

## **CHAPTER 5: URBAN MANAGEMENT PRACTICES AND PROGRAMS**

### **INTRODUCTION**

The Aux Sable Creek Watershed is a unique watershed because it is primarily agricultural with the potential for rapid urbanization. There is great concern regarding how future landowners will protect the Watershed. This is important because current urbanization occurs at the headwaters of many of the streams. Pollutants and/or impairments occurring at the headwaters can continue to flow or effect the entire watershed.

There are six minimum control measures which are required by the NPDES Phase II guidelines. The management practices and programs provided below are grouped by their applicability to these six minimum control measures.

### **PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS**

Public education is mainly focused toward individual residential landowners, whose typical behaviors have the potential to generate pollutants and impairments in the Watershed. These behaviors include inappropriately or not disposing of pet waste, over application or improperly applying lawn chemicals, washing cars on driveways, vehicle maintenance on impervious driveways, and emptying chemicals into the storm sewers. Education focused on preventing these behaviors or providing alternative behaviors can greatly reduce the amount of pollutants entering the storm sewers and waterways.

Additional education will focus on fostering the understanding of the function and maintenance of stormwater facilities. Existing facilities are not always maintained to ensure that they function properly. With the potential for rapid increases in population, maintenance of the facilities will be key in maintaining the quality of water within the Watershed.

There are many resources available for preparing a public education or outreach program through the US Environmental Protection Agency. Specific programs can include developing municipal outreach programs, promoting the stormwater message by providing classroom education, pamphlets for commercial businesses, as well as media that can be placed in public areas or on public access television. Education specific for individual homeowners can include pamphlets or educational materials aimed at using alternatives to toxic substances, landscaping and lawn

care, pest control, pet waste management, water conservation practices, and proper disposal of household wastes which can have a negative impact on the flora and fauna of the watershed.

## **PUBLIC INVOLVEMENT AND PARTICIPATION**

The residents and stakeholders of the Watershed are a key resource for continually protecting the Watershed. One municipal agency will not be as effective at preventing or controlling stormwater pollution as the residents of that municipality due to the sheer numbers of participants. Public involvement can also be integrated with public education to get residents involved in the Watershed, as well as learning about stormwater runoff and stormwater management facilities. There are many activities that the public can be involved in around the Watershed. These activities include cleaning up the stream by removing debris and garbage at various locations, either as an organized group or as individuals. Another activity for newer residential subdivisions can include storm drain marking, where residents use stencils or stickers specifically designed for this activity, to indicate that the storm sewers drain to the rivers, can affect aquatic habitats, and are not for dumping wastes into.

There are multiple volunteer programs such as the Eco-Watch River Watch which monitor aquatic habitat and stream conditions at various locations. Short training seminars are required to ensure accuracy and quality of data gathering. This data can be collected, analyzed, and used in future updates to this watershed plan. Other activities which can enhance portions of the Watershed include reforestation programs and wetland or riparian planting programs, where individuals or groups of individuals can supplement and restore the Watershed with planting specific wetland riparian or woody plants. Gathering public opinion through stakeholder meetings, informal surveys, or organizations such as the Aux Sable Creek Watershed Coalition, can be used to determine what programs can be used or have been used successfully to improve the Watershed. These opinions can also be used whether or not the goals of the Watershed plan are being met.

## **ILLICIT DISCHARGE, DETECTION, AND ELIMINATION**

An illicit discharge is a discharge that enters a storm sewer or other stormwater facility that is not entirely composed of stormwater runoff, including, but not limited to, used motor oil, chemicals, pool water, etc. Exceptions to an illicit discharge are those from firefighting or emergency activities or discharges already approved under an NPDES permit. Discharges regulated by NPDES permits usually contain specific water quality standards that must be strictly adhered to.

With the increase of urbanization around the headwaters of the Watershed, detecting illicit discharges is an important task. Illicit discharges are generally a problem because they are difficult to detect, but also they are not generally treated before entering stormwater. Many small scale illicit discharges are discreet events, such as dumping a quart of used motor oil into a storm drain. Large scale illicit discharges include chemical spills from train derailments or pipe failures at chemical manufacturing plants. By using a treatment train for treating stormwater before it enters the creeks, most of the harmful pollutants will be filtered out. A treatment train involves the use of several or multiple stormwater Best Management Practices (BMPs) in a consecutive manner to treat stormwater runoff.

Continual education of the public and public policing are ways that stakeholders can be involved in trying to reduce the number of illicit discharges in the Watershed. Programs to eliminate illicit discharges are heavily relied upon by municipalities. Besides public education, municipalities can offer programs as alternatives to behaviors, such as dumping used motor oil or other hazardous chemicals into storm sewers. These programs include developing used oil recycling programs, trash and debris management, as well as monitoring or collecting sewage from various recreational facilities. Municipalities can also help prevent illicit discharges by mapping their storm sewers, screening discharges for inappropriate materials, and monitoring sewage lines and septic systems for failures.

As part of the general NPDES permit conditions for individual municipalities, annual reports must be submitted to the IEPA demonstrating the status of their NPDES BMPs. Kendall County (jointly with Kendall, Na-Au-Say, Bristol, and Oswego Townships), Plainfield, and Joliet have initiated programs to eliminate illicit discharges through dry weather inspections of stormwater facilities, comprehensive mapping of existing storm sewers creating a means of tracing illicit discharges, and creating ordinances and enforceable codes specifically related to illicit discharges. Currently there are no published maps of storm sewer systems within the Watershed.

## **CONSTRUCTION SITE RUNOFF CONTROL**

As rapid urbanization occurs in the Watershed, there is an increase in the amount of construction sites and potential pollution from those sites. The primary means of preventing pollution from construction sites entering the creeks within the Watershed is the use of Stormwater Pollution Prevention Plans and soil erosion and sediment controls (SESC). A variety of different controls are available in multiple categories,

such as municipal regulations, erosion controls, sediment controls, design, and waste management. Through municipal regulations, the municipalities as well as the local Soil Water Conservation District (SWCD) can review plans to ensure that sediment will not leave the construction sites and that stormwater will be treated before leaving the site. The contractor is required by the NPDES Permit to be responsible for inspecting the sites at various times during construction to determine if the installed SESC measures are properly functioning and to provide any necessary remediation.

Erosion controls are practices intended to prevent the movement of unconsolidated, unstabilized surface materials. These measures include the use of dust control or water erosion blankets to be laid out over bare or planted slopes, temporary and/or permanent seeding to reduce water velocities, and placing mulch or straw on the surface to prevent erosion. Sediment controls are those used to prevent sediments in stormwater from leaving the site. These measures include a construction entrance made of rough gravel or riprap, silt fabric barriers or fences, inlet protection or barrier fabric within stormwater inlets, and sediment traps or silt dikes, which allow sediment to settle out of water before it travels over the measures. Rock check dams can also be used to help filter sediment and slow water down as it moves through channels.

Proper construction planning and sequencing is generally reviewed by the county's or municipality's review engineer before authorization to proceed is provided. A proper sequence of construction typically requires SESC measures be installed before clearing or disturbing can occur. After the installation of measures and the completion of construction, all disturbed areas must be permanently stabilized before the site is released from any construction permit requirements. Means of managing waste on construction sites include providing a concrete washout to allow cement trucks to rinse out their mixers before leaving the site, providing contained storage locations for hazardous material storage, such as fuel or cleaning chemicals, as well as providing bins throughout the site for construction site waste. All of these measures are generally provided on a Stormwater Pollution Prevention Plan (SWPPP) as part of the engineering and construction plan set. The SWPPP is required for all construction sites which disturb more than one acre at a time and may be reviewed by the various permitting agencies before construction can begin.

## **POST CONSTRUCTION RUNOFF CONTROLS**

After construction has been completed, the potential for pollution discharges into the Watershed are not absent. Post construction runoff controls consist of measures or

practices to treat, store, and infiltrate runoff before it leaves the site. Many new designs are being developed and used on a regular basis to promote infiltration and filtration of stormwater runoff. Many of these runoff controls have been thought out and planned long before construction begins.

Municipalities, park districts, and forest preserves tend to be the long term owners of public open space and are generally required to routinely inspect and maintain stormwater treatment facilities. Designs, which minimize the need for routine maintenance, are typically preferred by municipalities because they tend to decrease the amount of potential additional workload for its employees. In smaller towns with a small staff, a rapid increase in workload can compromise the integrity of the facilities.

Many post construction runoff controls are developed as part of the initial design for urbanization projects. Best Management Practices (BMPs) consist of using pervious concrete, permeable pavers, conservation easements, green roofs, riparian forested buffers, low impact development, and urban forestry. Specific BMPs which can be used to promote infiltration include bioswales, rain gardens, and infiltration structures, such as basins and trenches, planned reduction in pavement or impervious surfaces, and porous pavement. BMPs which promote filtration of pollutants out of stormwater include rain gardens, catch basins inserts, vegetated filter strips, and sand and organic filters. Other stormwater BMPs which may be beneficial to the Watershed include the use of stormwater basins with wetland bottoms. The key to successful runoff control after construction lies within the long term maintenance of these measures. Future recommendations regarding which BMPs should be incorporated into future developments in the Watershed are discussed in Chapter 6.

## **POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS**

Daily activities that occur in a variety of locations throughout the Watershed can pose a threat to water quality, but are not generally considered bad water quality behaviors. Good housekeeping is not just appropriate behaviors but also the use of practices and procedures by homeowners, industrial users, businesses, and municipal operations to prevent pollutants from entering storm sewers and eventually the creeks. These activities include winter de-icing operations, road and infrastructure repairs, automobile or vehicle fleet maintenance, landscaping installation and maintenance, and building repairs.

Proper training of municipal, commercial, and industrial employees can prevent pollution by providing proper procedures during these activities that will eliminate any sort of pollutants from entering the storm sewer. These procedures can include the use of alternative methods for washing and maintaining vehicles and equipment, the use of specific containment structures and storage facilities to prevent the leakage or contamination of stormwater, and the use of new or improved products which are less or non-hazardous to stormwater. The initiation of a spill response program into training and procedures for municipal and other users will not prevent the initial spill from entering waterways, but can reduce the quantity of contamination through rapid detection, response, and remediation.