



NORTHERN MORAINE W R D

Decennial Committee Meeting

Northern Moraine Wastewater Reclamation District

January 13, 2025 – 6:30 p.m.

Meeting Minutes

1. Attendees and Introductions

- *Kenneth A Michaels, Jr. District President (Chairperson of the Committee) ***
- *John R. Ragland, District Trustee***
- *Timothy R. Brunn, District Trustee***
- Caretina Tellez, District Trustee
- *Mohammed Haque, District Manager***
- Joe Lapastora, District Director of Operations
- *Jeff Giles, Village of Holiday Hills President***
- Todd Weihofen, Village of Lakemoor Administrator
- John Grothendick, Village of Port Barrington Trustee
- Richard McLaughlin, Village of Island Lake President
- Trotter and Associates – *Scott Trotter***, *Lindsay Muth***
 - *Meeting attendees are indicated with asterisks and italicized **.*

2. Review of Decennial Committee Responsibilities and Status

- *The Committee is required to meet at least three times.*
 - As of this meeting, the committee has met all three required times.
- *Study the governmental unit's governing statutes, ordinances, rules, procedures, powers, jurisdiction, shared services, intergovernmental agreements and interrelationships with other governmental units and the state;*
 - Discussed during September 12, 2023, meeting. Recommendations are included in the September 12, 2023, meeting minutes.
 - Committee also met on January 9, 2024 to discuss future development within the District. Meeting Minutes were emailed after the meeting.

- *Collect data, research and analysis as necessary to prepare a report that summarizes the committee's work, findings and recommendations with respect to increased accountability and efficiency; and,*
 - Trotter and Associates has completed this for the 2024 Facility Plan to be reviewed during this meeting.
- *Provide a report to the county board in which the governmental unit is located no later than 18 months after the formation of the committee*
 - The committee was formed 9/12/23. The District has until March 12, 2025 to submit the report. Upon final review after this meeting, the 2024 Facility Plan report will then be sent to the McHenry/Lake County Boards.

Scott noted the Decennial Committee has met the responsibilities required by law as of this meeting.

3. Review of Decennial Committee Goals

- ✓ Review lines of communication with other governmental units – 9/12/23
- ✓ Develop a process for increased cooperation on future development – 9/12/23
- ✓ Review District's objective for continuation of service – 1/13/25
- ✓ Review District's responsibility for extension of service – 1/13/25
- ✓ Review District's policy regarding establishment of rates – 1/13/25
- ✓ Discuss collaboration with regard to Public Communications – 9/12/23

Scott reviewed the goals of the committee and noted the meeting dates where each of these goals were discussed.

4. 2024 NMWRD Facility Plan Report Presentation

- Introduction and Background
- Community Needs
- Collection System
- Lift Stations
- Wastewater Treatment Plant
- Treatment Capacity and Regulatory Requirements
- Implementation Plan
- Environmental Impacts
- Recommendations

Scott presented on the facility plan. A pdf of the presentation is attached to the meeting minutes.

5. Future Meeting Dates – None

6. Action Items:

- **NMWRD** – Submit Final Facility Plan Report to McHenry and Lake County Boards by **3/12/2025**

These minutes were recorded to the best recollection of Trotter and Associates, Inc. and are assumed to be accurate. The information within this document shall become record unless changes are submitted in writing within the next seven days.

NORTHERN MORAINÉ WASTEWATER RECLAMATION DISTRICT

*WASTEWATER FACILITY PLAN UPDATE & FINAL DECENNIAL COMMITTEE
MEETING
JANUARY 13TH, 2025 @ 6:30PM*



Decennial Committee Meeting –Third and Final Meeting

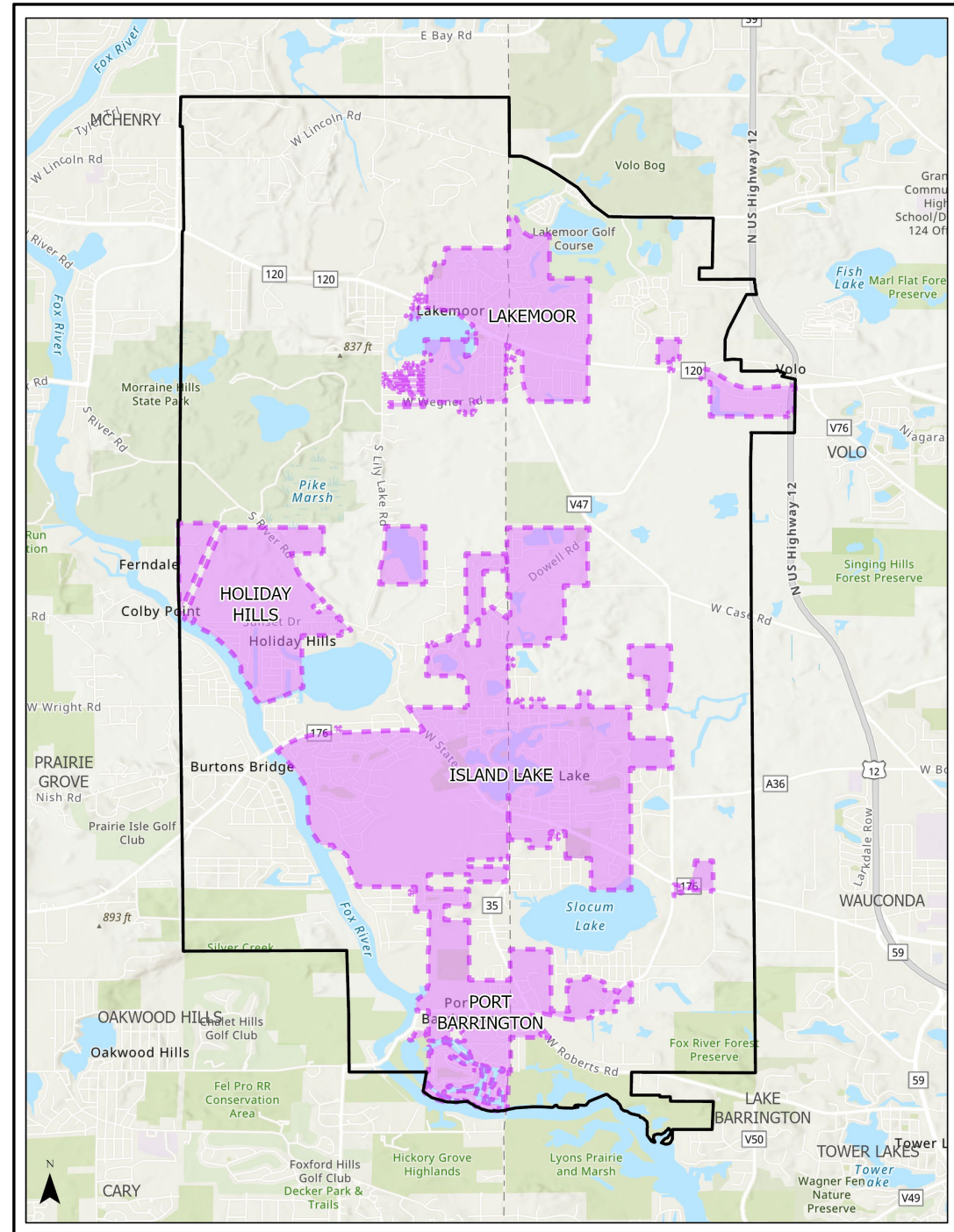
- Attendance
- Review of Decennial Committee Responsibilities
 - Review of Completion Status
- Review of Decennial Committee Goals
 - ✓ Review lines of communication with other governmental units – 9/12/23
 - ✓ Develop a process for increased cooperation on future development – 9/12/23
 - ✓ Review District's objective for continuation of service – 1/13/25
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2024 NMWRD Facility Plan Report Presentation

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- Wastewater Treatment Plant
- Treatment Capacity and Regulatory Requirements
- Implementation Plan
- Environmental Impacts
- Recommendations

Existing District Facility Planning Area and Corporate Boundaries

- Facility Planning Area:
16,723 acres
- Corporate Boundaries:
4,327 acres



Existing Population Equivalent (PE) Summary

Community	Basins	Residential PE	Commercial PE	Total PE
Village of Lakemoor	NE, NW	3,380	910	4,290
Village of Island Lake	Central, E, Near E, Waterford	7,614	958	8,572
Village of Port Barrington	South Central, S	1,503	122	1,625
Total		12,497	1,990	14,487

Future Development and Buildout PE

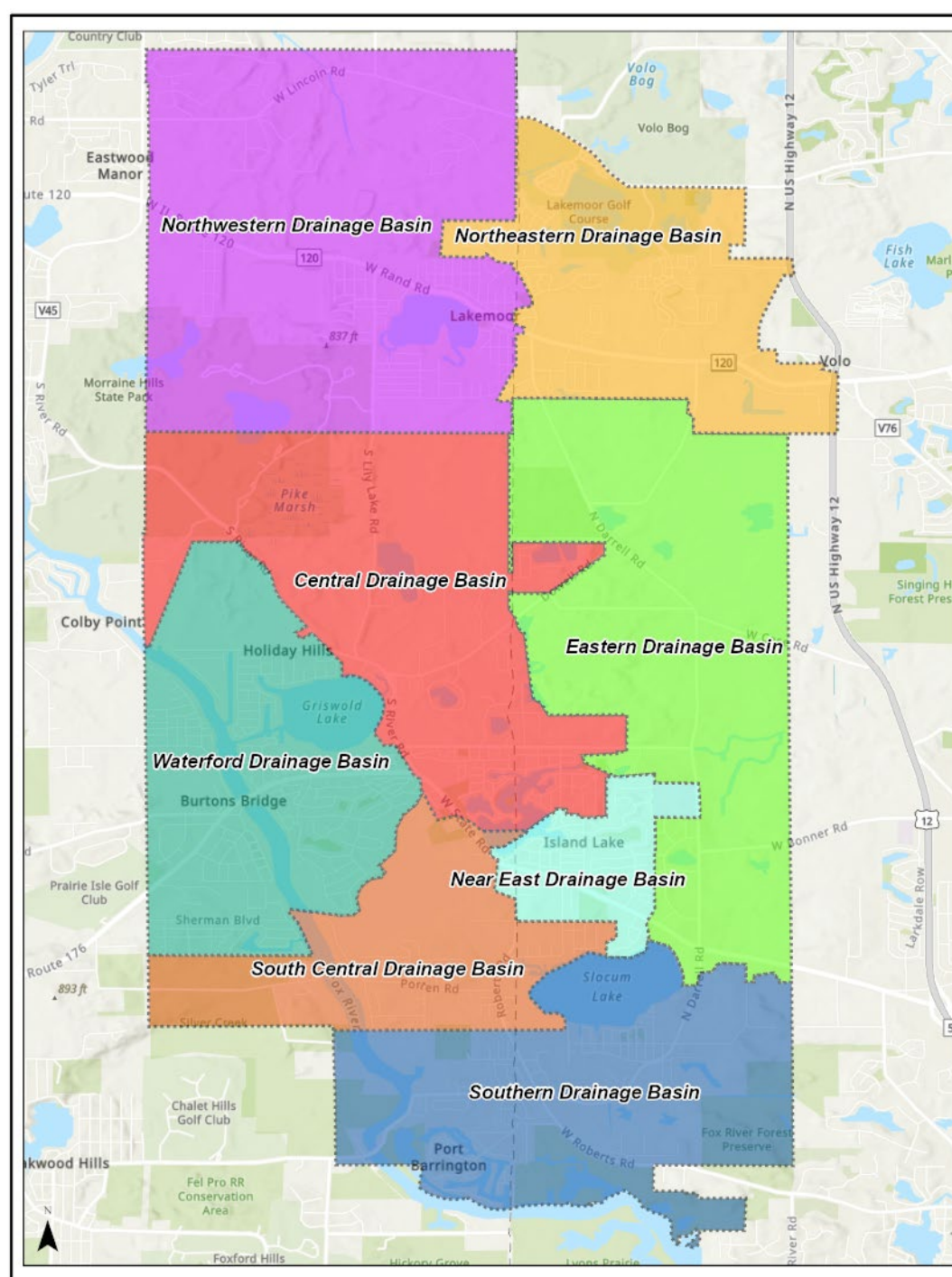
- Parcel data from McHenry and Lake Counties utilized from each County's GIS database for the District and each Village's Corporate Boundary
- Estimates of buildout approximated based on number of acres in the boundary multiplied by a multiplier for residential or commercial land use depending on County or Village Ordinance

Existing, Future Development and Buildout PE Summary

Description	Development within the Villages	Unincorporated Areas	Total Buildout PE
Existing Residential PE	12,497	-	
Future Residential Growth	5,149	29,364	
Total Residential PE at Buildout	17,646	29,364	47,010
Existing Commercial PE	1,990		
Future Commercial Growth	2,415	9,734	
Total Commercial PE at Buildout	4,405	9,734	14,139
Total Buildout PE	22,051	39,098	61,149

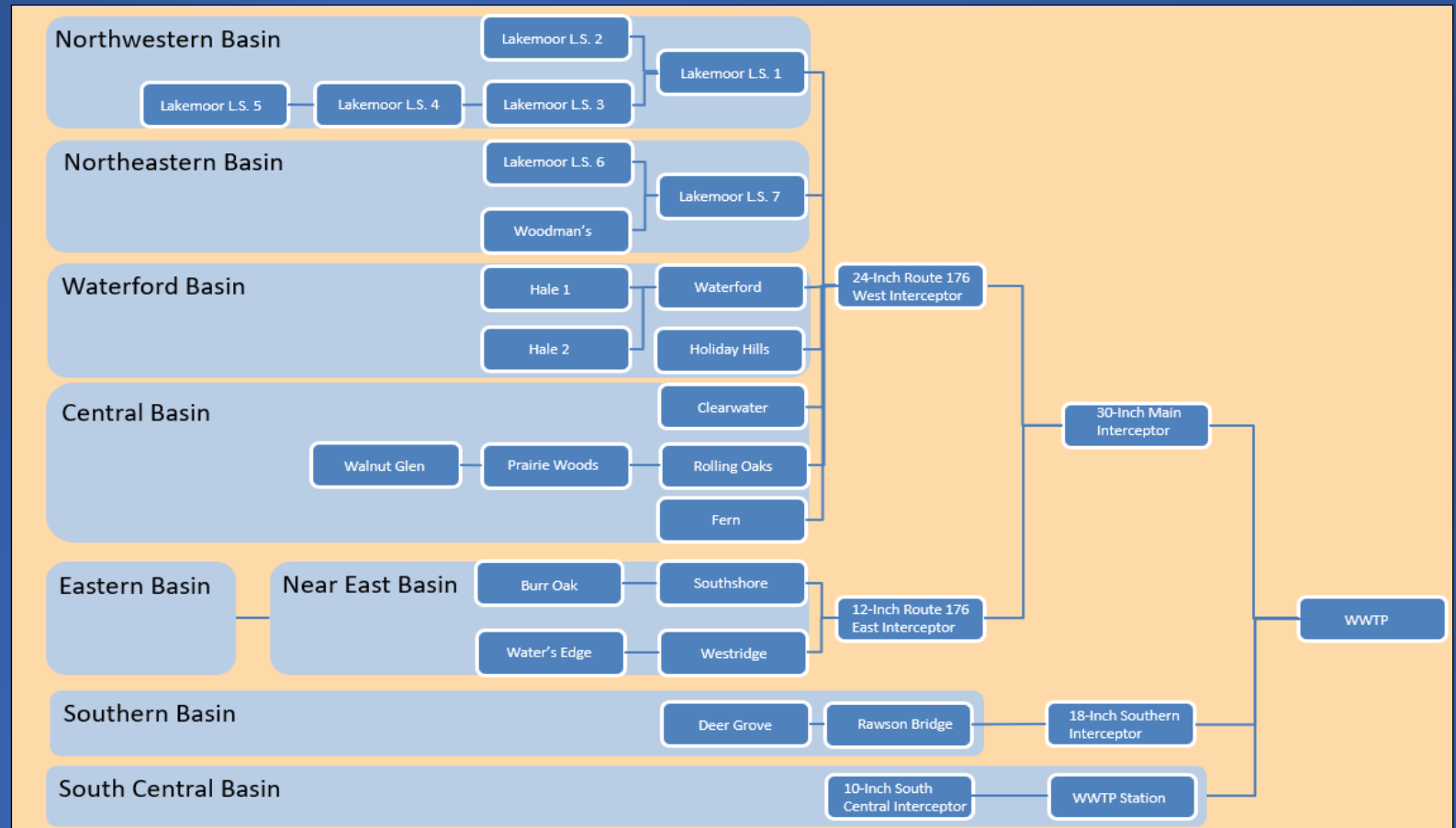
Drainage Basins

- Basins were adjusted for the 2024 Facility Plan Update
- NMWRD FPA was divided into eight distinct wastewater drainage basins



Collection System Overview

- 77 miles of sanitary sewer and force main
- 1,555 manholes



Collection System Assessment

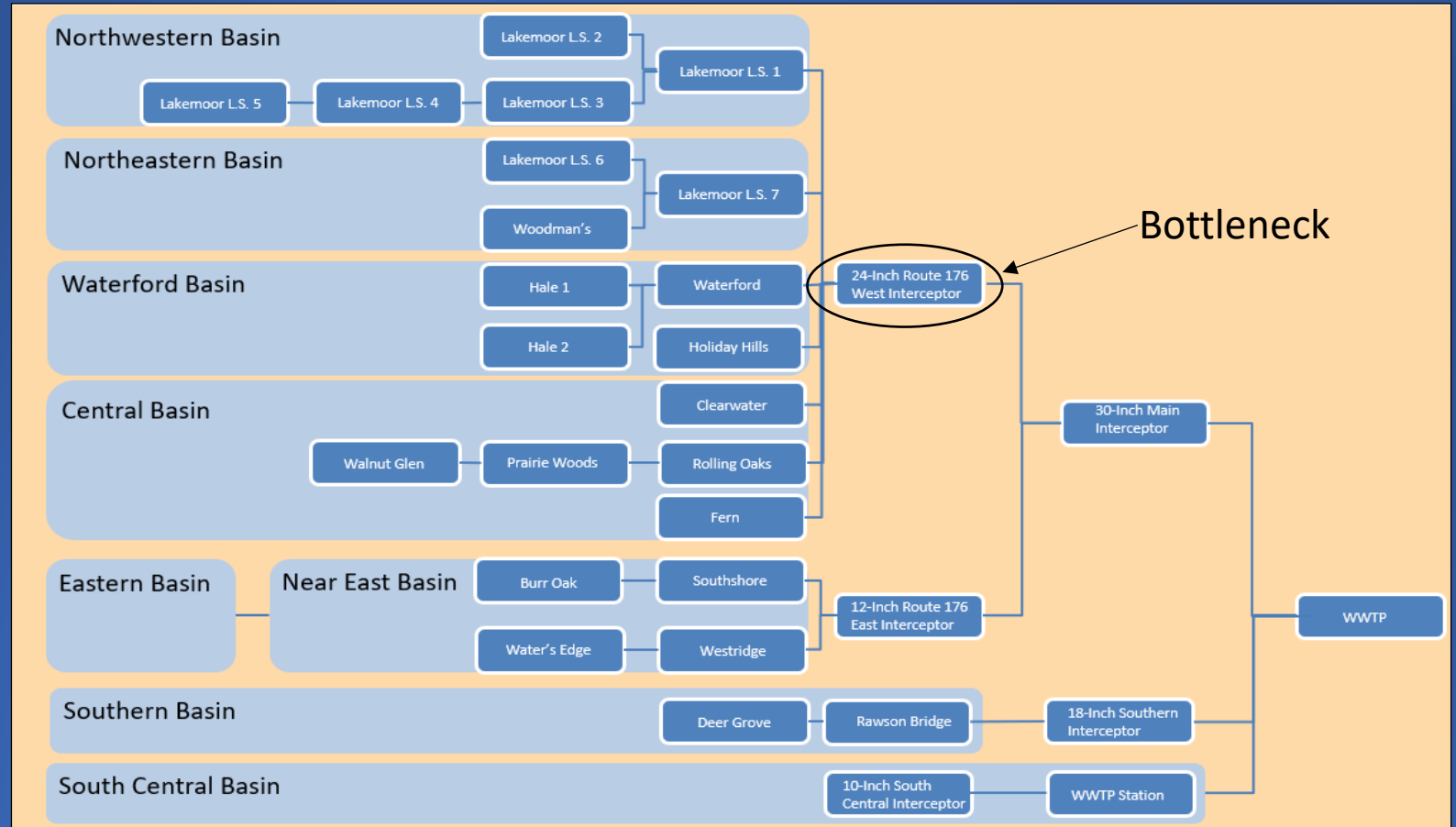
- Replacement Value = \$186,309,000
- Typical 75-year Design Life
- Rehabilitation extends life by 50 years, or 125-year design life
- \$1.49 M annual reinvestment toward collection system rehabilitation

Collection System: Capacity Management, Operations and Maintenance Program (CMOM)

- Required per Special Condition 23 of the District's NPDES Permit
 - Goal: Minimize Sanitary Sewer Overflows (SSO's) through increased attention to planning and maintenance
- Updated in September 2023
- Only 2.4% of the District's collection system infrastructure is in poor condition (Infiltration and Inflow (I/I) issues)

Collection System Overview

- 77 miles of sanitary sewer and force main
- 1,555 manholes



Collection System: Interceptor Capacity

- Rte. 176 Interceptor Sewer
 - Capacity: 23,000 PE
 - Existing: 10,634 PE
 - Future: 42,818 PE

Drainage Basin	PE	ADDF (MGD)	Peakin g Factor	PHF (MGD)
Northwestern	13,764	1.33	2.82	3.74
Northeastern	11,343	1.07	2.90	3.10
Waterford	11,151	1.04	2.91	3.01
Central	6,559	0.57	3.13	1.79
Eastern	3,525	0.35	3.38	1.19
Near East	3,077	0.25	3.43	0.86
Southern	7,790	0.75	3.06	2.29
South Central	3,938	0.38	3.35	1.28

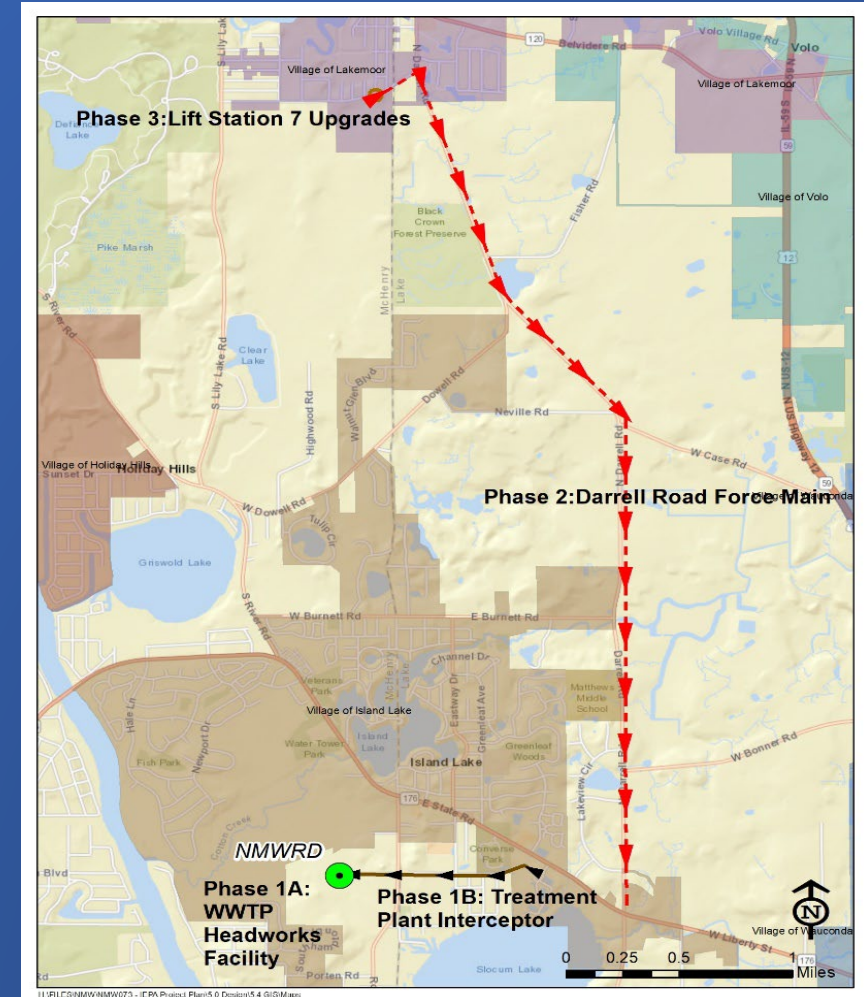
Collection System: Interceptor Capacity

- Rte. 176 Interceptor Sewer
 - Capacity: 23,000 PE
 - Existing: 10,634 PE
 - Future: 17,710 PE

Drainage Basin	PE	ADDF (MGD)	Peakin g Factor	PHF (MGD)
Northwestern	13,764	1.33	2.82	3.74
Northeastern	11,343	1.07	2.90	3.10
Waterford	11,151	1.04	2.91	3.01
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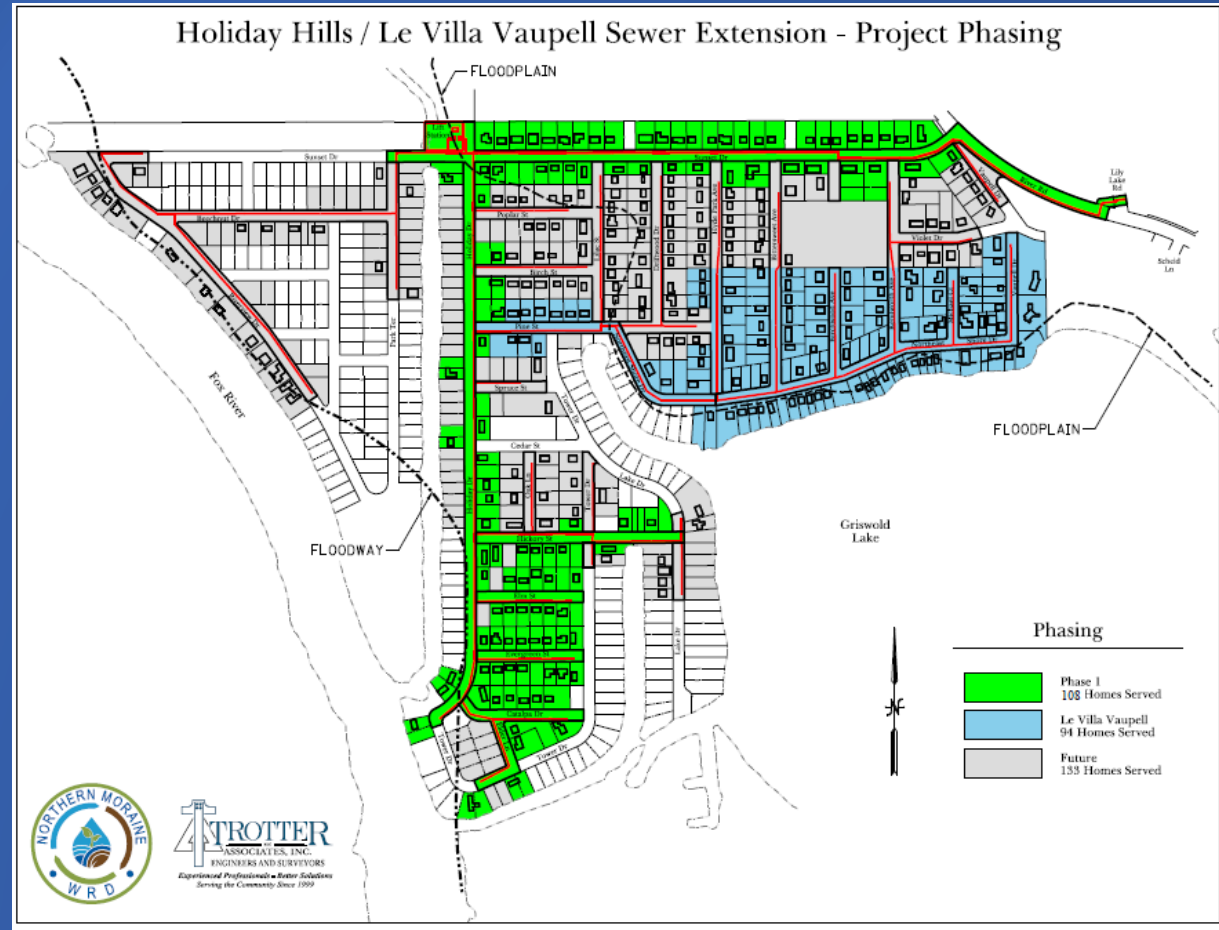
Collection System: Interceptor Capacity

- Timeline: When 80% of Rt. 176 West Interceptor capacity is utilized (Additional 6,500 more PE added to the District's Service Area)



Collection System: Holiday Hills Sewer Extension Project

- Project to extend District sewer to Village of Holiday Hills and Le Villa Vaupell subdivision
- Phase 1: Complete
- Phase 2: Under Construction
- Phase 3: Design Complete (Waiting on funding)
- Planned: 1,130 PE

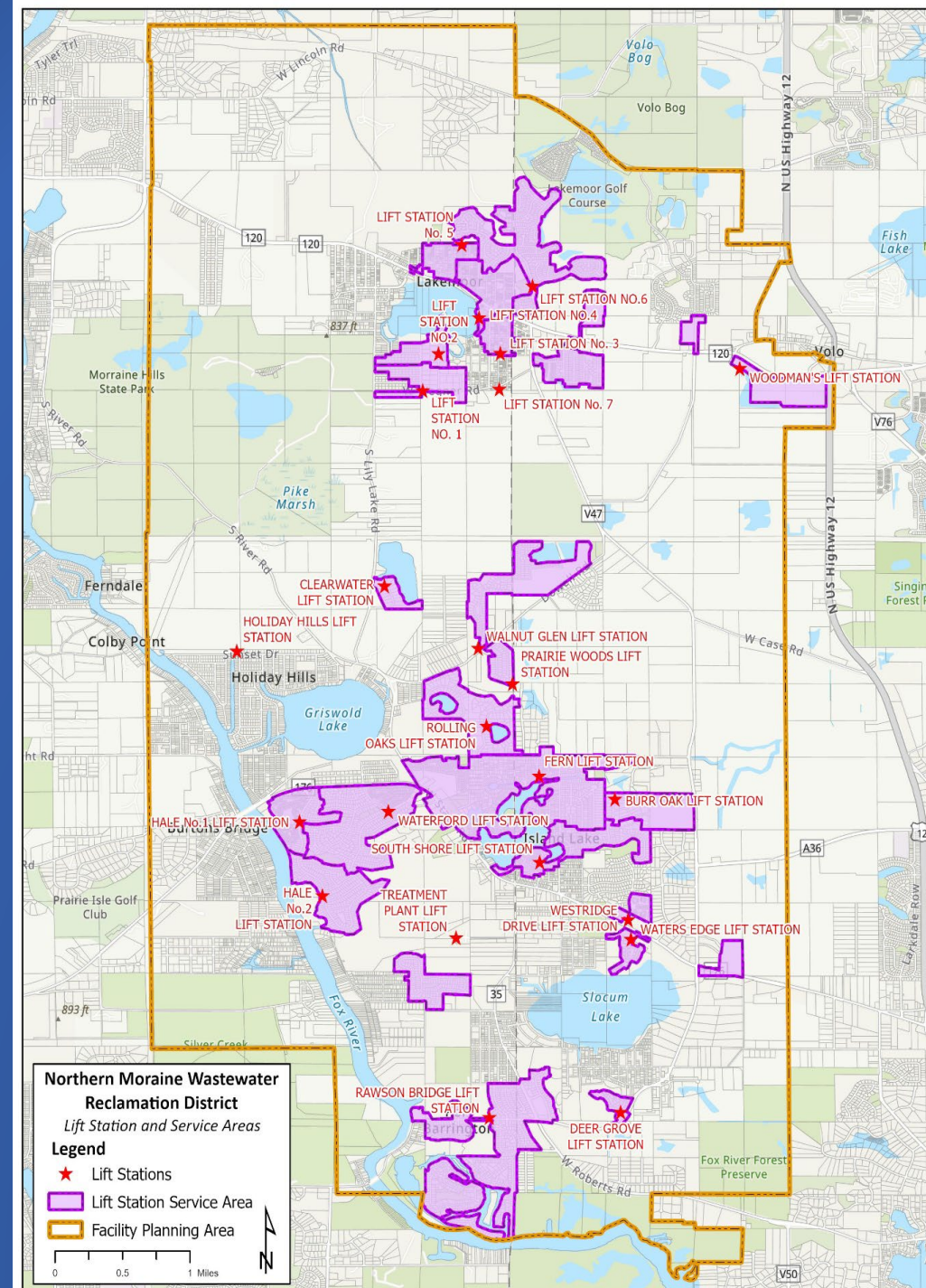


Collection System Capital Project Costs

Description	Probable Cost
Darrell Road Collection System Phase 1A – Headworks	\$5,621,000
Darrell Road Collection System Phase 1B – Treatment Plant Interceptor	\$6,676,000
Darrell Road Collection System Phase 2 – Force Main	\$12,447,000
Darrell Road Collection System Phase 3 – Lakemoor LS#7 Upgrades	\$4,494,000
Unsewered Community Sanitary Sewer Extension	\$6,663,000
Total Probable Capital Costs	\$35,901,000
	\$30,280,000

Lift Stations Assessment

- District owns and operates 24 Lift Stations within Island Lake, Lakemoor and Holiday Hills
- Condition Assessments and Drawdown Tests completed



Lift Stations Rehabilitation Project Costs

Lift Station	Improvements	Last Lift Station Rehab Date
Lakemoor L.S. 1	N/A	2023
Lakemoor L.S. 2	\$188,300	2006
Lakemoor L.S. 3	\$203,260	2006
Lakemoor L.S. 4	\$229,400	2006
Lakemoor L.S. 5	\$155,420	2006
Lakemoor L.S. 6	\$219,300	2023
Lakemoor L.S. 7	\$322,180	2018
Burr Oak	\$621,200	No Major Rehab
Clearwater	\$541,200	No Major Rehab
Deer Grove	\$404,200	No Major Rehab
Fern	\$183,500	2011
Hale 1	\$439,400	No Major Rehab
Hale 2	\$290,500	No Major Rehab
Holiday Hills	N/A	2023
Prairie Woods	\$362,000	No Major Rehab
Rawson Bridge	\$410,050	No Major Rehab
Rolling Oaks	\$487,200	No Major Rehab
South Shore	\$268,100	2011
Treatment Plant	\$187,400	2009
Walnut Glen	\$419,000	No Major Rehab
Waterford	\$518,000	2014
Water's Edge	\$594,800	No Major Rehab
Westridge	\$449,200	No Major Rehab
Woodman's	\$126,600	2019

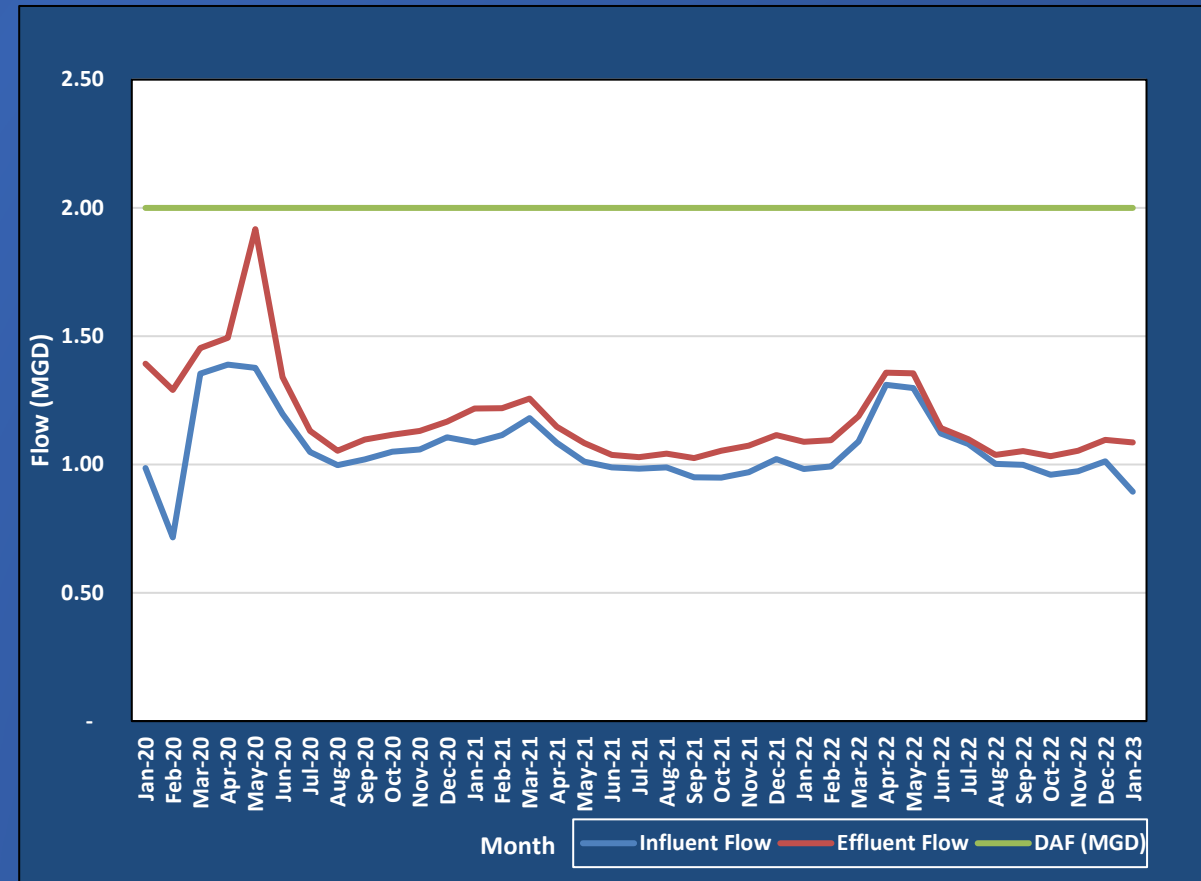
*Based on best available data

Lift Stations Assessment

- Replacement Value = \$32,646,100
- Typical 20 years for equipment, 50 years for structures, 75 years for force mains
- \$740K annual reinvestment toward lift station rehabilitation

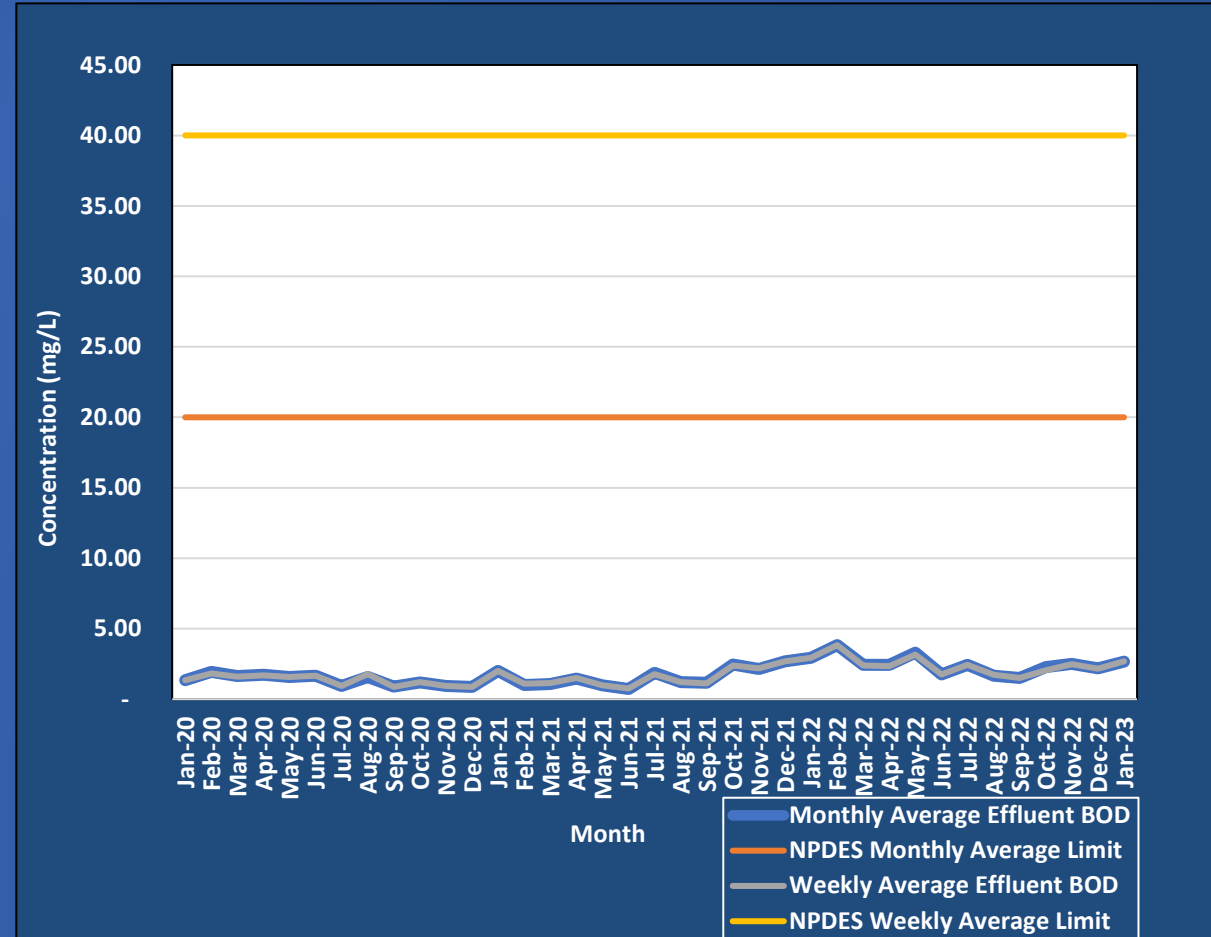
Existing Wastewater Treatment Plant (WWTP)

- Existing WWTP:
 - Design Average Flow (DAF) = 2.0 MGD
- Current Flow Conditions:
 - 2020-22 Average Effluent Flow (ADF) = 1.18 MGD
 - 59% of the WWTP's hydraulic capacity
 - Maximum Daily Flow: 3.14 MGD in May 2020



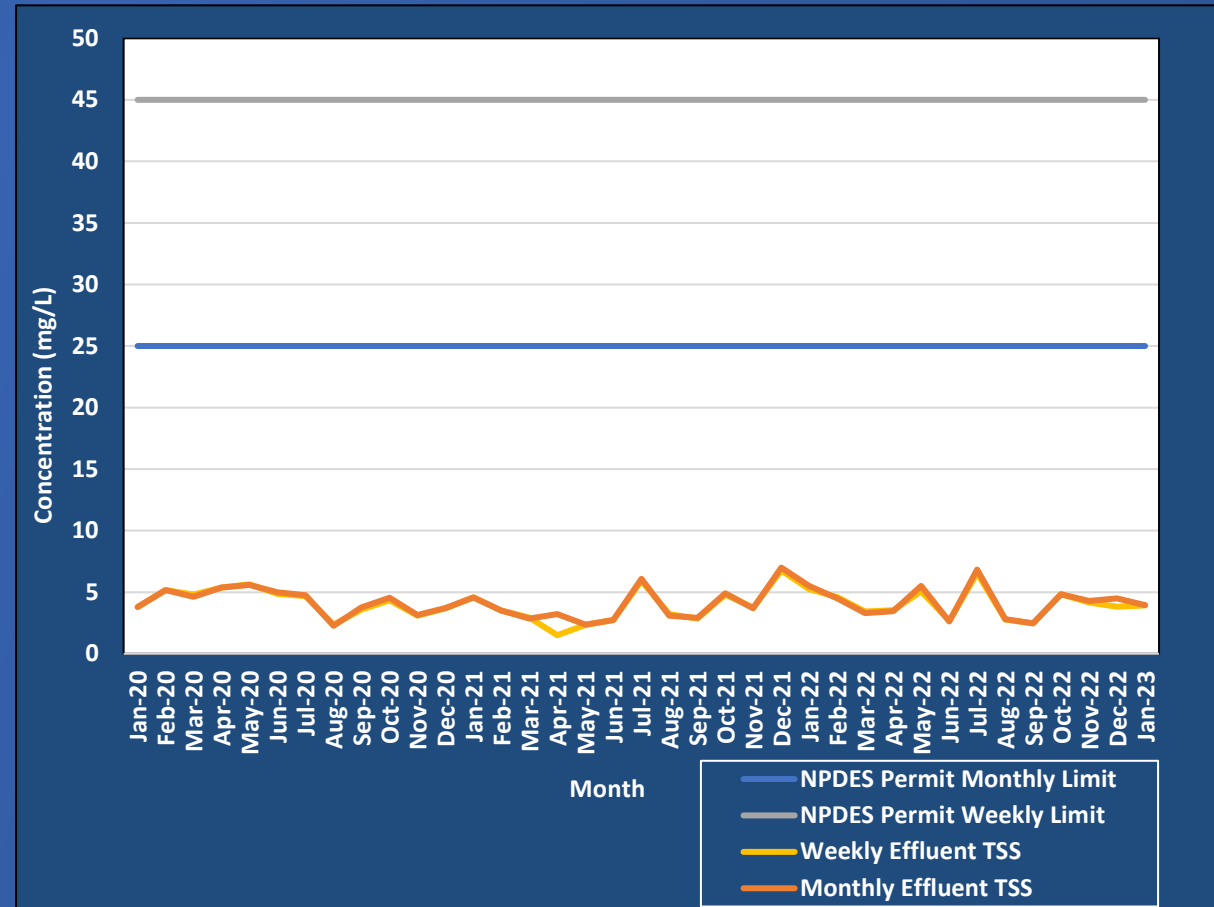
Existing Wastewater Treatment Plant (WWTP) Compliance

- Effluent BOD Limits:
 - Monthly Average: 20 mg/L
 - Weekly Average: 40 mg/L
- Compliance with Effluent BOD Limits:
 - 2020-22 Effluent Monthly Average: 1.81 mg/L
 - 2020-22 Weekly Average: 1.80 mg/L



Existing Wastewater Treatment Plant (WWTP) Compliance

- Effluent TSS Limits:
 - Monthly Average: 25 mg/L
 - Weekly Average: 45 mg/L
- Compliance with Effluent TSS Limits:
 - 2020-22 Effluent Monthly Average: 4.14 mg/L
 - 2020-22 Weekly Average: mg/L: 4.04 mg/L



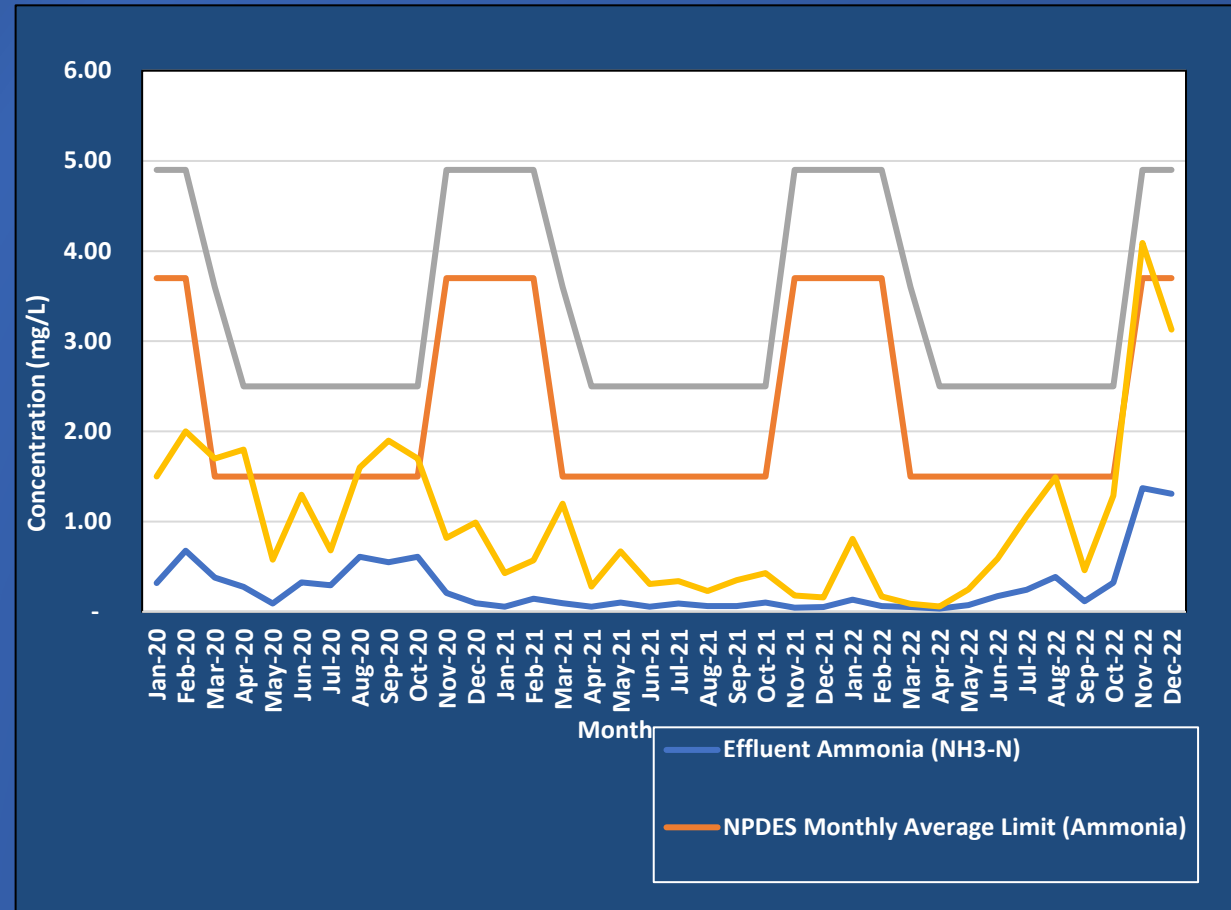
Existing Wastewater Treatment Plant (WWTP) Compliance

- Effluent Ammonia Limits:

Months	Monthly Average	Daily Maximum
April - October	1.5 mg/L	2.5 mg/L
November - February	3.7	4.9 mg/L
March	1.5 mg/L	3.6 mg/L

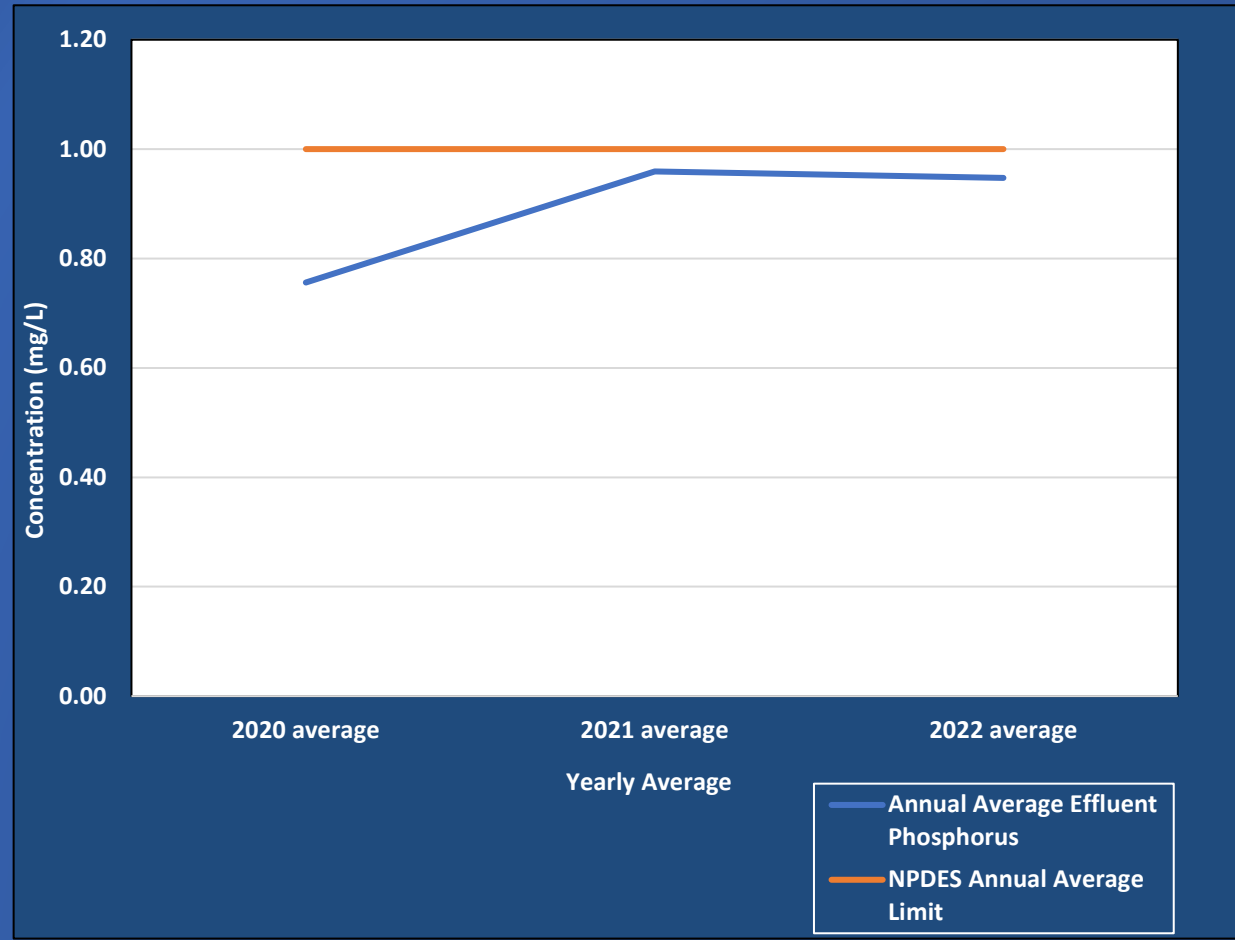
- Compliance with Effluent Ammonia Limits:

- 2020-22 Effluent Annual Average: 0.32 mg/L



Existing Wastewater Treatment Plant (WWTP) Compliance

- Effluent Total Phosphorus Limits:
 - Annual Average: 1.0 mg/L
- Compliance with Effluent Total Phosphorus Limits:
 - 2020-22 Effluent Annual Average: 0.89 mg/L



Existing Wastewater Treatment Plant (WWTP)

- Existing WWTP Process:
 - Headworks
 - Raw Sewage Pumping
 - Biological Process (Oxidation Ditch)
 - Chemical Phosphorus Removal
 - Final Clarifiers
 - Chlorine Disinfection
 - Sludge Treatment and Solids Handling:
 - Aerobic Digestion
 - Sludge Thickening
 - Sludge Dewatering Sludge Drying Beds



Existing WWTP Assessment

- Replacement Value = \$66,200,000
- Typical 20 years for equipment, 50 years for structures, 75 years for force mains
- \$1.5M annual reinvestment toward WWTP rehabilitation

WWTP Capital Project Costs

Project Name	Probable Cost
Darrell Road Phase 1A Headworks Project	\$5,380,000
WWTF Oxidation Ditch Gate Replacement Project	\$339,560
Final Clarifier No. 2 Rehabilitation	\$1,092,000
UV Disinfection Project	\$1,723,000
Aerobic Digester Blower Replacement	\$771,600
Generator Replacement	\$549,050
Laboratory Equipment Remodel	\$80,000
WWTF Fleet Maintenance Garage Project	\$2,506,550
Garage and Personnel Building Remodel Project	\$600,000
Solar Array Project	\$3,258,000
Total Probable Capital Costs	\$16,299,760

WWTP Phase II Expansion

- Expansion of the WWTP from 2.0 to 3.0 MGD required when the District permits up to 1.6 MGD (80% of WWTP Hydraulic Capacity)
 - Current Flow: 1.18 MGD (14,487 PE)
 - Available Capacity: 0.42 MGD (5,156 PE)
- Projected Schedule:
 - Needed within next 20 years
 - District to track development

WWTP Phase II Expansion Scope

- **Headworks** – Influent Screens (Completed during Darell Rd Phase 1A project)
- **Raw Sewage Pump Station** – Additional Pumping Capacity, Expanded wet well/new pump station
- **Biological Process** – Third Ring on oxidation ditch
- **Tertiary Clarifiers** – Add tertiary filters (new building)
- **Disinfection** – Add UV units in new Tertiary Filter Building
- **Sludge Handling** –
 - **Sludge Thickening** – Install dedicated centrifuge
 - **Sludge Dewatering** – Install dedicated centrifuge
- **Sludge Storage** – Add one new barn

WWTP Phase II Expansion Project Costs

NMWRD WWTP Phase II Expansion Cost	
SUMMARY	
DESCRIPTION	2024 Cost
GENERAL CONDITIONS	\$4,726,100
SITE WORK	\$3,190,400
HEADWORKS	\$0
RAW SEWAGE PUMP STATION	\$3,539,100
OXIDATION DITCH	\$2,642,300
RAS/WAS PUMP STATION AND STRUCTURE	\$2,097,800
CLARIFIERS	\$0
TERTIARY FILTER/UV DISINFECTION BUILDING	\$3,490,400
AEROBIC DIGESTION	\$0
SLUDGE HANDLING	\$2,472,700
SLUDGE STORAGE BARN	\$1,630,500
FLEET MAINTENANCE GARAGE	\$0
OPERATIONS BLDG	\$0
ADMINISTRATION BLDG	\$0
CONSTRUCTION SUB-TOTAL	\$23,789,300
CONTINGENCY (20%)	\$4,757,900
ESTIMATED CONSTRUCTION COST	\$28,547,200
DESIGN ENGINEERING @ 7.5%	\$ 2,141,100
CONSTRUCTION ENGINEERING @ 7.5%	\$ 2,141,100
TOTAL PROBABLE PROJECT COST	\$32,829,400
IEPA Loan Contingency @ 3%	\$985,000
IEPA Loan Construction Period Interest @ 1.5%	\$493,000
TOTAL LOAN AMOUNT	\$34,308,000

Regulatory Requirements: Nutrient Removal

- Effluent Total Phosphorus (TP) Limit:
 - Existing limit = 1.0 mg/L effluent TP
 - **Future limit = 0.5 mg/L effluent TP (by 2030) per IEPA**
- Compliance with existing and future limits:
 - 2020-Jan. 2023 Effluent Average TP = 0.89 mg/L
 - Removal:
 - Optimization of the biological process
 - Chemical phosphorus removal
 - Implementation of 1st POTW Nutrient Trading Program in Illinois

Regulatory Requirements: Nutrient Removal

- Effluent Ammonia Limit:

- Existing limits:

Months	Monthly Average	Daily Maximum
April - October	1.5 mg/L	2.5 mg/L
November - February	3.7	4.9 mg/L
March	1.5 mg/L	3.6 mg/L

- Unlikely to be lower in near future

- Compliance with Existing Limits:

- 2020 – Jan. 2023 Average Effluent Ammonia = 0.32 mg/L
 - Removal through the biological process

Regulatory Requirements: Nutrient Removal

- Effluent Total Nitrogen Limit:
 - Existing limits: None, monitoring only
 - Future limits: Unknown but likely to be around 8 mg/L
- Compliance with Limit:
 - 2020 – Jan. 2023 Average Effluent Total Nitrogen = 21.3 mg/L
 - Removal through:
 - Modification of biological process to remove total nitrogen

Implementation Plan

Description	Type	Probable Capital Costs (\$ millions)						
		2025	2026	2027	2028	2029	2030 to 2039	2040 to 2049
TREATMENT PLANT								
Aerobic Digester Blower Replacement	R/R	\$0.77						
WWTF Oxidation Ditch Gate Replacement	R/R	\$0.34						
Generator Replacement	R/R	\$0.55						
Laboratory Equipment Remodel	R/R	\$0.08						
Final Clarifier No. 2 Rehabilitation	R/R				\$1.09			
UV Disinfection Project	R/R			\$1.72				
WWTF Fleet Maintenance Garage	R/R		\$2.51					
Garage and Personnel Building Remodel	R/R	\$0.60						
Darrell Road Phase 1A Headworks	E				\$5.38			
Solar Array Project		\$3.26						
Phase 2 WWTP Expansion	E							\$32.83
Annual rehabilitation / replacement		\$0.0	\$0.0	\$0.0	\$0.41	\$1.50	\$15.0	\$15.0
COLLECTION SYSTEM								
Darrell Road Collection System Phase 1B – Treatment Plant Interceptor	E				\$6.68			
Darrell Road Collection System Phase 2 – Force Main	E				\$12.45			
Darrell Road Collection System Phase 3 – Lakemoor LS#7 Upgrades	E				\$4.49			
Holiday Hills Sewer Extension	E				\$6.63			
Annual rehabilitation / replacement		\$1.49	\$1.49	\$1.49	\$1.49	\$1.49	\$14.9	\$14.9
LIFT STATIONS								
Annual rehabilitation / replacement		\$0.74	\$0.74	\$0.74	\$0.74	\$0.74	\$0.74	\$0.74
TOTAL PROBABLE CAPITAL COSTS		\$7.83	\$2.23	\$3.95	\$38.95	\$3.73	\$33.15	\$63.47

Note: (1) Probable costs are presented above in 2023 dollars and do not account for future inflation.

(2) Project Type indicates Rehabilitation/Replacement (R/R) or Expansion (E).

(3) R/R Type Projects are deducted from the annual rehabilitation/replacement investment for each category.

NMWRD Budget, Revenues, and Expenses

- User Rate Study Presentation during NMWRD Board Meeting at 7:30pm

Next Action Items

- Submit Final Facility Plan Report to McHenry and Lake County Boards by **3/12/2025**