

North 34th Street

MPART PFAS Town Hall

Abigail Hendershott, MPART Executive Director
Michigan PFAS Action Response Team
(616) 888-0528

HendershottA@Michigan.gov

Introductions, Logistics and Agenda

- Introductions – Abigail Hendershott, MPART Executive Director
- Agenda:
 - MPART Overview – Fred Sellers, Michigan Department of Environment, Great Lakes, and Energy
 - Health – Lisa Fischer, Michigan Department of Health and Human Services
 - Investigation Area – Erica Bays, Michigan Department of Environment, Great Lakes, and Energy
 - Public Drinking Water – James Baker, Public Services Director & City Engineer, City of Kalamazoo
- Q&A

North 34th Street MPART PFAS Town Hall

Fred Sellers, Regional Lead Kalamazoo
Michigan PFAS Action Response Team

(269) 569-1476

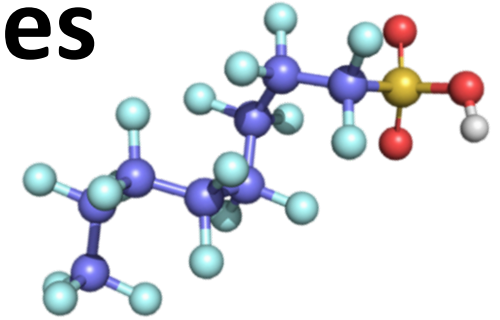
SellersF@Michigan.gov

Michigan PFAS Action Response Team (MPART)



- Executive Order 2019-03
- Unique Multi-Agency Approach
- Leads Coordination and Cooperation Among All Levels of Government
- Directs Implementation of State's Action Strategy

Per- and Polyfluoroalkyl Substances (PFAS)



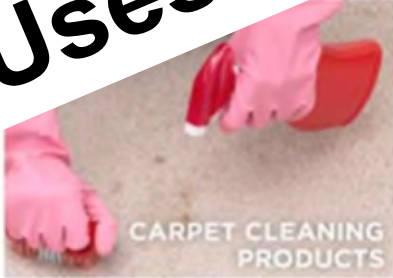
What are they?

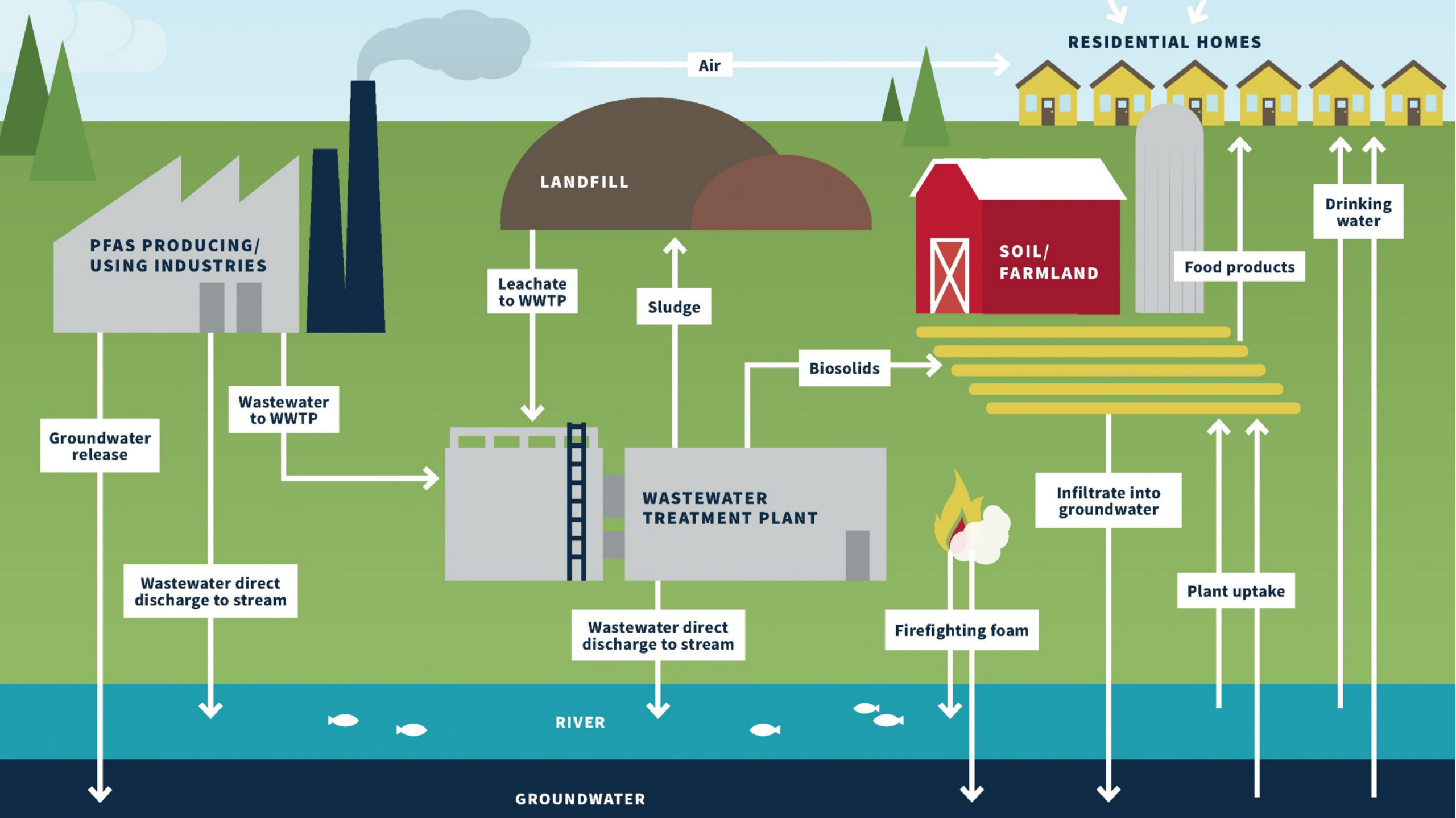
- Strong Carbon-Fluorine Bonds
- Surfactants
- Highly Stable
- Repel Water, Oil, Fat, and Grease
- Began Developing in 1940s
- 5,000+ Compounds Today

Why the concern?

- Widespread through the ecosystem
- Don't Break Down Easily - Hard to Get Rid of
- Bioaccumulate – Build Up in Our Bodies
- Some PFAS May Affect Health
- Some emerging science/information
- Lack of Federal Standards

PFAS Uses





What is Michigan doing?

Protect Public Health

- Investigating where PFAS is in the environment
 - Drinking water, groundwater, water bodies
- Developed and enforcing, standards for PFAS in surface water, drinking water, and groundwater cleanup standards
 - Modifying standards as science evolves
- Educating the public to:
 - Prevent future contamination
 - Minimize future use of PFAS



Michigan PFAS Groundwater Clean-up and Drinking Water Standards

Compound	Standards
PFNA	6 ppt
PFOA	8 ppt
PFOS	16 ppt
PFHxS	51 ppt
GenX (HFPO-DA)	370 ppt
PFBS	420 ppt
PFHxA	400,000 ppt



Lakes and Streams Investigations

- Collecting water and fish samples



**eat
safe
fish**
in Michigan

Learn about eating safe,
local, and healthful fish
from our
Great Lakes State.

**eat
safe
fish**

www.michigan.gov/eatsafefish

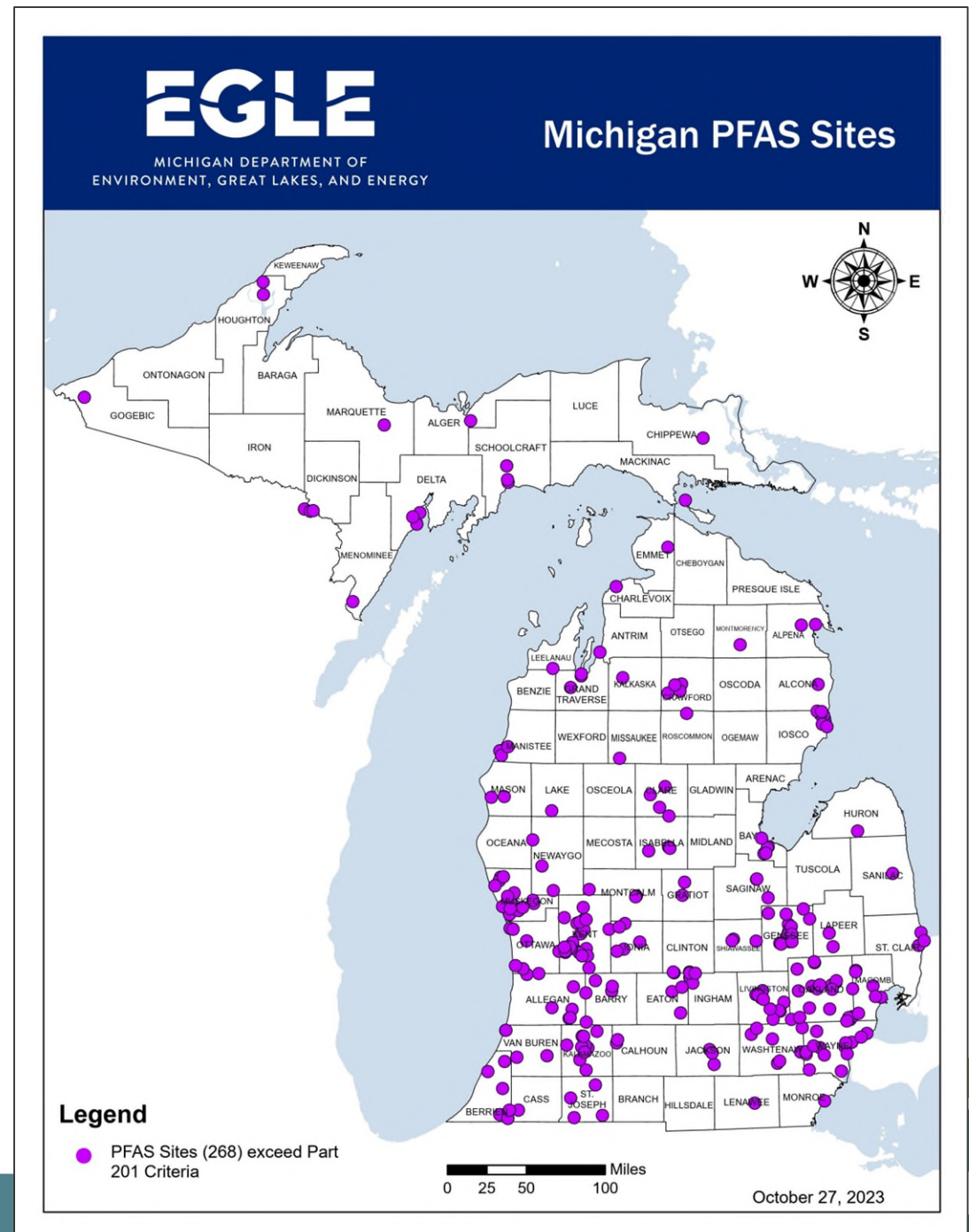
Fish Sampling

- 800-1000 fish filets sampled every year for PFAS around the state.



Michigan PFAS Sites

- Prioritized Investigations Based on Known or Suspected Sources, Potential for Exposure
- Protect Drinking Water Pathway
- [List of PFAS Sites and Areas of Interest](#)



Citizens Advisory Workgroup

Michigan.gov/MPARTCAWG

- Residents From Impacted Communities
- Key Charges:
 - Recommend How to Engage and Empower Communities
 - Recommend How to Educate the General Public
- Residents interested in becoming a CAWG Member:
 - Read the [CAWG Charter](#)
 - Submit a [Membership Registration Form](#)



PFAS and Health

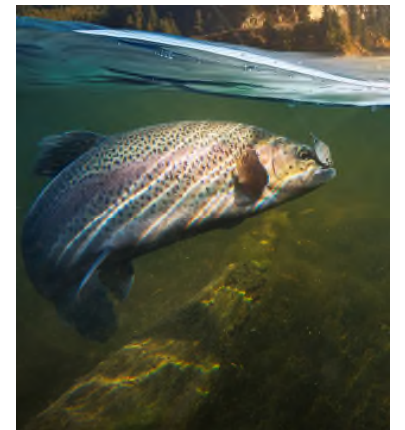
Lisa Fischer, Toxicologist
Michigan Department of Health and Human Services
517-331-2523
FischerL@Michigan.gov

The Role of MDHHS/ Local Health Department (LHD)

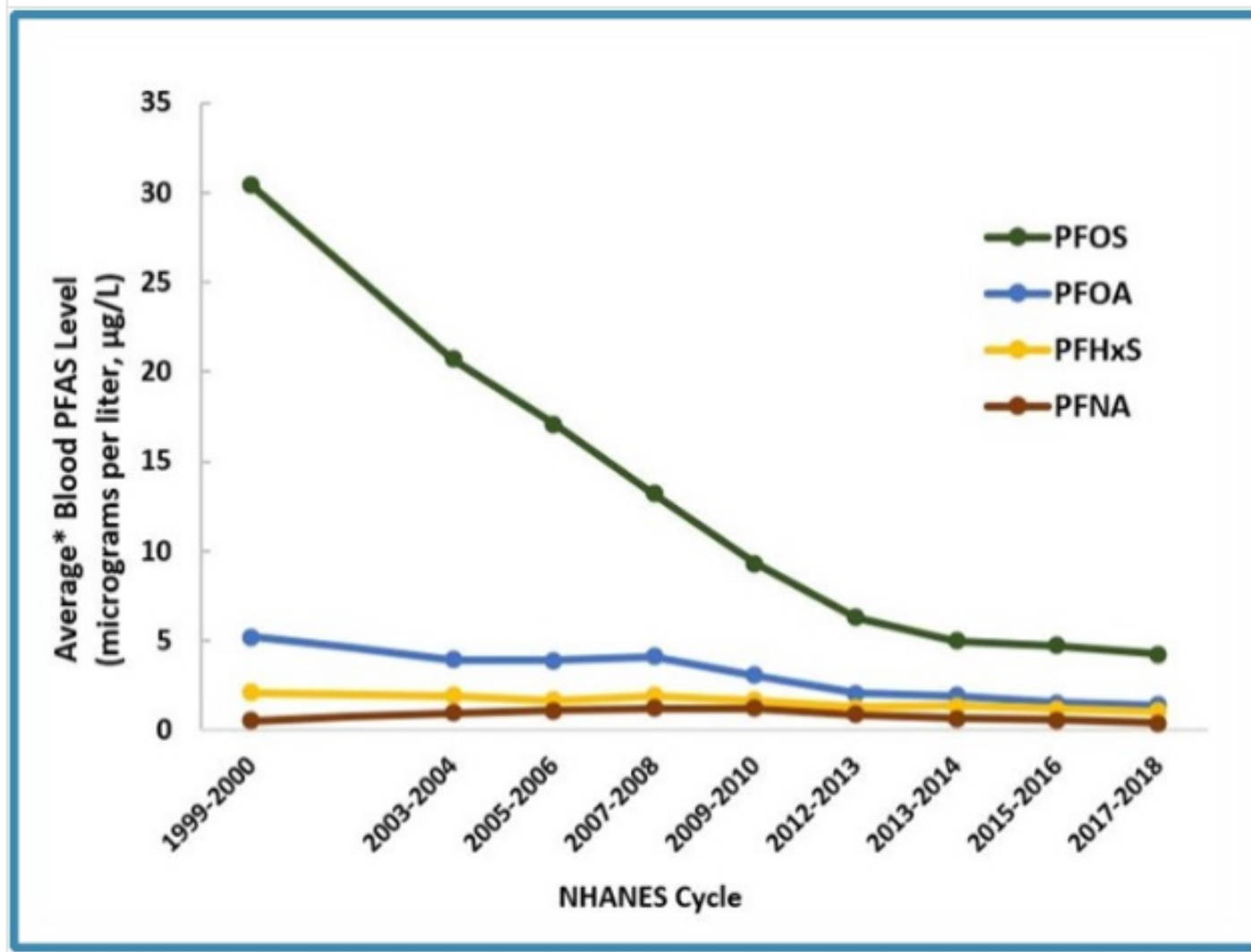
- Understand the health concerns facing your community
- Develop a plan to investigate and address health risks
 - EGLE leads the site investigation
 - MDHHS and the Local Health Department lead the public health planning and response
- Evaluate PFAS exposures to residents in the community
 - Recommend public health actions as needed

Exposure to PFAS Chemicals

- Drinking contaminated water
- Eating fish caught from water contaminated by PFAS
 - “Eat Safe Fish” Guidelines
- Incidental swallowing of contaminated soil or dust
- Eating food packaged in materials containing PFAS
- Using some consumer products
- PFAS absorption through skin is typically not a concern



Blood levels of the most common PFAS in people in the United States 2000-2018



Associated Human Health Outcomes PFOA and/or PFOS

- Reduced fertility
- High blood pressure or pre-eclampsia in pregnant women
- Small decreases in infant birth weight
- Higher cholesterol
 - Especially total cholesterol and LDL cholesterol

Associated Human Health Outcomes PFOA and/or PFOS

- Thyroid disease
- Liver damage
- Decreased immune system response to vaccines
- Developing certain types of cancer
 - In particular, kidney and testicular cancers*

* PFOA only

Multiple Lines of Consideration for Determining Public Health Response Actions

- MDHHS Comparison Values
- Residential Well Results (individually and collectively)
- Site-specific information (e.g., known source, geology, etc.)

MDHHS Comparison Values

- MDHHS Comparison Values are the lowest of:
 - MDHHS Public Health Drinking Water Screening Level
 - MPART Health-Based Value or Maximum Contaminant Level (MCL)
- Both the MDHHS screening levels and the MCL were set to protect everyone
 - including those most at risk of harm to their health: fetuses and breastfed babies

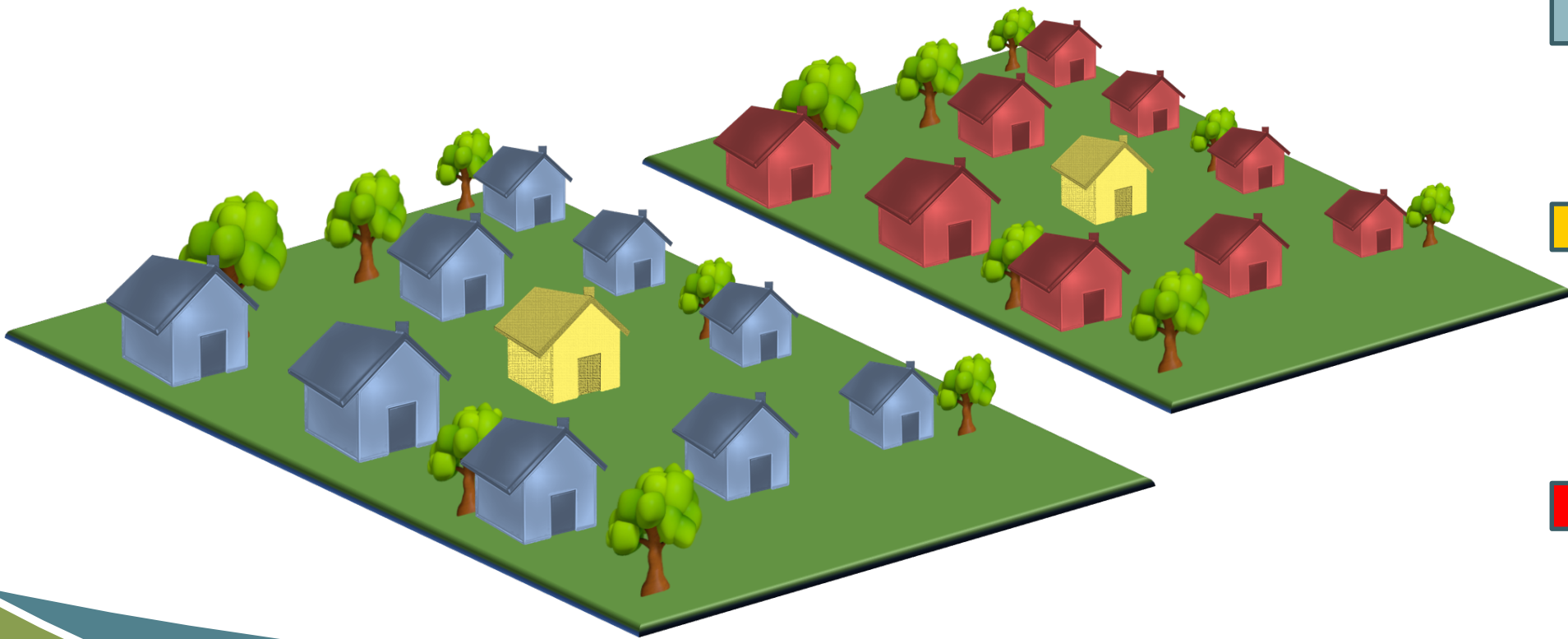
MDHHS Comparison Values




PFAS	Comparison Values
PFOS	8 ppt ^A
PFOA	8 ppt ^B
PFNA	6 ppt ^B
PFHxS	51 ppt ^B
PFBS	420 ppt ^B
PFHxA	400,000 ppt ^B
GenX	370 ppt ^B

A. MDHHS Public Health Drinking Water Screening Level

B. MPART Health-Based Value or Maximum Contaminant Level (MCL)

Residential Well Results (individually and collectively)



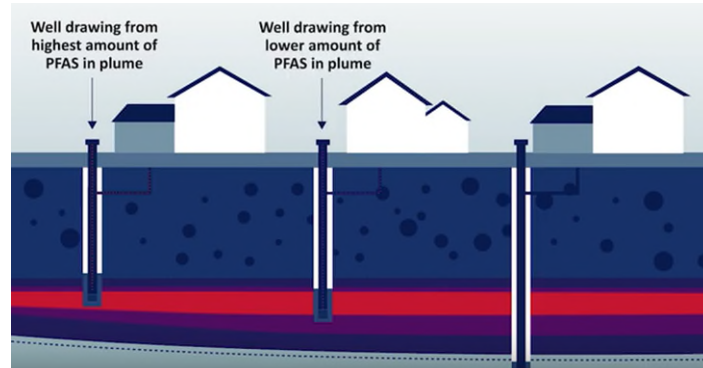
-  No Detection
-  Detected but less than the comparison value
-  Exceedance

Site-Specific Information

Known Source



Geology



Plume



MDHHS/LHD

Public Health Response Actions

- No public health actions necessary
- Recommend filter or use of alternate water
 - Need time to conduct investigation
 - Provides residents with protection from potential fluctuations in PFAS levels, if any, while investigation is ongoing
- Education
 - Provide information on PFAS in drinking water

Eating Fish from Michigan's Lakes & Rivers

Michigan.gov/eatsafefish



Eat Safe Fish Guidelines – Gull Lake

Fish Species	Chemicals Causing MI Serving Guideline	Fish Size	MI Servings/Month
Bluegill, Sunfish, Rock Bass	Mercury	Any	8
Largemouth Bass, Smallmouth Bass, Northern Pike	Mercury	Any	1
Smelt	PFOS	Any	2



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

North 34th Street/Former Production Plated Plastics

Erica Bays

Remediation and Redevelopment Division

269-350-0080 | BaysE@Michigan.gov

MPART



Outline

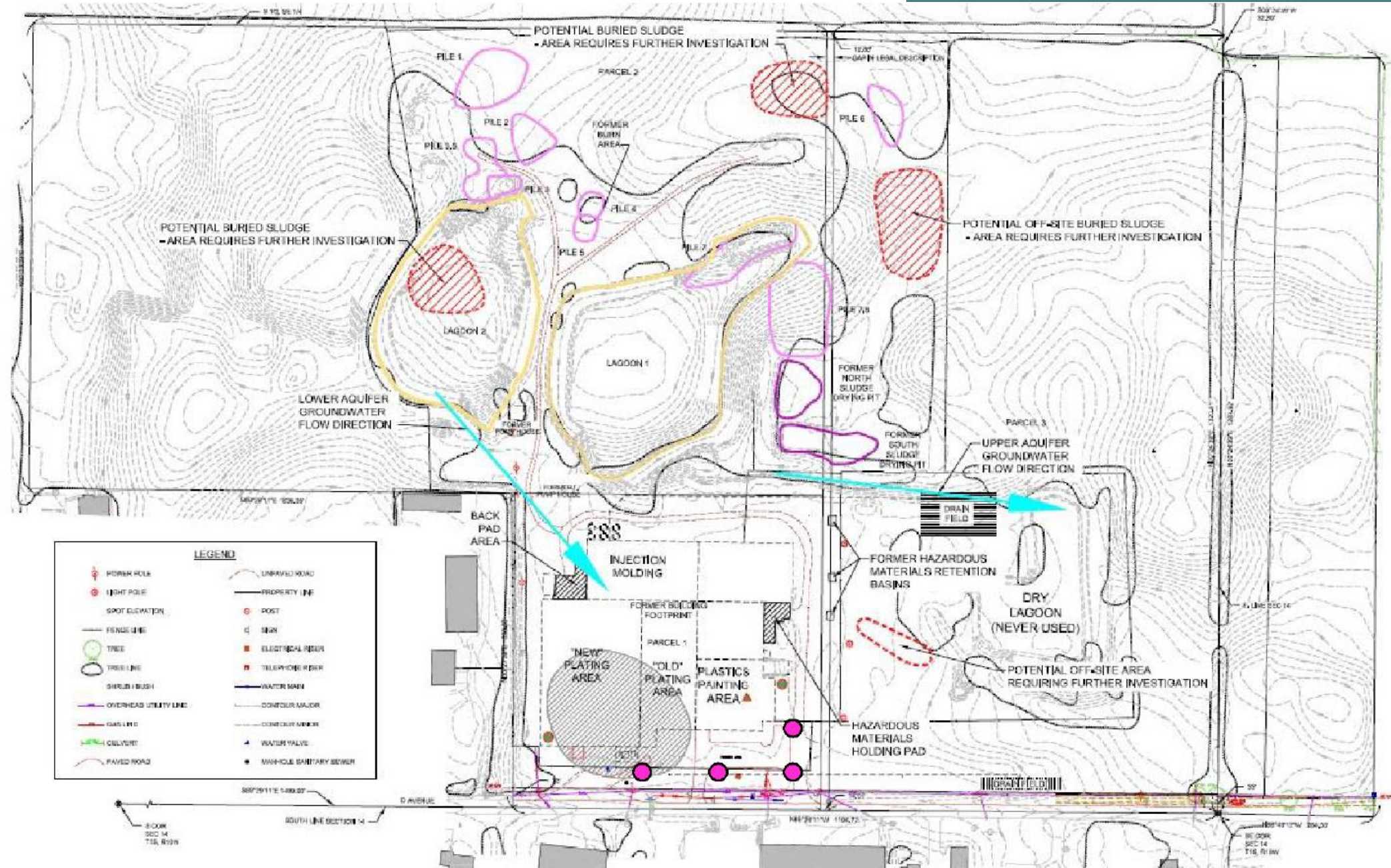
- Where have we been?
- Where we are now?
- Where are we going?



1978

Where have we been?

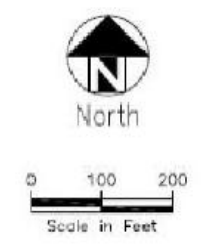
- Production Plated Plastics (PPP) - Former plastics plating company (~1966 – bankruptcy in 1991)
- 1977 – Heavy metal contamination discovered in residential wells
 - PPP replaced affected residential drinking water wells
- 1985 – Chlorinated Volatile Organic Compounds discovered at the site
 - PPP conducted investigations and operated a groundwater cleanup system
- 1988 – Municipal water extended to area impacted by nickel and chromium
- 1991 – PPP bankrupt, State took over response activities



- POTENTIAL BURIED SLUDGE
- FORMER SLUDGE PILE
- LAGOONS
- POTENTIAL OFF-SITE AREA REQUIRING FURTHER INVESTIGATION
- HEXAVALENT CHROMIUM & NICKEL SOURCE AREA
- FORMER SLUDGE DRYING PIT
- FORMER PRODUCTION WELL
Source: Screening Site Inspection Report Aug. 10, 1994
- SUSPECTED FORMER PRODUCTION WELL
Source: Unknown
-

LEGEND

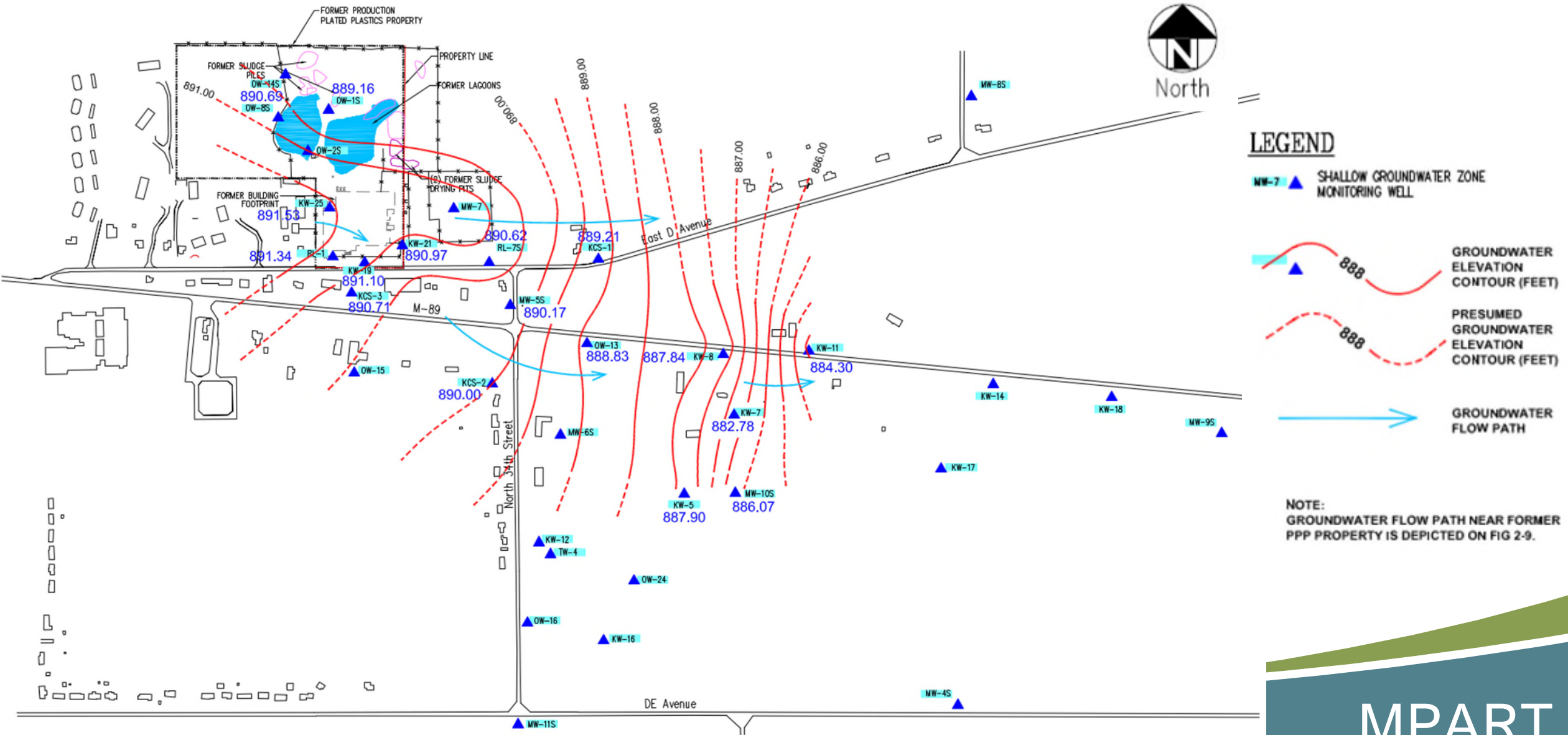
POWER POLE	UNPAVED ROAD
LIGHT POLE	PROPERTY LINE
SPOT ELEVATION	POST
FENCE LINE	SIGN
TREE	ELECTRICAL RISER
TREE LINE	TELEPHONE RISER
SHRUB/BUSH	WATER MAIN
OVERHEAD UTILITY LINE	CONTOUR MAJOR
GAS LINE	CONTOUR MINOR
CULVERT	WATER VALVE
PAVED ROAD	MANHOLE SANITARY SEWER



Where have we been?

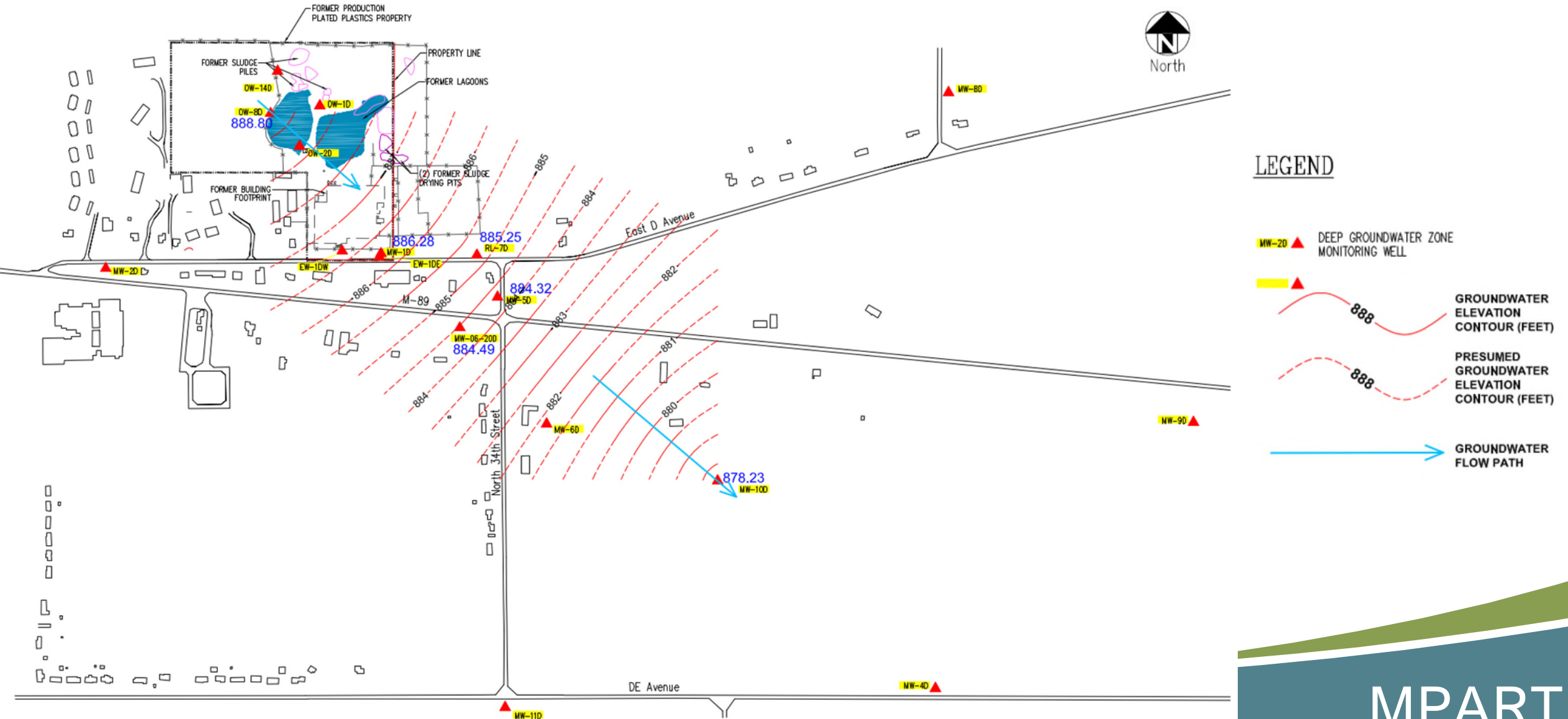
- 2018 – PFAS identified in groundwater cleanup system effluent being discharged to Gull Lake Sewer and Water Authority
 - Cleanup System retrofitted with six 2,000lb GAC vessels for PFAS treatment
 - Begin PFAS Remedial Investigation
- 2021-2022 – Municipal water extended to much of the known area impacted by PFAS within Richland Township
- 2022 – Commenced quarterly groundwater monitoring

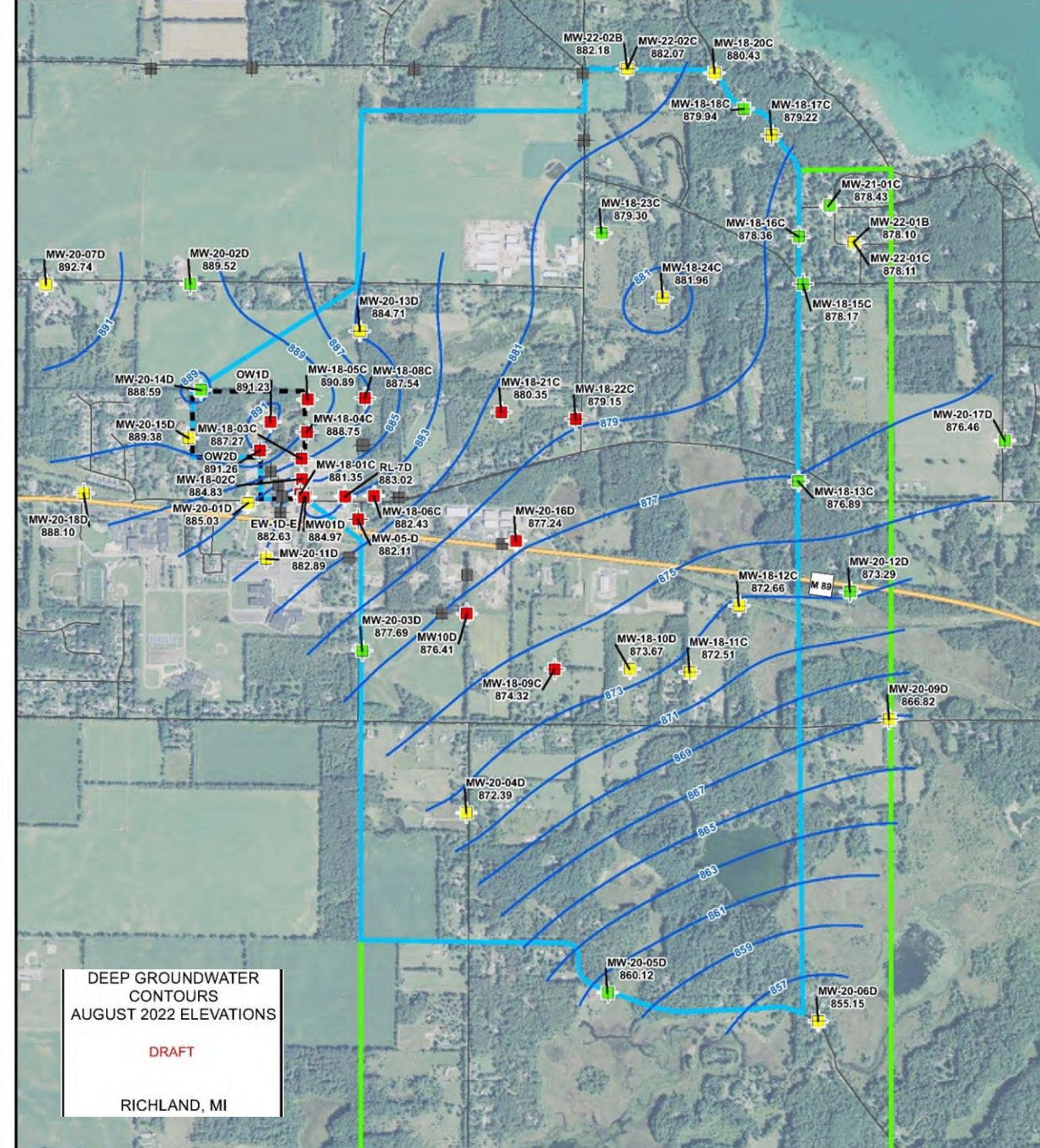
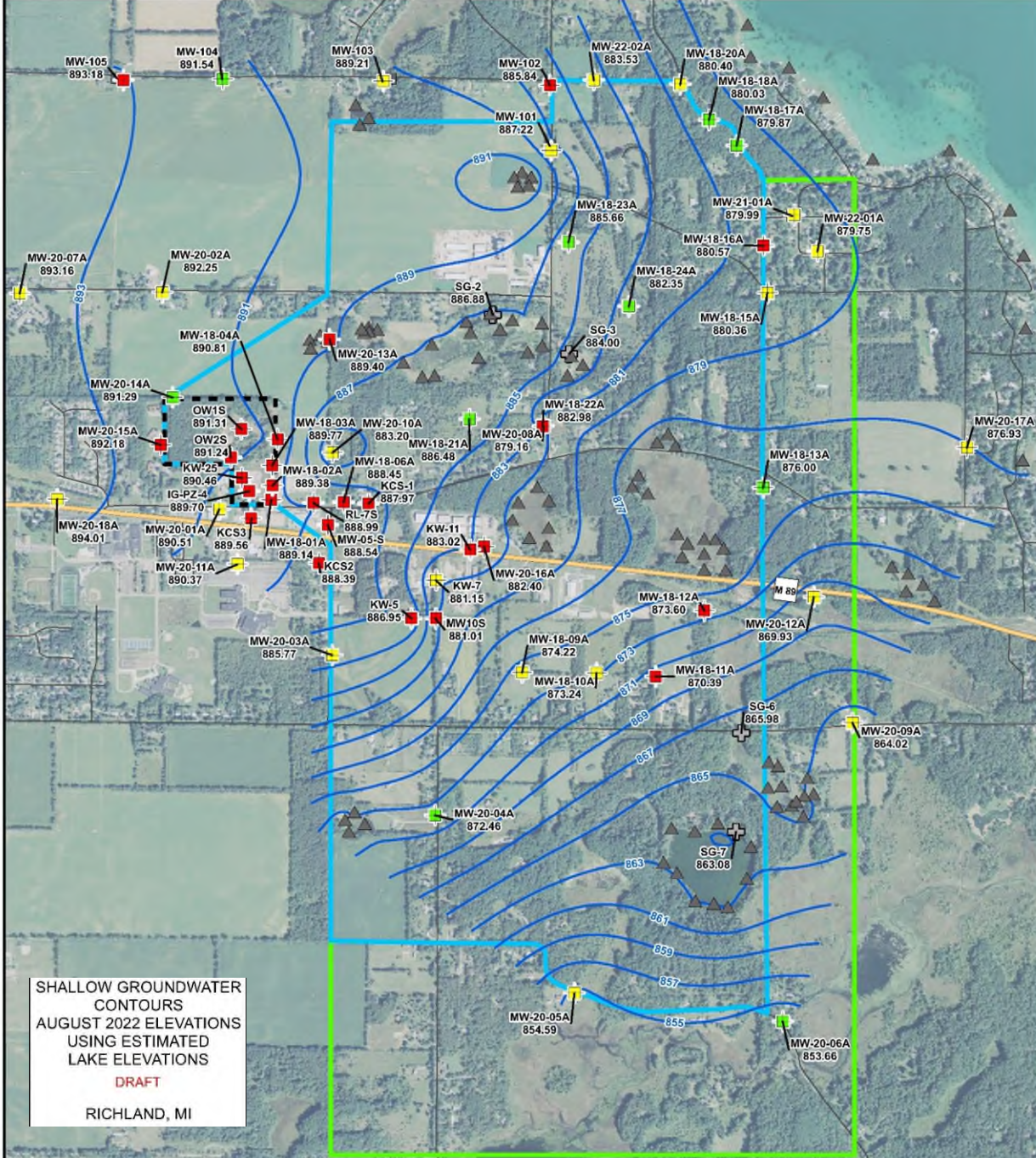
Shallow Groundwater Flow– 2013



NOTE:
GROUNDWATER FLOW PATH NEAR FORMER
PPP PROPERTY IS DEPICTED ON FIG 2-9.

Deep Groundwater Flow– 2013





2019 WRD Surface Water Data

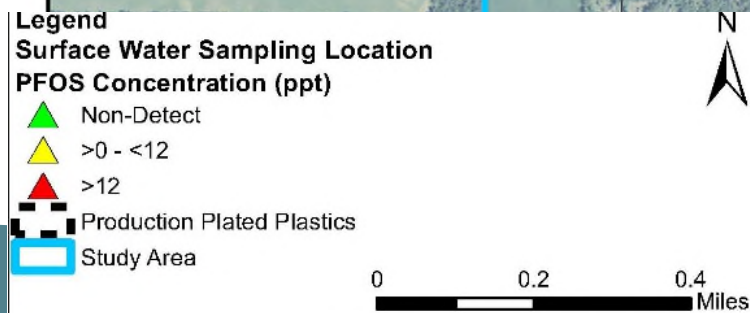
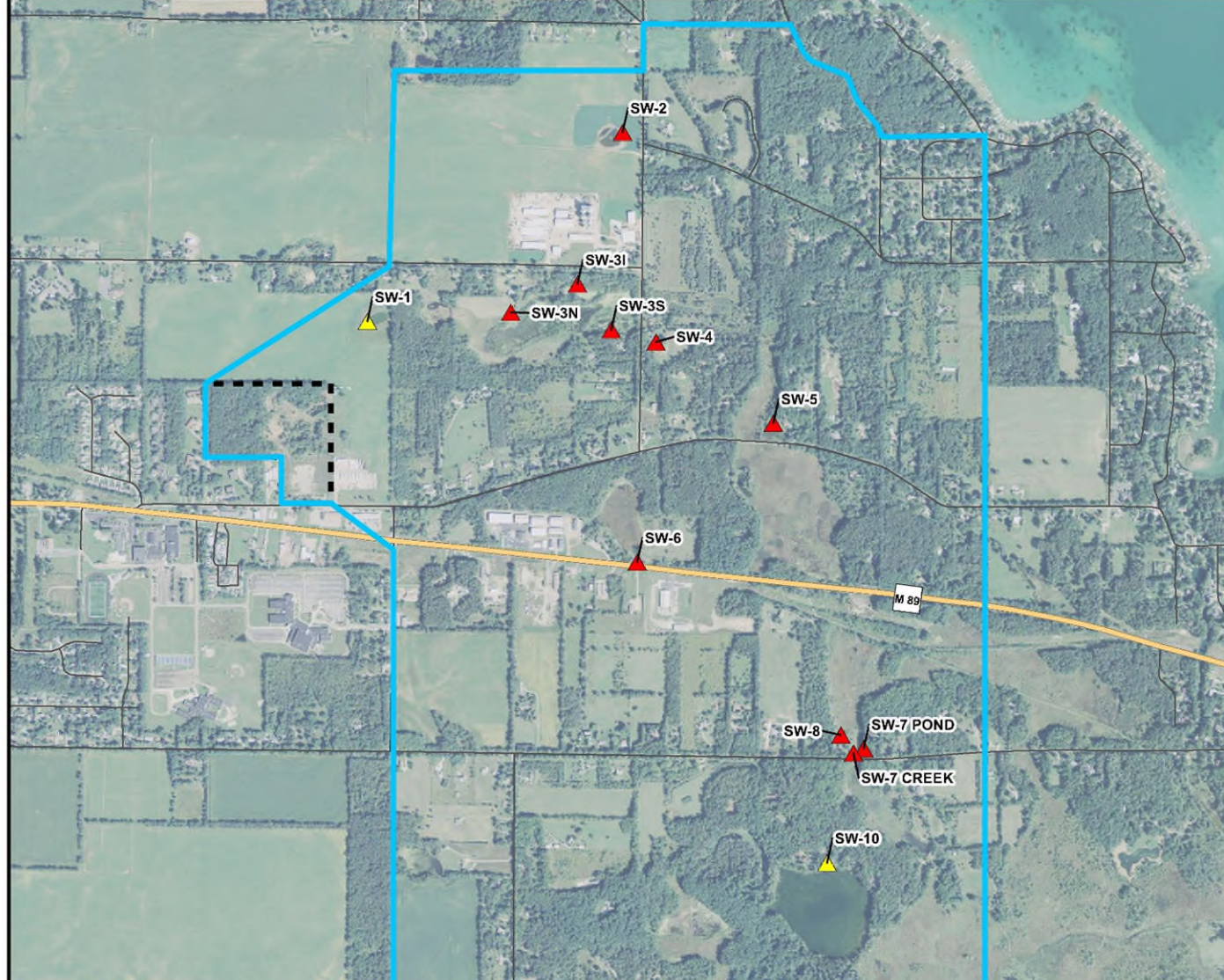
- Sample results were below criteria

Compound	Criteria (ng/L)
PFOS	12
PFOA	170
PFBS	670,000
PFNA	30



2019 RRD Surface Water Data

Criteria	170	30	670000	12
Location ID	PFOA	PFNA	PFBS	PFOS
SW-3N	ND	ND	ND	152
SW-3S	ND	ND	ND	316
SW-4	3.15	ND	ND	67.4
SW-5	ND	ND	ND	41
SW-6	1.75	ND	ND	19.6
SW-7 POND	ND	1.93	ND	40.8
SW-7 POND	ND	1.88	ND	42.5
SW-7 CREEK	ND	ND	2.47	17.9
SW-10	ND	ND	ND	1.75
SW-8	ND	ND	ND	67.5
SW-9	ND	ND	ND	1.64
SW-3I	ND	ND	ND	142
SW-2	ND	ND	ND	15
SW-1	ND	ND	ND	5.4



Where are we now?

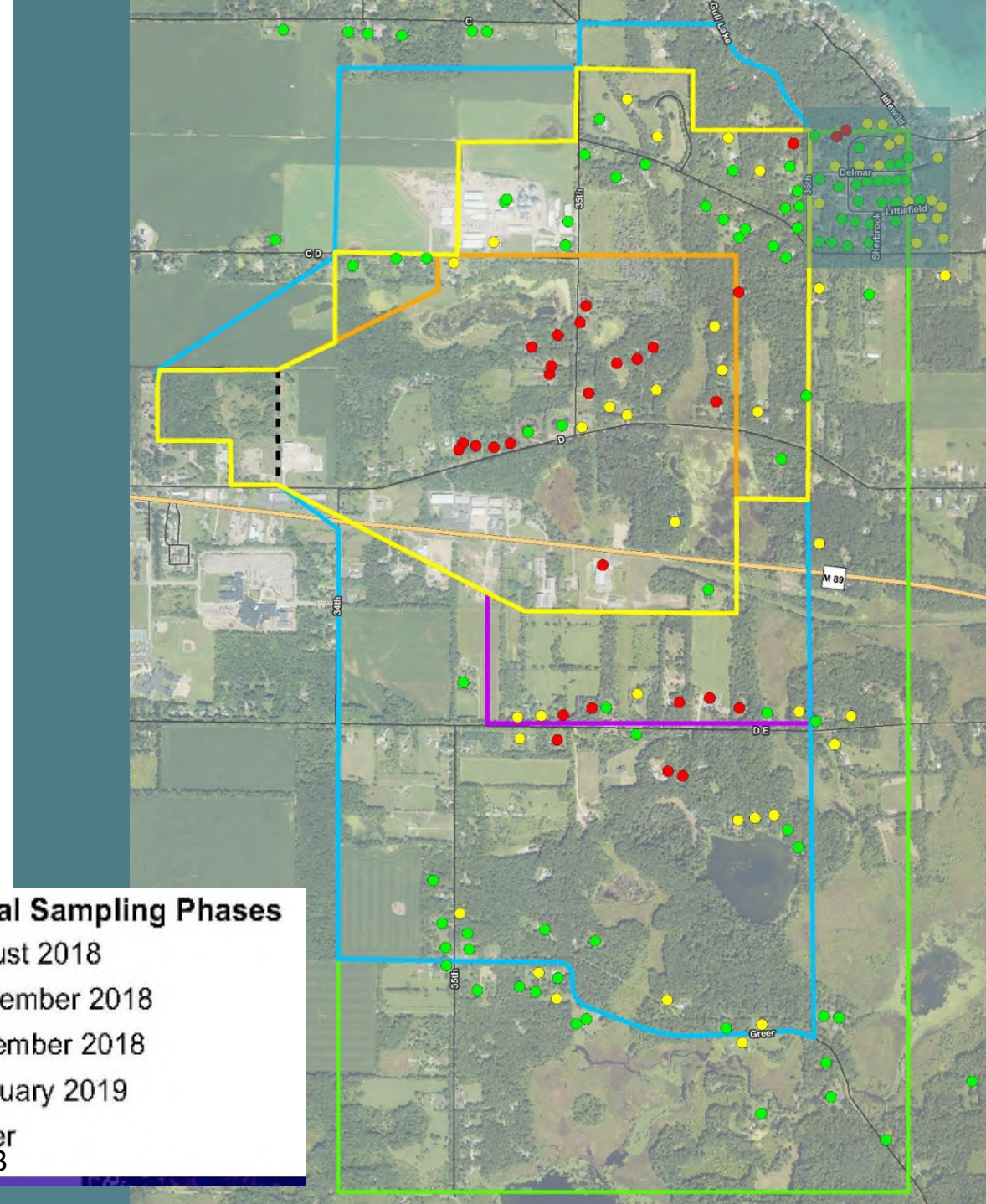
- Residential Wells
 - 4 Phases of sampling
 - Later phases guided by well results

	Exceed Criteria	Between ND and Criteria	ND
Richland Township	26	28	58
Ross Township	2	21	33
Residential Total	28	49	91
Total Residential Wells Sampled since 2018	168		

PFAS Compound	Part 201 Residential and Nonresidential Drinking Water Criteria (ng/L or ppt)
Perfluorobutane Sulfonic Acid (PFBS)	420
Perfluorohexane Sulfonic Acid (PFHxS)	51
Perfluorohexanoic Acid (PFHxA)	400,000
Perfluorononanoic acid (PFNA)	6
Perfluorooctanoic Acid (PFOA)	8
Perfluorooctane Sulfonic Acid (PFOS)	16
Hexafluoropropylene Oxide Dimer Acid (GenX)	370

Residential Sampling Phases

- August 2018
- September 2018
- December 2018
- February 2019
- Buffer 2023

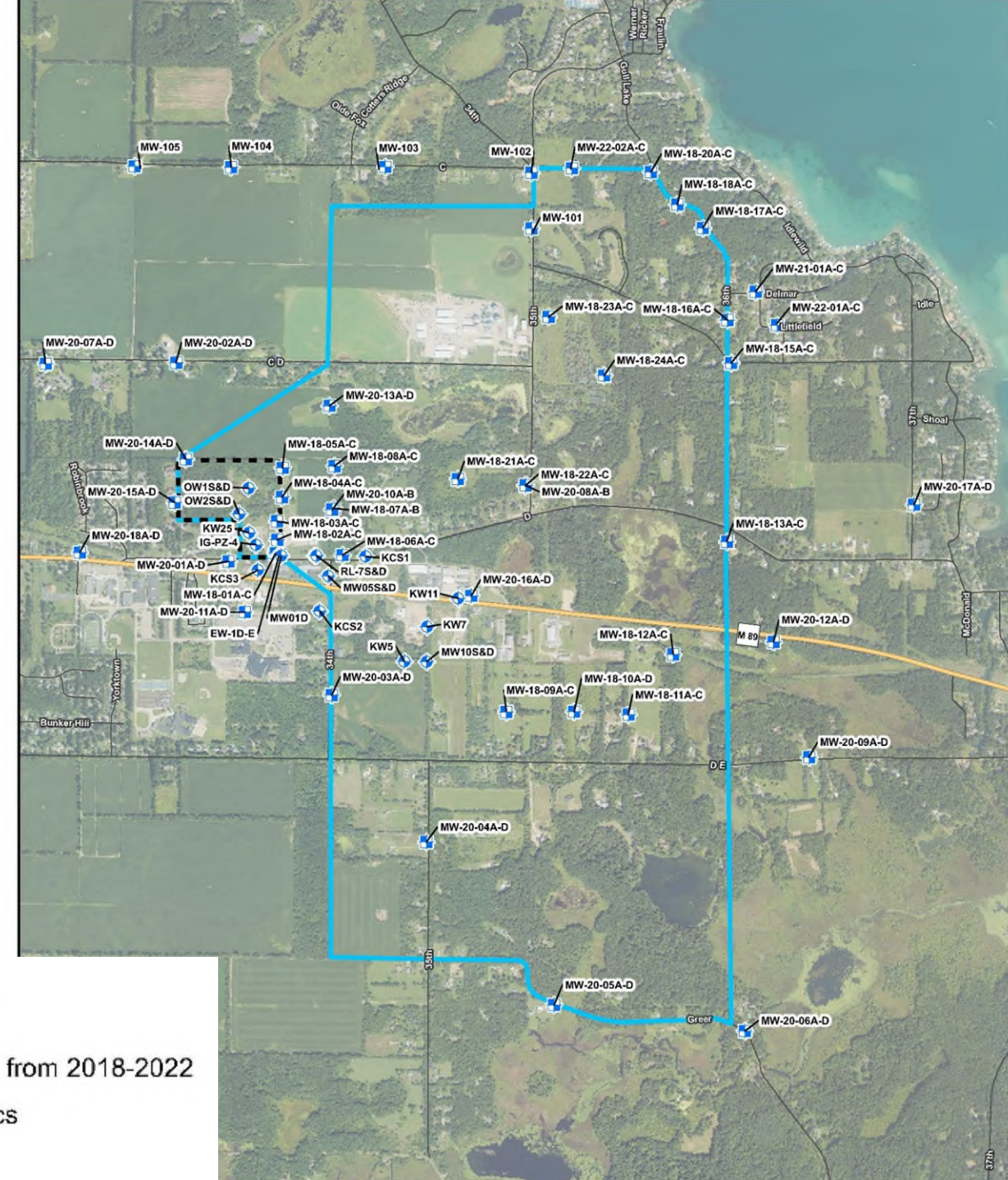


Where are we now?

- Groundwater Monitoring Wells
 - Existing: 21 wells, 80 samples collected
 - 2018: 66 wells installed, 282 samples collected
 - 2020: 68 wells installed, 286 samples collected
 - 2021/22: 14 wells installed, 66 samples collected
 - Quarterly sampling conducted in 2022-2023

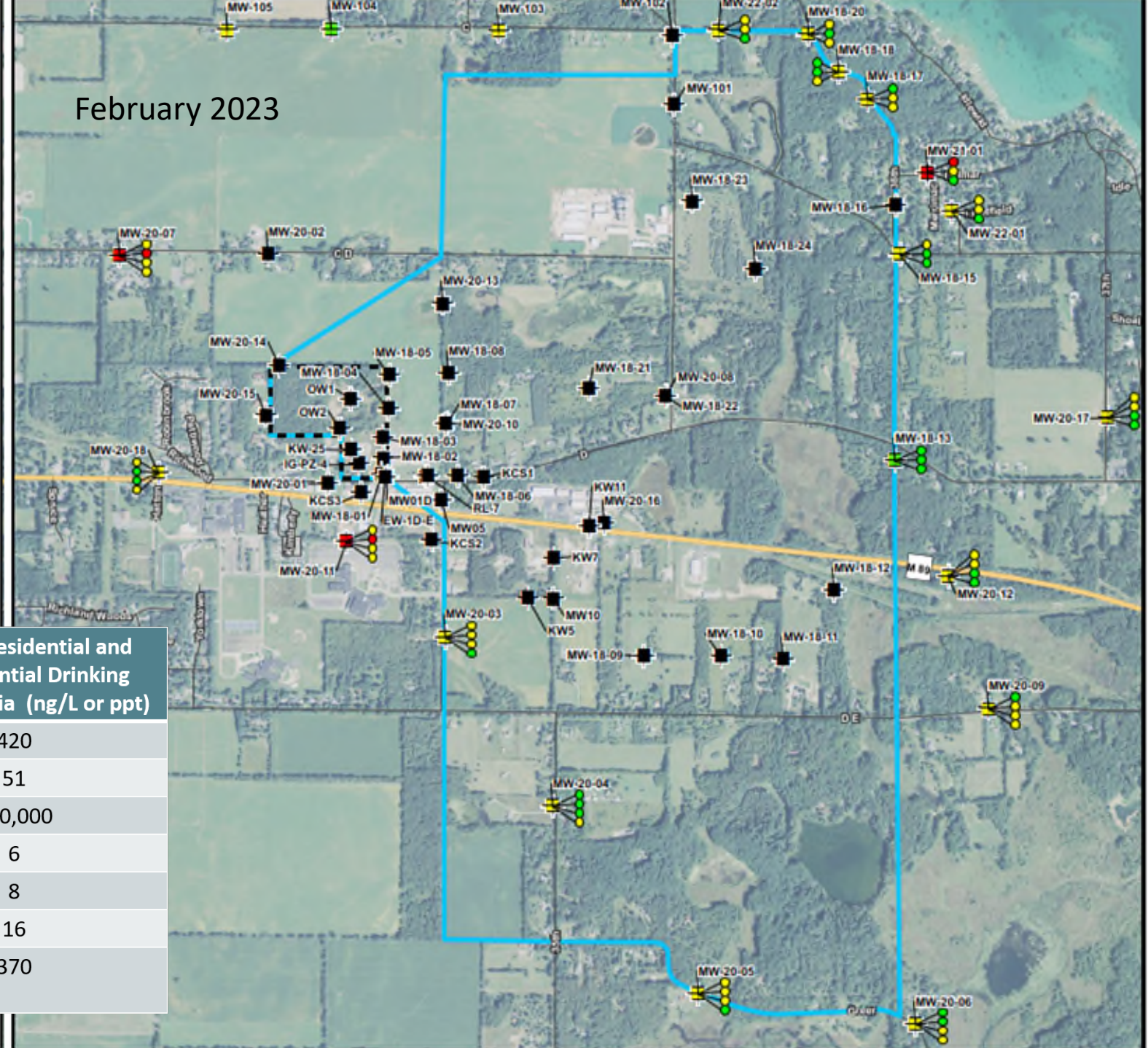
Legend

-  Existing Monitoring Well
-  Monitoring Well Installed from 2018-2022
-  Production Plated Plastics
-  Study Area



Quarterly PFAS Groundwater Results

- Legend**
- Non-Detect for Part 201 PFAS Compounds
 - Detection below Part 201 PFAS Criteria, but no Exceedance
 - One or more Part 201 PFAS Criteria Exceeded
 - Not Sampled



PFAS Compound	Part 201 Residential and Nonresidential Drinking Water Criteria (ng/L or ppt)
Perfluorobutane Sulfonic Acid (PFBS)	420
Perfluorohexane Sulfonic Acid (PFHxS)	51
Perfluorohexanoic Acid (PFHxA)	400,000
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Where are we now?

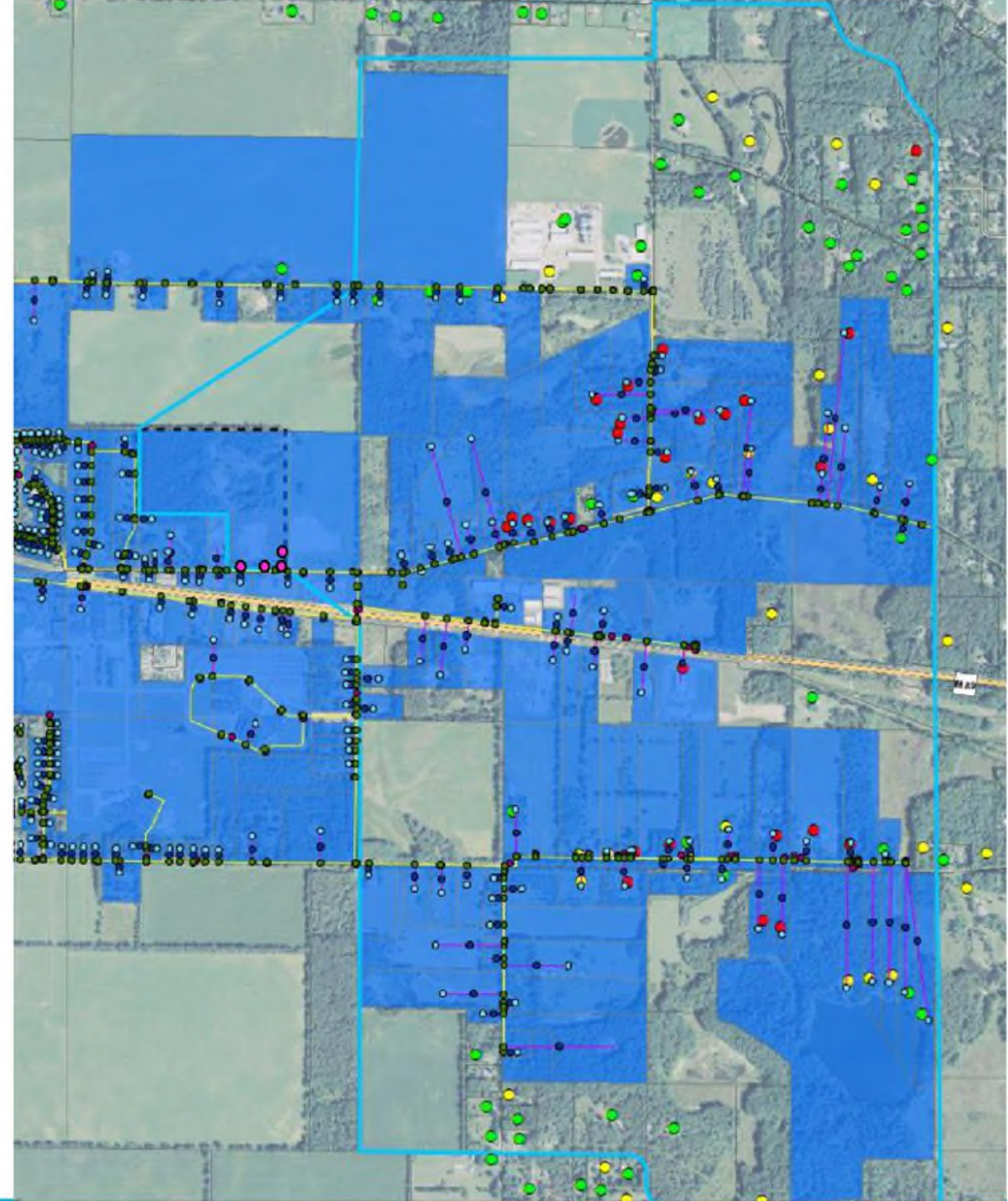
Legend

Residential Well Sampling Location

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- ▭ Parcel Boundary
- ▭ Parcel with New Municipal Water Connection
- ▭ Production Plated Plastics
- ▭ Study Area

Legend

- Fittings
- Hydrant Valves
- Hydrants
- Meters
- Service Connections
- System Valves
- Mains
- Service Lines



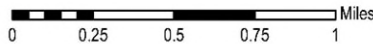
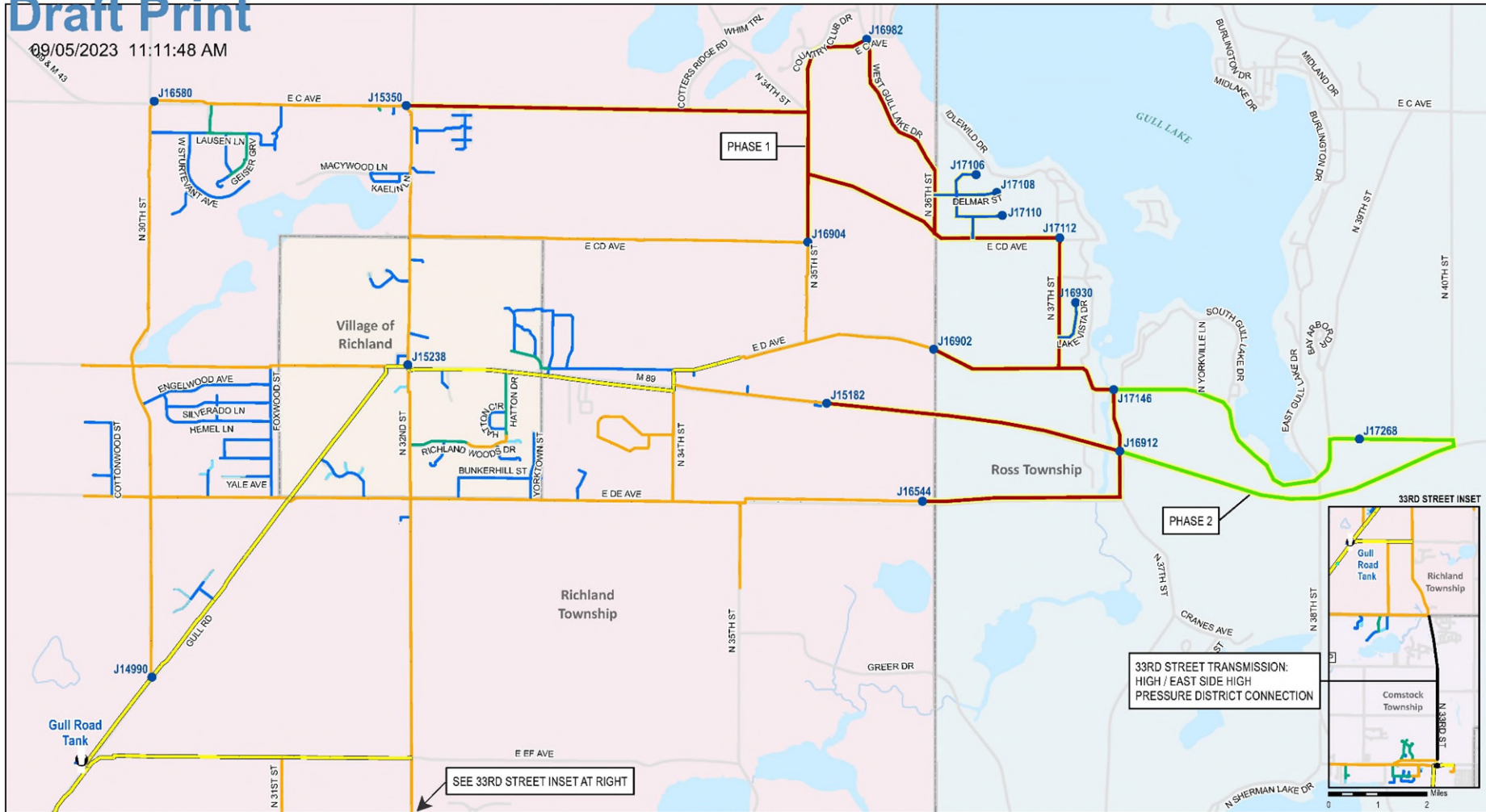
Where are we going?

- Treatment system decommissioning
 - Injections to decrease concentrations of metals migrating offsite
- Long-term groundwater monitoring for PFAS at perimeter wells only
- Potential evaluation of the groundwater surface water interface pathway at Gull Lake
- Working with the local communities on a long-term solution to mitigate current and potential future exposure to PFAS in the groundwater via the drinking water pathway

Proposed Municipal Water Extension

Draft Print

09/05/2023 11:11:48 AM



Proposed Water Main (Phase 1)		Existing Water Main		Proposed Water Main (Phase 2)	
8"	12"	4" and Smaller	6"	8"	12"
10"	12"	8"	10"	20"	24"
16"	20"	12"	12"	30"	30"
24"	30"	16"	16"	Existing Hydrant	Bleeder Station

CITY OF KALAMAZOO
KALAMAZOO COUNTY, MICHIGAN
FIGURE 1: PROPOSED WATER MAIN EXTENSION
SEPTEMBER 2023
Prein&Newhof
2180076



North 34th Street

- The vicinity of 9899 East D Avenue, in Richland Township, Michigan is served by the City of Kalamazoo CWS (East Side High Pressure District)
 - Currently on annual compliance monitoring for PFAS:
 - Compliance monitoring sample results to date have been **non-detect** or **below PFAS MCLs** or for all tested PFAS

Public Drinking Water

James Baker, Public Services Director &
City Engineer, City of Kalamazoo



Long Term Drinking Water Recommendations

Specific locations may need to consider future long-term plans for clean safe drinking water alternative sources

Well replacements may not be a feasible alternative

Filters are not considered a viable long-term solution

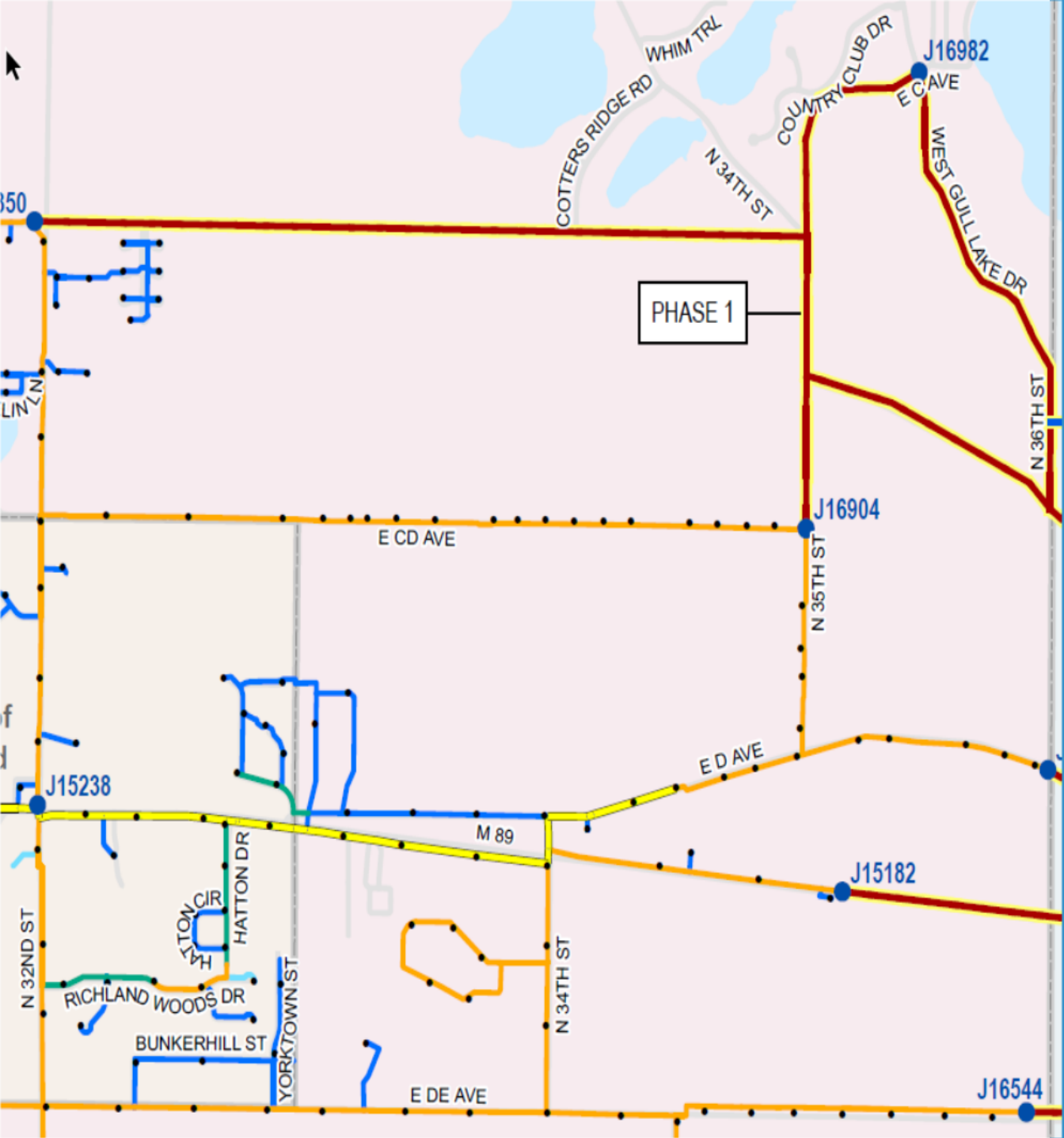


Proposed Alternative, Kalamazoo Regional Water System Expansion

Previous Kalamazoo municipal extensions successful in solving PFAS contamination in Parchment, Cooper Township and Richland Township

Funding programs available

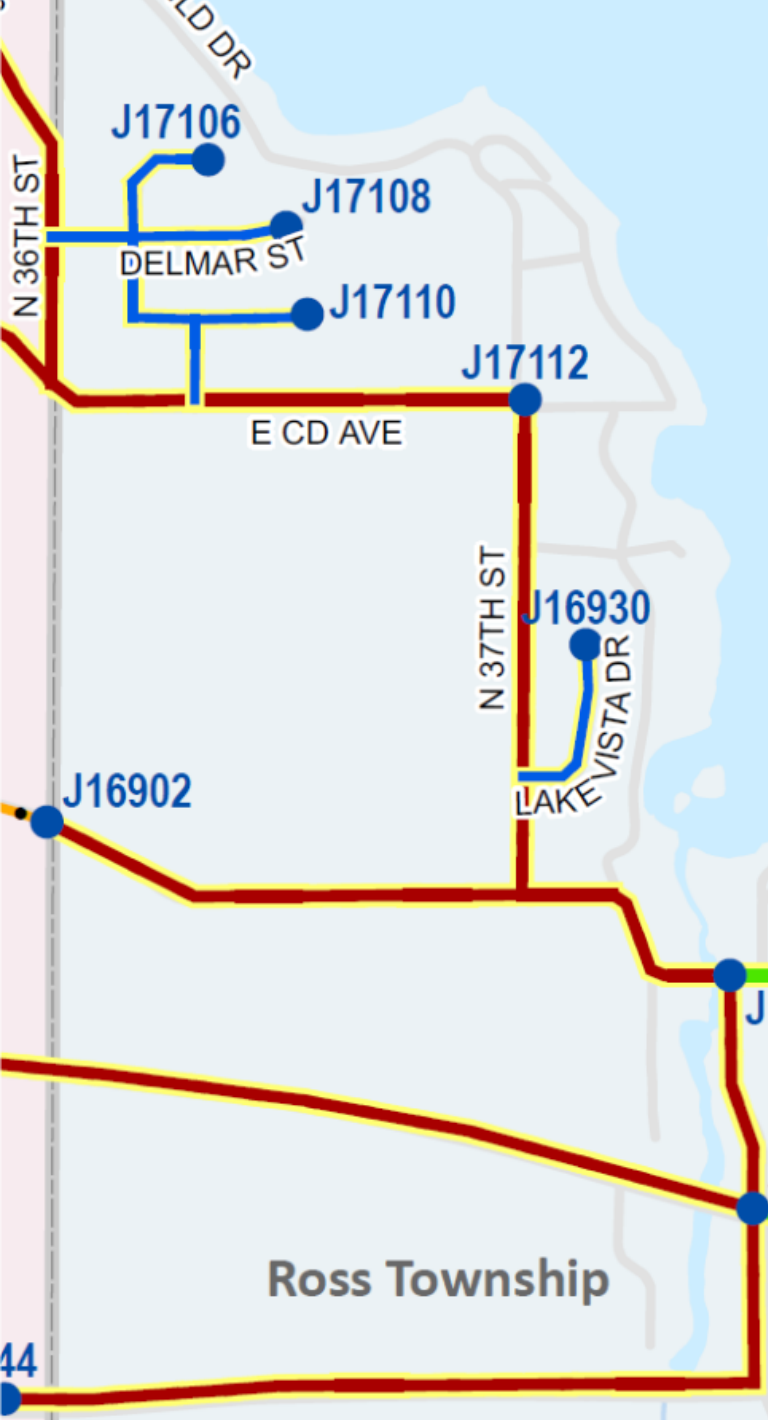
Parchment, Cooper Township and Richland Township extensions connected over 1700 customer locations at no direct customer cost



Proposed Alternative, Richland Twp Water System Expansion

Richland Township water main extensions focused within near and known PFAS investigation areas

Fire hydrants and available fire protection provides an additional benefit and likely reduction in homeowners insurance rates




Proposed Alternative, Ross Twp Water System Expansion

Ross Township water main extensions focused within near and known PFAS investigation areas

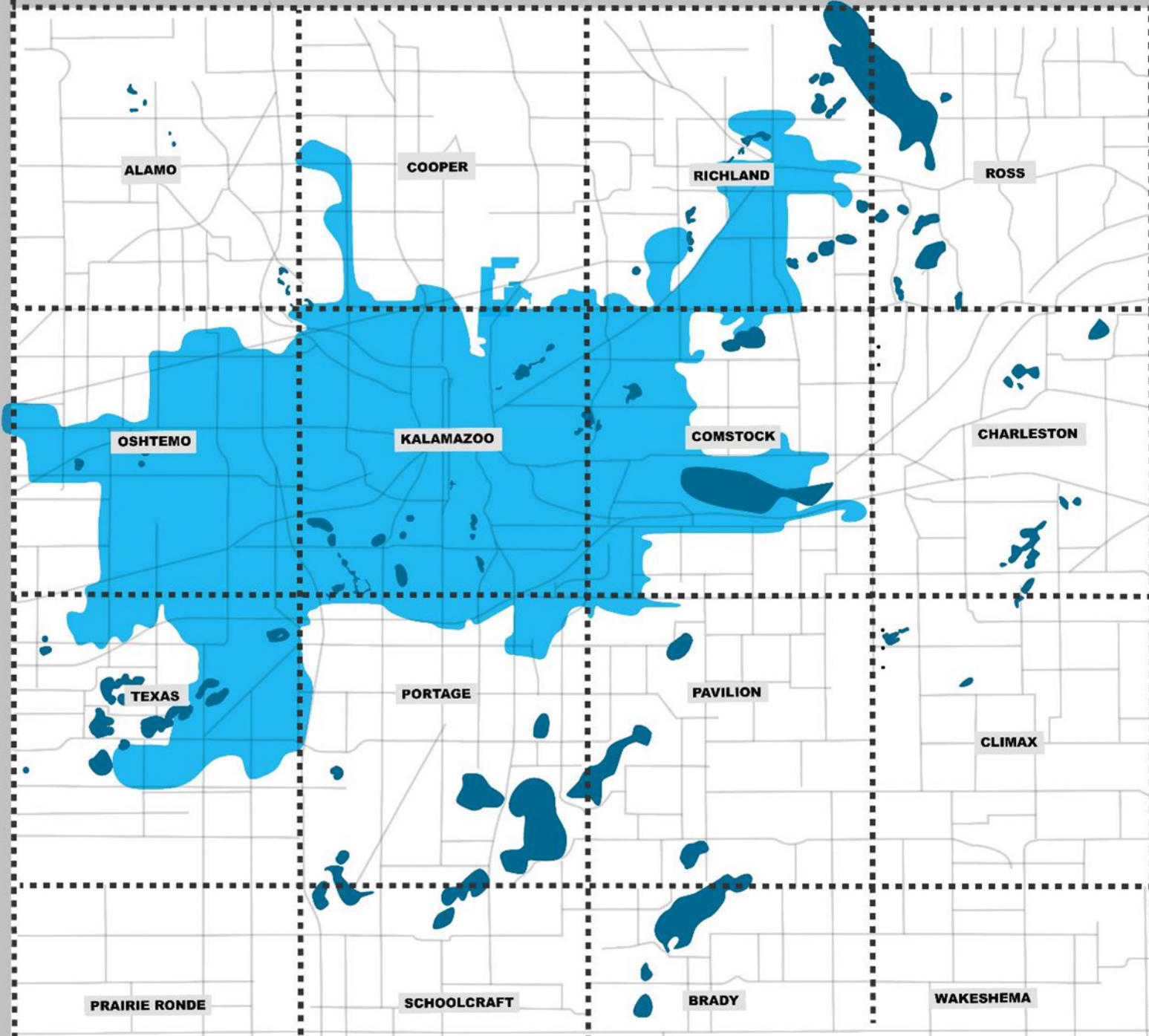
Transmission main (red) and distribution main (blue) to serve the Gull Vista Plat and the Indian Point Plat

Fire hydrants and available fire protection provides an additional benefit and likely reduction in homeowners insurance rates

The background image shows a water treatment facility. On the left, a close-up of a circular diffuser with water flowing through it. On the right, a large rectangular aeration tank with a yellow truss structure and a central vertical shaft. In the foreground, a row of small, rounded stone structures with water flowing over them. The entire image is overlaid with a semi-transparent blue filter.

Kalamazoo Regional Water System

Kalamazoo Water system



Michigan's largest groundwater-only water supply

- 41,669 connections
- 839 miles of water main
- 7,000 fire hydrants
- 11 elevated storage facilities
- 11 municipal jurisdictions
- 20 booster/bleeder stations
- 13 point of entry treatment plants
- 94 production wells
- 16 US Geological Survey gauge stations
- 38 million gallons per day average max demand
- 46 million gallons per day max demand (1988)
- 11 municipal jurisdictions represented by 7 voting members to determine Policy and Rates - UPC

DWSRF FY2025

Application Timeline

November 1, 2023 – Submit Intent to Apply (ITA) form to EGLE

April 2024 – Complete Project Plan and hold Public Hearing

May 1, 2024 – Submit Project Plan to EGLE

September 2024 – Receive ranking and funding priority from EGLE

October 2024 to September 2025 – Begin construction



Resources to gain knowledge of contamination

- Sites of Environmental Contamination:
 - <https://www.mcgi.state.mi.us/environmentalmapper/>
- Residential Drinking Water Well Viewer
 - <https://www.mcgi.state.mi.us/waterwellviewer/>
- MPART Website tour:
 - <https://www.michigan.gov/pfasresponse/>
- Contact MDHHS Drinking Water Hotline at 800-648-6942.

MICHIGAN PFAS ACTION RESPONSE TEAM (MPART)

www.Michigan.gov/PfasResponse



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY





Questions?