Stormwater Management Program Plan

CITY OF ST. CHARLES

KANE / DUPAGE COUNTY, ILLINOIS

EFFECTIVE: MARCH 2009

SMPP

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1 Overview of the Stormwater Management Program Plan

Fox River – Kane County, IL Photo by Brian Herrmann

1.1 Introduction

This Stormwater Management Program Plan (SMPP) was developed by the City of St. Charles based off a SMPP template provided by the Lake County Stormwater Management Commission. The purpose of the SMPP is to meet the minimum standards required by the United States Environmental Protection Agency (USEPA) under the National Pollutant Discharge Elimination System (NPDES) Phase II program. Federal regulations through the USEPA require that all Municipal Separate Storm Sewer Systems (MS4s), partially or fully in urbanized areas based on the 2000 census, obtain stormwater permits for their discharges into receiving waters. There are many different types of MS4s including municipalities, park districts, drainage districts, township highway departments, counties and county and state transportation departments (KCDOT and IDOT).

The SMPP describes the procedures and practices that can be implemented by the City of St. Charles toward the goal of reducing the discharge of pollutants within stormwater runoff in order to comply with Federal standards. Compliance with the plan is intended to protect water quality thus contributing to the following amenities:

- cleaner lakes and streams,
- improved recreational opportunities and tourism,
- flood damage reduction,
- better aesthetics and wildlife habitat, and

- a safer and healthier environment for the citizens.

The SMPP addresses the primary program elements for all City of St. Charles activities, including the manner in which the City of St. Charles:

- reviews, permits and inspects construction activity within its limits;
- manages the planning, design and construction of projects performed within its limits;
- maintains its facilities and performs its day-to-day operations;
- works toward protecting the receiving waters from illicit discharges;
- provides public education and outreach;
- trains its employees in carrying out and reporting program activities; and
- continually monitors and evaluates the program.

1.2 State & Federal Regulations

Federal environmental regulations based on the 1972 Clean Water Act (CWA) require that MS4s, construction sites and industrial activities control polluted stormwater runoff from entering receiving bodies of water (including navigable streams and lakes). The NPDES permit process regulates the discharge from these sources based on amendments to CWA in 1987 and the subsequent 1990 and 1999 regulations by the U.S. Environmental Protection Agency (USEPA). In Illinois, the USEPA has delegated administration of the Federal NDPES program to the Illinois Environmental Protection Agency (IEPA). On December 20, 1999 the IEPA issued a general NPDES Phase II permit for all MS4s. The General Permit is included in **Appendix 5.16**. Under the General ILR 40 Permit each MS4 was required to submit a Notice of Intent (NOI) declaring compliance with the conditions of the permit by March 10, 2003. The original NOI describes the proposed activities and best management practices that occurred over the original 5-year period toward the ultimate goal of developing a compliant SMPP. At the end of the 5th year (March 1, 2008) the components of the SMPP were required to be implemented; per the ILR40 permit.

Additionally, under the General ILR10 permit also administered by IEPA, all construction projects that disturb greater than 1 acre of total land area are required to obtain an NPDES permit from IEPA prior to the start of construction. Municipalities covered by the General ILR40 permit, are automatically covered under ILR10 30 days after the IEPA receives the NOI from the municipality.

1.3 Countywide Approach to NPDES Compliance

The Kane County Stormwater Management Commission (SMC) is a countywide governmental agency created by county ordinance under the authority of Illinois Revised Statute 55/5-1062. The Kane County Board adopts this ordinance pursuant to its authority to regulate stormwater management and govern the location, width, course, and release rate of all stormwater runoff channels, streams, and basins in the County, in accordance with the Kane County Comprehensive Countywide Stormwater Management Plan. SMC's goals include the reduction of flood damage and water quality degradation. Another purpose of SMC is to assure that new development addresses non-point source pollution, does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion. To accomplish this, the SMC works cooperatively with individuals, groups, and units of government as well as serving as the corporate enforcement authority for the Kane County Watershed Development Ordinance. SMC enforces the Stormwater Technical Manual in non-certified communities on behalf of the municipality. The municipality is responsible for enforcing the Stormwater Technical Manual in Certified Communities. A municipality is considered a Certified Community after its petition is approved by SMC. SMC utilizes technical assistance, education programs and watershed planning to increase public awareness of natural resources and the impacts of urbanization on stormwater quality. In addition, SMC provides solutions to problems related to stormwater and identifies effective ways of managing natural resources.

The statutory authority for this ordinance is contained in 55 ILCS 5/5-1041, 5-1042, 5-1049, 5-1062, 5-1063, 5-1104, 5-12003 and 5-15001 *et seq.*, and 415 ILCS 5/43, and other applicable authority, all as amended from time to time. As applicable, the municipalities within the County adopt and enforce this ordinance pursuant to 55 ILCS 5/5-1062, 65 ILCS 5/1-2-1, 11-12-12, 11-30-2, 11-30-8, and 11-31-2; and 615 ILCS 5/5, *et seq.*, including 5/18g.

The General Permit allows for MS4s to take credit for activities being performed by a Qualifying Local Program ((QLP) Qualified Local Program) toward meeting its permit requirements. The Kane County Stormwater Management Commission (SMC) is a Qualifying Local Program for MS4s in Kane County. As part of their ongoing services, SMC performs some functions related to each of the six minimum control measures. However, MS4s are required to provide additional services for each of the Minimum Control Measures with the greatest effort in the Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping categories.

However, using the countywide approach, municipalities may take credit for the programs and ordinances developed by SMC as well as tailor specific local BMP programs for compliance with the Phase II rules.

A general list below summarizes additional SMC services under the 6 minimum control categories:

1. **Public Education and Outreach**: SMC provides, through its Public Information Coordinator, Kane County Newsletter(s) and publications, various training workshops and speaking engagements, county educational websites, tributary signage, etc.

2. **Public Participation and Involvement**: SMC coordinates and participates in public meetings and committees such as the stream monitoring program, stream clean-up program, used motor oil and household hazardous waste collection program, etc.

3. **Illicit Discharge detection and Elimination:** From 2003-2008, Kane County successfully carried out the following qualifying local programs to meet the listed requirements under this Control Measure. Programs qualifying under this item are Stormwater System Mapping, non-stormwater discharges into the County's MS4, Kane County Employee Training Program to Identify Illicit Discharges, Educational Outreach – Storm Drain Stenciling Program. Kane County will continue all of these programs through 2013.

4. **Construction Site Runoff Control**: SMC adopted the countywide Watershed Development Ordinance in 1998, which establishes the minimum stormwater management requirements for development in Kane County. The Stormwater Technical Manual, which is enforced by SMC as well as by certified communities in the county, establishes standards for construction site runoff control.

5. **Post-Construction Runoff Control**: The Watershed Development Ordinance also establishes standards for post-construction runoff control.

1.4 Organization of SMPP

The SMPP identifies best management practices to be implemented in six different categories. These categories are:

- Public Education and Outreach,
- Public Participation/Involvement,
- Construction Site Runoff Control,
- Post-Construction Runoff Control,
- Illicit Discharge Detection and Elimination, and
- Pollution Prevention/Good Housekeeping.

Chapter 1: Overview of the Stormwater Management Program Plan - discusses the format of the SMPP document and the regulations associated with NPDES II through county, state and federal agencies.

Chapter 2: Program Management - discusses the logistics of the Plan. This includes the organization, implementation and responsible parties necessary to achieve overall compliance with the SMPP and Permit. It also identifies how the City of St. Charles coordinates with other county and state agencies and discusses the legal authority that the MS4s have to implement the Plan components.

Chapter 3: The Program - addresses stormwater pollutant control measures implemented by the City of St. Charles per the six minimum control categories established by the USEPA:

- Public Education and Outreach,
- Public Participation/Involvement,
- Construction Site Runoff Control,
- Post-Construction Runoff Control,
- Illicit Discharge Detection and Elimination, and
- Pollution Prevention/Good Housekeeping.

Chapter 4: Monitoring, Program Evaluation and Reporting - describes the monitoring, evaluation and reporting procedures associated with the program. The SMPP is a guide created to protect the City of St. Charles receiving waters from pollution and resultant degradation. This Chapter assists in identifying best management practices and processes that may require improvement and refinement, as the document becomes an effective tool.

Chapter 5: Appendices – including forms, references, exhibits and bibliography.

1.5 Watersheds, Sub-Watersheds and Receiving Waters

Fox River

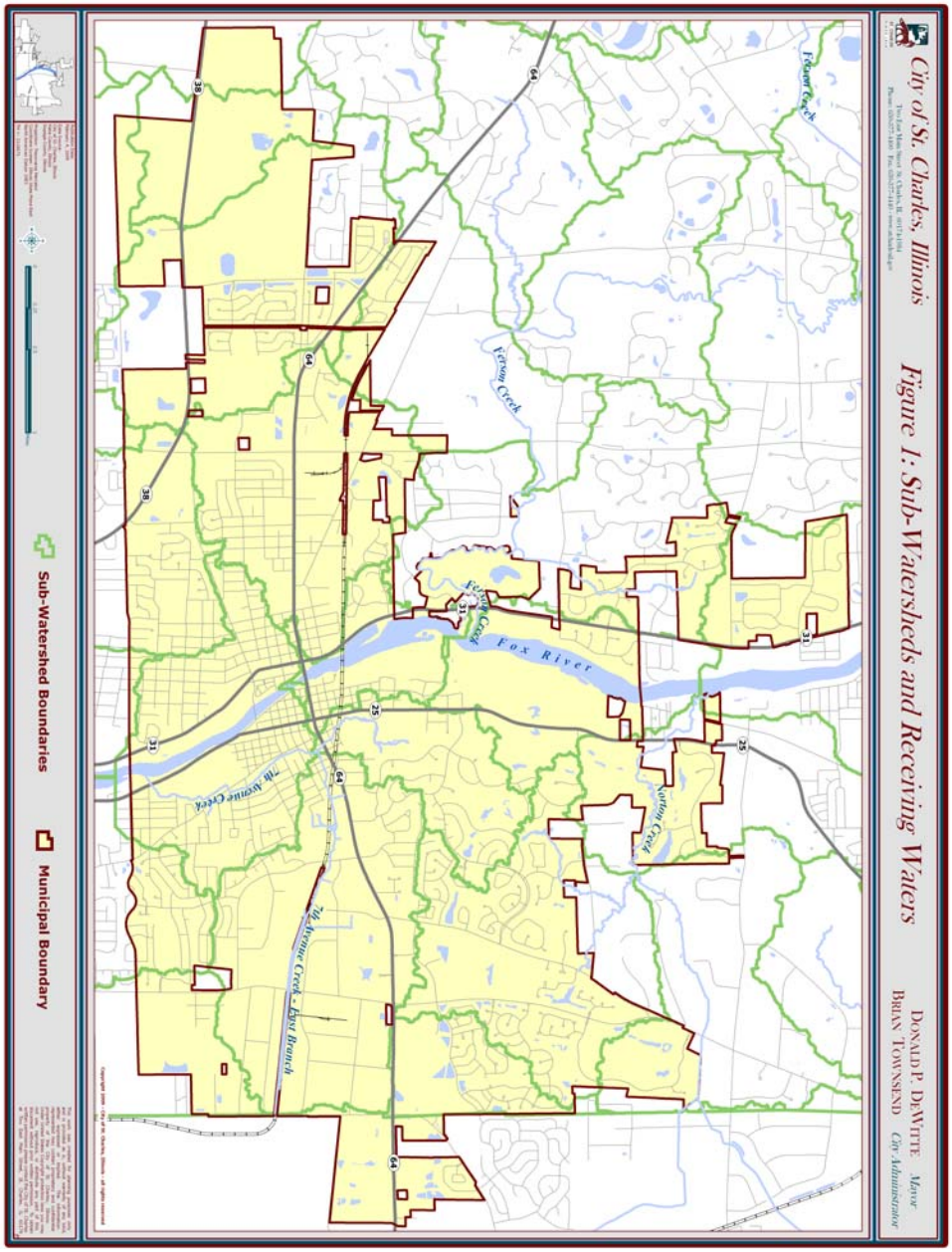
The City of St. Charles is primarily located within the Fox River Watershed. There are several receiving waters, tributary to the Fox River, which are located within the City. These streams include 7th Avenue Creek, Ferson Creek, and Norton Creek.

The major Watersheds and receiving waters are presented on **Figure 1** ***Map of Major Sub-watershed and Receiving Waters.***

Fox River Watershed

- The Fox River drains 938 square miles in Wisconsin and 1720 square miles in Illinois, emptying into the Illinois River at Ottawa, Illinois. It is the third largest tributary to the Illinois River.
- The Fox River Watershed is one of the most populous areas in Illinois, home to 11% of the state's population.
- During the last 20 years, the watershed's population has grown by 30%. Urbanized land has grown by 25% in just the last **10** years.
- The Fox River-Chain O'Lakes region is the United State's second busiest inland recreational waterway with over 27,000 boat stickers issued yearly.
- Over 214,000 people (residents of Elgin, Bartlett, Sleepy Hollow and Aurora) receive their drinking water from the Fox River.
- The Fox River is home to at least 40 animals and 102 plants listed as Illinois endangered or threatened species.
- N Branch Nippersink Creek, Buck Creek and Morgan Creek are 'biologically significant' streams supporting a diversity of fish and mussels in the Fox River Watershed. Other identified high quality tributaries of the Fox include Nippersink Creek, Boone Creek, Tyler Creek, Ferson Creek and Big Rock Creek.
- All of Illinois' undegraded natural lakes are found along the Fox River including 14 glacial lakes designated as biologically significant: Bangs, Cedar, Cross, Crystal, Deep, E. Loon, Grays, Lily, McCullom, Round, Sullivan, Turner, W. Loon, Wooster.
- 'Fen & Bog Capital of Illinois'- Most of the state's rarest wetland communities are found in the Fox River Watershed. These include Volo Bog, Kettle Moraine at Moraine Hills State Park and Lake-In-The-Hills Fen.

Figure 1: Map of Major Sub-watersheds and Receiving waters



2 Program Management

This Chapter describes the organizational structures of the City of St. Charles, the County and IEPA. It further discusses the roles and responsibilities of the various involved parties.

2.1 Implementation of this SMPP

The SMPP includes detailed discussions on the types of tasks that are required to meet the permit conditions under the NPDES II program and how to perform these tasks. **Appendix 5.15** includes related tracking forms. The tracking forms are broken out into three categories (based on the frequency of occurrence). There are three different tracking forms included: Annual, As Needed and On-Going. These forms should be printed annually and the progress of all tasks tracked. At the end of the yearly reporting period (March 1 – February 28/29) the forms should be filed in a binder to document SMPP related activities to IEPA, or their authorized agent, in the case of an audit. It is anticipated that implementation of this SMPP constitutes compliance with the program. The SMPP must be posted on the City of St. Charles website located http://www.ci.st-charles.il.us.

2.2 Intra-Department Coordination

The City Council is the policy and budget setting authority for the City of St. Charles. The Divisions of Engineering and Public Works work together to implement this SMPP. The Stormwater Coordinator has primary responsibility for managing the overall program for the City of St. Charles.

2.2.A Stormwater Coordinator

The City of St. Charles Public Works Engineering Division Manager, James J. Bernahl, is the Stormwater Coordinator and is responsible for the oversight and implementation of this SMPP. The Stormwater Coordinator has many different responsibilities, he/she:

- Is the lead contact for coordination with the Kane County Stormwater Management Commission, the Illinois Environmental Protection Agency, contractors, the development community and other external regulatory agencies;
- Understands the requirements of ILR40, ensures that the SMPP meets the requirements of the permit and that the City of St. Charles effectively implements the SMPP;
- Ensures that the City of St. Charles complies with all minimum Watershed Development Ordinance (Stormwater Technical Manual) created by Kane County;
- Ensures that the Municipal Facilities comply with all minimum ILR40 permit requirements;
- Is aware when a Municipal Project is required to be authorized under the ILR10 permit. In these cases the Stormwater Coordinator should ensure that the NOI is received by IEPA at least 30 days prior to the start of construction; and

- Assists the development community in understanding when a ILR10 permit is required and whether construction sites comply with the general ILR10 and Stormwater Technical Manual permit conditions; and
- Should understand the role illicit discharges play in the overall NPDES II program. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting an MS4's outfall into a receiving water. Additionally, if the illicit discharge is generated by a construction site, it may be necessary for both the applicant and the MS4 to file the ION form with IEPA.

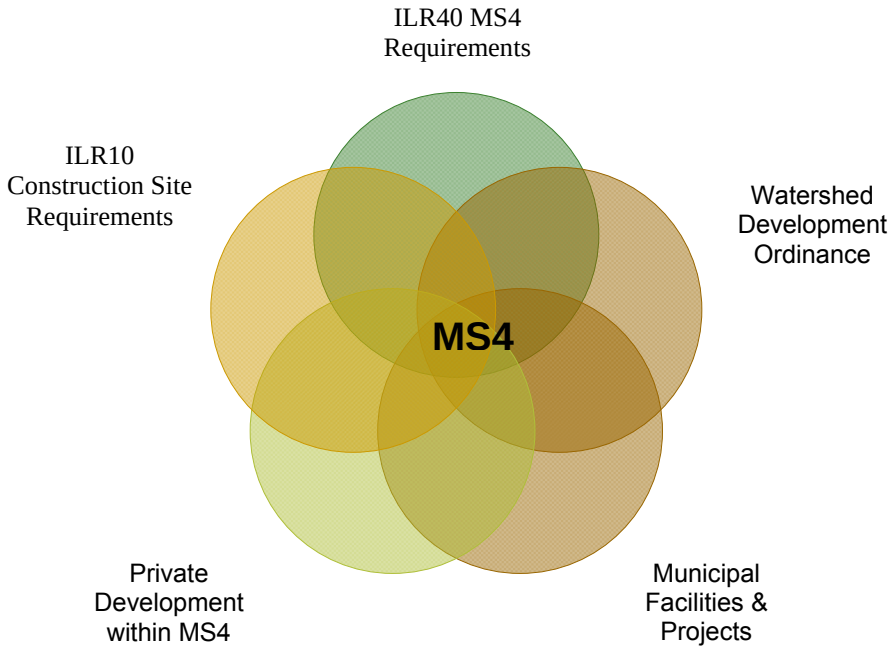


Figure 2: **Roles of MS4**
provided by Gewalt Hamilton & Associates

2.2.B Engineering Division

Engineering personnel support the Stormwater Coordinator in obtaining compliance with both the NDPES and Stormwater Technical Manual programs.

The City of St. Charles Public Works Engineering Division Manager is also the Qualified Review Specialist with respect to the administration and enforcement of the Kane County Watershed Development Ordinance (Stormwater Technical Manual). The design and construction of all public projects shall comply with the Stormwater Technical Manual. As the Qualified Review Specialist, the City of St. Charles Public Works Engineering Division Manager has the responsibility to concur that projects meet Stormwater Technical Manual standards prior to the issuance of permits, and ensures that site inspections during construction are being performed. Refer to Chapter 3.4-3.5 for additional information on this process.

2.2.C Public Works Department

Public Works personnel carry out infrastructure maintenance activities within the MS4. Public Works personnel are designated as the primary entity responsible for performing the duties specified under Chapter 3.3 Illicit Discharge Detection and Elimination and Chapter 3.6 Pollution Prevention and Good Housekeeping.

2.3 Coordination with Kane County Stormwater Management Commission

Coordination between the MS4 and the Kane County Stormwater Management Commission (SMC) occurs through both participation in the SMC sponsored forums and through the Certified Community Status under the Kane County Watershed Development Ordinance (Stormwater Technical Manual). The MS4's Stormwater Coordinator is the lead contact for participation in the forums. If the MS4 is a Certified Community, the MS4's Stormwater Coordinator is responsible for enforcement of the Stormwater Technical Manual and is designated by the MS4 to the SMC.

2.4 Coordination with Consultants

The MS4 may enlist the services of consultants to assist in the implementation of the Stormwater Technical Manual (including, but not limited to, plan review, site inspections and enforcement), and the design of MS4 projects. The Stormwater Coordinator has the responsibility of administering these contracts.

2.5 Coordination of Contractors

The MS4 may hire contracted services. The Stormwater Coordinator also has a responsibility to educate contractors hired by the municipality in the requirements of this SMPP and applicable requirements of the ILR40 and ILR10 permits. Furthermore, the municipality has a responsibility to ensure that the development community hire contractors which meet the qualifications necessary under the program, refer to Chapter 3.4.B for additional information on qualified personnel.

2.6 Coordination with the Public

Coordination with the Public occurs on several levels. The Public Education and Outreach Program of this SMPP is discussed in Chapter 3.1. The Public Participation and Involvement Program of this SMPP is discussed in Chapter 3.2. The Public has the opportunity to comment on proposed preliminary and final plats through the Plan Commission and Municipal Board process established in the Municipal Code.

2.7 Coordination with the IEPA

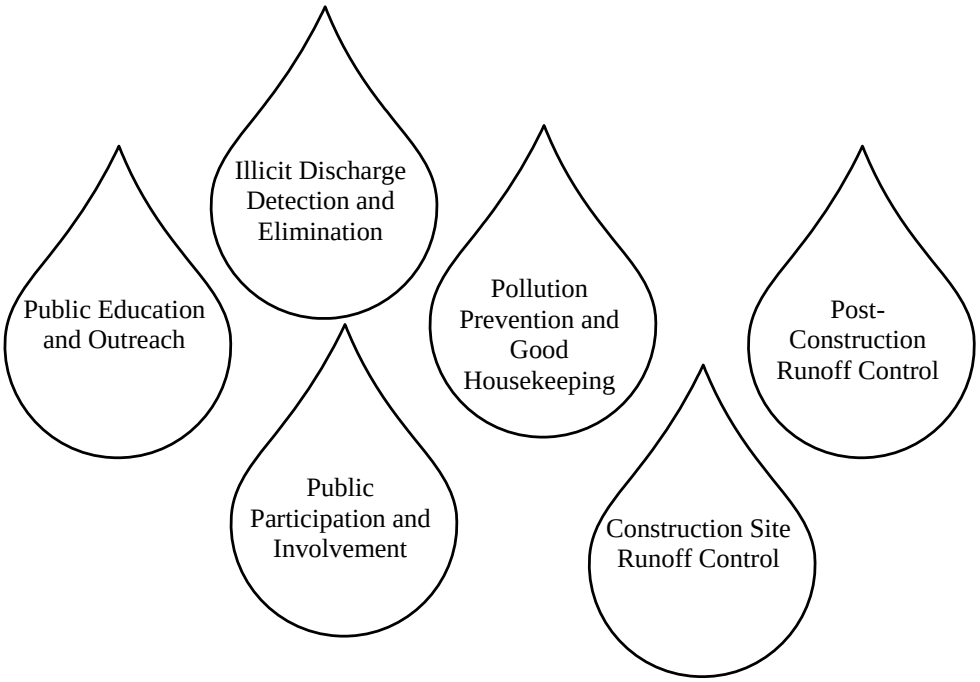
The City of St. Charles is required to complete an annual report that describes the status of compliance with the ILR40 permit conditions and other related information as presented on the annual report template provided by the (QLP) qualified local program. The annual report must be posted on the City of St. Charles website and submitted to the IEPA by the first day of June each year. Annual reporting to IEPA should consist of "implemented SMPP" for all tasks completed in accordance with this SMPP. Additional information should be provided for areas of enhancement or tasks not completed.

Records regarding the completion and progress of the SMPP commitments must be kept by the community. The task sheets, described in Chapter 2.1, should be updated throughout the year. The completed task sheets should be located in a binder with necessary supporting documentation. The binder must be available for inspection by both IEPA and the general public.

2.8 Coordination with the Development Community

The City of St. Charles has a responsibility to assist the development community in understanding when an ILR10 permit is required and whether construction sites comply with the general ILR10 and Stormwater Technical Manual permit conditions. The City of St. Charles should understand the role illicit discharges play in the overall NPDES II program. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting an MS4's outfall into a receiving water. Additionally, if a construction site generates the illicit discharge, it may be necessary for both the applicant and the MS4 to file the ION form with IEPA.

3 The Program



This Stormwater Management Program Plan includes six components, each of which is necessary in an effort to reduce/eliminate stormwater pollution in receiving water bodies. Chapter 3.1 describes the efforts to educate the public about stormwater pollution and stormwater pollution prevention. The manner in which City of St. Charles incorporates public participation and involvement into the SMPP is explained in Chapter 3.2. Chapter 3.3 describes the approach to detecting and eliminating stormwater illicit discharges. Construction and post construction runoff control is addressed in Chapters 3.4 and 3.5. Lastly, Chapter 3.6 discusses responsibilities for the care and upkeep of its general facilities, associated maintenance yards, and municipal roads and to minimize pollution. This chapter also discusses necessary training for employees on the implementation of the SMPP.

3.1 Public Education and Outreach

The City of St. Charles conducts public education programs that inform the community of potential impacts to receiving waters and the contributions the public can make to reduce pollutants in stormwater runoff. The City of St. Charles targets public schools, public libraries, developers, contractors, homeowners, business owners, boaters, and the remaining general public as part of this Public Education and Outreach Program.

The City of St. Charles, in cooperation with the (QLP) qualified local program, utilizes a variety of methods to educate and provide outreach to the public about the importance of managing pollutants that potentially could enter the stormwater system. The program includes the following activities, which are discussed in greater detail in this chapter.

- Distribute information sheets regarding stormwater BMPs, water quality BMPs, and proper hazardous waste use and disposal.
- Maintain a water quality/stormwater section on the City of St. Charles website.
- Attend/sponsor outreach activities to homeowners / property owner associations, commercial / industrial facilities, schools, and other events.
- Coordinate, publicize, and participate in bi-annual Kane County Environmental Management events.
- Maintain City of St. Charles website which offers links to additional educational information, and ways to contact City of St. Charles personnel.

3.1.A Distribution of Paper Materials

City of St. Charles actively pursues the acquisition of educational sheets prepared by the QLP, IEPA, USEPA, Center for Watershed Protection, Chicago Metropolitan Agency for Planning "CMAP" (previously Northeastern Illinois Planning Commission "NIPC"), University of Wisconsin Extension, Solid Waste of Kane County (Kane County Environmental Management) and other agencies and organizations. The City of St. Charles maintains a list of available publications in the SMPP binder and on the website. The City of St. Charles lists the Public Works Engineering

Division phone number on all City of St. Charles outreach publications to encourage residences to contact the City of St. Charles with environmental concerns.

Types of materials distributed include:

- The “Guidelines for Draining Swimming Pools” door hanger,
- The “Protect Our Water” door hanger,
- Informational sheets/pamphlets regarding storm water best management practices,
- Informational sheets/pamphlets regarding water quality best management practices,
- Informational sheets/pamphlets regarding construction site activities (soil erosion and sediment control best management practices),
- Informational sheets/pamphlets published by Kane County Environmental Management regarding proper hazardous waste use and disposal, and
- A water quality/storm water section in the municipal newsletter.

Publications are provided in the following manner:

- At take-a-away racks,
- At annual outreach events,
- The municipal newsletter, a quarterly publication,
- Earth Day/Green Day events held in the community, and
- At scheduled meetings with the general public. These meetings are on an as needed or as requested basis and may be with the homeowners associations, businesses, or local schools.

3.1.B Classroom Education

When permitted, the City of St. Charles participates in classroom presentations at local schools. A Kane County Environmental Management representative prepares the presentation with the City of St. Charles support. The City keeps a log of event dates and participating schools.

3.1.C Web Site

The City of St. Charles web site includes stormwater quality specific elements. The website gives information regarding water quality, solid waste and hazardous material, stormwater and general environmental health. The website is updated by City staff and tracked for hits. A significant amount of information is made available through links to other educational and informational sites.

This SMPP, the NOI and any previous annual reports must be posted on the City's website. Each year's annual report must be posted on the website and submitted to the IEPA by the first day of June each year.

3.1.D Outreach Events

When possible, City of St Charles attends and/or sponsors outreach events and scheduled meetings with the general public. These events are held on an as needed or as requested basis. Audiences may include the homeowners associations, lake associations, businesses, and neighborhood groups.

3.1.E Technical Workshops

Periodically, the (QLP) Qualified Local Program hosts or co-host workshops for the general public that focus on specific stormwater topics. These workshops typically discuss stormwater topics currently of interest within the County. They offer the opportunity to share information and facilitate a collective focus on potential solutions to the challenges faced by the County, Cities, and other stakeholders. The City publicizes these events at take-a-way racks and on the website.

3.1.F Storm Drain Stenciling & Markers

The City of St Charles supports the efforts of private entities to stencil or apply stickers to inlets, and their purchase of factory stamped inlet grates. These efforts apply messages at storm drain inlets with the intent of assisting in educating the public about stormwater runoff pollution. City efforts:

- Providing the "Guide to Storm Drain Marking" (by SMC) to Home Owners Associations, school groups etc. that express interest.
- Requiring all new development to furnish stamped inlet grates as of March 2009.
- The City will continue to require that all new or rehabilitated open lid storm sewer structures will have contain the "No Dumping Drains To River" stamped on the inlet grate.

3.1.G Household Hazardous Wastes

The average garage contains numerous products that are classified as hazardous wastes, including paints, stains, solvents, used motor oil, pesticides and cleaning products. While some household hazardous waste (HHW) may be dumped into storm drains, most enters the storm drain system as a result of outdoor rinsing and cleanup. Improper disposal of HHW can result in acute toxicity to downstream aquatic life. The desired neighborhood behavior is to participate in HHW collection days, and to use appropriate pollution prevention techniques when conducting rinsing, cleaning and fueling operations. The City provides support to the initiatives of the Solid Waste Agency of Kane County to employ a range of tools to improve resident participation. These include:

- Mass media campaigns to educate residents about proper outdoor cleaning/ rinsing techniques
- Conventional outreach materials notifying residents about HHW and collection days
- Providing curbside disposal options for some HHW
- Providing mobile HHW pickup

3.1.G.1 Kane County Environmental Management

Kane County Environmental Management provides solid waste management programs to Kane County (in both incorporated and unincorporated areas). Their programs are aimed at reducing our reliance on landfills through source reduction, recycling and energy recovery. In general, the programs help residents dispose of problem wastes, such as household chemicals, electronic equipment, and yard waste. Their recycling programs are targeted at both commercial and residential markets in order to divert as much solid waste as possible from reaching landfills. They also administers their own public information and education efforts promoting Kane County Environmental Management events, and publishing various resources.

The City of St Charles coordinates with Kane County Environmental Management to participate in at least one collection per year. These collections encourage the proper disposal of hazardous materials. Typically there is a spring through summer clean-up event that facilitates proper disposal of electronic devices and a fall event for disposal of paint and solvents. The events can be held at the Naperville Fire Station #4, Corner of Route 59 and Brookdale (1/2 mile south of I-88). At a minimum, the City encourages participation in the event by publicizing these special collections in local newspapers and on the City website. The City maintains a log of event dates and quantities collected.

3.1.H Septic System Maintenance

Failing septic systems can be a major source of bacteria, nitrogen, and phosphorus, depending on the overall density of systems present in a sub-watershed. Failure results in illicit surface or subsurface discharges to streams. Septic systems are a classic case of out of sight and out of mind. Many owners take their septic systems for granted, until they back up or break out on the surface of their lawn. Subsurface failures, which are the most common, go unnoticed. In addition, inspections pump outs, and repairs can be costly, so many homeowners tend to put off the expense until there is a real problem. Lastly, many septic system owners are not aware of the link between septic systems and water quality. The City employs a standard policy that when a property is annexed into the City of St. Charles it will eliminate any existing septic systems.

3.1.I Vehicle Fluid Maintenance

Dumping of automotive fluids into storm drains can cause major water quality problems, since only a few quarts of oil or a few gallons of antifreeze can severely degrade a small stream. Dumping delivers hydrocarbons, oil and grease, metals, xylene and other pollutants to streams, which can be toxic during dry-weather conditions when existing flow cannot dilute these discharges. The major culprit has been the backyard mechanic who changes his or her own automotive fluids. The City employs a range of tools to improve septic system maintenance. These include:

- Outreach materials distributed at auto parts store and service stations
- Community oil recycling centers
- Directories of used oil collection stations
- Pollution hotlines
- Fines and other enforcement actions

3.1.J Car Washing

Car washing is a common neighborhood behavior that can produce transitory discharges of sediment, nutrients and other pollutants to the curb, and ultimately the storm drain. Communities have utilized many innovative outreach tools to promote environmentally safe car washing, including:

- Media campaigns
- Brochures promoting nozzles with shut off valves
- Storm drain plug and wet-vac provisions for charity car wash events
- Water bill inserts promoting environmentally safe car washing products
- Discounted tickets for use at commercial car washes

3.1.K Pool Dewatering

Chlorinated water discharged to surface waters, roadways or storm sewers has an adverse impact on local stormwater quality. High concentrations of chlorine are toxic to wildlife, fish and aquatic plants. The pH of the water should be between 6.5 and 8.5. Algaecides such as copper or silver can interrupt the normal algal and plant growth in receiving waters and should not be present when draining. Prepare appropriately before draining down a pool. It is recommended that one of the following measures be used:

1) De-chlorinate the water in the pool prior to draining through mechanical or chemical means; these types of products are available at local stores.

2) De-chlorinate the water in the pool through natural means. Pool water must sit at least 2 days with a reasonable amount of sun, after the addition of chlorine or bromine. It is recommended that the chlorine level be tested after 2 days to ensure that concentrations are at a safe level (below 0.1-mg/l).

3) Drain the pool slowly over a several day period across the lawn; or drain directly into the <u>sanitary</u> sewer using the following additional guidelines:
   a) Avoid discharging suspended particles (e.g. foreign objects blown into the pool like leaves, seedlings, twigs etc) with pool water.
   b) When draining your pool, do not discharge directly onto other private properties or into public right-of-way **including storm sewer inlets**.

The City has acquired a fact sheet, ***Pool Dewatering Fact Sheet*** **(Appendix 5.11),** stating the above information. Outreach efforts (such as including information in the news letter, other mail-outs or adding information to the take-a-way racks) should occur each fall, preferably September.

3.2 Public Participation and Involvement

The public participation and involvement program allows input from citizens during the development and implementation of the SMPP. The SMPP should be evaluated annually. Major highlights and deficiencies should be noted annually and the plan revised accordingly on a minimum 5-yr basis, or as necessary.

3.2.A Public Review Process

Prior to the acceptance of the SMPP, the draft document was presented to the City Council. Comments on the SMPP are continually accepted through the website, phone calls or other media. Comments are evaluated for inclusion and incorporated into the next revision of the SMPP as appropriate.

3.2.B Complaints, Suggestions and Requests

Calls are screened, logged and routed to the appropriate department for action. General program related calls are directed to the Stormwater Coordinator, or designee. Construction activity related telephone calls are directed to the Qualified Review Specialist, or designee. Illicit Discharge, storm sewer, and other related stormwater runoff concerns are directed to the Public Works Department. The City of St. Charles maintains a website which enables and encourages public contact on these issues.

3.2.C Watershed Planning and Stakeholders Meetings

The City of St Charles participates (and encourages the participation of local stakeholders) in Kane County (QLP) Qualified Local Program or other sponsored watershed planning events. The City will adopt Watershed Plans per the direction and in coordination with the Kane County (QLP) Qualified Local Program.

3.2.D Illicit Discharge/Illegal Dumping Hotline

City of St Charles maintains, operates and publicizes a call in phone number where parties can contact the City with environmental concerns. Primary advertisement venues include the website and all related municipal publications. Telephone calls received from residents, other internal Departments or other agencies are logged on the **Indirect Illicit Discharge Tracking Form** (**Appendix 5.13)**. The Public Works Director, or his designee, should transfer information from the tracking form to the ***Indirect Illicit Discharge Summary Form*** **(Appendix 5.13)** monthly. This tracking form should be reviewed with the Stormwater Coordinator annually to determine if trends can be seen and if there are additional outreach efforts needed.

3.2.E KCSMC Municipal Advisory Committee (MAC)

The City of St Charles participates in MAC meetings and events hosted by the Kane County (QLP) Qualified Local Program.

3.2.F Adopt-A-Highway

Adopt
a
Highway

City of St Charles in cooperative partnership with IDOT conducts and locally administers Adopt-A-Highway Programs for state roadways within the municipal limits. The objective of the program is to improve and promote the image of the entire community by reducing potential illicit discharges. Participation meets the Program Policy and Safety Guidelines established by IDOT in a separate document.

3.3 Illicit Discharge Detection and Elimination[1]

Currently, illicit discharges (defined in 40 CFR 122.26(B)(2)) contribute considerable pollutant loads to receiving waters. There are two primary situations that constitute illicit discharges; these include non-stormwater runoff from contaminated sites and the deliberate discharge or dumping of non-stormwater. Illicit discharges can enter the storm sewer system as either an indirect or direction connection.

3.3.A Regulatory Authority

Effective implementation of an IDDE program requires adequate legal authority to remove illicit discharges and prohibit future illicit discharges. This regulatory authority is achieved through adoption of the Kane County Watershed Development Ordinance (Stormwater Technical Manual). Additionally, IEPA has regulatory authority to control pollutant discharges and can take the necessary steps to correct or remove an inappropriate discharge over and above MS4 jurisdiction.

3.3.A.1 Watershed Development Ordinance

Several provisions of the Kane County Watershed Development Ordinance (Stormwater Technical Manual) prohibit illicit discharges as part of the development process. These provisions are only applicable for regulated development activities as defined by the Stormwater Technical Manual. Regulated developments are required to meet the soil erosion and sediment control standards of the Stormwater Technical Manual. Furthermore, the Stormwater Technical Manual requires that the applicant prohibit illicit discharges into the stormwater management system generated during the development process.

The Stormwater Technical Manual allows the City of St. Charles to require inspection deposits, performance bonds, and to adopt/enforce violation procedures. These tools assist in achieving complaint construction sites. These items are further discussed in Chapters 3.4 and 3.5.

[1] Section 3.3 is a revision of the Lake Michigan Watershed Stormwater Outfall Screening Program Training Program, and incorporates material from the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (October 2004 by the Center for Watershed Protection and Robert Pitt, University of Alabama).

3.3.A.2 Subdivision and Public Utility Ordinance

The City of St Charles created and adopted Subdivision and Public Utility Ordinances. These Ordinances are administered by the Building and Engineering Divisions and can be used to further support the activities required by the SMPP.

3.3.B Understanding Outfalls and Illicit Discharges

Understanding the potential locations and the nature of illicit discharges in urban watersheds is essential to find, fix and prevent them.

3.3.B.1 Identifying Outfalls and Receiving Waters

An Outfall (is defined at 40 CFR 122.26(B)(9)) means a point source (as defined by 40 CFR 122.2) at the point where a municipal separate storm sewer discharges into a water of the United States "receiving water". Open conveyances connecting two municipal storm sewers, or pipes, tunnels or other conveyances that connect segments of the same stream or other Waters of the United States are not considered Outfalls. For the purposes of this manual the following definitions shall be used:

> *Outfall:* Storm sewer outlet, or other open conveyance point discharge location, that discharge into a Waters of the U.S, receiving water or another MS4.

Regulated systems include the conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, gutters, ditches, swales, manmade channels or storm sewers.

The outfall inventory was completed by the City of St. Charles. This investigation was completed with a GPS receiver (Trimble Unit) and ArcPad software. The outfall inventory was supplemented by data provided by Kane County, for several of the receiving waters, using their prior stream inventory work. These two data sources were combined to create an ***Outfall Inventory Map***. This map is used in combination with the previously existing ***Storm Sewer Atlas*** to help determine the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the particular water bodies these flows may be affecting. The inlets and outfall locations have been numbered to facilitate detection and tracking of identified illicit discharges. The ***Storm Sewer Atlas and Outfall Inventory Map*** can be obtained from the Public Works Engineering Division.

The outfall map should be revised annually to incorporate permitted outfalls associated with new developments. An outfall inventory should be performed every 5 years; the focus of this effort is to search for new outfalls (i.e. those note already included on the existing ***Outfall Inventory Map***). The search for new outfalls should be combined with the pre-screening efforts (Chapter 3.3.D.1).

3.3.B.2 Potential Sources of Illicit Discharges

Table 1 shows that direct connections to storm sewer systems most likely originate from commercial/industrial facilities. Thus, the focus on Chapter 3.3 is on the identification of illicit discharges from commercial/industrial facilities.

Table 1: **Potential Sources of Illicit Discharges to Storm Sewers**

Potential Sources	Storm Sewer Entry		Flow Characteristics	
	Direct	Indirect	Continuous	Intermittent
Residential Sources				
Sanitary Wastewater	√	X	√	X
Septic Tank Effluent	-	√	√	X
Household Chemicals	X	√	-	√
Laundry Wastewater	√	-	-	√
Excess Landscaping Watering	-	√	-	√
Leaking Potable Water Pipes	-	√	√	-
Commercial Sources				
Gasoline Filling Stations	√	X	-	√
Vehicle Maint./Repair Facilities	√	X	-	√
Laundry Wastewater	√	-	√	X
Construction Site Dewatering	-	√	√	X
Sanitary Wastewater	√	X	√	-
Industrial Sources				
Leaking Tanks and Pipes	X	√	√	X
Misc. Process Waters	√	X	√	X

√: Most likely condition. X: May Occur -: Not very likely

Source: *Adapted From: USEPA. January 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems: A User's Guide. Cincinnati, Ohio.*

3.3.B.3 USEPA Exclusions

It is noted that not all dry-weather flows are considered inappropriate discharges. Under certain conditions, the following discharges are not considered inappropriate by USEPA:

- Water line flushing,
- Landscaping irrigation,
- Diverted stream flows,
- Rising groundwaters,
- Uncontaminated groundwater infiltration,
- Uncontaminated pumped groundwater,
- Discharges from potable water sources,
- Flows from foundation drains,
- Air conditioning condensation,
- Irrigation water,
- Springs,
- Water from crawl spaces,

- Lawn watering,
- Individual car washing,
- Flows from riparian habitats and wetlands,
- Dechlorinated swimming pool water, and
- Street wash water.

3.3.B.4 Pollutant Indicators

3.3.B.4.a PHYSICAL INDICATORS

Adapted from New Hampshire Estuaries Project and the IDDE Guidance Manual by the Center for Watershed Protection.

Odor

Water is a neutral medium and does not produce odor; however, most organic and some inorganic chemicals contribute odor to water. Odor in water may originate from municipal and industrial waste discharges, from natural sources such as decomposition of vegetative matter, or from associated microbial activity.

Table 2: Odor or Potential Illicit Discharges (adapted from CWP)

Odor	**Possible Cause**
Sewage	Wastewater treatment facilities, domestic waste connected into storm drain, failing septic system
Sulfide (rotten eggs)	Decaying organic waste from industries such as meat packers, dairies and canneries
Rancid/sour	Many chemicals, including pesticides and fertilizers, emit powerful odors that may produce irritation or stinging sensations.
Petroleum/gas	Industry associated with vehicle maintenance or petroleum product storage; gas stations
Laundry	Laundromat, dry cleaning, household laundry

Color

Color is a numeric computation of the color observed in a water quality sample, as measured in cobalt-platinum units. Both industrial liquid wastes and sewage tend to have elevated color values. Unfortunately, some “clean” flow types can also have high color values. A color value higher than 500 units may indicate an industrial discharge.

Table 3: Color of Potential Illicit Discharges (adapted from CWP)

Water Color	Possible Cause	Images
Brown Water – water ranging in color from light-tea to chocolate milk; it may have a rotten egg odor.	Human causes may be eroded, disturbed soils from construction sites, animal enclosures, destabilized stream banks and lakeshore erosion due to boat traffic.	
Yellow –	Human causes may include textile facilities, chemical plants or pollen.	
Gray Water – water appears milky and may have a rotten egg smell and/or soap odor. There may also be an appearance of cottony slime.	Human causes may be illicit connections of domestic wastewater; untreated septic system discharge; illegal boat discharge; and parking lot runoff.	
Green Water – ranging from blue green to bright green color and may impart odor. Conditions typically occur from May to October.	Human causes may be over-fertilizing lawns, boat discharges, septic systems, agriculture operations, or discharging poorly treated wastewater.	
Orange/Red -	Human causes may include meat packing facilities or dyes.	
Green Flecks – resembling floating blue-green paint chips or grass clippings. These *Blooms* and are potentially toxic.	Human cause is excessive nutrients. Fertilizers used on lawns can contaminate surface and ground water.	

Table 3 (continued)

Water Color	Possible Cause	Images
Green Hair-Like Strands - bright or dark green, resembling cotton candy and often in floating mats.	Human causes are excessive nutrients from fertilizers or failed on-shore septic systems.	
Multi-Color Water – various or uniform color, other than brown, green or gray. For rainbow sheen see floatables.	Human causes include oil or hazardous waste spill, paint and paint equipment rinsed into storm drains or into failing septic systems.	

Turbidity

Turbidity is a measure of the clarity of water. Turbidity may be caused by many factors, including suspended matter such as clay, silt, or finely divided organic and inorganic matter. Turbidity is a measure of the optical properties that cause light to be scattered and not transmitted through a sample. The presence of turbidity is to be assessed by comparing the sample to clean glass sample container with colorless distilled water.

Turbidity and color are related terms but are not the same. Remember, turbidity is a measure of how easily light can penetrate through the sample bottle, whereas color is defined by the tint or intensity of the color observed.

Figure 4
Turbidity Severity Examples
(Adapted from CWP)

Turbidity
Severity 1

Turbidity
Severity 2

Turbidity
Severity 3

Floatables

The presence of sewage, floating scum, foam, oil sheen, or other materials can be obvious indicators of an illicit discharge. However, trash originating from areas adjacent to the outfall is this section.

- If you think the floatable is sewage, you should automatically assign it a severity score of three since no other source looks quite like it.
- Suds are rated based on their foaminess and staying power. A severity score of three is designated for thick foam that travels many feet before breaking up. Natural foam breaks apart easily, can be brown, black or yellowish and may smell fishy or musty.
- Surface oil sheens are ranked based on their thickness and coverage. In some cases, surface sheens may not be from oil discharges, but instead created by in-stream processes. Petroleum sheen doesn't break apart and quickly flows back together.

Figure 5
Natural Sheen versus Synthetic
(Adapted from CWP)

Sheen from natural bacteria forms a swirl-like film that cracks if disturbed

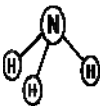
Synthetic oil forms a swirling pattern

Table 4: Floatables in Potential Illicit Discharges (adapted from CWP)

Floatables	
Sewage	Human causes include connection of domestic wastewater, leaking sanitary sewers or failing septic systems.
Suds and Foam –	Common human causes of unnatural foam include leaking sewer lines, boat discharges, improper sewer connections to storm sewers and detergents from car washing activities.
Petroleum (oil sheen)	Human causes may include leaking underground storage tank or illegal dumping.
Grease	Common human causes include overflow from sanitary systems (due to clogging from grease) and illegal dumping.

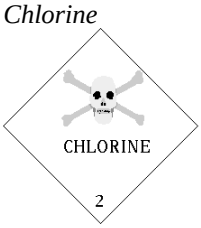
3.3.B.4.b TESTING INDICATORS

Ammonia



Ammonia is a good indicator of sewage, since its concentration is much higher there than in groundwater or tap water. High ammonia concentrations (>50 mg/l) may also indicate liquid wastes from some industrial sites. Ammonia is relatively simple and safe to analyze. Some challenges include the potential generation of wastes from non-human sources, such as pets or wildlife.

Chlorine



Chlorine is used throughout the country to disinfect tap water, except where private wells provide the water supply. Chlorine concentrations in tap water tend to be significantly higher than most other discharge types. Unfortunately, chlorine is extremely volatile, and even moderate levels of organic materials can cause chlorine levels to drop below detection levels. Because chlorine is non-conservative, it is not a reliable indicator, although if very high chlorine levels are measured, it is a strong indication of a water line break, swimming pool discharge, or industrial discharge from a chlorine bleaching process.

Copper

Concentrations of copper in dry-weather flows can be a result of corrosion of water pipes or automotive sources (for example, radiators, brake lines, and electrical equipment). The occurrence of copper in dry-weather flows could also be caused by inappropriate discharges from facilities that either use or manufacture copper-based products. A copper value of >0.025-mg/L indicates an industrial discharge is present.

Industrial sources of copper include the following:

- Copper manufacturing (smelting),
- Copper metal processing/scrap re-melting,
- Metal plating,
- Chemicals manufacturing,
- Analytical laboratories,
- Power plants,
- Electronics,
- Wood preserving, and
- Copper wire production.

In each of these industries, wastes containing copper would normally be discharged to a treatment facility. Sludge from the waste treatment facility, whether on-site (including lagooning) or publicly operated treatment facilities, would contain copper. If the sludge (or the treatment process) is not managed properly, copper could enter the storm sewer system.

Detergents

Most illicit discharges have elevated concentration of detergents. Sewage and washwater discharges contain detergents used to clean clothes or dishes, whereas liquid wastes contain detergents from industrial or commercial cleansers. The nearly universal presence of detergents in illicit discharges, combined with their absence in natural waters or tap water, makes them an excellent indicator. Research has revealed three indicator parameters that measure the level of detergent or its components-- surfactants, fluorescence, and surface tension. Surfactants have been the most widely applied and transferable of the three indicators. Fluorescence and surface tension show promise, but only limited field-testing has been performed on these more experimental parameters; therefore these are not tested. Refer to Boron and Surfactants descriptions.

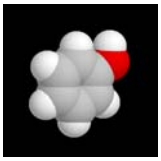
E. coli, Enterococci and Total Coliform

Each of these bacteria is found at very high concentrations in sewage compared to other flow types, and is a good indicator of sewage or seepage discharges, unless pet or wildlife sources exist in the sub-watershed. Overall, bacteria are good supplemental indicators and can be used to find "problem" streams or outfalls that exceed public health standards. A Fecal Coliform count greater than 400 per 100 mL indicates wastewater contamination.

Fluoride

Fluoride, at a concentration of two parts per million, is added to drinking water supplies in most communities to improve dental health. Consequently, fluoride is an excellent conservative indicator of tap water discharges or leaks from water supply pipes that end up in the storm drain. Fluoride is obviously not a good indicator in communities that do not fluorinate drinking water, or where individual wells provide drinking water. Fluoride levels greater than 0.6-mg/L indicate a potable water source is connected to the stormwater system.

Phenol



Phenol is a very commonly occurring chemical and can be found in foods, medicines, and cleaning products, as well as industrial products and by-products. Generally, the appearance of phenols in stormwater would indicate a misconnected industrial sewer to a storm drain or ditch. Exceptions would include runoff from treated wood storage yards (for example, treated lumber and telephone poles) and improper disposal (flash dumping) of cleaning products. A phenol value greater than 0.1-mg/L indicate an illicit discharge is present.

Industrial sources of phenol include the following:

- Chemical manufacturing (organic),
- Textile manufacturing,
- Paint and coatings manufacturing,
- Metal coating,
- Resin manufacturing,
- Tire manufacturing,
- Plastics fabricating,
- Electronics,
- Oil refining and re-refining,
- Naval stores (turpentine and other wood treatment chemicals),
- Pharmaceutical manufacturing,

- Paint stripping (for example, automotive and aircraft),
- Military installations (rework and repair facilities),
- Coke manufacturing,
- Iron production, and
- Ferro-alloy manufacturing.

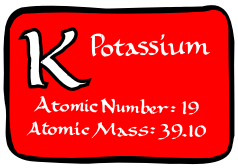
Other sources of phenol include improper handling and disposal of cleaning compounds by institutions such as hospitals and nursing homes.

pH

Potential ID Range: >6.5 and < 8.5

Most discharge flow types are neutral, having a pH value around 7, although groundwater concentrations can be somewhat variable. pH is a reasonably good indicator for liquid wastes from industries, which can have very high or low pH (ranging from 3 to 12). The pH of residential wash water tends to be rather basic (pH of 8 or 9). The pH of a discharge is very simple to monitor in the field with low cost test strips or probes. Although pH data is often not conclusive by itself, it can identify problem outfalls that merit follow-up investigations using more effective indicators.

Potassium



Potassium is found at relatively high concentrations in sewage, and extremely high concentrations in many industrial process waters. Consequently, potassium can act as a good first screen for industrial wastes, and can also be used in combination with ammonia to distinguish wash waters from sanitary wastes. An ammonium to potassium ratio of >1 or <1indicate waste water or wash water discharge respectively. A potassium value of >20-mg/l is a good indicator for industrial discharges.

Surfactants

Surfactants are the active ingredients in most commercial detergents, and are typically measured as Methyl Blue Active Substances (or MBAS). They are a synthetic replacement for soap, which builds up deposits on clothing over time. Since surfactants are not found in nature, but are always present in detergents, they are excellent indicators of sewage and wash waters. The presence of surfactants in cleansers, emulsifiers and lubricants also makes them an excellent indicator of industrial or commercial liquid wastes. A surfactant value of > 0.25-mg/L within residential areas indicates that either a sewage or wash water is present in the stormwater; a value of >5-mg/L within non-residential areas indicates that there is an industrial discharge (refer to Table 46 from the Illicit Discharge Detection and Elimination manual by the Center for Watershed Protection for use in determining industrial flow types).

3.3.C Indirect Connection Program

Indirect connections are subtle connections, such as dumping or spillage of materials into storm sewer drains. Flash dumping is a common type of indirect connection. Generally, indirect modes of entry produce intermittent or transitory discharges, with the exception of groundwater seepage. There are five main modes of indirect entry for discharges.

3.3.C.1 Groundwater Seepage

Seepage discharges can be either continuous or intermittent, depending on the depth of the water table and the season. Groundwater seepage usually consists of relatively clean water that is not an illicit discharge by itself, but can mask other illicit discharges. If storm drains are located close to sanitary sewers, groundwater seepage may intermingle with diluted sewage. Addressing seepage that is observed during the outfall screening process is described in more detail in this Chapter.

3.3.C.2 Spills

These transitory discharges occur when a spill travels across an impervious surface and enters a storm drain inlet. Spills can occur at many industrial, commercial and transport-related sites. A very common example is an oil or gas spill from an accident that then travels across the road and into the storm drain system. The Spill Response Plan is described in Chapter 3.6.B.

3.3.C.3 Dumping

Dumping a liquid into a storm drain inlet: This type of transitory discharge is created when liquid wastes such as oil, grease, paint, solvents, and various automotive fluids are dumped into the storm drain. Liquid dumping occurs intermittently at sites that improperly dispose of rinse water and wash water during maintenance and cleanup operations. A common example is cleaning deep fryers in the parking lot of fast food operations. The Storm Drain Stenciling, Household Hazardous Wastes, Vehicle Fluid Maintenance and Pool Dewatering programs are designed to minimize dumping; these programs are described in Chapter 3.1.F, G, I and K. Additionally, the City maintains an Illegal Dumping Hotline which is described in Chapter 3.2.D. The procedure for handling a dumping incident is described in Chapter 3.6.B.1.

3.3.C.4 Outdoor washing activities

Outdoor washing may or may not be an illicit discharge, depending on the nature of the generating site that produces the wash water. For example, hosing off individual sidewalks and driveways may not generate significant flows or pollutant loads. On the other hand, routine washing of fueling areas, outdoor storage areas, and parking lots (power washing), and construction equipment cleanouts may result in unacceptable pollutant loads. Individual washing activities are addressed through the Public Education and Outreach Program in Chapter 3.1.J whereas observed/documented routine washing activities should be addressed through the Removal of Illicit Discharges Procedure in Chapter 3.3.E.4.

3.3.C.5 Non-target irrigation from landscaping or lawns

Irrigation can produce intermittent discharges from over-watering or misdirected sprinklers that send tap water over impervious areas. In some instances, non-target irrigation can produce unacceptable loads of nutrients, organic matter or pesticides. The most common example is a discharge from commercial landscaping areas adjacent to parking lots connected to the storm drain system. The Public Education and Outreach Program in Chapter 3.1 address this type of discharge140.

3.3.D Direct Connection Illicit Discharge Program

Direct connections enter through direct piping connections to the storm sewer system, and since direct connections exist regardless of whether or not a stormwater event (e.g. rain or melting snow) is occurring, they are most easily detected during dry-weather periods. Inspection of stormwater outfalls during dry-weather conditions reveals whether non-stormwater flows exist. If non-stormwater flows are observed, they can be screened and tested to determine whether pollutants are present. If the presence of pollutants is indicated, the detective work of identifying the source of the discharge can begin. Once the source is identified, it can then be corrected. A direct connection illicit discharge program consists of three principal components: 1) program planning, 2) outfall screening, and 3) follow-up investigation and program evaluation.

1. ***Program Planning*** involves the office work, planning, and organization required to conduct the subsequent outfall screening and follow-up investigative activities of the program. Program planning identifies the regulatory authority to remove directly connected illicit discharges and the identification of the outfalls and receiving waters in the municipality (both discussed earlier in this chapter). Program planning for the direct connection portion of the overall program also includes the identification of the staffing and equipment needed to conduct the outfall screening, and scheduling of the outfall screening activities (Chapter 3.3.A).

2. ***Outfall Screening*** consists of pre-screening to determine whether dry-weather flows are present and outfall inspection which includes field-testing and grab samples to determine whether pollutants are present in any observed dry-weather flows (Chapter 3.3.B).

3. ***Follow-Up Investigation and Program Evaluation*** are the steps necessary to determine the source of any identified pollutant flows and eliminate them. The major follow-up investigation and program evaluation components (Chapter 3.3.C.) include:

- Reviewing and assessing outfall inspection results,
- Internal coordination,
- Conducting detailed storm sewer investigations to identify pollutant sources (*tracing*),
- Exercising the appropriate legal means to achieve enforcement of the program objective (*removal of pollutants at the source)*, and evaluating the program to determine whether subsequent screening activities are necessary.

3.3.D.1 Program Planning

The program-planning component is primarily office work related to assembling the necessary information and equipment for efficiently conducting outfall-screening activities. This component of the program addresses the following issues (see **Figure 3**).

STAFFING

EQUIPMENT NEEDS

TRAINING

SCHEDULING

Figure 3: Program Elements

3.3.D.1.a STAFFING

Personnel for an outfall inspection-screening program are required for program administration, effort for conducting the outfall screening, and any follow-up investigations. Typically, a two-member Public Works crew is required for the outfall screening and follow-up portions of the program. Based on the number of identified outfalls and program goals, it is anticipated that a two-member crew will be required to perform inspections at least several weeks throughout the year for the first 5-year period.

3.3.D.1.b EQUIPMENT NEEDS

General field equipment and specialized outfall screening equipment are required for IDDE programs. The method of collecting and managing inspection screening data is driven by available technology. A complete list of recommended equipment and supplies is found on ***Stormwater Outfall Screening Equipment Checklist (*****Appendix 5.2)**. Field Crews carry basic safety items, such as cell phones, surgical gloves, and first aid kits.

3.3.D.1.c TRAINING

Applicable Public Works personnel shall thoroughly read and understand the objectives of the IDDE subchapters of this manual. Applicable field personnel shall have completed a standard training session. It is recommended that applicable Public Works personnel accompany a Public Works supervisor on at least two outfall inspections to learn the use of the ***Stormwater Outfall Inspection Data Form*** (**Appendix 5.3**) and the use of sampling equipment and test kits. As a training exercise, new Public Works personnel should independently conduct outfall-screening activities until two outfall screening data forms are accurate and consistent with the Public Works supervisor investigator's forms.

3.3.D.1.d SCHEDULING

Scheduling for pre-screening or outfall inspections is dependent on staff availability and weather. Pre-screening generally takes place during the late summer or fall months, ideally in August, September, or October, although other summer or fall months may be acceptable, depending on weather conditions. This time period is generally warm, which improves field efficiency as well as reliability and consistency of field-testing. This time period is also more likely to have extended dry periods with little or no precipitation, which is required for the inspection activities.

In order to ensure that samples collected are representative of dry-weather flows, conduct pre-screening and follow-up inspections preceding a dry-weather period, a period of 72 hours of dry weather. A period of 72 hours is selected to allow local detention facilities to drain and local groundwater flows to recede after precipitation events. However, some judgment may be exercised in evaluating the 72-hour period to sampling. For example, if very light rain or drizzle occurred and no runoff was experienced, it is likely that dry-weather conditions would exist and outfall inspection could be conducted.

3.3.D.2 Outfall Inspection Procedure

The identification of potential illicit discharge locations is primarily a two part process, pre-screening and follow-up inspections. Pre-screening is performed by a rapid inspection of all outfalls in a pre-determined area such as along a receiving water. Follow-up inspections are required for those pipes found to have dry weather flow. Once probable illicit discharges are found, identify the sources of illicit discharges and correct per the removal procedure of Chapter 3.3.C.4. Outfall inspection consists of the following tasks:

- Pre-Screening
- Outfall Inspection Setup,
- Outfall Inspection,
- Outfall Assessment and Documentation, and
- Daily closeout.

3.3.D.2.a PRE-SCREENING

Pre-screening consists of a rapid inspection of outfalls, during dry weather flow conditions. During pre-screening outfalls are rapidly inspected, preceding a dry-weather period a period of at least 72-hours. The City will document outfalls observed to have dry weather flow and the quantity of flow (such as trickle, moderate or substantial). The City will document all outfalls that are partially or fully submerged and will perform follow-up inspection. Pre-screening results can be seen by viewing the insert Outfall Inventory Database name/location; outfalls with dry weather flows shall be are scheduled for documenting in 2009. It is recommended that each outfall be re-screened every 5 years.

3.3.D.2.b OUTFALL INSPECTION SETUP AND PRECAUTIONS

In this step, an attempt is made to visualize the outfall locations and anticipate any potential problems that could affect the days screening activities. Of particular concern in daily setup is whether any safety issues will be associated with the day's screening activities. For example, does traffic need to be controlled or is access to the outfall difficult. Before leaving an outfall inspection location, field crews must ensure that all necessary equipment is available, operable, and calibrated (as appropriate).

Safety is the primary consideration while inspecting upstream sampling locations. In general, the rule "*if in doubt,* ***don't***" is followed. Latex gloves are worn while collecting and handling samples. A first aid kit is included in each vehicle to treat minor injuries. Obtain medical help for major injuries as soon as possible. Report all injuries, minor and major to appropriate persons.

Access to Private Property

In some cases, it may be necessary for Public Works personnel to enter or cross private property to investigate discovered illicit discharges. A form letter should be prepared that includes a short description of the project, the purpose of the access to the property, and the name of a project contact person with a telephone number. Attempt to contact each home, or business, owner for permission. Public Works personnel shall have identification indicating that they are municipal employees. If the owner is not present, a letter should be left at the premises to facilitate return inspection. If permission to access property is denied, a public official should then contact the owner at a later date. All access by municipal personnel onto private property shall conform to the City of St. Charles Ordinance for ingress/egress.

Avoid confrontational situations with citizens and attempt to answer questions concisely and without being alarmist. Public Works personnel should be coached on appropriate responses to questions from citizens. If a field crew feels uncomfortable or threatened, they should remove themselves from the situation and report to the incident to their supervisor.

Traffic

All traffic control measures are to be in accordance with the requirements of the *Manual on Uniform Traffic Control Devices* and other internal Policies and Procedures as set forth by the Public Works Department.

In general, the following additional policies are applicable. Public Works personnel generally work on streets only during the hours of 7 a.m. to 4:30 p.m. except in emergency situations. All field crews are required to wear Personal Protection Equipment (PPE) in accordance with Standard Operating Procedures set forth by the Public Works Department.

Confined Space Entry

Confined space entry for this program would include climbing into or inserting one's head into a pipe, manhole, or catch basin. In general, do not cross the vertical plane defining an outfall pipe or the horizontal plane defining a manhole, unless properly prepared for confined space entry. **IN NO CASE SHALL FIELD CREW MEMBERS WHO ARE UNTRAINED AND/OR UNEQUIPPED FOR CONFINED SPACE ENTRY ATTEMPT TO ENTER CONFINED SPACES.** Only trained personnel with appropriate rescue and monitoring equipment shall conduct confined space entry.

Other Hazards

Table 5: Other Outfall Inspection Hazards

Hazard	Prevention
Access	Avoid steep slopes, dense brush and deep water. Report unsafe locations and move on to next location.
Stuck	Avoid wading where bottom sediments are easily disturbed or depths are unknown.
Strong Gas/Solvent Odor	Do not select manhole for sampling
Bodily Harm From Manhole Covers	Use manhole hook and watch for pinch points
Slip	Proper Foot Gear and Use of Rope If Warranted
Falls	Use extended sample collection device; don't cross horizontal or vertical plane at end of outfall
Heat and Dehydration	Adequate Water Intake; Avoid Excessive Exertion on Hot Days
Sunburn	Sunscreen and Appropriate Clothing
Poisonous Plants/Animals	Identify and Avoid
Vicious Dogs	Avoid; Use Animal Repellent if necessary
Water Bodies	Flotation Devices
Ticks	Check Entire Body at End of Each Day
Mosquitoes	Apply Repellent

Test Kit Analysis Safety

In general, safety procedures established by the Wastewater Division and the USEPA Industrial User Inspection and Sampling Manual for POTWs and related IEPA publications are used. Following are general guidelines.

1. Appropriate gloves (latex or rubber) are worn AT ALL TIMES when handling samples or conducting test kit analyses. Other appropriate Personal Protection Equipment (PPE) is also be worn, as required.
2. Copies of Material Safety Data Sheets (MSDS) are maintained with all test kits. Be familiar with instructions provided in the MSDSs.
3. Always conduct test kit analyses in a well-ventilated area.
4. Wash hands thoroughly with soap and water at every opportunity.

3.3.D.2.c OUTFALL INSPECTION –

An outfall inspection is required for outfalls determined to have dry weather flow, or with submerged outlets, based on the pre-screening efforts. Upon arriving at an outfall, the field crew inspects the outfall by approaching the outfall on foot to a proximity that allows visual observations to be made.

Outfalls are assessed to determine which one of the three following conditions applies:

(1) The outfall is dry or damp with no observed flow,

(2) Flowing discharges are observed from the outfall, or

(3) The outfall is partially or completely submerged with no observed flow or is inaccessible.

Scenario 1: No Observed Flow. Under Scenario 1, the field crew should photograph the outfall and complete applicable sections of the ***Stormwater Outfall Inspection Data Form (*Appendix 5.3).** Use the flow chart, **Figure 7,** to identify applicable sections of the form that must be filled out.

Scenario 2: Observed Flow. Under Scenario 2, the field crew photographs the outfall and complete applicable sections of the ***Stormwater Outfall Inspection Data Form (*****Appendix 5.3).** Use the flow chart, **Figure 7,** to identify applicable sections of the form that must be filled out, including sampling/testing requirements. The intent is to gather additional information to determine if an illicit discharge is present. Determine the need for on-site testing and obtaining grab samples for laboratory analysis based on the flow chart guidance. Testing results are then used to identify potential sources.

The initial testing results are not intended to document the event for future removal and/or enforcement actions. If the preliminary test results identify a potential illicit discharge an independent laboratory shall be contracted to test an additional sample prior to initiating removal procedures.

Scenario 3: Submerged or Inaccessible Outfall. Under Scenario 3, if standing water is present in an outfall or if it is inaccessible, then complete available information from Sections 1, 2, 3 and 7 of the ***Stormwater Outfall Inspection Data Form (*****Appendix 5.3)**, with appropriate comments being written in the "Remarks" section of the data form. Locating an upstream sampling point may be required if any of the following conditions exist at an outfall:

- The outfall discharge is submerged or partially submerged due to backwater conditions,
- Site access and safety considerations prevent sample collection,
- The outfall is from a facility providing water quality treatment (for example, detention basin outlet), or
- Other special considerations.

Determine the upstream sampling location using the City storm sewer atlas. Manholes, catch basins, or culvert crossings can be used for upstream sampling locations. Make reasonable efforts to locate upstream sampling points that are accessible and exhibit flow. If inaccessible, resolve the problem in the office with appropriate supervisory personnel.

 Submerged: More than ½ below water	 Partially submerged: Bottom is below water	 Fully submerged: Can't see outfall
 Outfall fully submerged by debris	 Fully submerged from downstream trees trapping debris	 Partially submerged by leaf debris "back water"
 Trickle Flow: Very narrow stream of water	 Moderate Flow: Steady stream, but very shallow depth	 Significant flow (Source is a fire hydrant discharge)

Figure 6: Characterizing Submersion and Flow
Center for Watershed Protection

3.3.D.2.d OUTFALL ASSESSMENT AND DOCUMENTATION

Complete the ***Stormwater Outfall Inspection Data Form (*Appendix 5.3**) for all outfall screening and grab sampling activities. All completed forms must be dated, legible, and contain accurate documentation of each outfall inspection. A separate data form must be completed for each outfall.

It is recommended that non-smearing pens be used to complete the forms and that all data be objective and factual. Once completed, these data forms are considered accountable documents and are maintained as part of the City files. In addition to standard information, the data form is used to record other information that is noted at the time the outfall inspection is conducted (e.g. observations of dead or dying plants, fish kills, algal blooms (excessive algae growth), construction activities, and other activities that might provide information regarding the potential for illicit connections or inappropriate discharges).

3.3.D.2.e DAILY CLOSEOUT

Disposal and Clean-up

Properly dispose of test waste items per the following table. Before leaving any field inspection site, check the area to ensure that all equipment has been cleaned, collected, and stored. Do not leave any trash or litter at the site.

Item	Field Disposal	Final Disposal
Grab Sample (Uncontaminated)	On Site	-----
Grab Sample (Contaminated by Contact with Test Kit Ampoule)	Liquid Waste Container	Sanitary Sewer
Test Kit Ampoule	Used Ampoule container	Dispose of Container as a Hazardous Waste
Paper Towels/ Latex Gloves	Trash Bags	Municipal Garbage

Office Closeout

In the office, file copies of completed data forms. Also, update the outfall screening scheduling and completion form and plan the next screening day's activities. Discuss any problems locating outfalls with appropriate supervisory personnel so that alternate sampling locations can be identified. Once a month, compile data from the ***Stormwater Outfall Inspection Data Form*** (**Appendix 5.3**) onto the ***Outfall Inspection Screening Summary Form*** **(Appendix 5.5)**.

Figure 7: Outfall Inspection Procedure Flow Chart

3.3.D.3 Follow Up Investigation and Program Evaluation

Follow up investigation is required for all outfalls with positive indicators for pollutant discharges. The outfall assessment results are reviewed to determine the magnitude of the dry-weather pollution problem and to determine the necessary steps to identify and remove the sources of any detected pollutants. **Figure 8** provides a flow chart to aid in follow-up investigations of potential illicit discharges.

INSPECTION RESULTS REVIEW & ASSESSMENT

DETAILED STORM SEWER INVESTIGATION

TRACING

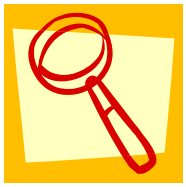
REMOVAL OF ILLICIT DISCHARGES

PROGRAM EVALUATION

Figure 8: Follow Up Procedure

3.3.D.3.a OUTFALL SCREENING RESULTS REVIEW AND ASSESSMENT

Detailed investigations of the storm sewer system may be required upstream of the outfalls to locate sources of illicit discharges or improper disposal. The need for detailed investigations is based on evaluation of the data from the initial outfall screening. This element of the program serves to detect and remove pollutant sources. This is accomplished by reviewing the ***Outfall Inspection Screening Summary Form*** **(Appendix 5.5)** to determine if there are outfalls that require a follow up investigation, target sewer system areas for detailed investigation and then conducting intensive field investigations upstream of the polluted outfall to identify potential sources.



3.3.D.3.b INDEPENDENT VERIFICATION

If the initial outfall assessment identifies potential illicit discharges (through either the on-site of off-site testing procedures), additional sampling is required. The results of the inspection and testing should be discussed with the James J. Bernahl. Contract an independent laboratory to take and test an additional sample and verify preliminary finding. Use the established procedure to coordinate the independent laboratory sample and testing.

3.3.D.3.c SOURCE IDENTIFICATION

The procedure for detailed storm sewer investigation and source identification has three major components: 1) mapping and evaluation, 2) storm sewer investigation, and 3) tracing.

Mapping and Evaluation

For each outfall to be investigated, a large-scale working map should be obtained (digitally or in paper form) that includes the entire upstream storm sewer network, outfall locations and parcel boundaries indicated. This map product is based on information from the storm sewer atlas and outfall map and can be obtained from Public Works Engineering Division. Land use information is evaluated to determine the types of residential, commercial, and industrial areas that might contribute the type of pollution identified at the outfall.

If the contributing area is determined to be non-residential, the available Industrial/Business information should also be reviewed. The pre-treatment inspection, performed by the Public Works Department or Waste Water Treatment Plant, typically indicates chemicals located on-site at each business. The business type and on-site chemicals are logged into the Industrial/Business Inventory. The Inventory is screened for probable pollutant matches. Business Types, at the time of the SMPP creation, include:

- Assembly,

- Automotive,
- Bank-Loans,
- Car Wash,
- Church,
- Contractor,
- Food Processing (Pet, Candy),
- Government/School,
- Grocery Store,
- Health Club/Gym,
- Landscaping/Nursery,
- Laundromat/Dry Cleaning,
- Manufacturing,
- Meat Packing,
- Medical/Dental/Pharmaceutical,
- Office,
- Printing/Photography,
- Recreations/Park District,
- Residential (Single and Multi-Family),
- Restaurants/Bars,
- Retail,
- Salon/Barber Shop,
- Utility, and
- Warehouse/Distribution.

Make attempts to match detected indicators with upstream activities.

Storm Sewer Investigation

After conducting the mapping evaluation, a manhole-by-manhole inspection is conducted to pinpoint the location of the inappropriate discharge, into the storm sewer / conveyance system. This inspection requires a field crew to revisit the outfall where the polluted dry-weather discharge was detected. The field crew should be equipped with the same testing and safety equipment and follow similar procedures as used during the outfall inspection.

After confirming that dry-weather flow is present at the outfall, the field crew continues moving to the next upstream manhole or access point investigating for dry weather flow. In cases where more than one source of dry-weather discharge enters a manhole, the field crew records this information on the screening form and then tracks each source separately. All sources are tracked upstream, manhole-by-manhole, until the dry-weather discharge is no longer detected.

Finally, the last manhole where dry-weather flow is present is identified and potential sources to that manhole are accessed. This data is important for source identification.

The field crew should also determine whether there has been a significant change in the flow rate between manholes. If the flow rate appears to have changed between two manholes in the system, the illicit connection likely occurs between the two manholes. Changes in the concentration of pollutant parameters could also aid in confirming the presence of an illicit connection between the two manholes.

Tracing

Once the manhole inspection has identified the reach area, between two manholes suspected of containing an inappropriate discharge, testing may be necessary. If there is only one possible source to this section of the storm sewer system in the area, source identification and follow-up for corrective action is straightforward. Multiple sources, or non-definitive sources, may require additional evaluation and testing. The Public Works Director prior to testing must approve the method of testing. Potential testing methods include fluorometiric dye testing, smoke testing, and/or remote video inspections.

3.3.D.4 Removal of Illicit Discharges

Eight steps are taken to definitively identify and remove an inappropriate discharge to the storm sewer system. These steps are as follows:

Step 1. Have an outside laboratory service take a grab sample and test for the illicit discharge at the manhole located immediately downstream of the suspected discharge connection.

Step 2: Conduct an internal meeting with appropriate personnel likely including Public Works Personnel, Public Works Director, Building Department Code Qualified Review Specialist, and Stormwater Coordinator to discuss inspection and testing results and remedial procedures.

Step 3: The Public Works Administration shall send a notification letter to the owner/operator of the property/site suspected of discharging a pollutant. The letter should request that the owner/operator describe the activities on the site and the possible sources of non-stormwater discharges including information regarding the use and storage of hazardous substances, chemical storage practices, materials handling and disposal practices, storage tanks, types of permits, and pollution prevention plans.

Step 4: Arrange a meeting for an inspection of the property with Public Works Personnel, the Building Department Code Qualified Review Specialist, and the owner/operator of the property where the pollution source is suspected. Most illicit connections and improper disposal can probably be detected during this step. Notify the site owner/operator of the problem and instruct them to take corrective measures.

Step 5: Conduct additional tests as necessary if the initial site inspection is not successful in identifying the source of the problem. The Public Works Director is responsible for determining the appropriate testing measure to pinpoint the source.

Step 6: If the owner/operator does not voluntarily initiate corrective action, the Building Department Code Enforcement Office issues a notification of noncompliance. The notification includes a description of the required action(s) a time frame in which to assess the problem and take corrective action. Upon notification of noncompliance, the owner can be subject to any penalties stipulated by the City's ordinance for illicit discharge.

Step 7: Conduct follow-up inspections after stipulated time frame has elapsed to determine whether corrective actions have been implemented to: 1) remove the illicit connection or 2) eliminate the improper disposal practice.

Step 8: If corrective actions have been completed (i.e. and the illicit discharge has been eliminated) the Public Works Administration sends a notification of compliance letter to the owner/operator of the property/site suspected of discharging a pollutant.

If corrective actions have not been completed an additional internal meeting with appropriate (municipal) personnel (likely including involved Public Works Personnel, Public Works Director, Building Department Code Qualified Review Specialist, and Stormwater Coordinator) is held to determine appropriate steps to obtain compliance. Appropriate actions may include monetary or other penalties.

Table 6: NPDES-Identified Industrial Facilities

SIC Code	Description
	Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards that are exempted).
1000-1400	Mineral industry, including active and inactive mining operations, with exceptions, and certain oil and gas exploration, production, processing, or treatment operations or transmission facilities.
2400	Lumber and wood products except furniture (except 2434-wood kitchen cabinets)
2600	Paper and allied products (except 2650-paperboard containers and boxes from purchased paperboard and 2670-converted paper and paperboard products)
2800	Chemicals and allied products (except 2830-drugs)
2900	Petroleum refining and related industries (except discharges subject to 40 CFR 419)
3110	Leather tanning and finishing
3200	Stone, clay, glass, and concrete products (except discharges subject to 40 CFR 419)
3300	Primary metal industries
3441	Fabricated structural metal
3730	Ship and boat building and repair
	Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA
	Landfills, land application sites, and open dumps that receive or have received any industrial wastes, including those that are subject to regulation under Subtitle D of RCRA
	Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including, but not limited to, those classified as SIC codes 5015 (used motor vehicle parts) and 5093 (scrap and waste materials).
	Stream electric power generating facilities including coal handling sites
	Transportation facilities with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations (except facilities with SIC codes 4221 through 4225) (only those portions of the station that are either involved in vehicle maintenance including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified as an industrial station.
	Construction activity including clearing, grading, and excavation activities except: operations that result in the disturbance of less than 5 acres of total land that are not part of a larger common plan of development or sale
THE FOLLOWING CODES REQUIRE A NPDES PERMIT IF CERTAIN ACTIVITIES ARE EXPOSED TO SW	
2000	Food and kindred products manufacturing or processing
2100	Tobacco products
2200	Textile mill products
2300	Apparel and other finished products made from fabrics and similar materials
2434	Wood kitchen cabinets
2500	Furniture and fixtures
2650	Paperboard containers and boxes
2670	Converted paper and paperboard products
2700	Printing, publishing, and allied industries
2830	Drugs
2850	Paperboard containers and boxes
3000	Rubber and miscellaneous products
3100	Leather and leather products (except 3110-leather tanning and finishing)
3230	Glass products, made of purchased glass
3400	Fabricated metal products, except machinery and transportation equipment (except 3441-fabricated structural metal)
3500	Industrial and commercial machinery and computer equipment
3600	Electronic and other electrical equipment and components, except computer equipment
3700	Transportation equipment (except 3730-ship and boat building and repairing)
3800	Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks
3900	Miscellaneous manufacturing industries
4221-25	Farm products warehousing and storage, refrigerated warehousing and storage, general warehousing and storage

3.3.D.5 Program Evaluation

Review the results of the screening program to examine whether any trends can be identified that relate the incidence of dry-weather flow observations to the age or land use of a developed area. Experience gained from the USEPA NPDES program indicates a lower chance of observing polluted dry-weather flows in residential and newer development areas, while older and industrial land use areas having a higher incidence of observed dry-weather flows. See **Table 6** for areas that may be more likely to exhibit dry-weather flows. Examine the screening results to determine whether any such obvious conclusions can be made. If so, these conclusions may guide future outfall screening activities.

Outfalls with positive indicators of potential pollution are investigated to identify upstream pollutant sources. Identified illicit direct connections must be eliminated. However, new sources may appear in the future as a result of mistaken cross connections from redevelopment, new-development or remodeling. Indirect or subtle discharges such as flash dumping are difficult to trace to their sources and can only be remedied through public education and reporting. Therefore, it is expected that to some degree they will continue although at a reduced magnitude and frequency. Although the outfall screening program will be successful in identifying and eliminating most pollutants in dry-weather discharges, the continued existence of dry-weather flows and associated pollutants will require an ongoing commitment to continue the outfall screening program.

The annual inspection screening will determine the effectiveness of the program on a long-term basis and show ongoing improvement through a reduced number of outfalls having positive indicators of potential pollutants. It is logical to assume that after several years of annual screening, the majority of the dry-weather pollution sources will be eliminated.

3.4 Construction Site Runoff Control

The goal of the Kane County Stormwater Technical Guidance Manual is to ensure that new development does not increase existing stormwater problems or create new ones. The Technical Manual establishes countywide standards for runoff maintenance, detention sites, soil erosion and sediment control, water quality, wetlands and floodplains. These provisions are only applicable for regulated development activities as defined by the technical Manual. Applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide construction general permit by filing a Notice of Intent (NOI) with IEPA.

The Kane County Stormwater Technical Manual is implemented primarily at the local level. Kane County allows those municipalities meeting certain criteria to be classified as a "Certified Communities." The designation allows those communities to enforce Stormwater Technical Manual standards within their own jurisdictions. SMC administers the Technical Manual and issues permits for the developments within the Non-Certified Communities.

Certified Communities:

The City of St Charles has adopted the Kane County Stormwater Technical Guidance Manual and is currently a Certified Community for the review, permitting, inspection and enforcement of the provisions of the Technical Manual. The community designates an Qualified Review Specialist; this person is responsible for the administration and enforcement of the Stormwater Technical Manual. The City has created an Inspection and Violation Notification Procedure to ensure compliance with the Technical Manual.

3.4.A Regulatory Program

Applicants are directed to City Engineering Division for information pertaining to the permitting process. Developments that exceed the Stormwater Technical Manual minimum thresholds are provided with a Kane County Watershed Development Ordinance application form. Applicants submit the completed form and supporting documentation to the Engineering Division for review and comment. After the Engineering Division concurs that the applicable provisions of the Stormwater Technical Manual have been addressed, a permit is issued. Each permit lists any additional conditions that are applicable to the development.

Ordinance provisions include but are not limited, to the following:

- Grading, soil erosion and sediment control plan. The plan must:
  - Prevent discharge of sediment from the site through the implementation of soil erosion control practices, primarily, and sediment control secondarily, and
  - Protect receiving waters, natural areas and adjacent properties from damage that may result from the proposed grading.
- Established inspection duties for the applicant and procedures for inspections;
- Record keeping and reporting procedures;
- Security deposits to ensure faithful performance;
- Enforcement measures to achieve compliance; and
- One year warranty period, for applicable developments.

As part of the permit review process, applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide construction general permit by filing a Notice of Intent (NOI) with IEPA. During construction, applicants are required to submit to IEPA Incidence of Noncompliance (ION) forms, as necessary. After the site is substantially stabilized, the applicant is required to submit a Notice of Termination (NOT).

3.4.B Responsible Parties

3.4.B.1 Applicant

The applicant is ultimately responsible for ensuring compliant soil erosion and sediment control measures on-site during construction. General contractors, sub-contractors and other hired employees of the applicant can assist the applicant in maintaining a compliant site; however the applicant remains the responsible party. The applicant is also responsible for obtaining all other required state and federal permits, including an NOI with IEPA and upholding all permit conditions (including completing inspection logs).

3.4.B.2 Qualified Review Specialist

The Qualified Review Specialist is responsible for administration and enforcement of the provisions of the Stormwater Technical Manual. Additionally, the Qualified Review Specialist is responsible for performing inspections and monitoring the development. Personnel under his/her direct supervision can perform review and inspection efforts. A full description of the Qualified Review Specialists responsibilities is included in Article 14 of the Stormwater Technical Manual. The Qualified Review Specialist follows established procedures for notifying applicants of deficiencies and obtaining site compliance (i.e. enforcement).

It is also both the right and the responsibility of the Qualified Review Specialist to ensure that all incidences of non-compliance received are resolved.

3.4.C Minimum Construction Site Practices

A site plan is required to comply with minimum prescribed practice requirements set forth in the Stormwater Technical Manual. The Stormwater Technical Manual also allows for the City to require additional measures, above and beyond minimum control measures, to prevent the discharge pollutants from construction sites. Design and implementation guidance is available in the reference materials identified in Appendix 5.17 of the SMPP.

Some minimum control measures include the following:

- Construction site sequencing and phasing,
- Preservation of existing vegetation and natural resources (through the runoff volume reduction hierarchy provisions),
- Stormwater conveyance systems (including concentrated flows, diversions, etc.),
- Stockpile management,
- Soil erosion control measures (including blanket and seeding),
- Stabilized construction entrances/exits and haul routes,

- Sediment Control (including silt fence, inlet/outlet protection, ditch checks, sediment traps, sediment basins etc.),
- Wind and Dust control measures,
- Non-stormwater management (including dewatering practices, waste management practices, spill prevention and control practices etc.),
- Construction Buffers, and
- Construction Details.

3.4.D Site Plan Review

The City is a certified community for the enforcement of the Stormwater Provisions of the Stormwater Technical Manual. The Engineering Division provides applicants with a variety of documents necessary to obtain municipal permits.

The Engineering Division performs a review of the proposed site plan and provides comments to the applicant on any plan deficiencies and/or recommended plan enhancements. The plan review also assists in identifying other approvals that the applicant may be required to obtain. After the Engineering Division concurs that the applicable provisions of the Stormwater Technical Manual have been addressed a permit is issued. The permit lists any additional conditions that are applicable for the development, including providing prior notification of the pre-construction meeting to the City. City attendance of the pre-construction meeting shall be made a condition of the permit for all major developments. The applicant is required to post the permit at the construction site.

3.4.E Site Inspection Procedures

Representatives of the City of St Charles are authorized to enter upon any land or water to inspect development activity and to verify the existing conditions of a development site that is under permit review.

The City may inspect site development at any stage in the construction process. For major developments, the City shall conduct site inspections, at a minimum, at the end of the construction stages 1 and 7 listed below. Construction plans approved by the Qualified Review Specialist shall be maintained at the site during progress of the work. Recommended inspection intervals are listed below:

1. Upon completion of installation of sediment and runoff control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading,
2. After stripping and clearing,
3. After rough grading,
4. After final grading,
5. After seeding and landscaping deadlines,

6. After every seven (7) calendar days or storm event with greater then 0.5-inches of rainfall,
7. After final stabilization and landscaping, prior to removal of sediment controls.

Site Inspection Process:

- The City attends the pre-construction meeting on applicable development sites. During the pre-construction meeting the ***Pre-Construction Meeting Form*** **(Appendix 5.6)** is filled out by the City attendee. It is also recommended that the inspector request to see the SMPP and IEPA NOI for applicable construction sites.
- The applicant notifies the City when initial sediment and runoff controls measures have been installed.
- The City inspects the initial sediment and runoff control measures and authorizes the start of general construction.
- The City inspects the stormwater management system and authorizes additional site improvement activities.
- The City performs site inspections at the recommended intervals listed above and completes the ***SE/SC Inspection Form*** **(Appendix 5.7).**
- For sites that exceed the Stormwater Technical Manual thresholds the Qualified Review Specialist shall comply enforce the guidelines specified in Articles 7 and 15 in the Kane County Stormwater Technical Guidance Manual.
- The City requires as-built documentation of the stormwater management system prior to final site stabilization. The developer for inspection and approval keeps tags of the seed mixes. Upon approval of the as-builts, the applicant shall permanently stabilize the site.

3.4.F Complaints

The City frequently receives phone calls regarding a development, either during the review or construction phase. Both site design and construction related phone calls are directed to the City's Qualified Review Specialist, or designee. Site design comments are handled on a case-by-case basis. Construction related calls are typically addressed by performing a site inspection.

3.4.G Performance Guarantees

Pre-construction meeting – No deposit required.

Performance Guarantee (surety) is required for public improvements (i.e. sewer, water, right-of-way work), stormwater management system and landscaping. The Engineers Opinion of Probable Construction Cost (EOPCC) is provided to the City for their review/approval. The required surety amount shall be 115% of City approved EOPCC. In cases where Kane County requires a surety the City will only hold a surety for the portions of the EOPCC that is not being held by Kane County. Alternatively, the City will provide the County with a letter indicating

that the City will hold the surety and not reduce the surety amount until County approval has been obtained.

The City will hold 10% of the surety for a minimum of 1-yr after site stabilization is complete to ensure that the vegetation is established and no failures occur. For sites with native vegetation, this portion of the surety will be held for a minimum of 2-yr after site stabilization. The applicant may apply for reductions of surety. Refer to the Engineering and Development Guide for information regarding the surety requirements.

3.4.H Violation Notification Procedures

In general the compliance due date should be within 5-working days. However, if the inspector determines that the violation is or will result in significant environmental, health or safety hazards a 24-hour due date should be set. For time-critical violations, the developer should also be advised to complete a Notice of Incidence report with IEPA for all sites that were required to obtain an NOI with IEPA. If the discharge from the construction site enters a receiving water within the MS4 jurisdictional boundaries, it is highly recommended that the MS4 also file an ION with IEPA.

The **SE/SC Inspection Form** is found in **Appendix 5.7**. Step 1 can be initiated by observation of a violation during a routine inspection, or in response to a notice of noncompliance received from a DECI.

Step 1: Violation Is Observed

- The inspector completes the **SE/SC Inspection Form**.
- Photographs of the violation(s) should be taken and saved.
- The Violation shall be described to the construction site contact.
- A copy of the **SE/SC Inspection Form** is provided to the contractor and the developer. The **SE/SC Inspection Form** indicates the remedial measures required and a maximum time frame for action.
- At the end of the indicated time frame the City performs a follow-up site inspection. The inspector attempts to schedule the follow-up inspection with the construction site contact.

Step 2: 1st Follow-Up Site Inspection

The construction site contact shall be notified of the anticipated inspection time. The site is inspected including all items previously documented on the previous **SE/SC Inspection Form**. The inspector will determine if the remedial measures have all been satisfactorily addressed, substantially completed, or if significant non-compliance remains.

- If the remedial measures have been satisfactorily addressed then the **SE/SC Inspection Form** is filled out indicating compliance and provided to the contractor and developer.

- If the inspector determines that the remedial measures have been substantially completed, but not entirely resolved, the inspector shall follow Step 1 above.
- If the inspector determines that the remedial measures have not been substantially completed, the inspector shall follow Step 3 discussed below. Photographs of the violations should be taken and saved.

Step 3: 1st Notice of Violation

A formal **Notice of Violation** letter will be sent to the contractor and developer; see sample letter in **Appendix 5.8**. A copy of the Notice of Violation shall also be provided to the Building Department. The letter will include the following information.

- Description of the violations (including ordinance provisions),
- Mandatory remedial measures, and
- Maximum time frame for resolution (typically 5 working days),

Step 4: 2nd Follow-Up Site Inspection

The inspector will determine if the remedial measures have all been satisfactorily addressed, substantially completed, or if significant non-compliance remains.

- If the remedial measures have been satisfactorily addressed then the **SE/SC Inspection Form** is filled out indicating compliance and provided to the contractor and developer.
- If the inspector determines that the remedial measures have been substantially completed, but not entirely resolved, the inspector shall follow Step 1 above.
- If the inspector determines that the remedial measures have not been substantially completed, the inspector shall follow Step 3 discussed below. Photographs of the violations should be taken.

Step 5: 2nd Notice of Violation

Depending on the severity of the outstanding violations the inspector may issue a Red Tag and a Conditional Stop Work Order upon completion of the inspection. The Stop Work Order allows for the resolution of the violation but no other on-site improvements. Building and/or Occupancy Permits will not be issued and surety reductions will not be entertained until the violation is resolved. A formal **Notice of Violation** letter will be sent, via certified mail, to the contractor and developer; see sample letter in **Appendix 5.8**. A copy of the Notice of Violation shall also be provided to the Building Department. The letter will include the following information.

- Description of the violations (including ordinance provisions),
- Mandatory remedial measures, and
- Maximum time frame for resolution (typically 5 working days).

Step 6: 3rd Follow-Up Site Inspection:

The inspector will determine if the remedial measures have all been satisfactorily addressed, substantially completed, or if significant non-compliance remains.

- If the remedial measures have been satisfactorily addressed then the **SE/SC Inspection Form** is filled out indicating compliance and provided to the contractor and developer.
- If the inspector determines that the remedial measures have been substantially completed, but not entirely resolved, the inspector shall follow Step 1 above.
- If the inspector determines that the remedial measures have not been substantially completed, the inspector shall follow Step 3 discussed below. Photographs of the violations should be taken and saved.

Step 7: 3rd Notice of Violation

The inspector issues a Red Tag and a Conditional Stop Work Order upon completion of the inspection, if one has not already been issued. The Stop Work Order allows for the resolution of the violation but no other on-site improvements. Building and/or Occupancy Permits will not be issued and surety reductions will not be entertained until the violation is resolved. Representatives from the Building and Engineering Division shall conduct an internal meeting to discuss the violation and subsequent actions. These actions may include: issuing fines at a rate of $500/day per violation since the 1st notice of violation; draw from surety to enable City to have the remedial measures corrected; seeking City consul and pursuing injunctive or other legal relief.

A formal **Notice of Violation** letter will be sent, via certified mail, to the contractor and developer; see sample letter in **Appendix 5.8**. A copy of the Notice of Violation shall also be provided to the Building Department and the City Administrator. The letter will include the following information.

- Request a meeting with the applicant/development and City staff;
- Description of the violations (including ordinance provisions),
- Mandatory remedial measures,
- Maximum time frame for resolution (typically 5 working days), and
- States additional penalties or measures that will be imposed if the violation(s) persist.

Repeat Steps 6 & 7 until resolution

3.4.I BMP Reference Information

Reference information includes, but is not limited to, the following sources:

- Native Plant Guide,

- Illinois Urban Manual,
- Kane County Stormwater Technical Guidance Manual
    - Soil erosion and sediment checklist,
    - Soil erosion and sediment control notes,
    - Typical construction sequencing,
- Construction details are available on the City's website or by contacting the Community Development Engineering Division,
- Chicago Metropolitan Agency for Planning (previously Northeastern Illinois Planning Commission) Course Manuals,
- IDOT manuals,
- Center for Watershed Protection documents, and
- IEPA and USEPA publications.

3.4.J Construction Site Waste Control

The Stormwater Technical Manual includes several provisions that address illicit discharges generated by construction sites. The applicant is required to prohibit the dumping, depositing, dropping, throwing, discarding or leaving of litter and construction material and all other illicit discharges from entering the stormwater management system.

3.4.K Pavement Projects

Pavement resurfacing and maintenance projects are determined through pavement evaluation studies that take place approximately every 5 years. Project work shall follow IDOT Standard Specifications and applicable provisions of the Stormwater Technical Manual. At a minimum, protect drainage structures with inlet filter bags during construction activities.

3.5 Post Construction Runoff Control

The City of St Charles complies with NDPES permit requirements by incorporating Ordinance and BMP standards to minimize the discharge of pollutants of development projects.
This chapter describes how the compliance with stormwater discharge permit requirements for long-term post-construction practices that protect water quality and control runoff flow is achieved.

This SMPP creates and references extensive policies and procedures for regulating design and construction activities for protecting receiving waters. The design and construction site practices selected and implemented by the responsible party for a given site are expected to meet BMP measures described through the Kane County Technical Reference Manual and IEPA's Program recommendations. All proposed permanent stormwater treatment practices must be reviewed and approved by the Qualified Review Specialist.

3.5.A Regulatory Program

The Stormwater Technical Manual includes numerous performance standards on Grading, Stormwater and Soil Erosion/Sediment Control that must be met for all parties undertaking construction. The Kane County Technical Reference Manual is a guidance tool that describes BMP and implementation procedures for enforcing the Stormwater Technical Manual.

3.5.B Site Inspections

The inspection program for its general facilities is discussed in detail in Chapter 3.6.A. The inspection procedure for site inspections related to construction activities is discussed in detail in Chapter 3.4.E. This section focuses on post-construction inspections of previously developed sites, streambanks / shorelines, streambeds, and detention / retention ponds.

3.5.B.1 Previously Developed Sites

The City attempts to inspect approximately 20% of all existing properties with stormwater management facilities a year; resulting in a re-occurrence inspection interval of every 5-years.

- Previously accepted developments are inspected with respect to the approved maintenance plan. A letter indicating the maintenance activity highlights, deficiencies or additional enhancements to the plan should be provided to the responsible party.
- For older developments that do not have a maintenance plan, the City inspects facilities with respect to the sample existing facilities maintenance plan. A letter indicating the maintenance activity highlights and deficiencies should be provided to the responsible party. The sample maintenance plan is provided with the letter and the responsible party is encouraged to implement an annual maintenance program.

3.5.B.2 Streambanks and Shorelines

Annually inspect 20% receiving water streambanks/streambeds and detention basin shorelines in the spring and/or fall pending weather conditions. Stream locations are depicted on **Figure 1** and pond locations are listed on the ***Detention/Retention Pond Checklist*** **(Appendix 5.9**). Observed erosion, seeding/re-seeding or slope stabilization needs are documented. Documented deficiencies should be reported to the Public Works Engineering Division Manager who evaluates and determines appropriate remediation activities. Remedial actions might include notifying the property owner or including maintenance activities in the City's work program.

New developments are required to provide a maintenance plan for constructed detention/retention facilities. The recorded maintenance plan for developments permitted through the Kane County Stormwater Technical Manual is used, if available, for shoreline areas. Typical BMP for maintenance of these areas are similar to those for a construction site.

3.5.B.3 Stream Bed Sediment Accumulation

Annually inspect 20% receiving water flowlines for sediment plumes in spring and/or fall pending weather conditions. Stream locations are depicted on **Figure 1.** Observed accumulation is documented. Documented deficiencies should be reported to the Public Works Engineering

Division Manager who evaluates and determines appropriate remediation activities. Remedial actions might include notifying the property owner or including maintenance activities in the City's work program.

3.5.B.4 Detention / Retention Pond Sediment Accumulation

Ensure that new detention/retention ponds are over excavated during construction to account for sediment accumulation. The developer is responsible for ensuring that the design grade is established prior to City's acceptance of the pond. Pond information, including the design permanent pool pond depths, is added to the ***Detention/Retention Pond Checklist*** **(Appendix 5.9b**) upon acceptance of the pond.

After City acceptance, the permanent pool pond depths should be determined by inspection every five years and logged onto the ***Detention/Retention Pond Checklist*** **(Appendix 5.9b**). If the inspected pond depth is found to be 2 feet or less from the design depth (i.e. shallower than the design permanent pool depth) this information should be reported to Public Works Engineering Division Manager who evaluates and determines appropriate remediation activities.

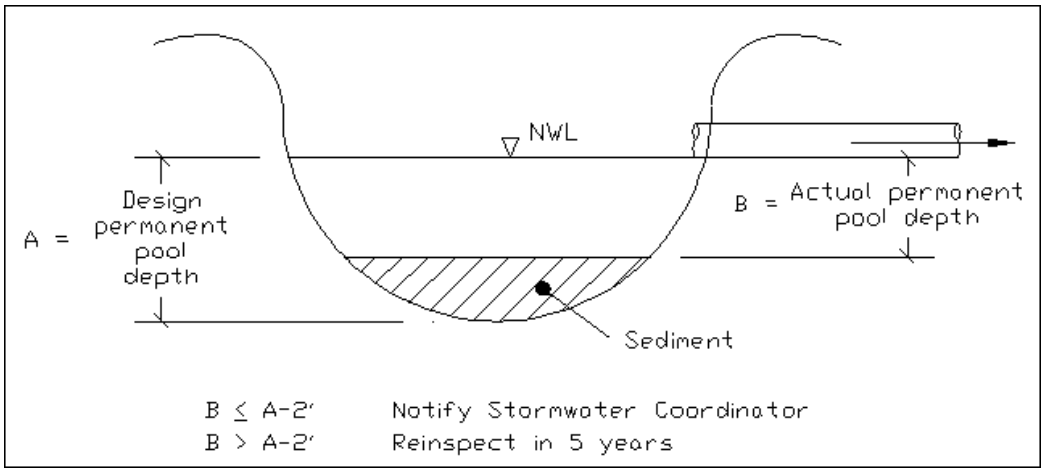
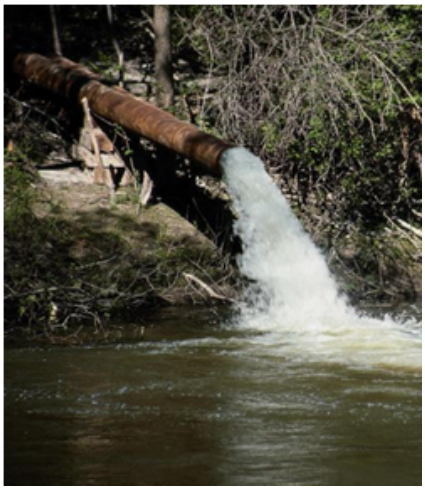


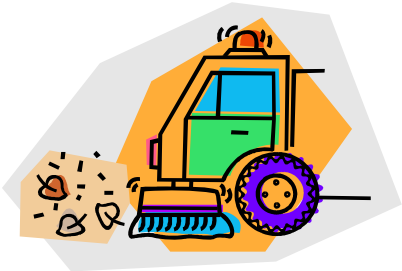
Figure 9: Pond Sediment Accumulation

3.6 Pollution Prevention and Good Housekeeping



The City is responsible for the care and upkeep of the general facilities, municipal roads, its general facilities, and associated maintenance yards. Many maintenance activities are most regularly performed directly by staff; however from time to time contractors are employed to perform specific activities. This chapter describes how the compliance with permit requirements is achieved by incorporating pollution prevention and good housekeeping stormwater quality management into day-to-day operations. On-going education and training is provided to ensure that all of its employees have the knowledge and skills necessary to perform their functions effectively and efficiently.

3.6.A Inspection and Maintenance Program



The following chapters describe areas/items that require inspection and their recommended inspection frequency. It further details recommended maintenance activities and subsequent tracking procedures for each of the tasks.

3.6.A.1 Street Sweeping

Street sweeping operations are performed to reduce potential illicit discharges and to provide a clean environment. The curb lines of all streets are cleaned on a rotating basis. The rotation maybe changed or interrupted if heavy rain occurs, the sweeper is out of order due to mechanical problems, or the Street Division experiences heavy workload. Each street is typically swept/cleaned approximately 10 to 15 times per year. Sweeper waste is collected and disposed of in the spoil waste area. The intended frequency of street sweeping operations is as follows:

- December to March – minimal sweeping due to winter operations/conditions
- April to November – daily

Locations and spoil amounts are tracked on spreadsheet.

3.6.A.2 Drainageways

Drainageways include any river, stream, creek, brook, branch, natural or artificial depression, ponded area, lakes, flowage, slough, ditch, conduit, culvert, gully, ravine, swale, wash, or natural or man-made drainageway, in or into which surface or groundwater flows, either perennially or intermittently. Primary drainageways include the Fox River, Ferson Creek, and Norton Creek. Minor drainageways include roadside and side yard swales, overland flow paths, pond outlets, etc.

3.6.A.2.a POND OUTLETS

The ***Detention/Retention Pond Checklist*** (**Appendix 5.9)** is used to determine inspection locations. Structures are added to the checklist after new developments are approved and accepted. Locations identified on the checklists are inspected both before a forecasted storm (0.25 inches or more) and during the storm event. Observed obstructions are cleared and debris hauled to the spoil waste area. Ponds are inspected and evaluated for a low, medium and high level of flood height according to the following classifications.

<u>Flood Height Classification</u>

- Low – Normal Water Level (NWL)
- Medium – NWL to top of grate
- High – Top of Grate and above

<u>Condition</u>

- Good – outlet is unimpaired, not blocked
- Fair –outlet obstructions observed although outlet is discharging
- Poor – outlet is blocked or obstructed

<u>Comments</u>
Note structural defects or other observances.

Inspections continue until water level recedes to mid-pipe (Medium classification).
If maintenance work is required for a pipe culvert within the (City) limits but in the State of Illinois right of way, the State's Maintenance Facility, 847-705-4400, is notified. Similarly, the County of Kane, 630-584-1170, is contacted for work within their right of way.

3.6.A.2.b Box Culverts and Bridges

Box Culverts & Bridges are listed on the ***Roadway Culvert/Bridge Checklist*** (**Appendix 5.10)**. Structures are added to the checklist after new developments are approved and accepted. Inspection procedures follow the Pond Outlet discussion above.

3.6.A.2.c Driveway Culverts

Maintenance and replacement of driveway culverts is the property owner's responsibility. A minimum 12" diameter culvert is required per the City standard in conformance with the IDOT "Standard and Specifications for Road and Bridge Construction". Permits are required for culvert replacement; a soil erosion and sediment control plan may be required as part of the permit. The Engineering Division inspects the culvert when it is set to grade and prior to backfilling. The Public Works may rod/clean culverts on an as needed basis.

3.6.A.2.d Catch Basins

Catch basin locations are identified on the **Storm Sewer Atlas**. The Public Works Department's goal is to annually clean approximately 20% of all catch basins, to a minimum sump depth of 2 feet. Spoil waste obtained from catch basin cleaning is disposed of in the spoil waste area. Locations of cleaned catch basins and its condition are logged into the Street Division Work Order Database.

Catch basins found to have structural deficiencies are reported to the Public Works Engineering Division. Necessary remedial actions are completed by the Street Division or incorporated into a capital project. Catch basins that have been cleaned are tracked on the GIS database using a color-coded system. Days and quantities are also recorded in excel spreadsheets.

3.6.A.2.e Storm Sewers

If catch basin debris is at the invert elevation of the downstream pipe (i.e. has completely filled the sump area), then the downstream storm sewer system is also cleaned. Likewise, if a water main break or other heavy flow occurs that flushes potential illicit discharges into the storm sewer system, the receiving storm sewer lines are inspected and then cleaned as necessary.

3.6.A.2.f Other Inlet and Grate Cleaning

Cleaning of these areas occurs on an as-needed basis (e.g. complaints, incidences, standing water, etc). Spoil waste that is obtained from inlet and grate cleaning or vacuuming is disposed of at is disposed of in the spoil waste area. Any waste jetted out is picked up with a clapper bar if possible.

3.6.A.2.g SWALES AND OVERLAND FLOW PATHS

Right-of-way Drainage Swales: The Public Works Department documents observed or reported erosion or sediment accumulation. Areas of significant are reported to the respective property owners for proper maintenance. The Public Works Department maintains a list of these locations.

Privately Owned Drainage Swales (side/rear yard): Observed or reported erosion or sediment accumulation in privately owned swales are referred to the Public Works Engineering Division for follow-up. The Pubic Works Engineering Division notifies the property owner on an as needed basis for appropriate remediation required.

3.6.A.3 Landscape Maintenance

The City maintains care and upkeep of its general facilities, municipal roads, associated maintenance yards, and other public areas. Municipal staff is responsible for Litter and Debris control described in Chapter 3.6.A.4.a below. The City annually selects and contracts with a landscape contractor. The landscape contractor is responsible for the remainder of the landscape maintenance program under the supervision of the Public Works Department. The City is responsible for ensuring that their landscape contractors are provided with training and/or other information to ensure that they adhere to the City's SMPP.

3.6.A.3.a LITTER AND DEBRIS

Litter and debris can accumulate on City property and roadway right-of-ways. Each Public Works Division is responsible for the clean up of their respective facilities. Clean-up at park and recreation areas is the responsibility of the Park and Recreation District. Other City properties and right-of-ways (including municipal, Township, County and State right-of-ways within the MS4 limits) are cleaned by Public Works personnel or volunteer groups on an as-needed basis.

3.6.A.3.b PRIVATE RESIDENCE YARD WASTE

Yard waste and leaves from private residences are collected through contract. Yard waste is collected weekly throughout the growing season. Leaf collection typically starts in October and runs for approximately six weeks.

3.6.A.3.c FERTILIZERS

The annual landscape contractor is required to be a licensed applicator for fertilizers. Weed killer and fertilizers are typically scheduled two and four times per season, respectively. Contractor specifications incorporate low impact products. The use of pesticides and fertilizers shall be managed in a way that minimizes the volume of storm water runoff and pollutants (per draft ILR40 Requirements).

3.6.A.4 Snow Removal and Ice Control

During snow removal and ice control activities, salt, de-icing chemicals, abrasives and snowmelt may pollute stormwater runoff. To address these potential pollutants, the following procedures for the "winter season" (November 1 through May 1) are implemented.

3.6.A.4.a ROADWAY ICE CONTROL

Use the minimal amount of salt, de-icing chemicals and additives necessary for effective control. Prior to November 1, preparation work to obtain seasonal readiness is completed. These tasks include: inspecting and re-conditioning of spreaders and spinners, install these items onto snow removal vehicles, performing test operations, calibrating distribution rates per National Salt Institution Application Guidelines, and conducting better driver training. The completion of these preparatory tasks helps to ensure that only the necessary level of salt is applied.

Once the ambient temperature is below 20-degrees Fahrenheit, a Public Works Supervisor considers the additional use of "Geo-melt" to improve the efficiency of snow melting efforts. If deemed necessary, it is applied to the salt material prior to spreading, at a rate of 8-Gal/Ton of salt; a computer controls the application rate. The "Geo-melt" dispensing system (including pump and sprayers) is primed for operation monthly to ensure proper working conditions.

3.6.A.4.b SALT DELIVERY AND STORAGE

Steps are taken to ensure that the delivery, storage and distribution of salt do not pollute stormwater runoff from the Public Works Complex. The floor of the salt storage building and adjacent receiving/unloading area are constructed of asphalt. Delivered salt is unloaded at the Public Works facility. The limits of the salt pile are pushed back from the door opening to minimize potential illicit runoff. In the event that there is runoff from the salt storage building or unloading area a street sweeper and front-end loader are utilize to clean the runoff area.

3.6.A.4.c SNOW PLOWING

Snow plowing activities direct snow off the pavement and onto the parkways this reduces the amount of salt, chemical additives, abrasives or other pollutants that go directly into the storm sewer system. When deemed necessary, the Public Works Department hauls accumulated snow to designated stockpile locations. These locations are asphalt and/or gravel surface areas. Snow blowing, plowing or dumping into drainageways is not allowed. Once the snow has melted, the stockpile areas are cleaned with a street sweeper removing any debris deposited.

3.6.A.5 Vehicle and Equipment Operations

Vehicle and equipment fueling procedures and practices are designed to minimize or eliminate the discharge of pollutants to the stormwater management system, including receiving waters.

3.6.A.5.A VEHICLE FUELING

The vehicle fueling area contains one two-port fiberglass tank and two dispensers. These tanks are monitored by an OPW leak detection system. Leak Line tests are performed on an Annual basis. Surface runoff, in the vicinity of the tank farm, is directed to the west side of the Public works compound.

3.6.A.5.a VEHICLE MAINTENANCE

Vehicle maintenance procedures and practices are designed to minimize or eliminate the discharge of petroleum-based pollutants to the storm water management system, including receiving waters. This chapter discusses proper handling and disposal of vehicle maintenance by-products such as waste oil, antifreeze, batteries and tires.

Waste Oil

Used motor oil, transmission fluids, gear lubes, brake fluids and other vehicle fluids (except antifreeze) are collected and stored on the west side of the Fleet department. Typically, the waste oil tank is emptied and the contents removed for recycling.

Antifreeze

Used antifreeze is stored in a temporary container. When 55-gallons are accumulated, a special waste hauler is contacted for collection and disposal.

Batteries

Used batteries are stored in a designated area located in the Inventory Control area of the Public works building. Typically, the batteries are collected bi-weekly from a local vendor.

Tires

Used tires are disposed of weekly by a local vendor. Tires are stored outside the Fleet department at the Public Works Complex until picked up for disposal.

Other

Private certified companies perform all air-conditioning related work; therefore, the disposal of freon is not handled directly by the City. Cleaning fluids, and solvents are contained within an enclosed tank and maintained by a private licensed special waste company.

3.6.A.6 Animal Nuisance Control

The Public Works Department, upon receiving notification, collects “road kill” from right-of-way areas. The carcasses are disposed of in the Public Works Complex garbage dumpsters.

3.6.A.7 Waste Management

Waste Management consists of implementing procedural and structural practices for handling, storing and disposing of wastes generated by a maintenance activity. This helps prevent the release of waste materials into the stormwater management system including receiving waters. Waste management practices include removal of materials such as asphalt and concrete maintenance by-products, excess earth excavation, contaminated soil, hazardous wastes, sanitary waste and material from within the triple basins.

3.6.A.7.a SPOIL STOCK PILE

The spoil stockpile is located at the Public Works Complex. Asphalt and concrete maintenance by-products and excess earth excavation materials are temporarily stored in the stockpile. Attempts are made to recycle asphalt and concrete products prior to storage in the spoil stockpile. Licensed waste haulers are contracted to remove and dispose the contents of the spoil stockpile at a licensed landfill on an as-needed basis.

3.6.A.7.b CONTAMINATED SOIL MANAGEMENT

Collect or manage contaminated soil/sediment generated during an emergency response or identified during construction activities for treatment or disposal. Attempts are made to avoid stockpiling of the contaminated soil. If temporary stock piling is necessary, place the stockpile on an impermeable liner. Additionally, BMP (presented in the Illinois Urban Manual) are used to protect the down slope of the stockpiled area for erosion downstream. Locate the construction access on the upstream side of the temporary stockpile.

3.6.A.7.c HAZARDOUS WASTE

Store all hazardous wastes in sealed containers constructed of compatible material and labeled. The containers are located in non-flammable storage cabinets or on a containment pallet. These items include paint, aerosol cans, gasoline, solvents and other hazardous wastes. Please refer to chapter 3.6.A.7 for vehicle related hazardous wastes. Do not overfill containers. Paintbrushes and equipment used for water and oil-based paints are cleaned within the designated cleaning

area. Contain associated waste and other cleaning fluids within an enclosed tank, the tank is maintained by a private licensed special waste company.

3.6.A.7.d SANITARY WASTE

Discharge sanitary waste into a sanitary sewer or managed by a licensed waste hauler.

3.6.A.7.e TRIPLE BASINS

Floor drains in the garage bay floor area of the Public Works Complex are directed to an underground Triple Basin. At a minimum, the Triple Basin are vacuumed out and completely cleaned bi-monthly. Vacuumed out material is transported to the wastewater treatment station to air-dry on a protected impervious surface. The dried material is then transported to a landfill.

3.6.A.8 Water Conservation & Irrigation

Water conservation practices minimize water use and help to avoid erosion and/or the transport of pollutants into the stormwater management system. During periods of dry weather, a sprinkling/irrigation schedule is enforced. Maintenance activities (performed by the staff or its contractors) preserve water by utilizing vacuum recovery as opposed to water based cleaning when possible. Additionally, the water main replacement program decreases the possibility for water main leaks. In the event that a water main leak occurs, valve off the leaking section as soon as possible and then repair.

3.6.B Spill Response Plan

Spill prevention and control procedures are implemented wherever non-hazardous chemicals and/or hazardous substances are stored or used. These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents discharge to the stormwater management system and receiving waters. The following general guidelines are implemented, when cleanup activities and safety are not compromised, regardless of the location of the spill:

- Cover and protect spills from stormwater run-on and rainfall, until they are removed,
- Dry cleanup methods are used when ever possible,
- Dispose of used cleanup materials, contaminated materials and recovered spill material in accordance with the Hazardous Waste Management practices or the Solid Waste Management practices of this plan,
- Contaminated water used for cleaning and decontamination shall not be allowed to enter the stormwater management system,
- Keep waste storage areas clean, well organized and equipped with appropriate cleanup supplies, and
- Maintain perimeter controls, containment structures, covers and liners to ensure proper function.

3.6.B.1 Non-Hazardous Spills/Dumping

Non-hazardous spills typically consistent of an illicit discharge of household material(s) into the street or stormwater management system. Upon notification or observance of a non-hazardous illicit discharge, Public Works personnel implement the following procedure:

- Sand bag the receiving inlet to prevent additional discharge into the storm sewer system, as necessary. It may be necessary to sand bag the next downstream inlet.
- Check structures (immediate and downstream). If possible, materials are vacuumed out. The structure(s) are then jetted to dilute and flush the remaining unrecoverable illicit discharge.

- Clean up may consist of applying “Oil Dry” or sand and then sweeping up the remnant material.
- After containment and cleanup activities have been performed, the on-site Public Works personnel fills out the ***Spill Response Notice*** **(Appendix 5.12**) and distributes to adjoining residences/businesses. In residential areas, the hanger should be provided to residences on both sides of the spill and on both sides of the street.
- Public Works personnel document the location, type of spill and action taken on the ***Indirect Illicit Discharge Tracking Form*** **(Appendix 5.13)**. .
- The on-site Public Works personnel provide the tracking form to their supervisor. The supervisor, or his designee, takes the information from the form and transfers it to the ***Indirect Illicit Discharge Summary Form*** **(Appendix 5.13)**.
- If a person is observed causing an illicit discharge, Public Works Engineering Division is notified and appropriate citations issued by the Police Department.

3.6.B.2 Hazardous Spills

Upon notification or observance of a hazardous illicit discharge, Public Works follows the following procedure:

- Call 911, explain the incident. The Fire Department responds;
- Public Works provides emergency traffic control, as necessary;
- The Fire Department evaluates the situation and applies “No Flash” or “Oil Dry” as necessary;
- The Fire Department’s existing emergency response procedure, for hazardous spill containment clean-up activities, is followed;
- Public Works documents the location, type of spill and action taken on the Indirect Illicit Discharge Tracking Form (**Appendix 5.13**); and,
- The on-site Public Works personnel provide the tracking form to their supervisor. The supervisor, or his designee, takes the information from the form and transfers it to the ***Indirect Illicit Discharge Summary Form*** **(Appendix 5.13)**.

3.6.C Employee Training

The City's practice is to provide education and training to all of its employees to ensure that they have the knowledge and skills necessary to perform their functions effectively and efficiently. The purpose of the Employee Stormwater Training Program is to teach appropriate employees about the following:

- Stormwater characteristics and water quality issues;
- The roles and responsibilities of the various Departments, and individuals within these Departments, regarding implementation of the SMPP to consistently achieve Permit compliance;
- Activities and practices that are, or could be sources, of stormwater pollution and non-stormwater discharges; and,
- How to use the SMPP and available guidance materials to select and implement best management practices.

3.6.C.1 Training Approach

Employees are encouraged to attend all relevant training sessions offered by the (QLP) Qualified Local Program and other entities on topics related to the goals/objectives of the SMPP. Additionally, the City will develop employee-training programs with curricula and materials tailored to specific functional groups. Refer to **Table 7**. The materials focus on stormwater pollution prevention measures and practices involved in routine activities carried out by the various functional groups. Training materials primarily focus on revisions to the various programs (that were in place prior to the acceptance of the SMPP).

Table 7: Employee Responsibilities

Functional Group	Area of Responsibility	Members
Planning and Design	Responsible for overseeing the development and implementation of best management practices through the project planning and design phase for construction projects.	Engineering Division
Construction	Responsible for overseeing the implementation of best management practices relating to the construction stage of projects (private and public).	Engineering Division
Maintenance	Responsible for development and implementation of best management practices relating to the maintenance of facilities, infrastructure and properties.	Public Works Department

3.6.C.2 Training Schedule and Frequency

The initial training program will be offered within 6 months of the acceptance of the SMPP. Digital and hard copies of the training materials will be kept and shared with applicable new employees as part of their job introduction. Revisions/enhancements to the SMPP will be approved by the Stormwater Coordinator and then shared with applicable employees. The Stormwater Coordinator will monitor the potential need for overall refresher material distributions and offer additional training as necessary.

Employees are encouraged to share information with other employees via email or other formats. Information may include:

- updates and news which might enhance pollution control activities,
- feedback from field implementation of best management practices, or
- new product information.

4 Program and Performance Monitoring, Evaluation and Reporting

The SMPP represents an organized approach to achieving compliance with the stormwater expectations of the NPDES Phase II program for both private and public activities within the City. Land development, redevelopment and transportation improvement projects were required to comply with the provisions of the Stormwater Technical Manual prior acceptance of the SMPP. Additionally, the City had numerous written and unwritten procedures for various tasks. This SMPP documents and organizes previously existing procedures and incorporates the objectives of the Stormwater Technical Manual to create one cohesive program addressing pre-development, construction, post-development activities and municipal operations.

This chapter describes how the City will monitor and evaluate the proposed stormwater pollution prevention plan based on the above stated objective. As part of the stormwater management program, the City:

- Reviews its activities,
- Inspects its facilities,

- Oversees, guides, and trains its personnel, and
- Evaluates the allocation of resources available to implement stormwater quality efforts.

This chapter describes how program monitoring, evaluation and reporting will be accomplished.

4.1 Performance Milestones

Previously established ordinances and programs implement many of the anticipated tasks. The following schedule describes general performance expectations.

- Within 6 months following the acceptance of the SMPP, applicable employees will receive training regarding the implementation of the SMPP.

- Within 1 year following the acceptance of the SMPP, program enhancement items within Chapter 3 will be implemented, except for the IDDE program milestones discussed below. Refer to Chapter 2.1 for a description of tasks associated with the implementation of the SMPP.

- Within 3 years following the acceptance of the SMPP, the Outfall Inspection Procedure will be completed for all pipes identified, during the pre-screening efforts, as having dry weather flow.

- Within 5 years following the acceptance of the SMPP, tracing and removal procedures will be completed for all pipes identified, during the Outfall Inspection Procedure, as contributing illicit discharges to receiving waters.

4.2 Program Monitoring and Research

Currently water quality sampling/monitoring is not required under the NPDES Phase II program. Therefore, monitoring efforts focus on qualitative, not quantitative, examination of the stormwater practices. It is anticipated that the USEPA and IEPA programs will evolve to require water quality monitoring and sampling. Future efforts may involve collecting information on the characterization of discharges from outfalls, identifying other sources of pollutants, characterizing the receiving waters, sampling construction site discharges, identifying the performance of existing and potential enhanced stormwater pollution control measures. The City will comply with future federal and state mandates.

The Stormwater Coordinator will monitor research conducted by others regarding the effectiveness of various alternative stormwater practices, procedures and technologies. The City will continue to seek innovative stormwater practices and technologies. Information and guidance obtained through county municipal Advisory committee meetings and other sources will be incorporated into this SMPP as practical. This information will be used to provide insight into how the program may need to evolve.

4.3 Program Evaluation

The primary mechanism for evaluating the program and ensuring that the field staff has adequate knowledge is supervision by responsible managers. Management personnel include the Public Works and Engineering Division Directors and Assistant Directors. Management support tasks include observing and evaluating design, construction and field personnel as they implement the requirements of the SMPP on both municipal and private projects, and maintenance personnel as they conduct their assigned activities. These responsibilities were outlined in detail in Chapter 2: Program Management.

The following types of questions/answers are discussed annually between the Stormwater Coordinator, Managers and field staff.

- Are proper stormwater management practices integrated into planning, designing and constructing both (City) and private projects?
- Are efforts to incorporate stormwater practices into maintenance activities effective and efficient?
- Is the training program sufficient?
- Is the SMPP sufficient?Are the procedures for implementing the SMPP adequate?

5 Appendices

5.1 List of Acronyms

BMP	Best Management Practices
CWA	Clean Water Act
DECI	Designated Erosion Control Inspector
EO	Qualified Review Specialist (Lake County Stormwater Technical Manual)
HHW	Household Hazardous Waste
ID	Identification
IDDE	Illicit Discharge Detection and Elimination
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
ION	Incidence of Non-compliance (with IEPA)
IUM	Illinois Urban Manual
LCDOT	Lake County Division of Transportation
LOC	Letter of Credit (surety)
MAC	Municipal Advisory Committee (Countywide)
MS4	Municipal Separate Storm Sewer Systems
NOI	Notice of Intent
NOT	Notice of Termination (with IEPA)
NPDES	National Pollutant Discharge Elimination System
PPE	Personal Protection Equipment
QLP	Qualify Local Program
SE/SC	Soil Erosion and Sediment Control
SMC	Lake County Stormwater Management Commission
SWALCO	Solid Waste Agency of Lake County
SMPP	Stormwater Management Program Plan
TAC	Technical Advisory Committee
TRM	Technical Reference Manual
USEPA	United States Environmental Protection Agency
Stormwater Technical Manual	Lake County Watershed Development Ordinance
WDP	Watershed Development Permit
WMB	Watershed Management Board

5.2 Stormwater Outfall Screening Equipment Checklist

STORM WATER OUTFALL SCREENING EQUIPMENT CHECKLIST		
Field Analysis		pH Testing Strips
		Chlorine Testing Strips
		Copper Test Strip
		Ammonia Test Strip
		Phenols Test Kit (Minimum of 15 Tests)
		Detergents Test Kit (Minimum of 15 Tests)
		Color Chart
		Thermometer
		Wash Bottle with Tap Water
Sampling		Extended Sampler
		250-ml and 500-ml glass sample containers with labels
		Cooler with ice or ice packs
Other		Outfall Screening Data Form (Minimum of 10)
		Outfall Sampling Report (Minimum of 10)
		Clipboard and Pens
		Resident Form Letters (Minimum of 10)
		Training Manual
		Storm Sewer Atlas
		Digital Camera
		Flashlight
		Manhole Cover Hook
		Tape Measure
		Folding Rule
		Brush Clearing Tool
		Plastic Trash Bags
		Paper Towels
Safety (PPE Equipment)		Traffic Cones/Flags/Light Sticks
		Traffic Safety Vest
		First Aid Kit
		Steel-Toe Boots
		Work Gloves
		Safety Glasses/Goggles
		Rubber Boots
		Disposable Gloves (Latex)
		ID Badge
Personal (supplied by employee if desired)		Insect Repellant
		Sunscreen

5.3 Stormwater Outfall Inspection Data Form

Section 1: Background Data

Subwatershed:	Outfall ID:	
Date:	Time (Military):	
Temperature:	Inspector(s):	
Previous 48 Hours Precipitation:	Photo's Taken (Y/N)	If yes, Photo Numbers:
Land Use in Drainage Area (Check all that apply): ☐ Industrial ☐ Residential ☐ Commercial	☐ Open Space ☐ Institutional Other: _____ Known Industries: _____	

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
Storm Sewer (Closed Pipe)	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Clay / draintile ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other:_____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
Open drainage (swale/ditch)	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other:	☐ Trapezoid ☐ Parabolic ☐ Other:		Depth: Top Width: Bottom Width:	

Section 3: Physical Indicators

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐Corrosion	
Deposits/Stains	☐	☐ Oily ☐Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe algea/growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	
Do physical indictors suggest an illicit discharge is present (Y/N):			

Flow Present?	☐ Yes	☐ No	**If No, Skip to Section 7 and Close Illicit Discharge Investigation**
Flow Description	☐ Trickle	☐ Moderate	☐ Substantial

Section 4: Physical Indicators (Flowing Outfalls Only)

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Sulfide ☐ Petroleum/gas ☐ Laundry ☐ Other:	☐ 1–Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color (color chart)	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange/Red ☐ Multi-Color ☐ Other:	☐ 1–Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1–Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage ☐ Suds and Foam ☐ Petroleum (oil sheen) ☐ Grease ☐ Other:	☐ 1–Few/slight; origin not obvious	☐ 2 – Some; indications of origin	☐ 3 - Some; origin clear
Do physical indictors (flowing) suggest an illicit discharge is present (Y/N):					

Section 5: On-Site Sampling / Testing (Flowing Outfalls Only)

PARAMETER	RESULT	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)	EQUIPMENT
Temperature		NA	NA	Thermometer
pH		6 – 9		5-in-1 Test Strip
Ammonia		<3 mg/L April – Oct < 8 mg/L Nov - March		Test Strip
Free Chlorine		NA	NA	5-in-1 Test Strip
Total Chlorine		< 0.05 mg/L		5-in-1 Test Strip
Phenols		< 0.1mg/L		Test Kit
Detergents as Surfactants		> 0.25 mg/L residential > 5 mg/L non-residential		Test Kit
Copper		<0.025 mg/L		Test Strip
Alkalinity		NA	NA	5-in-1 Test Strip
Hardness		NA	NA	5-in-1 Test Strip
Sample Location				

(Note NA values used for future tracing procedures)

Section 6: Data Collection for Lab Testing (see flow chart)

1. Sample for the lab?	☐ Yes	☐ No
2. If yes, collected from:	☐ Flow	☐ Pool

PARAMETER	RESULT (from lab)	ACCEPTABLE RANGE	WITHIN RANGE (Y/N)
Fecal Coliform		400 per 100 mL	
Flouride		0.6 mg/l	
Potassium		Ammonium/Potassium ratio or > 20mg/l	

*note label sample with outfall number

Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

5.4 Outfall Sampling Report

Outfall Sampling Report

Structure ID #		Date:	
Outfall ID #		Time of Sample:	
Sampled By:			AM PM

Glass Bottle Size:	250 ml	500 ml	32 ml

Tests requested:	Flouride	Potassium	Fecal Coliform

Relinquished By:	Date:
Comments:	Time:
Received By:	Date:
Comments:	Time:
Relinquished By:	Date:
Comments:	Time:
Received By:	Date:
Comments:	Time:

5.5 Outfall Inspection Screening Summary Form

Sample Point	Flow Observed?	Inspection Date	Color	Turbidity	Odor	Oil Sheen	Scum	pH	Chlorine	Copper	Detergents	Ammonia	Phenol

5.6 Pre-Construction Meeting Form

AGENDA
PRE-CONSTRUCTION CONFERENCE

PROJECT:_____CONFERENCE DATE:_____

CONTRACTOR: _____ Phone: _____

Project Manager:_____ FAX: _____

Site Superintendent:_____
Phone:_____

Cell/Pager:_____

ENGINEER: _____
Phone:_____

Project Manager: _____ FAX:_____

Field Representative:_____ Cell/Pager:_____

DECI: _____

Phone:_____ Fax:_____
Cell/Pager:_____

1. Welcome, Introductions, and Sign-in

2. Contract Dates

a. Start _____

b. Duration of Contract _____

c. Substantial Completion _____

d. Final Completion _____

3. Utilities

a. Water e. Telephone (SBC)

b. Sewer
c. Electric (ComEd)
d. Comcast
f. Gas (Nicor/Northshore)
**Contact JULIE 1-800-892-0123

4. Permits

a. Water
b. Sewer (IEPA)
c. Building
d. Mundelein Watershed Development
e. LCSMC Wetlands Development
f. IEPA / NPDES (Erosion Control)
g. LCDOT/IDOT
h. Easements

5. Contractors Insurance (Certificate of Insurance) Name Village of Mundelein, and Village Consultant, as additionally insured.

6. Performance Guarantee

7. Reference Points/Surveying/Staking

a. Who provides: _____

8. Construction Schedule / Sequencing

a. Preliminary for first 30 days by _____
b. Sequencing

9. List of Subcontractors/Suppliers

10. Special Structures needing Shop Drawings

11. As-builts required at completion of project.

12. Operation and Maintenance of Existing Facilities

Utilities
Driveways
Construction entrance and silt fence etc.

13. Defective Work will be brought to contractor and general contractor attention as soon as seen or determined.

14. Traffic Control

a. Traffic Control Subcontractor: _____

15. Soil Erosion / Sediment Control

a. Floodplain/Floodway On/Adj. to Site (Y/N)
b. WOUS or IWLC On/Adj to Site (Y/N)

c. Initial SE/SC Inspection at PreCon (Y/N)
d. Village to receive weekly DECI Inspection Reports (Y/N)
f. Key Discussion Items/Areas of Focus

0 Communication Chain 0 Construction Entrance 0 Detention/Sediment Basin
0 Dewatering 0 Ditch Checks/Silt Dikes 0 Dust / Mud Control
0 General Phasing 0 Inlet Protection 0 Inspection Log
0 Overland / Offsite Drainage 0 Perforated Riser 0 Perimeter SE/SC BMPs
0 Restrictor Plate/Structure 0 Silt Fence (ASSHTO 288-00) 0 Soil Stockpile Stabilization
0 Stormwater Management System 0 Stabilization Measures 0 SWPPP on Site & Updated
0 Stormwater System 0 Vegetative Cover/Type 0 Wetlands/Waters Protection

16. Temporary Facilities and Controls

a. Relocations (Utilities, roadway, etc.)
b. Job Trailer location, phone numbers, address,

17. Testing (by Whom?)

a. Materials
b. Water main Installation
c. Sewer Installation
d. Pavement construction

18. Chain of Command (contacts)

a. Contractor
b. Consultant
c. Village of Mundelein

19. Safety – OSHA/IDOT

20. Fire Protection / Police Department

21. Rescue Access

22. Work By Others

23. Progress Meetings

Weekly/Bi-weekly beginning _____

24. Easement Requirements

a. Existing/Proposed
b. Construction Easements
c. Drainage Easements
d. Restoration/Staging of Materials

25. Inspections

a. Special inspections
b. By consultant and/or Village
c. By DECI
d. Date of next inspection _____

26. Working Hours

a. Contractor construction (by Village Ordinance)
Mon-Fri: 7:00AM-6:00PM, Saturday 8:00AM – 5:00PM, Sunday and Holidays – no work.

b. Engineering Office
Mon-Fri 7:30AM-4:00PM

28. Comments, Q&A

5.7 Soil Erosion and Sediment Control Inspection Form

Inspections of implemented erosion and sediment control best management practices must be performed weekly and within 24 hours after a precipitation event 0.5 inches or greater which results in runoff.

Weekly written reports of all inspections conducted by or for the permittee must be maintained throughout the period of general permit coverage.

Name of Permittee:	
Construction Site Name (Project):	**Construction Site ID No.:**
Location:	**County:**
Contractor:	**Field Office Phone:**

Note: Weekly inspection reports, along with erosion control and storm water management plans, are required to be maintained on site and made available upon request.

Date of inspection (mm/dd/yy): _____ **Time of inspection: Start:** _____ **a.m./p.m.** **End:** _____ **a.m./p.m.**	**Type of inspection:** ☐ **Weekly** ☐ **Precipitation Event** ☐ **Other (specify)** _____ **Name(s) of individual(s) performing inspection:**
Weather:	
Description of present phase of construction:	

Modifications Required	Yes	No	Not Applicable	**Comments/Recommendations** about the overall effectiveness of the erosion and sediment control measures. **Note**: For each item checked "Yes", complete the follow-up information on page 2.
Ditch Checks	☐	☐	☐	
Erosion Control Plan	☐	☐	☐	
Erosion Mat	☐	☐	☐	
Grading Practices	☐	☐	☐	
Inlet Protection	☐	☐	☐	
Mulch	☐	☐	☐	
Offsite Sediment	☐	☐	☐	
Permanent Seeding	☐	☐	☐	
Schedule / Phasing	☐	☐	☐	
Silt Fence	☐	☐	☐	
Silt Screen	☐	☐	☐	
Sod	☐	☐	☐	
Stabilized Outlet	☐	☐	☐	
Temp. Diversion Channel	☐	☐	☐	
Temp. Settling Basin	☐	☐	☐	
Temporary Seeding	☐	☐	☐	
Tracking Pads	☐	☐	☐	
Turbidity Barrier	☐	☐	☐	
Other (specify) _____	☐	☐	☐	

Name of Permittee:		
Construction Site Name (Project):		Construction Site ID No.:
Exact place of erosion/sediment control inspected _____ _____	Type of erosion/sediment control and its observed condition _____	Description of any necessary maintenance or repair to erosion/sediment control, including anticipated date of completion _____

5.8 Sample Notice of Violation Letter

Date:

1ST NOTICE OF VIOLATION

Applicant Name	**3.6.A.1.a..1**
Company	**3.6.A.1.a..2**
Address	**3.6.A.1.a..3**
City State Zip	**3.6.A.1.a..4**

Subject: Project Name:
Watershed Development Permit No.:
1st Notice of Violation

Dear Permittee:

You are hereby notified of the following violation(s) to your Watershed Development Permit:

- ☐ Failure to notify the City of St. Charles prior to construction.
- ☐ Failure to display Permit placard visible from street.
- ☐ Failure to install/maintain a non-erosive outlet from the structure to the watercourse (Art. IV, Sec. B.1.j.1.b).
  Location(s) _____
- ☐ Failure to install/maintain soil erosion and sediment control features prior to the hydrologically disturbing upstream areas (Art. IV, Sec. B.1.j.1.c).
  Location(s) _____
- ☐ Failure to install/maintain temporary or permanent seeding (Art. IV, Sec. B.1.j.1.d.).
  Location(s) _____
- ☐ Failure to install/maintain sod (Art. IV, Sec. B.1.j.1.d.).
  Location(s) _____
- ☐ Failure to install/maintain erosion control blanket (Art. IV, Sec. B.1.j.1.d.).
  Location(s) _____
- ☐ Failure to install/maintain silt fence, meeting AASHTO Std. Spec 288-00 (Art. IV, Sec. B.1.j.1.f.i).
  Location(s) _____
- ☐ Failure to install/maintain sediment traps (Art. IV, Sec. B.1.j.1.f.ii).
  Location(s) _____
- ☐ Failure to install/maintain sediment basins with perforated filtered riser pipe (Art. IV, Sec. B.1.j.1.f.iii).
  Location(s) _____
- ☐ Failure to install/maintain storm inlet protection (Art. IV, Sec. B.1.j.1.g).

Location(s) _____

☐ Failure to route dewatering services through an effective sediment control measure (Art. IV, Sec. B.1.j.1.h).

Location(s) _____

☐ Failure to install/maintain stabilized construction entrance. Failure to clean right of way/pavement. (Art. IV, Sec. B.1.j.1.j).

Location(s) _____

☐ Failure to install/maintain runoff diversion controls (Art. IV, Sec. B.1j.1.m).

Location(s) _____

☐ Failure to prevent erosion from stockpile, or the placement of stockpile in a flood-prone area, buffer, WOUS or IWLC (Art. Iv, Sec. B.1j.1.n).

Location(s) _____

☐ Failure to maintain dust control (Art. IV, Sec. B.2.b.8.e.).

Location(s) _____

☐ Failure to follow permitted construction sequencing (Art. IV, Sec. B.2.b.8.j).

Location(s) _____

_____

You must take immediate action and cure all deficiencies identified above within five (5) working days, or the City of St. Charles may issue a Stop Work Order or invoke Article VII – Penalties and Legal Actions of the Stormwater Technical Manual that provides for up to a $500 fine for each offense each day the violation continues. Once all deficiencies have been cured, please call our office to schedule a re-inspection. If you have any questions please contact the James Bernahl at (630) 443-3709.

Sincerely,

James J. Bernahl, P.E.
Public Works Engineering Division Manager
Qualified Review Specialist

C:

Summary of Violation Notification Procedure

1st Notice: Village will furnish a Violation Notification to applicant and/or representative via fax and Certified Mail outlining necessary corrective measures to be completed and re-inspected within 5-working days of said notification. After which time, if violations are still not corrected, a *Red Tag* will be issued for the site (i.e. all work to stop except for activities related to correcting violations).

2nd Notice: Village issues a *Red-Tag* for the site along with a Conditional Stop Work Order (allowing only remediation activities) via fax and Certified Mail granting an additional 5-working day deadline to complete remedial work to cure said Stormwater Technical Manual violation(s). Fines continue to accrue.

3rd and Final Notice: If corrective measures have not been completed within the period allowed by 2nd Notice, the Village shall meet with the applicant/developer to discuss the Village's additional punative actions and the plan and schedule within which the necessary remedial measures will be completed. Fines continue to accrue and the Conditional Stop Work Order remains in effect.

NOTE: Building and/or Occupancy Permits and surety reduction requests will be withheld until all violations are resolved and levied fines are paid.

5.9 Detention/Retention Pond Checklist

Detention/Retention Pond Checklist

Inspected by:	**Date:**	
	Weather Conditions:	

Number	**Name/Location**	**Flood Height** *(low/medium/high)*	**Condition** *(Good / Fair / Poor)*	**Comments**
1				
2				
3				
4				

5.10 Roadway Culvert/Bridge Checklist

CULVERT INSPECTION REPORT **Location**

Facility Carried _____ Date _____
Facility Crossed _____ Temperature _____
Culvert Size & Type _____ Inspected By _____

Condition	Rating	Remarks	
Channel & Channel Protection			
Channel Scour			
Embankment Erosion			
Drift, Silt & Vegetation			General Rating
Culvert & Wingwalls			
Wingwalls / Headwalls			
Top Slab			
Walls			
Floor			
Pipe (type)			
Settlement			General Rating
Roadway			
Wearing Surface			
Curbs			
Sidewalks / Shoulders			
Railings			
Drains			General Rating
Waterway Adequacy (Evaluation)			
Opening			
Alignment			
Scour			General Rating

General Comments _____ **Overall Rating**

5.11 Pool Dewatering Fact Sheet

(SAMPLE LETTER)

GUIDELINES FOR DRAINING SWIMMING POOLS

Your swimming pool is filled with chlorinated water. Chlorinated water discharged directly to surface waters (wetlands, lakes, streams, and rivers), roadways or storm sewers has an adverse impact on local water quality. High concentrations of chlorine, as are present in swimming pools, are toxic to wildlife and fish. Appropriate preparations should be made prior to draining down a pool during pool winterizing. It is recommended that one of the following measures be used:

- De-chlorinate the water in the pool prior to draining. This can be done through mechanical or chemical means. These types of products are readily available at local stores.
  Or,
- Drain the pool over a period of several days across your lawn using the following additional guidelines:

  1) Allow pool water to sit at least 2 days while receiving a reasonable amount of sunlight, and without further addition of chlorine or bromine. It is recommended that the chlorine level be tested after 2 days to ensure that safe levels are met (below 0.1 mg/l).
  2) Pool discharge should be directed across your lawn, not down your driveway or into nearby storm sewer inlets. Our storm sewer system leads directly to wetlands, streams, lakes or rivers.

These recommendations are based on guidance from the Illinois Environmental Protection Agency. Visit **www.epa.state.il.us/water** for additional information.

You may also contact the City of St. Charles Public Works Department at (630) 377-4405.

Please do your part to help promote cleaner wetlands, streams, lakes and rivers.

Thank you.

5.12 Spill Response Notice

Stormwater Pollution Found in Your Area!

This is not a citation.

This is to inform you that our staff found the following pollutants in the storm sewer system in your area. This storm sewer system leads directly to

_____

- ❑ Motor oil
- ❑ Oil filters
- ❑ Antifreeze/ transmission fluid
- ❑ Paint
- ❑ Solvent/degreaser
- ❑ Cooking grease
- ❑ Detergent
- ❑ Home improvement waste (concrete, mortar)
- ❑ Pet waste
- ❑ Yard waste (leaves, grass, mulch)
- ❑ Excessive dirt and gravel
- ❑ Trash
- ❑ Construction debris
- ❑ Pesticides and fertilizers
- ❑ Other

_____

For more information or to report an illegal discharge of pollutants, please call:

WHEN IT RAINS IT DRAINS

www.epa.gov/npdes/stormwater

EPA 833-F-03-002
April 2003

5.13 Indirect Illicit Discharge Tracking and Summary Forms

Illicit Discharge Incident Tracking Form				
Incident ID:				
Responder Information				
Call taken by:			Call date:	
Call time:			Precipitation (inches) in past 24-48 hrs:	
Reporter Information				
Incident time:			Incident date:	
Caller contact information (*optional*):				
Incident Location *(complete one or more below)*				
Latitude and longitude:				
Stream address or outfall #:				
Closest street address:				
Nearby landmark:				
Primary Location Description	**Secondary Location Description:**			
☐ Stream corridor *(In or adjacent to stream)*	☐ Outfall	☐ In-stream flow	☐ Along banks	
☐ Upland area *(Land not adjacent to stream)*	☐ Near storm drain	☐ Near other water source (storm water pond, wetland, etc.):		
Narrative description of location:				
Upland Problem Indicator Description				
☐ Dumping	☐ Oil/solvents/chemicals	☐ Sewage		
☐ Wash water, suds, etc.	☐ Other: _____			
Stream Corridor Problem Indicator Description				
Odor	☐ None	☐ Sewage	☐ Rancid/Sour	☐ Petroleum (gas)
	☐ Sulfide (rotten eggs); natural gas	☐ Other: Describe in "Narrative" section		
Appearance	☐ "Normal"	☐ Oil sheen	☐ Cloudy	☐ Suds
	☐ Other: Describe in "Narrative" section			
Floatables	☐ None:	☐ Sewage (toilet paper, etc)	☐ Algae	☐ Dead fish
	☐ Other: Describe in "Narrative" section			
Narrative description of problem indicators:				
Suspected Violator (name, personal or vehicle description, license plate #, etc.):				

Investigation Notes	
Initial investigation date:	Investigators:
☐ No investigation made	Reason:
☐ Referred to different department/agency:	Department/Agency:
☐ Investigated: No action necessary	
☐ Investigated: Requires action	Description of actions:
Hours between call and investigation:	Hours to close incident:
Date case closed:	
Notes:	

5.14 Yearly Tracking Forms

MARCH 2009 TOTALS

DATE	STORM FLUSHING	STORM TV	CATCH BASIN CLEANING	DEBRIS REMOVED
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
	0	**0**	**0**	**0**

5.15 General Permit ILR40

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
NOTICE OF INTENT
FOR GENERAL PERMIT FOR DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
(MS4s)

Input forms in Word format are available by via email.
marilyn.davenport@epa.state.il.us
or by calling the Permit Section at 217/782-0610
See address for mailing on page 4

For Office Use Only – Permit No. ILR40_____

Part I. General Information

1. **MS4 Operator Name:** City of St. Charles

2. **MS4 Operator Mailing Address:**
   Street- Two East Main Street **City-** St. Charles
   State- Illinois **Zip Code-** 60174

3. **Operator Type: City**

4. **Operator Status: Local**

5. **Name(s) of Governmental Entity(ies) in which MS4 is located:** Kane County, City of St. Charles

6. **Area of land that drains to your MS4 (in square miles):** 13

5. **Latitude/Longitude at approximate geographical center of MS4 for which you are requesting authorization to discharge:**
   Latitude: 41 (DEG.) 54 (MIN.) 54 (SEC.) **Longitude:** 88 (DEG.) 18 (MIN) 46 (SEC.)

8. **Name(s) of known receiving waters:** *Attach additional sheets (Attachment 1) as necessary*:

1.	Fox River	2.	Seventh Avenue Creek
3.	Norton Creek	4.	Ferson Creek
5.	Mill Creek	6.	State Street Creek
7.		8.	
9.		10.	

9. **Persons Responsible for Implementation/Coordination of Storm Water Management Program:**

Name	Title	Telephone No.	Area of Responsibility
Richard Gallas	Assistant DPW	630 377 4405	Program Adminstration
Dan Rowe	Foreman	630 377 4405	Field Supervision
Dave Stoiser	Engineer	630 377 4486	Technical Review

Information required by this form must be provided to comply with 415 ILCS 5/39 (2000). Failure to do so may prevent this form from being processed and could result in your application being denied.

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Bibliography and References

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Handbook for Identifying Illicit Stormwater Discharges, Charlotte County Edition, Charlotte County, Florida.

Industrial User Inspection and Sampling Manual for POTWs, The Office of Wastewater Enforcement and Compliance Water Enforcement Division – USEPA, April 1994.

Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004.

Kane County Stormwater Technical Guidance Manual