

Flood Risk Reduction Program

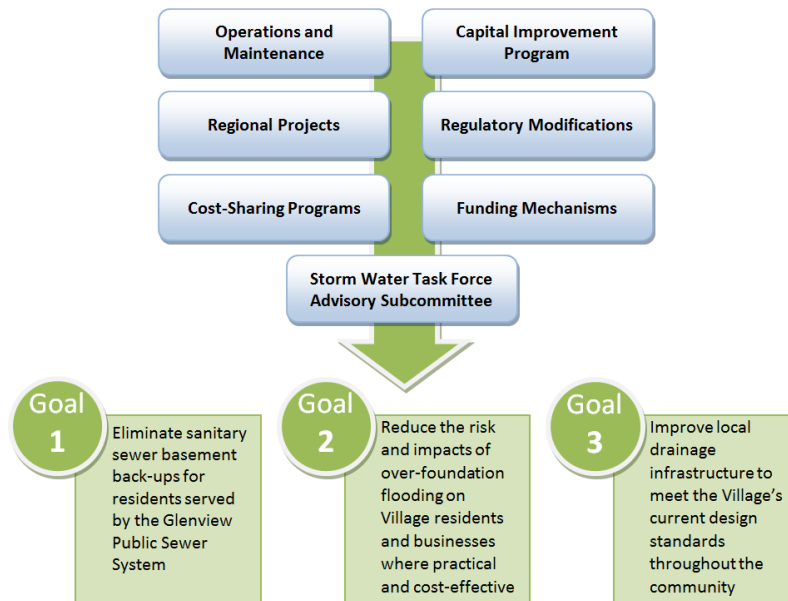
Executive Summary

The *Flood Risk Reduction Program* is a comprehensive approach to solving the flooding and drainage problems that the Village has been experiencing for a number of years.

After substantial rain events in August 2007 and September 2008, which greatly impacted the entire community, the Village President and Board of Trustees appointed a 16-member Storm Water Task Force of residents who worked with staff and consultants to develop a storm water master plan. In August 2010, a storm water master plan, the *Flood Risk Reduction Program*, was approved, which outlined a multipronged approach for the Village to reduce the impacts of flooding where feasible and cost-effective. In response, the Village Board committed more than \$7 million to begin implementation of the Flood Risk Reduction Program. This booklet provides an update on program accomplishments and the Village’s plan for moving forward.

The Program

The Flood Risk Reduction Program is comprised of several key components. First and foremost it establishes the goals and fundamental principles of the Village Storm Water Management Program. It identified areas prone to problematic flooding and categorized these areas in 4 tiers based on the severity of flooding. These levels considered and weighted the ramifications associated with the severity of flooding based on impacts to public health and to private and public infrastructure. Elements of the program not only include capital infrastructure improvements, but also operational, regulatory, funding and public involvement efforts, as indicated below:



Five Fundamental Principles

1. Efforts to address flooding should include actions that will lead to quick visible results when feasible.
2. Take action to reduce the rate and volume of discharges to receiving sewers and streams.
3. Solutions should strive to have no significant negative impact on flooding of downstream areas.
4. Solutions should include public, private, local and regional efforts.
5. Costs to address all identified problems are very large; prioritization of efforts will be required.



Benefits to the Community

Proper storm water management not only provides benefits to those residents who are located in flood-prone areas but also those living adjacent to or near these areas. Reduction in problematic flooding benefits the community and improves the quality of life in the following ways:

- » Enhances public health and safety by ensuring that routes used by emergency vehicles are not impacted by street flooding.
- » Enhances community livability by improving public and private living space.
- » Improves local character and maintains Village competitiveness.
- » Helps maintain property values throughout the Village.
- » Improves water quality to receiving wetlands and streams.

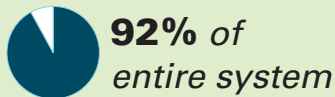
Program Accomplishments

The past year has been busy for the Public Works Department. Check out their statistics!

Operations and Maintenance - 2011

Public Works 2011 Statistics

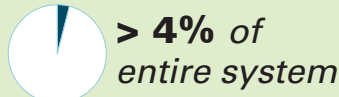
- » 420,600 feet of sanitary sewer cleaned



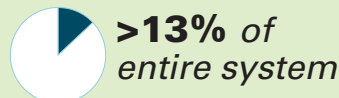
- » 1,860 sanitary manholes cleaned



- » Over 40,000 feet of storm sewer cleaned



- » Over 2,000 storm sewer grate and structures cleaned



- » Debris removal:
 - 320 tons from street sweeping
 - 116 cubic yards from storm sewers



Capital Maintenance 2011 Statistics

- » **\$1,200,000** of storm and sanitary capital maintenance

- » Over **18,000** feet (3.5 miles) of sanitary sewer lining

- » Over **2,500** feet (0.5 miles) of storm sewer lining

Capital Improvement Program - 2010 to 2012

The Village is committed to evaluating opportunities for the installation of in-line detention in conjunction with future roadway projects. This effort is focused on increasing storm water detention and runoff management capacity throughout the Village. The following projects aligned with the Village's Capital Improvement Program and have been completed to date:

Completed in 2010:

- Pflugsten Road

Completed in 2011:

- Indian Road and Beverly Lane
- Indian Road (South of Glenview Road)
- Hunter Road (North of Glenview Road)

100%
Village Stormwater Detention Goal

Dec 2012 **42.2%**

Jan 2010 **40%**



Inline Detention
(270,000 Gallons)

Completion of these projects has provided **270,000** gallons (36,150 cubic feet) of detention storage benefitting approximately **273** parcels at a cost of **\$650,000**.

Where detention is not possible, the Village has implemented storm sewer and storm inlet improvement projects to increase conveyance and capacity within the public storm sewer system. In 2011 the Village installed over 2,180 linear feet of storm sewer benefitting about 163 parcels. The following areas have benefitted from the completion of these projects:

Storm Sewer Conveyance Improvements

- Mary Kay Lane and Pebbleford Lane
- Fontana Drive and Bel Air Drive
- Shermer Road and Robincrest Road
- West Lake Avenue and Lehigh Avenue
- Pine Street

Total Cost for Storm Sewer Improvements = **\$413,000**

In 2011, the Village installed 11 storm sewer inlets benefitting about 46 parcels. The following areas have benefited from the completion of these projects:

Storm Inlet Capacity Improvements

- Norwich Court
- Barry Lane and La Fontaine Drive
- Knight Street

Total Cost for Inlet Improvements = **\$23,600**



Regional Projects

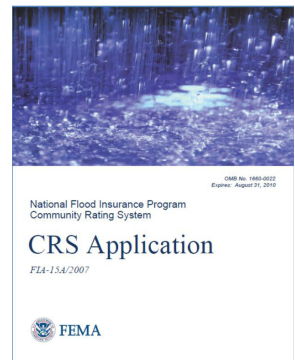
Regional projects will continue to be a source of significant potential for the reduction of flooding risks to the residents of Glenview. The Village has been proactive in pursuing opportunities with the Metropolitan Reclamation District of Greater Chicago (MWRDGC) for flood mitigation along the West and Middle Forks of the North

Branch of the Chicago River (NBCR). MWRDGC is currently evaluating projects along the West Fork that will ultimately provide benefits to the Village of Glenview. Once a project is selected along the West Fork for implementation, the MWRDGC plans to further evaluate project opportunities along the Middle Fork.

Regulatory Modifications

During the SWTF process, several regulatory (permitting) standards were highlighted for review and possible revision. The Village has successfully completed two of the items slated for review in the FRRP:

- The Village pursued certification with the National Flood Insurance Program (NFIP) Community Rating System (CRS) and achieved a CLASS 6 Rating from the Federal Emergency Management Agency (FEMA). (October 2011)
 - » Property Owners in the 100-year floodplain will receive a 20% discount on their annual flood insurance.
 - » Property Owners in the 500-year floodplain will receive a 10% discount on their annual flood insurance.
 - » A potential savings of about **\$34,000 per year!**
- Infill Ordinance Amendment (June 2011)
 - » Expanded grading ‘as-built’ and neighbor notification requirements.
 - » Provides additional tools to assist staff to proactively handle drainage problems

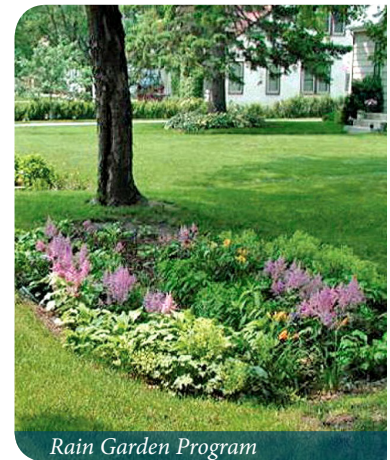


Cost-Sharing Programs

As part of the FRRP, the implementation of the cost-sharing programs encourages the completion of beneficial local projects. Three of the programs, Rain Garden and Rain Barrel Program, Over-Head Sanitary Sewer Service Conversion and Holistic Drainage Inspections recommended by the SWTF have been successfully implemented.

**152 Rain Barrels
provided to residents
(2010 - 2012)**

Cost Sharing Program	Number of Approved Permits	Resident Reimbursement	Cost Sharing
Rain Garden	37	\$28,947	50/50 up to \$1,000
Over-Head Sanitary Sewer Service Conversion	16	\$81,923	50/50 up to \$7,500
Holistic Drainage Inspections	40	\$16,000	50/50 up to \$400
TOTAL	93	\$126,870	



* As of July 2012

Funding Mechanisms

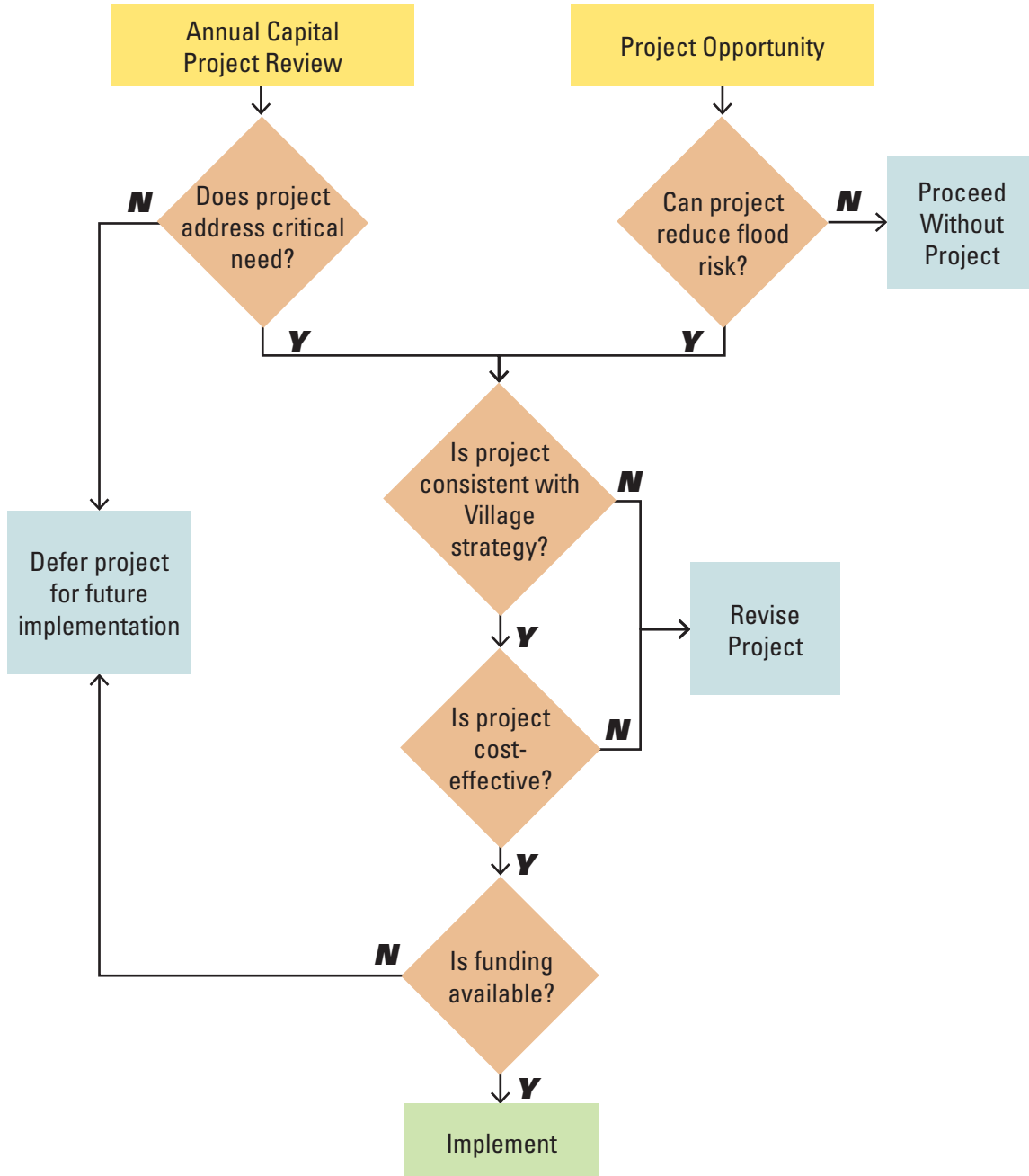
Funding support is necessary to implement many of the recommendations presented in the FRRP. Village staff has been successful in securing funding from these following sources:

Source	Funding
Village Board	"Quick-Win" Projects \$7,100,000
Illinois Green Infrastructure Grant (IGIG)	Waukegan Road Rain Garden \$7,114
Department of Commerce and Economic Opportunity (DCEO) Grants	Bel Air and Clavey Inline Detention Improvements \$100,000
	Flick Park Drainage Improvement \$50,000
	East of Harms Sanitary System Improvements \$200,000

- The Village has completed and submitted a FEMA PDM Grant Application for the Dawes-Henley-Harlem Drainage Improvements in December of 2011. The estimated cost of the project is \$1.25 Million with a 25% local match from the Village of about \$350,000.
- The Village entered into contract with AMEC to perform a stormwater utility feasibility analysis study on October 25, 2011.

A Plan for Moving Forward

The Village of Glenview makes difficult decisions in prioritizing, funding and implementing specific flood risk reduction capital projects. There are numerous factors that can impact the decision to move forward on a project. The flow chart below assists Village Staff in their decision making process.

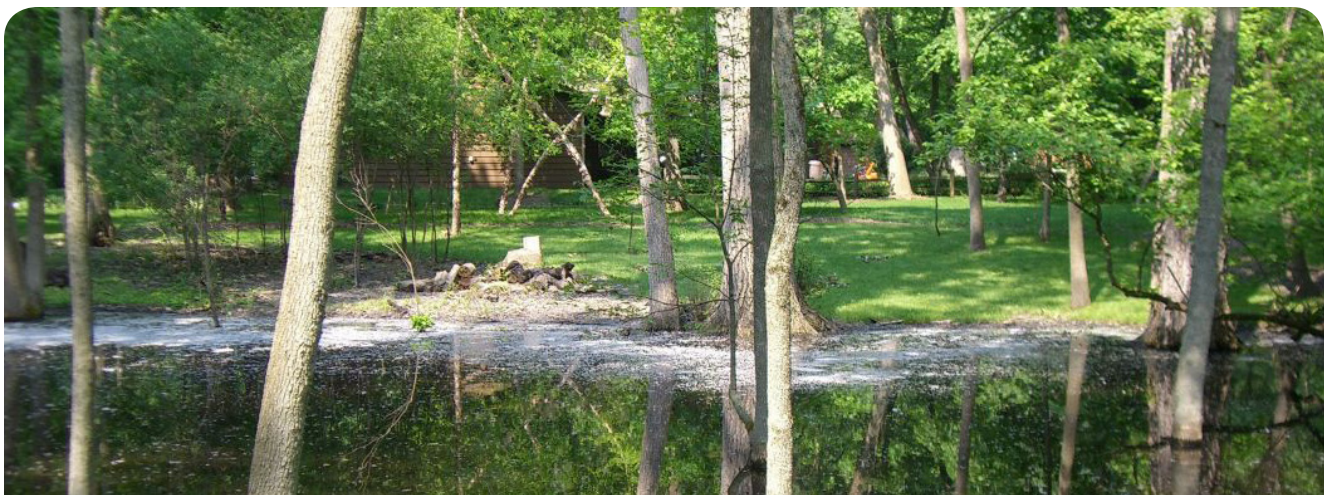
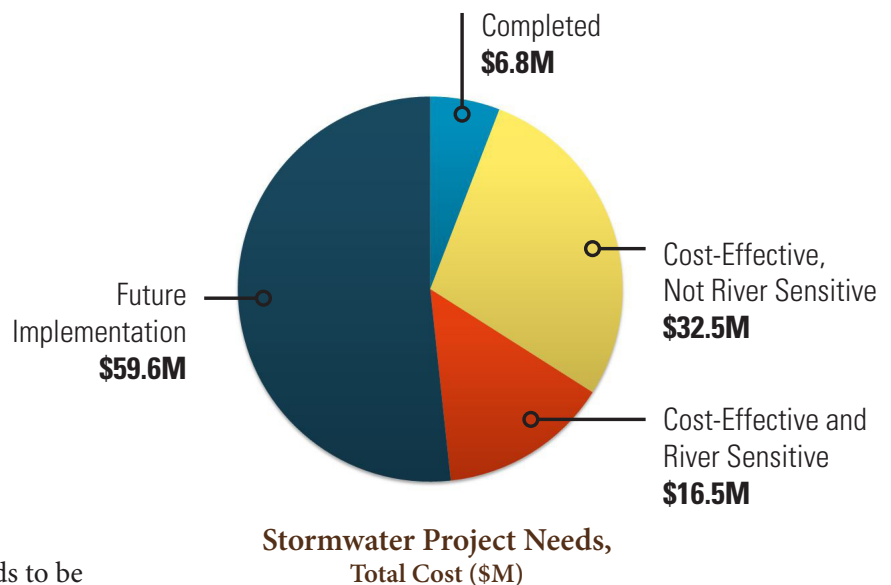


For a project to move forward, it needs to at least answer “yes” to the following four questions:

- » Is there an opportunity for inclusion with other projects or is it critical?
- » Is it consistent with Village Strategy?
- » Is it cost-effective?
- » Is there funding available?

A Storm Water Snapshot

This pie chart provides a snapshot of the storm water project needs throughout the Village. It also shows the significant progress the Village has made in completing stormwater projects amounting up to \$6.8 Million. However, this chart also shows that there is still work to be done. There are about \$49 Million worth of cost-effective projects, both that are and are not river sensitive, awaiting an opportunity for implementation and funding. The remaining \$59.6 Million are projects that have been identified for future implementation but further work needs to be completed to develop more cost effective projects.



Detailed Action Plan for 2012 and 2013

OPERATIONS AND MAINTENANCE

Implement a regular sewer cleaning and major ditch maintenance program.

CAPITAL IMPROVEMENT PROGRAM - Ongoing Construction Projects

Navy Bypass Storm Sewer

- Phase 1 completed in April 2012
- Phase 2 under design

Opportunity: Conveyance
Cost to Village: \$2 Million

Bel-Air and Clayey in line detention

Opportunity: Detention
Cost to Village: \$320,000

Forest Drive in line detention

Opportunity: Detention
Cost to Village: \$150,000

Waukegan Road (River Drive) Rain Garden

Opportunity: Water Quality
Cost to Village: \$4,316 (after IGIG Grant)

REGIONAL PROJECTS

Continue to monitor MWRDGC progress on the planning and development of flood control projects along the West and Middle Forks of the North Branch of the Chicago River.

CAPITAL IMPROVEMENT PROGRAM - Ongoing Design Projects

Park District Coordination

- Flick Park
Opportunity: Detention (0.6 ac-ft)
Cost to Village: TBD
(\$50,000) Grant

- Glenview Park Golf Club
Opportunity: TBD
Cost to Village: TBD

Harrison/Ronald/Glendale

Opportunity: Conveyance + Detention
Cost to Village: \$4.2 Million

Bellwood "Quick Win"

Opportunity: Conveyance + Detention
Cost to Village: TBD

Central/Glenwood (Northfield Township Coordination)

Opportunity: Detention (6.9 ac-ft)
Cost to Village: ≈\$400,000

Northfield Woods

Opportunity: Detention
Cost to Village: TBD

Village-wide Detention over next 20-60 years

Opportunity: In line Detention
Cost to Village: \$306,700 - 920,000 annually, plus additional needs/opportunities

2014 and Beyond

Opportunity: Cost Beneficial Projects
Cost to Village: \$49 Million

CAPITAL IMPROVEMENT PROGRAM - SWAMP Improvement Area

The Village's Storm Water Area Management Program (SWAMP) has been very successful with the following 3 SWAMP areas moving into the design phase.

Glenayre SWAMP

Cost to Village: \$1.6 Million

Maple SWAMP

Cost to Village: \$99,200

Long Valley SWAMP

Cost to Village: \$200,000

REGULATORY MODIFICATIONS

MWRDGC Countywide Ordinance - Coordinate with MWRDGC staff and review/revise Village stormwater management policies and requirements as necessary.

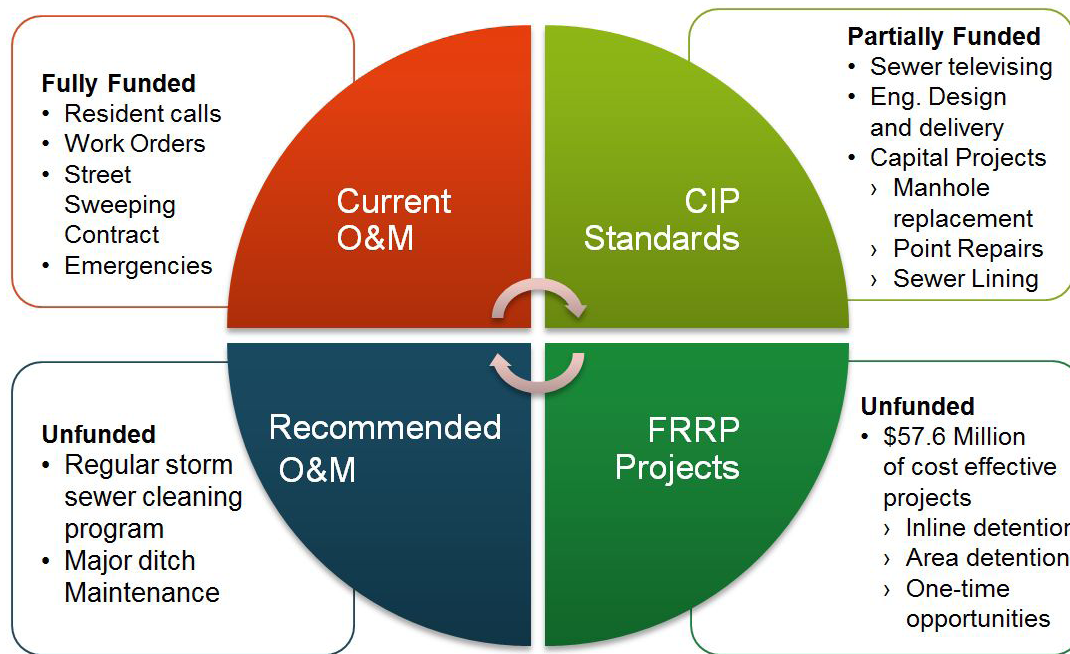
COST SHARING PROGRAMS FOR 2012 AND 2013

Continue partnership with MWRDGC to support the Village's Rain Barrel Program that promotes the purchase and installation of rain barrels by Village Residents.

Continue management of the Village's Holistic Private Flooding Inspections Program using \$10,000 budgeted annually for 2012 and 2013.

Continue management of the Village's Rain Garden Grant Program using \$10,000 budgeted annually for 2012 and 2013.

Funding Mechanisms



All-encompassing Municipal Storm Water Program

The chart below shows budgeted funding versus the funding recommended in the *Flood Risk Reduction Program*. With over \$3 million of total recommended annual needs, and just over \$1 million made available through various sources, a short- and long-term plan to establish ongoing revenues to fund and implement the *Flood Risk Reduction Program* is needed.

Village Stormwater Needs	Actual	Recommended	Difference
Public Works			
PW Operations & Maintenance - Current	\$381,061	\$381,06	\$0
PW Operations & Maintenance - Recommended (regular sewer cleaning program and major ditch maintenance)	0	\$375,000	(\$375,000)
Capital Projects			
CIP Standards for Capital Maintenance - Current	\$800,000	\$1,599,584	(\$799,584)
Flood Risk Reduction Program Projects - Recommended (cost beneficial local projects Village-wide [60-year cycle] and one-time area opportunities)	0	\$960,000	(\$960,000)
TOTAL			(\$2,134,584)

Notes:

Current actual costs paid by corporate fund.

The Village Board will host more workshops in the coming year that will discuss possible funding sources or possible implementation of a stormwater utility to help generate revenue for stormwater projects.