

# Oak Creek Watershed Restoration Plan

Plan Adoption Presentation  
Milwaukee County  
March 15, 2022

## Speakers:

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# Plan Development



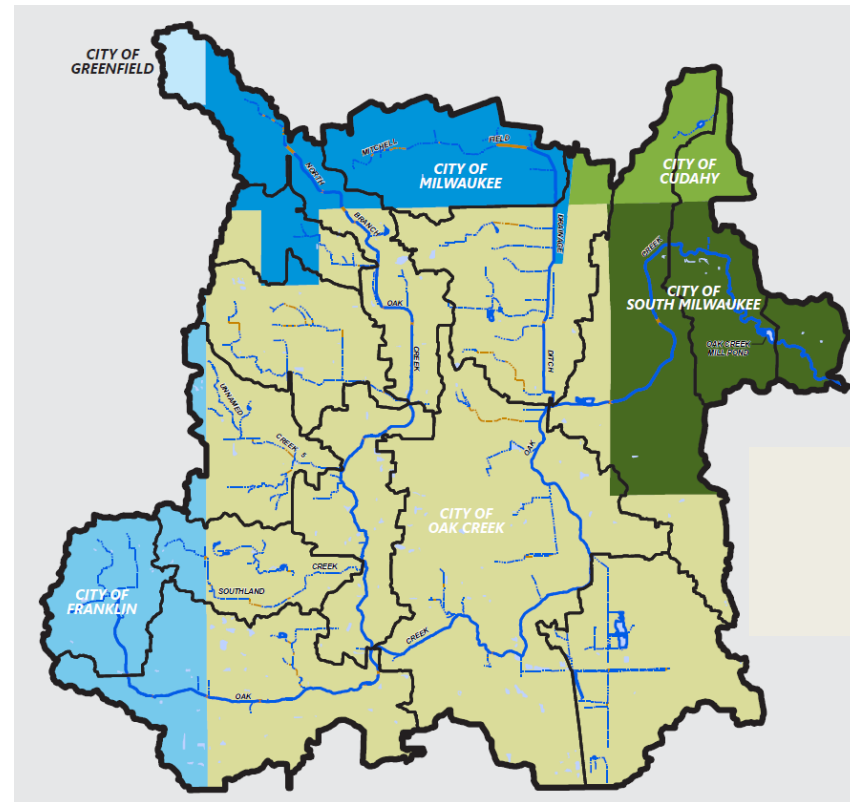
- Oak Creek Watershed historically and currently shows signs of water quality and habitat degradation.
- These issues affect the property and general welfare of the residents of the watershed.
- Problems not unique to the Oak Creek Watershed.
- Planning effort initiated by Milwaukee County, South Milwaukee, SEWRPC and MMSD.
- Plan focus issues identified through town hall public meetings.
- Advisory Group formed.
- Plan created over six years by SEWRPC with input from Advisory Group Committee and outreach to public and stakeholders.
- The Oak Creek Watershed Restoration Plan (Plan) is a comprehensive resource developed to provide a set of specific, targeted recommendations to improve Oak Creek, its tributaries, and the entire watershed.



# Plan Adoption

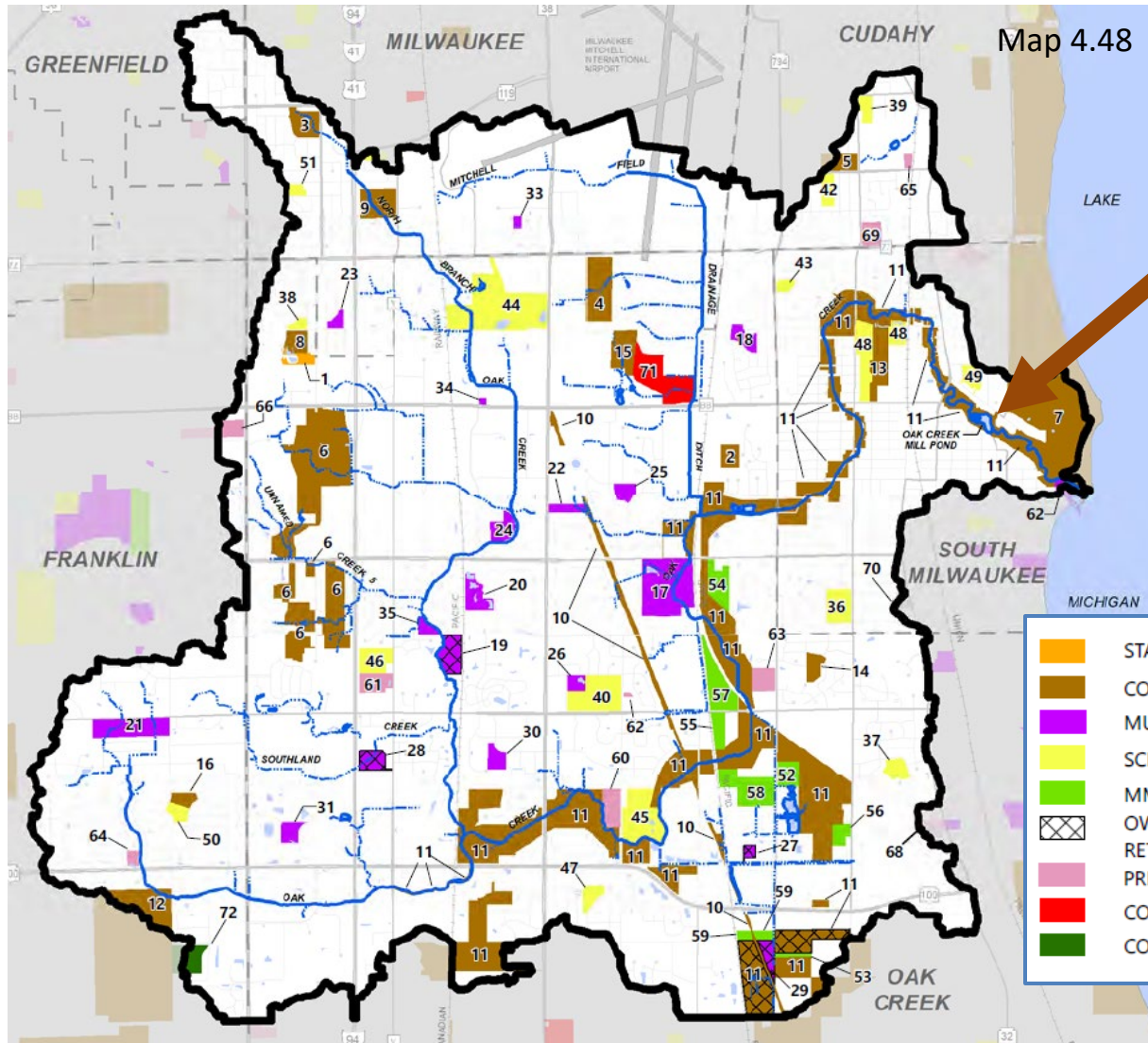


- Assures a common understanding among watershed communities and the County
- Essential component for tracking plan progress and implementation
- Required for some State and Federal grant funding opportunities
- Assist County in integrating plan elements into future work plans
- Adoption of the plan requires no financial obligation





# Park and Open Space Lands



Mill Pond

- STATE-OWNED SITE
- COUNTY-OWNED SITE
- MUNICIPAL-OWNED SITE
- SCHOOL DISTRICT-OWNED SITE
- MMSD-OWNED SITE (GREENSEAMS)
- OWNERSHIP TRANSFERRED BUT MMSD RETAINS EASEMENT RIGHTS (GREENSEAMS)
- PRIVATE ORGANIZATION-OWNED SITE
- COMMERCIAL SITE (LEASED FROM COUNTY)
- CONSERVATION ORGANIZATION-OWNED SITE



# Plan Organization



- Plan in 3 Volumes
  - Volume 1 – Chapters 1 – 5 (Introduction, Previous Work, Characterization of Watershed, Inventory Findings, Goals and Objectives)
  - Volume 2 – Chapter 6 (Recommendations)
  - Volume 3 – Appendices
- Document and presentations on SEWRPC website

[www.sewrpc.org/OakCreekWRP](http://www.sewrpc.org/OakCreekWRP)



# Purpose of Plan



- Targeted set of recommendations
- Build on previous work (RWQMP and update)
- 9KE plan for funding opportunities
- Four focus areas\*
  - Water Quality
  - Habitat
  - Recreation
  - Targeted Flooding

\* Areas as relate to the Mill Pond and dam



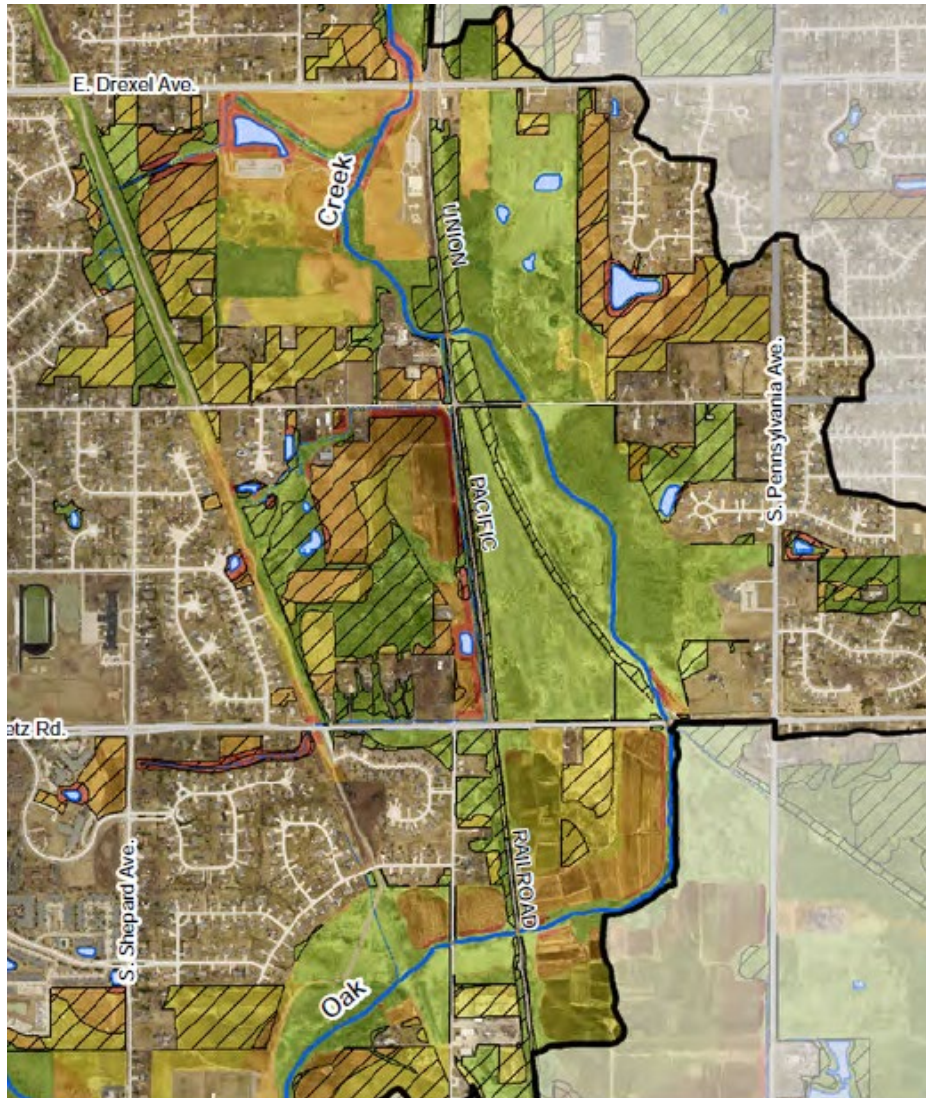
# Recommendations




- General recommendations
  - Most apply over the whole watershed
  - Provide guidance for the management of natural resources in the watershed
- Specific projects
  - The plan identifies and recommends over 400 specific projects
  - These partially implement the general recommendations
  - These are prioritized into high, medium, and low priority
- Example stormwater management projects
- Full implementation period is greater than 30 years





# Habitat Recommendation – Enhance Riparian Buffers




LANDS UNDER SOME FORM OF PROTECTION  
(NOT CROSS HATCHED)


 EXISTING RIPARIAN BUFFERS  
(DELINED BY SEWRPC STAFF USING  
2015 DIGITAL ORTHOPHOTOGRAPHY)

 75-FOOT MINIMUM  
RECOMMENDED BUFFER WIDTH

 400-FOOT MINIMUM CORE HABITAT  
WIDTH FOR WILDLIFE PROTECTION

 1,000-FOOT OPTIMAL CORE HABITAT  
WIDTH FOR WILDLIFE PROTECTION

VULNERABLE LANDS (CROSS HATCHED)

 EXISTING OR POTENTIAL RIPARIAN BUFFER LANDS  
WITH NO FORM OF PUBLIC INTEREST OWNERSHIP

1. Manage and Restore Existing Riparian Buffers
2. Protect What Currently Exists (Vulnerable Existing Buffers Have Highest Priority)
3. Establish New Riparian Buffers to Greatest Extent Possible with Minimum Target of 75-foot Width From Water's Edge and Optimal Goal of a 1,000-foot width (or greater)
4. Establish Connections/Corridors Between Buffer Areas

From Oak Creek Watershed Restoration Plan Appendix G – Map G.7

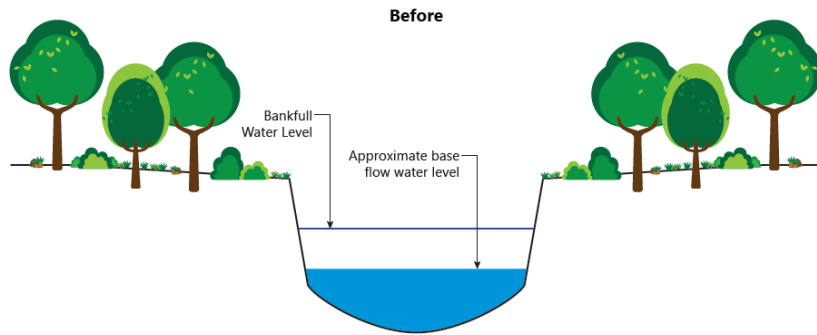




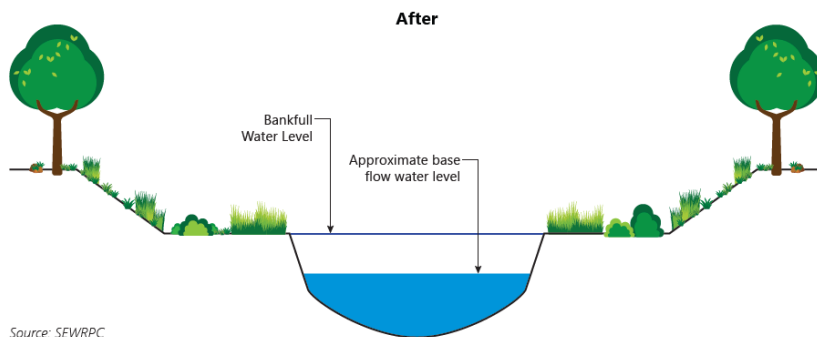
# Reconnect Stream to Floodplain



Re-Establish Connections Between Streams, Floodplains, and Adjacent Wetlands



Disconnected from Floodplain



Connected Floodplain

Source: SEWRPC



From Oak Creek Watershed Restoration Plan— Map 6.32



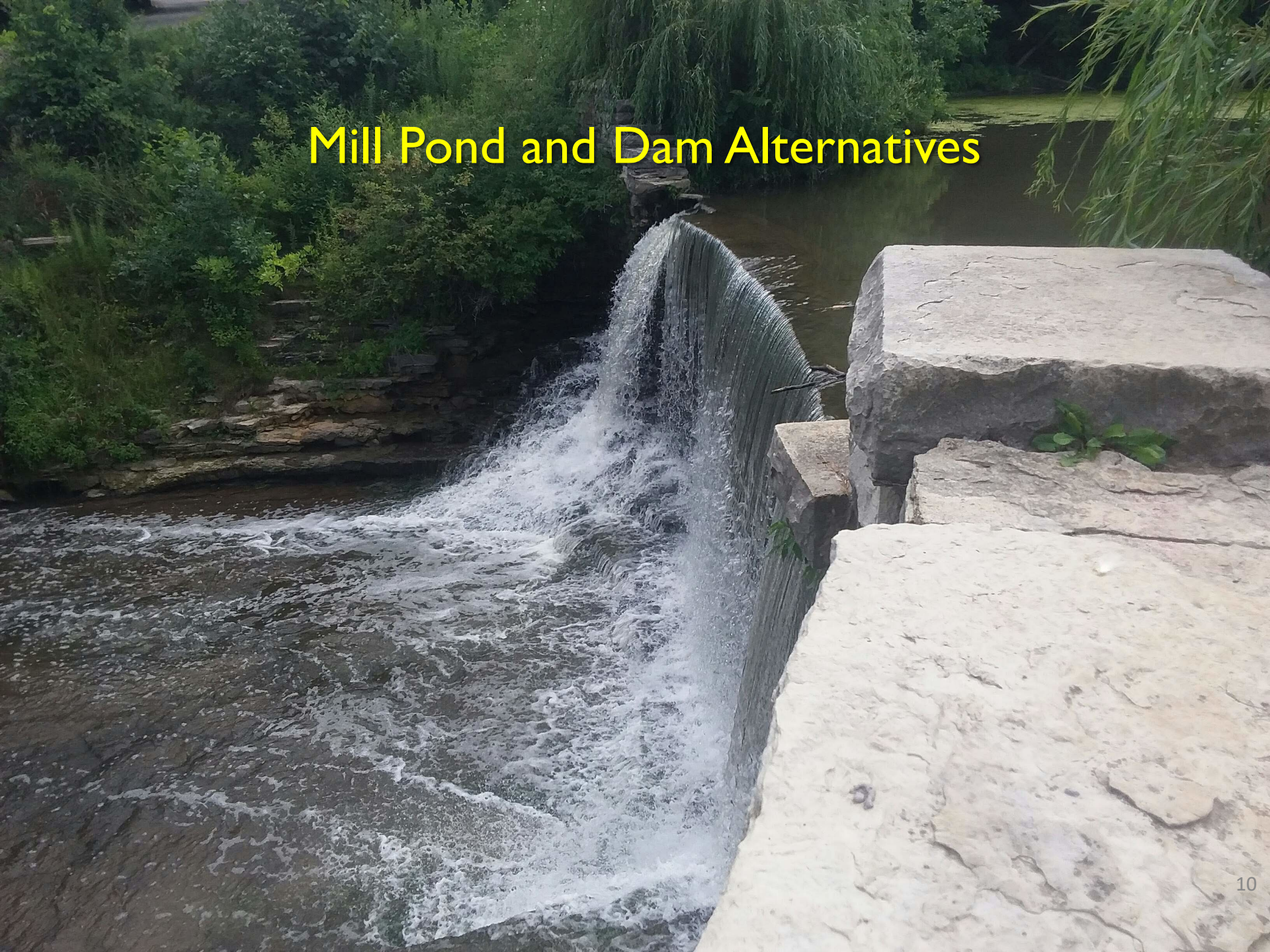
AREAS TO CONSIDER PROJECTS THAT RE-ESTABLISH A FUNCTIONAL FLOODPLAIN, RESTORE WETLANDS, AND RE-ESTABLISH HYDROLOGIC CONNECTION BETWEEN STREAMS AND WETLAND COMPLEXES



STREAM REACHES TO CONSIDER PROJECTS TO IMPROVE FLOODPLAIN CONNECTION SUCH AS TWO-STAGE CHANNEL DESIGN, REMOVING OR BREAKING SPOIL PILES OR BERMS, OR REGRADING CHANNEL BANKS

From Oak Creek Watershed Restoration Plan— Figure 6.9

# Mill Pond and Dam Alternatives





## Issues at Mill Pond and dam



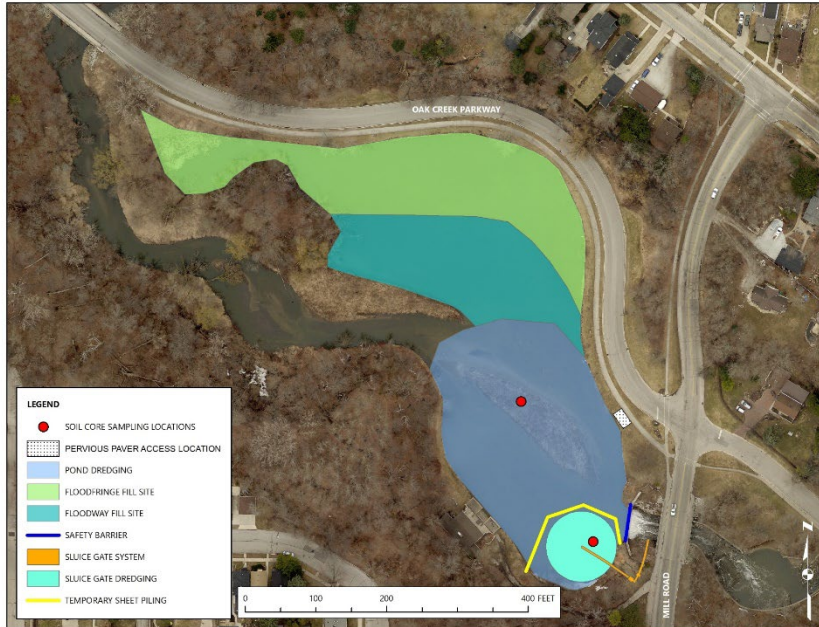
- The sluice gate for dam maintenance is inoperable
- Sediment accumulation in the Mill Pond has become excessive, creating islands in the pond and very shallow water depths that have adversely impacted water quality, habitat, aquatic species, and recreation
- The dam is a full barrier to fish and native aquatic organism passage between Lake Michigan and the upstream Oak Creek watershed
- Not designed for flood control – Parkway flooding



# Summary of Mill Pond and Dam Alternatives



- Alternative 1 – Sluice Gate Repair
- Optional – Emergency Spillway and Abutment Extension
- Alternative 2 – Partial Pond Restoration (2)
- Alternative 3 – Full Pond Restoration
- Alternative 4 – Bypass Channel, Dam Lowering, and Pond Restoration
- Alternative 5 – Dam Removal and Channel Restoration (3)



Alternative 2B – partial with fill

Alternative 3 - full





# Alternative 5 - Dam Removal and Stream Restoration





# Mill Pond Alternative Evaluation



- Total present worth costs (2019)
- Construction and maintenance for 50 years
  - Sluice gate repair only \$542,000 (Alt 1)
  - Dam remains and pond restored (Alts 2-4)
    - \$4.3M - \$12.4M (Maintenance \$2.6M-\$5.5M)
  - Dam removed and stream restored (Alt 5)
    - \$4.8M - \$11.9M (Maintenance \$61,000)
- Alternatives also evaluated for flooding, environmental, and recreational impacts



## Table 6.Mill-2: Cost Estimates by Alternative

Alternative	Construction Cost with 35% Contingency	Future Maintenance Costs (Converted to Present Worth) <sup>2</sup>	Total Present Worth Cost (2019 dollars)
Alternative 1: Sluice Gate Repair	\$329,000 <sup>1</sup>	\$199,000	\$542,000 <sup>1</sup>
Alternative 2A: Partial Pond Restoration	\$2,202,000 <sup>1</sup>	\$3,125,000	\$5,351,000 <sup>1</sup>
Alternative 2B: Partial Pond Restoration with Fill	\$1,147,000 <sup>1</sup>	\$3,144,000	\$4,315,000 <sup>1</sup>
Alternative 3: Full Pond Restoration	\$6,897,000 <sup>1</sup>	\$5,464,000	\$12,410,000 <sup>1</sup>
Alternative 4: Bypass Channel, Dam Lowering, and Pond Restoration	\$7,658,000	\$2,624,000	\$10,331,000
Alternative 5A: Dam Removal and Channel Restoration – Large Floodplain (Full Haul)	\$11,816,000	\$61,000	\$11,926,000
Alternative 5B: Dam Removal and Channel Restoration – Large Floodplain (Partial Haul, Partial Sediment Discharge)	\$7,796,000	\$61,000	\$7,906,000
Alternative 5C: Dam Removal and Channel Restoration – Small Floodplain Habitat (Partial Haul, Partial Sediment Discharge)	\$4,662,000	\$61,000	\$4,772,000

<sup>1</sup> Optional emergency spillway and abutment extension add \$736,000 to these costs.

<sup>2</sup> Future dam inspection and dredging is over a 50-year period. Future vegetative maintenance is over a 5-year period.

2





# Recommendations for Mill Pond and Dam

- Recommended action:
  - Sediment core sampling to assess level of contamination (est. \$49,000)
- Potential additional actions:
  - Sediment transport analysis to better estimate sediment deposition rates in the pond (est. \$10,000-\$70,000)
  - Sluice gate repair if it is determined that dam removal will not be pursued (\$542,000)





# Sediment Core Depths





## Major Recreational Recommendations



- Pursue Land Acquisition for Increased Recreational Opportunities
- Expand Trail System and improve its connections to Trails within and Adjacent to the Watershed
- Provide Educational Signage Along Trails and within Parks and Parkway
- Improve Fishing Access Along the Mainstem of Oak Creek
- Improve accessibility of Recreational Facilities to persons with disabilities



# Plan Implementation



- Recommend that local units of government adopt the plan
- Identify organizations that may have a role in implementation
  - Local governments
  - Federal, State, regional, and local agencies
  - Nongovernmental
- Discuss maintaining and revising the plan
  - Nine key element plans have expiration dates
  - The plan will need to be updated and reapproved in the future
- Schedule – full implementation over 30 or more years



## Plan Implementation (Cont.)



- Plan Costs:
  - 290 of 405 Projects Costed Out
  - Overall, \$204-216 Million
- Potential Funding Programs:
  - Extensive List and Descriptions of Programs
  - Helps with Project Costs
  - Funding Programs Screened for Recommended Projects



# Questions



Document and presentations on SEWRPC website

[www.sewrpc.org/OakCreekWRP](http://www.sewrpc.org/OakCreekWRP)

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