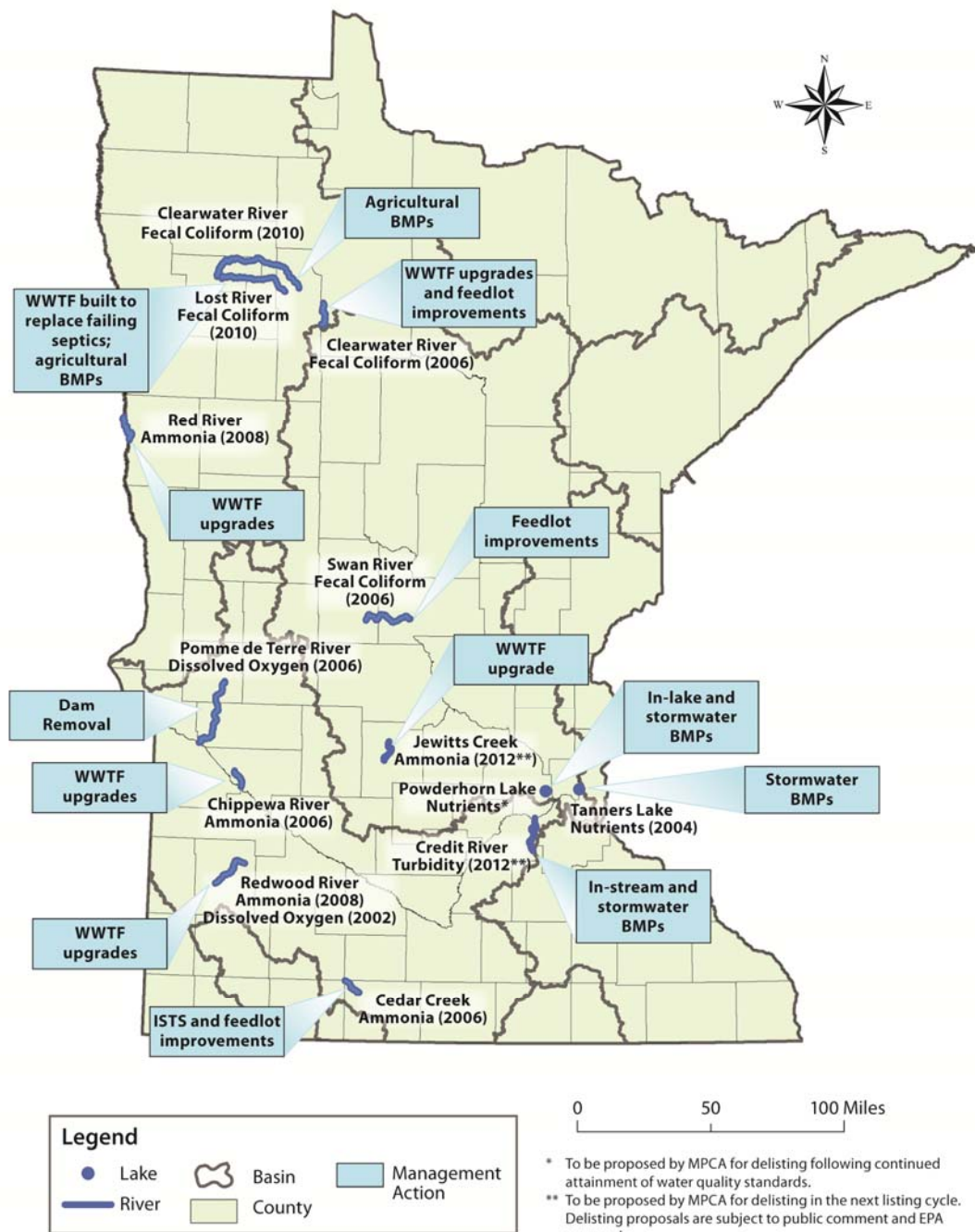
- **EDWOM 11: Municipal wastewater phosphorus trends (see graphic on page 19).** This measure presents estimated statewide municipal wastewater treatment facility phosphorus reductions since the year 2000 and projects future reductions based on the implementation of current permitting policies. It also demonstrates the anticipated increases in phosphorus loading that would have resulted from the perpetuation of previous permitting policies. The Clean Water Fund assists cities in financing upgrades to wastewater infrastructure through the Phosphorus Reduction and TMDL Grant programs, as well as the Small Community Wastewater Grant and Loan Program.
- **OPM 1: Percent of State's major watersheds intensively monitored through the watershed approach (see graphic on page 20).** This performance measure communicates the percentage of the state's major watersheds that have been intensively monitored through the intensive watershed monitoring approach. Intensive watershed monitoring is a progressive, nested design for intensively monitoring the biological, physical and chemical integrity of streams and the chemistry of lakes within a major (8-digit hydrologic unit code) watershed. Intensive watershed monitoring follows a ten-year rotational cycle. The target is to intensively monitor 10 percent of Minnesota's 80 major watersheds per year, or approximately 6–8 major watersheds annually, with 100 percent intensively monitored by 2017 (end of the first cycle). To date, the MPCA is on track with the 10 percent goal.
- **OPM 7: Percentage of watershed restoration and protection strategies that are in-progress/completed (see graphic on page 21).** This measure communicates progress toward developing Watershed Restoration and Protection Strategies (WRAPs) for Minnesota's 80 major watersheds. WRAPs are comprehensive planning tools designed to address both the impaired and unimpaired waters in a major watershed. Each WRAP contains TMDL projects to restore impaired waters, and protection projects to maintain or improve waters currently meeting water quality standards. WRAP strategy development is the second of a three-phase cycle that begins with monitoring and assessment of a watershed, and concludes with implementation. The target is to develop WRAPs for 10 percent of the 80 major watersheds in Minnesota per year, approximately 8 new WRAPs annually. As of FY 2010, WRAPs are in-progress or completed for 15 percent of Minnesota's watersheds.



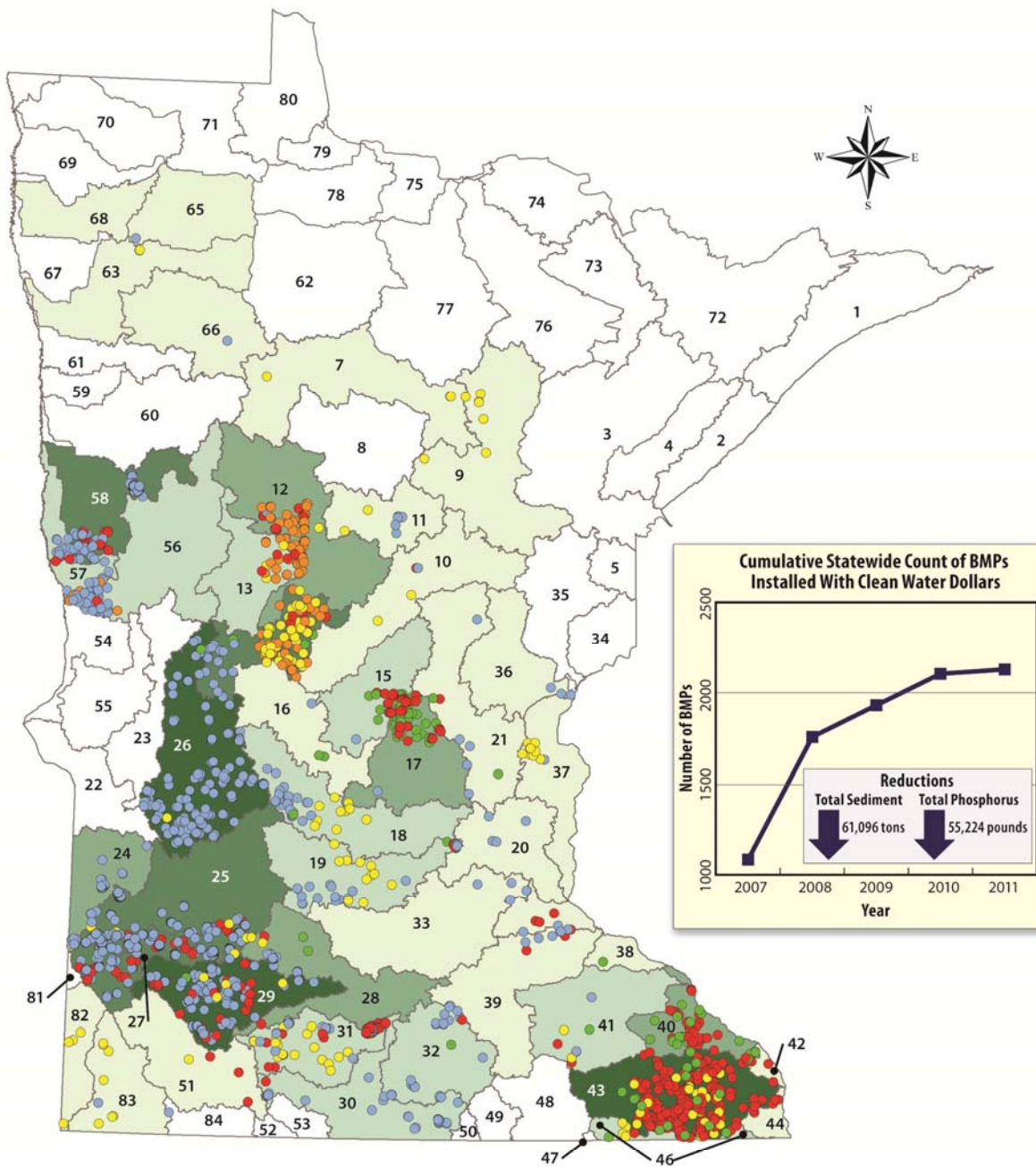
- **FM 2: Percent of total funds by category of expenditure** (*see graphic on page 22*). This measure communicates the overall amount of Clean Water Legacy funding allocated in a particular year and provides a break-down of that funding in specific categories to demonstrate funding trends over time. Categories include TMDL development, monitoring and assessment, protection and restoration, and drinking water protection. This measure provides context for the other financial measures and can be tracked in future years to determine overall appropriation trends.
- **FM 5: Dollars leveraged by Clean Water Fund** (*see graphic on page 22*). This measure communicates the dollars leveraged through Clean Water Fund appropriations, including required match dollars. It is a direct financial measure of dollars spent on implementation activities. The Clean Water appropriations comprise funding from multiple state grant and loan programs. For this measure, the term Clean Water Funding refers specifically to Clean Water Grants and Loans distributed to local governments for BMP implementation through special Clean Water Fund appropriations, including one-time (FY 2007–2009) CWLA appropriations and ongoing Clean Water Fund appropriations starting in FY10. A list of Clean Water Fund grant and loans programs can be found at <http://www.cdf.leg.mn/>.

Highlighted Environmental and Drinking Water Outcome Measures

**EDWOM8: Number of Previous Impairments Now Meeting Water Quality Standards Due to Management Actions**  
December 2010—14 Listings

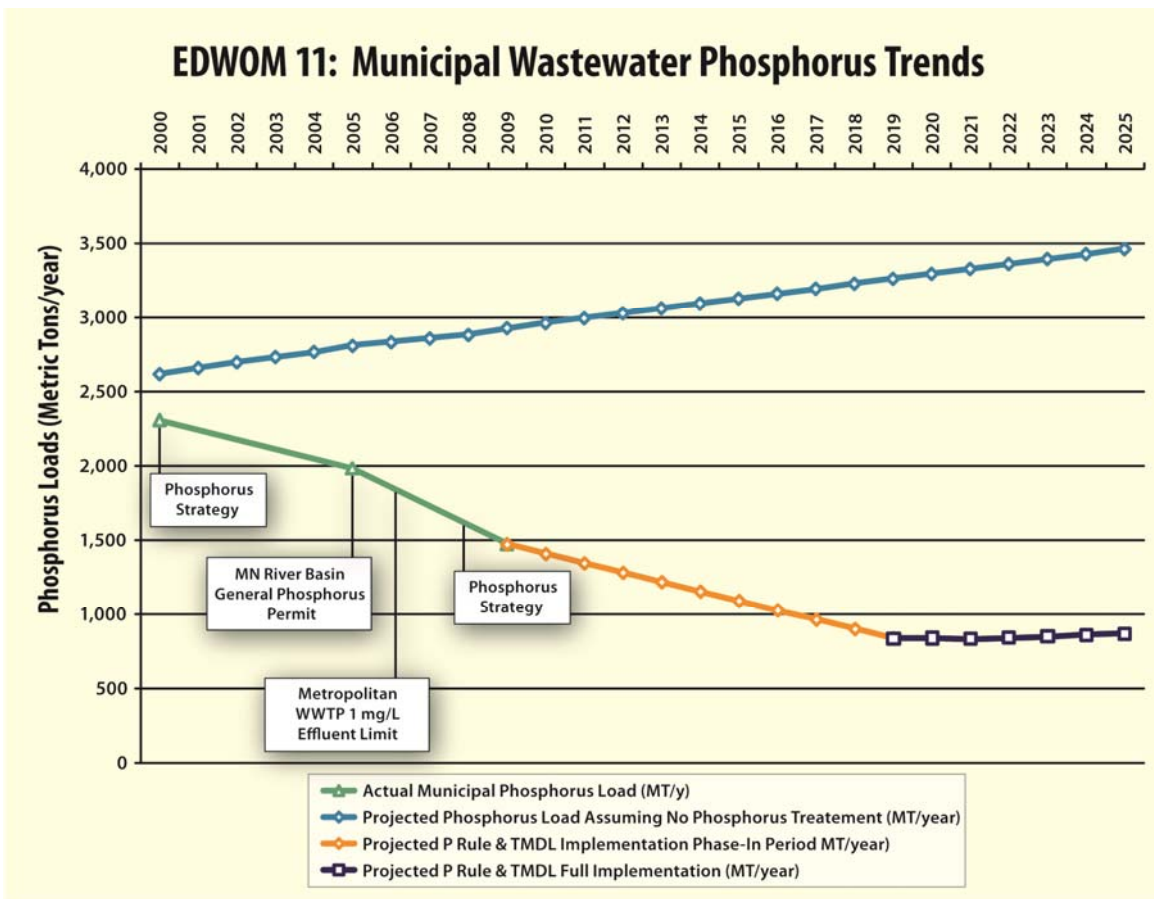


### EDWOM 9: Number of BMPs Implemented with Clean Water Funding and Estimated Pollutant Load Reductions



Best Management Practices Project Type		HUC 8 Watersheds Number of BMPs		
● Water Erosion	● Feedlot Project	1-24	58-124	295-440
● Wind Erosion	● Other Conservation Project	25-57	125-294	
● Ground Water Quality	● Urban Runoff Reduction			

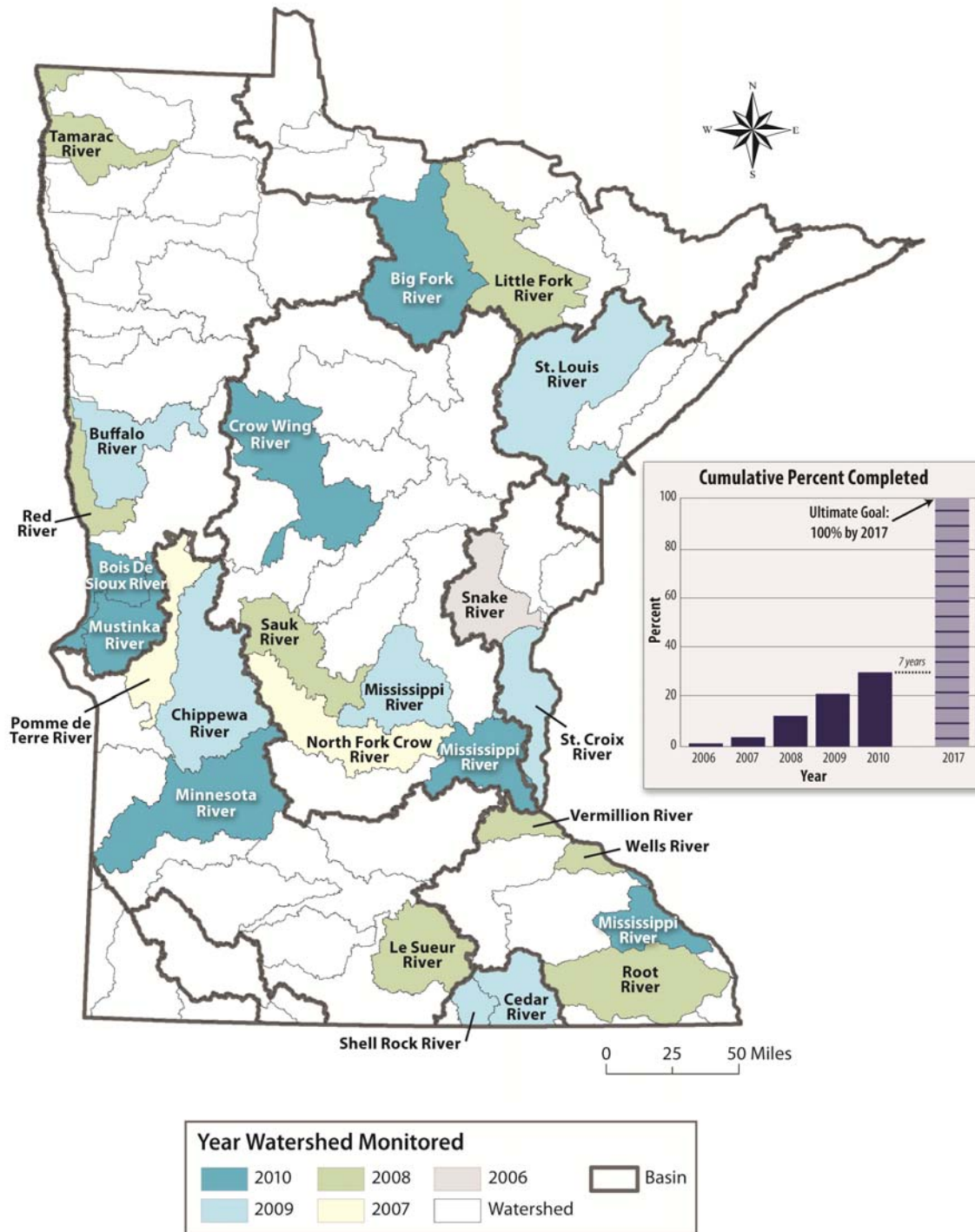
Note: This includes only features that were mapped in eLINK. BMP's that were reported but not mapped are not included.





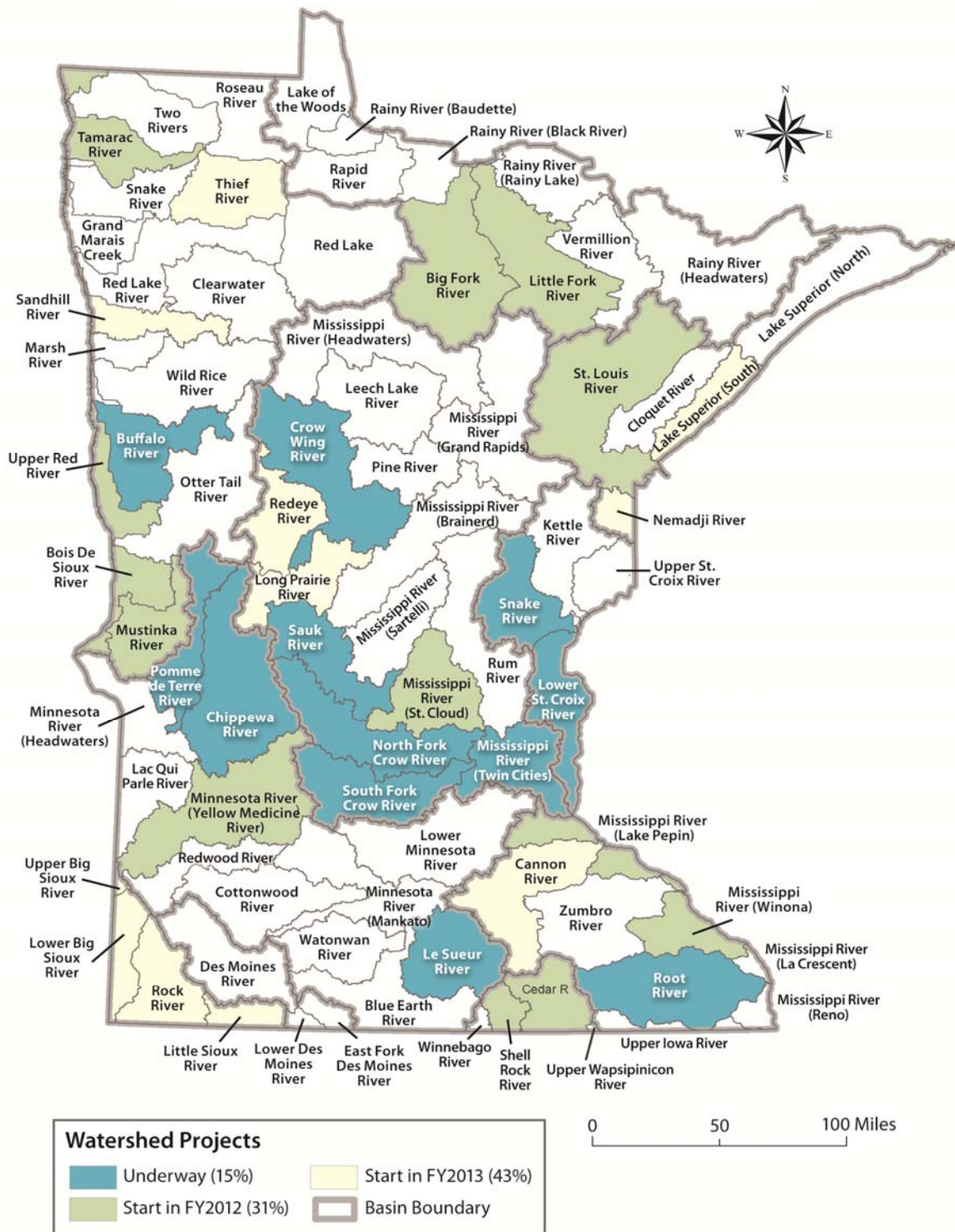
Highlighted Organizational Performance Measures

**OPM 1: Percent of State's Major Watersheds Intensively Monitored Through the Watershed Approach**

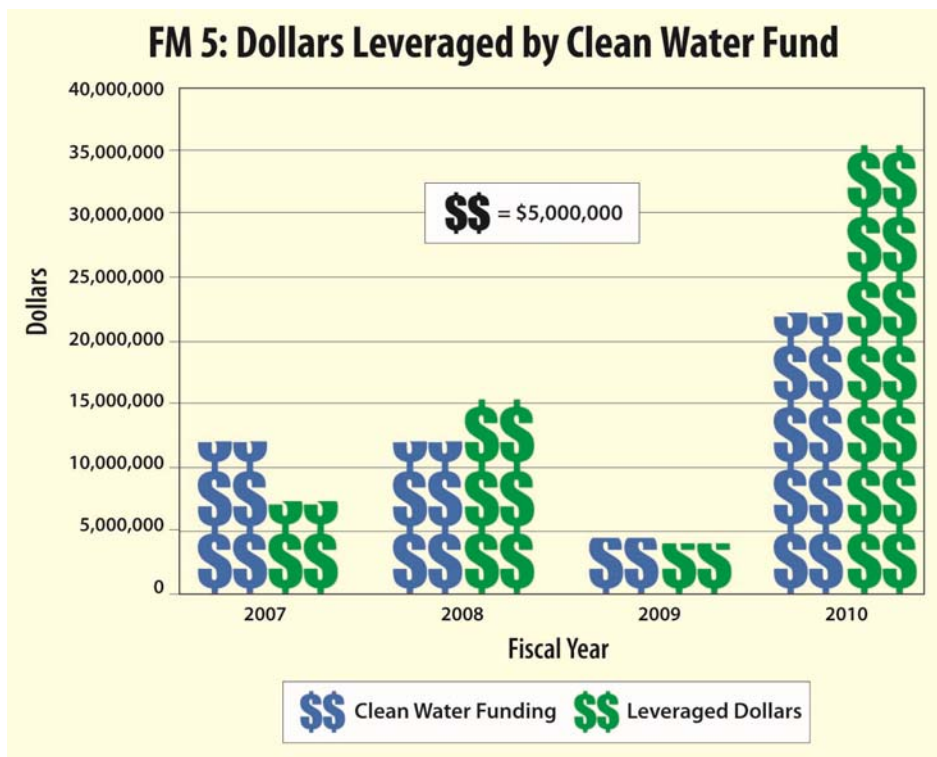
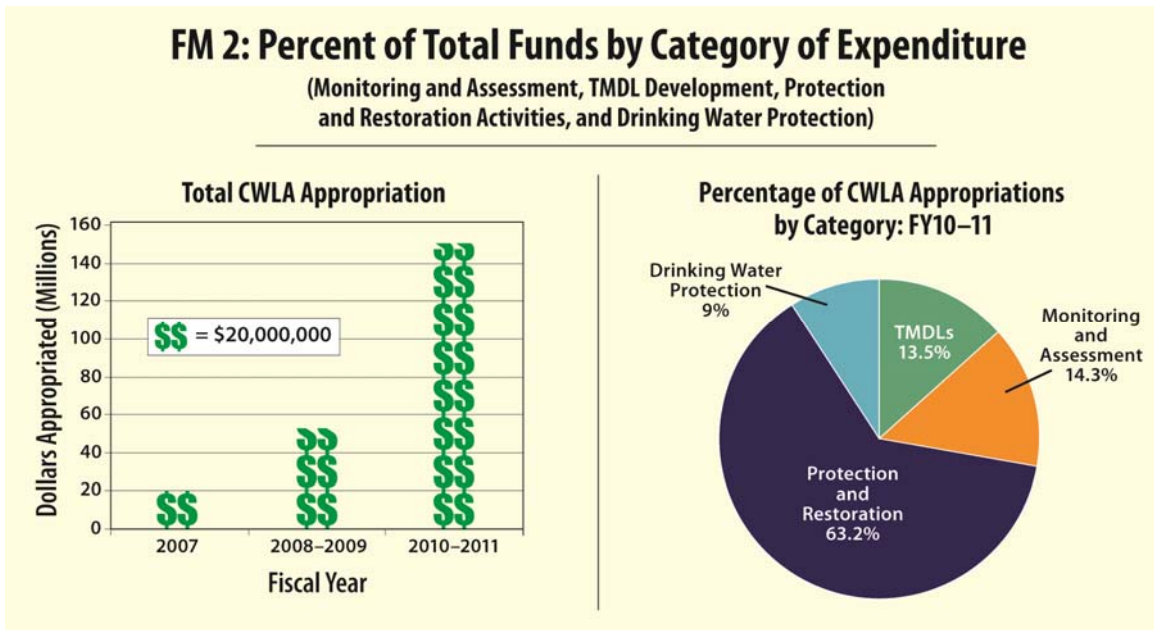




### OPM 7: Percentage of Watershed Restoration and Protection Strategies in Progress and Completed



Highlighted Financial Measures



### Section Three: Effectiveness Tracking Coordination Efforts

The Clean Water Legacy Effectiveness Tracking Project relates closely to several other federal and state efforts to track water restoration and protection activities, as described below.



Activities supported by the Clean Water Fund ensure that our lakes are swimmable for future generations.

#### **Watershed Data Integration Project**

MPCA began the Watershed Data Integration Project in 2009 to improve internal and external access to watershed related data. This project will link data from eight different MPCA surface water data systems, fulfilling some 700 data needs identified by staff.

Already, the project has enhanced an existing database of descriptive information on Minnesota’s lakes, wetlands, and river/stream segments. That information is now being linked to information on impaired waters and TMDL efforts in ways useful to

the public. These core achievements are essential to the agency’s ability to retrieve performance measures and outcomes. The final phase of the project (pending legislative approval of resources in 2011) will further enhance public access to information and create better tools for MPCA’s TMDL project managers and partners. The project will be completed by June 2013.

The Watershed Data Integration Project is critical to managing and retrieving data necessary to report on Clean Water Legacy performance measures. Additional resources will be needed over the next several years to expand the effort beyond MPCA to include data from all of the Clean Water Legacy agencies. Ideally, an intra-agency system will be developed to link data across agencies and support tracking of performance measures in a single system. This is an inherently data-intensive process. A mechanism is needed for state agencies and local partners to easily share and compile data representing the entire system – from monitoring and assessment, to developing restoration and protection strategies, to implementing strategies and evaluating the results.

#### **Recommended Interagency Water Data Portal**

The long-term data management needs of Minnesota was also mentioned in the January 2011 *Minnesota Water Sustainability Framework* authored by the University of Minnesota’s WRC at the request of the Minnesota Legislature. It provides comprehensive recommendations for the sustainable management of Minnesota’s water resources over the next 25 years. Recommendation #J.2.a is to create an interagency data and information portal. The recommended portal is envisioned as a single, online point of entry to all state water-related databases. The portal would align data without requiring individual databases to conform to any one structure. The Sustainability Framework report notes that the MPCA has begun this

process through its Watershed Data Integration Project and notes the need for additional resources to bring other agencies' data into the fold.

### ***Legacy Amendment Website***

The Clean Water Fund is one of four distinct funds established by the Clean Water, Land and Legacy Amendment to Minnesota's Constitution. Recognizing that the Amendment demands new standards of accountability and transparency, the Minnesota Legislature directed the state's Legislative Coordinating Commission to develop a website to help citizens monitor how the Legacy Amendment funds are being invested. The *Minnesota's Legacy* website at <http://www.cdf.leg.mn/> enables users to search for Amendment funding opportunities and learn about funded projects by county, topic or fund. It is anticipated that the performance measures developed through the Effectiveness Tracking Project will eventually be accessible through the *Minnesota's Legacy* website.

### ***EPA's Incremental Clean Water Implementation Measures***

Minnesota is one of a handful of states participating in a joint U.S. EPA and Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) pilot project to develop interim performance measures for water cleanup efforts. The objective is to improve the tracking and communication of incremental progress toward restoring waters, with the understanding that it may take decades to accomplish restoration goals. Similar to the performance measures under development by Minnesota's Effectiveness Tracking Project, the EPA's potential incremental measures include mainly activities, such as completion of watershed plans and implementation of best management practices. States might be required to report on the EPA interim measures beginning in 2012.



## Section Four: Effectiveness Framework Communications Strategy

The overarching goal of the Clean Water Legacy Effectiveness Tracking Project is to use performance measures to communicate progress. Ideally, the suite of performance measures will tell a cohesive, meaningful story about the pressures facing Minnesota’s water resources, the health of Minnesota’s watersheds, and the response of agencies and partners investing Clean Water Funds. The Clean Water Fund Interagency Communications Team will assist the Team in refining and delivering this story and associated messages.



One proposed measure will track the number of sites monitored by citizen volunteers through the Citizen Lake and Stream Monitoring Programs

Getting the message out about the Clean Water Fund effectiveness requires a coordinated, targeted communications strategy. The Team is developing a communications strategy with the following key elements:

- **Target audiences** – Target audiences are the fundamental building blocks of any communications strategy. In July 2009, the Team conducted an exercise to determine whether its core measures would adequately address the questions and concerns of a wide array of stakeholders. (See Appendix B for tables and analysis from this exercise.) The exercise also helped the Team identify key target audiences, including but not limited to the Minnesota Legislature, the Governor-appointed Clean Water Council authorized by the Legislature to make Clean Water Fund budget recommendations, state agencies, local agencies, non-governmental organizations, and public water suppliers.
- **Messages** – Different audiences are concerned with different aspects of Clean Water Fund effectiveness. The Team will develop a process for crafting consistent yet differentiated messages emphasizing performance measures that address the specific interests and concerns of each audience.
- **Formats** – Different communication formats appeal to different audiences. The Team will identify appropriate and effective formats for each target audience – for example, a report card for citizens and a technical report for agency managers.
- **Distribution mechanisms** – Different audiences get information in different ways. The Team will identify distribution mechanisms suitable for each target audience, from reports to news articles to interactive websites and more.
- **Evaluation methods** - The Team will identify a range of methods and tools, such as surveys and focus groups, to learn what target audiences think of the measures and the way they are communicated. Information from these evaluations will be used to improve the measures and the communications strategy.



## Section Five: Next Steps

Developing performance measures to track effectiveness is an iterative process. The Team has identified several next steps for coming the year:

- Make the Framework operational through strong agency management support
- Complete and revise metadata sheets and collect data for the current suite of performance measures
- Identify and prioritize future data collection needs
- Automate the data collection process
- Develop communication tools

### *Make the Framework operational through strong agency management support*

The Framework provides a coherent system for making Clean Water Fund investments transparent, and holding agencies and partners accountable for the effectiveness of these investments. Making the Framework operational is ambitious, demanding high-level support and guidance from the Clean Water Fund Interagency Coordination Team and other Clean Water Fund agency leaders. Most importantly, agency management support is needed to:

- Pursue an integrated system for collecting, compiling and synthesizing interagency data is to be developed and made part-and-parcel of each agency's data management procedures.
- Obtain feedback from each agency on individual measures is essential before attempting to design an integrated system around these performance measures.
- Obtain approval of the Team's communication strategy and key messages will be critical if target audiences are to be reached, and if agency leaders are to be consistent in their delivery of these messages.

### *Complete and revise metadata sheets and collect data for the current suite of performance measures*

Several performance measures in the existing suite lack detailed metadata worksheets. In some cases this is because a measure was only recently identified and more time is needed to compile data from multiple agencies. In other cases it is because trend data needed to support a measure will not be available for several cycles.

Generally, as the Team tackles the work of creating metadata for each measure, there is a discovery period where relationships between



Wastewater spending and phosphorus reductions are also being tracked. The city of Lester Prairie was awarded \$404,000 in Clean Water Funds from the Phosphorus Reduction Grant program to upgrade the city's wastewater treatment plant. The project will help the city meet new permit requirements to reduce phosphorus discharged to the South Fork of the Crow River by over 1,000 pounds each year.

supporting data from multiple agencies and connections to other measures start to become apparent. These complicated webs of data from multiple agencies take time to understand and articulate.

A key tenet of the Clean Water Fund is to avoid creating new programs; therefore, funds are distributed primarily through existing programs. Data for these programs reside in databases designed to meet the needs of individual programs long before the Clean Water Fund existed. That is one reason it is so challenging to develop an accurate and consistent process for collecting, compiling and synthesizing data from diverse programs (cost-share versus loan programs) within a single intra-agency performance measure. Describing the source of the data for each performance measure and how it is compiled is integral to the success of the Clean Water Legacy Effectiveness Tracking Project. This important, yet time-consuming, work will help to identify and prioritize future data collection needs, and eventually automate the process.

An important outcome of the Clean Water Legacy Effectiveness Tracking Project has been identifying future data collection needs based on gaps in currently available data. The Team has worked to identify not only performance measures that can be supported with existing data, but also “aspirational” measures that presently lack supporting data yet are important for tracking effectiveness.

One of the Team’s next steps is to better articulate these aspirational performance measures, including the types of data needed to support them. Table 2 presents aspirational performance measures and efforts under way (entirely separate from the Clean Water Legacy Effectiveness Tracking Project) that might eventually provide the necessary data.

**Table 2. Aspirational Performance Measures and Potential Data Sources**

Examples of “aspirational” measures (see Table 1 for acronyms)	Efforts that may provide the necessary data
EDWOM 7: Agricultural nitrogen use efficiency	An MDA-sponsored research project is identifying types and sources of data necessary to support this measure.
OPM 12: Percent of research projects meeting research efficiency goals	The Clean Water Fund Interagency Research Team anticipates developing a process for evaluating the efficiency of research projects as described in the metadata for this measure
OPM 14: Percent of targeted areas addressed with Clean Water Funds	The Clean Water Fund Interagency Restoration & Protection Strategy Team is working on defining a “priority management zones” concept, which may lead to the development of shared interagency guidelines for delineating “targeted areas” at multiple scales.

Also, there are also two entire categories of performance measures that the Team has only just begun to identify: Social Measures and Pressure Measures. Table 1 lists five potential Pressure Measures. Not reflected in Table 1 – but described in detail in Appendix C – is the Team’s considerable progress toward a cohesive set of social measures centered on awareness, perceptions, and behavior changes, based on ongoing MPCA and University of Minnesota civic engagement and pilot projects.

Finally, the Team intends to develop evaluation criteria for the measures. The criteria will assess both the success and limitations of the performance measures and can be used as a tracking and communication

tool. The goal is to periodically conduct a review of the performance measures and develop an action strategy for improving them.

### *Automate the data collection process*

As discussed above, collecting and compiling data to support the performance measures is no simple task. This became apparent to the Team during the effort to collect data for the measures, described in Section Two. Intra-agency performance measures compound the data collection process. The Clean Water Legacy Effectiveness Tracking Project has demonstrated the need for integrated, automated data collection to support the performance measures. Although the metadata worksheets strive to provide a “recipe” for collecting and compiling the data for each measure, repeating the data collection process annually for every measure is likely to prove daunting for agencies over time and may require additional resources. The Watershed Data Integration Project discussed in Section Three has the potential, over the long-term with adequate resources, to alleviate some of this burden if expanded to include datasets from other agencies. It is the Team’s hope that this initial exercise in data collection to support performance measures will help inform the functionality of a new integrated information management system.

### *Develop communication tools*

As discussed in Section Four, the Team is developing a communications strategy to determine the best way to communicate key messages about Clean Water Fund effectiveness to target audiences. Some of the performance measures are meant to address questions for a specific target audience. The template used to create metadata sheets includes a placeholder for communication strategies associated with each performance measure. An important next step is to develop outreach tools and feedback mechanisms for individual measures, and for the Framework as a whole, consistent with the overall communications strategy described in Section Four. Feedback from target audiences will help the Team adapt and improve the way performance measures are depicted, as well as the communication tools used to reach target audiences.



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