I. Describe your community’s/agency’s strategy for non-point source phosphorus minimization.

Consider what the long-term goal and what specific objectives will be pursued to get there.

**Goal** -
The University of Michigan (UM) works toward minimizing potential sources of phosphorus and other storm water pollutants in conjunction with the requirements of NPDES permit MI0053902 and the Middle Huron Cooperative Agreement for Reduction of Phosphorus Loading to the Middle Huron River Watershed (signed/renewed by UM on 6/05). U of M’s NPDES permit Storm Water Management Program Plan (SWMPP) includes the implementation of Best Management Practices (BMPs) to address the quality of storm water discharges into the receiving streams.

**Objectives** –
The University of Michigan (UM) works toward minimizing potential sources of phosphorus and other storm water pollutants in conjunction with the requirements of NPDES permit MI0053902 and the Middle Huron Cooperative Agreement for Reduction of Phosphorus Loading to the Middle Huron River Watershed (signed/renewed by UM on 6/05). The NPDES permit Storm Water Management Program Plan (SWMPP) includes the implementation of Best Management Practices (BMPs) to address the quality of storm water discharges into the receiving streams. Examples of phosphorus reduction BMPs at UM follow:

**Education** - The University promotes storm water education to encourage the reduction of the discharge of pollutants in storm water. Education efforts include: public reporting of the presence of illicit discharges; waste disposal information for household, garage, and garden wastes; proper application of fertilizers and pesticides; preferred cleaning agents (no/low phosphorus); procedures for residential car washing; potential impacts from pollutants entering the storm water system; management of riparian lands to protect water quality; and public responsibility and stewardship in our watershed.

**Erosion and Sediment Control** – Efforts to reduce potential phosphorus-containing sediment discharge into receiving waters through increased settling/hold time prior to discharge and/or reduction of the velocity of the discharge at UM include: the use of stormwater management structures (basins, hydrodynamic separators, porous pavement and bioretention swales); implementation of the Soil Erosion and Sedimentation Control (SESC) Program for construction, renovation and maintenance activities on campus; flood control projects; and routine roadway and catch basin cleaning activities.
Product Use, Application, and Disposal – The UM requires proper use, application and disposal of phosphorus-containing products for various activities on campus. For example, testing of soils prior to fertilizer application is encouraged to confirm the necessity of use. Exterior cleaning/washing projects are informed of phosphorus reduction efforts on campus and the selection and use of non-phosphorus cleaners is encouraged. UM Housing Dining Services Facilities use low phosphorus detergents for dish washing operations. Outdoor vendor operations are advised of proper disposal practices for gray water and soft drinks (phosphoric acid) to reduce errant discharges. The University is also reviewing cleaning product purchasing contracts for phosphorus content and product disposal issues.

Other Discharge Reduction Activities - Additional programs in place at UM which contribute to phosphorus reduction goals include the Illicit Discharge Elimination Program (IDEP) which provides on-going dry weather screening of the storm sewers to identify and eliminate illicit discharges, and spill prevention and response activities.

Pollution prevention procedures and plans are continually under review and are improved as new controls are developed. More information is available on our website at http://www.oseh.umich.edu/stormwater/

II. Part I asked for a description of your strategy to reduce phosphorus, now you’re asked to describe what has been accomplished thus far. Describe and evaluate best management practices employed by your community/agency for non-point source phosphorus minimization. Include activities conducted within the past 6 months, as well as an overview of previous and planned future activities. Include all that apply: education and public outreach efforts; ordinance and policy development and enforcement; land use planning; master planning and zoning; and engineered and bio-engineered projects

Please include the following:

a. Quantify dollars spent on best management practice design and implementation
b. Quantify volunteer efforts resulting in phosphorus reduction and improved water quality
c. Provide copies of materials and publications that support your strategy to meet the goals of the TMDL

The University of Michigan Fiscal Year 2006-7 Annual Report on Municipal Storm Water NPDES Permit MI0053902, including best management practices in use and the annual expenditures and budget for 2007-8 is provided as an attachment to this report.

III. Describe any issues that hamper your progress in meeting the expectations of the voluntary agreement

The University of Michigan continues to face two main challenges when implementing the storm water management program: a de-centralized organizational structure and a large turnover of population each year.
IV. Describe any technical concerns you have regarding the phosphorus TMDL for the middle Huron River Watershed (Ford and Belleville lakes)

The technical concern identified is in the lack of sufficient data to fully determine the sources of phosphorus impacting Ford and Belleville Lakes.

V. Describe any new ideas and opportunities related to reaching the goals of the TMDL that you would like to share and discuss with the other partners of the Initiative

**Invasive Species Removal / Increased Native Vegetation** –
The UM continues to coordinate a volunteer program on campus properties dedicated to preserving the existing biodiversity and restoring damaged ecosystems through the removal of invasive plant species, such as Buckthorn and Honeysuckle. A total of 3 volunteer events were sponsored by OSEH during this reporting period. Volunteer invasive species removal events were held on October 20, 2007; November 3, 2007; and March 29, 2008. This program also included a prescribed burn at the North Campus Woodlands area north of Hubbard, east of Murfin, coordinated through UM Grounds Department. Benefits of deep root systems seen in the growth of native species and encouraged through reduction of invasives include:

- Reduction or elimination of the need for fertilizers, herbicides and pesticides;
- Soil conservation – soils are kept in place, which reduces potential transport of phosphorus-containing soils into the waterways;
- Filtration / uptake of pollutants, such as phosphorus, prior to discharge into the surface water systems

**Storm Water Management** – The University, seeking to reduce the quantity of storm water runoff and improve the quality of storm water discharges on campus, is continuing to perform maintenance and retrofitting of existing storm water management basins on campus. The intent is to hold storm water as long as practical on site to allow pollutants to settle out and/or to reduce the quantity and speed of storm water discharge, which in turn helps to control erosion. Currently three storm water basin maintenance and retrofit projects are in process: State Street Commuter Lot, UMHHC (Hospital) Basin, and NCAC (North Campus Administrative Complex). These projects are scheduled for completion in 2009.

**Erosion and Sediment Control** – Efforts continue to reduce potential phosphorus-containing sediment discharge into receiving waters through implementation of the UM Soil Erosion and Sedimentation Control (SESC) Procedures for construction, renovation and maintenance activities on campus. The SESC procedures require the use of BMPs and inspection of sites weekly and after rain events until final stabilization of the project site is achieved. In FY 2007-2008 approximately 1,972 inspections were performed at UM construction sites.