General Membership Meeting Minutes

02/17/2022 01:30 pm – 03:30 pm

Virtual Meeting

Discussion and Possible Approval of the Following:

1. Introductions and Announcements

   President Giertych called the meeting to order at 1:30 PM. Jacob Jozefowski performed roll call. 22 DRWW MEMBERS WERE PRESENT: Leonard Dane (Deuchler Engineering); Dave Miller (North Shore Water Reclamation District); Nick Leach (Gurnee); Rosemary Heilemann (Sierra Club); Jacob Jozefowski (Lake County Stormwater Management Commission); Mike Brown (Lake Zurich); Jon Happ (Libertyville Twp.), Erika Frable (Hawthorn Woods); Dave Brown (Vernon Hills); Al; Giertych (Lake Co. Division of Transportation); Karolina Cho (Gewalt Hamilton representing Ela Township, Fremont Township, Village of Long Grove & Riverwoods), Joel Sensenig (Lake Co. Public Works); Brandon Janes (Deerfield); Gary Glowacki (Lake Co. Forest Preserves); Michael Talbett (Kildeer); Paul Kendzior (Libertyville); Tracy Gastfield (Vernon Township); Vince Mosca (Hey & Assoc.); Sam Barghi (Lincolnshire); Keith Gray (ILM representing Old Mill Creek); Tom Morthorst (Third Lake); Rishab Mahajan, (Geosyntec). A general membership quorum was present via a voice roll call vote.

   Also attending: Rob Flood, North Shore Water Reclamation District; Jacob Jozefowski, Ashley Strelcheck, Ernesto Huaracha and Mia Gerace (Lake County Stormwater Management Commission); Kathleen Papp (Wetlands Research Inc.); Austin McFarlane (Lake Co. Public Works); Jeff Edstrom & Drew Podlewski (Illinois EPA); Chris Johnson, James DENomie, Charles Frank (Illinois Sierra Club); Todd Peck (Zion Park District); Alvaro Melara (Representative of Congressman Brad Schneider); Tom Shaughnessy (Antioch Township); Don Wilson; Rob Flood, Steve Waters, Chuck Bodden (North Shore Water Reclamation District); Steve Silic (Forest Preserves of Cook County); Nick Huber, Matt Ueltzen, Pati Vitt (Lake Co. Forest Preserves); Tatiana Papakos; Mike Adam & Alana Bartolai (Lake Co. Health Dept.); Jeff Cooper (Libertyville); Stacey Straughan (Waukegan Harbor Citizen's Advisory Group); Dylan Olthoff (Representative of State Representative Rita Mayfield); Michael Warner (Gewalt Hamilton); Heather Galan (Gurnee); Rishab Mahajan (Geosyntec); Chris Yoder (MBI); Benjamin Metzler (RHMG); Matt Moffitt (Baxter and Woodman); Holly Hudson (CMAP); David Shimberg (Riverwoods Preservation Council); Dan Kaup (Wheeling).

2. Public Comment - None

3. Approve 08/19/21 General Membership Meeting Minutes
   Motion to approve Minutes as presented by Talbett, Seconded by Kendzior.
   The motion passed with unanimous consensus via roll call vote (see results below). Motion passed 22-0

4. DRWW Business

   a. DRWW Financials:

      i. Revenue & Expenditures
      Motion to approve revenue and expenditures and ratify invoices as presented by Kendzior, seconded by Giertych. The motion passed 22-0-1 via roll call vote (see results below). Abstain: Mahajan.

      ii. Member Presentation: DRWW Treasurer Michael Talbett (Village of Kildeer), DRWW FY 2022 Membership Dues

Michael Talbett gave an overview presentation of the DRWW formation (2014), mission and goals. Talbett shared the value of the watershed workgroup and treating water quality issues as a watershed (together). Talbett shared the 2015 DRWW annual membership dues and compared them to the recent DRWW expenditures, including the DRWW NARP, that have led to increased annual membership dues. The FY2022 budget of accounts and proposed membership dues were presented to show meeting attendees how the DRWW financials have been impacted. Talbett emphasized the importance of the DRWW approaching financials together to achieve water quality improvements for the entire watershed.

iii. DRWW Budget of Accounts & FY2022 Membership Dues
Strelcheck presented the FY2022 DRWW Budget of Accounts and Proposed membership dues that were approved by the DRWW Executive Board at the January 20, 2022 meeting. Public comment to request for more time (and notice) for DRWW members to review increased membership dues in the future. Motion to approve the FY2022 budget and proposed membership dues as presented by Brown, seconded by Kendzior.
The motion passed 18-3-1 via roll call vote (see results below). Abstain: Cho (Ela Township); Heilemann; Cho (Long Grove). Nays: Mahajan.

b. Committee Updates

i. Executive Board
Al Giertych, DRWW President, provided an update regarding recent Executive Board actions. The Executive Board continues to make progress on the NARP with Geosyntec, work on a financial strategy for FY2022 expenditures, continue to fulfill monitoring requirement for members (NPDES in-stream monitoring requirement) and appointed Gary Glowacki as the new Executive Board member in Jim Anderson's (retired) replacement.

ii. Monitoring/Water Quality Improvements Committee
Steve Waters, Committee Chair gave an update on the DRWW monitoring. The Lake County Health Dept. will start water column chemistry monitoring this month, the NSWRD has 3 continuous monitoring sondes that collect data except for the Russel Road sonde due to ice at that location (pulled to prevent ice damage to sonde). MBI will be starting their scope for the bioassessment work later this year. At the end of March 2022, NSWRD will be preparing the annual DRWW monitoring report for the Illinois EPA on behalf of all DRWW members.

iii. Lakes Committee
Mike Adam, Lakes Committee Chair, updated the general membership on the Lake County Health Department's monitoring of the invasive plant Hydrilla in a couple ponds in the watershed. The Lakes Committee is preparing recommendations to bring to the Monitoring Committee soon for review.

c. Old Business

i. DRWW Executive Board Position Vacancy Vote
Giertych presented Gary Glowacki as Lake County Forest Preserve District's representation that was filled by appointment at the January 20, 2022, DRWW Executive Board meeting due to Jim Anderson's retirement. The DRWW Executive Board filled Jim's position by appointment until a successor is duly elected at today's Annual Meeting. Al presented Glowacki to be the new Executive Board LCFPD representative with Pati Vitt remaining as his alternate.
The motion passed 20-1-0 via roll call vote (see results below). Abstain: Glowacki.

d. New Business – None.

5. Guest Speakers

a. Project Highlight: Lake County Forest Preserve District Watershed Project Updates
Matt Ueltzen, Manager of Restoration Ecology, Lake County Forest Preserve District (LCFPD), gave updates on three projects. The Van Patten Woods Forest Preserve Hydrologic Restoration and Enhancement Project was funded through a Countywide Illinois EPA Section 319 grant (in partnership with SMC) and has been completed. The Dutch Gap Forest Preserve Aquatic Ecosystem Restoration Project (in partnership with the USACE Section 206) is re-meandering an on-site stream and is currently underway. The third project is the Prairie Stream Forest Preserve Planned (Wetland) Mitigation Bank Site that is currently underway. For more information and photos on each of these projects please see the meeting presentations below.

Following the presentation, the following questions were asked:

1. Rosemary Heilemann, Sierra Club, asked for wetland credits to be explained. Ueltzen explained that when there's a development that would impact wetlands in that area, the developer is responsible for mitigating the loss of damage to the wetland. They have two options: recreate wetlands at the site or buy wetland credits where someone else is already doing wetland restoration in the watershed. Heilemann followed up by asking if the developer could buy the credits that the LCFPD is creating. Ueltzen confirmed.
2. Chris Johnson, Sierra Club, asked how the USACE gets involved in these projects. Ueltzen answered that the waterways involved in the three projects he presented on are considered navigable waterways and Waters of the United States which allows the USACE to get involved.
3. Chris Johnson, Sierra Club, also asked if the LCFPD uses sustainable agricultural practices on the portions of these projects that will be maintained for agriculture. Ueltzen asked Johnson to define "sustainable agricultural practices". Johnson responded with examples such as not over-fertilizing and maintaining borders with waterways. Ueltzen said that the LCFPD uses wetland buffers along all their streams that are maintained at least at 40 feet, but most are at 100 feet or more. Ueltzen also noted that soil testing is done prior to the start of a new farm license which occurs every four years. The LCFPD works with National Resources Conservation Service (NRCS) to develop a conservation plan which includes fertilizer limitations. Johnson followed up by asking if use of RoundUp is permitted to which Ueltzen said yes.
4. Leonard Dane, Deuchler Engineering, asked if the increased standing water after the removal of the drain tiles in the Van Patten project will allow mosquitos to breed. Ueltzen said that they are working to restore the ecosystem in its entirety which will include animals and insects that will manage the mosquito population naturally.
5. Chris Yoder, MBI, asked about how these projects overlap with the 2019 bioassessment and the habitat analysis in that report. Ueltzen confirmed that it would be interesting to observe the change over time from the 2019 bioassessment to future bioassessments.
6. Rosemary Heilemann, Sierra Club, is called on again to congratulate and give praise to Ueltzen and the LCFPD for their work on these projects.
7. Karolina Cho, Gewalt Hamilton Associates, asked if there are a certain number of years that the LCFPD is going to maintain the sites. Ueltzen answered that the LCFPD will maintain the Van Patten site forever and will do the same for the Dutch Gap and Prairie Stream sites once they are completed.

b. Des Plaines River Watershed Workgroup Nutrient Assessment and Reduction Plan (NARP)

Rishab Mahajan, Senior Engineer with Geosyntec Consultants, provided an update on the work completed on the NARP during 2021, which was the first of three years of work towards completion of the DRWW NARP. The modeling efforts Geosyntec and Keiser & Associates have concluded is that low dissolved oxygen is mostly due to high chlorophyll-a input from the upstream boundary increasing algae activity and limited reaeration due to low flows and small slope. Other conclusions from the 2021 NARP scope of work include high chlorophyll-a concentrations in Des Plaines River are driven by upstream concentrations from Wisconsin

and point source loading to Des Plaines River has significant reduced over recent years. In 2022, Geosyntec plans to develop and calibrate instream model and evaluate benefits of measures using modeling tools.

Following the presentation, the following questions were asked:

1. Vincent Mosca, Hey and Associates, asked: With the retiring of row crop fields and the large-scale restorations being conducted by the LCFPD in the watershed, can the DRWW/operators get credit for the reduction of nitrogen and phosphorus inputs and long-term sequestration in the soils through nutrient trading, and if that can that be included into the NARP. Mahajan responded that this could be an option. If it is put into the NARP, it would be reflected in the permits for the major wastewater treatment plants.
2. Chris Yoder, MBI, apologized that there were plans to get Geosyntec up to speed on using the IPS tool which covers some of the things that the model doesn't, but due to an unforeseen complication with a staff member, such plans were paused. Yoder said they hope to catch up by April 2022. Yoder validated Mahajan's findings as presented.
3. Rosemary Heilemann, Sierra Club, asked if there were any ongoing descriptions of what the non-point sources would be, such as yard waste or runoff categories. Mahajan confirmed that they will be identifying which point and non-point sources are contributing the most.
4. Karolina Cho, Gewalt Hamilton Associates, asked how much the DRWW can be held for pollutants coming from Wisconsin. Mahajan said that if the model can demonstrate that most of the pollutants are coming from the portions of the watershed in Wisconsin, that the Illinois EPA won't likely hold them responsible for those findings. Mahajan said that the Illinois EPA will provide feedback on that once the NARP is submitted to the Illinois EPA.

6. Watershed Updates & Announcements
    a. 2021 DRWW Annual Accomplishments is available online (DRWW Website>About Us>Accomplishments): http://www.drww.org/wp-content/uploads/2022/01/2021-DRWW-Annual-Accomplishments-V4.pdf

7. Member Remarks
    a. Al Giertych remarks on Michael Talbett's presentation, which reminded him how much good work has been put into DRWW since its inception. He offered acknowledgement and praise to the numerous, varying entities that come together to produce good work in the watershed.
8. Next General Membership Meeting August 18, 2022 at 01:30 PM
9. Adjournment: 3:25 pm
   Motion to adjourn made by Talbett, second by Dane. The motion passed 18-0 via roll call vote (see results below).

DRWW February 17, 2022 Roll Call Sheet

Organization	Voting Member	Number of Votes	Roll Call Attendance	Vote Count	(3) Roll Call for Aug. Meeting Minutes	Vote Count	(4.a.i) Roll Call foR Ratifying Financials	Vote Count	(4.a.iii) Roll Call FY2022 Budget & Membership Dues	Vote Count	(4.c.1) Roll Call DRWW Exe. Board Vacancy Vote	Vote Count	Adjournment	Vote Count
Applied Technologies, Inc.		2	N	0		0		0		0		0		0
Christopher Burke		2	N	0		0		0		0		0		0
City of Lake Forest		4	N	0		0		0		0		0		0
City of Park City		4	N	0		0		0		0		0		0
City of Zion		4	N	0		0		0		0		0		0
Deuchler Engineering	Leonard Dane	2	Y	2		0	Y	2	Y	2	Y	0	Y	2
Ela Township	Karolina Cho	4	Y	4	Y	4	Y	4	ABSTAIN	0	Y	0	Y	4
Fremont Township	Karolina Cho	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Geosyntec	Rishab Mahajan	2	Y	2	Y	2	ABSTAIN	0	N	0	Y	0	Y	2
Hey & Associates	VINCE MOSCA	2	Y	2	Y	2	Y	2	Y	2	Y	0		0
Lake County & Lake County DOT (1 member)	Al Giertych	8	Y	8	Y	8	Y	8	Y	8	Y	0	Y	8
Lake County Forest Preserve	Gary Glowacki	6	Y	6	Y	6	Y	6	Y	6	ABSTAIN	0	Y	6
Lake County Public Works	Joel Sensenig	16	Y	16	Y	16	Y	16	Y	16	Y	0	Y	16
Lake County SMC	Jacob Jozefowski	2	Y	2	Y	2	Y	2	Y	2	Y	0	Y	2
Libertyville Township	Jon Happ	4	Y	4	Y	4	Y	4	Y	4	Y	0		0
North Shore Water Reclamation District	Dave Miller	22	Y	22	Y	22	Y	22	Y	22	Y	0	Y	22
Sierra Club	Rosemary Heilemann	2	Y	2	Y	2	Y	2	ABSTAIN	0	Y	0	Y	2
Vernon Hills Park District		2	N	0		0		0		0		0		0
Vernon Township	Tracy Gastfield	4	Y	4	Y	4	Y	4	Y	4		0	Y	4
Village of Buffalo Grove		4	N	0								0		0
Village of Deer Park		4	N	0		0		0		0		0		0
Village of Deerfield	Brandon Janes	4	Y	4	Y	4	Y	4	Y	4	Y	0		0
Village of Grayslake		4	N	0		0		0		0		0		0
Village of Gurnee	Nick Leach	4	Y	4	Y	4	Y	4	Y	4	Y	0		0
Village of Hawthorn Woods	Erika Frable	4	N	0	Y	4	Y	4		0		0		0
Village of Kildeer	Michael Talbett	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Village of Lake Zurich	Mike Brown	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Village of Libertyville	Paul Kendzior	6	Y	6	Y	6	Y	6	Y	6	Y	0	Y	6
Village of Lincolnshire	Sam Barghi	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Village of Lindenhurst		4	N	0		0		0		0		0		0
Village of Long Grove	Karolina Cho	4	Y	4	Y	4	Y	4	ABSTAIN	0	Y	0	Y	4
Village of Riverwoods	Karolina Cho	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Village of Round Lake Beach		4	N	0		0		0		0		0		0
Village of Round Lake Park		4	N	0		0		0		0		0		0
Village of Third Lake	Tom Morthorst	4	Y	4	Y	4	Y	4	Y	4	Y	0	Y	4
Village of Vernon Hills		4	N	0		0		0		0		0		0
Village of Old Mill Creek		2	N	0		0		0		0		0		0
TOTALS		**168**	**22**	**116**	**22**	**118**	**22**	**118**	**18**	**104**	**20**	**0**	**18**	**102**
		51 % of votes		**59.16**										

DRWW

Des Plaines River Watershed Workgroup-Expense-Revenue Activity

For Period December 2021 - November 2022

500 W Winchester Rd
Libertyville, Illinois 60048
Phone 847 377 7700
kwoolfrod@lakecountyil.gov
astrelcheck@lakecountyil.gov

Ending Balance

Revenues Received	**Current Period**	**Date Received**	**Date Deposited**	**DRWW Ratification**	
Carryover	$ 117,161.47				
Other Contributions Received	$ -				
Total Received:	$ -				
Total Received + Carryover	$ 117,161.47				

Expenditures Paid:					
Geosyntec FY21 Expense	$ 21,176.00	1/11/2022		1/20/2022	
Geosyntec FY21 Expense	$ 5,940.00	2/11/2022			
Total Expenditures Paid	$ 27,116.00				
Revenue-Expenditures					**$ 90,045.47**

Geosyntec consultants

PLEASE REMIT PAYMENT TO:
Geosyntec Consultants, Inc.
900 Broken Sound Parkway NW, Suite 200
Boca Raton, Florida 33487-3575 USA
Tel (561) 995-0900 Fax (561) 995-0925

DES PLAINES RIVER WATERSHED WORKGRP
500 W. WINCHESTER ROAD
LIBERTYVILLE, IL 60048
Attention: KURT WOOLFORD

Invoice #: 181461552
Invoice Date: 2/10/2022
Project: MOW5554
Project Name: DRWW NARP DEVELOPMENT

For Professional Services Rendered through transaction date: 1/31/2022

IF YOU HAVE QUESTIONS ABOUT THIS INVOICE, PLEASE CONTACT RISHAB MAHAJAN AT 630-203-3361

Reimbursable Expenses	$5,940.00
Current Invoice	$5,940.00
****Amount Due This Invoice ****	**$5,940.00**

Statement

Prior Billings	$100,878.40	Project Budget	$211,100.00
Current Invoice	$5,940.00	Expended to Date	$106,818.40
Billed To Date	$106,818.40	Contract Balance	$104,281.60
Paid To Date	$72,582.15	****Amount Due This Invoice ****	**$5,940.00**

Project : **MOW5554 -- DRWW NARP DEVELOPMENT** **Invoice # :181461552**

Phase : **02) DEVELOP MODELING TOOLS**

Vendor Name	*Doc Nbr*	*Date*	*Cost*	*Multiplier*	*Amount*
Subcontractors-Billable					
KIESER & ASSOCIATES, LLC	22001	02/04/2022	5,940.00	1.00	5,940.00
Total Phase : 02) DEVELOP MODELING TOOLS				**Phase Expense**	**5,940.00**
				Total Project Expense	**5,940.00**
Total Project: MOW5554 -- DRWW NARP DEVELOPMENT					**5,940.00**

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

536 E. Michigan Avenue
Suite 300
Kalamazoo, MI 49007

Invoice

DATE	INVOICE #
2/4/2022	22-001

BILL TO:

Geosyntec
Attn: Rishab Mahajan
and Terri Eder
1420 Kensington Rd., Suite 103
Oak Brook, Illinois 60523

P.O. NO.	TERMS
MOW5554 - FY2021	Net 30

DESCRIPTION	QTY	RATE	AMOUNT
Environmental Engineer I - Task 4	57	100.00	5,700.00
Professional Engineer - Task 4	1.5	160.00	240.00
This invoice is for professional services rendered between January 1, 2022 & Feb. 3, 2022, as related to Geosyntec Des Plaines SWAT Modeling. Project# MOW5554. - F.Y. 2021 Contract			
F.Y. 2021 Contract			

Please remit payment to Kieser & Associates, LLC
For questions, please contact Becky Hough.

Total USD 5,940.00

Phone #	Fax #
(269) 344-7117	(269) 344-2493

Kieser & Associates, LLC
Time by Job Detail
January 1, 2022 - February 3, 2022

Geosyntec Des Plaines SWAT	Date	Name	Duration	Cost	Notes
Geosyntec Des Plaines SWAT: Task 4 - Final Model Adjustments/Document					
	01/03/2022	Foster, Mike	4.00	400.00	Output analysis and final report
	01/04/2022	Foster, Mike	2.50	250.00	Output analysis and final report
	01/05/2022	Foster, Mike	2.50	250.00	Output analysis and final report
	01/06/2022	Foster, Mike	1.00	100.00	Output analysis and final report
	01/10/2022	Foster, Mike	1.00	100.00	Final report
	01/12/2022	Foster, Mike	2.00	200.00	Final report edits
	01/14/2022	Foster, Mike	2.00	200.00	Final report edits
	01/17/2022	Foster, Mike	3.00	300.00	Final report
	01/18/2022	Foster, Mike	5.00	500.00	Final report
	01/18/2022	Foster, Mike	2.00	200.00	Analysis of 2019-2020 model runs
	01/19/2022	Foster, Mike	4.50	450.00	Final report
	01/20/2022	Foster, Mike	4.00	400.00	Final report
	01/21/2022	Foster, Mike	3.50	350.00	Final report
	01/24/2022	Foster, Mike	2.00	200.00	Output analysis and final report
	01/25/2022	Foster, Mike	2.00	200.00	Output analysis and final report
	01/26/2022	Foster, Mike	3.50	350.00	Output analysis and final report
	01/26/2022	Fang, Andrew	1.50	240.00	Model Documentation
	01/27/2022	Foster, Mike	4.00	400.00	Output analysis and final report
	01/28/2022	Foster, Mike	5.00	500.00	Output analysis and final report
	01/31/2022	Foster, Mike	3.50	350.00	Final analysis and report edits
Total Geosyntec Des Plaines SWAT: Task 4: (FY 2021)			**58.50**	**5,940.00**	
TOTAL - GEOSYNTEC DES PLAINES SWAT (FY 2021):			**58.50**	**5,940.00**	

DES PLAINES RIVER WATERSHED WORKGROUP MEMBERSHIP MEETING
AUGUST 26, 2014 1:00-3:00 PM
LIBERTYVILLE VILLAGE HALL

MEETING AGENDA

1. ***Introductions and Announcements*** *– Peter Kolb, Director of Public Works for Lake County will conduct introductions and provide an overview of the meeting.*

2. ***Dam Removal on the Des Plaines*** *– Randy Seebach, Director of Planning, Conservation and Development for the Lake County Forest Preserve District will highlight the three dam removal projects underway in the Des Plaines basin: Captain Daniel Wright Woods, MacArthur Woods, and Rasmussen.*

3. ***Phosphorus and Des Plaines River Basin Lake Water Quality*** *– Mike Adam, Senior Biologist, Lake County Health Department – Lakes Management Unit, will present information on phosphorus within the County and lake water quality data that the Lakes Management Unit collects and analyzes.*

4. ***Des Plaines River Watershed Plan Illinois Environmental Protection Agency Section 319 Grant Application*** *– Andrea Cline, Water Resource Professional for Lake County Stormwater Management Commission, will give an overview of the grant application that was submitted to Illinois EPA to complete watershed planning in the Des Plaines River basin within Lake County.*

5. ***DRWW Business*** *– John Heinz, Director of Public Works for Libertyville and Peter Kolb, Director of Public Works for Lake County review membership dues, participating agencies, voting structure, and bylaws. A vote to adopt the bylaws will be conducted.*

6. ***Next steps:***
    a. ***Membership development***
    b. ***Next meeting: October 28th 1:00-3:00 PM, Executive Board elections***

7. ***Other announcements/discussion***

Des Plaines River Watershed Workgroup

Potential Dues Calculations

April 14, 2014

Name	Area within the Des Plaines River Watershed (acres)	Design Average Flow (MGD)	Fixed Component	WTP Contribution 66%	Acreage Contribution 33%	Total
Antioch	1742		$200	$0	$1,359	$1,559
Beach Park	1221		$200	$0	$952	$1,152
Buffalo Grove	4515		$200	$0	$3,522	$3,722
Deer Park	1188		$200	$0	$927	$1,127
Deerfield	40		$200	$0	$31	$231
Grayslake	6520		$200	$0	$5,086	$5,286
Green Oaks	746		$200	$0	$582	$782
Gurnee	8379		$200	$0	$6,536	$6,736
Hainesville	1		$200	$0	$1	$201
Hawthorn Woods	3469		$200	$0	$2,706	$2,906
Indian Creek	171		$200	$0	$133	$333
Kildeer	2689		$200	$0	$2,097	$2,297
Lake County - Unincorporated	29560		$200	$0	$23,057	$23,257
Lake County Forest Preserve District	16334		$200	$0	$12,741	$12,941
Lake Forest	107		$200	$0	$83	$283
Lake Villa	191		$200	$0	$149	$349
Lake Zurich	1812		$200	$0	$1,413	$1,613
LCDPW Mill Creek WRF	0	2.1	$200	$5,208	$0	$5,408
LCDPW New Century Town STP	0	6	$200	$14,879	$0	$15,079
LCPWD Des Plaines River STP	0	16	$200	$39,678	$0	$39,878
Libertyville	5601	4	$200	$9,919	$4,369	$14,488
Lincolnshire	2111		$200	$0	$1,647	$1,847
Lindenhurst	2865		$200	$0	$2,235	$2,435
Lindenhurst Sanitary District STP	0	2	$200	$4,960	$0	$5,160
Long Grove	7759		$200	$0	$6,052	$6,252
Mettawa	1599		$200	$0	$1,247	$1,447

Des Plaines River Watershed Workgroup

Potential Dues Calculations

April 14, 2014

Name	Area within the Des Plaines River Watershed (acres)	Design Average Flow (MGD)	Fixed Component	WTP Contribution 66%	Acreage Contribution 33%	Total
Mundelein	5848	4.95	$200	$12,275	$4,561	$17,037
North Shore Sanitary District - Gurnee STP	0	23.6	$200	$58,524	$0	$58,724
North Shore Sanitary District - Waukegan STP	0	22	$200	$54,557	$0	$54,757
Northbrook	2		$200	$0	$2	$202
Old Mill Creek	6298		$200	$0	$4,912	$5,112
Park City	253		$200	$0	$197	$397
Riverwoods	1395		$200	$0	$1,088	$1,288
Round Lake Beach	400		$200	$0	$312	$512
Round Lake Park	36		$200	$0	$28	$228
Third Lake	516		$200	$0	$402	$602
Vernon Hills	5025		$200	$0	$3,920	$4,120
Wadsworth	5182		$200	$0	$4,042	$4,242
Waukegan	3215		$200	$0	$2,508	$2,708
Zion	1273		$200	$0	$993	$1,193
TOTAL	**128063**	**80.65**	**$8,000**	**$200,000**	**$99,889**	**$307,889**
						$307,889

FY2022 Des Plaines River Watershed Workgroup Budget (December 2021 thru November 2022)	Actual FY2021	Projected FY2022	Actual FY2022	Projected FY2023	Projected FY2024
REVENUE/Description					
Dues/Membership dues	$ 283,680.87	$ 265,547.44		$ 265,547.44	$ 250,778.53
Expendable Carryover Addition	$ 45,724.15	$ 101,874.07	$ 101,874.07	$ 26,397.29	$ 25,939.01
NSWRD Contract Commitment	*$ 15,287.40*	*$ 15,287.40*	*$ 15,287.40*	*$ 15,287.40*	
Other State Funds/Illinois EPA 319 Grant					
Interest	$ 112.83				
Other (FPD/LCDOT)					
Total Revenue	**$ 344,805.25**	**$ 382,708.91**	**$ 117,161.47**	**$ 307,232.13**	**$ 276,717.54**
EXPENSES/Description					
2021 MBI Sampling	**$ 29,277.13**				
2021 LCHD Sampling	**$ 74,577.50**				
2021 SMC Administrative/GIS/Tech Support	**$ 25,000.00**				
2021 NARP Tasks-NSWRD	**$ 26,207.00**				
2021 NARP Tasks-Geosyntec	**$ 72,582.15**				
MBI IPS Model Trainings					
Education & Outreach Expenses					
2021 MBI Sampling (continued)		**$ 13,254.29**			**$ 159,917.30**
2022-2023 MBI Sampling		**$ 52,122.08**		**$ 53,762.53**	
2022 LCHD Sampling		**$ 80,673.00**		**$ 83,093.19**	**$ 85,513.38**
2022 SMC Administrative/GIS/Tech Support		**$ 25,000.00**		**$ 25,000.00**	**$ 25,000.00**
2022 NARP Tasks-NSWRD		**$ 26,207.00**		**$ 15,287.40**	
2021 NARP Tasks - Geosyntec (continued)		**$ 27,117.85**	**$ 27,116.00**		
2022 NARP Tasks-Geosyntec		**$ 111,400.00**		**$ 98,900.00**	
MBI IPS Model Trainings		**$ 5,000.00**		**$ 5,000.00**	**$ 5,000.00**
Education & Outreach Expenses		**$ 250.00**		**$ 250.00**	**$ 250.00**
Expenses	**$ 227,643.78**	**$ 341,024.22**	**$ 27,116.00**	**$ 281,293.12**	**$ 275,680.68**
Projected Unexpended Carryover	*$ 117,161.47*	*$ 41,684.69*	*$ 90,045.47*	*$ 25,939.01*	*$ 1,036.86*

Des Plaines River Watershed Workgroup
DRAFT FY2022 Membership Dues

AGENCY MEMBERS

Name	Area within the Des Plaines River Watershed (acres)	Design Average Flow (MGD)	Fixed Component	WTP Contribution 66%	Acreage Contribution 33%	Base Entity Dues (per capita cap N/A to PW/DOT entities)	Total Population (Lake County GIS)	Per Capita Dues	Base Entity Dues w/ Per Capita Adjustment	Percentage of Overall Dues w/o LCFPD	LCFPD Addition	2022 Potential Dues based on Percentage	NARP Special Assessment Dues (Based on 6.3%)	2022 Dues
Buffalo Grove	4,515	n/a	$200	$0	$3,522	$ 3,722	27,532	$ 0.14	$3,721.70	1.59%	$ 227.05	$3,948.75	234.47	$4,183.21
Deer Park	1,188	n/a	$200	$0	$927	$ 1,127	3,182	$ 0.35	$1,126.64	0.48%	$ 68.73	$1,195.37	70.98	$1,266.35
Deerfield	40	n/a	$200	$0	$31	$ 231	18,056	$ 0.01	$231.20	0.10%	$ 14.10	$245.30	14.57	$259.87
Grayslake	6,520	n/a	$200	$0	$5,086	$ 5,286	21,198	$ 0.25	$5,285.60	2.25%	$ 322.45	$5,608.05	332.99	$5,941.05
Gurnee	8,379	n/a	$200	$0	$6,536	$ 6,736	31,014	$ 0.22	$6,735.62	2.87%	$ 410.91	$7,146.53	424.34	$7,570.88
Hawthorn Woods	3,469	n/a	$200	$0	$2,706	$ 2,906	7,848	$ 0.37	$2,905.82	1.24%	$ 177.27	$3,083.09	183.07	$3,266.16
Kildeer	2,689	n/a	$200	$0	$2,097	$ 2,297	4,020	$ 0.57	$2,297.42	0.98%	$ 140.16	$2,437.58	144.74	$2,582.31
Lake County Public Works	0	24.1	$400	$59,764	$0	$ 60,164	n/a	n/a	$60,000.00	25.59%	$ 3,660.37	$63,660.37	3780.00	$67,440.37
Lake County (Unincorporated & DOT)	29,560	24.1	$400	$0	$23,057	$ 23,457	n/a	n/a	$25,000.00	10.66%	$ 1,525.16	$26,525.16	1575.00	$28,100.16
Lake Forest	107	n/a	$200	$0	$83	$ 283	19,378	$ 0.01	$283.46	0.12%	$ 17.29	$300.75	17.86	$318.61
Lake Zurich	1,812	n/a	$200	$0	$1,413	$ 1,613	19,646	$ 0.08	$1,613.36	0.69%	$ 98.43	$1,711.79	101.64	$1,813.43
Libertyville	5,601	4	$200	$9,919	$4,369	$ 14,488	20,375	$ 0.22	$14,488.18	6.18%	$ 883.87	$15,372.05	912.76	$16,284.81
Lincolnshire	2,111	n/a	$200	$0	$1,647	$ 1,847	7,282	$ 0.25	$1,846.58	0.79%	$ 112.65	$1,959.23	116.33	$2,075.57
Lindenhurst	2,865	2	$400	$4,960	$2,235	$ 7,595	14,481	$ 0.52	$7,595.00	3.24%	$ 463.34	$8,058.34	478.49	$8,536.83
Long Grove	7,759	n/a	$200	$0	$6,052	$ 6,252	8,275	$ 0.76	$4,965.00	2.12%	$ 302.90	$5,267.90	312.80	$5,580.69
North Shore Sanitary District	n/a	45.6	$400	$113,081	$0	$ 83,126	n/a	n/a	$83,126.00	35.46%	$ 5,071.20	$88,197.20	5236.94	$93,434.14
Park City	253	n/a	$200	$0	$197	$ 397	7,570	$ 0.05	$397.34	0.17%	$ 24.24	$421.58	25.03	$446.61
Riverwoods	1,395	n/a	$200	$0	$1,088	$ 1,288	3,665	$ 0.35	$1,288.10	0.55%	$ 78.58	$1,366.68	81.15	$1,447.83
Round Lake Beach	400	n/a	$200	$0	$312	$ 512	27,835	$ 0.02	$512.00	0.22%	$ 31.24	$543.24	32.26	$575.49
Round Lake Park	36	n/a	$200	$0	$28	$ 228	7,469	$ 0.03	$228.08	0.10%	$ 13.91	$241.99	14.37	$256.36
Third Lake	516	n/a	$200	$0	$402	$ 602	1,184	$ 0.51	$602.48	0.26%	$ 36.76	$639.24	37.96	$677.19
Vernon Hills	5,025	n/a	$200	$0	$3,920	$ 4,120	25,035	$ 0.16	$4,119.50	1.76%	$ 251.32	$4,370.82	259.53	$4,630.34
Zion	1,273	n/a	$200	$0	$993	$ 1,193	24,172	$ 0.05	$1,192.94	0.51%	$ 72.78	$1,265.72	75.16	$1,340.87
Ela Township	n/a	n/a	n/a	n/a	n/a	$ 236	n/a	n/a	$236.00	0.10%	$ 14.40	$250.40	14.87	$265.27
Fremont Township	n/a	n/a	n/a	n/a	n/a	$ 264	n/a	n/a	$264.00	0.11%	$ 16.11	$280.11	16.63	$296.74
Libertyville Township	n/a	n/a	n/a	n/a	n/a	$ 2,583	n/a	n/a	$2,583.00	1.10%	$ 157.58	$2,740.58	162.73	$2,903.31
Vernon Township	n/a	n/a	n/a	n/a	n/a	$ 1,782	n/a	n/a	$1,782.00	0.76%	$ 108.71	$1,890.71	112.27	$2,002.98
IDOT	*3,435*	*n/a*	*$ 200.00*	*0*	*$ 2,678.91*	*$ 2,878.91*	*n/a*	*n/a*	*$2,878.91*	*n/a*				
											$14,301.51	**$248,728.53**	**AGENCY TOTAL**	**$263,497.44**

AGENCY MEMBER (Exemption)														
Lake County Forest Preserve District	16,334	n/a	$250	$0			n/a	n/a				**$250.00**	**LCFPD TOTAL**	**$ 250.00**

ASSOCIATE MEMBERS														
Applied Technologies, Inc.			$200											
Christopher B. Burke Engineering			$200											
Deuchler Engineering Corp			$200											
Geosyntec			$200											
Hey & Associates			$200											
Lake County SMC			$200											
Sierra Club			$200											
Vernon Hills Park District			$200											
Village of Old Mill Creek			$200											
TOTALS			**$1,800**										**ASSOCIATE TOTAL**	**$1,800**
									Base Dues	**$250,778.53**			**FY22 DUES TOTAL**	**$265,547.44**

FY2022 Des Plaines River Watershed Workgroup Budget (December 2021 thru November 2022)	Actual FY2021	Projected FY2022	Actual FY2022	Projected FY2023	Projected FY2024
REVENUE/Description					
Dues/Membership dues	$ 283,680.87	$ 265,547.44		$ 265,547.44	$ 250,778.53
Expendable Carryover Addition	$ 45,724.15	$ 101,874.07	$ 101,874.07	$ 26,397.29	$ 25,939.01
NSWRD Contract Commitment	*$ 15,287.40*	*$ 15,287.40*	*$ 15,287.40*	*$ 15,287.40*	
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Interest	$ 112.83				
Other (FPD/LCDOT)					
Total Revenue	**$ 344,805.25**	**$ 382,708.91**	**$ 117,161.47**	**$ 307,232.13**	**$ 276,717.54**
EXPENSES/Description					
2021 MBI Sampling	**$ 29,277.13**				
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2021 NARP Tasks-Geosyntec	**$ 72,582.15**				
MBI IPS Model Trainings					
Education & Outreach Expenses					
2021 MBI Sampling (continued)		**$ 13,254.29**			**$ 159,917.30**
2022-2023 MBI Sampling		**$ 52,122.08**		**$ 53,762.53**	
2022 LCHD Sampling		**$ 80,673.00**		**$ 83,093.19**	**$ 85,513.38**
2022 SMC Administrative/GIS/Tech Support		**$ 25,000.00**		**$ 25,000.00**	**$ 25,000.00**
2022 NARP Tasks-NSWRD		**$ 26,207.00**		**$ 15,287.40**	
2021 NARP Tasks - Geosyntec (continued)		**$ 27,117.85**	**$ 27,116.00**		
2022 NARP Tasks-Geosyntec		**$ 111,400.00**		**$ 98,900.00**	
MBI IPS Model Trainings		**$ 5,000.00**		**$ 5,000.00**	**$ 5,000.00**
Education & Outreach Expenses		**$ 250.00**		**$ 250.00**	**$ 250.00**
Expenses	**$ 227,643.78**	**$ 341,024.22**	**$ 27,116.00**	**$ 281,293.12**	**$ 275,680.68**
Projected Unexpended Carryover	*$ 117,161.47*	*$ 41,684.69*	*$ 90,045.47*	*$ 25,939.01*	*$ 1,036.86*

Des Plaines River Watershed Workgroup
DRAFT FY2022 Membership Dues

AGENCY MEMBERS

Name	Area within the Des Plaines River Watershed (acres)	Design Average Flow (MGD)	Fixed Component	WTP Contribution 66%	Acreage Contribution 33%	Base Entity Dues (per capita cap N/A to PW/DOT entities)	Total Population (Lake County GIS)	Per Capita Dues	Base Entity Dues w/ Per Capita Adjustment	Percentage of Overall Dues w/o LCFPD	LCFPD Addition	2022 Potential Dues based on Percentage	NARP Special Assessment Dues (Based on 6.3%)	2022 Dues
Buffalo Grove	4,515	n/a	$200	$0	$3,522	$ 3,722	27,532	$ 0.14	$3,721.70	1.59%	$ 227.05	$3,948.75	234.47	$4,183.21
Deer Park	1,188	n/a	$200	$0	$927	$ 1,127	3,182	$ 0.35	$1,126.64	0.48%	$ 68.73	$1,195.37	70.98	$1,266.35
Deerfield	40	n/a	$200	$0	$31	$ 231	18,056	$ 0.01	$231.20	0.10%	$ 14.10	$245.30	14.57	$259.87
Grayslake	6,520	n/a	$200	$0	$5,086	$ 5,286	21,198	$ 0.25	$5,285.60	2.25%	$ 322.45	$5,608.05	332.99	$5,941.05
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Kildeer	2,689	n/a	$200	$0	$2,097	$ 2,297	4,020	$ 0.57	$2,297.42	0.98%	$ 140.16	$2,437.58	144.74	$2,582.31
Lake County Public Works	0	24.1	$400	$59,764	$0	$ 60,164	n/a	n/a	$60,000.00	25.59%	$ 3,660.37	$63,660.37	3780.00	$67,440.37
Lake County (Unincorporated & DOT)	29,560	24.1	$400	$0	$23,057	$ 23,457	n/a	n/a	$25,000.00	10.66%	$ 1,525.16	$26,525.16	1575.00	$28,100.16
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Libertyville	5,601	4	$200	$9,919	$4,369	$ 14,488	20,375	$ 0.22	$14,488.18	6.18%	$ 883.87	$15,372.05	912.76	$16,284.81
Lincolnshire	2,111	n/a	$200	$0	$1,647	$ 1,847	7,282	$ 0.25	$1,846.58	0.79%	$ 112.65	$1,959.23	116.33	$2,075.57
Lindenhurst	2,865	2	$400	$4,960	$2,235	$ 7,595	14,481	$ 0.52	$7,595.00	3.24%	$ 463.34	$8,058.34	478.49	$8,536.83
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North Shore Sanitary District	n/a	45.6	$400	$113,081	$0	$ 83,126	n/a	n/a	$83,126.00	35.46%	$ 5,071.20	$88,197.20	5236.94	$93,434.14
Park City	253	n/a	$200	$0	$197	$ 397	7,570	$ 0.05	$397.34	0.17%	$ 24.24	$421.58	25.03	$446.61
Riverwoods	1,395	n/a	$200	$0	$1,088	$ 1,288	3,665	$ 0.35	$1,288.10	0.55%	$ 78.58	$1,366.68	81.15	$1,447.83
Round Lake Beach	400	n/a	$200	$0	$312	$ 512	27,835	$ 0.02	$512.00	0.22%	$ 31.24	$543.24	32.26	$575.49
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Zion	1,273	n/a	$200	$0	$993	$ 1,193	24,172	$ 0.05	$1,192.94	0.51%	$ 72.78	$1,265.72	75.16	$1,340.87
Ela Township	n/a	n/a	n/a	n/a	n/a	$ 236	n/a	n/a	$236.00	0.10%	$ 14.40	$250.40	14.87	$265.27
Fremont Township	n/a	n/a	n/a	n/a	n/a	$ 264	n/a	n/a	$264.00	0.11%	$ 16.11	$280.11	16.63	$296.74
Libertyville Township	n/a	n/a	n/a	n/a	n/a	$ 2,583	n/a	n/a	$2,583.00	1.10%	$ 157.58	$2,740.58	162.73	$2,903.31
Vernon Township	n/a	n/a	n/a	n/a	n/a	$ 1,782	n/a	n/a	$1,782.00	0.76%	$ 108.71	$1,890.71	112.27	$2,002.98
IDOT	*3,435*	*n/a*	*$ 200.00*	*0*	*$ 2,678.91*	*$ 2,878.91*	*n/a*	*n/a*	*$2,878.91*	*n/a*				
											$14,301.51	**$248,728.53**	**AGENCY TOTAL**	**$263,497.44**

AGENCY MEMBER (Exemption)														
Lake County Forest Preserve District	16,334	n/a	$250	$0			n/a	n/a				**$250.00**	**LCFPD TOTAL**	**$ 250.00**

ASSOCIATE MEMBERS														
Applied Technologies, Inc.			$200											
Christopher B. Burke Engineering			$200											
Deuchler Engineering Corp			$200											
Geosyntec			$200											
Hey & Associates			$200											
Lake County SMC			$200											
Sierra Club			$200											
Vernon Hills Park District			$200											
Village of Old Mill Creek			$200											
TOTALS			**$1,800**										**ASSOCIATE TOTAL**	**$1,800**
									Base Dues	**$250,778.53**			**FY22 DUES TOTAL**	**$265,547.44**

Strelcheck, Ashley

From: Jim Anderson <janderson@lcfpd.org>
Sent: Monday, January 3, 2022 3:47 PM
To: Strelcheck, Ashley
Subject: RE: EXTERNAL: DRWW Executive Board Meeting

Ashley,

As you have heard I will be stepping away from the Forest Preserve on January 28th.

Gary Glowacki will be taking my place after this meeting.

Gary Glowacki
Manager of Conservation Ecology
gglowacki@lcfpd.org
847.968.3264

Be Safe Be Well Be Kind

Jim Anderson
Director Natural Resources
Lake County Forest Preserve
1899 W. Winchester Road
Libertyville, IL 60048
847.968.3282
janderson@lcfpd.org

-----Original Appointment-----
From: Strelcheck, Ashley <AStrelcheck@lakecountyil.gov>
Sent: Monday, January 3, 2022 8:36 AM
To: Strelcheck, Ashley; Giertych, Al T.; Bartolai, Alana; McFarlane, Austin L.; Brian Kuebker; Chuck Bodden; Dave Miller; Deanna Doohaluk; Gerace, Mia; Gina Piotrowski; Fitzgerald, James; Jim Anderson; Jozefowski, Jacob; Adam, Michael; mtalbett@villageofkildeer.com; Pati Vitt; pkendzior@libertyville.com; Prusila, Michael E.; roflood@northshorewrd.org; Sensenig, Joel; Steven Waters; Tom Morthorst; Woolford, Kurt A.; Zemaitis, Michael G.
Cc: Rishab Mahajan
Subject: EXTERNAL: DRWW Executive Board Meeting
When: Thursday, January 20, 2022 2:00 PM-3:00 PM (UTC-06:00) Central Time (US & Canada).
Where:
https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fus02web.zoom.us%2Fj%2F84872271160%3Fpwd%3DQjRjM3hHUmJiQklVQThGQnYvcFludz09&data=04%7C01%7CAStrelcheck%40lakecountyil.gov%7Cea4c66b002d24de7475208d9cf0297c7%7Cdd536cf592fd42ffa754e98666cb7a96%7C0%7C0%7C637768432309188835%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=DXwNcM0p3UWOVHSnLxMZPO2f1FAx67K6auKzxHS69Ao%3D&reserved=0

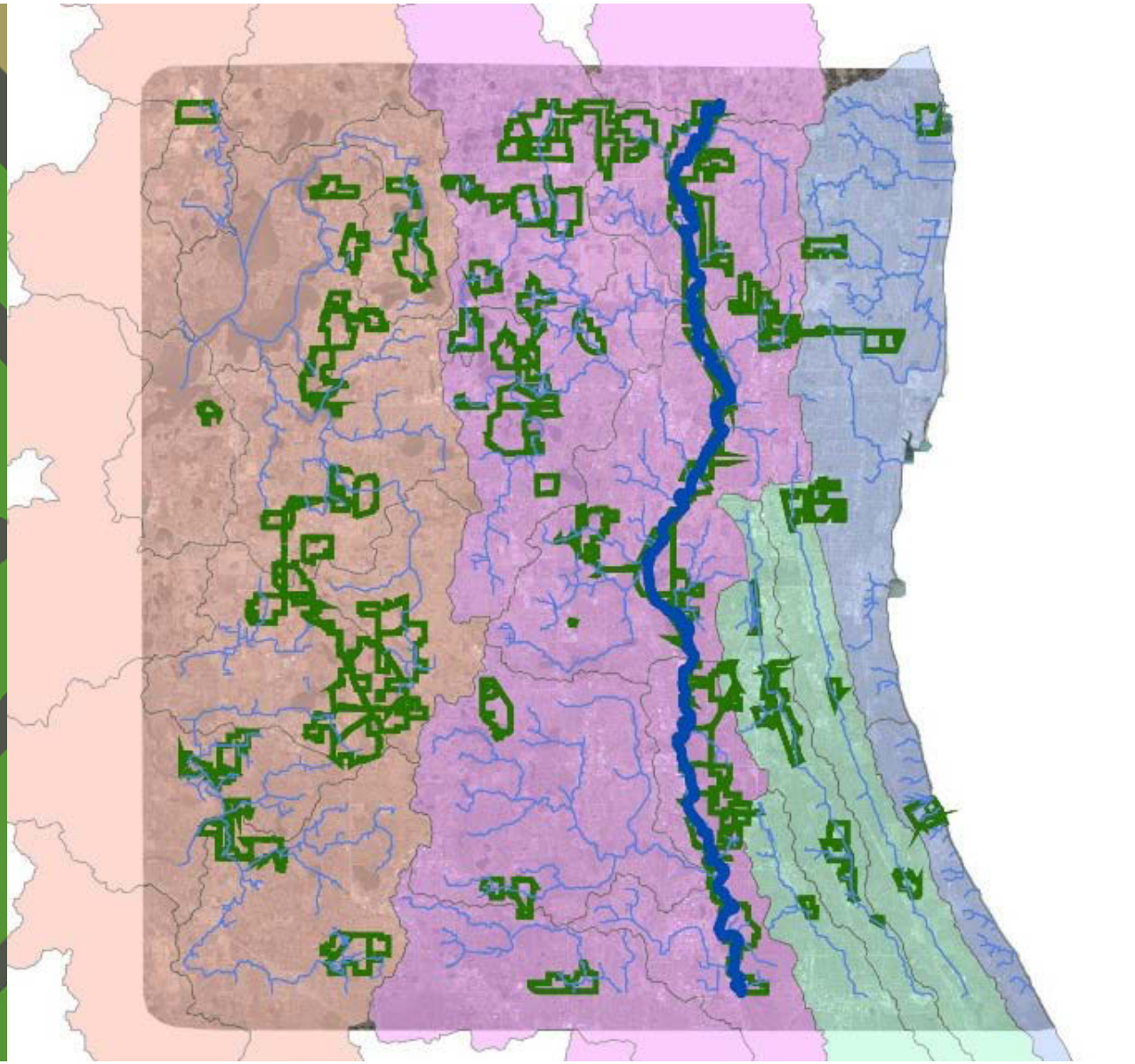
Join Zoom Meeting

Des Plaines River Watershed Projects Lake County Forest Preserve District

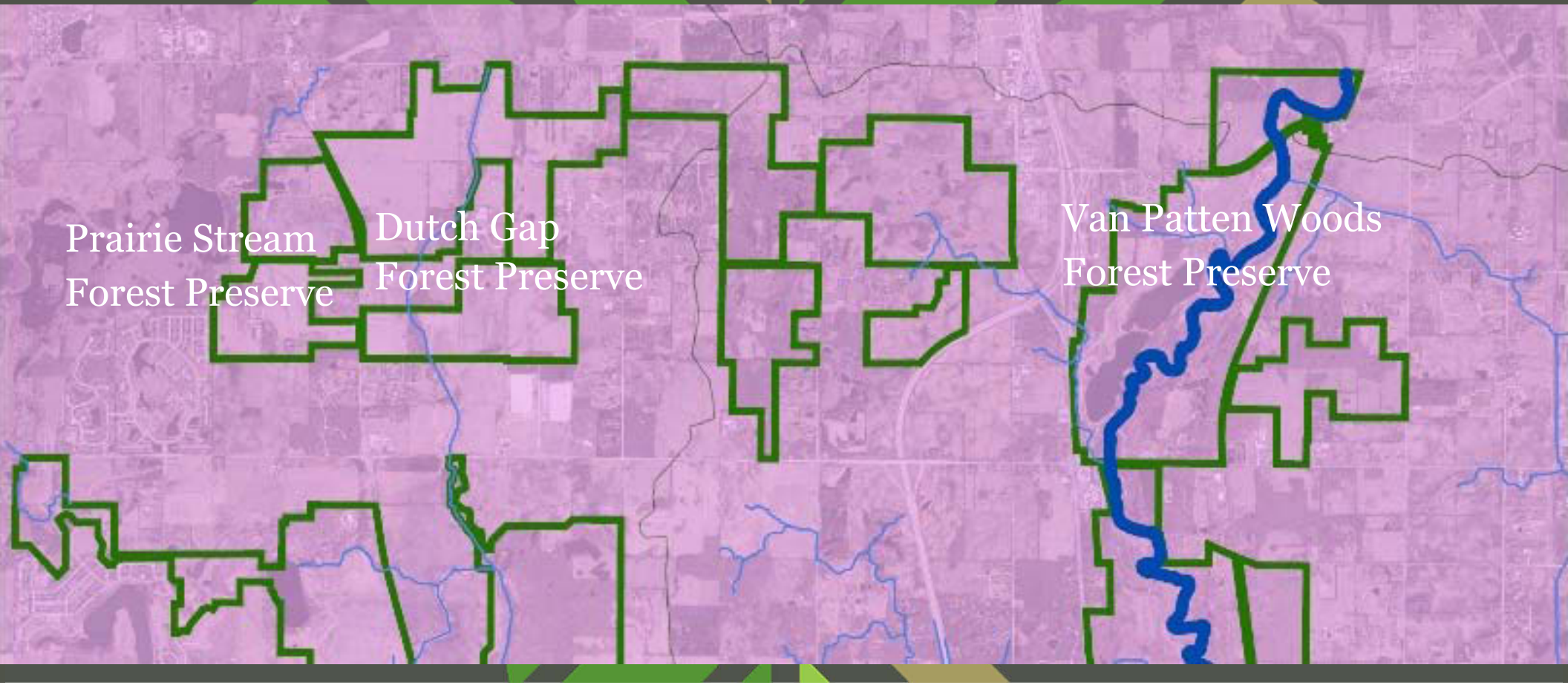
Matt Ueltzen
Manger of Restoration Ecology

LCFPD

- Own/Manage ~31,000 Acres
- ~17,500+ Acres within DRW



Project Areas

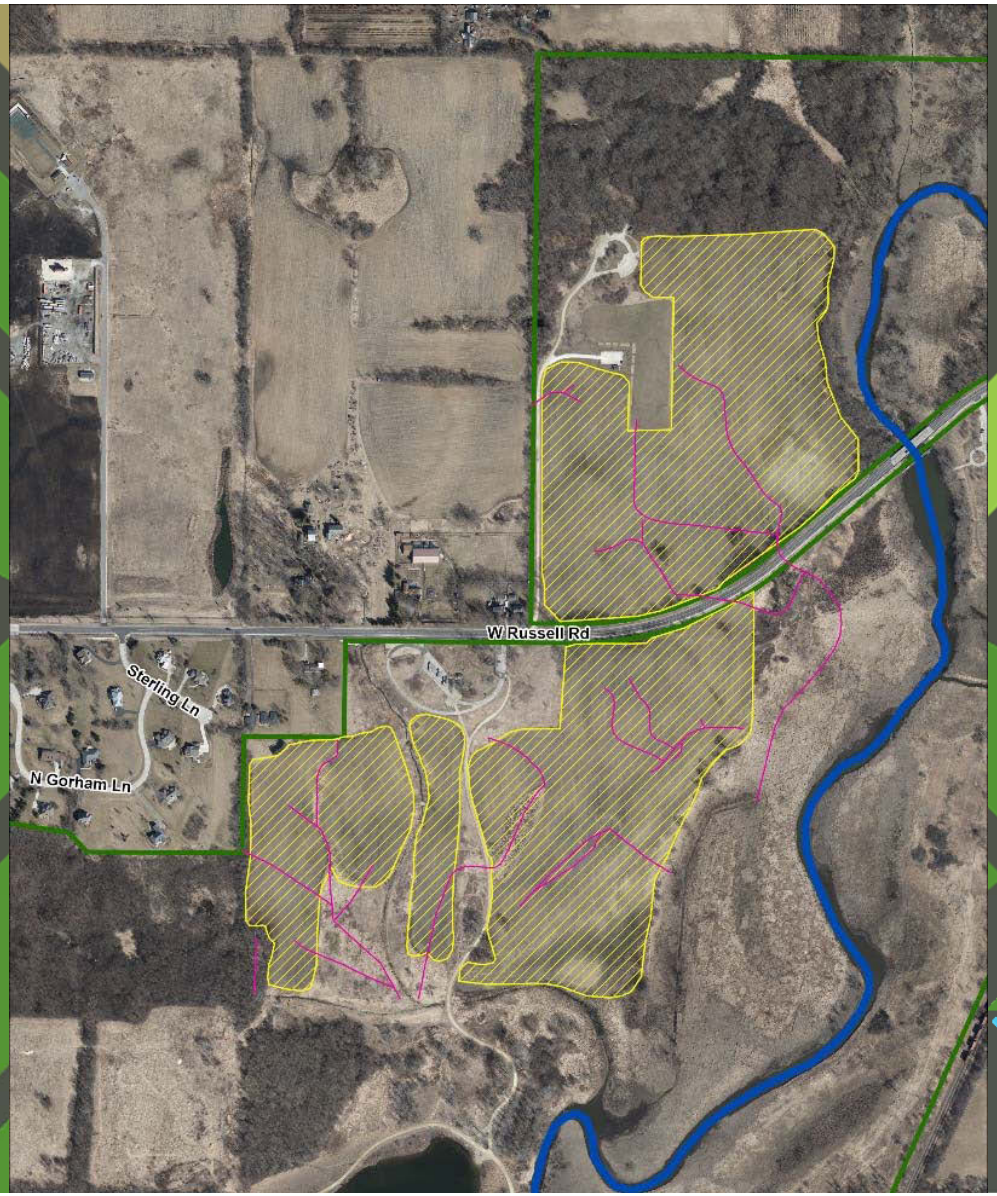


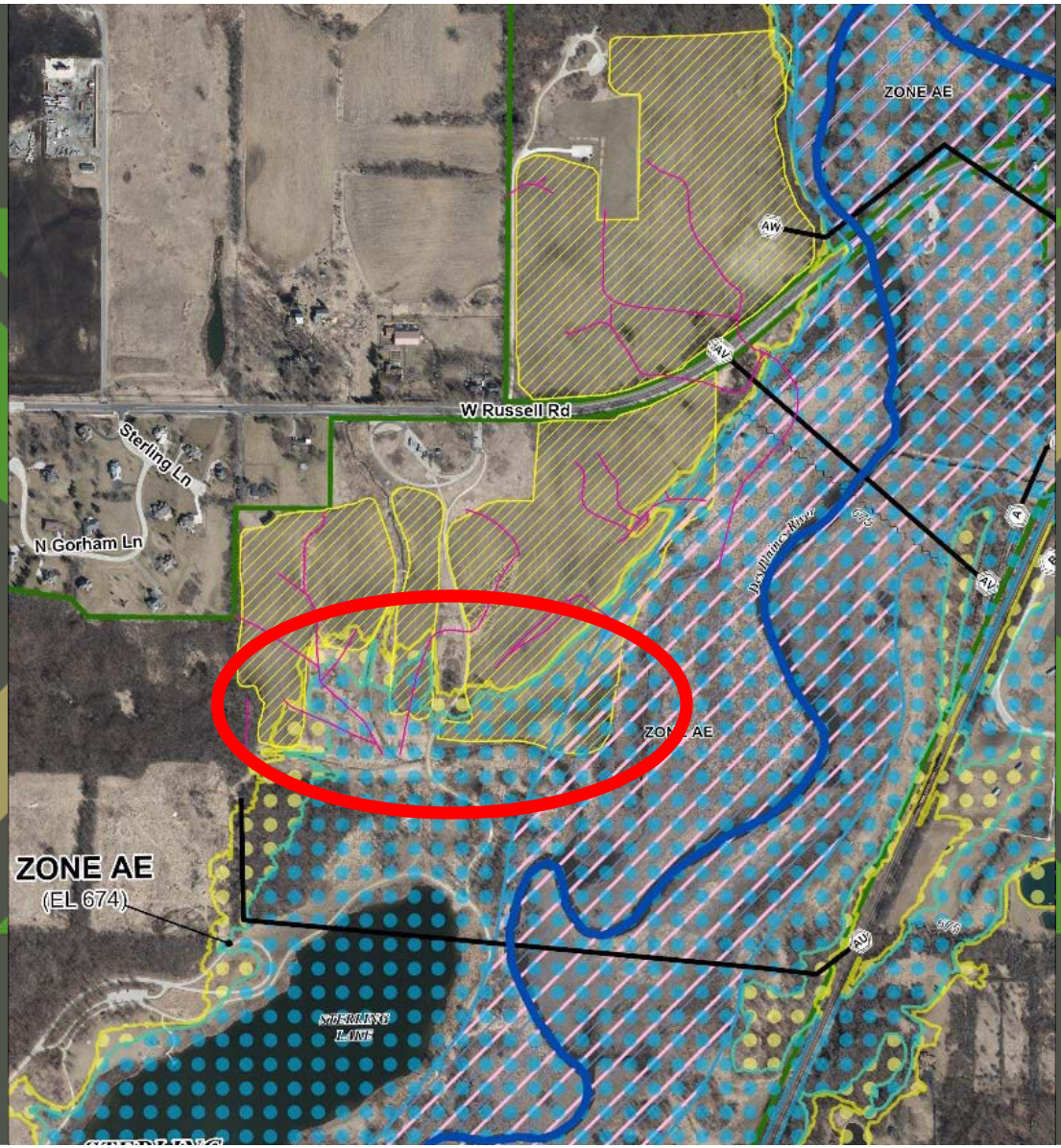
Van Patten Woods

- Hydrologic Restoration and Enhancement Project
- Countywide IEPA Section 319 partnership with SMC

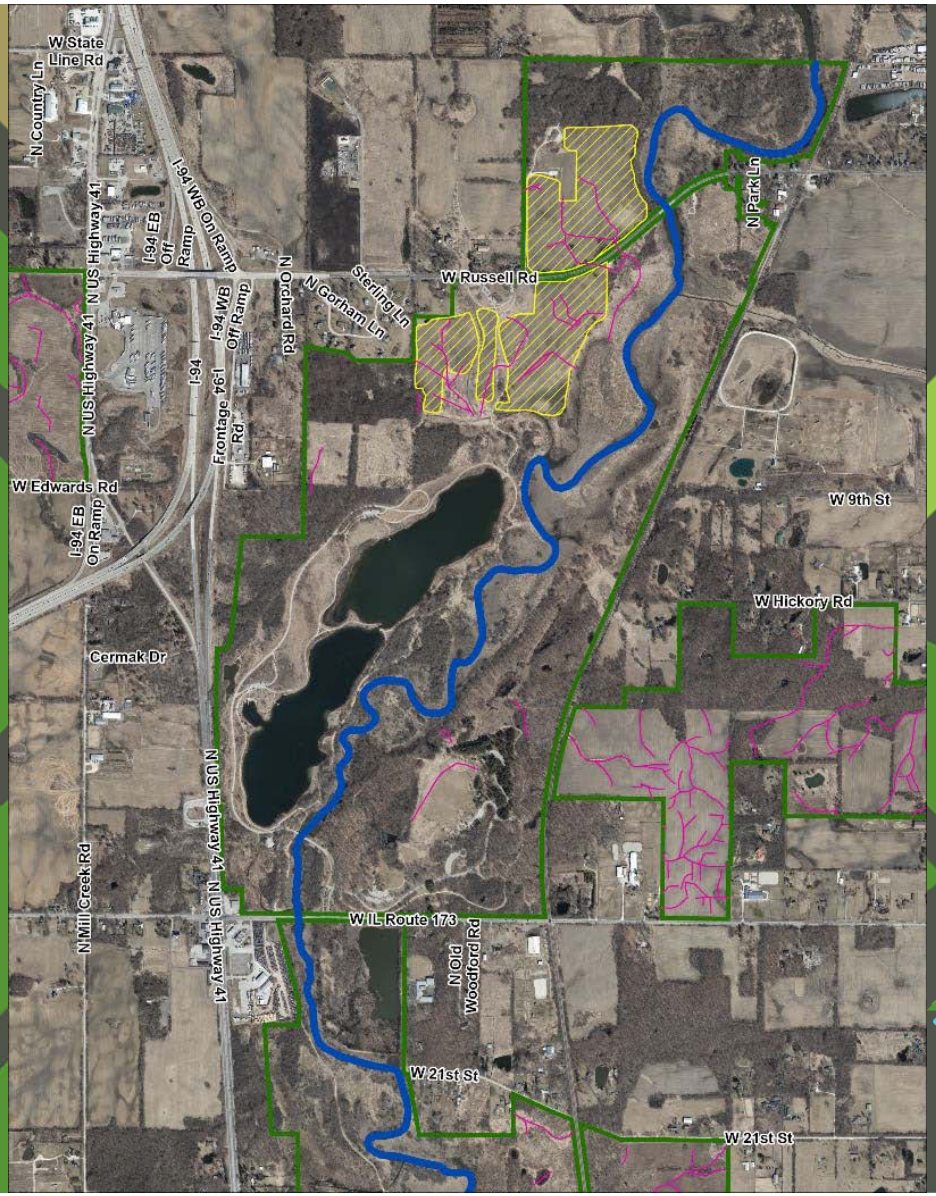
Issues

- Annual Cultivation
- Drain Tiles
- Altered Surface Flows
- Invasive Species, esp. buckthorn, teasel, RCG, cattails

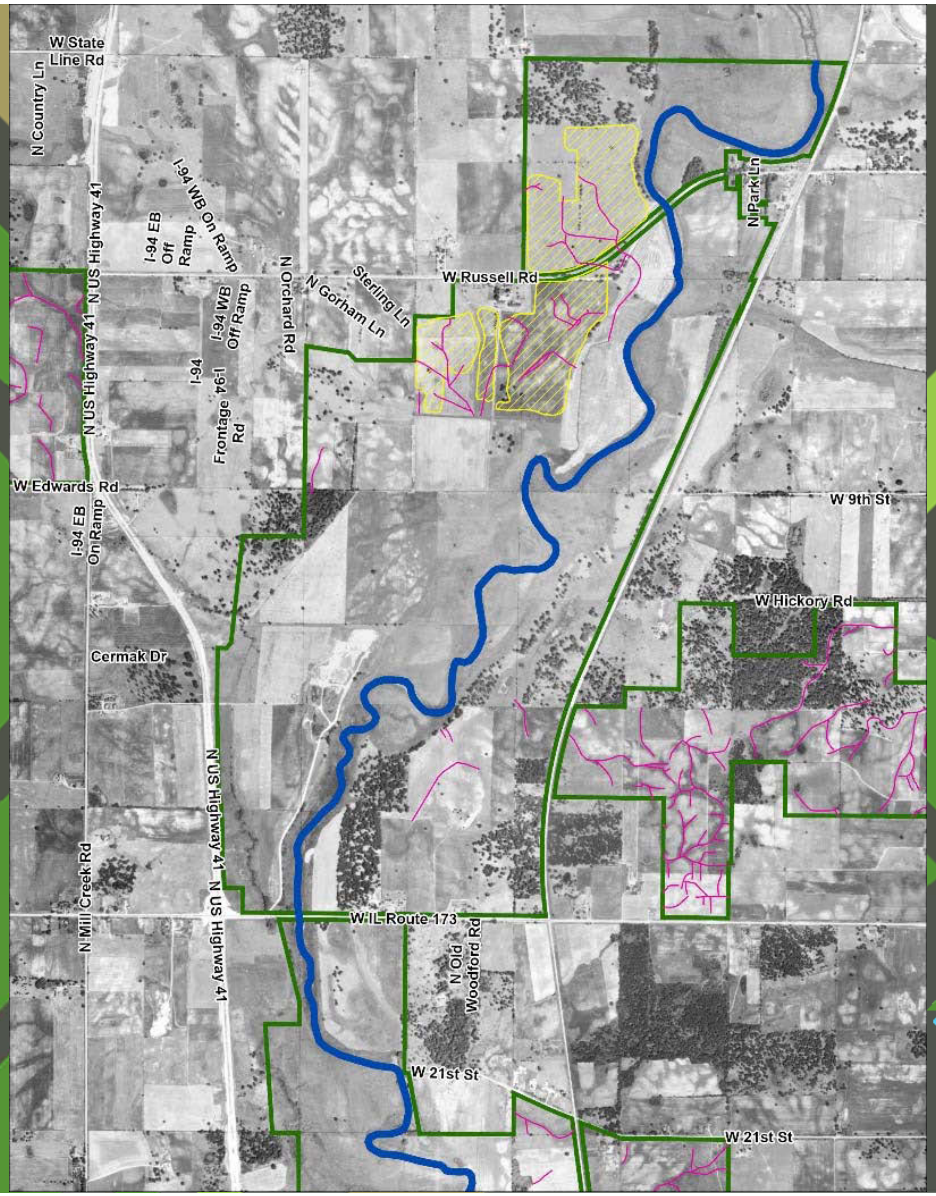



ZONE AE
W Russell Rd
Sterling Ln
N Gorham Ln
ZONE AE
(EL 674)
STERLING
LANE

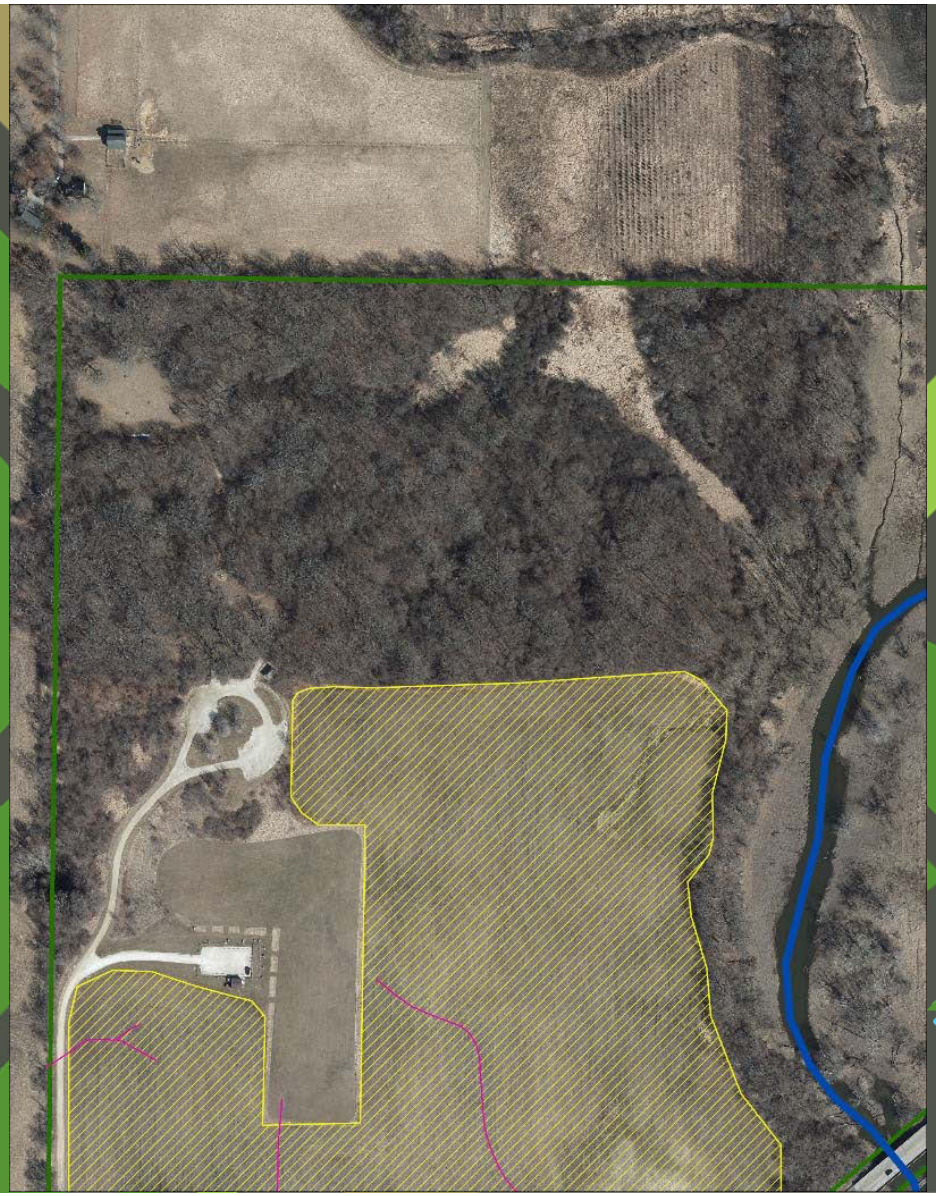
2018


W State Line Rd
N Country Ln
N US Highway 41
I-94 EB Off Ramp
I-94 WB On Ramp
N Orchard Rd
N Gerham Ln
Sterling Ln
W Russell Rd
N Park Ln
I-94 WB On Ramp
I-94
I-94 EB On Ramp
Frontage Rd
W Edwards Rd
W 9th St
W Hickory Rd
Cermak Dr
N Mill Creek Rd
N US Highway 41
W IL Route 173
N Old Woodford Rd
W 21st St
W 21st St

1939


W State Line Rd
N Country Ln
N US Highway 41
I-94 EB Off Ramp
I-94 WB On Ramp
I-94 WB Off Ramp
I-94
Frontage Rd
N Orchard Rd
N Gorham Ln
Sterling Ln
W Russell Rd
N Park Ln
W Edwards Rd
I-94 EB On Ramp
W 9th St
W Hickory Rd
Cermak Dr
N US Highway 41
N Mill Creek Rd
W IL Route 173
N Old Woodford Rd
W 21st St
W 21st St

2018



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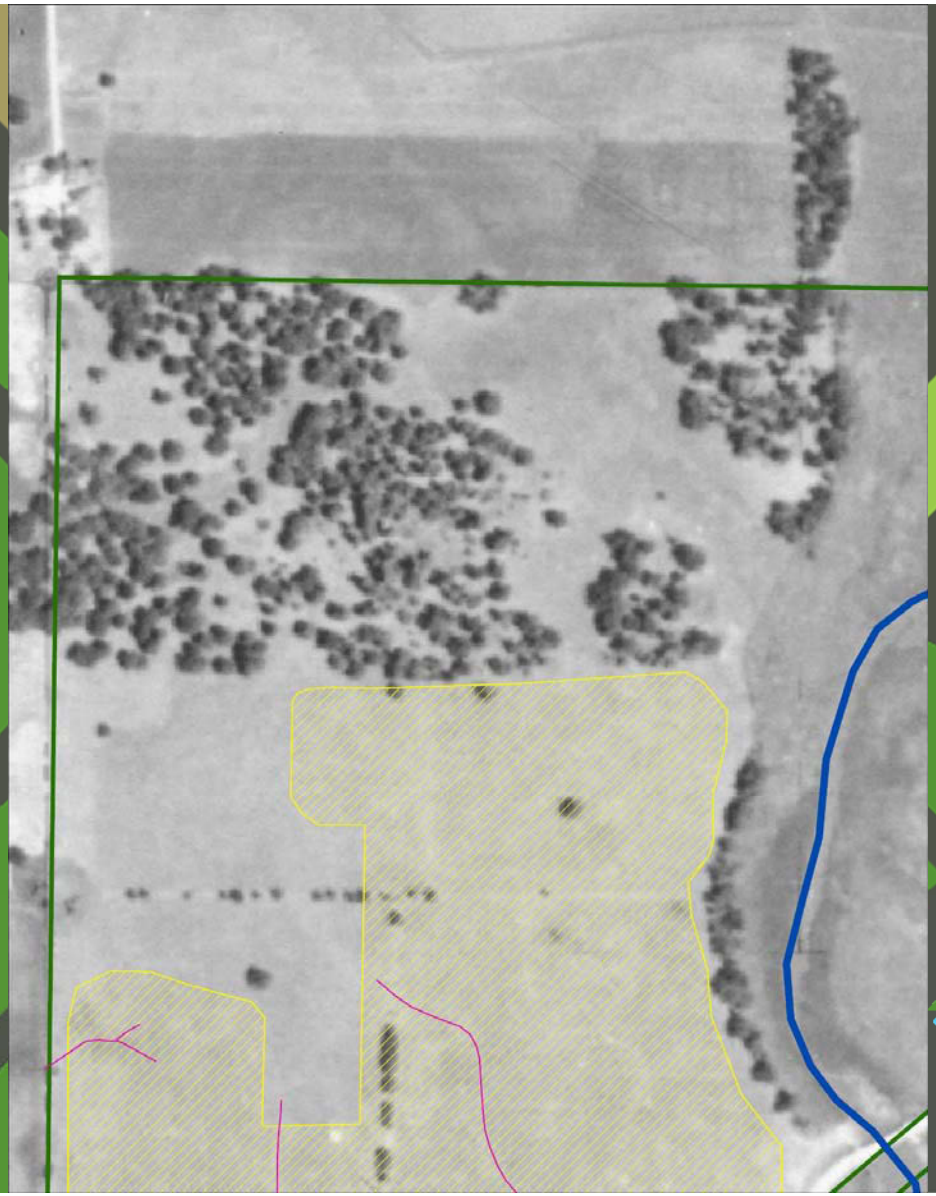
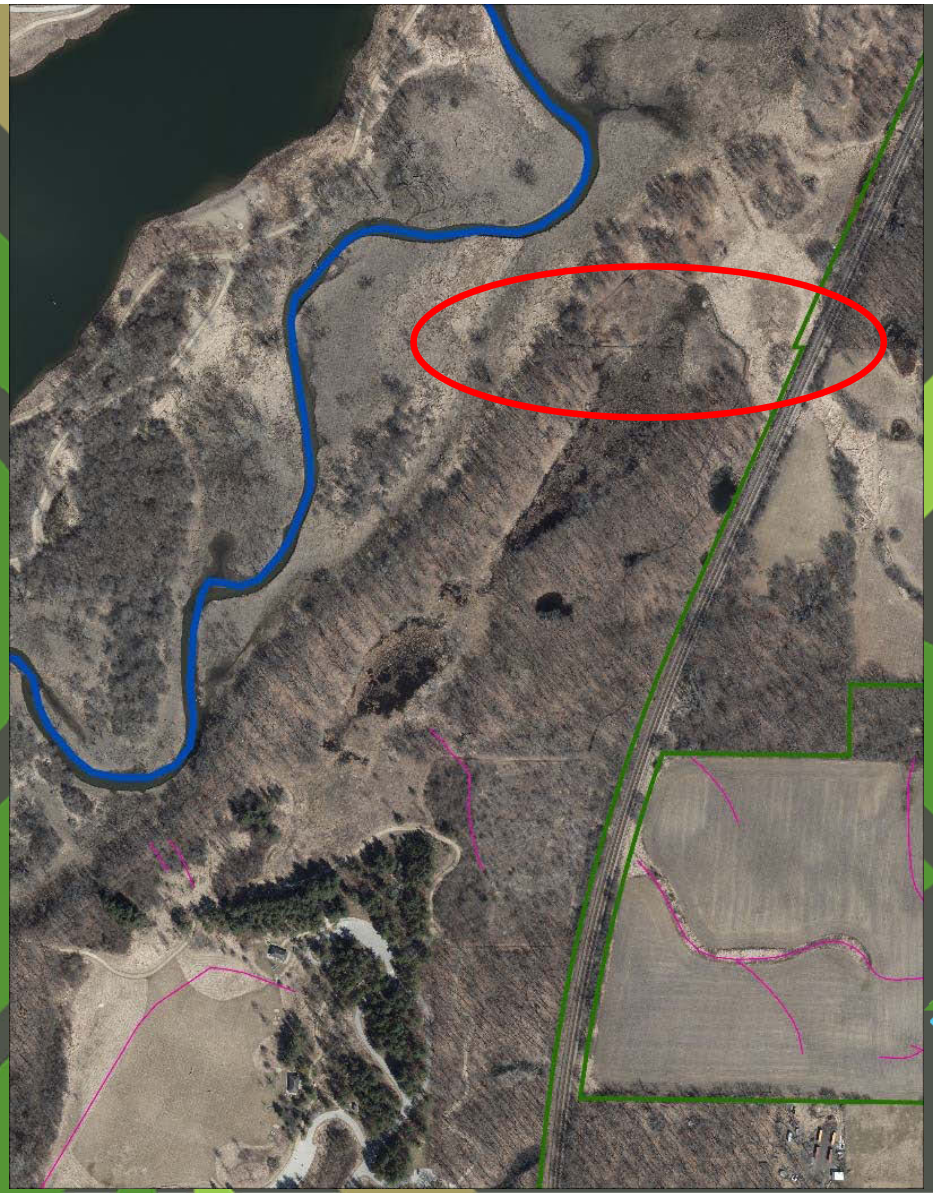
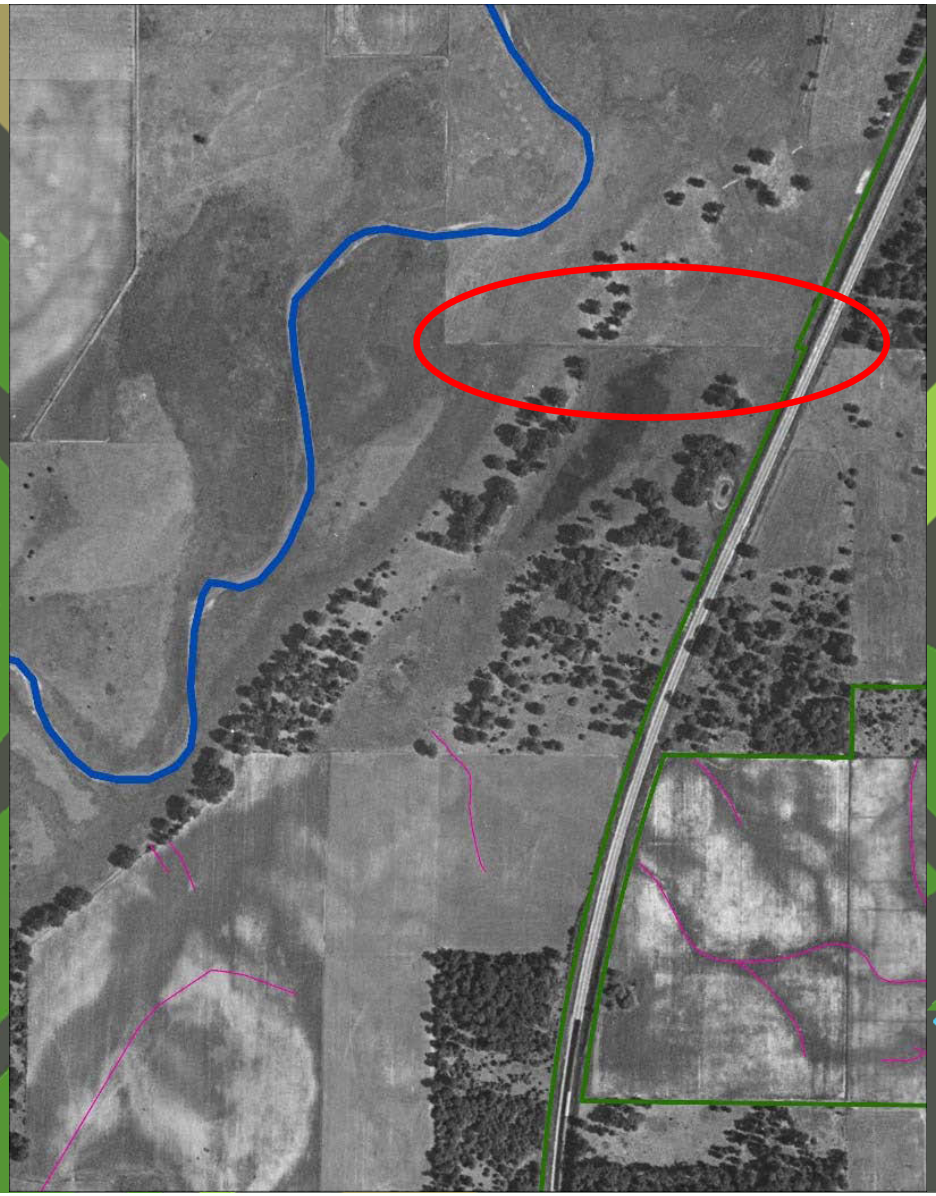


2018



1939



Implementation

- Drain Tiles/Wetlands Before

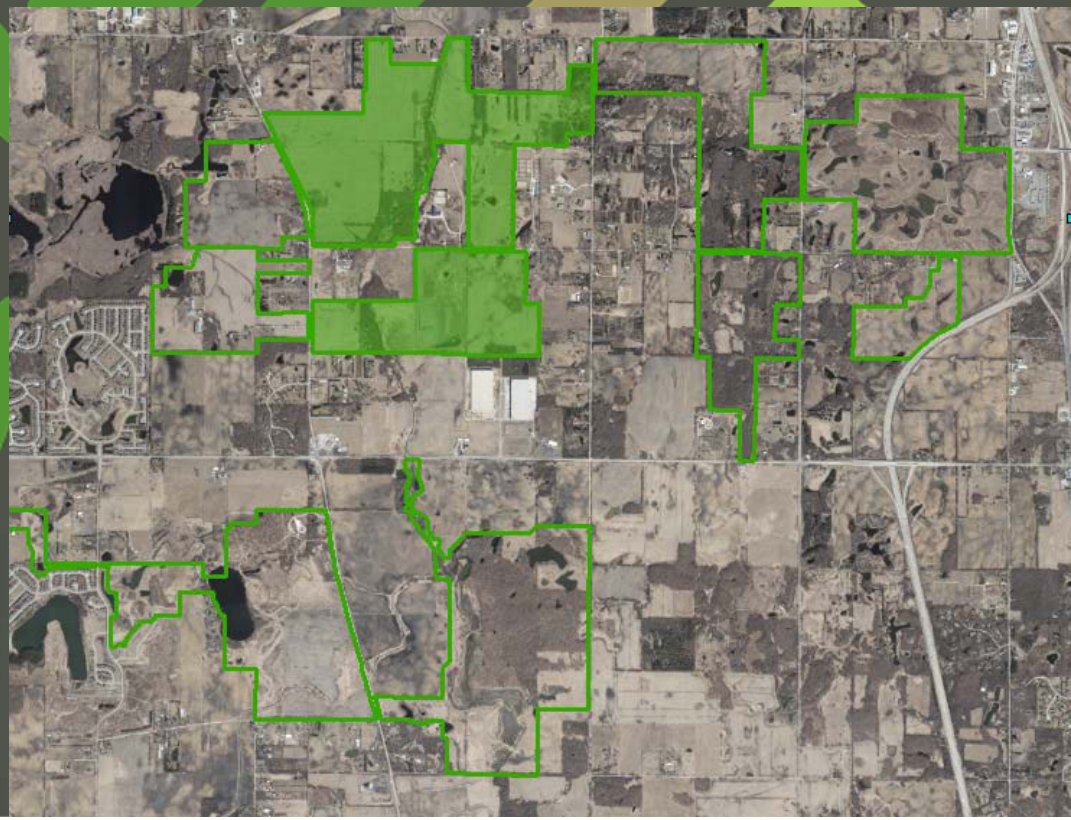
- Drain Tiles/Wetlands After

- Drain Tiles/Wetlands Before

- Drain Tiles/Wetlands After

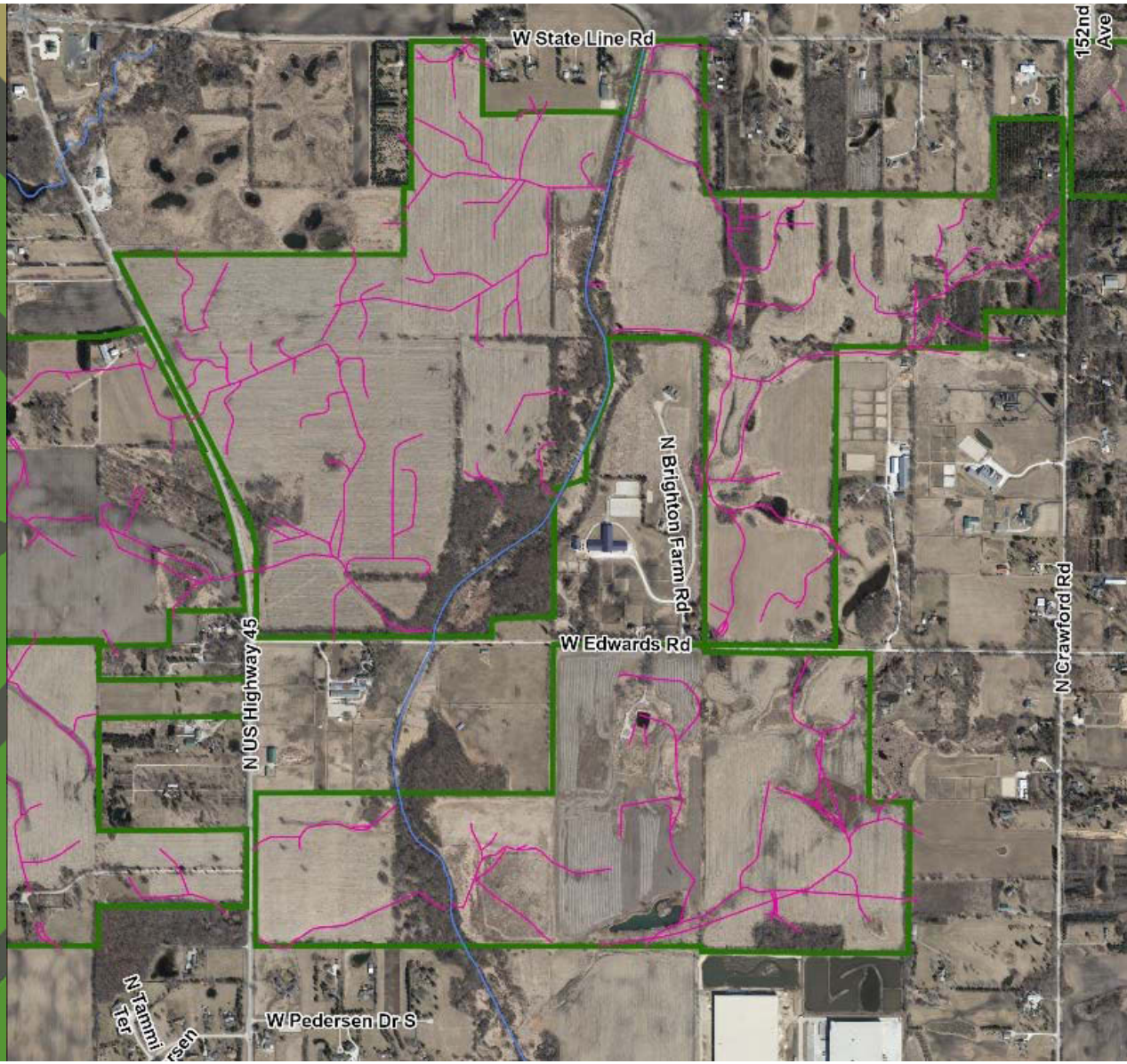
Dutch Gap Forest Preserve

- US Army Corps of Engineers Section 206 – Aquatic Ecosystem Restoration Project



Issues

- Wetlands drained by tiles
- Stream is channelized
- Annual cultivation
- Invasive Species



Dutch Gap Canal project turns marshes into cornfields

Early in 1850, *the village of Southport was transformed into a city called Kenosha. At almost the same moment, the Legislature split off the southern half of old Racine County to form a new Kenosha County. This year, both city and county mark their sesquicentennial birthdays. This bi-weekly series looks back over those 150 years to recount events, big and small, which illuminate our local history.*

BY DON JENSEN
SPECIAL TO THE KENOSHA NEWS

As canals go, Dutch Gap isn't much. No Panama or Suez, this rural drainage ditch flows sluggishly, barely a yard wide and a foot deep in dry weather.

Less than seven miles long, the Dutch Gap Canal is one of about 15 such drainage channels dug during the first years of the 20th century.

For nearly 85 years, it has drained thousands of acres of Kenosha County agricultural land, allowing farmers to grow corn, rather than reeds and cattails.

Early farmers battled it out in court – to ditch or not to ditch. The outcome teetered back and fourth – yes, no, then yes again – until the canal finally was dug in 1916.

Nothing fancy, the Dutch Gap does its job, and well. But in the beginning, the canal was highly controversial. Early farmers battled it out in court – to ditch or not to ditch. The outcome teetered back and fourth – yes, no, then yes again – until the canal finally was dug in 1916.

Dutch Gap Canal begins near Highway C in Bristol, due north of George Lake, whose overflow waters it drains. The canal runs southeast, crossing highways V, CJ and WG, the stateline road, continuing into Illinois. The canal ends at Mill Creek, which flows east to join the Des Plaines River near Wadsworth, Ill. By way of the Des Plaines, then the Illinois and Mississippi Rivers, Dutch Gap's waters eventually reach the Gulf of Mexico below New Orleans, a thousand miles away.

Dutch Gap's early history is lost in the past, as is the origin of the name. One theory is that pioneer farmers saw their task as similar to the Dutch draining and reclaiming polders from the sea in Holland. But it might also be a reference to a few Dutch or German farm families in the Bristol area in the early days. Maps from the 1860s and 1870s show a wandering but nameless watercourse, apparently a natural stream. It seems likely that individual farmers, laboriously digging by hand, straightened and deepened the drainage route. An 1887 plat map labels it the Dutch Gap Canal for the first time.

George A. Shields, a Bristol farmer who owned 180 of the marshiest acres south of Wilmot Road (Highway C), apparently began the formal effort to dig a proper canal shortly before the turn of the century. He was joined by a handful of neighbors and a survey was conducted in 1903. But those living further to the west, who had less of a water problem, were reluctant to share the cost of dredging and maintaining a canal. In the face of opposition, the Bristol Town Board scrapped the proposal.

In 1909, Shields persuaded 30 property owners to sign a petition seeking a drainage district. The issue went to Circuit Court, and it seemed the earlier opposition had dwindled. Anticipating a favorable ruling, Shields lined up a dredging firm to dig the canal. But opponents gathered strength and some key proponents backed off. The court rejected the plan and more years went by.

Finally, in 1916, a smaller drainage district, with 77 property owners willing to foot the bill, was formed. On March 2, Stephen A. Knoblock arrived from Indiana with several railroad cars of dredging equipment. The dredge was a large barge with a huge steam shovel mounted at its head. Behind was a second scow where the eight-man crew ate, slept and lived while the work was in progress.

Digging began April 20. The dredge dug its way across the fields, floating on the waters that filled the ditch as it moved slowly ahead. The canal was 22 feet wide at the top and six feet deep, though the banks built up at either side made it seem deeper. The dredge dug its way south, its crew working around the clock, seven-days-a-week, during the rainiest, muddiest spring Bristol had known in years. It crossed the Crawford and Benedict farms, through Brandt's and Firchow's, and crossed Horton Road.

On John White's land, just north of the stateline, the owner's son, Clarence, snapped photos of the monster machine, whose "dipper" scooped up one cubic yard of earth at a time.

Though it was outside the boundaries of the district, the dredge continued into Illinois, apparently with the consent of most of the farmers along its route. One, however, flatly refused to let the diggers pass. Late on a Saturday night, however, the dredgers got up a full head of steam and began gobbling up dirt as they worked across his fields.

Furiously, he hitched his team to the buggy and headed to Waukegan to get a court-ordered injunction to halt the digging. Unable to find a judge on Sunday, the farmer didn't get back home with his restraining order until Monday morning. By that time, the dredge had passed through his land and was on the next farm.

Snow was flying when, on Dec. 6, 1916, the Dutch Gap Canal reached Mill Creek, and, as the Kenosha Evening News reported, "waters from Kenosha County started on their long trip to the Gulf of Mexico." The cost was $14,622, just about a dime for each of the approximately 150,000 cubic yards of earth moved during the eight-month project.

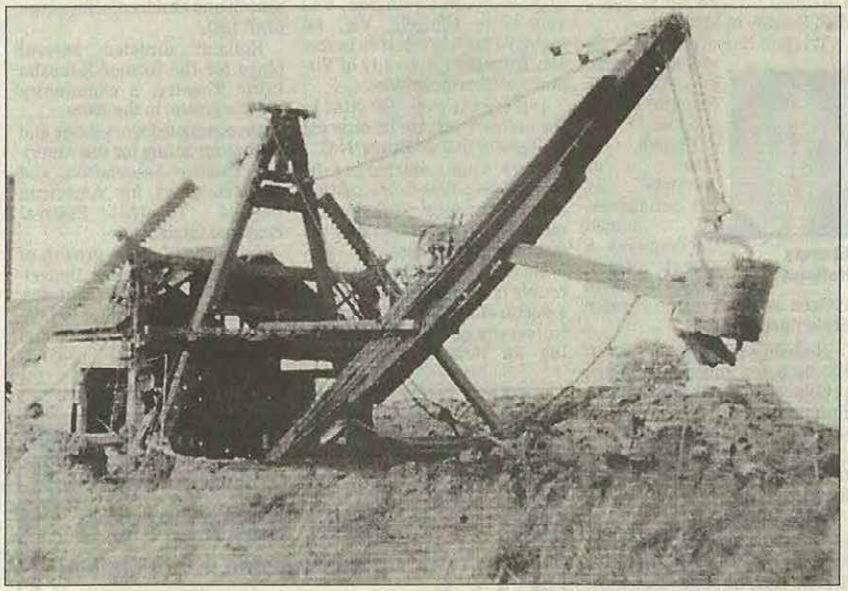
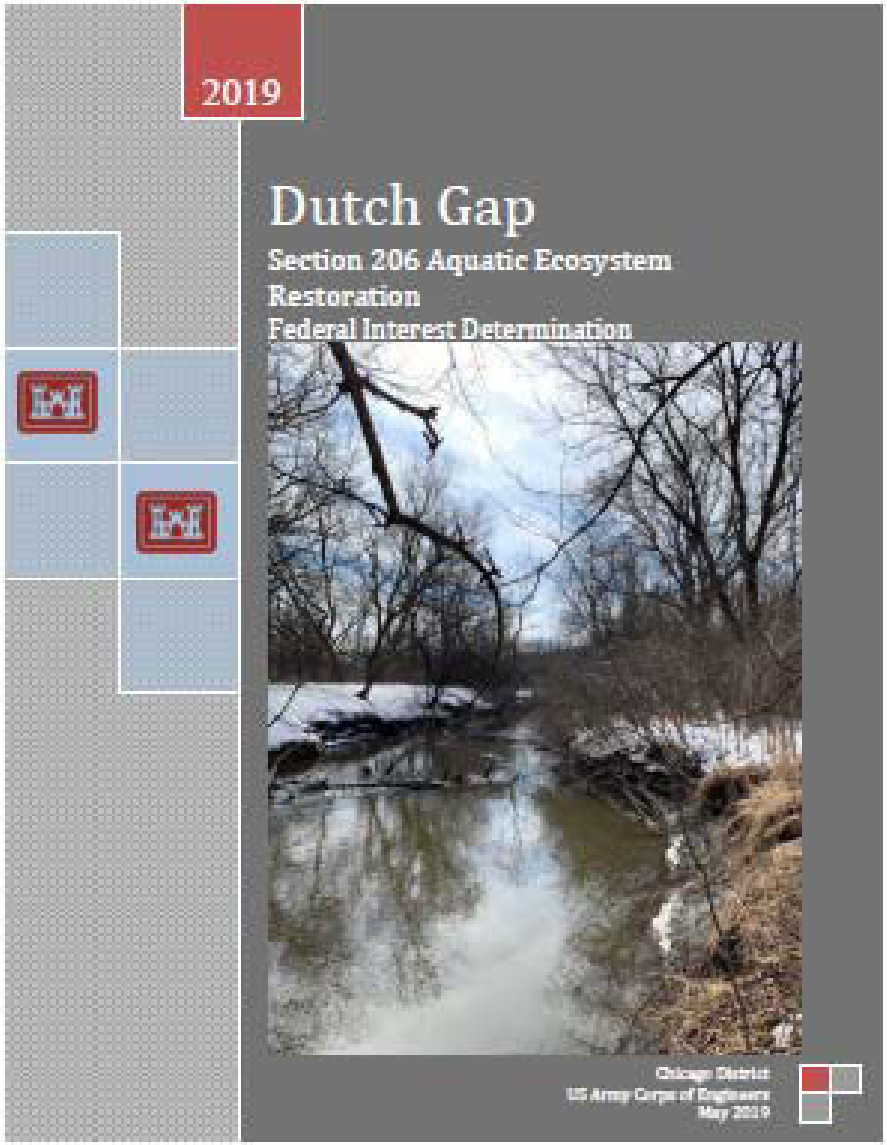


PHOTO COURTESY OF THE KENOSHA HISTORY CENTER

A steam-powered "dipper" on a floating barge works its way across Kenosha County fields, digging the Dutch Gap Canal in 1916.

- USACOE engaged LCFPD several years ago
- Previous Upper Des Plaines River Phase II Flood Study



PROBLEMS

Altered Land use

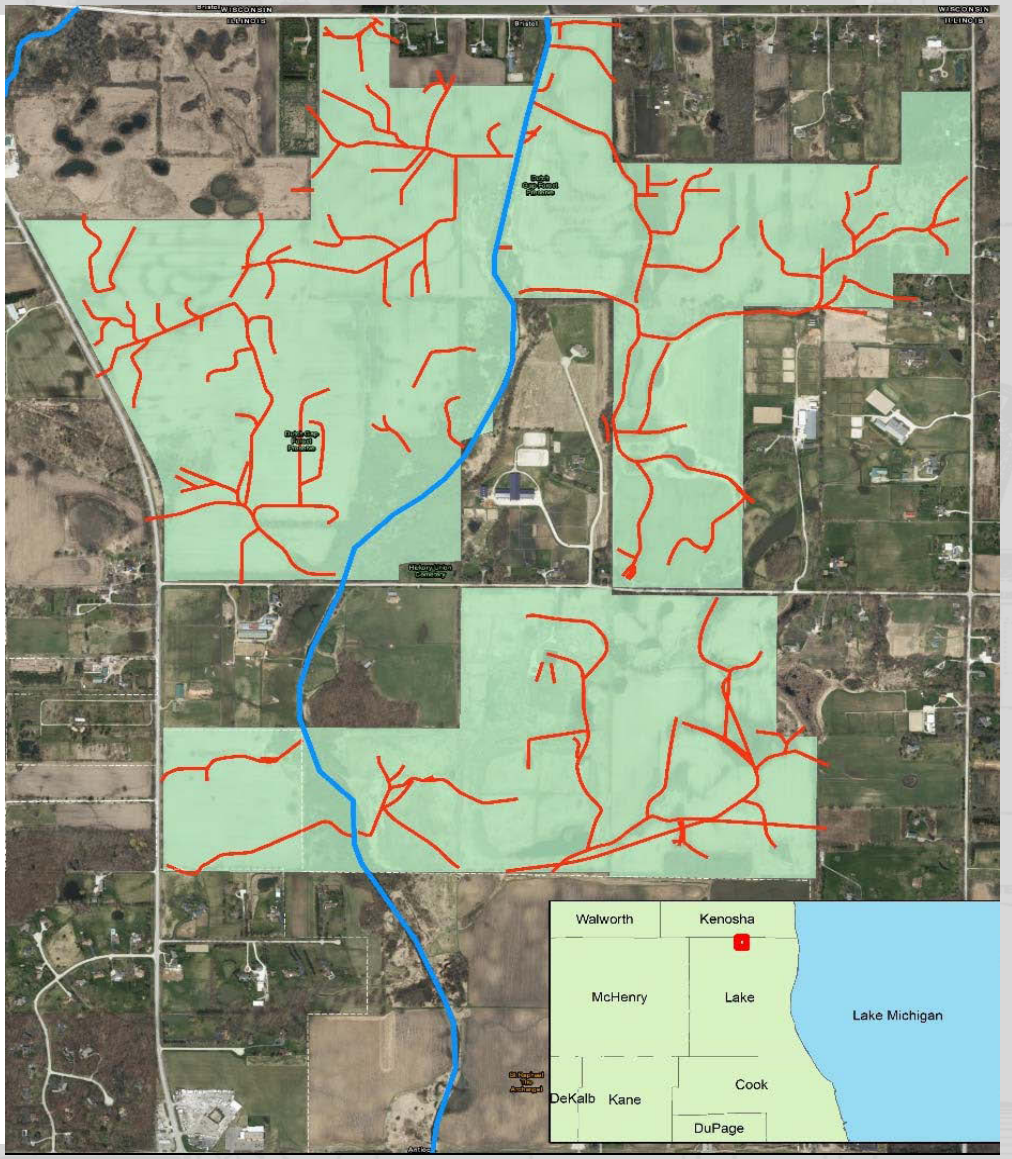
Agriculture and urban development have had a major influence on the physical structure of the Dutch Gap ecosystem

Altered Hydro & Fluvialgeomorphology

Vast areas of tile drained hydric soils and channelized stream reaches have severely reduced the extent of Dutch Gap stream and valley wall hyporheic zone and severed the stream from its floodplain.

Dominance of invasive and non-native plant species and barren agriculture land

Reed Canary Grass and a host of other invasive plants rely on the altered hydrologic and nutrient-rich conditions. Land use changes and suppression of natural process lead to native species suppression.



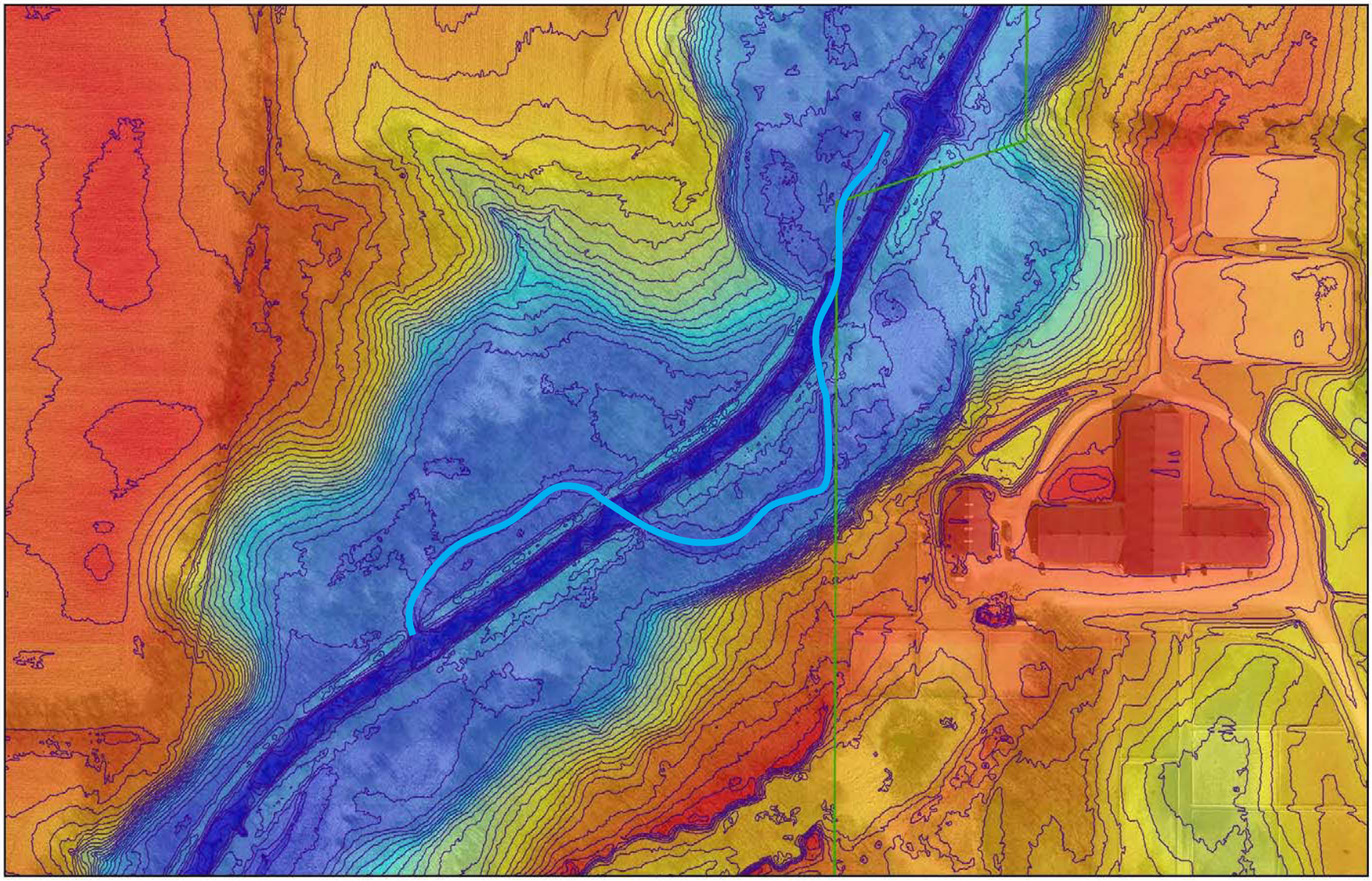
OPPORTUNITIES

Opportunities are benefits, or positive aspects, for the community or environment that can be achieved in addition to the study objectives. Opportunities may not necessarily be related to the TSP objectives but they may be achieved in the process of meeting the objectives. Below are major opportunities for the Dutch Gap study:

- Re-establish native plant communities
- Re-establish in-stream communities
- Eliminate or significantly reduce invasive species
- Eliminate acres of non-point source sedimentation
- Improve water quality

US Army Corps of Engineers

U.S.ARMY



Proposed

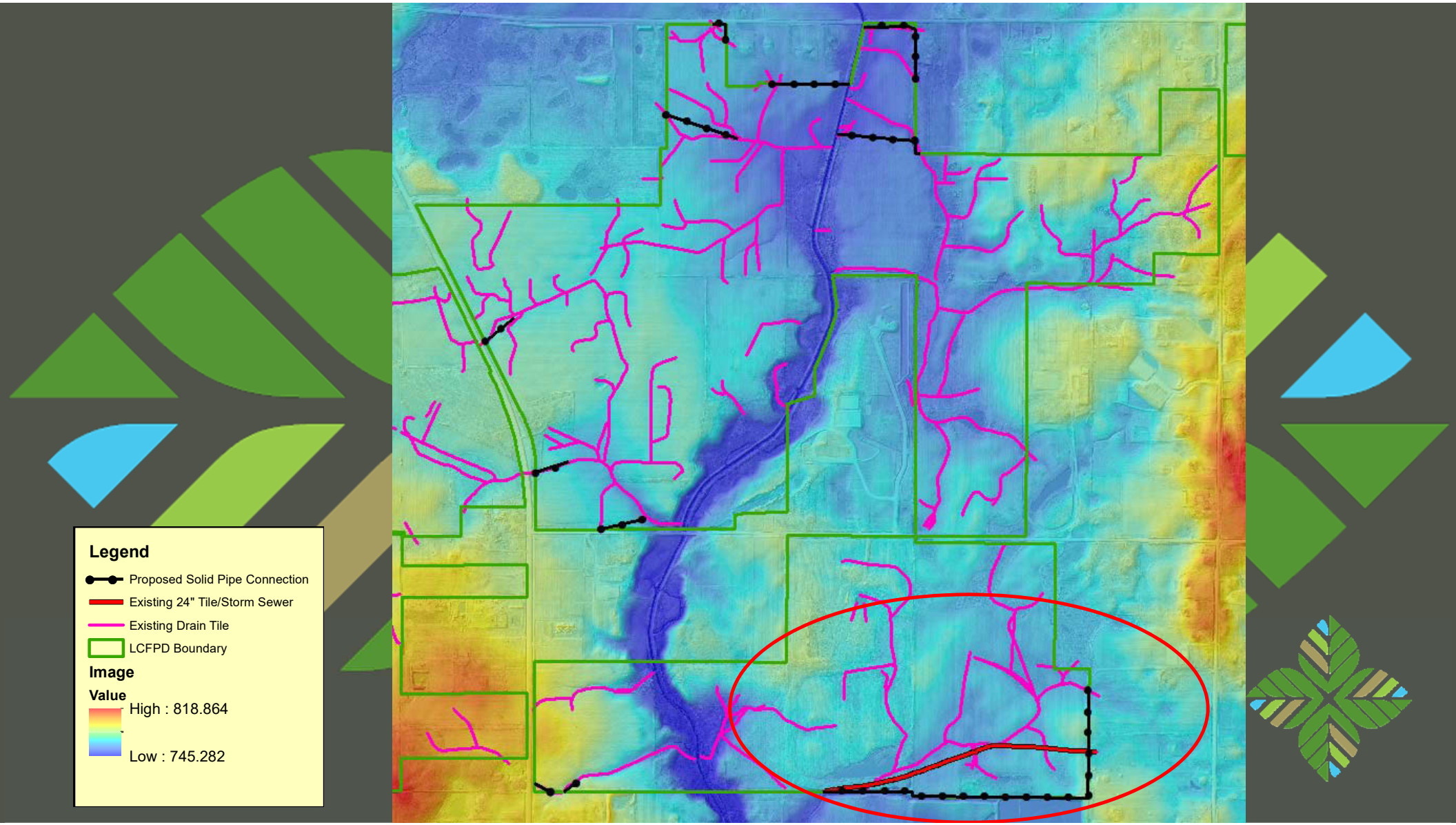
- Re-establish riverine habitats

Proposed

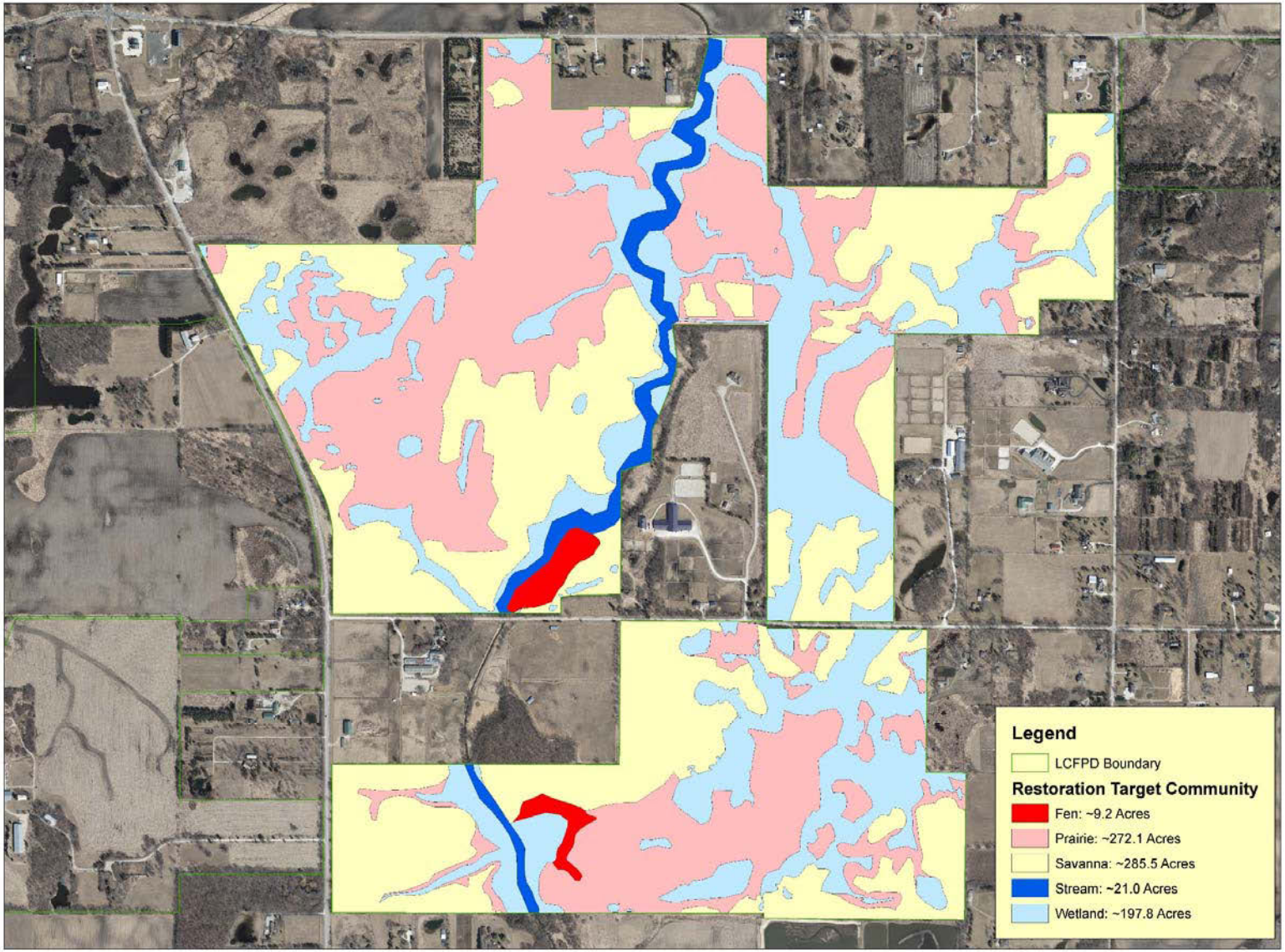
- Create/connect with floodplain
- Add riffles and other in-stream features

Proposed

- Remove invasive species

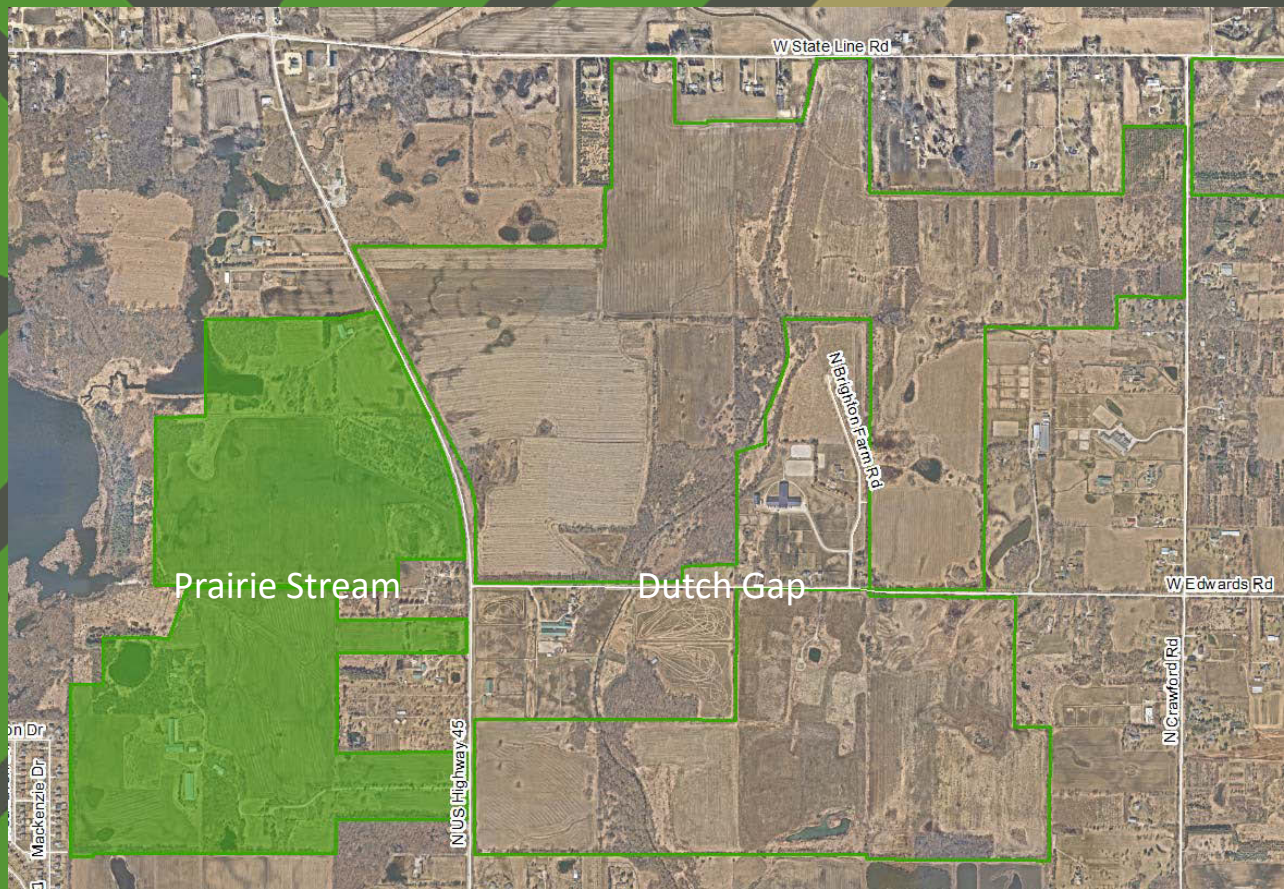

Legend
Proposed Solid Pipe Connection
Existing 24" Tile/Storm Sewer
Existing Drain Tile
LCFPD Boundary
Image
Value
High : 818.864
Low : 745.282

Lake County Forest Preserve District; Dutch Gap Forest Preserve
USACOE Section 206; Preliminary Planning - Hydrology - 24" Tile/Storm Sewer Plan


Legend
LCFPD Boundary
Restoration Target Community
Fen: ~9.2 Acres
Prairie: ~272.1 Acres
Savanna: ~285.5 Acres
Stream: ~21.0 Acres
Wetland: ~197.8 Acres

Prairie Stream Forest Preserve

- Planned Mitigation Bank Site
- Landowner Partnership with Resource Environmental Solutions LLC

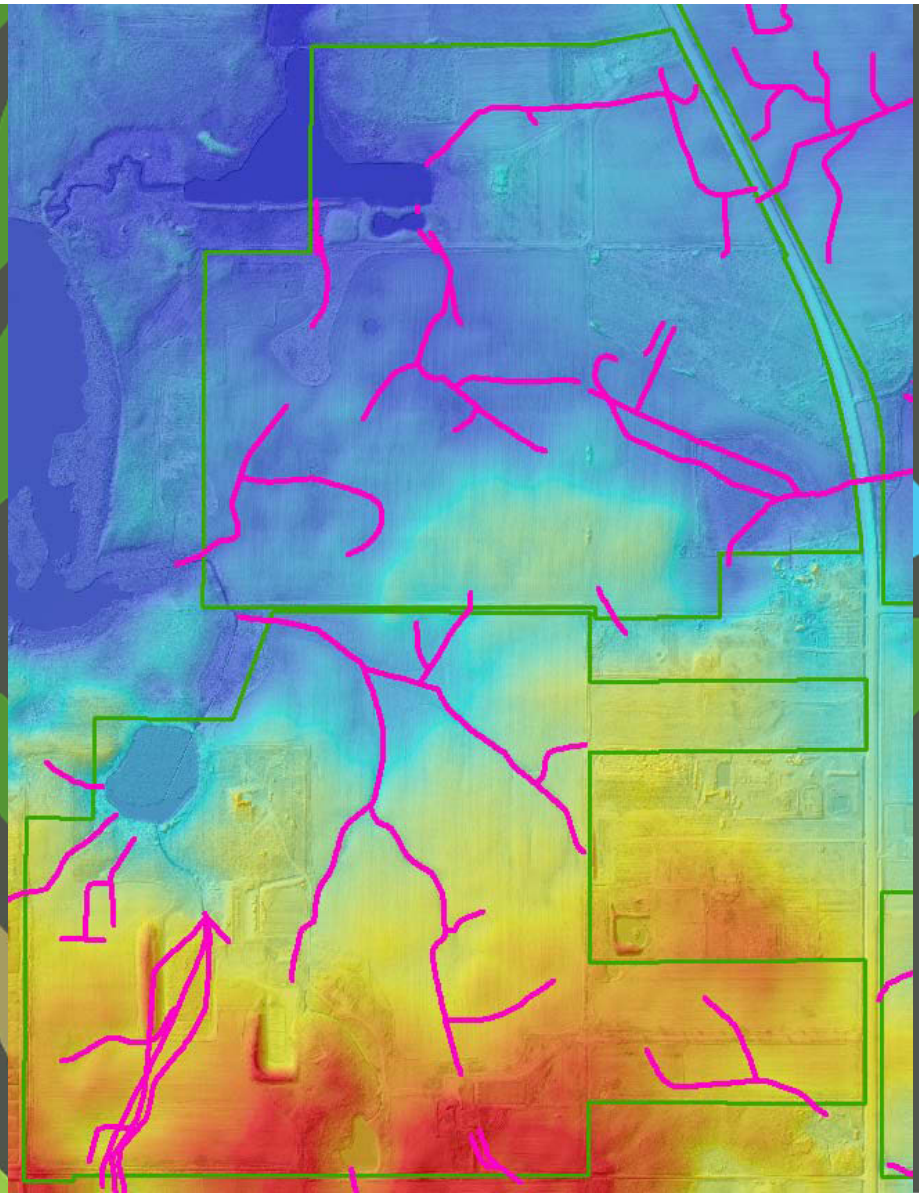


Prairie Stream Forest Preserve

- Existing:
  - Low-quality wetlands
  - Modified hydrology
  - Agricultural production
  - Low diversity/lack of native vegetation

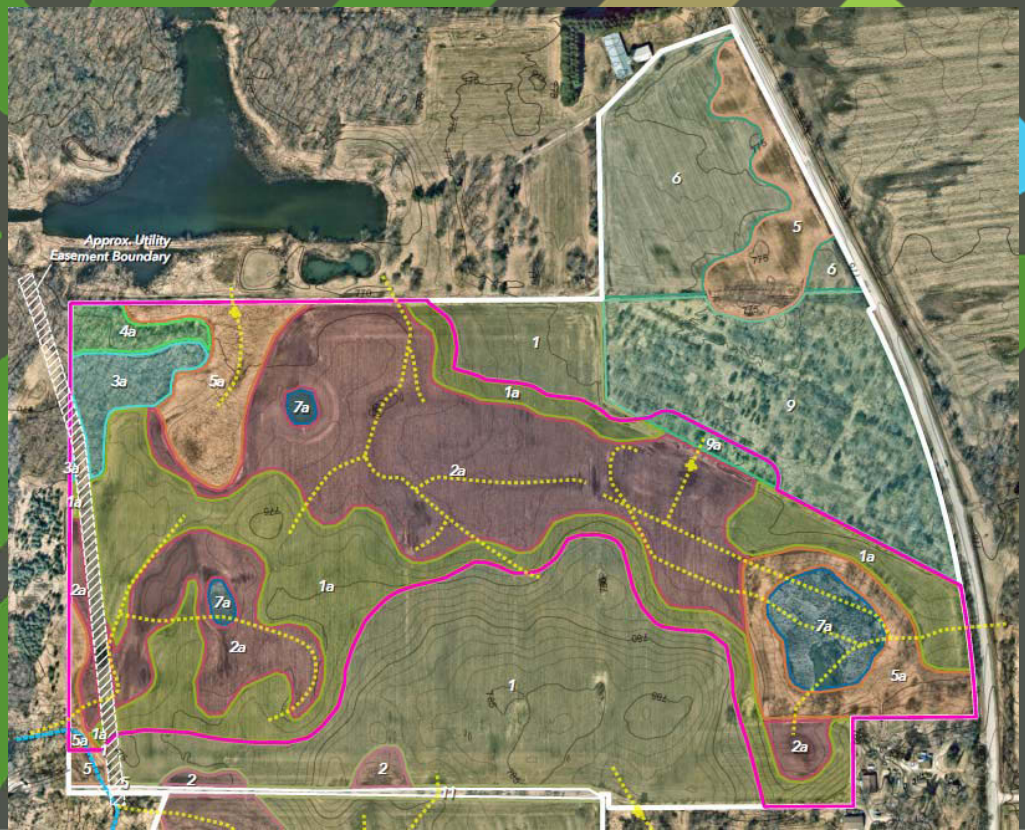
Prairie Stream Forest Preserve

- Opportunities/Bank Goals:
  - Maximize Credits with minimal earthwork
  - Consider maintaining ag fields for LCFPD revenue/phasing
  - Creation of varied wetland habitats utilizing existing topo
  - Connectivity to other natural areas



Prairie Stream Forest Preserve

- Final Plans and Agreement are still in development
  - Up to 67 acres restored
  - Up to ~40.85 credits available
  - Exploring options for restoration of the entire site



Thank You
Questions?

Matt Ueltzen
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Lake County Forest Preserve
1899 W. Winchester Rd
Libertyville, IL 60048
mueltzen@LCFPD.org
847-968-3290

Geosyntec consultants

Des Plaines River Watershed Workgroup Nutrient Assessment and Reduction Plan (NARP)

February 17, 2022

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

THE CONSERVATION FUND

Outline

- NARP Background
- Data Analysis
- Watershed Model Development
- Summary and Next Steps

NARP Background

Geosyntec consultants

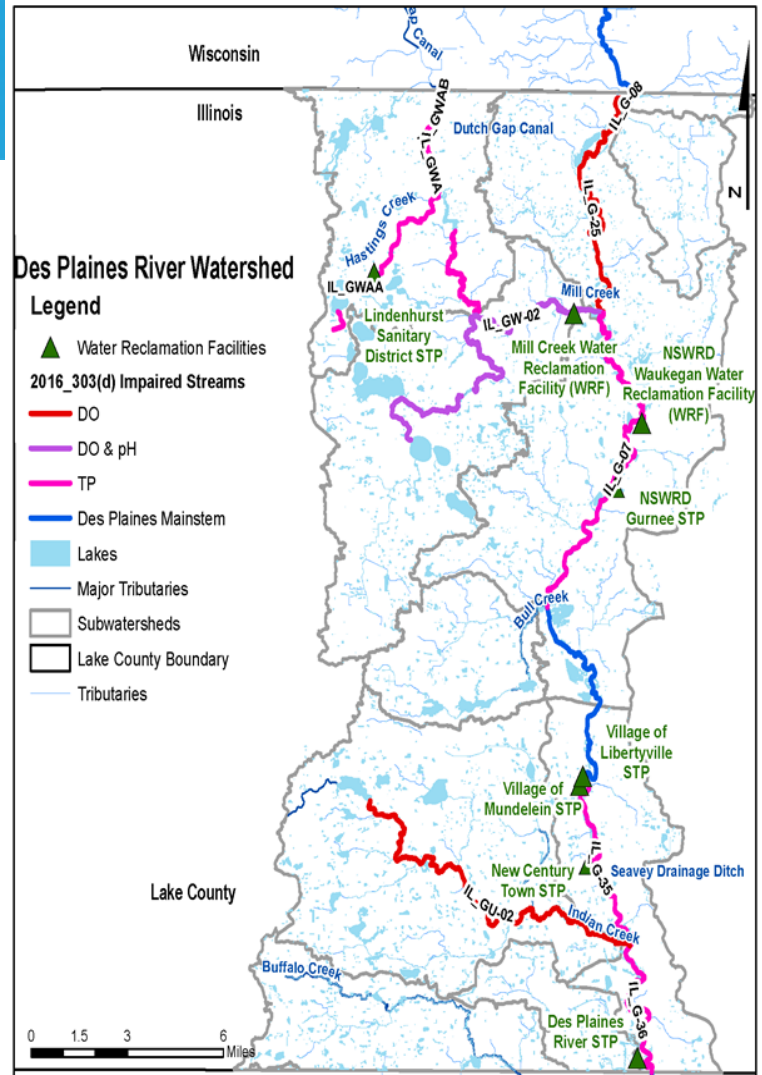
What is a NARP ?

- Nutrient Assessment Reduction Plan – due Dec 31, 2023
- 2018 Agreement between Illinois Association of Wastewater Agencies (IAWA), Illinois Environmental Protection Agency (IEPA), and environmental groups
- Special conditions in NPDES discharge permits for wastewater treatment plants (WWTPs) to address the phosphorus-related impairments in receiving waters
  - Dissolved Oxygen
  - Nuisance Algae
- Municipal separate storm sewer system (MS4) permits require communities to meet TMDL (or alternative) requirements
  - NARPs are alternatives to TMDLs
- Flexibility to develop watershed-specific targets

Lower Des Plaines River.
Photo by Cynthia Skrukrud.

DRWW NARP Conditions

- NARP Special Conditions
  - 8 major POTWs
  - DRWW implementation of NARP workplan
- NARP Workplan
  - Developed by Geosyntec
  - Established NARP objectives
  - Monitoring and modeling recommendations
  - Schedule and scope for NARP development

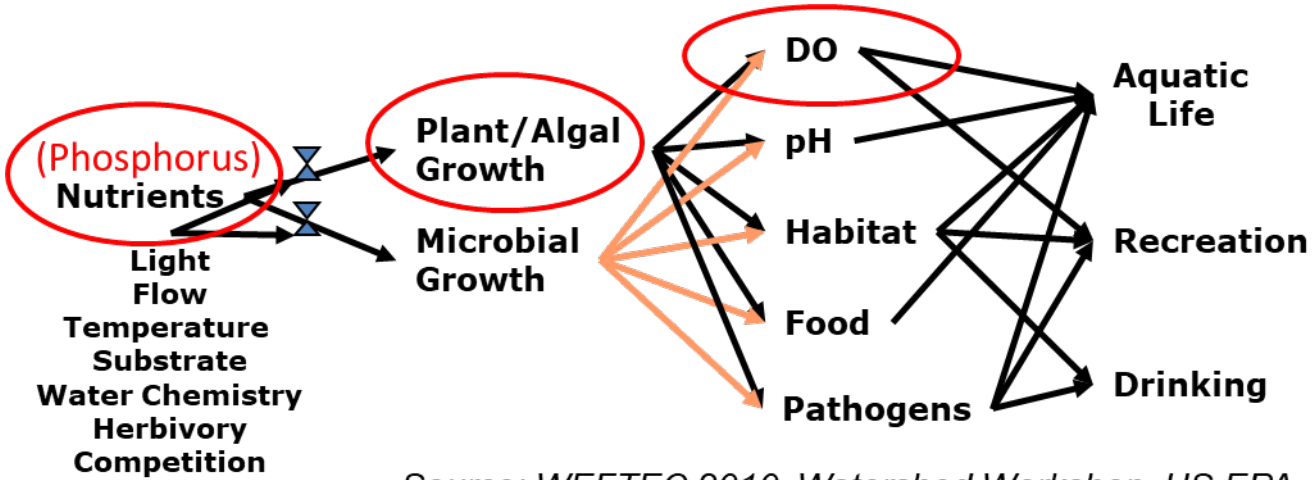


Data Analysis

Geosyntec consultants

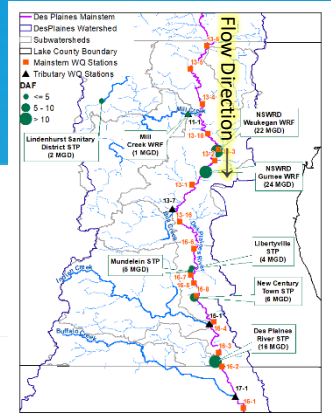
Data Analysis

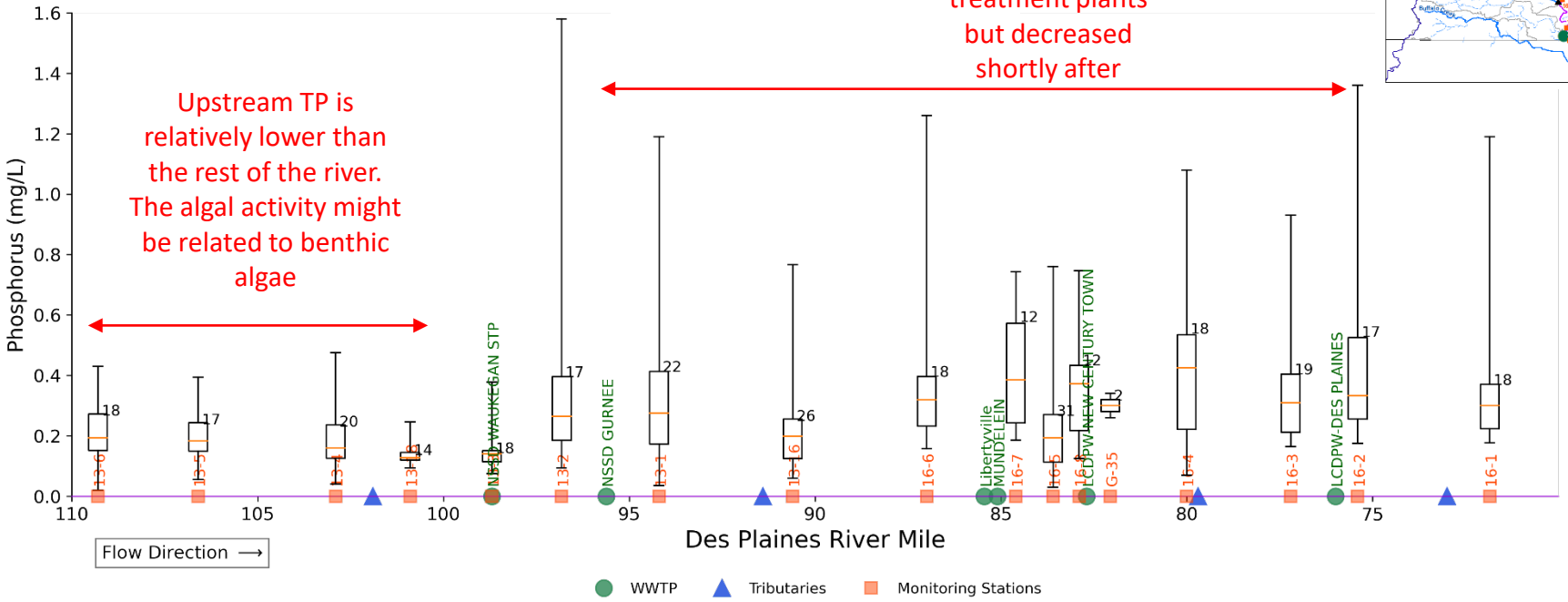
- Analyzed longitudinal patterns in mainstem Des Plaines River for
  - Total Phosphorus
  - Chlorophyll-a
  - Dissolved Oxygen



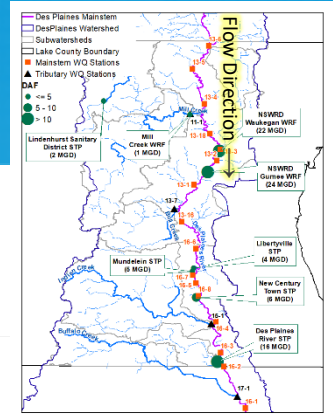
Source: WEFTEC 2010, Watershed Workshop. US EPA.

Total Phosphorus or TP (May – Oct.) 2017-2021



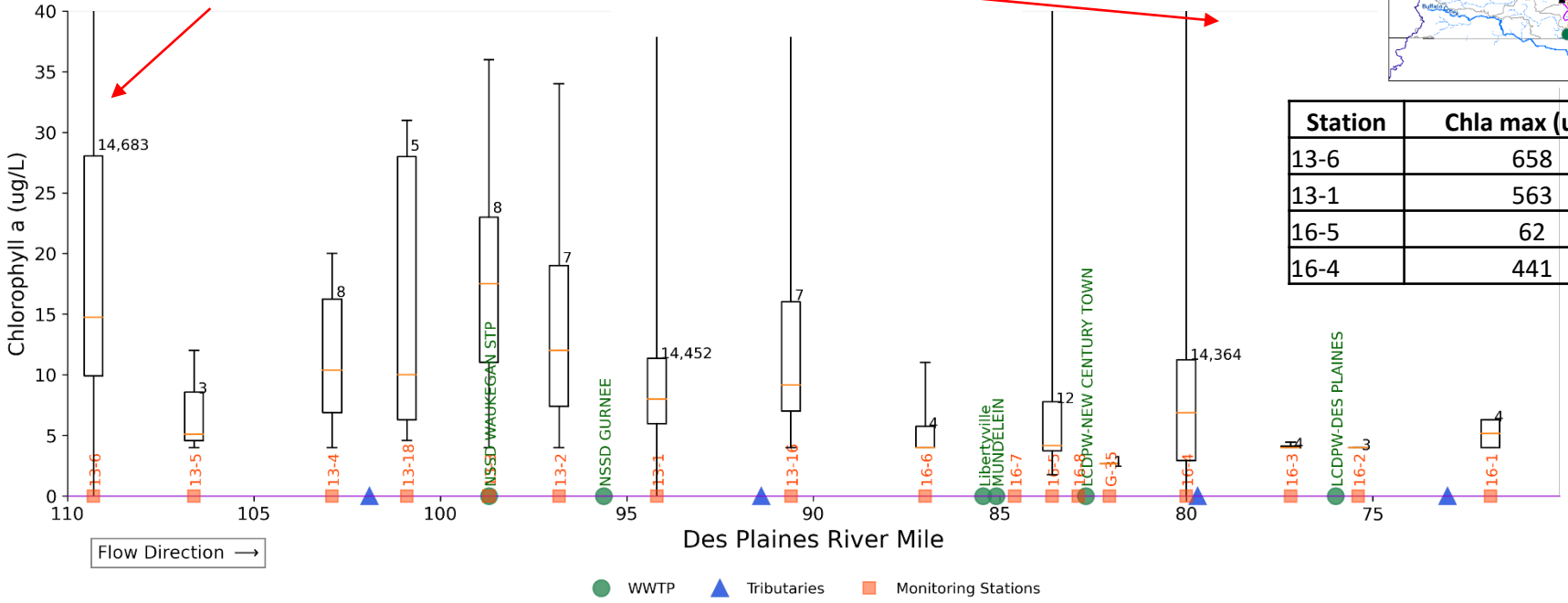


Chlorophyll-a (May – Oct.) 2017-2021



Chlorophyll-a improves as you go downstream
(still maximum value is high)

High Chl-a at
the upstream

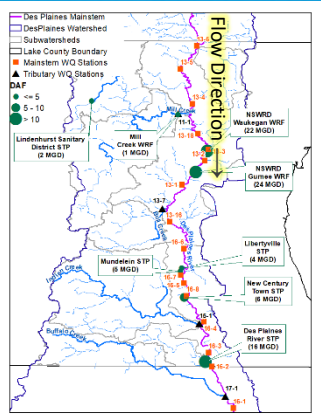


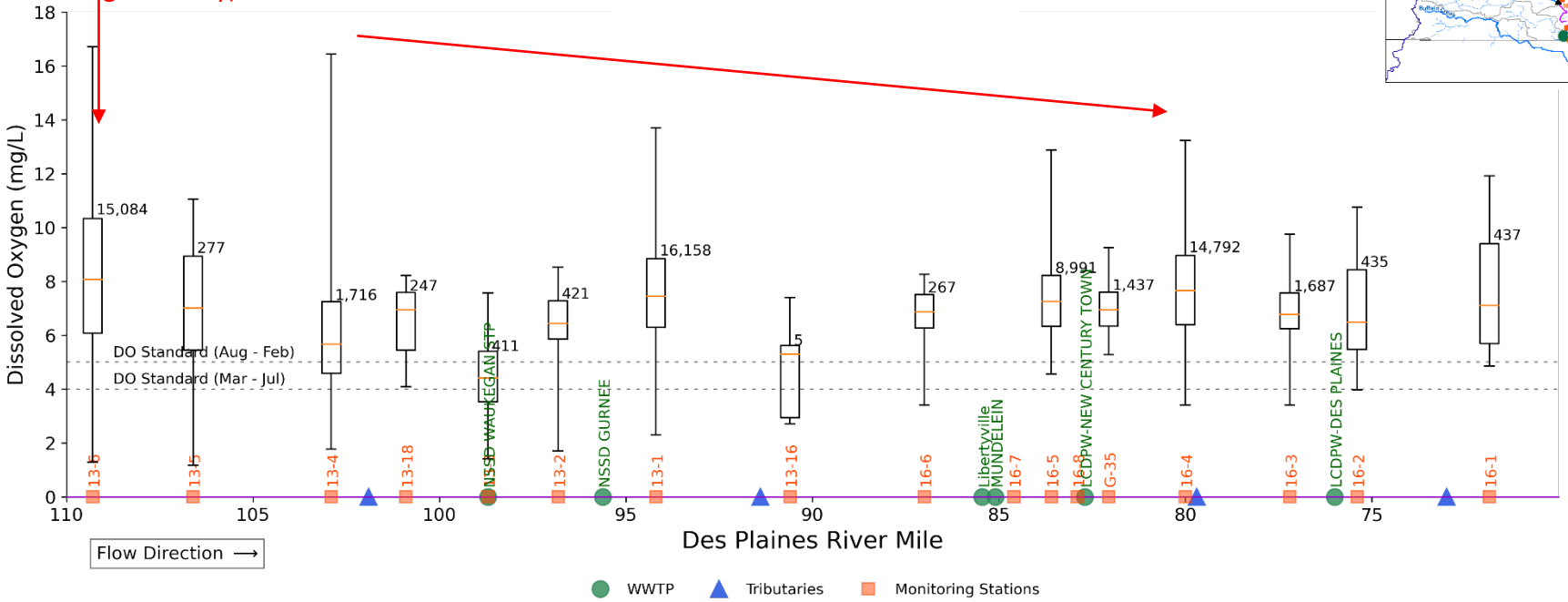
Station	Chla max (ug/L)
13-6	658
13-1	563
16-5	62
16-4	441

Dissolved Oxygen (May – Oct.) 2017-2021

High DO Swings coming from the upstream boundary (potential algal activity)

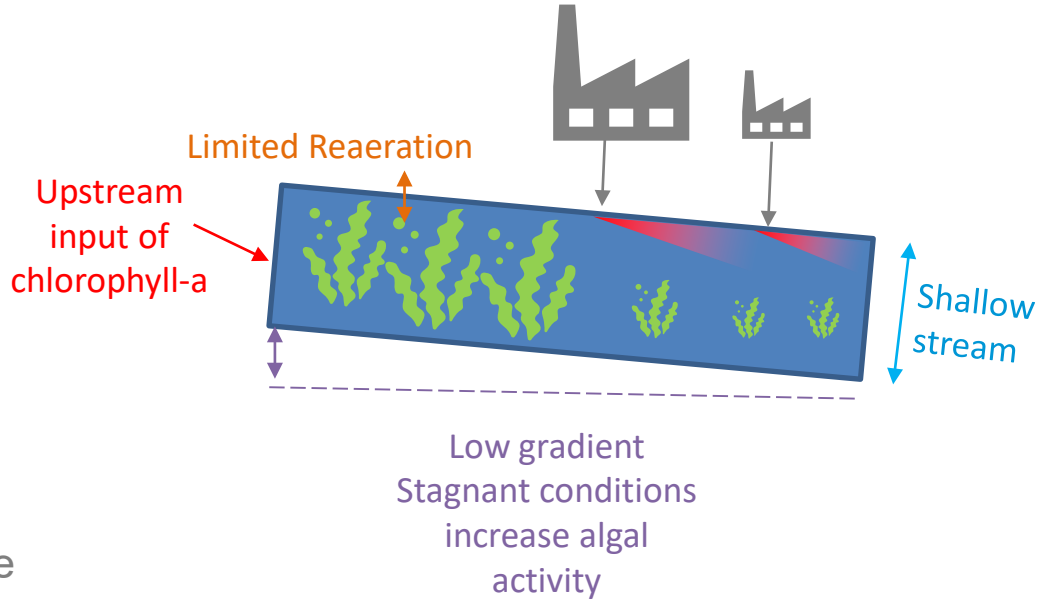
DO swings improve as you go downstream





Inferences from Data Review

- Low dissolved oxygen is mostly due to:
  - High chlorophyll-a input from the upstream boundary increasing algal activity
  - Limited reaeration due to low flows and small slope
- While treatment plants contribute to TP concentrations in the river:
  - TP concentrations are reduced after a short distance downstream the plants



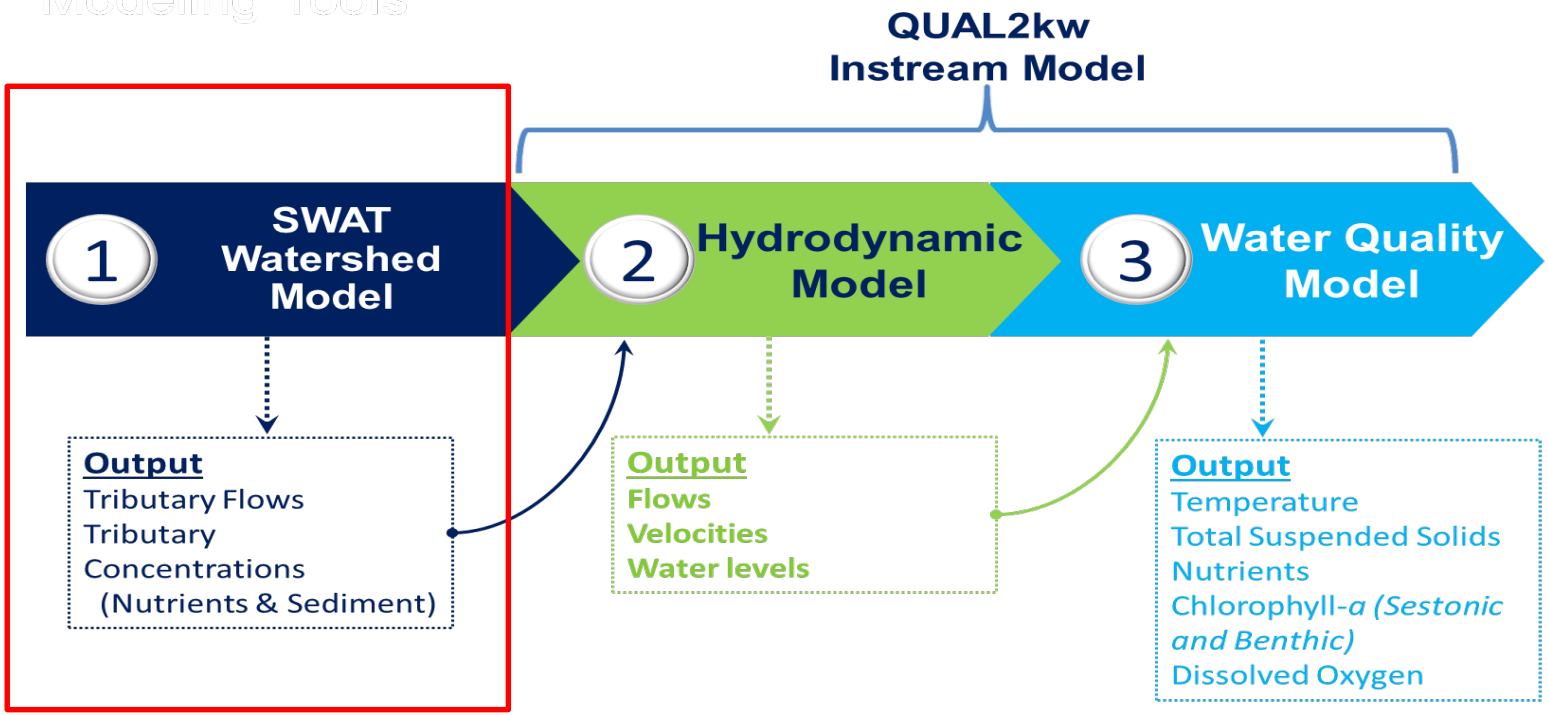
Watershed Model Development

Geosyntec consultants

Modeling Framework

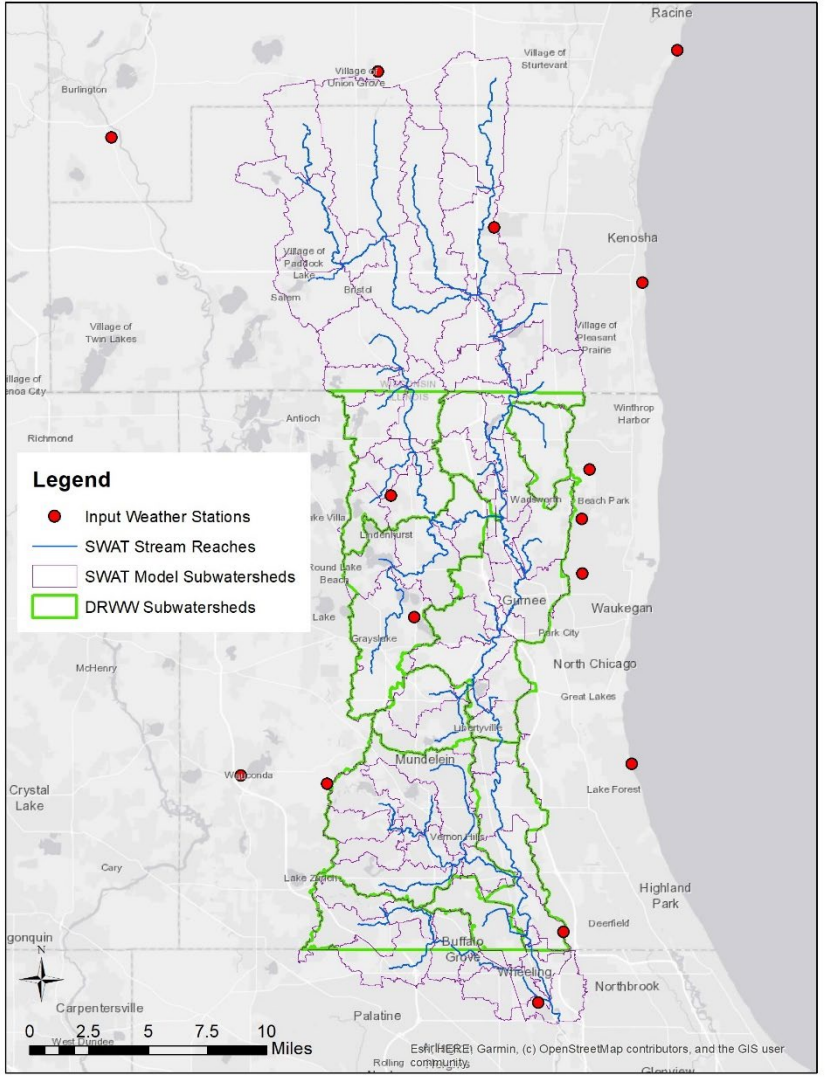
Define the linkage between the phosphorus inputs and related impairments

Modeling Tools



SWAT Model Inputs

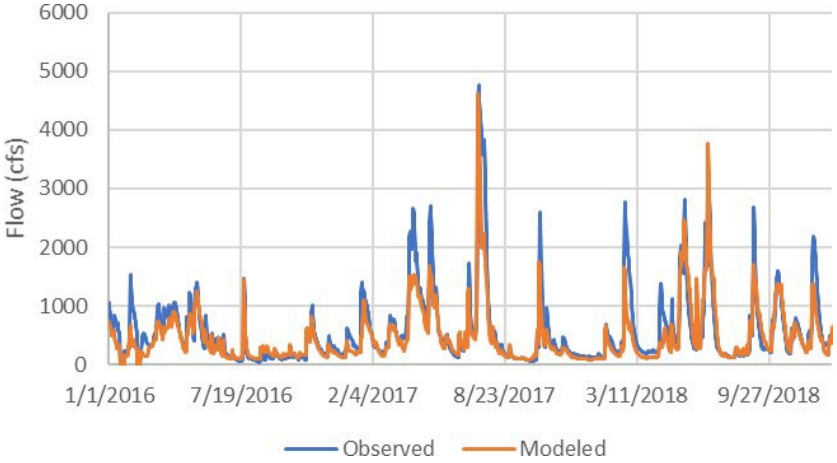
- Measured data
  - Weather
  - Point Source Effluent
- Spatial data (maps on next slide)
  - Elevation
  - Soils
  - Land Use
- Automatic delineation via elevation data, manually edited to match DRWW boundaries
- 89 subwatersheds



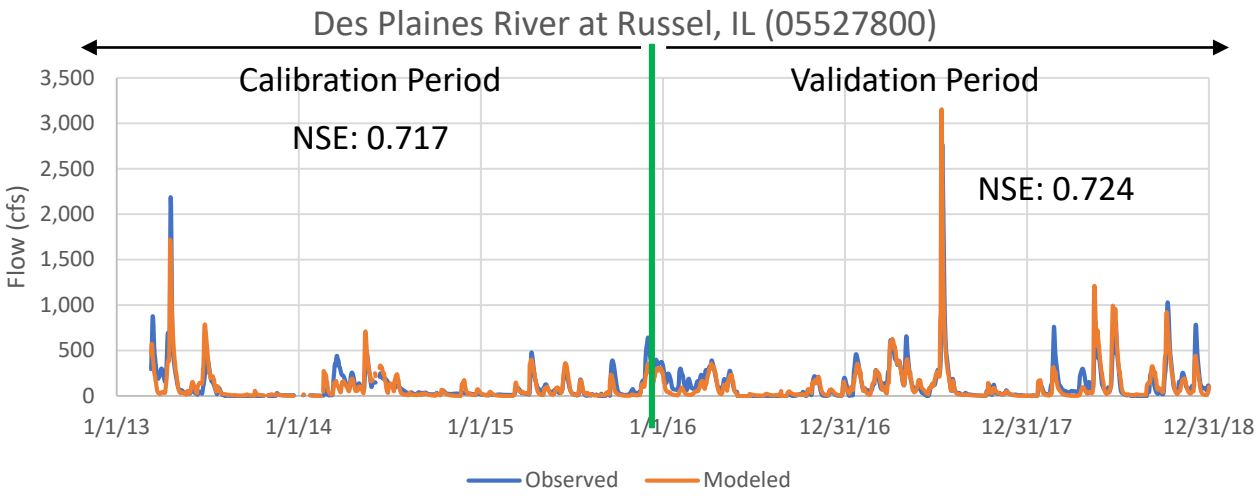
Hydrology Calibration and Validation

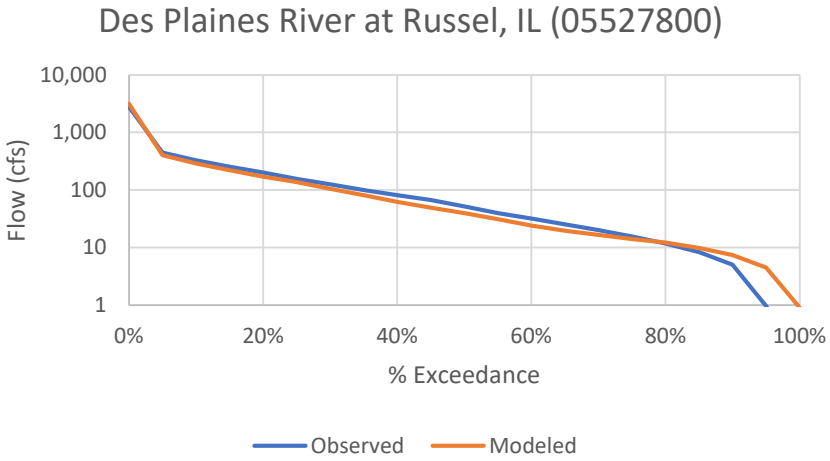
- Why calibrate AND validate?
  - Well-calibrated models closely match observed data for different periods
  - Validation uses calibrated coefficients for different time period
- Hydrologic models use Nash Sutcliffe Efficiency (NSE) coefficient
  - Compares model/measurement correlation to measured variability
  - Provides indicator of how well model represents reality

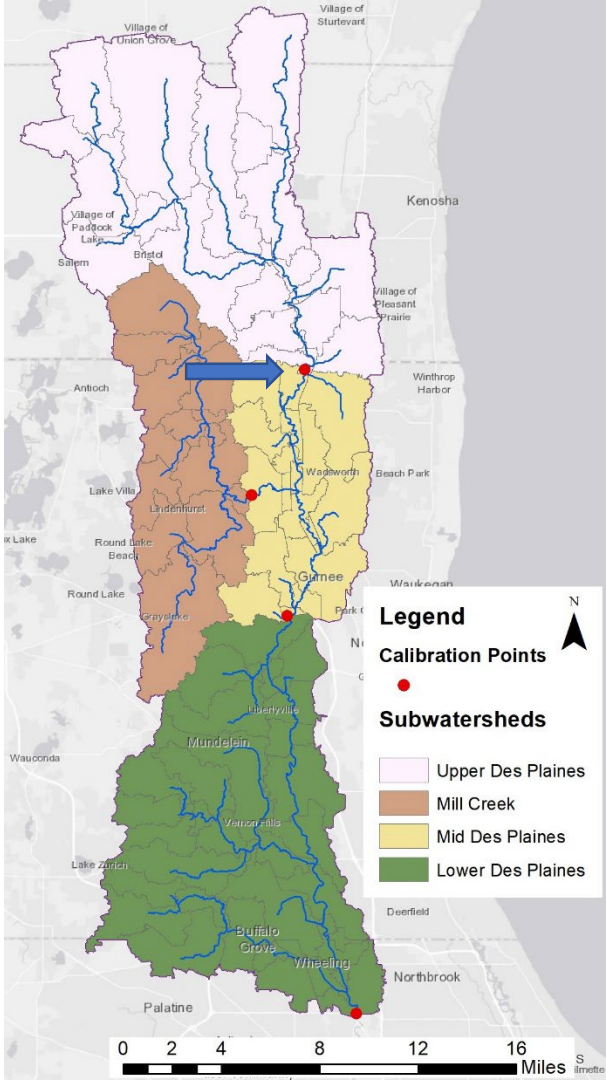
- *NSE of 0 means model is no better than mean flow at matching observed condition*
- *NSE of 0.5 is minimum acceptable*
- *NSE of 0.65-0.8 is targeted for large, urbanized watersheds*

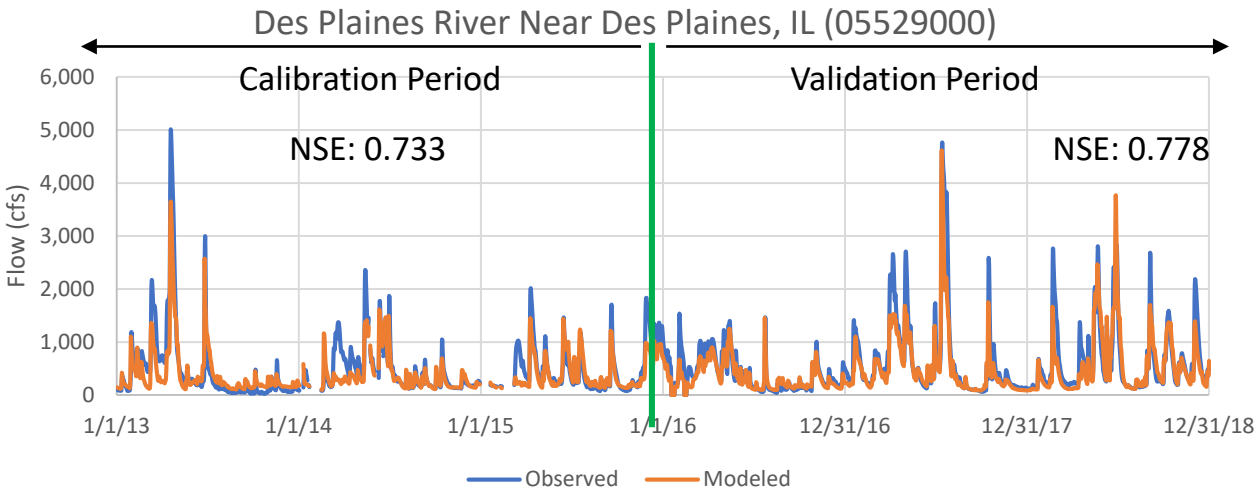


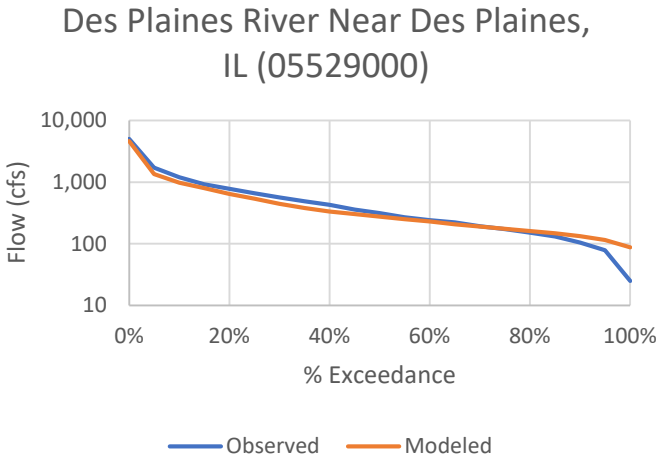
Example Calibration Plot

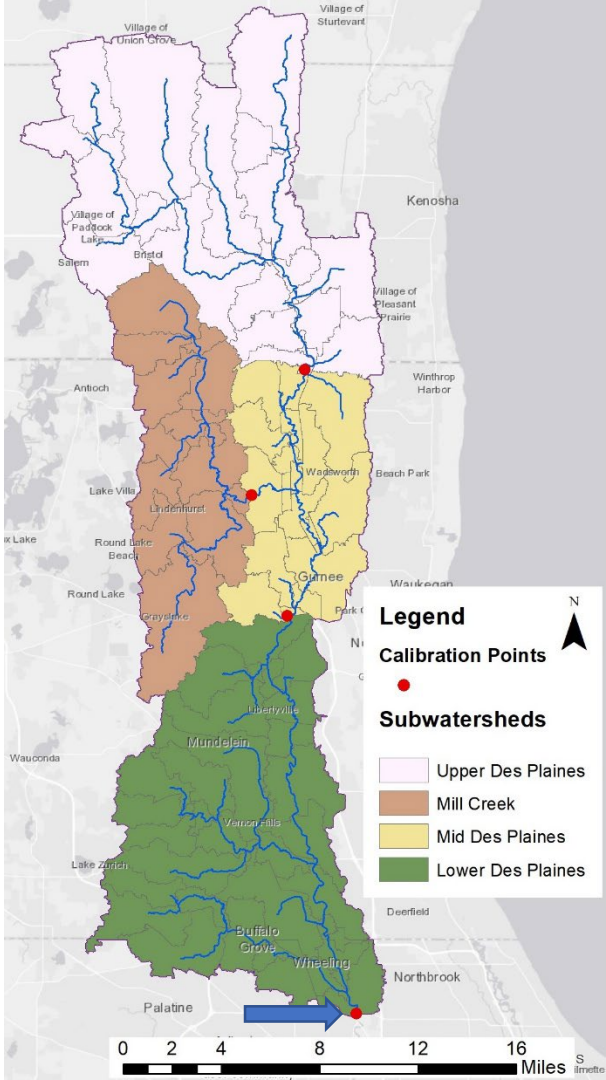

Des Plaines River at Russel, IL (05527800)
Calibration Period
NSE: 0.717
Validation Period
NSE: 0.724
Flow (cfs)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1/1/13
1/1/14
1/1/15
1/1/16
12/31/16
12/31/17
12/31/18
Observed
Modeled


Des Plaines River at Russel, IL (05527800)
Flow (cfs)
10,000
1,000
100
10
1
0%
20%
40%
60%
80%
100%
% Exceedance
Observed
Modeled


Legend
Calibration Points
Subwatersheds
Upper Des Plaines
Mill Creek
Mid Des Plaines
Lower Des Plaines
N
Kenosha
Antioch
Lake Villa
Lindenhurst
Round Lake Beach
Round Lake
Gurnee
Waukegan
Wadsworth
Beach Park
Winthrop Harbor
Village of Pleasant Prairie
Village of Sturtevant
Village of Union Grove
Village of Paddock Lake
Salem
Bristol
Wauconda
Libertyville
Mundelein
Vernon Hills
Lake Zurich
Buffalo Grove
Wheeling
Deerfield
Northbrook
Palatine
0
2
4
8
12
16
Miles

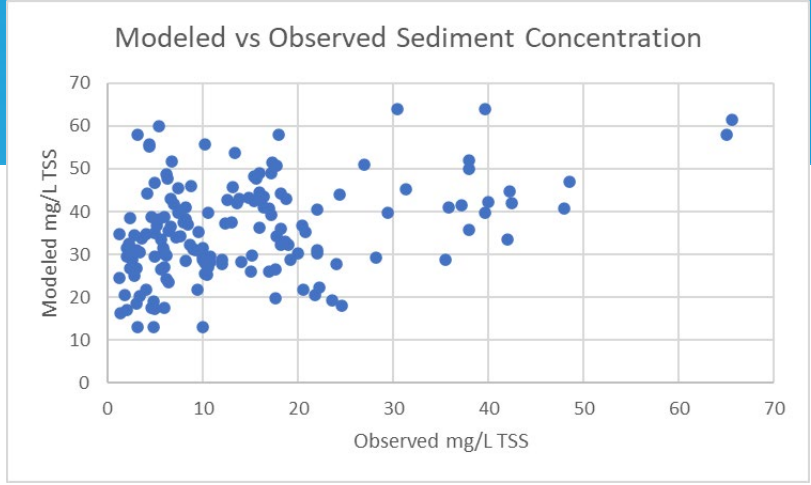

Des Plaines River Near Des Plaines, IL (05529000)
Calibration Period
Validation Period
NSE: 0.733
NSE: 0.778
Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
0
1/1/13
1/1/14
1/1/15
1/1/16
12/31/16
12/31/17
12/31/18
Observed
Modeled

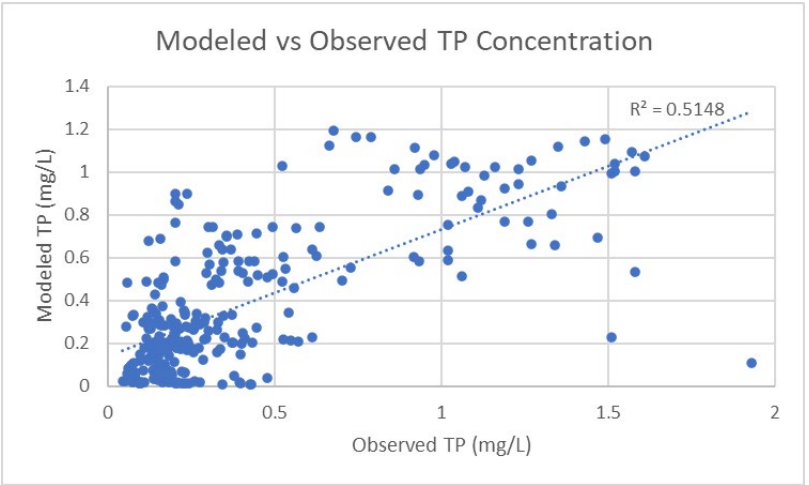

Des Plaines River Near Des Plaines, IL (05529000)
Flow (cfs)
10,000
1,000
100
10
0%
20%
40%
60%
80%
100%
% Exceedance
Observed
Modeled

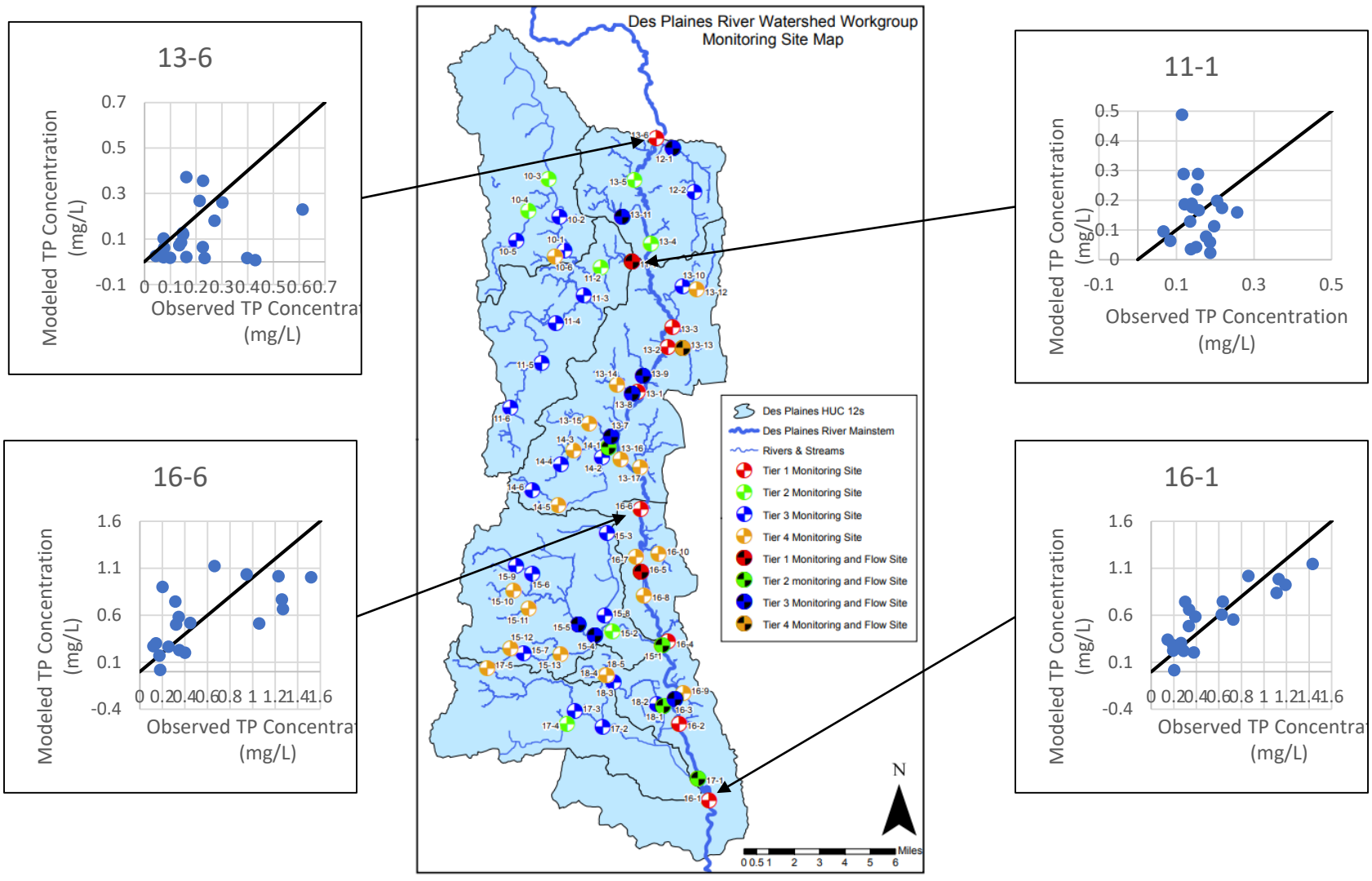

Legend
Calibration Points
Subwatersheds
Upper Des Plaines
Mill Creek
Mid Des Plaines
Lower Des Plaines
N
0
2
4
8
12
16
Miles
Kenosha
Antioch
Lake Villa
Lindenhurst
Gurnee
Waukegan
Round Lake Beach
Round Lake
Grayslake
Wadsworth
Beach Park
Winthrop Harbor
Libertyville
Mundelein
Wauconda
Vernon Hills
Lake Zurich
Buffalo Grove
Wheeling
Deerfield
Northbrook
Palatine

Water Quality Calibration

- Goal 1 - Hydrologic calibration primary goal
- Goal 2 - Preliminary water quality calibration
  - Final water quality will be modeled in the instream model
- Model calibrated for sediment and phosphorus
  - DRWW sampling data (2015-2018)
  - Limited data points for calibration compared to USGS flow data

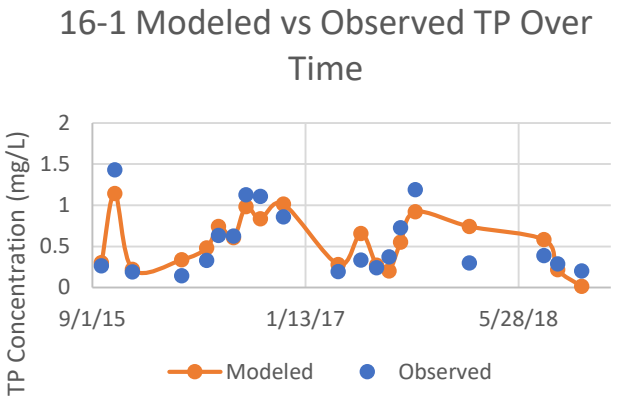


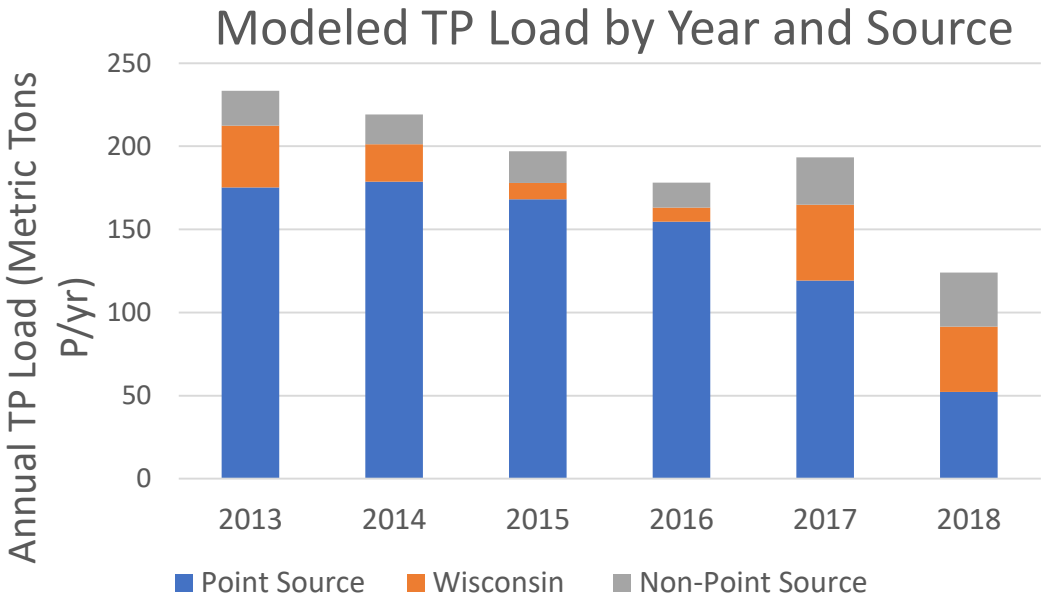



Des Plaines River Watershed Workgroup
Monitoring Site Map
Des Plaines HUC 12s
Des Plaines River Mainstem
Rivers & Streams
Tier 1 Monitoring Site
Tier 2 Monitoring Site
Tier 3 Monitoring Site
Tier 4 Monitoring Site
Tier 1 Monitoring and Flow Site
Tier 2 monitoring and Flow Site
Tier 3 Monitoring and Flow Site
Tier 4 Monitoring and Flow Site
N
0 0.5 1 2 3 4 5 6 Miles
13-6
Modeled TP Concentration (mg/L)
Observed TP Concentra (mg/L)
11-1
Modeled TP Concentration (mg/L)
Observed TP Concentration (mg/L)
16-6
Modeled TP Concentration (mg/L)
Observed TP Concentra (mg/L)
16-1
Modeled TP Concentration (mg/L)
Observed TP Concentra (mg/L)

TP Load Distribution

- TP load dominated by point sources
- Significant improvement (decrease) in point source load in last few years of model runs





Summary and Next Steps

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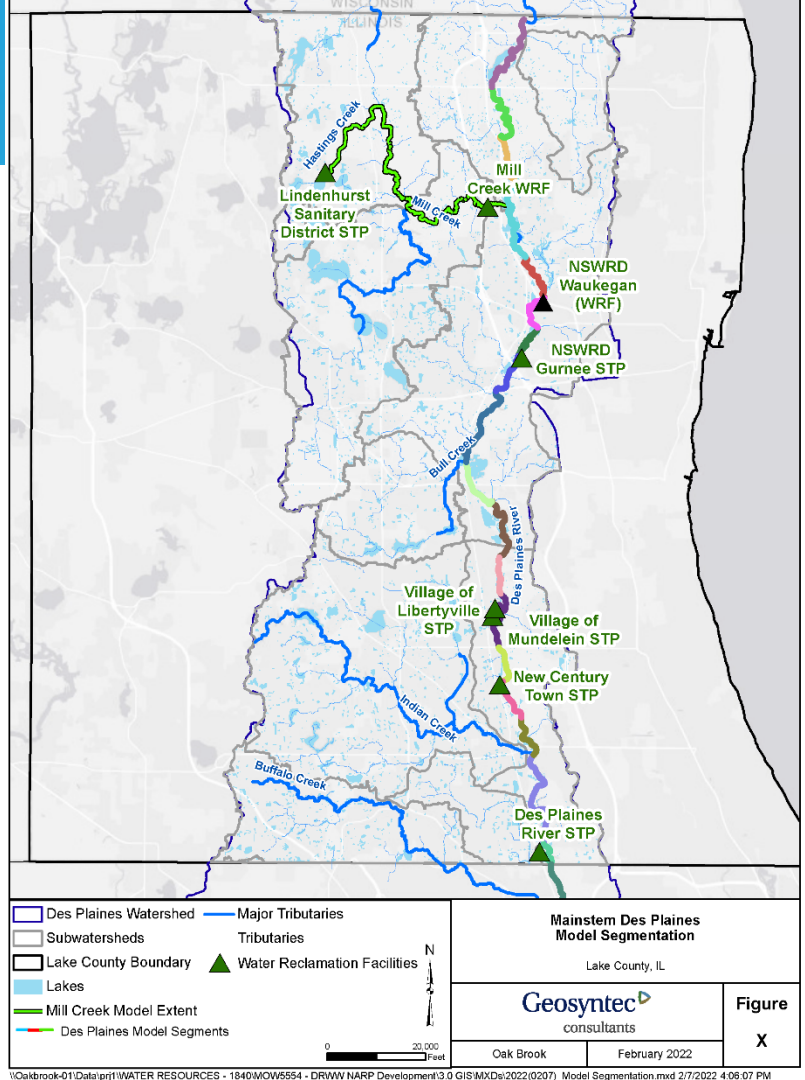
Summary

- High chlorophyll-a concentrations in Des Plaines River are driven by upstream concentrations from Wisconsin

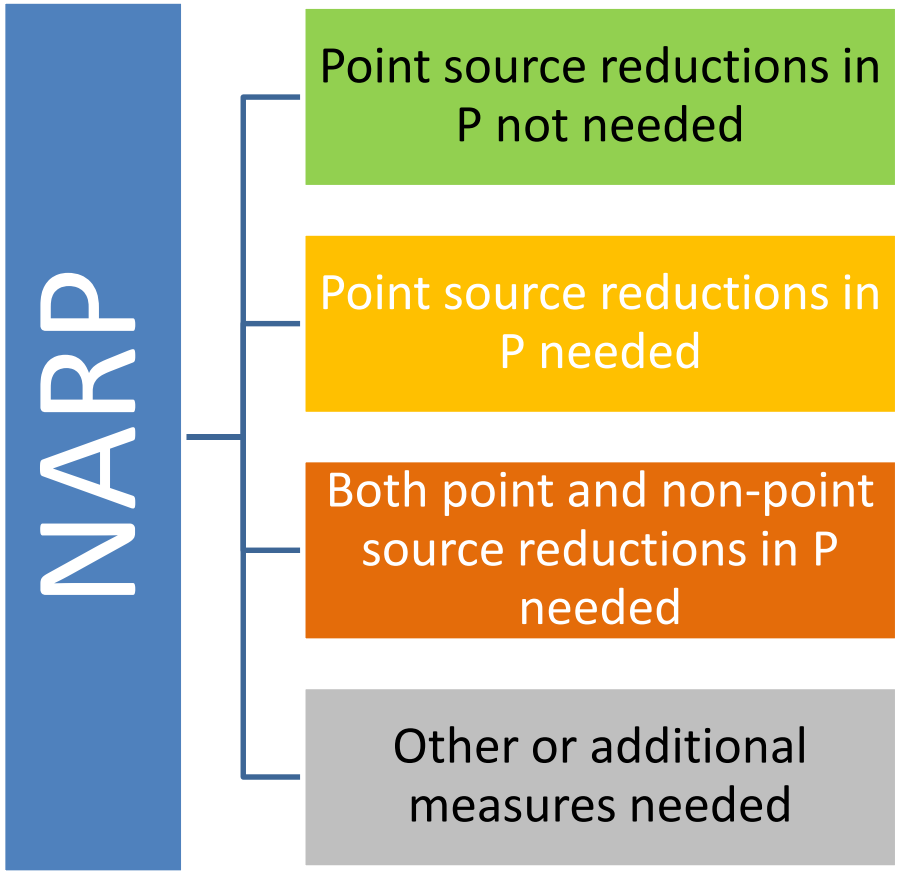
- Point source loading to Des Plaines River has significantly reduced over recent years
  - Further reduction is anticipated when TP limits of 1 mg/L and 0.5 mg/L are achieved

Next Steps in 2022

- Develop and calibrate instream model
  - Mainstem Des Plaines River
  - Tributaries downstream of Lindenhurst STP (highlighted in green)
- Evaluate benefits of measures using modeling tools
  - Further point source reductions?
  - Non-point source controls?
  - Other measures?
  - Combination of measures



Potential NARP Outcomes for DRWW



Thank You!

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