

The background is a light blue gradient with several realistic water droplets of various sizes scattered across the surface. The droplets have highlights and shadows, giving them a three-dimensional appearance.

# WASTEWATER TREATMENT AND FUTURE GROWTH

NORTHFIELD TOWNSHIP BOARD MEETING

3-26-2019

# NORTHFIELD TOWNSHIP'S WASTEWATER TREATMENT PLANT

- CONSTRUCTED IN 1961 TO SERVE THE STATE OF MICHIGAN CORRECTIONAL FACILITY
- NORTHFIELD PURCHASED THE PLANT TO SERVE BUSINESSES AND HOMES AROUND THE LAKES
- SYSTEM EXPANDED IN 1976
- MAJOR SYSTEM IMPROVEMENTS DONE IN 1975, 1983, 1989, 1993, 1999
- SYSTEM EXPANDED TO HANDLE 1.3 MGD IN 1997
- EQUALIZATION BASIN RECOMMENDED IN 1988 AND AGAIN IN 2005 TO PRESENT

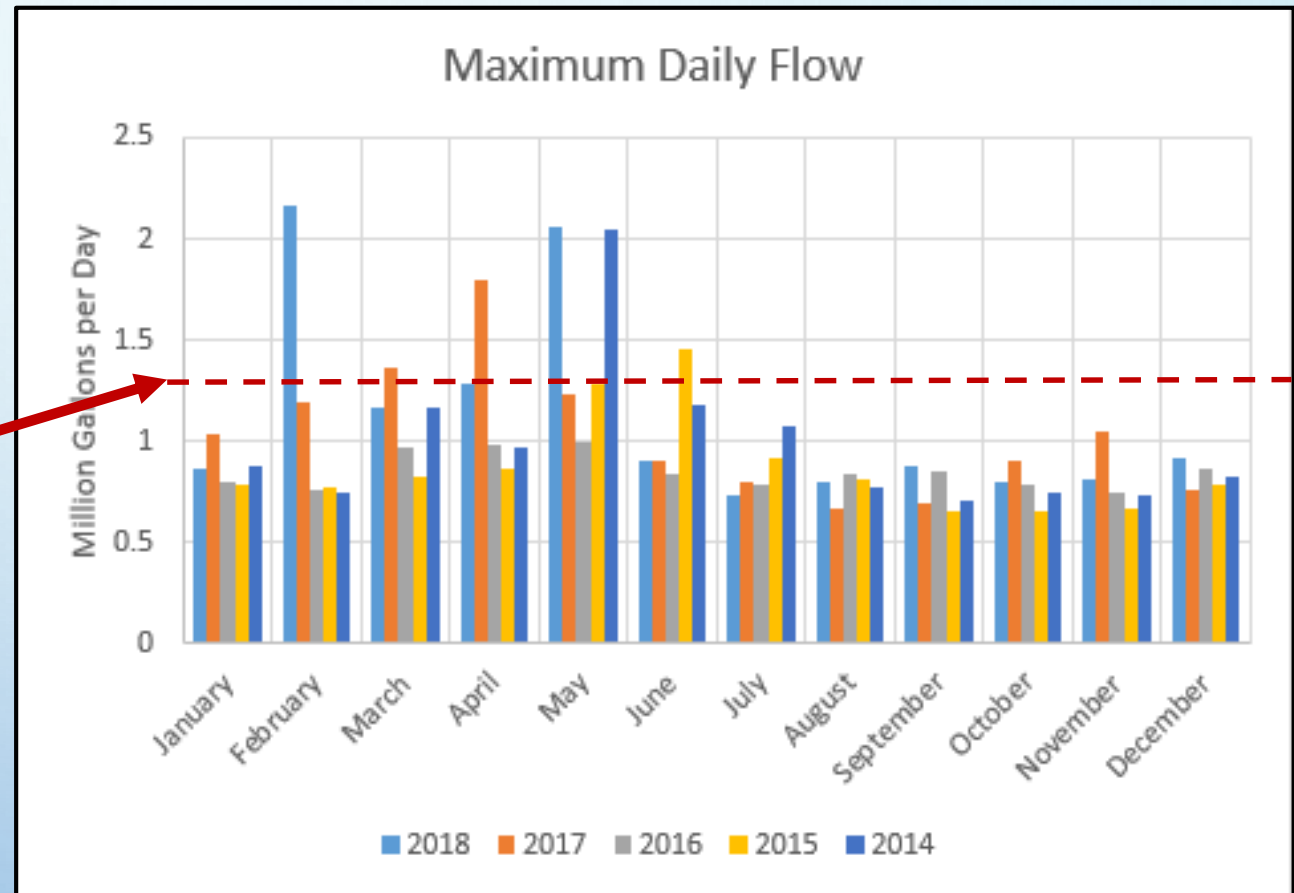
# WWTP CAPACITY

THE WASTEWATER TREATMENT PLANT IS PERMITTED TO TREAT UP TO 1.3 MILLION GALLONS PER DAY.

DURING WET WEATHER, THE PLANT CANNOT FULLY PROCESS THE VOLUME AND MUST RELEASE PARTIALLY TREATED WATER.

TETRATECH WASTEWATER CAPACITY EVALUATION – MARCH 2015

FLOW DATA TAKEN FROM WWTP SUPERINTENDENT MONTHLY REPORTS TO THE BOARD OF TRUSTEES



# RECENT TREATMENT BYPASS EVENTS

INFORMATION PROVIDED BY WWTP SUPERINTENDENT

- APRIL 15, 2018
- FEBRUARY 21-23, 2018
- APRIL 20, 2017
- APRIL 6-9, 2017
- MARCH 30, 2017
- JUNE 23, 2015
- **MAY 12-20, 2014 – OVER LIMITS**

NOTE: BYPASSING WASTEWATER TREATMENT VIOLATES STATE AND FEDERAL LAW. THE MDEQ HAS THE DISCRETION TO ENFORCE THE LAWS.

# BYPASS PROHIBITION AND NOTIFICATION

INFORMATION CONTAINED IN MDEQ PERMIT NO. MI0023710 - PART II PAGE 36

9. A. BYPASS IS PROHIBITED, AND THE DEPARTMENT MAY TAKE ENFORCEMENT ACTION, UNLESS:
- 1) BYPASS WAS UNAVOIDABLE TO PREVENT LOSS OF LIFE, PERSONAL INJURY, OR SEVERE PROPERTY DAMAGE;
  - 2) THERE WERE NO FEASIBLE ALTERNATIVES TO THE BYPASS, SUCH AS THE USE OF AUXILIARY TREATMENT FACILITIES, RETENTION OF UNTREATED WASTES, OR MAINTENANCE DURING NORMAL PERIODS OF EQUIPMENT DOWNTIME. **THIS CONDITION IS NOT SATISFIED IF ADEQUATE BACKUP EQUIPMENT SHOULD HAVE BEEN INSTALLED IN THE EXERCISE OF REASONABLE ENGINEERING JUDGEMENT TO PREVENT A BYPASS,** AND
  - 3) THE PERMITTEE SUBMITTED NOTICES AS REQUIRED UNDER 9.B. OR 9.C. BELOW.

# HISTORICAL USAGE (R.E.U.S) – UNMETERED CUSTOMERS

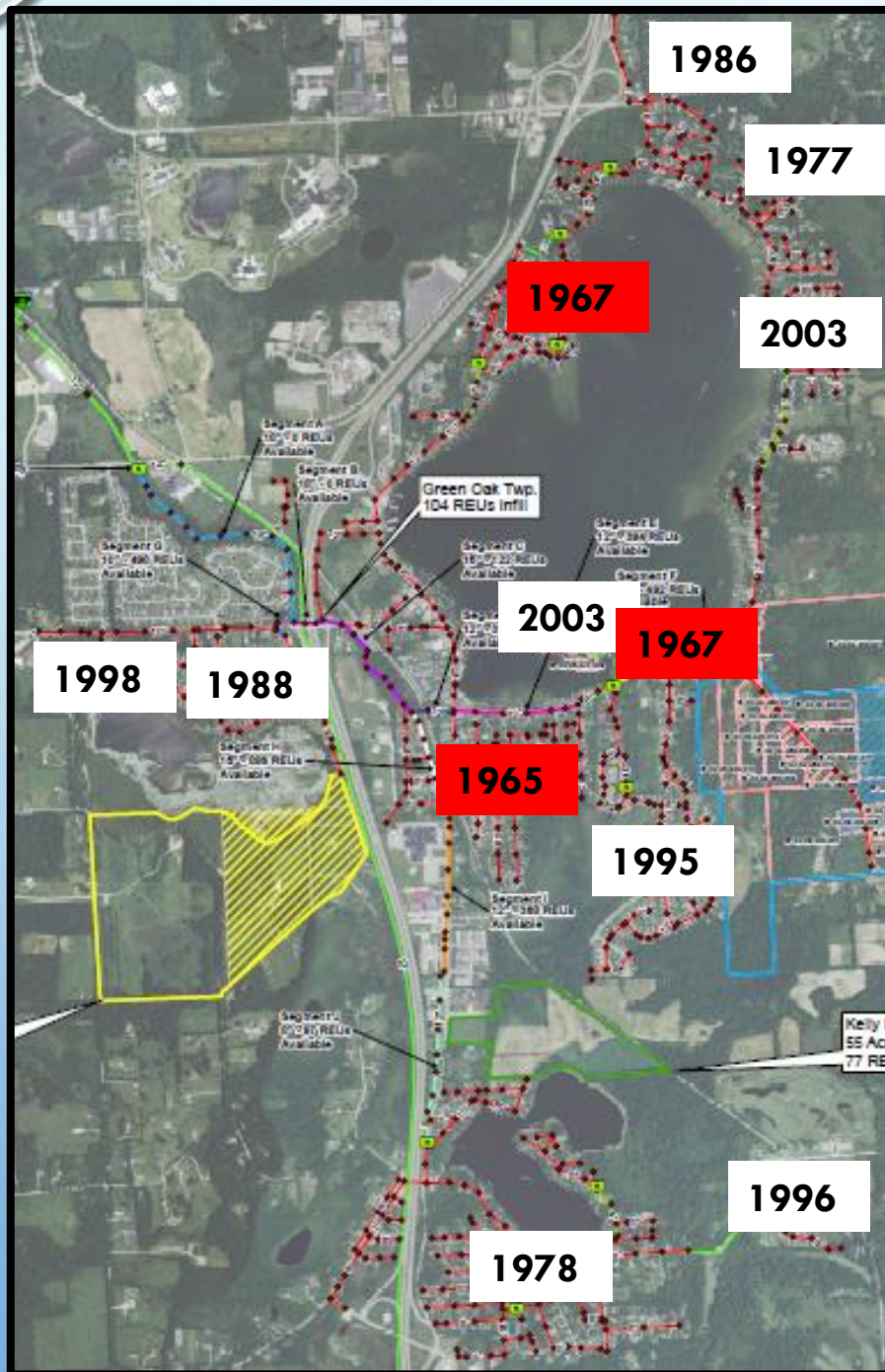
INFORMATION PROVIDED BY TOWNSHIP ADMINISTRATION AND TETRATECH ARIL 22, 2014 COST OF SERVICE STUDY

• 1992	2613	• 2013	3320
• 2009	3409	• 2016	3375
• 2010	3384	• 2017	3386
• 2011	3358	• 2018	3374
• 2012	3334		

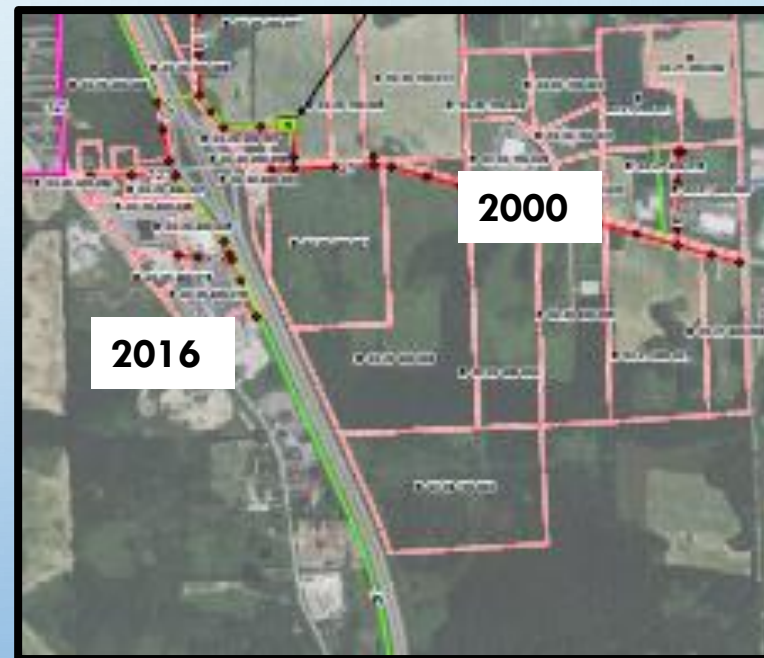
# AGE OF SERVICE AREAS

INFORMATION PROVIDED BY WWTP SUPERINTENDENT

- |                        |      |                      |      |
|------------------------|------|----------------------|------|
| • NORTHFIELD           | 1965 | • SHADOWWOOD         | 1996 |
| • GREEN OAK            | 1967 | • WILDWOOD LAKE      | 1998 |
| • NORTHFIELD           | 1967 | • NORTH TERRITORIAL  | 2000 |
| • GREEN OAK            | 1977 | • LAKE POINTE        | 2003 |
| • HORSESHOE LAKE       | 1978 | • WHITMORE BAY       | 2003 |
| • STILLSONBERG STATION | 1986 | • SEVEN MILE         | 2003 |
| • NORTHPOINTE          | 1988 | • WHITMORE LAKE ROAD | 2016 |
| • EAGLE GARDENS        | 1995 |                      |      |



SOME AREAS ARE  
OVER 50 YEARS OLD.





# TIMELINE OF QUARTERLY FEES AND SYSTEM DEVELOPMENT CHARGES

TETRATECH RATE STUDIES – APRIL 22, 2014 AND MARCH 19, 2018

## QUARTERLY FEES

2009	\$71.55
2014	\$84
2018	\$90.20

## SYSTEM DEVELOPMENT CHARGE

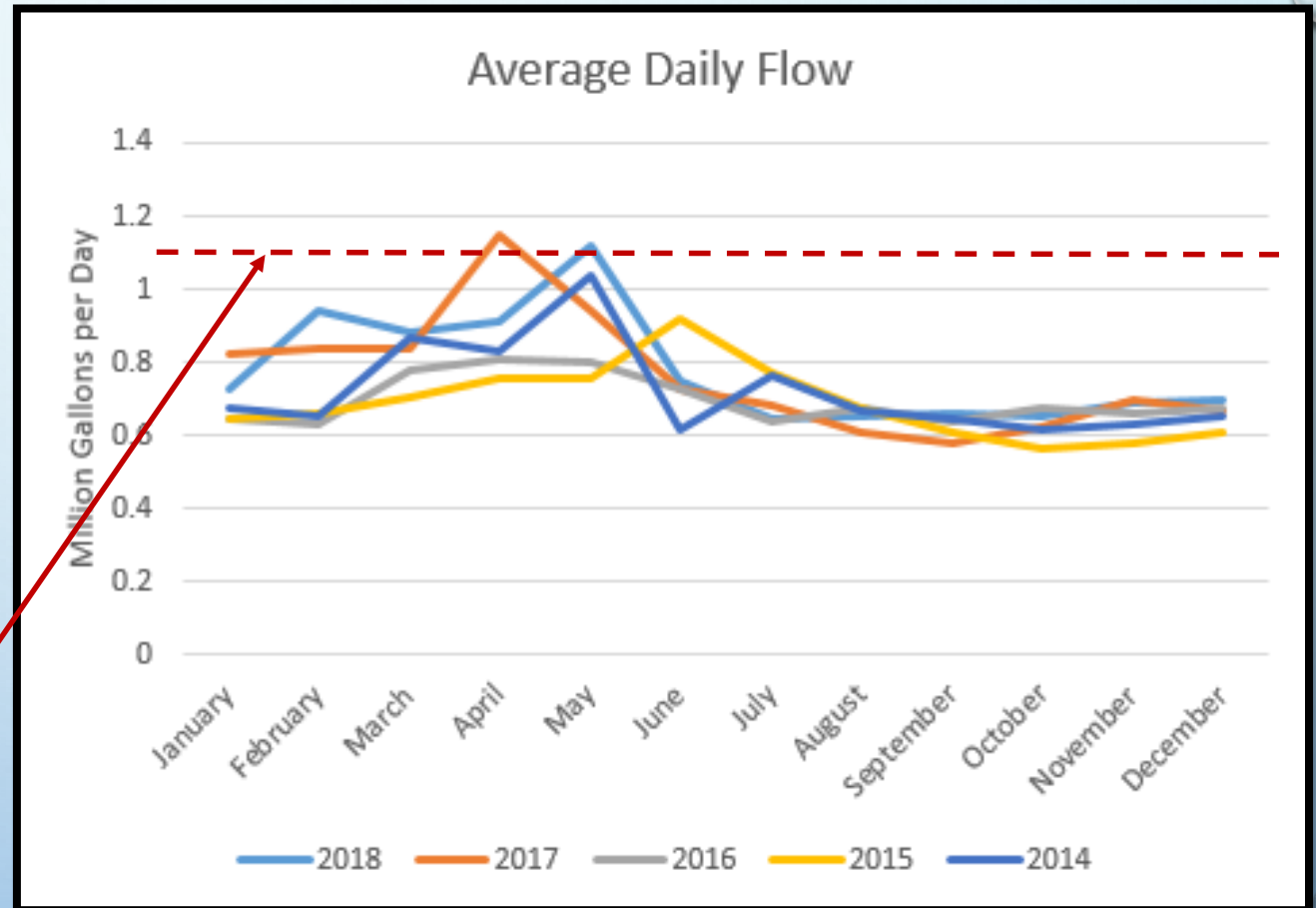
2009	\$3550
2014	STUDY SUPPORTED \$5973 - BUT NOT ADOPTED
2017	\$5973
2018	\$6255

# POINT OF DECISION

“THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ) IS GENERALLY RELUCTANT TO ALLOW NEW CONNECTIONS TO A WWTP WHEN THE FLOW APPROACHES 85% OF THE RATED CAPACITY.”

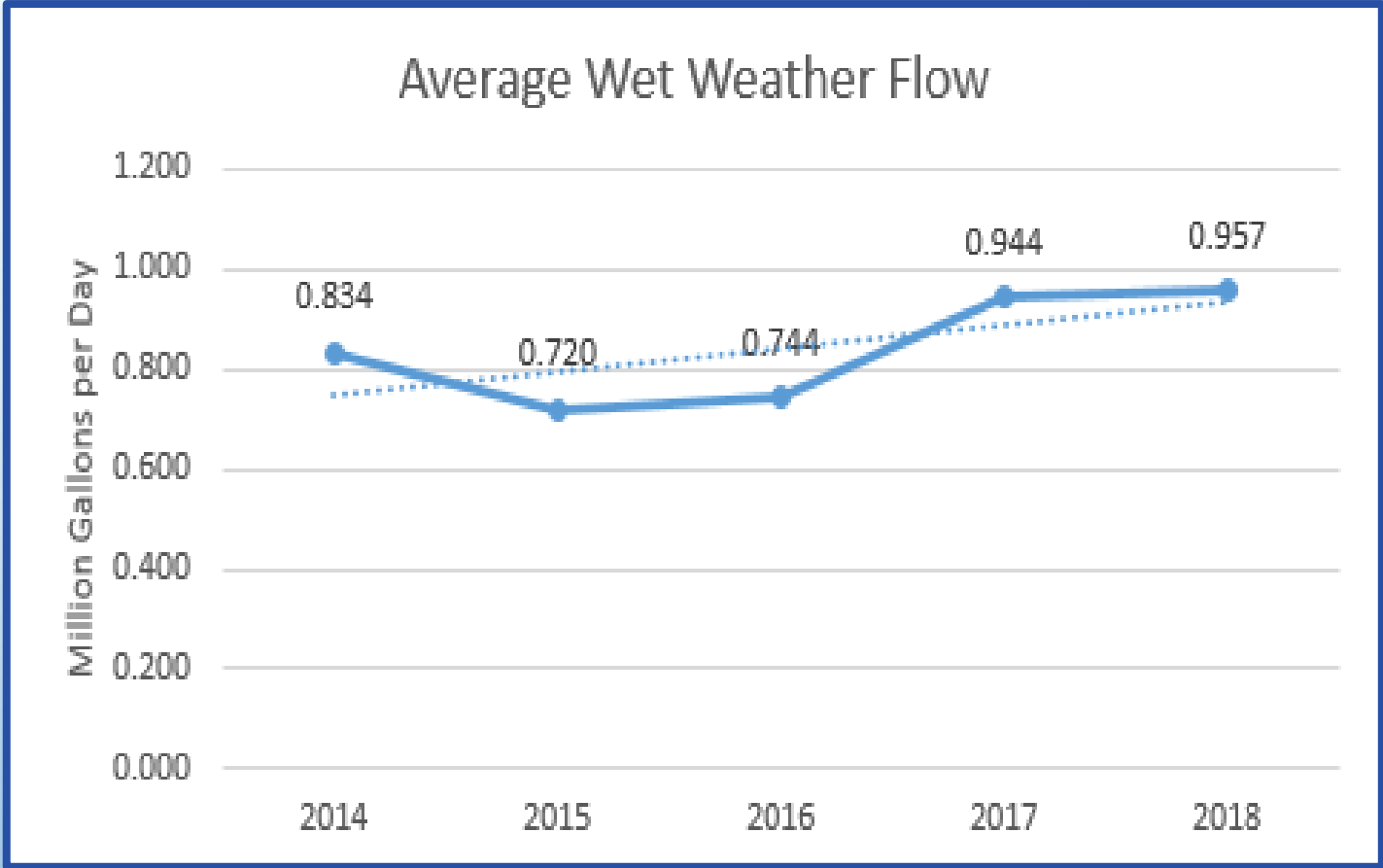
$$85\% \times 1.3 \text{ MGD} =$$

1.1 MILLION GALLONS PER DAY.



# SPRING FLOWS

THESE AVERAGES WERE DERIVED BY ADDING THE TOTAL FLOWS REPORTED BY THE WWTP IN THE MONTHS OF FEBRUARY THROUGH MAY AND DIVIDING BY 120 DAYS.



# TIMELINE OF ADDITIONAL COMMITMENTS

TETRATECH CAPACITY EVALUATION REPORT – MARCH 18, 2015 – PAGE 6

- 2000 NORTH TERRITORIAL S.A.D. 1 620 REUS
- 2001 GREEN OAK TWP. AGREEMENT 1 04 REUS - INFILL SITES
- 2003 LAKE POINT SAD 0 REUS
- 2003 SEVEN MILE ROAD S.A.D. 1 69 REUS
- 2004 GREEN OAK TWP. AGREEMENT 769 REUS WEST OF US 23
- 2013 WHITMORE LAKE ROAD S.A.D. 76 REUS

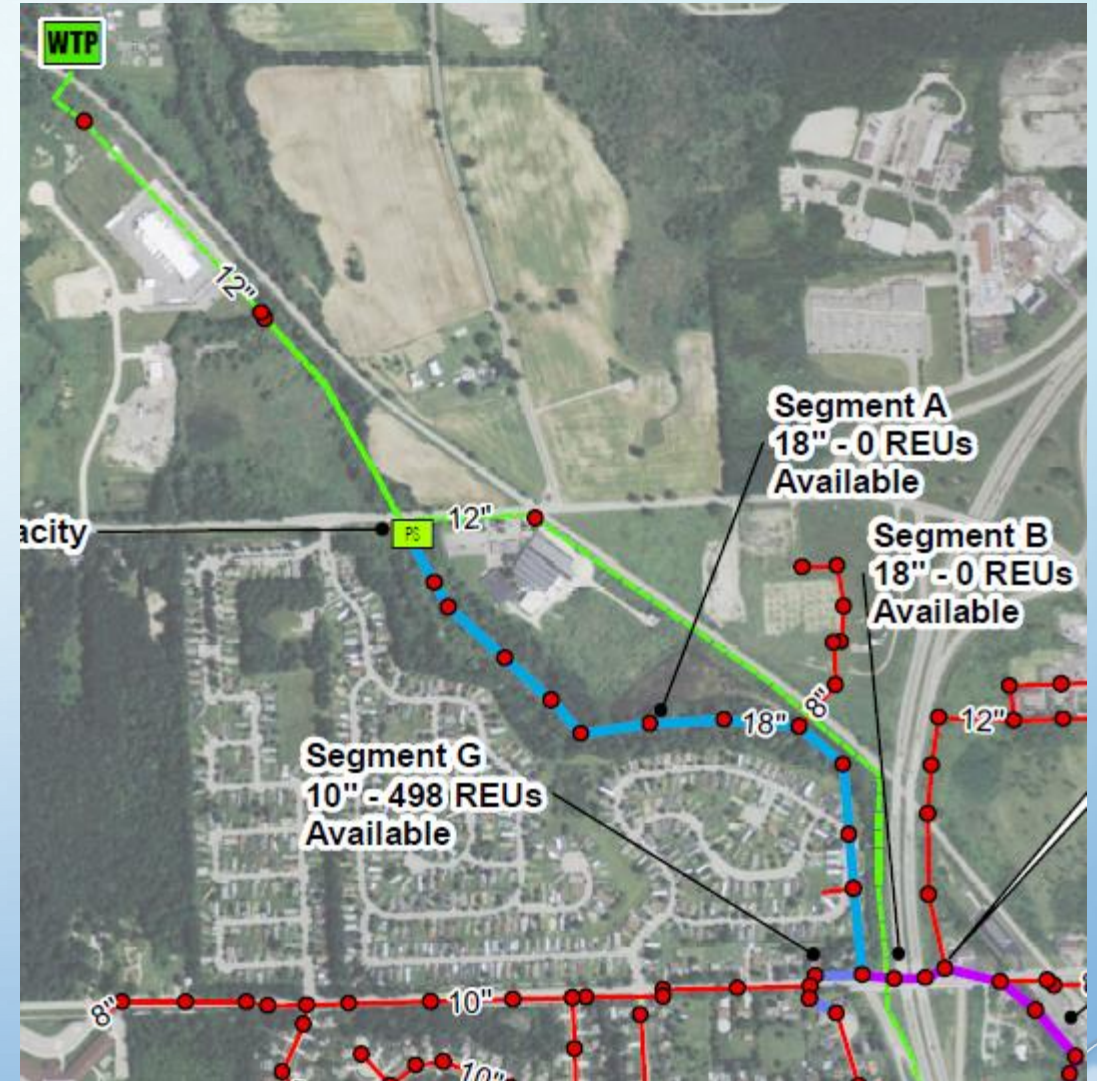
**OF THESE, OVER 2700 REMAIN TO BE CONNECTED.**

# TRUNK SEWER STUDY

TETRATECH MEMO – MARCH 22, 2016 – PAGE 4

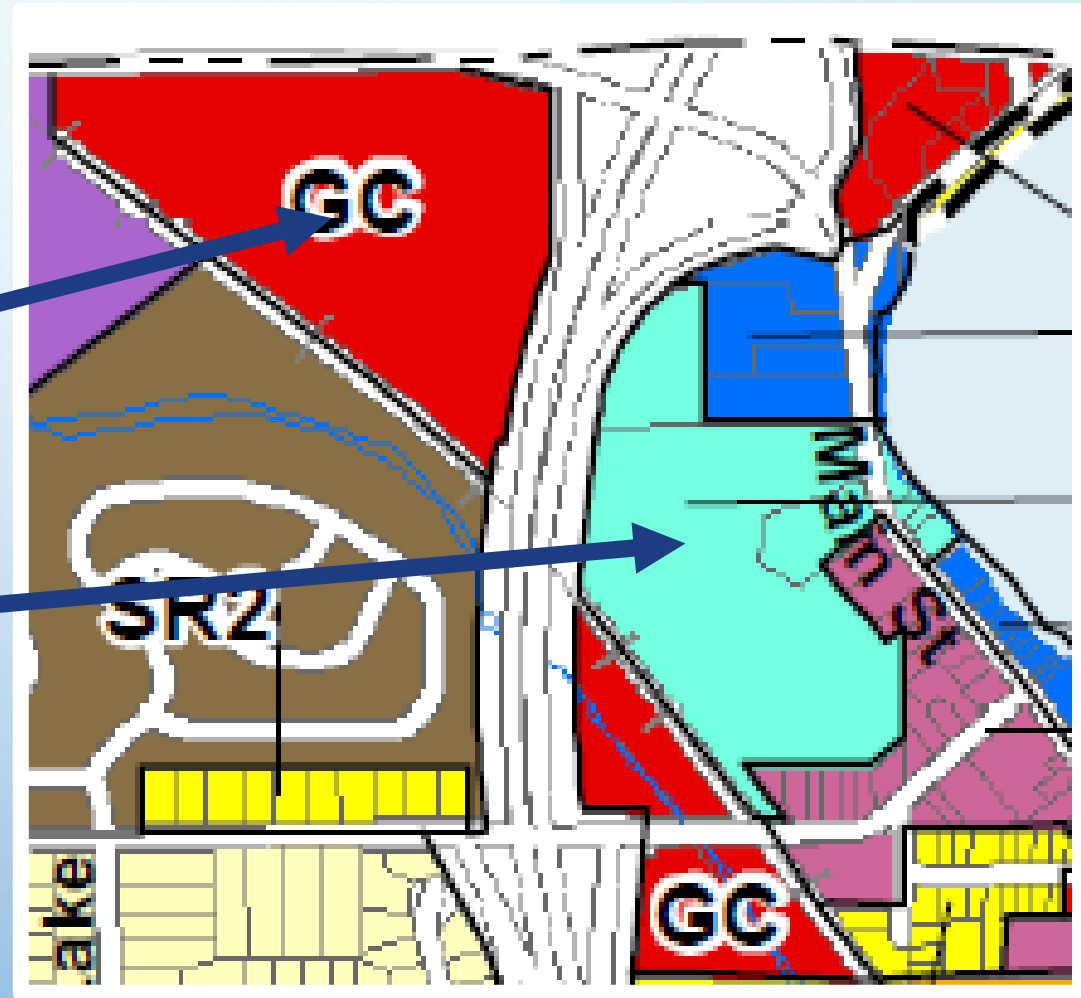
## AVAILABLE CAPACITY

**“WHAT IS IMMEDIATELY CLEAR IS THAT BOTH SEGMENTS A AND B, REPRESENTING THE 18-INCH CROSS LOT SEWER AND 18-INCH SEWER IN BARKER ROAD IMMEDIATELY UPSTREAM OF THE EXISTING 8 MILE ROAD PUMP STATION, ARE ALREADY ESTIMATED TO BE AT CAPACITY FOR PEAK FLOW CONDITION. THIS IS CONFIRMED BY THE FACT THAT THE WWTP EXPERIENCES PERIODIC WET WEATHER PEAK FLOWS OF APPROXIMATELY 3.0 MGD WHICH EQUATES TO 2,080 GPM AND IS GREATER THAN THE 1,890 GPM NOMINAL CAPACITY OF THE 18-INCH PIPE.”**



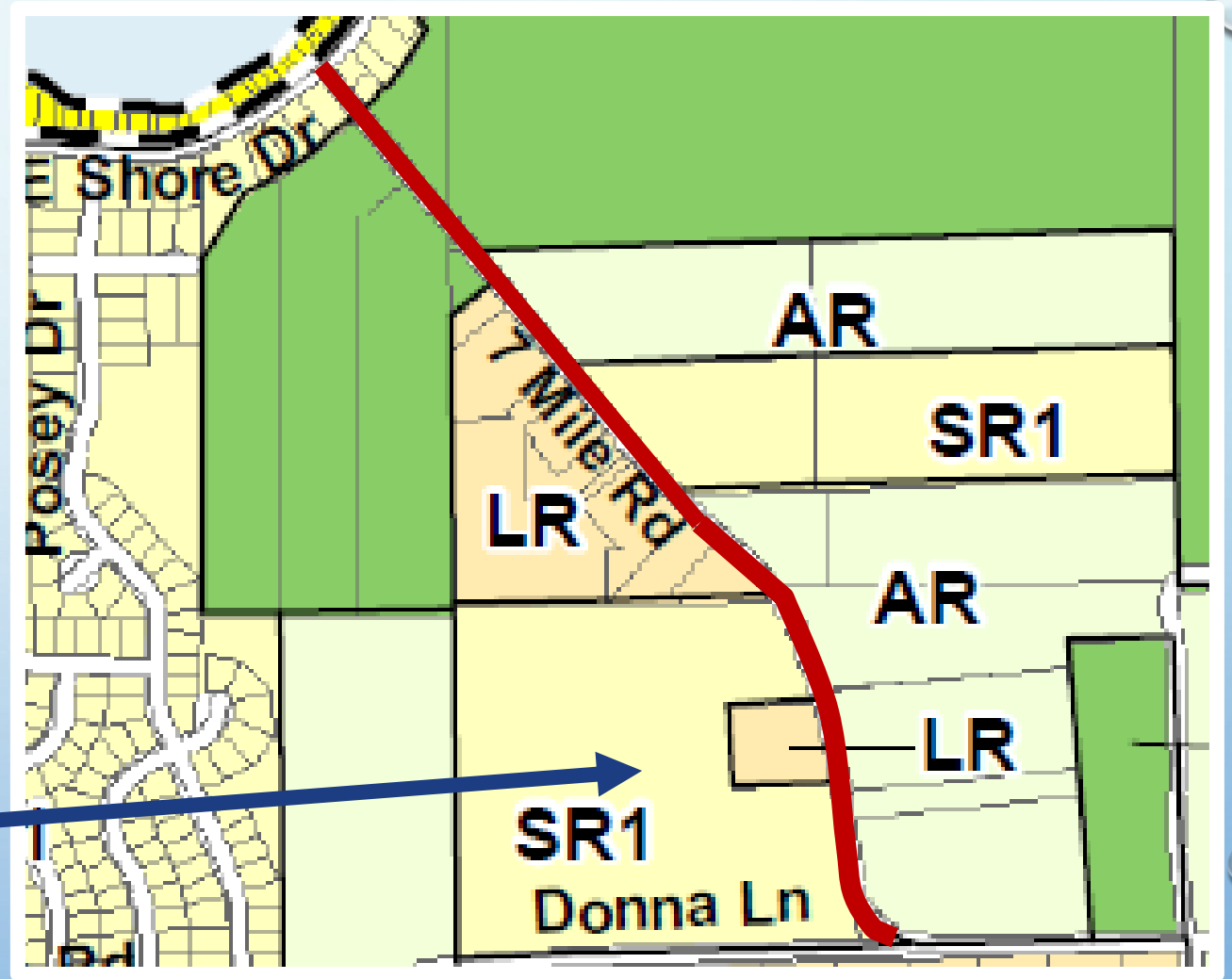
# AREAS ZONED FOR DEVELOPMENT – CURRENTLY VACANT

- FORMER INDUSTRIAL SITE MASTER PLANNED FOR A MIX OF COMMERCIAL AND HOUSING
- THE NORTH VILLAGE AREA PLANNED FOR A MIX OF RETAIL, HOUSING, AND PARKLAND



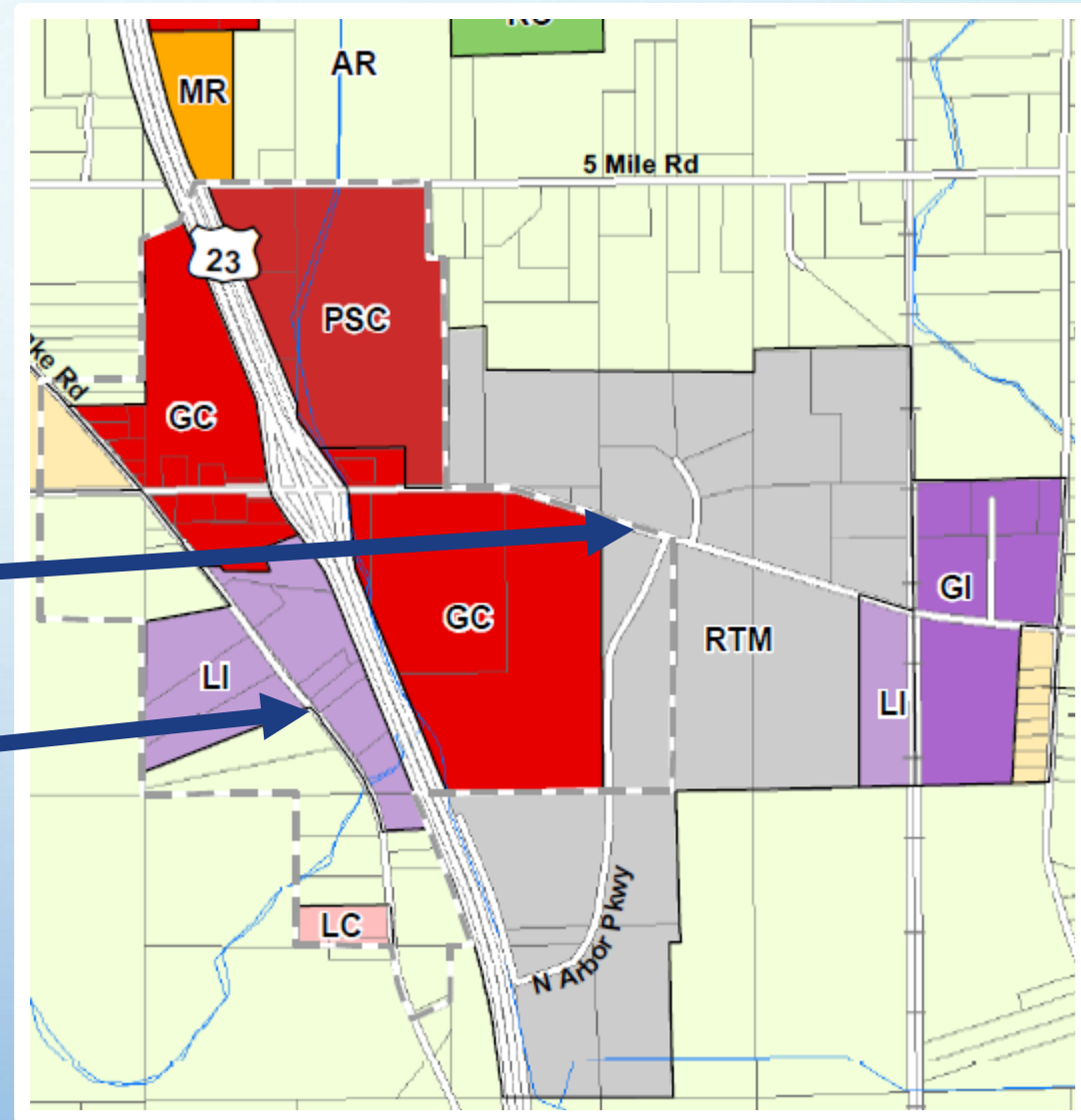
## AREAS ZONED FOR DEVELOPMENT – CURRENTLY VACANT

- THE SEVEN MILE SPECIAL ASSESSMENT DISTRICT EXTENDED SEWER LINES OUT ALONG 7 MILE ROAD TO DONNA LANE.
- PARCEL OWNERS HAVE PAID FOR THIS EXTENSION AND EXPECT TO CONNECT TO THE WASTEWATER SYSTEM.
- THE LARGE PARCEL AT DONNA LANE WAS PLANNED FOR 62 RESIDENTIAL UNITS.



# AREAS ZONED FOR DEVELOPMENT – CURRENTLY VACANT

- THE U.S. 23 - NORTH TERRITORIAL S.A.D. HAS A COMMITMENT FOR 1251 MORE R.E.U.S OF SEWER TREATMENT. MANY PARCELS ARE VACANT.
- THE WHITMORE LAKE ROAD S.A.D. IS COMMITTED TO SERVE ANOTHER 76.





# DECISION TO COMPLETION A 2-YEAR PROCESS

PROCURE ENGINEER 2 MONTHS

DESIGN 4 MONTHS

BIDDING/AWARD 3 MONTHS

**AT THIS POINT IN THE PROCESS, THE BONDS WOULD BE ISSUED.**

CONSTRUCTION 12 MONTHS

THE FIRST 6 MONTHS WOULD BE MOSTLY PROCUREMENT WITH  
THE LAST 6 MONTHS BEING THE PHYSICAL WORK.



# STEPS NECESSARY TO ISSUE BONDS

AFTER THE FINANCING NEED IS KNOWN, APPROVE A RESOLUTION  
DECLARING INTENT TO ISSUE BONDS

- PUBLISH NOTICE OF INTENT TO ISSUE CAPITAL IMPROVEMENT BONDS – NOTICE MUST BE A DISPLAY ADVERTISEMENT OF NOT LESS THAN ¼ PAGE
- THIS IS NEEDED TO MEET THE REQUIREMENTS OF THE FEDERAL TAX LAW APPLICABLE TO TAX-EXEMPT BONDS



# RIGHT TO REFERENDUM

- SIGNATURES OF 10% OR MORE OF THE TOWNSHIP'S REGISTERED ELECTORS WOULD BE NEEDED ON A VALID PETITION FILED WITHIN 45 DAYS OF PUBLICATION OF THE NOTICE REQUESTING A REFERENDUM.
- IF PETITION AND SIGNATURES ARE FOUND TO BE VALID, BONDS MAY NOT BE ISSUED WITHOUT VOTER APPROVAL.



# TOWNSHIP INDEBTEDNESS ORDINANCE NO. 08-05

- PRIOR TO ISSUING BONDS OF MORE THAN \$250,000 WHICH ARE SECURED BY THE FULL FAITH AND CREDIT OF THE TOWNSHIP, THE TOWNSHIP MUST PROVIDE NOTICE TO TOWNSHIP TAXPAYERS.
- A COLORED POSTCARD ANNOUNCING THE INTENT TO CREATE PUBLIC INDEBTEDNESS MUST BE MAILED TO ALL TOWNSHIP TAXPAYERS AT LEAST 8 AND NOT MORE THAN 30 DAYS PRIOR TO TAKING ACTION ON THE ISSUANCE OF BONDS.
- A NOTICE WITH SIMILAR LANGUAGE MUST BE PUBLISHED IN A NEWSPAPER OF GENERAL CIRCULATION.



# TOWNSHIP INDEBTEDNESS ORDINANCE NO. 08-05

NOTICE MUST INCLUDE:

- THE AMOUNT OF PROPOSED INDEBTEDNESS
- THE DATE, TIME, AND LOCATION OF THE RELEVANT MEETING OF THE TOWNSHIP BOARD OF TRUSTEES.
- THE REASON FOR WHICH THE INDEBTEDNESS IS PROPOSED TO BE INCURRED.



The background is a light blue gradient. There are several realistic water droplets of various sizes in the corners: top-left, top-right, and bottom-right. The text is centered in the middle of the page.

# QUESTIONS AND ANSWERS

The image features a light blue gradient background with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text 'NEXT STEPS' is centered in the middle of the page.

**NEXT STEPS**