

**MUSKEGON COUNTY ROAD COMMISSION
STORM WATER POLLUTION
PREVENTION INITIATIVE**

**PREPARED FOR:
MUSKEGON COUNTY ROAD COMMISSION
MUSKEGON, MICHIGAN**

**MAY 2006
PROJECT NO. G01513I**

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MUSKEGON LAKE AND MONA LAKE WATERSHEDS STORM WATER POLLUTION PREVENTION INITIATIVE

MUSKEGON COUNTY ROAD COMMISSION

This Storm Water Pollution Prevention Initiative (SWPPI) was developed pursuant to the Michigan Department of Environmental Quality (MDEQ) Wastewater Discharge General Permit (MIG619000) for storm water discharges from Municipal Separate Storm Sewer Systems subject to watershed plan requirements. The Muskegon Lake and the Mona Lake WMPs were developed as part of the National Pollutant Discharge Elimination System Phase II Storm Water Program by the Muskegon Area Storm Water Committee (MASWC). These documents provide a description of watershed characteristics, identify watershed pollutants, and make recommendations for the treatment, prevention, and reduction of pollution in the Muskegon Lake and Mona Lake Watersheds. The program will reduce the discharge of pollutants from the drainage system to the maximum extent practicable. It is consistent with the Muskegon Lake Watershed Management Plan (WMP) and Mona Lake WMP developed and submitted to MDEQ pursuant to Part I.B.1. of the permit. This SWPPI includes commitments for those actions expected to be implemented over the term of the permit and identifies methods for determining the effectiveness of the actions to be implemented. Implementation of the actions will commence upon approval of this document by the MDEQ.

This SWPPI includes actions required in the WMPs with dates specified. It includes evaluation and implementation of appropriate pollution prevention and good housekeeping activities and the associated training and inspection programs for staff and contractors employed by this jurisdiction. It is a commitment to develop, implement, and enforce a comprehensive storm water management program for post-construction controls for areas of new development and significant redevelopment. For each of the actions or best management practices (BMPs), there is an associated method for assessing progress in storm water pollution prevention.

This submittal is due on May 1, 2006, in accordance with the certificate of coverage issued by the MDEQ.

THE MUSKEGON LAKE AND MONA LAKE WATERSHED MANAGEMENT PLANS SUMMARY

Muskegon Lake is less degraded than nearby Mona Lake or White Lake, most likely due to its large size, large inputs of high-quality water from the Muskegon River, short hydraulic retention time, and rare periods of anoxia (total lack of dissolved oxygen). Water quality of Muskegon Lake markedly improved between 1954 and 1972, although localized areas were degraded due to storm water and urban runoff discharges. Further improvement occurred in 1975 when a substantial amount of wastewater was diverted to the Muskegon County Wastewater Treatment Facility.

Mona Lake's water quality also improved between 1972 and 1975, following wastewater diversion from the Muskegon County Wastewater Treatment Facility. Between 1972 and 1980, marked reductions in surficial sediment contaminants occurred, although concentrations of heavy metals in sediments near the mouth of Little Black Creek remained high.

WMP GOALS AND OBJECTIVES

The overall goal established for the Muskegon Lake and Mona Lake Watersheds is to restore and improve impaired and threatened designated uses. Six long-term goals were established for Muskegon Lake Watershed to achieve this overall goal:

1. Prevent soil erosion and reduce sedimentation in Muskegon Lake and its tributaries.
2. Reduce concentrations of heavy metals, toxic substances, and hydrocarbons in the Muskegon Lake Watershed, focusing initial efforts on Ryerson Creek, Ruddiman Creek, and the Division Street outfall area.
3. Reduce nutrient loading of Muskegon Lake and its tributaries, giving particular attention to sources of phosphorus.
4. Prevent pathogens from entering surface waters of the Muskegon Lake Watershed and strive to meet applicable water quality standards in Ruddiman Creek.
5. Reduce sources of thermal pollution impacting Muskegon River, Bear Creek, and Little Bear Creek.
6. Stabilize stream flows to moderate hydrology and increase base flow; this is especially important in the urban wetland areas of Ruddiman Creek, Ryerson Creek, and Four Mile Creek, which are impacted by unstable hydrology from storm water flows.

Similarly, six long-term goals were established for Mona Lake Watershed to achieve this overall goal:

1. Prevent soil erosion and reduce sedimentation in Mona Lake and its tributaries.
2. Reduce concentrations of heavy metals, toxic substances, and hydrocarbons.
3. Reduce nutrient loading of Mona Lake and its tributaries, giving particular attention to sources of phosphorus.
4. Prevent pathogens from entering surface waters flowing to Mona Lake.
5. Reduce sources of thermal pollution to Little Black Creek.
6. Stabilize stream flows to moderate hydrology and increase base flow.

Short-term objectives were also created by examining the long-term goals and determining how they would be best met. All goals and objectives are intended to address the current watershed conditions and improve water quality over time.

WMP RECOMMENDATIONS

The MASWC discussed, reviewed, and recommended potential BMPs for the Muskegon Lake and Mona Lake Watersheds. BMPs were chosen after considering sources and causes of Muskegon Lake and Mona Lake Watersheds pollution and their impacts on designated uses. BMPs include structural, vegetative, and managerial practices. Information and education activities were also recommended to inform the public regarding Muskegon Lake and Mona Lake Watersheds concerns and motivate people to action. Implementation of these practices will make progress toward meeting long-term goals and short-term objectives.

ACTIONS REQUIRED TO IMPLEMENT THE WMPs GOALS AND OBJECTIVES

One purpose of the SWPPI is to detail the specific actions or BMPs Muskegon County Road Commission (MCRC) has determined will be implemented to meet the goals and objectives of the WMPs. The goals and objectives of the WMPs are listed in Table I and are taken directly from Table 13 (Muskegon Lake) and Table 11 (Mona Lake) of the WMPs. The left column identifies the long-term goals, and the next column lists the pollutants of concern. The next column has the sources and causes, and the fourth column lists the short-term objectives. The fifth column has the involved parties. The right column contains abbreviations for the specific BMPs that work toward the objectives that MCRC commits to implementing. These BMPs or SWPPI commitments are described in Table IV, along with a timeline and evaluation method.

The actions identified in the WMPs do not have precise timelines and specific detail. However, this information needs to be included in the SWPPI. According to the MDEQ guidance,

If a commitment to an action was made by the permittee in the WMPs, but not included in the SWPPI, an explanation of why the action was not included, along with an alternative action (if appropriate), should be in the SWPPI. Similarly, if the permittee determines that objectives in the WMP are not applicable in their jurisdiction, an explanation should be provided in the SWPPI if not previously provided in the WMP.

Therefore, all the WMP's objectives are listed with a specific commitment to implement one or more BMPs to help accomplish that objective. Alternatively, if the objective does not apply to the storm water program or to MCRC, an explanation is provided.

ACTIONS REQUIRED FOR POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Another purpose of the SWPPI is to detail the specific actions the community has determined will be implemented to prevent pollution through good housekeeping for municipal operations. Municipalities commonly have properties and infrastructure that can contribute pollutants to storm water during routine operation and maintenance. The MDEQ guidance asserts "Training and inspection procedures for staff and contractors employed by the permittee are required." Five specific areas are identified as needing to be addressed by the SWPPI:

- A. Maintenance activities (both preventative and corrective), maintenance schedules, and inspection procedures for storm water structural controls (owned by the permittee).
- B. Controls used for reducing or eliminating the discharges of water and pollutants from: streets, roads, and highways; parking lots; maintenance garages; and storage yards.
- C. Procedures for the disposal of operation and maintenance waste from the separate storm water drainage system.
- D. Procedures to ensure flood management control projects assess impacts on water quality of the receiving waters.
- E. Implement controls to reduce discharge of pesticides, herbicides, and fertilizers (on permittee-owned property).

Each of these activities must be included in the SWPPI or a statement needs to be provided to explain why they do not apply. These activities or objectives are listed in the left column of Table II. Abbreviations for the BMPs to work toward meeting these objectives are listed in the right column. These BMPs or SWPPI commitments are described in Table IV, along with a timeline and evaluation method.

ACTIONS REQUIRED TO DEVELOP, IMPLEMENT, AND ENFORCE A COMPREHENSIVE STORM WATER MANAGEMENT PROGRAM FOR POST-CONSTRUCTION CONTROLS FOR AREAS OF NEW DEVELOPMENT AND SIGNIFICANT REDEVELOPMENT

A third purpose of the SWPPI is to detail the development, implementation, and enforcement of a comprehensive storm water management program for post-construction controls for areas of new development and significant redevelopment. The goal of the storm water management program is to protect the designated uses in the receiving water from common impacts of urbanization. These impacts include:

- Flashiness associated with higher peak stream flows from wet weather events and reduced base flows during droughts.
- Reduced streambank vegetation.
- Falling trees.
- Increased streambank erosion and slumping.
- Degraded aquatic habitats and fish communities.
- Loss of pools and riffles due to sedimentation.
- Channel down-cutting and widening.
- Increased pollutant loads, stream temperatures, and nutrients.

Three requirements or objectives must be included in a storm water management program, as follows:

- A. Evaluation and implementation of site-appropriate, cost-effective structural and nonstructural BMPs.
- B. BMPs sufficient to effectively prevent or minimize post-construction impacts on water quality.
- C. Requirements for long-term operation and maintenance of the post-construction controls.

Each of these activities must be included in the SWPPI. These activities or objectives are listed in the left column of Table III. Abbreviations for the BMPs to work toward meeting these objectives are listed in the right column. These BMPs or SWPPI commitments are described in Table IV, along with a timeline and evaluation method. This SWPPI and the commitments listed in Table IV constitute the storm water management program.

METHODS OF ASSESSING PROGRESS IN STORM WATER POLLUTION PREVENTION

The BMP abbreviations from Tables I, II, and III are detailed in Table IV, along with associated timelines and short-term evaluation methods. These methods are intended to indicate whether the commitments were kept. Many of the evaluation methods are narrative statements to describe the actions actually taken during the period between annual reports. The effect these actions have on protecting the environment from storm water pollution is much more difficult to measure or describe. Any one jurisdiction within the Muskegon Lake and Mona Lake Watersheds is not well suited to engage in environmental monitoring sufficient to determine the success of the overall storm water program. Only by working together as a watershed unit can environmental measures be used to gauge success of the program. Even then, many nonstorm water influences can skew environmental measures.

LIST OF LONG-TERM EVALUATION METHODS

Communities in the Muskegon Lake and Mona Lake Watersheds have agreed to investigate opportunities to address long-term environmental measures in a single, integrated environmental monitoring program. This program will involve a number of different types of monitoring that are geographically distributed

around the watershed. Implementation of the program will be a combination of professional services, MDEQ monitoring, volunteer monitoring, and municipal monitoring. The details of the program will be developed over the next six to nine months through an open process of engagement between the jurisdictions, nonprofit organizations, Muskegon Area Storm Water Committee, interested citizens, school districts, and MDEQ. Recognizing that most governmental budgets are very tight due to the loss of revenue sharing and other issues, it is necessary that the resulting monitoring program provide the most meaningful information at the least possible cost. Active participation by the MDEQ in this process is necessary to accomplish this goal.

PEP AND IDEP IMPLEMENTATION

The approved Illicit Discharge Elimination Plan (IDEP) and Public Education Plan (PEP) are utilized in this SWPPI as BMPs. No changes to either document are proposed at this time. Implementation of the IDEP and PEP are supportive of the WMPs goals and objectives, as well as pollution prevention. The significant efforts involved in implementation of the IDEP and PEP should be considered when evaluating the federal mandate to reduce the discharge of pollutants to the maximum extent practicable.

OPPORTUNITIES FOR WATERSHED-WIDE (REGIONAL) COOPERATION

In addition to the long-term evaluation methods, there are many additional opportunities for watershed-wide or regional cooperation. While every community in the watershed area is committed to controlling storm water pollution to the maximum extent practicable, fiscal restraints reduce the capacity by which individual communities can independently accomplish this reduction. Some of the commitments of this SWPPI involve participation in activities if conducted on a watershed basis. This is necessary for financial reasons but is also advantageous because often more can be accomplished through cooperation than by any one jurisdiction alone.

The MASWC will be requested to undertake studies or assemble recommendations for various SWPPI commitments. Jurisdictional and MDEQ participation in these efforts is essential.

TABLE I - WMP GOALS and OBJECTIVES AND SWPPI COMMITMENTS

Long-Term Goals, Pollutants of Concern, Sources and Causes, Short-Term Objectives from Table 13 (Muskegon Lake) and Table 11 (Mona Lake) WMPs

Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
A. Prevent soil erosion and reduce sedimentation in Muskegon Lake, Mona Lake and tributaries	Sediment	Agricultural and urban runoff Construction sites Lack of agricultural BMPs Road/stream crossings Storm sewer discharges Stream banks Unstable hydrology Unrestricted livestock access (Muskegon Lake Only)	A1. Offer training to planning departments, road commissions, building/permitting officials, and contractors so that soil erosion control BMPs are considered an integrated part of the site planning and design process	SESC enforcement agencies MS4 communities Road commission DPWs	SESC WKSP SESC TRNG
			A2. Develop and implement residential/commercial storm water education programs in urban areas to reduce volume and velocity of runoff	MS4 communities Health department Road commission DPWs	PEP SHORT PEP LONG REDUCE HYDRO
			A3. Implement shoreline protection and restoration practices in riparian areas	MS4 communities Conservation district Land conservancy Nature conservancy NRCS Drain commissioner Nurseries Garden centers Watershed organizations	Not a Road Commission responsibility
			A4. Increase knowledge and use of soil erosion reduction and runoff control techniques on agricultural and urban land	NRCS Road commission Conservation districts MSUE County farm bureau Cities, townships, and villages	SESC WKSP PEP SHORT PEP LONG SESC TRNG

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			A5. Survey road-stream crossings and prioritize sites for future improvement	Road commissions DPWs MDEQ Watershed organizations Drain commissioners MS4 communities	R/S CROSSING
			A6. Reduce the volume and velocity of storm water runoff entering surface waters in urban and developing areas	MS4 communities Developers Drain commissioners Land conservancy	PEP SHORT PEP LONG MODEL SW ORD SW POLICY REDUCE HYDRO
			A7. Additional state and local funding for enforcement of SESC	CEAs MEAs APA MDEQ (technical assistance)	SESC TRNG Road commission is APA
B. Reduce concentrations of heavy metals, toxic substances, and hydrocarbons	Heavy metals, toxic substances, and hydrocarbons	Industrial emissions Past industrial waste dumping Improper pesticide/herbicide management Road salt runoff Illicit dumping into storm drains Leaking underground storage tanks Urban runoff	B1. Develop and implement residential/commercial storm water education programs in urban areas to reduce volume and velocity of runoff and discourage dumping into storm drains	MS4 communities	PEP SHORT PEP LONG REDUCE HYDRO PROMOTE HHW IDEP HOT LINE

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			B2. Increase knowledge about benefits of integrated pest management and the safe use of pesticides/herbicides among property owners	NRCS Conservation districts MSUE MS4 communities	OTHER FERT MGMT CO FERT ORD PESTICIDE USE
			B3. Increase the number of small and medium size producers who complete chemical storage and handling assessments, particularly in areas with high water tables, porous soils, and those near surface or sensitive water resources	MSUE groundwater technicians NRCS Conservation districts	Not an urban storm water issue
			B4. Promote hazardous waste collection programs	MS4 communities County DPW	PROMOTE HHW
			B5. Minimize effects of DPW and road commission waste, chemical, and salt storage areas and control road salt runoff	Road commission DPW MS4 communities	STREET SWEEP HOT LINE SW MAINT ROAD TRNG VEHICLE WASH MATERIAL STOR COUNTY DUMPSTERS SNOW PROC CB DISPOSAL SWEEP DISPOSAL PESTICIDE USE

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			B6. Eliminate illicit discharges	MS4 communities	IDEP HOT LINE MATERIAL STOR COUNTY DUMPSTERS
			B7. Work with the MDEQ to address leaking underground storage tanks and impacts from past industrial discharges	MDEQ EPA MS4 Communities	LUST
C. Reduce nutrient loading of Muskegon Lake, Mona Lake and tributaries with particular attention to sources of phosphorus	Nutrients	Agricultural and urban runoff Animal waste Failing septic systems Fertilizer runoff Lack of agricultural BMPs Yard waste dumping	C1. Increase property owner awareness about the value of properly designed, installed, and maintained septic systems, particularly in areas with high water tables, porous soils, and those near surface water and storm sewers.	Association of Realtors Health Department MS4 communities	IDEP HOT LINE
			C2. Develop and implement residential/commercial storm water education programs in urban areas to reduce volume and velocity of runoff	MS4 communities	PEP SHORT PEP LONG REDUCE HYDRO
			C3. Increase the number of small and medium size producers that have certified nutrient management plans	NRCS Conservation districts MSUE MDA	Not an urban storm water issue

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			C4. Reduce the volume and velocity of storm water runoff entering surface waters in urban and developing areas by encouraging storm water infiltration	MS4 communities Developers Drain commissioners Land conservancy	PEP SHORT PEP LONG
			C5. Increase knowledge and use of soil erosion reduction and runoff control techniques on agricultural and urban land	NRCS Conservation districts MSUE County farm bureau Cities, townships, and villages Road commission	SESC WKSP PEP SHORT PEP LONG SESC TRNG
			C6. Work with golf courses and parks departments to encourage proper fertilizer management and yard waste disposal	MS4 communities	REV O&M CRC FERT MGMT OTHER FERT MGMT CO FERT ORD
			C7 Promote residential soil testing, education about fertilizer use, and encourage proper yard waste disposal	MS4 communities MSUE	PEP SHORT PEP LONG REV O&M CRC FERT MGMT OTHER FERT MGMT CO FERT ORD

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			C8. Revise local weed and phosphorus limiting ordinances in urban areas to encourage the reduction of lawn areas and the use of natural landscaping and native plants	MS4 communities	Not a Road Commission responsibility
			C9. Upgrade or replace failing or faulty onsite sewage disposal systems	MS4 communities Health Department MDEQ	HOT LINE
D. Prevent pathogens from entering surface waters flowing to Mona Lake and Muskegon Lake and strive to meet applicable water quality standards in Ruddiman Creek	Pathogens	Animal Waste Failing Septic Systems Lack of agricultural BMPs Failing sewage lift stations- (Mona Lake only)	D1. Increase property owner awareness about the value of properly designed, installed, and maintained septic systems, particularly in areas with high water tables, porous soils, and those near surface water and storm sewers	Association of Realtors Health Department MS4 communities	IDEP HOT LINE
			D2. Find illicit connections in urban areas, such as illegal storm sewer hookups, and prevent illicit discharges from entering surface waters	MS4 communities Health Department	IDEP HOT LINE
			D3. Develop and implement residential/commercial storm water education programs in urban areas	MS4 communities	PEP SHORT PEP LONG PROMOTE HHW OTHER FERT MGMT HOT LINE SESC WKSP

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			D4. Increase the development of certified manure management plans	NRCS Conservation Districts MSUE MDA	Not an urban storm water issue
			D5. Reduce the amount of pet waste entering surface waters	MS4 communities Health Department	Not a Road Commission responsibility
			D6. Reduce the volume and velocity of storm water runoff entering surface waters in urban and developing areas by encouraging storm water infiltration	MS4 communities Developers Drain commissioners Land conservancy	PEP SHORT PEP LONG
			D7. Upgrade or replace failing or faulty onsite sewage disposal systems	MS4 communities Health Department MDEQ	HOT LINE
			D8. Eliminate illicit discharges	MS4 communities	IDEP HOT LINE MATERIAL STOR COUNTY DUMPSTERS
			D9. Find sources from agricultural areas and implement BMPs to prevent contamination of surface waters and increase the knowledge and use of runoff control techniques on agricultural land	NRCS Conservation districts MSUE County farm bureau	Not an urban storm water issue

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			D10. (Mona) Upgrade failing county sewage lift station pump systems	Muskegon County Wastewater Treatment Facility	Not a Road Commission responsibility
			D11. (Muskegon) Encourage proper disposal of waste from recreational vessels	Marinas MDNR Health Department	Not a Road Commission responsibility
E. Reduce sources of thermal pollution (Muskegon Lake only) Muskegon River, Bear Creek, and Little Bear Creek (Mona Lake only) Little Black Creek	Thermal Pollution	Impervious surfaces Removal of bank vegetation Sedimentation	E1. Implement shoreline protection and restoration practices in riparian areas	MS4 communities Conservation district Land conservancy Nature conservancy NRCS Drain commissioners Nurseries Garden centers Watershed organizations	Not a Road Commission responsibility
			E2. Reduce the volume and velocity of storm water runoff entering surface waters in urban and developing areas by encouraging storm water infiltration	MS4 communities Developers Drain commissioners Land conservancy	

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
<p>F Stabilize stream flows to moderate hydrology and increase base flow (Muskegon Lake Only) this is especially important in the urban wetland areas of Ruddiman Creek, Ryerson Creek, and Four Mile Creek, which are impacted by unstable hydrology from storm water flows</p>	<p>Unstable Hydrology</p>	<p>Channelization Floodplain development and destruction Impervious surfaces Storm sewer discharge quantity and velocity Wetland destruction</p>	<p>F1. Follow recommendations from hydrologic models</p>	<p>Consultants Drain commissioners MDEQ MS4 communities</p>	<p>REDUCE HYDRO</p>
			<p>F2. Discourage irrigation in certain areas where base flow must be maintained</p>	<p>NRCS Conservation District MDA MDEQ</p>	<p>Not an urban storm water issue</p>
			<p>F3. Protect floodplains and mitigate impacts</p>	<p>FEMA Cities, townships, and villages County planning departments</p>	<p>Not a Road Commission responsibility</p>
			<p>F4. Establish storm water management criteria for new developments</p>	<p>MS4 communities Drain commissioner County planning department</p>	<p>MODEL SW ORD SW POLICY</p>
			<p>F5. Encourage LID practices</p>	<p>MS4 communities Developers Drain commissioners Land conservancy</p>	<p>MODEL SW ORD SW POLICY PEP SHORT PEP LONG</p>

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Long-Term Goals	Pollutants of Concern	Sources and Causes	Short-Term Objectives	Involved Parties	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
			F6. Reduce the volume and velocity of storm water runoff entering surface waters in urban and developing areas by encouraging storm water infiltration	MS4 communities Developers Drain commissioners Land conservancy	PEP SHORT PEP LONG
			F7. Develop and implement residential/commercial storm water education programs in urban areas to reduce volume and velocity of runoff	MS4 communities	PEP SHORT PEP LONG REDUCE HYDRO

TABLE II - OBJECTIVES FOR POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS AND SWPPI COMMITMENTS

Objectives taken from “MDEQ Guidance for Storm Water Pollution Prevention Initiatives”
 (II. Pollution prevention and good housekeeping activities)

Objectives	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
Maintenance activities (both preventative and corrective), maintenance schedules, and inspection procedures for storm water structural controls (owned by the permittee).	REDUCE HYDRO STM SEWER MAINT
Controls used for reducing or eliminating the discharges of water and pollutants from: streets, roads, and highways; parking lots; maintenance garages; and storage yards.	STREET SWEEP R/S CROSSING REV O&M MATERIALS USE & DISP ROAD TRNG VEHICLE WASH MATERIAL STOR GRAVEL DESIGN COUNTY DUMPSTERS SNOW PROC
Procedures for the disposal of operation and maintenance waste from the separate storm water drainage system.	REV O&M CB DISPOSAL SWEEP DISPOSAL
Procedures to ensure that flood management control projects assess impacts on water quality of the receiving waters.	MODEL SW ORD SW POLICY
Implement controls to reduce discharge of pesticides, herbicides, and fertilizers (on permittee-owned property).	PESTICIDE USE CRC FERT MGMT CO FERT ORD MATERIAL STOR

TABLE III - OBJECTIVES FOR POST-CONSTRUCTION CONTROLS FOR AREAS OF NEW DEVELOPMENT AND SIGNIFICANT REDEVELOPMENT AND SWPPI COMMITMENTS

Objectives taken from “MDEQ Guidance for Storm Water Pollution Prevention Initiatives”
 (III. Post-construction controls for areas of new development and significant redevelopment)

Objectives	BMPs to Work Toward Meeting Objectives: SWPPI Commitments
Evaluation and implementation of site-appropriate, cost-effective structural and nonstructural BMPs	MODEL SW ORD SW POLICY
BMPs sufficient to effectively prevent or minimize post-construction impacts on water quality.	MODEL SW ORD SW POLICY
Requirements for long-term operation and maintenance of the post-construction controls.	MODEL SW ORD SW POLICY

TABLE IV - SWPPI COMMITMENTS, TIMELINES, AND EVALUATION METHODS FOR ASSESSING PROGRESS IN STORM WATER POLLUTION PREVENTION

SWPPI Commitment or BMP		Timeline	Evaluation Method
1.	Participate with the Watershed Group to form a committee and hire a consultant to develop presentation materials and hold workshops to promote soil erosion BMPs as an integrated part of the site planning and design process (SESC WKSP)	Form Committee by July 31, 2006 Hold workshop by May 31, 2007	Narrative statement regarding the status of committee activity, status of workshop planning, and people attending the workshop
2.	Implement PEP activities slated for 2005 to 2008 (PEP SHORT)	Ongoing	Narrative statement regarding the status of the PEP implementation - Also rely on Muskegon Conservation District for report on watershed-wide public education activities
3.	Implement PEP activities slated for 2008 to 2013 (PEP LONG)	Ongoing	Narrative statement regarding the status of the PEP implementation - Also rely on Muskegon Conservation District for report on watershed-wide public education activities
4.	Continue regular street sweeping (STREET SWEEP)	Ongoing	Report on curb-miles swept and tons of solids removed from streets
5.	Improve road-stream crossings to reduce sediment load to lakes. <ol style="list-style-type: none"> 1. Train staff to assess road-stream crossings, 2. Identify all crossings, 3. Assess integrity of crossings per schedule, 4. Complete assessments, 5. Prioritize crossings, and 6. implement improvements to high priority crossings as funding allows (R/S CROSSING)	<ol style="list-style-type: none"> 1. Done 2. Done 3. Repeat every 5 yrs 4. First round by December 31, 2006 5. December 31, 2007 6. As funding allows 	Report on the status of assessments and prioritization including a projection on improvement projects
6.	Participate with the watershed group to develop model storm water ordinance (MODEL SW ORD)	Work with the watershed group to accomplish by 2007	Narrative on the status of model ordinance development by the watershed group
7.	Continue to implement current storm water policy to encourage infiltration of storm water (SW POLICY)	Ongoing	Narrative describing the road commission's policy and its perceived effectiveness in preventing surface water impairments as a result of urbanization

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SWPPI Commitment or BMP		Timeline	Evaluation Method
8.	Reduce unstable hydrology by specifying roadside restoration utilizing salt tolerant and deep rooted grass species (REDUCE HYDRO)	Ongoing	Narrative statement regarding effectiveness of current practices
9.	Provide Road Commission employees with SESC training and encourage them to report SESC problems to the CEA for attention (SESC TRNG)	Ongoing	Narrative statement regarding status of SESC Training and number of referrals to the CEA
10.	Distribute brochures to promote the county DPW's household hazardous waste collection program (PROMOTE HHW)	Ongoing	Narrative on promotional activities
11.	Continue current procedures for materials storage, use, and disposal to prevent storm water pollution (MATERIALS USE & DISP)	Ongoing	Report on the current procedures and perceived success at preventing storm water pollution
12.	Review DPW procedures for O&M waste disposal looking for opportunities to reduce the potential for storm water pollution (REV O&M)	December 31, 2006	Report on the review of procedures and recommendations for improvement
13.	Cooperate with municipal governments in their implementation of their IDEP Program (IDEP)	Ongoing	Report on the status of program implementation and illicit discharges identified
14.	Work with the MDEQ to address leaking underground storage tanks and impacts from past industrial discharges (LUST)	Ongoing	Most sites have been remediated, but the status of those remaining will be reported
15.	Review current specifications for surface restoration with respect to minimal use of nutrients and revise as appropriate (CRC FERT MGMT)	December 31, 2007	Narrative statement regarding the status of specification review and revision
16.	Offer fertilizer management and yard waste disposal information to golf courses and other appropriate parties (e.g., MSUE's soil testing program) through Muskegon Conservation District (OTHER FERT MGMT)	Ongoing	Report included as part of PEP

TABLE IV - SWPPI COMMITMENTS, TIMELINES, AND EVALUATION METHODS FOR ASSESSING PROGRESS IN STORM WATER POLLUTION PREVENTION

SWPPI Commitment or BMP		Timeline	Evaluation Method
17.	Investigate county-wide ordinance requiring the use of low phosphorous fertilizers in conjunction with watershed councils and local governments (CO FERT ORD)	Ongoing	Report on the status of efforts to limit Phosphorus in fertilizers at the county level
18.	Continue the telephone reporting system for residents to report illicit discharges and connections to the storm sewer through the MCD (231)767-1207 (HOT LINE)	Ongoing	Rely on MCD report on calls received/resolved
19.	Maintain storm water structural controls in accordance with procedures developed to minimize storm water pollution (SW MAINT)	Ongoing	Report on the steps taken to minimize storm water pollution from the Road Commission's drainage system
20.	Perform routine storm sewer maintenance activities, such as catch basin cleaning (STM SEWER MAINT)	Ongoing	Report on number of catch basins cleaned and amount of material removed
21.	Develop and implement training program for employees and contractors on reducing the potential for storm water pollution from roads and municipal facilities (ROAD TRNG)	Ongoing	Report on number of employees trained in methods to reduce potential for storm water pollution
22.	County vehicle washing to be indoors or at private car washes (VEHICLE WASH)	Ongoing	Narrative statement regarding procedures for cleaning vehicles and an assessment of the effectiveness of the pollution prevention effort
23.	Continue effective material storage - salt, sand, oils, waste, batteries, tires, fluids, lubricants, gravel, asphalt (MATERIAL STOR)	Ongoing	Narrative statement regarding the effectiveness of keeping potentially polluting materials out of the drainage system
24.	Work with townships to improve gravel road and gravel shoulder washouts through better design and maintenance (GRAVEL DESIGN)	Ongoing	Narrative statement regarding steps taken to prevent gravel washouts
25.	Promote proper dumpster use at county facilities (COUNTY DUMPSTERS)	December 31, 2007	Narrative statement describing the method used to encourage employees to use dumpsters properly

TABLE IV - SWPPI COMMITMENTS, TIMELINES, AND EVALUATION METHODS FOR ASSESSING PROGRESS IN STORM WATER POLLUTION PREVENTION

SWPPI Commitment or BMP		Timeline	Evaluation Method
26.	Review snow removal procedures for opportunities to reduce pollution (trash, salt, dirt, and organic debris) (SNOW PROC)	December 31, 2006	Report on the review of procedures and recommendations for improvement
27.	Review and improve disposal of catch basin cleanings (CB DISPOSAL)	December 31, 2006	Report on the review of procedures and recommendations for improvement
28.	Review and improve street sweeping material disposal (SWEEP DISPOSAL)	December 31, 2006	Report on the review of procedures and recommendations for improvement
29.	Ensure that CRC contractors have had training in proper fertilizer, pesticide, and herbicide selection/storage/use/disposal (PESTICIDE USE)	Ongoing	Report on specifications for contractors' selection, storage, use and disposal of fertilizers, pesticides, and herbicides

Notes

- WMP = Watershed Management Plan
- SWPPI = Storm Water Pollution Prevention Initiative
- BMP = best management practice
- SESC = soil erosion sedimentation control
- MS4 = Municipal Separate Storm Sewer System
- DPW = department of public works
- NRCS = USDA Natural Resources Conservation Service
- MSUE = Michigan State University Extension
- MEA = municipal enforcing agency
- APA = Authorized Public Agency

- MDEQ = Michigan Department of Environmental Quality
- EPA = U.S. Environmental Protection Agency
- MDA = Michigan Department of Agriculture
- MDNR = Michigan Department of Natural Resources
- O&M = operation and maintenance
- PEP = public education plan
- IDEP = illicit discharge elimination plan
- CEA = county enforcing agency
- MCD = Muskegon Conservation District

BMP ABBREVIATIONS

BMP ABBREVIATION	BRIEF DESCRIPTION	LINE
CB DISPOSAL	Review and improve disposal of catch basin cleanings	27
CO FERT ORD	Investigate county-wide ordinance requiring the use of low phosphorous fertilizers in conjunction with watershed councils and local governments	17
COUNTY DUMPSTERS	Promote proper dumpster use at county facilities	25
CRC FERT MGMT	Review current specifications for surface restoration with respect to minimal use of nutrients and revise as appropriate	15
GRAVEL DESIGN	Work with townships to improve gravel road and gravel shoulder washouts through better design and maintenance	24
HOT LINE	Continue the telephone reporting system for residents to report illicit discharges and connections to the storm sewer	18
IDEP	Cooperate with municipal governments in their implementation of their illicit discharge elimination plan program	13
LUST	Work with the Michigan Department of Environmental Quality to address leaking underground storage tanks and impacts from past industrial discharges	14
MATERIAL STOR	Continue effective material storage - salt, sand, oils, waste, batteries, tires, fluids, lubricants, gravel, asphalt	23
MATERIALS USE & DISP	Continue current procedures for materials storage, use, and disposal to prevent storm water pollution	11
MODEL SW ORD	Participate with the watershed group to develop model storm water ordinance	6
OTHER FERT MGMT	Offer fertilizer management and yard waste disposal information to golf courses and other appropriate parties (e.g., MSUE's soil testing program) through Muskegon Conservation District	16
PEP LONG	Implement public education plan activities slated for 2008 to 2013	3
PEP SHORT	Implement public education plan activities slated for 2005 to 2008	2
PESTICIDE USE	Ensure that county road commission contractors have had training in proper fertilizer, pesticide, and herbicide selection/storage/use/disposal	29
PROMOTE HHW	Distribute brochures to promote the county department of public works' household hazardous waste collection program	10
R/S CROSSING	Improve road-stream crossings to reduce sediment load to lakes	5
REDUCE HYDRO	Reduce unstable hydrology by specifying roadside restoration utilizing salt tolerant and deep rooted grass species	8
REV O&M	Review department of public works' procedures for operation and maintenance waste disposal looking for opportunities to reduce the potential for storm water pollution	12
ROAD TRNG	Develop and implement training program for employees and contractors on reducing the potential for storm water pollution	21
SESC TRNG	Provide road commission employees with soil erosion and sedimentation control training and encourage them to report soil erosion and sedimentation control problems to the county enforcing agency for attention	9
SESC WKSP	Participate with the watershed group to form a committee and hire a consultant to develop presentation materials and hold workshops to promote soil erosion best management practices	1

BMP ABBREVIATIONS

BMP ABBREVIATION	BRIEF DESCRIPTION	LINE
SNOW PROC	Review snow removal procedures for opportunities to reduce pollution (trash, salt, dirt, and organic debris)	26
STM SEWER MAINT	Perform routine storm sewer maintenance activities, such as catch basin cleaning	20
STREET SWEEP	Continue regular street sweeping	4
SW MAINT	Maintain storm water structural controls in accordance with procedures developed to minimize storm water pollution	19
SW POLICY	Continue to implement current storm water policy to encourage infiltration of storm water	7
SWEEP DISPOSAL	Review and Improve street sweeping material disposal	28
VEHICLE WASH	County vehicle washing to be indoors or at private car washes	22