

# Watershed Reconnaissance and Initial Ideas for Project Recommendations

Presentation to the  
Hickory Creek Watershed  
Planning Group  
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consultants

# Watershed Reconnaissance

## Scope of Work

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Perform Visual Observations of:

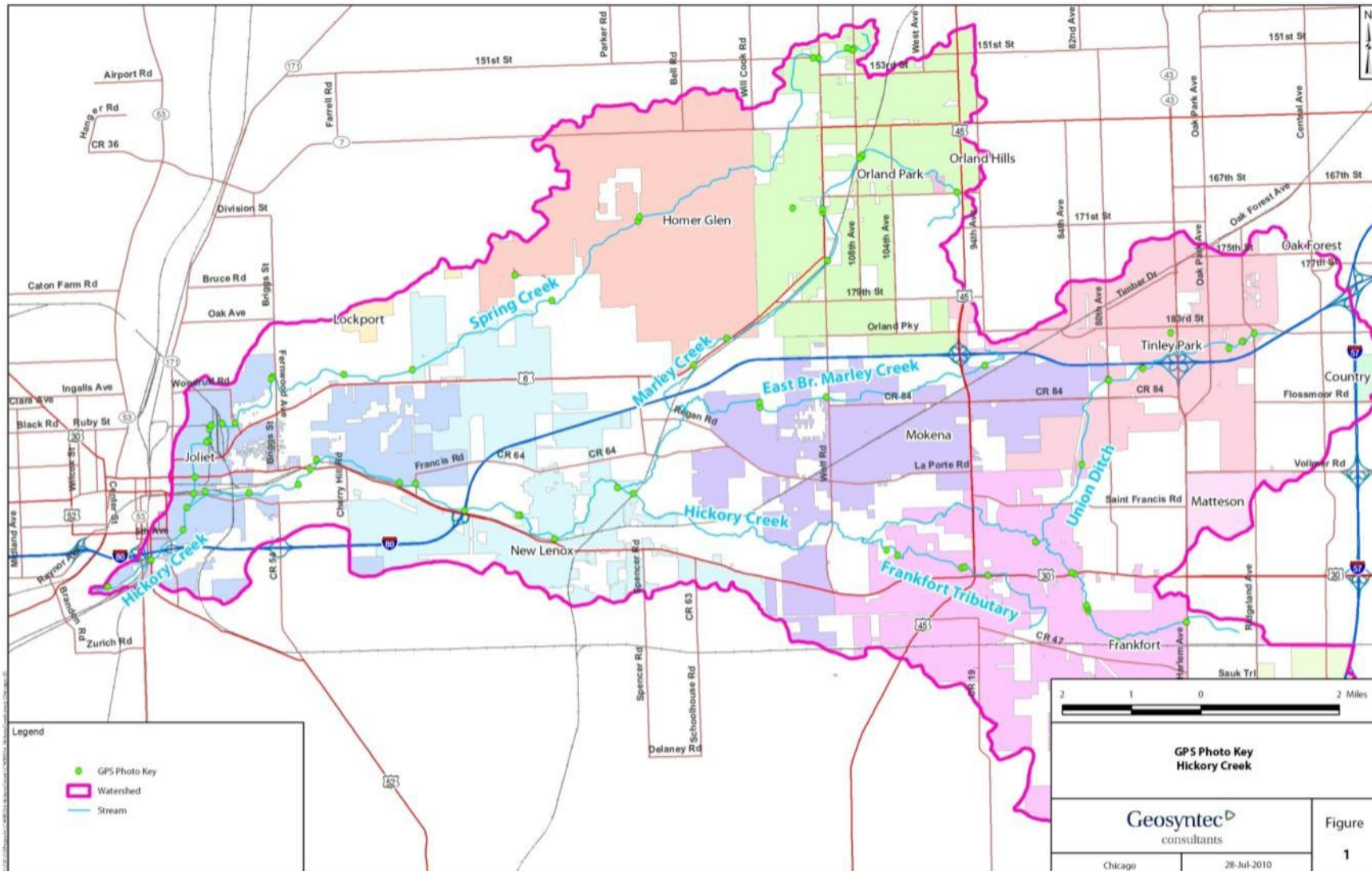
- Stream Corridor of Hickory Creek and Tributaries
  - Severe Stream Erosion
  - Sediment Deposition
  - Impacted Stream Buffers
  - Trash and Debris
  - Stream Crossings
  - Channel Modification
  
- Existing Post-Construction Stormwater Management Systems
  - Identify water quality retrofit opportunities

# Stream Corridor Assessment

- Approach based on Center for Watershed Protection's (CWP) Unified Stream Assessment methodology
- Utilized CWP field forms, GPS and photos to document findings
- Data will be compiled in geo-referenced digital format



# Stream Corridor Assessment

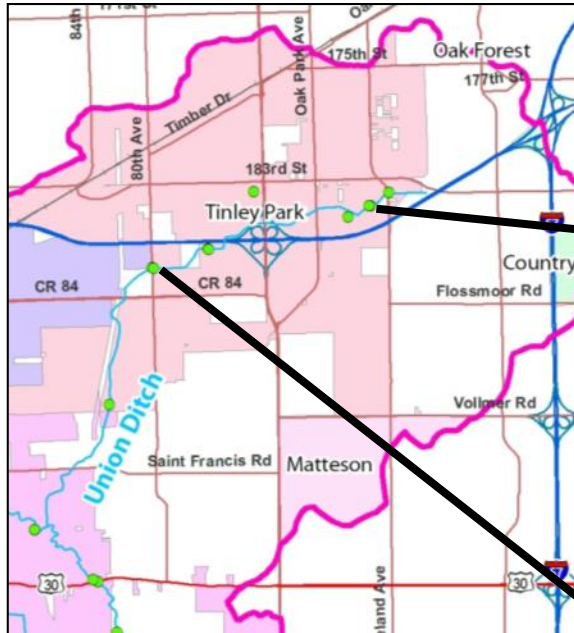


# Example Field Form

Severe Bank Erosion			ER	
WATERSHED/SUBSHED: <i>Frankford Trib.</i>		DATE: <i>6/27/10</i>	ASSESSED BY: <i>KS CL</i>	
SURVEY REACH: <i>F002</i>	TIME: <i>14:10</i> AM/PM	PHOTO ID (CAMERA-PICTURE #): # <i>1193</i>		
SITE ID: (Condition-#) ER- <i>F002</i>	START LAT <i>41° 30' 29.6"</i> LONG <i>87° 51' 10.8"</i>	LMK _____	GPS: (Unit ID)	
	END LAT _____ LONG _____	LMK _____		
<b>PROCESS:</b> <input type="checkbox"/> Currently unknown <input checked="" type="checkbox"/> Downcutting <input type="checkbox"/> Bed scour <input type="checkbox"/> Widening <input type="checkbox"/> Bank failure <input type="checkbox"/> Headcutting <input checked="" type="checkbox"/> Bank scour <input type="checkbox"/> Aggrading <input type="checkbox"/> Slope failure <input checked="" type="checkbox"/> Sed. deposition <input type="checkbox"/> Channelized	<b>BANK OF CONCERN:</b> <input type="checkbox"/> LT <input checked="" type="checkbox"/> RT <input type="checkbox"/> Both ( <i>looking downstream</i> ) <b>LOCATION:</b> <input checked="" type="checkbox"/> Meander bend <input type="checkbox"/> Straight section <input type="checkbox"/> Steep slope/valley wall <input type="checkbox"/> Other: DIMENSIONS: Length ( <i>if no GPS</i> ) LT _____ ft and/or RT _____ ft Bottom width _____ ft Bank Ht. LT _____ ft and/or RT _____ ft Top width _____ ft Bank Angle LT _____ ° and/or RT _____ ° Wetted Width _____ ft			
LAND OWNERSHIP: <input checked="" type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Unknown		LAND COVER: <input type="checkbox"/> Forest <input type="checkbox"/> Field/Ag <input checked="" type="checkbox"/> Developed: <i>Yes</i>		
<b>POTENTIAL RESTORATION CANDIDATE:</b> <input type="checkbox"/> Grade control <input checked="" type="checkbox"/> Bank stabilization <input type="checkbox"/> No <input type="checkbox"/> Other:				
<b>THREAT TO PROPERTY/INFRASTRUCTURE:</b> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (Describe):				
EXISTING RIPARIAN WIDTH: <input checked="" type="checkbox"/> <25 ft <input type="checkbox"/> 25-50 ft <input type="checkbox"/> 50-75 ft <input type="checkbox"/> 75-100 ft <input type="checkbox"/> >100 ft				
<b>EROSION SEVERITY</b> (circle #)  Channelized= <input type="checkbox"/> 1	Active downcutting; tall banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure.	Past downcutting evident, active stream widening, banks actively eroding at a moderate rate; no threat to property or infrastructure	Grade and width stable; isolated areas of bank failure/erosion; likely caused by a pipe outfall, local scour, impaired riparian vegetation or adjacent use.	
	5	4	3	2
<b>ACCESS:</b>	Good access: Open area in public ownership, sufficient room to stockpile materials, easy stream channel access for heavy equipment using existing roads or trails.	Fair access: Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream.	Difficult access. Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located a great distance from stream section. Specialized heavy equipment required.	
	5	4	3	2
<b>NOTES/CROSS SECTION SKETCH:</b>  Note if there is active (recent) failure or erosion of the banks.  <div style="text-align: center; font-family: cursive;">             Moderate erosion due to mowed buffer or lack thereof.           </div>				

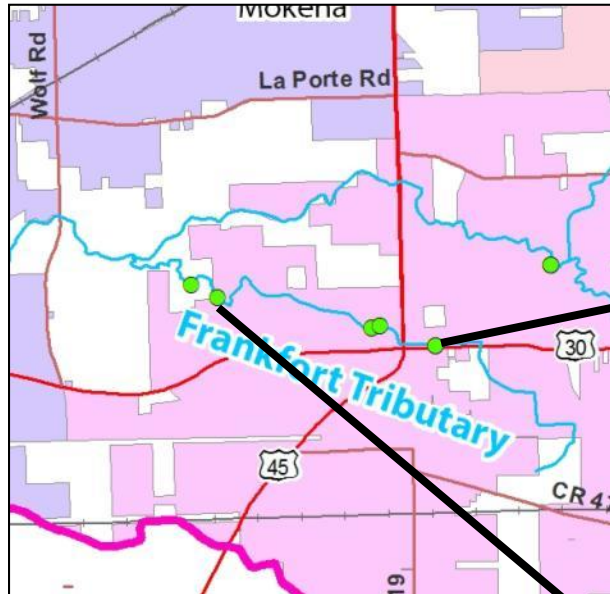
# Example Findings of Stream Corridor Assessment

# Union Ditch



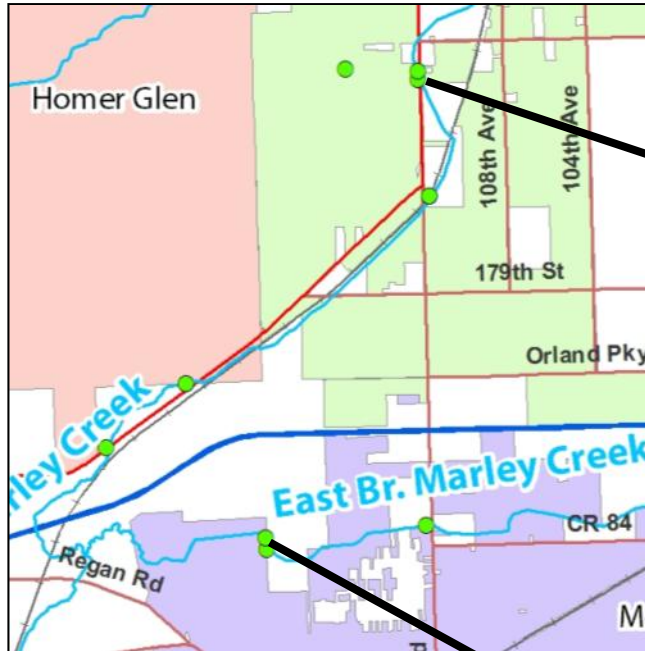
- Trash and Debris
- Channel Modification
  - Straightened/On-line Detention Basins
- Impacted Buffers

# Frankfort Tributary



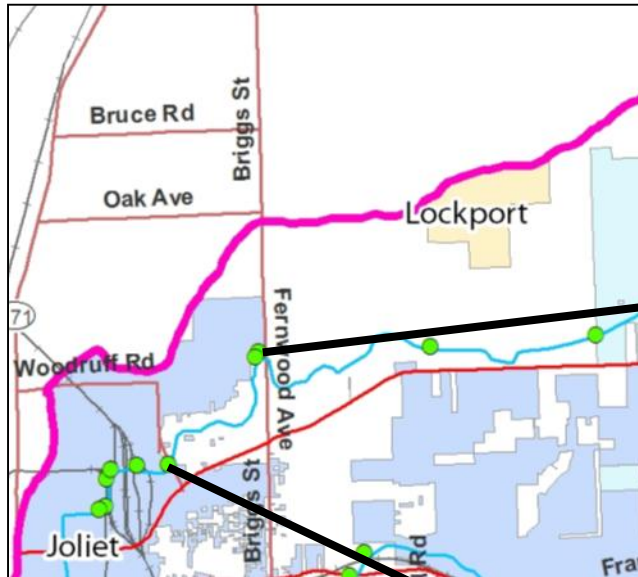
- Channel Modification
  - Straigtened/Piped
- Impacted Buffers
- Bank Erosion
- Trash and Debris

# Marley Creek (including E. Branch)



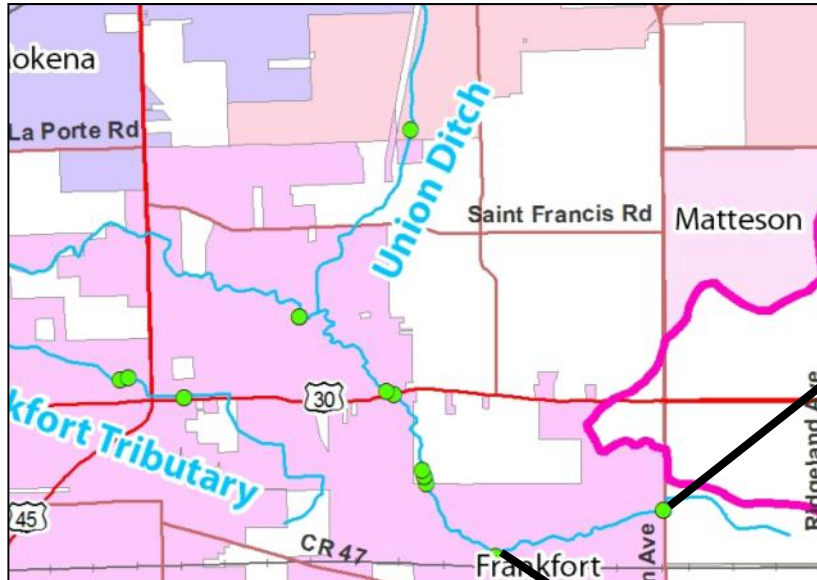
- Channel Modification
  - Straigtened
- Impacted Buffers
- Accumulated Sediment
- Accumulated Debris

# Spring Creek



- Channel Modification
  - Straightened/Concrete Wall
  - Low-Head Dam
- Bank Erosion
- Trash and Debris

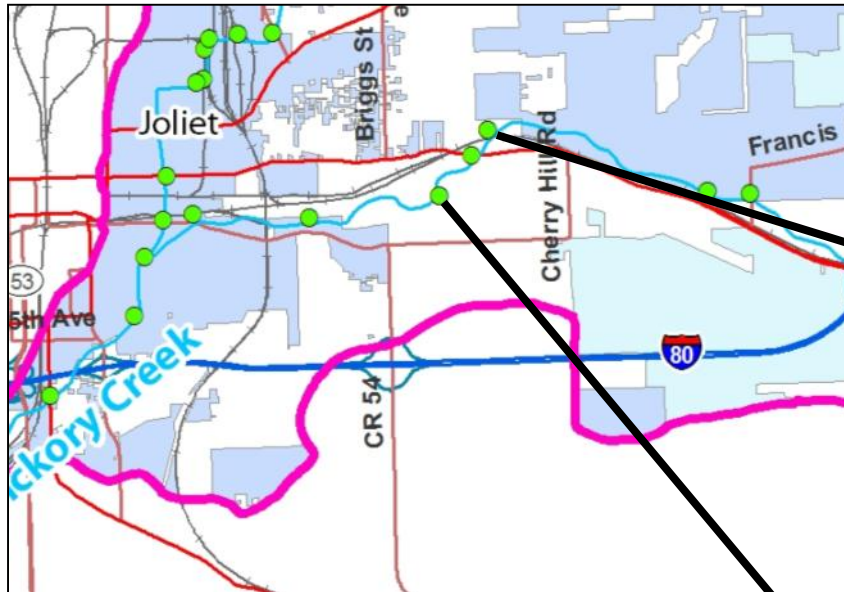
# Upper Hickory Creek



- Impacted Buffers
- Bank Erosion
- Accumulated Debris
- Accumulated Sediment

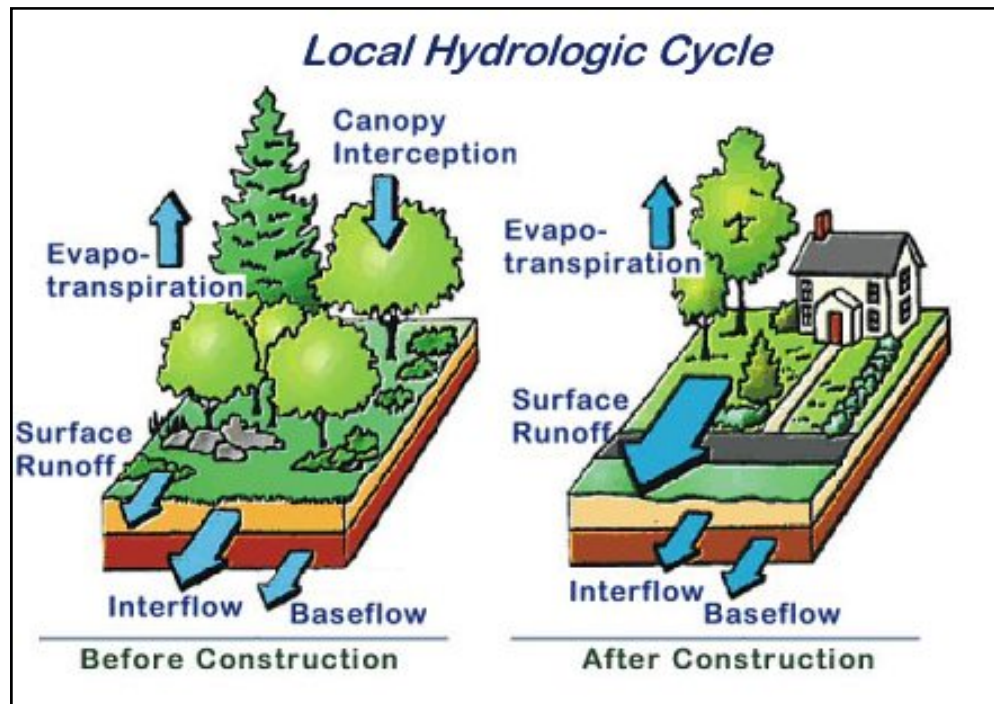


# Lower Hickory Creek



- Channel Modification
  - Straightened/Concrete Wall
  - Low-Head Dam
- Bank Erosion
- Trash and Debris

# Example Findings of Post-Construction Stormwater Management System Evaluation



# Stormwater Conveyance



- Bioretention
- Vegetated Swales
- Pervious Surfaces

# Stormwater Conveyance



- Downspouts directly connected to storm drains
- Impervious areas routed directly to storm drains



# Stormwater Conveyance



- Raised parking lot islands and fringe areas
- Mowed conveyance channels



# Detention Basins



- Diverse and Abundant Vegetation
- Sediment Forebays
- Long Flow Paths through Basin



# Detention Basins



- Mowed side slopes
- Waterfowl prevalent
- Fish-generated turbidity
- Uniform Shape

# Detention Basins



- Dry Detention
- Mowed Side Slopes and Bottom
- Concrete Low-Flow Channels

# Short-Term Implementation Plan

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Basic criteria for inclusion of project recommendations in Short-Term Implementation Plan include:

- Ability of project to make progress toward watershed goals and objectives
- Willingness and ability of potential implementers to implement project
- Cost-effectiveness of project
- Other criteria may include:
  - Repeatability of project
  - Demonstration opportunity

# Short-Term Implementation Plan

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- Initial Ideas for Project Recommendations
  - Bank Stabilization and/or Grade Control
    - Spring Creek and Hickory Creek in Joliet
  - Riparian Buffer Establishment
    - Various locations along Hickory Creek and each tributary in both agricultural and urban areas
  - Channel Modifications/In-stream Habitat Improvements
    - Further investigation and evaluation required

# Short-Term Implementation Plan

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- Initial Ideas for Project Recommendations
  - Detention Basins
    - Opportunities to improve water quality benefit of basins identified within each community
      - Modify functionality of basin during smaller storm events (i.e. retain water quality volume)
      - Add in-basin features such as sediment forebays
      - Modify low-flow channels
      - Add naturalized vegetation on side slopes and bottoms

# Short-Term Implementation Plan

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- Initial Ideas for Project Recommendations

- Stormwater Conveyance System

- In each community opportunities exist to:
      - Reduce number of rain gutter downspouts directly connected to storm drain system
      - Install bioretention and/or vegetated swales in parking lot islands and fringe areas
      - Install bioretention and/or vegetated swales along roadways
      - Replace impervious parking lot surfaces with pervious alternatives

# Example Project Opportunity

- Mokena Fire Department Complex on Wolf Road and Adjacent Village Detention Basin
- Coordinating with Village on potential for inclusion as a Plan project recommendation



# Example Project Opportunity



# Potential Retrofit Components



## ➤ Detention Basin Retrofits

- Modify Low-Flow Channel
- Naturalized Vegetation

## ➤ Bioretention

## ➤ Porous Parking Areas

# Next Steps

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- Conduct further investigation and evaluation of potential project recommendations
- Develop detailed list of potential project recommendations
- Coordinate with potential implementers on willingness and ability to implement projects
- Refine project recommendations for inclusion in Plan

# Contact Information

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