

INTRODUCTION

Malletts Creek is a Chapter 20 county drain and natural stream located in an area that has experienced substantial development over the past 40 years. Urbanization has caused the water quality of the creek to become degraded. Fast moving water destroys habitat, damages stream banks and causes erosion. Much of the floodplain is no longer available for capturing sediment, slowing flows and providing habitat. Many areas are bare of trees and other vegetation that are needed to provide food, moderate stream temperatures and stabilize the soil. In its current state, Malletts Creek carries a large amount of phosphorus to South Pond and the Huron River. Water quality sampling conducted by the Michigan Department of Environmental Quality (MDEQ) identified Malletts Creek watershed as among the most significant contributor of phosphorus to the Huron River System.

The success of the restoration of Malletts Creek depends on the ability to overcome two major challenges: 1) excessive flows and the resulting erosion and habitat degradation, and 2) pollutants associated with urbanization. A third issue that is also addressed is isolated areas of flooding. These challenges are a direct result of urbanization and the impact of increased impervious surfaces on the hydrology.

The first challenge is to slow the rate of flow during wet weather events. Increases in the amount of impervious area act to deliver runoff very rapidly to the nearest drainage course. There are some ways to decrease the rate and volume of these discharges on a site-by-site basis, but most often these considerations must be instituted at the time of development. This rapid rate of storm water discharge causes channel instability and habitat degradation in several reaches.

The second challenge is to reduce the amount of pollutants carried by the storm water into the river system. In Malletts Creek, the primary pollutant of concern is phosphorus. MDEQ has mandated a 50% phosphorus load reduction to protect the Huron River and downstream impoundments and has specified the need to improve the creek's habitat and fisheries as well. Urban storm water is the major source of phosphorus as well as a number of other pollutants. A secondary source of phosphorus is the streambank erosion resulting from the high discharge velocities. Because phosphorus leads to frequent algal blooms in the downstream Ford and Belleville Lakes, it is the target parameter on which all control programs were evaluated. It should be noted that many of the proposed control measures are based on the capture of suspended solids, therefore, these methods will also capture other pollutants (other nutrients and heavy metals) associated with the solids.

A third issue is to reduce the flooding potential of the Creek during extreme high flow events. This must be done in a way that does not shift the flooding problem further downstream. Some of the flooding problems are caused by the increased flow that resulted from the upstream urbanization. Others are the result of structures being improperly placed in the floodplain, or improperly designed and constructed. The study identifies areas of potential flooding and recommends a means to address the sites.

The control of flow, phosphorus and sediment are key to the success of the restoration effort.

Restoration Challenges

- *Decrease wet weather flow rates*
- *Reduce phosphorus contributions in storm water*
- *Reduce flooding potential*

These major concerns also lead to secondary concerns, such as diminishing groundwater reserves and increased water temperature, factors that also affect habitat and the potential for a healthy fishery.

In addition to the regulatory mandates, the public has demanded that the creek be restored and that the existing impairments be removed. The desire for a clean and healthy Malletts Creek is well documented in earlier studies completed by the Huron River Watershed Council (HRWC) ⁽¹⁾ and the Malletts Creek Association (MCA) ⁽²⁾.

What is the Malletts Creek Restoration Project?

The Washtenaw County Drain Commissioner (WCDC), the City of Ann Arbor and Pittsfield Township have chosen to work together to implement a pragmatic approach to address the many problems facing Malletts Creek. These agencies focused on the Malletts Creek watershed because the public is keenly interested in the resource and because the size of the watershed (11 square miles) allows detailed planning and implementation with a high likelihood of success. As a guide for the implementation process, the Malletts Creek Restoration Plan was commissioned to build upon the earlier work performed by these public agencies as well as the work performed by the HRWC and MCA. The resulting plan addresses water quality issues as well as flooding, habitat, drain maintenance and infrastructure needs. The plan provides the level of detail required for elected officials to evaluate the costs of implementation and the associated benefits and make informed decisions regarding implementation.

Significantly, the recommended actions presented in this plan will fulfill the requirements of the MDEQ and provide the results desired by the general public as verified through a series of public meetings and focus groups.

Potential Funding Opportunities and the Clean Michigan Initiative

The cost of implementation will be borne by a number of public agencies as well as private landowners, developers and businesses. Fortunately, there are sources of grant funding that can ease the financial burden on the community. A summary of the applicable grant or loan programs is provided in Appendix A. The summary for each funding source includes the due date, match requirement, maximum grant amount, duration, type of project, as well as identifying who can apply and appropriate contact information. Many of the most applicable grant programs are administered through the MDEQ Surface Water Quality Division, Nonpoint Source Program. Some of these programs require a "State-approved Watershed Plan." The WCDC and the HRWC have developed a comprehensive management plan for the Middle Huron River Watershed. ⁽³⁾ The Malletts Creek Restoration Plan is an extension of this earlier work.

The authorization of the Clean Michigan Initiative (CMI) provides substantial funding for the implementation of the recommended restoration activities. One of the objectives to be met in completing this report is to assist the communities in obtaining CMI funding. Following the guidance presented in "Developing a Watershed Management Plan for Water Quality, an Introductory Guide."⁽⁴⁾ Table 1 lists the CMI requirements with the corresponding page numbers of the required information in this report.

Clean Michigan Initiative (CMI)

- \$50 Million for nonpoint source pollution control
- \$90 Million for water quality improvement
- \$50 Million for local parks and recreation

Table 1
Requirements for a State-approved Watershed Plan

CMI Requirements	Page Reference
Define the process including watershed steering committee, lead organization and technical committee	4
Define the geographic scope of the watershed including: a map showing the watershed boundaries, location of surface waters, and a description of the watershed	6, figure 2
List the designated uses that are not being met, designated uses that are threatened and a list of desired uses for the watershed	9
List the known and suspected pollutants for the watershed	14
Identify the causes for each known and suspected source of pollution	14
List the water quality improvements or protection goals for the watershed based on designated uses	10
Define a critical area that geographically narrows the scope of your project by focusing attention on the parts of the watershed that contribute the greatest pollution to the water body	6
Summarize the methods used to conduct the inventory	12
Prioritize the designated uses, pollutants, sources and causes for the watershed and describe the method used to prioritize them	23, Appendix N
Provide a table showing objectives for each of your watershed goals	39
Provide a table showing the system of BMPs needed for each source or cause of pollution and estimated cost	Appendix N
List the tasks needed to implement the system of BMPs for each source in your watershed and their estimated costs	42, Appendix O
Summarize the local projects, programs and ordinances within the watershed and have tasks, responsible parties, milestones and a timeline for improving or adding to those projects, programs and ordinances	42
Provide an implementation/education strategy and a summary of the public participation process that was used, showing the opportunity for public comment and partners involved in developing the plan	Appendix C
Provide an evaluation process that will be used to evaluate the effectiveness of implementing the plan and achieving its goals	44
Identify tasks needed to institutionalize watershed protection	45

Goals of the Restoration Project

The charge to the team was to analyze the creek and its watershed and to develop plans and implementation activities to achieve the following goals:

- Reduce stream flows and velocities.
- Reduce the phosphorus load from Malletts Creek to the Middle Huron River and improve water quality in the creek to an acceptable level.
- Improve habitat for fish and wildlife.
- Identify needed structural improvements along the creek to limit flooding and reduce phosphorus loads as well as improve the aesthetics of, and habitat in, the creek.
- Establish and educate an involved public.
- Ensure the sustainability of the restoration effort by making any long-term commitments (e.g., maintenance) reasonable and workable; and
- Ensure that the restoration project is affordable for the communities.

In 1996 the HRWC, in partnership with 21 communities in the middle Huron River watershed and the MDEQ, completed the first community-driven total maximum daily load (TMDL) calculation for the middle Huron River in Washtenaw and Wayne counties.⁽⁵⁾ This effort identified the Malletts Creek watershed as a significant source of phosphorus contributing to the degradation of Ford and Belleville Lakes. The project identified a “5-year phased strategy to meet the TMDL targets for the Huron River” with the objective of reducing the current phosphorus loadings by 50% over the next five years. These reductions could come from either point sources or nonpoint sources. Because the cost of further reducing the phosphorus load from point sources alone was extremely high and unlikely to achieve the required loading levels, the WCDC, the City of Ann Arbor and Pittsfield Township chose to initially target the control of nonpoint sources of phosphorus in Malletts Creek.

In addition to excess phosphorus loadings, the habitat of Malletts Creek is substantially degraded as a result of high velocities, excess sediment loadings and streambank erosion. While a TMDL for the habitat concerns has not been completed for Malletts Creek, the creek is currently a listed non-attainment area and was submitted by MDEQ to the USEPA on the 303d list. Submission on this list will require the completion of a TMDL calculation in the future; TMDL development for Malletts was scheduled to begin in 1999.

Besides these environmental concerns, the project team was charged with prioritizing flooding concerns and infrastructure needs.

Decision Making Process

A Technical Advisory Committee (TAC) was formed that included decision-makers who can bring about change in the watershed. The Malletts Creek TAC included the WCDC, City of Ann Arbor personnel from Engineering, Planning, Parks, Building Inspection and Water Utilities, Pittsfield Township representatives, the HRWC and the MCA. The City of Ann Arbor accepted this restoration plan and the management plan submitted by MCA as the basic planning documents for the restoration of Malletts Creek. The Ann Arbor City Council approved resolution R-105-3-00 on March 6, 2000 (found in Appendix B) that requires an action plan for the City and the formation of a watershed

coordination committee. The purpose of this committee will be to assure that implementation efforts are coordinated and provide assessments of on-going data about conditions in the watershed.

Public Involvement

The Malletts Creek watershed has a highly educated and committed group of citizens. Their involvement in watershed planning preceded the restoration project and is expected to continue through the implementation process. The restoration project team augmented the list of stakeholders for the watershed to include the diverse groups required for successful implementation including:

- elected and appointed officials;
- environmental groups;
- public and private schools;
- business associations;
- homeowners associations, and
- lawn care companies.

The team then identified several mechanisms that would be used to involve and reach out to these stakeholders. These mechanisms included:

- an informative web page;
- four community-wide meetings;
- collaboration with the MCA, and
- focus groups with lawn care companies, homeowners, other large land owners and the science curriculum directors of Ann Arbor Public Schools.

In order to gain the understanding and support of some of the larger commercial landowners and real estate management companies, several telephone interviews were also conducted as part of the public involvement process. Summaries of these meetings are provided in Appendix C.