Stormwater Program Funding Needs

Village of Niles

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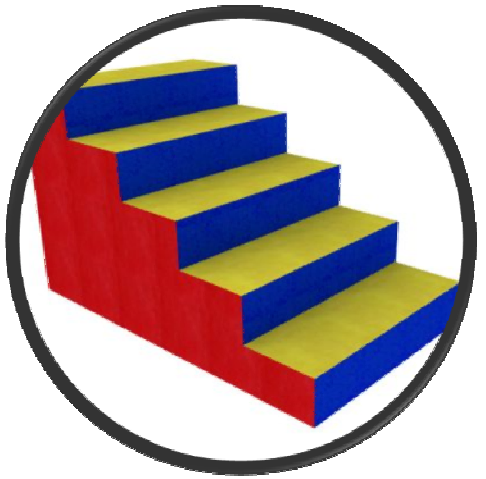
Outline

- Niles Historic Context
- General Stormwater Planning
- Determining Program Needs
- Niles Case Study



Historic Context

Niles experienced extensive flooding in:

- 1987 and years prior
- 1996
- 1998
- 2002
- **2008** *
- **2010**
- 2011
- **2013**

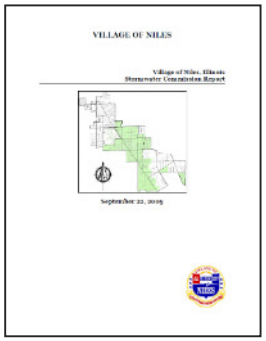
Disaster declarations by President

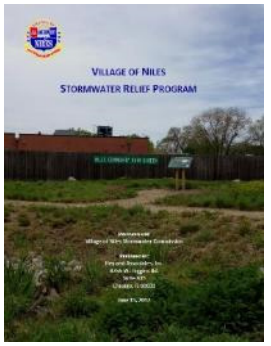
*Straw that broke the camels back?

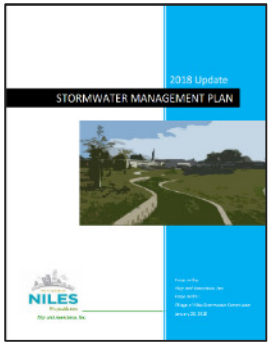
Following 2008 storms there appeared to be a paradigm shift…..

Ten Years since 2008 Hurricane Ike

- 2008 - Formed Stormwater Commission
- 2009 - Stormwater Commission Internal Report
- 2010 - Hired Professional Stormwater Experts (Hey and Associates, Inc.)
- 2012 - Stormwater Relief Program
- 2014-2016 - Major Stormwater Projects Construction (expedited by Mayor)
- 2018 - Stormwater Management Plan Update







“Stormwater Management” Planning

- Watershed Plan
- Watershed Based Plan
- Watershed Masterplan
- Subwatershed Plan
- Basin Plan
- Stormwater Management Plan
- Comprehensive Stormwater Management Plan
- Stormwater Master Plan

Interactive Process

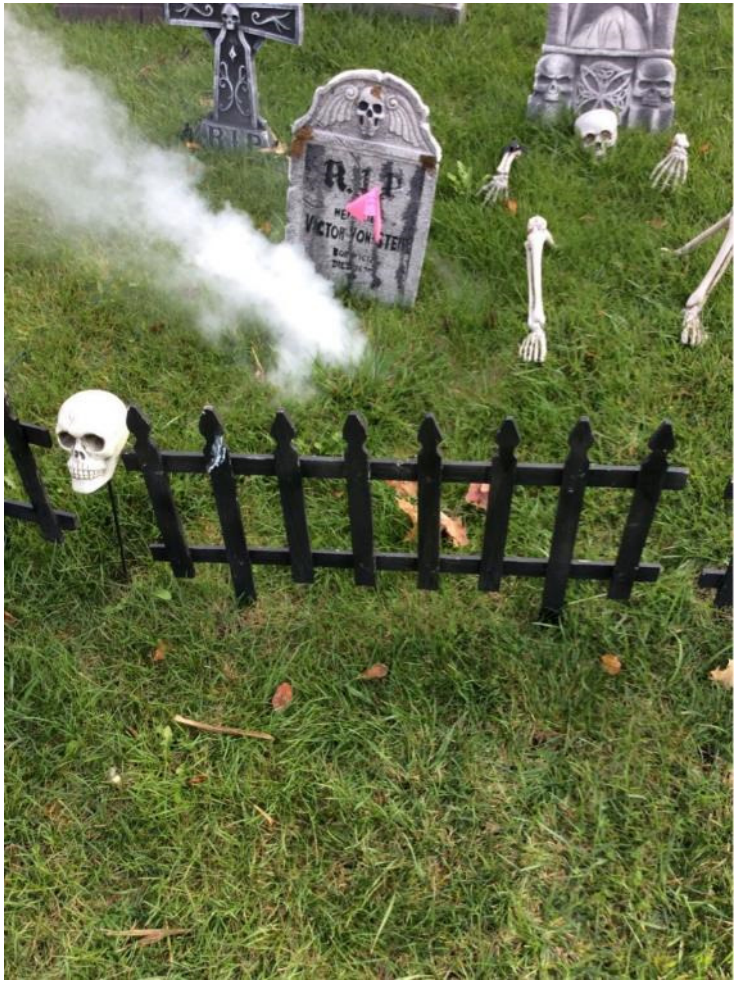
- What is being done now?
- What should be done?
- What are the costs of providing these services?
- How will we pay for it?
- When will we do it?

Plan Owner
Consultant
Stakeholders

- Recommended program
- Definition of responsibilities
- Estimated program costs
- Action Plan

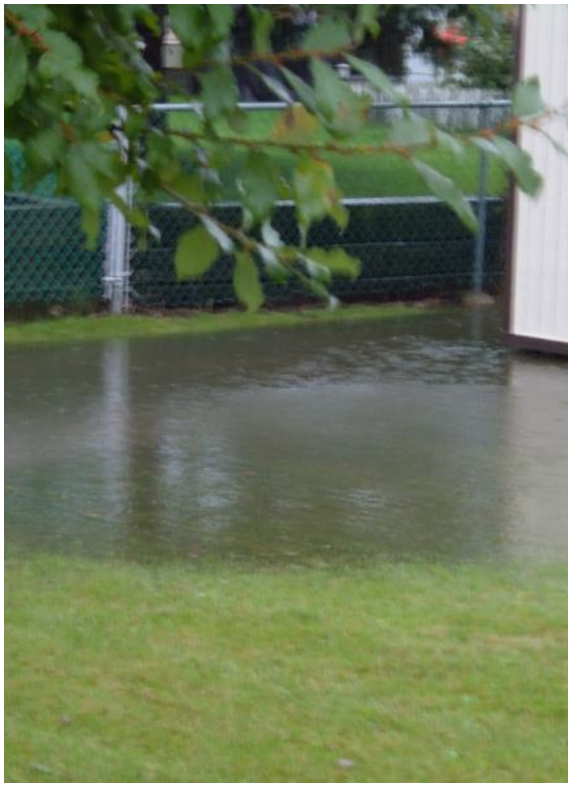
Define Required/Baseline Services

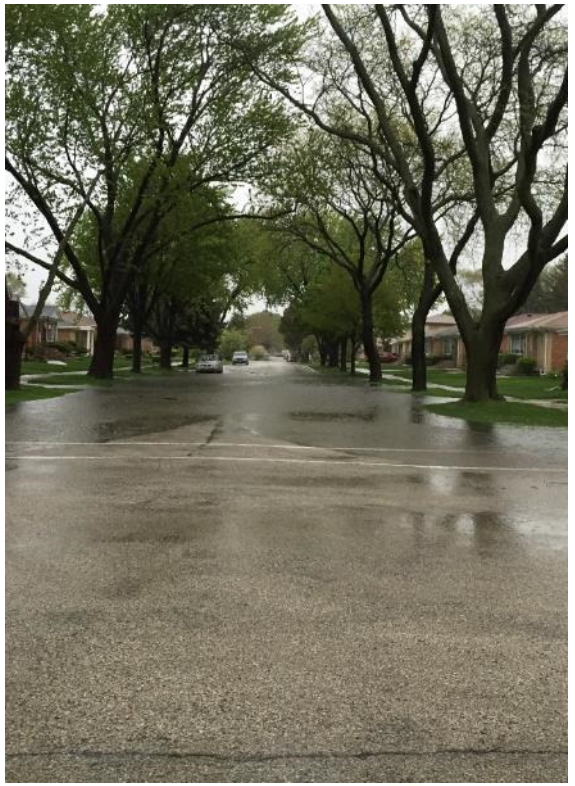
- Required programs such as:
  - MS4
  - WMO I&I Control Program
- What are we already doing?
  - Maintenance and repairs
  - GIS upkeep
  - Resident Assistance



Objectives - What are we trying to do?

- Will vary by community, especially desired/expected level of service





Program Needs – System Inventory

- Sewers/outfalls
- Waterways
- Stormwater management facilities
- Open space/ natural areas
- Drainage problems

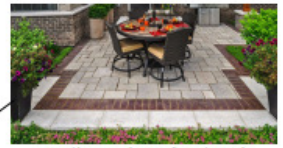
Program Needs – Residential Assistance

What Can You Do At Home?


Downspout extensions


Internal drain tile to sump pump / waterproofing to reduce seepage


Disconnect downspouts / discharge onto permeable surface / rain barrels


Permeable pavement (patios, walkways, driveways)


Rain gardens


External drain tile to sump pump / waterproofing to reduce seepage

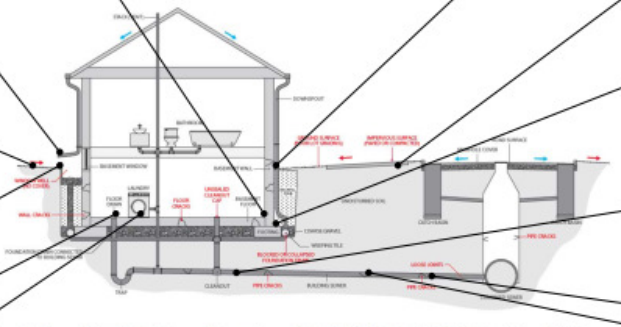


Figure 9.1: Types of urban flooding that can affect a residence. (Credit: Modified from Institute for Catastrophic Loss Reduction, 200

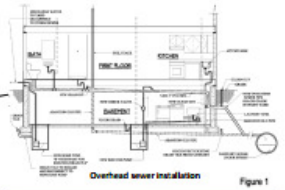
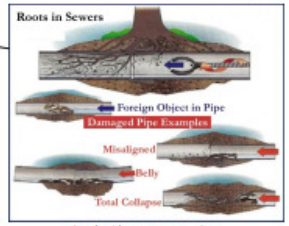

Overhead sewer installation

Figure 1


Prevent water from getting into window wells or basement access



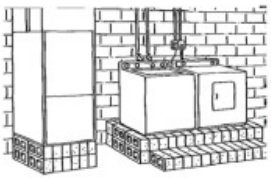
Clean / Rod / Repair Sewer Lateral Line


Floor drain float valve / standpipe

Table 1.1: Summary of basement flood risk reduction options to address damages on site

Mitigation Options	Cause of Flooding			Damage reduction	Estimated Cost
	Overland	Infiltration	Sewer backup		
Structural inspection					$250-$800 each
Raise utilities and other valuable items				x	
Insurance				x	Based on coverage
Gutter maintenance	o	X	o		
Downspout disconnection			x		
Site grading, downspout extension	o	X			
Rain gardens	o				$3-40 per square foot
Permeable/porous pavement	x				$2-$10 per square foot
Exterior drain tile		X			$185 per foot
Interior drain tile		X	x		$40-50 per foot
Seal wall and floor cracks		X	o		$300-$600 each
Sump pump with check valve	x	X	x		$400-$1,000 each
Sewer backup valves			x		$3,000-$5,000
Overhead sewer installation			x		$2,000-$10,000

x - primary reduction
o - secondary reduction


Elevate utilities in basement

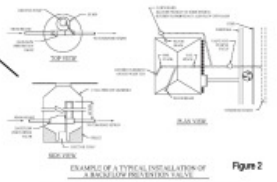


Figure 2

Install Flood Control System / Backflow Preventer

CITY OF BERWYN
JUNE 6, 1908
THE CITY OF HOMES

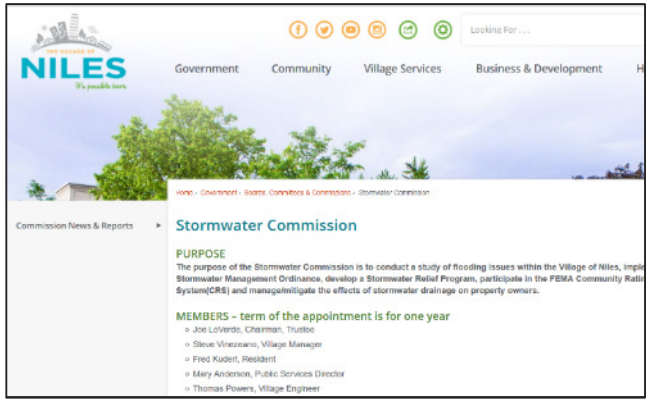
CMAP

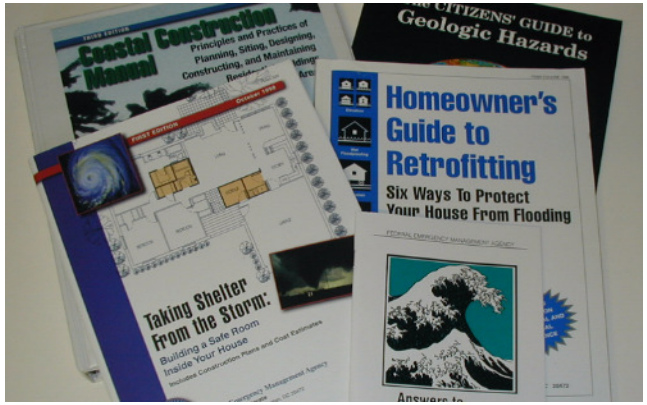
Program Needs – Environmental Quality

- Water quality improvements
- Addressing degradation
- Restoration/ Enhancement
  - Streams
  - Lakes/ponds
  - Wetlands
  - Open space
  - Retrofits

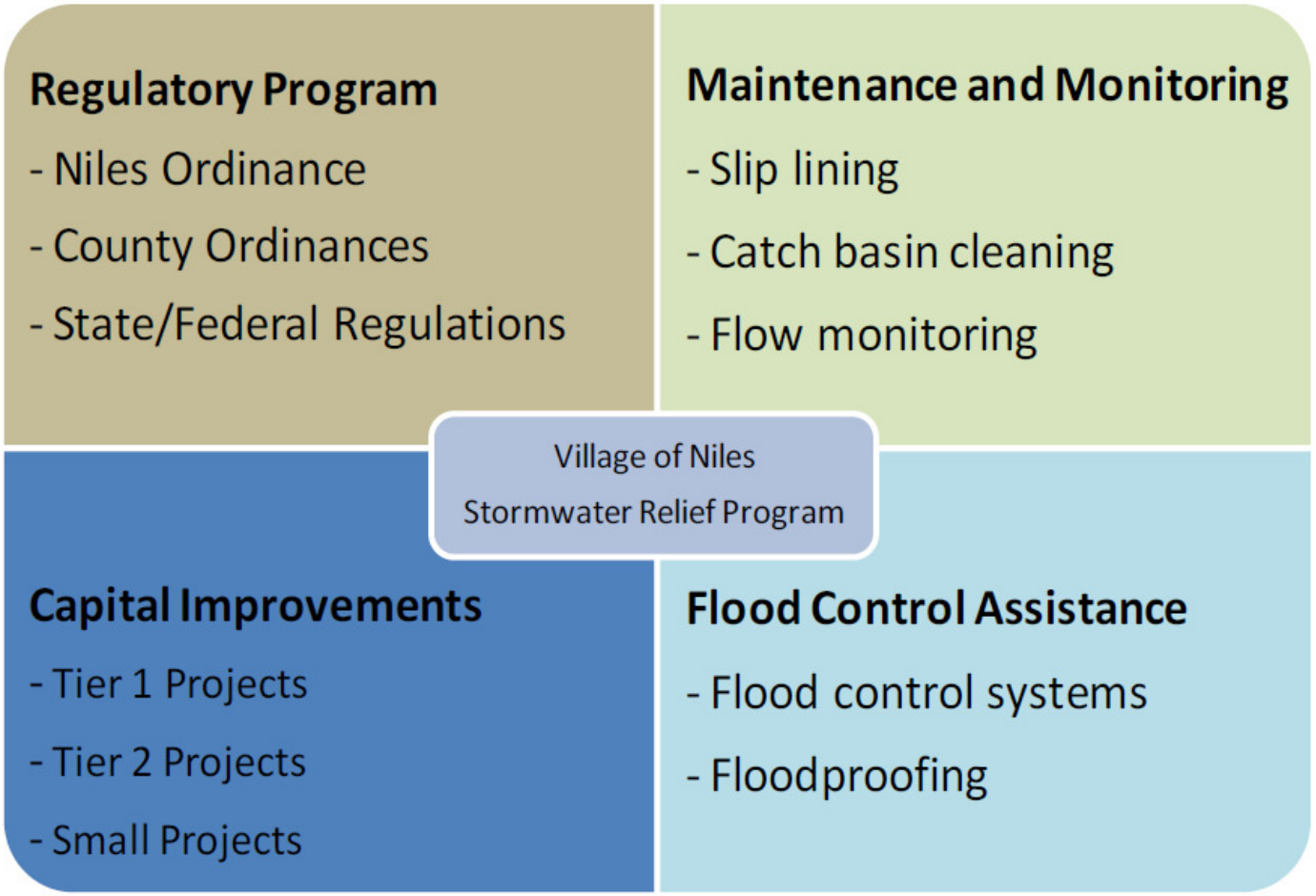
Program Needs – Public Information and Outreach

- Outreach events
- Website
- Guidance documents





Niles Stormwater Program Approach

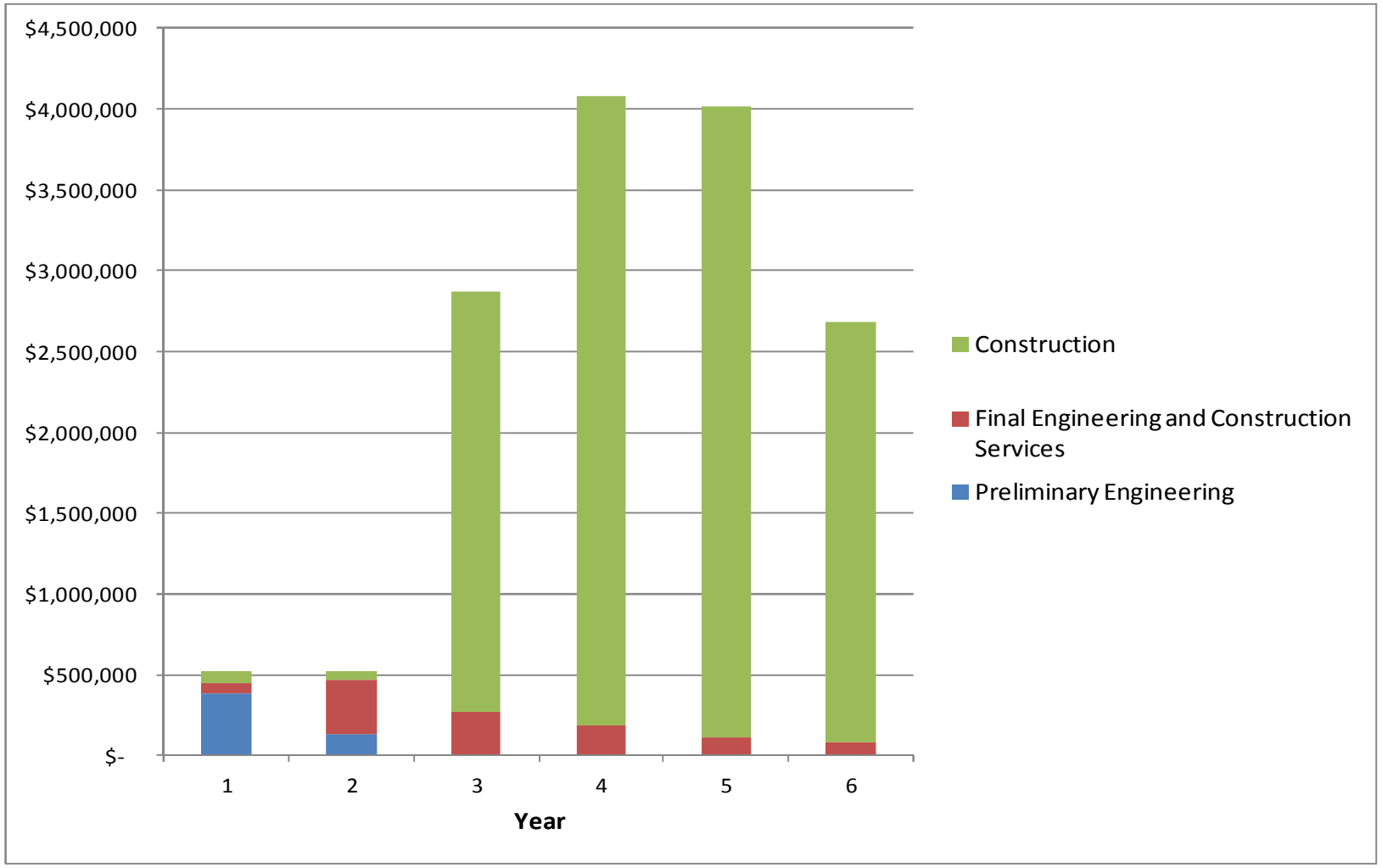


2012 Program Funding

- Initial funding level of $15 million was established
- 2012 program recommendations were tailored to funding

	Summary of Projects
Tier 1	Three projects totaling $14,560,000 - Cleveland Relief Sewer - Lee Street Relief Sewer and Storage - West Side Storage Basin
Tier 2	Six projects totaling $16,410,000

2012 Niles Implementation Schedule



Projects Completed

Tier 1 2012-2016

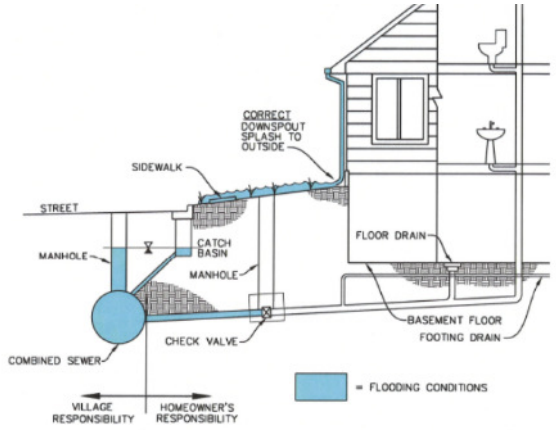
Funding Partners

- Low Interest Loans – IEPA
- Green Infrastructure Grants – RBC, MWRD, & IEPA
- Stormwater Phase II Funds – MWRD
- Community Volunteering - Coke

Flood Control Assistance

- Reimbursement for 50% of cost, up to $4,000 maximum
- Since 2012, program has provided assistance to 406 homes
- Current funding will support flood protection for 12 homes per year

Sewer backflow protection



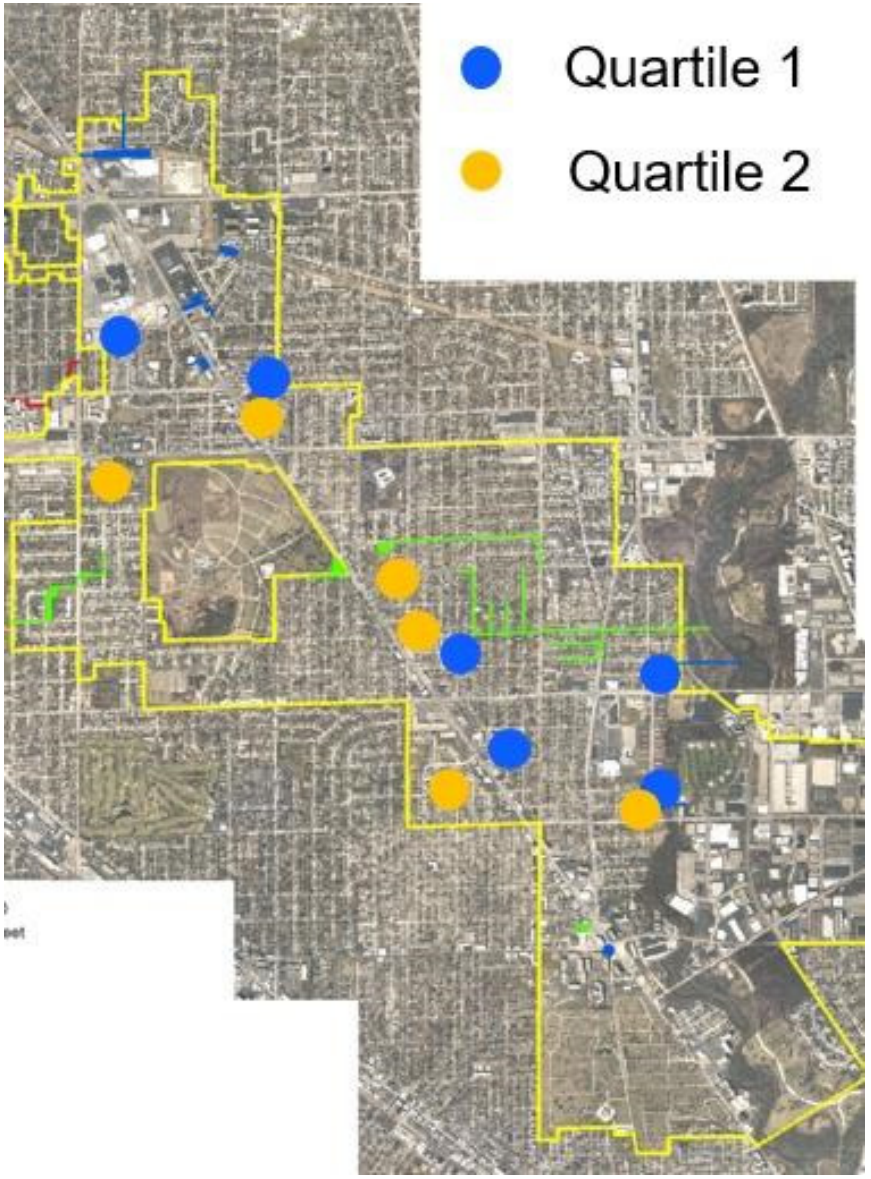
COMBINED SANITARY AND STORM SEWERS WITH CHECK VALVE

VILLAGE OF NILES

Overland flood protection

2018 Master Plan Update

- Needed to develop new infrastructure improvement priorities
- Need cost of service analysis to develop implementation schedule and identify funding needs



Process

Data Collection

-Problem Identification

-Sewer Atlas

-Flood Records

-Resident Outreach

Solution Development

-Design Criteria

-Evaluate and Develop Concepts

- Project Prioritization

Reporting

- Open Houses

-Media

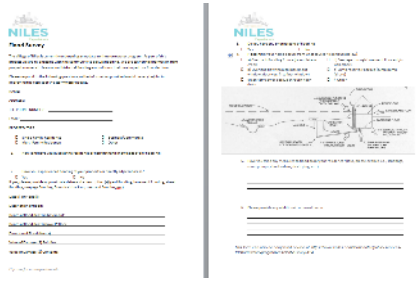
- Commission Meetings

-Board Presentation

Project Start August 2016
Planned DC Duration: 2 months
Actual DC Duration: Ongoing

Meetings:
Planned Number of meetings: 5-7
Actual meetings: 11 and counting

Project Complete January 2018
Planned Completion: May 2017
Total Duration 1.5 years



Data Collection

Operations Staff

"Gut Check"

Flood Modeling

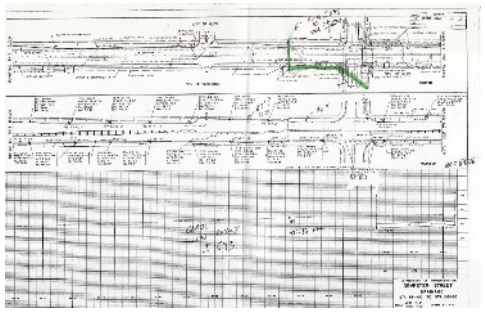
Historic Records

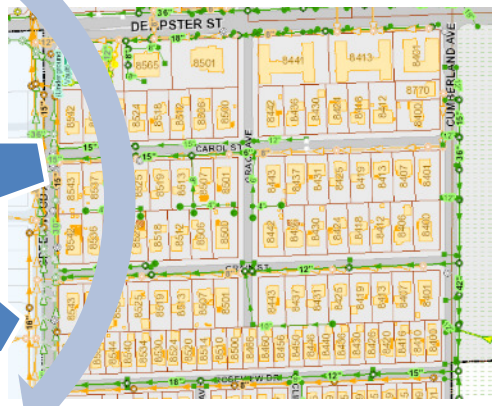
-Permits

-IDOT Drawings

-Field work

-Atlas

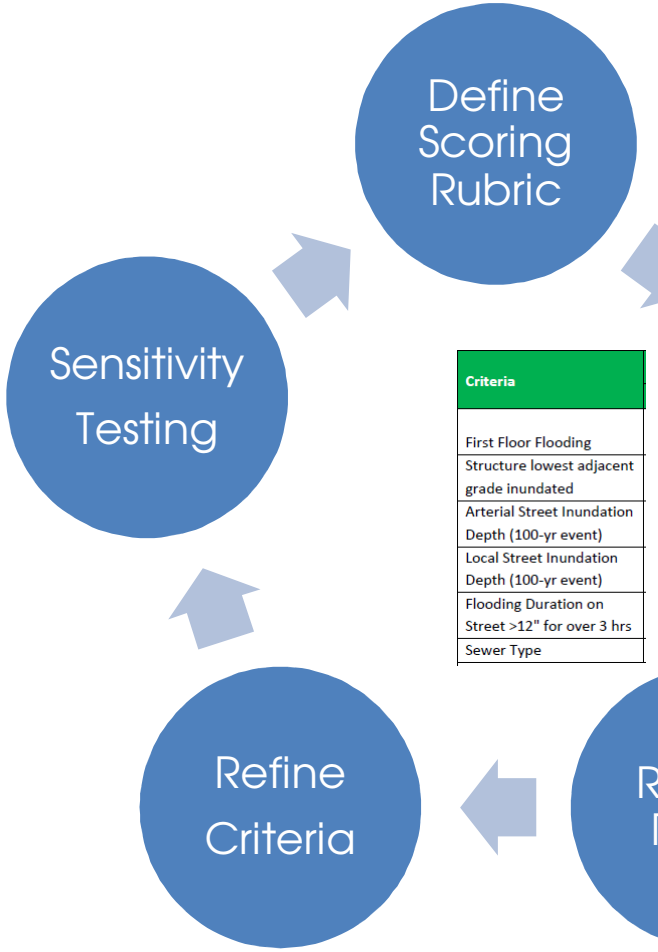




Project Prioritization

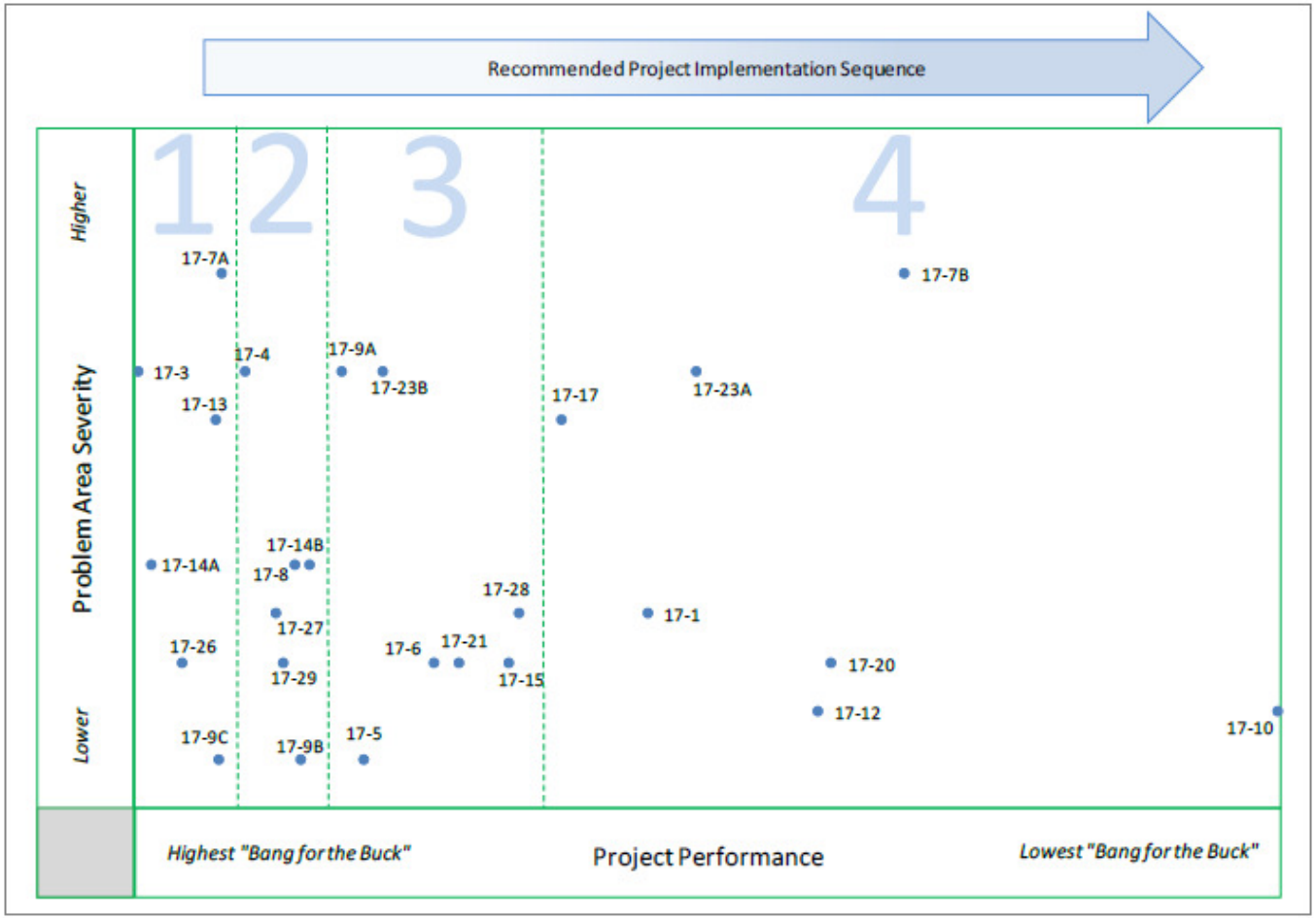
Key Considerations:

- Design event/Level of Service
- Structure Flooding vs. Street Flooding
- Frequency of Flooding
- Flood Depth
- Simple is better
- Where to draw the line?
- Consistent Methodology
- Problem vs. Solution Scoring



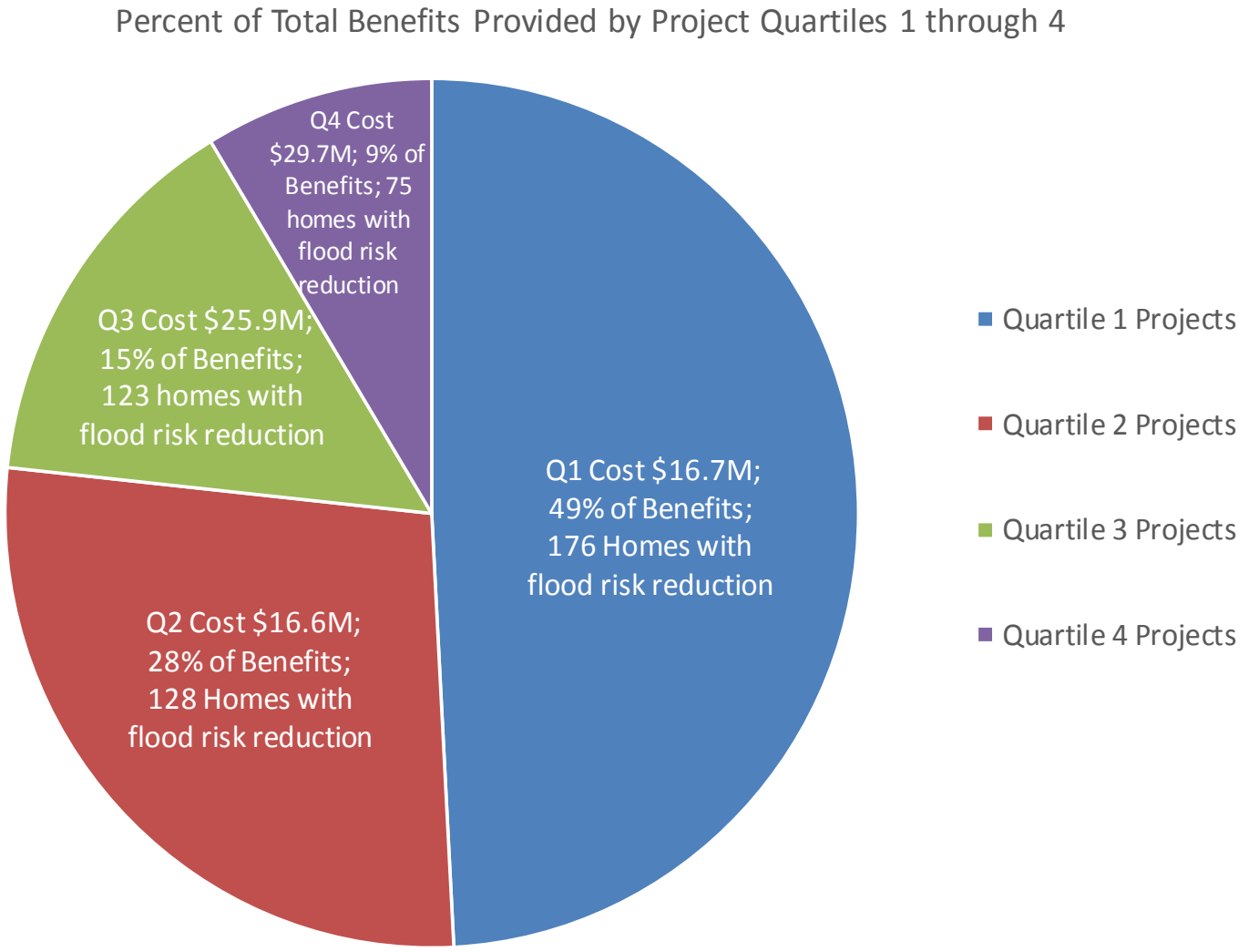
Scenario Modeling

Project Prioritization



Biggest Bang for the Buck!

2018 Infrastructure Improvements Prioritization



Six Quartile 1 Priority Projects

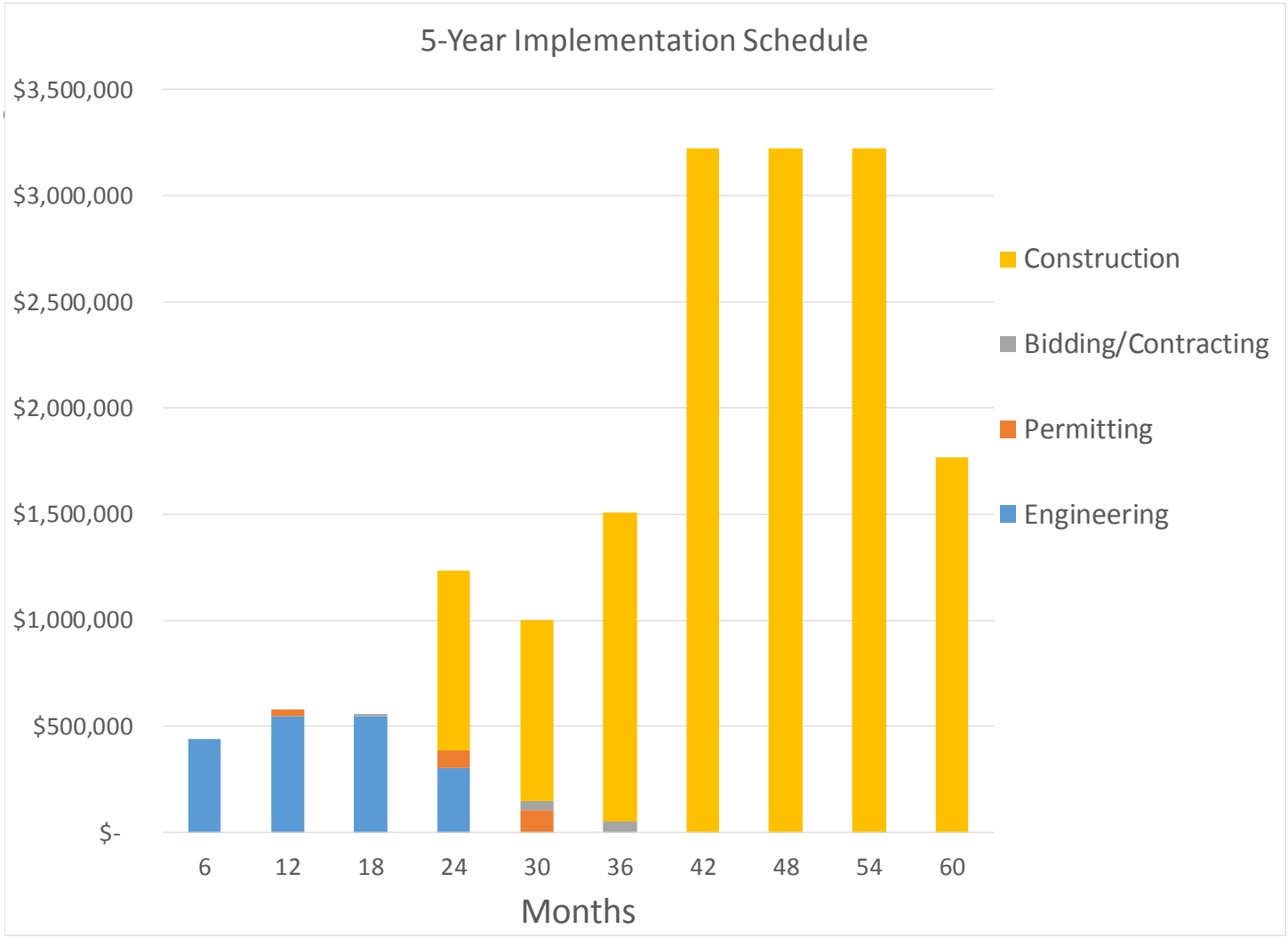
Proj No.	Project Name	Project Considerations	Next Step for Implementation	Total Project Cost
17-3	Seward Relief Sewer Connected to Existing Box Culvert	Proposed sewers will require coordination with Morton Grove and the FPDCC.	Perform expanded feasibility analysis and secure initial approvals before detailed design work is initiated.	$710,000
17-14A	Churchill Avenue Sewer Overflow Connection	The design for this project has been completed. The benefits for this project would be diminished if project 17-14B was later constructed.	Review 17-14B. Determine if village wishes to proceed with construction.	$170,000
17-26	Cleveland Sewer Extension - South	This work extends the benefits of the Cleveland Relief sewer further south off its west end. Projects of this nature were anticipated during the planning of the Cleveland Sewer project.	Proceed with preliminary engineering.	$700,000
17-13	Greenwood and Church Above Ground Storage Basin and Conveyance Improvements	An initial feasibility study was conducted in 2016 for this project. The project proposed at this time consists of an above ground basin which may not be consistent with the village's ultimate goals for the property.	Determine level of engineering support required as site planning process unfolds. Support as necessary.	$6,680,000
17-9C	Jonquil Terrace Regrading	Project involves construction of a pedestrian way onto FPDCC property and will require FPDCC approval.	Prepare detailed project concept plan for review and approval by FPDCC.	$350,000
17-7A	Oconto Conveyance Improvement - Large Sewer	This is a major project that extends storm sewer service in a manner that is similar to the Cleveland Relief Sewer. Complex issues exist regarding alignment, utilities and regulatory approvals.	Conduct expanded feasibility study to further address project complexities and refine cost estimate.	$8,130,000
		Prioritized Quartile 1 Projects Total:		$16,740,000

Project Costs and Duration (Project17-3 sample)

Phase	Duration (months)	Cost
Engineering	6	$78,000
Permitting	6	$9,000
Bidding/Contracting	4	$5,000
Construction	12	$615,000
Total	**28**	**$710,000**

Costs for Current Program

- I



Next Steps (for Niles)

- Present Plan for adoption by Board of Trustees
- Continue to establish annual budgets for Maintenance and Cost Share Program elements
- Coordinate with Finance director and Finance Committee on future infrastructure improvements program and funding.
- Discuss prospect of additional dedicated revenue source for stormwater management capital needs

Summary

- History
- Stormwater Master Planning
- Nile case study
  - Defining need
  - Solutions Engineering
  - Project Prioritization
  - Implementation Schedule

Questions?