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## Acronyms

**BMPs** – Best Management Practices
**DNR** – Department of Natural Resources
**EPA** – Environmental Protection Agency
**GIS** – Geographical Information Systems
**MPCA** – Minnesota Pollution Control Agency
**NPDES** – National Pollutant Discharge Elimination Systems
**SDS** – State Disposal System
**STORET** – Storage and Retrieval System
**SWCD** – Soil and Water Conservation District
**TMDL** – Total Maximum Daily Load
**WMO** – Watershed Management Organization

## Managing a TMDL Process

Initiating and managing a TMDL process can be a complex and time-consuming task. Local units of government can play an important role in the management of a TMDL. In some cases, local government agencies may decide to take the lead in managing a TMDL project, working in concert with MPCA staff and consultants. In others, the MPCA will play a leadership role, working with the local unit of government and consultant. Other configurations can also work as well.

When a local government organization chooses to lead a TMDL project, MPCA will provide assistance and oversight to ensure that EPA requirements are met and that procedures are appropriately followed. Regardless of who leads the process, MPCA and EPA are ultimately responsible for the outcome of each study.

## Funding Decisions

MPCA makes annual funding decisions based on the project's start date derived from the 303(d) Impaired Waters List, the degree of "readiness" on the part of the project sponsor, and the availability of MPCA staff and resources to assist the prospective project sponsor.

## Funding Sources

The Clean Water Legacy provides limited funding for TMDL studies statewide. EPA provides Section 319 funding to MPCA each year, which is then matched with state dollars and passed through to counties and other local units of government. Currently, limited funding is available for local units of government that want to begin a TMDL study.

In 2005, grant awards to local project sponsors ranged from $50,000 to $1,000,000, with an average award of $62,000. The funding levels for projects varied considerably, depending upon the size and complexity of the impaired waterbody. Smaller, less complex projects will typically receive from $50,000 - $100,000, while larger, more complex projects will receive $400,000 to over $1,000,000. Most TMDLs will require 2-4 years to complete, implementation planning will take an additional year and implementation of that plan will take 1-20 years, or longer.

The Clean Water Legacy Act has unique requirements that must be met in order for MPCA to distribute monies to local governments. Be certain you understand the requirements before developing your workplan.

## What Organizations can Receive Funding?

- Qualified local units of government (SWCDs, WMOs, Watershed Districts, counties, cities, and other approved local units of government)
- State agencies

Any of these public agencies can be the recipient of Clean Water Legacy funds. A ***joint powers agreement contract*** must be developed between any of these agencies and MPCA in order for MPCA to award funds for TMDL work.

The TMDL funds will be disbursed to the local unit of government as reimbursement for expenses already incurred. Local governments may subcontract to non-eligible local units of government or state agencies to complete certain tasks, if needed.

## The TMDL Administrative Process – Simplified

- Develop work plan (including water quality monitoring and land use assessment plans)
- Develop contract
- Complete TMDL study
- Public Notice of TMDL study document
- Submit TMDL study to EPA and MPCA for final approval

## The TMDL Work Plan and Contract

Before any funds can be awarded, the project sponsor must develop a detailed TMDL work plan and submit it to the MPCA for approval. The work plan should include a description of the impairment(s) that will be addressed by the TMDL, as well as a plan for completing a detailed assessment of the waterbody.

The work plan should outline specific tasks, schedules, and roles and responsibilities for completion of the assessments. The work plan should also outline a process for developing a report which describes the TMDL process and its findings.

MPCA has developed a guidance document that can help you write an approvable work plan. Following this guidance carefully can save Project Managers considerable time and effort in the long run. This guidance is attached in Attachment 2A. A work plan typically takes 2-6 months to complete. Once the work plan is approved, the MPCA can write a contract. It will take an additional 2-6 months to get a contract approved.

Contracts are typically written for a time period of 3 years or less. *Once the contract is completed and in hand, work can begin on the TMDL*.

## What Kind of Activities can be Funded?

These are examples of the kinds of activities that can be paid for with TMDL funds:

- Water quality monitoring
- Pollutant source identification
- Technical assistance
- Data management
- Technical writing
- Information and education programs
- Public participation activities
- GIS analysis

## TMDL Basics

TMDLs should:

- follow MPCA protocols, when available
- follow MPCA's approved TMDL study outline
- be concisely written
- clearly define causes and sources of pollution
- allocate pollutant load among all sources
- provide a springboard for action
- be revised as needed

## TMDL Studies Must be Well-Documented

TMDL studies must meet certain basic requirements to be approved by MPCA and EPA. The TMDL study you submit to the MPCA should clearly and concisely describe the study's design, execution and findings. TMDL studies do not have to meet any specific style, length or appearance requirements, however, **Project Managers should endeavor to follow the basic outline provided in Attachment 2B**, which will allow MPCA staff to be more efficient in their review and approval of projects.

TMDL studies should be as specific as possible when describing the causes and sources of nonpoint source pollution and their relative contributions to the impairment of water quality. This will assist technical staff, as well as citizens and stakeholders, in pinpointing problems and effectively creating solutions.

TMDL reports should be thought of as living documents. Strive to develop a TMDL study that has a long shelf-life – one that can be reshaped as events change and circumstances shift. Many good plans sit upon shelves gathering dust, never again seeing the light of day. To avoid this outcome, make every effort to create a document that you find useful for managing your project year-to-year and that is easy to revise, as needed.

The TMDL study has little value if nothing is done beyond describing the problem. The document and process should be a springboard for the most important work ahead – restoring water quality. Your TMDL study should include a realistic, *general plan* for improving water quality, including general milestones and schedules for completion of tasks.

## Basic Elements of a TMDL Study

Outlined below are the minimum elements of an approvable TMDL study. For more detailed information, see Attachment 2B.

1. A description of your **public participation process**
2. An **assessment of waterbody health**
3. A **technical analysis of the data** to determine causes and sources of pollution
4. An **allocation of acceptable pollutant loads** to the waterbody for point and nonpoint sources, as well as growth and margin of safety strategies
5. **A general implementation plan** for restoring water quality, including reasonable assurances that NPS BMPs will be implemented and result in desired load reductions

***Possible sources of data:***

- State/federal agency reports
- University studies
- Nonprofit Organizations
- Citizen monitoring

### 1. A description of your public participation process

MPCA supports and encourages public and stakeholder involvement in all TMDL projects. EPA also encourages project sponsors to recognize the importance of including stakeholders and citizens in the development of a TMDL, from the very earliest stages to the end of the process. In fact, EPA will only approve a TMDL if it documents that a reasonable attempt has been made to encourage public participation in the process.

Usually, this means that the project sponsor has conducted public meetings, open houses, convened an advisory committee or used other creative techniques to bring people together and gather input on the project.

In addition to ensuring the continuous involvement of the public in your study and planning process, the Project Manager must ensure that the public has an opportunity to review and provide formal comments on the draft TMDL study.

**2. Assessment of waterbody health**

This portion of the TMDL involves compiling all existing ambient water quality and land use data available within the MPCA or from other organizations. This data is not always easy to obtain. Data can be stored in electronic databases such as STORET, existing files, reports, etc. MPCA will also evaluate data sets collected by other agencies and organizations. Quality Assurance and Quality Control (QA/QC) checks will be performed on all data sets to determine whether they can be used in assessing waterbody health.

**3. Technical analysis**

In many cases, additional water quality data will need to be collected to assess attainment of beneficial uses and to identify sources of pollution that are causing impairment of those uses. Additional data may be collected to assess aquatic life, land uses, weather conditions, sediment chemistry, toxicity of water to aquatic organisms, etc. The TMDL study should include this additional data and an analysis of it.

With good quality, adequate data in hand, local Project Managers, working in concert with MPCA staff, can identify causes and sources of impairment, using multiple lines of evidence. This approach is similar to a medical diagnosis on a patient where a doctor examines the result of many tests to make a diagnosis. Determining the causes and sources of impairment should be an extension of the process originally used to place the waterbody on the 303 (d) list. The ability to make a good diagnosis depends upon the availability of good, sound data that can be accessed electronically.

At the end of the analysis, MPCA will define the stressor(s) causing impairment of beneficial uses, and the major source or sources of these stressors. In many cases, the problem will be self-evident and its identification will be straightforward.

However, in other cases, the complexity of the ecosystem will make it much harder to make a definitive statement about the relationship between the causes and sources of the impairment.

Where multiple pollutants are causing impairment, MPCA's goal will be to take an integrated approach to addressing all impairments within a given waterbody.

However, in some cases this will not be possible. In some cases, the agency may choose to develop a regional TMDL which looks specifically at one parameter over a large geographic area.

**4. Allocation of pollutant loads**

Determining the allocation of pollutant loadings to a waterbody is the most important part of the TMDL process. It is a highly quantitative exercise, allowing you to determine exactly how much the loadings of both point and nonpoint pollution sources will need to be reduced in order to restore a waterbody's beneficial uses.

Before doing these calculations, it will be important to define your goals for the waterbody. In other words, will the focus of the TMDL be on biological impairments, human health concerns, toxicity issues or something else?

When determining the allocation of pollutant loads, it is important to carefully select an appropriate method for calculating the TMDL. There are a number of calculations methods available, depending upon the causes and sources of impairment. You should consult with MPCA staff when selecting the most appropriate method for your situation.

This equation answers the question:

"What is the maximum amount of a specific pollutant that can be discharged to a waterbody from all sources while still maintaining water quality standards?"

All TMDL studies must complete the following equation for each impairment:

**LA(s) + WLA(s)+ MOS + RC = TMDL for pollutant X**

Where:
- **LA** = Load allocation for nonpoint sources of pollution
- **WLA** = Waste load allocation for point sources of pollution
- **MOS** = Margin of Safety to account for scientific uncertainty
- **RC** = Reserved loading capacity for future development
- **TMDL** = Total Maximum Daily Load

Existing pollutant loadings from all nonpoint and point source discharges in the watershed must be added together, while also including a **margin of safety** to address scientific uncertainty and some **reserve capacity** to accommodate future growth and development that would contribute additional pollutants. Together, the sum of all pollutant loads, margin of safety and reserve must not exceed water quality standards for a specific waterbody. For most pollutants, TMDLs are expressed as a mass loading, such as pounds per day.

Since there is uncertainty in predicting the effectiveness of best management practices (BMPs) in reducing nonpoint source pollution loadings, incorporating a margin of safety into the analysis is important. The **margin of safety** can be an explicit set-aside of a portion of the load, or implicitly addressed by using a more conservative model for determining pollutant loads. TMDLs must also account for **seasonal variations** to determine loading capacity of the waterbody and pollution sources in wet, dry or average weather conditions. The method for considering seasonal variations must be described in the TMDL.

When we have completed this equation we can begin to allocate the available load and target our restoration activities. This requires the MPCA to find an acceptable combination of allocations that adequately protect water quality standards. Economics, the political environment, equity issues, feasibility, public opinion, and other issues make allocation of pollutant loads a challenging task.

**5. General implementation strategy**

The TMDL study must include a general strategy for improving water quality – one that sets the framework for development of a more detailed Implementation Plan due to EPA within a year of having an approved TMDL study. The Implementation Plan translates pollution reduction calculations into real-world, on-the-ground pollution control activities.

Citizen and stakeholder involvement is critical to the development of this plan. Citizens and stakeholders can be given various pollution allocation scenarios and encouraged to discuss the merits and drawbacks of each approach. Many creative approaches to addressing pollution problems can be developed by interested parties and citizens that have a direct stake in the health of their waterbody. The implementation plan should provide a general approach for addressing any point and nonpoint sources that have been identified as a cause of impairment for the waterbody.

The NPDES permit is an important tool for addressing point source pollution in your watershed.

**Point Sources Can Include:**

- Wastewaters treatment facilities
- Feedlots (typically over 1000 animal units)
- Large septic systems (over 10,000 gallons per day)
- Municipal Separate Storm Sewer Systems (MS4)

A potentially powerful tool for addressing point source pollutant loadings to surface waters is the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit. NPDES permits include enforceable requirements for point source discharges, including effluent limitations which place restrictions on the quantities, discharge rates, and/or concentrations of specific pollutants in the wastewater discharged from a facility.

MPCA issues NPDES permits for municipal and industrial wastewater treatment facilities, large feedlots, large septic systems, and some storm sewer systems. When warranted, effluent limits in permits can be tightened to address water quality impairments.

The TMDL program confers no new authorities for addressing nonpoint sources of pollution. Consequently, TMDL project sponsors have to rely upon existing authorities and incentives to achieve water quality goals. In most cases, this means using voluntary and incentive programs offered through the U.S. Department of Agriculture, Minnesota Board of Water Resources, Minnesota Department of Natural Resources, and MPCA.

Your TMDL project's advisory committee may determine that, to meet water quality standards, a variety of land use changes, as well as pollution reductions from all point source discharges are needed. It is likely that a number of different strategies will need to be implemented simultaneously in order to begin to see measurable changes in water quality over time.

**Reasonable assurances**

MPCA requires that TMDL studies include reasonable assurances when waters are impaired: a) solely by point sources, b) by both point and nonpoint sources or when c) solely by nonpoint sources. Specifically, this means that:

a) When a TMDL study is developed for waters impaired only by point sources, issuing a NPDES permit provides reasonable assurance that the Waste Load Allocations contained in the study will be achieved. This is because 40 CFR 122.44(d) (1) (vii) (B) requires that effluent limits in permits be consistent with "the assumptions and requirements of any available wasteload allocation" in an approved TMDL study.

b) Where waters are impaired by point and nonpoint sources and where point sources are given less stringent wasteload allocations based on the assumption that nonpoint source load reductions will occur, the state must provide EPA with reasonable assurances that nonpoint source BMPs will be implemented and that they will, in fact, achieve the expected pollutant load reductions.

c) Where waters are impaired solely by nonpoint sources, *reasonable assurances are also required for a TMDL study to be approved by MPCA*, although EPA cannot disapprove a TMDL study for non-point source-only impaired waters. EPA currently does not require TMDLs to demonstrate reasonable assurances that load allocations will be achieved. MPCA may use non-regulatory, regulatory or incentive-based programs to accomplish needed reductions. Local units of government can apply new zoning ordinances or other regulations to address sources as well.

6. **A water quality monitoring plan** will help determine whether the proposed pollution control strategies are actually improving water quality. A special emphasis should be placed on demonstrating that nonpoint source BMPs is as effective at reducing pollutant loadings as envisioned. This will be especially important if there are potential public health concerns associated with the impairment.

## Public Review of the Draft TMDL Study

When a TMDL study has been completed, it is transmitted to the MPCA, which takes the lead on placing the document on public notice. Before starting the public notice process, MPCA and the EPA will peer review the document for completeness and adequacy.

MPCA will then begin the public notice process by placing a notice in the *State Register*, issuing the document on its Web site, and distributing a press release and fact sheet. MPCA often assists the project sponsor (a local unit of government) in conducting a public meeting on the project. The public must be given a minimum of 30 days to review and comment on the document. MPCA must respond to all public comments in writing.

Based on the outcome of the public review process, MPCA staff will make recommendations to the Commissioner regarding whether the TMDL study should be approved and transmitted to EPA. MPCA's Commissioner makes the final determination. The Commissioner will also decide whether the TMDL decision should be presented as an information or decision item at the MPCA Citizens Board Meeting.

When presented at the board meeting, MPCA staff and local government representatives must be present to discuss the item with the 9-member board.

MPCA must submit completed TMDL studies to the EPA, which ultimately approves them. MPCA and EPA are responsible for the content and quality of all TMDL studies.

## Support Available for your TMDL Study

- General technical assistance from MPCA staff
- DNR Flow Work Contract
- Qualified consultants available through the MPCA's Master Contracts
- Minnesota Department of Health lab
- Sampling and analysis laboratory Master Contract
- MPCA monitoring equipment may be available on loan
- GIS analysis and mapping services

In addition to providing pass-through funding to local units of government, there are other means of support available to those who decide to develop a TMDL project.

If your project needs flow gauging work, contact:
**Pat Baskfield** at (507) 389-1648
**Mark Evenson** at (651) 828-6074

MPCA has a group of **technical and administrative staff** available to answer questions and provide guidance when requested.

MPCA currently has a contract with the **Department of Natural Resources** to do flow gauging work for TMDL projects. The team of DNR staff can take stream flow measurements, develop rating curves and do other data manipulations.

MPCA has also developed a list of **pre-qualified consultants** which can be used for TMDL work under a state master contract. There is also a separate master contract for field sampling and analytical services.

The **Minnesota Department of Health Lab** can be used to analyze water samples. There are other state-certified labs which can perform the same function.

The MPCA now has a **Master Contract in place for labs** around the state that can provide laboratory services for TMDL projects. These labs can also provide sampling services for projects, when needed. Four of the labs provide full services and four provide partial services. You must develop a work order and a work plan in order to take advantage of these services.

MPCA can sometimes loan **monitoring equipment** to project sponsors, if it is available at the time requested.

Finally, MPCA now offers **GIS analysis and mapping services** to TMDL projects.

## Develop a Detailed Implementation Plan

Once the TMDL study has been approved, a detailed implementation plan must be developed with one year. The following funds are available to implement the plan:

- MPCA Clean Water Partnership Phase II
- BWSR Challenge Grants
- Natural Resource Conservation Service – Cost Share Programs
- Clean Water Legacy Act
- Private/Nonprofit donations

Often, limited financial resources are available to local governments for addressing multiple sources of pollution within a watershed. Consequently, the project sponsor must pursue multiple grants or loans to address their highest priority issues. Any of the above programs can be used to accomplish your water quality goals.

## Summary

- TMDLs can be led locally or by the MPCA
- Limited funds are available for developing TMDL studies
- A work plan and contract must be developed before any funds can be released or work can begin on the TMDL study
- To be approved, a TMDL study must include 6 basic elements
- MPCA is responsible for making TMDLs available to the public for review and comment
- MPCA and EPA have final review and approval authority for all TMDL studies

## Resources

Contact:
Celine Lyman, MPCA, Workplan Guidance ..... 651-296-8798
Sara Johnson, MPCA, Contracts/Reimbursements..... 651-296-8278

Minnesota Pollution Control Agency

# TMDL Work Plan Guidance

**October 2007**

# Contents

# 1. What is a Total Maximum Daily Load?

A TMDL or Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. They identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use.

A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality.

The Clean Water Act (CWA), Section 303, establishes the water quality standards and TMDL programs. Section 303(d) of the CWA requires states to publish, every two years, an updated list of streams and lakes that are not meeting their designated uses because of excess pollutants. These waterbodies are considered impaired for their uses. The list, known as the 303(d) list, is based on violations of water quality standards and is organized by river basin. States must establish priority rankings for waters on the lists and develop TMDLs for listed waters. Minnesota's 303(d) list can be found on the MPCA Web site at: http://www.pca.state.mn.us/water/tmdl/tmdl-303dlist.html. The *Guidance Manual for Assessing the Quality of Minnesota's Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List* explains MPCA's process for assessing water body for the 305(b) report and the 303(d) impaired waters list. The guidance manual is also on the MPCA Web site at: http://www.pca.state.mn.us/water/tmdl/tmdl-publications.html.

The MPCA strongly believes that locally driven projects are most likely to succeed in achieving water quality goals. Local communities often best understand the sources of water quality problems and effective solutions to those problems. Their work to develop and implement TMDLs is a key tool to restore and maintain our rivers, streams and lakes.

# 2. Funding of TMDLs – Sources and Requirements

Funding is available through state and federal sources for TMDL projects. The goal of this funding is to establish a TMDL for water body on the impaired waters list for the state of Minnesota, and ultimately, to protect and improve the quality of Minnesota's water resources by implementing pollution control measures that will allow the water resource to meet water quality standards.

## *2.1 Joint Powers Agreements*

Qualified local units of government, state agencies, and soil and water conservation districts with jurisdiction in the impaired watershed are eligible to enter into a joint powers agreement contract for these funds. This guidance document is designed for work plans for contracts with local governments or other organizations, not for a scope of work under the TMDL Master Contract.

## *2.2 Master Contracts*

There are other tools available for putting together a project for an impaired watershed including; a pool of consultants who are under a master contract that are available to help with projects, the Minnesota Department of Health lab that can be used for the water quality analyses, other water quality labs around the state that can do sampling and/or analytical work through a sampling and analysis master contract, and there also is some monitoring equipment available for projects to use. TMDL projects using the TMDL Master Contract will need to develop a detailed scope of work for the project.

## *2.3 Reimbursement Policy and Contracts*

Contracts may take three or four months to complete. This includes time for review, revisions, finalizing the work plan and the fiscal and administrative processes. Local governments must then pass a resolution authorizing them to enter into the contract and naming a project representative. MPCA Project Managers can find information about contracting on MPCA's Intranet site at: http://intranet.pca.state.mn.us/forms/contracts.html, or contact one of the Contract Specialists listed on that site.

Payment for TMDL projects is made by reimbursement for expenses incurred. Project sponsors should send invoices to the MPCA accounting office in St. Paul (per contract language). MPCA Project Managers receive project invoices from the accounting office, and review them for accuracy prior to payment. Project sponsors should submit invoices to the MPCA on a regular-basis; the exact frequency will be indicated in the contract language. Typically, project sponsors submit invoices on a monthly or quarterly-basis. Most payments are made by electronic funds transfer (EFT)**.**

**Work done before the contract has been executed (signed by all parties) or after the end date of the contract cannot be paid for with grant funds.** Project Managers are responsible for tracking contract dates to make sure project sponsors meet their deadlines for payments and reports and also to insure that costs are not incurred before the contract is executed or after the contract ends.

## *2.4 Requirements for CWA Section 319 Projects*

*TMDL work plans must be approved by EPA before a contract can be finalized and work plan changes must also be approved by EPA.*

The following are some U.S. Environmental Protection Agency (EPA) requirements for Clean Water Act (CWA) Section 319 funded projects related to work plan development, reporting, and payment requests:

- Per our contracts, any products produced by a project (monitoring data, a manual, a video, a paper, etc.) must be provided to the MPCA. Project representatives must send electronic copies of products produced to MPCA Project Managers, who will handle transfer of products to EPA Region V.

- For projects involving feedlots, we need to ensure that:

    1) the work being performed using Section 319 funds does not address NPDES permit requirements (Section 319 funds are nonpoint source funds and thus are not applicable to point source permit work) and is not the result of an enforcement action,
    2) feedlots have and will implement a comprehensive nutrient management plan approved by a person certified to do so by the USDA or an equivalent certification program, and
    3) if a feedlot in need of a permit is discovered in the course of a project, the feedlot must be reported to the MPCA feedlot program or county office, as appropriate, so that a permit can be issued to the facility.

- For projects with storm water management components, Section 319 funds cannot be used to address requirements of the Stormwater Phase 2 regulations in communities that are or will be subject to these regulations, even if the community does not yet have a Phase 2 permit.
- Grant funds cannot be used to pay for anything that is a requirement of an NPDES permit.
- Any costs related to wastewater permits or addressing enforcement actions are not eligible costs for Section 319 grants.
- Minimum reporting requirements will be based on EPA grant requirements which are usually semi-annual reports that require a short written update on the project and a budget update. Semi-annual reports are due February 1st and August 1st of each year. Projects usually submit brief quarterly reports with their invoices and more detailed semi-annual reports.

## *2.5 MPCA Stormwater Policy*

The TMDL and Stormwater programs completed a policy for setting wasteload allocations for permitted stormwater. This policy outlines ways for addressing a WLA for permitted stormwater. Please note this is an approved policy and therefore should be put into practice. The policy can be found at: http://www.pca.state.mn.us/publications/wq-strm7-06.pdf. Other information about stormwater and TMDLs is on this page; http://www.pca.state.mn.us/water/stormwater/impairedwaters.html. A couple highlights from the policy include:

- ensuring that industrial, construction, and MS4 stormwater are identified separately in the TMDL;
- determining what type of WLA each stormwater component should get (individual, categorical, de minimus, or a combination of these);
- the preferred form of the WLA;
- accounting for future growth; and
- adjusting individual WLAs, as data become available, within the overall WLA for permitted stormwater.

# 3. Implementation Plans

A written TMDL will include the diagnostic work - monitoring, inventory, modeling, allocations, reduction plan and documentation of a public process – and will require approval by EPA. The goal of the TMDL program is to identify pollution problems and move forward to solve them, so we encourage projects to include discussions about implementation as part of the TMDL development process.

Projects must include in the written TMDL submitted to MPCA the broad implementation strategies to be refined and finalized after the TMDL is approved. Projects are required to submit a separate, more detailed implementation plan document to MPCA within one year of the TMDLs approval by EPA. For example, highly complex TMDLs or TMDLs requiring reductions for NPDES-permitted point sources (wastewater, stormwater, feedlots) may require this additional time following approval to prepare detailed implementation plans. The implementation plan document is not approved by the EPA.

Implementation activities can be funded with any of the existing mechanisms for implementation, such as Section 319 or other EPA grants, CWP/SRF phase II funds, Board of Water and Soil Resources Challenge Grants, NRCS funds, local water plan funds, etc. Some of those programs will give higher priority to funding TMDL implementation projects. Local ordinances or regulations, storm water controls and voluntary activities will also contribute to implementation. Successfully implementing a TMDL means the waterbody supports its uses and that will be determined by monitoring to see that it meets its water quality standards.

# 4. TMDL Work Plan and Final Report Requirements

**A work plan is required to enter into a contract for funds.** An outline for a work plan is on the following pages. MPCA regional and central office staff will review the work plans. If there are no problems or concerns with the work plan, a contract will be written. The time period for this process is estimated to be up to two months. Contracts will be issued for a time period specified in the grant, usually three years or less. Please submit work plans electronically to MPCA staff for their review and comment. When the work plan is finalized, it will be sent to EPA for their approval before federal funds are allocated to projects.

When the project is completed, a draft TMDL shall be sent to the MPCA for review and comment. Following preliminary approval, the MPCA will submit it to EPA for their review, comment and approval.

The final report will be a written TMDL for the impaired reach (es) for the identified impairment(s). It should include all the elements in the EPA review document for TMDLs, an assessment of the water of concern, a description of the project activities and results, a plan for the allocation of pollutant loads for the pollutant of concern, a public outreach plan, and a discussion of broad implementation strategies (see section 3 above) for achieving and maintaining water quality standards for the waterbody. This final report is the TMDL, defined by EPA as a written plan and analysis of the impaired waterbody.

It is a plan established to ensure that the water quality standards will be attained and maintained throughout the waterbody in the event of reasonably foreseeable increases in pollutant loads. A final financial report following the initial budget format is also required, as well as a final progress report.

**All data collected as part of a TMDL project has to go into EPA's STORET database.** All monitoring stations will be established in STORET, which means we need location information for the stations. Project staff will provide the information needed to establish monitoring stations in STORET, and will organize data in a spreadsheet so that it can be entered into STORET. They will work with MPCA Project Managers and data management staff to organize and submit the data in the appropriate manner.

All lab work must be done by a laboratory currently certified by the Minnesota Department of Health for the parameter(s) being measured. The Minnesota Department of Health Lab can be used for lab analytical work for projects, as can labs under contract with the State of Minnesota in the *Sampling and Laboratory Analysis Services - Environmental* master contract. This contract may be used directly by local governments who are Cooperative Purchasing Venture (CPV) members and other state agencies or TMDL projects under contract may use the master contract through the MPCA. CPV members are governmental entities that sign up to use state contracts. The Minnesota Department of Administration's Web site has information on CPV members at: http://www.mmd.admin.state.mn.us/cpv2.htm.

## *4.1 TMDL Project Work Plan Outline*

| **1. Applicant Information** | | | | |
|---|---|---|---|---|
| **Name of Organization** | | | | |
| **Type of Organization** | | | | |
| **Project Manager** | | | | |
| **Address and Phone Numbers** | | | | |
| **2. Project Information** | | | | |
| **Project Title:** *(create a unique name, preferably one that begins with the name of the impaired waterbody and includes the pollutant name, for example; Shingle Creek Dissolved Oxygen TMDL Project)* | | | | |
| **Listed Reach Name** | **AUID #** | **Listed Pollutant** | **Impaired Use** | **303(d) List Scheduled Start//Completion Dates** |
| | | | | |
| | | | | |
| | | | | |
| **Grant Amount Requested:** | | | | |
| **Project Dates:** | | | | |

1. **Background Information:**
   - Description of the watershed - include a specific description of the project study area. Also, the project should create a GIS data layer of the project study area in a shapefile format to be submitted electronically with your work plan to your Project Manager.
   - Land uses in the watershed
   - Potential pollutant sources in the watershed

2. **Problem Statement:**
   - Use impairment(s) and pollutant
   - Water quality standard
   - Project summary

3. **Project activities and schedule:**
   - Brief description of each task that will be accomplished under the proposal.
   - Time period under which each task will be completed, including the estimated start date, and completion date for each task.
   - Detailed monitoring plan, including the analytical lab to be used and equipment needed.
   - Models or data assessment tools proposed for the project.
   - Description of the product that will result from each task. Specific language about the final products of the contract should be provided in the work plan. The main final product will be a draft TMDL for the waterbody for the listed pollutant that includes point and nonpoint load allocations, margin of safety, critical conditions, reasonable assurance, implementation plan, data assessments, a summary of public outreach activities, etc. to be submitted to MPCA for our review and comment. Other possible products include semi-annual reports, STORET and other data files, monitoring station locations, maps, model runs, presentation materials (charts, graphs, slide shows, and PowerPoint presentations), posters, and fact sheet(s) about the project.

4. **Equipment:**
   - Projects that need monitoring equipment should contact MPCA equipment staff through their Project Managers to find out if the equipment needed is available for use by the project, what training is needed to use it or if experienced staff are available to install or use it, or if the equipment is not available to ask MPCA equipment staff to order the equipment. All equipment paid for with federal or state funds is the property of the MPCA or EPA. Projects may use the equipment for work on the project as long as it is needed when it is available.

5. **Quality Requirement – Mandatory:**
   - Every TMDL project with a water sampling and analysis component that receives EPA funding must have an approved Quality Assurance Project Plan (QAPP) completed before any water sampling may begin. Roger Fisher, the MPCA Water Quality QA/QC Coordinator, can assist you with writing the QAPP or can write it for you. He may be contacted at 651-296-7387 or at roger.fisher@pca.state.mn.us.

6. **Monitoring Data Management:**
   - Organize water quality data into a spreadsheet format suitable for entry into STORET.
   - Miranda Nichols is MPCA's data management coordinator for data collected by watershed projects. Miranda's phone number is 651-297-8466 and her email address is miranda.nichols@state.mn.us.
   - Work with MPCA Project Manager and data management staff to provide information on water quality or biological sampling as needed to get the monitoring data into STORET:
     - Provide information, such as project name, purpose, staff, and sampling procedures for project establishment in STORET, using the MPCA Project Establishment Form.
     - Provide information on all laboratories used for water sample analysis, using the MPCA Lab Establishment Form.
     - Provide information on monitoring station locations for station establishment(s) in STORET using the MPCA Station Establishment Form.

Please be sure to update these forms as changes arise. The above mentioned forms, data template, information about STORET, and contacts for questions, may be accessed using MPCA's STORET Web site at: http://www.pca.state.mn.us/water/storet.html.

**7. Public Participation and Outreach:**

- Conduct public outreach and education activities at key points throughout the project and prepare a report or section of the draft TMDL that describes those activities.
- Coordinating with MPCA, participate in the formal public notice process for the draft TMDL, *(see detailed public notice and approval process next page)*, including:
  - Organize a public participation process for the draft TMDL and compile comments from the public.
  - Help respond to comments, as needed, on the draft TMDL from technical staff, citizens and other interested parties, and EPA.
  - Submit public outreach materials if developed along with the draft TMDL or final report, such as charts, graphs, modeling runs, fact sheets, presentation materials, maps, etc.

- Public Notice and TMDL Approval Process: Following the allocation process and the final development of a draft TMDL, the public notice process can begin. These steps will be led by the MPCA, coordinating with the local government contractor. Most activities will be conducted by the Project Manager, basin coordinator, public information officer, or impaired waters coordinator, as appropriate. Here are the steps to that process:

  1. MPCA public information staff and Project Manager prepare public notice package, to include Draft TMDL, Fact Sheet, State Register Notice, Public Notice and Press Release.

  2. Public Notice:
     NOTE: Draft TMDL Package including the "TMDL Review Checklist" is signed by Regional Manager and "TMDL Routing/Approval Slip" signed by Project Manager, Supervisor/Manager/Division Director/Commissioner for approval to begin the public participation process.
     - The draft TMDL must be on public notice for a minimum of 30 days.
     - The public notice must be published in the **State Register**.
     - The notice must be published on the MPCA Web site.
     - The notice should also be mailed or e-mailed to a list of interested parties for the project, and must be mailed to a statewide list of interested parties maintained by the impaired waters program coordinator.
     - Public meetings as part of the public notice phase will be determined based on the level of public participation and outreach during other phases of the project.

  3. Public comments: All written public comments must be provided to EPA with the submission of the TMDL. MPCA responses can either be summarized for all comments received or for each letter received. Copies of each comment letter must also be submitted.

4. Final approval process
    - Final TMDL is routed through project and basin staff, MPCA management, and then approved by the Commissioner
    - Commissioner decides whether TMDL study should be a MPCA Board information item.
    - In case of Contested Case Hearing request, decision is by the Commissioner, or by the MPCA Board if requested by petitioners.
    - Final Draft TMDL sent by Commissioner to EPA Region 5 for approval. A response is required from EPA within 30 days of EPA's receipt of the draft TMDL.
    - Final TMDL Study, Fact Sheet and EPA approval letter is posted on MPCA Internet Site.

**8. Project budget:**

*Note: a budget example and template is available on the Web site at http://www.pca.state.mn.us/water/tmdl/tmdl-publications.html. Project sponsors are encouraged to use this budget format for their work plan and for reporting purposes. Rows and columns may be added or deleted as necessary. Other budget templates are acceptable as well, as long as the beginning budget, cumulative expenditures and budget balance can be easily identified.*

- Total funding amount requested under this grant source.
- Funding from other sources if applicable including in-kind contributions.
- Breakdown of how the funds will be expended including the cost of each activity. For example, cost per parameter times # of samples, salary cost per hour times estimated # of hours, etc.
- Projects can request reimbursement for staff salaries and related expenses for the time they have spent working on the TMDL project. MPCA will pay the actual expenses for staff working on the project, including their actual salary and related expenses, and the appropriate indirect costs. We cannot pay for salary costs greater than those actually paid to the staff doing the work. Also, staff appropriate to the task should be doing the work, i.e. clerical staff doing clerical work, technical staff doing technical work, volunteers doing volunteer monitoring, etc.
- Amounts to be set aside for pre-approved contractors, lab costs, modeling, equipment, etc.

**9. Reporting: final report and semi-annual reports**

- Prepare two semi-annual reports each year due **February 1st and August 1st** that include an update on the tasks and activities identified in the work plan that have been completed, and an update on the budget for the work done.
- Prepare a draft TMDL for the final report or if a draft TMDL is not part of the work plan, prepare a final report that describes the work done under this contract, how it will contribute to future production of a TMDL(s) beyond the scope of this contract, and the budget for the work done under this contract. The draft TMDL or final report will be reviewed by MPCA staff and submitted to EPA for their review.
- A final progress report using the CWP/319/TMDL Final Report format that includes a final financial report, submitted electronically.

## *4.2 TMDL Final Report Outline*

1. **Executive Summary:**
   - Reach name(s), AUID(s) and pollutant(s)
   - Solved TMDL equation(s): TMDL = WLA(s) + LA(s) + MOS (plus any allocation for growth/reserve capacity)
   - Brief summary of project results

2. **Applicant Information:**
   - Name of Organization
   - Type of Organization
   - Project Manager
   - Address and phone numbers

3. **Project Information:**
   - Project Title
   - Listed Reach Name(s)
   - Assessment Unit ID(s) (AUIDs) or DNR Lake ID(s)
   - Impaired Use(s)
   - Listed Pollutant(s)
   - 303(d) List Scheduled Start//Completion Dates
   - Grant Amount
   - Project Dates
   - Project Summary

4. **Project Background Information:**
   - Description of the watershed - include a specific description of the project study area. Also, update the GIS data layer of the project study area in a shapefile format if needed.
   - Land uses in the watershed
   - Potential pollutant sources in the watershed

5. **Problem Statement:**
   - Use impairment(s) and pollutant
   - Water quality standard
   - Project summary

6. **Project Activities:**
   - Brief description of each task accomplished under the project
   - Description of product that resulted from each task
   - Description of activities not done and why

7. **Project Financial Report:**
   - Summary of funds spent on the project by activity and category
   - Breakdown of how the funds were expended including the cost of each activity; for example, cost per parameter times # of samples, salary cost per hour times # of hours, etc.
   - Funding from other sources, if applicable, including in-kind contributions.

**8. Project Results:**

- TMDL pollutant load allocation: TMDL = WLA(s) + LA(s) + MOS (plus any allocation for growth/reserve capacity)
- Monitoring and modeling results
- Point and nonpoint sources and pollutant loadings in the watershed
- Seasonal variation and a description of critical conditions for the impairment
- Reasonable assurances
- Public Outreach

**9. Implementation Strategies:**

- Broad description of the restoration activities, priority management areas, BMPs to be considered and a general timeframe for putting them in place. This element of the TMDL is particularly important to enhance reasonable assurance that pollutant reductions will be achieved and to guide development of the detailed implementation plan (see below).

**10. Implementation Plan (**provide if required in contract work plan – to be completed as separate document within one year after TMDL approval) **(***Refer to EPA guidance for additional requirements on the implementation elements listed below:* http://www.epa.gov/owow/nps/Section319/319guide03.html *-- See nine required elements (a-i) listed in section II of this document)*

- Allocation plan for pollutants - wasteload allocation, load allocation and margin of safety
- Priority management areas
- Implementation monitoring plan
- Outreach and education plan for the water of concern or watershed
- Proposed budget for implementation activities:
    - Total estimated funding amount needed
    - Breakdown of how the funds will be expended, including the cost of each activity
- Responsible parties:
  Identify staff and organizations that will be working on the implementation of the plan, and what each is responsible for doing. For example, monitoring, data analysis and modeling, public outreach and education, allocation and implementation plan.

**11. Attachments - optional**

- Other studies
- Maps – **a map or maps of the watershed identifying the impaired reach, the monitoring sites and the proposed implementation areas should be included with the final report.**
- Summary of existing data
- Land use inventories
- Detailed monitoring plan
- Matrix or spreadsheet models
- BASINS file

### *4.3 EPA's Review of Draft TMDLs*

Listed below are elements of a TMDL that EPA and MPCA will be looking for as part of their review process. **It is very important that you keep these in mind as you prepare your final report.** A description of each of these elements can be found at http://www.epa.gov/owow/tmdl/guidance/final52002.pdf or at the end of the EPA guidance documents: *Protocol for Developing Pathogen TMDLs, Protocol for Developing Nutrient TMDLs, and Protocol for Developing Sediment TMDLs* in a chapter titled, "Assembling the TMDL." Definitions of these terms can be found in the TMDL rules, or in the glossary on MPCA's Web site.

1. Description of waterbody, pollutant of concern, pollutant sources, and priority ranking
2. Description of the applicable water quality standards and numeric water quality target
3. Loading capacity – linking water quality and pollutant sources
4. Load allocations (LAs)
5. Wasteload Allocations (WLAs)
6. Margin of safety (MOS)
7. Seasonal variation and critical conditions for the impairment
8. Monitoring plan for TMDLs
9. Implementation strategies or plan
10. Reasonable assurances
11. Public Participation

## 5. Important References and Guidance Documents

This guidance document, and the work plan and final report outlines are available electronically from the MPCA's Web site located at: http://www.pca.state.mn.us/water/tmdl/index.html. EPA's Web site at: http://www.epa.gov/OWOW/tmdl also has guidance documents, EPA Review Elements for TMDLs, and other useful information about the TMDL process. Refer to *EPA Review Elements for TMDLs* at: http://www.epa.gov/owow/tmdl/guidance/final52002.pdf, which has a list and description of the elements EPA looks for in a written TMDL.

Also, refer to the EPA technical document *"Options for the Expression of Daily Loads in TMDLs" June 2007;* http://www.epa.gov/owow/tmdl/draft_daily_loads_tech.pdf for information about the "Daily means Daily" court decision and the effect on TMDL load allocations. This document was drafted to provide technically sound options for developing daily load expressions as a routine process in TMDLs calculated using allocation time frames greater than daily (e.g., annual, monthly, seasonal).

The *Guidance Manual for Assessing the Quality of Minnesota's Surface Waters* explains MPCA's process for assessing water body for the 305(b) report and the 303(d) list. Pages 50-53 in particular discuss the assessment process for fecal coliform. It can be found on our Web site: http://www.pca.state.mn.us/water/tmdl/tmdl-publications.html.

MPCA's Web site has information about the STORET water quality data program, and the process for submitting data to STORET including the necessary forms at: http://www.pca.state.mn.us/water/storet.html.

***TMDL Development Protocols:*** *Guidance for developing four types of TMDLs*
The MPCA has produced four TMDL development protocols for the impaired waters listing parameters of low dissolved oxygen, turbidity, bacteria, and excess nutrients. The purposes of these protocols are: to provide clarity for the process of developing TMDLs; to enable TMDLs to be developed in a technically rigorous way to ensure their quality and enhance their implementation; and to promote consistency in the development of TMDLs. The protocols were carefully developed by MPCA staff with these ends in mind. The protocols are not rules, but are guidance to help facilitate TMDL development. They reflect the current best knowledge about developing TMDLs. As more experience with TMDL development is gained, the protocols will be improved over time. These protocols can be found on the MPCA Impaired Waters and TMDLs Web site under *Publications and Guidance Documents* at:
http://www.pca.state.mn.us/water/tmdl/tmdl-publications.html.

***TMDL Training:*** Training modules have been developed for MPCA and local government staff who are involved in the development and implementation of Total Maximum Daily Load (TMDL) studies. Others who have a direct or indirect interest in the program may also benefit from reviewing these materials. The MPCA is currently developing numerous additional modules which will address the technical aspects of the TMDL program, as well as some policy issues. The training materials consist of PowerPoint presentations, accompanied by a training manual. They can be accessed from the MPCA Impaired Waters and TMDLs Web site at:
http://www.pca.state.mn.us/water/tmdl/tmdl-training.html.

***MPCA Impaired Waters and TMDLs Web site:*** Additional fact sheets, policies, guidance documents and other information about the Impaired Waters Program can be found on the Web site at: http://www.pca.state.mn.us/water/tmdl/index.html.

***EPA Guidance Documents:*** U. S. EPA also has TMDL guidance documents on their Web site with explanations of allocations, margin of safety, discussions of source assessments, information about what goes into the finished TMDL, as well as other steps in the TMDL process:

1. *Protocol for Developing Pathogen TMDLs*, http://www.epa.gov/owow/tmdl/pathogen_all.pdf
2. *Stressor Identification Guidance*, http://www.epa.gov/ost/biocriteria/stressors/stressorid.pdf
3. *Protocol for Developing Nutrient TMDLs*, http://www.epa.gov/owow/tmdl/nutrient/pdf/nutrient.pdf
4. *Protocol for Developing Sediment TMDLs*, http://www.epa.gov/owow/tmdl/sediment/pdf/sediment.pdf

***NEW in 2007***; TMDL guidance documents on EPA's website:
1. *An Approach for Using Load Duration Curves in the Development of TMDLs*, http://www.epa.gov/owow/tmdl/duration_curve_guide_aug2007.pdf.
2. *Draft - Options for the Expression of Daily Loads in TMDLs*, http://www.epa.gov/owow/tmdl/draft_daily_loads_tech.pdf.
3. *Total Maximum Daily Loads with Stormwater Sources: A Summary of 17 TMDLs*, http://www.epa.gov/owow/tmdl/17_TMDLs_Stormwater_Sources.pdf.

More information about preparing a final project report for a Section 319 grant can be found at http://www.epa.gov/owow/nps/sec-319.pdf. This notebook describes the purpose of Section 319 final reports, the information that should be included in the report, examples of especially effective elements from Section 319 reports, and ways to expand the final report to be used for outreach and education, building partnerships, and many other uses.