City of Franklin

Storm Water Quality Management Plan

Indiana Municipal Separate Storm Sewer System (MS4)
NPDES Permitting Program 327 IAC 15-13

Part C Program Implementation

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City of Franklin

Section 1: Introduction

1.1 Why Address Storm Water Quality?

Runoff from storm events is part of the natural hydrologic process. Rainwater that does not infiltrate into the ground flows into water bodies such as creeks, streams, rivers and lakes. In suburban areas, the storm water runoff often has the benefit of passing through naturally vegetated areas, which slows down the velocity of the water and ultimately filters it for pollutants and sediments. In urban settings, however, natural vegetation and topography have frequently been altered, and storm water is most often carried by storm drain pipes. When the drainage pattern of a watershed is so altered, flows increase in concentration and velocity and pick up sediments and pollutants from land surfaces at an increased rate. Storm water that flows through urbanized areas to receiving waters is called "urban storm water runoff." Table 1 illustrates some common pollutants that can be transported by storm water.

TABLE 1
Common Pollutants in Urban Storm Water Runoff

- **Sediment (often measured as turbidity)**
- **Nutrients (phosphorus, nitrogen, etc.)**
- **Oxygen Demand (plant debris, animal wastes)**
- **Pathogens (bacteria, viruses)**
- **Heavy Metals (lead, mercury, cadmium, zinc)**
- **Floatables (litter, yard wastes)**
- **Synthetic Organics (herbicides, cleaners)**
- **Acidity or Alkalinity (a measure of pH)**
- **Salinity (salt from de-icing operations)**

Urban runoff is known to carry a wide range of pollutants including nutrients, trash and debris, sediments, heavy metals, pathogens, petroleum hydrocarbons, and synthetic organics such as pesticides. Because urban runoff does not originate from a distinct "point" source (e.g., an industrial discharge pipe), it is also often referred to as nonpoint source pollution. These pollutants in urban runoff could negatively impact the vitality of your municipality on many levels. Urban runoff can alter the physical, chemical, and biological characteristics of water bodies to the detriment of aquatic and terrestrial organisms; can make beaches and rivers unsightly or unsafe for human contact; and can negatively impact beneficial activities and users including water recreation, commercial fishing, tourism and aquatic habitat. In some cases, pollutants of concern may not even be visible to the naked eye.

Trash and debris that collects in storm drain inlets are carried into the receiving waters by runoff

In the 1998 National Water Quality Inventory Report to Congress, the U.S. Environmental Protection Agency (EPA) reported that more than 291,000 miles of assessed rivers and streams across the United States do not meet water quality standards. In addition, the EPA reported that 7,987,110 acres of all assessed lakes in the United States are considered polluted; representing almost half of all assessed lakes.

Under Section 303(d) of the Clean Water Act (CWA), the State of Indiana is required to provide a list of all impaired water bodies to the U.S. EPA. Indiana Department of Environmental Management's (IDEM) final 2004 303(d) list has over 525 different lakes, river segments, and creek segments across the State of Indiana that are classified as Category 5. Category 5 waterbodies are those where the water quality standard is not attained.

5A. **The waterbodies are impaired or threatened for one or more designated uses by a pollutant(s), and require a Total Maximum Daily Load (TMDL)**. This category constitutes the Section 303(d) list of waters impaired or threatened by a pollutant(s) for which one or more TMDL(s) are needed. A waterbody should be listed in this category if it is determined, in accordance with the state's assessment and listing methodology, that a pollutant has caused, is suspected of causing, or is projected to cause an impairment. Where more than one pollutant is associated with the impairment of a single waterbody, the waterbody will remain in Category 5 until TMDLs for all pollutants have been completed and approved by EPA.

5B. **The waterbodies are impaired due to a Fish Consumption Advisory for PCB's and/or mercury.** This category also composes a portion of the Section 303(d) list of impaired waters, but the State believes that a conventional TMDL is not the appropriate approach. The State will continue to work with the general public and EPA on actual steps needed ultimately to address these impairments.

TABLE 2
Impacts from Urbanization on Runoff

- **Increased peak discharges**
- **Increased volume of urban runoff**
- **Decreased time needed for runoff to reach the stream or other waterbody**
- **Increased frequency and severity of flooding**
- **Reduced streamflow during prolonged periods of dry weather due to reduced level of infiltration**
- **Greater runoff velocity during storms producing higher erosion of poorly vegetated areas**

EPA's 1995 Storm Water Phase II Report to Congress (EPA, 1995) and the Coastal Zone Management Measures Guidance (EPA, 1992) describe the impacts from urbanization. Urbanization impacts water quality principally through changes in hydrology and increases in pollutant loadings. Increases in population density and imperviousness due to urbanization can result in significant changes to stream hydrology as listed in Table 2.

1.2 The U.S. EPA's National Storm Water Quality Program

The National Urban Runoff Program (NURP) and CWA 305(b) reports submitted to Congress in the 1980's identified contaminated storm water as one of the causes adversely affecting water quality. Congress amended the CWA in 1987 to require the EPA to address storm water runoff [CWA 402(p)]. Federal regulations were promulgated in 1990 as 40 CFR 122.26 with the first general permits issued in 1992. This was known as the Phase I National Pollutant Discharge Elimination System (NPDES) Storm Water permitting program.

Phase I required that municipalities with populations greater than 100,000 develop a storm water quality program. The only entity in the State of Indiana that was required to obtain coverage under Phase I was the City of Indianapolis. In addition, Phase I also established minimal storm water quality programs for new construction sites over 5 acres in size as well as private industries with manufacturing related Standard Industrial Classification (SIC) codes. However, several years after the implementation of the Phase I storm water quality program, the EPA reported that storm water runoff from urbanized areas was still a leading cause of surface water pollutants.

Volunteers work at a stream clean-up day in Franklin as part of the Youngs Creek Watershed Assessment Group.

The Storm Water Phase II Final Rule is the next step in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted storm water runoff. The Phase II program expands the Phase I program by requiring additional operators of Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted storm water runoff.

EPA developed the Phase II Final Rule during extensive consultations with a cross-section of interested stakeholders brought together on a subcommittee chartered under the Federal Advisory Committee Act, and with representatives of small entities participating in an advisory process mandated under the Small Business Regulatory Enforcement Fairness Act. In addition, EPA considered comments submitted by over 500 individuals and organizations during a 90-day public comment period on the proposed rule.

According to the U.S. EPA…

…Once urban runoff pollution has entered the storm sewer system, it is discharged-(usually) untreated-into local streams and waterways…this pollution is a leading threat to public health and the environment today.

Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of storm water discharges that have the greatest likelihood of causing continued environmental degradation. In the State of Indiana, the Indiana Department of Environmental Management has the authority to implement the Phase II Storm Water NPDES permitting program on behalf of the U.S. EPA.

1.3 Indiana's Municipal Storm Water General Permit-By-Rule Program

In Indiana, storm water discharge permits are issued by IDEM. Under the Phase I Storm Water NPDES permitting requirements, only the City of Indianapolis met the designation criteria, and was issued an individual NPDES storm water permit. To comply with Phase II requirements, a new general NPDES permit-by-rule was written, and an individual NPDES storm water permit was issued to the Indiana Department of Transportation. The new general permit rule, referred to as Rule 13 (codified as 327 IAC 15-13), provides permit coverage for most Phase II MS4 entities across the State.

Indiana's Government Center North Building in Indianapolis, Indiana.

Rule 13 was published in the Indiana Register for a 30-day second public comment period beginning on January 2, 2002. Rule 13 was preliminarily adopted on August 14, 2002. A 21-day third public comment period began on December 1, 2002, for Rule 13. A continuation of the final adoption hearing for Rule 13 was asked for at the February 12, 2003, Water Pollution Control Board hearing, and final adoption of Rule 13 occurred at the March 12, 2003, Water Pollution Control Board hearing. Rule 13 became effective on August 6, 2003.

Under Phase II, Rule 13 was written to regulate most MS4 entities (cities, towns, universities, colleges, correctional facilities, hospitals, conservancy districts, homeowner's associations and military bases) located within mapped urbanized areas, as delineated by the U.S. Census Bureau, or, for those MS4 areas outside of urbanized areas, serving an urban population greater than 7,000 people. In addition to these generalized criteria, designation of MS4 entities is potentially determined by other factors, including population growth and documentation which indicates water quality impairment. Rule 13 is designed to be implemented through three distinct parts as listed in Table 3.

TABLE 3
Primary Components of Rule 13

- **Part A – Initial Application**
- **Part B – Baseline Characterization Report**
- **Part C – Storm Water Quality Management Plan**

This required Storm Water Quality Management Plan will focus on implementing six minimum control measures. These six minimum control measures provide an avenue for communities to implement best management practices to meet the overall intent of the Rule 13. The effectiveness of these six minimum control measures will be measured through various problematic indicators.

TABLE 4
Six Minimum Control Measures

1. **Public Education and Outreach**
2. **Public Participation and Involvement**
3. **Illicit Discharge Detection & Elimination**
4. **Construction Site Runoff Control**
5. **Post Construction Site Runoff Control**
6. **Pollution Prevention and Good Housekeeping**

Section 2: Description of The MS4 Area

2.1 Introduction To The City Of Franklin

The City of Franklin is located in Johnson County, Indiana. Franklin was founded in 1823 and is the county seat. Franklin is located along Youngs Creek and is positioned approximately 39.48 degrees north of the equator and 86.06 degrees west of the prime meridian. According to the U.S. Census Bureau, Franklin has a total area of 11.26 square miles, of which 100% is land and 0% is water.

The Phase II storm water program is structured to address urban runoff from certain cities, towns, counties, universities, prisons, and conservation districts. IDEM's finalized list targets approximately 170 entities that must comply with the new rule requirements. Many of these 170 entities were brought into the program by either having a minimum population, having a minimum population with anticipated growth, or were located within or adjacent to urbanized areas. The City of Franklin must comply with the Phase II storm water requirements because of its current population and because the city is located within an urbanized area. Other entities in the Franklin area include:

- Johnson County
- Bargersville
- Greenwood
- Whiteland
- New Whiteland

Efforts are being made to coordinate with each of these entities to help assure consistency in the MS4 program, county wide.

According to the U.S. Census Bureau, Census 2000 data, the City of Franklin has a population of 19,463. Table 5 provides other interesting Census 2000 demographics. The national average for growth from 1990 to 2000 was 13.15%, and the Indiana State average for growth from 1990 to 2000 was 9.67%. Table 6 illustrates the growth rate for the City of Franklin over the last 10 years. The data indicate that the City of Franklin has experienced enormous population growth over the last 10 years.

TABLE 5
City of Franklin
Census 2000 Demographics

- **19,463 Population**
- **6,824 Households**
- **4,873 Families**
- **1,728 persons/mi^2 Population Density**
- **$45,414 Median Household Income**

Consequently, the City of Franklin is required to develop storm water quality programs for all properties within the city limits. An aerial photographic map with an overlying metropolitan boundary is included as Appendix A of this report.

TABLE 6
City of Franklin
Percent Growth 1990 – 2000

City	1990 Population	2000 Population	Percent Growth
Franklin	12,097	19,463	60.9%

The storm water surface drainage area of the city is divided into five distinct watersheds. A watershed is an area of the land surface that drains to a common receiving waterbody (such as Youngs Creek). The United States Geological Survey (USGS) has developed a numbering system to methodically organize watersheds throughout the United States. The smallest watershed area classified by the USGS consists of a 14 digit code, known as a HUC (Hydrologic Unit Code)-14 code. For purposes of this report, the receiving waters for Franklin are identified in those areas where the City limits of Franklin intersect the USGS, HUC-14 subwatersheds.

Storm water can flow into all types of receiving water systems within these five subwatersheds, from very small roadside ditches, to intermittent streams, to large rivers. Each entity regulated under this MS4 program is tasked with developing a working definition of receiving waters to include in their program. The U.S. Department of the Interior Geological Survey, Water Resources Division, in conjunction with the Indiana Department of Natural Resources (IDNR), Division of Water, developed a reference manual entitled “Drainage Areas of Indiana Streams”, copyright 1975. This manual defines drainage areas for all streams in Indiana having a drainage area of at least five square miles. For purposes of this MS4 program, Franklin will consider receiving streams that have assigned names in the aforementioned manual. Table 7 lists the five HUC-14 subwatersheds that are evaluated under this MS4 program, along with the associated receiving stream. A map illustrating the HUC-14 boundaries is included in Appendix A of this report.

TABLE 7
City of Franklin
HUC-14 Subwatersheds and Receiving Waters

HUC-8	HUC-11	HUC-14	Receiving Water Name
05120204	090	050	Hurricane Creek (Johnson)
05120204	090	070	Youngs Creek-Amity Ditch
05120204	090	030	Youngs Creek – Brewers/Canary Ditches
05120204	090	060	Youngs Creek – Buckhart Creek
05120204	090	040	Youngs Creek – Ray Creek

2.2 Estimate of Lineal Feet of MS4 System

According to Rule 13 language, an estimate of the lineal feet of MS4 conveyances within the MS4 area must be provided. This estimate will be used to determine the amount of MS4 conveyances to be mapped each year for compliance. The rule requirement is for 25 % of the conveyance system to be mapped each year, in years 2 through 5, of the first permit term. Rule 13 further describes the details of the mapping requirements.

Rule 13 Requirements

(A) All known outfall conveyance systems with a pipe diameter of twelve (12) inches or larger and open ditches with a two (2) foot or larger bottom width must be mapped within the first five (5) year permit term, according to the following:

(i) After the second year of permit coverage, mapping must depict the location of outfall conveyance systems for at least twenty-five percent (25%) of the MS4 conveyances within the MS4 area.

(ii) For each additional year of the initial permit term, mapping must depict at least an additional twenty-five percent (25%) of the MS4 conveyances.

The City of Franklin is still in the process of inventorying all qualifying MS4 conveyances as well as implementing procedures for identifying open ditches that qualify as MS4 conveyances. Table 8 presents a schedule for mapping the MS4 conveyance system.

TABLE 8
MS4 Conveyance Mapping Schedule

April, 2005 – 25% of the MS4 Conveyances Mapped
April, 2006 – 50% of the MS4 Conveyances Mapped
April, 2007 – 75% of the MS4 Conveyances Mapped
April, 2008 - 100% of the MS4 Conveyance Mapped

Section 3: Current Storm Water Programs

3.1 Introduction to Indiana's Part B and Part C Programs

The U.S. EPA created generalized goals and objectives under the federal Phase II Storm Water regulations. Conceptually, the EPA stated that the Phase II storm water program for small and medium MS4 entities needed to consist of developing a storm water management program comprising six elements (later called "minimum control measures") that, when implemented in concert, are expected to result in significant reductions of pollutants discharging into receiving waterbodies. The EPA further states that the program should be implemented through a general permitting process. So on the national level, this would be a two (2) step program. The first step would be to submit a Notice of Intent (NOI) to comply with a general storm water permitting program, and the second step would be to develop a written program that addresses the required six elements (or six minimum control measures). As a final mandate, EPA did state that the written program needed to also address how the regulated entity would monitor the effectiveness of their chosen storm water quality management programs.

Indiana chose to develop a program where the storm water quality management programs are addressed in two reports, a Part B report and a Part C report.

IDEM chose to have regulated entities develop their written program, addressing the six (6) minimum control measures, in two phases. The first phase would be called "Part B – Baseline Characterization Report", and the second phase would be called "Part C – Storm Water Quality Management Plan". While IDEM has required that regulated entities develop two distinct reports, in reality, the Part B report is a building block or spring board for developing the Part C report. Together, both Part B and Part C will meet the overall objective of developing storm water quality management programs under this MS4 program.

3.2 Existing Storm Water Quality Program Items

Part B

The City of Franklin has already submitted the required Part B – Baseline Characterization report to IDEM. In response, IDEM issued a Notice of Sufficiency (NOS) dated September 28, 2004 for the content of that report. IDEM's stated purpose of the characterization report was to identify receiving waters and associated storm water outfalls, other pollutant sources, and existing water quality problems that need to be addressed by the MS4 area storm water quality management plan. The characterization was one of the initial tools for planning, by identifying impacted receiving waters. The City of Franklin conducted a thoughtful planning process leading to a targeted program. Specifically, the Part B report contained those primary components listed in Table 9.

TABLE 9
Part B Major Report Components
"Current Programs"

- **Listing of Receiving Waters & Related HUC-14 Codes**
- **Working Definition of the MS4 System**
- **Land Use Identifications**
- **Structural Best Management Practices**
- **Non-Structural Best Management Practices**
- **Combined Sewer Overflow Program**
- **Identification of Sensitive Waters**
- **Review of Existing Water Quality Data**
- **Description of New Water Quality Data Projects**

While the Part B report components will certainly be referenced and used to develop this Part C Storm Water Quality Management Plan, all detailed components of the Part B report will not be entirely reproduced in this Part C report. A copy of the Part B report is available by contacting Mr. Michael Buening, City Engineer, City of Franklin, 55 West Madison Street, P.O. Box 280, Franklin, Indiana 46131, 317-736-3602.

Youngs Creek Watershed Assessment

The Youngs Creek Watershed Assessment is a group spearheaded by the Johnson County SWCD which coordinates with local government agencies and public interest groups to educate and initiate programs to protect and clean local watersheds. Programs assisted by this group have included storm drain labeling initiatives and stream clean up drives. The watershed coordinator can be contacted by calling 317-346-6102.

Section 4.1 Introduction To The Six MCM's

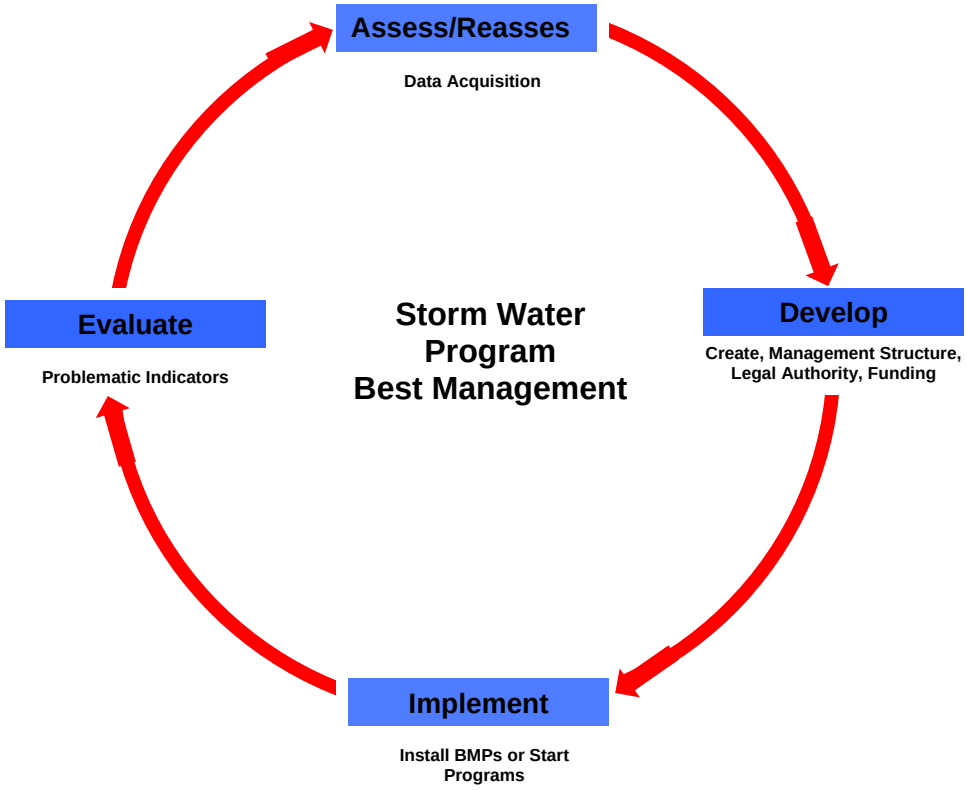
4.1.1 Introduction To Best Management Practices

This storm water quality management plan is based upon Best Management Practices or BMPs that are selected to address local conditions and improve overall water quality problems. The term BMP may sound official, but in reality BMPs are common sense methods for controlling, preventing, reducing, or removing pollutants in storm water runoff.

BMPs can be in the form of structural controls as well as non-structural programs. Examples of structural BMP controls include storm water retention basins, storm inlet filters, vegetated filter strips, and porous pavement. Examples of non-structural BMP programs include animal waste collection programs, litter pick-up days, storm drain stenciling programs, and incentive zoning (Franklin participates in all of the non-structural BMP programs listed). All of these and many more specific BMPs will be described in detail throughout this report. Structural and non-structural BMPs will collectively form a comprehensive programmatic framework that reduces storm water pollution to the maximum extent practicable.

Governmental entities, universities, and private companies all have years of research, information, and experience on the overall effectiveness of various BMPs. One of the most important aspects of selecting a BMP is to make sure that the selected practice addresses problems specific to a particular problem, then effectively implementing the practice, and subsequently monitoring the selected BMP's success. In other words, effective BMP implementation requires a comprehensive program. This can be addressed in four basic steps: Assess, Develop, Implement, and Evaluate.

Evaluating Best Management Practices is a methodical, on-going process



Assess/Reassess: The polluted runoff problems in Franklin and in Franklin's subwatershed areas need to be assessed, as well as the existing polluted runoff management efforts. Programs are then tailored to meet Franklin's needs. This step involves information gathering and research to identify resources, problems, opportunities, and priorities for implementing BMPs. After programs have been in place for a while, re-assessment needs to also occur and the cycle may start all over for a particular control measure.

Develop: The City of Franklin must develop effective storm water runoff control policies and ordinances, and create an efficient and adequately funded program. This step involves developing legal authority, funding, and management structures to ensure long-term program sufficiency, accountability, and enforcement of BMPs. This step also involves educating the general public about the problem as a means to promote public participation in identifying the solution.

Implement: Planning and policies by themselves are obviously ineffective without carrying out the ideals of the programs. Implementation involves addressing who is responsible for implementing the BMP, when it will be implemented, exactly where it will be implemented, and how it will be implemented.

Evaluate: Franklin has to develop programs that include an accountability component on the effectiveness of each selected BMP. This will allow Franklin to maintain the BMP's effectiveness and even improve upon it. Program evaluation and updating will allow the City of Franklin to adapt to new information, new problems, new BMPs, and other changing circumstances.

4.1.2 Introduction To The Six Minimum Control Measures

Under EPA's Phase II Storm Water program, the City of Franklin is required to implement programs and practices to control polluted storm water runoff from its MS4 jurisdiction. The EPA states that this program must include the development and implementation of best management practices and measurable goals for six minimum measures, and include evaluation and reporting efforts for each. The six minimum control measures are listed in Table 10.

TABLE 10
Six Minimum Control Measures

- **MCM #1 – Public Education and Outreach**
- **MCM #2 – Public Participation and Involvement**
- **MCM #3 – Illicit Discharge Detection and Elimination**
- **MCM #4 – Construction Site Runoff Control**
- **MCM #5 – Post-Construction Site Runoff Control**
- **MCM #6 – Pollution Prevention and Good Housekeeping**

Below is a brief introductory description of each program as provided by the U.S. EPA:

MCM #1 - Public Education and Outreach
Distributing educational materials and performing outreach to inform citizens about the impacts polluted storm water runoff discharges can have on water quality.

MCM #2 - Public Participation/Involvement
Providing opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a storm water management panel.

MCM #3 - Illicit Discharge Detection and Elimination
Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).

MCM #4 - Construction Site Runoff Control
Developing, implementing, and enforcing an erosion and sediment control program for construction activities that disturb one (1) or more acres of land (controls could include silt fences and temporary storm water detention ponds).

MCM #5 - Post-Construction Site Runoff Control
Developing, implementing, and enforcing a program to address discharges of post-construction storm water runoff from new development and redevelopment areas. Applicable controls could include preventative actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales or porous pavement.

MCM #6 - Pollution Prevention and Good Housekeeping
Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides or street salt, or frequent catch-basin cleaning).

Section 4.2: MCM #1 Public Education & Outreach

4.2.1 Public Education and Outreach Program Description

The success of the overall storm water quality management program depends upon securing support from elected officials, citizens, business groups, and municipal staff, even before changes are instituted. To secure this support, the City of Franklin needs to implement a public education and outreach program on storm water quality issues.

TABLE 11
Public Education and Outreach Programs
Objectives

- **Understand public perception and attitudes towards the problem of urban runoff**
- **Raise public awareness about urban runoff pollution and its impact on the community's water resources**
- **Educate the community about specific pollutant sources and on what they can do to reduce urban runoff pollution**
- **Foster participation through community based projects or volunteer activities**

The NPDES Phase II regulations also require that the owner or operator of small municipal separate storm sewer systems implement a public education and outreach program to distribute educational materials to the community about the impacts of non-storm water discharges on water bodies. The program will also address steps the individuals and households can take to control urban runoff pollution. The term "Public Education" refers to curriculum-based programs (e.g., school programs, public speakers), while "Public Outreach" pertains to methods that disseminate information (e.g., advertising, displays in public offices, volunteer programs). The overall objectives of this Minimum Control Measure are listed in Table 11.

Public education in our schools will be one critical audience.

The first audiences for the public presentation should be the Franklin City Council and key municipal staff who will be involved in later implementation. Support for the program must first be understood and then achieved by the City of Franklin or implementation will not be successful. Elected officials are instrumental in conveying a water quality ethic to the community and municipal staff that will actually implement the plan. The presentation should then be taken to everyone open to listening, including among others, neighborhood and business associations, commercial property owners, local service clubs and schools.

The foremost objective of the presentations is to convince the citizens of Franklin that a problem exists and that they should fix that problem. It is important for the citizens of Franklin to embrace the ideals of this program not only to physically support the work that needs to be done, but to also back it financially. Funding is a challenge that must be faced and unless it is addressed the program cannot proceed. Therefore, the second emphasis of the public presentation will incorporate the city's overall financing strategy and address current financial needs.

Examples of storm water quality education handouts. Photo provided by the U.S. EPA

The public outreach programs and materials will be varied. There are numerous programs that need to be established, because different sectors of the general public will need to be reached through different mechanisms. Some citizens will be more proactive and want to learn more about the program through a web site, a telephone hotline, or newspaper. Other members of the general public will need to have more passive visual reminders throughout the community or hear various radio announcements in order to start understanding the concepts of the program. The next section of this report will detail the specific public education and public outreach programs the City of Franklin plans to implement.

The City already has a number of positive programs. The Parks Department hosts community clean-ups along local water bodies and storm drains, educational programs are being developed for school-age children, as well as education initiatives for proper application of pesticides, herbicides, and fertilizers.

4.2.2 Specific Tasks and Measurable Goals

Residential Public Survey

IDEM requires that the City of Franklin find a way to track the success of the selected public education programs. One of the ways to do this is to initially conduct a public survey. To indicate progress in constituent awareness, the assessment can be periodically conducted. To have meaningful comparisons, IDEM recommends that the assessment be repeatable (i.e., same survey questions, same method of providing the survey).

Franklin will conduct an initial constituent survey by developing a residential questionnaire that was forwarded in the local utility bills. These are referred to as Utility Stuffers, and the information obtained will be used in various ways over the life of this program. These inserts can be extremely effective if they are engaging, concise, and memorable. When designing any insert, explore options regarding paper and ink colors, type faces, and type sizes; the text should be kept brief, the letters fairly large, and the design attractive. Offering some type of incentive will improve the response rate. Following are the details of this program.

Residential Public Survey

What: A public survey questionnaire inserted into a utility bill

Goal: To assess the residential utility customer base to determine the level of general understanding and perception of storm water quality programs

How: The City of Franklin storm water coordinator will develop a questionnaire. The City of Franklin utility office will insert the questionnaire into the utility bill.

When: The initial survey will be completed in the final quarter of 2005. A follow up survey to determine the effectiveness of the programs will be inserted into a fourth quarter, 2007 utility bill

Why: The general public needs an incentive to return the questionnaire to the city. The board of public works should consider a fixed or percentage credit amount that each resident will be credited on their utility bill for returning the questionnaire to the storm water coordinator in a timely manner.

Measurable Goals:

- The number of questionnaires forwarded to residential customers
- The number of questionnaires that are returned from customers
- Calculate the percentage of customers that responded to questionnaire
- Of those customers that responded to the questionnaire, calculate the percentage of those that have heard of local storm water quality programs.

City of Franklin Website – Storm Water Quality Web Page

There is very little doubt that a majority of the general public now gets their news and information from the internet. Web pages are an effective way to communicate various ideals and objectives about this program. In fact, the website can not only communicate information, but can also be used as an interactive tool to solicit public opinions and feedback. The public can have the opportunity to submit e-mails concerning any aspect of the program, including reporting suspected violations of the city's regulatory programs.

Franklin will develop a link from the city's homepage that will direct the general public to a storm water program page. This will complement the existing Storm Water Awareness Survey already available on the city's website. There may be local individuals or businesses that are willing to donate their time to develop the specialized web page for informing the general public. The city will then continue to develop public outreach programs to advertise the address of the website's new storm water program page. Following are the details of this program.

Storm Water Quality Web Page

What: A storm water quality web page that can be accessed from the city's primary homepage

Goal: To communicate goals and objectives of the program. To inform the general public on important dates and activities. To solicit public feedback on programs. To generate interest for public participation.

How: The City of Franklin storm water manager will hire an individual or company to develop the web page

When: The web page will be developed by December, 2005

Measurable Goals:

- The website is developed
- The number of storm water quality forms that are posted on the website
- The number of e-mails received from the general public
- The number of times the website is updated per year. It is recommended that the web site be updated no less than three times per year.

Printed Flyers or Pamphlets

One of the best ways to reach a vast majority of the general public is to print and distribute storm water quality fact sheets or pamphlets. Once these are developed, they can be used by the city in numerous places for several years to come. Unlike many other communication vehicles, fact sheets or pamphlets can be distributed in many places without requiring someone to staff them. Racks of pamphlets can be set up at libraries, schools, offices, and fairs. They can be passed out at meetings and used in a direct mail campaign. Before creating a pamphlet or booklet, it is important to think through the purpose of the piece and its intended audience. It might be in-

tended to solicit interest in a specific storm water event or activity, or to promote storm water education and positive behaviors. The purpose will significantly define the appearance and content.

Flyers and Pamphlets can be displayed in numerous places around the community

In addition to a pamphlet or even a small booklet, a one-page flyer can be produced to carry the basic message. A short, to-the-point flyer is essential as the primary education tool for programs with a small budget. Commonly, flyers list the basic “do's and don'ts” of water pollution and list the top 10 actions the public should take against storm water pollution. The flyer should contain the basic "bare bones" list of information the public needs to know. The flyer should be designed to be easily reproduced for newspapers and newsletters (black-and-white and reproducible by copy machine), a major venue for communicating with the public. The flyer can be designed as a self-mailer; as funds become available, it can be expanded into a poster, calendar, or booklet.

The City of Franklin has already distributed a brochures and facts sheets, one specifically about the restoration of Young’s Creek. To supplement the existing program, the EPA has already developed numerous types of pamphlets and fact sheets that can be used. These materials can be downloaded free from EPA’s homepage of www.epa.gov. One example of the available educational material pieces is entitled “After the Storm”. This educational piece summarizes the basics of understanding this storm water quality program, and should be distributed to all utility customers. Another unique idea is to use EPA’s placemat in local restaurants. This way, the general public can learn storm water quality issues while waiting on food orders. A copy of each of these examples is included on the following pages.

In addition to EPA’s stock materials, the city may want to develop materials with local contacts, calendars, and issues. The city may also want to consider developing sector or niche specific flyers or pamphlets. One example would be to develop recreational guides to educate groups such as golfers, hikers, paddlers, fishermen, and campers. Another example would be to develop flyers for developers, contractors, lawn care companies, retailers or restaurants. The city can accomplish specialized, local materials with in-house resources or by contracting with consultants or other third parties.

Printed Flyers or Pamphlets

What: Various printed flyers and pamphlets
Goal: To communicate goals and objectives of the program. To generate interest for public participation.
How: The City of Franklin storm water coordinator will use predeveloped U.S. EPA materials.
When: The EPA materials will be distributed in public libraries, at the utility office, and at other local businesses by October of 2005.

Measurable Goals:

- How many flyers or pamphlets are printed
- The places where they are placed for the general public to access them
- How many flyers or pamphlets were distributed in a period of one year
- The total number of flyers or pamphlets distributed per capita

Newsletter

The city will develop a newsletter that will be mailed to each utility customer two times per year. The newsletter will highlight those programs that have been implemented, and list those activities and dates that will be forthcoming. The newsletter should be colorful and have easy to read text, graphics and photos.

Storm Water Quality Newsletter

What: A printed newsletter for all utility customers
Goal: To communicate goals and objectives of the program and to generate interest for public participation
How: The City of Franklin storm water coordinator will be responsible for developing or managing the development of a biannual newsletter. It will be mailed to residential utility customers.
When: The first newsletter will be developed and mailed during the first quarter of 2006, then twice a year thereafter.

Measurable Goals:

- When each newsletter is mailed
- How many newsletters are mailed

Educational Displays

Educational displays can be an effective way to convey information regarding a storm water pollution reduction campaign or program. These materials can be displayed at the following venues:

- Conferences or Seminars
- Libraries
- Fairs and Festivals
- Schools
- Other community events

These places provide an excellent opportunity for sharing information, educating and involving citizens, promoting volunteerism, and building general awareness. The Parks Department already has a Stream Side Clean Up display for use at community events.

The city can purchase an additional table top exhibit booth display and contract with an artist to design it, or they can design it with in-house resources. The displays should be visibly pleasing as well as informative. The overall design of the display should attract attention, draw the viewer in, and lead the eye throughout. Whenever possible, the display should be staffed to offer further explanation and answer questions.

Displays can be constructed from wood, cardboard, poster board, or other heavy material, but they are usually designed to be easily put together and dismantled, as well as being portable. Wooden displays (with metal hinges) have the advantage of longevity, but they can also be heavy. Commwhich is relatively inexpensive and both lighter in weight and more durable than poster board.

When composing any display, it should be treated as if it were a page layout, a photograph, or a painting. The same basic elements of composition governing good design and flow apply. Table 12 lists considerations that should be made when designing an educational display.

TABLE 12
Educational Display Considerations

- **Don't place too many small items in a big space**
- **If the project requires distributing a lot of information, a separate information piece, such as an illustrated fact sheet flyer, or brochure can be included to convey the details**
- **Whenever possible, it is better to "show" than "tell"**
- **Use a variety of photos, drawings, charts and text**
- **Focus on communicating an intended message to a targeted audience**

Educational Display

What: Educational display booth(s)
Goal: To communicate goals and objectives of the program to targeted audiences and to generate interest for public participation
How: The City of Franklin storm water coordinator will be responsible for developing or managing the development of educational booth display(s). At first, one can be developed and used at multiple events, but over time, several may be developed for targeted audiences.
When: An educational display will be purchased during the fourth quarter of 2005.

Measurable Goals:
- How many displays are developed
- How many events per year the display was used

Storm Drain Labeling Program

During rain events in the city limits of Franklin, storm water runs off buildings, yards, sidewalks and streets, and enters into the storm sewer through storm inlets. Once the water enters into the storm sewer, it goes straight to Youngs or Hurricane Creek. As a general rule, most of the general public probably thinks that any type of inlet or drain will be "treated" in some way by the city before entering into the local river. The general public needs to know that they should not dump any materials or liquids around or near the inlets, because the storm sewer directly dumps any related pollutants straight into the river. As an example, if the general public were to dump old motor oil or old paint thinner into the inlet, or even store grass clippings next to an inlet, associated pollutants could have drastic consequences on the water quality of Youngs or Hurricane Creek. The city has an existing Storm Labeling Program that will eventually label each storm inlet owned by the city, so the public will be more cognizant of potential consequences or any dumping practices.

Volunteers label a storm water inlet in a Franklin neighborhood.

Storm Drain Labeling

What: Label each city owned storm sewer inlet
Goal: To communicate to the general public that pollutants go straight to the river.
How: The storm water coordinator will manage the labeling program.
When: The first 25% of the storm inlets will be labeled by the 3rd quarter of 2005. The city will have the remaining inlets labeled no later than the second quarter of 2008.

Measurable Goals:
- How many city owned storm inlets are present
- How many city owned storm inlets are labeled and the dates of each labeling

Miscellaneous Programs

The City of Franklin has many decisions to make over the next several years on specific public education and outreach programs. The purpose of this Storm Water Quality Management Plan is to develop specific programs at the outset to establish a strong starting point for an effective program. However, the community leaders and staff will ultimately decide which programs have been effective and determine additional tasks that should be implemented to meet the goals of this program. Following display highlights those programs already discussed under MCM #1 and lists other concepts that should be considered by the city over the next several years.

	Audiences									
ACTIVITY/TASK	Residents	Children	Business	Industry	Construction/New Development	Community Groups	Media (PSAs)	Municipal Personnel	Officials/Regulators	Allied Organizations
COMMUNITY EDUCATION & OUTREACH										
Public Survey – Utility Inserts	●									
Web Site – Storm Water Page	●	●	●	●	●	●	●	●	●	●
Printed Flyers or Pamphlets	●	●			●	●	●		●	●
Newsletter	●					●				
Educational Displays	●	●	●			●			●	●
Storm Drain Labeling	●	●	●	●		●		●	●	●
OTHER PROGRAMS TO CONSIDER										
Door Hangers	●									
Direct Mail Campaign	●		●	●						
Promotional Items	●	●					●			
Educational Video	●	●	●	●		●	●	●	●	

4.2.3 Implementation Timetable

The Minimum Control Measure #1 of Public Education and Outreach establishes the foundation for strong community involvement. This storm water quality management plan has outlined committed deadlines for several programs. The following visual aid illustrates which quarter of the year a particular task will be first implemented.

	2004				2005				2006				2007				2008			
Program	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Public Survey								▒								▒				
Web Page Development																				
Printed Materials								▒												
Newsletter Mailings									▒		▒		▒		▒		▒		▒	
Educational Display								▒												
Storm Drain Labeling							▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒

4.2.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #13
Programmatic Indicators
MCM #1 Public Education and Outreach

Programmatic Indicator 327 IAC 15-13-8(b)		MS4 Programmatic Indicator Mechanisms
1	Number or percentage of citizens aware of storm water quality issues	Residential public survey
		Develop a storm water quality web page
		Pamphlets to be located at libraries, utility offices, and other local business
		Storm water quality newsletter twice per year beginning in 2006
2	Number and description of events	Develop an educational display
		Radio advertisements, twice per year
		Storm water newspaper articles, twice per year
		Storm drain labeling, label all known entity owned storm inlets no later than 4th quarter of 2008.

Section 4.3: MCM #2 Public Participation & Involvement

4.3.1 Public Participation & Involvement Program Description

The success of Franklin's storm water quality management plan depends upon securing support from elected officials, citizens, business groups, and municipal staff, even before changes are instituted. To secure this support, the city needs to implement a public involvement and public participation program that not only informs these audiences of the urban runoff concerns (MCM #1), but also asks them to actively participate in implementing the various components of the program.

The City of Franklin has limited available human resources for implementing such a large program. The city's storm water manager and the other utility managers only have so much time to dedicate to this program. Getting the public involved first and foremost provides a source of significant man-power for meeting the goals and objectives of the program. Getting the public excited about helping with storm water programs is also a good way to promote a positive public perception of the program. Since the general public is going to be paying for the programs through storm water utility bills, it is important that they understand and endorse the fundamentals of the program.

In order to bolster public opinion and increase involvement the city has taken a number of steps. Public meetings are held where citizens have the opportunity to discuss viewpoints and provide input. A volunteer organization named River Watch monitor and collect water quality data and act as a watch group to identify polluters.

TABLE 14
Public Participation and Involvement Programs
Objectives

- **The citizens can provide significant human resources for implementing the objectives of the program**
- **Involving the public with implementation of the program elements will improve the public perception of the program's ideals**
- **Public involvement provides an opportunity for individual citizens to feel as if they can make a difference in improving storm water quality in Franklin**

4.3.2 Specific Tasks and Measurable Goals

Public Presentations

One of the best ways to get the general public involved is to start by having city employees as well as volunteers prepare and give public presentations. It only takes a few people in a community to start giving public presentations to various organizations and civic groups to get more volunteers that want to spread the word about protecting the quality of our rivers and streams. Table 15 provides a listing of some of the organizations in Franklin that may be interested in assisting with public presentations at some point in time. Note that regular updates will be provided regarding the MS4 Program to the city's Board of Public Works and City Council and will provide opportunities for press coverage.

TABLE 15
Listing of Franklin Service Organizations

- **American Legion Post #205**
  317-738-9934
- **Elk's Club #1818-40**
  N. Walter Street
  317-738-9924
- **Kiwanis Club**
  317-736-3774
- **Lion's Club**
  317-736-9282
- **Rotary Club**
  317-738-6823
- **Franklin Heritage, Inc.**
  51 North Main Street
  317-736-6823
- **Johnson County Community Foundation**
  P.O. Box 217
  317-738-2213
- **Boy Scouts**
  317-925-1900
- **Girl Scouts**
  317-924-3450
- **Boys and Girls Club**
  101 North Hurricane Street
  317-736-3695
- **Board of Public Works & City Council Meetings**
  55 W. Madison
  317-736-3602
- **Youngs Creek Watershed Assessment**
  Johnson County SWCD
  317-346-6102

Public Presentations

What: Public Presentations about storm water quality programs
Goal: To communicate goals and objectives of the program to the general public. To solicit volunteers to help implement program elements.
How: The City of Franklin storm water manager will initiate public speaking programs and coordinate volunteers who wish to do the same. This will include regular program updates to the city's Board of Public Works and City Council.
When: Public speaking programs will begin during the third quarter of 2005. The public speaking engagements will continue over the next 4 years

Measurable Goals:

- The number of presentations given in a year
- The number of people involved in giving presentations
- The number of attendees at each presentation
- The date of each presentation

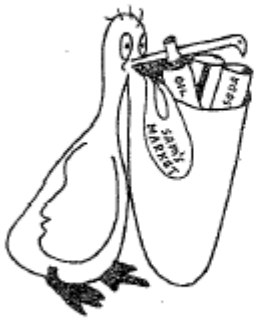
Children Education Programs

There is a lot to be said about training the next generation on issues of environmental awareness and preservation. Bringing educational programs into the schoolroom is a proven method for introducing good habits and ideas into a community. It is easy to get children excited about protecting the environment and often, it is not uncommon to see the children in a community being the ones to set an example of good environmental stewardship.

The issues of conscientious waste management practices and recycling were introduced in Indiana over 10 years ago with great success. At that time, IDEM required the formation of solid waste management districts throughout the state, and each district developed a solid waste management plan on how to reduce the overall amount of generated waste. During that campaign, children were encouraged through school programs to recycle and to generate less waste. Because of this and other public education programs, according to IDEM, Indiana went from diverting 18% of its waste stream in 1993 to diverting approximately 40% of its waste stream in 2001. It is now time to use the same successful school education strategies to implement storm water quality issues. One example of a simple educational handout is included on the next page. This handout was developed by the California Environmental Protection Agency.

Urban runoff is all the stuff that enters the Bay with storm drain water. If the storm drains contain trash, leaves, and oil in them, then all that junk ends up in the bay. Preschoolers can do both the activities below.

Pelicans eat a lot. Which mouthful do you think the pelican would choose?



Mud 'N Fun is a regular feature in your Tidal Tales newsletters by Naturalist Randy Gates. Each month, one or more nature-related activities will be included for children and adults. These activities are designed to heighten your appreciation of the natural world. Adults and children can make these activities into family fun.

This program can be successfully implemented by having various volunteers agree to present age appropriate presentations in schools around Franklin. The city will also hold workshops for those teachers that wish to incorporate storm water quality related educational materials into their curriculum. Leaders of children organizations (boy scouts, girl scouts, 4-H, YMCA, etc.) can also integrate water quality related projects and field trips into their activities.

The city may also hold annual poster contests for elementary school aged children centered around storm water quality issues. These types of contests can be centered around Earth Day celebrations every April. Winning posters can be displayed in the Mayor's office or at other public places around the city.

Children Education Programs

What: Children Education Programs
Goal: To communicate goals and objectives of the program to children throughout the community.
How: The City of Franklin storm water coordinator will develop an elementary school age related program. This curriculum will be provided to local schools to be used at their discretion.
When: The curriculum will be provided by the first quarter of 2006.

Measurable Goals:
- The number of schools the information is provided to

Household Hazardous Waste and Used Oil Disposal Programs

As previously discussed, the State of Indiana overhauled its waste management programs in the early 1990's. These programs were designed to not only decrease the volume of generated waste, but to also provide avenues for more responsible disposal of hazardous materials, hazardous wastes, and used oil. One of the specific programs that is inter-related to storm water quality is that of proper disposal of household hazardous waste and used oil. Conceptually, if residents are offered an easy disposal option for used motor oil as well as old cans of paint, cleaners, solvents, etc., then they will not be tempted to dump out these materials in their yards, driveways or streets. Dumping these materials can obviously present a higher risk to having pollutants enter into the storm sewer system.

When residents have a place to dispose of household hazardous waste, it keeps them from improperly disposing of the materials and potentially contaminating storm water runoff

The Johnson County Solid Waste Management District participates in a "Tox-Drop" program enabling residents to properly dispose of hazardous household chemicals. The drop location is in Marion County and the service is free if citizens call the County and receive a voucher in advance. Used oil and other vehicle byproducts can safely be disposed of at a large number of neighborhood automotive stores. The complete list of retail stores and details of all service is available on the County website.

Household Hazardous Waste and Used Oil Disposal Programs

What: Drop Off Center For Residential Household Hazardous Waste & Used Oil Disposal

Goal: To remind local residents that there is a safe place to take their household hazardous waste and used oil for disposal. To minimize improper disposal of hazardous substances that may enter into local streams and rivers

How: The City of Franklin storm water coordinator will be responsible for incorporating this tool into developed literature and presentations.

When: As educational outreach programs are developed

Measurable Goals:

- How many pounds of household hazardous waste are collected per year
- How many gallons of used oil are collected per year
- The number of distributed educational brochures that discuss household hazardous waste and used oil disposal options

Miscellaneous Programs

The City of Franklin has many decisions to make over the next several years on specific public involvement programs. The purpose of this Storm Water Quality Management Plan is to develop specific programs at the outset to establish a strong starting point for an effective program. However, the community leaders and staff will ultimately decide which programs have been effective and determine additional tasks that should be implemented to meet the goals of this program. Examples of two successful programs spearheaded by the Youngs Creek Watershed Assessment group, through a partnership with the Johnson County SWCD, Franklin DPW and Franklin Department of Parks and Recreation, is their Annual Stream Clean-Up Day and an ongoing drain labeling program. Following is a chart that highlights those programs already discussed under MCM #2 and lists other concepts that will be considered by the city over the next several years.

Volunteers who worked during one of the Youngs Creek Watershed Assessment Stream Clean-Up days.

Removal of trash from Franklin's streams benefits the aesthetics of the area and protects the environment

ACTIVITY/TASK	Audiences									
	Residents	Children	Business	Industry	Construction/New Development	Community Groups	Media (PSAs)	Municipal Personnel	Officials/Regulators	Allied Organizations
COMMUNITY EDUCATION & OUTREACH										
Public Presentations	●		●	●	●	●		●	●	●
Children Education Programs		●				●				
Household Hazardous Waste	●									
OTHER PROGRAMS TO CONSIDER										
Celebrity Spokesperson	●		●	●						●
Adopt A Stream Segment Program	●		●	●						●
Radio Trivia Contest Shows	●	●								
Citizens Water Quality Focus Group	●		●	●	●	●	●	●	●	●

4.3.3 Implementation Timetable

The Minimum Control Measure #2 of Public Participation and Involvement establishes the foundation for strong community involvement. This storm water quality management plan has outlined committed deadlines for several programs. The following chart is a visual aid, illustrating which quarter of the year a particular task will be first implemented.

Program	2004				2005				2006				2007				2008			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Public Presentations																				
Children Education																				
HHW Programs																				

4.3.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #16
Programmatic Indicators
MCM #2 Public Participation and Involvement

Programmatic Indicator 327 IAC 15-13-8(b)		MS4 Programmatic Indicator Mechanisms
3	Number or Percentage of citizens participating in storm water improvement programs	Records will be kept of participants in planned presentations programs, children education programs, and the storm water calendar program.

Section 4.4: MCM #3 Illicit Discharge Detection and Elimination

4.4.1 Illicit Discharge Detection and Elimination Program Description

An illicit connection is defined as "a point source discharge of pollutants to a separate storm drain system which is not composed entirely of storm water, and/or authorized non-storm water discharges, and not authorized by an NPDES permit." Illicit discharges enter the system through either direct connections or indirect connections. The result is untreated discharges that can contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health. Table 17 and Table 18 list some examples of direct and indirect illicit discharges.

TABLE 17
Examples of Some Direct Illicit Discharges

- **Sanitary wastewater piping that is directly connected from a home or business to the storm sewer**
- **Materials (e.g. used motor oil, antifreeze fluid, old paint, old pesticides and herbicides) that have been dumped illegally into a storm drain inlet**
- **A shop floor drain that is directly connected to the storm sewer**
- **Carwash wastewaters connected to a storm sewer**
- **Industrial process wastewaters directly connected to the storm sewer**
- **A cross connection between the municipal sanitary sewer and storm sewer systems**
- **Spills from roadway accidents are washed into the storm sewer inlets**

As mentioned, there are authorized non-storm water discharges that can be allowed under this program. These are from sources that are considered uncontaminated and consequently, present little to no impact on the water quality of the receiving waterbody. The allowable non-storm water discharges are listed in Table 19.

The EPA reports that nation-wide, inspections of urban storm drain systems in many areas have shown that a high percentage of industrial and commercial establishments (such as auto shops and restaurants) have improper or illicit plumbing or connections to the storm drain system. Illicit discharges of sanitary wastes through illicit connections can cause high bacterial counts in receiving waters and pose a danger to public

TABLE 18
Examples of Some Indirect Illicit Discharges

- **Old and damaged sanitary sewer pipe that is leaking fluids into a cracked storm sewer pipe**
- **A failing septic system that is leaking into a cracked storm sewer pipe or causing surface discharge into the storm sewer**

health. Because the storm drain and sanitary sewer systems develop cracks and leaks with age, and because these lines are often in close proximity, problems of infiltration from one system to the other can also be a common problem.

TABLE 19
Allowable Non-Storm Water Discharges To The MS4 System

- Water Line Flushing
- Landscape Irrigation
- Diverted Stream Flows
- Rising Ground Waters
- Uncontaminated Pumped Ground Water
- Discharge From Potable Water Sources
- Foundation Drains
- Air Conditioning Condensation
- Irrigation Water
- Springs
- Water From Residential Sump Pumps
- Footing Drains
- Lawn Watering
- Individual Residential Car Washing
- Flows From Riparian Habitats or Wetlands
- Dechlorinated Swimming Pool Discharges
- Uncontaminated Street Wash Water

Improperly disposed of pollutants are also problematic. While some pollutants are knowingly dumped into storm drain inlets and streams, a multitude of contaminants are inadvertently carried by runoff into storm drain systems – during accidental spills on urban streets, sidewalks, and other exposed areas; for example, pollutants are carried to the storm drains by water used to clean up the spill. Materials disposed of improperly include used oil, household toxic wastes, radiator fluid, and washdown water from various types of businesses.

4.4.2 Specific Tasks and Measurable Goals

Storm Sewer Mapping

The development of a storm sewer system map is a necessary first step to establishing the illicit discharge detection program. The intent of the storm sewer system map is to demonstrate a basic awareness of the intake and discharge areas of the system. A representative map is critical to organizing information related to the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the particular waterbodies these flows may be affecting. For municipalities that do not already have a storm sewer map, it is important to determine the type of map that best fits the community's needs. The Phase II storm water rule does not have a specific mapping standard; therefore, hand drawn maps may be best in some situations while computer generated maps linked to GIS system information may make more sense in other situations. The EPA recommends collecting existing mapping information, and then conducting field surveys to verify locations of outfalls and conveyances.

Storm Sewer Mapping

What: Mapping of the storm sewer system
Goal: To have a map of the storm sewer system to assist with locating outfalls, conveyances and areas of illicit discharge concerns
How: The City of Franklin storm water manager will work with the City Engineer and/or Surveyor's Offices to develop a representative map.
Why: Provides a necessary tool to organize an illicit discharge detection and elimination program.

Measurable Goals:

- Have 25% of the storm sewer system mapped by November, 2005
- Have 50% of the storm sewer system mapped by November, 2006
- Have 75% of the storm sewer system mapped by November, 2007
- Have 100% of the storm sewer system mapped by November, 2008

Legal Prohibition and Enforcement

The City of Franklin needs to establish a policy specifying the flows or discharges that it will allow to be discharged to the storm drain system and those that it will control via its illicit connection/discharge program. Table 19 listed those allowable non-storm water discharges. The City must now have an ordinance developed to reflect a specific program. The ordinance should list the permissible and non-permissible discharges to the separate storm sewer system. Once these discharges are defined, enforcement procedures need to be developed.

The City of Franklin will generally emphasize education and cooperation as the preferred method for enforcement; therefore, the City may also elect to use these methods to implement this illicit connection/discharge program. However in some circumstances, penalties may be needed to achieve compliance. Given the fairly long lead time involved in establishing enforcement procedures, it is recommended that the City of Franklin initiate this process early. The municipality must decide what approach to enforcement to take and what penalties it is willing to impose on violators. Violations detected through an illicit connection/discharge program fall under two categories: (1) illicit physical connections into the storm drain system and (2) illicit dumping and discharges. A phased approach to enforcement is suggested below that includes issuance of a warning as a first step, followed (if compliance does not occur) by administrative action or legal action. The municipality can use this in its original or a revised form.

Warning. Could be a verbal notice or a written informational letter to the owner/operator. A time frame to correct the identified problem should be specified based on the severity or complexity of the problem.

Administrative Action. Similar to a warning except a more formal notice and a structured process, including a Notice of Violation, Cease and Desist Order, Order to Abate, Notice to Clean, or any other similar notification outlined in the City of Franklin's storm water ordinance that identifies a problem, requires correction or abatement but does not assess fines. A time frame to correct the identified problem should be specified based on the severity or complexity of the problem.

Administrative Action with Fine and/or Cost Recovery. Same as above with the addition that fine(s) are assessed administratively and/or the municipality's abatement costs are recovered.

Legal Action. Includes any actions taken by the municipality that brings the facility into the court system (e.g., citation, court action, etc.). This enforcement protocol is based on the assumption that the municipality escalates the level of enforcement until compliance is achieved. Also this approach does not prevent the municipality from skipping certain steps for more serious problems.

The City should communicate this new ordinance information to city personnel, the citizens of Franklin, and local businesses.

Legal Enforcement and Prohibition

What: Storm sewer use ordinance
Goal: To develop legal avenues for enforcement of the illicit discharge detection and elimination program
How: The City of Franklin Board of Public Works will work with legal counsel to develop an appropriate program
When: The drafting of the sewer use ordinance language will commence during the third quarter of 2005. Finalization of the ordinance will be dependent upon various required legal procedures.

Measurable Goals:

- The date when the Board of Public Works first discusses this issue
- The date of the first draft of the new storm sewer use ordinance
- The effective date of the new storm sewer use ordinance

Field Assessments

Ideally, this illicit connection/discharge program should aim at detecting and eliminating all existing illicit connections (improper plumbing) throughout Franklin, as well as eliminating improper disposal of pollutants into the storm drain system. Several procedures can be used to detect improper connections or trace discharges to their origins:

- Outfall/manhole inspection program,
- Site inspection program, and
- Television camera inspection.

A good place to start with field assessments is to initiate an outfall/manhole inspection program to detect illicit connections as well as illicit discharges. The outfall / manhole inspection program utilizes the "belowground" approach, which involves tracking dry-weather flows from the outfalls or manholes to their source. The site inspection program utilizes the "aboveground" approach, which involves conducting inspections at or near potential sources such as businesses that are known, from observation in the city to result in illicit discharges. Franklin should utilize both methods because both have been shown to be effective and complementary.

Since illicit connections are the main source of bacteria and pathogens in urban runoff, a systematic survey of the city's entire storm drain system to check for illicit connections is very valuable. However, since high cost is involved in a citywide survey, another alternative is to prioritize source areas or geographical areas that should be investigated first for illicit connections and dumping. Studies based on outfall monitoring and sampling have shown that the largest numbers of improper discharges emanate from industrial and commercial areas and from the older sections of communities.

Outfall and Manhole Inspection Program

An outfall/manhole inspection program generally includes the following steps: **Identify and prioritize areas where illicit connections/discharges are most likely to occur.** Franklin can identify and prioritize areas to focus its program in several different ways. One of the easiest ways is to conduct a field investigation of all storm system outfalls during the dry season to check for dry-weather flows. This investigation helps point out those outfalls that are of concern and those that are not (note that, because such discharges tend to be intermittent, this investigation may need to be repeated a few times before certain outfalls can be dismissed).

In the event that a dry-weather investigation of all outfalls is not possible, the municipality may rely on land-use information and the storm drain system mapping to determine potential areas of illicit connections and discharges. Using the storm drain map of the city, Franklin should identify outfalls that are associated with industrial/commercial areas of the city and/or the older sections of the city, identify the areas that drain to these outfalls, and note the businesses located within these marked areas.

Establish a program of checking specific manholes and outfalls periodically for dry-weather flows.
Once the municipality has confirmed its focus on certain areas, it should prepare maps showing which manholes and outfalls to check periodically and establish a timetable or frequency. Franklin will develop forms for use by inspectors during field inspections. Remember that dry-weather flows are indicators of improper connections and discharges.

Site Inspection Program
Track flows back to potential dischargers and conduct aboveground inspections
As a next step, field inspections of the targeted outfalls and manholes should be conducted to (1) verify whether the correct outfalls and manholes have been included in the field inspection program and (2) check for signs of improper discharges. Signs of an illicit connection or discharge can include:

- Abnormal water flows during the dry season,
- Unusual flows in subdrains used for dewatering,
- Pungent odors, and
- Discoloration or oily substances in the water, or stains and waste residue in ditches, channels, or drain boxes.

If during inspections, any of these signs are observed, the inspector should (1) record the flow data and take photographs and (2) begin storm drain investigations by tracing the flow upstream using storm drain maps and by inspecting upgradient manholes. Sampling and testing of water at the manhole or outfall where it is first detected is generally not considered necessary if the water appears to be “clear” but, if deemed appropriate, can be performed using field kits or taking grab samples for analysis in a lab. If tracking a discharge through visual inspection of upgradient manholes is not possible, alternate techniques that can be used include zinc chloride smoke testing, fluorometric dye testing, physical inspection testing (of pipes greater than 39 inches), or television camera inspection.

Once the origin of flow is established, require illicit discharger to eliminate the discharge
Once the suspected origin of the flow is determined, the inspector should inspect the source to see if it is a case of improper dumping or if it is an improper physical connection. Once confirmed, the inspector should instruct the owner/operator of the property to rectify the situation. The inspector should

provide the operator/owner information on alternative disposal options. The operator/owner should also be informed at this time that, should the discharge continue, enforcement procedures will be implemented.

Television Camera Inspection Program

Usually outfall, manhole, and field inspections will produce effective results. After these first two programs are implemented, the City of Franklin may choose to implement a television camera inspection program. The use of a camera in the storm drain system is by far the most effective way to conduct a thorough investigation. Some communities have done so as part of their storm drain improvement/retrofit programs and have detected connections that otherwise would have gone undetected. This method can be relatively expensive, and some pipeline television cameras have been found to suffer damage when used in storm drains due to the rough nature of interior storm drain surfaces.

Field Assessments

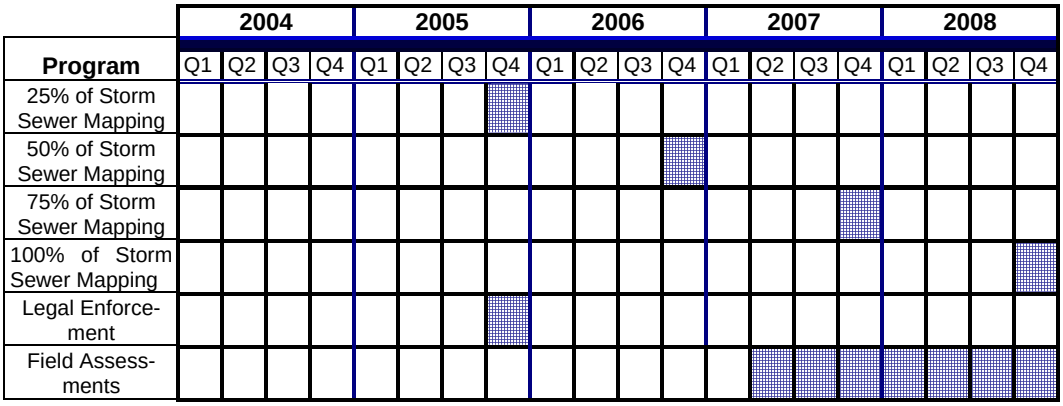
What: A physical inspection program to detect illicit discharges
Goal: To eliminate illegal dumping and connections to the storm sewer system.
How: The City of Franklin storm water coordinator will be responsible for developing or managing the development of a specific inspection strategy and schedule.
When: The field assessment program will be initiated during the second quarter of 2007 and will be an on-going program.

Measurable Goals:

- What percentage of linear feet of storm sewer piping has been inspected
- How many illicit sources are detected and notified
- How many illicit sources are eliminated

4.4.3 Implementation Timetable

The Minimum Control Measure #3 of Illicit Detection and Elimination Program establishes procedures to eliminate illegal dumping into the storm sewer system and illegal hook-ups to the storm sewer system. This storm water quality management plan has outlined committed deadlines for several programs. The following visual aid illustrates which quarter of the year a particular task will be first implemented.



4.4.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #20
Programmatic Indicators
MCM #3 Illicit Discharge Detection and Elimination

Programmatic Indicator 327 IAC 15-13-8(b)		MS4 Programmatic Indicator Mechanisms
4	Number, location, and marking method of storm drains marked	Records will be kept of storm drain labeling activities
5	Estimated or actual linear feet or percentage of MS4 area mapped	Generate map of the storm sewer system and maintain records of the amount of the system mapped.
6	Number and location of outfalls mapped	Outfalls will be documented on the storm sewer system map.
7	Number and location of outfalls screened for Illicit Discharge	Maintain records of field assessments including location information.
8	Number and location of Illicit Discharges Detected	Maintain records of field assessments including location information.
9	Number and location of Illicit Discharges Eliminated	Maintain records of field assessments including location information.
10	Number of collections and amount of HHW collected	Records will be obtained from the local solid waste district.
11	Number of drop-offs and location of automotive fluid recycling drop-offs	Records will be obtained from the local solid waste district.
12	Number or percentage of citizens participating in proper HHW disposal	Records will be obtained from the local solid waste district.

Section 4.5: MCM #4 Construction Site Runoff Control

4.5.1 Construction Site Runoff Control Program Description

According to the U.S. EPA, polluted storm water runoff from construction sites often flows to MS4's and ultimately is discharged into local rivers and streams. Of the pollutants listed in Table 21, sediment is almost always the primary pollutant of concern. Sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting siltation and the contribution of other pollutants that are adsorbed to the soil particles, can cause physical, chemical and biological harm to Franklin's receiving streams.

TABLE 21
Pollutants Commonly Discharged From Construction Sites

- **Sediment**
- **Solid and Sanitary Wastes**
- **Phosphorus (fertilizer)**
- **Nitrogen (fertilizer)**
- **Pesticides**
- **Oil and Grease**
- **Concrete Truck Washout (high pH)**
- **Construction Chemicals**
- **Construction Debris**

The objective for this program is simple: to develop a control program to reduce the potential for discharge of pollutants into urban runoff from construction sites. While this is a relatively simple objective, practical implementation of a program is significantly more difficult. In the early 1990's, The Indiana Department of Environmental Management developed new NPDES storm water rules specifically addressing storm water runoff from construction sites. This construction site storm water runoff rule was significantly revised in 2003 under the Phase II NPDES storm water program. The new rule is codified under 327 IAC 15-5 and is simply known as "Rule 5". The Rule 5 program meticulously outlines details of an effective storm water runoff control program from construction sites. Under Franklin's MS4 storm water program, they are now tasked at a local level to develop mechanisms to run this Rule 5 program on the local level. The city of Franklin should remain abreast of current Rule 5 changes by checking for the latest version of the rule at:

Sediment is the number one contributing pollutant from construction sites.

http://www.in.gov/idem/water/npdes/permits/wetwthr/storm/rule5.html

Following is an excerpt from IDEM's web page describing their program:

"(Rule 5) has been revised to meet the federal Phase II requirements of the Clean Water Act. The revised Rule 5 became effective on November 26, 2003. This general permit rule applies to construction activities that result in the disturbance of one (1) or more acres of land. By definition in the rule, "land disturbing activity means any manmade change of the land surface, including removing vegetative cover that exposes the underlying soil, excavating, filling, transporting, and grading." If a developer or project site owner conducts a land disturbing activity that disturbs one (1) or more acres of land, the project site owner must apply for coverage under a Rule 5 general storm water permit.

If a construction project disturbs less than one (1) acre of land, a Rule 5 permit is not required, unless the project is part of a "larger common plan of development or sale" or the land disturbing activity is determined to be causing an adverse impact to the environment, primarily related to a water of the state. By definition in the rule, "larger common plan of development or sale means a plan, undertaken by a single project site owner or a group of project site owners acting in concert, to offer lots for sale or lease; where such land is contiguous, or is known, designated, purchased or advertised as a common unit or by a common name, such land shall be presumed as being offered for sale or lease as part of a larger common plan. The term also includes phased or other construction activity by a single entity for its own use." If a project results in the disturbance on less than one (1) acre of land but is considered part of a "larger common plan of development or sale," a Rule 5 permit is required for the larger common plan, that includes the individual lots with land disturbances of less than one (1) acre. An original or intermediate project site owner may have continuing responsibility for land disturbing activities at a site after lots are sold.

If an adverse environmental impact from a project site is evident, a Rule 5 permit or, in more significant situations, an individual storm water permit may be required. An individual storm water permit is typically required only if IDEM determines the discharge will significantly lower water quality. If an individual storm water permit is required, notice will be given to the project site owner. The individual storm water permit has its own set of application requirements.

If a Rule 5 permit is required, a project site owner must develop a written construction plan, and submit the plan to the local county Soil and Water Conservation District (SWCD) office in the county where the construction activity will take place (or, in some situations, to another appropriate state, county, or local reviewing authority) for review and approval." **(NOTE: ONCE FRANKLIN HAS THIS MS4 PROGRAM APPROVED BY IDEM, FRANKLIN WILL BE THE RESPONSIBLE REVIEWING AUTHORITY)**. "The reviewing authority can make recommendations and request amendments to the plan. Once the plan is approved (the reviewing authority has 28 calendar days to review) or the 28-day time period for review has lapsed, the project site owner must then submit a completed Rule 5 Notice of Intent (NOI) letter form to the following address:

Indiana Dept. of Environmental Management
Urban Wet Weather Section
Cashiers Office, Attn: QWQ Rule 5
P.O. Box 7060
Indianapolis, IN 46206-7060

The NOI letter form, which includes the proof of publication, construction plan approval verification form from the reviewing authority, and $100 filing fee check or money order, must be submitted at least 48 hours prior to the start of land disturbing activities. A separate NOI letter is required for each submitted construction plan, and the project site acreage identified in the construction plan must directly correspond to the acreage figures provided in the NOI letter. IDEM will contact the project site owner about the NOI submittal if there are deficiencies. Under the revised rule, **the project site owner, or their**

designated developer, must also notify IDEM's Rule 5 Coordinator at (317) 233-1864 or jdavis@dem.state.in.us and the local SWCD construction plan review office within 48 hours of actual construction activity start-up to inform them of the actual project start date. The actual project start date will be used to calculate the maximum five-year duration date of the permit.

The approved construction plan must be implemented before, during, and after construction activities occur. Once the construction activity is completed (by rule language, when final stabilization has occurred), a completed Rule 5 Notice of Termination (NOT) form [PDF] must be submitted to the local SWCD office in the county where the construction activity will take place (or, in some situations, to another reviewing authority) for verification. Once verified, the local SWCD office will return the NOT form to the project site owner. The project site owner must then submit the NOT form to IDEM.

A step-by-step process summary has been created to simplify the Rule 5 permitting process. This process of construction plan, NOI letter, NOT letter submittals may be different if the project site is located within an area regulated by a Municipal Separate Storm Sewer System (MS4) entity subject to the individual or general permit requirements for Indiana's MS4 program. Currently, only project sites within portions of Marion County (including the City of Indianapolis, but excluding the Cities of Beech Grove, Lawrence, Southport and Speedway) must comply with a different submittal process. Eventually, MS4 entities in other parts of the state will establish construction site and post-construction run-off control programs that may require submittal and procedural differences. Once established, a listing of these MS4 entities will be available from this web page to provide information on where a project site owner would need to submit information for construction activities.

Since the rule was revised, IDEM will mail a notification letter to all current Rule 5 permittees that have exceeded the maximum five-year permit duration. The notification letter will serve three purposes: (1) to let current permit holders know their responsibilities under the revised rule; (2) to obtain permit renewal submittals for active project sites that have exceeded the maximum five-year permit duration; and (3) to solicit NOT requests for project sites that have completed construction activities but did not submit an NOT form. To clarify project owner responsibilities under the revised rule, a revised or new construction plan (known as an Erosion & Sediment Control Plan under the old rule) will be required if IDEM provides written notification to resubmit for permit coverage under Rule 5. If a project site owner has an approved plan under the old Rule 5 requirements and the owner, or their designated developer(s), is still conducting construction activities in the area defined under the previously approved plan, a new construction plan is still required. A new NOI letter will be required every five (5) years, corresponding to the maximum duration for Rule 5 general permits under the revised rule.

To help project site owners and developers understand the requirements of this new rule, Rule 5 workshops will be held in 2004. The locations and dates for these workshops have not been established yet, but will be provided on this web page as they are scheduled.

Administrative questions regarding Rule 5 requirements may be directed to IDEM's Rule 5 Coordinator at (317) 233-1864 or (800) 451-6027.

4.5.2 Specific Tasks and Measurable Goals

After IDEM approves this Part C submittal, the City of Franklin will be required to develop mechanisms to run this Rule 5 program on the local level. There are actually five (5) different tasks involved with this program. These tasks are listed in Table 22 and then detailed below.

TABLE 22
Construction Site Runoff Control Program Components

- **Develop an ordinance or other regulatory mechanism to grant authority to the City of Franklin for implementing Rule 5**
- **Have procedures for site plan review of construction plans that consider potential water quality impacts**
- **Have procedures for site inspection and enforcement of control measures**
- **Have a system developed to levy sanctions against violators to ensure compliance**
- **Establish protocols for the receipt and consideration of information submitted by the public**

Regulatory Mechanism For Rule 5

Through the development of an ordinance or other regulatory mechanism, the City of Franklin must establish the authority to regulate all construction activity within its jurisdiction via implementation of Indiana's Rule 5 program. Franklin will have its legal counsel develop appropriate documents.

Required Construction Plan Reviews, Approvals, and Site Inspections

Franklin will train a city employee to be the Rule 5 regulatory manager. This individual will be responsible for reviewing and approving construction plans submitted by local contractors and developers. This individual will also be responsible for conducting site inspections during qualifying rain events. The Planning and Engineering Departments are already developing a Construction Site Inspection Programs.

Non-Compliance Penalties

Once construction commences, Best Management Practices (BMPs) should be in place and the City of Franklin's enforcement activities should begin. To ensure that the BMPs are properly installed, the City of Franklin is required to develop procedures for site inspection and enforcement of control measures to deter infractions. A systematic penalty structure needs to be developed and introduced to the general public.

Information Submitted By The Public

The final requirement under this program is the development of procedures for the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities. This provision is intended to further reinforce the public participation component of Franklin's program and to recognize the crucial role that the public can play in identifying instances of noncompliance. The city is only required to consider the submitted information and may not need to follow-up and respond to every complaint or concern. Although some form of enforcement action is not required, the city is required to demonstrate acknowledgment and consideration of the information submitted. The city will develop a simple tracking process in which submitted public information, both written and verbal, is recorded and then given to the construction site inspector for possible follow-up.

Construction Site Runoff Control Components

What: Local accountability for enforcing Indiana's Rule 5 storm water program

Goal: To develop a control program to reduce the potential for discharge of pollutants into urban runoff from construction sites

How: The City of Franklin will train a construction storm water manager (or Rule 5 Regulatory Manager) to run the program

When: The City of Franklin will initiate a construction storm water manager by the third quarter of 2005. Subsequent deadlines will be dependent upon transitional issues between IDEM, IDNR, the local SWCD and the City of Franklin.

Measurable Goals:

- A construction storm water manager is trained
- An ordinance or other regulatory mechanism is written and adopted
- A system to track public comments and concerns is in place
- Procedures for site inspections are written and implemented
- The number of construction plans approved & disapproved per year
- The number of construction sites inspected and dates of inspections
- The number of non-compliance orders issued
- The amount of non-compliance penalties collected
- The number of Notice of Terminations (NOT) received

Construction Site Best Management Practices General Guidelines

The content of the contractor's developed construction plans will be in accordance with the requirements outlined in Indiana's Rule 5 program. Each construction project will have site specific Best Management Practices (BMPs) that best fit that specific situation. However, there are general BMP guidelines that can prove useful for all construction sites. Following is a discussion on some of those BMPs that the City of Franklin can promote. A quick reference guide on examples of structural BMPs is attached at the end of this chapter Any clarifications or further details can be referenced in "Indiana's Handbook

For Erosion Control In Developing Areas: Guidelines for Protecting Water Quality Through the Control of Soil Erosion and Sedimentation on Construction Sites". This manual was published by the Division of Soil Conservation, Indiana Department of Natural Resources (IDNR). The city should always check with IDNR to make sure they are using the latest version.

Construction Site Planning BMPs

- Plan the development to fit the topography, soils, drainage pattern and natural vegetation of the site.
- Remove existing vegetation only when absolutely necessary.
- Delineate clearing limits, easements, setbacks, sensitive or critical areas, trees, drainage courses, and buffer zones to prevent excessive or unnecessary disturbances and exposure.
- Avoid construction on steep slopes (>20%).
- Minimize cuts and fills.
- Align temporary and permanent roads and driveways along slope contours.
- Phase grading operations to reduce disturbed areas and time of exposure.
- Avoid excavation and grading during wet weather.
- Winterize construction site.

BMPs to Minimize Soil Movement

Soil Cover

- Install cover materials such as vegetative debris, mulch, crushed stone, geotextile fabric, erosion control blankets
- Use soil stabilizers as appropriate
- Use temporary seeding and planting to reduce erosion potential

Tracking Control

- Construct stabilized access roads and entrances
- Construct entrance/exit tire wash areas
- When cleaning sediments from streets, driveways and paved areas on construction sites, use dry sweeping methods where possible. If water must be used to flush pavement, collect runoff in temporary storage tanks to settle out sediments prior to discharge to the storm drains, and protect storm drain inlets.

Structures to Control and Convey Runoff

- Earth dikes, drainage swales and ditches
- Slope drains and subsurface drains
- Velocity dissipation devices
- Flared culvert end sections
- Check dams

BMPs to Capture Sediment

- Use terracing, riprap, sand bags, rocks, straw bales, and/or temporary vegetation on slopes to reduce runoff velocity and trap sediments. Do not use asphalt rubble or other demolition debris for this purpose.
- Protect storm drain inlets from sediment-laden runoff. Storm drain inlet protection devices include sand bag barriers, filter fabric fences, block and gravel filters, and excavated drop inlet sediment traps
- When dewatering the site, remove sediment from the discharge using filtration methods. Mobile units specifically designed for construction site dewatering can be rented for this purpose.

Other Controls

- Silt fence
- Straw bale barrier (other than at storm drain inlets)
- Sand bag barrier
- Brush or rock filter
- Sediment trap
- Temporary sediment basin

Good Housekeeping Practices

All Construction Sites

- Identify all storm drains, drainage swales and creeks located near the construction site and make sure all subcontractors are aware of their locations to prevent pollutants from entering them.
- Clean up leaks, drips, and other spills immediately.
- Refuel vehicles and heavy equipment in one designated location.
- Wash vehicles at an appropriate off-site facility. If equipment must be washed on-site, do not use soaps, solvents, degreasers, or steam cleaning equipment, and prevent wash water from entering the storm drain.
- Never wash down pavement or surfaces where materials have spilled. Use dry cleanup methods whenever possible.
- Avoid contaminating clean runoff from areas adjacent to your site by using berms and/or temporary or permanent drainage ditches to divert water flow around the site.
- Keep materials out of the rain. Schedule clearing or heavy earth moving activities for periods of dry weather. Cover exposed piles of soil, construction materials and wastes with plastic sheeting or temporary roofs. Before it rains, sweep and remove materials from surfaces that drain to storm drains, creeks, or channels.
- Place trash cans around the site to reduce litter. Dispose of non-hazardous construction wastes in covered dumpsters or recycling receptacles. Recycle leftover materials whenever possible.
- Dispose of all wastes properly. Materials that cannot be reused or recycled must be taken to an appropriate landfill or disposed of as hazardous waste.
- Cover open dumpsters with plastic sheeting or a tarp during rainy weather. Secure the sheeting or tarp around the outside of the dumpster. If your dumpster has a cover, close it.
- Train your employees and inform subcontractors about the storm water requirements and their own responsibilities.

Construction Projects Involving Paint Work

- Non-hazardous paint chips and dust from dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- Chemical paint stripping residue and chips and dust from marine paints or paints containing lead or tributyl tin must be disposed of as a hazardous waste.
- When stripping or cleaning building exteriors with high-pressure water, cover or berm storm drain inlets. If possible (and allowed by the Franklin wastewater treatment plant), collect (mop or vacuum) building cleaning water and discharge to the sanitary sewer.
- Never clean brushes or rinse paint containers into a street, gutter, storm drain, or creek.

- For water-based paints, paint out brushes to the extent possible and rinse to a drain leading to the sanitary sewer (i.e., indoor plumbing).
- For oil-based paints, paint out brushes to the extent possible, and filter and reuse thinners and solvents. Dispose of unusable thinners and residue as hazardous waste.
- Recycle, return to supplier or donate unwanted water-based (latex) paint.
- Dried latex paint may be disposed of in the garbage.
- Unwanted oil-based paint (that is not recycled), thinners, and sludges must be disposed of as hazardous waste.

Construction Projects Involving Cement and Concrete Work

- Avoid mixing excess amounts of fresh concrete or cement mortar on-site.
- Store dry and wet materials under cover, protected form rainfall and runoff.
- Wash out concrete transit mixers only in designated wash-out areas where the water will flow into settling ponds or onto dirt or stockpiles of aggregate base or sand. Pump water from settling ponds to the sanitary sewer, where allowed.
- Whenever possible, recycle washout by pumping back into mixers for reuse.
- Never dispose of washout into the street, storm drains, drainage ditches, or creeks.
- Whenever possible, return contents of mixer barrel to the yard for recycling.
- Dispose of small amounts of excess concrete, grout, and mortar in the trash.

Construction Projects Involving Roadwork/Pavement Construction

- Apply concrete, asphalt, and seal coat during dry weather to prevent contaminants from contacting storm water runoff.
- Cover storm drain inlets and manholes when paving or applying seal coat, slurry seal, fog seal, etc.
- Always park paving machines over drip pans or absorbent materials, since they tend to drip continuously.
- When making saw-cuts in pavement, use as little water as possible. Cover each storm drain inlet completely with filter fabric during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the catch basins. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site.
- Wash down exposed aggregate concrete only when the wash water can: (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) be vacuumed from the area along the curb where sediment has accumulated by blocking a storm drain inlet.
- Allow aggregate rinse to settle, and pump the water to the sanitary sewer if allowed by your local wastewater authority.
- Never wash sweepings from exposed aggregate concrete into a street or storm drain. Collect and return to aggregate base stockpile, or dispose with trash.
- Recycle broken concrete and asphalt.

4.5.3 Implementation Timetable

The Minimum Control Measure #4 of Construction Site Runoff Control develops mechanisms to reduce the potential for discharge of pollutants into urban runoff from construction sites. This storm water quality management plan states that the City of Franklin will train a Construction Storm Water Manager by the fourth quarter of 2005. It is difficult at this time to develop definitive deadlines for the remainder of the program since there will be transitional issues between IDEM, IDNR, the local SWCD and the City of Franklin.

	2004				2005				2006				2007				2008			
Program	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Appoint Cnstrcn. S.W. Manager																				
Develop Ordinance																				
Develop Plan Review Protocols																				
Develop Site Inspection Procd																				
Develop Public Reporting Procd.																				

4.5.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #23
Programmatic Indicators
MCM #4 Construction Site Run-off Control

Programmatic Indicator 327 IAC 15-13-8(b)		MS4 Programmatic Indicator Mechanisms
13	Number of Construction site storm water permits issued	Records shall be maintained as part of the construction site runoff control program
14	Number of Construction site inspections	Records shall be maintained as part of the construction site runoff control program
15	Number of Construction site enforcement actions	Records shall be maintained as part of the construction site runoff control program
16	Number of public requests and name of subject construction sites	Records shall be maintained as part of the construction site runoff control program

Structural BMP Quick Reference Guide

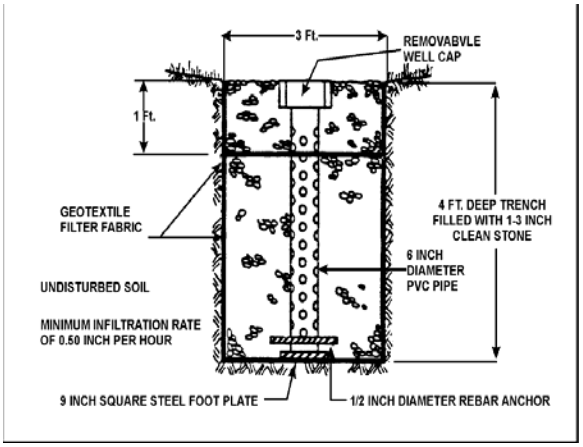
Dry Detention Basin

Dry detention basins temporarily detain a portion of storm water runoff for a specified length of time, releasing the storm water slowly to reduce flooding and remove a limited amount of pollutants. These structures are designed to dry out between rain events.

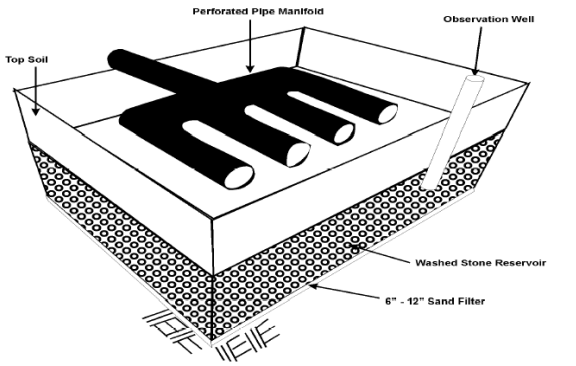
Infiltration Basins, Trenches and Drainfields

Infiltration basins, trenches and drainfields are innovative technologies that are specially designed to promote storm water infiltration into subsoils.

Infiltration basins are designed to collect storm water from impervious areas and provide pollutant removal benefits through detention and filtration



Example of an Infiltration Trench cross section



Example of Infiltration Drainfield

Vegetated Filter Strip

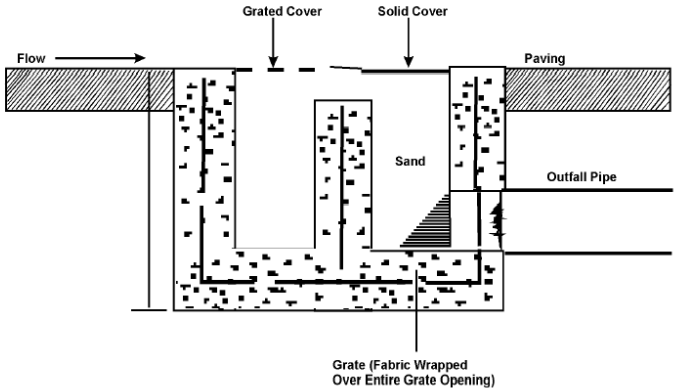
Filter strips treat runoff as it flows over grassed vegetation, through filtration and some infiltration. The systems can become “short circuited” if runoff becomes concentrated, or if uniform vegetation is not maintained.

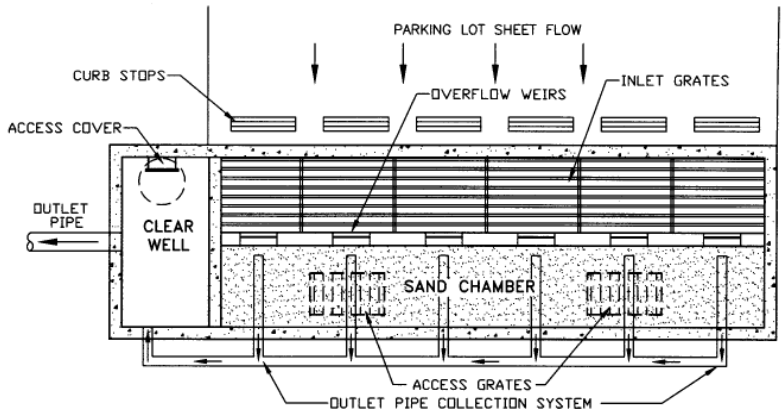
Vegetated Swales

A vegetated swale is a broad, shallow channel with a dense stand of vegetation covering the side slopes and bottom. Swales can be natural or manmade, and are designed to trap particulate pollutants, promote infiltration, and reduce the flow velocity of storm water runoff.

Sand Filters

Sand filters have proven effective in removing several common pollutants from storm water runoff. Sand filters generally control storm water quality, providing very limited flow rate control. A typical sand filter system consists of two or three chambers or basins. The first is the sedimentation chamber, which removes floatables and heavy sediments. The second is the filtration chamber, which removes additional pollutants by filtering the runoff through a sand bed. The third is the discharge chamber.





Wet Detention Ponds

Wet detention ponds are storm water control structures providing both detention and treatment of contaminated storm water runoff. Runoff from each rain event is detained and treated in the pond until it is displaced by runoff from the next storm. The pond's natural physical, biological and chemical processes then work to reduce pollutant concentrations.

Porous Pavement

Porous pavement is a special type of pavement that allows rain and snowmelt to pass through it, thereby reducing the runoff from a site and surrounding areas. There are two types of porous pavement, porous concrete and porous asphalt.

Rain Garden

A rain garden is an attractive native plant garden with a special purpose to reduce and filter storm water runoff. It is generally constructed as a place to direct runoff from roofs, parking lots and driveways, allowing water to be held in the plants, suspended sediments to be trapped, and nutrients to be assimilated by the plants.

Wetlands – Natural and Constructed

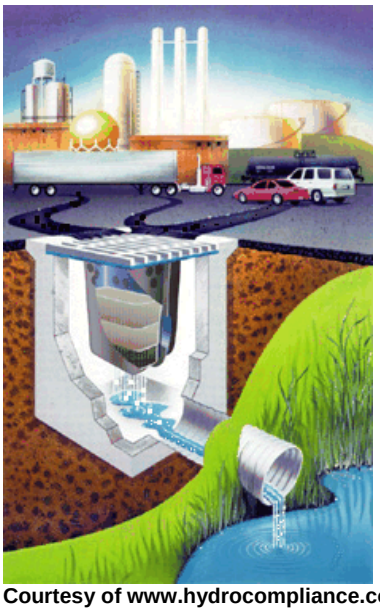
Wetlands are those areas that are typically inundated with surface or groundwater and that support plants adapted to saturated soil conditions. Wetlands have been described as “nature’s kidneys” because the physical, chemical and biological processes that occur in wetlands break down some pollutant compounds and filter others.

Storm Inlet Filters

These are products intended to remove sediment, silt and debris from storm sewer systems. These can either be constructed around the exterior of an inlet or actually installed inside an inlet.

Hydro Filtration Devices or Hydrodynamic Separators

Hydrodynamic separators are flow-through structures with a settling or separation unit to remove sediments and other pollutants that are widely used in storm water treatment. No outside power source is required, because the energy of the flowing water allows the sediments to efficiently separate. Common units include swirl action or indirect filtration.



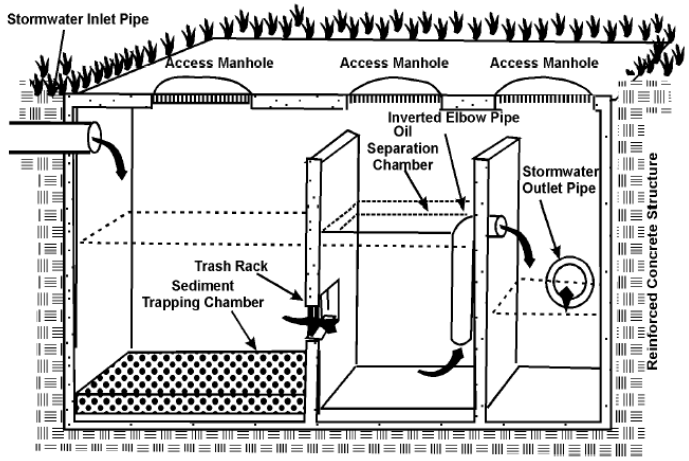
Courtesy of www.hydrocompliance.com

Check Dam

Check dams are structures that are installed in drainage ways whose primary function is to slow the velocity of the storm water flow. This allows heavier solids to settle out of the storm water.

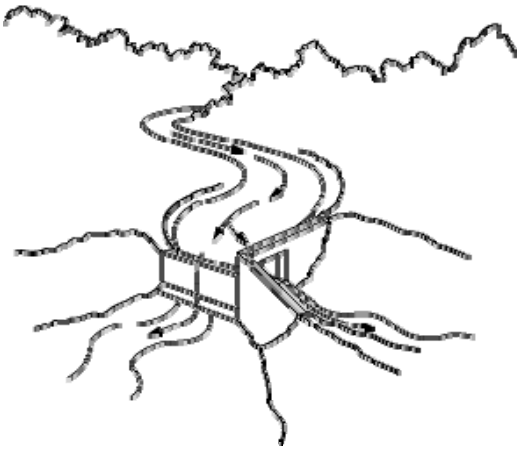
Oil and/or Grit Trap Inlets (or Water Quality Inlets)

Water Quality Inlets, also commonly called oil/grit separators or oil/water separators, consist of a series of chambers that promote sedimentation of coarse materials and separation of free oil from storm water.



Other Flow Diversion Structures (that don't fit into the above categories)

Flow diversion structures (such as gutters, drains, sewers, dikes, berms, swales, and graded pavement) are used to collect and divert runoff to prevent the contamination of storm water and receiving water.



Section 4.6: MCM #5 Post-Construction Runoff Control

4.6.1 Post-Construction Runoff Control Program Description

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect receiving waterbodies. As communities are progressively built, impervious surfaces replace natural topography, and storm water peak flows and volume increase, resulting in changes to stream morphology. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

Green roofs are one way to decrease impervious surfaces. Chicago's city hall's green roof is an island of life 12 stories above the street. *Photo by Dennis Light*

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as ponds, streams and rivers. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the waterbody during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include streambank scouring and downstream flooding, which often lead to a loss of aquatic life and damage to property.

4.6.2 Specific Tasks and Measurable Goals

The focus of this MCM is post-construction controls for new development or redevelopment projects. Post-construction controls can be generally grouped into three types: **site planning measures** that avoid or reduce disturbance of the site and limit the addition of impervious surfaces; **pollution prevention/source control measures** that reduce or eliminate potential future sources of pollutants; and **treatment control measures** that treat polluted runoff from new development/ redevelopment sites.

TABLE 24
Three Categories of Post-Construction Runoff Controls

- **Site Planning Measures**
- **Pollution Prevention and Source Control Measures**
- **Runoff Treatment Control Measures**

This guidance is focused strictly on specific controls that can be incorporated into individual development projects proposed by public and private entities to avoid or reduce the pollutants from the particular project. Where appropriate, pros and cons are described along with typical conditions under which these controls have been found to be effective. While there are numerous ideas presented in this section, it is ultimately up to Franklin's Planning and Zoning Board, Engineer's Office, and City Council to incorporate specific concepts for approval of future developments around the city.

These suggested measures need to be considered in light of the programs the City of Franklin already has in place. Franklin Planning and Zoning has ordinances limiting the amount of impervious cover within districts, including flood hazard area and well head protection overlay zones, encouraging open spaces and landscaping, depicting urban growth boundaries, and addressing buffer strips.

Site Planning Measures

This group of post-construction controls includes site planning to protect sensitive resources at or near the site and the use of alternate paving and cover materials to reduce the amount of impervious surfaces added by a new development. Studies have shown that in single-family residential areas, streets are the primary producers of runoff, and sidewalks and lawns, if properly vegetated, are a minor source. In multi-family developments, streets, parking lots and roofs generate similar quantities of runoff. In commercial and industrial areas, parking lots and roofs are the main generators of runoff. It follows then that to reduce impervious surfaces, in single-family residential areas reduction of street width and driveway lengths should be the primary strategy, while in multi-family developments and industrial and commercial areas, strategies should focus on reducing parking lots and the footprint of buildings. Site planning measures that minimize impervious surface and maximize infiltration are described below:

- Cluster development - Concentrate the development on a limited portion of the site and leave the remaining portion undisturbed. This should be used where appropriate without creating other hazards such as those of access during emergencies.

- Preserve natural drainages - This measure includes not filling in the natural drainage features at the site, maintaining invert/streambeds to maximize capacity, and providing vegetated setbacks or buffer strips outside of the maximum water surface level. Main concerns are related to safety, especially of children and future need for mosquito/pest control.

- Reduce sidewalk widths, especially in low-traffic areas - This control provides limited runoff reduction benefits, and reduction of width may not be possible due to Americans with Disabilities Act (ADA) requirements.

- Avoid curb and gutter along driveways and streets where appropriate - This is recommended in areas where flooding and ponding of water creating mosquito habitat is not a problem. Replace with swales.

- Use alternate paving materials/porous/permeable materials, where appropriate - This measure includes use of alternate paving materials (e.g., porous asphalt, pervious concrete, pavers), landscaping, mulch, gravel and cobbles where appropriate to provide ground cover, and reduce the use of asphalt or other impervious pavement. Pavers are recommended for driveways, walkways, and patios in single-family residences where the site does not generate highly polluted runoff (that could contaminate groundwater if it were to infiltrate) and where ADA requirements do not have to be met. In non-residential areas, pavers are recommended for emergency access roads, overflow parking areas, and non-handicapped parking stalls. These are not recommended where heavy loads (e.g., truck movement) are anticipated.

- Reduce street width by eliminating on-street parking (where such actions do not pose a safety hazard) - This measure can be generally used in new residential areas. In addition to reducing the impervious area, this control has the added benefit of removing cars from streets and making street sweeping easier and more effective. If on-street parking in residential areas is eliminated, the developer must provide adequate off-street visitor parking.

- Mandate that all developments set aside open space - This control is recommended for all developments (residential and non-residential). The main concern with open space relates to maintenance, weed control, and fire prevention.

Pollution Prevention and Source Control Measures

This group includes controls that can be incorporated into new development/redevelopment projects to avoid pollution in the long run by eliminating sources. The City of Franklin already has a Board with the regulatory authority to implement the ideas of this program, including the use of a landscape architect to plan using deep rooted, native vegetation that acts as a natural filter.

- Provide green areas where pets can be exercised - Pet excrement is a major source of bacteria in urban runoff. In addition to instituting ordinances requiring owners to collect their pet's excrement, provide green areas in new residential developments where people can walk their pets and keep pet excrement away from sidewalks and streets.

- Install landscaping or other cover - Clearing and grading of surfaces in new development can increase potential for erosion. Install landscaping or other cover materials to minimize erosion from graded surfaces. Use of native plant materials is recommended because native plants require less maintenance and irrigation, and are typically more resistant to fires than non-native grasses. Native plants do take longer to cover slopes, therefore, during the first few years supplemental protection (erosion blanket, mulch, etc.) will be necessary.

- Incorporate low-maintenance landscaping - At some sites where erosion may not be a concern but landscaping is proposed as part of the development, require or recommend use of low-maintenance landscaping that does not require frequent fertilizer, pesticide and herbicide application. In this regard, the city of Franklin should identify the types of trees, shrubs, and ground cover that would work in the community based on local climatic and soil conditions, and make such lists available to municipal staff responsible for reviewing projects.

- Require labeling of storm drains (to discourage dumping) - Developer should be required to label all storm drains with the appropriate legend used by the city, cautioning against dumping.

- Where possible, eliminate gutters/roofdrains or direct runoff to landscaped areas - Roofdrains can be eliminated only in one to two-story buildings. Where these cannot be eliminated, direct the downspout of the gutter to a landscaped area or into an infiltration trench. Install several gutters to distribute the flow.

- Construct designated vehicle wash area - In new residential developments involving more than 50 units, require applicant to construct a designated vehicle wash area that is plumbed to discharge to the sanitary sewer. The developer will need to be advised that the effluent from the wash area will need to meet the requirements of Franklin's local sewer use ordinance.

- Encourage underground parking and the construction of multi-storied parking structures - For commercial projects, encourage developers to build underground or multi-story parking structures so that not only is impervious surface minimized but the parking surfaces are under a roof and not exposed to storm water.

- Encourage cooperative or shared parking - This control is recommended for commercial areas, and can be a cooperative effort between commercial entities or between commercial entities and the City of Franklin.

- Encourage use of alternate paving materials for parking lots - This control is recommended for overflow parking areas and for less frequently used parking spaces (typically these are spaces along the periphery of the parking lot that will not have to meet ADA requirements and due to low usage there will be less concern regarding pollution of groundwater through infiltration of stall runoff).

- Encourage measures to reduce building footprint and increase use of taller structures (where appropriate) - This control is recommended for commercial and municipal structures.

- Require that waste storage areas be bermed - Require all developments to grade and pave outdoor waste receptacle area to prevent run-on of storm water, and install a low containment berm around it. Alternately, construct a covered enclosure with wash-down capabilities, discharging into the sanitary sewer.

- Require installation of valves on storm drain inlets in loading dock areas - At commercial/industrial facilities where loading docks are proposed, require the applicant to install a valve to control runoff in the event of spills.

Runoff Treatment Control Measures

This group includes controls that can be built at new development/redevelopment sites to capture and treat the polluted runoff before it enters the city's storm drain system or other receiving waters.

- Rooftop Catchment Systems - These are rooftops which are designed to pool storm water which, following the storm, evaporates. This effectively eliminates rooftop runoff from the storm drain system, and thereby reduces the hydraulically-connected impervious area. Another function of these systems is to slow down the runoff to reduce peaks. Problems with rooftop catchment systems are mainly related to leakage. Such systems are usually recommended for large commercial and industrial sites, and in climatic zones where rainfall is intermittent and temperatures are above freezing.

- Vegetated Filter Strips - Vegetated filter strips, buffer strips, or riparian buffer zones are strips of vegetation placed between receiving waters (e.g., along streams) and pollutant sources. The effectiveness of the strips depends primarily on the width of the strip, and the vegetation type and condition. Strips of 100-300 feet in width are often considered. Such strips have been successfully applied to urban, agricultural, and forestry situations. Vegetation type selection must take into account Indiana's climate. Maintenance is primarily annual cutting. Such strips are recommended for new development located along receiving waters such as streams, rivers and lakes, but outside the flood control boundary.

- Vegetated Swales - Swales are shallow low gradient channels that are vegetated. They are commonly applied in rural residential areas in lieu of traditional curb/gutters and underground storm water drainage pipes. Water quality improvement is achieved primarily through filtration, and performance is dependent on the swale hydraulic capacity and vegeta-

tion type and condition. Influent water should be relatively free of coarse sediment to avoid burying the vegetation. Where sediment loads are of concern, sediment settling basins can be provided upstream of the swales. Maintenance consists primarily of vegetation management and settling basin cleanouts. Swales are generally recommended for low-density residential developments located in relatively flat terrain.

- Infiltration Basins - Infiltration basins store and infiltrate storm water into a shallow groundwater aquifer system. Performance is critically dependent on soil porosity and adequate depth to groundwater. In order to maintain recharge rates, influent water may require pretreatment to remove sediments. Infiltration basins are effective at reducing runoff rates and volumes and can provide water supply benefits through aquifer recharge. Maintenance primarily consists of periodic removal of accumulated trash, debris and sediments to maintain recharge rates.

- Infiltration Trenches - Infiltration trenches are shallow drains filled with high porosity materials (e.g., gravel). Storm water discharged to these trenches is stored during the runoff event and infiltrates into the groundwater during dry weather periods. As with infiltration basins, performance requires porous subsoils and adequate depth to the groundwater table. The acceptability and designs of infiltration trenches may be covered by building codes where there is concern that infiltrating water may adversely affect soil strength around foundations. Infiltration trenches are generally not recommended for roof runoff near buildings because of building code requirements; but, can be effective as part of the overall open channel drainage system.

- Dry Detention Ponds/Basins - These are basins designed to temporarily store and treat storm water prior to gradually releasing it downstream. Such basins can provide flood control and storm water treatment benefits. Treatment performance depends on storage volume (12-24 hours of residence time is considered a good rule of thumb), and good circulation (avoidance of short circuiting). A major factor limiting good performance is that, during larger storm runoff events, water entering a dry basin may resuspend previously settled material in which case the ponds may act as a source of sediment and associated chemicals. In general, dry basins are not as effective as wet basins (discussed below), however, during the summer time in Indiana, it is not uncommon to have wet basins that are not feasible. Performance of dry basins can be improved by incorporating slow release outlet structures. Such basins are generally applicable to residential, commercial, and industrial development where there is insufficient runoff to maintain wet basins. The cost of urban lands often preclude this type of treatment in the more dense portions of urban areas.

- Retention Ponds/Wet Basins - These are basins that contain a permanent pool of water. Such ponds can provide flood control, ecological, and water quality benefits. The performance of wet basins depends on the size of the basin, watershed characteristics, and influent conditions. The primary treatment process in retention ponds is settling. Maintenance is required for removing debris, vegetation management, and maintaining the inlet and outlet structures. Accumulation rates in such basins typically

require that accumulated sediment be removed about once every 10-20 years. Retention ponds are generally applicable to most urban situations, as long as there is adequate space for the facility and acceptable geological conditions. The cost of land often precludes this type of treatment in the more densely developed portions of urban areas.

- Constructed/Restored Wetlands - In addition to providing flood control and water supply benefits through artificial recharge of groundwater, constructed wetlands designed for storm water management provide water quality benefits through a number of processes including sedimentation, filtration, absorption, biological processes, and nutrient uptake. Pollutant removal performance depends on the size of the wetland relative to the watershed, the design of the wetland, and the type and composition of wetland vegetation. Wetlands also provide additional ecological and recreational benefits. If a significant amount of sedimentation is anticipated, a deep settling basin could be constructed (which the water would enter prior to reaching the wetland). The basin would require periodic maintenance to remove accumulated sediment. Constructed wetlands require maintenance, especially in the first 5-10 years during which vegetation is growing and natural seeding is occurring. Providing suitable hydrologic conditions for vegetation growth and water treatment is key to successful performance of constructed wetlands. Constructed wetlands are generally applicable to most urban situations, as long as there is adequate space for the facility, an adequate source of water, and appropriate soils. In Indiana, many constructed wetlands are likely be seasonal in nature. The cost of urban lands often preclude this type of treatment in the more densely developed portions of urban areas. A variation of this control is the use of existing wetlands for urban runoff treatment. Existing wetlands at or downstream of a new development/redevelopment project can be enhanced to improve hydrology, and runoff from the development project can be directed to the wetlands. Note that the dry detention ponds/basins, retention ponds/wet basins, and the constructed wetlands need to be periodically monitored for accumulation of toxic materials, and provisions made for cleanout and disposal pretreatment may be added (to remove heavy sediment trash and debris) to reduce maintenance. If a significant amount of sediment is anticipated, a deep settling basin could be constructed. This would also need to be periodically cleaned out to maintain capacity.

- Filtration Systems - Filtration systems convey storm water through filter media (e.g., sand, compost, charcoal) to treat the storm water. The chemicals treated vary depending on the type of media and may include fine sediment, colloidal material, hydrocarbons, organics, nutrients and dissolved metals. Such systems come in many sizes and designs including: (1) inserts placed in individual storm drain inlets, (2) linear units that treat storm water from small impervious areas such as parking lots, and (3) large 1-2 acre sand filters that treat runoff from urban catchments. Filters are effective as long as the capacity of the filter is not exceeded, and the filter is not allowed to clog. Filter inserts are particularly problematic in this regard, and recent testing and evaluation questions their applicability where material in runoff will clog or block the filter. In storm water applications filter systems are required to remove blocking materials (leaves, trash, debris, sediments, oil and grease) and storage to better

manage flowrates. Experience to date with filter type inserts for drain inlets suggest that the units are easily clogged with sediment and debris, with resultant bypassing of most of the flows. Therefore, inserts are not recommended unless the city is committed to frequent inspection and cleaning.

- Oil/Grit Separators - Oil/grit (gravity) separators are usually multi-chambered treatment units that are placed underground and treat storm water from a drainage catchment. The individual chambers often are designed to trap grit and floatables, and adsorb hydrocarbons. Flows in excess of the design capacity should be diverted around the unit, otherwise there is the possibility that sediment previously trapped in the chambers will be resuspended and flushed downstream. Inspection and maintenance is required to ensure that the units are not filling up with sediment, as accumulation can affect performance. Traditional gravity oil/water separators that utilize skimming devices and coalescing plates (to increase droplet size and capture) are generally not applicable to storm water conditions where total hydrocarbon concentrations are generally less than 10 mg/l. The performance of oil/grit separators varies depending on the chosen design and cannot be generally recommended at this time, pending more data from ongoing testing. In general, oil/grit separators are useful only at sites where there are chances that oil spills could occur and to a limited degree at development sites that have high oil and grease loadings such as petroleum storage yards and vehicle storage facilities.

Post-Construction Runoff Control Components

What: A formal post-construction runoff control program

Goal: Develop a program for new developments that will be proactive in protecting the quality of Franklin's receiving waters after constructed

How: The City of Franklin storm water manager will hold meetings with key city employees and boards that will be involved in approving future site development plans in Franklin. The purpose of the meetings will be to coordinate, educate, and assign responsibilities.

When: The meetings will commence no later than the first quarter of 2006.

Measurable Goals:

- How many meetings are conducted on post-construction runoff control topics
- An ordinance or other regulatory mechanism is written and adopted to change Franklin's standards for future developments
- Number of new development sites that incorporate post-construction runoff control concepts
- The reduced percentage of new impervious surfaces associated with new development projects

4.6.3 Implementation Timetable

The Minimum Control Measure #5 of Post-Construction Runoff Control develops mechanisms to protect the receiving waters after construction. This storm water quality management plan states that the City of Franklin storm water manager will hold meetings with key city employees and boards that will be involved in approving future site development plans in Franklin. These meetings will commence no later than the third quarter of 2005.

	2004				2005				2006				2007				2008			
Program	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Hold Meetings with Boards							▒													
Develop New Standards								▒												
Enforce New Standards										▒	▒	▒	▒	▒	▒	▒	▒	▒	▒	▒

4.6.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #25
Programmatic Indicators
MCM #5 Post- Construction Site Run-off Control

	Programmatic Indicator 327 IAC 15-13-8(b)	MS4 Programmatic Indicator Mechanisms
17	Number, type, and location of Structural BMPs installed	Records shall be maintained as part of the post-construction runoff control program.

Section 4.7: MCM #6 Pollution Prevention & Good Housekeeping

4.7.1 Pollution Prevention & Good Housekeeping Program Description

Significant amounts of urban pollutants are often associated with street and road surfaces resulting from pavement and vehicle wear, atmospheric deposition, and littering. Petroleum hydrocarbons, heavy metals, and other synthetic organic constituents are deposited on roads from clutch and brake wear, vehicle exhaust, and leaking motor fluids. The constant abrasion of tires against road surfaces add particulates to runoff. Litter and trash add pollutants to urban runoff as well. In addition, deicing materials, such as salt and sand, can add pollutants to the runoff. In addition to roadways, public sidewalks, plazas, parking lots, parks, industrial parks and commercial lots are some of the other areas from which pollutants emanate.

Local streets can become dirty and be sources of pollutants.

To address these sources, this plan needs to present a control program focused on municipal operations. It is important to note however, that the City of Franklin is only responsible for implementing the discussed programs in areas that are under the city's jurisdictional control. In other words, areas that are considered "private property" or under the control of an entity other than the city, are not the responsibility of the city. Municipal operations of concern include parks and open-space maintenance, fleet maintenance, planning, building oversight, and storm water system maintenance. Under such a program, the city is encouraged to develop BMPs for maintenance activities; schedules and inspection procedures for structural storm water controls; controls for reducing discharge of pollutants from streets, roads, municipal parking lots, storage and maintenance yards, and waste stations; procedures for disposal of wastes removed from the system; and ways to ensure that new flood management projects assess impacts on water quality.

Remember…

The City of Franklin is only responsible for implementing the discussed programs in areas that are under the city's jurisdictional control.

4.7.2 Specific Tasks and Measurable Goals

Street Sweeping and Cleaning

Most municipalities conduct street sweeping for aesthetic, safety, and public health reasons and, therefore, have a street sweeping program in place. The City of Franklin is no different. Franklin actually has an aggressive street sweeping program. There are approximately 95 miles of city streets, and it takes approximately 3 weeks to clean all 95 miles one time. The city provides street sweeping services as long as weather permits. If the City was able to sweep from April through October each street would be swept approximately 10 times per year.

Waste collected by the street sweeper is disposed of at the Best Way Transfer Station. In order to track the effectiveness of this program, the city will need to record how much debris is collected from the street sweeping program.

Finally, it is always good to remember these things that optimize a street sweeping program:

- Increase street sweeping frequency in areas most prone to litter and dust/dirt accumulation.
- Time street sweeping to improve pollutant removal efficiency (sweeping before the onset of wet weather).
- Replace aging and ineffective street sweepers (if applicable) with technologically advanced equipment that is able to pick up finer particulates.
- Improve signage and dissemination of street sweeping schedules to ensure that curbs are cleared before sweeping takes place (i.e., parked vehicles are removed).
- Avoid wet cleaning or flushing of street, and utilize dry method where possible.
- If wet cleaning or flushing is absolutely necessary, sweep and remove debris before flushing, plug storm drain inlet and direct washwater to the sanitary sewer.
- Periodically evaluate the data from the disposal records. Do an analysis to determine which areas of Franklin produce the most debris. Modify the current sweeping schedule to address sweeping dirtier areas (such as downtown) more frequently.

The City of Franklin has already implemented a program to ensure proper planting and care of roadside vegetation.

Street Sweeping

What: A public street and roadway sweeping program
Goal: To reduce pollutants in the storm water runoff by removing residuals, debris, and litter from roads, streets, and parking areas
How: The City of Franklin Street Department is responsible for implementing the street sweeping program.
When: Continuous program as weather provides, generally from April through October of each year.

Measurable Goals:

- The number of times each street is swept per year
- The total number of tons of debris collected through the street sweeping program
- Any mathematical analyses completed on disposal data to determine the effectiveness of the current routes and sweeping frequencies
- Any revised street sweeping schedules based upon evaluations of disposal data

Sidewalks, Plazas, and Parking Lot Cleaning

Just like streets and roadways, the pollutants on sidewalks, plazas and parking lots are associated with litter and vehicle use. Good housekeeping practices that can be completed by the city include the following:

- Provide litter receptacles in busy, high pedestrian traffic areas of the community.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Establish frequency of public parking lot sweeping based upon usage and field observations of waste accumulation.

Because parking lots are generally large non-pervious surfaces, a significant amount of pollutants can be transported during storm events

Sidewalks, Plazas, and Parking Lot Cleaning

What: A sidewalk, plaza, and parking lot cleaning program
Goal: To reduce pollutants in the storm water runoff by removing residuals, debris, and litter from sidewalks, plazas and parking areas
How: The storm water manager will work with the city council to coordinate this program. The city's police department will also be trained on enforcement issues related to littering.
When: This program is already underway. It will continue to become stronger as the program progresses.

Measurable Goals:

- The number of litter receptacles placed and maintained by the city
- The number of citations issued for littering
- The square footage of parking lots in a sweeping program
- The total number of pounds of debris collected through the parking lot sweeping program

Street Medians, Parks, and Other Municipal Landscaped Areas

The pollutants of concern from medians and other landscaped areas, including municipal golf courses, are sediment from erosion, nutrients from fertilizers and organic matter (leaves and grass clippings), and heavy metals and toxic organics from pesticide and herbicide use. Pesticides, herbicides and fertilizers can run off during storm events and enter nearby receiving waters. Litter and illegal dumping can also be problems around park areas. Good housekeeping practices that will help reduce urban runoff pollution can be incorporated into Franklin's existing maintenance program for medians, landscaped areas, and parks. The Center for Resource Management has developed a guidance brochure for golf course entitled "Environmental Principles for Golf Courses in the United States". Following is a link to the web page with the brochure:

http://www.gcsaa.org/resources/facts/principles.asp

Currently The City of Franklin's Street and Parks Department have programs that include treatment of mosquito larvae, collection of yard trimmings, collection of loose trash, and removal of trash in waterways that go through city parks. The Parks Department also provides trash receptacles throughout the parks system, as well as sweeping of trails and parking lots on a weekly basis (weather permitting).

Following are guidelines that need to be incorporated into Franklin's program.

Erosion Control

- Maintain vegetative cover on medians and embankments to prevent soil erosion. Apply mulch or leave clippings in place to serve as additional cover.
- Do not use discing as a means of vegetation management because the practice results in erodible barren soil.
- Provide energy dissipators (e.g., riprap) below culvert outfalls to minimize erosion.
- Repair eroded stream banks through city parks.

Vegetation Management

- When conducting vegetation pruning/removal, remove clipped or pruned vegetation from gutters, paved shoulders and areas around storm drain inlets.
- When conducting mechanical or manual weed control, avoid loosening the soil which could erode into stream or storm drains.
- Inspect irrigation systems periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- When bailing out muddy water, do not put it in the storm drain; pour over landscaped areas.

Fertilizers, Pesticides & Herbicides

- Follow federal, state, and local laws governing the use, storage, and disposal of fertilizers, pesticides and herbicides.
- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Avoid use of copper-based pesticides if possible. Use the least toxic pesticide for the job if alternatives are available.
- Do not use pesticides and herbicides if rain is expected.
- Do not mix pesticides or herbicides for application near storm drains.
- Use the minimum amount needed for the job.
- Use up pesticides and herbicides. Rinse containers, and use rinse water as product. Dispose of unused pesticides and herbicides as hazardous wastes.
- Calibrate the distributor to avoid excessive application.
- Check irrigation system to ensure that over-watering and runoff of fertilizer does not occur. Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.

Street Medians, Parks, Other Municipal Landscaped Areas

What: Maintenance programs for street medians, parks & other landscaped areas
Goal: To reduce pollutants in the storm water runoff by minimizing erosion, and having effective vegetative management and fertilizer, pesticide and herbicide application programs.
How: The storm water manager will work with the City Parks and Recreation Department to coordinate this program.
When: This program is already underway. It will continue to become stronger as the program progresses.

Measurable Goals:

- The number of erosion control materials purchased for use on medians, in parks, and other landscaped areas
- The number of irrigation systems inspected
- The development of written fertilizer, pesticide and herbicide application procedures
- The number of training sessions conducted for city employees on this program

Storm Drain System Cleaning

All storm drain systems have debris and litter that accumulate over time. The debris and litter can accumulate in inlets, catch basins, and in the storm pipes themselves. There are often pollutants associated with this debris and litter. Even during small storm events, the water will pass over or through the waste materials and carry away water soluble pollutants. During heavy storm events, these materials are often flushed through the system and into the receiving waters resulting in adverse effects on aquatic life and water quality. Cleaning out the storm system on a regular basis not only minimizes contamination potentials, but also minimizes flooding issues.

Following is a list of tasks that can make a storm system cleaning program more effective:

- Establish a frequency for inspecting all catch basins, inlets, debris basins, and storm drain pipelines, and implement this schedule. Make it a higher priority to clean facilities where sediment, trash, and other pollutant accumulation is often observed.

- Conduct periodic visual inspections during the dry season to determine if there are problem inlets where sediment/trash accumulate. Clean if necessary. The main objective of the dry season inspections is to identify problem areas.
- Inspect and clean all inlets and basins before onset of wet season.
- Conduct inspections of storm drain inlets once a month or more frequently during the wet season. The frequency may be as high as once a week for problem areas where sediment or trash accumulates more often. Clean as needed.
- Inspect and clean storm drain pipelines and inlets in areas affected by pollutant generating incidents immediately or at a minimum before the wet season (incidents include spills, fires, and other events that may have released pollutants to the storm drain system and residues may be present in the system in the vicinity of the event).
- Store wastes collected from the cleaning in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes if necessary with outflow into the sanitary sewer. Do not dewater near a storm drain or stream.
- Sediment (less the debris) removed from any catch basin or inlet cleaning should be analyzed for proper disposal. Pollutants of concern are lead; oil and grease; and petroleum hydrocarbons. If concentrations are elevated, the sediment should be disposed of as hazardous waste.

Storm Drain System Cleaning

What: A scheduled cleaning program for the storm drain system.
Goal: To reduce pollutants emanating from the storm drain system.
How: The storm water manager will work with the Franklin Street Department to coordinate this program.
When: The Franklin Street Department will develop and implement this program by the first quarter of 2007.

Measurable Goals:

- A written storm drain system cleaning schedule
- The number of inlets, basins and pipes inspected
- The total number of pounds of debris collected through the cleaning program

Structural Best Management Practices in Franklin

Structural Best Management Practices (BMPs) can be effective tools in improving storm water quality runoff. Table 26 presents common structural best management practices. Descriptions on each of these BMPs are presented in Section 4.5 of this plan.

Franklin conducted a detailed city reconnaissance to document the existence of structural BMPs. The results of this field work were presented in the Part B submission of this program. While the Part C plan sets out a strategy for maintaining those identified BMPs and for evaluating the necessity and practicality for developing future structural best management practices throughout the city.

Franklin's storm water manager will work with the city's street department to develop a structural BMP inspection and maintenance schedule. Franklin's storm water manager will continue to work with the various city departments to evaluate the necessity for using structural BMPs throughout the city. A written structural BMP evaluation protocol will be developed as a cooperative effort between various city departments. The decisions will be based upon visual observations, public comments, illicit discharge detection program results, and future in-stream monitoring as discussed under section 5 of this report.

TABLE 26
Common Structural BMPs

- **Dry Detention Basin**
- **Infiltration Basin**
- **Infiltration Trench**
- **Infiltration Drainfield**
- **Vegetated Filter Strip**
- **Vegetated Swale**
- **Sand Filter**
- **Wet Detention Pond**
- **Porous Pavement**
- **Rain Garden**
- **Natural Wetland**
- **Constructed Wetland**
- **Storm Inlet Filters**
- **Hydro Filtration Device**
- **Check Dam**
- **Oil and/or Grit Trap Inlets**
- **Other Flow Diversion Structures**

Structural BMPs

What: A system to maintain current structural BMPs and to evaluate the necessity of additional structural BMPs throughout the city
Goal: To reduce pollutants being introduced to the storm drain system
How: The storm water manager will work with various city departments to develop BMP inspection and maintenance schedules and to evaluate the necessity for additional structural BMPs
When: The evaluation processes will be on-going.

Measurable Goals:

- A written structural BMP inspection and maintenance schedule
- A written structural BMP evaluation protocol developed as a cooperative effort between various city departments
- The number of new structural BMPs that are considered for implementation, regardless if they are constructed
- The number of new structural BMPs that are constructed

Private Manufacturing Industries in Franklin

This MS4 program regulates storm water discharges from Franklin's separate storm sewer system via "Rule 13" (327 IAC 15-13). There is a related regulation for most private manufacturing industries as well known as "Rule 6" (327 IAC 15-6). Basically, Rule 6 is a permit-by-rule program (similar to Rule 13), which requires industries to conduct sampling of storm water runoff from their properties, and develop written Storm Water Pollution Prevention Plans (SWP3).

While Rule 6 does not address municipal storm water programs, there are distinctive relationships. First of all, manufacturing industries in Franklin that fall under Rule 6 will have storm water discharges from their private properties into Franklin's storm sewer system. Second, the quality of the runoff received from private industries obviously has an impact on the city's ability to meet its objectives of this municipal program. As a consequence, IDEM has written Rule 13 with a provision that every MS4 entity has a right to request certain types of Rule 6 information from private manufacturing industries within their jurisdiction.

Rule 6 lists specific private manufacturing industries that are in the program. They target these industries by SIC Codes and by specific listings in the rule. Following is an excerpt from Rule 6 discussing those industries that are included in the program:

"**327 IAC 15-6-2 Applicability of the general permit rule for storm water discharges exposed to industrial activity**
Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2; IC 13-18-3; IC 13-18-4
Affected: IC 4-21.5; IC 13-12-3-1; IC 13-18-1
Sec. 2. (a) Except as provided in subsections (c), (d), (e), (f), (g), (h), (i), and (j), the requirements under this rule apply to all
persons who: facilities that meet the following requirements:…

…(5) Have industrial activities classified by one (1) or more of the following categories:
(A) Facilities classified under the following SIC codes:
(i) 20 (food and kindred products).
(ii) 21 (tobacco products).
(iii) 22 (textile mill products).
(iv) 23 (apparel and other textile products).
(v) 24 (lumber and wood products).
(vi) 25 (furniture and fixtures).
(vii) 26 (paper and allied products).
(viii) 27 (printing and publishing).
(ix) 28 (chemicals and allied products).
(x) 29 (petroleum and coal products).
(xi) 30 (rubber and miscellaneous plastic products).
(xii) 31 (leather and leather products).
(xiii) 32 (stone, clay, and glass products).
(xiv) 33 (primary metal industries).
(xv) 34 (fabricated metal products).
(xvi) 35 (industrial machinery and equipment).
(xvii) 36 (electronic and other electric equipment).
(xviii) 37 (transportation equipment).
(xix) 38 (instruments and related products).
(xx) 39 (miscellaneous manufacturing industries).
(B) Except for those facilities identified in subsection (e), mining operations classified under the following SIC codes:
(i) 10 (metal mining).
(ii) 13 (oil and gas extraction).
(iii) 14 (nonmetallic minerals, except fuels).
(C) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA), (42 U.S.C. 6921)**.
(D) Except for those facilities identified in subsection (f), landfills, land application sites, open dumps, and transfer stations that receive, or have received, industrial process wastes, as defined in rules of the solid waste management board at 329 IAC 10-2-95, from any of the types of facilities described under this subdivision.
(E) Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including those classified under the following SIC codes:
(i) 5015 (motor vehicles parts, used).
(ii) 5093 (scrap and waste materials).

(F) Steam electric power generating facilities except for those facilities identified in subsection (g).
(G) Transportation facilities that have vehicle or aircraft maintenance (including vehicle or aircraft rehabilitation, mechanical repairs, painting, fueling, and lubrication), airport runway or aircraft deicing operations, or industrial equipment cleaning areas and are classified under the following SIC codes:
(i) 40 (railroad transportation).
(ii) 41 (local and interurban passenger transit).
(iii) 42 (trucking and warehousing).
(iv) 43 (United States Postal Service).
(v) 44 (water transportation).
(vi) 45 (transportation by air).
(H) Except for those facilities identified in subsections (i) and (j), treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of one million (1,000,000) gallons per day or more, or that are required to have an approved pretreatment program under 40 CFR 403***.
(I) Distribution facilities limited to the portions of the facility that are involved in the material handling of agricultural chemicals (chemical fertilizers and pesticides) or are otherwise identified under this clause shall comply with the requirements of this rule if the following conditions are met:
(i) Have been notified by the department of a determination that the facility is subject to this rule because review of available information shows that:
(AA) the facility had a discharge of a pollutant; or
(BB) there is a likelihood of a discharge of a pollutant to waters of the state.
A facility that has been notified by the department according to this item that the facility is subject to this rule may exercise its right granted under IC 4-21.5.
(ii) Are involved in the processing, transfer, or storage of agricultural chemicals (chemical fertilizers and pesticides), which meet any of the following storage capacity criteria:
(AA) Fluid bulk fertilizer in undivided quantities in excess of either two thousand five hundred (2,500) gallons for one (1) vessel or seven thousand five hundred (7,500) gallons total for multiple vessels (3 × 2,500 gallon vessels) at a facility.
(BB) Dry bulk fertilizer in undivided quantities exceeding twelve (12) tons.
(CC) Liquid pesticide in undivided quantities in excess of four hundred (400) gallons.
(DD) Dry pesticide in undivided quantities in excess of one hundred (100) pounds and that is in solid form prior to any application or mixing for application and includes formulations, such as dusts, wettable powders, dry flowable powders, and granules.
(J) Facilities engaged in selling fuel or lubricating oils to the trucking industry, where the facility has on-site vehicle maintenance activities, serves as a truck stop or plaza, and are classified as SIC code 5541 (gasoline service stations).
Truck stops and plazas that do not have vehicle maintenance activities and gasoline dispensing facilities, such as automotive service stations, convenience stores, and marinas, are not required to comply with this rule.
(b) When a facility, meeting the applicability requirements of subsection (a), is owned by one (1) person but the regulated industrial activity is conducted by another person, it is the duty of the person conducting the regulated industrial activity to apply for a permit under this rule.
(c) A facility classified in one (1) of the following subcategories of facilities that has storm water effluent guidelines for at least one (1) of its subcategories, in effect on February 12, 1992, shall apply for an individual NPDES storm water permit:

(1) Cement manufacturing (40 CFR 411).
(2) Feedlots (40 CFR 412).
(3) Fertilizer manufacturing (40 CFR 418).
(4) Petroleum refining (40 CFR 419).
(5) Phosphate manufacturing (40 CFR 422).
(6) Steam electric power generation (40 CFR 423).
(7) Coal mining (40 CFR 434).
(8) Mineral mining and processing (40 CFR 436).
(9) Ore mining and dressing (40 CFR 440).
(10) Asphalt (40 CFR 443).
(d) A facility subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Chapter I, Subchapter N* shall apply for an individual NPDES storm water permit.
(e) A sand, gravel, or dimension stone facility classified under SIC code 14 is not subject to this rule if:
(1) it is regulated under a general permit issued under 327 IAC 15-12; and
(2) all the regulated facility's storm water discharges are addressed by the general permit issued under 327 IAC 15-12.
(f) A landfill is not subject to this rule if it has satisfied one (1) or more of the following conditions:
(1) Has completed landfill closure approved by the department.
(2) Is regulated under an individual municipal solid waste landfill permit that:
(A) is issued according to 329 IAC 10; and
(B) includes requirements for addressing the quality of storm water run-off.
(g) Steam electric power generating facilities that are involved in the processing, handling, or storage of coal and associated byproducts are not subject to this rule and must apply for an individual NPDES storm water permit.
(h) Transportation facilities identified by SIC code 5171 (petroleum bulk stations and terminals) are not subject to this rule and shall, if facility conditions meet the rule applicability requirements, obtain permit coverage under 327 IAC 15-9.
(i) Municipal treatment works are not subject to this rule if the treatment works meet the following conditions:
(1) Treat domestic sewage or any other sewage sludge or wastewater.
(2) Have a design flow equal to or greater than one million (1,000,000) gallons per day.
(3) Are considered part of a municipality regulated under 327 IAC 15-13.
(4) Are adequately covered under the requirements of 327 IAC 15-13-17.
(j) Farmland, domestic gardens, or land used for sludge management is not subject to this rule if the following conditions are met:
(1) Sludge is beneficially reused.
(2) The land is not physically located within:
(A) the confines of a municipal treatment works facility; or
(B) areas that are in compliance with Section 405 of the Clean Water Act (33 U.S.C. 1345)****.
*Copies of the Code of Federal Regulations (CFR) 40 CFR Chapter I, Subchapter N referenced in this section may be obtained from the Government Printing Office, Washington, D.C. 20402 or the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46204.
**Copies of the Subtitle C of the Resource Conservation and Recovery Act (RCRA), (42 U.S.C. 6921) referenced in this section may be obtained from the Government Printing Office, Washington, D.C. 20402 or the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46204.

***Copies of the Code of Federal Regulations (CFR) 40 CFR 403 referenced in this section may be obtained from the Government Printing Office, Washington, D.C. 20402 or the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46204.
****Copies of Section 405 of the Clean Water Act (33 U.S.C. 1345) referenced in this section may be obtained from the Government Printing Office, Washington, D.C. 20402 or the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46204. *(Water Pollution Control Board; 327 IAC 15-6-2; filed Aug 31, 1992, 5:00 p.m.: 16 IR 26; errata, 16 IR 751; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Oct 27, 2003, 10:15 a.m.: 27 IR 845)"*

According to the Harris Directory, there are 26 businesses in Franklin that could potentially be regulated by Rule 6. There are site specific conditions and/or practices at each of these facilities that must be evaluated to determine whether or not each of these entities is regulated under Rule 6. In addition, there may be other entities in Franklin that are under the Rule 6 program that simply were not found by the Harris Directory query. A copy of this list is included at the end of this section. The city should take this list and confirm additions and deletions.

Private Manufacturing Industries in Franklin

What: A program to integrate data and information from private manufacturing industries into the overall municipal program

Goal: To identify those private manufacturing industries that are contributing excessive pollutants to the city's storm sewer system

How: The storm water manager will verify Franklin's Rule 6 industries, then develop a written evaluation schedule for each entity. The storm water manager will be responsible for overseeing the site inspection program.

When: The Rule 6 list will be evaluated and modified as necessary by the fourth quarter of 2005. The Rule 6 evaluation programs will be initiated no later than the third quarter of 2006.

Measurable Goals:

- A confirmed list of Franklin's Rule 6 industries
- The number of Rule 6 industry evaluations conducted
- Any quantitative storm water sampling data obtained from certain Rule 6 industries

Commercial Properties in Franklin

Activities conducted at commercial facilities can contribute pollutants to urban runoff. Potentially significant sources of pollutants common to many commercial facilities are litter and improper disposal of wastes; outdoor waste and material storage areas; illicit connections; and parking lots that not only discharge vehicle related pollutants to runoff but also, due to their impervious nature, increase the volume and rate of runoff. Some of the commercial facilities that should be targeted under this program are large retail establishments (e.g., discount stores, grocery stores, building supply stores), gasoline stations, restaurants, and farm machinery and supply stores (e.g., agricultural chemicals).

The objective is to develop a program based on outreach and education to reduce the potential for discharge of pollutants into local receiving waters from unregulated commercial facilities. Franklin should first identify the business sectors to target each year. The city should then develop an outreach program specifically for each of these sectors. The purpose of the outreach program will be to educate each of the business owners and/or operators on the objectives of this storm water quality program, and to provide insight and suggestions to the business on BMPs that could be implemented to assist the city in meeting the overall goals and objectives of this program.

The City of Franklin has already begun covering deicing salt storage piles and established designated snow disposal areas. Standard operating procedures for spill prevention and clean up during fueling operations and BMPs for vehicular maintenance are already in effect. Employees have been properly trained in disposal of hazardous waste as-well-as fertilizer and pesticide application, thus all pesticide is used and disposed of following the Indiana state chemist's guidelines. A program is in place to properly dispose of materials removed from the storm sewer system. Projects addressing flood management, containment of concentrated solutions, and vehicle wash waters are also under way.

Following are general concepts that can be presented to targeted commercial facilities during the outreach program:

Parking Lots

- Littering in parking lots produces parking lot pollution. Signs prohibiting littering, as well as conveniently located trash cans, can help to reduce this problem.
- Spot clean by applying absorbent materials to spilled or leaked automotive or similar fluids (i.e., gasoline, oil, antifreeze). Absorbents can be used in any parking lot where leaks are observed, on wet areas or in frequently used stalls.
- Saturated absorbent material should be collected in approved disposal containers, and disposed of properly.
- Inspect and clean if necessary, storm drain inlets and catch basins within the property boundary before October 1 each year. Inlet cleaning is usually conducted using one of two methods, manual cleaning or by vacuum truck.

- Manual cleaning is the removal of debris and sediment using shovels, buckets, etc. Manual cleaning is recommended for a few (5 or less) small sized inlets (approximately 3' x 3' x 3').
- For sites with greater than 5 small inlets or large sized inlets, the vacuum truck method should be used. The vacuum truck method includes manual removal of debris (trash, branches, etc.) followed by removal of sediment and/or water with a vacuum truck.

Landscaping and Grounds Maintenance

- Follow federal, state, and local laws governing the use, storage, and disposal of pesticides/herbicides.
- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Avoid use of copper-based pesticides if possible. Use the least toxic pesticide for the job if alternatives are available.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains, and use the minimum amount needed for the job.
- Use up pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Collect lawn and garden clippings, pruning waste, and tree trimmings. Chip if necessary, and compost.
- Do not place clippings, pruning waste, or tree trimmings in gutters. Do not blow or rake leaves, etc. into the street.
- Protect stockpiles and landscaping materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Store pesticides, fertilizers, and other chemicals indoors or in a shed or storage cabinet.
- Schedule grading and excavation projects for dry weather.

Storage of Hazardous Materials

- Store hazardous materials and wastes where they are protected from rain and in a way that prevents spills from reaching the sanitary sewer or storm drain.
- Keep lids on waste barrels and containers, and store them indoors or under cover to reduce exposure to rain.
- All hazardous wastes must be labeled according to hazardous waste regulations.
- Keep wastes separate to increase your waste recycling/ disposal options and to reduce your costs.
- Never mix waste oil with fuel, antifreeze, or chlorinated solvents. Consult your hazardous waste hauler for details.
- Double-contain large quantities of hazardous fluids to prevent accidental discharges to the sanitary sewer and storm drain. Consult the Fire Department for details.
- Keep storage areas clean and dry. Conduct regular inspections so that leaks and spills are detected as soon as possible.

Outdoor Waste Receptacle Areas

- Spot clean leaks and drips routinely to prevent runoff of spillage.
- Minimize the possibility of pollution from outside waste receptacles by doing at least one of the following:

- use only watertight waste receptacle(s) and keep the lid(s) closed, or
- grade and pave the waste receptacle area to prevent run-on of storm water, and install a low containment berm around the waste receptacle area, or
- install a roof over the waste receptacle area.

Fountain/Cooling Equipment Maintenance

- Never discharge fountain water to a street or storm drain.
- When emptying a fountain, let chlorine dissipate for a few days, and then recycle/reuse water by draining it gradually onto a landscaped area, or
- Contact the Franklin Wastewater Treatment Plant. You may be able to discharge to the sanitary sewer.
- Do not use copper-based algaecides unless absolutely necessary. Control algae with chlorine or other alternatives to copper-based pool chemicals. Copper is a powerful herbicide. Sewage treatment technology cannot remove all of the metals that enter a treatment plant.
- Make sure all discharges from cooling towers or boiler blowdown go to the sanitary sewer and not to the street, storm drain or creek. It is okay to discharge condensate from cooling equipment into the storm drain.
- Make sure your maintenance contractor is knowledgeable and skilled at minimizing corrosion with proper chemical treatment.

Spill Control

- Maintain and keep current, as required by other regulations, a spill response plan and ensure that employees are trained on the elements of the plan.
- Contain and cover all solid and liquid wastes – especially during transfer.
- Purchase and maintain absorbent materials in accordance with local regulations and procedures for containment and cleanup of different spills, and make sure they are easily accessible for those employees responsible for cleanup.
- “Spot clean” leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.
- Check floor drains to ensure that they are not connected to or discharge to the storm drain system.

Education and Training

- Train all maintenance employees upon hiring – and annually thereafter - on personal safety, chemical management, and proper methods for handling and disposing of waste. Make sure that employees understand storm water discharge prohibitions, wastewater discharge requirements, and these best management practices. Use a training log or similar method to document training.
- Post instructional/informational signs around your place of business for customers and employees. Put signs above all sinks prohibiting discharges of vehicle fluids and wastes. Put signs on faucets reminding employees and customers not to use water to clean up spills.

Commercial Properties in Franklin

What: A program to address storm water runoff from commercial properties in Franklin

Goal: To address improving storm water runoff from certain targeted commercial properties in Franklin

How: Franklin's storm water manager will develop a list of targeted commercial facilities. The storm water coordinator will then develop specific outreach and site review programs for the targeted group of facilities

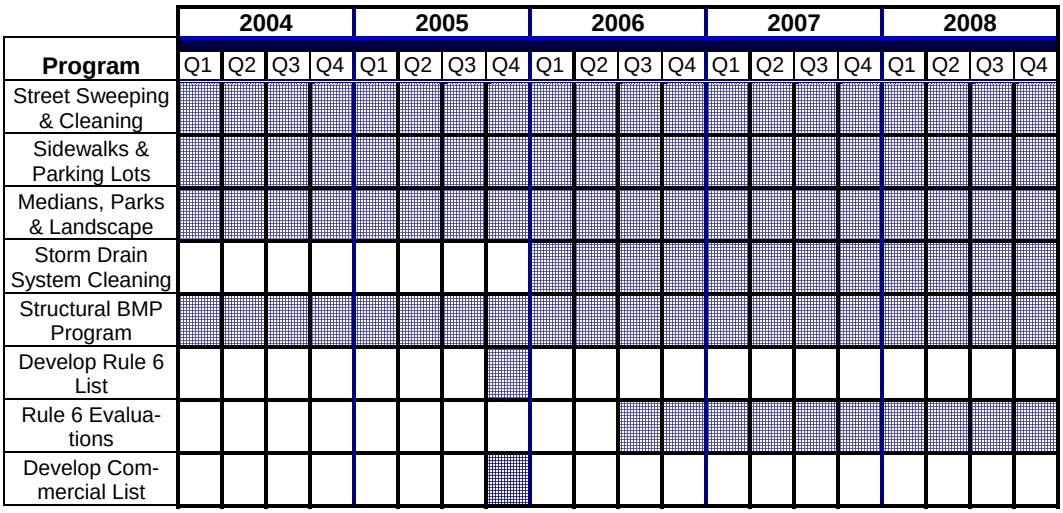
When: Develop a list of targeted commercial facilities by the fourth quarter of 2005. Develop a site evaluation schedule by the third quarter of 2006

Measurable Goals:

- A list of Franklin's targeted commercial facilities
- The number of commercial facility evaluations conducted

4.7.3 Implementation Timetable

The Minimum Control Measure #6 of Pollution Prevention & Good Housekeeping is a program addressing things the city can do to address storm water pollutants from municipal operations, private manufacturing industries and commercial facilities. This storm water quality management plan has outlined committed deadlines for several programs. The following visual aid illustrates which quarter of the year a particular task will be first implemented.



Potential Rule 6 Industries In Franklin, Indiana

Company Name	# Employees	Address	City	State	Zip	Phone Number	SIC Code
AMCOR PET Packaging	120	3201 Bearing Dr	Franklin	IN	46131	317-736-4313	3085
ArvinMeritor	800	1001 Hurricane St	Franklin	IN	46131	317-736-7111	3714
Carter Lumber Co	25	2490 N Morton St	Franklin	IN	46131	317-738-9900	5031
Casting Technology Co	180	1450 Musicland Dr	Franklin	IN	46131	317-738-0282	3365
Daily Journal	60	2575 N Morton St	Franklin	IN	46131	317-736-7101	2711
Davidson Lumber Co	319	2801 N Morton St	Franklin	IN	46131	317-738-3211	2439
Electro-Spec Inc	30	3070 R J Pkwy	Franklin	IN	46131	317-738-9199	3471
Franklin Plastic Products	60	700 International Dr	Franklin	IN	46131	317-736-9945	3089
Franklin Power Products	97	400 N Forsythe St	Franklin	IN	46131	317-738-2117	3599
GrimmerSchmidt Compressors	63	1015 Hurricane Rd	Franklin	IN	46131	317-736-8416	3563
Hendren's Inc	27	2100 Earlywood Dr	Franklin	IN	46131	317-738-2250	5083
Holbrook Manufacturing	31	291 Province St	Franklin	IN	46131	317-736-9387	3599
Hurricane Compressors	50	1015 Hurricane Rd	Franklin	IN	46131	317-736-3800	3563
International Fuel Systems Co	100	980 Hurricane Rd	Franklin	IN	46131	317-738-9202	3714
KYB Mfg North America	450	2625 N Morton St	Franklin	IN	46131	317-736-7774	3714
Meadors & Associates	32	203 Earlywood Dr	Franklin	IN	46131	317-736-6944	2439
Mitsubishi Heavy Industries	142	1200 N Mitsubishi Pkwy	Franklin	IN	46131	317-346-5000	3563
Nonferrous Products Inc	45	401 Arvin Rd	Franklin	IN	46131	317-738-2558	3463
NSK Corp	300	3400 Bearing Dr	Franklin	IN	46131	317-738-5000	3568
Overton Carbide Tool Eng	30	2155 McClain Dr	Franklin	IN	46131	317-736-7700	3544
Owens-Illinois Inc	100	1900 Musicland Dr	Franklin	IN	46131	317-346-5100	3089
Pridgeon & Clay Inc	150	150 Arvin Rd	Franklin	IN	46131	317-738-4885	3465
Promex Technologies LLC	35	3049 Hudson St	Franklin	IN	46131	317-736-0128	3841
Reed Mfg Services	45	1050 Eastview Dr	Franklin	IN	46131	317-736-8014	3599
Superior Essex	65	3200 Essex Dr	Franklin	IN	46131	317-738-4365	3357

4.7.4 Programmatic Indicators

Certain programmatic indicators must be monitored to assess the implementation, execution, and performance of the tasks under each minimum control measure. There are a total of thirty-four (34) programmatic indicators that must be addressed as listed in 327 IAC 15-13-8(b). The following table lists the programmatic indicators that are applicable to this minimum control measure and the mechanism Franklin will use to generate the necessary information.

TABLE #27
Programmatic Indicators
MCM #6 Pollution Prevention and Good Housekeeping

Programmatic Indicator 327 IAC 15-13-8(b)		MS4 Programmatic Indicator Mechanisms
18	Number, type, and location of Structural BMP inspections	Records shall be maintained as part of the structural BMP program.
19	Number, type, and location of Structural BMPs maintained or improved	Records shall be maintained as part of the structural BMP program.
20	Type and location of Non-structural BMPs utilized	The Part B and Part C reports outline programs and tasks that are non-structural BMPs. A master list will be maintained of these programs.
21	Estimated or actual area (acres or sqft) of Open space preserved and mapped	Parks, wildlife refugees, and other preserved areas will be included on the storm sewer system map.
22	Estimated or actual area (acres or sqft) of Pervious and impervious surfaces mapped	To be included on the storm sewer system map.
23	Number and location of Gasoline outlets/refueling areas that have installed BMPs	Records shall be maintained as part of the structural BMP program.
24	Number and location of MS4 Entity Facilities with spill containment	Conduct an inventory and maintain a list of facilities with spill containment as part of the Pollution Prevention and Good Housekeeping Program.
25	Est. or act. area (acres or sqft), amount, and location of Pesticide and fertilizer application by regulated MS4 entity	Records maintained through Street Maintenance Department.
26	Est. or act. linear feet or percentage and location of Unvegetated swales w/ vegetative filter strip	Records shall be maintained as part of the structural BMP program.
27	Est. or act. linear feet or percentage and location of Conveyances cleaned or repaired	Records maintained through Street Maintenance Department.
28	Est. or act. linear feet or percentage and location of Roadside ditches and shoulders stabilized	Records maintained through Street Maintenance Department.
29	Number and location of Outfall areas remediated from scouring	Records maintained through Street Maintenance Department.
30	Number and location of Deicing salt and sand storage areas covered or improved	Records maintained through Street Maintenance Department.
31	Est. or act. weight in tons of Salt and sand used for ice/snow control	Records maintained through Street Maintenance Department.
32	Est. or act. weight of material removed from structural BMP	Records maintained through Street Maintenance Department.
33	Est. or act. weight of collected material from street sweeping	Records maintained through Street Maintenance Department.
34	Number or percentage and location of canine parks at least 150 ft away from a surface water body	Document location of canine parks.

Section 5:
Future Receiving Waters Monitoring

5.1 Overview of Receiving Waters Monitoring

The City of Franklin conducted research to obtain existing water quality data for the targeted watersheds of this program. This consisted of researching water quality studies that have been previously conducted by other entities. The Indiana Department of Environmental Management (IDEM) suggests contacting their agency, local agencies (if applicable), universities, and local organizations (e.g., environmental or citizen groups).

Commonwealth Engineers submitted query requests to IDEM's Office of Water Quality, Assessment Branch, specifically from the Biological Studies Section. Information regarding macroinvertebrates and fish populations was generated from the *Assessment Information Management System* (AIMS) database. The results from the AIMS database were presented in Franklin's Part B Submission.

One of the results from the AIMS database is a calculation for an "Index of Biological Integrity" or IBI score. The U.S. EPA has developed a "rapid bioassessment" technique which has been shown to generate highly reproducible results that accurately reflect the ecological health of a stream or lake. The process uses recent knowledge of how aquatic animals respond to changes in environmental conditions. In this process, the aquatic community of a study site is compared to that of a reference site known to have high water quality and representing the best conditions possible for that area. The ecological health of the study site is measured by comparing conditions to the reference. The final product of bioassessment is the IBI score. Although there are many different types of IBI measurements and scales, all can be converted to a 0 to 100 scale, where 0 represents the lowest ecological health and 100 represents the highest possible value.

Another one of the results obtained from the AIMS database is a calculation for a "Qualitative Habitat Evaluation Index" or QHEI score. Habitat analysis of a stream or lake is conducted by taking measurements of important waterbody and watershed characteristics, and then assigning numerical values to these characteristics. All assigned values are added together to obtain a QHEI score. As with the IBI, the highest value possible with the habitat assessment technique is 100. Sites with lower habitat values normally have lower IBI values as well. Table 28 summarizes the existing data.

TABLE 28
Existing Monitoring Data

Sampler	Waterbody	Sample Date	Invert.	Fish	Habitat
IDEM	Youngs Creek	July 7, 1993	55		64
		July 7, 1993	55		68
CB		December, 1993	83		71

Biological studies conducted in the Franklin area during the past decade show that Youngs Creek has a relatively high IBI and habitat values, indicating good water quality.

Commonwealth Engineers and Commonwealth Biomonitoring reviewed the obtained data. To supplement historical monitoring data, Commonwealth Biomonitoring conducted additional field studies. To update information on the biological integrity of streams in the Franklin area, three sites were chosen for study:

Site 1 Youngs Creek
Site 2 Hurricane Creek
Site 3 Canary Ditch

Because they are considered to be more sensitive to local conditions and respond relatively rapidly to change, benthic (bottom-dwelling) organisms were considered to be the primary tool to document the biological condition of the streams. The U.S. EPA's "rapid bioassessment" technique, as described earlier in the report, was used to generate the IBI score for each site. The maximum value, which correlates to maximum ecological health, is 100. The results are presented in Table 29.

TABLE 29
Index of Biological Integrity (IBI) Score

Site #	Site Description	IBI Score
1	Youngs Creek	30
2	Hurricane Creek	13
3	Canary Ditch	40

The most commonly collected species were tolerant midge larvae. The normalized biotic index scores ranged from 13 to 40, which means that all sites were impacted compared to regional “reference” sites.

The aquatic habitat at each study site was evaluated according to the method described by Ohio EPA. This method assigns values to various habitat parameters (e.g., substrate quality, riparian vegetation, channel morphology, etc.) and results in a numerical score for each site. Higher scores indicate higher aquatic habitat value. The maximum value for habitat using this assessment technique is 100. The results are summarized in Table 30.

TABLE 30
Qualitative Habitat Evaluation Index (QHEI) Score

Habitat Parameters	Youngs Creek	Hurricane Creek	Canary Ditch
Substrate	10	8	8
Cover	6	2	2
Channel	12	8	7
Riparian	5	5	4
Pool/Riffle	11	7	7
Gradient	10	8	8
Drainage Area	11	8	7
Total	65	46	43

Aquatic habitat index values ranged from 43 to 65. Canary Ditch and Hurricane Creek have generally poor aquatic habitat. In contrast, the habitat value of Youngs Creek was relatively good.

One of the most useful aspects of biological monitoring is that we can use information on the way aquatic animals respond to different types of stress to diagnose a problem. For example, degraded biotic integrity can often be directly related to degraded habitat. Aquatic life cannot thrive where habitat is lacking. If the IBI score is similar to the habitat score, habitat degradation is usually the problem. However, if the IBI score is significantly lower than the habitat score, water quality degradation is suspected.

Despite having low habitat value, Canary Ditch had the highest biotic index score of the three sites examined. Its biotic index score closely matched its habitat score, indicating that water quality was generally adequate.

In contrast, Youngs Creek has a biotic index score 35 points lower than its habitat score. This site had substantially degraded water quality. Excessive sediment inputs was probably the major problem, since the sediment-tolerant midge species (*Orthocladius obumbratus*) was by far the most common animal present.

Hurricane Creek had serious water quality problems, since its biotic index score was 30 points lower than its habitat score. Again, excessive sediment loading was probably the primary problem.

Stream bank erosion was severe on both Hurricane Creek and Youngs Creek. Much of the excessive sediment inputs could be corrected by stabilizing the stream banks. A bioengineering technique involving establishment of a healthy stream bank plant community is recommended.

5.2 Discussion of Future Monitoring Programs

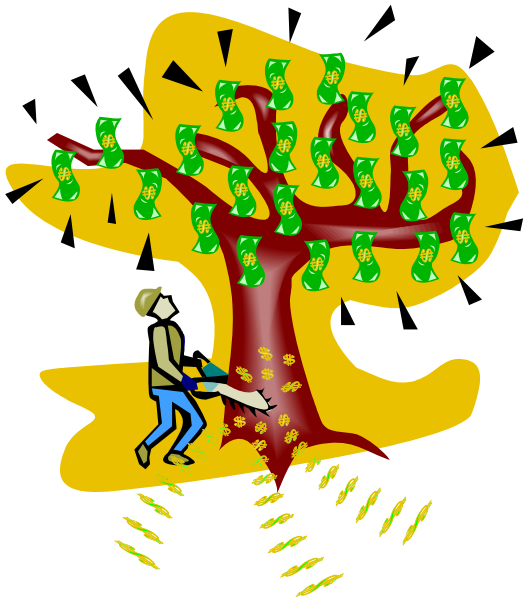
The initial testing of the MS4 waterways was completed in order to determine a baseline characterization. The goal of the monitoring program is to develop an assortment of structural and non-structural BMPs, along with maintaining the current BMPs, in order to reduce pollution in the waterways. Once these measures are in use, biological evaluations will continue to monitor the effectiveness on the water quality. However, the desired increase in water quality will not take place immediately. Therefore, future evaluations will begin approximately three years after the implementation of most of the programs outlined in this Storm Water Quality Management Plan. This will allow the receiving waters time to reflect the positive impacts from this program. The next round of biological assessment will be initiated during the third quarter of 2008.

	2004				2005				2006				2007				2008			
Program	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
IBI Monitoring																				
QHEI Evaluations																				

Section 6: Funding Sources and Projected Program Budgets

6.1 Funding Sources

The City of Franklin is dedicated to making sure that this program has the proper funding – for without adequate financial backing, programs like this can fail quite rapidly. Franklin believes in the ideals set forth in this program and, consequently, is currently pursuing options for revenue sources.



The City of Franklin evaluated various potential funding mechanisms. After detailed discussions and reviews of options, the city decided to primarily fund this program by assessing an additional fee through the existing wastewater utility. The city will also fund this program by charging a permit fee for new developments.

Storm Water Funding Through The Existing Wastewater Utility

The City of Franklin intends to establish an additional fee through modifying their existing wastewater ordinance. This ordinance will define an Equivalent Residential Unit (ERU) and associated ERU rate.

This ERU will then be utilized as a multiplier to assess a fee for commercial and industrial users. A procedure to fairly assess this fee is being developed and will be reported during the required Annual Reporting process.

Permit Fees

When owners in Franklin want to have a new development or undertake a significant re-development that disturbs more than one acre of land, the owner must do two things under this program. First of all, the owner must adhere to the city's construction plan review requirements as outlined under MCM #4 of this plan. Secondly, the owner must address post-construction BMPs as outlined under MCM #5 of this plan. The city plans on contracting with independent third parties (such as engineering firms) or utilize city engineering staff to review the submitted construction and post-construction plans. The city council will charge owners under this scenario a permit fee, which will pay to have the independent third party review, as well as provide additional funds to support the overall goals and objectives of this program. The city will report to IDEM on its permit fee process during the required Annual Reporting process.

6.2 Projected Program Budgets

Following is an estimated budget for existing storm sewer maintenance. As the discussed funding options are implemented and specific MS4 budgets are defined, they will be reported on the required Annual Report.

Section 7: Executed Certification Forms

References

1. *Best Management Practices Stormwater Management Manual.* City of Franklin, Tennessee Engineering Department. CDM Nashville Tennessee, October, 2002.

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3. *Indiana's Municipal Separate Storm Sewer System (MS4) Rule 13 Guidance.* Indiana Department of Environmental Management, May, 2003.

4. *Model Urban Runoff Program – A How-To Guide for Developing Urban Runoff Programs for Small Municipalities.* California Coastal Commission, July, 1998.

5. *Report to Congress On The Phase II Storm Water Regulations*. U.S. EPA, October, 1999, EPA 833-R-99-001.

6. *Storm Water Phase II Final Rule – An Overview.* U.S. EPA, January, 2000, EPA 833-F-00-001.

7. *Storm Water Phase II Final Rule – Who's Covered? Designation and Waivers of Regulated Small MS4s.* U.S. EPA, January, 2000, EPA 833-F-00-003.

8. *Storm Water Phase II Final Rule – Federal and State-Operated MS4s: Program Implementation.* U.S. EPA, January, 2000, EPA 833-F-00-012.

9. *Storm Water Phase II Final Rule – Urbanized Areas: Definition and Description.* U.S. EPA, December, 1999, EPA 833-F-00-004.

10. *Storm Water Phase II Final Rule – Small MS4 Storm Water Program Overview.* U.S. EPA, January, 2000, EPA 833-F-00-002

11. *Water Quality Conditions in the United States: A Profile from the 1998 National Water Quality Inventory Report to Congress.* U.S. EPA, June, 2000, EPA 841-F-00-006.