

CITY OF ROCKFORD'S STORMWATER MANAGEMENT PROGRAM (SWMP)

August 2015



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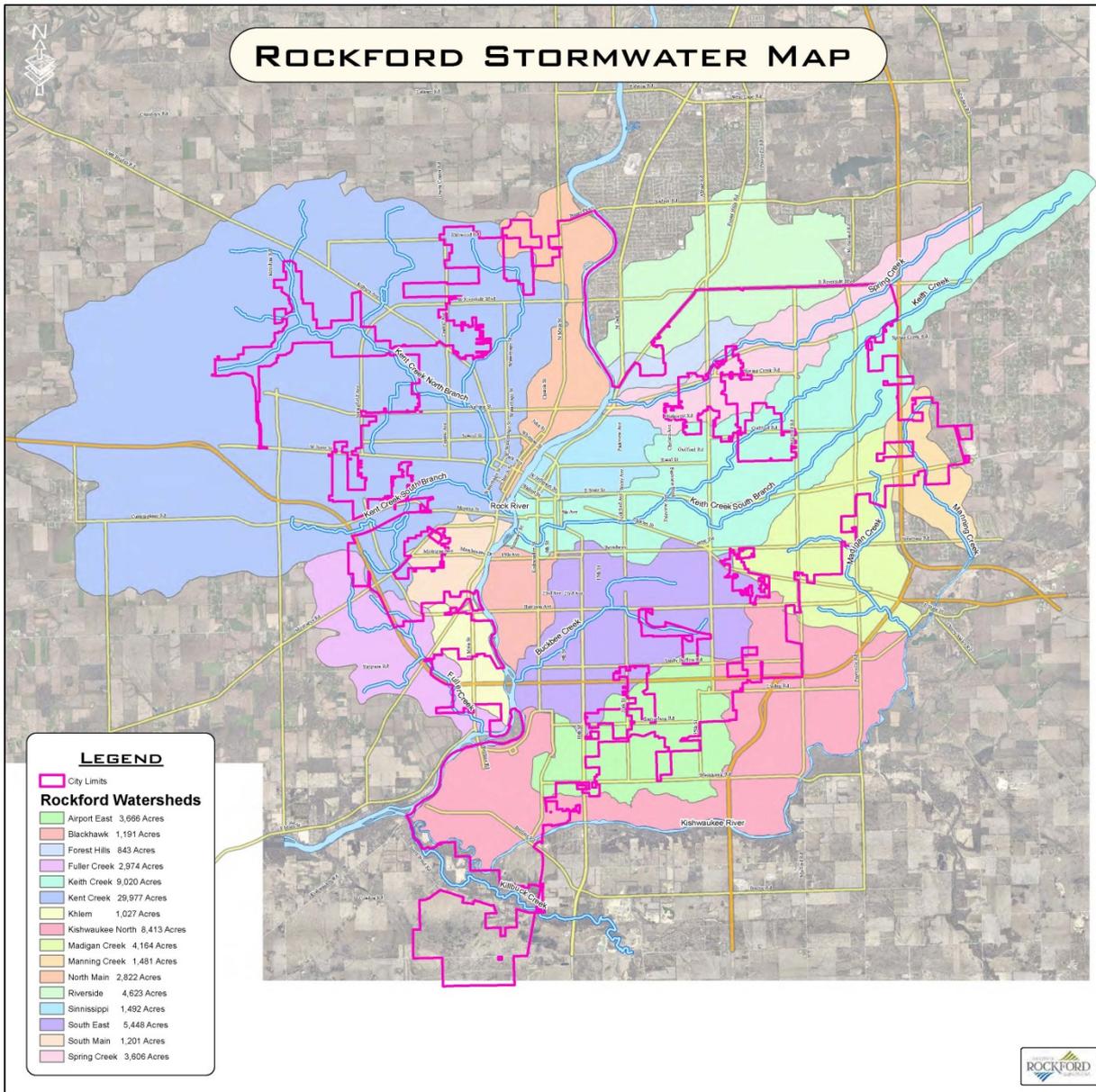
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City of Rockford's Stormwater System



Storm System Inventory

- 17 Watersheds
- 130 mi. of mapped Creeks/Drainageways
- 420 +/- Detention Ponds
- 29,313 Inlets/Structures
- 468 miles of Storm Pipe (digitized)
- 900+/- Outfalls to date
- 4 Public Dams
- 1 Private Dam
- 1 Levee

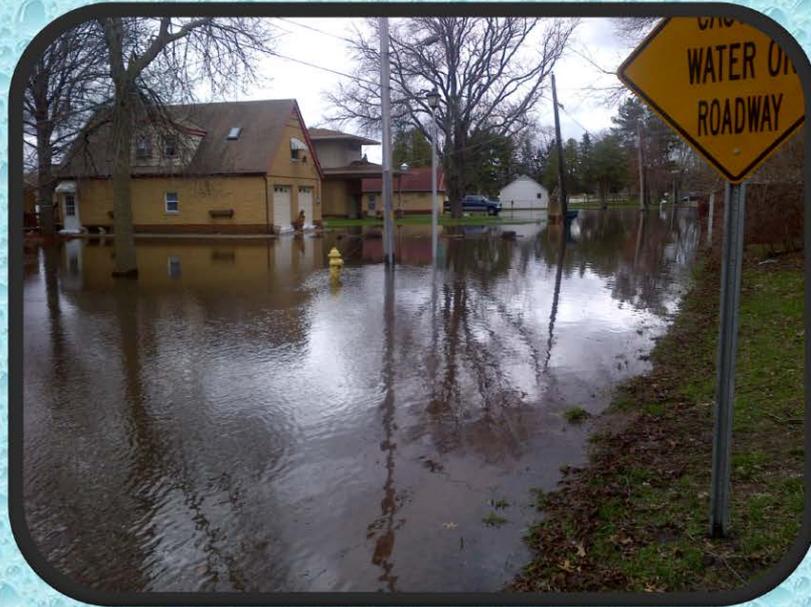
Stormwater Management Plan

- Developed to provide a current, comprehensive study of stormwater management and flood control issues for the City.
- Provides goals and strategies for guiding the prioritization of stormwater system improvements
- Provides an overview description of the watersheds along with a summary of the major issues impacting the area.
- Provides standard operating procedures for areas of the NPDES permit.

SWAMP

Stormwater Master Plan

DRAFT



City of Rockford Stormwater Permit Requirements

- Legal Authorities - City of Rockford Code of Ordinances
 - Chapter 2 - Creation of Division 4 General Ordinance Violations
 - Chapter 17 - Nuisances
 - Chapter 26 - Streets, Sidewalks and Other Public Places
 - Chapter 109 - Flood Hazard Reduction
 - Chapter 121 - Subdivision Regulations
 - Enforcement Response Plan

CITY OF ROCKFORD'S STORMWATER REQUIREMENTS

HISTORY

In 1987 under the Clean Water Act the United States Environmental Protection Agency (USEPA) established the National Pollutant Discharge Elimination System (NPDES) stormwater program. In 1990 Phase I of the requirements was implemented for those municipalities whose population was 100,000 or greater and has a Municipal Separate Storm Sewer System (MS4).

Because of its population and the fact its stormwater system was separate from its sanitary sewer system the City of Rockford required a Phase I Permit.

The City's NPDES MS4 Phase I permit was first issued April 30, 1996 and, to this date, is the only Phase I municipality in Illinois.

Rockford's Phase I Stormwater Permit Requirements

NPDES Permit Requirements and Standard Operating Procedures

- Structural Controls
- Erosion and Sediment Control:
Construction Site Runoff & Post
Construction Stormwater Management
- Roadways
- Flood Control
- Pesticide, Herbicide & Fertilizer
Application
- Illicit Discharges and Improper Disposal
- Spill Prevention and Response
- Industrial and High Risk Runoff
- Public Education, Pollution Prevention
and Good Housekeeping

Monitoring Requirements

- Storm Event Discharges
- Dry Weather Discharges

Stormwater Management Goals and Strategies

Goal 1 - Reduce the potential for stormwater threats to public health, safety and property

Goal 2 - Improve water quality and habitat conditions in the City's watersheds

Goal 3 - Encourage site planning and stormwater techniques, such as low-impact development and green infrastructure, that best replicate pre-development hydrologic conditions

Goal 4 - Comply with City, State and Federal Regulations for stormwater, water quality and floodplain management

Stormwater Management Goals and Strategies

Strategy 1 - Preserve and enhance natural and environmental sensitive areas

- Establish a “green infrastructure” program to link, manage and expand existing parks, preserves and greenways
- Complete watershed assessments to identify the environmentally sensitive areas and enhancement projects

Strategy 2 - Support regulations to improve on-site stormwater management and reduce flooding damage

- Promote best management practices to reduce the effects of stormwater runoff
- Conduct regular inspections of the stormwater system for proper maintenance

Stormwater Management Goals and Strategies



Stormwater Management Goals and Strategies

Strategy 3 - Protect the groundwater supply and enhance drinking water quality

- Provide a program to inspect industrial and commercial properties to reduce illicit discharges
- Provide a program to inspect outfalls for illicit discharges
- Provide a monitoring and sampling program to evaluate the water quality within watersheds

Strategy 4 - Maintain and enhance local watershed protection

- Complete watershed studies and plans
- Develop a community engagement process to identify and prioritize stormwater improvement projects

Stormwater Management Goals and Strategies

Strategy 5 - Protect floodways and floodplains

- Maintain compliance with the National Flood Insurance Program
- Develop an inventory of best management practices to support neighborhoods impacted by the floodplain limits on the Flood Insurance Rate Maps
- Develop a creek inspection program to evaluate the condition of the channels and prioritize bank restoration projects

Stormwater Management Goals and Strategies



Keith Creek Channel Widening

1 inch = 225 feet



Stormwater Management Goals and Strategies

Strategy 6 - Improve existing stormwater management facilities and construct new facilities

- Complete retrofits as needed on City-owned detention basins to improve water quality and increase the detainment area for stormwater runoff
- Remove and/or widen bridges as needed to reduce the restrictions to water flow in the creeks

Strategy 7 - Provide ongoing public outreach and engagement on the stormwater management program

- Attend various community events to inform and engage the citizens about potential impacts of pollutants on the stormwater system and groundwater
- Inform and engage the community about potential impacts of climate change on the City's stormwater infrastructure

City of Rockford Stormwater Management Program

Detention Basin Maintenance and Inspections

Concerns Include:

- Erosion concerns within the basin or downstream of the outlet
- Obstructions in the basin
- Trash rack maintenance
- Burrows from animals
- Sediment deposits
- Poor vegetative cover
- Inlets/outlets in poor condition
- Orifice size and condition



City of Rockford Stormwater Management Program

Detention Pond Inspection Results



Wal-Mart on Forest Hills Rd.

before



after

OSF Medical Campus - Roxbury



Harrison Park
Detention Pond



City of Rockford Stormwater Management Program

City Owned/Maintained Detention Basins

- Lowes Distribution Center - built 2005
- Elliot Golf Course - last retrofit in 2007; requires additional work
- Arden Court - built 1990
- Greater Rockford Industrial Park - partially built 1984;
- Logistics Park - built 2005; expansion & retrofit complete 2015
- Linden Pointe - City has structural responsibilities; built in 2007; requires repairs to pond walls; design underway
- Javelin/New Towne - Recently deeded to City

City of Rockford Stormwater Management Program

Channel Erosion/Clearing

- Stream Channel Erosion - Creeks and channels are walked every other year (even years) for erosion concerns and illicit discharges at the outlets. This includes natural and manmade drainageways and creeks.
- Develop a program to stabilize the channels, minimize erosion and reduce sediment generation along with keeping the channels clear of debris.

List of Major Creeks/Channels within City Limits

- Southeast Drainage Ditch/Buckbee Creek (Paved)
- Northwest Drainage Ditch (Paved)
- Airport East Watershed Creek
- Kent Creek
- Keith Creek
- Madigan Creek
- Manning Creek
- Fuller Creek
- Spring Creek
- Forest Hills Watershed Creek
- Kilbuck Creek (very small portion in Rockford limits)

City of Rockford Stormwater Management Program

Channel Erosion - Private Property

The City is responsible for enforcing maintenance/repair obligations of private property owners. This includes drainage easements on the property. If a property owner refuses to maintain their drainageway then the City must, and has the right to, complete the work themselves and charge back the property owners. This is an upfront financial obligation and potential litigation effort on behalf of the City.



City of Rockford Stormwater Management Program

Channel Erosion - Public Property

The City is responsible for maintaining and repairing the channels that fall within City-owned property/drainage easements. This is a huge financial commitment to repair these channels and creeks. The concrete channels are owned and maintained by the City and are in need of major repairs.



City of Rockford Stormwater Management Program

Erosion and Sediment Control (ESC)

- Construction plans are reviewed for erosion and sediment control and then inspected regularly for compliance. In 2015 completed 167 inspections to date of construction sites. This includes documentation, pictures and record keeping for all sites.



• Deficiencies on Construction Sites

- No Silt fence
- No Inlet Protection
- No Back of Curb Protection
- Sediment on Street
- Lack of Maintenance
- Poor Installations

- No concrete Washout
- No Stabilization
- Construction debris
- BMP's not used as designed
- Records not onsite or not being kept.

City of Rockford Stormwater Management Program

Street Sweeping, Inlet Cleaning, Salt/Sand Applications

- Complete street sweeping operations
- Complete inlet cleaning and repairs
- Evaluate salt/sand applications and snow management frequencies to minimize discharge of pollutants



City of Rockford Stormwater Management Program

Flood Control

The City must follow flood control regulations under several additional agencies.

- *National Flood Insurance Program (NFIP)*: to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding.
- *Federal Emergency Management Agency (FEMA)*: Supports our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

City of Rockford Stormwater Management Program

Flood Control

The City must follow flood control regulations under several additional agencies.

- *Army Corps of Engineers (ACOE)*: Providing technical services, infrastructure management and water resource solutions through areas of navigation, flood risk management, regulatory, environmental protection and restoration, recreation and emergency management.
- *Illinois Department of Natural Resources (IDNR)*: Office of Water Resources issues permits for work in and along rivers, lakes, and streams; activities in and along public waters, including Lake Michigan; and for construction and maintenance of dams. Water Resources is the lead state agency for water resources planning, navigation, floodplain management, the National Flood Insurance Program, water supply, drought, and interstate organizations on water resources.

City of Rockford Stormwater Management Program

Flood Control “Where are we now”

Page Park Dam

- Needs additional maintenance but is still eligible under the PL 84-99 program.

Levings Lake Dam

- Needs additional maintenance but is still eligible under the PL 84-99 program.

Kent Creek South Diversion Channel & Levee

- Needs continuance of maintenance & clearing. Currently, in the PL 84-99 but draft report recommends removal from program due to maintenance issues.

Kent Creek Channel downstream of Page Park and Levings Lake Dams

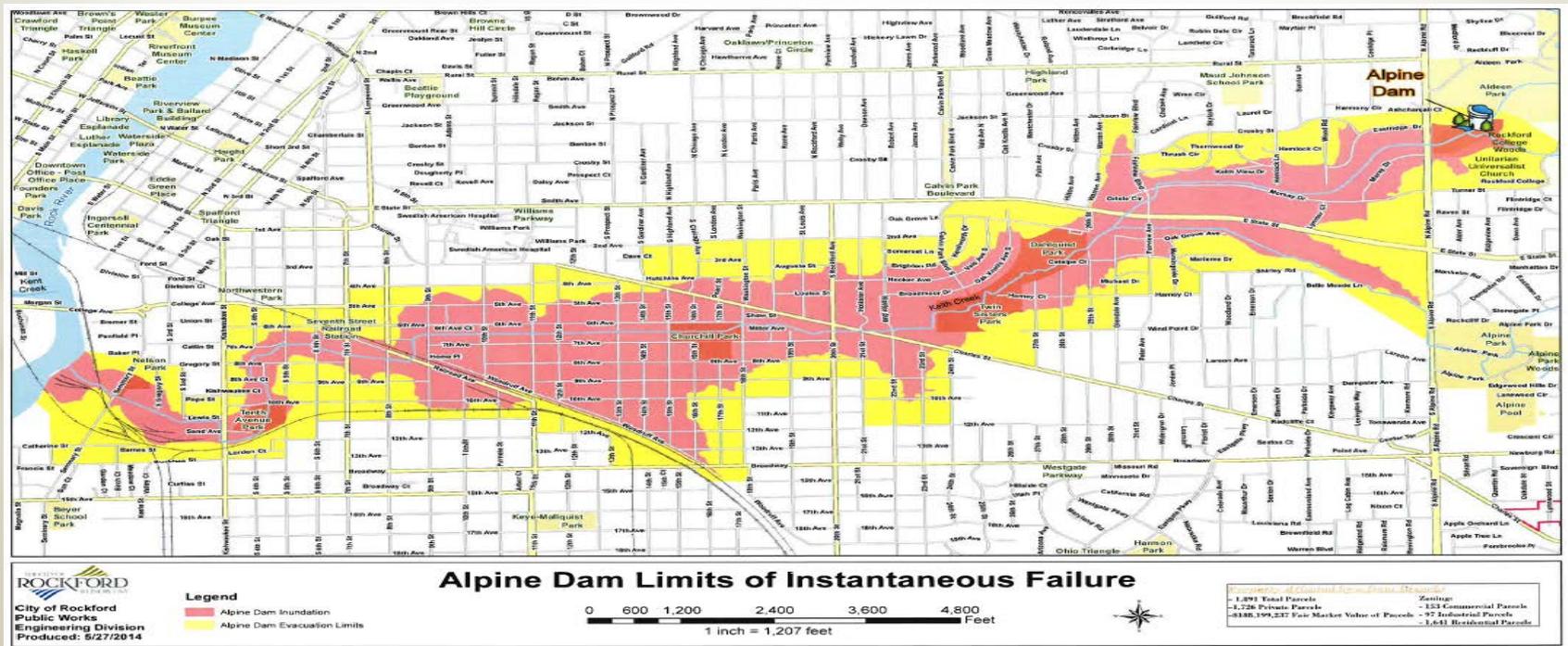
- Currently out of PL 84-99 program due to maintenance issues.

City of Rockford Stormwater Permit Requirements

Flood Control

Alpine Dam

- Due to its deficiencies this is not a permitted dam and is not eligible under the ACOE PL 84-99 program for preparedness, response or rehabilitation funds
- Approximately \$3.5 mil for rehabilitation
- Dam failure could be catastrophic



City of Rockford Stormwater Management Program

Illicit Discharge and Improper Disposal

What is an Illicit Discharge?

“any discharge to an MS4 (Municipal Separate Storm Sewer System) that is not composed entirely of stormwater...”

- Exceptions include permitted industrial activities & fire fighting activities.

Allowable Discharges include:

- Waterline flushing
- Landscape irrigation
- Uncontaminated groundwater
- Foundation drains
- Dechlorinated pool water
- Residential car washing
- Street washing
- Air conditioner condensation
- Flows from wetlands

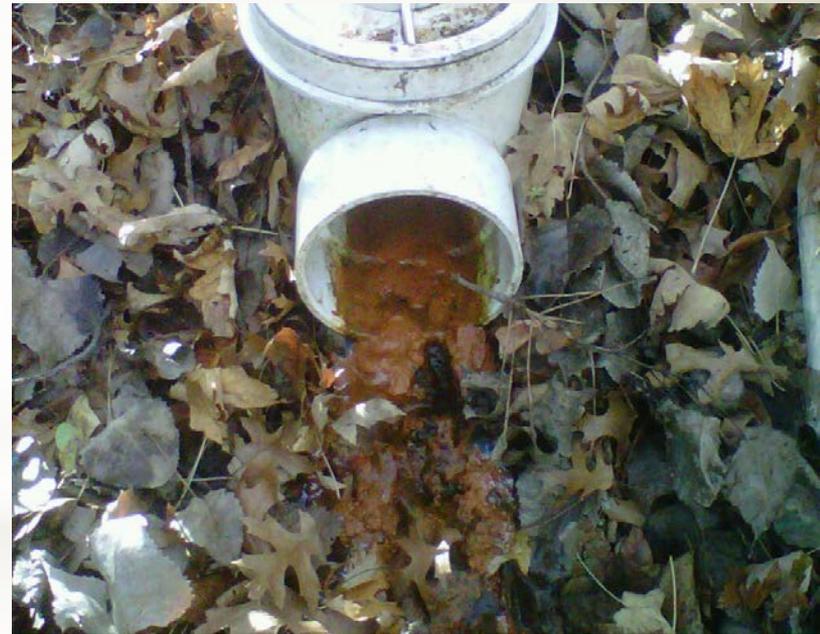


City of Rockford Stormwater Management Program

Illicit Discharge and Improper Disposal

Requirements: City shall implement a program to detect and remove (or require to be removed) any illicit discharge of improper disposal into the storm sewer.

- Prohibit non-storm water discharges other than those authorized under a separate permit
- Implement procedures for illicit discharge investigations based on staff and citizen complaints
- Track and eliminate unpermitted discharges
- Prohibit discharge or disposal of vehicle fluids, household hazardous wastes, grass clippings, leaf litter & animal waste into the storm sewer
- Inspect outfalls into creeks and river every even year



City of Rockford Stormwater Management Program

Illicit Discharge and Improper Disposal

- Complaints Include:
 - Concrete waste dumped on the ground or in an inlet
 - Restaurant grease dumped in inlets
 - Improper pool draining
 - Sediments washing down drainage ways
 - Oil/fuel dumping
 - Non-stormwater in storm sewer



City of Rockford Stormwater Management Program

Industrial and High Risk Runoff

City shall implement a program to identify, monitor and control pollutants from landfills, hazardous waste treatment, storage disposal and recovery facilities, and any other industrial or commercial facilities that contributes potential pollutants to the MS4.

- Identify priorities for inspections, establish and implement control measures for industrial inspections
- Inspect and monitor select industries to verify compliance their NPDES industrial permit
- City will review non-permitted facilities and facilities with “No Exposure” forms to determine if additional permitting is necessary.



City of Rockford Stormwater Management Program

Industrial and High Risk Runoff

Staff must inspect all City high priority facilities (351) and 50% of all medium priority facilities (361) during each permit term (5 years)

Deficiencies Include:

- No permitting, SWPPP or Inspections
- Inlet Protection Needed
- Onsite Storm Sewer needing maintenance
- No Spill Containment
- Records not current
- Facility Sweeping needed

Inspection Priority		Approx. # of Facilities	Priority Ranking
Citizen Complaints and Staff Observations			High
Flows recorded during outfall Inspections & tracked to an industrial facility & past compliance concerns within the past 3 years.			High
Municipal Facilities	List categories of high priority facilities (e.g., vehicle maintenance)	1	High
	List categories of medium priority facilities	34	Medium
	List categories of low priority facilities (e.g., municipal buildings)	54	Low
Facilities requiring an IEPA industrial Stormwater permit based on SIC and ILR00	Facilities with approved permit	57	Medium
	Unpermitted facilities - Food Manufacturing (SIC starting at 20)	17	Medium
	Unpermitted facilities - Textile & Apparel products & manufacturing (SIC starting at 22,23)	18	Low
	Unpermitted facilities – Wood & paper manufacturing facilities (SIC starting at 24, 25)	17	High
	Unpermitted facilities – Wood, paper & Printing facilities (SIC starting at 27)	52	Low
	Unpermitted facilities – Chemical & Petroleum related industries (SIC Starting at 28, 29)	32	High
	Unpermitted facilities – Rubber, leather & glass products. (SIC starting at 30, 31, 32)	32	Low
	Unpermitted facilities – Metal fabrication Industries (SIC starting at 33, 34, 35)	293	High
	Unpermitted facilities – Electronic & transportation equipment (SIC starting at 36, 37, 38)	46	Low
	Unpermitted facilities – Miscellaneous Manufacturing (SIC starting at 39)	27	Low
	Unpermitted facilities – Transportation and trucking services, USPS (SIC starting at 41, 42, 43)	153	Low
	Unpermitted facilities – Recycling Facilities (SIC starting at 5015, 5093)	8	High
	Facilities with No Exposure Certifications	60	Low
	Commercial Fueling Stations	66	Medium
Laundry and dry cleaning facilities	20	Medium	
Car repair shops and car washes	159	Medium	
Retailers with lawn & garden centers	8	Medium	
Large & Small retailers	75	Low	
Landscapers	37	Low	
Restaurants	596	Low	
Other facilities as determined by the City	-----	Low	

City of Rockford Stormwater Management Program

Public Education, Pollution Prevention & Good Housekeeping

- Development of Educational Materials Programs
 - Water Quality presentation on display in the City Hall lobby
 - Water Quality DVD's from USEPA
 - Educational Presentations
 - Educational Brochures



**MANAGING
CONCRETE
WASHOUT**



**IT'S
REQUIRED!**



**Clean Stormwater
Solutions:
Yard
Waste**

What is Stormwater Run-off?

Stormwater run-off happens when precipitation from a rain event or melting snow flows on a surface. Impervious materials like driveways, sidewalks, parking lots, and streets prevent this stormwater from naturally soaking into the ground.

What are some Issues and Effects of Stormwater Pollution?

- The flow of stormwater run-off can collect all kinds of urban debris including: litter, dirt, yard clippings, fertilizers, pet & animal waste, and leaves. These pollutants are then carried into the storm sewer system or deposited directly into our streams and rivers. What enters an inlet to the storm sewer system is discharged untreated into the water we use for drinking, swimming and fishing.
- Excess nutrients from fertilizer, yard waste and leaves can cause algae blooms.
- **REMEMBER** sweep excess fertilizers back into your yard, not into the street or sidewalk.



**PET WASTE
AND
WATER QUALITY**



**How Can Pet
Owners Help
Protect Our water?**



**HAZARDOUS
MATERIALS
AROUND
YOUR HOME**



**EROSION AND
SEDIMENT
CONTROL**



IT'S THE LAW!

City of Rockford Stormwater Management Program

Monitoring and Reporting Requirements

Wet/Dry weather Screening Program - Implement a program to identify, investigate and address areas within the jurisdiction that may be contributing levels of pollutants to the MS4.

- Establish two monitoring locations for removal of floatable material in discharges to or from the MS4.
 - Locations are maintained at least twice per year.
 - Estimates of material removed recorded for annual report.
- Grab Samples are taken within two hours of a storm event greater than 0.1 inches
- “In Creek” Screening
 - Completed at 5 locations 4 times per year.
 - Meter is used to collect in creek data.
 - The City and the EPA are looking to expand these locations to cover all watersheds.



City of Rockford Stormwater Management Program

Annual Report - Prepare a system-wide annual report with the following information:

- Status of implementing Stormwater Management Program
- Proposed changes to program
- Summary of all the data accumulated throughout the year
- Summary describing the number and nature of enforcement actions, inspections and public education programs
- Identification of water quality improvements or degradation
- Locations of monitoring outfalls
- Summary of what the City's has experienced and evaluated the past year about it's storm water program and any proposed program changes
- Summary of the effectiveness and accuracy of the monitoring results



ANNUAL REPORT
Calendar Year 2013
CITY OF ROCKFORD, ILLINOIS
MUNICIPAL SEPARATE STORM SEWER SYSTEM

NPDES Permit No. ILS000001

City of Rockford Stormwater Program Projects

2015 Completed Projects

1. Keith Creek/5th St Wall Repairs
2. S. Trainer Rd Nuisance Flooding Improvements
3. Pierpont Ave Box Culvert Cleanout
4. Tallwood Ave Culvert Replacement
5. Water Level Gauges at Page Park & Levings Lake Dams
6. Logistics Park Detention Pond Retrofit (Complete 7-2015)

Projects Programmed for 2015-2017

1. RRWRD Outfall Repairs (Construction began 8-2015)
2. Alpine Rd @ South Branch Keith Creek Box Culvert Replacement (Construction began 8-2015)
3. Linden Pointe detention basin repair/retrofit (2015/2016)
4. Sweeper Dump Station (2016)
5. Alpine Rd @ North Branch Keith Creek Box Culvert Replacement (Design Underway; Construction 2017)
6. Elliot Detention Pond Cleanout & Retrofit (2016)
7. South Diversion Channel Maintenance (2015/2016)
8. Greater Rockford Industrial Park Basin maintenance/retrofit (2016/2017)
9. Additional watershed rain gauges and sampling stations (2016/2017)
10. Airport East Watershed Study (2014-2016)

City of Rockford Stormwater Program Projects

Future Needed Projects

1. Concrete Channel Repair/Restoration Study
2. Concrete Channel Repairs/Replacement of Buckbee Creek
3. Concrete Channel Repairs/Replacement of Kent Creek North Branch
4. Alpine Dam Rehabilitation
5. Charles Street Box Culvert Rehabilitation
6. Keith Creek Widening
7. Yale Dr Full Bank Restoration
8. Harmon Park Multi-Stage and Regional Detention Pond (Underway)
9. Airport East Watershed Channel Clearing
10. Madigan Creek Watershed Improvements
11. Regional Detention Basin Study for Northwest Rockford (Kent Creek)

City of Rockford Stormwater Program Budget Needs

Item(s)	Budget Source	2014 (Actual)		2015 (Budgeted)	
		General	CIP	General	CIP
Street Sweeping	Street (includes staff)	\$403,265.00		\$473,335.00	
Sewer Repair/Inlet Cleaning	Street (includes staff)	\$485,874.00		\$693,002.00	
Bridge, Dam, Ditch Maintenance	Street (includes staff)	\$67,265.00		\$91,000.00	
City-Wide Inlet Repair	CIP		\$164,950.00		\$150,000.00
Stormwater City-Wide Drainage Fund	CIP		\$78,493.58		\$450,000.00
Stormwater Sampling and Testing	General	\$26,057.85		\$25,000.00	
Stormwater (Other Projects)	CIP		\$178,707.71 **		\$560,000.00
Stormwater Maintenance & Monitoring	CIP		-----		\$120,000.00
City-Wide Bank Stabilization	CIP		-----		\$500,000.00
Stormwater Miscellaneous Consultant Contract	General	-----		\$50,000.00	
Bridge/ Box Culvert Projects	CIP		-----		\$1,225,000.00
Stormwater Personnel (Eng) Costs	CIP - General			\$80,852.00	\$952,214.00
TOTAL BUDGET COSTS				\$1,413,189	\$3,957,214

City of Rockford Stormwater Management Program

Questions/Comments?

Email: stormwater@rockfordil.gov

Call: (779)348-7175

