6.3.4.10 *Village of Long Grove – Action Recommendations*

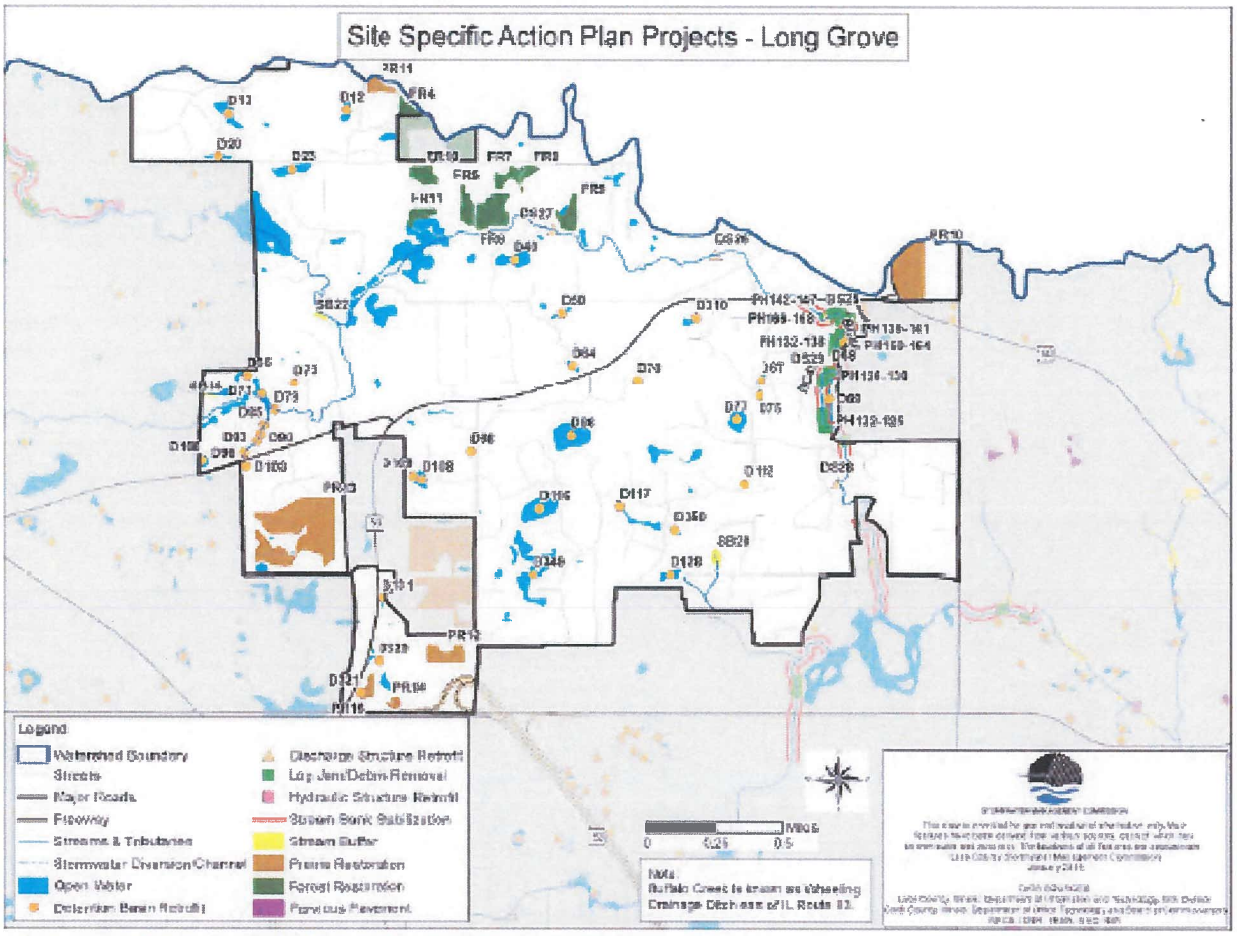


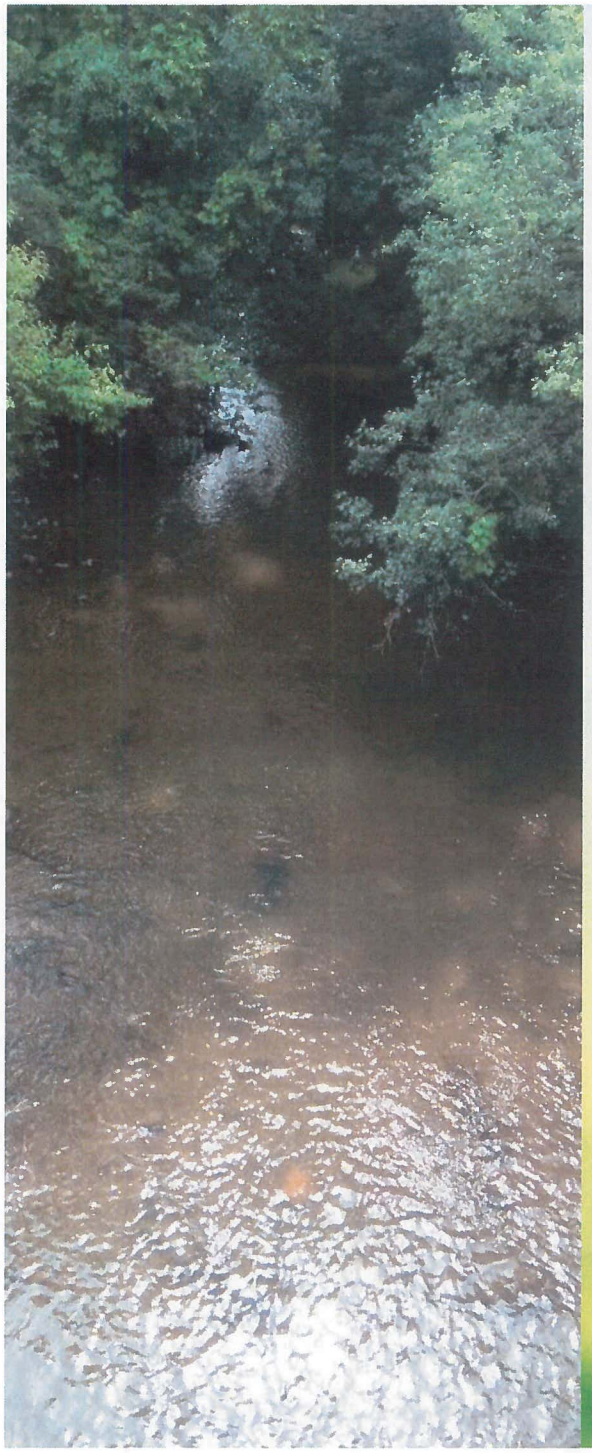
Figure 6-14. Site Specific Projects in the Village of Long Grove

Table 6-24: Site Specific Project Summary for the Village of Long Grove.

Unique ID	Action	Project Size	Basin Name	Priority
D12	Perform assessment for potential detention basin retrofit.	1.46 ac	Glenstone Pond 3	L
D13	Perform assessment for potential detention basin retrofit.	2.51 ac	Beaver Creek Estates Pond 1	L
D20	Plant native vegetation on banks. Replace inlet 2.	0.79 ac	Beaver Creek Estates Pond 2	M
D23	Perform assessment for potential detention basin retrofit.	2.32 ac	Deerwood Estates Pond	L
D40	Perform assessment for potential detention basin retrofit.	2.99 ac	Mardan Lake Pond 1	L
D50	Perform assessment for potential detention basin retrofit.	0.65 ac	Victorian Oak Estates Pond 2	L
D58	Plant native vegetation on slopes; replace inlets 1 and 2; install riprap in front of inlet 2; and disconnect sump.	0.58 ac	Bridgewater Farm Park Pond	M
D64	Increase power of southern aerator; plant slopes and inlet 2 with native vegetation.	0.48 ac	Victorian Oak Estates Pond 3	M
D66	Perform assessment for potential detention basin retrofit.	0.59 ac	Willow Valley Pond 1	L

D67	Perform assessment for potential detention basin retrofit.	0.67 ac	Bridgewater Farm Pond 2	L
D69	Remove duckweed; replace inlet B; remove debris and sediment from inlet 5; and plant slopes with native vegetation.	2.38 ac	Crossings Park Pond	M
D70	Perform maintenance of native vegetation, including removal of invasive species.	0.73 ac	Country Club Woods Pond	H
D71	Reduce slope to 3:1; plant native vegetation on banks; replace inlet 2; and disconnect downspout.	1.77 ac	Bennington Pond 3	M
D73	Clear vegetation from outlet.	0.15 ac	Bennington Pond 4	M
D77	Replace wall on north end; replace inlet 3; and plant native buffer around wall.	2.67 ac	Hillcrest Country Club Pond	M
D79	Plant native vegetation along bank.	0.37 ac	Bennington Pond 5	M
D85	Fix 2nd aerator; replace turf grass and riprap with native vegetation.	0.22 ac	Bennington Pond 6	M
D86	Disconnect sump pump; replace walls and riprap with dirt and native vegetation.	6.77 ac	Yankee Lake	M
D90	Perform assessment for potential detention basin retrofit.	0.05 ac	Bennington Pond 7	L
D93	Install aerator; remove retaining wall and plant native vegetation.	0.11 ac	Bennington Pond 8	M
D96	Install aerator; plant native vegetation on banks; and remove woody vegetation.	0.23 ac	Willow Valley Pond 4	H
D98	Remove turf grass; plant native vegetation on slopes; and kill algae.	0.07 ac	Maple Hill Nursing Center Pond	M
D100	Install aerator in the center of pond; plant native vegetation along banks; and install better outlet system.	1.24 ac	Farmington Pond 4	M
D103	Plant slopes and bottom with native vegetation; and clear sediment from outlet A.	0.51 ac	Kildeer Glen Pond	H
D108	Perform assessment for potential detention basin retrofit.	1.20 ac	Wyncrest of Long Grove Pond 1	L
D109	Perform assessment for potential detention basin retrofit.	0.58 ac	Wyncrest of Long Grove Pond 2	L
D112	Install aerator.	0.58 ac	Country Club Meadows of Long Grove Pond 4	L
D116	Plant slopes with native vegetation; replace inlet 2; reconnect parts of inlet 3; and install additional riprap on inlet 2.	5.19 ac	Sentinal Lake	M
D117	Remove invasive species and replace with native vegetation.	1.69 ac	Country Club Meadows of Long Grove Pond 5	L
D128	Remove invasive species and woody vegetation from banks and plant native vegetation.	1.20 ac	Country Club Meadows of Long Grove Pond 8	M
D131	Perform assessment for potential detention basin retrofit.	0.38 ac	UNK	L
D310	Install aerator.	1.54 ac	UNK	L
D320	Plant slopes with native vegetation.	1.94 ac	UNK	M
D321	Perform assessment for potential detention basin retrofit.	0.67 ac	UNK	L
D349	Disconnect downspouts and plant banks with native vegetation.	7.19 ac	UNK	M

D350	Replace invasive species and woody vegetation with native vegetation.	0.32 ac	UNK	H
BC45	Streambank stabilization.	3,882 linear feet	N/A	M
BC46	Streambank stabilization.	4,142 linear feet	N/A	H
SB13-14, SB22, SB28	Install stream buffer at 4 locations.	2.6 ac	N/A	M
D521	Repair / replace.	1	N/A	L
D522	Repair / replace.	1	N/A	L
D523	Repair / replace.	1	N/A	L
D524	Repair / replace.	1	N/A	L
D525	Repair / replace.	1	N/A	L
D526	Remove riprap blockage and evaluate.	1	N/A	H
D527	Investigate rusty discharge and replace pipe.	1	N/A	L
D528	Evaluate.	1	N/A	L
D529	Replace.	1	N/A	M
PH122-130, PH132-142, PH147, PH160-164, PH166-168	Logjam / debris removal.	28	NA	L
PR10	Prairie restoration.	13.8 ac	N/A	L
PR11	Prairie restoration.	2.7 ac	N/A	L
PR12	Prairie restoration.	4.7 ac	N/A	L
PR13	Prairie restoration.	31.3 ac	N/A	L
PR14	Prairie restoration.	1 ac	N/A	L
PR15	Prairie restoration.	1.8 ac	N/A	L
FR5	Forest restoration.	3.2 ac	N/A	L
FR6	Forest restoration.	7.7 ac	N/A	L
FR7	Forest restoration.	2.8 ac	N/A	L
FR8	Forest restoration.	1.5 ac	N/A	L
FR9	Forest restoration.	3.9 ac	N/A	L
FR4	Forest restoration.	1.9 ac	N/A	L
FR10	Forest restoration.	3.4 ac	N/A	L
FR11	Forest restoration.	2.6 ac	N/A	L



Buffalo Creek Clean Water Partnership

Village of Long Grove
October 10, 2016

Buffalo Creek
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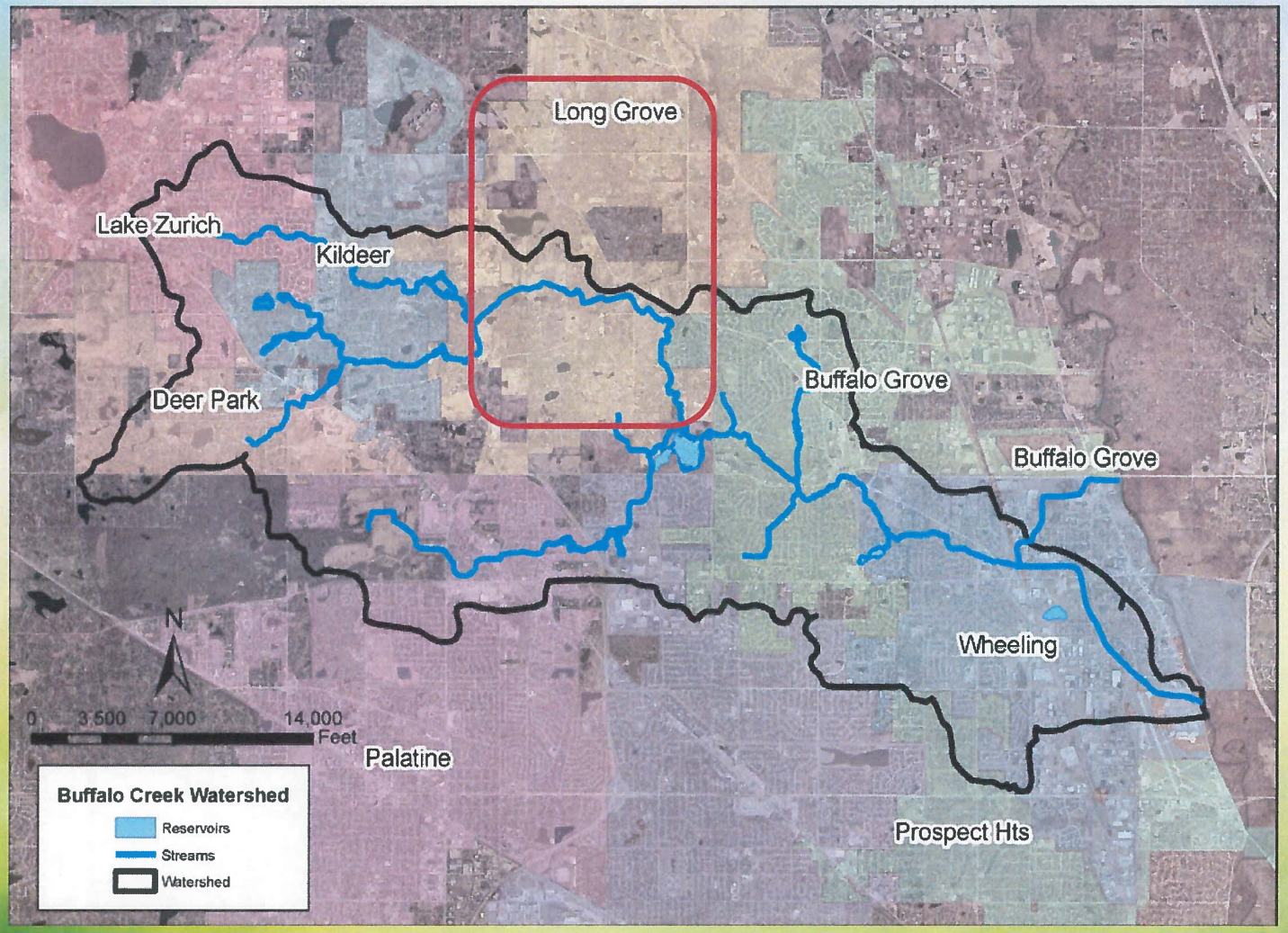
Buffalo Creek Watershed



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Quick History

- ✓ First meeting – April 25, 2012, 60 people attended
- ✓ Secured funding and followed a three year process to develop a EPA-defined watershed plan
- ✓ Plan completed in December and approved by Lake County and Stormwater Management in April
- ✓ Now, seek approval and engagement with eight villages in watershed

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Benefits to Deer Park

- Reduced flood and erosion damage
- Improved water quality
- Potential cost savings
  - Salt, deferred new chloride regulations
  - Green infrastructure less costly
- Priority for grants and other funding
- Improved recreation and natural areas

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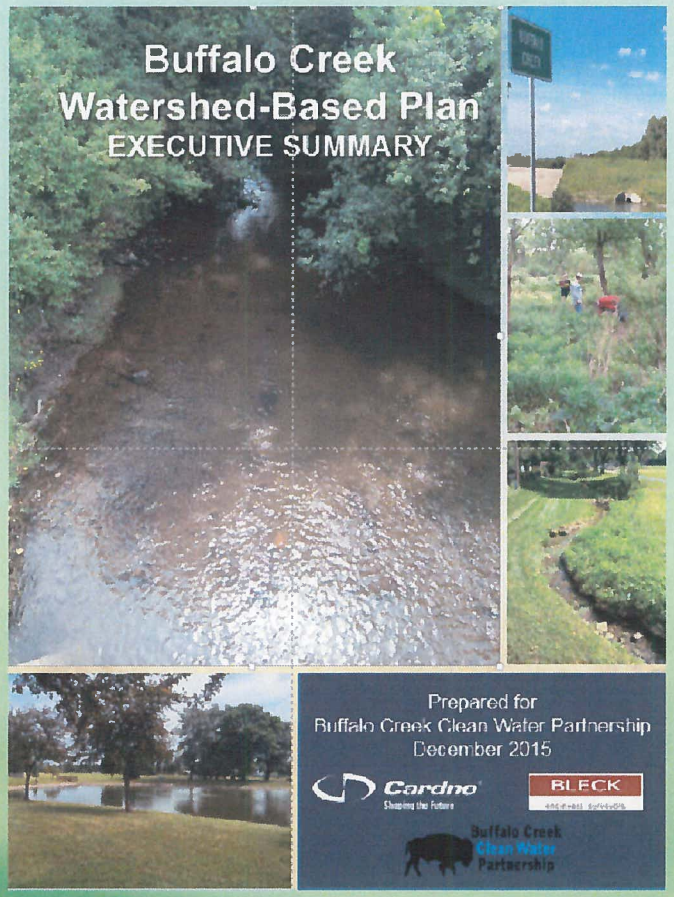
Buffalo Creek Watershed Plan

Clean water, healthy lakes and streams, and safety from flooding are important for residents and businesses



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Watershed Plan Components

Executive Summary

Chapter 1: Introduction

Chapter 2: Goals and Objectives

Chapter 3: Watershed Resource Inventory & Characterization

Chapter 4: Flood Problem Assessment

Chapter 5: Watershed Problem Assessment

Chapter 6: Prioritized Action Plan

Chapter 7: Plan Implementation and Evaluation

Chapter 8: Education and Outreach

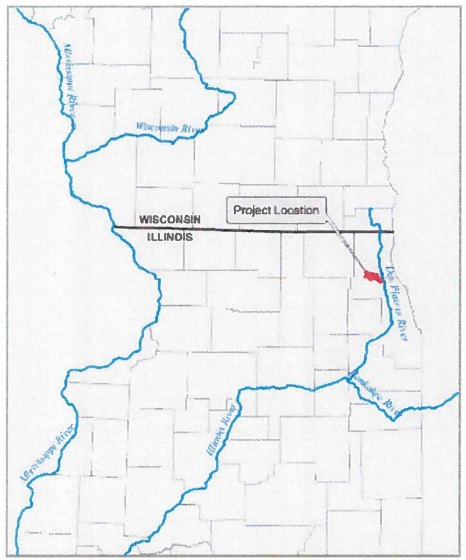
Chapter 9: References

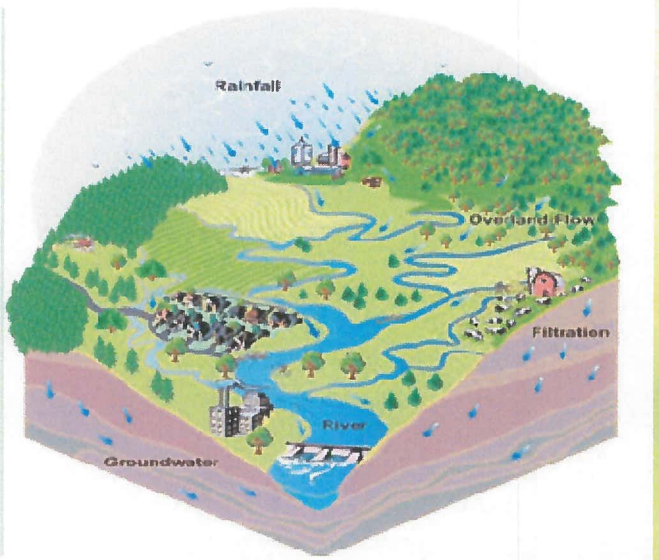
Appendices

Buffalo Creek
Clean Water
Partnership

Chapter 1: Introduction

- Watershed Setting
- Geology of the Watershed
- The Watershed Over Time
- Impacts of Watershed Development
- Buffalo Creek Clean Water Partnership
- Watershed-Based Plan Purpose
- Using This Plan





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Chapter 2: Goals & Objectives

- Watershed Issues
- Watershed Opportunities
- Stakeholders Have a Vision for the Watershed
- Watershed Goals and Objectives

Watershed Vision

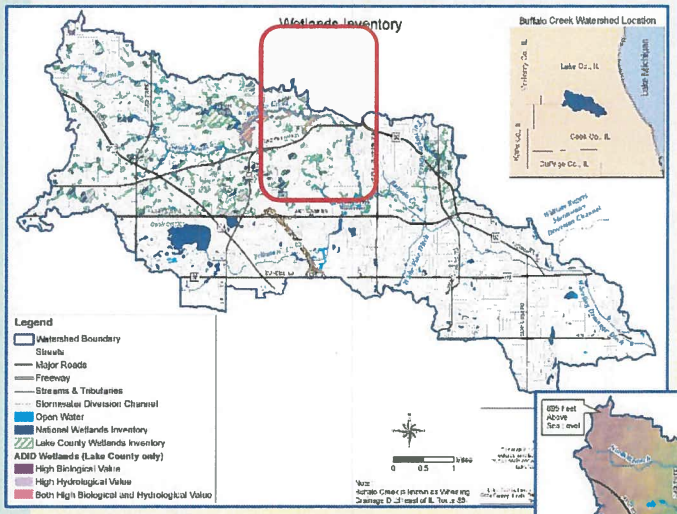
"Buffalo Creek will be a sustainable watershed success story with reduced erosion, improved water quality, thriving wildlife, decreased flooding and the beauty of native vegetation. This will be accomplished through collaborative and inclusive community and agency partnerships."

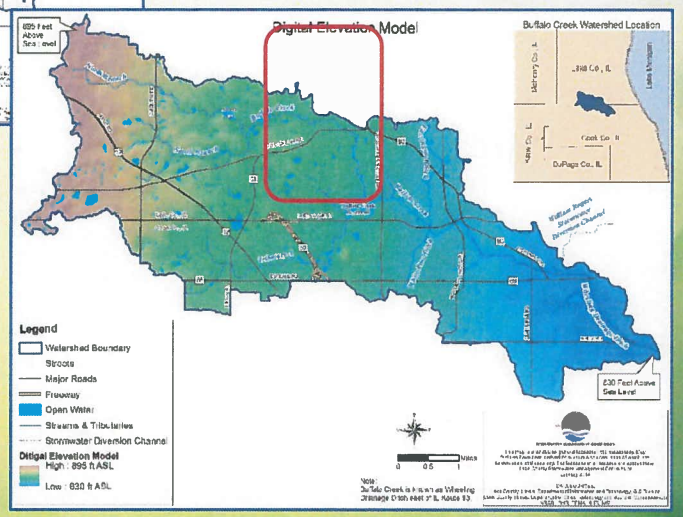
Watershed Plan Goals:

- Improve and protect water quality
- Manage stormwater volume and reduce flooding
- Protect, enhance and restore natural resources
- Use green infrastructure to reduce runoff and pollution
- Development/redevelopment protects water and natural resources
- Stakeholders have the knowledge and skills to implement the plan

Chapter 3: Watershed Resource Inventory & Characterization

- Watershed Boundaries
- Climate
- Soils
- Watershed Jurisdictions
- Demographics
- Land Use and Land Cover
- Transportation
- Parks and Recreation
- Natural Resources
- Watershed Drainage System
- Constructed Drainage Systems
- Stream Inventory
- Detention Basin Inventory
- Watershed Lakes
- Lake/Stream Water Quality Monitoring





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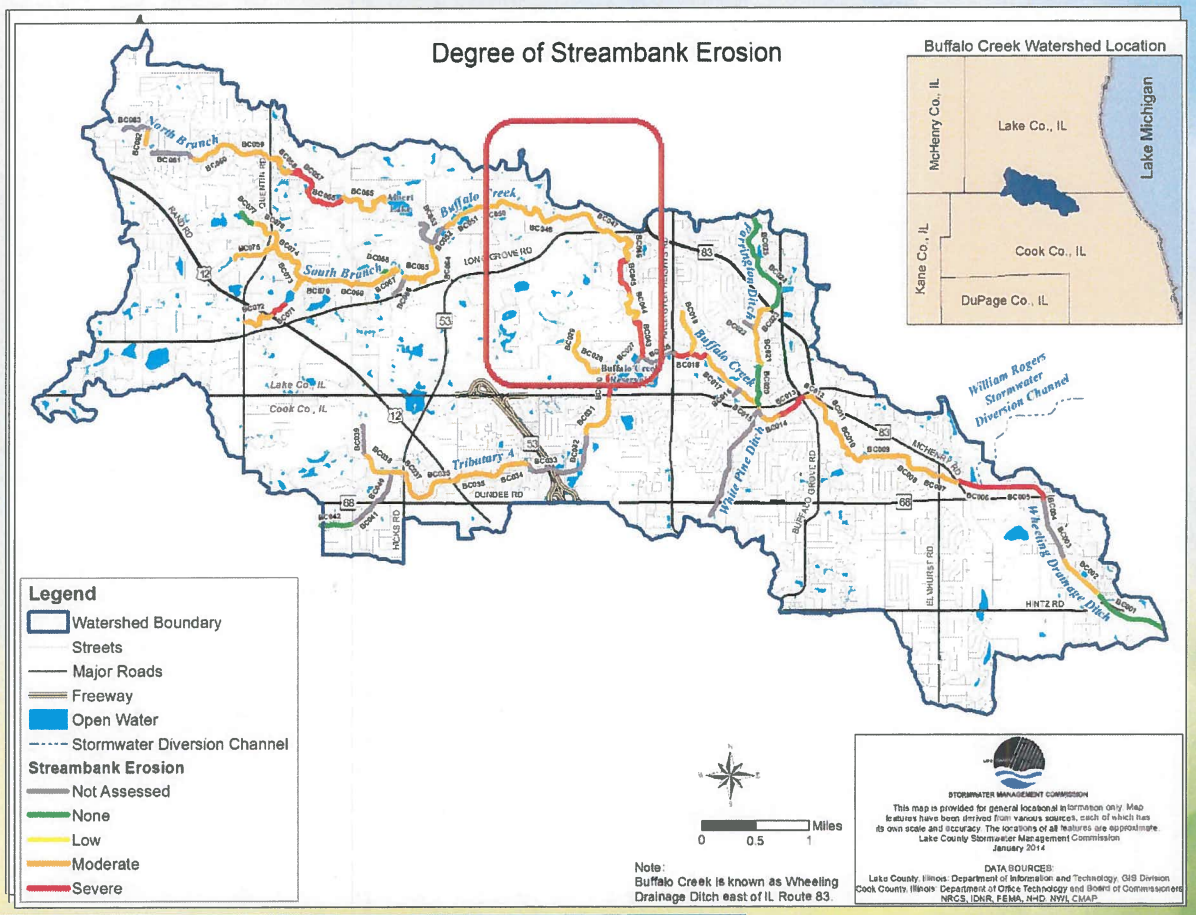
Stream Inventory

Qualitative assessment of baseline conditions:

- Channel conditions
- Channelization
- Pool-riffle development
- Bank erosion
- Sediment accumulation
- Hydraulic structures
- Discharge points
- Riparian corridor



	Buffalo Creek Mainstem	North Branch of Buffalo Creek	South Branch of Buffalo Creek	Tributary A	Farrington Ditch	Total
Number of Reaches	24	7	13	10	5	**59 Reaches**
Assessed Miles	**10.0**	**3.0**	**4.2**	**4.0**	**2.1**	**23.3 Miles**

Buffalo Creek Clean Water Partnership

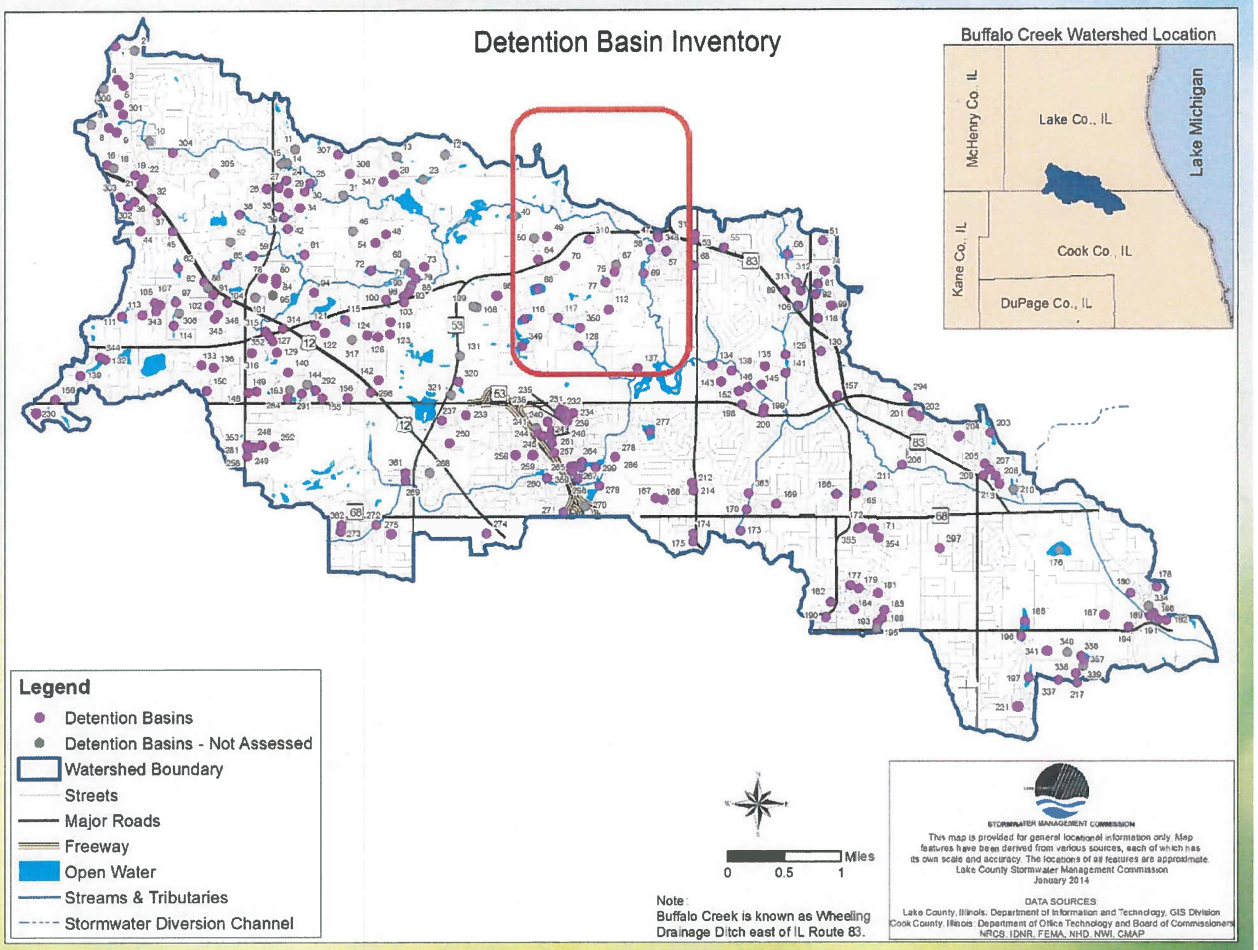
Detention Basin Inventory

246 Basins Examined:

- Location
- Size and drainage
- Design features
- Maintenance and design problems
- Potential safety problems
- Retrofit opportunities

97% of the detention basins would benefit from some improvement

- Bank stabilization
- Aeration
- Sediment control
- Native vegetation
- Removal of woody debris



Buffalo Creek Clean Water Partnership

ArcGIS

Sign In

Details | Basemap

About | Content

Legend

Buffalo Creek Watershed

Problem Hydraulic Structures

Problem Discharge Points

Stream Bank Erosion Photos

Debris Jams

Low Streambank Erosion

Moderate Streambank Erosion

Severe Streambank Erosion

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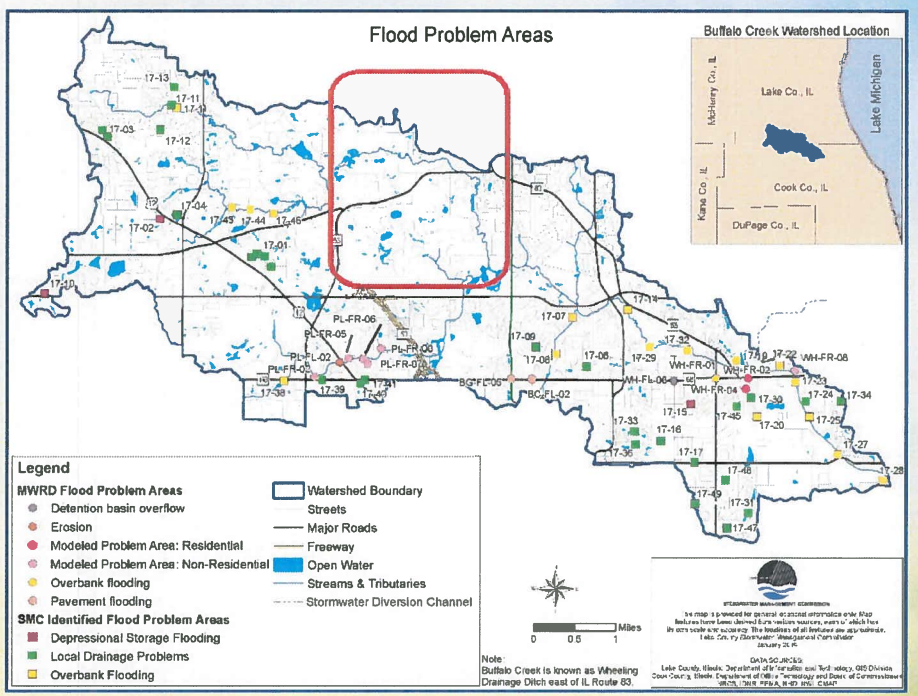
Chapter 4: Flood Problem Assessment

- Flood Risk Assessment
  - 2,901 Structures in the floodplain
- Flood Problem Area
  - 54 areas identified
  - 11 in Lake Co., 43 in Cook Co.
- Flood Damage Assessment
  - 227 responses (1,408 mailed)
- Flood Damage Reduction
- Regional Flood Storage



Buffalo Creek Clean Water Partnership

Chapter 5: Watershed Problem Assessment

- Land Use Impacts
  - Stormwater quantity, quality & temperature
  - Policy and regulatory program review
- Water Resource Problems Assessment
  - Lake impairments
  - Stream impairments
- Causes and Sources of Pollution
  - Point source pollution
  - Septic system analysis
- Pollutant Load Analysis
  - Pollutant load estimates
  - Hotspots
  - Critical Areas
- Watershed Jurisdictional Coordination
- Green Infrastructure

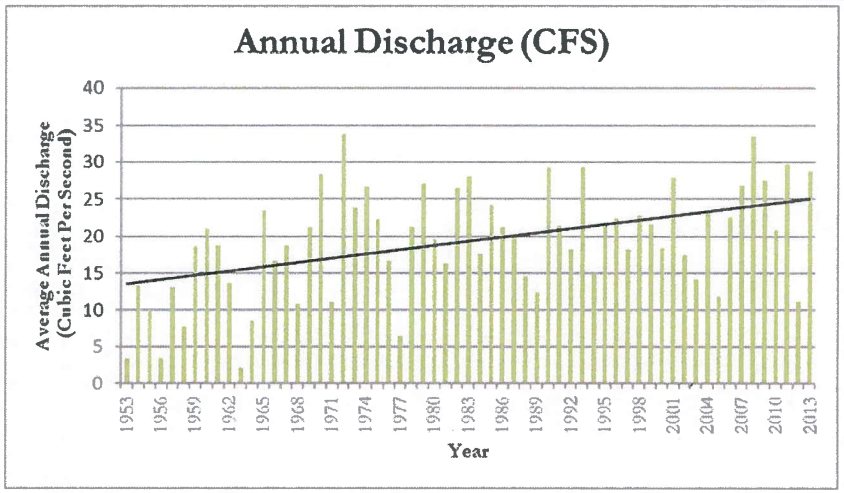


Figure 5-2: Average Annual Stream Flow (CFS), USGS Buffalo Creek Stream Gage.

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Causes and Sources of Pollution

Pollutant Load Analysis

Parameter	Existing		Future		Percent Change Compared to Existing Conditions
	Load	Average Per Acre	Load	Average Per Acre	
Total Nitrogen – (lbs/year)	208,033	12	208,391	12	**0.17%**
Total Phosphorus (lbs/year)	33,459	2	33,580	2	**0.36%**
BOD (lbs/year)	704,496	41	708,688	41	**0.60%**
Sediment (ton/year)	22,299	1	22,304	1	**0.02%**
Chloride (lbs/year)	24,545,450	1,411	25,183,779	1,448	**4.08%**
Fecal Coliform (billion CFU/year)	7,057	0.4	7,057	0.4	**0.00%**

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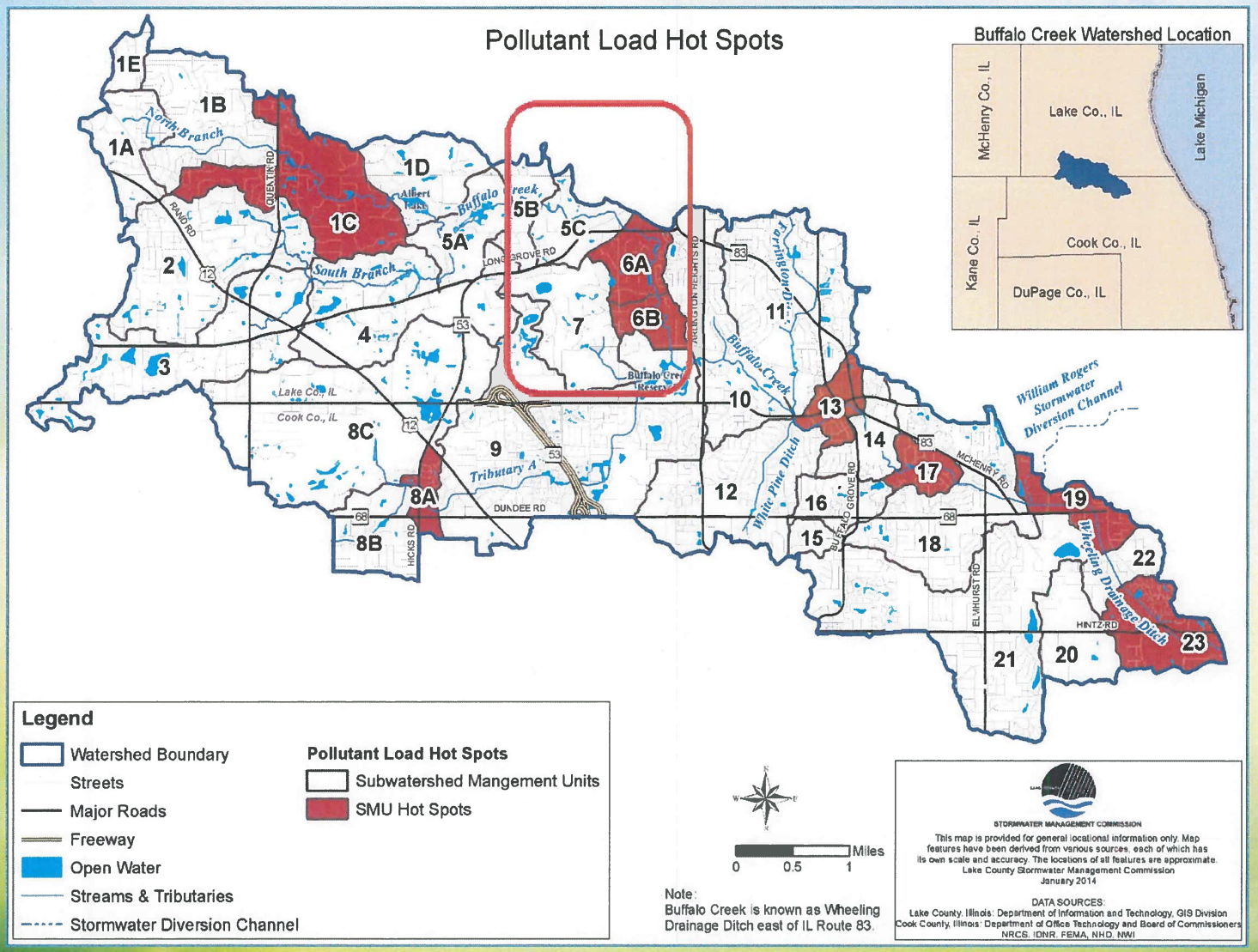
Pollutant Loading Hotspots



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Pollutant Loading Hotspots

Table 6-9: Pollutant Load Hotspot SMUs by Jurisdictional Area in the Buffalo Creek Watershed.

Hotspot SMU	Critical Area Issues	Jurisdiction	Recommended BMPs
1C	Pollutant Loading Streambank Erosion Land-Use Change Land-Use Change on HES Failing Septic Systems	Village of Kildeer Village of Lake Zurich Ela Township	Streambank Stabilization Logjam/Debris Removal Wetland Restoration Detention Basin Retrofit Phosphorus-Free Fertilizer Future LID
6A	Pollutant Loading Streambank Erosion Land-Use Change Failing Septic Systems	Village of Long Grove Village of Buffalo Grove Vernon Township	Streambank Stabilization Logjam/Debris Removal Stream Buffer Installation Detention Basin Retrofit Phosphorus-Free Fertilizer Future LID
6B	Pollutant Loading Streambank Erosion Land-Use Change Failing Septic Systems	Village of Long Grove Village of Buffalo Grove Vernon Township	Streambank Stabilization Logjam/Debris Removal Stream Buffer Installation Detention Basin Retrofit Phosphorus-Free Fertilizer Future LID

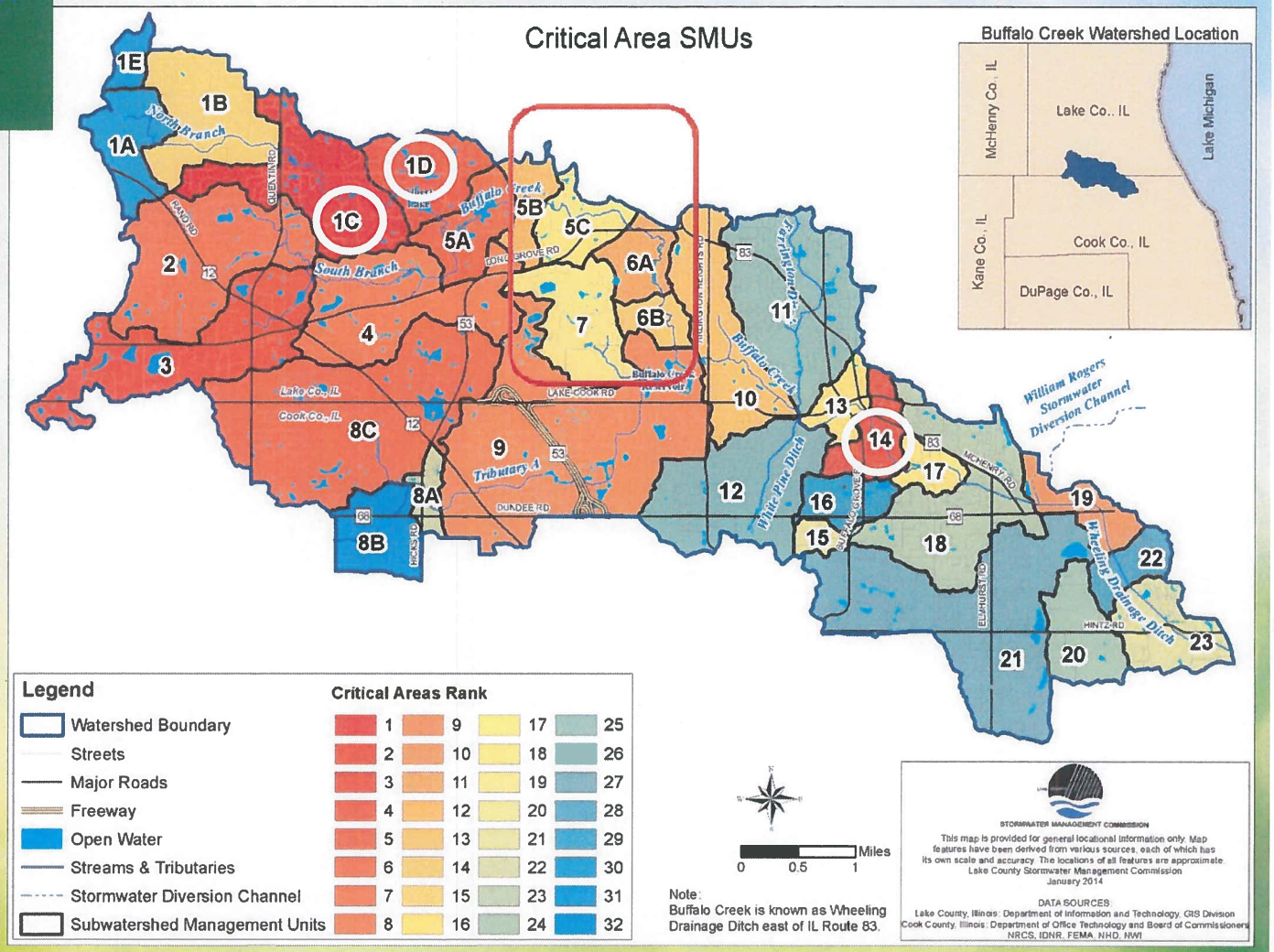
Buffalo Creek Clean Water Partnership

Critical Areas Analysis

Areas best suited to focus implementation efforts to help achieve the goals & objectives of the watershed plan.

CRITERIA

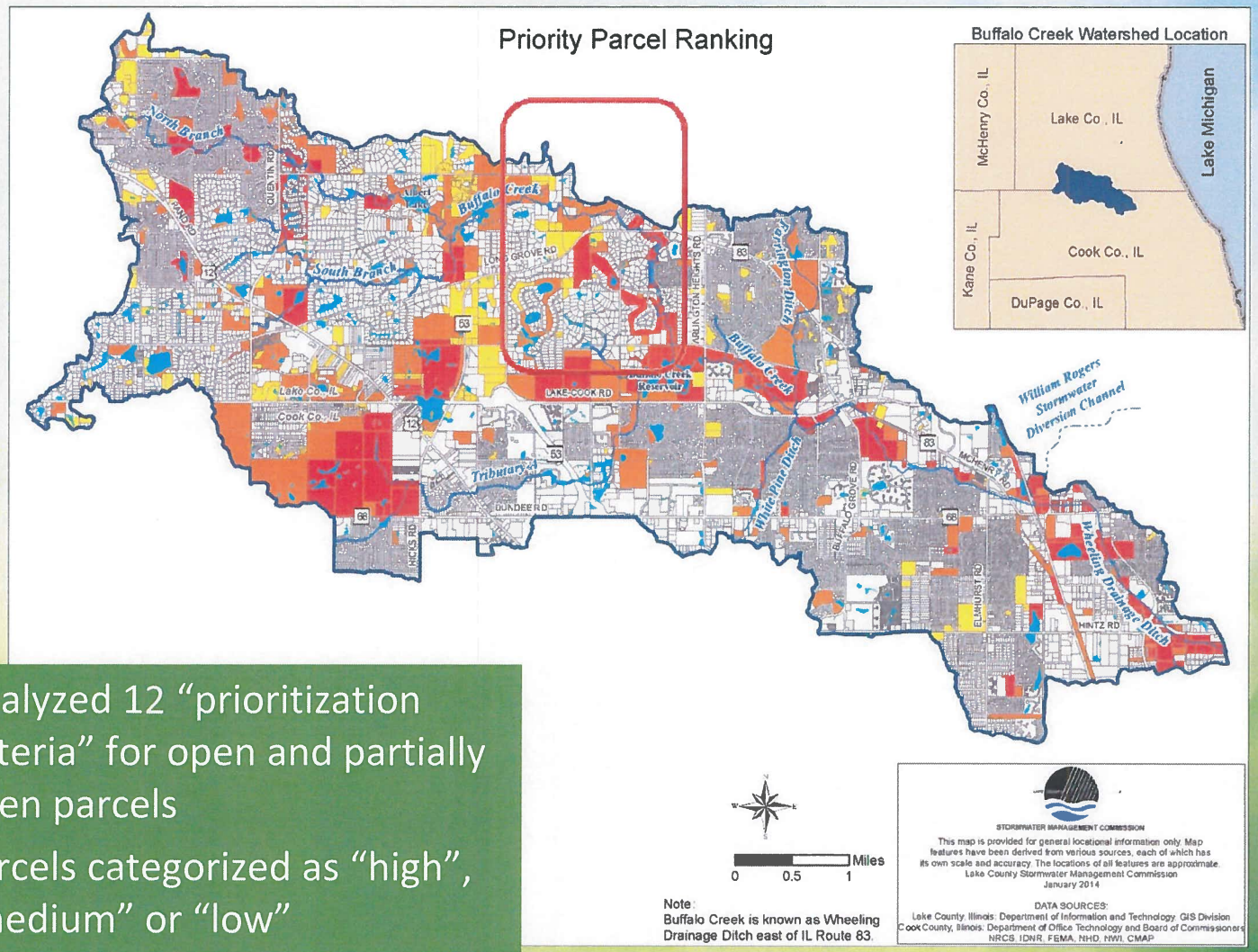
1. Highly erodible soils within agricultural/pasture areas
2. Future land use change
3. Future land use change on highly erodible soils
4. Streambank erosion
5. Water quality impairments
6. Pollutant loading hotspots
7. Estimated # of failing septic systems



Buffalo Creek Clean Water Partnership

Green Infrastructure

- 327 acres of wetlands in Cook County
- 537 acres of wetlands in Lake County
- 1 Illinois Nature Preserve
- 3 Forest Preserves (1,083 acres)
- 66 parks (667 acres)



- Analyzed 12 "prioritization criteria" for open and partially open parcels
- Parcels categorized as "high", "medium" or "low" priority based on # of criteria

Buffalo Creek Clean Water Partnership

Chapter 6: Prioritized Action Plan

- Implementation Partners
- Programmatic Actions
  - Organized by goals identified in Chapter 2
  - Includes regulatory and policy actions
- Pollutant Load Hotspot Focus Actions
- Project Specific Actions
  - 571 projects across 18 jurisdictions
    - Priority: High – Medium – Low
    - Lead and supporting partners
    - Implementation timeframe

Buffalo Creek Clean Water Partnership

Programmatic Action Plan

Organized by goal, includes recommendations related to:

- Flood management
- Streams & riparian corridors
- Lake management
- Natural areas and open space
- Best Management Practices (BMPs)
- Stormwater runoff reduction
- Stormwater infrastructure maintenance
- Green infrastructure
- Land development and construction management
- Regulatory and policy actions

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Programmatic Action Plan Example
Goal 1: Water Quality

Action	Other Goals	Priority	Lead Partners	Supporting Partners	Time Frame
1-A. Create/restore wetlands to filter runoff and improve water quality.	2,3	H	PRL, PD, LCFPD, FPDCC, CMAP	NRCS/SWCD, IL EPA, USACE, SMC, MWRD, TOLLWAY	M
1-B. Establish/enhance filter strips and buffers along stream corridors, drainageways, wetlands, lakes, and other high quality areas.	2,3	H	PRL/RL, CMAP	USDA, NRCS/SWCD, IL EPA, IDNR, TOLLWAY	S, M, L

Buffalo Creek Clean Water Partnership

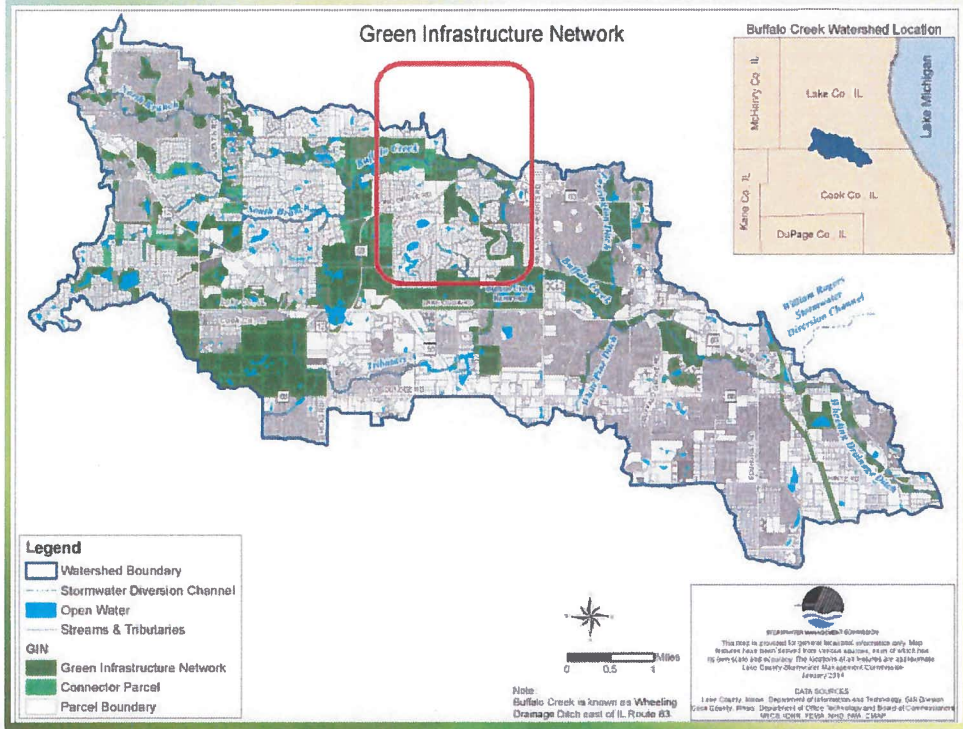
Site-Specific Action Plan

Regional/watershed-level actions directed to:

- Pollutant loading hotspots or critical areas
- Flood problem areas
- Potential regional storage locations
- Potential wetland restoration/enhancement locations

Smaller-scale site-specific actions organized by jurisdiction directed to:

- Stream maintenance and restoration
- Lake shoreline recommendations
- Detention basin maintenance and retrofits
- Reduction in impervious area
- Prairie and forest restoration



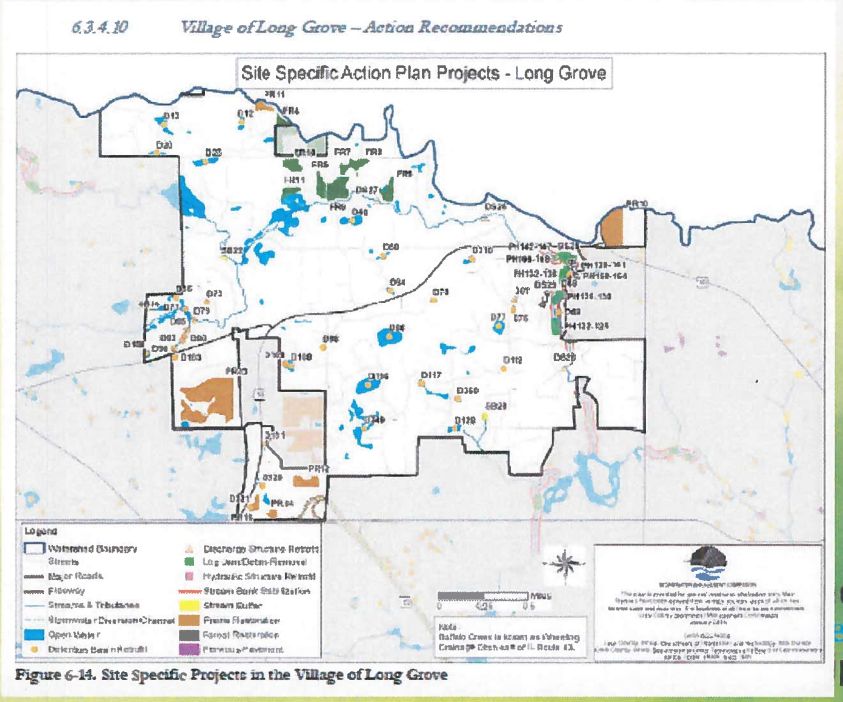


Figure 6-14. Site Specific Projects in the Village of Long Grove

Project Specific Action Plan

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D66	Perform assessment for potential detention basin retrofit.	0.59 ac	Willow Valley Pond 1	L

6-46 Prioritized Action Plan

100 projects identified in Long Grove

Detention basin retrofit – 36
Streambank stabilization – 2
Stream buffers - 2
Discharge structures – 2
Debris jams – 25
Prairie restoration – 14

Buffalo Creek Clean Water Partnership

Chapter 7: Plan Implementation & Evaluation

- Estimate of Pollution Load Reductions and Targets
- Financial and Technical Resource Needs
- Next Steps for Plan Implementation
- Watershed Monitoring Plan
- Evaluating Plan Performance and Programmatic Monitoring

Recommended Strategy or Action
Maintain the Buffalo Creek Clean Water Partnership organization and determine specific year-1 implementation actions.
Identify funding and technical assistance to implement recommendations identified in the action plan.
Apply for applicable grants and secure additional funding.
Coordinate available programs, policy changes, local initiatives and those programs where private landowners are responsible for signing up.
Adopt the plan, incorporating the recommendations in the watershed plan into existing programs, activities, and budgets.

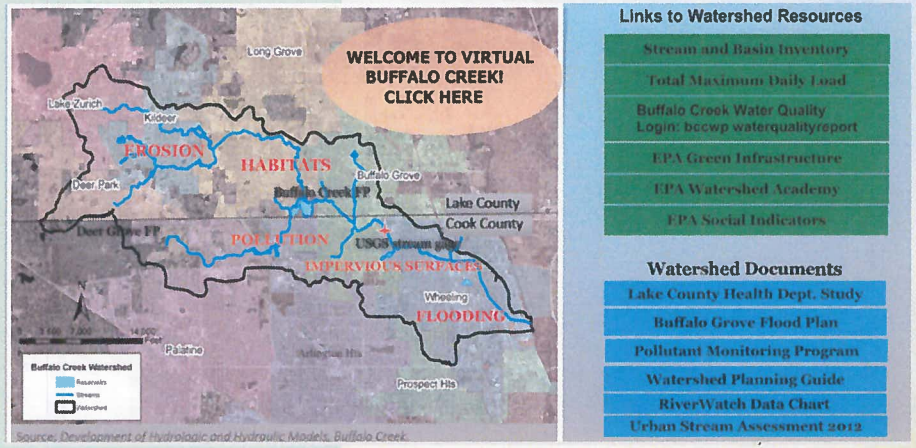
Buffalo Creek Clean Water Partnership

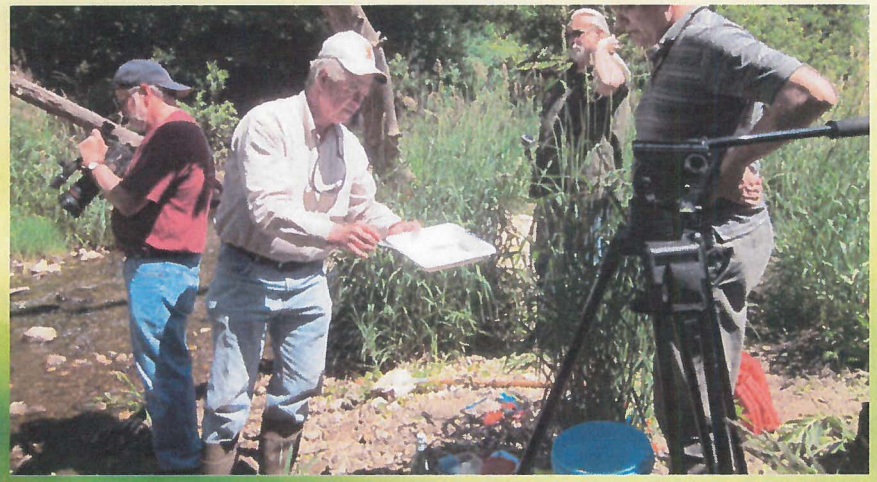
Available Funding Sources

Source	Description
EPA Clean Water Act Nonpoint Source Grant (Section 319 Grants)	Under Section 319, states, territories, and Indian tribes receive grant money which supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of projects that have been implemented.
Lake County SMC	Watershed Assistance Grants Small grants program Flood property buybacks
Five Star and Urban Waters Restoration Grant Program (National Fish and Wildlife Foundation/USEPA)	Funding Available per Application: $20,000-$50,000 Match Requirement: Minimum 1:1 local match required
National Fish and Wildlife Foundation Chi-Cal Rivers Fund	The Chi-Cal Rivers Fund is a public-private partnership working to restore the health, vitality and accessibility of the waterways in the Chicago and Calumet region by supporting green stormwater infrastructure, habitat enhancement, and public-use improvements.
EPA Clean Water State Revolving Fund	Funds water quality protection projects for wastewater treatment, stormwater management, nonpoint source pollution control, and watershed and estuary management.
Metropolitan Water Reclamation District of Greater Chicago	MWRD Green Infrastructure Plan Flood prone property purchases
Environmental Solutions for Communities (National Fish and Wildlife Foundation)	Funding Available per Application: ~$25,000-$50,000 (maximum request) Match Requirement: Minimum 1:1 local match required
Urban Water Management (Surdna Foundation)	Eligible Applicants: Federally-recognized not-for-profit organizations
US Army Corps of Engineers	Wetland restoration fund Flood control and habitat restoration projects
HUD Community Development Block Grant Program	Program that works to ensure decent affordable housing, provide services to the most vulnerable in our communities, and create jobs through the expansion and retention of businesses. CDBG-financed projects could incorporate green infrastructure into their design and construction.

Chapter 8: Education and Outreach

- Education and Outreach Goal and Objectives
- Target Audiences
- Messages
- Partner Organizations
- Existing Media Outreach Assets
- Implementation
- Evaluating the Outreach Plan
- Watershed Information and Education Resources





Buffalo Creek Clean Water Partnership

Upcoming Events

Stakeholder meeting October 26 – location TBA

- ✓ Deer Grove/Buffalo Grove seed harvest and cleaning August – December
- ✓ Earth Day at Deer Grove – April, 2017
- ✓ Rylko Park clean-up/plant-up workday – May, 2017
- ✓ RiverWatch – May and June, 2017

Stay tuned to www.buffalocreekcleanwater.org for dates, times and locations

Buffalo Creek Clean Water Partnership

Proposed next steps

- Resolution of support for watershed plan
- Engage with Village staff to discuss program and site specific recommendations
- Kick off Outreach and Education Plan
- Develop a demo project for green infrastructure

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