CITY OF KENT
and
KENT STATE UNIVERSITY

NPDES PHASE II
STORM WATER MANAGEMENT PROGRAM

FINAL - MARCH 5, 2003
CTI Project Nos. E02042 and E03002

Prepared By:

ENVIRONMENTAL, INC.
ENGINEERS IN WATER AND EARTH SCIENCES

1549-A Boettler Road, Uniontown, Ohio 44685
330/896-3442 Fax: 330/896-2484 email: ctiohio@ctienviron.com

KENT STORMWATER MANAGEMENT PLANNING COMMITTEE
EXECUTIVE SUMMARY OF RECOMMENDATIONS
March 4, 2003

Background and Descriptions

The Storm Water Management Planning Committee (SWMPC) was created in order to develop the best measures necessary to comply with the Ohio EPA's Storm Water Phase II Rule requirements for the City of Kent. The Rule states that all operators of small municipal separate storm sewers systems (MS4s) within the boundaries of an "urbanized area" (UA) must create a Storm Water Management Plan (SWMP) and apply for coverage under a general permit from Ohio EPA. The SWMP shall describe what is currently being done by the City to maintain the integrity of storm water runoff and list future actions which will be implemented to improve storm water quality. The EPA has classified the activities to maintain or improve storm water quality under six control measures, which are defined as follows:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-construction Storm Water Management
6. Pollution Prevention and Good Housekeeping for Municipal Operations

Under the Storm Water Phase II Rule, all six control measures must be addressed by enacting local ordinances and certain activities designed to improve the quality of storm water. These activities, or Best Management Practices (BMPs), must have a measurable goal and be implemented to the "maximum extent possible". The SWMP must establish a schedule of implementation for each goal, and an entity responsible for each BMP. These BMPs must address the six control measures defined by the EPA to reduce the discharge of pollutants into nearby waters and to protect water quality.

In their meetings, the SWMPC has discussed three ordinances and many BMPs designed to address the six control measures. These measures and their BMPs are described in further detail below:

1. <u>Public Education and Outreach</u>

   In order to better inform and involve the public in maintaining the integrity of storm water runoff, it has been suggested that pamphlets be distributed addressing the role of the residents on storm water runoff.

   a. Lawn and Garden Activities - Fertilizers, herbicides, and other lawn treatment products affect storm water negatively. In addition to recommending reducing the use of such chemicals, it was suggested that a list of "environmentally friendly" products be generated under advisement from Davey Tree Co. and be published in the Tree City Bulletin. The City agreed to conduct annual base-line testing of the receiving waters to evaluate the effect of lawn and garden products on water quality. The City may consider enacting an ordinance to restrict/prohibit the use of certain lawn/garden products after the evaluation period.

b. Water Conservation Practices for Homeowners - Measures can also be taken to increase infiltration and lower storm water runoff by diverting runoff from roof drains or other sources into rain gardens. The brochure could also emphasize a variety of grasses which require less watering during the summer months.

c. Proper Disposal of Household Hazardous Waste – The Portage County Solid Waste District currently has a program in place for residents to properly dispose of any hazardous waste products. The public should be educated on the resources available to them regarding hazardous waste disposal, and be informed on the effect of improper hazardous waste disposal on storm water quality. Education on this and other existing programs can be done through currently established efforts such as the "Tree City Bulletin" and the Parks and Recreation Department's Environmental Education program. An annual drop off program at a City-designated site conducted by the Portage County Solid Waste District, should be established to promote proper disposal of household hazardous waste.

d. Pet Waste Management - A pet waste ordinance has previously been established in Kent. Residents should be informed of the effect of pet waste on the environment and the current ordinance regarding pet waste should be more strictly enforced.

e. Trash Management – Kent has in effect ordinances regulating garbage and solid waste collection. The public should be reminded of the role of proper trash disposal on storm water quality and the environment.

f. Education and Outreach for Commercial Activities - A program could be developed to advise management and employees of commercial businesses regarding procedures they may undertake to improve storm water quality, particularly RECRA small generators.

2. Public Involvement and Participation

The SWMPC addressed and discussed the following BMPs in detail for Public Involvement and Participation:

a. Storm Drain Stenciling – Paint messages on storm drain inlets reminding the public to not dump pollutants into the storm drains because these flow to the creeks and river.

b. Stream Cleanup and Monitoring/Volunteer Monitoring – It was suggested that the "Clean the Cuyahoga River" and Friends of Crooked River's "Clean River Day" programs be expanded, utilizing volunteers.

c. Reforestation Programs/Riparian-Wetland Plantings – It was suggested that the "Keep Kent Beautiful" campaign may be expanded to handle this BMP. The City Shade Tree Commission may be willing to discuss the issue of working with the City of Kent on such a program. In addition, this program should be tied into riparian regulations, providing and enhancing a given "riparian buffer zone" to areas near any stream. This could possibly be funded through the City of Kent Tree Fund, other grants, or city funds.

d. Adopt-A-Stream Programs – Several programs, such as the Middle Cuyahoga Group of NEFCO or "ODNR's Adopt-a-Stream, may apply to this BMP.

e. Watershed Organization – Most watersheds encompass many different jurisdictional organizations and municipalities, and creating such an organization would involve the thoughts and resources of all of these groups addressing the watershed. The Breakneck Creek Coalition is being approached to undertake coordination responsibilities for implementation of selected BMPs. The Kent Environmental Council and NEFCO are also potential entities for the role of watershed organization.

f. Stakeholder Meetings – The SWMPC may continue to meet, and additional meetings will be conducted in conjunction with the watershed organization.

g. Community Hotlines –Create a telephone number or email address that concerned citizens can notify when they see water quality problems in their area.

3. Illicit Discharge Detection and Elimination

The SWMPC voted to enact an Illicit Discharge and Connection storm water ordinance based on a model prepared by USEPA with the following three USEPA Fact Sheets as an appendix to the ordinance:

a. Industrial/Business Connections
b. Identify Illicit Connections
c. Illegal Dumping

The SWMPC recommends the following:

- Modify City ordinance to include the RECRA small operators.
- Include storm water enforcement right of entry.
- Define the areas of responsibility between City departments of Service and Health for enforcement of the ordinance.

4. Construction Site Storm Water Runoff Control

5. Post-construction Storm Water Management in New Development and Redevelopment

In order to address measures 4 and 5, the SWMPC voted to enact the following two ordinances based on a model from NOACA:

a. Riparian Setbacks and Wetlands Protection Ordinance to prevent construction in any riparian buffer areas. The City must pay careful attention of the language of these regulations to allow for variances to the requirements.

b. Construction Site Soil Erosion, Sediment, Storm Water Runoff, and Storm Water Quality Ordinance to establish required measures to maintain storm water quality during construction.

SWMPC recommends to the Community Development Dept., Planning Commission and Environmental Commission that they consider writing the Unified Development Code and modifying the Storm Water Regulations to include the following:

- Low Impact Development relative to SWM practices, including rain gardens
- Wetlands/riparian protection

SWMPC also recommends that the City establish a total of $25,000 to set up a program through Portage County Soil and Water Conservation District to obtain conservation easements along waterways.

6. Pollution Prevention and Good Housekeeping for Municipal Operations

a. Automobile Maintenance/Vehicle Washing – City vehicles are checked regularly for fluid leaks and are normally washed inside the maintenance garage, where the floor drains go to the sanitary sewer. However, some improvements could be made to assure containment for runoff from exterior vehicle washing and the gas pump islands.

b. Parking Lot and Street Cleaning – Frequency of current street sweeping program and vacuuming drain inlets could be a means of improving storm water quality to the Ohio EPA.

c. Roadway and Bridge Maintenance - The Haymaker Parkway Bridge has scupper drains that discharge directly onto a concrete slope where water then drains directly to the river. Redirecting the discharge of the scupper drains on this bridge and others within the City could be a good measurable goal for this BMP.

d. Storm Drain System Cleaning –The storm sewers could be cleaned more often than only to address a blockage within the system.

e. Hazardous Materials Storage, Materials Management, and Spill Response and Prevention – A number of BMPs could be implemented to reinforce current procedures and regulations currently followed by the City of Kent.

f. Used Oil Recycling – It was discussed that the City should consult with the Portage County Solid Waste District to determine best recycling measures for other waste fluids.

g. Road Salt Application and Storage – The effect of deicers on storm water quality varies by type and amount of deicer used and the method of application. It was suggested that new technologies be looked at in order to reduce the environmental impact of deicers such as those suggested in the storm water management fact sheet “Minimizing effects from Highway Deicing.”

h. Employee Training – To educate City employees on best practices relative to storm water quality, and it was recommended that City Administration consider creating employee committees to provide input and feedback on the educational program.

Recommended Schedule of Implementation

On January 6, 2003, the SWMPC met to discuss their recommendations for prioritizing and schedule for implementing the BMPs. Their recommended schedule follows:

1. Public Education and Outreach

2003-04 Proper Disposal of Household Hazardous Wastes

2003-04 Low Impact Development relative to Storm Water Management practices

2004-05 Pet Waste Management

2004-05 Education/Outreach for Commercial Activities

2005-06 Lawn & Garden Activities

2006-07 Water Conservation Practices for Homeowners

2007-08 Trash Management

2. Public Involvement / Participation

2003-08 Storm Drain Stenciling

2003-08 Stakeholder Meetings

2003 Stream Cleanup and Monitoring Program Setup, including Volunteer Monitoring of Streams and an Adopt-A-River program

2004-08 Stream Cleanup and Monitoring Implementation

2003-05 Watershed Organization Investigation, Planning and Setup

2006-08 Watershed Organization Implementation

2004 Reforestation and Riparian Area Wetlands Plantings Program Setup

2005-08 Reforestation and Riparian Area Wetlands Plantings Programs Implementation

2007-08 Community Hot Lines

3. Illicit Discharge Detection and Elimination

2004-05 Ordinance Developed

2004-05 Ordinance Enacted

2005-08 Industrial/Business Connections

2005-08 Identifying Other Illicit Connections

2005-08 Illegal Dumping Prevention Program

4. Construction Site Storm Water Runoff Control

2003-04 Ordinance(s) Developed and Enacted

2004-08 Program Implemented

5. Post-Construction Storm Water Management in New Development and Redevelopment

2003-04 Ordinance(s) Developed and Enacted

2004-08 Program Implemented

6. Pollution Prevention / Good Housekeeping for Municipal Operations

2003-08 Automobile Maintenance and Vehicle Washing

2003-08 Parking Lot and Street Cleaning

2003-08 Storm Drain System Cleaning

2003-08 Hazardous Materials Storage, Materials Management and Spill Response and Prevention

2003-08 Used Oil Recycling

2003-08 Employee Training

2004-08 Road Salt Application and Storage

2007-08 Roadway and Bridge Maintenance

Postlude

Further development of the Storm Water Management Plan involved working with City and KSU representatives to determine which BMPs to implement for the City and KSU of those recommended by the SWMPC and by CTI. These decisions were based on priority, overall improvement to storm water quality, and cost. These work sessions also provided a decision on which parties will be responsible for implementation of each of the BMPs. Stakeholders meetings were also held by way of a public hearing on February 12, 2003 and posting on the City website to allow for additional comments and input from citizen and business members of the community, and the SWMP was further refined upon review of this input. The five year SWMP outlines details of implementing the BMPs, including establishing measurable goals and an attainable schedule to reach these goals. The SWMPC will continue to meet during the permitting period to discuss the progress of the SWMP and evaluate the success of the BMPs.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

BCC	Breakneck Creek Coalition
BMPs	Best Management Practices
City	City of Kent
CTI	CTI Environmental, Inc.
CWA	Clean Water Act
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HAZMAT	Hazardous Materials
HSTSs	Home Sewage Treatment Systems
IECA	International Erosion Control Association
KSU	Kent State University
MORPC	Mid-Ohio Regional Planning Commission
MS4s	Municipal Separate Storm Sewer Systems
NEFCO	Northeast Ohio Four County Regional Planning and Development Organization
NOACA	Northeast Ohio Areawide Coordinating Agency
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPR	National Public Radio
NRCS	Natural Resources Conservation Service
NURP	National Urban Runoff Program
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
ODNR	Ohio Department of Natural Resources
PCSWD	Portage County Solid Waste District
PLACE	Portage County Land Association Conservation Education
RCRA	Resource Conservation and Recovery Act
SWCD	Soil and Water Conservation District
SWMP	Storm Water Management Program
SWMPC	Storm Water Management Planning Committee
SWU	Storm Water Utility
UDC	Unified Development Code
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
WPCA	Water Pollution Control Act
WRF	Water Reclamation Facility
WTP	Water Treatment Plant
WQA	Water Quality Act

1.0 INTRODUCTION

The City of Kent (City) and Kent State University (KSU) retained the services of CTI Environmental, Inc. (CTI) and sub consultant Woolpert, LLP to prepare a joint Storm Water Management Program (SWMP) to meet the requirements of the Ohio Environmental Protection Agency (OEPA) Storm Water Phase II Rule. KSU in this SWMP refers to the Kent campus located in the City of Kent. The Storm Water Phase II Rule applies to operators of regulated small municipal separate storm sewer systems (MS4s). The OEPA defines an MS4 as a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains. The Storm Water Phase II Rule requires nationwide coverage of all operators of small MS4s that are located within the boundaries of an urbanized area based on the 2000 Census. The Rule also requires that the National Pollutant Discharge Elimination System (NPDES) permitting authority, which is the OEPA Division of Surface Water, develop and apply designation criteria for final determination of which communities are required to comply with the regulation.

The City of Kent encompasses approximately nine (9) square miles, of which eight (8) are within an urbanized area. The City's urbanized area has been defined by the 2000 Bureau of the Census and is shown on a map of the Akron, Ohio, urbanized area found on the United States Environmental Protection Agency (USEPA) Web site. A copy of the map is located in Appendix A. The KSU Kent campus is approximately 1.5 square miles in size and is included within the City of Kent's urbanized area.

The City and KSU determined the most cost-effective and efficient approach to address the OEPA Storm Water Phase II regulations was to develop and implement a watershed approach under a joint permit and SWMP. This document provides the details of the SWMP that has been developed for the City and KSU permit application to comply with the OEPA Storm Water Phase II regulations.

2.0 REGULATORY BACKGROUND

The Water Pollution Control Act (WPCA), initially enacted in 1948, utilized ambient water quality standards to specify acceptable levels of pollution in lieu of preventable causes of water pollution. This approach has proven to be an ineffective method to prevent pollution. Additional problems encountered with WPCA included ambiguous Federal and State responsibilities for promulgating the standards and cumbersome enforcement methods.

The 1972 amendments to the WPCA, referred to as the Clean Water Act (CWA), implemented measures which were focused on establishing effluent limitations on point sources, or "any discernible, confined, and discrete conveyance from which pollutants are or may be discharged." Additional measures employed by the CWA included the following items:

- Increased accountability toward dischargers of pollutants.
- Requirements that states and tribes survey their waters and determine the appropriate use for each, followed by the implementation of specific water quality criteria for various pollutants to protect the identified uses.
- Provision of certain funding mechanisms to assist communities in achieving clean water goals.

The 1972 CWA introduced the National Pollutant Discharge Elimination System. The NPDES program was established as the fundamental regulatory mechanism of the CWA, requiring direct dischargers of pollutants into waters of the United States to obtain a NPDES permit. Between 1972 and 1987, the NPDES permit program focused on improving surface water quality by reducing pollutants of industrial process wastewater and municipal wastewater. During this period, several nationwide studies on water quality, most notably the USEPA National Urban Runoff Program (NURP), identified storm water discharges as a significant source of water pollution. The results of NURP and similar studies, and pressure from environmental groups, resulted in the reauthorization of the CWA in 1987 with the passage of the Water Quality Act (WQA). The WQA established a legal framework and required the USEPA to develop a

comprehensive phased program for regulating municipal and industrial storm water discharges under the NPDES permit program.

The NPDES Phase I Rule, which was issued in November 1990, addressed storm water discharges from medium to large MS4s, which were communities serving a population of at least 100,000 people. The ruling also placed permitting requirements on, and storm water discharges from, industrial activities and some construction activities.

The NPDES Phase II Rule, which was promulgated in December 1999, addressed small communities and institutions serving a population of less than 100,000 people in urbanized areas. The Storm Water Phase II Rule requires that all MS4s, located within urbanized areas as defined by the Bureau of the Census, automatically comply with the Phase II Storm Water regulations. OEPA has designated the City and KSU as Phase II communities that must comply with the new NPDES regulations.

In the State of Ohio, the USEPA has delegated the OEPA as the State permitting authority. In December 2002, OEPA issued their Final Permit regulations under which the designated Phase II communities in Ohio must obtain permit coverage from OEPA by March 10, 2003.

3.0 STORM WATER MANAGEMENT

The City of Kent and Kent State University separately handle their storm water management duties. However, many regional agencies provide storm water management assistance to both the City and KSU, including: OEPA, Ohio Department of Transportation (ODOT), Portage County Soil and Water Conservation District (SWCD), United States Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS), and United States Army Corps of Engineers (USACE) Buffalo District.

Storm water management is unique to each of the joint applicants. Each has a different purpose and governmental structure. In order to create an effective combined SWMP for the City and KSU, it is important to understand the purpose and limitations of their existing programs as well as their financial, geographical and technical components. The nature and extent of any existing water quantity (flooding) or water quality (pollution) problems must also be understood. Interviews were conducted with various City and KSU staff members to collect detailed information regarding the status of their existing storm water management programs and identified storm water problems. These interviews were conducted and documented by CTI. The following sections summarize the information collected from the interview process.

3.1 City of Kent Storm Water Management

3.1.1 Administrative and Program Structure

Storm water management in the City is provided by a number of departments. The type and extent of storm water services provided by each department varies as follows:

- *Engineering Division*: records, regulations, design, review and inspection
- *Community Development Department*: development review and inspection
- *Planning Commission*: development review.
- *Central Maintenance Division*: cleaning/maintenance, repair and renovation
- *City Council*: development review

3.1.2 Funding Mechanisms

The City has three (3) sources which provide funding for storm water services:

1. Storm sewer system tap-in fees.
2. Storm Water Utility (SWU) which provides the majority of funding for annual storm water programs.
3. The City's general budget allocates funds annually to storm water capital improvement projects.

3.1.3 Project Prioritization

There are two (2) methods used to identify, track and assign priority to storm water projects. The first method is proactive and involves long-term planning efforts through the development of a five (5) year storm water capital budget and preparation of design studies to identify and formally prioritize storm water projects and produce construction bid documents. The second method is reactive and involves short-term planning with prioritization mainly through drainage complaint logs and records.

3.1.4 Storm Water Infrastructure Inventory

The City has a map of its storm sewer system in digital format. This map includes storm sewer piping and a substantial area within the City where storm water is addressed through storm swales, ditches, etc. However, the information provided on this map needs to be updated and verified.

3.1.5 Permitting and Regulations

The City has storm water regulations that require storm water management practices for new developments. It also requires formal sediment and erosion control plans as part of the plans for construction sites. The Community Development Department reviews all engineering plans (including drainage) for development in the City and is responsible in conjunction with the Engineering Division for field inspection for all developments within the City. The City's regulations are located in the following City documents (unless otherwise noted):

- *City of Kent Engineering Standards and Policy*
- *City of Kent Storm Water Utility Policies and Procedures Manual*
- *City of Kent Codified Ordinances*
- *Rainwater and Land Development*, published by the Ohio Department of Natural Resources (ODNR)
- *Storm Water Design Manual*, published by Mid-Ohio Regional Planning Commission (MORPC)
- *Controlling Urban Runoff: A Practice Manual for Planning & Designing Urban BMPs*, published by Metropolitan Washington Council of Governments
- *Design of Storm Water Wetlands Systems*, published by Metropolitan Washington Council of Governments
- *Location & Design Manual; Vol. 2-Drainage Design*, published by ODOT

3.1.6 Public Education

The citizens of the City of Kent have long been environmentally active and conscious. Past programs have included storm drain stenciling and river cleanup days. The proposed Kent Dam and Cuyahoga River Restoration Project has brought heightened awareness of water quality issues to the public. A foundation for a comprehensive storm water public education program exists through the *Tree City Bulletin*, a quarterly newsletter published through the City's Community Development Department. The City also has ongoing public education efforts through the Parks and Recreation and Health Departments, and the Water Treatment Plant's (WTP) Well Head Protection Plan. The City is an active participant in Portage County Land Association Conservation Education (PLACE) and is represented on the Breakneck Creek Coalition (BCC). The City is also participating in an OEPA Section 319 Grant in conjunction with Summit County to improve water quality of the Middle Cuyahoga River. In addition, regional agencies such as the Portage County Solid Waste District (PCSWD) and the Portage County SWCD have ongoing public education programs.

The Phase II regulations will impact how the City performs daily activities in regards to controlling storm water runoff. Public education is a key component to the successful implementation of a SWMP. The community needs to be educated on the new Federal and State requirements, the proposed SWMP, and the program funding.

3.1.7 City of Kent Summary

The following is a summary of the existing storm water management programs in the City:

- Several departments within the City take part in storm water management.

- Storm water management planning in the City is both proactive and reactive.

- The City has a dedicated source of funding for storm water program activities. The sources for funding storm water related administration, operation, maintenance or capital improvement projects has been established through the SWU, storm sewer tap-in fees and funds allocated from the City's General Budget.

- Regulations and enforcement regarding storm water planning, engineering design, and construction plan review and inspection satisfy many of the minimum control measures required by the OEPA Phase II NPDES Permit Program.

- A map of the City's storm sewer system (including the open-channel portion) currently exists in digital format, but verification of a portion of the information is required, and home sewage treatment systems (HSTSs) will need to be added.

- Several organizations, including the Parks and Recreation, Community Development, Health, Finance and Public Service Departments, have public education activities under way.

3.2 Kent State University Storm Water Management

3.2.1 Administrative and Program Structure

Storm water management support and services for KSU are provided by a number of departments. The type and extent of storm water services provided by each department varies as follows:

- Office of the University Architect: records, design guidelines, design, review and inspection
- Campus Environmental and Operations Department: cleaning/maintenance, repairs and renovation
- Campus Safety Department: development and enforcement of policies on proper disposal of waste products
- KSU Police Department: receipt and relay of drainage complaints

3.2.2 Funding Mechanisms

Funding for annual storm water programs and capital improvement projects is included in the above mentioned departments' budgets, funded by student fees and State allocations.

3.2.3 Project Prioritization

KSU accounts for ongoing storm water management programs through its master plans and capital budget. KSU also implements continuous storm sewer system upgrades and maintenance programs. A hot line is in place for students, faculty and staff to report emergencies that may include immediate action to the storm sewer system.

3.2.4 Storm Water Infrastructure Inventory

KSU has a map detailing its entire storm sewer system, as well as a Master Plan for its storm water facilities. KSU recently completed a storm water study that located and mapped all of the storm drains on the Kent campus and also includes various runoff studies. KSU also has aerial photographs of its entire storm sewer system with infrared detection, which identifies areas of standing water throughout the campus.

3.2.5 Permitting and Regulations

All campus policies involving maintenance of the storm sewer system and construction activities to maintain storm water quality are in compliance with current regulations of governing authorities including, but not limited to, the following entities:

- OEPA
- USACE Buffalo District
- ODOT
- Office of Industrial Compliance of the Ohio Department of Commerce, Bureau of Plans and Specifications
- Portage County SWCD

3.2.6 Public Education

The SWMP includes a comprehensive educational program to inform the public on storm water quality. Through its SWMP, KSU intends to educate its faculty, staff and students on the NPDES Phase II storm water regulations and how individuals can improve storm water quality. KSU currently has the necessary communication tools available to implement the storm water educational program as part of the SWMP. A foundation for this type of comprehensive public education program exists through a daily student-run newspaper, the *Daily Kent Stater* and a weekly newsletter, *Inside Kent State*. Public information is also available through

WKSU, a KSU-affiliated National Public Radio (NPR) station and a KSU Web site that details the requirements of the OEPA Phase II NPDES Permit Program.

3.2.7 Kent State University Summary

The following is a summary of the existing storm water management programs at KSU:

- Several KSU departments take part in storm water management.
- Storm water management planning at KSU is primarily proactive, with reactive measures taken on a complaint and/or emergency basis.
- KSU budgets its storm water management programs through department budgets, funded by student fees and State allocations.
- Policies, technical specifications and enforcement regarding storm water planning, engineering design, and construction plan review and inspection satisfy many of the minimum control measures required by the OEPA Phase II NPDES Permit Program.
- A map of KSU's storm sewer system exists.
- KSU has a number of media venues that will be used to inform and educate students, faculty and staff on storm water regulations and storm water quality.

4.0 COMPONENTS OF THE NPDES PHASE II PROGRAM

The City of Kent and Kent State University, as owners and operators of small MS4s, are required to reduce the discharge of pollutants to waters of the State and the United States to the "maximum extent practicable" to protect water quality. At a minimum, the permit requires a SWMP that does the following:

- Specifies best management practices (BMPs) for six (6) minimum control measures and implements them to the "maximum extent practicable."
- Identifies measurable goals for the control measures.
- Develops an implementation schedule for the control measures or a frequency for each activity.
- Defines the responsible entity to implement the control measures.

The six (6) minimum controls as defined by OEPA are as follows:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention and Good Housekeeping for Municipal Operations

The following sections outline the watershed approach for a SWMP for the City and KSU:

- Description of the six (6) minimum control measures.
- OEPA guidance for complying with each control measure.
- Information on existing activities.
- Action plan to address each minimum measure and an associated schedule.

4.1 Public Education and Outreach (Minimum Measure #1)

The key to implementing and managing an effective SWMP begins with community awareness and enlightenment. Greater support is typically achieved as the public gains an understanding of the reasons why storm water management is necessary and important. Public support is also beneficial when municipalities and institutions attempt to institute new funding initiatives or recruit volunteers. In addition, greater compliance with program requirements is realized as individuals become aware of their role in protecting the environment and their ability to impact the quality of local waterways.

4.1.1 OEPA Requirements

To satisfy this control measure, permitees must implement a public education program regarding the importance of proper storm water management. At a minimum, the permitee must perform the following tasks:

- Implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities to communicate the impact of storm water discharges on local water bodies. In addition, this program must address steps that can be taken to reduce storm water pollution.

- Document the decision process in developing a storm water public education and outreach program. This documentation must address the overall public education program, individual BMPs, and measurable goals. In addition, the documentation must address the following four (4) items:

    1. How to inform individuals about the steps they can take to reduce storm water pollution and how they can become involved in the SWMP.

2. The target audience for the education program, why the audience was selected and what mechanisms or strategies are involved in reaching this audience.

3. The target pollutant sources addressed during the design of the program.

4. How the success of individual BMPs will be evaluated and who is responsible for the implementation and success of each BMP, and the program in general.

4.1.2 OEPA Guidelines

Three (3) main action areas are important for successful implementation of a public education and outreach program:

1. Forming partnerships with governmental, environmental, civic and industrial organizations.

2. Using educational materials and strategies, including brochures, posters, and educational displays at events, as well as telephone hot lines, and educational programs for school children.

3. Reaching diverse audiences through a mixture of appropriate local strategies to address the viewpoints of a variety of audiences and communities, including minority and disadvantaged communities and children.

4.1.3 Efforts to Date

City of Kent Efforts to Date

Tree City Bulletin

This is a City publication mailed quarterly to all residents and businesses. It publishes articles on news, programs and a variety of issues within the City. The *Tree City Bulletin* includes the following types of articles related to storm water management: leaf collection schedules, Portage County Recycling and Household Hazardous Waste programs, Parks and Recreation Department programs and news, and water quality issues relating to the Kent Dam modification.

Parks and Recreation Department Efforts

No Littering signs are posted in City parks to remind citizens of their role in trash management. The Parks and Recreation Department installed five (5) pet waste management stations in four (4) City parks. The stations provide information to pet owners on how pet waste affects the environment. Also provided are plastic bags pet owners can use to dispose of the waste.

The City's Parks and Recreation Department is involved with educational programs such as day camp summer programs, classroom programs in schools, the Cuyahoga canoe tour, hikes and visits to Kent Bog State Nature Preserve. These programs are designed to educate the public on environmental issues.

Portage County Solid Waste Management Plan

The PCSWD offers the following services to all residents within the County: recycling, curbside collection programs, household hazardous waste collection, illegal dump cleanup and educational programs. The District provides educational programs to schools, church groups and civic organizations on recycling, litter prevention, hazardous waste, yard waste and composting. The District also has an environmental and technical library available to all residents.

Well Head Protection Plan

The City's drinking water source is ground water, and WTP operations include the recharge of ground water. The Well Head Protection Plan requires the City to implement a public education and outreach program to members of the community on how they can protect their drinking water source. To address this requirement, the City has established a Clean Water Campaign.

Clean Water Campaign

City personnel visit local schools to speak to students on the importance of drinking water quality and the WTP conducts tours during Drinking Water Week.

Tours

Tours are given at the Public Service Department, WTP and Water Reclamation Facility (WRF) for students from local schools and KSU.

Breakneck Creek Coalition

BCC was developed to address water quality issues related to storm water in the Breakneck Creek Watershed, as well as to secure funding sources for facilitating riparian and wetland conservation easements. The BCC is comprised of stakeholders and volunteers from the City of Kent and neighboring communities, and planning organizations that also have an interest in the Breakneck Creek Watershed.

Portage County Land Association Conservation Education

PLACE is a land conservancy trust organization established in Portage County with an emphasis on obtaining and enhancing all natural areas, including wetlands.

Kent State University Efforts to Date

Daily Kent Stater

The *Daily Kent Stater* is a daily publication informing students, faculty and staff about issues and events at KSU.

Kent.edu

Students, faculty and staff are informed of construction activities, road closings and major events through the use of this e-mail listserv.

Inside Kent State

Inside Kent State is a weekly newsletter sent to KSU department heads and faculty and is available to students throughout campus and on the KSU Web site. The publication focuses on campus news and upcoming events.

Radio Programming

WKSU is a NPR station affiliated with KSU.

KSU Web Site

KSU has developed a Web site (http://ceo.mts.kent.edu/COM/links.cfm) that links to USEPA and OEPA Web sites. These enable the visitors to access USEPA and OEPA Web sites that include information on the requirements of the NPDES Phase II storm water regulations, the six (6) minimum control measures and what is required for implementation of each measure.

4.1.4 Action Plan for Public Education and Outreach

The public education and outreach program for the City and KSU was developed by the Storm Water Management Planning Committee (SWMPC), along with various administrative personnel from the City and KSU. An executive summary of the discussions and ideas of the SWMPC is located in Appendix B. Five (5) public education and outreach topics relating to homeowners, students and the public have been selected, with a focus each year on one (1) topic. In addition, two (2) topics relating to developers and businesses have been selected for public education and outreach. The City and KSU will perform various tasks to implement these BMPs and reach their target audiences. The City and KSU will evaluate the effectiveness of their public education and outreach programs by conducting surveys throughout the permit term.

City of Kent Action Plan

Targeted BMPs

Proper Disposal of Household Hazardous Wastes

5/03-4/04 Publish two (2) articles in the *Tree City Bulletin* and on the City's Web site highlighting the services offered by the Portage County Solid Waste District, including the household hazardous waste drop-off location and the effects of improper hazardous waste disposal on storm water quality.

5/03-4/04 Add a link on the City's Web site to the Portage County Web site.

5/03-4/04 Work with the PCSWD to investigate the creation of a household hazardous waste drop-off site located within the City (open a certain number of times per year) and/or a way to promote use of the PCSWD facility located approximately five (5) miles south of downtown Kent.

Pet Waste Management

5/04-4/05 Inform residents of the effects of pet waste on the environment and storm water quality through articles in the *Tree City Bulletin* and on the City's Web site. Include information on the following in two (2) published articles: the City's pet waste ordinance, pet waste management stations in City parks, and the effect of geese waste in City parks and on athletic fields.

5/04-4/07 Install additional pet waste management stations in City parks. The goal is to install ten (10) new stations in the City parks.

5/04-4/05 Post a sign at Plum Creek Park not to feed the geese, and include information on the effect that geese waste has on storm water quality.

Lawn and Garden Activities

5/04-4/05 Work with local lawn care specialists and KSU to setup meetings to develop a list of environmentally friendly lawn care products and better lawn and garden practices. The list shall include products that residents can purchase for self-application and also what questions residents should ask lawn care services about their products.

5/05-4/06 Publish four (4) articles in the *Tree City Bulletin* and on the City's Web site to educate homeowners about better lawn and garden practices related to each season. The articles will include a list of environmentally friendly products for fertilizers, herbicides, pesticides and other related products.

Water Conservation Practices for Homeowners

5/06-4/07 Publish four (4) articles in the *Tree City Bulletin* and on the City's Web site throughout the year to educate homeowners about practical water conservation practices they could implement. Topics will include diverting down spouts to rain gardens and grasses which require less watering, leaving grass clippings on the lawn, and optimum times of day to water.

Trash Management

5/07-4/08 Publish two (2) articles in the *Tree City Bulletin* and on the City's Web site to remind the public about the role of proper trash disposal on storm water quality and the connection between the storm drains and local rivers and streams.

Low Impact Development

5/03-4/04 Include low impact development practices relative to storm water management in the proposed storm water regulations as alternative storm water management practices. Also include modern residential practices for cleaning up storm water. Low impact development includes components that contribute to the quality of surface water runoff such as bioretention swales, dry wells, infiltration trenches, vegetated buffer strips, rain barrels and cisterns.

Education and Outreach for Commercial Activities

5/04-4/05 The City's Service and Health Departments shall develop a Small Quantity Generator Educational Program for businesses such as car washes and auto repair shops.

5/05-4/06 The City will distribute informational brochures on water quality related BMPs to businesses and industries.

Parks and Recreation Department Environmental Education Program

5/03-4/04 Develop curriculum to add topics on storm water quality to existing educational programs such as day camp summer programs, classroom programs, Cuyahoga canoe tours, hikes and visits to the Kent Bog State Nature Preserve.

5/03-4/08 Through the Parks and Recreation Department's Environmental Education Program, distribute fliers to local grade school children during the appropriate school year to raise awareness and educate citizens on the proper disposal of household hazardous waste, pet waste management, lawn and garden activities, water conservation, and trash management.

5/04-4/05 Purchase an educational model of a watershed and the water cycle to use in local schools and at meetings with community groups to teach about storm water runoff and the importance of storm water quality controls and BMPs. Provide classroom presentations and curriculum ideas to teach students about storm water runoff and its effect on water quality.

5/05-4/08 Determine features to incorporate into a drainage project in order to develop a demonstration project at a City park for the public and for school field trips. This Parks and Recreation Department environmental education demonstration project may include features related to storm water quality such as a catch basin that drains directly to a stream and one that directs the drainage to a bioretention system or rain garden. A demonstration of environmentally friendly lawn and garden activities could be featured as well. A brochure will be prepared to explain the features of the demonstration project.

Additional Public Education and Outreach BMPs

5/03-4/04 Publish an article in the 2003 summer issue of the *Tree City Bulletin* and on the City's Web site to inform the public of the OEPA Phase II storm water regulations, a summary of the City's role in storm water management and where the citizens can view a copy of the SWMP on the web.

5/03-4/04 Add a link on the City's Web site which contains information on the importance of improving storm water quality and a printable version of the SWMP.

5/04-4/08 City personnel, such as the Service Director and the City Engineer, will speak at civic organization meetings and schools on topics related to storm water quality.

5/04-4/05 Designate staff for public information efforts and/or partner with a watershed organization for this activity.

Kent State University Action Plan

Targeted BMPs

The following BMPs are aimed at educating KSU faculty, staff and students about their role as environmentally responsible citizens. The BMPs will be coordinated with those of the City, and many articles placed in City publications may be reprinted in KSU publications.

Proper Disposal of Household Hazardous Wastes

5/03-4/04 Publish two (2) articles in *Inside Kent State* highlighting the services offered by the PCSWD, including the household hazardous waste drop-off location and the effects of improper hazardous waste disposal on storm water quality.

Pet Waste Management

5/04-4/05 Inform students, faculty and staff of the effects of pet waste on the environment and storm water quality through two (2) articles in *Inside Kent State*. Include information on the City's pet waste ordinance, pet waste management stations in the City parks and the effects of geese waste in City parks and athletic fields.

Lawn and Garden Activities

5/04-4/05 Work with the City to develop a list of environmentally friendly lawn care products and better lawn and garden practices. The list shall include products that can be purchased for self-application as well as what questions should be asked to lawn care services about their products.

5/05-4/06 Publish four (4) articles in *Inside Kent State* to inform students about better lawn and garden practices related to each season. The articles will include a list of environmentally friendly products for fertilizers, herbicides and other lawn treatment products.

Water Conservation Practices for Homeowners

5/06-4/07 Publish four (4) articles in *Inside Kent State* throughout the year about practical water conservation practices. Topics will include rain gardens, diversion of down spouts and grasses that require less watering.

Trash Management

5/07-4/08 Publish an article in *Inside Kent State* during the week of Earth Day to remind students, faculty and staff to keep storm drains, parks, streams, and rivers clear of litter and debris.

5/07-4/08 Publish two (2) articles in *Inside Kent State* to remind students, faculty and staff of the effect of proper trash disposal on storm water quality.

Additional Public Education and Outreach BMPs

5/03-4/04 Publish an article in a 2003 edition of *Inside Kent State* about the OEPA Phase II storm water regulations, KSU's role in storm water management, and where they can view a copy of the City and KSU's SWMP on the web.

5/03-4/04 Add a link on the KSU Web site which contains information on the importance of storm water quality along with a printable version of the City and KSU's SWMP.

5/03-4/04 Send an e-mail to students, faculty and staff describing their role in protecting storm water quality and a description of the BMPs that target residential activities.

5/03-4/06 Produce and air a public service announcement on WKSU about storm water and the public's role in storm water quality. The announcement will air during the first two (2) years of the permitting term. KSU will conduct a survey at the end of the permit term to ascertain behavioral changes in the target audiences.

Table 4.1a

Summary of Public Education and Outreach Activities – City of Kent

Compliance Task		Schedule	Responsible Entity
1	Proper Disposal of Household Hazardous Wastes	5/03-4/04	PCSWD & Public Service Department
2	Pet Waste Management	5/04-4/05	Parks and Recreation Department
3	Lawn and Garden Activities	5/05-4/06	Public Service Department
4	Water Conservation Practices for Homeowners	5/06-4/07	Public Service Department
5	Trash Management	5/07-4/08	PCSWD & Public Service Department
6	Low Impact Development	5/03-4/04	Community Development Department
7	Education and Outreach for Commercial Activities	5/04-4/05	Public Service, Community Development & Health Departments
8	Parks and Recreation Department Education Program		
	Storm Water Curriculum Development	5/03-4/04	Parks and Recreation Department
	Purchase a Watershed Model	5/04-4/05	Parks and Recreation Department
	Environmental Education Demonstration Project	5/05-4/08	Parks and Recreation Department
9	Additional Public Education and Outreach BMPs	5/03-4/08	Public Service Department

Table 4.1b

Summary of Public Education and Outreach Activities – KSU

Compliance Task		Schedule	Responsible Entity
1	Proper Disposal of Household Hazardous Wastes	5/03-4/04	Office of the University Architect
2	Pet Waste Management	5/04-4/05	Office of the University Architect
3	Lawn and Garden Activities	5/05-4/06	Office of the University Architect
4	Water Conservation Practices for Homeowners	5/06-4/07	Office of the University Architect
5	Trash Management	5/07-4/08	Office of the University Architect
6	Additional Public Education and Outreach BMPs	5/03–4/06	Office of the University Architect

4.2 Public Involvement and Participation (Minimum Measure #2)

OEPA believes the public can provide valuable input and assistance toward implementing a Phase II SWMP. As a result, the NPDES Storm Water Phase II regulations require public involvement and participation in the development and implementation of a SWMP. Providing the public with an opportunity to develop the program will help to broaden public support, increase the number of potential ideas to meet the permitting requirements, provide a conduit to other community and government programs, and shorten the implementation schedules due to fewer public outcries and dissent.

4.2.1 OEPA Requirements

At a minimum, permitees are required to comply with applicable public notice requirements and to determine appropriate BMPs and measurable goals toward encouraging public involvement and participation. Permitees must include documentation of the process for selecting the BMPs and include the following information:

- Statement that the public has been involved in the development of the Notice of Intent (NOI) and SWMP description.
- Description of the plan to actively involve the public in development and implementation of the program.
- List of the ethnic and economic groups engaged as the target audiences for the public involvement program.
- Description of the types of activities included in the public involvement program, such as citizen representatives on storm water management panels, public hearings, working with citizen volunteers willing to educate others about the program and volunteer monitoring of stream cleanup activities.

- Name of the person or entity responsible for overall management and implementation of the storm water public involvement program and the person or entity responsible for individual BMPs.

- Statement of the criteria used to evaluate the success of each BMP, including measurable goals and how the goals were selected.

4.2.2 OEPA Guidelines

Permitees should include the public in developing, implementing and reviewing the SWMP. The public participation process should make every effort to reach out to and engage all economic and ethnic groups. Alternative advertising methods should be used whenever possible, including radio or television spots, postings at bus stops and multilingual announcements. There are a variety of practices that could be incorporated into a public involvement and participation program, such as public meetings, citizen watch groups, community cleanups and storm drain stenciling.

4.2.3 Efforts to Date

City of Kent Efforts to Date

Advisory Groups:

Northeast Ohio Four County Regional Planning and Development Organization (NEFCO)

NEFCO provides cooperation and coordination in development planning among units of local government in Portage, Stark, Summit and Wayne counties. These activities include planning of sanitary sewers, waterlines, transportation improvements and general development trends.

Storm Water Management Planning Committee

The City assembled a group of five (5) citizens, four (4) City representatives and one (1) KSU representative who met twice a month for five (5) months beginning in October 2002 to provide input to the City and KSU on the development of a SWMP to meet the Phase II requirements.

Kent Environmental Commission

The Kent Environmental Commission is an advisory group to City Council and the Planning Commission. The Commission offers input on environmental issues, including storm water quality. The focus of the Commission is the City's growth and development in an environmentally sustainable manner.

Citizen Volunteer Organizations:

Kent Environmental Council

Since 1970, the Kent Environmental Council has been involved in river cleanup efforts, riparian reforestation, public education, and water quality issues locally and regionally.

Breakneck Creek Coalition

BCC was developed to address water quality issues related to storm water in the Breakneck Creek Watershed, as well as to secure funding for facilitating and obtaining riparian and wetland conservation easements. The BCC is comprised of stakeholders and volunteers from the City of Kent and neighboring communities and planning organizations that also have an interest in the Breakneck Creek Watershed.

Clean Water Campaign

The City's WTP offers educational tours of the plant during Drinking Water Week to educate citizens on Kent's ground water source and treatment process.

Portage County Land Association Conservation Education

PLACE is a land conservancy trust organization established in Portage County, with an emphasis on obtaining and enhancing all natural areas, including wetlands.

Storm Water Utility Committee

The Storm Water Utility Committee met from September 1999 to August 2000 to develop the SWU ordinance.

Activities:

River Cleanup Day

This program was sponsored by the City's Water Reclamation Facility and Health Department in 2000 to remove trash, debris and logs from the Middle Cuyahoga River. Volunteers were recruited from the community.

Friends of the Crooked River Cleanup Day

This annual program is sponsored by the Friends of the Crooked River organization to remove trash, debris and logs from the Middle Cuyahoga River.

Storm Drain Stenciling

A local Girl Scout troop did stenciling in June 2001 on the catch basins in a Kent neighborhood and placed door hangers on neighbor's doors explaining where storm water goes and how to keep it clean.

Kent State University Efforts to Date

Student/Faculty Watch Groups

From time to time, various student/faculty groups have formed to become involved in environmental issues pertaining to KSU. This involvement ranges from providing input on administrative decisions affecting the KSU environment, participating in local festivals and forums to distribute information on environmental issues, and/or being an active member in nationwide environmental organizations.

Volunteer Activities

KSU-affiliated fraternities and sororities and academic organizations are involved in local Adopt-A-Road programs, campus cleanups, and other statewide cleanup programs. The Dormitory Council is responsible for cleaning up areas outside of residence halls. Student involvement is evident at most KSU programs, forums and committee meetings that discuss a variety of topics, including environmental issues relative to the campus. The KSU Student Government Organization also discusses a number of topics to provide student opinion on pending KSU administrative decisions.

4.2.4 Action Plan for Public Involvement and Participation

The public was involved in the development of the NOI and City and KSU's SWMP through the SWMPC. As mentioned previously, a summary of the SWMPC meeting discussions are located in Appendix B. The City and KSU will perform various tasks to implement these BMPs and reach their target audiences.

City of Kent Action Plan

Targeted BMPs

Storm Drain Stenciling

5/03-4/08 Develop a storm drain stenciling program as a volunteer activity for scout troops, schools, businesses or social organizations. The goal of the program is to educate the public about not dumping pollutants and waste into storm drains because they flow directly to streams and rivers and degrade water quality. The groups will stencil a message on all catch basins in a targeted neighborhood and place door hangers describing the project and its goals on doors of all homes in the neighborhood.

Stream Cleanup/Monitoring, Volunteer Monitoring and Adopt-A-Stream Programs

5/03-4/04 Develop a river cleanup and monitoring program to involve citizens in maintaining the quality of the rivers and streams in their community. The program will include river cleanup days, water-quality monitoring and adopt-a-stream programs. A program will be established for the portions of each of the four (4) watersheds in Kent: Breakneck Creek, Plum Creek, Fish Creek and the Middle Cuyahoga River.

5/05-4/08 The program will be an ongoing effort.

Reforestation and Riparian/Wetlands Plantings

5/04-4/05 Develop a program and plan that highlights target areas for riparian reforestation. Prioritize areas within the City, and develop a map and yearly schedule.

5/05-4/08 The program will be an ongoing effort.

Watershed Organization

5/04-4/06 Investigate the development or association with an existing organization which may coordinate the public education, public involvement and illicit discharge detection efforts in the portions of the four (4) watersheds located in the City: Breakneck Creek, Plum Creek, Fish Creek and the Middle Cuyahoga River.

5/06-4/07 Work with the organization to define its role in the City's SWMP.

5/07-4/08 The watershed organization will be comprised of, and work with, surrounding communities including, but not limited to, stakeholders of other governmental entities and organizations also interested in these watersheds, to develop a unified watershed approach to maintaining water quality.

Stakeholder Meetings

5/03-4/08 The City will continue to involve the SWMPC to solicit input on the development and implementation of the proposed watershed organization, SWMP and associated measurable goals. The committee will meet biannually, at a minimum.

Additional Public Involvement and Participation BMPs

5/04–4/08 The City will distribute information on storm water related issues at City festivals, such as Art in the Park and Kent Heritage Festival. The information will include materials in accordance with the BMP emphasized in the given year. A list of related volunteer organizations also will be distributed.

Kent State University Action Plan

Targeted BMPs

Storm Drain Stenciling

5/03-4/08 Coordinate with the City's storm drain stenciling program by promoting this volunteer activity to fraternities and sororities, academic societies, and KSU departments. The goal of the program is to educate the public about not dumping trash and waste into storm drains. The volunteer groups will stencil a message on all the catch basins on campus.

Stream Cleanup/Monitoring, Volunteer Monitoring and Adopt-A-Stream Programs

5/03-4/08 Cooperate with the City's river cleanup and monitoring program by working to involve students in these efforts to maintain the quality of streams and waterways on campus. The program will include river cleanup days, water quality monitoring, and adopt-a-stream programs. The programs will be an ongoing effort. Coordination with the City could include expansion of the volunteer activities of these organizations to involve areas off of campus.

Riparian/Wetlands Plantings and Reforestation

5/03-4/08 Cooperate with the City's program for riparian reforestation and wetlands maintenance. Prioritizing areas on campus, and develop a map and yearly schedule for planting and reforestation. The program will be an ongoing effort throughout the permitting term.

Watershed Organization

5/06-4/08 Participate in the development and actions of the watershed organization, which will be comprised of and work with members of surrounding communities. Membership in the organization will include but is not limited to stakeholders of other government entities and organizations also interested in watersheds and the development of a unified watershed approach to maintaining water quality.

Stakeholder Meetings

5/03-4/08 KSU will continue to be involved in the SWMPC to solicit input on the development and implementation of the proposed watershed organization and the SWMP. The committee will meet biannually, at a minimum.

Additional Public Involvement and Participation BMPs

5/04-4/08 KSU will distribute information on storm water related issues at campus events. The information will include public education and outreach materials developed by the City in accordance with the BMP emphasized in the given year. A list of related volunteer organizations will be distributed as well.

Table 4.2a

Summary of Public Involvement and Participation Activities – City of Kent

	Compliance Task	Schedule	Responsible Entity
1	Storm Drain Stenciling	5/03–4/08	Portage County SWCD & Public Service Department
2	Stream Cleanup and Monitoring	5/03–4/08	Watershed Organization(s) & Public Service Department
3	Reforestation and Riparian/Wetlands Plantings	5/04–4/08	Watershed Organization(s) & Community Development & Parks and Recreation Departments
4	Watershed Organization	5/04–4/08	Watershed Organization(s) & Community Development & Parks and Recreation Departments
5	Stakeholder Meetings	5/03–4/08	SWMPC and Watershed Organization(s)
6	Additional Public Involvement and Participation BMPs	5/04-4/08	Public Service Department

Table 4.2b

Summary of Public Involvement and Participation Activities – KSU

	Compliance Task	Schedule	Responsible Entity
1	Storm Drain Stenciling	5/03–4/08	Office of the University Architect
2	Stream Cleanup and Monitoring	5/03–4/08	Office of the University Architect
3	Reforestation and Riparian/Wetlands Plantings	5/04–4/08	Office of the University Architect
4	Watershed Organization	5/04–4/08	Office of the University Architect
5	Stakeholder Meetings	5/03–4/08	Office of the University Architect
6	Additional Public Involvement and Participation BMPs	5/04-4/08	Office of the University Architect

4.3 Illicit Discharge Detection and Elimination (Minimum Measure #3)

To eliminate illicit discharges into the public storm sewer system, permitees are required to develop a strategy to detect and eliminate such discharges. An illicit discharge has been defined by the OEPA as “any discharge into a separate storm sewer system that is not composed entirely of storm water." Typically, illicit discharges enter a storm sewer system either through direct connections (e.g., sanitary sewer piping) or indirectly from cracked sanitary sewer conveyance systems, spills collected by storm drains or from contaminants dumped directly into a storm drain inlet. Pollutants associated with illicit discharges include heavy metals, toxins, oil and grease, solvents, nutrients, viruses, and bacteria. These untreated discharges have the potential to cause significant degradation to receiving water bodies. The following are typical examples of illicit discharges:

- Sanitary wastewater
- Effluent from HSTSs
- Laundry wastewater
- Commercial car wash discharges
- Improperly disposed household or automotive toxic substances
- Spills from roadway accidents

Substantial levels of these contaminants can damage fish and wildlife habitats, decrease aesthetic value, and threaten public health due to contaminated food and drinking water supplies.

4.3.1 OEPA Requirements

The Storm Water Phase II Rule requires the following for compliance with this minimum measure:

- Development of a storm sewer system map illustrating the location of all storm sewer outfalls and the names and locations of all waters of the United States that receive discharges from these

outfalls. The map must depict the type and size of each conduit in the MS4 that receives discharges from HSTSs, as well as the water bodies receiving discharge from the MS4. The map must be submitted to the OEPA within five (5) years of when coverage under the permit is granted. A list of all HSTSs connected to discharge to the MS4 (including each connection's address) must also be submitted to the OEPA during this period.

- Prohibition of the discharge of non-storm water discharges into the public storm sewer system through the implementation of an ordinance or other regulatory mechanism and appropriate enforcement procedures and actions to the extent allowable under State or local law.

- Development of a plan to detect and address non-storm water discharges, including illegal dumping.

- Education of public employees, businesses and the community regarding the impact of illegal discharges and the improper disposal of waste.

- Addressing the following categories of non-storm water discharges or flows if identified as significant pollutant contributors to the MS4: waterline flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, infiltration (as defined at 40 CFR 35.2005 [20]), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footer drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, and discharges or flows from fire-fighting activities which, by definition, are not an illicit discharge.

Note: This requirement is not addressed in the City and KSU's SWMP because none of the non-storm water discharges on the preceding list have been identified as significant contributors. OEPA has determined there are two (2) sources that have a significant impact on the Middle Cuyahoga River: the Kent Dam and the Lake Rockwell Water Diversion. There have been no significant contributors identified for Breakneck Creek, Fish Creek or Plum Creek.

- A list of other similar incidental non-storm water discharges may be developed that are not expected to be significant sources of pollution to the MS4 due to the nature of the discharges or conditions set for their discharge. In this case, any local controls or conditions placed upon these discharges into the MS4, including a provision prohibiting any individual non-storm water discharge that is determined to be contributing a significant amount of pollutants to the MS4, should be provided.

- Documentation must be provided on the development of a storm water illicit discharge detection and elimination program. This statement shall include the following seven (7) items:

    1. Description of how the storm sewer system map (sources of information and method of verification) will be developed.

    2. Mechanisms being used to effectively prohibit illicit discharges into the MS4 and why these were chosen.

    3. Plan to ensure that appropriate enforcement of said mechanisms are implemented.

    4. Plan to detect and address illicit discharges to the system, including discharges from illegal dumpings and spills. This

plan must include dry-weather field screening for non-storm water flows. OEPA recommends field tests of selected chemical parameters as indicators of discharge sources. The plan also must address: on-site sewage disposal systems that flow into the storm drainage system, procedures for locating priority areas that have a higher likelihood of illicit connections, how to trace the source of an illicit discharge, how to remove the source of the illicit discharge and how to better evaluate the program.

5. Description of a plan for informing public employees, businesses, and the community about the hazards associated with illegal discharges and improper disposal of waste, including how this plan will be coordinated with the public education and outreach and the pollution prevention and good housekeeping programs.

6. Name of the person or entity responsible for overall management and implementation of the storm water illicit discharge detection and elimination program and the person or entity, if different, responsible for the individual BMPs in the program.

7. Description of the process used to evaluate the illicit discharge detection and elimination program, including how the BMPs were selected and measurable goals for each.

4.3.2 OEPA Guidelines

The objective of the illicit discharge detection and elimination minimum control measure is to have regulated small MS4 operators gain a thorough awareness of their systems. This awareness allows them to determine the types and sources of illicit discharges entering their system

and to establish the legal, technical, and educational means needed to eliminate these discharges. Permitees can meet these objectives in a variety of ways, depending on their individual needs and abilities, but some general guidance for each requirement is provided below:

- *Map*: A storm sewer system map is meant to demonstrate a basic awareness of the intake and discharge areas of the system. It is needed to help determine the extent of discharged dry-weather flows, the possible sources of the dry-weather flows and the waterbodies these flows may be affecting.

- *Legal Prohibition and Enforcement*: Some permitees may have limited authority to establish and enforce an ordinance or other regulatory mechanism prohibiting illicit discharges. In such cases, permitees are encouraged to obtain the necessary authority, if possible.

- *Plan*: The plan to detect and address illicit discharges is the central component of this minimum control measure. The four (4) steps of a recommended plan are as follows:

    1. Locate problem areas.
    2. Find the source.
    3. Remove and correct the illicit connections.
    4. Document actions taken.

- *Educational Outreach*: Outreach to public employees, businesses, property owners, the community, and elected officials regarding ways to detect and eliminate illicit discharges is an integral part of this minimum measure.

4.3.3 Efforts to Date

City of Kent Efforts to Date

Industrial Pretreatment Program

The City's Health Department is responsible for the City's Industrial Pretreatment Program. Through this program, the City checks significant industrial user sites every two (2) years for treatment operations and spill containment procedures, and develops spill controls and countermeasures for the industries. The department searches for combined sanitary and storm sewer systems in industries and works to correct these connections, locates buildings where floor drains go to the storm sewer system and works with the operator to install spill control measures if re-plumbing is not an option. The department also works with City properties and industries where materials such as metal chips, oil, etc. may be stored outside to encourage the operator to cover and protect these materials from precipitation. The Health Department also responds to public complaints about sanitary sewer problems by performing site inspections and water quality testing.

Illegal Dumping Ordinance

The City's Codified Ordinance Chapter 521 regulates dumping within the City by defining and prohibiting certain activities.

Citizen Complaint Programs

The City's Health Department has a public health complaint system where complaints are logged and addressed or are referred to the proper departments. The City's Engineering Division has a form for storm water complaints, which they record in their address file. The City's Central Maintenance Division files storm water complaint work efforts on work orders. The Community Development Department takes complaints on an ongoing basis.

Detection of Illicit Discharges

One of the most common and detectable types of illicit discharges is domestic wastewater from a cracked sanitary sewer line or cross connection. The Engineering Division contracted an engineering firm to perform smoke testing on approximately one-third of the sanitary sewer system in 2001 as the first phase of detecting and eliminating illicit discharge connections. One segment of sanitary sewer on Franklin Avenue was found connected to the storm sewer system, and the City has applied for a loan through the OEPA Water Pollution Control Loan Fund to remove the connection.

Storm Sewer System Map

The City has a map of its storm sewer system and recent (1999) base topographic information from aerial mapping, which is located in Appendix C.

Household Hazardous Waste Drop-Off

The Portage County Solid Waste District has a household hazardous waste collection program where they accept any residential hazardous waste products and dispose of them properly.

Management of Hazardous Materials

The Portage County Hazardous Materials Response Unit (HAZMAT) serves as the hazardous material first-response team in charge of mitigation of potential contaminants during a spill in the City. The organization is responsible for public and private spills. Its goal is to prevent the material from spreading to additional areas or to nearby storm drains. HAZMAT also looks for potential situations that may expose hazardous materials in the community and prepares for them. It also conducts educational seminars for industries and City departments that call for advice on material storage and containment. The City's Fire Department is the largest member of the program.

The City's Central Maintenance Division provides hazardous waste containment on a limited basis for its operations. During operations that involve hazardous materials, a containment area is provided within the street's right-of-way.

Kent Dam and Cuyahoga River Restoration Project

The City has initiated a comprehensive $2 million project to bypass water around the historic dam in order to achieve an improved quality of water in the Middle Cuyahoga River. The study is completed and the design is in progress.

Lake Rockwell Management

The City has initiated an appeal against the City of Akron regarding the Lake Rockwell Water Diversion Lawsuit, which entails Akron's operation of the Lake Rockwell dam and release of contaminant-laden sediment.

Kent State University Efforts to Date

Illicit Discharge Policy

KSU has a policy in place that prohibits the discharge of non-storm water into its storm sewer system.

University Complaint Programs

Students, faculty, staff and administrators can contact KSU's Campus Environmental and Operations Department when suspicious activity, such as dumping of chemicals or other illicit discharges into the storm sewer system, is suspected. Another emergency hot line goes to the KSU Campus Police Department. Contact information for the person filing the complaint is recorded.

Storm Sewer System Map

KSU has a complete storm sewer system map, which is located in Appendix D. KSU also has a Master Plan for its storm water facilities and a recently completed storm water study that located and mapped all storm drains on the Kent campus, and also includes various runoff studies. KSU also has aerial photographs of its entire storm sewer system with infrared detection, which identifies areas of standing water throughout campus.

Management of Hazardous Materials

KSU maintains a chemical inventory for the entire campus that reports the location and quantity of each chemical stored. All chemicals are stored in proper containers. All fuel oil storage facilities are equipped with leak detection and containment equipment. The Safety Department regularly checks outfalls to ensure that no laboratory (or other) chemicals are being dumped illegally from campus facilities. KSU maintains four (4) areas that have been approved by the OEPA as hazardous waste pick-up sites.

Employee Training Program

KSU has conducted employee training on storm sewers and irrigation, taught by the school's faculty.

4.3.4 Action Plan for Illicit Discharge Detection and Elimination

The City and KSU will perform various tasks to implement these BMPs and reach their target audiences.

City of Kent Action Plan

Illicit Discharge Ordinance

5/04-4/07 Develop and implement an ordinance based on the USEPA Model Illicit Discharge and Connection Storm Water Ordinance, which is located in Appendix E. The Illicit Discharge Ordinance will prohibit the discharge of non-storm water into the public storm sewer system and include enforcement procedures and actions. The City will

consider adding sections to the ordinance to allow for right-of-entry for inspectors, to specifically address Resource Conservation and Recovery Act (RCRA) small quantity generators and to define areas of responsibility for City departments.

Storm Sewer System Map

5/03-4/06 Refine the map of the public storm sewer system by identifying outfalls to local surface waters through the City's Engineering Division. The map will include both the open system (i.e. creeks, streams, ponds, swales, drainage ditches, and wetlands) and the closed system (i.e. storm sewer pipes), and contain pipe diameters greater than or equal to 12 inches. The map will include the names and locations of all waters of the United States that receive discharges from these outfalls. The City shall conduct or obtain surveying to verify existing map information and add the locations of HSTSs.

Plan to Detect and Address Illicit Discharges

5/04-4/07 To detect non-storm water discharges, the City will develop a program for identifying these discharges. The plan shall include locating problem areas, finding the sources, removing and correcting illicit connections, and documenting actions taken.

Employee Training Program

5/04-4/05 Develop an employee training program to address illicit discharge and storm water quality for the Health and Parks and Recreation Departments and the Central Maintenance and Engineering Divisions. Procedures for checking storm sewer outfalls on a routine basis will be included. The use of trained City employees to oversee volunteer efforts coordinated through the watershed organization will be investigated.

Public Education

5/03-4/04 As mentioned previously in the Public Education and Outreach section, the Proper Disposal of Household Hazardous Waste educational program will address the detrimental effects of household toxins on storm water quality. The articles in the *Tree City Bulletin* and on the City's Web site also will address what can and cannot be dumped into the storm sewer system.

Targeted BMPS

Volunteer Storm Sewer Outfall Monitoring

5/05-4/08 Develop and implement a volunteer monitoring program to check storm sewer outfalls during dry weather illicit discharges. The checks will be done annually. Identified problems will be tested and backtracked to locate their sources.

Sanitary Sewer System Smoke Testing

5/04-4/06 Perform sanitary sewer smoke testing on the selected remaining portions of the sanitary sewer system to determine additional illicit connections between the sanitary and storm sewer systems.

5/03-4/04 Separate the sanitary sewer that was found to be connected to the storm sewer in the 2001 Smoke Testing Investigation Report by CTI.

Check Municipal Buildings

5/04-4/05 The City's Public Service Department or Central Maintenance Division shall implement a program to check and inventory the condition of municipal buildings, including checking that floor drains are properly plumbed to the sanitary sewer.

5/04-4/05 The City's Central Maintenance Division shall re-plumb the floor drain in the Central Maintenance building that is known to drain into a ditch outside the building into the sanitary sewer.

5/04-4/05 Eliminate the Parks and Recreation Department's maintenance garage floor drain, which currently empties into a sump pit (dry well).

Kent Dam and Cuyahoga River Restoration Project

5/03-4/05 The City has initiated a comprehensive $2 million project to bypass water around the historic dam in order to achieve an improved quality of water in the Middle Cuyahoga River. The construction is scheduled to commence in 2003 and be completed in 2004.

Lake Rockwell Management

5/03-4/08 Monitor the progress of the appeal of the lawsuit the City has initiated against the City of Akron regarding their operation of the Lake Rockwell dam.

Kent State University Action Plan

Targeted BMPs

Storm Sewer System Map

5/03-4/08 Refine KSU storm sewer system map by verifying all pertinent information including outfalls discharging to both the City and receiving waters. The map will include both the open system (i.e. creeks, streams, ponds, swales, drainage ditches, and wetlands) and the closed system (i.e. sewer pipes, manholes, and inlets), and contain pipe diameters greater than or equal to 12 inches. KSU shall conduct surveying to verify existing map information.

Plan to Detect and Address Illicit Discharges

5/03-4/04 Develop a program and schedule for identification of all illicit discharges into the storm sewer system.

5/04-4/08 Identify problem areas, find the sources, and determine method to remove and correct illicit connections. Illicit connections between sanitary and storm sewer systems will be determined by means of smoke testing, dye testing, or other viable means.

5/06-4/07 Eliminate all illicit connections that discharge into the City's storm sewer system, and document actions taken.

5/07-4/08 Eliminate all illicit connections that discharge to other locations, and document actions taken

5/03-4/08 Enforce the existing program on illegal dumping.

Public Education

5/03-4/04 As mentioned previously in the Public Education and Outreach section, the Proper Disposal of Household Hazardous Waste educational program will address the detrimental effects of household toxins on storm water quality. The articles in *Inside Kent State* also will address what can and can not be dumped into the storm sewer system.

Table 4.3a

Summary of Illicit Discharge Detection and Elimination Activities – City of Kent

Compliance Task		Schedule	Responsible Entity
1	Illicit Discharge Ordinance	5/04–4/07	Law Department, Health Department, Public Service Department & Engineering Division
2	Storm Sewer System Map	5/03–4/06	Engineering Division
3	Plan to Detect and Address Illicit Discharges	5/04-4/05	Public Service Department, Engineering Division and/or Watershed Organization
4	Employee Training Program	5/04-4/05	Health, Parks and Recreation & Public Service Department
5	Public Education	5/03-4/04	PCSWD
6a	Volunteer Storm Sewer Outfall Monitoring	5/05–4/08	Watershed Organization(s)
6b	Test Outfall Water	5/05–4/08	Health Department
6c	Back-track Illicit Source	5/05–4/08	Public Service Department
7a	Smoke Testing	5/04–4/06	Engineering Division
7b	Separate Sanitary Sewer Connections	5/03–4/04	Engineering Division
8a	Check Municipal Buildings	5/04–4/05	Central Maintenance Division
8b	Re-plumb Maintenance Building	5/04–4/05	Central Maintenance Division
8c	Eliminate Park Maintenance Building Floor Drain	5/04–4/05	Parks and Recreation Department
9	Kent Dam and Cuyahoga River Restoration Project	5/03-4/05	Public Service Department
10	Lake Rockwell Management	5/03-4/08	Public Service & Health Departments

Table 4.3b

Summary of Illicit Discharge Detection and Elimination Activities – KSU

Compliance Task		Schedule	Responsible Entity
1	Storm Sewer System Map	5/03–4/04	Office of the University Architect
2	Program to Eliminate Illicit Connections	5/03-4/04	Office of the University Architect
3	Identification and Design of Elimination of Illicit Connections	5/04–4/08	Office of the University Architect
4	Elimination of Illicit Connections Discharging to City of Kent	5/06–4/07	Office of the University Architect
5	Elimination of Illicit Discharges to Other Receiving Waters	5/07-4/08	Office of the University Architect
6	Enforcement of Illicit Discharge Policy	5/03–4/08	Office of the University Architect

4.4 Construction Site Storm Water Runoff Control (Minimum Measure #4)

Polluted storm water from construction sites is often conveyed to storm sewer systems that ultimately discharge into rivers and streams. Sediment from construction sites has been shown to exceed that from agricultural lands by 10 to 20 times, and 1,000 to 2,000 times for forested land. During small storm events, construction sites can contribute a significant quantity of pollutants to receiving water bodies. Although sediment is the primary concern, other contaminants include nutrients, pesticides, oils, grease, concrete truck washout, and construction chemicals and debris.

4.4.1 OEPA Requirements

The Storm Water Phase II rule requires the following for compliance with this minimum measure:

- Enactment of an ordinance or other regulatory mechanism for construction sites with a land disturbance greater than or equal to one (1) acre that requires the proper implementation of sediment and erosion controls, and controls for other wastes such as discarded building materials, concrete truck washouts, chemicals, litter and sanitary waste. The document should include a description of the rationale used during development. If the regulatory mechanism has not been developed, a plan and schedule to do so must be provided.

- Development of a plan to ensure compliance with the regulatory mechanism along with procedures for site inspection, how sites will be prioritized, and what sanctions (such as non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance) and enforcement mechanisms will be used to ensure compliance.

- Development of procedures for site plan review, including review of pre-construction site plans incorporating potential impacts on water quality and the rationale used to identify certain sites for site plan review if the entire site is not reviewed.

- Development of procedures for the receipt and consideration of information submitted by the public.

- Determination of which person or entity is responsible for the overall management and success of the construction site storm water control program and which person or entity, if different, is responsible for each individual BMP identified.

- Description of how the success of each BMP will be evaluated, including how the measurable goals for each BMP were selected.

4.4.2 OEPA Guidelines

The objective of the construction site storm water runoff control minimum measure is to have regulated small MS4s develop, implement and enforce a program to reduce pollutants in storm water runoff from construction activities. The construction site runoff control program should comply with the following guidelines:

- *Regulatory Mechanism*: Through the development of an ordinance or other regulatory mechanism, the small MS4 operator must establish a program that controls polluted runoff from construction sites with a land disturbance of greater than or equal to one (1) acre.

- *Site Plan Review*: The small MS4 operator must include in its program requirements for the implementation of appropriate BMPs on construction sites to control erosion and sediment and other wastes at the site.

- *Inspections and Penalties*: Once construction commences, BMPs should be in place, and the small MS4 operator's enforcement activities should begin. To ensure that the BMPs are properly implemented, the small MS4 operator is required to develop procedures for site inspection and enforcement of control measures to deter infractions.

- *Information Submitted by the Public*: A final requirement of the small MS4 program for construction activity is the development of procedures for the receipt and consideration of public inquiries, concerns and information submitted regarding local construction activities.

4.4.3 Efforts to Date

City of Kent Efforts to Date

Plan Review and Inspection for Sediment and Erosion Control

The City's Community Development Department reviews sediment and erosion control plans for private construction sites. The plans are reviewed based on best engineering practices listed in the City's storm water regulations. Site permits are not issued if developers will not comply with the recommended sediment and erosion controls. Developers of private construction projects in the City are required to submit sediment and erosion control plans for sites greater than five (5) acres to the Portage County Soil and Water Conservation District and to OEPA for application for coverage under a statewide general permit for construction activities.

The City's Engineering Division has the ability to review plans for sediment and erosion control for capital improvement projects, which may be submitted by contractors at the pre-construction meeting.

Enforcement Authority

The City's Community Development Department can issue a stop work order to a contractor who is not implementing the recommended sediment and erosion controls. The Engineering Division has authority by contract to enforce the requirements for sediment and erosion controls on capital improvement construction projects.

Site Inspection Program

The City's Engineering Division provides site inspectors to inspect all projects, including capital improvement and private subdivision projects. The Community Development Department inspects highly controversial projects along with the Engineering Division and will also investigate on a complaint basis.

Unified Development Code (UDC)

The City's Community Development Department is compiling a comprehensive set of ordinances pertaining to development and redevelopment within the City. Storm water quality issues will be included in this effort. The UDC is scheduled for completion by March 2004.

Kent State University Efforts to Date

Plan Review and Inspection for Sediment and Erosion Control

KSU developed its sediment and erosion control plans based on standards set by the OEPA, the American Institute of Architects, and ODOT. Final payment is not submitted if contractors will not comply with the recommended sediment and erosion controls. Furthermore, the contractor is responsible for replacing or paying for any damages to the existing area due to inadequate practice of sediment and erosion control measures or construction operations.

KSU's Office of the University Architect and Campus Environmental and Operations Department review plans for sediment and erosion control in capital improvement projects, which are submitted by contractors at a pre-construction meeting. The two (2) KSU entities have contract authority to enforce the standards if the contractor fails to comply.

Enforcement Authority and Site Inspection

KSU's Office of the University Architect can issue a stop work order to a contractor who is not implementing approved sediment and erosion controls. The Campus Environmental and Operations Department or the Office of the University Architect inspects or delegates inspection of construction sites for sediment and erosion controls.

4.4.4 Action Plan for Construction Site Storm Water Runoff Control

The City and KSU will perform various tasks to implement these BMPs and reach their target audiences.

City of Kent Action Plan

Construction and Post-Construction Site Storm Water Management Ordinance

5/03-4/04 Develop and implement an ordinance to establish a program which will control polluted runoff from construction sites with a land disturbance of greater than or equal to one (1) acre. This ordinance will address both construction sites and post-construction sites for new development and redevelopment, and will be included in the City's UDC. The ordinance will be developed from the Northeast Ohio Areawide Coordinating Agency (NOACA) model ordinance, which is attached in Appendix F.

Site Plan Review

5/03-4/08 The City's Community Development Department will continue to review private construction site plans for sediment and erosion controls. The review will be based on the requirements of the above mentioned ordinance for sites greater than or equal to one (1) acre. Depending on site conditions, the Community Development Department will hold the option open of having the Portage County SWCD review construction site plans for sites greater than or equal to five (5) acres.

5/03-4/04 The City's Engineering Division will continue to review capital improvement construction site plans for sediment and erosion controls. The Engineering Division will require a plan sheet for sediment and erosion controls to be included in the construction documents for capital improvement projects.

5/05-4/06 The Engineering Division employee who reviews construction site plans will be certified through the International Erosion Control Association's (IECA) training program on sediment and erosion control measures. The Community Development Department will also have its Development Engineer certified through IECA.

Inspection and Penalties

5/03-4/08 The above mentioned ordinance will provide the City's Community Development Department with the proper enforcement authority for private construction sites. The Engineering Division will continue to provide its inspection services.

5/03-4/04 The Engineering Division plans to add language to the front end of its contract documents for monetary penalty, liquidated damages and/or delay start of construction if the required sediment and erosion controls are not done per the City ordinance.

5/03-4/08 The Engineering Division inspectors responsible for enforcing sediment and erosion control requirements, will attend the IECA's training program.

5/03-4/08 The City's Parks and Recreation Department and Central Maintenance Division will include construction sediment and erosion control methods in their training program curriculum.

Public Information

5/03-4/04 One (1) article will be published in the *Tree City Bulletin* and on the City Web site on the enactment of the new site construction ordinance, its requirements and the detrimental effects of sediment transport, along with a contact name and phone number for residents to report complaints.

5/03-4/04 Write and distribute a fact sheet to developers on the Construction and Post-Construction Site Storm Water Management Ordinance.

Targeted BMPs

Sediment and Erosion Control

5/03–4/08 Structural sediment and erosion control BMPs will be adopted by reference from *Rainwater and Land Development*, published by ODNR in the Construction and Post-Construction Site Storm Water Management Ordinance. Consultants, contractors and developers will select sediment and erosion control construction site details from *Rainwater and Land Development* to implement site construction sediment and erosion control measures.

Kent State University Action Plan

Site Plan Review

5/03-4/08 KSU's Office of the University Architect and the Campus Environmental and Operations Department will continue to review capital improvement construction site plans for sediment and erosion controls. The review is based on guidelines given in KSU's Master Design Manual and those provided by ODOT, OEPA, and the Office of Industrial Compliance of the Ohio Department of Commerce Bureau of Plans and Specifications. KSU requires sediment and erosion controls to be included in plans for capital improvement projects.

KSU will review the erosion control section of its Master Design Manual to include BMPs to meet new OEPA standards, and will consider the City's standards as well.

Inspection and Penalties

5/03-4/04 KSU will add language to the technical specifications in its contract documents for liquidated damages in the event that required sediment and erosion controls are not done according to recommendations. Failure to comply can delay the start of construction.

5/03-4/08 Implement training for KSU inspectors for sediment and erosion controls. One (1) inspector each year will be sent to the IECA's national training program on sediment and erosion controls.

Table 4.4a

Summary of Construction Site Storm Water Runoff Control Activities – City of Kent

Compliance Task		Schedule	Responsible Entity
1	Construction and Post-Construction Site Storm Water Management Ordinance	5/03–4/04	Community Development Department, Engineering Division & Law Department
2	Site Plan Review	5/03–4/08	Community Development Department & Engineering Division
3	Inspection and Penalties	5/03–4/08	Community Development & Parks and Recreation Departments & Engineering Division
4	Public Information	5/03–4/04	Community Development Department
5	Sediment and Erosion Control BMPs	5/03-4/08	Community Development Department & Engineering Division

Table 4.4b

Summary of Construction Site Storm Water Runoff Control Activities – KSU

Compliance Task		Schedule	Responsible Entity
1	Site Plan Review	5/03–4/08	Office of the University Architect & Campus Environmental and Operations Department
2	Inspection and Penalties	5/03–4/08	Office of the University Architect & Campus Environmental and Operations Department

4.5 Post-Construction Storm Water Management in New Development and Redevelopment (Minimum Measure #5)

Post-construction storm water management is necessary because runoff from areas undergoing development significantly impacts receiving water bodies in two (2) ways. The first impact is due to an increase in the type and quantity of pollutants in storm water runoff. As water flows over these sites, it transports harmful contaminants, such as oil, grease, pesticides, heavy metals and various nutrients (e.g., nitrogen and phosphorous). These pollutants become suspended in the runoff and are conveyed to receiving water bodies, such as lakes and creeks. The second post-construction impact typically occurs as a result of increased storm water runoff rates and volume due to an increase in impervious surfaces. This increase in runoff has been shown to not only interrupt the natural water balance of percolation into the ground, but also to impact the receiving water body through stream bank scouring and downstream flooding.

4.5.1 OEPA Requirements

The Storm Water Phase II rule requires the following for compliance with this minimum measure:

- Develop, implement and enforce a program to address storm water runoff from new development and redevelopment programs that disturbs greater than or equal to one (1) acre and discharges into the MS4. Strategies that include a combination of both structural and nonstructural BMPs should be implemented.

- Describe how the program will be specifically tailored for the local community, including how it will minimize water quality impacts and attempt to maintain pre-development runoff conditions.

- Create an ordinance or other regulatory mechanism that requires the use of post-construction controls to the extent allowable under State law, and ensures adequate long-term operation and maintenance of those controls.

- Specify the person or entity responsible for the overall management and success of the construction site storm water control program and the person or entity, if different, who is responsible for each individual BMP identified.

- Describe how the success of each BMP will be evaluated, including how the measurable goals for each BMP were selected.

4.5.2 OEPA Guidelines

It is important to recognize that many BMPs are climate-specific, and not all BMPs are appropriate in every geographic area. Because the requirements of this measure are closely tied to the requirements of the construction site runoff control minimum measure, OEPA recommends that small MS4 operators develop and implement these two (2) measures in tandem.

Non-Structural BMPs

- *Planning and Procedures*: Runoff problems can be addressed efficiently with sound planning procedures. Master plans, comprehensive plans and zoning ordinances can promote improved water quality by guiding the growth of a community away from sensitive areas, and by restricting certain types of growth (e.g., industrial) to areas that can support it without compromising water quality.

- *Site-Based Local Controls*: These controls can include buffer strips, riparian zone preservation, minimization of disturbance and imperviousness, and maximization of open space.

Structural BMPs

- *Storage Practices*: Storage or detention BMPs control storm water by gathering runoff in wet ponds, dry basins or multi-chamber catch basins and slowly releasing it to receiving waters or drainage systems. These practices both control storm water volume and settle out particulates for pollutant removal.

- *Infiltration Practices*: Infiltration BMPs are designed to facilitate the percolation of runoff through the soil to ground water and, thereby, result in reduced storm water quantity and mobilization of pollutants.

- *Vegetative Practices*: Vegetative BMPs are landscaping features that, with optimal design and good soil conditions, enhance pollutant removal, maintain or improve natural site hydrology, promote healthier habitats and increase aesthetic appeal.

4.5.3 Efforts to Date

City of Kent Efforts to Date

Design Standards

The City has development and design controls in place for pre-construction and post-construction runoff, including storm sewer and detention basin design.

The City's Community Development Department encourages developers to implement BMPs such as buffer strips or rain gardens into their development designs.

Plan Review and Inspection

The City has in place procedures and personnel to review construction plans to ensure compliance with design standards, and to inspect construction sites to ensure they are in conformance with the approved plans.

Density Controls on Development

The City's zoning code establishes allowable density for new development throughout the City.

Unified Development Code (UDC)

The City's Community Development Department is compiling a comprehensive set of ordinances pertaining to development and redevelopment within the City. Storm water quality issues will be included in this effort. The UDC is scheduled for completion by March 2004.

Kent State University Efforts to Date

Design Standards

KSU's Facilities and Planning Department evaluates all post-construction sites and recommends future action if necessary. KSU has development and design controls in place that abide by existing pertinent regulations of governing authorities. KSU also encourages developers to implement BMPs such as buffer strips or rain gardens into their development designs.

Plan Review and Inspection

KSU has in place procedures and personnel to review construction plans for compliance with design standards and inspect construction sites for conformance with approved plans.

KSU Wetlands Complex

KSU recently completed the construction of a 13-acre wetland area, located along the southern portion of campus, that provides cleaning and detention of storm water runoff to approximately half of the KSU campus.

4.5.4 Action Plan for Post-Construction Storm Water Management in New Development and Redevelopment

The City and KSU will perform various tasks to implement these BMPs and reach their target audiences.

City of Kent Action Plan

Construction and Post-Construction Site Storm Water Management Ordinance

5/03-4/04 Develop and implement an ordinance to establish a program which will control polluted runoff from construction sites with a land disturbance of greater than or equal to one (1) acre. This ordinance will address both construction sites and post-construction sites for new development and redevelopment and will be included in the City's UDC. It will be developed from the NOACA model ordinance, which is attached in Appendix F.

Riparian Areas and Wetlands Ordinance

5/03-4/04 Develop and implement an ordinance to preserve and enhance the scenic and environmental quality of the ecosystems of the water courses within the City. The ordinance will be included in the City's UDC. It will be developed from the NOACA model ordinance, which is attached in Appendix F. The City may also refer to the City of Aurora's Ordinance on Riparian Areas and Wetlands, which is attached in Appendix G.

Targeted BMPs

Develop Post-Construction Program

5/04-4/05 The City's Engineering Division and Community Development Department will develop a program to implement structural BMPs and provide for post-construction reviews and inspections. The BMPs to address issues such as storage, infiltration and vegetative practices will be selected from the following references in the City's existing storm water regulations:

- *Rainwater and Land Development*, published by ODNR
- *Storm Water Design Manual*, published by MORPC
- *Controlling Urban Runoff: A Practice Manual for Planning & Designing Urban BMPs*, published by Metropolitan Washington Council of Governments
- *Design of Storm Water Wetlands Systems*, published by Metropolitan Washington Council of Governments
- *Location & Design Manual; Vol. 2-Drainage Design*, published by ODOT

Storm water regulations will be revised to encourage measures that provide pretreatment and storage of storm water prior to discharge to the piped storm sewer system. The current requirements state that all buildings must outlet their site storm water runoff to the storm sewer system if one exists, and that all storm water must be piped for flow handled by pipe diameters ranging from 12 inches to 36 inches.

Riparian Area Easement Acquisition

5/03-4/08 The City will assist a land conservancy organization in its efforts to identify and acquire easements in riparian areas along the Middle Cuyahoga River, Breakneck Creek, Fish Creek and Plum Creek.

Flood Plain Map Update Investigation

5/03-4/04 The City will contact the Federal Emergency Management Agency (FEMA) to discuss options for updating the City's flood plain maps. FEMA's Cooperating Technical Partners program will be investigated as a way to combine resources and produce updated maps.

Kent State University Action Plan

Targeted BMPs

Develop Post Construction Program

5/03-4/05 KSU's Office of the University Architect and the Campus Environmental and Operations Department will develop a program to implement structural BMPs and provide for post-construction reviews and inspections. This program will be based on the ordinance and standards to be adopted by the City and will include BMPs to address issues such as storage, infiltration and vegetative practices will be selected from the following publications:

- *Rainwater and Land Development*, published by ODNR
- *Storm Water Design Manual*, published by MORPC
- *Controlling Urban Runoff: A Practice Manual for Planning & Designing Urban BMPs*, published by Metropolitan Washington Council of Governments
- *Design of Storm Water Wetlands Systems*, published by Metropolitan Washington Council of Governments
- *Location & Design Manual; Vol. 2-Drainage Design*, published by ODOT

5/04-4/05 Design standards will be reviewed and modifications considered to encourage measures that provide pretreatment of storm water prior to discharge to the City's storm sewer system or receiving waters. KSU follows Ohio Basic Building Code requirements which state that all buildings must outlet their downspouts to the storm sewer if it exists.

5/06-4/07 KSU will adopt a policy similar to the City's proposed ordinance that promotes the protection and enhancement of riparian areas along streams and other waterways.

Table 4.5a

Summary of Post-Construction Storm Water Management Activities – City of Kent

	Compliance Task	Schedule	Responsible Entity
1	Construction and Post-Construction Site Storm Water Management Ordinance	5/03–4/04	Community Development Department, Law Department & Engineering Division
2	Riparian Areas and Wetlands Ordinance	5/03-4/04	Community Development Department, Law Department & Engineering Division
3	Develop Post-Construction Program	5/04–4/05	Community Development Department & Engineering Division
4	Riparian Area Easement Acquisition	5/03-4/08	Community Development Department & Portage County SWCD
5	Flood Plain Map Update Investigation	5/03-4/04	Engineering Division

Table 4.5b

Summary of Post-Construction Storm Water Management Activities – KSU

	Compliance Task	Schedule	Responsible Entity
1	Develop Post-Construction Program	5/03–4/05	Office of the University Architect
2	Review Development Standards	5/04–4/05	Office of the University Architect
3	Riparian Areas and Wetlands Policy	5/06–4/07	Office of the University Architect

4.6 Pollution Prevention and Good Housekeeping for Municipal Operations (Minimum Measure #6)

The final control measure required by the NPDES Phase II program involves the examination and possible alteration of municipal operations. This measure requires that municipalities evaluate their actions to ensure a reduction in the amount and type of pollution that accumulates on streets, parking lots, open spaces, and storage and vehicle maintenance areas that discharge into local water bodies. In addition, this measure requires an evaluation of results from land development actions that may be environmentally damaging. The OEPA's primary intent with this measure is to improve and protect water quality by altering the performance of municipal operations. However, the OEPA also believes that this measure could result in long term cost savings for municipalities, because proper and timely maintenance of storm sewer systems may reduce the need for more costly repairs and remediation.

4.6.1 OEPA Requirements

The Storm Water Phase II rule requires the following for compliance with this minimum measure:

- Develop and implement an operation and maintenance program with the objective of preventing or reducing pollutant runoff from municipal operations. The program must describe the following four (4) items:

    1. Maintenance activities, schedules and long-term inspection procedures to reduce floatables and other pollutants into the MS4.

2. Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, salt and sand storage areas and snow disposal areas.

3. Procedures for proper disposal of waste removed from the MS4 and other municipal operations, including dredge spoils, accumulated sediments, floatables and other debris.

4. Procedures to ensure that new flood-management projects are assessed for impact on water quality, and existing projects are assessed for incorporation of additional water quality protection devices or practices

- Provide employee training on how to incorporate pollution prevention and good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm sewer system maintenance using materials available from OEPA or other organizations.

- A list of any municipally owned industrial facilities that are subject to OEPA's Industrial Storm Water General Permit or individual NPDES permits for discharges of storm water associated with industrial activity that ultimately discharge into the MS4.

4.6.2 OEPA Guidelines

OEPA encourages the small MS4 operator to consider the following components when developing a program for this measure:

- Maintenance activities, maintenance schedules and long-term inspection procedures of structural and non-structural controls to reduce floatables and other pollutants discharged from separate storm sewers.

- Controls for reducing or eliminating the discharge of pollutants from areas such as roads, parking lots, maintenance and storage yards (including salt and sand storage and snow disposal areas), and waste transfer stations.

- Procedures for the proper disposal of waste removed from separate storm sewer systems.

- Ways to ensure that new flood management projects assess the impacts on water quality and the examination of existing projects for incorporation of additional water quality protection devices or practices.

- Statement of which person or entity is responsible for the overall management and success of the good housekeeping storm water pollution control program and which person or entity, if different, is responsible for each individual BMP identified.

- Description of how the success of each BMP will be evaluated, including how the measurable goals for each BMP were selected.

4.6.3 Efforts to Date

City of Kent Efforts to Date

Storm Sewer System Maintenance

The City's Central Maintenance Division has an annual maintenance program for the public storm sewer system which includes annual catch basin cleaning. The Central Maintenance Division also cleans pipes, swales, ditches and culverts on a complaint or problem basis. The department also cleans streets before and after local events (e.g., Kent Heritage Festival) and contracts a service to pick up trash and debris afterward.

The City's Parks and Recreation Department addresses problems associated with storm sewer systems on its property, but it does not have an annual maintenance program in place. The Parks and Recreation Department also picks up litter and maintains retention basins on park property as part of its maintenance program.

Vehicle Maintenance

City vehicles are usually washed in enclosed bays with drains connected to the sanitary sewer system. All other maintenance or mechanical repairs for City vehicles occurs at the City's Vehicle Maintenance Facility.

Hazardous Materials Storage

All of the City's hazardous materials are stored in designated locations according to State and local regulations. The City's Health Department stores pesticides at the WRF in 55-gallon drums, and laboratory chemicals are properly stored in the WRF laboratory. The Fire Department stores gasoline in five (5)-gallon containers in explosion-proof cabinets. The Central Maintenance Division stores all paint, chemicals and gas containers in explosion-proof cabinets. Material Safety and Data Sheets documenting all stored materials are kept on site. The Parks and Recreation Department also has a facility to properly store paint and lawn maintenance products.

Street Sweeping and Cleaning

The City's Central Maintenance Division performs all street sweeping. All streets with curbs are swept on a monthly basis, weather permitting. Non-curbed streets are cleaned once a year following leaf pickup. The Central Maintenance Division maintains two (2) sweepers for street sweeping. Leaf pickup is also provided by the Central Maintenance Division in the fall.

Used Oil Recycling

The Fire Department, Central Maintenance Division, WTP, and WRF recycle their used oil at the proper locations. The Vehicle Maintenance Division burns its used oil in the winter months for a heat source.

Lubricant Disposal

Proper lubricant disposal procedures are in place at the Public Service Department's Vehicle Maintenance Facility. All hazardous materials are handled by the Safety Clean Company.

Employee Training Program

An employee training program exists for the Central Maintenance Division. The program includes topics such as how to clean catch basins and how to properly dispose of materials and chemicals.

Road Salt Application and Storage

The City's Central Maintenance Division is responsible for the City's storage and application of road salt. The City's roads are plowed in heavy snows prior to salt application to minimize the use of road salt. The road salt is stored in a salt dome at the Central Maintenance Yard.

Utility Repair and Maintenance

During underground utility repair work, such as waterline breaks or spot storm sewer repairs, the City provides inlet protection and removes all excavated material in a dump truck to be hauled to the Central Maintenance Yard. Clean backfill material is placed in the excavation trench when the repair is completed. No temporary storage of material occurs in or along the street. Downstream catch basins are cleaned if any erosion occurs during utility service repairs.

Kent State University Efforts to Date

Storm Sewer System Maintenance

KSU's Maintenance Department has a maintenance program for its storm sewer system that includes the cleaning of catch basins, pipes, swales, ditches and culverts as needed.

Vehicle Maintenance

KSU vehicles are washed in enclosed bays where all drains are connected to a fuel interceptor allowing the wash water to pass through before it is discharged into the sanitary sewer system. All maintenance or mechanical repairs for KSU vehicles are performed by its Maintenance Department at its Transportation Services Facility.

Hazardous Materials Storage

KSU maintains a chemical inventory for the entire campus that reports the location and quantity of each chemical stored. All chemicals are stored in proper containers. All fuel oil storage facilities are equipped with leak detection and containment equipment. The Safety Department regularly checks outfalls to ensure that no laboratory (or other) chemicals are being dumped illegally from campus facilities. KSU maintains four (4) areas that have been approved by the OEPA as hazardous waste collection sites where a licensed firm receives the materials for proper transport and disposal.

Spill Response and Prevention

KSU has established policies regarding proper waste handling to prevent spills and contamination, such as labeling of waste bottles and waste storage areas, and proper waste storage and handling. Basic procedures also have been established on chemical spill responses and lab safety measures.

Used Materials Storage

KSU's Campus Environmental and Operations Department maintains a composting area with proper mulch configuration patterns as recommended by the OEPA.

Street Sweeping and Cleaning

KSU sweeps its streets at least twice a year in the late fall and spring, and optional street sweeping is done in the summer. KSU also cleans campus streets before and after campus events. A local contractor provides KSU's street sweeping services.

Used Oil Recycling and Lubricant Disposal

KSU contracts with a licensed firm to collect, transport, and disperse all used materials off site to an OEPA-approved recycling center or landfill.

Employee Training Program

A training program exists for KSU employees regarding to storm catch basin cleaning and flushing of the water distribution system.

Road Salt Application and Storage

KSU applies road salt to its streets and sidewalks in accordance with local standards. Salt is stored within an enclosed shed at the Campus Environmental and Operations Department.

4.6.4 Action Plan for Pollution Prevention and Good Housekeeping for Municipal Operations

The City and KSU will perform various tasks to implement these BMPs and reach their target audiences.

City of Kent Action Plan

Targeted BMPs

Fueling Station Improvements

5/03-4/08 All City vehicles are fueled at the City's vehicle fueling site. The City's operational procedures for fueling City-owned vehicles address spills in terms of spill prevention and cleanup. The vehicle fueling site will be surveyed and an accurate topographic map will be developed. A design will be done for grading to contain runoff and provide proper containment in the event of a spill.

Fueling Operation Improvements

5/06-4/07 Training will be administered to City personnel on proper operations, spill containment, safety and materials storage at the City's vehicle fueling station. Signs and stickers will be posted at the site as reminders of these issues.

Vehicle Wash Operation Improvements and Signs

5/03-4/08 The majority of the City's vehicles are washed within defined wash bays with drains that connect to the sanitary sewer. Outside vehicle washing does occur, and procedures at these sites will be addressed to prevent direct runoff to local waterways.

Parking Lots and Street Cleaning

5/03-4/08 Continue current street cleaning efforts and introduce the cleaning of City parking lots. The City will also investigate improved measures for street cleaning by evaluating the cost of testing street cleaning waste for hazardous classification.

Bridge Maintenance Drainage and Construction Improvements

5/03-4/08 Bridges within the City, such as the Haymaker Parkway Bridge, have scupper drains that discharge directly onto concrete embankment slopes where water drains directly into the river. The City shall investigate which bridges within the City have scupper drains and then determine which bridges the City will improve by appropriately redirecting the discharge of the scupper drains.

5/03-4/04 Review the City's bridge design standards with respect to the allowable methods for outleting scupper drains.

Roadway and Bridge Operation Improvements

5/07-4/08 City Maintenance personnel will attend training on storm water issues relating to bridge maintenance and operation.

5/05-4/06 Develop a specification or plan note incorporating construction site storm water runoff BMPs into City construction projects.

Materials Storage Improvements

5/06-4/07 The Public Service Department currently stores all used materials, such as excavation, storm drain and street sweeping spoils, at the Central Maintenance Yard. Construction materials are also stored at the Central Maintenance Yard, including sand, gravel, cold patch and road salt inside a dome. Containment issues including, but not limited to, bulk material storage and the paint building at the Central Maintenance Yard, will be addressed. Measures should be taken to provide sediment basins and vegetative filtering and/or storm structure sediment removal and hydrocarbon filtration. This action includes, but is not limited to, a topographic survey, development of an accurate topographic map, and design for grading to control runoff at the site and storm sewer modifications (e.g., pollution separation inserts). Containment measures pertaining to where the City's vacuum trucks and street sweepers unload waste materials also will be addressed.

5/03-4/04 The Parks and Recreation Department shall evaluate storage options for items that are currently stored outside, such as salvaged fencing and ball field mix.

Materials Management Operation Improvements

5/06-4/07 Information and training shall be provided to the City's Public Service Department personnel on matters such as safety, materials storage and handling of all chemicals and materials used during normal City Service Department operations.

Road Salt Application and Storage

5/03-4/08 The effect of deicers on storm water quality varies by the amount of salt used and the method of application. The City will evaluate varying the amount of salt applied in order to keep streets safe and clean, while also minimizing the quantity of material used. The salt trucks are equipped with a ten (10) level system that increments the amount of salt used based on the severity of weather conditions.

5/03-4/08 Although current measures for road salt application are more than adequate, new technologies such as temperature sensors, liquid application and those found in the storm water management fact sheet *Minimizing Effects from Highway Deicing,* will be evaluated in order to possibly reduce the environmental impact of deicers. New local procedures also will be reviewed based on new State procedures for pre-application, and application rates should be revised accordingly.

5/03-4/08 The City's salt storage is under a roof in a salt dome, as recommended by OEPA. The facility and its loading procedures will be evaluated for improvement, as noted previously in the materials storage BMP.

Drainage System Maintenance

5/03-4/08 The City's Central Maintenance Division will continue its annual maintenance program.

Dredging of Plum Creek Pond

5/07-4/08 The pond located in Plum Creek Park contains an excess quantity of silt, thus limiting settlement, storage volume, re-charge and infiltration. The City will dredge the pond and evaluate the design of the pond to determine if the pond should remain on-line or be set off-line of Plum Creek and be used as an overflow basin for the creek.

***Kent State University Action Pl*an**

Targeted BMPs

Parking Lot and Street Cleaning

5/03-4/08 Continue current efforts, look for improved measures for street cleaning, and evaluate the frequency of street cleaning at KSU.

Spill Response and Prevention

5/03-4/08 KSU's Office of the University Architect and/or the Campus Environmental and Operations Department will conduct a general assessment of all KSU buildings and facilities to address how each facility could develop additional procedures to address storm water related issues.

Road Salt Application and Storage

5/03-4/08 Although current measures for road salt application are adequate, new technologies such as temperature sensors, liquid application, and those found in the storm water management fact sheet *Minimizing Effects from Highway Deicing* will be evaluated in order to possibly reduce the environmental impact of deicers. Application and storage procedures will be revised based on the City's review and policy revisions, and new State procedures for pre-application.

Storm Sewer System Maintenance Program

5/04-4/07 Develop a program to perform regularly scheduled maintenance on the catch basins within the KSU storm sewer system.

5/07-4/08 Implement the storm sewer system maintenance program and evaluate its effectiveness.

Used Oil Recycling

5/04-4/08 Review oil recycling procedures to evaluate whether they are consistent with current OEPA guidelines, and make adjustments, if necessary.

Employee Training

5/03-4/08 Partner with the City by allowing City employees to attend KSU's ongoing employee training program for storm water related issues.

Hazardous Materials Storage and Management

5/04-4/08 Coordinate the scheduling of hazardous materials disposal and collection with the City in order to supplement its hazardous materials program.

Table 4.6a

Summary of Pollution Prevention and Good Housekeeping Activities – City of Kent

Compliance Task		Schedule	Responsible Entity
1	Fueling Station Improvements	5/03–4/08	Public Service Department & Central Maintenance Division
2	Fueling Operation Improvements	5/06-4/07	Public Service Department & Central Maintenance Division
3	Vehicle Wash Operation Improvements and Signs	5/03–4/08	Public Service Department & Central Maintenance Division
4	Parking Lots and Street Cleaning	5/03–4/08	Public Service Department & Central Maintenance Division
5	Bridge Maintenance Drainage and Construction Improvements	5/03–4/08	Public Service Department & Central Maintenance Division
6	Roadway and Bridge Operation Improvements	5/07-4/08	Public Service Department & Central Maintenance Division
7	Drainage System Maintenance	5/03-4/08	Public Service Department & Central Maintenance Division
8	Materials Storage Improvements	5/06–4/07	Public Service Department & Central Maintenance Division
9	Materials Management Operation Improvements	5/06-4/07	Public Service Department & Central Maintenance Division
10	Road Salt Application and Storage	5/03–4/08	Public Service Department & Central Maintenance Division
11	Dredging of Plum Creek Pond	5/07–4/08	Parks and Recreation Department

Table 4.6b

Summary of Pollution Prevention and Good Housekeeping Activities – KSU

	Compliance Task	Schedule	Responsible Entity
1	Parking Lot and Street Cleaning	5/03-4/08	Office of the University Architect
2	Spill Response and Prevention	5/03–4/08	Office of the University Architect
3	Road Salt Application and Storage	5/03-4/08	Office of the University Architect
4	Develop Storm Sewer System Maintenance Program	5/04-4/07	Office of the University Architect
5	Implement Storm Sewer System Maintenance Program	5/07-4/08	Office of the University Architect
6	Used Oil Recycling	5/04–4/08	Office of the University Architect
7	Employee Training	5/03-4/08	Office of the University Architect
8	Hazardous Materials Storage and Management	5/04-4/08	Office of the University Architect

5.0 REPORTING PROCESS

The communities in the State of Ohio that are under jurisdiction of the Storm Water Phase II regulations must submit a Notice of Intent to the OEPA by March 10, 2003. This NOI must be accompanied by a SWMP, which will indicate the BMPs that will be implemented during the first permit term (2003-2008) to ensure compliance with the six (6) minimum control measures. The NPDES Storm Water Phase II Rule will allow a permitee to implement the identified BMPs over this five (5) year period. Permitees also will be required to submit periodic reports assessing the effectiveness of the proposed BMPs, and to report if the minimum control measures were met. At a minimum, the report should include the following:

- Status of compliance with permit conditions, including an assessment of the appropriateness of the selected BMPs, and progress toward achieving the selected measurable goals for each minimum control measure.

- Results of any information collected and analyzed, including monitoring data, if any exists.

- Change in any identified BMPs or measurable goals for any minimum control measure.

- Notice of relying on another governmental entity to satisfy some of the permit obligations, if applicable.

For the purposes of the SWMP being developed by the City and KSU, Storm Water Phase II operators will be assigned to coordinate and manage the efforts of the various entities as outlined in this SWMP. The responsible entities for the City and KSU will each provide information that addresses their respective compliance tasks in their annual status reports. The annual status reports must be submitted to the operators in a time frame that allows the operators to compile the information from the two (2) co-permitees into a single report for submission to OEPA. The exact schedule for this submittal will be determined after a final permit has been issued by OEPA.

6.0 ADMINISTRATIVE AND LEGAL ISSUES

This SWMP will require the implementation of a number of administrative tasks and ordinances or policies on the part of the City and KSU. As noted in Section 5.0, for the purposes of the SWMP being developed by the City and KSU, Storm Water Phase II operators will be assigned to coordinate and manage the efforts of the various entities as outlined in this SWMP. The operators will be Mr. Robert Brown, WRF Manager, for the City, and Mr. Keith Bush, C.I.P.E./CPD, Associate Mechanical Engineer in the Office of the University Architect, for KSU.

The City will develop and implement the following ordinances mandated and/or recommended to satisfy the requirements of the Storm Water Phase II Permit:

- Illicit Discharge Ordinance
- Riparian Areas and Wetlands Ordinance
- Construction and Post-construction Site Storm Water Management Ordinance

KSU will develop and implement a policy on riparian areas and wetlands similar to the City's ordinance, and satisfying the requirements and/or recommendations of the Storm Water Phase II Permit. KSU will review and revise if necessary, its policies in order to satisfy the Storm Water Phase II requirements concerning illicit discharge, and construction and post-construction site storm water management.

7.0 REFERENCES

1. United States Environmental Protection Agency, Storm Water Phase II Final Rule Fact Sheet Series, Office of Water, EPA 833-F-00-001 through EPA 833-F-00-010.

2. Federal Register, Vol. 64, No. 235, Wednesday, December 8, 1999, Rules and Regulations.

APPENDICES

APPENDIX A
Urbanized Area Map of Akron, Ohio Vicinity

APPENDIX B
Storm Water Management Planning Committee Executive Summary

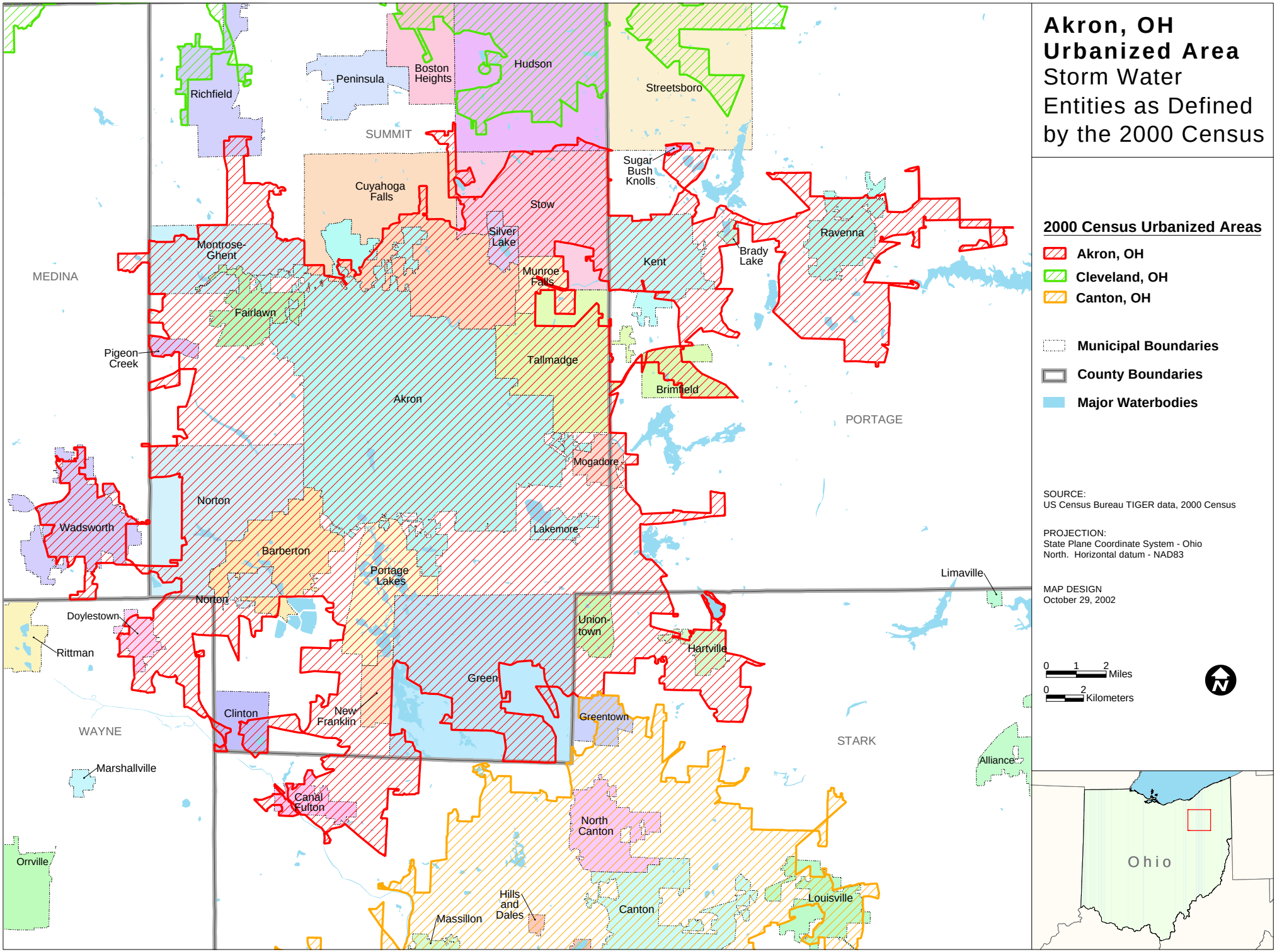
APPENDIX C
City of Kent Storm Sewer System Map

APPENDIX D
Kent State University Storm Sewer System Mapping

APPENDIX E
Model Illicit Discharge and Connection Storm Water Ordinance

APPENDIX F
NOACA Model Ordinance

APPENDIX G
City of Aurora Ordinance on Riparian Areas and Wetlands



Akron, OH Urbanized Area

Storm Water Entities as Defined by the 2000 Census

2000 Census Urbanized Areas

- Akron, OH
- Cleveland, OH
- Canton, OH

- Municipal Boundaries
- County Boundaries
- Major Waterbodies

SOURCE:
US Census Bureau TIGER data, 2000 Census

PROJECTION:
State Plane Coordinate System - Ohio North. Horizontal datum - NAD83

MAP DESIGN
October 29, 2002

0 1 2 Miles

0 2 Kilometers