Public Works Department
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City of Sheboygan Department of Public Works

Final Report NR 216 WPDES Permit No. WI-SO49867-1

The City of Sheboygan's 5-year commitment to improving our water resources.

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March 15, 2005

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Introduction

The City of Sheboygan's responsibility to cleaning up stormwater.

A Long Time Ago…

The City of Sheboygan received its Charter in 1853, and began its journey of growth and prosperity. As time marched on and more development occurred, cities around the world began to realize the affects that development had on the water bodies. Streams were no longer clear. Wildlife in those streams were replaced with rough fish or died out all together. Birds no longer congregated in or near those water bodies due to lack of food or refuge. Rivers and lakes were no longer an attraction for the public to gather for swimming and recreating. Flooding in the streets and along waterways became more frequent as runoff from development was generated.

For hundreds of years it was up to the cities to do their best to address these challenges. In 1972, Congress passed the Clean Water Act. The Act set goals and regulations to clean up our waterways of the United States. No longer could cities and industries just dump untreated pollution directly into waterways without first meeting certain purification requirements. The first part of the act dealt with known sources of pollution such as treatment plants and industrial discharges. These discharge types could easily be monitored and addressed with rules and regulations.

The Clean Water Act was amended in 1987 to address another source of pollution, that being non-point pollution. Non-point pollution sources come in the form of soil erosion from fields and development sites, from the way that chemicals, petroleum, fertilizers and construction debris are stored and used on a site. In 1989, the Wisconsin Legislature charged the Wisconsin Department of Natural Resources with regulating the requirements of non-point pollution in the state. The Department created rule NR 216, among others, that regulates by permit, certain programs required by cities in Wisconsin to reduce the amount of non-point pollution in stormwater.

Figure 1: Great Lakes Area of Concern

In 1991, the WDNR completed a non-point source pollution control plan for the Sheboygan River. The goals of the plan were to improve the aesthetic condition of the Sheboygan River harbor and near the shore waters of Lake Michigan, reduce the sediment's impacts on harbor and lower river navigation, reduce the toxicity of runoff from urban areas and improve the ability of the harbor and lower river to support warm water sport

fishery.

Specifically within the federal and state rules were the program descriptions, who should obtain the permits and a timeframe for carrying them out. The first group required to obtain a permit were the Phase 1 communities and those identified as a Great Lakes Areas of Concern. Phase 1 communities are those in Wisconsin that have more than 100,000 populations. The Great Lakes Areas of Concern communities are those identified in a Federal Study that had large contributions of drainage to the Great Lakes that were a source of pollution. So by 1999, the City of Sheboygan (a Great Lakes Area of Concern community) was required to obtain a permit to discharge stormwater into the waters of the state. The permit insures the state and federal government that Sheboygan has a program in place to reduce and eliminate pollution to stormwater. The permit was granted by the State in April 2000, WPDES Permit No. WIS-049867-1. In 2003 communities other than phase 1 or Great Lakes Area of Concern communities were required to meet standards of NR 216.

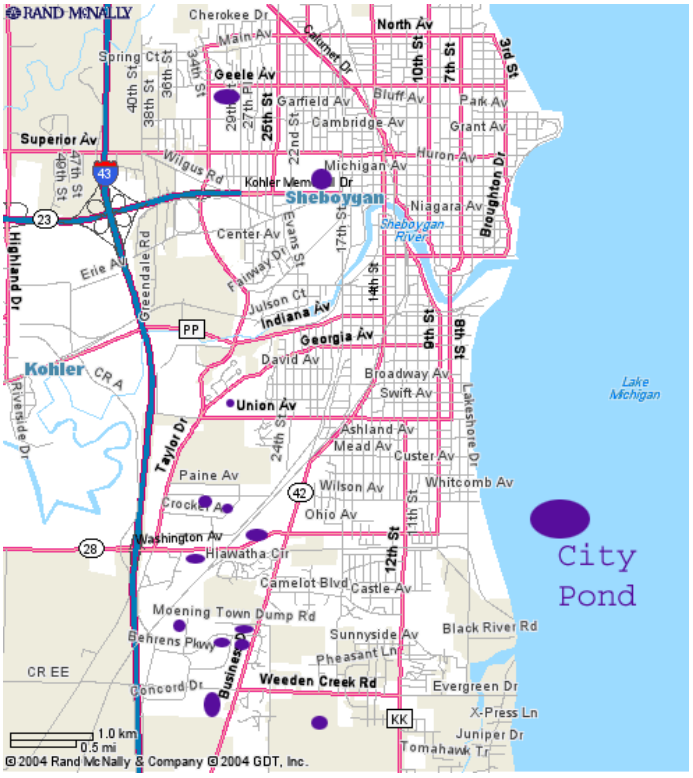
This report outlines the program for the permit coverage from 2000-2004. The report will show the requirements and the results of the program over that time period. The City of Sheboygan is required to renew the permit every 5-years and submitted its application in September 2004. Requests to change the program can be made to the State annually as the City grows and changes.

Background

Sheboygan Stormwater through the ages.

In the Beginning…

The City of Sheboygan has undergone dramatic changes over the years since its incorporation, growing from a population of 36 in 1837 to over 50,000 in the year 2000. With the growth of population came the growth of industry, business and commerce. In the beginning, wastewater and stormwater were combined into one pipe and conveyed to the nearest river, stream or lake. It was not until 1937 that the first wastewater treatment plant went on line in Sheboygan and began to treat wastewater. The sanitary sewer outfalls were blocked off near the rivers and most of the wastewater was treated. But large rain events still forced the sewers to overfill and wastewater was bypassed to the lakes, rivers and streams. It was not until the early 1950's that the City of Sheboygan began to separate the storm sewer pipes from the sanitary wastewater pipes. Eventually, all the pipes were separated and this created the Municipal Separated Storm Sewer System (MS4).



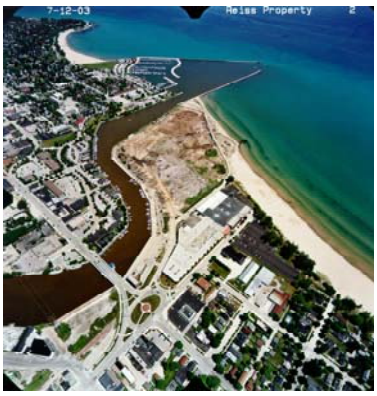
City Pond Locations

Previous city planners and engineers made every effort at the time to envision the stormwater infrastructure that would be needed to handle future development. Early stormwater design theory recommended that stormwater runoff be conveyed off the site as fast as possible. But eventually, additional development started causing problems for our aging infrastructure. Stormwater was now passing through pipes that were designed 50 to 100 years ago. Larger storms created localized flooding and bypassing stormwater. Flash flooding occurred more

often. After a series of localized flooding events in the early 1980's, the City started taking the first steps in managing stormwater. The City started by constructing the Second Creek Detention Pond, followed by ponds constructed near Washington Avenue, the Industrial Park, Business Parks and the Fox Meadows Subdivision. All total, the City has thirteen detention facilities. The City also started to restrict how fast stormwater could come off of a site after construction occurs. Finally, policies were put in place for flood plain zoning.

While managing stormwater quantity was seen as the major issue for most of the public, stormwater quality was also in a state of decline. In the early 1970's it was becoming blaringly evident that development was having a grave impact on our water quality. In fact, one river in Ohio was so polluted that it even caught fire. Streams and rivers that were once clear bore the loading of sediment and pollution. Wildlife that lived in and next to water bodies were killed or replaced with less desirable species. Recreation next to these water bodies was undesirable due to the smell and health risks associated with pollution. Ground water was becoming contaminated. Where did all of this pollution suddenly come from? The answer comes from years and years of development and unmanaged soil conservation. Our waterways were a mess. To turn around the impacts that had happened over the course of hundreds of years would take lots of time and money. Tons and tons of sediment have been deposited in the riverbeds. Attached to these sediments are particles of chemicals and pollutants. Some pollutants, such as PCB's, are even so hazardous that they should not be moved because of the impacts on the environment. The Sheboygan River, at the mouth of the harbor, has over 13-feet of accumulated sediment. Most of it is contaminated. Contaminated sediment requires special techniques to be removed from the riverbeds. The contaminated material needs to be disposed at special landfill sites specifically designed for pollutants. There have been estimates that the cost to restore the Sheboygan River to its original depth ranging from $10-20 million dollars. Of course hindsight is 20/20, and it would have been a lot better to prevent the pollution and sediment from getting in the river in the first place.

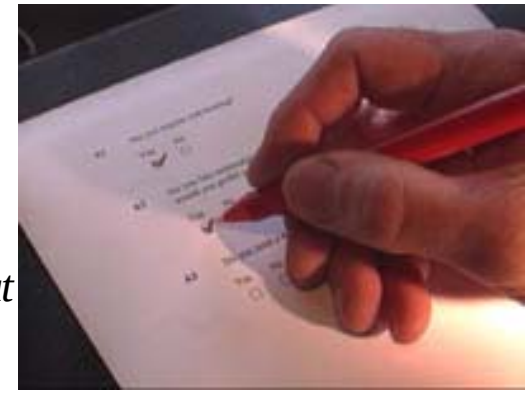
Cuyahoga River Fire, Ohio. 1969



Sheboygan River Entering Lake Michigan, 2003

The City, as well as members of the community, was very concerned about the status of our waterways. Various groups such as the Sheboygan River Basin Committee worked throughout the years with the WDNR and EPA to design and implement plans to clean up the impaired waterways. Progress has been made working with industrial polluters to take responsibility for the pollution they caused prior to the Clean Water Act and to ultimately clean up that pollution. While strides in this area have been made to correct the problems of the past, the City and the State are working together to prevent such practices from taking place in the future. Cities are regulated by State Legislation under rule NR 216 to insure that the stormwater discharged to the waters of the state are as clean as practicable. A permit, issued by the State, is required to discharge stormwater. Programs must be in place under the permit to insure that stormwater quantity and quality do not impair life or property. The City applied for, and received its stormwater discharge permit in 2000. The next section describes the program required under the permit, and the actions the City took to meet the goals of the program.

Permit Requirements



Action springs not from thought, but from a readiness for responsibility.

-- Dietrich Bonhoeffer

A Day of Reckoning…

The City of Sheboygan applied for its WPDES permit in November 1999, and received approval with conditions in April 2000. The permit had several special conditions that were to be met over the course of the next 5 years. The permit authorized stormwater point source discharges to the waters of the State from the MS4 within the city limits. The permit also allowed other discharges such as process and non-process water as long as an industrial permit did not regulate it.

The goal of the permit was to meet the water quality standards contained in NR 102 to NR 105 of the Wisconsin Administrative Code. The City also had a separate goal identified in the Sheboygan River Priority Watershed Study, 1991. In order to comply with the permit requirements, the City of Sheboygan was to implement best management practices and restrict the following substances that would adversely affect water quality or aquatic life:

- Solids that may settle to form putrescent or otherwise objectionable sludge deposits.
- Oil, grease and other floating material that form noticeable accumulations of debris, scum, foam or sheen.
- Color or odor that are unnatural and to such a degree as to create a nuisance.
- Toxic substances in amounts toxic to aquatic life, wildlife or humans.
- Nutrients conducive to the excessive growth of aquatic plants and algae to the extent that such growths are detrimental to desirable forms of aquatic life, create conditions that are unsightly or are a nuisance.
- Any other substances that may impair, or threatened to impair, beneficial uses of the receiving water.

The first thing that needed to be done was to create the legal means in which to be able to enforce the conditions of the permit. Several ordinances were created or amended in order to comply with this condition. Notably, were the:

- Stormwater Management Ordinance, the
- Erosion Control Ordinance, the
- Illicit Discharge Ordinance.

These will be explained later in more detail. The City of Sheboygan was to create a pollutant-loading model of the City. The model uses a computer program to predict the type and amount of pollution from an area based on the type of land use, the types of Best Management Practices in place, and the amount of rainfall in a given year. The model is based upon years of federal research and data collection and is considered to be a valid model in the eyes of the State. The model predicts the amount of pollutant loading for the following:

Total Suspended Solids
Total Dissolved Solids
COD
BOD
Total Kjeldahl Nitrogen
Nitrate + Nitrite Nitrogen
Ammonia Nitrogen
Dissolved Phosphorus
Total Phosphorus
Total Copper
Total Lead
Total Zinc

Table 1 SLAMM Evaluation Parameters

The City of Sheboygan was also required to monitor the stormwater to show the effectiveness of structural BMP's (ponds) owned by the City. The monitoring had to meet the strict standards for collection and testing. The list of pollutants to be tested for expanded to include:

Monitoring Parameters

Total Suspended Solids	Fecal Coliform
Fecal Streptococcus	pH
Total Suspended Solids	Total Dissolved Solids
BOD	COD
Total Kjeldahl Nitrogen	Oil and Grease
Total Nickel	Total Selenium
Cyanide	Total Phenols
Antimony	Beryllium
Mercury	Silver
Thallium	VOC's
Pesticide Scan	PAH's

Monitoring Parameters	
Nitrate + Nitrite Nitrogen	Hardness as CaCO3
Ammonia Nitrogen	Alkalinity
Dissolved Phosphorus	Chloride
Total Phosphorus	Color
Total Copper	Odor
Total Lead	Total Arsenic
Total Zinc	Total Cadmium

Table 2 Monitoring Test Parameters

The largest part of the permit comprised the development and tracking of a stormwater management program. This program was aimed to limit the discharge of pollutants, manage area expansion, dedicate staff and resources to the program and involve public participation in the process.

In general, the City was to develop a program for maintenance activities such as catch basin cleaning, leaf collection, street sweeping, detention basin maintenance and roadway maintenance (salt/sand spreading).

The City of Sheboygan was to assess the feasibility of implementing management practices into all flood control projects, and the feasibility of retrofitting devices into existing drainage basins to provide pollutant removal.

The City of Sheboygan was to come up with an illicit discharge program to identify and remove illicit discharges for the stormwater system. Included in this program was an ordinance to deal with enforcement actions, and a policy for sampling stormwater outfalls methods for tracking illicit discharges to the source. The program was also to include a section to deal with the public promotion for reporting illicit discharges such as catch basin stenciling, hotlines and neighborhood watches.

Another portion of the permit requires the City to develop and implement a program to identify, monitor and address pollutants in stormwater discharges from industrial facilities.

One of the largest components of soil to our water bodies comes from construction site erosion. The City of Sheboygan developed an ordinance to enforce the rules of erosion control.

The permit also required the City to have an information and education program to inform the public of the impacts of every day living on stormwater.

The City of Sheboygan was also required to have a spills program in place to address spills of potentially harmful pollutants into the stormwater system.

Finally, the City was to annually assess the program and to summarize the results in a report submitted to the Wisconsin Department of Natural Resources.

City Permit Activities

Even the smallest pebble dropped in the largest lake, still makes a ripple…

Over the Past 5-years…

Over the past 5 years, the City of Sheboygan has made great efforts to record all the data necessary to document those steps taken to clean up our stormwater. The City already had an informal stormwater management program when the requirements of the permit were published. Many parts of the program just had to be enhanced, others created from nothing. This section will identify in detail the programs the City has in place to meet the requirements of the State Laws.

Legal Authority

At the start of 1999, the City of Sheboygan did not have the legal authority to be able to enter private property to address many of the stormwater issues addressed in the permit. Several ordinances were created in order to comply with State Law, and the performance standards dictated in the Administrative Rules. At the time the permit was issued, the City had some general language regarding grading, filling of sites, excavation, and a vague description of a nuisance, but it was not enough to be able to attain the standards of State Law. The City Council passed several ordinances in order to comply with the permit regulations, specifically, an Erosion Control Ordinance, 1997; an Illicit Discharge Ordinance, 2000; a Stormwater Management Ordinance, 2002. During the permit cycle from 2000-2004, the State adopted stricter performance and technical standards for erosion control and stormwater management. These changes required the City to amend the ordinances for erosion control in 2003 and stormwater management in 2004. The City also passed an ordinance implementing a stormwater utility in 2003, and amended it in 2004.

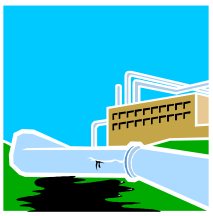
Erosion Control Ordinance

The Erosion Control Ordinance was one of the first legal documents passed by the City Council specifically dealing with stormwater issues. The first passage of the ordinance occurred in 1997, and dealt specifically with construction site erosion control. Erosion is the transportation of sediment (dirt) through water and air. Erosion is responsible for the loss of 2.4 billion cubic yards of soil annually in the United States. That is almost 270 million dump trucks full of soil. One of the major components of the soil deposition in our lakes and rivers comes from construction sites. This source was specifically targeted by the State as one area of control to be enforced by the City.

The ordinance describes who shall comply with the ordinance, what the requirements are for those components, the types of permits needed in order to start construction, the submittal requirements and inspection/enforcement provisions. At first the ordinance only applied to sites greater than 5 acres, but

that changed in 2003 with the change in State Law. The change dropped the requirement to 1 acre, and imposed performance standards for reduction of sediment from a construction site by 80%. The City currently enforces all erosion control in the City. The City of Sheboygan's current erosion control ordinance can be seen at www.municode.com Follow the links to the City of Sheboygan code of ordinances, Appendix D. A copy has been reprinted, and is in *Appendix B* of this report.

Illicit Discharge Ordinance



The illicit discharge ordinance was created in 2000 as a requirement of the City's WPDES permit. This was an ordinance that specifically dealt with the authority granted to the City to enter property to remove illicit discharges within the City MS4. An illicit discharge means any discharge to a city storm sewer that is not composed entirely of stormwater, unless a permit has been obtained from the appropriate regulatory authority, or unless excepted. This includes, but is not limited to, activities related to spills, dumping and disposal of any substance or material. The ordinance can also be located at www.municode.com and is under Chapter 122-601. A copy is reprinted in *Appendix D* of this report.

Stormwater Management Ordinance

The City of Sheboygan was required by permit to construct a stormwater management ordinance. The City had a general policy in place since the late 1980's that restricted stormwater flow from new developments. The first stormwater management ordinance was created in 2002 to manage the long-term, post-construction stormwater discharges from land development activities. Where stormwater system plans have been developed and approved by the city, it is the intent that all land development activities include stormwater management measures that meet performance standards set forth in those approved plans. Where such stormwater management plans have not been developed or approved, it is the intent of the city that the generic stormwater management standards set forth be applied unless otherwise excepted by the Department of Public Works. The ordinance set forth standards for developments greater than 5 acres, or was almost fully paved. The ordinance also set up the standards for permitting, submittal requirements, inspection/enforcement and appeals. Again in 2002, the State developed new performance and technical standards to increase the protection to the waters of the state.

The City of Sheboygan amended the stormwater management ordinance in 2004 to reflect the updated standards required by the State. This ordinance is not yet on the Municode web site, so it is printed in its entirety in the appendix. The new performance standards directly impact stormwater quality for development over 1 acre. Long-term practices must now be in place to remove 40-80% of the suspended solids from the developed site. Sites must now infiltrate the majority of the stormwater runoff into the ground if possible. Development must now maintain the practices and reduce the runoff rate to predevelopment conditions. The ordinance addresses protective areas such as wetlands and grass channels and imposes setbacks from those resources. The ordinance also addresses submittal requirements for review and enforcement. A copy has been reprinted, and is in *Appendix A* of this report.

Stormwater Utility Ordinance

The City Council passed the stormwater utility ordinance in 2003. This put in place a mechanism for funding stormwater programs that provided a fair and equitable system based on the contributions of stormwater from all sites. Prior to the implementation of the ordinance, the stormwater program was funded out of the general fund. The utility insures that money will be in place to perform the maintenance and capitol improvement program for stormwater. The fee was set as a monthly fee of $3.00 per month of ERU. Residential properties were one ERU, duplexes and tri-plexes were charged 0.7 ERU per unit, and all the rest are charged based on the square footage divided by 2215 square feet. The utility was set up specifically to deal with all of the stormwater management issues involved with the maintenance and protection from flooding. This ordinance can be accessed at www.municode.com under Chapter 122-631, and as amended by ordinance change in 2004 in *Appendix C*.

Spills Program

The first program the City of Sheboygan was to implement under the permit was a spills program. A policy was drafted and approved by the WDNR in 2000 to deal with spills of hazardous materials in the City. The policy is printed in its entirety in *Appendix E*. The spills program was an effective tool for dealing with spills. The City of Sheboygan will review this policy with applicable agencies for updates and compliance.

Illicit Discharge Program

In addition to the ordinance created in 2000, the City of Sheboygan implemented an illicit discharge program for the City. The program set up the methodology for testing stormwater for illicit discharges. From the year 2001-2004, the City annually inspected all the major outfalls in the City. If there was flow in the outfall, two samples were taken and tested. If there were indications that there was a potential for possible sanitary waste, additional tests were performed. If those tests proved positive, the testing agency and the City would have began backtracking along the storm sewer system to find the illicit discharge.

The City was required to test during dry weather, once a year. The major outfalls that had stormwater flow in them were required to have two samples taken four hours apart. In the initial program, the samples were to be analyzed for the following:

Grab Sample Parameters
pH
Temperature
Surfactants
Chlorine
Copper
Phenol
Color

Grab Sample Parameters
Turbidity
Surface Sheen
Odor

Table 3Illicit Discharge Grab Parameters

A high concentration of surfactant may be an indicator that the stormwater might contain wastewater (a possible illicit connection). It was determined through research, that a level of 0.06 mg/L was the threshold for possible contamination. The first year there were 3 out of 48 outfalls that exceeded that criteria on the first testing. A second round of tests were conducted on those outfalls exceeding the criteria, and of those outfalls, none of them had a detectable level of surfactant in them. To retest a parameter would cost $200 per outfall, so it was decided after the test results came back normal that first year that no more testing would be done.

In 2002 all the outfalls were observed and grab samples taken. That year all the parameters came back normal.

In 2003, the City added two parameters to the list in order to determine what type of wastewater was in the storm sewer. Wastewater may be either categorized as sanitary (human/industrial waste) or surface (detergents, radiator flushings, car washing runoff). If there was a higher than normal concentration of surfactants, the sample was analyzed for the ammonia/potassium ratio. If the ratio was greater than 0.6mg/L, then there would be an indication that the discharge was sanitary waste, if it was less than that it would indicate that it was surface water waste. *(Potential New Tools for the Use of Tracers to Indicate Sources of Contaminants to Storm Drainage Systems Robert Pitt, Melinda Lalor, Jennifer Harper, and Christy Nix Donald Barbe)*

During 2003, the City also began testing all the outfalls for E-coli. The presence of E.coli in the stormwater outfalls was an indication of possible beach closings. In 2003, the City had 5 outfalls with high E.coli content. Those outfalls were retested and two were found to have a high count. The City traced the storm sewer lines back to see if there were any obvious signs of where the E.coli would be coming from and found no concentrated sources. Research conducted recently has shown that the droppings for gulls to be a very concentrated source of E.coli. The droppings from these birds are over 500 times as concentrated as say a goose. One way to reduce the amount of E.coli in the water would be to reduce the number of gulls.

In 2004, the City performed the sampling program. There were several outfalls that contained a high level of surfactants, those were tested for potassium and ammonia. The test results came back that they were not wastewater, but surface drainage. There were several outfalls that had high concentrations of E.coli. These were not retested immediately as staff did not review the results during the dry season required to grab samples. The outfalls will be retested in the spring for E.coli.

The illicit discharge program was to include provisions for education and outreach for the public. The City of Sheboygan started a stenciling program for catch basins in 1999. Cans of paint and stencils were provided to volunteers, usually Boy Scouts to paint stencils around the City saying “Do not dump, drains to lake or river”.

The City has a phone number on the City web page that directs phone calls to the appropriate agencies to investigate illicit discharges. Over the past 5 years there have been 5 phone calls and one personal observation to investigate illicit discharges.

Evergreen / 6th Street Outfall.

This outfall is also known as the Second Creek outfall. It travels over 24 blocks and drains 750 acres of area. There are about two-dozen industrial businesses located within the drainage basin. We have received two concerns that there was possible contamination in the stormwater. A smell was coming from the stormwater, and it turned the stormwater at the outfall a greenish color. Samples were taken and tested. The outfall smelled like chlorine. The discharge was clear, but did enhance the green color of the vegetation on the bottom. The tests came back showing that the samples contained a higher than usual amount of chlorine. It was determined that two industries discharge large volumes of non-contact cooling water. The chlorine levels matched very closely with the amounts the Water Department uses for treatment.

Greenwing Ponds. This pond is located at the headwaters to Fisherman's Creek. We received a call that the creek water was cloudy. Tracing the cloudy water back, the pond was full of cloudy water. DPW staff immediately blocked the outfall to the pond and the source of the cloudy water was determined. The source was an industrial facility located across the street from the pond. Apparently the pumps for the cooling fluid were not turned off over night and the fluid spilled across the floor and into the storm sewer system. The illicit discharge was then handled as a spill and clean up progressed. The pond was pumped down into the sanitary sewer. The fluid was a biodegradable fluid used in a cutting process.

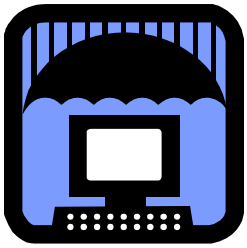
Sheboygan River. During a rain storm the City received a phone call that there was a noticeable sheen on the river. The sheen hugged the south and east side of the river. Two possible outfalls were isolated. There were no noticeable indications of dumping into any of the catch basins, and it could have come from parking lot surface drainage. The source of the discharge was not determined.

Concord Drive Outfall: This outfall is located in an industrially zoned area. The City was conducting a routine inspection of the drainage swale when it was noticed that there were pools of foamy stormwater. The material appeared to be like paint thinner, some petroleum-based product. City DPW staff backtracked the source to a truck maintenance facility; specifically the dumpsters used to dispose of the maintenance fluids. Apparently during the last pick up of the dumpster, some of the liquids spilled onto the parking lot. When it rained, it washed into the storm

sewer system and into the swale. The company used oil dry to clean up the spill, and absorbent bags in the swale to blot up the remaining sheen.

On average, the cost of the testing and inspection program has run $36,000 over the course of 4 years. Staff time to implement the program ran $12,000 over those 4 years. The full reports may be viewed at the Engineering office, and a summary of the results is listed in *Appendix G*.

Pollutant Loading Model



The Wisconsin DNR required that a model of pollutant loading be created for the City to determine how much pollution was being generated and the effect that management practices were working. The program used to determine pollutant loading is called SLAMM (Source Loading and Management Model). SLAMM allows the user to enter various parameters such as land use, rainfall data, type and size of particles, and management practices in order to determine how much pollution is being generated in a given drainage area. The City is broken down into 730 sub basins, with land use, BMP's, and major outfalls overlaid over it. When they are all combined together, they generate over 26,000 records. The records are summed by basin, major outfall, and total. The original model was run in 2000. The permit requirements were to display the results as without management practices and with management practices (ponds, sweeping, catch basin cleaning).

CITY OF SHEBOYGAN
ANNUAL NONPOINT POLLUTANT LOADS

Pollutant	Unit	Annual Load w/ No BMPs	Annual Load w/ Current BMPs
Suspended Solids	tons	1,634	1,035
Dissolved Solids	tons	679	625
Dissolved Phosphorus	lbs	2,156	1,813
Total Phosphorus	lbs	8,106	5,886
Total Copper	lbs	355	252
Total Lead	lbs	511	349
Total Zinc	lbs	3,221	2,352

Table 4: SLAMM Summary Table

The City did receive permission from the DNR to reduce the number of parameters to be reported on. This was due to a programming change in the model from 1999 to 2001 that reduced the number of parameters. The table above is the approved list of parameters for the permit.

For the years 2002-2004, the City did not change any of its maintenance practices, so the model was not rerun. The Department of Natural Resources has put a quantitative goal that must be met for suspended solids. Rule NR 151.25 states that the City must attain a 20% reduction in suspended solids by 2008, and 40% by 2013. The City has been constructing water quality ponds since 1987.

According to the model, we have already achieved a 37% reduction in suspended solids. It will be possible to meet the goal of 40% reduction by 2013, since new development over 1 acre are required to reduce suspended solids by 80%. The goal for the City listed in the Sheboygan River Priority Watershed Study is to reach a 50% reduction in suspended solids and 40% reduction in heavy metal pollution in the stormwater to comply with the Priority Watershed goals.

The City will rerun the model at the beginning of the new permit cycle to give a new base line for pollutant removal using the latest version of the software. The various outputs from the model run are listed in the *Appendix H*.

Monitoring Program

The permit required the City to start a monitoring program of select outfalls from around the City of Sheboygan. The outfalls were to be representative of the land uses in the area, and test the effectiveness of the management techniques. The City requested that the Kohler Memorial Drive (KMD) Pond be tested to determine the effectiveness of the structure.

The KMD pond is a pond that was constructed in 1997 as a water quality and flood control pond. The pond has two inlets and one outlet and passes over 250 acres of drainage through the structure. The structure uses the depth of the pond and the surface water travel length to settle out particles of pollution.

The City of Sheboygan tested the outfalls in 2003 and 2004. Samples were taken every 15 minutes over the course of the rainfall event. The inlet samples were put together into one composite sample. The outlet was sampled simultaneously with the inlet samples. Summary of the results are listed below in the tables.

	2003	2003	2003	2003	2004	2004	2004
PARAMETER	INLET SAMPLE RESULT	OUTLET SAMPLE RESULT	UNITS	% CHANGE	INLET SAMPLE RESULT	OUTLET SAMPLE RESULT	% CHANGE
Antimony	3.50	3.20	µg/L	8.57	3.20	3.20	0.00
Arsenic	2.60	2.60	µg/L	0.00	2.60	2.60	0.00
Beryllium	0.17	0.17	µg/L	0.00	0.00	0.00	0.00
Cadmium	0.00	0.00	mg/L	0.00	0.00	0.00	0.00
Chromium	0.01	0.01	mg/L	0.00	0.01	0.01	0.00
Copper	0.02	0.02	mg/L	15.00	0.03	0.00	89.29
Lead	0.02	0.02	mg/L	0.00	0.02	0.02	0.00
Mercury	0.03	0.03	µg/L	0.00	0.03	0.03	0.00
Nickel	0.01	0.01	mg/L	0.00	0.01	0.01	0.00
Selenium	0.01	0.01	mg/L	16.67	0.00	0.00	0.00
Silver	0.01	0.01	mg/L	0.00	0.01	0.01	0.00
Thallium	2.50	2.50	µg/L	0.00	2.50	2.50	0.00
Zinc	0.08	0.01	mg/L	85.54	0.07	0.01	82.86
Alkalinity, Total	106.00	167.00	mg/L	-57.55	116.00	156.00	-34.48
Ammonia Nitrogen	0.27	0.07	mg/L	74.06	0.07	0.43	-517.39
Biochemical Oxygen Demand	4.00	2.80	mg/L	30.00	3.80	3.90	-2.63
Chemical Oxygen Demand	28.00	13.00	mg/L	53.57	95.00	54.00	43.16
Chloride, Total	120.00	170.00	mg/L	-41.67	109.00	188.00	-72.48
Coliforms, Fecal (Water)	10000.00	200.00	col/100mL	98.00	1600.00	570.00	64.38
Color	PRESENT	ABSENT			PRESENT	PRESENT	
Hardness, Total	140.00	220.00	mg/L	-57.14	510.00	410.00	19.61
Nitrate + Nitrite Nitrogen	0.48	0.13	mg/L	72.92	0.34	0.42	-23.53
Odor	PRESENT	ABSENT			PRESENT	PRESENT	
Oil and Grease, Total (HEM)	1.30	1.30	mg/L	0.00	2.30	8.60	-273.91
pH, Field	7.65	7.80	units	-1.96	7.30	7.59	-3.97
Phenol, direct	0.15	0.04	mg/L	75.86	0.05	0.07	-32.08
Phosphorus, Dissolved	0.11	0.02	mg/L	86.36	0.29	0.33	-11.95
Phosphorus, Total	0.11	0.01	mg/L	90.00	0.30	0.33	-9.97
Total Cyanide	0.02	0.02	mg/L	0.00	0.02	0.02	0.00
Total Dissolved Solids	294.00	470.00	mg/L	-59.86	324.00	448.00	-38.27
Total Kjeldahl Nitrogen	0.67	0.53	mg/L	20.30	0.73	0.77	-5.19
Total Suspended Solids	20.00	1.00	mg/L	95.00	18.00	6.00	66.67

The goal for the monitoring program was to show the effectiveness of the management practice, in this case the water quality pond. By just looking at certain parameters tested, the conclusion might be made that the pond is an effective practice to removing certain pollutants. When looking at other parameters, it appears as if the pond is doing a terrible job of removing pollutants. When presenting these results to the testing agency, the higher results were explained as the parameters are basically unchanged and fall within the margin of error.

Table 5: KMD Monitoring Results 2003-2004

Stormwater Management Program

The creation of the stormwater management program was one of the most time and money consuming activities in the permit program. The City of Sheboygan had most of the program activities in place at the time the permit was granted. The only part missing was the quantitative tracking required by the permit.

The stormwater management program required the City to implement a program for:

- Street Sweeping
- Catch Basin Cleaning
- Leaf Pick Up
- Salt/Sand Spreading
- Maintenance of Structural Practices
- Erosion Control Tracking
- Tracking of Stormwater Management Practices on new developments.

Street Sweeping

The City of Sheboygan conducts street sweeping on an annual basis starting around March 1, and ending by November. There are over 392 miles of curb that are swept at regular intervals. The permit breaks the City into two zones, Critical Basins and Residential Basins. Critical Basins are those areas that contain dense commercial/business, or industrial uses. They are typically areas that it would be very costly to install structural measures such as ponds or filtration devices. The City of Sheboygan is broken down into 9 critical basins, and 18 residential zones. In comparison, there are 144 miles of curb in the Critical Basins, and 248 miles of Residential Basin curb. The City runs one shift of three sweepers during the season. The City has 2 regenerative air sweepers (like vacuums), and two non-vacuum sweepers. Usually the regenerative sweepers are run in the critical basins. All sweepings are taken to the Landfill in Manitowoc. The regenerative air sweepers take much longer to sweep a route, but it picks up a lot finer material.

Non-Air Regenerative Sweeper

Regenerative Air Sweeper

The program was set up to sweep the downtown critical basins twice a week, the remaining critical basins twice a week, and the residential basins once a month. The following figure shows the results per type of area swept over the course of the permit 2000-2004.

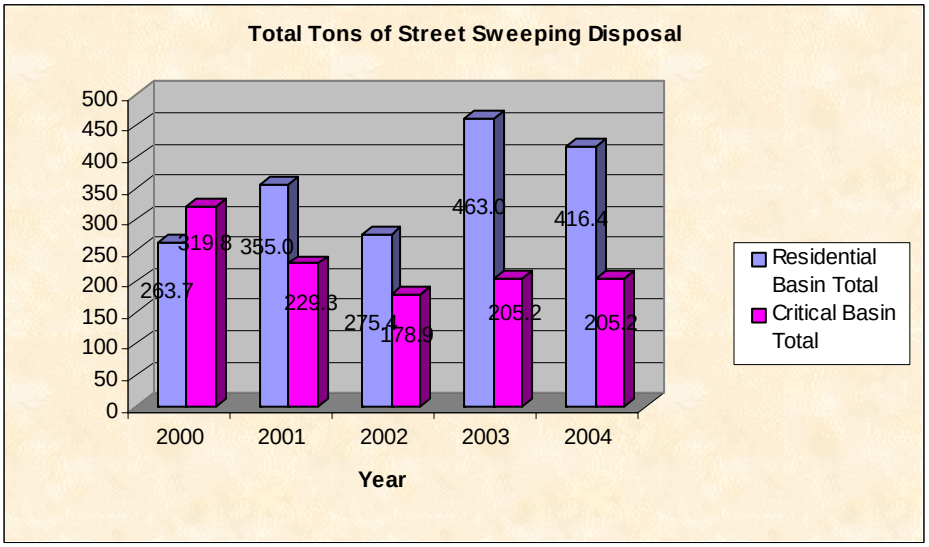


Figure 2: Street Sweeping Disposal 2000-2004

By the end of the permit reporting cycle, the City had removed over 2,911 tons of debris from the street. This amount is the equivalent of 132 dump trucks. Additional data is provided by route and is listed in the appendix. The City is looking into ways to refine the street sweeping program to give more meaningful data toward the effectiveness of the program.

Figure 3: Cumulative Street Sweeping Disposal Through 2004

Catch Basin Cleaning Program

The City of Sheboygan was required to implement a catch basin cleaning program. Catch basins are the grated boxes that are seen in the curb line on most corners in the street intersections, and sometimes in the middle of the block along the curb. The City has basically two types of devices to

intercept the water; catch basins, and inlets. Catch basins have an open grate and a storage area below the bottom of the pipe. The area below the pipe usually is 1-2 feet deep and 'catches' debris such as leaves, soil, and rubbish. Over time, if they are not cleaned out, the catch basins will not accept debris and pass it on to the rivers, streams and lakes. The second type of device the City uses to intercept stormwater is an inlet. An inlet is a device that does not have an area to store debris. Stormwater and debris is passed directly to water bodies.

The permit requires that all catch basins be cleaned once a year, that an inventory be taken of all the catch basins/inlets in the City, replace the self cleaning inlets with catch basins as needed, and dispose of the cleanings in a land fill.

The City started the program in 2000 and collected the most debris ever recorded in the City. The catch basins were rarely cleaned before that year. The City uses a vacuum truck and scoops to clean out the sumps in the catch basins.

Top Left: City crews use vacuum truck "Snuffy" to remove catch basin debris, Top Right: Catch basin before cleaning, Bottom Center: Catch basin after cleaning.

The following figure shows the tons of catch basin cleanings the City removed over the course of 5 years.

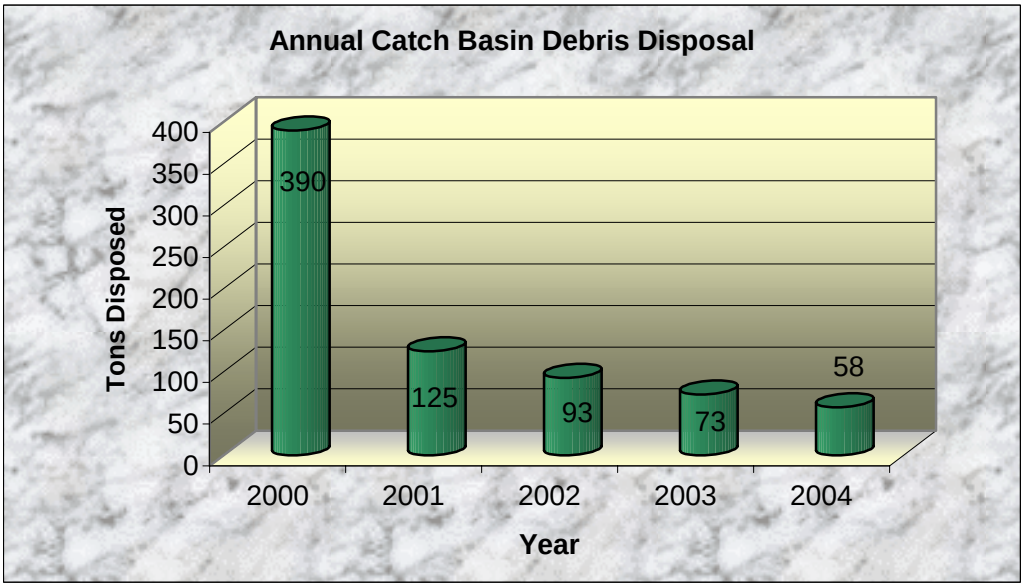


Figure 4: Annual Catch Basin Debris Disposal 2000-2004

By the end of the permit reporting cycle, the City had removed over 738 tons of debris from the catch basins. This amount is the equivalent of 42 dump trucks. Additional data is provided by route and is listed in the appendix. The City is looking into ways to refine the street sweeping program to give more meaningful data toward the effectiveness of the program. Information is being collected at the time of cleaning to determine how often basins should be cleaned.

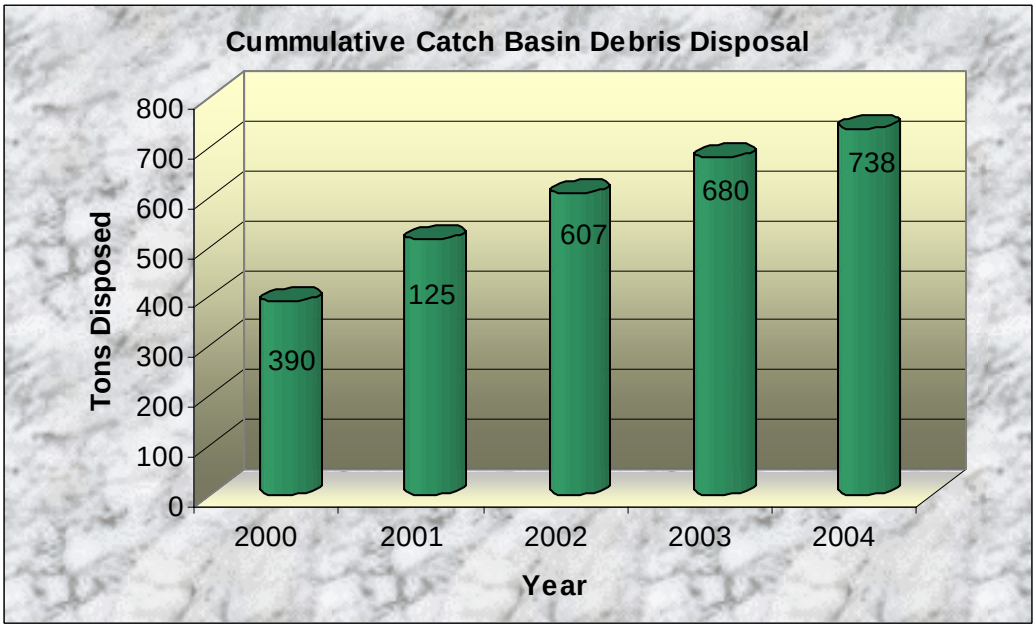


Figure 5: Cumulative Catch Basin Debris Removal Through 2004

Leaf Collection

Figure 6: Dump Truck Mounted Leaf Vacuum

The City of Sheboygan has a leaf collection program that was in effect years before the permit required it. The city collection of leaves is shown in the figure below.

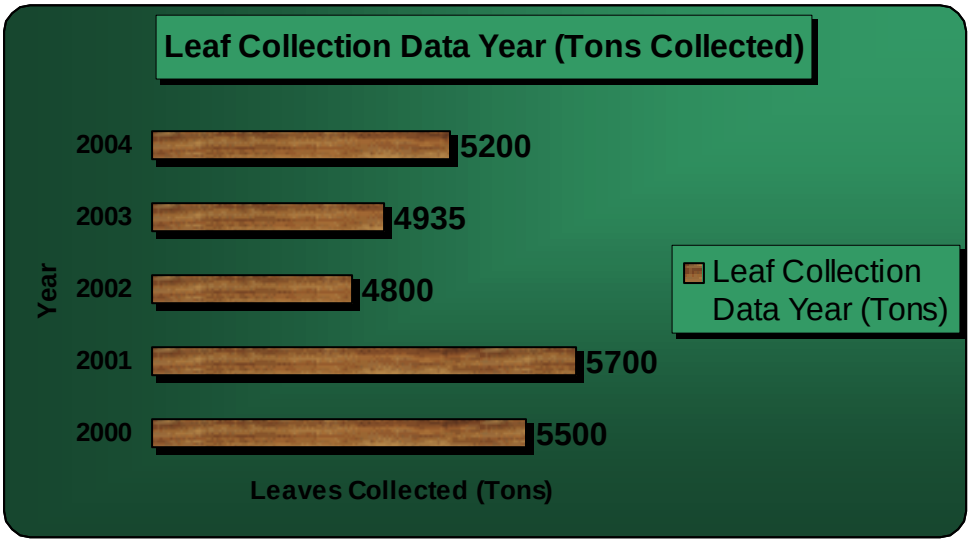


Figure 7: Leaf Collection 2000-2004

The City of Sheboygan runs two advertisements in the local paper, and a continuous advertisement on the local cable public access channel to inform residents of the dates and placement of the leaves. The program starts in October and runs for 2 months, or the first snowfall. A variety of vehicles are retrofitted to pick up the leaves including vacuum trucks, as non-regenerative air sweepers, trucks with rakes and garbage trucks with hoppers. The leaves are disposed of by being given to a local landscaper who turns them into compost.

Leaves can be both a blessing and a nuisance. Leaves have the ability to absorb pollutants from stormwater. If they are disposed of correctly, they help out water bodies. If leaves are allowed to stay in the streets, they block the intakes to the storm sewer, causing flooding. If they manage to make it to the streams and rivers, they contain the nutrients that promote the growth of algae. They may even contain the pollutants absorbed from the street. It is in the City's best interest to collect the leaves and dispose of them in a sound manner.

Salt/Sand Program

The City of Sheboygan is on a progressive salting program that is eventually replacing salt with liquid calcium chloride. The City started using a product called Ice Ban in 2001. This product is a biodegradable product that is less harmful on the environment. The program was designed to use about 10% less salt on the road each year for a total of 300 tons. Due to the variability of the amount of snow and ice received each year, it was difficult to determine how much less salt was used. Following is a figure of how much salt was used during each snowfall season.

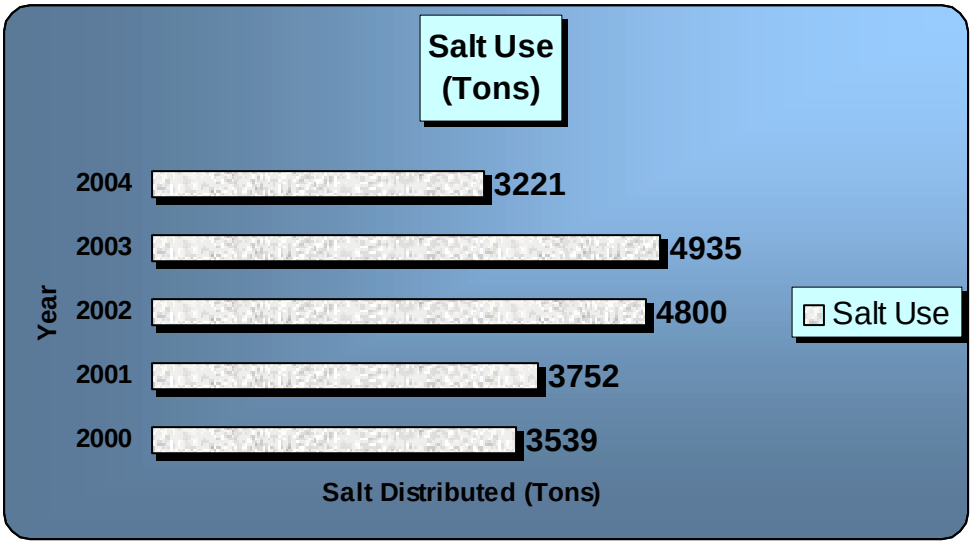


Figure 8: Salt Use 2000-2004

Erosion Control And Stormwater Management Tracking

This permit required the City to track and report all permits issued for erosion control and stormwater management. The City developed an approval process, which required the developer to obtain written approval of the erosion control, and stormwater management plans from the Engineering Department. Engineering would track the developments through the approval letter. Over the years, the City of Sheboygan refined the process to have a formal permit that is shown in the appendix. This permit will assist City staff in tracking the plans and set in place a formal inspection process. A fee will be collected for each permit, and the funding will be used to pay for additional inspection and compliance work. The City averaged around 25-40 sites per year requiring erosion control or stormwater management tracking. In early 2005, the City adopted a fee structure for the inspection and tracking of stormwater management techniques and erosion control. The fee was set as $0.005 / SF of new impervious area for new building, and $0.005 per square foot of lot size for erosion control.

Oil Recycling Program

The City has an oil recycling program that is held in conjunction with the yard waste / scrap metal recycling program. A drum is set up for citizens to drop off their used oil; an oil containment system is placed around the barrels in case of spillage. The main container is held inside the Municipal Service Building and is emptied once a month or as needed. Following is the amounts of oil recycled by the City each year during the permit period.

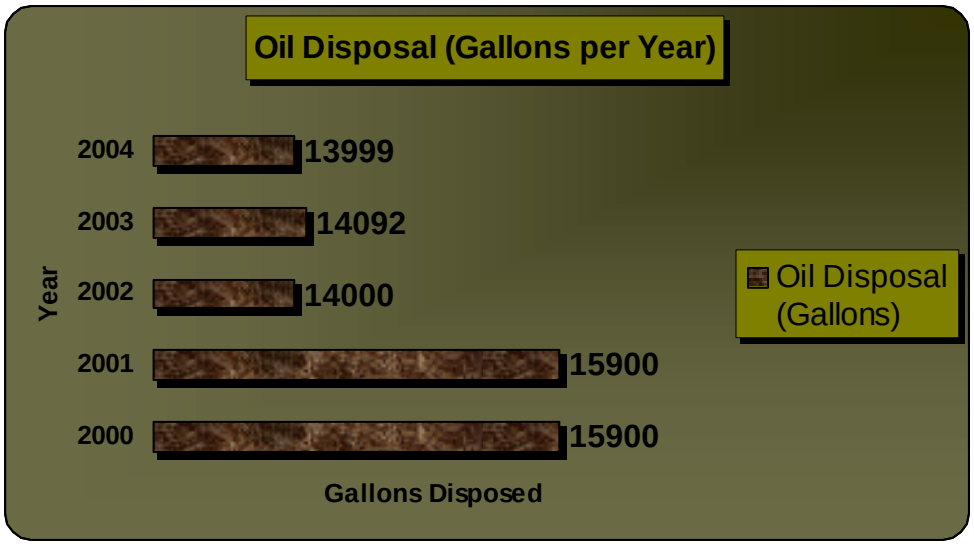


Figure 9: Oil Collection 2000-2004

Education and Outreach Program

The City of Sheboygan has provided a limited education and outreach program for the past 5 years, and aims to do better in the next permit cycle. As mentioned previously, the City has a stenciling program to educate the public that storm drains connect directly to the water bodies such as streams, rivers and lakes.

City engineering has, over the permit cycle, given presentations regarding stormwater to APWA, Glacerland Resource Conservation and Development Group, the Wisconsin Towns Association, Sheboygan Falls High School, and Sheboygan Local Cable Access. The City has made use of the Maywood Environmental Center to educate the public about the impacts of man on the environment. Maywood has an excellent relationship with the schools with education programs.

When the City was in the process of reapplying for a stormwater permit, it realized just how lacking the education program was. It was decided at that time, that a new program was needed to promote the public's impacts on stormwater and our environment. The City had developed a group list of architects and engineers that typically submit stormwater/development projects in the City. As every

new consultant makes contact with the City, they are added to the database to provide updates and future newsletters regarding stormwater issues. At present, the list is at 20 members.

The City has updated our web site to include links to important stormwater information regarding stormwater management and erosion control. As time permits, the City will continue to add more links to the stormwater section.

There have been two incidents of particular public interest within the past permit cycle that will be addressed in the next. They are the increased growth of algae in Lake Michigan, and the high number of beach closings each year. It is the goal of the City to promote best management techniques to reduce the potential of algae growth by the public.

The plan outline is listed in Appendix F.

Maintenance Activities

The City of Sheboygan has an ongoing maintenance program for both the sanitary and the storm sewer systems. The program involves replacing old leaking sanitary sewers with newer pipe and manholes. The new material provides tighter seals, and prevents infiltration into the ground water. At times, the contaminated groundwater finds a path to a storm sewer and follows the conduit to the water body. They City of Sheboygan inspects through televising several miles of sanitary sewer each year. Leaks are found and scheduled for repair as soon as possible.

The City maintenance workers televise miles of storm sewer each year and replace leaking or broken pipes as needed. Over the past 5 years the City has replaced over 12,500 feet for storm sewer, 10000 feet of sanitary sewer, replaced over 500 manholes. The City also has a catch basin replacement program. The City crews replaced self-cleaning inlets with catch basins. An average of 50-90 inlets are replaced each year. All of these improvements have a positive impact on the environment. The new sanitary sewer and manholes allow less infiltration into the ground water. Storm sewers that are replaced allow less sediment into the pipes to be conveyed to the rivers and streams.

Retrofitting Existing Facilities

The City was required to retrofit existing storm facilities to incorporate pollutant removal practices. This would include the installation of mechanical stormwater separators, excavating dry detention ponds to accommodate a particle settling area. During the permit period, the City installed a number of flood control projects. While the majority of them did not have any retrofitted practices into them, they did represent a portion of the stormwater management program.

Project Name	Year Constructed	Approximate Construction Cost
Conoco Pond*	2000	$1.3 million
Superior Avenue Storm Sewer	2000	$2.2 million
Second Creek Pond & Sewers	2000	$3.8 million

Project Name	Year Constructed	Approximate Construction Cost
Main Avenue Storm Sewer	2001	$1.4 million
Bluff Avenue Storm Sewer	2002	$3.4 million
Industrial Park Pond	2003	$0.200 million
Bonnie Court Rip-Rap	2003	$0.145 million
Blue Harbor Storm Sewer*	2003	$1.4 million
Camelot Boulevard	2003	$1.10 million
Ashland Avenue Pond	2004	$1.45 million
Lost Creek Pond*	2004	$0.200 million

Table 6: Stormwater Capitol Improvements 2000-2004

 Contains stormwater quality management technique

Conoco Pond

This pond was constructed in 1999 at the headwaters to Fisherman's Creek. The pond is designed to hold the 100-year storm for floodwater storage. It has a permanent pond surface area and an outflow restrictor to reduce the runoff rate. Approximately 200 acres of industrial/commercial drainage flow into the pond.

Superior Ave. Storm Sewer

This project was constructed in 2000 part of an ongoing project that rerouted part of the Second Creek Drainage area away from flood areas. The storm sewer pipes were enlarged to convey the 100-year storm.

Second Creek Pond & Sewers

This project was constructed in 2000 and will store the 100-year storm from the area. It also included the upsizing of main pipe to convey the 100-year storm to the pond.

Main Avenue Storm Sewer

This project, constructed in 2001,increased the storm sewer pipe size in the low point of the drainage area for underground detention. Additional catch basins were installed to intercept the stormwater and get it into the pipes before getting to the low point.

Bluff Avenue Storm Sewer

This project, constructed in 2002, installed 84-inch diameter pipes from the low point in the drainage area at 6th Street to Lake Michigan to convey the 100-year storm. This project included over a mile of large diameter storm sewer pipe and the installation of over 30 high capacity catch basins to catch the stormwater.

Industrial Park Pond

This project, constructed in 2003, included the purchase of over 2 acres of land in the industrial park in order to construct a pond to catch the storm water from upstream catchments. The pond has a low flow filtration swale along one edge of it for water quality filtration. This area is upstream from the Conoco Ponds described earlier.

Bonnie Court Rip-Rap

Before Restoration

After Restoration

This project, constructed in 2003, included the reconstruction of 1200 feet of drainage swale from the outfall at Bonne Court to the edge of the wetlands near the Pigeon River. This swale had eroded over the years due to the velocities of the outlet pipe upstream. It was to the point that it would have caused hazards to the homes lining the bluff. The ditch area was lined with fabric and riprap, the bottom of the stream was left natural.

Blue Harbor Storm Sewer*

This project constructed in 2003, included the installation of a storm drainage system for 40-acres of new development adjacent to Lake Michigan. Due to the high ground water level of the area, all of the drainage was routed through two Vortechnics stormwater separators.

Camelot Boulevard

This project, constructed in 2003 included the installation of nearly ½-mile of enlarged storm sewer pipe. The area flooded is near Fisherman's Creek and was caused by surcharged storm sewers from upland flows. Additional check valves were placed at the outlet pipes along the creek to prevent backflow into the storm sewer system.

Ashland Avenue Pond

This project, constructed in 2004, is an underground storage unit that is 50 feet wide and 630 feet long and 5 feet deep. It resides under the pavement of S. 18th Street from Mead Avenue to Ashland Avenue. It was constructed in an area that 3 major drainage systems converge and causing stormwater to surcharge onto City Streets and into homes.

Buteyn-Peterson Installing StormTrap Under S. 18th St.

Lost Creek Pond

This project, constructed in 2004, was constructed to comply with the City of Sheboygan ordinances and NR 151. A new 10-acre subdivision was constructed and a small pond and mechanical stormwater separators were installed to meet the requirements of NR 151.

Financial Analysis

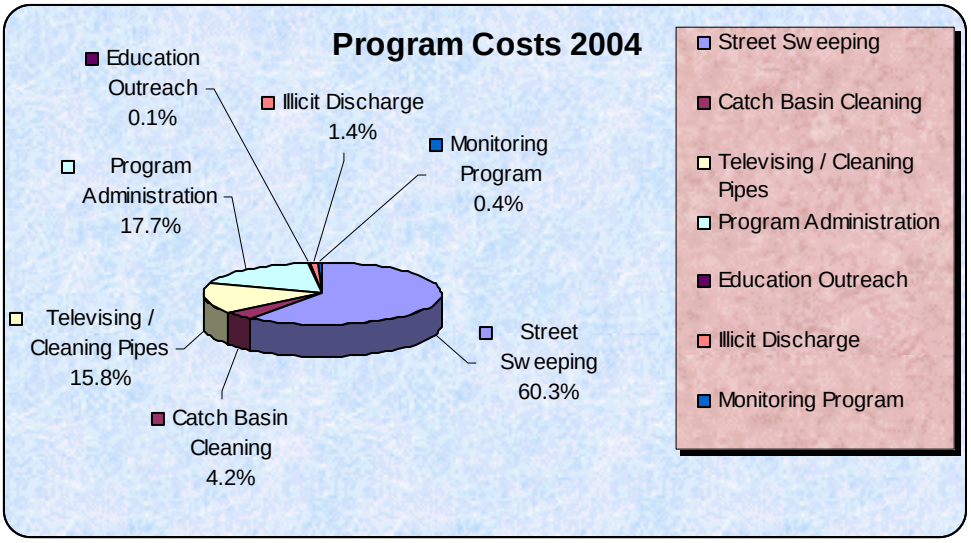
What is this going to cost us?

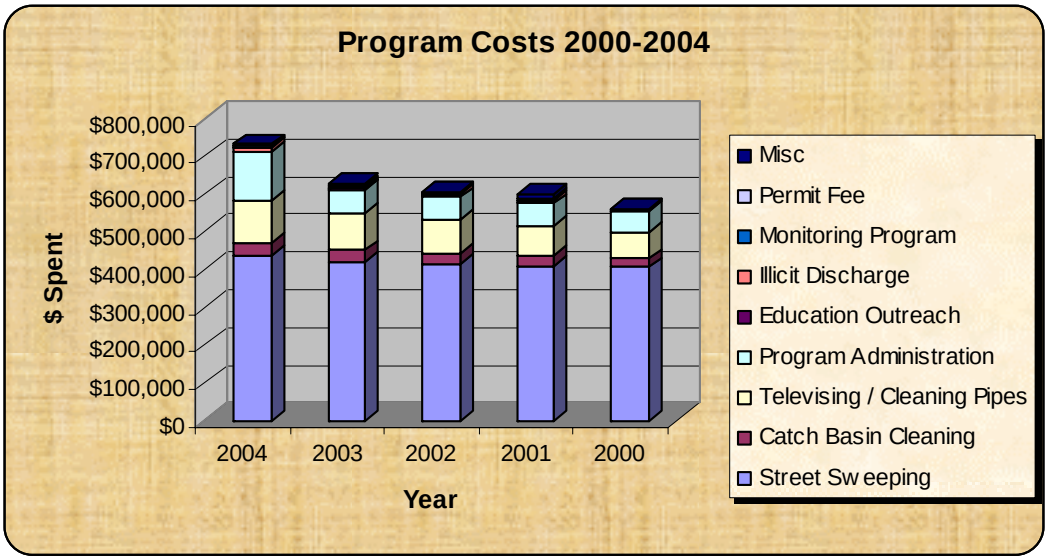
Financial Costs 2000-2004

2004 Program Costs

Street Sweeping	$438,162.00
Catch Basin Cleaning	$30,350.00
Televising / Cleaning Pipes	$114,840.00
Program Administration	$128,820.00
Education Outreach	$1,000.00
Illicit Discharge	$9,870.00
Monitoring Program	$3,100.00
	$726,142.00

In the likeness of a popular credit card commercial… 'The cost of cleaning catch basins, $30,350, the cost of cleaning our streets, $438,162, the cost of improving our environment… Priceless'. The bottom line is that no matter what the cost is, our water bodies and the environment that it supports cannot be replaced once it is gone. The goals are lofty, but the time and money must be spent to clean, prevent pollution, and educate the public in order to reduce costs in the long run. As time continues, the cost will only increase as it becomes more expensive to remove pollutants from our stormwater. This section outlines the program costs. The final figure shows the cost over the 5-year permit program.





The City of Sheboygan's financial commitment over the past 5 years to supporting the activities of the permit totals over $2.5 Million

Final Costs	2004	2003	2002	2001	2000
Street Sweeping	$438,162.00	$420,000.00	$415,000.00	$410,000.00	$405,000.00
Catch Basin Cleaning	$30,350.00	$30,000.00	$28,000.00	$26,000.00	$24,000.00
Televising / Cleaning Pipes	$114,840.00	$100,000.00	$90,000.00	$80,000.00	$70,000.00
Program Administration	$128,820.00	$60,000.00	$58,000.00	$57,750.00	$55,000.00
Education Outreach	$1,000.00	$3,000.00	$1,000.00	$1,000.00	$1,000.00
Illicit Discharge	$9,870.00	$7,000.00	$7,000.00	$9,100.00	$0.00
Monitoring Program	$3,100.00	$4,000.00	$0.00	$0.00	$0.00
Permit Fee	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00
Misc	$0.00	$0.00	$0.00	$9,000.00	$0.00
Total	**$731,142.00**	**$629,000.00**	**$604,000.00**	**$597,850.00**	**$560,000.00**

APPENDIX A

STORMWATER MANAGEMENT
ORDINANCE

Appendix A Stormwater Management Ordinance

Gen Ord. No. 45 - 04- 05. By Alderperson Baumann. November 15, 2004.

AN ORDINANCE repealing and recreating Appendix E of the Sheboygan Municipal Code, entitled "Post-Construction Stormwater Management Zoning Ordinance" relating to the control of post-construction stormwater runoff.

NOW, THEREFORE, THE COMMON COUNCIL OF THE CITY OF SHEBOYGAN DO ORDAIN AS FOLLOWS:

Section 1. Appendix E of the Sheboygan Municipal Code, entitled "Stormwater Management," is hereby repealed and recreated to read as follows:

"APPENDIX E
POST-CONSTRUCTION STORMWATER MANAGEMENT ZONING ORDINANCE

SEC. 1. AUTHORITY.

(1) This ordinance is adopted by the City of Sheboygan under the authority granted by sec. 62.234, Wis. Stats. Except as otherwise specified in sec. 62.234, Wis. Stats., sec. 62.23, Wis. Stats., applies to this ordinance and to any amendments to this ordinance.

(2) The provisions of this ordinance are deemed not to limit any other lawful regulatory powers of the City of Sheboygan.

(3) The Common Council hereby designates the Director of Public Works, or his/her designee, as the Administering Authority to administer and enforce the provisions of this ordinance.

(4) The requirements of this ordinance do not preempt more stringent stormwater management requirements that may be imposed by any of the following:

(a) Wisconsin Department of Natural Resources administrative rules, permits or approvals including those authorized under secs. 281.16 and 283.33, Wis. Stats.

(b) Targeted non-agricultural performance standards promulgated in rules by the Wisconsin Department of Natural Resources under sec. NR 151.004, Wis. Admin. Code.

SEC. 2. FINDINGS OF FACT.

The Common Council finds that uncontrolled, post-construction runoff has a significant impact upon water resources and the health, safety and general welfare of the community and diminishes the public enjoyment and use of natural resources. Specifically, uncontrolled post-construction runoff can:

(1) Degrade physical stream habitat by increasing stream bank erosion, increasing streambed scour, diminishing groundwater recharge, diminishing stream base flows and increasing stream temperature.

(2) Diminish the capacity of lakes and streams to support fish, aquatic life, recreational and water supply uses by increasing pollutant loading of sediment, suspended solids, nutrients, heavy metals, bacteria, pathogens and other urban pollutants.

(3) Alter wetland communities by changing wetland hydrology and by increasing pollutant loads.

(4) Reduce the quality of groundwater by increasing pollutant loading.

(5) Threaten public health, safety, property and general welfare by overtaxing storm sewers, drainage ways and other minor drainage facilities.

(6) Threaten public health, safety, property and general welfare by increasing major flood peaks and volumes.

(7) Undermine floodplain management efforts by increasing the incidence and levels of flooding.

SEC. 3. PURPOSE AND INTENT.

(1) PURPOSE.

The general purpose of this ordinance is to establish long-term, post-construction runoff management requirements that will diminish the threats to public health, safety, welfare and the aquatic environment. Specific purposes are to:

(a) Further the maintenance of safe and healthful conditions.

(b) Prevent and control the adverse effects of stormwater; prevent and control soil erosion; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structures and land uses; preserve ground cover and scenic beauty; and promote sound economic growth.

(c) Control exceedance of the safe capacity of existing drainage facilities and receiving water bodies; prevent undue channel erosion; control increases in the scouring and transportation of particulate matter; and prevent conditions that endanger downstream property.

(2) INTENT.

It is the intent of the Common Council that this zoning ordinance regulates post-construction stormwater discharges to waters of the state. This ordinance may be applied on a site-by-site basis. The Common Council recognizes, however, that the preferred method of achieving the stormwater performance standards set forth in this ordinance is through the preparation and implementation of comprehensive, systems-level stormwater management plans that cover hydrologic units, such as watersheds, on a municipal and regional scale.
Such plans may prescribe regional stormwater devices, practices or systems, any of which may be designed to treat runoff from more than one site prior to discharge to waters of the state. Where such plans are in conformance with the performance standards developed under sec. 281.16, Wis. Stats., for regional stormwater management measures and have been approved by the Common Council, it is the intent of this ordinance that the approved plan be used to identify post-construction management measures acceptable for the community.

SEC. 4. APPLICABILITY AND JURISDICTION.

(1) APPLICABILITY.

(a) Where not otherwise limited by law, this ordinance applies after final stabilization to a site of land disturbing construction activity meeting any of the criteria in this subsection, unless the site is otherwise exempt under subsection (b):

1. A post construction site that had 5 or more acres of land disturbing construction activity.

2. A post-development construction site that had one or more acres of land disturbing construction activity after March 10, 2003.

3. A post-construction site that had more than 1000 square feet but less than one acre of land disturbing activity shall be required to obtain a permit under this ordinance, but shall only be required to comply with the performance standards contained in Section 7(3)(b) regarding peak discharges unless otherwise required by the administering authority.

(b) A site that meets any of the criteria in this subsection is exempt from the requirements of this ordinance:

1. A redevelopment post-construction site with no increase in exposed parking lots or roads.

2. A post-construction site with less than 10% connected imperviousness based on complete development of the post-construction site, provided the cumulative area of all parking lots and rooftops is less than one acre.

3. Nonpoint discharges from agricultural facilities and practices.

4. Nonpoint discharges from silviculture activities.

5. Routine maintenance for project sites under 5 acres of land disturbance if performed to maintain the original line and grade, hydraulic capacity or original purpose of the facility.

6. Underground utility construction such as water, sewer and fiber optic lines. This exemption does not apply to the construction of any above ground structures associated with utility construction.

(c) Notwithstanding the applicability requirements in subsection (a), this ordinance applies to post-construction sites of any size that, in the opinion of the Director of Public Works, is likely to result in run-off that exceeds the safe capacity of the existing drainage facilities or receiving body of water, that causes undue channel erosion, that increases water pollution by scouring or the transportation of particulate matter or that endangers property or public safety.

(2) JURISDICTION.

This ordinance applies to post construction sites within the boundaries and jurisdiction of the City of Sheboygan, as well as all lands located within the extraterritorial zoning jurisdiction of the City of Sheboygan, even if plat approval is not involved.

(3) EXCLUSIONS.

This ordinance is not applicable to activities conducted by a state agency, as defined under sec. 227.01(10, Wis. Stats., but also including the office of district attorney, which is subject to the state plan promulgated or a memorandum of understanding entered into under sec. 281.33(2), Wis. Stats.

SEC. 5. DEFINITIONS.

(1) 'Administering authority' means the Director of Public Works, or his/her designee, that is designated by the Common Council to administer this ordinance.

(2) 'Agricultural facilities and practices' has the meaning given in sec. 281.16, Wis. Stats.

(3) 'Average annual rainfall' means a calendar year of precipitation, excluding snow, which is considered typical.

(4) 'Best management practice' or 'BMP' means structural or non-structural measures, practices, techniques or devices employed to avoid or minimize sediment or pollutants carried in runoff to waters of the state.

(5) 'Business day' means a day the office of the administering authority is routinely and customarily open for business.

(6) 'Cease and desist order' means a court-issued order to halt land disturbing construction activity that is being conducted without the required permit.

(7) 'Combined sewer system' means a system for conveying both sanitary sewage and stormwater runoff.

(8) 'Connected imperviousness' means an impervious surface that is directly connected to a separate storm sewer or water of the state via an impervious flow path.

(9) 'Construction site' means an area upon which one or more land disturbing construction activities occur, including areas that are part of a larger common plan of development or sale where multiple separate and distinct land disturbing construction activities may be taking place at different times on different schedules but under one plan. A long-range planning document that describes separate construction projects, such as a 20-year transportation improvement plan, is not a common plan of development.

(10) 'Design storm' means a hypothetical discrete rainstorm characterized by a specific duration, temporal distribution, rainfall intensity, return frequency and total depth of rainfall.

(11) 'Development' means residential, commercial, industrial or institutional land uses and associated roads.

(12) 'Division of land' has the meaning given in Section 3.8 of the City of Sheboygan Subdivision Code.

(13) 'Effective infiltration area' means the area of the infiltration system that is used to infiltrate runoff and does not include the area used for site access, berms or pretreatment.

(14) 'Erosion' means the process by which the land's surface is worn away by the action of wind, water, ice or gravity.

(15) 'Exceptional resource waters' means waters listed in sec. NR 102.11, Wis. Admin. Code.

(16) 'Extraterritorial' means the unincorporated area within 3 miles of the corporate limits of the City of Sheboygan.

(17) 'Final stabilization' means that all land disturbing construction activities at the construction site have been completed and that a uniform, perennial, vegetative cover has been established, with a density of at least 70% of the cover, for the unpaved areas and areas not covered by permanent structures, or employment of equivalent permanent stabilization measures.

(18) 'Financial guarantee' means a performance bond, maintenance bond, surety bond, irrevocable letter of credit, or similar guarantees submitted to the administering authority by the responsible party to assure that requirements of the ordinance are carried out in compliance with the stormwater management plan.

(19) 'Governing body' means the Common Council of the City of Sheboygan.

(20) 'Impervious surface' means an area that releases as runoff all or a large portion of the precipitation that falls on it, except for frozen soil. Rooftops, sidewalks, driveways, parking lots and streets are examples of areas that typically are impervious.

(21) 'In-fill area' means an undeveloped area of land located within existing development.

(22) 'Infiltration' means the entry of precipitation or runoff into or through the soil.

(23) 'Infiltration system' means a device or practice such as a basin, trench, rain garden or swale designed specifically to encourage infiltration, but does not include natural infiltration in pervious surfaces such as lawns, redirecting of rooftop downspouts onto lawns or minimal infiltration from practices, such as swales or road side channels signed for conveyance and pollutant removal only.

(24) 'Karst feature' means an area or surficial geologic feature subject to bedrock dissolution so that it is likely to provide a conduit to groundwater, and may include caves, enlarged fractures, mine features, exposed bedrock surfaces, sinkholes, springs, seeps or swallets.

(25) 'Land disturbing construction activity' means any man-made alteration of the land surface resulting in a change in the topography or existing vegetative or non-vegetative soil cover, that may result in runoff and lead to an increase in soil erosion and movement of sediment into waters of the state. Land disturbing construction activity includes clearing and grubbing, demolition, excavating, pit trench dewatering, filling and grading activities.

(26) 'Maintenance agreement' means a legal document that provides for long-term maintenance of stormwater management practices.

(27) 'MEP' or 'maximum extent practicable' means a level of implementing best management practices in order to achieve a performance standard specified in this ordinance which takes into account the best
available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, historic properties and geographic features. MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

(28) 'New development' means development resulting from the conversion of previously undeveloped land or agricultural land uses.

(29) 'Off-site' means located outside the property boundary described in the permit application.

(30) 'On-site' means located within the property boundary described in the permit application.

(31) 'Ordinary high-water mark' has the meaning given in sec. NR 115.03(6), Wis. Admin. Code.

(32) 'Outstanding resource waters' means waters listed in sec. NR 102.10, Wis. Admin. Code.

(33) 'Percent fines' means the percentage of a given sample of soil , which passes through a #200 sieve.

(34) 'Performance standard' means a narrative or measurable number specifying the minimum acceptable outcome for a facility or practice.

(35) 'Permit' means a written authorization made by the administering authority to the applicant to conduct land disturbing construction activity or to discharge post-construction runoff to waters of the state.

(36) 'Permit administration fee' means a sum of money paid to the administering authority by the permit applicant for the purpose of recouping the expenses incurred by the authority in administering the permit.

(37) 'Pervious surface' means an area that releases as runoff a small portion of the precipitation that falls on it. Lawns, gardens, parks, forests or other similar vegetated areas are examples of surfaces that typical are pervious.

(38) 'Pollutant' has the meaning given in sec. 283.01(13), Wis. Stats.

(39) 'Pollution' has the meaning given in sec. 281.01(10), Wis. Stats.

(40) 'Post-construction site' means a construction site following the completion of land disturbing construction activity and final site stabilization.

(41) 'Pre-development condition' means the extent and distribution of land cover types present before the initiation of land disturbing construction activity, assuming that all land uses prior to development activity are managed in an environmentally sound manner.

(42) 'Preventive action limit' has the meaning given in sec. NR 140.05(17), Wis. Admin. Code.

(43) 'Redevelopment' means areas where development is replacing older development.

(44) 'Responsible party' means any entity holding fee title to the property or other person contracted or obligated by other agreement to implement and maintain post-construction stormwater BMP's.

(45) 'Runoff' means stormwater or precipitation including rain, snow or ice melt or similar water that moves on the land surface via sheet or channelized flow.

(46) 'Separate storm sewer' means a conveyance or system of conveyances including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, constructed channels or storm drains, which meet all of the following criteria:

(a) Is designed or used for collecting water or conveying runoff.

(b) Is not part of a combined sewer system.

(c) Is not draining to a stormwater treatment device or system.

(d) Discharges directly or indirectly to waters of the state.

(47) 'Site' means the entire area included in the legal description of the land on which the land disturbing construction activity occurred.

(48) 'Stop work order' means an order issued by the administering authority that requires that all construction activity on the site be stopped.

(49) 'Stormwater management plan' means a comprehensive plan designed to reduce the discharge of pollutants from stormwater after the site has undergone final stabilization following completion of the construction activity.

(50) 'Stormwater management system plan' is a comprehensive plan designed to reduce the discharge of runoff and pollutants from hydrologic units on a regional or municipal scale.

(51) 'Technical standard' means a document that specifies design, predicted performance and operation and maintenance specifications for a material, device or method.

(52) 'Top of the channel' means an edge, or point on the landscape, landward from the ordinary high-water mark of a surface water of the state, where the slope of the land begins to be less than 12% continually for at least 50 feet. If the slope of the land is 12% or less continually for the initial 50 feet, landward from the ordinary high-water mark, the top of the channel is the ordinary high-water mark.

(53) 'TR-55' means the United States Department of Agriculture, Natural Resources Conservation Service (previously Soil Conservation Service), Urban Hydrology for Small Watersheds, Second Edition, Technical Release 55, June 1986.

(54) 'Type II distribution' means a rainfall type curve as established in the 'United States Department of Agriculture, Soil Conservation Service, Technical Paper 149, published 1973.' The Type II curve is applicable to all of Wisconsin and represents the most intense storm pattern.

(55) 'Waters of the state' has the meaning given in sec. 281.01(18), Wis. Stats.

SEC. 6. TECHNICAL STANDARDS.

The following methods shall be used in designing the water quality, peak flow shaving and infiltration components of stormwater practices needed to meet the water quality standards of this ordinance:

(1) Technical standards identified, developed or disseminated by the Wisconsin Department of Natural Resources under subchapter V of chapter NR 151, Wis. Admin. Code.

(2) Where technical standards have not been identified or developed by the Wisconsin Department of Natural Resources, other technical standards may be used provided that the methods have been approved by the administering authority.

(3) In this ordinance, the following year and location has been selected as average annual rainfall: Milwaukee, 1969 (Mar. 28-Dec. 6).

SEC. 7. PERFORMANCE STANDARDS.

(1) RESPONSIBLE PARTY.

The responsible party shall implement a post-construction stormwater management plan that incorporates the requirements of this section.

(2) PLAN.

A written stormwater management plan in accordance with Section 9 shall be developed and implemented for each post-construction site.

(3) REQUIREMENTS.

The plan required under subsection (2) shall include the following:

(a) TOTAL SUSPENDED SOLIDS.

BMP's shall be designed, installed and maintained to control total suspended solids carried in runoff from the post-construction site as follows:

1. For new development, by design, reduce to the maximum extent practicable, the total suspended solids load by 80%, based on the average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80% total suspended solids reduction to meet the requirements of this Section (a)1.

2. For redevelopment, by design, reduce to the maximum extent practicable, the total suspended solids load by 40%, based on the average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed a 40% total suspended solids reduction to meet the requirements of this Section (a)1.

3. For in-fill development under 5 acres that occurs within 10 years after October 1, 2002, by design, reduce to the maximum extent practicable, the total suspended solids load by 40%, based on an average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed a 40% total suspended solids reduction to meet the requirements of this Section (a)1.

4. For in-fill development that occurs 10 or more years after October 1, 2002, by design, reduce to the maximum extent practicable, the total suspended solids load by 80%, based on an average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80% total suspended solids reduction to meet the requirements of this Section (a)1.

5. Notwithstanding subsections (a) 1. to 4., if the design cannot achieve the applicable total suspended solids reduction specified, the stormwater management plan shall include a written and site-specific explanation why that level of reduction is not attained and the total suspended solids load shall be reduced to the maximum extent practicable.

(b) PEAK DISCHARGE.

1. By design, BMPs shall be employed to maintain or reduce the peak runoff discharge rates, to the maximum extent practicable, as compared to predevelopment conditions for the 2-year, 24-hour design storm applicable to the post-construction site. At a minimum, the post-construction site shall detain the 10-year, 24-hour design storm released at the 2-year, 24-hour predevelopment peak discharge rate. Rainfall data applicable to this section shall be taken from 'The Rainfall Frequency Atlas of the Midwest,' by Floyd A. Huff and James R. Angel, Bulletin 71 of the Midwestern Climate Center, 1992, Section 9, Table 9. Predevelopment conditions shall assume 'good hydrologic conditions' for appropriate land covers as identified in TR-55 or an equivalent methodology, such as modified rational or rational method Q/Qp. The meaning of

'hydrologic soil group' and 'runoff curve number' are as determined in TR-55. However, when predevelopment land cover is cropland, rather than using TR-55 values for cropland, the runoff curve numbers in Table 1 shall be used. The administrative authority may require additional retention up to and including the 100-year post development storm frequency due to downstream threats to life and property resulting from the additional drainage. The grading plan shall pass the 100-year storm around or through the development without causing harm to life or property.

Table 1 - Maximum Predevelopment Runoff Curve Numbers for Cropland Areas

Hydrologic Soil Group	A	B	C	D
Runoff Curve Number	56	70	79	83

2. Subsection (b)1. does not apply to any of the following:

a. A post-construction site where the change in hydrology due to development does not increase the existing surface water elevation at any point within the downstream receiving water by more than 0.01 of a foot for the 2-year, 24-hour storm event.

b. A redevelopment post-construction site.

c. An in-fill development area less than 5 acres.

(c) INFILTRATION.

BMPs shall be designed, installed and maintained to infiltrate runoff to the maximum extent practicable in accordance with the following, except as provided in subsection (c) 5 through 8, below:

1. For residential developments one of the following shall be met:

a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90% of the pre-development infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.

b. Infiltrate 25% of the post-development runoff from the 2-year, 24-hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff
volumes and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.

2. For non-residential development, including commercial, industrial and institutional development, one of the following shall be met:

a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 60% of the pre-development infiltration volume, based on an average annual rainfall.

However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

b. Infiltrate 10% of the runoff from the 2-year, 24-hour design storm with a type II distribution. Separate curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes, and not composite curve numbers as defined in TR-55. However, when designing appropriate infiltration systems to meet this requirement, no more than 2% of the project site is required as an effective infiltration area.

3. Pre-development condition shall be the same as in subsections 1.b. and 2.b.

4. Before infiltrating runoff, pretreatment shall be required for parking lot runoff and for runoff from new road construction in commercial, industrial and institutional areas that will enter an infiltration system. The pretreatment shall be designed to protect the infiltration system from clogging prior to scheduled maintenance and to protect groundwater quality in accordance with subsection (c) below. Pretreatment options may include, but are not limited to, oil/grease separation, sedimentation, biofiltration, filtration, swales or filter strips.

5. Exclusions. The runoff from the following areas are prohibited from meeting the requirements of this paragraph:

a. Areas associated with tier 1 industrial facilities identified in sec. NR 216.21(2)(a), Wis. Admin. Code, including storage, loading, rooftop and parking.

b. Storage and loading areas of tier 2 industrial facilities identified in sec. NR 216.21(2)(b), Wis. Admin. Code.

c. Fueling and vehicle maintenance areas.

d. Areas within 1000 feet upgradient or within 100 feet downgradient of karst features.

e. Areas with less than 3 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock, except this subsection (c)5.e. does not prohibit infiltration of roof runoff.

f. Areas with runoff from industrial, commercial and institutional parking lots and roads and residential arterial roads with less than 5 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater or the top of bedrock.

g. Areas within 400 feet of a community water system well as specified in sec. NR 811.16(4), Wis. Admin. Code, or within 100 feet of a private well as specified in sec. NR 812.08(4), Wis. Admin. Code, for runoff infiltrated from commercial, industrial and institutional land uses or regional devices for residential development.

h. Areas where contaminants of concern, as defined in sec. NR 720.03(2), Wis. Admin. Code, are present in the soil through which infiltration will occur.

i. Any area where the soil does not exhibit one of the following soil characteristics between the bottom of the infiltration system and the seasonal high groundwater and top of bedrock: at least a 3-foot soil layer with 20% fines or greater; or at least a 5-foot soil layer with 10 percent fines or greater. This does not apply where the soil medium within the infiltration system provides an equivalent level of protection. This subsection (c)5.i. does not prohibit infiltration of roof runoff.

6. Exemptions. The following are not required to meet the requirements of this subsection (c):

a. Areas where the infiltration rate of the soil is less than 0.6 inches/hour measured at the site.

b. Parking areas and access roads less than 5,000 square feet for commercial and industrial development.

c. Redevelopment post-construction sites.

d. In-fill development areas less than 5 acres.

e. Infiltration areas during periods when the soil on the site is frozen.

f. Roads in commercial, industrial and institutional land uses, and arterial residential roads.

7. Where alternate uses of runoff are employed, such as for toilet flushing, laundry or irrigation, such alternate use shall be given equal credit toward the infiltration volume required by this subsection (c).

8.a. Infiltration systems designed in accordance with this subsection (c) shall, to the extent technically and economically feasible, minimize the level of pollutants infiltrating to groundwater and shall maintain compliance with the preventive action limit at a point of standards application in accordance with ch. NR 140, Wis. Admin. Code. However, if site specific information indicates that compliance with a preventive action limit is not achievable, the infiltration BMP may not be installed or shall be modified to prevent infiltration to the maximum extent practicable.

b. Notwithstanding subsection (c)8.a. above, the discharge from BMPs shall remain below the enforcement standard at the point of standards application.

(d) PROTECTIVE AREAS.

1. 'Protective area' means an area of land that commences at the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands, and that is the greatest of the following widths, as measured horizontally from the top of the channel or delineated wetland boundary to the closest impervious surface. However, in this subsection, 'protective area' does not include any area of land adjacent
to any stream enclosed within a pipe or culvert, such that runoff cannot enter the enclosure at this location.

a. For outstanding resource waters and exceptional resource waters, and for wetlands in areas of special natural resource interest as specified in sec. NR 103.04, Wis. Admin. Code, 75 feet.

b. For perennial and intermittent streams identified on a United States geological survey 7.5-minute series topographic map, or a county soil survey map, whichever is more current, 50 feet.

c. For lakes, 50 feet.

d. For highly susceptible wetlands, 50 feet. Highly susceptible wetlands include the following types: fens, sedge meadows, bogs, low prairies, conifer swamps, shrub swamps, other forested wetlands, fresh wet meadows, shallow marshes, deep marshes and seasonally flooded basins.

Wetland boundary delineations shall be made in accordance with sec. NR 103.08(1m), Wis. Admin. Code. This subsection does not apply to wetlands that have been completely filled in accordance with all applicable state and federal regulations. The protective area for wetlands that have been partially filled in accordance with all applicable state and federal regulations shall be measured from the wetland boundary delineation after fill has been placed.

e. For less susceptible wetlands, 10 percent of the average wetland width, but no less than 10 feet nor more than 30 feet. Less susceptible wetlands include degraded wetlands dominated by invasive species such as reed canary grass.

f. In subsections (d) 1. a., d. and e., determinations of the extent of the protective area adjacent to wetlands shall be made on the basis of the sensitivity and runoff susceptibility of the wetland in accordance with the standards and criteria in sec. NR 103.03, Wis. Admin. Code.

g. For concentrated flow channels with drainage areas greater than 130 acres, 10 feet.

2. This subsection applies to post-construction sites located within a protective area, except those areas exempted pursuant to subsection (d) 4, below.

3. The following requirements shall be met:

a. Impervious surfaces shall be kept out of the protective area to the maximum extent practicable. The stormwater management plan shall contain a written site-specific explanation for any parts of the protective area that are disturbed during construction.

b. Where land disturbing construction activity occurs within a protective area, and where no impervious surface is present, adequate
sod or self-sustaining vegetative cover of 70% or greater shall be established and maintained. The adequate sod or self-sustaining vegetative cover shall be sufficient to provide for bank stability, maintenance of fish habitat and filtering of pollutants from upslope overland flow areas under sheet flow conditions. Non-vegetative materials, such as rock riprap, may be employed on the bank as necessary to prevent erosion, such as on steep slopes or where high velocity flows occur.

c. Best management practices such as filter strips, swales or wet detention basins, that are designed to control pollutants from non-point sources may be located in the protective area.

4. This subsection (d) does not apply to:

a. Redevelopment post-construction sites.

b. In-fill development areas less than 5 acres.

c. Structures that cross or access surface waters such as boat landings, bridges and culverts.

d. Structures constructed in accordance with sec. 59.692(1v), Wis. Stats.

e. Post-construction sites from which runoff does not enter the surface water, except to the extent that vegetative ground cover is necessary to maintain bank stability.

(e) FUELING AND VEHICLE MAINTENANCE AREAS.

Fueling and vehicle maintenance areas shall, to the maximum extent practicable, have BMPs designed, installed and maintained to reduce petroleum within runoff, such that the runoff that enters waters of the state contains no visible petroleum sheen.

(f) SWALE TREATMENT FOR TRANSPORTATION FACILITIES.

1. Applicability. Except as provided in subd. 2., transportation facilities that use swales for runoff conveyance and pollutant removal meet all of the requirements of this section, if the swales are designed to the maximum extent practicable to do all of the following:

a. Be vegetated. However, where appropriate, non-vegetative measures may be employed to prevent erosion or provide for runoff treatment, such as rock riprap stabilization or check dams.

b. Carry runoff through a swale for 200 feet or more in length that is designed with a flow velocity no greater than 1.5 feet per second for the peak flow generated using either a 2-year, 24-hour design storm or a 2-year storm with a duration equal to the time of concentration as appropriate. If a swale of 200 feet in length cannot be designed with a flow velocity of 1.5 feet per second or less, then the flow velocity shall be reduced to the maximum extent practicable.

2. Exemptions. The administering authority may, consistent with water quality standards, require other provisions of this section be met on a transportation facility with an average daily travel of vehicles greater than 2500 and where the initial surface water of the state that the runoff directly enters is any of the following:

a. An outstanding resource water.

b. An exceptional resource water.

c. Waters listed in sec. 303(d) of the federal clean water act that are identified as impaired in whole or in part, due to nonpoint source impacts.

d. Waters where targeted performance standards are developed under sec. NR 151.004, Wis. Admin. Code, to meet water quality standards.

(4) GENERAL CONSIDERATIONS FOR ON-SITE AND OFF-SITE STORMWATER MANAGEMENT MEASURES.

The following considerations shall be observed in managing runoff:

(a) Natural topography and land cover features such as natural swales, natural depressions, native soil infiltrating capacity and natural groundwater recharge areas shall be preserved and used, to the extent possible, to meet the requirements of this section.

(b) Emergency overland flow for all stormwater facilities shall be provided to prevent exceeding the safe capacity of downstream drainage facilities and prevent endangerment of downstream property or public safety.

(5) LOCATION AND REGIONAL TREATMENT OPTION.

(a) The BMPs may be located on-site or off-site as part of a regional stormwater device, practice or system.

(b) Post-construction runoff within a non-navigable surface water that flows into a BMP, such as a wet detention pond, is not required to meet the performances standards of this ordinance. Post-construction BMPs may be located in non-navigable surface waters.

(c) Except as allowed under par. (d), post-construction runoff from new development shall meet the post-construction performance standards prior to entering a navigable surface water.

(d) Post-construction runoff from any development within a navigable surface water that flows into a BMP is not required to meet the performance standards of this ordinance if:

1. The BMP was constructed prior to the effective date of this ordinance and the BMP either received a permit issued under ch. 30, Wis. Stats., or the BMP did not require a ch. 30, Wis. Stats., permit; and

2. The BMP is designed to provide runoff treatment from future upland development.

(e) Runoff from existing development, redevelopment and in-fill areas shall meet the post-construction performance standards in accordance with this paragraph.

1. To the maximum extent practicable, BMPs shall be located to treat runoff prior to discharge to navigable surface waters.

2. Post-construction BMPs for such runoff may be located in a navigable surface water if allowable under all other applicable federal, state and local regulations such as ch. NR 103, Wis. Admin. Code and ch. 30, Wis. Stats.

(f) The discharge of runoff from a BMP, such as a wet detention pond, or after a series of such BMPs is subject to this chapter.

(g) The administering authority may approve off-site management measures provided that all of the following conditions are met:

1. The administrating authority determines that the post-construction runoff is covered by a stormwater management system plan that is approved by the City of Sheboygan and that contains management requirements consistent with the purpose and intent of this ordinance.

2. The off-site facility meets all of the following conditions:

a. The facility is in place.

b. The facility is designed and adequately sized to provide a level of stormwater control equal to or greater than that which would be afforded by on-site practices meeting the performance standards of this ordinance.

c. The facility has a legally obligated entity responsible for its long-term operation and maintenance.

(h) Where a regional treatment option exists such that the administering authority exempts the applicant from all or part of the minimum on-site stormwater management requirements, the

applicant shall be required to pay a fee in an amount determined in negotiation with the administering authority. In determining the fee for post-construction runoff, the administering authority shall consider an equitable distribution of the cost for land, engineering design, construction and maintenance of the regional treatment option.

(6) ALTERNATE REQUIREMENTS.

The administering authority may establish stormwater management requirements more stringent than those set forth in this section if the administering authority determines that an added level of protection is needed to protect sensitive resources.

SEC. 8. PERMITTING REQUIREMENTS, PROCEDURES AND FEES.

(1) PERMIT REQUIRED.

No responsible party may undertake a land disturbing construction activity without receiving a post-construction runoff permit from the administering authority prior to commencing the proposed activity.

(2) PERMIT APPLICATION AND FEES.

Unless specifically excluded by this ordinance, any responsible party desiring a permit shall submit to the administering authority a permit application made on a form provided by the administering authority for that purpose.

(a) Unless otherwise excepted by this ordinance, or as provided in subsection 2(c) below, a permit application must be accompanied by a stormwater management plan, a maintenance agreement and a non-refundable permit administration fee.

(b) The stormwater management plan shall be prepared to meet the requirements of Sections 7 and 9, the maintenance agreement shall be prepared to meet the requirements of Section 10, the financial guarantee shall meet the requirements of Section 11, and fees shall be those established by the Common Council as set forth in Section 12.

(c) A permit application for those sites referenced in Section 4(1)(a)3. of this ordinance need not be accompanied by a maintenance agreement.

(3) REVIEW AND APPROVAL OF PERMIT APPLICATION.

The administering authority shall review any permit application that is submitted with a stormwater management plan, maintenance agreement and the required fee. The following approval procedure shall be used:

(a) Within 30 business days of the receipt of a complete permit application, including all items as required by subsection (2), the
administering authority shall inform the applicant whether the application, plan and maintenance agreement are approved or disapproved based on the requirements of this ordinance.

(b) If the stormwater permit application, plan and maintenance agreement are approved, or if an agreed upon payment of fees in lieu of stormwater management practices is made, the administering authority shall issue the permit.

(c) If the stormwater permit application, plan or maintenance agreement is disapproved, the administering authority shall detail in writing the reasons for disapproval.

(d) The administering authority may request additional information from the applicant. If additional information is submitted, the administering authority shall have 10 business days from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

(4) PERMIT REQUIREMENTS.

All permits issued under this ordinance shall be subject to the following conditions, and holders of permits issued under this ordinance shall be deemed to have accepted these conditions. The administering authority may suspend or revoke a permit for violation of a permit condition, following written notification of the responsible party. An action by the administering authority to suspend or revoke this permit may be appealed in accordance with Section 14.

(a) Compliance with this permit does not relieve the responsible party of the responsibility to comply with other applicable federal, state and local laws and regulations.

(b) The responsible party shall design and install all structural and non-structural stormwater management measures in accordance with the approved stormwater management plan and this permit.

(c) The responsible party shall notify the administering authority at least 2 business days before commencing any work in conjunction with the stormwater management plan and within 2 business days upon completion of
the stormwater management practices. If required as a special condition under subsection (5), the responsible party shall make additional notification according to a schedule set forth by the administering authority so that practice installations can be inspected during construction.

(d) Practice installations required as part of this ordinance shall be certified 'as built' by a licensed professional engineer. Completed stormwater management practices must pass a final inspection by the administering authority or its designee to determine if they are in accordance with the approved stormwater management plan and ordinance. The administering authority or its designee shall notify the responsible party in writing of any changes required in such practices to bring them into compliance with the conditions of this permit.

(e) The responsible party shall notify the administering authority of any significant modifications it intends to make to an approved stormwater management plan. The administering authority may require that the proposed modifications be submitted to it for approval prior to incorporation into the stormwater management plan and execution by the responsible party.

(f) The responsible party shall maintain all stormwater management practices in accordance with the stormwater management plan until the practices either become the responsibility of the City, or are transferred to subsequent private owners as specified in the approved maintenance agreement.

(g) The responsible party authorizes the administering authority to perform any work or operations necessary to bring stormwater management measures into conformance with the approved stormwater management plan, and consents to a special assessment or charge against the property as authorized under subchapter VII of ch. 66, Wis. Stats., or to charging such costs against the financial guarantee posted under Section 11.

(h) If so directed by the administering authority, the responsible party shall repair at the responsible party's own expense all damage to
adjoining municipal facilities and drainage ways caused by runoff, where such damage is caused by activities that are not in compliance with the approved stormwater management plan.

(i) The responsible party shall permit property access to the administering authority or its designee for the purpose of inspecting the property for compliance with the approved stormwater management plan and this permit.

(j) Where site development or redevelopment involves changes in direction, increases in peak rate and/or total volume of runoff from a site, the administering authority may require the responsible party to make appropriate legal arrangements with affected property owners concerning the prevention of endangerment to property or public safety.

(k) The responsible party is subject to the enforcement actions and penalties detailed in Section 13, if the responsible party fails to comply with the terms of this permit.

(5) PERMIT CONDITIONS.

Permits issued under this subsection may include conditions established by the administering authority in addition to the requirements needed to meet the performance standards in Section 7 or a financial guarantee as provided for in Section 11.

(6) PERMIT DURATION.

Permits issued under this section shall be valid from the date of issuance through the date the administering authority notifies the responsible party that all stormwater management practices have passed the final inspection required under subsection (4)(d).

SEC. 9. STORMWATER MANAGEMENT PLAN.

(1) PLAN REQUIREMENTS.

The stormwater management plan required under Section 8(2) shall contain at a minimum the following information:

(a) Name, address and telephone number for the following or their designees: landowner; developer; project engineer for practice design and certification; person(s) responsible for installation of stormwater
management practices; and person(s) responsible for maintenance of stormwater management practices prior to the transfer, if any, of maintenance responsibility to another party.

(b) A proper legal description of the property proposed to be developed, referenced to the U.S. Public Land Survey system or to block and lot numbers within a recorded land subdivision plat.

(c) Pre-development site conditions, including:

1. One or more site maps at a scale of not less than 1 inch equals 100 feet. The site maps shall show the following: site location and legal property description; predominant soil types and hydrologic soil groups; existing cover type and condition; topographic contours of the site at a scale not to exceed 100 feet; topography and drainage network including enough of the contiguous properties to show runoff patterns onto, through and from the site; watercourses that may affect or be affected by runoff from the site; flow path and direction for all stormwater conveyance sections; watershed boundaries used in hydrology determinations to show compliance with performance standards; lakes, streams, wetlands, channels, ditches and other watercourses on and immediately adjacent to the site; limits of the 100 year floodplain; location of wells and wellhead protection areas covering the project area and delineated pursuant to sec. NR 811.16, Wis. Admin. Code.

2. Hydrology and pollutant loading computations as needed to show compliance with performance standards. All major assumptions used in developing input parameters shall be clearly stated. The geographic areas used in making the calculations shall be clearly cross-referenced to the required map(s).

(d) Post-development site conditions, including:

1. Explanation of the provisions to preserve and use natural topography and land cover features to minimize changes in peak flow runoff rates and volumes to surface waters and wetlands.

2. Explanation of any restrictions on stormwater management measures in the development area imposed by wellhead protection plans and ordinances.

3. One or more site maps at a scale of not less than 1 inch equals 100 feet showing the following: post-construction pervious areas including vegetative cover type and condition; impervious surfaces including all buildings, structures and pavement; post-construction topographic contours of the site at a scale not to exceed 100 feet; post-construction drainage network including enough of the contiguous properties to show runoff patterns onto, through and from the site; locations and dimensions of drainage easements; locations of maintenance easements specified in the maintenance agreement; flow path and direction for all stormwater conveyance sections; location and type of all stormwater management conveyance and treatment practices, including the on-site and off-site tributary drainage area; location and type of conveyance system that will carry runoff from the drainage and treatment practices to the nearest adequate outlet such as a curbed street, storm drain or natural drainage way; watershed boundaries used in hydrology and pollutant loading calculations and any changes to lakes, streams, wetlands, channels, ditches and other watercourses on and immediately adjacent to the site.

4. Hydrology and pollutant loading computations as needed to show compliance with performance standards. The computations shall be made for each discharge point in the development, and the geographic areas used in making the calculations shall be clearly cross-referenced to the required map(s).

5. Results of investigations of soils and groundwater required for the placement and design of stormwater management measures. Detailed drawings including cross-sections and profiles of all permanent stormwater conveyance and treatment practices.

(e) A description and installation schedule for the stormwater management practices needed to meet the performance standards in Section 7.

(f) A maintenance plan developed for the life of each stormwater management practice including the required maintenance activities and maintenance activity schedule.

(g) Cost estimates for the construction, operation and maintenance of each stormwater management practice.

(h) Other information requested in writing by the administering authority to determine compliance of the proposed stormwater management measures with the provisions of this ordinance.

(i) All site investigations, plans, designs, computations and drawings shall be certified by a license professional engineer to be prepared in accordance with accepted engineering practice and requirements of this ordinance.

(2) ALTERNATE REQUIREMENTS.

The administering authority may prescribe alternative submittal requirements for applicants seeking an exemption to on-site stormwater management performance standards under Section 7(5).

SEC. 10. MAINTENANCE AGREEMENT.

(1) MAINTENANCE AGREEMENT REQUIRED.

The maintenance agreement required under Section 8(2) for stormwater management practices shall be an agreement between the administering authority and the responsible party to provide for maintenance of stormwater practices beyond the duration period of this permit. The maintenance agreement shall be filed with the County Register of Deeds as a property deed restriction so that it is binding upon all subsequent owners of the land served by the stormwater management practices.

(2) AGREEMENT PROVISIONS.

The maintenance agreement shall contain the following information and provisions and be consistent with the maintenance plan required by Section 9(1)(f):

(a) Identification of the stormwater facilities and designation of the drainage area served by the facilities.

(b) A schedule for regular maintenance of each aspect of the stormwater management system consistent with the stormwater management plan required under Section 8(2).

(c) Identification of the responsible party(s), organization or city, county, town or village responsible for long-term maintenance of the stormwater management practices identified in the stormwater management plan required under Section 8(2).

(d) Requirement that the responsible party(s), organization, or city, county, town or village shall maintain stormwater management practices in accordance with the schedule included in subsection (b).

(e) Authorization for the administering authority to access the property to conduct inspections of stormwater management practices as necessary to ascertain that the practices are being maintained and operated in accordance with the agreement.

(f) A requirement on the administering authority to maintain public records of the results of the site inspections, to inform the responsible party responsible for maintenance of the inspection results, and to specifically indicate any corrective actions required to bring the stormwater management practice into proper working condition.

(g) Agreement that the party designated under subsection (c), as responsible for long-term maintenance of the stormwater management practices, shall be notified by the administering authority of maintenance problems which require correction. The specified corrective actions shall be undertaken within a reasonable time frame as set by the administering authority.

(h) Authorization of the administering authority to perform the corrected actions identified in the inspection report if the responsible party designated under subsection (c) does not make the required corrections in the specified time period. The administering authority shall enter the amount due on the tax rolls and collect the money as a special charge against the property pursuant to subch. VII of ch. 66, Wis. Stats.

SEC. 11. FINANCIAL GUARANTEE.

(1) ESTABLISHMENT OF THE GUARANTEE.

The administering authority may require the submittal of a financial guarantee, the form and type of which shall be acceptable to the administering authority. The financial guarantee shall be in an amount determined by the administering authority to be the estimated cost of construction and the estimated cost of maintenance of the stormwater management practices during the period which the designated party in the maintenance agreement has maintenance responsibility. The financial guarantee shall give the administering authority the authorization to use the funds to complete the stormwater management practices if the responsible party defaults or does not properly implement the approved stormwater management plan, upon written notice to the responsible party by the administering authority that the requirements of this ordinance have not been met.

(2) CONDITIONS FOR RELEASE.

Conditions for the release of the financial guarantee are as follows:

(a) The administering authority shall release the portion of the financial guarantee established under this section, less any costs incurred by the administering authority to complete installation of practices, upon submission of 'as built plans' by a licensed professional engineer. The administering authority may make provisions for a partial pro-rata release of the financial guarantee based on the completion of various development stages.

(b) The administering authority shall release the portion of the financial guarantee established under this section to assure maintenance of stormwater practices, less any costs incurred by the administering authority at such time that the responsibility for practice maintenance is passed on to another entity via an approved maintenance agreement.

SEC. 12. FEE SCHEDULE.

The fees referred to in this ordinance shall be established by the Common Council and may from time to time be modified by resolution. A schedule of the fees established shall be available for review in the office of the administering authority.

SEC. 13. ENFORCEMENT.

(1) Any land disturbing construction activity or post-construction runoff initiated after the effective date of this ordinance by any person, firm, association or corporation subject to the ordinance provisions shall be deemed a violation unless conducted in accordance with the requirements of this ordinance.

(2) The administering authority shall notify the responsible party by certified mail of any non-complying land disturbing construction activity or post-construction runoff. The notice shall describe the nature of the violation, remedial actions needed, a schedule for remedial action and additional enforcement action which may be taken.

(3) Upon receipt of written notification from the administering authority under subsection (2), the responsible party shall correct work that does not comply with the stormwater management plan or other provisions of this permit. The responsible party shall make corrections as necessary to meet the specifications and schedule set forth by the administering authority in the notice.

(4) If the violations to a permit issued pursuant to this ordinance are likely to result in damage to properties, public facilities or waters of the state, the administering authority may enter the land and take emergency actions necessary to prevent such damage. The costs incurred by the administering authority plus interest and legal costs shall be billed to the responsible party.

(5) The administering authority is authorized to post a stop work order on all land disturbing construction activity that is in violation of this ordinance, or to request the city attorney to obtain a cease and desist order in any court with jurisdiction.

(6) The administering authority may revoke a permit issued under this ordinance for non-compliance with ordinance provisions.

(7) Any permit revocation, stop work order or cease and desist order shall remain in effect unless retracted by the administering authority or by a court with jurisdiction.

(8) The administering authority is authorized to refer any violation of this ordinance, or of a stop work order or cease and desist order issued pursuant to this ordinance, to the city attorney for the commencement of further legal proceedings in any court with jurisdiction.

(9) Any person, firm, association or corporation who does not comply with the provisions of this ordinance shall be subject to a forfeiture of not less than $50 and not more than $1000 per offense, together with the costs of prosecution. Each day that the violation exists shall constitute a separate offense.

(10) Compliance with the provisions of this ordinance may also be enforced by injunction in any court with jurisdiction. It shall not be necessary to prosecute for forfeiture or a cease and desist order before resorting to injunctional proceedings.

(11) When the administering authority determines that the holder of a permit issued pursuant to this ordinance has failed to follow practices set forth in the stormwater management plan, or has failed to comply with schedules set forth in said stormwater management plan, the administering authority or a party designated by the administering authority may enter upon the land and perform the work or other operations necessary to bring the condition of said lands into conformance with requirements of the approved plan. The administering authority shall keep a detailed accounting of the costs and expenses of performing this work. These costs and expenses shall be deducted from any financial security posted pursuant to Section 11 of this ordinance. Where such a security has not been established, or where such a security is insufficient to cover these costs, the costs and expenses shall be entered on the tax roll as a special charge against the property and collected with any other taxes levied thereon for the year in which the work is completed.

SEC. 14. APPEALS.

(1) ZONING BOARD OF APPEALS.

The zoning board of appeals, created pursuant to section 15.934 of the City of Sheboygan's zoning ordinance pursuant to sec. 62.23(7)(e), Wis. Stats., shall hear and decide appeals
where it is alleged that there is error in any order, decision or determination made by the administering authority in administering this ordinance. The board shall also use the rules, procedures, duties and powers authorized by statute in hearing and deciding appeals. Upon appeal, the board may authorize variances from the provisions of this ordinance that are not contrary to the public interest, and where owing to special conditions a literal enforcement of the ordinance will result in unnecessary hardship.

(2) WHO MAY APPEAL.

Appeals to the zoning board of appeals may be taken by any aggrieved person or by an officer, department, board or bureau of the City of Sheboygan affected by any decision of the administering authority."

Section 2. Severability. If any section, clause, provision or portion of this ordinance is judged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the ordinance shall remain in force and not be affected by such judgment.

Section 3. Effective Date. This ordinance shall be in force and effect from and after its passage and publication.

APPENDIX B

EROSION CONTROL ORDINANCE

APPENDIX B Erosion Control Ordinance

SECTION 1.0. AUTHORITY, FINDINGS AND PURPOSE.

1.1. Authority.

This ordinance is adopted under the authority granted by Section 62.234, Wis. Stats., and applies to land disturbing construction activities and land developing activities on land within the boundaries and jurisdiction of the City. The Department of Natural Resources Wisconsin Construction Site Best Management Practice Handbook is adopted by reference and shall become a part of this ordinance, a copy of which shall be kept on file in the offices of the City Building Inspector and Public Works/Engineering.

1.2. Findings.

The City finds runoff and erosion from land developing activities and land disturbing construction activities greatly impacts the amount of sediment and other pollutants that enter the waters and rights-of-way of the state and the City.

1.3. Purpose.

It is the purpose of this ordinance to preserve the natural resources; to protect the quality of the waters of the state and the City; and to protect and promote the health, safety and welfare of the people, to the extent practicable by minimizing the amount of sediment and other pollutants carried by runoff or discharged from land developing activities and land disturbing construction activities to lakes, streams and wetlands.

1.4. Title.

This ordinance shall be known as the Construction Site Erosion Control Ordinance for Sheboygan, Wisconsin.

SECTION 2.0. APPLICABILITY OF ORDINANCE.

2.1. Applicability.

(a) This ordinance applies to the following land developing or land disturbing construction activities within the boundaries and jurisdiction of the City of Sheboygan except as provided under sub. (b):

(1) A construction site which has one or more acres of land disturbing construction activity;

(2) Those activities requiring a subdivision plat approval;

(3) Those activities requiring a certified survey map approval;

(4) Those activities involving grading, removal of protective ground cover or vegetation, excavation, land filling or other land disturbing construction activity affecting surface area of four thousand square feet or more;

(5) Those activities involving excavation or filling or a combination of excavation and filling affecting four hundred cubic yards or more of dirt, sand or other excavation of fill material;
(6) Those activities involving street, highway, road or bridge construction, enlargement, relocation or reconstruction;
(7) Those activities involving the laying, repairing, replacing or enlarging of an underground pipe or facility for a distance of three hundred feet or more.
(b) This ordinance does not apply to the following:
(1) Land disturbing construction activity that includes the construction of a building;
(2) A construction project that is exempted by federal statutes or regulations from the requirement to have a national pollutant discharge elimination system (NPDES) permit issued under Chapter 40, Code of Federal Regulations, part 122, for land disturbing construction activity;
(3) Nonpoint discharges from agricultural facilities and practices;
(4) Nonpoint discharges from silviculture activities;
(5) Routine maintenance for project sites under 5 acres of land disturbance if performed to maintain the original line and grade, hydraulic capacity or original purpose of the facility;
(6) Activities conducted by a State agency, as defined under sec. 227.01(1), Wis. Stats., but also including the office of district attorney, which is subject to the State plan promulgated or a memorandum of understanding entered into under sec. 281.33(2), Wis. Stats.
(c) Notwithstanding the applicability requirements in paragraph (a), this ordinance applies to construction sites of any size that, in the opinion of the City Engineer are likely to result in runoff that exceeds the safe capacity of the existing drainage facilities or receiving body of water, that causes undue channel erosion that increases water pollution by scouring or the transportation of particulate matter or that endangers property or public safety.

2.2. Interpretation.

In their interpretation and application, the provisions of this ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the municipality and shall not be deemed a limitation or repeal of any other powers granted by the Wisconsin Statutes.

2.3. Severability.

Should any portion of this ordinance be declared invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall remain in force and not be affected.

SECTION 3.0. DEFINITIONS.

(a) *Agricultural land use* means use of land for planting, growing, cultivating and harvesting of crops for human or livestock consumption and pasturing or yarding of livestock.
(b) *Best management practice* or *BMP* means structural or nonstructural measures, practices, techniques or devices employed to avoid or minimize soil, sediment or pollutants carried in runoff to waters of the state.
(c) *BMPH* means the Department of Natural Resources Wisconsin Construction Site Best Management Practice Handbook, WDNR Pub. WR-222, November 1993 Revision.
(d) *Commercial land use* means use of land for the retail or wholesale sale of goods or services.
(e) *Construction site control measure* means a control measure used to meet the requirements of section 6.0.
(f) *Control measure* means a practice or combination of practices to control soil erosion and attendant pollution.

(g) *Erosion* means the detachment and movement of soil, sediment or rock fragments by water, wind, ice or gravity.
(h) (1) *Erosion control plan statement* means a written description of the number, locations, sizes and other pertinent information of control measures designed to meet the requirements of this ordinance submitted by the applicant for review and approval by the Department of Public Works/Engineering, for developments of up to one acre or single lot, except for one and two family dwelling units.
(2) *Erosion and sediment control plan* means a written plan of the number, locations, sizes and other pertinent information of control measures designed to meet the requirements of this ordinance submitted by the applicant for review and approval by the Department of Public Works/Engineering for development of greater than one acre or multiple lots.
(i) *Final stabilization* means that all land disturbing construction activities at the construction site have been completed and that a uniform perennial vegetative cover has been established, with a density of at least 70 percent of the cover, for the unpaved areas and areas not covered by permanent structures, or that employ equivalent permanent stabilization measures.
(j) *Land developing activity* means the construction of utilities, roads, parking lots, paved storage areas and similar facilities.
(k) *Land disturbing construction activity* means any manmade change of the land surface, including removing vegetative cover, excavating, filling and grading, but not including, agricultural land uses such as planting, growing, cultivating and harvesting of crops; growing and tending of gardens; harvesting of trees; and landscaping modifications.
(l) *Landowner* means any person holding title to or having an interest in land.
(m) *Land user* means any person operating, leasing, renting or having made other arrangements with the landowner by which the landowner authorizes use of his or her land.
(n) *Responsible party* means any entity holding fee title to the property or performing services to meet the performance standards of this ordinance through a contract or other agreement.
(o) *Runoff* means the rainfall, snowmelt or irrigation water flowing over the round surface.
(p) *Sediment* means settleable solid material that is transported by runoff, suspended within runoff or deposited by runoff away from its original location.
(q) *Site* means the entire area included in the legal description of the land on which the land disturbing construction activity or land developing activity is proposed in the permit application.
(r) *Stop-work order* means an order issued by the City Engineer or Building Inspector which requires that all construction activity on the site be stopped.
(s) *Ten-year twenty-four-hour design storms* means the rain intensities and rain volumes as described in BMPH.
(t) *Waters of the state* has the meaning given in section 281.01(18), Wis. Stats.

SECTION 4.O. DESIGN CRITERIA, PERFORMANCE STANDARDS AND SPECIFICATIONS FOR CONTROL MEASURES.

4.1. Erosion, sediment and other pollutant control standards.

(a) BMP's that by design, achieve to the maximum extent practicable, a reduction of 80% of the sediment load carried in runoff, on an average annual basis, as compared with no sediment or erosion controls until the construction site has undergone final stabilization. No person shall be required to exceed an 80% sediment reduction to meet the requirements of this paragraph. Erosion and sediment control BMP's may be used alone or in combination to meet the requirements of this paragraph. Credit toward meeting the sediment reduction shall be given for limiting the duration or area, or both, of land disturbing construction activity, or other appropriate mechanism.

(b) Notwithstanding par. (a), if BMP's cannot be designed and implemented to reduce the sediment load by 80%, on an average annual basis, the plan shall include a written and site-specific explanation as to why the 80% reduction goal is not attainable and the sediment load shall be reduced to the maximum extent practicable.
(c) Where appropriate, the plan shall include sediment controls to do all of the following to the maximum extent practicable:
(1) Prevent tracking of sediment from the construction site onto roads and other paved surfaces.
(2) Prevent the discharge of sediment as part of site dewatering.
(3) Protect the separate storm drain inlet structure from receiving sediment.
(4) The use, storage and disposal of chemicals, cement and other compounds and materials used on the construction site shall be managed to prevent their entrance into waters of the state. However, projects that require the placement of these materials in waters of the state, such as constructing bridge footings or BMP installations, are not prohibited by this paragraph.

4.2. [Control measures and standards]

All control measures required to comply with this article shall meet the design criteria, standards and specifications for the control measures based on accepted design criteria, standards and specifications identified by the BMPH and the City.

4.3. Other standards.

Other technical standards not identified or developed in subsection 4.1 above, may be used provided that the methods have been approved by the Department of Public Works/Engineering.

SECTION 5.0. MAINTENANCE OF CONTROL MEASURES

All sedimentation basins and other control measures necessary to meet the requirements of this ordinance shall be maintained by the applicant or subsequent landowner during the period of the land disturbing construction activity or land developing activity of the site up until the site has undergone final stabilization in a satisfactory manner to ensure adequate performance and to prevent nuisance conditions (identified in the BMPH). The standards for maintenance of control measures shall be as set forth in the BMPH as adopted by reference by the City.

SECTION 6.0. CONTROL OF EROSION AND POLLUTANTS DURING LAND DISTURBING CONSTRUCTION ACTIVITIES AND LAND DEVELOPING ACTIVITY.

(a) Erosion and Sediment Control Requirements. The following requirements shall be met on all sites described in section 2.1:
(1) *Site Dewatering.* Water pumped from the site shall be treated by control measures specified in the BMPH. Water may not be discharged in a manner that causes erosion of the site, adjacent sites or receiving channels. Untreated water may not be pumped directly into a sewer which drains directly to a receiving body of water.
(2) *Waste and Material Disposal.* All waste and unused building materials (including garbage, debris, cleaning wastes, wastewater, toxic materials or hazardous materials) shall be properly disposed of and not allowed to be carried by runoff into a receiving channel or storm sewer system.

(3) *Tracking.* Each site shall have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public or private roadways, as specified in BMPH. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

(4) *Drain Inlet Protection.* All stormdrain inlets downstream shall be protected with a straw bale, filter fabric or equivalent barrier meeting accepted design criteria, standards and specifications.

(5) *Site Erosion Control.* The criteria set out in paragraphs a. through d. of this subdivision apply only to land developing or land disturbing construction activities that result in runoff leaving the site:

a. Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected as described in subparagraph iii. of paragraph c. of this subdivision. Sheet flow runoff from adjacent areas greater than nineteen thousand square feet in area shall also be diverted around disturbed areas, unless shown to have resultant runoff velocities of less than 0.5 feet per second across the disturbed area for the ten-year twenty-four-hour design storms. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels. (Note: U.S. Department of Agriculture Soil Conservation Service guidelines for allowable velocities in different types of channels shall be followed);

b. All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any one time;

c. Runoff from the entire disturbed area on the site shall be controlled by meeting either subparagraphs i. and ii. or i. and iii:

i. All disturbed ground left inactive for seven or more days shall be stabilized by seeding or sodding (required from April 15th to September 15th) or by mulching or covering or other equivalent control measure;

ii. For sites with ten or more acres disturbed at one time, or if a channel originates in the disturbed area, one or more sedimentation basins shall be constructed. Each sedimentation basin shall be designed and constructed as specified in the BMPH;

iii. For sites with less than ten (10) acres disturbed at one time, filter fences, straw bales and sediment traps or equivalent control measures shall be placed along all sideslope and downslope sides of the site. If a channel or area of concentrated runoff passes through the site, filter fences shall be placed along the channel edges to reduce sediment reaching the channel.

d. Runoff from sites with slopes of twelve percent or more may require additional or different controls than listed in paragraph c. of this subdivision. Requirements for such slopes shall be as specified by the Department of Public Works/Engineering.

e. Any soil or dirt storage piles containing more than ten cubic yards of material should not be located with a downslope drainage length of less than twenty-five feet to a roadway or drainage channel. If remaining for more than seven days, they shall be stabilized by mulching, vegetative cover, tarps, filter fabric fences or straw bale fences. Erosion from piles which will be in existence for less than seven days shall be controlled by placing straw bales or filter fence barriers around the pile. Instreet utility repair or construction soil or dirt storage located closer than twenty-five feet of a roadway or drainage channel must be covered with tarps or suitable filter alternative control, if exposed for more than seven days, and downstream stormdrain inlets must be protected with straw bale or other appropriate filtering barriers.

SECTION 7.0. EROSION AND SEDIMENT CONTROL PLANS, CONTROL PLAN STATEMENTS AND AMENDMENTS.

No landowner or land user may commence a land disturbing construction activity or land developing activity subject to this ordinance without receiving prior approval of an erosion and sediment control plan for the site and a permit from the Department of Public Works/Engineering. At least one landowner or land user controlling or using the site and desiring to undertake a land disturbing construction activity or land developing activity subject to this article shall submit an application for a permit and control plan and pay an application fee to the City. By submitting an application, the applicant is authorizing the City Building Inspector's office and Department of Public Works/Engineering personnel to enter the site to obtain information required for the review of the control plan.

(a) *Content of the Erosion and Sediment Control Plan for Land Disturbing Construction Activities and Land Development Activities Covering One or More Acres.* The erosion and sediment control plan shall address pollution caused by soil erosion and sedimentation during construction and up to final stabilization of the site. The plan shall include, at minimum, the following items:

(1) Existing Site Map. A map of existing site conditions on a scale of at least one inch equals one hundred feet and at a contour interval not to exceed five feet showing the site and an immediately adjacent area extending a minimum of two hundred feet in each direction including:

a. Site boundaries and adjacent lands which accurately identify the site location;

b. Lakes, streams, wetlands, channels, ditches and other water courses on the site or within one thousand feet;

c. One-hundred-year floodplain, flood fringes and floodway;

d. Location of the predominant soil types;

e. Vegetative cover;

f. Location and dimensions of stormwater drainage systems and natural drainage patterns on the site;

g. Locations and dimensions of utilities, structures, roads, highways and paving;

h. Site topography at a contour interval not to exceed five feet; and

i. Primary and/or secondary environment corridors or other areas of significance.

(2) Plan of Final Site Conditions. A plan of final site conditions on the same scale as the existing site map showing the site changes.

(3) Site Construction Plan. A site construction plan including:

a. Locations and dimensions of all proposed land disturbing construction activity and land developing activity;

b. Locations and dimensions of all temporary soil or dirt stockpiles;

c. Locations and dimensions of all construction site management control measures necessary to meet the requirements of this ordinance;

d. Schedule of anticipated starting and completion date of each land disturbing construction activity or land developing activity including the installation of construction site control measures needed to meet the requirements of this ordinance;

e. The sequence of construction of the development site, including stripping and clearing, rough grading, utility installation, construction of infrastructure and buildings and final grading and landscaping. Sequencing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, areas of clearing, installation of temporary erosion and sediment control measures, and establishment of permanent vegetation; and

f. Provisions for maintenance of the construction site control measures during construction.

(4) Plan Performance Standards. The plan shall include the control measures that will be used to achieve the performance standards set forth in section 4 of this ordinance.
(5) Estimates including calculations, if any, of the runoff coefficient of the site before and after construction activities are completed.
(6) Calculations to show the expected percent reduction in the average annual sediment load carried in runoff as compared to no sediment or erosion controls.
(7) Existing data describing the surface soil as well as subsoils.
(8) Each erosion and sediment control plan shall include a description of appropriate controls and measures that will be performed at the site to prevent pollutants from reaching waters of the state. The plan shall clearly describe the appropriate control measures for each major activity and the timing during the construction process that measures will be implemented. The description of erosion controls shall include, when appropriate, the following minimum requirements:
a. Description of interim and permanent stabilization practices, including a practice implementation schedule. Site plans shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized.
b. Description of structural practices to divert flow away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the site. Unless otherwise specifically approved in writing by the Director, structural measures shall be installed on upland soils.
c. Trapping of sediment in channelized flow.
d. Staging construction to limit bare areas subject to erosion.
e. Protection of downslope drainage inlets where they occur.
f. Minimize tracking at all sites.
g. Clean up of off-site sediment deposits.
h. Proper disposal of building and waste materials in all sites.
i. Stabilization of drainage ways.
j. Control of soil erosion from dirt stockpiles.
k. Installation of permanent stabilization practices as soon as possible after final grading.
l. Minimization of dust to the maximum extent practicable.
(b) *Content of Erosion Control Plan Statement for Land Disturbing Construction Activities and Land Developing Activities Covering up to One Acre.* An erosion control plan statement (with simple map) shall be submitted to briefly describe the site and erosion controls (including the site development schedule) that will be used to meet the requirements of this ordinance. The plan statement shall be filed at the time of building permit application.
(c) *Amendments.* The applicant shall amend the plan if any of the following occur:
(1) There is a change in design, construction, operation or maintenance at the site which has the reasonable potential for the discharge of pollutants to waters of the state and which has not otherwise been addressed in the plan;
(2) The actions required by the plan fail to reduce the impacts of pollutants carried by construction site runoff;
(3) The Department of Public Works/Engineering notifies the applicant of changes needed in the plan.

SECTION 8.0. PERMITTING REQUIREMENTS, PROCEDURES AND FEES.

8.1. Permit required.

No responsible party may commence a land disturbing construction activity subject to this ordinance without receiving prior approval of an erosion and sediment control plan for the site and a permit from the Department of Public Works/Engineering.

8.2. Permit application and fees.

At least one responsible party desiring to undertake a land disturbing construction activity subject to this ordinance shall submit an application for a permit and an erosion and sediment control plan that meets the requirements of section 7. By submitting an application, the applicant is authorizing the Department of Public Works/Engineering to enter the site to obtain information required for the review of the erosion and sediment control plan.

8.3. Review of plans.

Within forty-five days of receipt of the application, erosion and sediment control plan (or erosion control plan statement) and fee, the Department of Public Works/Engineering shall review the application and control plan to determine if the requirements of this ordinance are met. The City Engineer shall review all erosion and sediment control plans for compliance with this ordinance. If the requirements of this ordinance are met and the City Engineer has approved the erosion and sediment control plan, the City Engineer shall approve the plan, inform the applicant and issue a permit. If the requirements of this ordinance are not met, the City Engineer shall inform the applicant in writing and may either require needed information or disapprove the plan. Within thirty days of receipt of needed information, the City Engineer shall again determine if the plan meets the requirements of this ordinance. If the plan is disapproved, the City Engineer shall inform the applicant in writing of the reasons for the disapproval.

8.4. Permits.

(1) Duration. Permits shall be valid for a period of one hundred eighty days from the date of issuance, or the length of the building permit or other construction authorizations, whichever is longer. The City Engineer may extend the period one or more times for up to an additional one hundred eighty days. The City Engineer may require additional control measures as a condition of extension if they are necessary to meet the requirements of this ordinance.

(2) Surety Bond. As a condition of approval and issuance of the permit, the City Engineer may require the applicant to deposit a surety bond or irrevocable letter of credit to guarantee a good faith execution of the approved control plan and any permit conditions, in the amount necessary to implement the approved control plan.

(3) Permit Conditions. All permits shall require the permitted to:

a. Notify the Building Inspector and/or City Engineer within forty-eight hours of commencing any land disturbing construction activity or land developing activity;

b. Notify the Building Inspector and/or City Engineer of completion of any control measures within fourteen days after their installation;

c. Obtain permission in writing from the City Engineer prior to modifying the control plan;

d. Install all control measures as identified in the approved control plan;

e. Maintain all road drainage systems, stormwater drainage systems, control measures and other facilities identified in the control plan;

f. Repair any siltation or erosion damage to adjoining surfaces and drainage ways resulting from land developing or land disturbing construction activities;

g. Inspect the construction control measures within twenty-four hours after each rain of 0.5 inches or more which results in runoff during active construction periods, and at least once each week make needed repairs;

h. Allow the Building Inspector and/or City Engineer to enter the site for the purpose of inspecting compliance with the control plan or for performing any work necessary to bring the site into compliance with the control plan; and

i. Keep a copy of the control plan on the site.

(4) Permits issued under this section may include conditions established by the Department of Public Works/Engineering in addition to the requirements set forth in subsection (3) where needed to assure compliance with the performance standards in section 4.
(5) Maintenance. The responsible party throughout the duration of the construction activities shall maintain the BMP's necessary to meet the requirements of this ordinance until the site has undergone final stabilization.

8.5 Fees.
The appropriate fees as set forth in section 26-38 of the municipal code shall be submitted at the time of permit issuance.

SECTION 9.0. INSPECTION.

9.1. [Inspection of erosion control]
The Department of Public Works/Engineering shall be responsible for permitting and inspection of erosion control on public projects and work in the public right-of-way. The Building Inspection Department shall be responsible for inspection and erosion control on private lands.

9.2. [Inspection of construction sites]
The Building Inspector and/or City Engineer shall inspect construction sites at least once a month during the period starting March 1 st and ending October 31 st and at least two times during the period starting November 1 st and ending February 28 th to ensure compliance with the control plan. If land disturbing construction activities or land developing activities are being carried out without a permit, the Building Inspector shall enter the land pursuant to the provisions of Sections 66.0119(1), (2) and (3), Wisconsin Statutes.

SECTION 10.0. ENFORCEMENT.

(a) The Building Inspector and/or City Engineer may post a stop-work order if:
(1) Any land disturbing construction activity or land developing activity regulated under this ordinance is being undertaken without a permit;
(2) The control plan is not being implemented in a good faith manner; or
(3) The conditions of the permit are not being met.
(b) If the responsible party does not cease activity as required in a stop-work order posted under this section or fails to comply with the control plan or permit conditions within twenty-four hours, the Building Inspector and/or City Engineer may revoke the permit.
(c) If the landowner or land user where no permit has been issued does not cease the activity within twenty-four hours, or if a responsible party violates a stop-work order posted under subsection (a), the Building Inspector and/or City Engineer may request the City Attorney to obtain a cease and desist order in any court with jurisdiction.
(d) Forty-eight hours after posting a stop-work order, the Building Inspector may issue a notice to the responsible party or landowner or land user of the City's intent to perform work necessary to comply with this ordinance. The City Engineer may go on the land and commence the work forty-eight hours after issuing the notice of intent. The costs of the work performed under the supervision of the City Engineer plus interest at the rate authorized by the City shall be billed to

the responsible party or the landowner. In the event a responsible party or landowner fails to pay the amount due, the clerk shall enter the amount due on the tax rolls and collect as a special charge against the property pursuant to section 66.0627, Wis. Stats.

(e) In the event of emergency conditions, as deemed by the Building Inspector and/or City Engineer, whatever measures are necessary to bring the site into compliance shall be taken and all costs involved shall be paid by the responsible party.

(f) Compliance with the provisions of this ordinance may also be enforced by injunction. It shall not be necessary to prosecute for forfeiture or a cease and desist order before resorting to injunction proceedings.

(g) Any person violating any of the provisions of this ordinance shall be subject to a forfeiture of not less than $50.00 nor more than $1000.00, together with the costs of prosecution for each violation and, in default of payment of such forfeiture and costs, to imprisonment in the county jail until the forfeiture and costs are paid, but not in excess of 40 days for each offense. Each day a violation exists shall constitute a separate offense.

SECTION 11.0. APPEALS.

(a) Board of Zoning Appeals. Pursuant to section 62.234(4)(b), Wisconsin Statutes, the Board of Zoning Appeals established under section 15.934 of the Sheboygan Zoning Ordinance:

(1) Shall hear and decide appeals where it is alleged that there is error in any order, decision or determination made by the Building Inspector and/or City Engineer in administering this ordinance, except for cease and desist orders obtained under section 10.0(c);

(2) Upon appeal may authorize variances from the provisions of this ordinance which are not contrary to the public interest and where owing to special conditions a literal enforcement of the provisions of the ordinance will result in unnecessary hardship; and

(3) Shall use the rules, procedures, duties and powers authorized by statute in hearing and deciding appeals and authorizing variances.

(b) Who May Appeal. Appeals to the Board of Zoning Appeals may be taken by any aggrieved person or by any officer, department, board or bureau of the City affected by a decision of the Building Inspector and/or City Engineer within twenty days of such decision.

APPENDIX C

STORMWATER UTILITY ORDINANCE

Appendix C Stormwater Utility Ordinance

ARTICLE IX. STORMWATER MANAGEMENT SYSTEM AND USER FEE

Sec. 122-631. Findings and determination.

It is found, determined and declared as follows:
(1) The management of stormwater and other surface water discharge within the city is a matter that affects the health, safety and welfare of the city, its citizens and businesses.
(2) Failure to effectively manage stormwater may create among other things, erosion of lands, damage to homes and businesses and created sedimentation and environmental damages to waterways within the city.
(3) In order to protect the health, safety and welfare of the public the common council of the city establishes a stormwater management system and authorizes the establishment of a fee in connection therewith.
(4) Those elements of the stormwater management system which provide for the collection and disposal of stormwater are of benefit to all real property within the city including property not presently served by said system.
(5) The costs of operating and maintaining the stormwater management system and financing necessary repairs, replacement, improvements and extension thereof should, to the maximum extent practicable, be allocated in direct relationship to the contributions to the system.
(6) The city is acting under the authority contained in Chapters 62 and 66 of the Wisconsin Statutes and, in particular, sections 66.0621, 66.0809 and 66.0821.
(7) The fees established herein bear a reasonable relationship to the service provided by the city's stormwater management system.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-632. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:
City means the City of Sheboygan.
Committee means the Public Works Committee of the Sheboygan Common Council.
Common council means the Common Council of the City.
Debt service means, with respect to any particular fiscal year and any particular bond series, an amount equal to the sum of (i) all interest payable on such bonds during such fiscal year, plus (ii) any principal installments of such bonds during such fiscal year.
Developed property means real property, which has been altered from its natural state by the addition of any improvements, such as a building, structure or impervious surface.
Duplex means a residential property with two dwelling units.

Dwelling unit means a single unit or apartment providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.
Equivalent run-off unit (ERU) means the estimated average impervious area of a single-family home within the city on the date of adoption of this article. Impervious area includes, but is not limited to, all areas covered by structures, roof extensions, patios, porches, driveways and sidewalks. One ERU is equal to 2,215 square feet of impervious area.
Extension and *replacement* means costs of extensions, additions and capital improvements to, or the renewal and replacement of capital assets of, or purchasing and installing new equipment for, the system, or land acquisition for the system and any related costs thereto, or paying extraordinary maintenance and repair, including the costs of construction, or any other expenses which are not costs of operation and maintenance or debt service.
Fiscal year means a twelve-month period commencing on the first day of January of any year.
Impervious area or *impervious surface* means a horizontal surface, which has been compacted or covered with a layer of material so that it is highly resistant to infiltration by rainwater. It includes, but is not limited to, semi-impervious surfaces such as compacted clay, as well as streets, roofs, sidewalks, parking lots and other similar surfaces.
Mobile home means a single residential unit (mobile home) within a mobile home park.
Multi-family means a residential property with four or more dwelling units.
Nonresidential means any developed property not used, primarily, as a permanent residence, such as a commercial, industrial or an institutional property (schools, churches, hospitals, fraternal organizations, municipal facilities, etc.).
Operating budget means estimated revenues and the estimated costs for operations and maintenance, extension and replacement and debt service of the system for each fiscal year.
Operation and *maintenance* means the current expenses, paid or accrued, of operation, maintenance and current repair of the system, as calculated in accordance with sound accounting practice and includes, without limiting the generality of the foregoing, insurance premiums, administrative expenses, labor, executive compensation, the cost of regulatory compliance, the cost of materials and supplies used for current operations and charges for the accumulation of appropriate reserves for current expenses not annually incurred, but which are such as may reasonably be expected to be incurred in accordance with sound accounting practice.
Qualifying receiving water means a receiving body of water within the municipal boundaries of the city for which the city has or is expected to have little or no debt service costs or extension and replacement costs. Those portions of the Sheboygan River, Pigeon River and Lake Michigan located within the municipal boundaries of the city are qualifying receiving waters.
Rate means the user fee charged on each ERU. The rate is determined by the common council for each fiscal year.
Residential property means all parcels developed exclusively for residential purposes including but not limited to single family, mobile home, duplex, triplex, condominium and multi-family.
Revenues means all rates, fees, assessments, rentals, fines or other charges or other income received by the city, in connection with the management and operation of the system, including amounts received from the investment or deposit of monies in any fund or account, as herein required, and any amounts contributed by the city, all as calculated in accordance with sound accounting practices.
Single-family home means a residential property with exactly one dwelling unit.
Stormwater management system, stormwater system or *system* means the existing stormwater collection system of the city including, but not limited to storm sewers, retention ponds, detention ponds, ditches, drainageways, streams, wetlands, qualifying receiving waters, and all improvements thereto, which by this article are constituted as the responsibility of the city, to be operated as an enterprise fund, and all activities undertaken to conserve water, control discharges necessitated by rainfall events, incorporate methods to collect, convey, store, absorb, inhibit, treat, use or reuse water to prevent or reduce flooding, over-drainage, environmental

degradation and water pollution or, otherwise, affect the quality and quantity of discharge from such system.
Tri-plex means a residential property with three dwelling units.
Undeveloped land means any real property with no impervious area.
User charge means the charge established by the common council on developed property in the city to pay operations and maintenance, extension and replacement and debt service for the stormwater management system.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-633. Establishment.

(a) There is established a City of Sheboygan stormwater management system.
(b) The city, through the stormwater management system may, without limitation because of enumeration acquire, construct, lease, own, operate, maintain, extend, expand, replace, clean, dredge, repair, conduct, manage and finance such facilities as are deemed by the city to be proper and reasonably necessary for a system of stormwater management. These facilities may include, without limitation by enumeration, surface and underground drainage facilities, sewers, watercourses, retaining walls, retention ponds, detention ponds and such other facilities and appurtenances as will support a stormwater system.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-634. Stormwater user fee.

(a) *Fee established.* Subject to the provisions of this article, each and every residential developed property, nonresidential developed property and vacant improved property, within the corporate limits of the city, and the owners and nonowner users thereof, have imposed upon them a stormwater user fee. In the event the owner and nonowner users of a particular property are not the same, the liability for each the owner and nonowner user for the user fee attributable to that property shall be joint and several. The stormwater user fee shall be a quarterly service charge and shall be determined by the provisions of this article and the ERU rate which shall be established and changed from time to time by resolution of the common council.
(b) *Stormwater user fee collection.* The stormwater user fee for metered property shall be billed and collected with and in the same manner as the city's water bill for those properties within the corporate limits of the city utilizing city water services and billed and collected separately for those properties not utilizing city water service. All such bills for stormwater user fees shall be rendered by the water utility. The stormwater user fee for those properties utilizing city water is part of a consolidated statement for utility customers which is generally paid by a single payment. In the event that a partial payment is received, the payment shall be applied first to water charges, second to sewer charges and third to stormwater user fee. The stormwater user fee for property not utilizing city water shall be billed quarterly. All bills for stormwater user fees shall become due and payable in accordance with the rules and regulations of the water utility pertaining to the collection of water bills. The maximum penalty permitted by law for past-due water charges shall be added to user charges not paid by the due date.
(c) *Lien.* Pursuant to sec. 66.0821(4)(d), Wis. Stats., all user charges established hereunder shall be collected and taxed and shall be a lien upon the property served in the same manner as water rates are taxed and collected under sec. 66.0809, Wis. Stats.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-635. Stormwater user fee determination.

There is established the following uniform schedule of rates for the services and use of facilities of the stormwater management system by the owner, tenant or occupant of the premises using the services and facilities of said system:
(1) The common council shall, by resolution, establish reasonable rates for stormwater management systems for each single family residence: each single-family residence shall be billed at a flat fee established by the city council for an equivalent residential unit (ERU).
(2) Each mobile home shall be billed at a flat fee established by the city council for 1 equivalent residential unit (ERU).
(3) Each duplex and tri-plex shall be billed at a flat rate established by the city council for 0.7 equivalent residential units (ERUs) per dwelling unit.
(4) For any occupancy not covered by subsections (1) - (3) of this section, the rate shall be computed based on the total impervious area of the property divided by the average impervious area of an equivalent residential unit times the rate established for an equivalent residential unit.
(5) For any undeveloped land the equivalent residential unit shall be zero.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-636. Fee adjustments.

(a) *Intent.* In certain situations, the amount of services used by and the costs of providing service to a property may be lessened due to unique characteristics of the property served. This section provides a procedure to seek adjustments of charges in those situations. In developing this process, the city recognizes that debt service costs and extension and replacement costs are incurred primarily to provide the capacity needed in the stormwater management system, and operation and maintenance costs are incurred to ensure the administration of the stormwater system, the day-to-day operation of the stormwater system and the needed capacity in the system.
(b) *Requests for adjustment.* Requests for adjustments shall be limited to the fees for nonresidential developed properties. All such requests shall be in writing and submitted to the city clerk for placement on the next available common council meeting agenda for referral to the public works committee.
(1) The public works committee will determine whether the stormwater user fee is fair and reasonable, or whether an adjustment is merited based upon the guidelines set forth herein. It shall be the burden of the requester to demonstrate by a preponderance of the evidence that a fee adjustment is warranted. Failure to file a request for adjustment within 30 days of payment waives all rights to any refund of fees as a result of any adjustment's determination.
(2) A customer may be eligible for an adjustment under the following conditions:
a. The allocated ERU's may be adjusted if the square footage calculation of impervious area for the property is incorrect.
b. If the stormwater from a nonresidential property discharges directly into a qualifying receiving water without crossing the property of another, and the discharge does not contribute to the exceedence of federal, state or local water quality standards.
c. If a retention or detention basin is located on nonresidential property. In considering such a request, the public works committee shall consider whether and to what extent the city's cost of providing service or making service available to a property has been lessened by the retention or detention basin. If the city's cost of providing service or making service available to a property has not been lessened by the retention or detention basin, the request for the adjustment shall be denied. If the city's cost of providing service or making service available to a property has been lessened by the retention or detention basin, the fee shall be reduced to reflect the approximate reduction in the city's costs.

(3) The director of public works, or designee, shall submit a written recommendation to the public works committee as to whether the request for adjustment should be granted, denied, or granted in part and denied in part. The written recommendation shall also set forth the reason or reasons for such recommendation.
(4) In considering a request for an adjustment, the committee may, in its discretion, separately examine multiple drainage areas on one piece of property and may recommend allowing an adjustment for a portion of the property if the characteristics of one or more drainage areas meets the criteria set forth in subsection (2) above.
(5) The committee, in its discretion, may allow an adjustment for a nonresidential property for reasons other than as specifically set forth in subsection (2) above, provided that the adjustment is reasonable and not unjustly discriminatory.
(6) Committee review of the request for adjustment shall be completed within 60 days of the date the written request for adjustment is introduced to the common council. The committee shall review the request and director's recommendation and determine whether an adjustment should be made. The committee may act with or without a hearing, and will inform the requester in writing of its decision.
(7) The requester has 30 days from the decision of the committee to file a written appeal to the common council.
(8) If the council or the committee determines that a refund is due the requester, the refund will be applied as a credit on the customer's next quarterly stormwater billing, or will be refunded at the discretion of the city finance director/treasurer.
(c) *Public service commission complaint.* Notwithstanding subsection (b), any user may file a complaint with the public service commission claiming that the rates, rules and practices herein are unreasonable or unjustly discriminatory pursuant to sec. 66.0821(5), Wis. Stats.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-638. Special assessment authority.

In addition to any other method for collection of the charges established pursuant to this article for stormwater utility costs, the common council finds that these charges may be levied on property as a special charge pursuant to sec. 66.0627, Wis. Stats. The charges established hereunder reasonably reflect the benefits conferred on property and may be assessed as special charges. The mailing of the bill for such charges to the owner will serve as notice to the owner that failure to pay the charges when due may result in them being charged pursuant to the authority of sec. 66.0627, Wis. Stats. In addition, the city may provide notice each September of any unpaid charges to the stormwater utility, which charges, if not paid by November 15, may be placed upon the tax roll under sec. 66.0627, Wis. Stats.
(Ord. No. 17-03-04 § 1, 8-25-03)

Sec. 122-638. Budget excess revenues.

The stormwater utility finances shall be accounted for in a separate stormwater enterprise fund by the city. The utility shall prepare an annual budget, which is to include all operation and maintenance costs, debt service and other costs related to the operation of the stormwater utility. The budget is subject to approval by the common council. The costs shall be spread over the rate classifications as determined by the council. Any excess of revenues over expenditures in a year will be retained by the stormwater enterprise fund for subsequent years' needs.
(Ord. No. 17-03-04 § 1, 8-25-03)

The above ordinance was amended as shown below:

Gen Ord. No. 47 - 04 - 05. By Alderpersons Baumann, Berg, Rindfleisch, Peterson and Segalle. December 6, 2004.

AN ORDINANCE amending Section 122-632 and repealing and recreating subsection (b) of Section 122-637 of the Municipal Code relating to the stormwater management system so as to add certain definitions and modify the fee adjustment provisions.

THE COMMON COUNCIL OF THE CITY OF SHEBOYGAN DO ORDAIN AS FOLLOWS:

Section 1. Section 122-632 of the Sheboygan Municipal Code, entitled "Definitions," is hereby amended so as to add the following two definitions in the appropriate alphabetical sequence:

"Sec. 122-632. Definitions.

. . .

- ***'Director' means the Director of Public Works & Engineering, or his/her designee.***

. . .

- ***'Private stormwater management and treatment facilities' means the existing stormwater collection system of the nonresidential property including, but not limited to storm sewers, retention ponds, detention ponds, ditches, drainageways, streams, wetlands, qualifying receiving waters, and all improvements thereto, which by this article are constituted as the responsibility of the nonresidential property owner, to be operated as a private facility, and all activities undertaken to conserve water, control discharges necessitated by rainfall events, incorporate methods to collect, convey, store, absorb, inhibit, treat, use or reuse water to prevent or reduce flooding, over-drainage, environmental degradation and water pollution or, otherwise, affect the quality and quantity of discharge from such system."***

Section 2. Subsection (b) of Section 122-637 of the Sheboygan Municipal Code, entitled "Requests for adjustment," is hereby repealed and recreated to read as follows:

"Sec. 122-637. Fee adjustments.

. . .

(b) Requests for adjustment. Requests for adjustments shall be limited to the fees for nonresidential developed properties. All such requests shall be in writing and submitted to the Director of Public Works & Engineering along with a review-fee of $200.

(1) The Director will investigate and make recommendations to the Public Works Committee as to whether the stormwater user fee is fair and reasonable, or whether an adjustment is merited based upon the guidelines set forth herein. It shall be the burden of the requester to demonstrate by a preponderance of the evidence that a fee adjustment is warranted. Failure to file a request for adjustment within thirty (30) days of payment waives all rights to any refund of fees as a result of any adjustment's determination.

(2) A customer may be eligible for an adjustment under the following conditions:

a. The allocated ERU's may be adjusted if the square footage calculation of impervious area for the property is incorrect.

b. If the stormwater from a nonresidential property discharges directly into a qualifying receiving water without crossing the property of another, and the discharge does not contribute to the exceedence of federal, state or local water quality standards.

c. Nonresidential properties with private on-site stormwater management and treatment facilities that are designed to properly manage the stormwater runoff from impervious surface areas in accordance with the design criteria described by the City's stormwater management ordinances may be eligible for a stormwater user fee adjustment. In considering such a request, the Public Works Committee shall consider whether and to what extent the City's cost of providing service or making service available to a property has been lessened by the private on-site stormwater management and treatment facilities. If the City's cost of providing service or making service available to a property has not been lessened by the on-site stormwater management and treatment facilities, the request for the adjustment shall be denied. If the City's cost of providing service or making service available to a property has been lessened by the on-site stormwater management and treatment facilities, the fee shall be reduced to reflect the approximate reduction in the City's costs.

(3) The Director shall submit a written recommendation to the Public Works Committee as to whether the request for adjustment should be granted, denied or granted in part and denied in part. The written recommendation shall also set forth the reason or reasons for such recommendation.

(4) In considering a request for an adjustment, the Director and/or the committee may, in their discretion, separately examine multiple drainage areas on one piece of property and may recommend allowing an adjustment for a portion of the property if the characteristics of one or more drainage areas meets the criteria set forth in subsection (2) above.

(5) The committee, in its discretion, may allow an adjustment for a nonresidential property for reasons other than as specifically set forth in subsection (2) above, provided that the adjustment is reasonable and not unjustly discriminatory.

(6) Committee review of the request for adjustment shall be completed within sixty (60) days of the date the written request for adjustment and required fee are submitted to the Director. The committee shall review the request and Director's recommendation and determine whether an adjustment should be made. The committee may act with or without a hearing, and will inform the requester in writing of its decision.

(7) The requester has thirty (30) days from the decision of the committee to file a written appeal to the Common Council.

(8) If the council or the committee determines that a refund is due the requester, the refund will be applied as a credit on the customer's next quarterly stormwater billing, or will be refunded at the discretion of the City Finance Director/Treasurer."

Section 3. Severability. The provisions of this ordinance are severable, and if any section, sentence, clause, phrase or word is for any reason held to be illegal, invalid or unconstitutional, or inapplicable to any person or circumstance by a decision of any court, that decision shall not affect the validity of the remaining provisions of this ordinance or their application to other persons or circumstances. It is hereby declared to be the legislative intent of the Council that this ordinance would have been adopted if such illegal, invalid or unconstitutional section, sentence, clause, phrase or word had not been included and if the person or circumstances to which this ordinance or part thereof is inapplicable had been specifically exempted therefrom.

Section 4. All ordinances or parts thereof in conflict with the provisions of this ordinance are hereby repealed to the extent of such conflict, and this ordinance shall be in effect from and after its passage and publication.

APPENDIX D

ILLICIT DISCHARGE ORDINANCE

Appendix D Illicit Discharge Ordinance

ARTICLE VIII. STORM SEWERS

Sec. 122-601. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:
City storm sewer means a conveyance or system of conveyances for stormwater runoff, snow-melt runoff and surface runoff and drainage, which is owned or operated by the City of Sheboygan. It includes roadway drainage systems, streets, catch basins, stormwater inlets, curbs, gutters, ditches, swales, dug channels, storm drains and storm sewer pipes.
Illegal connection means any unpermitted connection to the drainage system.
Illicit discharge means any discharge to a city storm sewer which is not composed entirely of stormwater, unless a permit has been obtained from the appropriate regulatory authority, or unless excepted under this article. This includes, but is not limited to, activities related to spills, dumping and disposal of any substance or material.
Storm drainage system means the collection and conveyance of stormwater runoff, snow-melt runoff, surface water runoff or other drainage from the land. It includes all drainage facilities, watercourses, water bodies and wetlands.
(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-602. Prohibition of illicit discharges.

Except as provided in section 122-603, no person shall discharge or cause to be discharged to a city storm sewer anything that is not composed entirely of stormwater. Any such illicit discharge is a public nuisance.
(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-603. Exceptions.

The following non-stormwater discharges or flows are not considered illicit discharges under this article: water line flushing, landscape irrigation, diverted stream flows, uncontaminated groundwater infiltration, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, lawn watering, individual residential and occasional non-commercial car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool water, street wash water, firefighting and discharges authorized by a permit issued by the Wisconsin Department of Natural Resources or other appropriate governmental regulatory authority.
(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-604. Prohibition of illegal connections.

(a) The construction, use, maintenance or continued existence of illegal connections to the storm drainage system is a public nuisance and is prohibited.

(b) This prohibition expressly includes, without limitation, any illegal connection made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-605. Elimination of illicit discharges and illegalconnections.

The director of public works or designee may require by written notice that a person responsible for an illicit discharge or illegal connection immediately, or by a specified date, discontinue the discharge or connection, and, if necessary, take measures to eliminate the source of the discharge to prevent the occurrence of future illicit discharges.

(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-606. Nuisance abatement.

The director of public works or designee is authorized to require immediate abatement of any nuisance hereunder that constitutes an immediate threat to the health, safety or well-being of the public. If any nuisance hereunder is not abated within the time specified by the director of public works or designee, the city is authorized to enter onto private property to the extent necessary, and to take any and all measures necessary to abate the nuisance. The cost of abatement, together with a 50 percent surcharge, plus any applicable sales tax, with a minimum fee of $25.00, shall be assessed as a special charge to the owner, occupant or person causing, maintaining or permitting the public nuisance.

(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-607. Appeal.

Any person aggrieved by a determination that a public nuisance exists under this article may appeal within 15 days of the mailing of the notice to remove the public nuisance. Appeal shall be to the public works committee. All requests for appeal shall be filed with the city clerk and must inform the committee of the reasons for the appeal. Within 30 days, the public works committee shall hold a hearing at which the parties may offer testimony and documents. Within 20 days of the hearing, the committee shall affirm, modify or reverse the determination that a public nuisance exists. Appeal from the action of the committee shall be to circuit court.

(Ord. No. 90-01-02, § 1, 3-4-02)

Sec. 122-608. Penalty.

Any person violating this article shall, upon conviction thereof, be subject to a forfeiture of not less than $50.00 and not more than $1,000.00, together with the costs of prosecution, and, in default of payment of such forfeiture and costs, to imprisonment in the county jail until the forfeiture and costs are paid, but not in excess of 40 days for each offense. Each day of violation shall constitute a separate offense.

(Ord. No. 90-01-02, § 1, 3-4-02)

Secs. 122-609--122-630. Reserved.

APPENDIX E

SPILLS POLICY

APPENDIX E SPILLS POLICY

SPILLS PROGRAM PROPOSAL

Submitted by
the City of Sheboygan Engineering Division
August 7, 2000

INTRODUCTION

The City of Sheboygan recognizes the impact of clean water has on the environment as well as the health and safety of the citizens that live in the community. The quality of water directly impacts the ecosystem and public recreation of the streams and rivers within the community. The City will implement and expand upon the following programs to prevent or reduce the discharge of pollutants to storm water:

1. Reduce the chance for spills and leaks by use of preventative measures.

2. Stopping the source of spills when they occur by removal or reduction of hazardous materials.

3. Containing and cleaning up spills, properly disposing of spill materials.

4. Training employees.

This program will not instantly transform the water quality by itself, but will be used as a small step to create a partial reduction in toxic materials and oil and grease.

PREVENTION OF SPILLS

The City of Sheboygan is proposing the following measures for preventing spills:

1. Reducing exposure to hazardous materials.

2. Increasing awareness of the handling of hazardous materials.

3. Increasing the disposal and recycling controls within the Program Area.

A hazardous material is a substance including, but not limited to: soil stabilizers, palliatives, herbicides, growth inhibitors, fertilizers, deicing chemicals, fuels, lubricants, other petroleum distillates. This program is aimed at reducing the potential for spills by preventive maintenance, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees and public.

Educating the public and employees on the merits of preventing spills will be the forefront of spill prevention. Training and education will be offered to the public and employees with brochures, posters, safety videos, lectures, and the media. The program will focus on public educational topics such as how to perform fluid removal and changes inside or under cover on paved surfaces, how to properly store hazardous materials and waste, how to address small spills, when to call a hazardous materials team for clean up. The program will also promote the use of safer alternative products as an option to hazardous materials. This program will target the reduction of pesticides and herbicides within the community.

Public employees are currently taught methods of handling and reporting the spills of hazardous materials. The City of Sheboygan will prepare a written contingency plan between local agencies that outlines responsibilities for major spills from tanker trucks.

Part of the media promotion will encourage the use of commercial locations to collect waste oil and vehicle related fluids as a method of reducing the potential of spilling. The public is currently encouraged to bring their waste materials to these commercial sites for recycling. The City of Sheboygan has a recycling which encourages the drop off of yard materials and recycling of waste oil. In 1999 over 15,000 gallons of oil was collected by the City for recycling.

Commercial locations that store and handle hazardous materials may be required to store the materials inside or under cover on a paved surface, use secondary containment where necessary, minimize the storage and handling of hazardous materials, and inspect storage areas regularly.

Education of the public could be accomplished through both the school system and the general media. Some of the education program could be as follows:

1. Promote speakers to address children about the damaging results of spills.

2. Promote schools and scouting units to paint the stencils on catch basins

3. Promote clean up's collection sites to remove hazardous materials

4. Promote media events focusing on the removal of hazardous materials and their prevention of spills

5. Promote educational awareness through schools.

6. Focus on removing the hazard from the individual and placing it with qualified professionals

7. Educate the local environmental groups on the merits of preventing spills and the methods of prevention.

8. Sponsor an Earth Day celebration.

The prevention portion of the program would need a promotional director to direct the media and education portion of the program. Materials would need to be purchased and prepared to implement this program. This can be done by hiring a part time pr person to work with the schools, environmental groups, and the media to promote spill prevention.

The cost of this program will be an ongoing expense of approximately $75,000 for materials and personnel.

CONTAINMENT OF SPILLS

The City of Sheboygan has a tactical plan that specifies the methods of containment for a hazardous spill based on the material quantity and type. The plan is based upon ILHR 30.01(34). The DNR is notified in accordance with NR-706 of the Wisconsin Administrative Code in the event that any spill material enters a storm sewer.

Spills may be defined as significant or insignificant depending upon the definition within the Materials Safety Data Sheet or other descriptive document that presents the contents and proper handling procedures.

The general procedures for cleaning up a spill should be as follows:

- Clean up spills immediately.
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used clean up materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly.

Minor spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Remove the absorbent materials promptly and dispose of properly.
- The practice commonly followed for a minor spill is:

  1. Contain the spread of the spill.
  2. Recover spilled materials.
  3. Clean the contaminated area and/or properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.
- Clean up spills immediately:

1. Notify the project foreman immediately. The foreman shall notify the Engineer or Safety Manager.
2. Determine if spill response construction personnel are qualified to perform the cleanup in a safe manner. Alert additional trained personnel if necessary including a Haz-Mat team or dial 911 for local authorities.
3. Contain spread of the spill.
4. If the spill occurs on paved or impermeable surfaces, clean up using “dry” methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

5. If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

6. If the spill occurs during rain, cover spill with tarps or other materials to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps shall be taken:

1. Notify the engineer immediately and follow up with a written report.

2. Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

3. For spills of state reportable quantities or into a waterbody or adjoining shoreline, the contractor shall notify the DNR and Coast Guard in accordance with ILHR 30.01(34). The DNR is notified in accordance with NR-706 of the Wisconsin Administrative Code.

4. Notification shall be first be made by telephone and followed up with a written report.

5. The services of a spills contractor or Haz-Mat team shall be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff has arrived at the job site.

For small amounts of hazardous material, the material is contained with dry absorbent, swept up and placed in a plastic bag. The plastic bag is then transported to the Fire Department where the absorbent is placed in a DOT approved container. The waste material will be covered and locked at all times for the material. Only like material absorbents are placed in the common container.

For larger spills the Fire Department has storm sewer covers which allow the spill to bypass the storm sewer system and be contained on the impervious surface for clean up. In the event that the spill material enters the storm sewer system, the DNR and the Coast Guard are contacted and attempts are made to prevent the spill from entering a navigable stream. The Fire Department will contact the Department of Public Works and have loads of sand dumped in the street to create a check dam, or in a storm manhole downstream from the spill to prevent the spill from entering a navigable stream. Surface spills are covered immediately with AFF/ATC foam to seal vapors. Large quantity spills should be picked up with a tanker truck whenever possible. The personnel operating the vacuum for the tanker must be familiar with fuel transfer precautions. Complete bonding of tankers and fire protection will be used during transfer operations.

Spills which cannot be contained or handled by the City of Sheboygan Fire Department are referred to the County Hazardous Materials Team (HAZ-MAT Team). A unified command is put in place to coordinate the containment and clean up procedures between agencies. The HAZ-MAT Team has additional containment products to contain spills of a larger magnitude.

PROCEDURES AND PRIORITIES FOR RESPONDING TO SPILLS

The City of Sheboygan uses the 2000 Emergency Response Guidebook for responding to all hazardous spills and leaks.

APPENDIX F

EDUCATION PLAN OUTLINE

APPENDIX F PLAN FOR PUBLIC EDUCATION AND OUTREACH

GOAL

NR216.07(1)a. Program to distribute materials to public or equivalent outreach to increase awareness of stormwater impacts to waters of State.

The program needs to address:

1. Promote detection/elimination of illicit discharges associated with storm sewer discharge.
2. Inform/educate public on how their actions with autos, pets and hazardous wastes impact stormwater.
3. Promote recycling of leaves/grass clippings.
4. Promote management of stream banks by landowners to minimize erosion and enhance ecological surroundings.
5. Promote infiltration techniques.
6. Inform/educate designers and contractors on how to install and maintain erosion control.
7. Target businesses that may pose water contamination (i.e., lawn care companies, restaurants).
8. Promote environmentally sensitive land development designs by developers and designers.

GENERAL PUBLIC

- Develop and distribute:
  - Newspaper articles
  - Utility inserts (counter publication)
  - Articles for groups (community, neighborhood associations)
  - Fall registration

- Resource List for:
  - Rain gardens
  - Rain barrels
  - Housekeeping
  - Porous pavement
  - Environmental Action (youth, college groups)

PRESENTATIONS

- Provide city capable programs RE: NR216
- Powerpoint presentations focused on audience interest
- Stormwater runoff video
- Brown bag lunches

WEB SITES

- Resource list with links to municipal sites

DISPLAYS

- Create displays at fairs
- Bus placards
- Posters
- Billboards
- Laundromats
- Point of purchase displays

SPECIAL PROGRAMS

- PSA's (storm sewers, dog feces, leaves, fertilizers…..)
- Citizen monitoring programs
- Storm drain stenciling
- Promote BMP demonstration sites

SCHOOL YOUTH

- Youth training
- Teacher training

MUNICIPAL STAFF

- Promote DNR BMP manual
- Supplement BMP manual as needed

WEB SITE

- Create distribution lists
- Links to research results

PERSONAL CONTACT

- Develop, publicize in-house training for building inspectors, contractors and staff
- Develop presentations for audience interest/needs

TECHNICAL TRAINING NEEDS

- Create/provide technical workshops/videos
- Brownbag BMP demonstrations

DEVELOPERS AND CONSULTANTS

Printed Materials

- Develop checklists, flowcharts and fact sheets for developers, contractors, landowners and consultants
- Publicize BMP manual
- Publicize performance standards
- Create news articles for professional organizations

Web Site

- Link BMP manual
- Resource List
- Personal contact during review process
- Promote rain garden, conservation design
- Provide focused presentations
- Develop technical videos
- Provide workshops on BMP's
    - Citizens impacts
    - Research results

BUSINESSES

Printed Materials

- Fact sheet regarding hiring landscape and snow removal contractors
- Develop web site resource listing

- Focused presentations
- Develop award program for green space management

ELECTED OFFICIALS

Send correspondence to inform officials of stormwater impacts, regulations and expectations

- Attend meetings, present information and answer questions
- Invite officials to BMP demonstrations
- Develop brief A/V presentations that can be shown at meetings

Our first goal will be to develop a time line for each of the tasks, and establish goals. The City of Sheboygan's primary focus for the past 3 months has been on the engineers and architects. Ordinances pertaining to stormwater management and erosion control have been emailed to them, a stormwater manual for the City is 80% complete, quick checklists and permits have been created, and brochures have been created for stormwater management and erosion control to be distributed to developers, contractors and architect/engineers.

APPENDIX G

ILLICIT DISCHARGE RESULTS

APPENDIX G ILLICIT DISCHARGE RESULTS

2004 RESULTS											
SITE #	SITE FLOW Y/N	TEST PARAMETERS COPPER mg/L	SURFACTANTS mg/L	CHLORINE mg/L	Field pH Units	PHENOL mg/L	TEMP. F	E. COLI	K	NH3	NH3/K RATIO
10000	Y	0.002	0.099	0.3	8.2	0.111	68	20	1.2	0.139	0.115833333
15000	Y	0.002	0.06	0.1	8.15	0.047	70	20	5.36	0.075	0.013992537
17000	Y	0.002	0.06	0.1	7.85	0.014	66	200	5.67	0.038	0.00670194
21000A	Y	0.002	0.031	0.1	6.9	0.014	62	20			#DIV/0!
20000	Y										#DIV/0!
22000	Y	0.002	0.041	0.1	7.15	2	64	5960			#DIV/0!
23000	Y	0.002	0.036	0.5	6.9	0.014	69	40			#DIV/0!
30000	Y	0.002	0.041	0.1	7.95	0.014	66	1340			#DIV/0!
31000A		0.038	0.031	0.2	7.53	1.01	74	20			#DIV/0!
32000	Y										#DIV/0!
33000	Y	0.002	0.06	0.1	7.53	2.37	66	20	1.2	0.022	0.018333333
34000	Y										#DIV/0!
35000	Y	0.002	0.109	0.1	7.4	0.02	70	100	7.86	0.034	0.0043257
39000	Y	0.002	0.406	0.1	8.16	0.014	66	600	2.79	0.031	0.011111111
40000	Y	0.002	0.075	0.1	7.51	0.014	64	20	2.78	0.02	0.007194245
41000	Y	0.002	0.065	0.1	8.02	0.02	70	1360	4.35	0.026	0.005977011
42000	Y										#DIV/0!
50000	Y	0.002	0.123	0.1	7.86	0.014	68	100	2.14	0.093	0.043457944
56000	Y	0.002	0.06	0.1	7.95	0.014	64	20	0.819	0.022	0.026862027
58000	N										#DIV/0!
64000E	Y										#DIV/0!
65000B	Y	0.002	0.036	0.15	7.45	0.014	66	20			#DIV/0!
82000A	Y	0.002	0.021	0.1	6.9	0.184	64	20			#DIV/0!
4003F	Site abandoned and combined w/4003E										#DIV/0!
03001	N										#DIV/0!
18000	N										#DIV/0!
20000	N										#DIV/0!
31000	N										#DIV/0!
32000	N										#DIV/0!
37000	N										#DIV/0!
4002B	N										#DIV/0!
4002C	N										#DIV/0!
4002D	N										#DIV/0!
4003A	N										#DIV/0!
4003B	N										#DIV/0!
4003C	N										#DIV/0!
4003D	N										#DIV/0!
4003E	N										#DIV/0!
43000	N										#DIV/0!
45000	N										#DIV/0!
52000	N										#DIV/0!
60000	N										#DIV/0!
61000	Y										#DIV/0!
64000A	Y	0.002	0.121	0.1	7.81	0.022	66	40	14.9	0.024	0.001610738
64000B	Y										#DIV/0!
64000C	N										#DIV/0!
64000D	Y	0.002	0.021	0.5	7.24	9.27	69	20			#DIV/0!
64000E	Y	0.002	0.036	0.6	7.87	0.014	68	20			#DIV/0!
65000C	Y	0.002	0.089	0.1	7.79	0.014	72	560	1.62	0.033	0.02037037
65000D	N	0.002	0.026	0.6	6.55	0.014	76	20			#DIV/0!
65000E	N										#DIV/0!
65000F	N										#DIV/0!

2003 RESULTS							
SITE #	TEST PARAMETERS						
	COPPER mg/L	SURFACTANTS mg/L	CHLORINE mg/L	Field pH Units	PHENOL mg/L	TEMP. F	E. COLI
10000	0.002	0.057	0.15	7.22	0.208	72.7	10
15000	0.002	0.02	0.1	7.89	0.014	59.7	1380
17000	0.002	0.034	0.1	7.35	0.023	66.2	30
21000A	0.002	0.02	0.2	7.72	0.023	63.7	10
20000	0.002	0.064	0.2	7.38	0.014	69.6	620
22000	0.002	0.048	0.1	8.18	0.062	67.5	2880
23000	0.002	0.053	0.5	7.85	0.042	68.5	10
30000	0.002	0.081	0.1	8.15	0.031	66.2	120
31000A							
32000	0.002	0.068	0.1	7.83	0.022	64	900
33000	0.002	0.02	0.5	7.9	0.014	69.4	10
34000	0.002	0.02	0.4	7.75	0.042	74.3	10
35000	0.002	0.037	0.1	7.77	0.022	60.6	40
39000	0.002	0.103	0.2	8.31	0.032	66.6	1960
40000	0.002	0.032	0.1	7.19	0.029	62.8	0.032
41000	0.002	0.054	0.1	7.8	0.022	61.9	120
42000	0.002	0.02	0.35	7.6	0.014	72.1	10
50000	0.002	0.039	0.1	7.64	0.014	63	230
56000	0.002	0.034	0.1	7.3	0.0052	68.4	250
58000							
64000E	0.002	0.02	0.8	7.27	0.023	76.6	20
65000B	0.002	0.048	0.35	7.8	0.139	74.8	20
82000A	0.002	0.048	0.1	7.56	0.042	66.7	140
4003F							
03001							
18000							
20000							
31000							
32000							
37000							
4002B							
4002C							
4002D							
4003A							
4003B							
4003C							
4003D							
4003E							
43000							
45000							
52000							
60000							
61000	0.002	0.033	0.1	7.62	0.014	68.4	740
64000A	0.002	0.117	0.15	7.95	0.023	66.7	560
64000B	0.002	0.448	0.4	7.29	0.032	68.4	20
64000C							
64000D	0.002	0.02	0.45	7.28	0.052	76.3	20
64000E	0.002	0.02	0.8	7.27	0.023	76.6	20
65000C	0.01	0.04	0.1	7.85	0.014	71.6	200
65000D							
65000E							
65000F							

2002 RESULTS

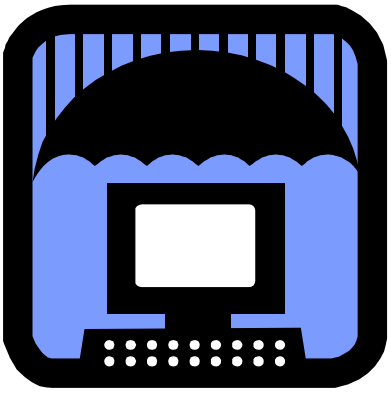
SITE #	TEST PARAMETERS					
	COPPER mg/L	SURFACTANTS mg/L	CHLORINE mg/L	Field pH Units	PHENOL mg/L	TEMP. F
10000	0.002	0.021	0.25	6.20	0.055	82.0
15000	0.002	0.007	0.10	7.00	0.038	62.0
17000	0.003	0.005	0.10	6.50	0.038	64.0
21000A	0.002	0.014	0.10	6.00	0.014	68.0
20000						
22000	0.002	0.014	0.10	6.20	0.014	66.0
23000	0.006	0.005	0.30	7.75	0.014	72.0
30000	0.002	0.011	0.10	8.14	0.014	66.0
31000A						
32000						
33000	0.002	0.005	0.30	7.50	0.014	72.0
34000	0.002	0.005	0.15	7.50	0.014	72.0
35000	0.002	0.005	0.10	8.00	0.014	56.0
39000	0.002	0.005	0.10	8.10	0.014	69.0
40000	0.002	0.005	0.10	7.50	0.014	62.0
41000	0.002	0.005	0.10	8.20	0.014	60.0
42000	0.002	0.005	0.30	6.80	0.014	71.0
50000	0.002	0.005	0.10	7.50	0.064	72.0
56000	0.002	0.027	0.10	6.75	0.055	66.0
58000	0.002	0.007	0.10	7.50	0.116	62.0
64000E	0.002	0.005	0.50	7.30	0.014	78.0
65000B	0.002	<0.045	0.10	7.30	0.014	81.0
82000A	0.002	0.005	0.10	8.10	0.014	68.0
4003F						
03001						
18000						
20000						
31000						
32000						
37000						
4002B						
4002C						
4002D						
4003A						
4003B						
4003C						
4003D						
4003E						
43000						
45000						
52000						
60000						
61000						
64000A						
64000B						
64000C						
64000D						
64000E						
65000C						
65000D						
65000E						
65000F						

2001 RESULTS

SITE #	COPPER mg/L	SURFACTANTS mg/L	CHLORINE mg/L	Field pH Units	PHENOL mg/L	TEMP. F
10000	0.011	0.007	0.1	7.34	0.622	69
15000	0.002	0.0039	0.1	7.94	0.176	68
17000	0.002	0.0071	0.01	7.76	0.105	76
21000A	0.002	0.013	0.1	7.85	0.192	65
20000						
22000	0.002	0.015	0.1	8.39	0.147	70
23000	0.002	0.00497	0.5	8.04	0.031	74
30000	0.04	0.028	0.1	7.93	0.014	74
31000A						
32000						
33000	0.031	0.001	0.6	8.18	0.014	72
34000	0.004	0.041	0.2	8.27	0.053	76
35000	0.002	0.024	0.1	7.96	0.014	69
39000	0.002	0.0603	0.1	7.35	0.014	72
40000	0.002	0.049	0.1	7.87	0.06	70
41000	0.002	0.047	0.1	8.2	0.032	69
42000	0.004	0.007	0.2	7.88	0.014	71
50000	0.02	0.013	0.1	7.82	0.049	75
56000						
58000						
64000E	0.019	0.001	0.5	7.88	0.031	82
65000B	0.023	0.043	0.3	8.23	0.209	77
82000A	0.022	0.015	0.1	7.73	0.014	70
4003F	0.016	0.896	0.1	8.09	0.239	72
03001						
18000						
20000						
31000						
32000						
37000						
4002B						
4002C	0.004	0.165	0.2	7.89	0.06	71
4002D						
4003A						
4003B						
4003C						
4003D						
4003E						
43000						
45000						
52000						
60000						
61000						
64000A						
64000B						
64000C						
64000D						
64000E						
65000C						
65000D						
65000E						
65000F						

APPENDIX H

SLAMM RESULTS BY BASIN
AND OUTFALL



APPENDIX H SLAMM RESULTS BY BASIN AND OUTFALL

Table 4
Mean Concentrations by Major Outfall with BMPs

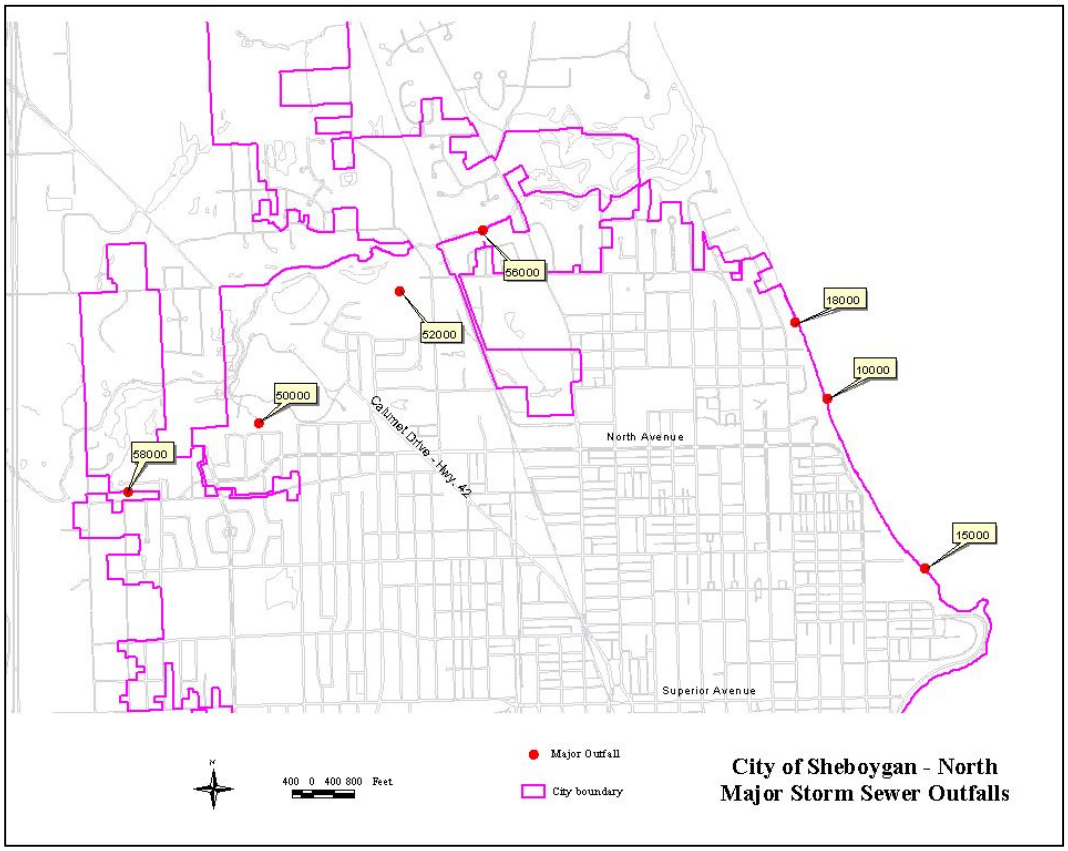
Major Outfall	Drainage Area (acres)	Runoff (cubic ft.)	Suspended Solids (mg/L)	Dissolved Solids (mg/L)	Dissolved Phosphorus (mg/L)	Total Phosphorus (mg/L)	Total Copper (mg/L)	Total Lead (mg/L)	Total Zinc (mg/L)
03001	29	1.51E+06	151	80	0.06	0.27	0.017	0.020	0.154
04002B	2	1.32E+05	131	85	0.06	0.22	0.016	0.017	0.141
04002C	6	4.38E+05	128	83	0.06	0.22	0.016	0.017	0.139
04002D	10	5.39E+05	102	66	0.08	0.25	0.012	0.015	0.112
04003A	23	1.33E+06	115	59	0.06	0.25	0.015	0.020	0.139
04003B	11	7.17E+05	133	78	0.05	0.23	0.016	0.019	0.148
04003C	9	6.39E+05	137	74	0.05	0.24	0.017	0.021	0.159
04003D	6	4.48E+05	135	80	0.05	0.23	0.017	0.019	0.151
04003E	20	1.18E+06	132	84	0.06	0.23	0.016	0.017	0.138
04003F	5	3.79E+05	133	85	0.06	0.22	0.016	0.017	0.141
10000	668	2.60E+07	100	62	0.10	0.30	0.012	0.017	0.114
15000	126	3.52E+06	80	50	0.09	0.28	0.009	0.014	0.088
17000	69	2.57E+06	80	46	0.07	0.25	0.011	0.016	0.104
18000	63	9.84E+05	86	62	0.20	0.48	0.007	0.012	0.064
20000	65	3.00E+06	100	50	0.07	0.26	0.013	0.019	0.121
21000A	100	3.69E+06	78	46	0.08	0.26	0.010	0.015	0.097
22000	455	1.44E+07	91	53	0.10	0.30	0.011	0.017	0.109
23000	164	5.91E+06	106	70	0.10	0.30	0.013	0.016	0.117
30000	140	3.05E+06	86	59	0.14	0.37	0.010	0.015	0.090
31000	32	1.27E+06	82	58	0.08	0.25	0.012	0.017	0.118
32000	86	2.66E+06	114	74	0.13	0.35	0.013	0.016	0.113
33000	450	1.96E+07	84	64	0.08	0.25	0.011	0.015	0.105
34000	277	1.57E+07	107	56	0.07	0.26	0.014	0.020	0.132
35000	248	1.10E+07	90	46	0.07	0.26	0.012	0.019	0.117
37000	40	2.05E+06	103	56	0.06	0.23	0.014	0.019	0.136
39000	61	3.18E+06	132	51	0.05	0.28	0.020	0.029	0.190
40000	302	1.15E+07	108	67	0.10	0.29	0.012	0.016	0.116
41000	116	5.08E+06	97	60	0.09	0.29	0.011	0.016	0.109
42000	275	1.37E+07	104	62	0.08	0.27	0.013	0.017	0.119
43000	80	3.78E+06	98	51	0.07	0.26	0.013	0.019	0.125
45000	21	1.21E+06	126	70	0.06	0.24	0.016	0.020	0.147
50000	276	8.15E+06	93	57	0.13	0.36	0.012	0.018	0.112
52000	72	2.35E+06	91	58	0.11	0.32	0.012	0.017	0.112
56000	58	2.85E+06	129	78	0.08	0.28	0.015	0.017	0.135
58000	206	6.28E+06	107	57	0.11	0.36	0.014	0.021	0.129
60000	284	7.50E+06	118	63	0.11	0.35	0.013	0.019	0.124
61000	88	2.08E+06	75	51	0.11	0.32	0.008	0.014	0.083
64000A	24	1.83E+06	31	72	0.02	0.11	0.008	0.010	0.071
64000B	5	1.67E+05	32	82	0.05	0.15	0.006	0.007	0.058
64000C	8	2.11E+05	30	80	0.06	0.17	0.006	0.007	0.050
64000D	3	2.09E+05	32	85	0.03	0.11	0.007	0.008	0.064
64000E	14	6.14E+05	28	83	0.04	0.13	0.006	0.007	0.053
65000B	65	4.46E+06	150	81	0.06	0.26	0.017	0.020	0.156
65000C	220	1.21E+07	105	72	0.06	0.22	0.014	0.016	0.126
65000D	10	7.06E+05	29	85	0.03	0.10	0.007	0.007	0.059
65000E	3	7.21E+04	28	78	0.08	0.20	0.005	0.006	0.042
65000F	12	8.81E+05	30	85	0.02	0.10	0.007	0.007	0.060
82000A	40	6.29E+05	26	98	0.10	0.22	0.002	0.003	0.016
Minor outfalls and direct drainage	3769	1.07E+08	112	65	0.10	0.32	0.013	0.018	0.120
CITY-WIDE TOTAL	9119	3.20E+08	104	63	0.09	0.29	0.013	0.017	0.118

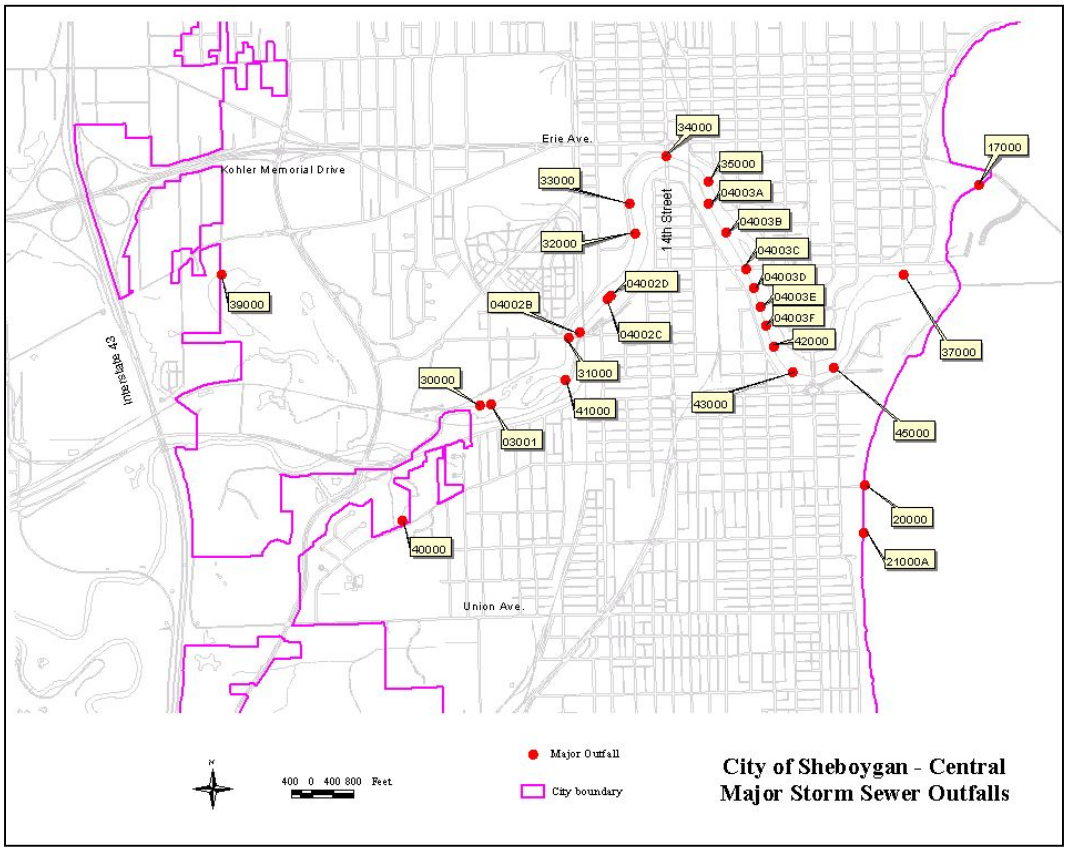
**Mean concentrations calculated by dividing total annual pollutant load by total annual runoff volume*

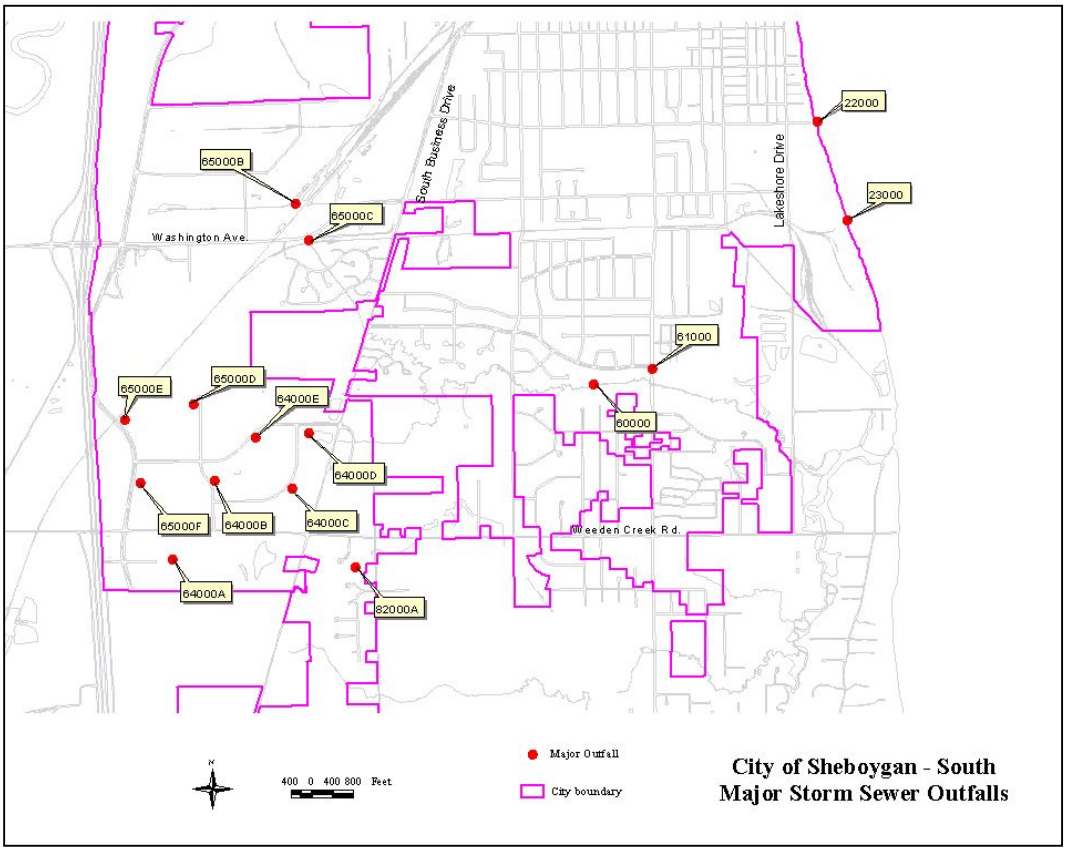
Table
Mean Concentrations by Major Outfall with No

Majo Outfal	Drainag Are (acres	Runof (cubic	Suspend Solid (mg/L	Dissolve Solid (mg/L	Dissolve Phosphoru (mg/L	Total Phosphoru (mg/L	Total Coppe (mg/L	Total Lea (mg/L	Total Zinc (mg/L
03001	29	1.51E+0	246	88	0.07	0.40	0.025	0.030	0.21
04002	2	1.32E+0	197	78	0.05	0.30	0.020	0.023	0.16
04002	6	4.38E+0	194	78	0.06	0.30	0.020	0.023	0.16
04002	10	5.39E+0	154	70	0.08	0.33	0.016	0.021	0.14
04003	23	1.33E+0	201	66	0.07	0.39	0.023	0.033	0.20
04003	11	7.17E+0	246	86	0.06	0.38	0.025	0.032	0.22
04003	9	6.39E+0	255	81	0.06	0.40	0.028	0.037	0.24
04003	6	4.48E+0	252	88	0.06	0.38	0.026	0.032	0.22
04003	20	1.18E+0	239	93	0.07	0.37	0.023	0.027	0.19
04003	5	3.79E+0	244	94	0.06	0.36	0.024	0.028	0.20
10000	668	2.60E+0	149	66	0.11	0.40	0.016	0.024	0.14
15000	126	3.52E+0	105	58	0.11	0.36	0.01	0.017	0.10
17000	69	2.57E+0	116	53	0.09	0.34	0.014	0.023	0.13
18000	63	9.84E+0	113	76	0.24	0.60	0.009	0.016	0.08
20000	65	3.00E+0	145	57	0.08	0.35	0.017	0.026	0.15
21000	100	3.69E+0	102	52	0.09	0.32	0.012	0.019	0.11
22000	455	1.44E+0	139	61	0.12	0.41	0.016	0.025	0.14
23000	164	5.91E+0	151	73	0.11	0.38	0.016	0.021	0.14
30000	140	3.05E+0	116	69	0.17	0.46	0.012	0.019	0.11
31000	32	1.27E+0	103	63	0.09	0.28	0.015	0.020	0.13
32000	86	2.66E+0	159	75	0.13	0.41	0.016	0.021	0.13
33000	450	1.96E+0	160	68	0.10	0.38	0.018	0.025	0.16
34000	277	1.57E+0	169	60	0.08	0.37	0.020	0.029	0.18
35000	248	1.10E+0	137	52	0.08	0.35	0.017	0.027	0.15
37000	40	2.05E+0	170	62	0.06	0.34	0.020	0.029	0.18
39000	61	3.18E+0	253	56	0.05	0.47	0.033	0.051	0.29
40000	307	1.15E+0	149	71	0.11	0.37	0.016	0.021	0.14
41000	116	5.08E+0	140	66	0.11	0.37	0.015	0.021	0.13
42000	275	1.37E+0	162	67	0.09	0.37	0.017	0.024	0.15
43000	80	3.78E+0	156	57	0.08	0.36	0.019	0.028	0.17
45000	21	1.21E+0	230	77	0.06	0.39	0.025	0.033	0.21
50000	276	8.15E+0	136	66	0.15	0.47	0.016	0.025	0.15
52000	72	2.35E+0	124	64	0.13	0.40	0.015	0.022	0.13
56000	58	2.85E+0	175	76	0.09	0.35	0.018	0.022	0.15
58000	206	6.28E+0	162	62	0.12	0.46	0.019	0.030	0.17
60000	284	7.50E+0	194	71	0.13	0.50	0.020	0.031	0.18
61000	88	2.08E+0	95	60	0.13	0.39	0.010	0.016	0.09
64000	24	1.83E+0	228	69	0.05	0.37	0.026	0.035	0.22
64000	5	1.67E+0	244	92	0.14	0.50	0.022	0.026	0.19
64000	8	2.11E+0	222	92	0.19	0.58	0.019	0.024	0.16
64000	3	2.09E+0	235	86	0.07	0.35	0.023	0.026	0.19
64000	14	6.14E+0	187	80	0.11	0.39	0.018	0.021	0.15
65000	65	4.46E+0	209	77	0.06	0.33	0.021	0.026	0.18
65000	220	1.21E+0	179	71	0.07	0.34	0.020	0.026	0.17
65000	10	7.06E+0	194	78	0.06	0.30	0.019	0.022	0.16
65000	3	7.21E+0	201	91	0.23	0.66	0.016	0.022	0.14
65000	12	8.81E+0	195	78	0.05	0.29	0.020	0.022	0.16
82000	40	6.29E+0	152	108	0.28	0.65	0.006	0.010	0.04
Minor outfalls and drainag	3769	1.07E+0	174	72	0.12	0.45	0.018	0.026	0.16
CITY-WIDE	9119	3.20E+0	164	68	0.11	0.41	0.018	0.026	0.16

**Mean concentrations calculated by dividing total annual pollutant load by total annual*

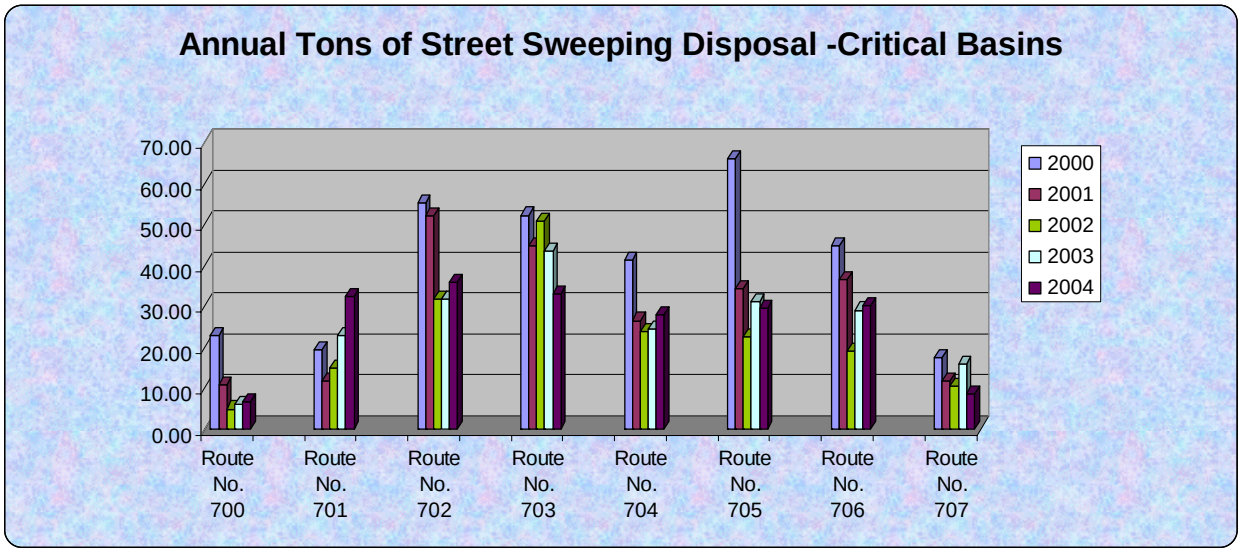

56000
52000
18000
10000
50000
58000
Calumet Drive - Hwy. 42
North Avenue
15000
Superior Avenue
400 0 400 800 Feet
Major Outfall
City boundary
City of Sheboygan - North
Major Storm Sewer Outfalls

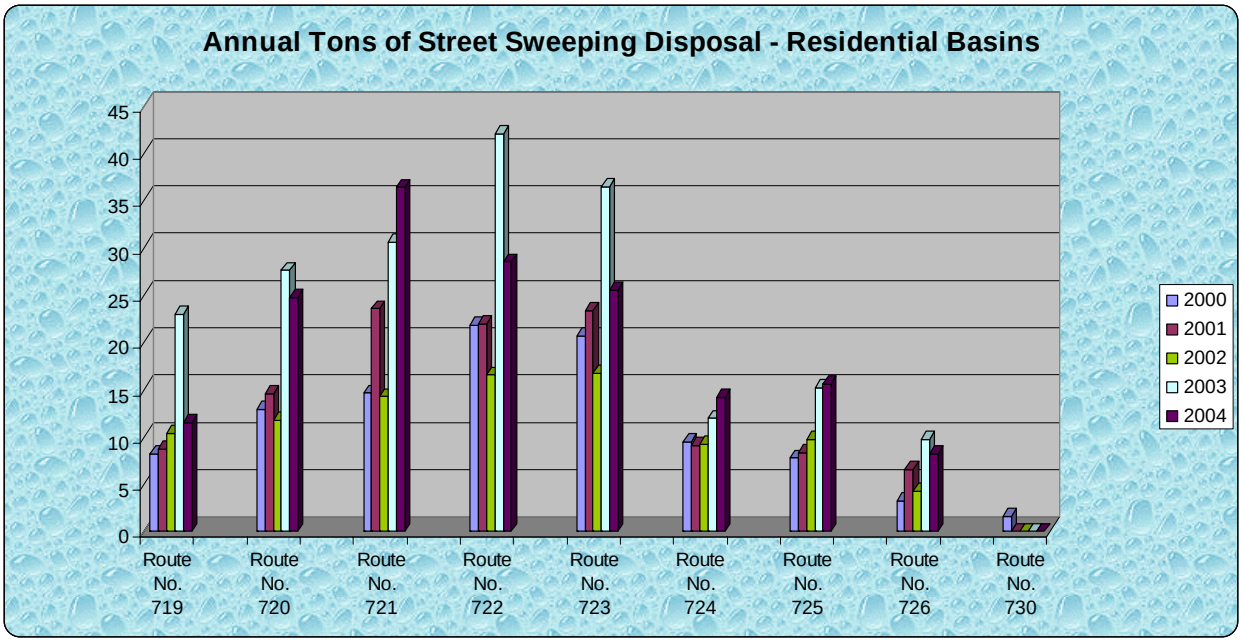

Erie Ave.
Kohler Memorial Drive
14th Street
Union Ave.
Interstate 43
34000
35000
04003A
04003B
04003C
04003D
04003E
04003F
42000
33000
32000
04002D
04002B
04002C
31000
41000
30000
03001
39000
40000
43000
17000
37000
45000
20000
21000A
Major Outfall
City boundary
400 0 400 800 Feet
City of Sheboygan - Central
Major Storm Sewer Outfalls


22000
23000
65000B
65000C
South Business Drive
Lakeshore Drive
Washington Ave.
61000
65000E
65000D
64000E
60000
64000D
65000F
64000B
64000C
Weeden Creek Rd.
64000A
82000A
Major Outfall
City boundary
400 0 400 800 Feet
City of Sheboygan - South
Major Storm Sewer Outfalls

APPENDIX I

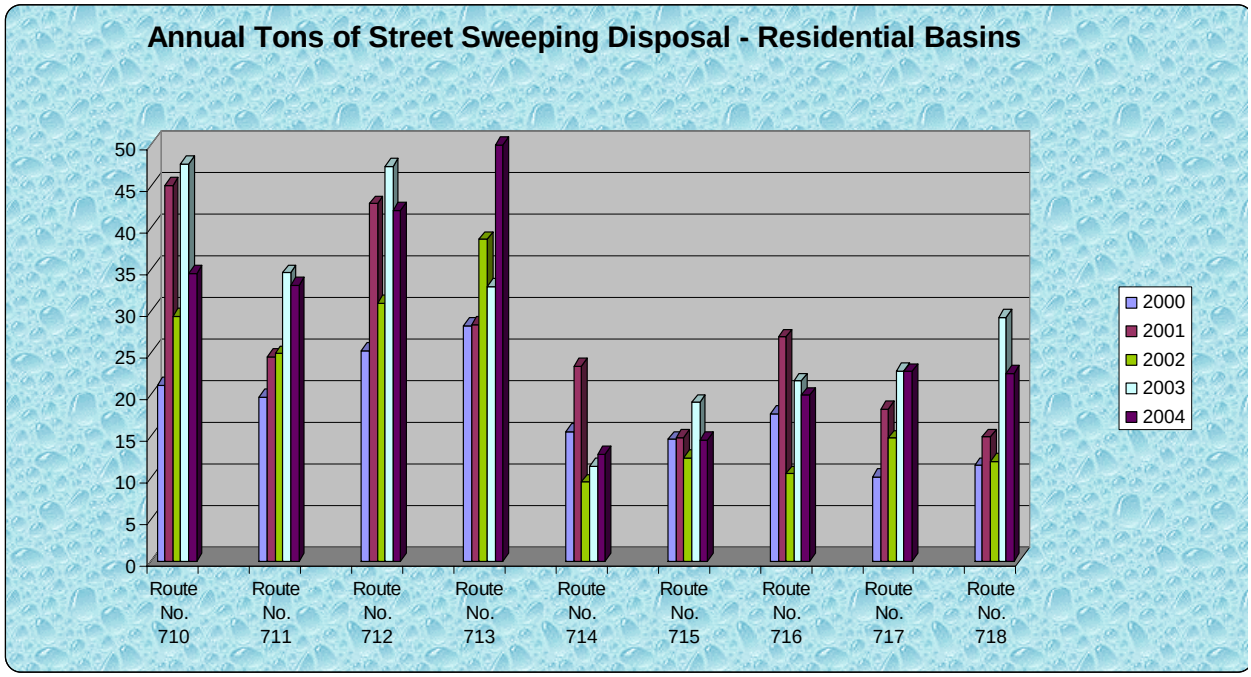
MISCELLANEOUS CATCH
BASIN CLEANING DATA AND
STREET SWEEPING DATA





APPENDIX I MISCELLANEOUS CATCH BASIN

CLEANING DATA AND STREET SWEEPING DATA

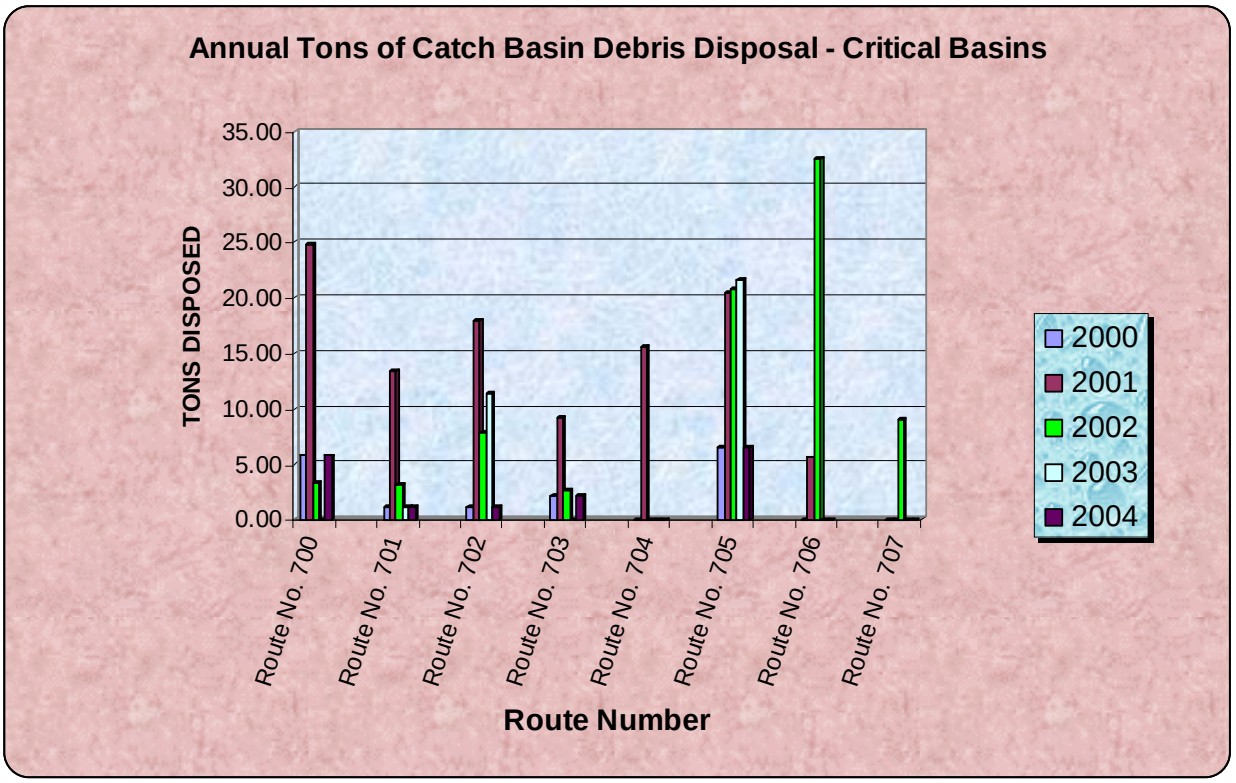

Annual Tons of Street Sweeping Disposal - Residential Basins
50
45
40
35
30
25
20
15
10
5
0
Route No. 710
Route No. 711
Route No. 712
Route No. 713
Route No. 714
Route No. 715
Route No. 716
Route No. 717
Route No. 718
2000
2001
2002
2003
2004

STREET SWEEPING COLLECTION DATA 2004
RESIDENTAL BASINS

ZONE	ROUTE LENGTH (CURB-MILES)	TONS COLLECTED	COLLECTION EVENTS	TONS /MILE	TONS /EVENT	HOURS	MILES PER HOUR	TONS PER HOUR
710	12.7	34.5	21	2.72	1.64			
711	10.4	33.04	20	3.18	1.65			
712	20.1	42.05	24	2.09	1.75			
713	11.8	49.89	25	4.23	2.00			
714	16	12.84	18	0.80	0.71			
715	21.9	14.54	22	0.66	0.66			
716	16.3	19.86	17	1.22	1.17			
717	10.6	22.71	16	2.14	1.42			
718	11.3	22.51	13	1.99	1.73			
719	7.7	11.5	10	1.49	1.15			
720	19.3	24.77	20	1.28	1.24			
721	10.7	36.35	22	3.40	1.65			
722	15.5	28.48	16	1.84	1.78			
723	13.9	25.46	17	1.83	1.50			
724	11.9	14.14	12	1.19	1.18			
725	8.3	15.55	13	1.87	1.20			
726	19.5	8.23	13	0.42	0.63			
730	10.5	0	0	0.00	0.00			
TOTAL /AVE	***248.4***	***416.42***	***299***	***1.80***	***1.28***			

STREET SWEEPING COLLECTION DATA 2004
CRITICAL BASINS

ZONE	ROUTE LENGTH (CURB-MILES)	TONS COLLECTED	COLLECTION EVENTS	TONS /MILE	TONS /EVENT	HOURS	MILES PER HOUR	TONS PER HOUR
700	7.5	6.91	9	0.92	0.77			
701	8.3	32.58	22	3.93	1.48			
702	15.9	35.96	21	2.26	1.71			
703	19.8	33.06	23	1.67	1.44			
704	22.9	28.09	25	1.23	1.12			
705	23	29.74	18	1.29	1.65			
706	25.4	30.2	23	1.19	1.31			
707	21.1	8.67	17	0.41	0.51			
TOTAL /AVE	***143.9***	***205.21***	***158***	***1.61***	***1.25***			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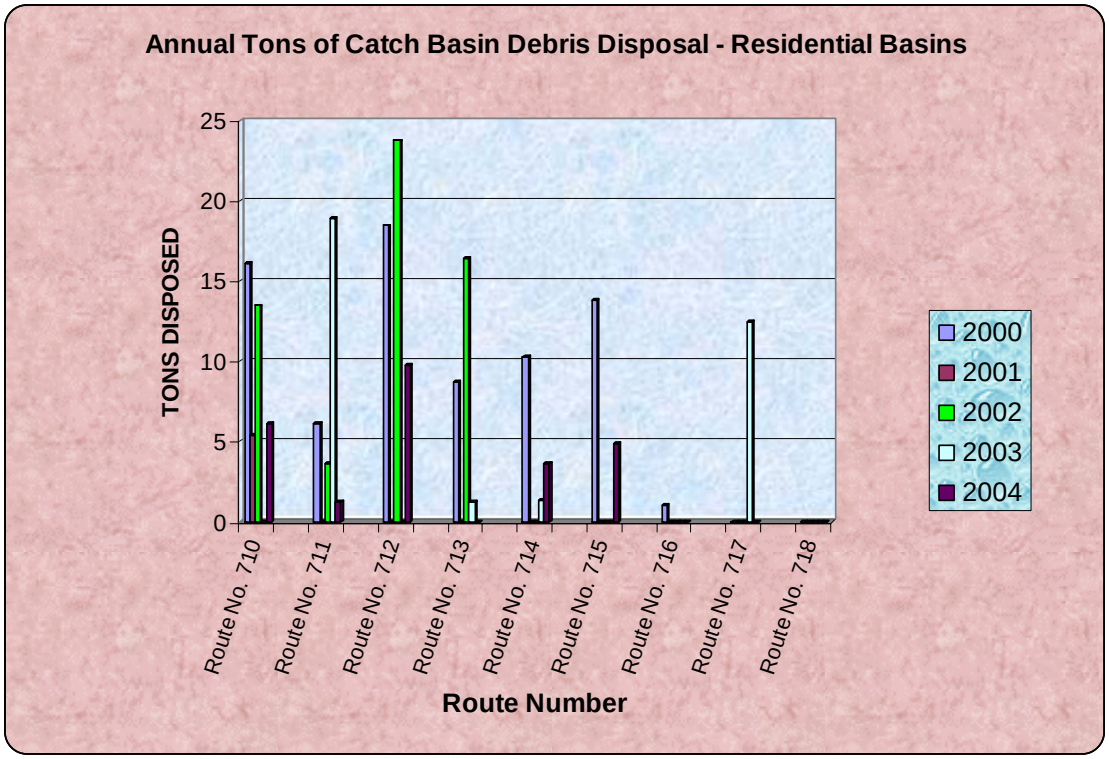
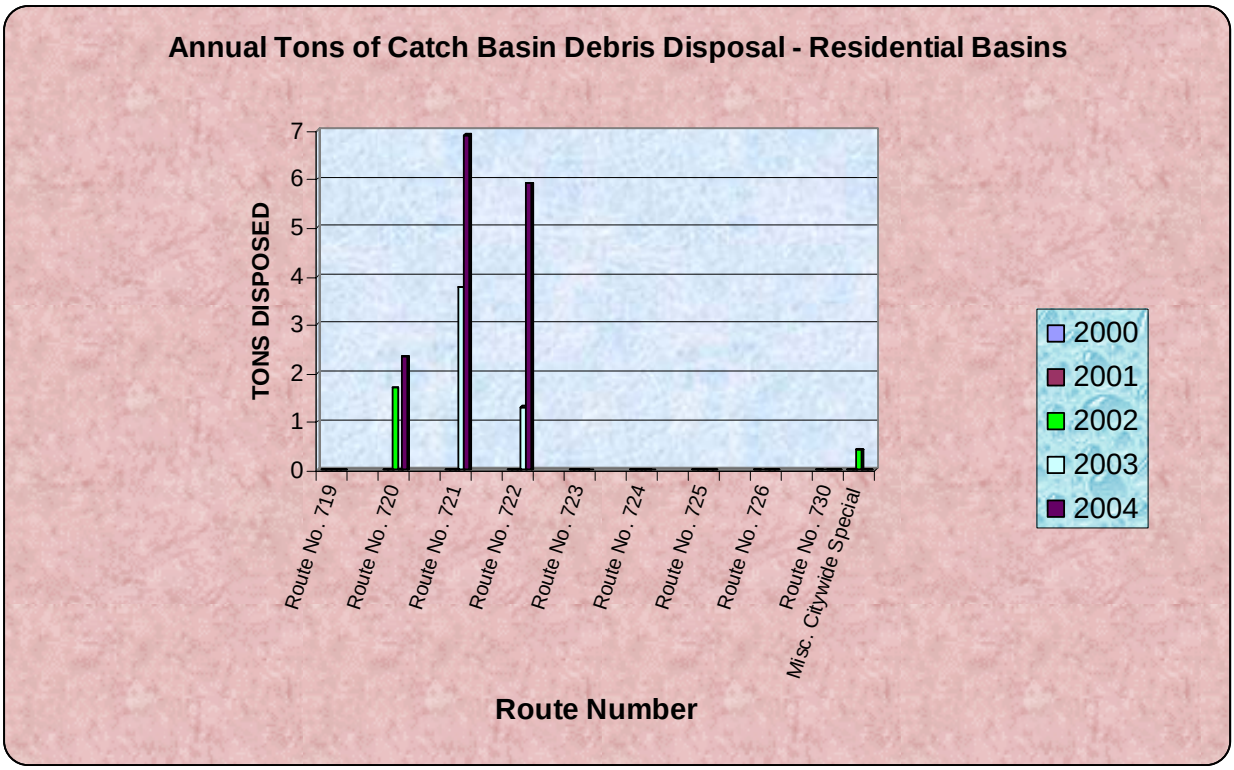
TONS DISPOSED
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Route No. 700
Route No. 701
Route No. 702
Route No. 703
Route No. 704
Route No. 705
Route No. 706
Route No. 707
Route Number
2000
2001
2002
2003
2004


Annual Tons of Catch Basin Debris Disposal - Residential Basins
TONS DISPOSED
25
20
15
10
5
0
Route No. 710
Route No. 711
Route No. 712
Route No. 713
Route No. 714
Route No. 715
Route No. 716
Route No. 717
Route No. 718
Route Number
2000
2001
2002
2003
2004


Annual Tons of Catch Basin Debris Disposal - Residential Basins
TONS DISPOSED
0
1
2
3
4
5
6
7
Route No. 719
Route No. 720
Route No. 721
Route No. 722
Route No. 723
Route No. 724
Route No. 725
Route No. 726
Route No. 730
Misc. Citywide Special
Route Number
2000
2001
2002
2003
2004

APPENDIX J

DRAFT SWPPP FOR MUNICIPAL
SERVICE BUILDING

Storm Water Pollution Prevention Plan

For The City of Sheboygan

PUBLIC WORKS FACILITIES

March 15, 2005

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Wisconsin.

William C. Balke, P.E., Assistant City Engineer, City of Sheboygan.
Date: March 15, 2005 Lic.No.33413

APPENDIX J STORMWATER POLLUTION PREVENTION PLAN – PUBLIC WORKS FACILITY

I. INTRODUCTION

The City of Sheboygan owns and operates a Public Works Garage which stores and repairs trucks, tractors, trailers, lawn and garden tractors, lawn and garden equipment and oil and gas machinery and equipment. In addition, the City of Sheboygan also stores mulch, cold tar patch, topsoil, sand, de-icing salt, and gravel in the yard of the site for the purpose of road maintenance and repair activities. Because these activities are identified by the Pollution Control Agency's list of Standard Industrial Classification (SIC) codes, the City of Sheboygan is required to apply for permit coverage.

A. NPDES Phase I Storm Water Permit

The City of Sheboygan is submitting this plan to satisfy the 1987 Amendments to the Clean Water Act. These amendments were a two-phased comprehensive national program to address pollutants in storm water runoff. The program covers construction sites, industrial activities, and municipal storm sewer systems. As part of the first phase (Phase I) of these changes, the City of Sheboygan falls under the category of a Great Lake Area of Concern community (EPA Study, 1970). These stormwater regulations are part of the National Pollutant Discharge Elimination System (NPDES) permit program. Under the permit, the City was required to produce a stormwater pollution prevention plan for any municipal facility. The City of Sheboygan understands that the intent of these storm water regulations is to improve water quality by reducing or eliminating polluted storm water runoff. Specifically this plan will be in place to reduce or eliminate the exposure of oil and grease, pesticides, fertilizers, sediment, de-icing salts and other chemicals used by the City, to storm water. With this understanding, the City of Sheboygan has developed Best Management Practices (BMPs) to reduce or eliminate the exposure of City activities into the storm water system to the maximum extent practical.

II. GOALS AND OBJECTIVES

This Storm Water Pollution Prevention Plan (SWPPP) was prepared by the City of Sheboygan with the intention of developing a program, which, to the "maximum extent practicable," would improve water quality by reducing the exposure of pollutants to the storm water discharges originating from the City's municipal operations. In accordance to the WPDES permit to authorize the discharge of storm water associated with industrial activities under NPDES/SDS Permit Program, This Storm Water Pollution Prevention Plan should at a minimum:

1. Identify potential sources of pollutants, which may affect the quality of storm water discharges.
2. Employ the use of appropriate erosion control measures and best management practices (BMPs) to reduce the impact of any pollutants, which may reach storm sewer discharges.
3. Implement practices, which will reduce pollutants in the storm water discharges to the greatest extent practical.
4. Certify that the SWPPP covers all storm water discharges from the City of Sheboygan Public Works Garage. In addition, a copy of the SWPPP will be maintained on site and readily accessible.

By meeting these stated goals to reduce the pollutants contained in storm water to greatest extent practical, the City of Sheboygan will meet the objective of WPDES Permit.

III. MANAGEMENT POLICY

The City of Sheboygan acknowledges the authority of the WDNR, to permit the discharge of storm water associated with industrial activity under the NPDES program. By submitting this SWPPP document, the City of Sheboygan will meet the terms and conditions contained within the WPDES General Storm Water Permit. The City of Sheboygan will also develop an implement best management practices to minimize pollution to storm water discharges and will continue to evaluate operations, materials handling and storage practices to make these practices more environmentally safe.

A. SWPPP Organization

The following list outlines the people responsible for the administration, construction, and maintenance of the City of Sheboygan storm water system. In addition, these individuals are also responsible for the activities associated with the operation, policies, and procedures within the Public Works Garage and its workers. This section also key people involved in implementation of this SWPPP, this section details the persons title and the direct responsibilities they will have in implementing this plan.

B. Responsible Parties

Thomas J. Holtan, P.E. – Director of Public Works / Engineering

C. Description of Activities

The following summarizes the activities associated with each area of responsibility:

1. SWPPP Manager David Biebel. – Deputy Director of Public Works

- SWPPP team leader and administrative program.
- Maintains materials, inventories, and handling storage practices.
- Manages for team inspection and maintenance of best management practices. Plans and schedules education-training programs

2. Site Manager Adrian Wondergem – Building and Grounds Supervisor

- Performs detailed site inspections and assessments.
- Manages turf maintenances, litter and erosion control measures.
- Coordinates clean up of spills and releases.

D. Site Operations

The City of Sheboygan's Public Works Garage is designed to perform the following activities: storage and maintenance for all of the City's maintenance vehicles in addition to the storage of the salt, and construction materials used in road maintenance and repair activities. The City's maintenance vehicles are washed, fueled and repaired at this site. These sites also act as storage facilities for all snow plowing materials, road-deicing materials, fuel.

IV SITE ASSESSMENT AND PROCEDURES

In this section of the SWPPP, the site conditions are examined, potential problems area identified, Best Management Practices (BMPs) are identified and a detailed description of the procedures used to meet the terms of this permit are presented.

Figure 1: Road Gravel Pile in Yard

A. Site Information and Description

The City's Public Works facility is located at 2026 New Jersey Avenue. The City's vehicle maintenance and storage is provided on this site. It is also the primary storage facility for materials used in the repair and maintenance of City streets and infrastructure. The site also acts as the City Recycling Center for yard waste and oil. There is limited temporary storage provided outdoors (bituminous pavement, concrete, brush and mulch), and most material is stored under cover of roof away from exposure to storm water runoff. Each area within this building has its own floor drains, which are connected to the sanitary sewer system. In addition, parts and other needed materials are stored in containers, loaded on wooden pallets, and kept in crib storage areas. Gasoline and diesel fuel are stored in belowground tanks with leak detection technology. Smaller containers of gasoline for small equipment are stored in storage lockers within the building. Salt storage is provided at in covered area, and washing of equipment is periodically performed in an uncovered area that is subject to exposure to rainfall and runoff. This area drains to the sanitary sewer. The City contracts out all of the fertilizer and weed control maintenance, so no pesticides or herbicides are kept on site.

B. Drainage System Characteristics

Storm water runoff from the Public Works Garage site is generally conveyed via overland flow routes to a storm sewer catch basin that directs water south and east to the western shore of the Sheboygan River. (See attached Figure.) The drainage from the north yard drains to catch basins, the building is also directly connected to the stormsewer. The parking area to the west of the building sheet flows to the west, the south side parking and fueling area sheet flows to the south to catch basins in New Jersey Avenue. The eastern portion of the yard (the recyling area) drains to the southeast to a gravel covered perforated drain. All activities undertaken within the Public Works Garage site take place within buildings or covered areas with the exception of uncovered gravel, sand, mulch and temporary street sweepings. At the present time, if left uncovered, there is a potential these materials to be carried off the site when rainfall occurs.

Figure 2: Salt Storage

C. Evaluation for Significant Materials Exposure

A list of the activities and operations, which take place at the Public Works Garage, are found in the Appendix 2. In addition, Appendix 3 lists the significant materials, which have the potential of becoming a source pollutant, if exposed to storm water discharges. It should also be noted that to date, there have been no recorded incidents of a significant spill or discharge from this facility into the City's storm sewer system. The goal of this SWPPP is to prevent the exposure of significant materials

before they are allowed to enter the storm sewer discharges. As outlined below, this section evaluates areas and opportunities within the site where significant materials are stored and evaluates the risk of these materials exposure to storm water discharges.

Storage Areas

Storage Areas are located away from traffic to the sides of the facility or in overhead areas. Significant materials are stored in their original containers on pallets off the ground. There is also salt and sand storage outdoors. These salt piles are under roof cover. There is an area provided for cold patch, gravel, sand, mulch, and other construction materials. Most of these materials are under the cover of roofs. There is a pile of mulch, road gravel, temporary street sweepings, and pea stone that are exposed to the rain.

Loading /Unloading – Materials Handling

Material loading and unloading takes place in covered areas and materials are kept within their original containers until they are put to use.

Figure 3: Typical

Outdoor Storage

There is limited outdoor storage at this facility; any outdoor storage is temporary until arrangement for permanent disposal has been made. This includes the street sweeping and catch basin debris collected from the stormwater management program. Most of the time the debris is hauled straight to the Manitowoc Landfill within a week. But occasionally, the landfill is closed after hours when maintenance is necessary on the vehicles, and the workers will use this bin to empty the vehicle for maintenance. These areas are exposed to the elements and drain to storm sewer catch basins in the yard. It is the intent to place catch basin inserts to catch debris from the piles. Also it is our intent to sweep around the storage areas a minimum of weekly.

Figure 4: Temporary Construction Excavations

The maintenance yard also stores excavated material from the reconstruction of utilities. This includes the soils, sands and concrete. The temporary stockpile is removed by truck to an approved fill area weekly. All outdoor storage areas are away from traffic areas and storm water outlets as much as practicable.

Currently the City of Sheboygan stores police impounded vehicles on the site. The ground surface is sloped such that it drains to the sanitary sewer. To the east of the police storage area is an exterior wash area that drains into the sanitary sewer. This area is only used occasionally for washing. The majority of the vehicle washing occurs within the service building.

Figure 5: Police Impound Area

Exterior Vehicle Equipment Maintenance

There is no outdoor vehicle maintenance performed at this facility.

Spills of Liquid Materials

The City of Sheboygan has developed an emergency response plan to address the spills of significant materials.

Areas of Unstable Soils

The area is either paved or has compacted gravel. It is the intent of the City to pave the areas of compacted gravel to prevent sediment from entering the storm sewer system. The area will be paved with the left over street paving material at the end of the day and built up over time.

Waste Oil Disposal

Figure 6: Oil Recycling Area

All waste oil is stored in a containment area specifically designed for oil collection, and is removed off-site by an independent contractor. Oil management is performed in a contained environment indoors, and is not exposed to storm water drains. There is an area in the City recycling area that allows the drop off of oil, batteries, scrap metal and brush and yard waste. The oil drop off area has a table with a 4-inch containment lip, and is lined with absorbent oil pads. The battery area is identical to the oil recycling area. The batteries and oil are removed from the table daily and stored and disposed of inside the service building.

Fueling Area

The fueling area is located south of the building in the employee parking area. The tanks are stored underground in a double sealed tank system. There are monitoring devices to detect leaks from the tanks.

Figure 7: Fueling Area

D. Best Management Practices

A required element of this SWPPP is to introduce and adopt Best Management Practices (BMPs) which creates ways to minimize the exposure of potential pollutants to receiving water bodies. There are a wide variety of BMPs, which include operational activities, a change in procedures or structural devices. An example of operational BMPs would be training programs or inventories, which could identify possible risks within the current operational practices. Once these risks are identified, change of procedure BMPs can be put into action, which would eliminate potential risk. These actions could be a simple as a change in storage facility or the extreme measure of the total ban of a product or procedure. Structural BMPs are typically constructed measures such as ponds, detention basins, skimmers, or grit chambers. These BMPs are designed to remove pollutants from storm water, or create a barrier between the pollutants and the storm water such as berms, dikes, and buildings.

The following lists the sites and conditions of the potential pollutants and describe BMPs, which the City will employ to prevent the possibility of exposure to storm water.

Storage Areas

- Cover and/or enclose stored materials to prevent contact.
- Divert storm water around storage areas.
- Stock/pile material to minimize surface area exposed to precipitation.
- Practice good housekeeping measures such as frequent removal of debris, and sweeping.
- Install treatment measures to remove pollutants from runoff prior to discharge from the site.

Outdoor Storage

- Store drums inside.
- Prepare and train appropriate employees in dealing with spills and leaks properly, use dry clean-up methods when possible.
- Install impervious surface underneath drums.
- Sweep the areas weekly.

Exterior Obsolete Vehicle Storage

- When possible, dispose of unused equipment properly, or move indoors.
- Drain fluids from equipment.
- Cover equipment.
- Divert storm water around equipment. floor, sink, or process wastewater connected to a storm sewer Vehicle Washing.

- Conduct washing indoors or in a covered area if possible.
- Discharge wash waters to sanitary sewer.
- Do not allow off-site discharge of wash water.
- Evaluate wash water from steam cleaning of parts contaminated with oils, greases or solvents that is not recycled to determine if it is hazardous. Dispose of hazardous sludge and wash water appropriately.

Fueling Areas

- Minimize storm water exposure into the fueling area.
- Use dry clean-up methods for fuel area rather than hosing down the fuel area.
- Train appropriate employees on proper fueling practices.

- Install treatment devices to remove pollutants from runoff before it discharges from the site.
- Post procedures to follow for spill clean up and reporting near the fueling area.

Vehicle and Equipment Dismantling and Maintenance

- Prevent spills during dismantling process.
- Contain any leaking or dripping fluids.
- Store dismantled vehicles and equipment and parts out of concentrated storm water flows (ditches, channels).
- Cover parts that have been contaminated with oils, greases or solvents.
- Store batteries in a non-leaking, covered container.
- Promptly transfer used fluids to the proper closed container; empty drip pans when they fill. Spills of Liquid Materials
- Stop the source of the spill immediately.
- Contain the liquid until cleanup is complete.
- Deploy oil containment booms if the spill reaches open water drainage ways, drainage ways to waters of the state.
- Cover the spill with absorbent material.
- Dispose of cleanup materials properly.
- Report the spill to the Duty Officer, when appropriate.

Areas of the Facility With Unstable Soils

- Minimize run-on from adjacent areas.
- Pave the graveled areas.
- Prevent sediment from unstabilized areas from leaving the site by installing inlet inserts for now.

Recycling Area

- Install proper oil receiving unit
- Provide oil dry in a container near the receiving unit.
- Post signage on what to do in case of a spill.
- Remove brush and yard waste as soon as practicable.

E. Employee Training Program

As part of the Surface Water Pollution Prevention Plan, the City of Sheboygan will administer an employee-training program. This training program will include all of the public works personnel who are directly or indirectly involved in activities occurring within the Public Works garage and with the equipment and materials stored at the garage. Each of these employees will attend at a minimum one training session over viewing BMPs, the SWPPP, handling significant material and spill response procedures. These training sessions will be a combination of on-site workshops and presentations as well as outside training from industry offered classes. The goal of this program is to educate employees involved in maintenance and repair activities in the City owned facilities. Training shall include BMPs in everyday activities such as good housekeeping, preventative maintenance, proper material handling, operations following spills, and making

observations of pollution prevention potential impacts. This training shall be designed to develop proactive attitudes towards pollution prevention and have each employee take on a personal responsibility to contribute to a clean, safe, and pollution-free worksite.

The program basics will define the problem, define the program, describe how individuals can make a difference in the program, encourage and require participation in the program and include pollution prevention responsibilities as part of an employee job description. These seminars will also solicit and list comments received from employees on the overall program and suggestions for improvements to the program.

F. Preventative Maintenance Program

This program will require regular inspection and maintenance of storm water management devices both internal and external to the public works garage. This program will require an inspection, as well as testing of BMPs in place and to look for, identify conditions that could result in breakdowns or failures in the existing Pollution Prevention Program. These inspections should be conducted once every two months, and should include both inside activities and outside activities. It should be noted that these would also be conducted at least twice a year during storm conditions where runoff is accumulating in the storm water system. As part of this program, all catch basis, ditches, and work areas will be checked for cleaning and maintenance schedules to see if they were adhered to.

G. Spill Prevention and Response Procedure

The City of Sheboygan spill prevention procedure is based on its analysis of its system and where the most spills are mostly likely to occur. As part of this program, they will determine drainage points for potential spill areas and develop appropriate spill prevention and contamination measures, should a spill occur. Detailed procedures for cleaning up spills will be documented and made available to the appropriate personnel. This documentation will also be available at each identified potential spill site.

V. MONITORING AND REPORTING

This section of the SWPPP describes the details associated with conducting periodic site observations and required site inspections. With each of these site evaluations the inspector will be looking at the site's stormwater characteristics noting any changes since the last inspection, breeches in the structural BMPs, or any evidence that would suggest significant pollutants are present in the storm water runoff generated from the site. Based on the results of these inspections, the City of Sheboygan staff will annually evaluate the effectiveness of the selected BMPs and if necessary, BMPs that are more appropriate may replace the existing practices.

A. Monitoring Program

As part of the requirements of the WPDES permit, the City of Sheboygan must conduct regularly scheduled site inspections of the Public Works Garage. This activity fulfills the permit requirement that conditions are kept current and that if changes in design, operation, or construction is put in place, the SWPPP must be updated to reflect the new conditions. These inspections also detail the condition of the BMPs in place, the storage, and handling of significant materials, and the overall condition of the storm sewer system. As part of each inspection, a Site Inspection Form will be completed and inserted into the SWPPP complying with section 216.28(2)(3) The ourfall will be considered the last manhole prior to discharging into the main stormsewer on New Jersey Avenue.

The inspection schedule, as required by this permit, will be once every two months during non-frozen conditions. For the City of Sheboygan, the inspection period will be between the months of April and November. In addition, at least one of these inspections should occur during rainfall conditions so that storm water flows can be observed. In addition to filling out a Site Inspection Form, the inspector will also be making sure that the site meets the current SWPPP descriptions. The inspector will also look for new exposures to materials not included within the original SWPPP. If these inspections show that corrective

action needs to be taken, the permit requires that this action take place within 30 days of the findings of this report.

B. Reporting

Additional terms of this permit have specific reporting requirements. The reporting activities consist of four primary tasks:

1. Documenting the process involved in preparing the SWPPP.
2. Documenting, evaluating and implementation of the BMPs.
3. Record keeping.
4. Submittal of all annual reports.

Keeping updated and accurate records is required by SWPPP regulations. The auditing of stormwater records for permitted facilities is used by the WDNR as the enforcement tool of the permit process. The records required by the WDNR stormwater permit are defined in the permit as follows:

1. The SWPPP shall be maintained and updated for the duration of the permit (3/15/2005 – 3/15/2009).
2. A copy of the SWPPP, shall remain on the permitted site at all times and be available upon request. In addition, the City of Sheboygan shall maintain the following records for a minimum of three years after the life of the permit:

    - Date of inspection
    - Findings of inspections
    - Corrective actions taken
    - Documentation of all changes to the SWPPP
    - Methodology for planning and implementing selected BMPs and SWPPP.

Each of the annual reports will also contain:

1. A brief summary of the SWPPP.
2. Certification that the SWPPP has been completed.
3. List any spills or known contaminants of the stormwater from significant materials and the corrective action taken to prevent future spills, or the contamination of stormwater.
4. Description of inspections, date of inspections, finding of inspections, and corrective actions taken.

Appendix 1

SITE DRAINAGE MAP

This figure will include:

Site Drainage Patterns

Outfalls

Location of Significant Materials

Location of Inlets and Drains

Appendix 2

SITE ACTIVITIES/OPERATIONS ACTIVITIES SIGNIFICANT MATERIALS COMMENTS

Fueling Diesel, Gasoline	Auto Repair/Maintenance Lubricates, Solvents, Fuels, Coolants
Washing Operation Detergents & Solvents	De-icing Roads Chloride Salt
Snow Plowing Fuel	

Appendix 3

SIGNIFICANT MATERIALS INVENTORY LIST

Raw Materials Fuels	Stockpiled Salt
Petroleum Products	Stockpiled Bituminous Pavement
Stockpiled Sand	

By-Products

Topsoil	Rock – type – Class V
Limestone	Mulch
Gravel by-products	Recycled Blacktop
Recycled Concrete	Finished Materials Scrap Metal

Recycled Motor Vehicle Parts	Old Equipment
Waste Products Ashes	Oil Stored inside
Other Hazardous Materials	