STORMWATER MANAGEMENT PROGRAM EVALUATION

VILLAGE OF CAROL STREAM, ILLINOIS

Prepared By:

AMEC Earth and Environmental, Inc.

Indianapolis, Indiana

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EXECUTIVE SUMMARY

The Village of Carol Stream provides a variety of infrastructure related services to its citizens. The Village, while 47 years young, has infrastructure that is entering the second half of its expected useful life, including water, sewer, and stormwater infrastructure. The Village decided in mid-2005 that it was time to take stock of its stormwater management program and evaluate whether or not it is providing the level of service expected by the community.

A consultant team was retained to perform an assessment of all elements of the current stormwater management program. The assessment addresses the programmatic elements, the infrastructure-related operations and maintenance programs, and the capital improvement program.

The approach that was followed was to first define the level of service provided by the current stormwater management program. This was done performing a literature review and by a series of meetings with Village staff.

The next step was to identify the criteria against which the stormwater management program would be evaluated. This was accomplished in three steps. First, a citizen stakeholder group, the "Storm Water Advisory Committee," or "SWAC," was formed. The SWAC was provided general information on stormwater management and specifics on the Village of Carol Stream stormwater program, its costs, and its drivers. Based on this information the SWAC formulated a mission statement for the program and helped the Village set program priorities to guide the evolution of the stormwater management program.

Second, a review of the maintenance programs other DuPage County communities was performed. To facilitate this review a maintenance survey was prepared and circulated to a half dozen communities. The results of the survey were compiled and used as a measuring stick against which the Carol Stream maintenance program was evaluated.

Third, an evaluation of programs from around the country was made. The programs evaluated were communities that are required to manage the quality of stormwater runoff under the National Pollutant Discharge Elimination System (NPDES) Storm Water Rules, which includes the Village of Carol Stream. This evaluation looked at the water quality control measures that are being employed by the cities and compared them to the Village's program.

Once the evaluation criteria were developed the program was evaluated and recommendations for changes (where needed) were made. The evaluation gives the Village high marks for the current status of floodplain management, infrastructure maintenance, and the implementation of a water quality program to comply with the NPDES stormwater permit.

The evaluation also found some areas where changes could be made or contemplated. These recommendations included:

1. Speed up the efforts to comply with the NPDES stormwater permit,
2. Prepare a complete drainage system inventory,
3. Implement a private pond inspection program, and
4. Formalize a stormwater capital improvement program (CIP) plan.

There were also minor recommendations made that would add value to the program but that did not represent essential program modifications.

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DEFINITIONS

Best management practice. A practice that is implemented to control the production and/or delivery of pollutants to storm drainage systems and/or water bodies.

Capital improvement program. A multi-year plan that forecasts spending for anticipated new and replacement infrastructure projects.

Digital Flood Insurance Rate Map. Digital versions of regulatory floodplain maps from which determinations are made regarding the need for various levels of flood insurance.

Federal Emergency Management Agency. Federal agency tasked with preparedness for and response to natural disasters.

General Permit. A permit written in general terms that is intended to provide unilateral requirements for multiple permittees that are subject to the same type of permit and that have the same types of pollutant sources. A general permit has no permittee-specific terms.

Illinois Environmental Protection Agency. Environmental regulations enforcement and permitting agency for the State of Illinois.

Municipal separate storm sewer system. Regulated storm drainage system in cities subject to the Phase II Stormwater Rule of USEPA (this rule identified municipalities, counties, townships, and some other independent jurisdictions as "small" municipalities for the purposes of defining those entities whose stormwater discharges are to be regulated and who will be required to develop stormwater management plans that address the quality of stormwater runoff).

National Pollutant Discharge Elimination System. A federal program developed to regulate the quality of discharges from sanitary, storm, and combined sewers.

Notice of Intent. Application for coverage under a general permit issued by either a state or federal agency.

Special management area. Areas such as floodplains, floodways, riparian areas, and wetlands, which require special management or a mitigation plan for disturbance.

Standard operating procedure. Standardized practices for accomplishing a task or family of tasks.

Storm Water Advisory Committee. A citizen stakeholder group formulated to assist the Village staff and consultants in the evaluation of stormwater program development options.

Total maximum daily loads. A program that investigates the reasons that designated uses of water resources are not being met and that proposes solutions to the problems that involve limitations on the delivery of suspected pollutants to the impacted water bodies.

United States Army Corps of Engineers. Federal agency responsible for investigating, developing and maintaining the nation's water and related environmental resources, including permitting of wetland mitigation projects.

United States Environmental Protection Agency. The lead federal agency charged with the protection of the nation's natural resources.

ACRONYMS

BMP	Best Management Practice.
CIP	Capital Improvement Program
DFIRM	Digital Flood Insurance Rate Map
FEMA	Federal Emergency Management Agency
IEPA	Illinois Environmental Protection Agency
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
SMA	Special Management Area
SOP	Standard Operating Procedure
SWAC	Storm Water Advisory Committee
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

STORMWATER MANAGEMENT PROGRAM EVALUATION
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1. INTRODUCTION

Stormwater management is one of several environmental and infrastructure management services that the Village of Carol Stream provides to its citizens. The Village has developed an extensive storm drainage system over the 47 years since it was incorporated in January of 1959. The Village decided in mid-2005 that it was time to solicit an independent review of the stormwater management program. The review was performed in order to determine if the existing program, including administration, engineering and planning, operations and maintenance, enforcement, water quality management, and capital improvements is being performed at a level sufficient to meet the Village's responsibilities to the community.

1.1. ACKNOWLEDGEMENTS

This document has been produced by AMEC Earth & Environmental, Inc. and Clark Dietz, Inc. Information utilized in the preparation of this report was obtained from meetings with and documents provided by the staff of the Department of Engineering Services, the Department of Public Works, the Financial Management Department, and the Administration Department. The authors would also like to thank the members of the Storm Water Advisory Committee, comprised of citizen volunteers, for their participation in and valuable input to the process.

1.2. BACKGROUND

The Village of Carol Stream is located in north-central DuPage County and encompasses approximately ten square miles. The West Branch of the DuPage River is located to the west of the Village in the West Branch Forest Preserve. Stormwater runoff from the Village drains to the West Branch through four tributary watersheds: Winfield Creek, Klein Creek, Thunderbird Creek and Tributary No. 4.

As the Village has grown it has developed an extensive storm drainage system consisting of more than 105 miles of storm sewer and thousands of drainage system structures. The management of this infrastructure is a significant part of the local stormwater management program.

Flooding and major drainage problems are not significant issues in the community. The lack of major creek flooding is the result of projects funded by the Village and DuPage County to remove homes from the floodplain and to protect property by siting stormwater detention/retention facilities upstream of some properties that had previously experienced repetitive flooding events. The drainage problems that currently exist are infrequent nuisance flooding problems in which water may back up onto a street or into backyards for a short period of time, but recedes relatively quickly. Although hydroplaning is also a danger for motorists on a water-covered street, the Village responds quickly to barricade flooded roads and these instances are not generally considered to represent life- or property-threatening dangers.

The quality of stormwater runoff is an important aspect of and a key driving force behind the future of the stormwater management program. The Village is a designated "small municipal separate storm sewer system" (MS4) under Phase II of the National Pollutant Discharge Elimination System (NPDES) Storm Water Rule and has been covered by the State of Illinois' general permit since March 2003. To comply with the NPDES stormwater permit the Village must perform a variety of specific tasks over a five-year permit term, ending in March 2008. After March 2008, a new 5-year permit cycle will commence, requiring the Village to continue (and potentially expand) its compliance activities. In addition to the known impacts of the NPDES stormwater permit, the Village will be subjected to additional water quality requirements once the State of Illinois has completed the development of water quality objectives for stormwater runoff under the Total Maximum Daily Load (TMDL) program.

1.2.1. Why Review the Stormwater Management Program?

The casual observer might ask, "If we are maintaining our drainage system, have little or no significant flooding, and are in the early stages of managing stormwater runoff quality, why do

we need to review our stormwater management program? It sounds like we are in pretty good shape." The answer is simple, but conditional. A stormwater infrastructure program that is working as designed is basically on "stand-by duty" most of the time. The infrastructure is primarily needed only to convey runoff during and immediately following precipitation events. For the small fraction of the time that the drainage system is in use, most of the rainfall / runoff events are small events that don't overwhelm the drainage infrastructure capacity or condition.

When infrastructure is not properly maintained it begins to fail, resulting in nuisance flooding that becomes more frequent because the capacity of the drainage system is reduced. At 47 years the Village of Carol Stream is relatively young compared to the expected useful life of much of its infrastructure. Many stormwater structures have an expected useful life of 75 years. The expected life is estimated based on the assumption that the owner/operator will take steps to maintain the capacity and structural integrity of the stormwater system. The oldest parts of the Village's stormwater drainage infrastructure are at a critical point in their useful life and it is in the best interest of the Village to assess and optimize their operations and maintenance programs.

The Village receives phone calls about street and backyard flooding problems after significant rainfall / runoff events. Even though the problems are generally not life threatening and do not represent significant risk of property damage, they demonstrate the need for capital projects, remedial maintenance projects, and / or property owner outreach.

The Village filed a Notice of Intent (NOI) for coverage under the State of Illinois' general permit in 2003. The Village made a number of commitments to the State of Illinois through the NOI to comply with the NPDES Phase II stormwater permit. The Village has until March 2008 to implement the activities it committed to in its NOI.

As mentioned above, the TMDL program will require increased efficiency of the stormwater management program and structural stormwater runoff controls in treating water quality. The impact the TMDLs might have on the stormwater management program is an unknown at this time. The Village and the DuPage River / Salt Creek Workgroup (DRSCW) members are certain

that the TMDLs will impact decisions that are currently being made for NPDES permit compliance, but it is not possible to know to what degree those decisions will be impacted. One purpose of this stormwater management program study is to provide insight to how the TMDLs could impact the program and what areawide, nonpoint source pollutant management techniques might be employed to avoid or reduce the necessity of structural stormwater runoff controls.

Another important reason for reviewing the stormwater management program is fiscal responsibility. The Village has a responsibility to its citizens to provide for their well-being through the proper management of its infrastructure. However, there are limits to the available funding and priorities must be placed on the different stormwater management program components for funding. A review of the stormwater management program will aide the Village in optimizing the allocation of its stormwater management dollars and will help to identify those program areas where future program costs might be expected to increase.

1.2.2. Study Approach

The approach to the stormwater program assessment for the Village of Carol Stream was to:

1. Examine the existing stormwater program;
2. Determine the problems, needs, and goals for the program by comparing it to both local expectations as well as to other local, regional, and national programs; and
3. Determine and recommend what changes should be made.

The examination of the existing program was performed by interviewing and meeting with Village staff who are involved in the day to day administration, planning, and operation of the stormwater management program. The examination continued with an extensive document review. Village staff provided several documents summarizing existing stormwater management program activities, studies, financing, etc. A list of these resources is provided as Attachment A.

In order to evaluate local expectations for the stormwater management program a citizen stakeholder group, or Storm Water Advisory Committee (SWAC) was formed. The SWAC members represent a variety of business and property-owner interests in the Carol Stream

community. The SWAC met three times, helping to frame local expectations for the stormwater management program in three ways. First, following a general discussion on stormwater management, the SWAC members participated in the development of a Mission Statement for the stormwater management program in Carol Stream. Second, based on the general overview of stormwater management, the SWAC members identified the components of stormwater management that they feel are most important to them as members of the community. Third, following discussions of the Village of Carol Stream's stormwater management program, its costs, and the results of a survey of other DuPage County stormwater programs, the members of the SWAC provided guidance on how each would individually prioritize the key components of the local stormwater management program.

To determine how the Carol Stream stormwater management program compares to other local programs a survey was prepared and distributed to six other DuPage County communities. Five of the six communities responded to the survey. The survey was focused primarily on operations and maintenance activities.

A literature review of case studies from across the country was performed to determine the types of activities that comprise the stormwater management programs of cities that must comply with either Phase I or Phase II of the NPDES permit requirements. This review identified non-structural best management practices (BMPs) that could be incorporated into the Village's stormwater management program when compliance with wasteload allocations from TMDLs is required.

The last step in the approach was to perform a "gap" analysis of the Village stormwater program. "Gaps" are the deficiencies that exist in the current program when compared to the program needs identified by the previous steps. The gap analysis helped to identify changes that could be made to the program, and ultimately recommendations as to what specific modifications should be made based on the priorities determined by the SWAC and Village staff.

2. THE EXISTING STORMWATER MANAGEMENT PROGRAM

The stormwater management program of the Village of Carol Stream has many of the same functional and organizational components as do other programs in DuPage County and northeastern Illinois. In this chapter the existing stormwater management program is described.

2.1. ORGANIZATION AND FUNCTIONS

The Engineering Services and Public Works Departments perform the vast majority of the stormwater management activities throughout the Village. Engineering Services has the lead role in the engineering, planning, and compliance activities, while Public Works has primary responsibility for the operations and maintenance activities. Table 1 lists the Carol Stream department managers and senior staff that have responsibility for various stormwater program functional areas. Table 2 summarizes the distribution of stormwater responsibilities in the Village (note that some responsibilities belong to multiple departments).

Table 1. Carol Stream Staff with Stormwater Program Responsibilities

Staff	Position
Jim Knudsen	Director of Engineering Services
Al Turner	Public Works Director
Stan Helgerson	Finance Director
Mike Scaramella	Streets Superintendent
Bill Cleveland	Assistant Village Engineer
Matt York	Public Works Administrative Analyst
Bob Glees	Director of Community Development
Bob Hoffrage	Water and Sewer Supervisor

Table 2. Existing Stormwater Management Responsibilities

Major Stormwater Function	Specific Activity	Responsible Department
Administration	General administration	Engineering Services
	General program planning and development	Engineering Services / Public Works
Special Programs	GIS and database management	Engineering Services/ Administration
	Special projects: planning and development	Engineering Services
Finance	Financial management	Financial Management
Stormwater Quality	Used oil and toxic materials	Public Works
	Street maintenance program	Streets Division
	Spill response and clean up	Fire Department
	Public education and reporting	Engineering Services
	Cross connections	Wastewater Division
	Industrial program	Public Works
	Illicit discharge detection and elimination	Engineering Services / Public Works
	Illegal Dumping	Police
	Landfills and Other Waste Facilities	Administration
Engineering & Planning	Design criteria, standards, and guidance	Engineering Services
	Field data collection	Engineering Services
	Design, field, and operations engineering	Engineering Services
	Customer service	Engineering Services
	Hazard mitigation	Engineering Services
	Zoning support	Community Development
Operations	General maintenance management	Streets Division
	General routine maintenance	Streets Division
	Emergency response maintenance	Streets Division/ Fire / Engineering Services
	Infrastructure management	Engineering Services
Regulation & Enforcement	General code development & enforcement	Engineering Services
	General permit administration	Engineering Services
	Flood insurance program	Engineering Services
	Multi-objective floodplain management	Engineering Services / DuPage County
Capital Improvements	Major capital improvements	Engineering Services
	Minor capital improvements	Engineering Services
	Land, easement, and right-of-way	Engineering Services

2.2. EXISTING DRAINAGE AND FLOODING PROBLEMS

The most common flooding events experienced in Carol Stream can be categorized as nuisance flooding, with the majority of stormwater problems being temporary street flooding and backyard flooding during and immediately following heavy rainfalls. Even though Carol Stream experiences periodic flooding from the four tributaries to the West Branch of the DuPage River that flow through the Village, these events are rare. The Village staff feels that exposure to personal hazard or risk of significant property damage due to flooding of local streams has been reduced through previous capital projects, including stormwater detention and

Figure 1. Klein Creek at Illini Drive (September 19, 2001)

retention. There are still approximately 55 homes within the 100-year floodplain. The annualized flood damages for these homes, based on prior floods, are approximately $21,300. There are a small number of homes in the floodplains that meet federal eligibility criteria for buyout and removal from regulatory floodplains.

Nuisance flooding typically is short-lived. Though the risk level is considered low, hydroplaning is always a risk when water accumulates on the streets, therefore when roadways are flooded the Streets Division (or other staff on-call) typically deploys barricades until the flood waters recede from the streets. (See Figure 1)

Many localized flooding problems are identified by receipt of calls from the public. There is a system in use in the Village wherein major or significant problems (safety or codes violations), referred to as "Citizen Service Requests," are logged into a computer database. The Citizen Service Requests may be responded to by the Police, Public Works, and/or Engineering Services, depending on the nature of the call.

2.3. PROGRAM ADMINISTRATION

The administration, planning and overall engineering direction for the stormwater management program comes from a committee comprised of representatives from Engineering Services, Public Works, Administration, and Finance. A key service that is provided under this functional area is customer service. The customer service center receives calls from the citizens and businesses of Carol Stream and directs the calls to the appropriate department or group based on the substance of the inquiry or request. Another key service provided in this functional area is the working relationship between the Village and other governmental agencies that are involved locally in stormwater, floodplain, and water quality management.

2.4. PLANNING, DESIGN, AND ENGINEERING

The Engineering Services Department has the primary responsibility for the technical aspects of the stormwater management program in the Village. The primary technical services provided are engineering and planning studies, technical and design guidance, and floodplain management. The Village has adopted technical guidance for local designers, engineers, and developers. The Village of Carol Stream Design Manual includes guidance and design criteria for most infrastructure projects, such as roads, sewer, and stormwater projects. The stormwater section of the design manual addresses design criteria for all aspects of the drainage system that are governed by local ordinance or policy.

In 1992, DuPage County Stormwater Management issued a Technical Guidance Document dealing with stormwater runoff quantity and erosion control in support of the DuPage County Countywide Stormwater Management and Flood Plain Ordinance. Technical standards for the selection, design and maintenance of both structural and non-structural BMPs are currently being

developed by the Stormwater Quality Stakeholder Committee, made up of staff from the Village of Carol Stream and other DuPage County communities. (Structural best management practices are facilities that are constructed for stormwater quality control, such as wet ponds, sand filters, and oil/water separators. Non-structural controls are management practices designed to control stormwater pollution through activities such as public education, street sweeping, and catch basin cleaning). The BMP Manual will be added to the existing DuPage County Technical Guidance Document.

DuPage County has performed engineering studies for each of the four tributaries to the West Branch of the DuPage River that are located in Carol Stream. These studies focused on floodplain analysis and resulted in the identification of priority flood control projects in the Village. To date, two of the identified projects have been implemented, one has been eliminated and the other is pending. These projects primarily involve the purchase and demolition of repetitive loss properties that are located in the floodplain.

The Department of Engineering Services and the Park District commissioned a pond and stream bank study in the late 1990s to evaluate stream bank and shoreline repair and rehabilitation needs. The study addressed water quality, erosion, and structural problems at seventeen (17) stream and fifteen (15) pond sites. The study identified wind-induced wave action in the ponds, and both increased in-stream velocities and sustained high flows as the reasons for shoreline erosion in the streams and ponds. Structural and shoreline erosion problems were inventoried and a comprehensive list of needed repair and restoration projects was developed. Cost estimates were provided for the recommended solutions and a method of ranking and prioritizing the problems. The shorelines of eight Village and two Park District ponds were rehabilitated as a result of the study.

The Village and DuPage County are jointly responsible for the implementation of the National Flood Insurance Program in Carol Stream. DuPage County is the agency officially responsible for the maintenance of the floodplain and floodway mapping in the County. As discussed in Section 2.7, Regulation and Enforcement, the Village is responsible for local enforcement of

activities in the regulatory floodplains and floodways. DuPage County recently updated the digital flood insurance rate maps (DFIRMs) based on new topographic information. The validity of the new maps has been questioned because the new mapping utilized the base flood elevations of older, less accurate studies.

2.5. DRAINAGE SYSTEM OPERATIONS AND MAINTENANCE

The Public Works and Engineering Services Departments are responsible for operation and maintenance of the stormwater drainage system. The Village is responsible for maintaining more than 105 linear miles of storm sewer; more than 5,200 stormwater inlets, catch basins, manholes, and other in-ground structures; over 60 detention / retention basins; more than 16 miles of stream banks and pond shorelines; 34 culverts; and 2 bridges.

Carol Stream has a routine stormwater drainage system maintenance program in place for manholes, inlets, and catch basins. These assets are inspected and cleaned once every 10 years. As part of the inspection and cleaning process, structures are identified for repair. One 3-person crew performs the inspection and cleaning operations while another 2-person crew performs the repairs. The crews are not dedicated to inspection and maintenance of the stormwater drainage system, but are responsible also for the inspection and maintenance of other Village infrastructure.

Ditch maintenance primarily consists of mowing and occurs monthly for 8 months of the year. If erosion is noticed during the mowing season work orders are generated for repair of the ditch.

Channel maintenance is performed once per year. The maintenance process for channels is basically an inspection that generates a work order for the removal of any downed trees or obstructions. There are also 10 stream crossings that are inspected annually.

The Village is responsible for maintaining 31 detention ponds. The maintenance of the ponds occurs monthly and includes inspection of the pond, mowing, and trash removal.

Some maintenance program activities are conducted in a reactive mode. During and after significant storm events, crews clean restrictors, culverts, pipes or bridge structures to maintain conveyance of the system, and may clean clogged catch basins and remove leaves and other debris from grate tops and inlets to relieve localized street flooding. Maintenance, particularly remedial maintenance is prioritized on a case-by-case basis, with worst-case situations typically receiving first priority.

There is an annual maintenance program that includes shoreline and wetland maintenance and monitoring, detention basin mowing, installation and maintenance of aerators for the ponds, and restrictor plate maintenance. A pond shoreline maintenance program is defined each year by a local nursery resulting from the inspection program they provide to the Village.

The Streets Division sweeps streets and manages and applies anti-icers during winter weather. The curbed lanes of local roadways are swept nine times annually; a spring cleanup, monthly sweeping from March through November, and a fall leaf cleanup. In 2005 approximately 2,955 lane-miles were swept and 701 cubic yards of material was removed from the street surfaces that would have otherwise entered the storm drainage system. The anti-icers are applied to road surfaces in advance of imminent winter weather events. The anti-icer is a brine solution that is sprayed on the roadway that helps to inhibit ice formation on the roadway surface. This reduces both the effort required for snow removal and the amount of chlorides needed to remove the snow from the street surface.

2.6. STORMWATER QUALITY MANAGEMENT

Managing the quality of stormwater runoff in the Village is a key component of the stormwater management program. As previously stated, the Village is a designated a small MS4 under the State of Illinois' implementation of Phase II of the NPDES Storm Water Rule. Carol Stream and several other small MS4s in DuPage County requested coverage under this permit as co-applicants to reflect the cooperative nature of the stormwater management programs in the County. These entities have created the Stormwater Quality Stakeholder Committee to jointly create many of the compliance activities and will share the responsibilities of those permit

compliance activities that easily cross political boundaries, such as public education, outreach, and involvement initiatives, as well as the development of local technical guidance for sediment and erosion control, illicit discharge detection and elimination, and post construction runoff control. As part of the public involvement program the Village supports and participates in activities such as pond and stream clean-up days, and countywide stakeholder meetings for water quality-related programs.

The Village has an illicit discharge[1] ordinance that prohibits non-stormwater discharges[2] from entering the MS4 untreated. The Village has completed the outfall mapping required by the permit and plans to update the mapping of the drainage systems upstream of the outfalls.

As a part of the NPDES permit there are several municipal good housekeeping and pollution prevention efforts underway, including staff training on non-point source pollution prevention, the development of environment-friendly standard operation procedures (SOPs) for infrastructure maintenance, and revisions to existing ordinances and design standards.

In addition to the Stormwater Quality Stakeholder Committee, the Village participates in the DuPage River/Salt Creek Workgroup that is focused on TMDLs currently under development by the State of Illinois. Because of the impaired status of the West Branch of the DuPage River as assigned by the State of Illinois, communities in DuPage County anticipate that TMDL requirements will be enacted to control nutrients and chlorides in runoff as well as to address low dissolved oxygen content in the streams. When these requirements are enacted they will impact local stormwater management programs. Some communities in the West Branch and tributary watersheds are currently monitoring their chloride usage for activities such as roadway deicing.

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[1] Illicit discharges are discharges that are not allowed to the storm sewer system, such as discharges from industrial or sanitary sewer systems, equipment wash waters, etc.

[2] Non-stormwater discharges are defined as discharges that are not made up entirely of stormwater. Some of these discharges may be specifically allowed by Village, such as sump pump discharges, footing drains, and irrigation runoff.

It is anticipated that a phosphorous reduction program will eventually be required as a result of the TMDL study for nutrients.

2.7. REGULATION AND ENFORCEMENT

DuPage County is the lead stormwater agency within the County by statute. The County manages the regulatory floodplains and thereby is either responsible for or coordinates many aspects of stormwater management. DuPage County is the first county in the State of Illinois to have created approved DFIRMs under the Federal Emergency Management Agency's (FEMA) map modernization program. The County developed comprehensive floodplain management ordinances several years ago. The stormwater management authority of the County can be delegated to local programs through a waiver process. Carol Stream is a "full waiver" community and as such has adopted the County's stormwater ordinances and has enforcement authority over projects in and around regulatory floodplains and floodways in the Village.

DuPage County has the delegated authority to review and approve wetland mitigation permit applications by the United States Army Corps of Engineers. Once the County has performed the reviews the Corps permits the approved plans.

The Village has a plan review and inspection process in place that evaluates drainage and grading plans and makes certain that local requirements for the control of stormwater quantity and quality are met at the design and construction phases of new development and redevelopment projects. The staff of the Engineering Services Department performs site plan review. Review of the plans with respect to the impact on floodplains, floodways, riparian areas, and wetlands (special management areas, or SMAs) is provided by qualified personnel under contract to the Village.

The Village has a maintenance policy for privately owned stormwater runoff controls that requires the owners of the controls to perform routine and periodic maintenance. The Department of Engineering Services will be developing an inspection program to ascertain whether or not the

agreed upon maintenance is actually occurring and whether or not the structures are performing to the standard that they were designed to meet.

A local nursery inspects pond shorelines that are the maintenance responsibility of the Village each year. After the inspections the nursery makes maintenance recommendations regarding the shoreline condition and plantings. The recommendations are incorporated into the maintenance program for the publicly-owned ponds for the following year.

The Village has a sedimentation and erosion control ordinance in place that provides regulations for construction site runoff control. A variety of BMPs are specified for use based on the characteristics of the specific development sites. Compliance with the sedimentation and erosion control program is enforced at the plan review stage as well as through inspections in the field. The inspections are performed by Engineering Services who has three (3) inspectors available for enforcement of this ordinance.

2.8. CAPITAL IMPROVEMENTS AND EXPENDITURES

The Village typically handles minor stormwater capital improvements on an as-needed basis, such as inlet, catch basin, and manhole replacements. The Department of Engineering Services is responsible for all major and minor stormwater capital improvements, including all land, easement, and right-of-way acquisitions. A Village-wide comprehensive capital improvement plan (CIP) has been adopted that covers all infrastructure programs other than stormwater. Currently the stormwater CIP has only one major project identified at the current time, the repair of the Tubeway Lift Station.

The Pond and Stream Bank Study identified several stormwater drainage system capital projects. Some of these projects, while physically located in the Village of Carol Stream, may be the financial responsibility of other governmental entities, such as DuPage County or the Park District.

2.9. STORMWATER PROGRAM COSTS

The description of the existing stormwater management program for the Village of Carol Stream is based on the fiscal year 2005/2006 program. The cost of the existing stormwater program is provided in the following subsections for each of the identified functional areas. Many of the administrative and engineering services for stormwater management in the Village (other than those described in Sections 2.9.1. and 2.9.2.) are tied to the management services for other infrastructure programs and as such are considered to be general services by the Village. The cost of providing those services is not included in the following subsections.

2.9.1. Administration and Overhead

The administrative and overhead costs related to the stormwater management program include customer service for the Engineering Services and Public Works Departments, as well as general administrative time expended on stormwater management issues. The annual estimated cost of the administrative services is $4,300.

2.9.2. Engineering and Planning

The annual cost of providing stormwater management-specific engineering and planning support services and for management and construction of the stormwater drainage system are estimated at $12,400. This amount does not include design fees for contractors on Village projects. Those fees are included in the cost of the capital projects.

2.9.3. Operations and Maintenance

Currently the Village expends approximately $278,700 a year for stormwater collection and conveyance system maintenance. Approximately $243,700 of that total is spent on in-house operation and maintenance programs, including catch basin and culvert maintenance, street sweeping, and other operation and maintenance costs. The other $35,000 is contracted wetland and pond shoreline maintenance.

2.9.4. Water Quality

The cost of water quality protection includes the programmatic requirements of the NPDES Phase II stormwater permit and the coordination that is taking place related to the on-going development of TMDLs. These costs total $51,900 per year. This total cost is separated into two components, NPDES and TMDL, in the following two paragraphs.

The NPDES program compliance costs to date are relatively low due to the programming of the first five year permit cycle in the Village's NOI for coverage under the State's general permit. A big factor in the low initial compliance costs is the Stormwater Quality Stakeholder Committee that has been jointly developing many of the shared components of the program, such as public outreach materials. Of that $51,900, the current annual costs to the Village directly related to the NPDES permit are estimated to be $37,200.

The local coordination for the TMDL development includes two efforts; one a joint monitoring program that is co-sponsored by the members of the DRSCW, and the second participation in the DRSCW itself. These costs currently average $14,700 annually.

2.9.5. Regulation and Enforcement

The regulation and enforcement program costs include plan review and inspection services. The plan review and inspection service costs, estimated at $108,100 per year, include only the in-house expense. In addition, approximately $33,000 per year is collected for out-sourced inspections of special management areas (SMAs) and wetland inspections are pass-through costs that are paid for by the developers and service requesters and are not included in the Village costs.

The cost of this program is expected to increase once the Stormwater Quality Stakeholder Committee has finalized its selection of BMPs for the control of pollutants in stormwater runoff and the related design standards are in place.

2.9.6. Capital Improvement Program

The Village CIP includes a wide variety of identified infrastructure projects, primarily unrelated to stormwater management. The only identified stormwater project in the CIP is the rehabilitation of the Tubeway Lift Station at an estimated cost of $50,000. This project is not projected to occur until 2007 or 2008. At the current time the CIP is funded on a "pay as you go" basis and there is no bond debt service. Small capital projects are identified and performed during the maintenance process. The cost of these small projects is included in the annual cost of the operation and maintenance program. Other projects have been identified and listed in the CIP but have not been funded. Although these are needed projects, no funding source has yet been identified. Depending on the nature of the projects funding may also be the responsibility of an entity other than the Village of Carol Stream.

2.9.7. Stormwater Management Program Cost Summary

The identified annual costs of the existing stormwater management program are estimated to be approximately $510,400, including both operating and capital improvement program costs. As mentioned previously, many of the administrative and engineering services for stormwater management in the Village (except for Sections 2.9.1. and 2.9.2.) are tied to the management services for other infrastructure programs and as such the costs are considered to be general services costs and are not included in the annual cost estimate above.

An additional category of stormwater management program costs are those one-time, or non-recurring costs associated with studies, NPDES permit planning and/or implementation, or other stormwater management program studies or audits. Over the last three years, this type of cost has averaged approximately $55,000 annually in stormwater management program related expenses.

The annual stormwater program costs are summarized in Table 3. A detailed summary is provided in Attachment B.

Table 3. Carol Stream Stormwater Management Program Costs

Program Element	Annual Cost
Administration and Overhead	$ 4,300
Engineering and Planning	$ 12,400
Operations and Maintenance	$ 278,700
Water Quality	$ 33,900
Regulation and Enforcement	$ 108,100
Capital Improvement Projects	$ 0
Miscellaneous One-Time Costs – Average Annual	$ 48,300
Total Stormwater Program	**$ 485,700**

Based on FY 2005/2006 Costs

Financing for the existing stormwater management program typically comes from the General Corporate Fund. The General Corporate Fund is also the source for many other municipal programs in Carol Stream.

3. PROBLEMS, NEEDS, AND GOALS

In order to assess Carol Stream's stormwater management program it was necessary to determine the expectations of the program, to prioritize the expectations, and to then determine whether the program is meeting those expectations. The approach used to determine the expectations of the program was threefold; interaction with the citizens of Carol Stream through a stakeholder process, comparison of the stormwater program to other stormwater programs in DuPage County, and comparison to programs across the country that are complying with NPDES stormwater regulations.

3.1. STORM WATER ADVISORY COMMITTEE

The best way to make certain that the public's opinion is well represented is to involve the public in the program assessment process. This was accomplished by the formation of a citizen stakeholder group called the Storm Water Advisory Committee, or "SWAC." The SWAC membership was representative of various interest groups in Carol Stream, including:

- Large & Small Business Owners
- Higher Education
- Public Schools
- Development Community
- Senior Citizens
- Chamber of Commerce
- Park District
- Churches
- Homeowners with Stormwater Problems
- Environmental Advocacy

Public notice of the formation of the group and its meetings was made by placing advertisements in both the local and regional newspapers.

The SWAC met three times. The protocol that was followed was to send topical information to the members prior to scheduled SWAC meetings, to discuss the information during the meeting, and to solicit input in key areas from the members during the meetings. The input received from the SWAC that has been used to assess the public expectation of the Carol Stream stormwater management program is discussed in the following sections.

3.1.1. Program Mission

The mission statement defines the long-term purpose of the stormwater program. It provides a foundation for other policies, most notably those addressing program priorities and the extent, scope, and level of service. After general discussion of the components of a typical stormwater management program, the SWAC drafted the following recommended mission statement for the Village of Carol Stream's stormwater management program:

> **The mission of the Carol Stream stormwater management program is to enhance public health and safety and to protect lives and property by evaluating, developing, implementing, operating, and adequately and equitably funding the operation, maintenance, construction, regulation, and acquisition of stormwater management systems and activities.**
>
> **The program shall, to the extent practical and as set by the Village Board, safely and efficiently manage stormwater runoff, educate the residents and businesses of the Village with regard to stormwater management, maintain mobility and enable access to homes and businesses throughout the community during and after storm events, complement and support other related Village programs and objectives, establish standards for the management of the discharge of pollutants in stormwater to receiving waters, and enhance the natural resources of the community.**

The mission statement is part of Policy Issue #1, which is provided as Attachment C of this report.

3.1.2. Program Priorities

During the second and third meetings of the SWAC the Village's existing stormwater management program was discussed in detail. The discussions defined:

- What is being done in the Village
- Why it is being done
- Who is responsible for each program element

- What does each program cost
- What are pertinent performance metrics (e.g. number of lane-miles of street swept annually, number of ponds inspected, etc.).

The discussions of the existing program were followed by discussions of the regulatory issues impacting the program, some of which are driving the need for program modifications. These discussions framed the regulations, such as NPDES Phase II and the Total Maximum Daily Load Program, in terms of what is required for compliance and how the programs may impact the Village.

The SWAC members, Village staff, and consultants then discussed what the top priorities should be under each of the six stormwater management functional areas, defined as:

- Administration, Financial Management, and Program Development
- Master Planning, Engineering, and Design
- Capital Improvements
- Operations and Maintenance
- Regulation and Enforcement
- Stormwater Quality Management

Under each of the identified functional areas multiple specific actions were identified that the group felt should serve as guidance for the stormwater management program. The complete list of the program priorities is provided in Policy Issue #2, which is provided as Attachment D to this report.

Once the program priority list was complete the SWAC members were asked to individually rank what they felt were the top ten activities from the list. Each member was provided a worksheet that was completed and submitted to the Village and consultant for compilation of the results. The top ten program priorities as identified by the SWAC are discussed in the following paragraphs, listed in order of priority (highest priority listed first).

1. **Define the specific stormwater problems, operational and construction needs, regulatory activities, and funding needs.** This statement indicates that the Village should perform a needs analysis for its stormwater management program, and the costs of the program needs should be identified.

2. **Lobby DuPage County and others for the construction of regional stormwater quality and flood control projects.** Some of the remaining flooding problem areas are impacted by runoff from areas outside the direct control of the Village. In these areas regional or multi-jurisdictional solutions should be considered rather than the Village shouldering the entire burden.

3. (tie) **Seek grants and funding alternatives for capital projects.** There are a number of potential capital projects, primarily pond and streambank restoration projects that might qualify for full or partial funding through various state and federal grant programs. It is recommended that these grants be pursued as a partial funding source for these types of projects.

3. (tie) **Prepare a detailed, geodata-based stormwater collection and drainage system inventory that supports operational, regulatory, and capital improvement programs.** The Village is required, as part of the NPDES stormwater permit, to create an outfall map of its stormwater drainage system by the NPDES stormwater permit. The entire drainage system, not just the outfalls, needs to be mapped and the data collection effort should be comprehensive, addressing all of the Village's potential information needs for the drainage system. The collected data should be integrated with the Village's geographic information system (GIS) to facilitate its ease of use.

5. **Adopt a clear, long-term, comprehensive program strategy**. This statement indicates that that the Village should develop a comprehensive plan for each functional area of its stormwater management program.

6. **Adopt a stormwater management CIP Master Plan that prioritizes capital investment in stormwater infrastructure.** The Village has developed a comprehensive CIP for its infrastructure, but this CIP does not include the stormwater infrastructure. A similar plan needs to be developed for the stormwater infrastructure that includes a strategy for prioritizing individual projects. The plan should include a periodic update schedule to keep the CIP current.

7. (tie) **Identify stormwater drainage system related capital improvement program needs.** The Village should initiate a process to identify the current list of projects that should be included in the CIP.

7. (tie) **Conduct public information activities to gain and maintain support for the program.** The Village should continue to publicize and expand public awareness, outreach, and involvement activities related to all aspects of its stormwater management program.

9. **Develop an operations and maintenance strategy that defines the extent, scope, level and cost of routine and remedial maintenance services to be performed to accomplish the identified operation and maintenance priorities**. The Village should develop an operations and maintenance strategy that distinguishes between public and private responsibilities for stormwater drainage system maintenance, including what should be done, where, and how often.

10. **Provide for public interaction during all phases of projects.** Whenever a project is being performed (whether it is a study, design, or construction), involve the public and solicit their input. An informed public will be more supportive of the projects and their input can make the project more effective.

It should be noted that, for the most part, the SWAC members did not select any of the five priorities that had to do with compliance with the Village NPDES stormwater permit. This was in large part due to the fact that the Village has no choice but to comply with those priorities.

Each respondent was also asked to indicate what level of water quality management program the Village should adopt. The choices were minimal, "middle of the road," and aggressive. The guidance provided by the committee was that the Village should strive for a "middle of the road" program, which was defined as a program that invests the Villages resources in a manner that produces meaningful results, while not being too aggressive. The minimalist approach was defined as doing the minimum required to comply with the permit.

Village staff also completed the program priorities worksheet. The primary difference in the priorities between the SWAC and staff is that staff placed more emphasis on the basic activities that deal with the mechanics of running a stormwater management program (e.g., pond/channel maintenance, street sweeping, inlet cleaning, etc.).

3.2. PEER PROGRAM REVIEW

Each municipality in DuPage County is responsible for a stormwater management program. As previously mentioned, many of the communities are already working together to comply with the NPDES regulations, and all of the communities are working with the County on the management of regulated floodplains. The one area where each community is independent of the others is in the operation and maintenance of their storm drainage system infrastructure.

In order to determine how the Village of Carol Stream's operation and maintenance practices compare to other local programs a stormwater maintenance practice survey was prepared and delivered to six neighboring communities. The survey included questions about the following operations and maintenance activities:

- Street sweeping;
- Inlet, catch basin, and manhole inspections;
- Storm sewer maintenance;
- Ditch maintenance;
- Winter weather programs;
- Channel maintenance;
- Detention pond maintenance; and
- Guidance and training.

The survey results, provided as Attachment E, show that the Village's stormwater operation and maintenance program is on a par with those of the neighboring communities. As would be expected, the Village performs some activities slightly more often than the group average, and some slightly less often. The only practice that the Village may need to increase the frequency of maintenance is in catch basin and inlet inspection and cleaning. The Village currently intends to visit each catch basin and inlet once every 10 years. The Village indicated in its own survey response that the frequency of this operation will more than likely be reviewed within the next three years.

The survey also asked each community to indicate the type of street sweeping equipment being used. Of the six respondents, two were using exclusively mechanical sweepers that rely on large rotating brushes to sweep the street, three were using both mechanical and vacuum assisted street sweepers, and Carol Stream uses exclusively vacuum assisted sweepers. Studies of the effectiveness of street sweeping programs for water quality management have indicated that the vacuum assisted sweepers are much more effective in controlling sediment-related pollutant loads than are the mechanical variety of street sweeper.

The surveyed communities were also asked if they were testing any alternative deicing or anti-icing chemicals for winter weather roadway maintenance. Even though there is a study of chloride use and its impact on local streams currently underway only half of the communities, including Carol Stream, are looking at the performance of alternative deicers.

3.3. NATIONAL PROGRAM REVIEWS

The final review that was performed was a look at the stormwater management programs of communities nationwide that are required to comply with NPDES stormwater permits.

The Illinois Environmental Protection Agency (IEPA) adopted a general permit that became effective in March 2003 to cover Phase II communities. Under the permit more than 300 communities in the State of Illinois have to implement stormwater quality management programs that address six categories of stormwater runoff control measures. These measures, referred to as the "six minimum control measures," are;

- Public education and outreach
- Public participation and involvement
- Illicit discharge detection and elimination
- Construction site runoff control
- Post construction runoff control
- Municipal good housekeeping and pollution prevention

In order to be covered by the state's general permit the Village was required to prepare and submit a Notice of Intent (NOI) to be covered by the permit. The NOI included a commitment to perform specific activities under each of the six minimum control measures. Coverage under the permit lasts five years and then must be renewed. Each of the activities that the Village committed to must be fully implemented, though not necessarily complete, by the end of the first five year period. In order to make the regional programs as seamless as possible, the Stormwater Quality Stakeholder Committee, made up of several communities in DuPage County and the County itself, cooperated in the preparation of the NOI and are working together in the development of materials, programs, ordinance, and technical guidance.

Storm water quality management programs of larger municipalities have been in place for several years and the permittees have documented the results of the programs they have implemented. The documentation serves as case studies in the implementation of the six minimum control measures and is readily available for perusal on the internet. For the national

program review several examples of programs that were implemented under each of the six control measures were compiled.

Most of the case study material is for activities that are being jointly scoped and in some cases implemented by the Stormwater Quality Stakeholder Committee, particularly the public outreach and public involvement activities. Some of the information in the case studies will be valuable once the nutrient, chloride, and dissolved oxygen TMDLs are in place. Several of the municipal good housekeeping and pollution prevention activities could be implemented village-wide as wasteload reduction techniques. These could compliment controls on new construction which only treat the runoff from the relatively small portion of properties in the Village where development or redevelopment is occurring.

Some examples of the activities that that are in practice around the country are provided below.

- **State of Connecticut.** As general guidance, catch basin cleaning is required to be done once a year.

- **Indianapolis, Indiana.** The Department of Public Works is developing standard operating procedures (SOPs) for vehicle maintenance activities, for channel and ditch inspection and maintenance procedures, and for the inspection and cleaning of municipally-owned parking lots. The SOPs will incorporate stormwater pollution prevention practices into these activities.

- **Seattle, Washington.** BMPs are maintained by property owners. The city regularly inspects privately owned BMPs, performing 200-500 inspections per year.

- **Hillsborough County, Florida.** Volunteers inspect and maintain neighborhood ponds through the Adopt-A-Pond Program. The city provides a website with maps, educational and how-to information; a data-keeping notebook; and other resources.

- **Quad Cities Regional Planning Commission, Illinois.** Members of the Quad City Regional Planning Commission have worked together to develop a model regional ordinance that addresses illicit discharges, construction and post construction runoff control.

- **Rock Island, Illinois.** The City has implemented a program that promotes the use of rain gardens in the community. The program objective is to enhance water quality through infiltration and nutrient uptake of potentially polluted stormwater runoff in residential areas. The program is set up as a cost share where the City provides the plants if the property owner prepares, plants, and agrees to maintain the rain garden.

- **Louisville, Kentucky.** In order to satisfy the requirements of its NPDES stormwater permit for dry weather screening of outfalls for illicit discharges and for public education and involvement, Metropolitan Sewer District entered into a partnership with a local high school to implement a summer intern program to perform dry weather field screening and to document the results.

- **Monroe County, New York.** In Stormwater Stewards, citizens adopt a stormwater outfall and monitor it for urban pollution during wet and dry weather. A fact sheet on pollution indicators is provided for education and the volunteers return a monitoring observation sheet.

4. PROGRAM ASSESSMENT AND RECOMMENDATIONS

The last step in the program review process was the assessment. In this step the program was evaluated based on whether it is doing what is needed to meet the needs and expectations of the community. The primary measure of how the program is performing was how it compared with the program mission, the program priorities, and the peer review processes.

4.1. PROGRAM EVALUATION

In general, most of the stormwater management program activities that the Village should be implementing are already in place or, in the case of some of the NPDES compliance activities, are under development. The specific programs and activities that were discussed in Chapter 2 are evaluated in the following sections. Specific recommendations for each activity or program are included at the end of each discussion.

4.1.1. Organization and Functions

The organization of the stormwater management responsibilities in the Village of Carol Stream, as described in Section 2.2, meets the needs of the program as efficiently as possible.

There are no recommended changes to the program organization and functions.

4.1.2. Drainage and Flooding Problems

Typical flooding events experienced in Carol Stream can be categorized as nuisance flooding - primarily temporary street and backyard flooding during heavy rainfall events. While water on a roadway always presents a potential for hydroplaning, the Village responds quickly to barricade inundated streets and thereby reduce the threat to public safety.

The Village and DuPage County have reduced the exposure to personal hazard or risk of significant property damage due to flooding through a variety of capital projects, including detention and retention ponds. There are still some homes in the 100-year floodplain that would qualify for a buyout program. The Village has no control over the priority of the homes for buyout by the Federal Emergency Management Agency.

Due to the Village's status as a full waiver community that administers the DuPage County floodplain ordinance and program within its corporate limits there are no recommended changes to the floodplain management program. The possible need for local drainage projects is addressed in the capital improvements section.

4.1.3. Program Administration

The administration, planning and overall engineering direction for the stormwater management program comes from a committee comprised of representatives of Engineering Services, Public Works, Administration, and Finance. This type of administration is the most appropriate choice for the Village.

The centralized customer service program is working well, and coordination and cooperation opportunities with the County and neighboring communities are being utilized extensively in the stormwater management program.

There are no recommendations for modifications to the program's administration.

4.1.4. Planning, Design, and Engineering

The planning, engineering, and design elements of the Village stormwater management program are providing a high level of service to the community. The Village provides in-house design of remedial projects and some larger-scale Village projects. The Village, in conjunction with the Park District, commissioned a study of pond and stream shorelines. The Village has worked with the County in the implementation of local stormwater management ordinances and technical guidance, in addition to implementing its own design requirements.

The Village has not been required to maintain floodplain and floodway mapping of regulated waterways because they are the statutory responsibility of the County to maintain. Water quality models of many local streams are being developed by the IEPA in support of the DRSCW and will not need to be developed locally.

It is recommended that the Village proceed to inventory the entire stormwater drainage system and store the maps in the Village GIS. The storm drainage system maps will be a valuable resource for management of the NPDES stormwater permit, for the infrastructure maintenance program, for emergency response activities, for future studies, for capital projects, and other purposes. All of these programs should operate using a centrally located, easily accessed set of maps.

It is recommended that the process of model ordinance and technical guidance development be accelerated to the extent possible. Even though the process is a joint effort between the County and several communities in the County, the ordinance must be adopted and the technical guidance and supporting activities deployed by March of 2008. As will be discussed in Section 4.1.6, the Village is required to reapply for coverage under the NPDES general permit by September 2007, therefore all programs should be implemented with enough evaluation time to determine how or if they should be continued in the following permit term.

4.1.5. Drainage System Operations and Maintenance

The Village has a well defined operations and maintenance program for its stormwater drainage infrastructure. Based on the Peer Program Review, the Village of Carol Stream's maintenance practices are in line with the practices of local municipalities. Both the SWAC and staff recommended in the program priorities exercise that clear goals and priorities for operations and maintenance should be identified. The Public Works Department has a document[3] describing the stormwater maintenance program. This document provides most of the information necessary to prioritize the program. The needed element is documentation of the reasoning behind the frequency of the various maintenance activities.

It is recommended that the Village collect information on its catch basin inspection and cleaning program. The national program literature review indicated that the optimal cleaning frequency

[3] "Carol Stream Public Works Department Storm Water Management Plan"

should be between 12 and 24 months, depending on the amount of traffic, types of activities, and the amount of canopy that exists in the vicinity of the catch basins. The Village began a scheduled ten-year inspection and cleaning program in 2005 and should revisit some of the catch basins that were cleaned in 2005 to determine the sump capacity that has already been lost since the previous cleaning. It is further recommended that the inspection be repeated in 2007 for the same catch basins to provide additional information for the program evaluation.

4.1.6. Water Quality

The water quality program of the Village is based on its NPDES storm water permit and will most likely be impacted by the upcoming TMDLs for nutrients, chlorides, and dissolved oxygen. The water quality management program is quickly undergoing both its development and implementation phases as a result of the NPDES Phase II permit. The county-wide approach to jointly developing the policies, activities, and technical guidance is the most effective method for complying with such a large regulatory program in a densely urbanized area, from the practicability as well as the economic standpoints. One of the key concerns with the approach to date is its timetable. The permit is a five-year permit that requires that all activities identified in the Village's NOI be implemented within the five-year window of the permit, which expires in March 2008. The permit also requires the Village to reapply for permit coverage 180 days prior to the permit's expiration, or by September 2007. The Village will also need lead time to prepare the NOI. In order to evaluate whether or not the activities should be included in the NOI, the Village should have all programs in place as soon as possible so that an evaluation of the programs can be made in July or August of 2007.

The impact of the TMDL program on the stormwater program is unknown at his time. Based on information derived from the review of national programs it appears that there are some potential modifications to the operational frequency of some activities, such as catch basin cleaning, street sweeping, and storm sewer line cleaning, that might be cost effective alternatives to constructing and operating structural controls. One known impact of a TMDL is that any requirement of a TMDL that directly impacts the management of pollutants in stormwater runoff will require the NPDES permit to be modified within 18 months of the effective date of the TMDL.

It is recommended that the Village work with the Stormwater Quality Stakeholder Committee to accelerate the pace of the development of the common resources for compliance with the NPDES stormwater permit. This would be done in order to make as much time as possible available for review of the activities before September 2007 when the next NOI is due.

It is recommended that the Village continue to participate in countywide cost sharing on programs such as public education and public involvement

4.1.7. Regulation and Enforcement

The regulation and enforcement program as it pertains to floodplain and stormwater management is in very good condition. The Village is a "full waiver" community that has been delegated the authority to administer the DuPage County programs. The Village has a plan review and inspection program in place that is administered by the Engineering Services Department and contracts are in place with "qualified personnel" to review special management areas on development plans, such as floodplains, floodways, riparian areas, and wetlands. A local nursery provides pond shoreline inspections for the ponds that are the responsibility of the Village.

The only portion of the regulation and enforcement program that is currently lacking is with respect to the maintenance of privately-owned stormwater runoff controls. Village policy requires owner maintenance of the stormwater controls, but there is currently not a program in place to verify that the maintenance is being done.

It is recommended that the Village implement a pilot pond inspection program to determine whether or not the private maintenance is occurring. Based on the pilot study, a determination should be made as to whether the program should be expanded to encompass all privately-owned controls, what the inspections should entail, and how often the inspections should occur.

4.1.8. Capital Improvement Program

The Village of Carol Stream has developed a Comprehensive Capital Improvement Plan. There is only one stormwater related cost in the five-year capital improvement plan. That project is the repair of the Tubeway Lift Station.

Because most of the current problems are nuisance type flooding there are no other identified capital improvement projects on the books. The small capital projects are identified and executed when they are detected on the basis of need and on the availability of funds and/or materials.

There are projects that should be funded by other jurisdictions in full or in part due to their contributions to the drainage problems. These projects have been identified in the CIP as "requested" but have not been funded or programmed.

It is recommended that the Village prepare a comprehensive CIP plan for stormwater infrastructure projects. The CIP plan should list all known capital program needs and the individual projects should be listed by potential funding source.

It is recommended that the Village continue to look for grants that will fund all or part of the capital improvement program projects that qualify for grant funding.

It is recommended that the Village continue to look for regional financial participation in projects that are the result of regional stormwater runoff issues.

5. SUMMARY

The Village of Carol Stream's stormwater management program has undergone a thorough review. The result of the review, or assessment, of the program is that the Village is on the right track with the program, though there are a few potential pitfalls that should be addressed.

The floodplain management program is functioning very well, the operation and maintenance activities are mostly proactive in nature, and the Village is working with the County to implement most of the water quality activities of the stormwater management program.

Of the recommended actions that came from the assessment, a subset has been identified as being high priority items. These recommendations include:

1. Speed up the efforts to comply with the NPDES stormwater permit,
2. Prepare a complete drainage system inventory,
3. Implement a private pond inspection program,
4. Formalize a stormwater capital improvement program (CIP) plan,
5. Perform a study of the effectiveness of catch basin cleaning , and
6. Encourage DuPage County and other regional agencies for the construction of regional water quality and floodplain management projects.

Other recommendations were made that are not essential to the continued smooth operation of the stormwater management program as are the four recommendations above, but that would be value-added for the program if implemented.

ATTACHMENT "A"

STORMWATER MANAGEMENT PROGRAM DOCUMENTS

Stormwater Management Program Documents

1. Parcel and Tax Database Description & System
2. Customer Service Requests (Complaints)
3. Village GIS Data Dictionary
4. Pond and Stream Bank Study (1998)
5. CIP – Notes for cost of Pond and Stream Bank Restorations
6. CIP – 2007 through 2016
7. CIP – Klein Creek Stream Bank FY 05 through 10 (Phased documents over 5 yr)
8. CIP – Veterans Park Shoreline FY 05 through 10 (5 yr)
9. CIP – Mitchell Lakes Shoreline FY 05 through 10 (5 yr)
10. Annual Budget (05-06) & Financial Plan (06-08)
11. Operating Budget (04-08)
12. Carol Stream Public Works Department Storm Water Management Plan
13. Annual Report
14. Private Maintenance Agreements
15. Educational Materials
16. NPDES Permit Annual Reports
17. DuPage County Watershed Plans
18. DuPage County Stormwater and Floodplain Ordinance
19. Carol Stream Stormwater & Related Ordinances
20. Carol Stream Stormwater Design Manual Sections
21. Action Plan for NPDES Phase II
22. Annual Report Accomplishments (NPDES)
23. Final Municipal NOI Input Form
24. Functional Requirements & Needs Assessment
25. Legal Review Stormwater Utility Fee
26. Legal Review Stormwater Utility Financing
27. NPDES Regulations Action Plan
28. Stormwater Management Program Costs
29. Stormwater Management Funding Study
30. Stream Bank & Pond Shoreline Lengths
31. Unfunded Project List
32. Miscellaneous one page documents

ATTACHMENT "B"

COST OF SERVICE DETAIL

ATTACHMENT "B"

Cost Of Service Detail

Functional Area	Needs Description	Annual Cost
Administrative Programs	Open Space Requirements	MIN
	Household Hazardous Waste Control	MIN
	Illegal Dumping Control	MIN
	Enforcement Actions	MIN
	FIRM Map Determinations	$1,000
	Letter of Map Amendment Requests	$2,300
	Records Management	$1,000
	Customer Service (Public Works)	MIN
	Customer Service (Engineering Services)	MIN
Administrative Subtotal		**$4,300**
Engineering and Planning	Engineering & Planning	$12,400
Engineering Subtotal		**$12,400**
Operations & Maintenance	Shoreline/Wetland Monitoring & Mgmt. Rpts	$0
	Shoreline/Wetland Maintenance	$35,000
	Ditch Maintenance	$19,000
	Channel Maintenance	$9,200
	Street Sweeping	$61,600
	Anti-icing Program	$14,200
	Pipe End Section Repair / Replace	$3,700
	CB Cleaning	$28,500
	Inlet, CB and MH Repairs (PW)	$3,250
	Pump Station Repairs	$3,700
	Detention Basin Mowing	$64,050
	Aerator Installation & Maintenance	$20,550
	Restrictor Inspection. Maintenance, Repairs	$5,350
	Underdrain Projects	$10,000
	Bridge/Culverts Inspections	$600
Operations & Maintenance Subtotal		**$278,700**

DEC = DuPage County Cost
MIN = Minimal or Not Tracked For Drainage
PT = Pass Through Costs

ATTACHMENT "B"

Cost Of Service Detail , continued

Functional Area	Needs Description	Annual Cost
Water Quality		
NPDES - Education	Brochures & Pamphlets	MIN
	Newsletters	$400
	Signage	$0
	Workshops	$1,300
	Corporate Storm Water Program	MIN
NPDES - Public Involvement	Municipal Engineers Meetings	$2,100
	Water Quality Stakeholder Meetings	$2,000
	Pond & Stream Sweep	$600
	Pond Shoreline Clean Up Program	$300
	Technical Guidance Revisions	MIN
	Ordinance Revisions	MIN
NPDES - Illicit Discharge Detection and Elimination	Process & Procedure Development	DEC
	Outfall Mapping	$0
	Storm Sewer Mapping	$1,000
	Ordinance Revisions	MIN
NPDES - Construction Site Runoff	Technical Guidance Revisions	DEC
	BMP Technology Updates	DEC
	Ordinance Revisions	DEC
NPDES - Post Construction Runoff	Technical Guidance Revisions	DEC
	BMP Technology Updates	DEC
	Corporate Storm Water Program	DEC
NPDES - Pollution Prevention and Good Housekeeping	Employee Training Program & Organization	$3,300
	Infrastructure Procedure Development	$2,300
	DFIRM Map Updates	FEMA & DEC
	Appendix F Revisions	DEC
	Watershed Plan Development	DEC
	Ordinance Revisions	MIN
NPDES - Annual Report	Documentation	$2,700
	Analysis	$1,600
	NOI Modifications & Revisions	$1,600
NPDES - TMDL	TMDL Monitoring	$10,500
	TMDL, 303(d) List and 305(b) Report Review	$1,800
	DuPage River/Salt Creek Watershed Workgroup Meeting.	$2,400
Water Quality Subtotal		**$33,900**

DEC = DuPage County Cost
MIN = Minimal or Not Tracked For Drainage
PT = Pass Through Costs

ATTACHMENT "B"

Cost Of Service Detail, continued

Functional Area	Needs Description	Annual Cost
Regulation & Enforcement	Plan Review	$34,400
	SMA Plan Reviews	PT
	SMA Inspections	PT
	Inspection & Documentation	$71,000
	Enforcement	$2,700
Regulation & Enforcement Subtotal		**$108,100**
Capital Improvements	Inlet, CB and MH Replacements	(see O&M)
	Pump Station Replacement	(FY 2008)
Capital Improvements Subtotal		**$0**
One Time Costs	Signage	$25,000
	Outfall Mapping	$8,000
	SWM Development and Funding	$108,000
	Employee Training Program & Organization	$1,600
	Infrastructure Procedure Development	$2,300
One Time Costs - Three-Year Subtotal		**$144,900**
One Time Costs - Average Annual		**$48,300**
TOTAL		**$510,400**

DEC = DuPage County Cost
MIN = Minimal or Not Tracked For Drainage
PT = Pass Through Costs

ATTACHMENT "C"

POLICY ISSUE #1: PROGRAM MISSION

Stormwater Program Development and Funding Study
Policy Issue # 1
Program Mission

Issue Description

The long-term mission of the Village of Carol Stream's stormwater management program must be concisely spelled out in order to guide the development and implementation of a detailed program and funding strategy and to explain the strategy to the community.

Recommendations

It is recommended that the Village staff adopt the following stormwater management program mission statement and recommend it to the Village Board:

> **The mission of the Carol Stream stormwater management program is to enhance public health and safety and to protect lives and property by evaluating, developing, implementing, operating, and adequately and equitably funding the operation, maintenance, construction, regulation, and acquisition of stormwater management systems and activities.**
>
> **The program shall, to the extent practical and as set by the Village Board, safely and efficiently manage stormwater runoff, educate the residents and businesses of the Village with regard to stormwater management, maintain mobility and enable access to homes and businesses throughout the community during and after storm events, complement and support other related Village programs and objectives, establish standards for the management of the discharge of pollutants in stormwater to receiving waters, and enhance the natural resources of the community.**

Background Information and Analysis

The mission statement defines the long-term purpose of the stormwater program. It provides a foundation for other policies, most notably those addressing program priorities and the extent, scope, and level of service. Program priorities translate the mission statement into specific actions.

Administration, staff, elected officials, and the citizens of Carol Stream need to have a clear understanding of the steps necessary to accomplish this mission. Table 1 describes actions that typically contribute to successfully accomplishing the mission statement and summarizes how the stormwater program might be run.

ATTACHMENT "C"

TABLE 1
HOW TO ACHIEVE THE STORMWATER MANAGEMENT MISSION

- **UNDERSTAND THE PROBLEMS AND SOLUTIONS FIRST** - Analyze the problems and needs carefully before taking action, and target the program on attainable improvements in service.
- **FOLLOW A ROADMAP** - Outline a comprehensive long-term program strategy to be followed, and keep the effort focused on the objective.
- **TIE FUNDING TO THE PROGRAM** - Define an equitable, adequate, and stable approach to long-term funding that is consistent with the program strategy and provides dedicated resources.
- **GAIN PUBLIC ACCEPTANCE** - Inform the general public and involve neighborhoods and the business community in the program.
- **SOLVE THE WORST FIRST** - Fix the worst problems first to demonstrate attention to appropriate priorities.
- **THINK BEFORE YOU BUILD** - Emphasize non-structural solutions to avoid unnecessary or untimely capital investment.
- **ASSUME A WATERSHED PERSPECTIVE** - Identify cost-effective regional solutions that avoid creating conflicts between the Village and other areas of the county.
- **INCREASE THE CUSTOMERS' LEVEL OF SERVICE** - Increase the level of service by increasing both operations and capital investment, while recognizing that it is not a solution to move a problem from one location to another.
- **EXPEDITE SYSTEM ACQUISITION** - Aggressively acquire easements and properties needed to support operations and capital investment.
- **UPGRADE MANAGEMENT SYSTEMS** - Create the tools and management practices needed to implement and manage a complex operational and capital investment program.
- **DEVELOP SYSTEM INVENTORY** - Determine the extent, type, condition, and operational and capital investment needs of the existing stormwater collection and drainage systems.
- **REORGANIZE TO BETTER SUPPORT THE PROGRAM** - Centralize coordination and administrative control of all aspects of the stormwater program, and reorganize staffing as needed to optimize the stormwater program.
- **COORDINATE WITH OTHER AGENCIES**- Mesh the Village efforts with State and other programs.

ATTACHMENT "D"

POLICY ISSUE #2 – PROGRAM PRIORITIES

Stormwater Program Development and Funding Study
Policy Issue # 2
Program Priorities

Issue Description

The mission statement in Policy Issue Paper # 1 defines the long-term purpose of the stormwater program in broad terms and proposes keys to successfully accomplishing the mission statement. One of the keys to accomplishing the mission is to define a clear strategy composed of specific actions. Another is to allow the program needs to "drive" any funding decisions that may be necessary. Once program priorities for stormwater management are established it will be easier to develop the program strategy.

Recommendations

It is recommended that the Village of Carol Stream Board adopt the following stormwater management program priorities for the next five years.

Administration, Financial Management, and Program Development

- **Define the specific stormwater problems, operational and construction needs, regulatory activities, and funding needs.**
- **Adopt a clear, long-term, comprehensive program strategy.**
- **Evaluate the staffing, training and contracting requirements of identified stormwater management program needs.**
- **Conduct public information activities to gain and maintain support for the program.**
- **Develop program management, record keeping, and other support systems.**
- **Prepare and implement a Public Education Program.**
- **Lobby DuPage County for the construction of regional stormwater quality and flood control projects.**

Master Planning, Engineering, and Design

- **Prepare a detailed geodata-based stormwater collection and drainage system inventory that supports operational, regulatory, and capital improvement programs (CIP).**
- **Develop / update drainage master plans to address the peak, volume, and quality of stormwater runoff in areas subject to development or redevelopment.**

- **Adopt a watershed-based perspective for the evaluation of drainage and water quality issues and for future planning.**
- **Adopt a stormwater management CIP master plan that prioritizes capital investment in stormwater infrastructure.**
- **Adopt design guidance for stormwater quality management.**
- **Develop a Land Use Policy & Plan.**

Capital Improvements

- **Identify stormwater drainage system related capital improvement program needs.**
- **Implement structural Best Management Practices (BMPs) for stormwater quality improvement where the need is identified by the master plan process.**
- **Provide for public interaction during all phases of projects.**

Operations and Maintenance

- **Identify routine and remedial operation and maintenance priorities.**
- **Develop an operations and maintenance strategy that defines the extent, scope, level and cost of routine and remedial maintenance services to be performed to accomplish the identified operation and maintenance priorities.**
- **Implement the operations and maintenance strategy.**
- **Evaluate equipment use, staffing, and outsourcing options to meet program objectives.**
- **Obtain appropriate access for operations & maintenance activities.**

Regulation and Enforcement

- **Review all regulations related to stormwater management, establish local compliance objectives, and recommend changes to local ordinances and policies.**
- **Institute an inspection program to verify maintenance of private stormwater systems (inspections to be at the cost of the system owner).**
- **Amend local standards to include water quality best management practices (BMPs).**
- **Implement the regulatory activities associated with the National Pollutant Discharge Elimination System (NPDES) permit requirements.**
- **Continue to enforce the sedimentation and erosion control ordinance.**
- **Review enforcement practices and implement recommended changes.**
- **Evaluate staffing levels for stormwater management-related enforcement functions.**
- **Prepare and implement an Illicit Discharge Detection & Elimination Program.**

Stormwater Quality Management

- **Define an overall stormwater quality management strategy (i.e., aggressive? middle of the road, minimal)**
- **Continue to work regionally to insure consistency of the Village's NPDES and other water quality programs with other programs in the County.**

- **Identify locally practical structural BMPs.**
- **Implement the NPDES stormwater quality permit requirements.**
- **Identify non-structural BMPs for implementation in the community.**

Background Information and Analysis

A comprehensive, cohesive stormwater management program strategy is needed in Carol Stream in order to efficiently operate and maintain the existing stormwater management program and drainage system, to address existing drainage and flooding problems, and to meet the requirements of regulatory programs. This objective can be achieved by clearly defining the program's mission, and by then building on existing programs and adding new initiatives as required – a "building block" approach.

A successful program strategy will address regulatory and compliance issues, overcome program deficiencies that presently exist, and correct site-specific drainage problems where economically feasible. Consolidation of responsibility does not necessarily dictate that one organization be in charge of all stormwater management functions, but that to the extent practical similar functions be overseen or managed by the same group or groups. Five key factors should be considered in formulating an overall program strategy and identifying specific priorities: 1) the nature of the problems to be addressed; 2) what must be done to correct the problems; 3) how much the solutions will cost; 4) how the solutions can be funded; and 5) the extent and level of service that will be provided.

Several of the most critical needs at this time are related to administration. The most immediate administrative priorities are to identify the stormwater management program strategy and identify and implement funding that fits the program strategy.

It's recommended that implementation of an enhanced stormwater program also requires intensive public information, education, and involvement. A public education program is necessary for a successful stormwater management program.

Physical stormwater problems are not wide-spread in Carol Stream, though they do exist. Most of the problems are minor problems, such as backyard flooding and some roadway intersection flooding. The problems and service disruptions are typically short-lived, cause relatively minor, if any damage, and are often more of an inconvenience than a hazard.

There are some areas of the Village that experience significant flood damage to homes and other real property during very rare and large flood events. These areas have been identified by DuPage County, and solution alternatives have been identified that are based on the level of estimated damages. The cost of implementing these solutions would be covered by some combination of grants, matching funds, homeowner contributions, or regional funding through DuPage County.

Although engineering is often expected to lead directly to capital improvements, interim steps, such as easement or property acquisition, may pose potential delays that cause costs to gradually inflate. The Village should evaluate potential capital improvement projects to identify drainage easement and property needs and begin the public outreach process related to procurement of the easements or land at the time the projects are entered into the capital improvement program master plan.

The prioritization scheme for the capital improvement program master plan will need to be evaluated so that new initiatives, such as best management practices for stormwater quality enhancement, can be added to the priority list.

Stormwater operations primarily involve maintenance of existing drainage collection systems. These typically require two types of maintenance, routine cleaning and remedial repair. Many remedial repairs are similar to capital improvements. Remedial repairs involve replacement in-kind as opposed to changes in the type of system (a storm sewer replacing an open ditch) or increases in capacity (a twenty-four inch culvert replacing a twelve inch). Because most of the Village stormwater infrastructure is newer than the expected useful life of many of the system's components, most of the current maintenance program effort is routine maintenance.

The level of service provided by some existing systems can be increased by a more rigorous routine maintenance schedule. The current approach to routine maintenance is largely reactive. Shifting to a preventive level of routine maintenance should be an immediate priority, although it could take several years because support systems need to be developed before preventive levels of maintenance can be attained. For example, a system inventory that includes information on condition and associated easements is very helpful in managing both routine and remedial maintenance. Another example is that stormwater quality management programs from around the country have reported improvements in the quality of stormwater runoff discharged to local streams and lakes by increasing the frequency of routine maintenance programs such as catch basin cleaning and street sweeping.

Remedial repairs are more site-specific and amenable to immediate attention than routine maintenance, but certain remedial repair projects may be better addressed by larger capital improvement projects that will take longer to design and build. The Village has adopted a strategy for remedial maintenance based on known needs and a historical profile of remedial maintenance needs.

Both routine and remedial maintenance may offer opportunities for privatization of some activities and projects. Some routine maintenance is highly seasonal and requires personnel commitments and equipment that the Village simply may not have. It may be more desirable to contract with private vendors for some routine maintenance functions, especially at the outset of the program when there will be many unknowns about the frequency of work required, such as the current pond shoreline and wetland maintenance program. Remedial maintenance projects often involve minor construction that is also suitable for outside contracting.

Regulation and enforcement are critically important if Carol Stream is to avoid creating new drainage problems even as it sets about solving the existing ones. Where development occurs on

a property in relation to its drainage, how projects are built, and how projects handle on-site stormwater runoff all influence the number of public stormwater management problems the Village will face in the future. A review of current stormwater regulations and enforcement practices should be conducted to insure consistency between the requirements for compliance with the various programs.

Existing stormwater systems on private properties may create off-site problems that may become a public responsibility. An inspection program that identifies conditions on private properties that create or contribute to drainage problems in the public systems can significantly reduce the public cost of stormwater management. It can also be implemented much more quickly than changes in the operational programs. A program should be established that would inspect these systems at the owner's expense should be considered.

The NPDES stormwater discharge permit is program oriented, at least for the first permit term. The initial permits issued by the Illinois Environmental Protection Agency (IEPA) provide permittees the opportunity to ramp up a stormwater quality management program that is source control focused and that does not have specific requirements for structural controls unless unusual, site-specific water pollution problems are identified. Under the current permit the Village is required to implement a variety of pollution prevention tasks that are new to the local stormwater management program, such as illicit discharge detection and elimination, requiring the use of structural water quality controls on newly developing or redeveloping properties, and modifications to standard operating procedures for municipal maintenance operations that address stormwater pollution prevention.

The brief description of program priorities above is intended only as a basis for general policy discussions. It will be supplemented by a more detailed analysis of the functional requirements of the stormwater management program. Based on the program priorities input provided by the Stormwater Advisory Committee, the analysis of the existing stormwater management program, and the identification of the program needs, the consultants will develop a template of the proposed stormwater management program for the Village of Carol Stream. That information will provide the basis for a cost of service analysis that will be prepared to evaluate the need for and the practicality of various stormwater funding methods.

ATTACHMENT "E"

PEER PROGRAM SURVEY RESULTS

ATTACHMENT "E"

	Bartlett	Bloomingdale	Carol Stream	Glendale Heights	Hanover Park	Wheaton
Street Sweeping						
How often are streets swept? (times/year)	4-5	9	9	8	12	40
Do you plan to change this frequency in the next 3-5 years?	No	Yes - Eval. Frequency	No	No	No	
Kind of Sweeper	Mechanical	Mech & Vac (Vac - Fall)	Vacuum	Mech & Vacuum	Mechanical	Mech & Vacuum
Inlet/Catchbasins/Manhole Inspections						
How often are Inlets/catchbasins/manholes inspected or cleaned	3	As Needed	Every 10 Years	Every 2 Years	Every 5 Years	Every 3 Years
Do you plan to change this frequency in the next 3-5 years?	No	Yes	Yes	No	No	No
Storm Sewer Maintenance						
How often are storm sewers inspected or cleaned	3	15 Year Cycle	As needed	Yearly	5 Year Cycle	6 Year Cycle
Do you plan to change this frequency in the next 3-5 years?	No	No	Yes	No	No	No
Storm Sewer Maintenance Activities						
Inspection (Visual)	Yes	Yes	Yes	Yes	Yes	No
Line Flushing	Yes	Yes	Yes	Yes	Yes	Yes
Headwall/Endwall repair	No	Yes	Yes	Yes	Yes	No
Inspection (TV)	No	Yes	Yes	Yes	Yes	Yes
Repairs	Yes	Yes	Yes	Yes	Yes	Yes
Ditch Maintenance						
How often are ditches inspected or cleaned?	As Needed	As Needed	8x/Year (Mowing)	2/Year (Spring/Fall)	NA	NA
Do you plan to change this frequency in the next 3-5 years?	No	No	No		NA	NA
Ditch Maintenance Activities						
Inspection (Visual)	Yes	Yes	Yes	Yes	NA	NA
Mowing	Yes	Yes	Yes	Yes	NA	NA
Repairs (as needed)	Yes	Yes	Yes	Yes	NA	NA
Rip-Rap (as needed)	No	Yes	Yes	No	NA	NA

ATTACHMENT "E"

	Bartlett	Bloomingdale	Carol Stream	Glendale Heights	Hanover Park	Wheaton
Winter Weather Programs						
Is your community using anti-icing or alternative deicing chemicals?	No	No (IceBan @ VH)	Yes	No	Yes	Yes
Do you make a dedicated effort to remove deicing compounds after bad weather has passed?	No	No	No	No	Yes	No
How often are deicing/anti-icing chemical spreaders calibrated?	Yearly	Yearly & After Maintenance	Yes	Yearly	Yearly	3-4 x Per Year
Channel Maintenance						
How often are channels inspected or cleaned		As Needed	Yearly	2/Year (Spring/Fall)	2 x Year	4 x Year
Do you plan to change this frequency in next 3-5 years?		Yes	No	No	No	No
Is routine maintenance at stream crossings only?		Yes	No	No	Yes	No
Channel Maintenance Activities						
Inspection (Visual)	Yes	Yes	Yes	Yes	Yes	Yes
Mowing	Yes	No	No	Yes	Yes	No
Repairs (as needed)	Yes	Yes	Yes	Yes	Yes	No
Remove Blockages (as needed)	Yes	Yes	Yes	Yes	Yes	No
Number of Stream Crossings Maintained	<10	~ 10	10		6	20
Detention Pond Maintenance						
How often are ponds inspected or maintained?	1 or As Needed	As Needed	Monthly	6 x per Year (min)	Weekly	Yearly
Do you plan to change this frequency in next 3-5 years?	No	Yes	No	No	No	No
Detention Pond Maintenance Activities					Yes	
Inspection (Visual)	Yes	Yes	Yes	Yes	Yes	Yes
Mowing	Yes	No	Yes	Yes	Yes	No
Repairs (as needed)	No	Yes	Yes	Yes	Yes	Yes
Trash Removal	Yes	Yes	Yes	Yes	Yes	No
Sediment Removal	No	Yes	No	Yes	Yes	No
Approximate Numbers of Ponds			31		2	80-100

ATTACHMENT "E"

	Bartlett	Bloomingdale	Carol Stream	Glendale Heights	Hanover Park	Wheaton
Guidance and Training						
Has your community developed stormwater pollution prevention oriented standard operating procedures (SOPs) to address pollution potential during maintenance activities?	No	No	No	Limited	Yes	
Has your community implemented a training program for staff that addresses stormwater pollution prevention during day-to-day maintenance activities?	No	No	No	No	No	
If Yes - How often is training provided?		Currently In Process				
NPDES Phase II						
Have any of your operations and maintenance programs changed due to your NPDES stormwater permit or other water quality concerns?	No	Yes	No	No	Yes	
Stormwater Management Funding						
What are the current sources of funding your stormwater management program?		General Fund	General Fund	General Fund	General Fund	
Is your community considering any type of dedicated funding programs, such as a stormwater utility?	No	Yes	Yes	Yes	No	

Did not answer question