

Metropolitan Water Reclamation District of Greater Chicago

Welcome to the November Edition of the 2022 M&R Seminar Series

NOTES FOR SEMINAR ATTENDEES

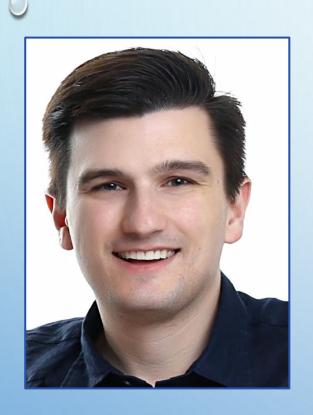
- Remote attendees' audio lines have been muted to minimize background noise. For attendees in the auditorium, please silence your phones.
- A question and answer session will follow the presentation.
- For remote attendees, Please use the "<u>Chat</u>" feature to ask a question via text to "<u>Host</u>". For attendees in the auditorium, please raise your hand and wait for the microphone to ask a verbal question.
- The presentation slides will be posted on the MWRD website after the seminar.
- This seminar is pending approval by the ISPE for one PDH and pending approval by the IEPA for one TCH. Certificates will only be issued to participants who attend the entire presentation.

Gregory Koch, P.E., Principal Civil Engineer Metropolitan Water Reclamation District of Greater Chicago



Greg Koch is a Principal Civil Engineer in the District's Plant Design Management Section. He received a Bachelor of Science and Master of Science in Civil and Environmental Engineering from the University of Illinois at Urbana-Champaign and a Juris Doctor from the Chicago-Kent College of Law. He has been with the District for over 17 years, including 10 years in the Stormwater Management Section managing flood control and streambank stabilization projects. Prior to joining the District, Greg worked as a consulting engineer for seven years.

Justin Kirk, Principal Civil Engineer, P.E., CFM Metropolitan Water Reclamation District of Greater Chicago



Justin Kirk began his career at MWRD in 2008 working in the Engineering Department's Tunnel and Reservoir Plan Section and currently serves as a Principal Civil Engineer in its Stormwater Management Section. Justin has acted as project manager on numerous flood control and streambank stabilization projects throughout Cook County including Tinley Creek in Crestwood, Cherry Creek in Flossmoor and Arrowhead Lake in Palos Heights. Justin's experience includes balancing interests of multiple stakeholders, including municipalities, private landowners, special interest districts and regulatory agencies to create comprehensive multi-use projects. Justin received a Bachelor of Science in Civil Engineering from the Illinois Institute of Technology and Master of Science in Project Management from Northwestern University.

Michael Cosme, P.E., CFM, Senior Civil Engineer Metropolitan Water Reclamation District of Greater Chicago



Mick Cosme joined the Metropolitan Water Reclamation District of Greater Chicago in 2001 and has more than 21 years of civil engineering experience. His project experience includes construction management and stormwater management. He currently is the project manager for the Addison Creek Reservoir and Channel Improvement projects and is involved in various stormwater management related activities at the MWRDGC. Mr. Cosme obtained his Bachelor of Science in Civil Engineering from the University of Illinois Urbana-Champaign.

Flood Reduction from Metropolitan Water Reclamation District of Greater Chicago Regional Stormwater Projects

November 18, 2022









OUTLINE

- Overview of the MWRDGC Stormwater Management Program
- Regional Stormwater Projects
- Buffalo Creek Reservoir Expansion
- Addison Creek Reservoir and Channel Improvements



STORMWATER MANAGEMENT TIMELINE

Regional Stormwater Projects

Identified from the DWPs to address overbank flooding "riverine flooding"

Local Stormwater Partnership Projects

Working with local communities and agencies to address local drainage problems.

Stormwater Masterplans

Investigate "urban flooding" issues, green & gray infrastructure solutions.

Green Infrastructure Projects

Partnerships addressing flooding and water quality issues using green practices that mimic the natural water cycle

2004

The authority for general supervision of stormwater management in Cook County was conveyed to the District by the Illinois State legislature.

2011

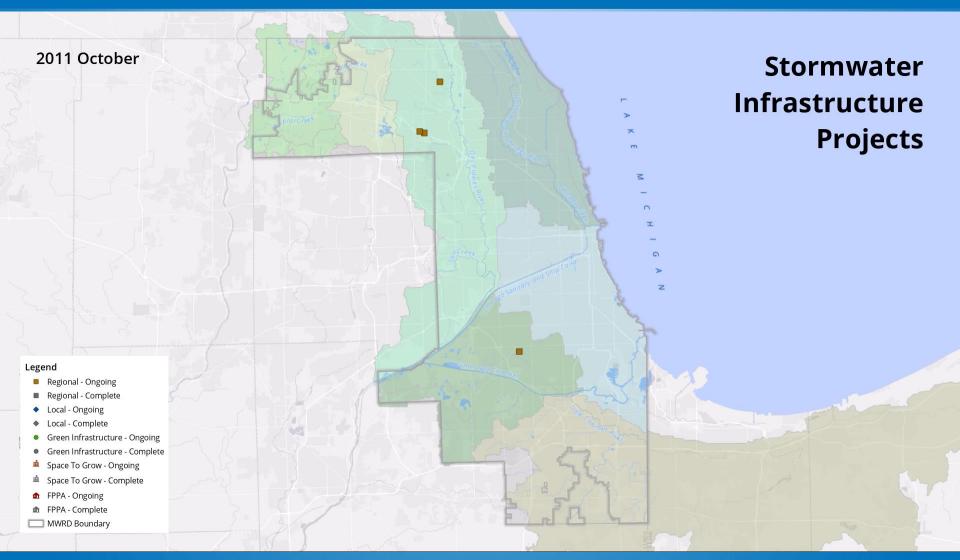
2014 2015 2016

2021 2022

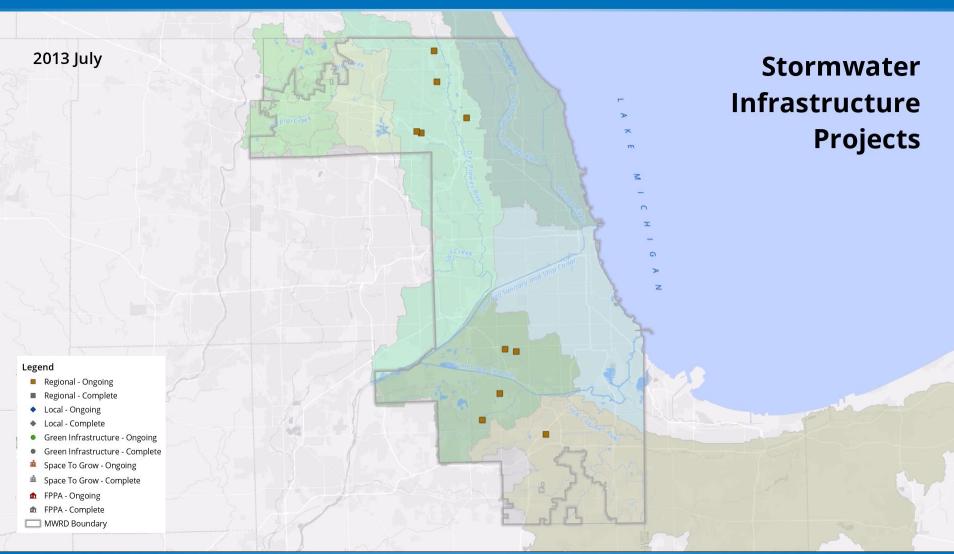
District's authority was amended to allow for flood-prone property acquisition and to plan, implement, finance, and operate local stormwater management projects.

Detail Watershed Plans (DWPs) completed for the 6 major watersheds of Cook County:
Cal-Sag Channel, Little Calumet River, Lower Des
Plaines, North Branch of the Chicago River, Poplar
Creek, and Upper Salt Creek.

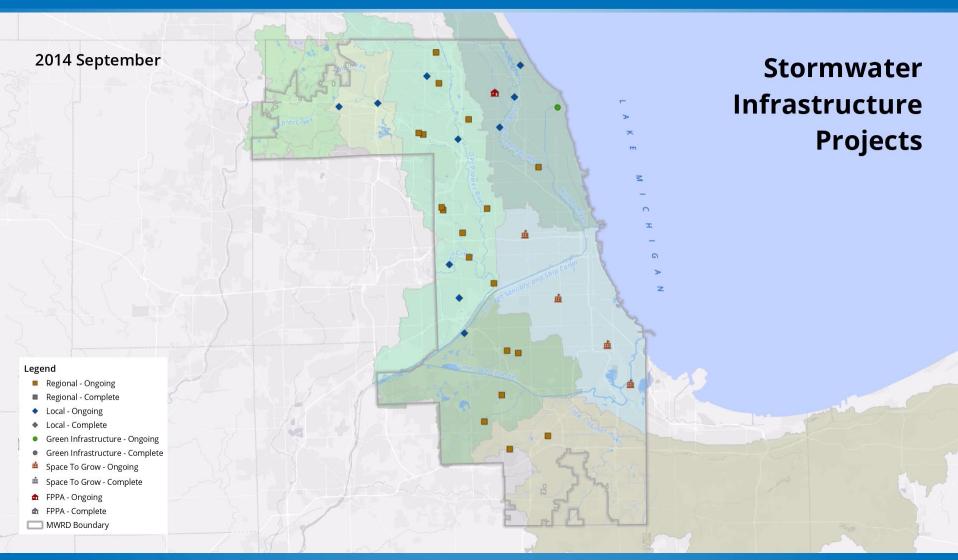




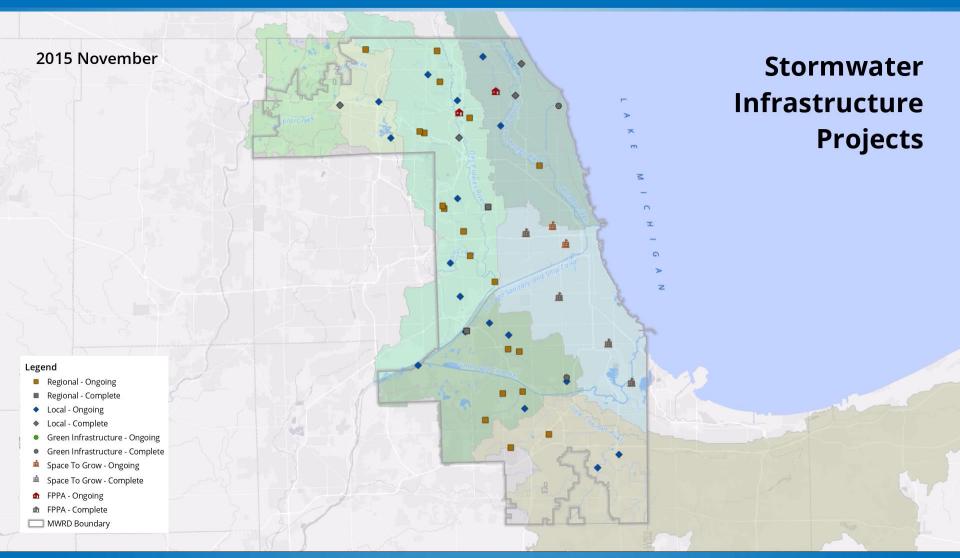




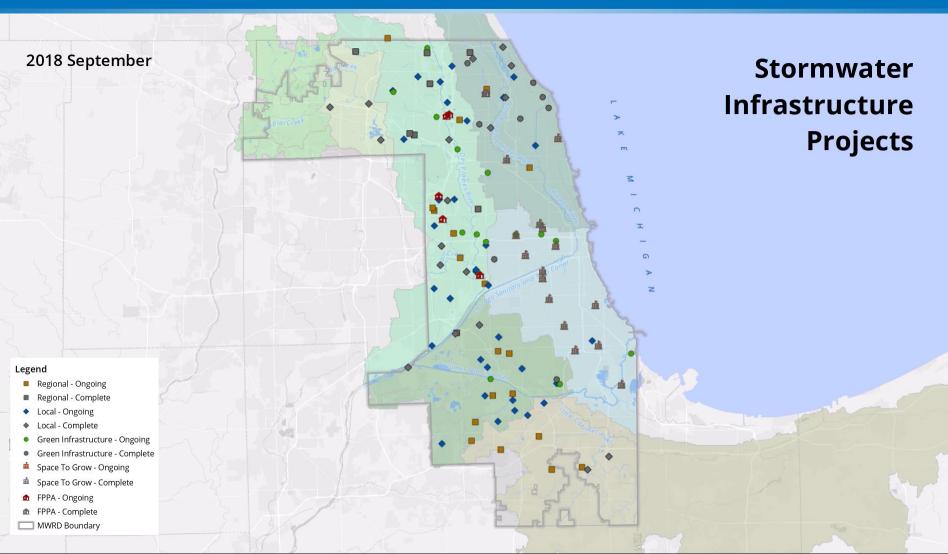




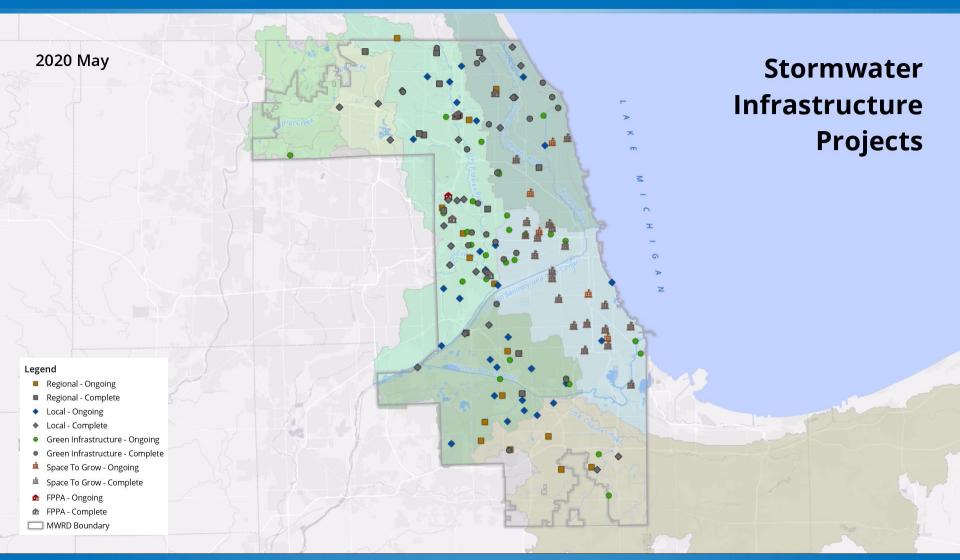




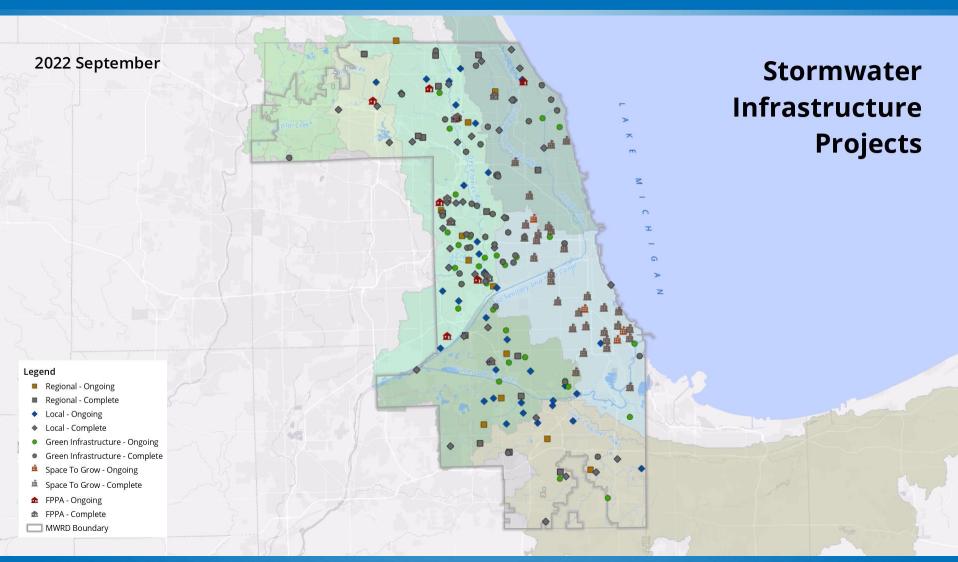














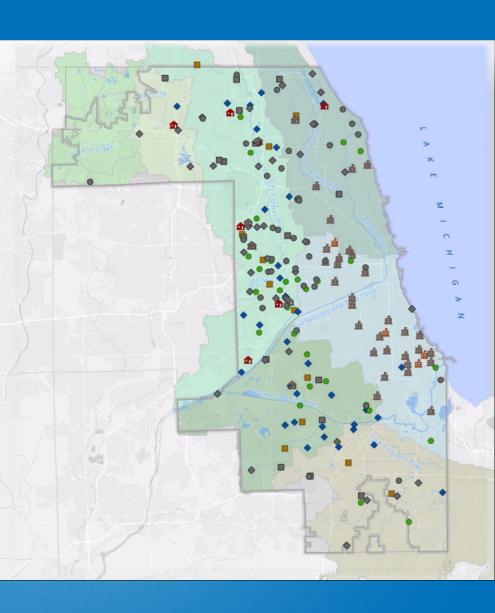
Stormwater Partnership Projects

Stormwater	Program	to-date
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Program Component	Current Number of Projects	Structures Protected / Removed	Construction / Acquisition Cost (\$Millions)	MWRD Cost (\$Millions)
Regional Stormwater Projects (Phase I)	27	4,423	\$369	\$315
Local Stormwater Partnership Projects (Phase II)	67	>7,000	\$206	\$109
Green Infrastructure Projects	119*	5,382	\$114	\$35
Flood Prone Property Acquisitions	16	220	\$69	\$47
Totals	229	>17,000	\$758	\$506

^{*}Includes all 34 Space to Grow projects to be completed by 2022.

See https://mwrd.org/stormwater-management for more info







REGIONAL STORMWATER MANAGEMENT PROJECT HIGHLIGHTS

Heritage Park Flood Control Facility in Wheeling (2015)

Elmwood Park Floodwall (2015)

Upper Salt Creek Flood Control Project in Palatine (2016)

Tinley Creek Flood Control Project in Crestwood (2016)

Albany Park Diversion Tunnel (2018)

Melvina Ditch Reservoir Expansion (2020)

Cherry Creek Flood Control Project in Flossmoor (2020)

Buffalo Creek Reservoir Expansion (2021)

Lake Arrowhead Flood Control Project in Palos Heights (2022)

Calumet Union Drainage Ditch in Markham (2022)

Addison Creek Reservoir (2023) & Channel Improvements (2025)

Farmers & Prairie Creeks Flood Control Project (2025)



REGIONAL STORMWATER MANAGEMENT PROJECTS



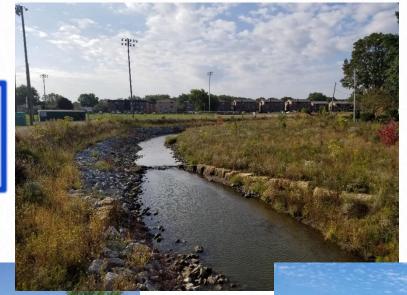






REGIONAL STORMWATER MANAGEMENT PROJECTS

Tinley Creek Flood
Control Project in
Crestwood







REGIONAL STORMWATER MANAGEMENT PROJECTS





KEY STEPS FOR REGIONAL STORMWATER MANAGEMENT PROJECTS

- DWP / Preliminary Design
- Intergovernmental Agreements
- Final Design
- ROW Easements, Property Acquisition
- Permits USACE, IDNR, IEPA, SWCD
- Utility Coordination
- Construction
- Startup / Vegetation Establishment
- Flood Map Revisions



BUFFALO CREEK RESERVOIR EXPANSION





BUFFALO CREEK RESERVOIR 1982-1988



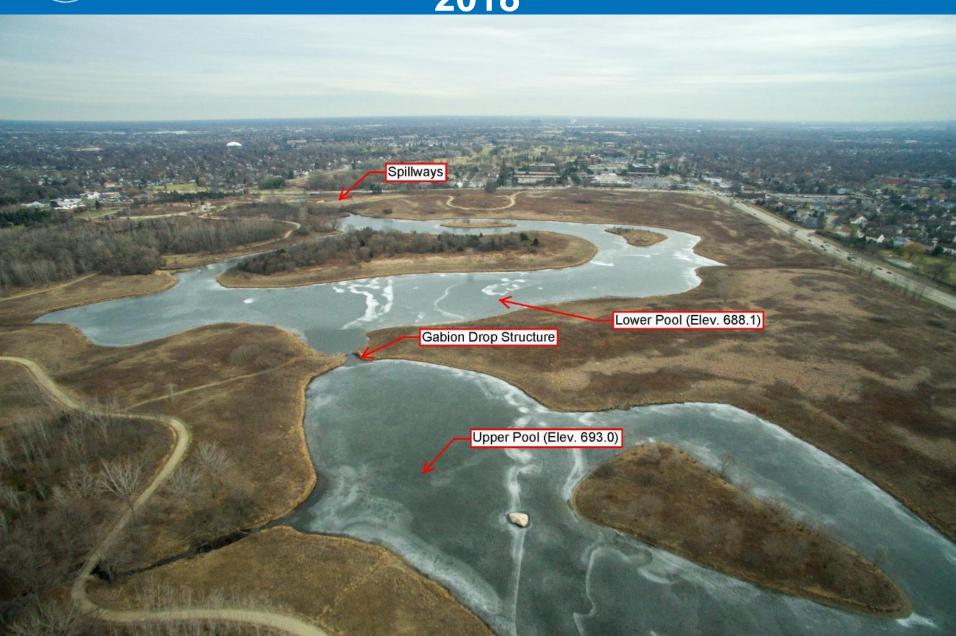


BUFFALO CREEK RESERVOIR 1988-2018





BUFFALO CREEK RESERVOIR 1988-2018





PLANS FOR EXPANSION







METROPOLITAN WATER RECLAMATION
DISTRICT OF GREATER CHICAGO

PROPERTY OWNER:



PREPARED BY: Hey and Associates, Inc.

	Final Configuration	Existing Continuous	INCREASE
FLOOD VOLUME AT ELEVATION 702;	935.8 ACRE-FEET	755.1 ACRE-FEET	180.7 Acre-Feet
OPEN WATER AREA:	40.1 Acres	33.8 Acres	6,3 Acres
EMERGENT ZONE AREA:	4,5 Acres		4,5 Acres
WEITAND AREA:	14.8 Acres	14.1 Acres	0.7 Acres
TRAIL (EAST OF SCHAEFFER RD);	2,8 Miles	1.7 Miles	1,1 MnEs
TRAIL (WEST OF SCHAFFER RD);	1.97 Miles	1.8 MILES	0.17 Mnzs







STAKEHOLDERS AND PERMITTING





















US Army Corps of Engineers ® Chicago District



BIDDING AND AWARD

- Contract was advertised on November 1, 2017. Six bids were submitted ranging from \$9.7M to \$16.2M
- Contract was awarded to Lake County Grading Company on February 15, 2018 for \$9,678,900.00
- Contract duration is 2,557 days which allows for 2 years of reservoir construction and concurrent 3-year (general restoration) and 5-year (stream mitigation) monitoring and management periods





DEWATERING FOR CONSTRUCTION









DEWATERING FOR CONSTRUCTION









RESERVOIR EXPANSION





RESERVOIR EXPANSION

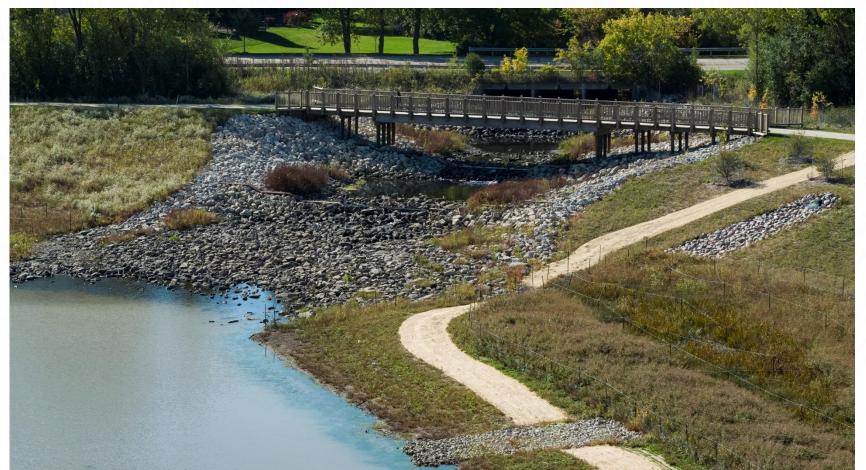
 Spoil material from reservoir construction used to create hills (6 to 25 feet high) that were planted with native prairie seed





CHANNEL STABILIZATION

- Stone grade control structure at West Unnamed Tributary
- Installation of sheet pile and riprap grade control structure on Tributary A





WETLAND AND STREAM MITIGATION

- Construction of the project necessitated unavoidable impacts to 2.70 acres of wetland and 339 feet of tributary stream channel under USACE jurisdiction
- MWRD and LCFPD entered into separate IGA for LCFPD to perform offsite wetland mitigation at Captain Daniel Wright Woods Forest Preserve
- Stream Mitigation consisting of selective clearing, grading banks, riffle enhancements, and native vegetation completed on 400 feet of the Main Stem and 1,200 feet of the West Unnamed Tributary





NATURAL AREA IMPROVEMENTS

 Site restored with native prairie, terraced wetlands, and a naturalized shoreline





NATURAL AREA IMPROVEMENTS





NATURAL AREA IMPROVEMENTS

850 native trees and 200 native shrubs planted on site





PUBLIC ACCESS IMPROVEMENTS

- 7 timber bridges/boardwalks
- 29 space parking lot expansion
- 2 pedestrian overlooks

- Over 2 miles of new or reconstructed trails
- 2 new benches





MONITORING & MANAGEMENT

- 3 years: Non-mitigation (BMPs, buffers, etc.) areas
- 5 years: On-site (stream) mitigation areas



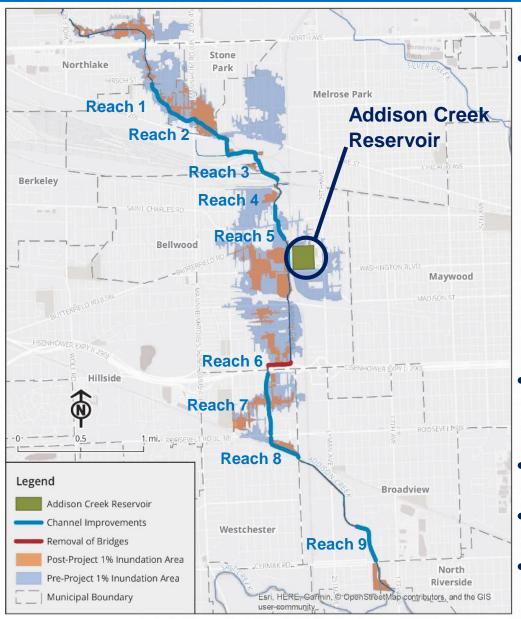


Metropolitan Water Reclamation District of Greater Chicago





ADDISON CREEK RESERVOIR & CHANNEL IMPROVEMENTS



- Protects 2,200 Structures
 - Northlake
 - Stone Park
 - Melrose Park
 - Bellwood
 - Westchester
 - Broadview
- 1,700 Structures Removed from the Floodplain
- \$116 Million in Flood Benefits
- Reservoir Stores 195 MG
- 3 Miles of Channel Improvements







Northlake – E. Hirsh St.

Historic Crests for Addison Creek at USGS Gauge in Bellwood, Illinois

(1) 13.57 ft on 07/24/2010

(2) 13.16 ft on 04/18/2013

(3) 12.84 ft on 08/14/1987

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(11) 9.86 ft on 08/16/1997

(12) 9.19 ft on 05/27/2019

(13) 8.97 ft on 10/13/2001

(14) 8.83 ft on 05/15/2020

Flood Categories (in feet)

Major Flood Stage: 12

Moderate Flood Stage: 1
Flood Stage: 9

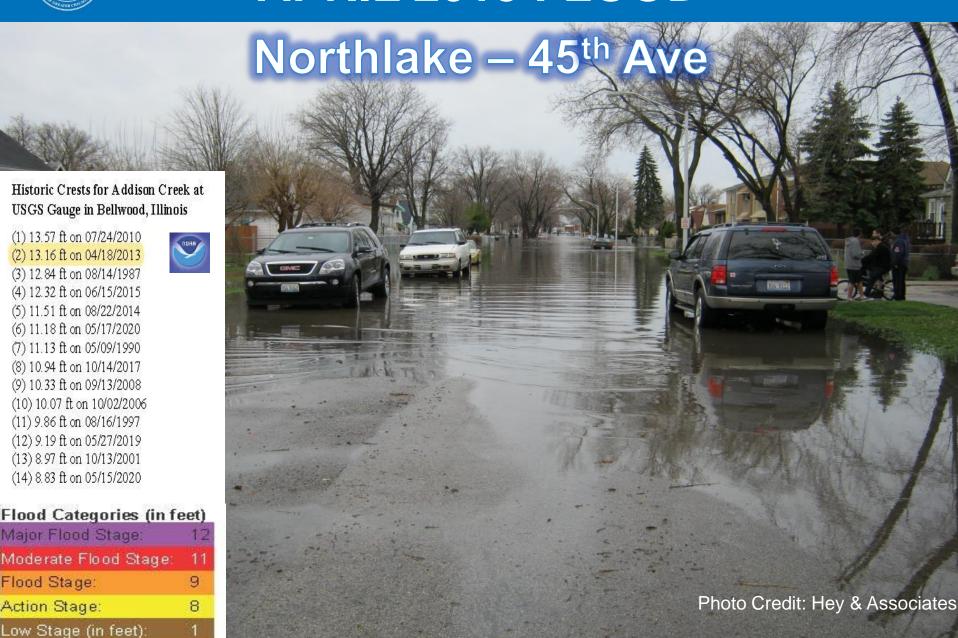
Action Stage: 8

Low Stage (in feet):













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(14) 8.83 ft on 05/15/2020

Flood Categories (in feet)

Major Flood Stage:

Moderate Flood Stage: 11

Flood Stage: 9

Action Stage: 8

Low Stage (in feet):







Stone Park – 40th Ave

Historic Crests for Addison Creek at USGS Gauge in Bellwood, Illinois

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Flood Categories (in feet)

Major Flood Stage: 1

Moderate Flood Stage: 11

Flood Stage: 9

Action Stage: 8

Low Stage (in feet):





Stone Park - Lake Street

Historic Crests for Addison Creek at USGS Gauge in Bellwood, Illinois

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Flood Categories (in feet)

Major Flood Stage: 13

Moderate Flood Stage:

Flood Stage: 9

Action Stage:

Low Stage (in feet):



Photo Credit: Hey & Associates



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Flood Categories (in feet)

Major Flood Stage:

Moderate Flood Stage:

9 Flood Stage:

Action Stage:

Low Stage (in feet):

















Bellwood – Harrison Street

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Flood Categories (in feet)

Major Flood Stage:

Moderate Flood Stage:

9 Flood Stage:

Action Stage:

Low Stage (in feet):



















Westchester – Derby Lane

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Flood Categories (in feet)

Major Flood Stage:

Moderate Flood Stage:

9 Flood Stage:

Action Stage:

Low Stage (in feet):











DETAILED WATERSHED PLAN

Final Report

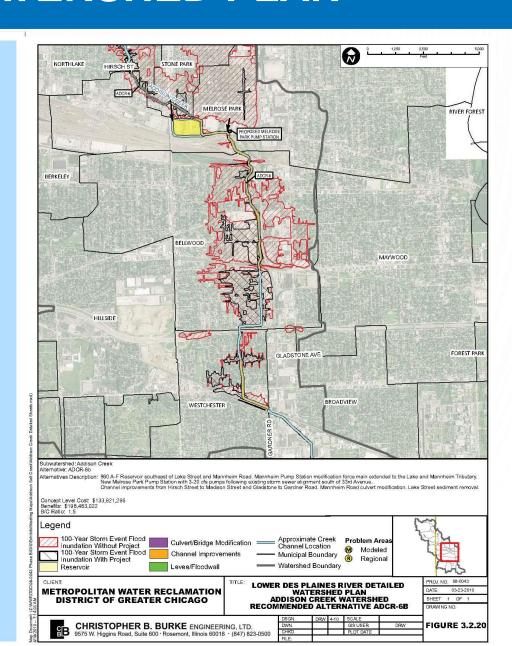
Detailed Watershed Plan for the Lower Des Plaines River Watershed: Volume 1

Prepared for

Metropolitan Water Reclamation District of Greater Chicago

February 28, 2011







PRELIMINARY DESIGN - MELROSE PARK SITE



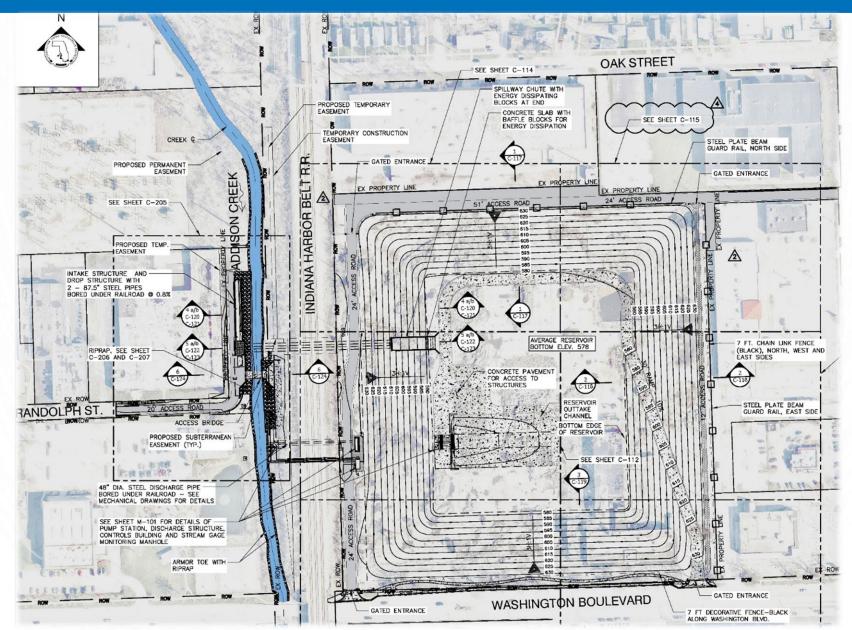


PRELIMINARY DESIGN - MELROSE PARK SITE





FINAL DESIGN - BELLWOOD SITE





STAKEHOLDERS AND CHALLENGES



Cuna







Nubani Brothers, LLC





EFN Bellwood Properties, LLC

MEMORIAL PARK DISTRICT

WHERE FUN IS SERIOUS BUSINESS













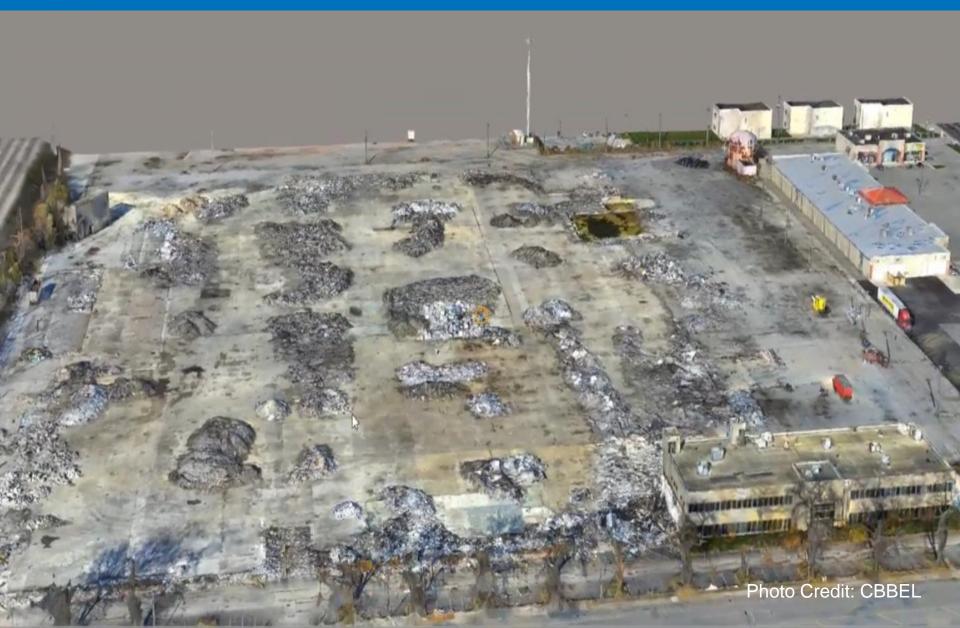
US Army Corps of Engineers ® Chicago District







REMOVAL OF PILES OF DEBRIS





REMOVAL OF THE DEBRIS PILE



- JOC Contractor: Meccor Industries Ltd
- Awarded:June 2017
- Completed:
 August 2017
- Cost: \$1.06 million

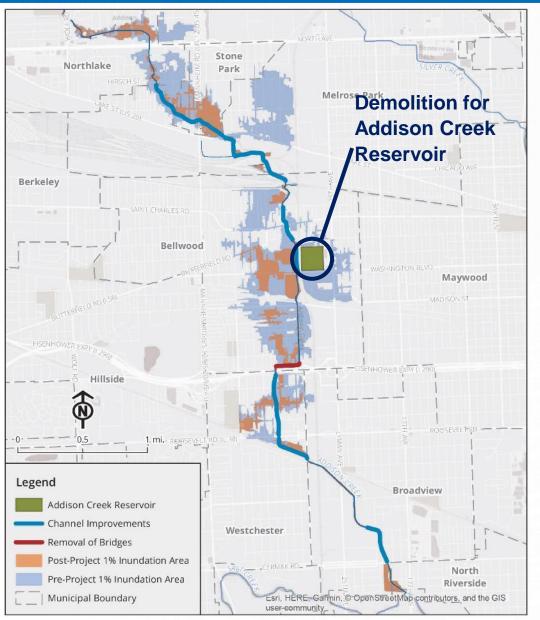


RELOCATIONS OF UTILITIES





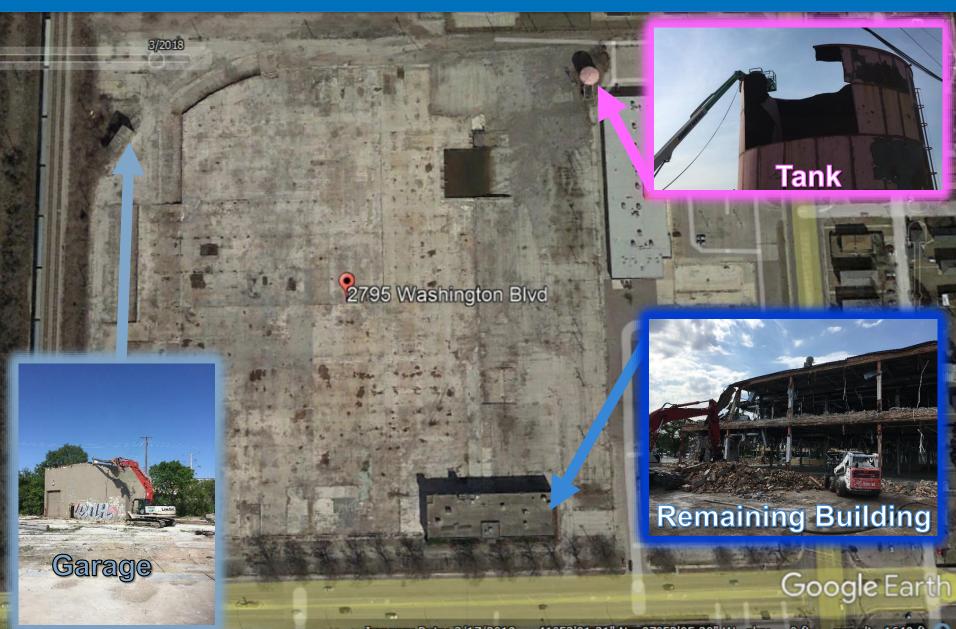
DEMOLITION FOR ADDISON CREEK RESERVOIR



- **Contract**: 11-186-AF
- Contractor:KLF Enterprises
- Awarded: March 2018
- Completed: May 2018 to July 2018
- Cost w/ CORs:App. \$274K

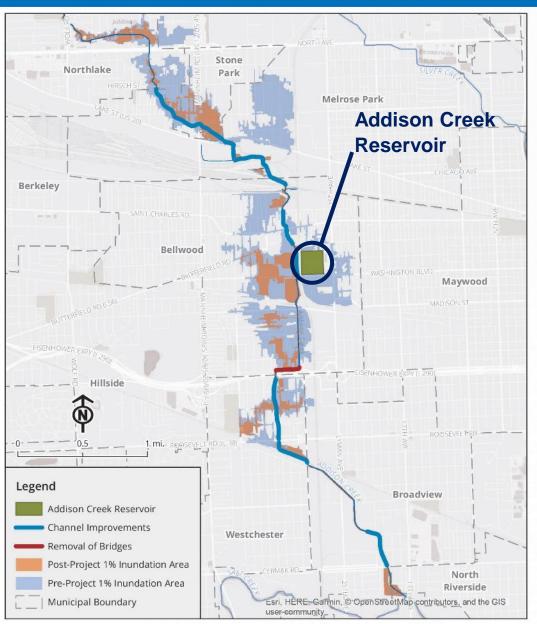


DEMOLITION CONTRACT

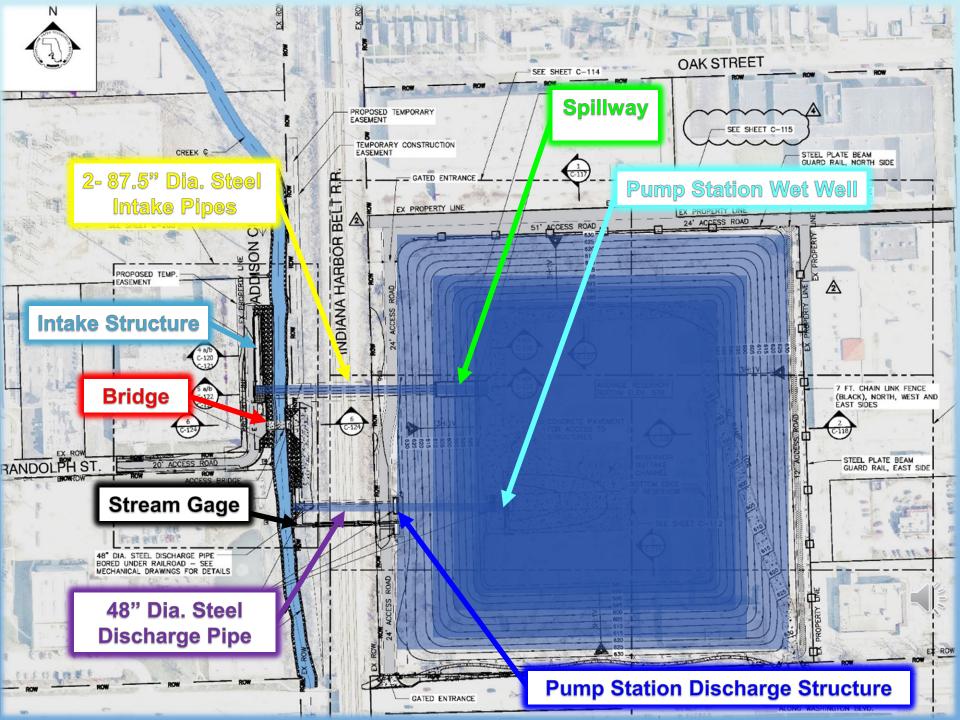




ADDISON CREEK RESERVOIR



- Contract: 11-186-3F
- Contractor:
 IHC Construction
- Award Date: January 2019
- Completion Date:
 Est. Summer 2023
- Award Value: \$63,280,000
- Current Value w/ CORs: \$81,291,388.93
- Reservoir Capacity:
 600 ac-ft or 195MG





SOIL BENTONITE CUT-OFF WALL





SOIL BENTONITE CUT-OFF WALL











= Rock Cores Already Completed

= New Rock Core Locations

Location	Distance (ft)	Workdays	Average Production (ft/day)
East Wall	920	6	153.33
South Wall	838	5	167.60
West Wall	917	8	114.63
North Wall	830	7	118.57
Total Length	3505 ft	26	134.81



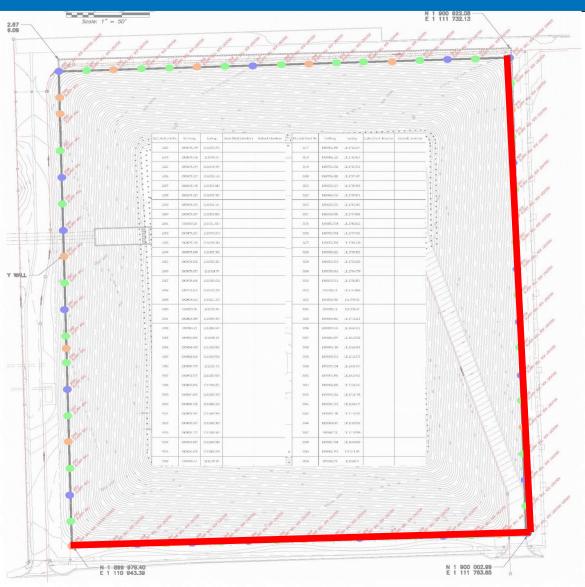


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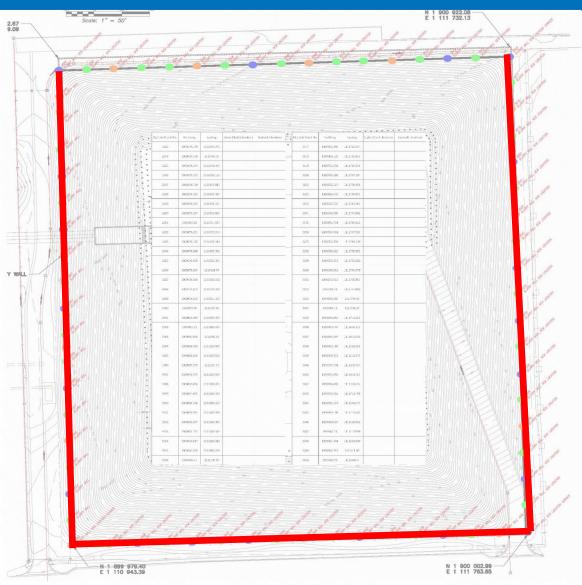


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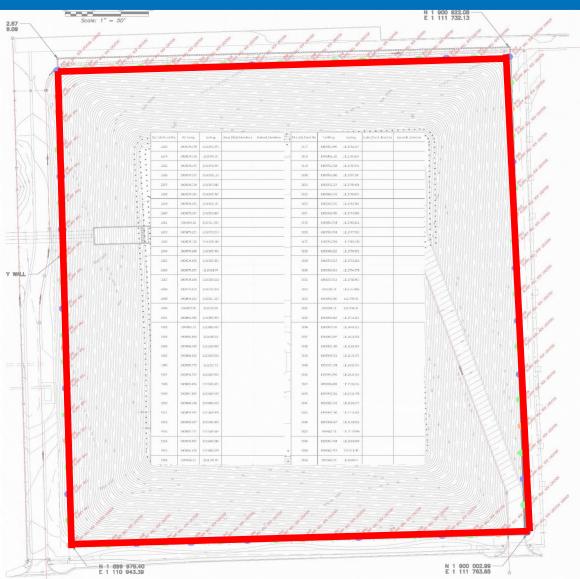


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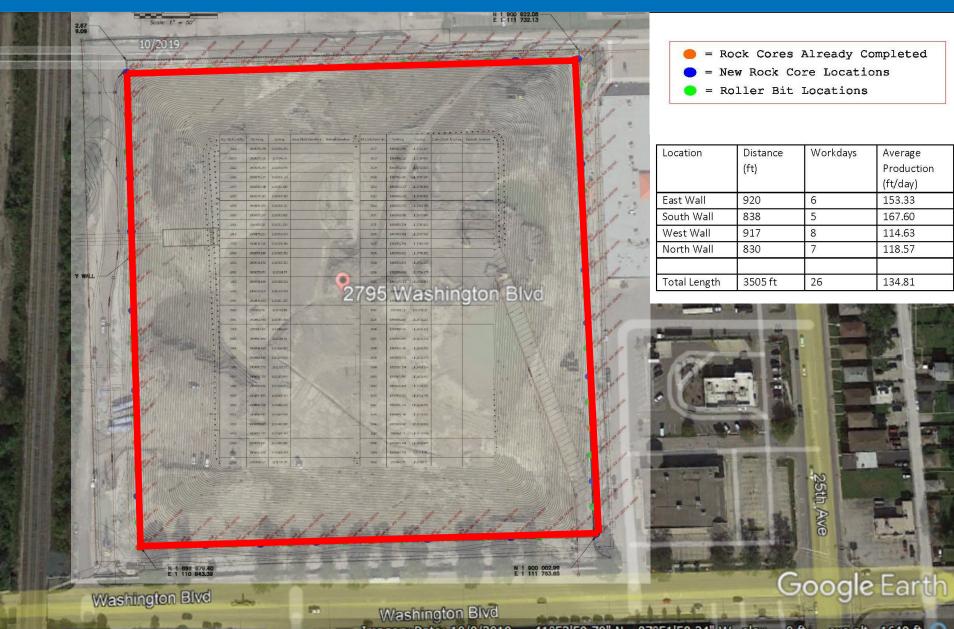


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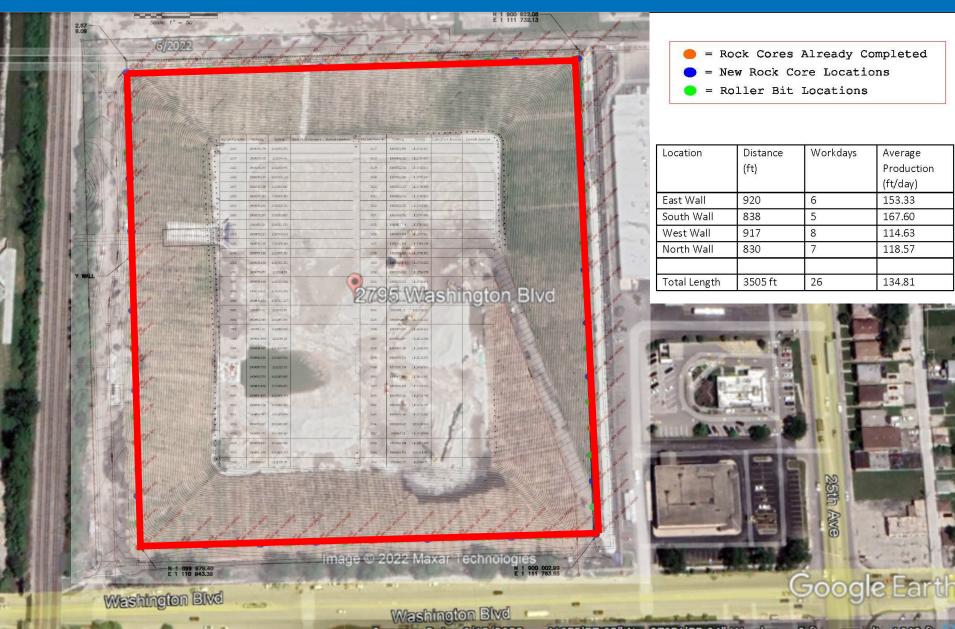
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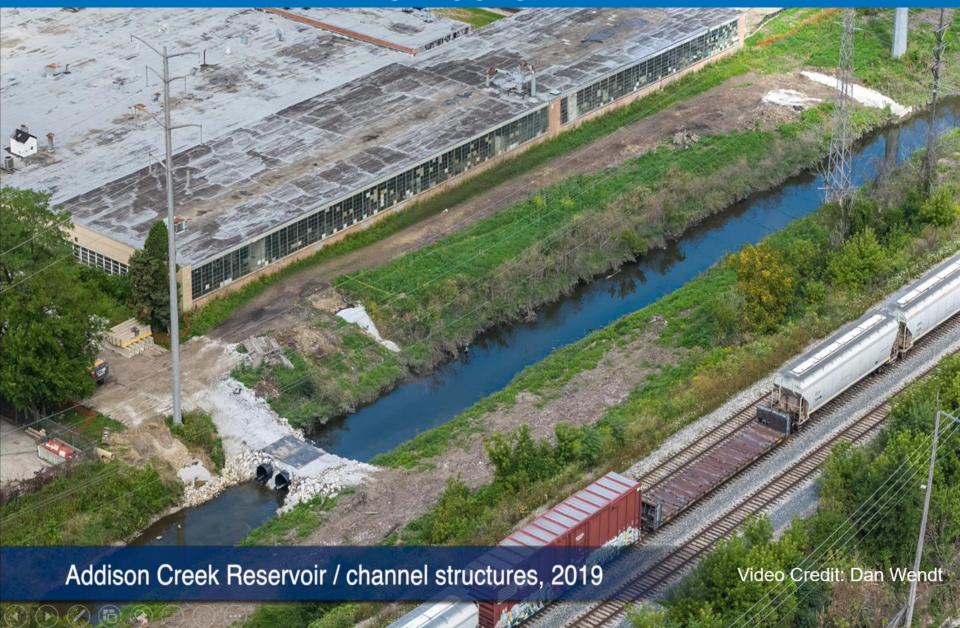






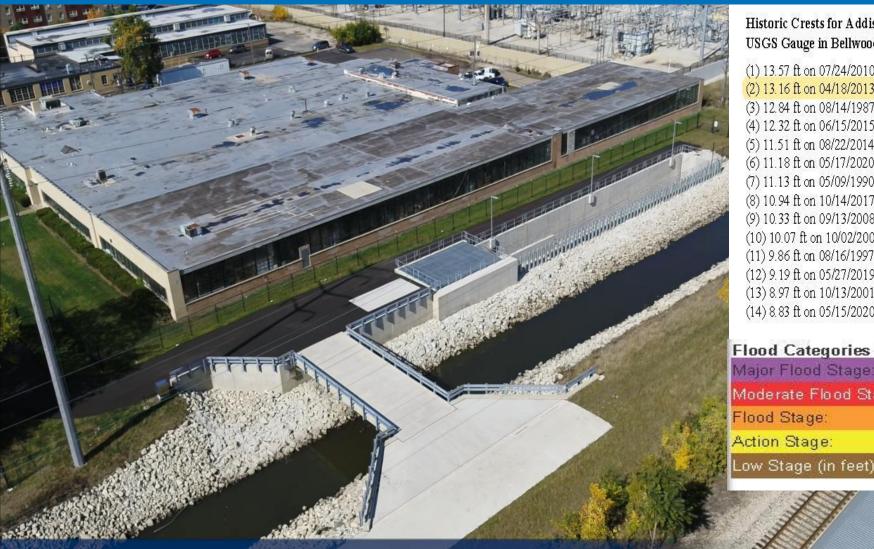


BRIDGE, INTAKE STRUCTURE, AND DROP STRUCTURE





BRIDGE, INTAKE STRUCTURE, AND DROP STRUCTURE



Historic Crests for Addison Creek at USGS Gauge in Bellwood, Illinois

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Flood Categories (in feet)

Moderate Flood Stage:

Flood Stage:

Action Stage:

Low Stage (in feet):

Addison Creek Reservoir / channel structures, 2022

Credit: Dan Wend

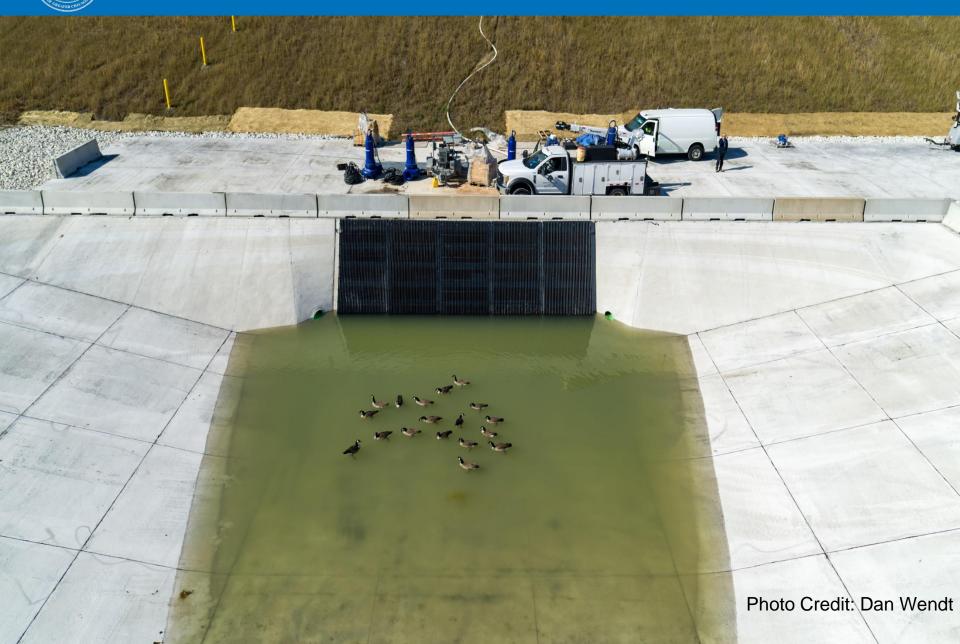


SPILLWAY



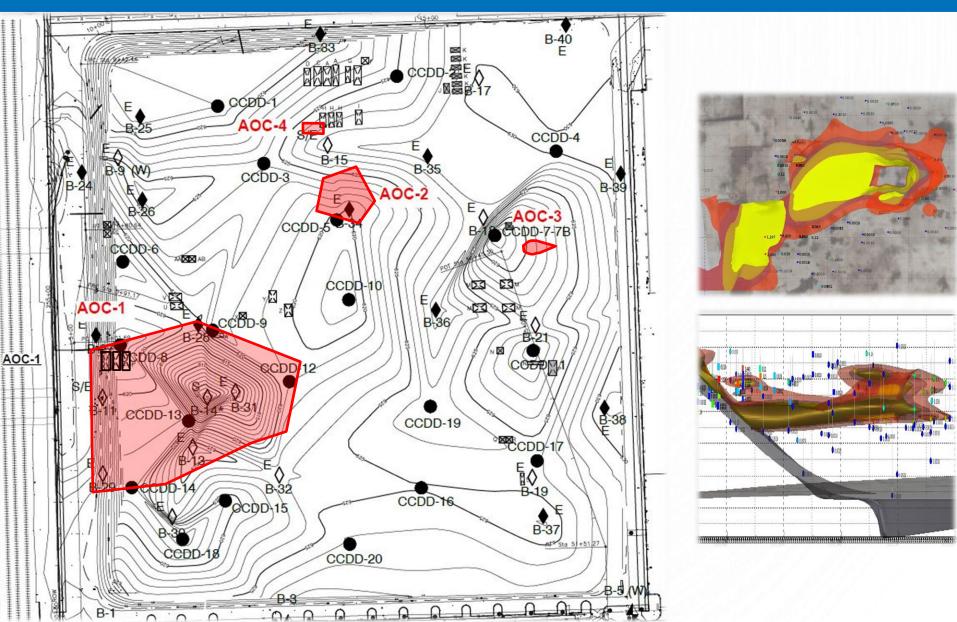


PUMP STATION



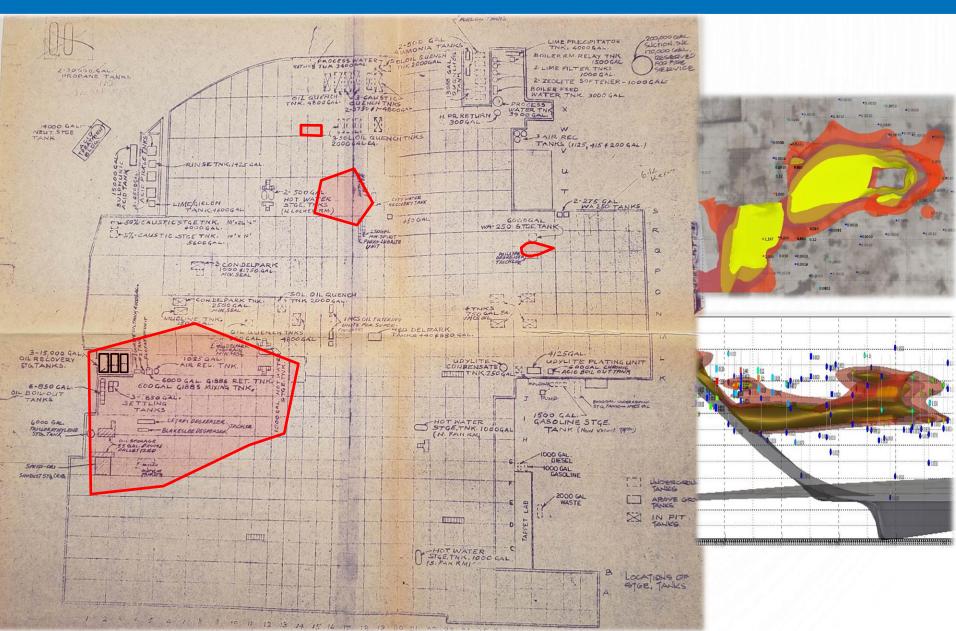


SOURCE CONTAMINATION





SOURCE CONTAMINATION



























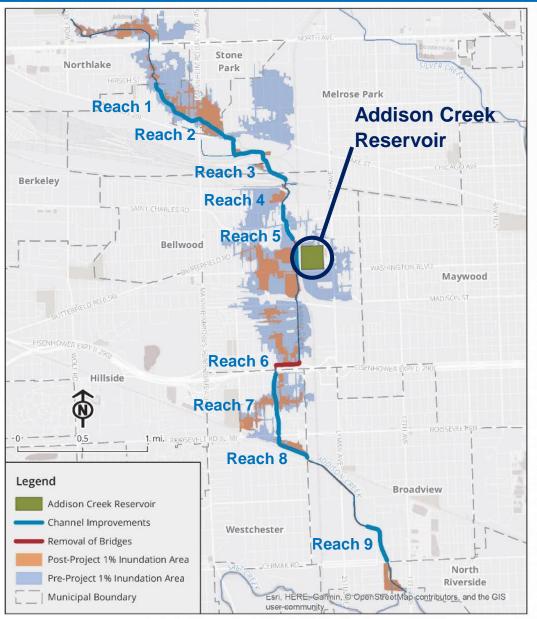








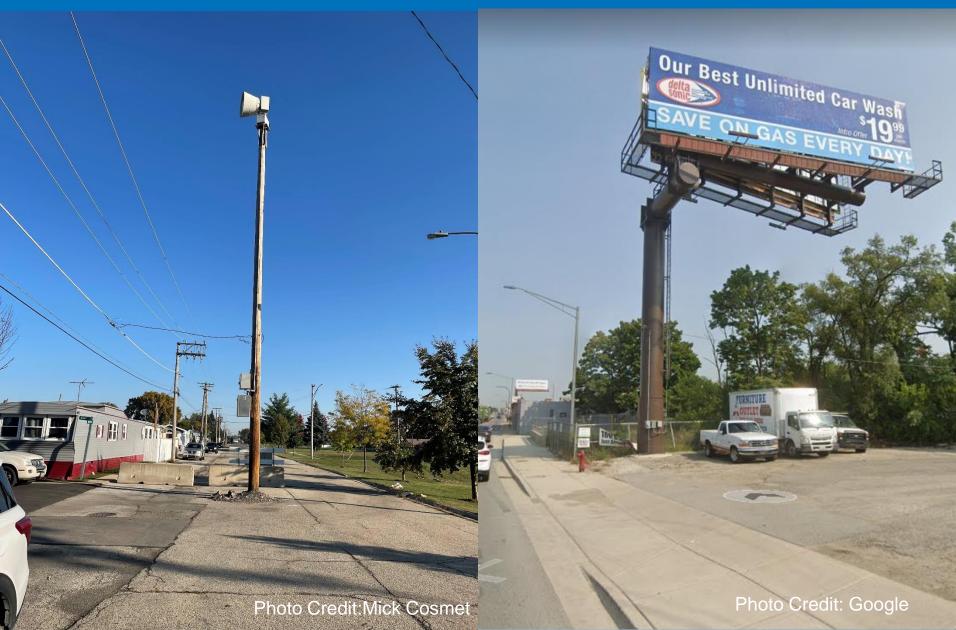
DEMOLITION FOR ADDISON CREEK CHANNEL IMPROVEMENTS



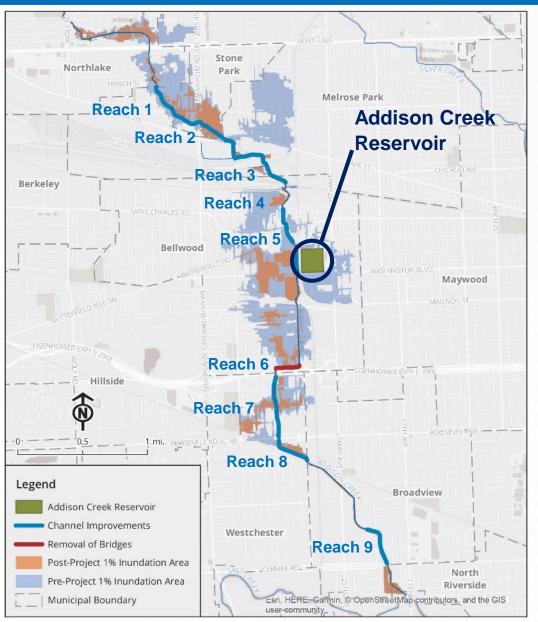
- Contract:
 - 11-187-AF
- Contractor:
 TBD- Currently Out for Bids
- Awarded: July 2021
- Completed: January 2022
- Cost: \$747,601
- Demo16 Residential Homes &13 Mobile Home Trailers



RELOCATION WARNING SIREN AND BILLBOARD







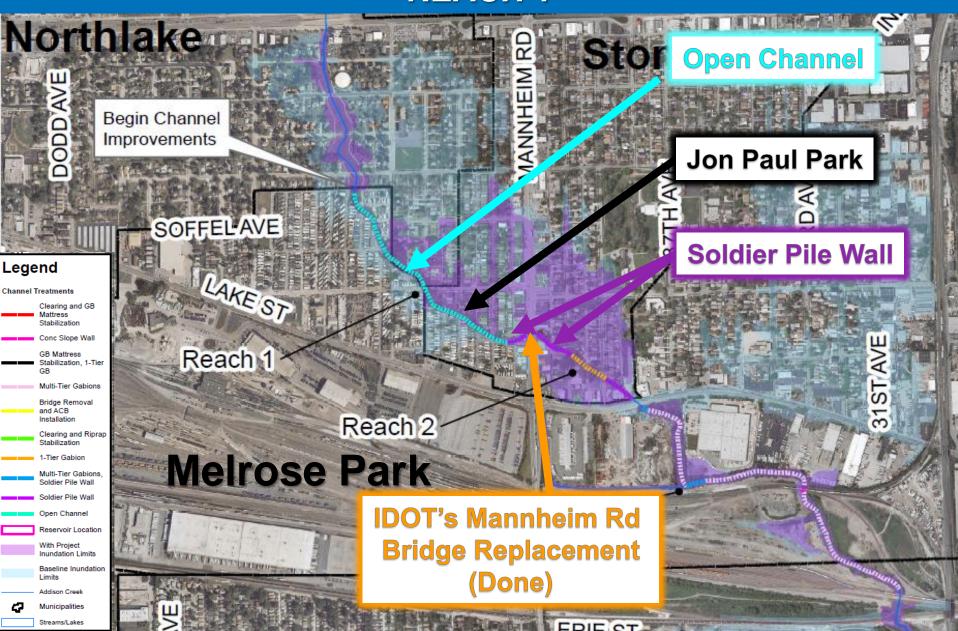
- Contractor:

 TBD- Currently Out for
 Bids
- Est Award Date: Spring 2023
- Est. Completion Date: Spring 2026
- Est. Value:

 Between \$57,133,000

 and \$69,161,000
- Channel Improvements:
 App. 3 miles

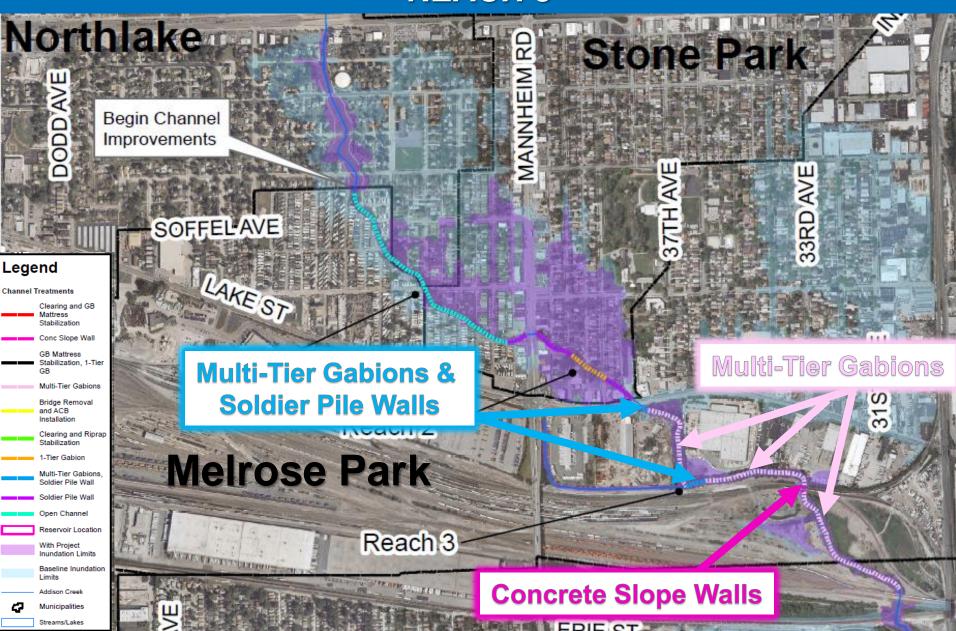




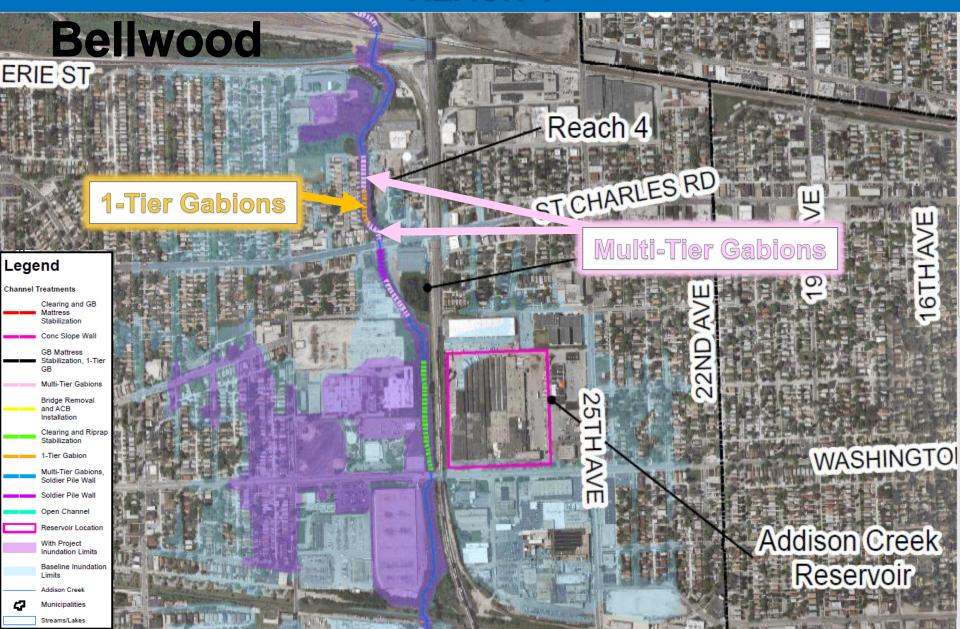




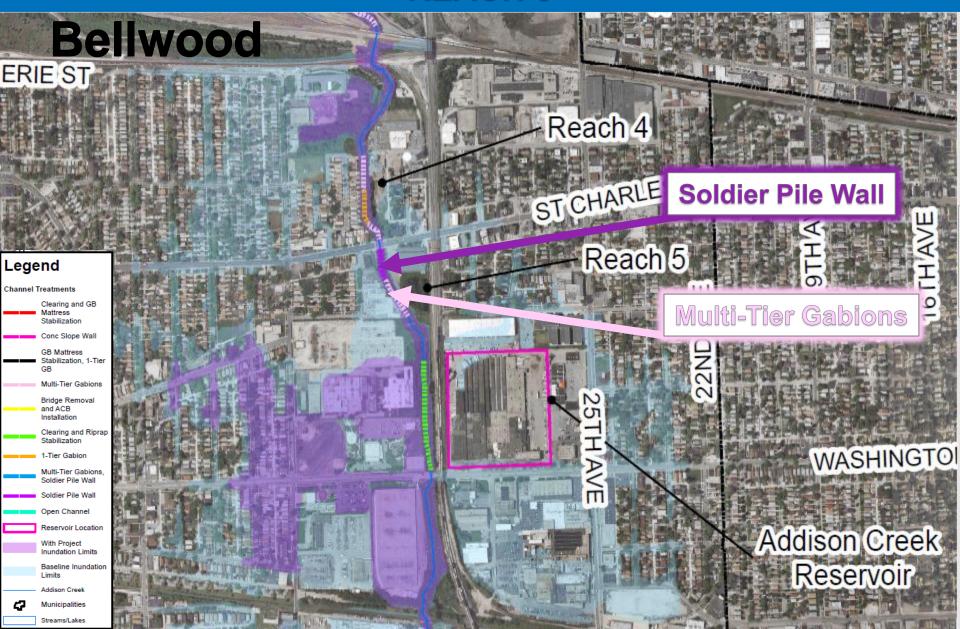






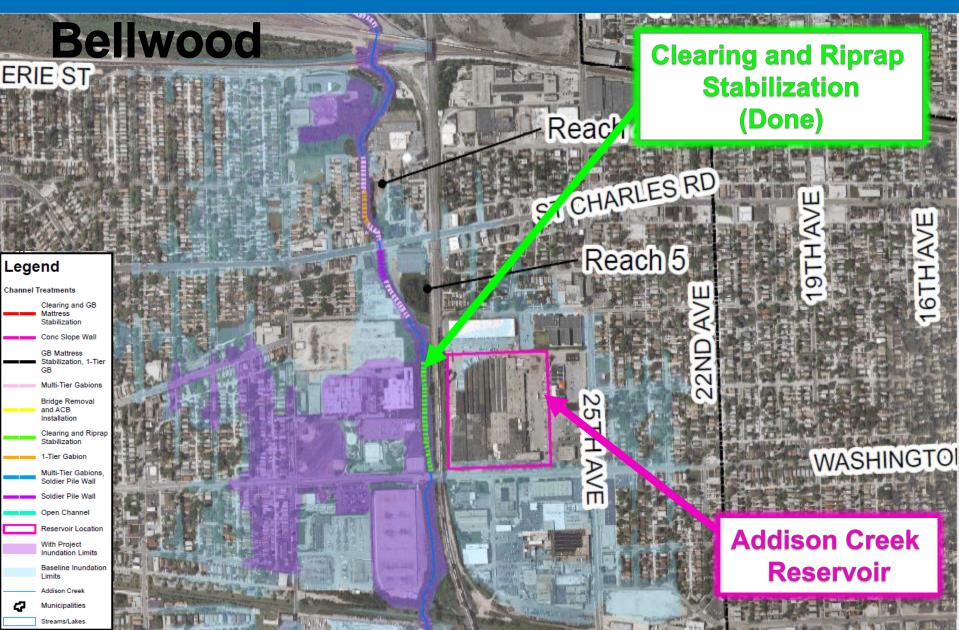




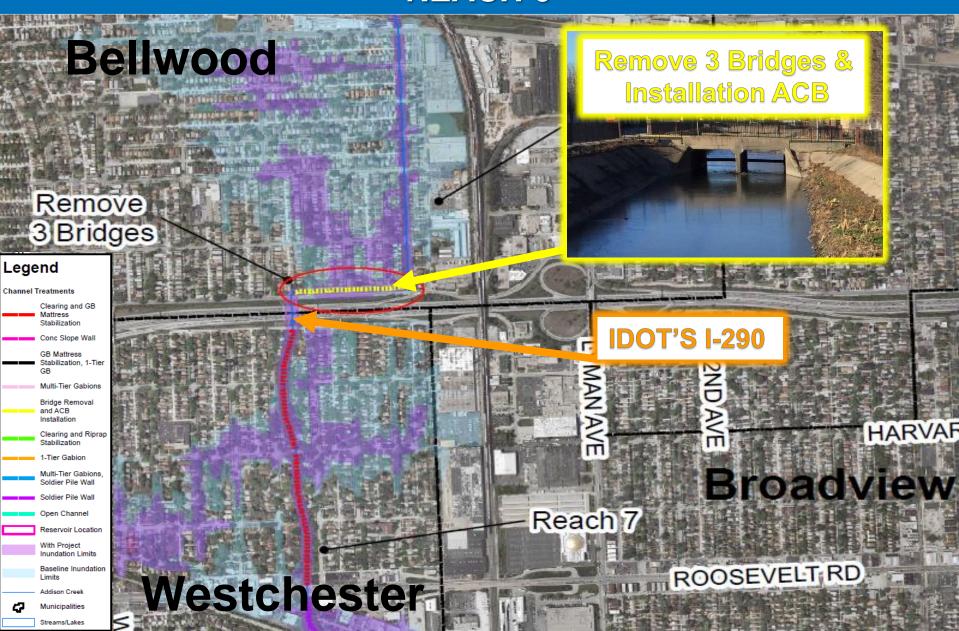




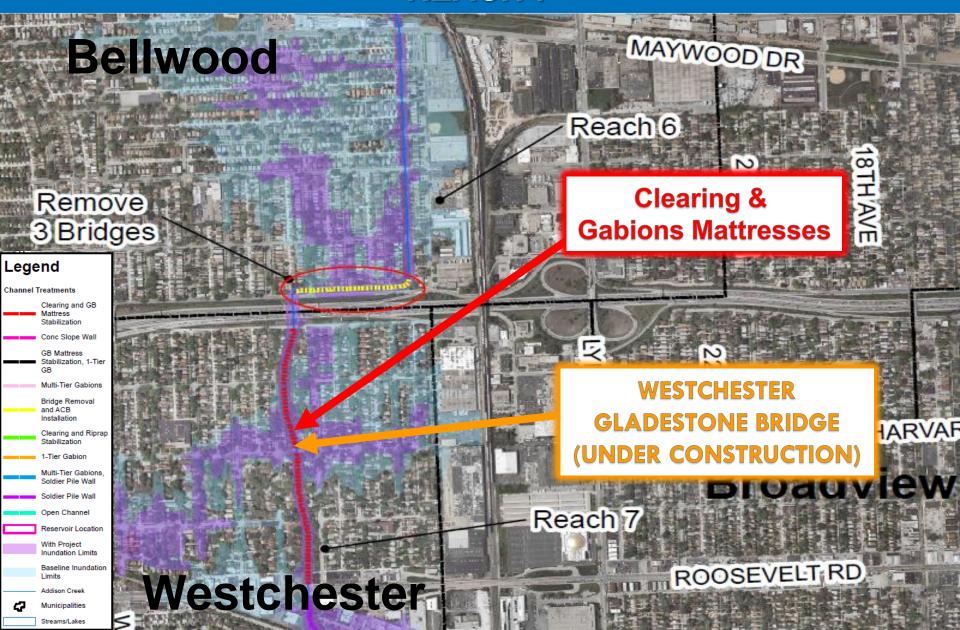
ADDISON CREEK RESERVOIR





















MILESTONES TO COMPLETION

Complete Reservoir Control Building - Spring 2023

Place Reservoir Online - Summer 2023

Construct Reach 1, 2, Upstream 3, 7, & 9 - Spring 2024

Construct Reach Downstream 3, 4, 5, 6, & 8 - Spring 2025

Following with FEMA Map Revisions



QUESTIONS?