

Presented at Meeting 2/8/24



**SEWER STUDY INTRODUCTION**

*Special City Council Meeting February 8, 2024*

At a glance

# Wastewater System

Terms that mean the same in this context:

- Wastewater
- Sanitary Sewer
- Sewer

System of

- Collection
  - Pipes
  - Manholes
- Lift Station
- Treatment

At a glance

# Collection System

- A series of pipes that allow wastewater to go from the source (House) to the treatment plant via **gravity**
- It increases in size as the system collects more

*Clip courtesy: Metropolitan Council*



At a glance

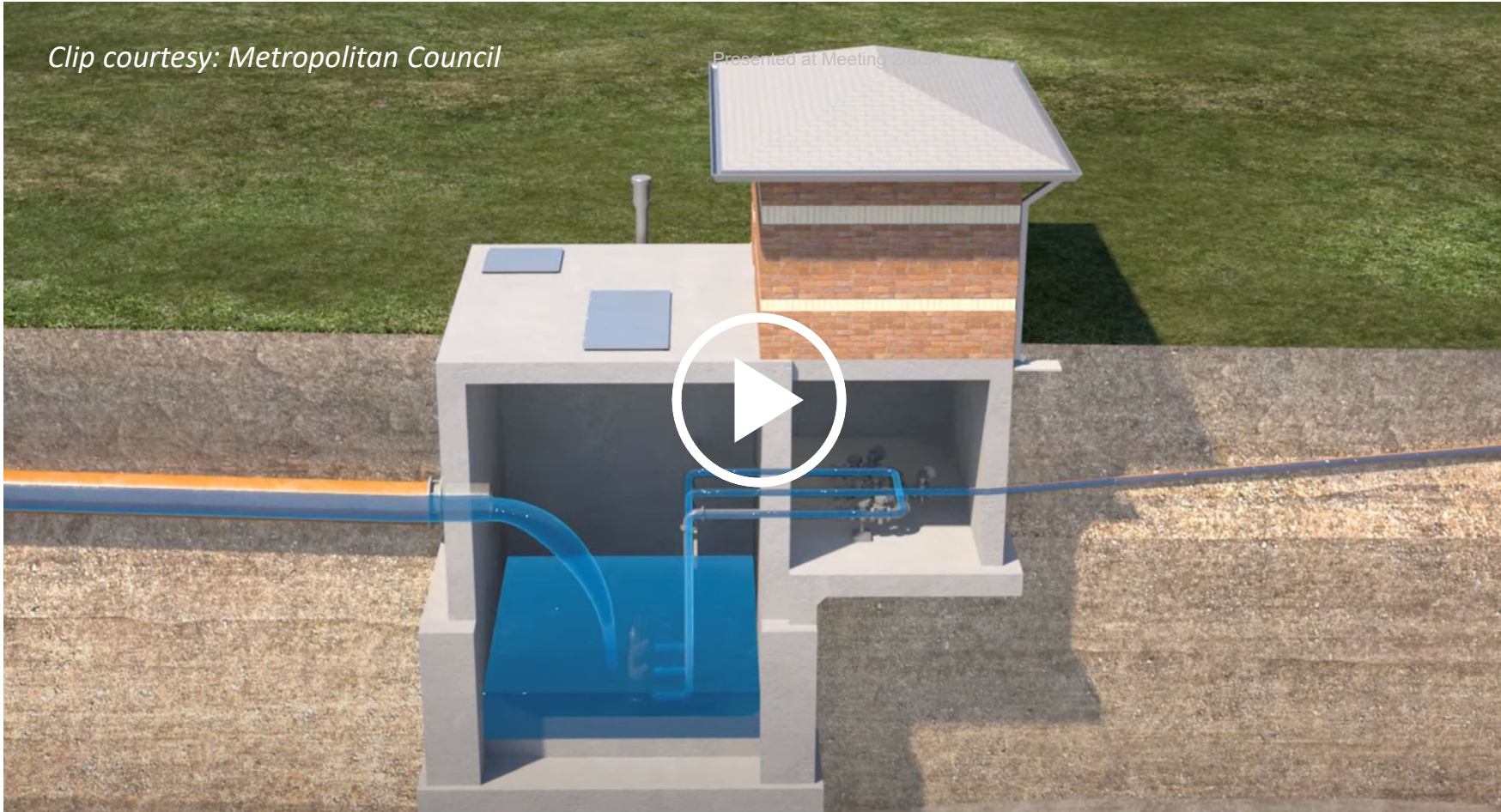
# Collection System

- A series of pipes that allow wastewater to go from the source (House) to the treatment plant via *gravity*
- It increases in size as the system collects more

If gravity is not an option then...

Clip courtesy: Metropolitan Council

Presented at Meeting 2/8/24



At a glance

# Lift Station

Determining  
**Demand  
on System**



**Outputs**



**Diurnal Curve**  
*(Peak Hours)*



**Inflow and  
Infiltration**  
*(I&I or I/I)*



**Storm Event**



What does

# Failure Look Like?



## Failure Point

Pipes and lift stations reach capacity



## Result, System is Surcharged

Overflow at lift station and backup into homes

## Midwest City

# Wastewater System

**21.9**

Square Miles Served

**58,145**

Population Served

**291.4**

Miles of Pipe  
*(Stretch from City Hall to  
Waco, TX)*

**6,816**

Manholes

**16**

Lift Stations

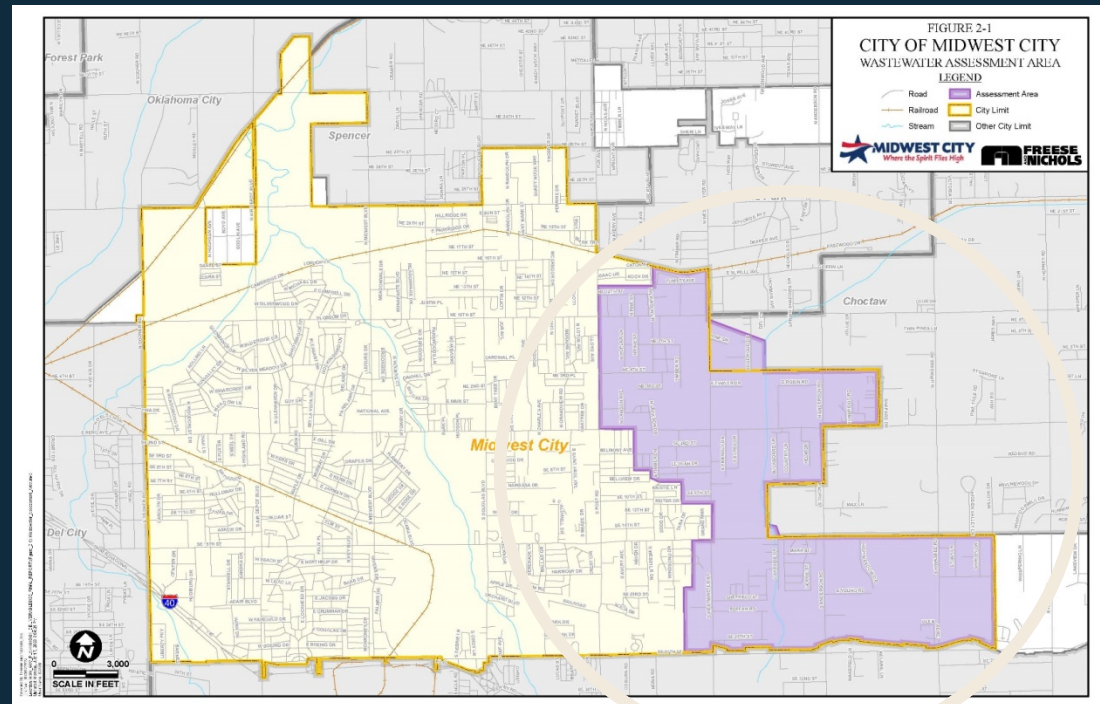
**1 Treatment Plant**

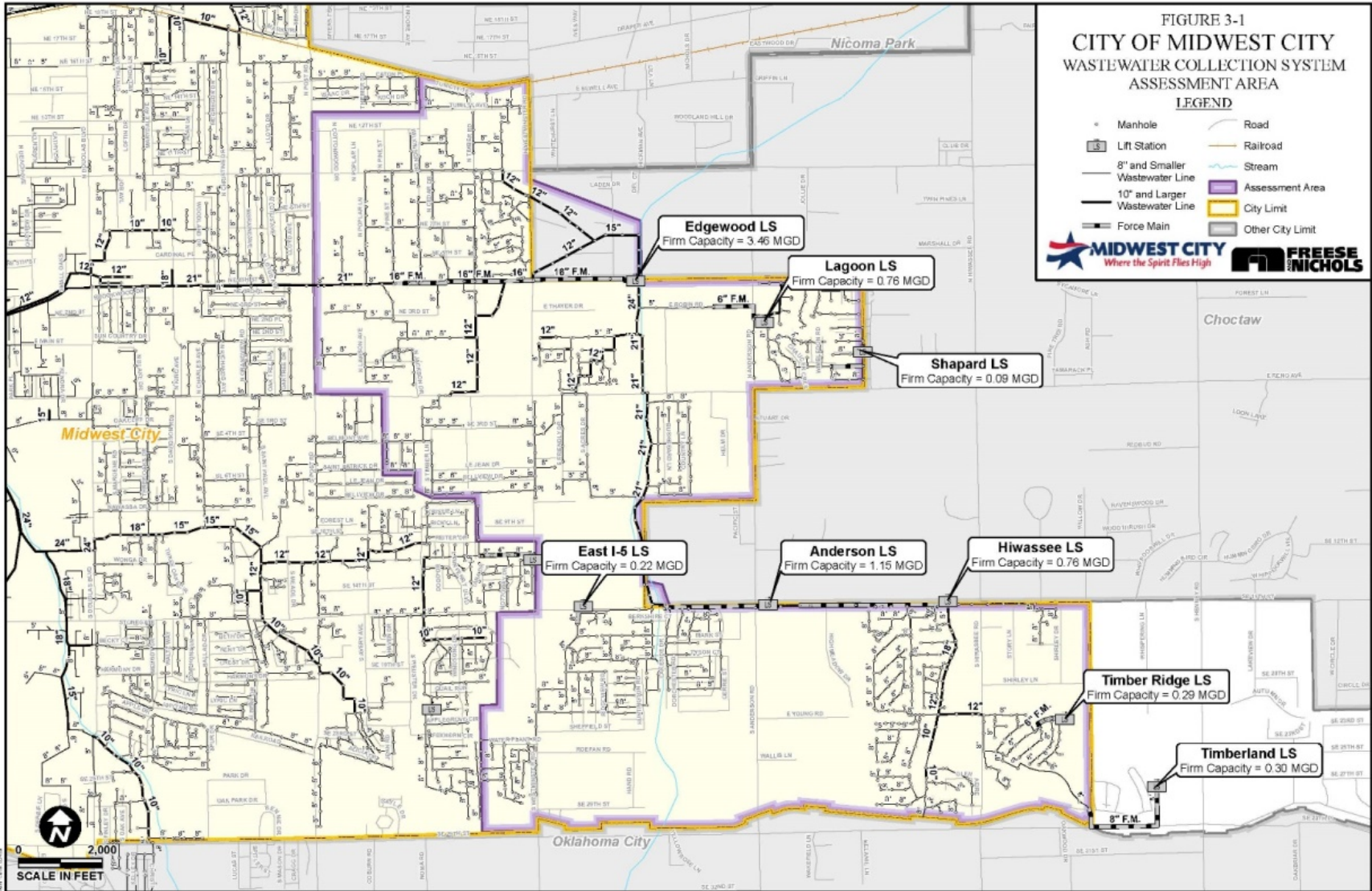
*“WRRF” (Water Resource  
Recovery Facility)*



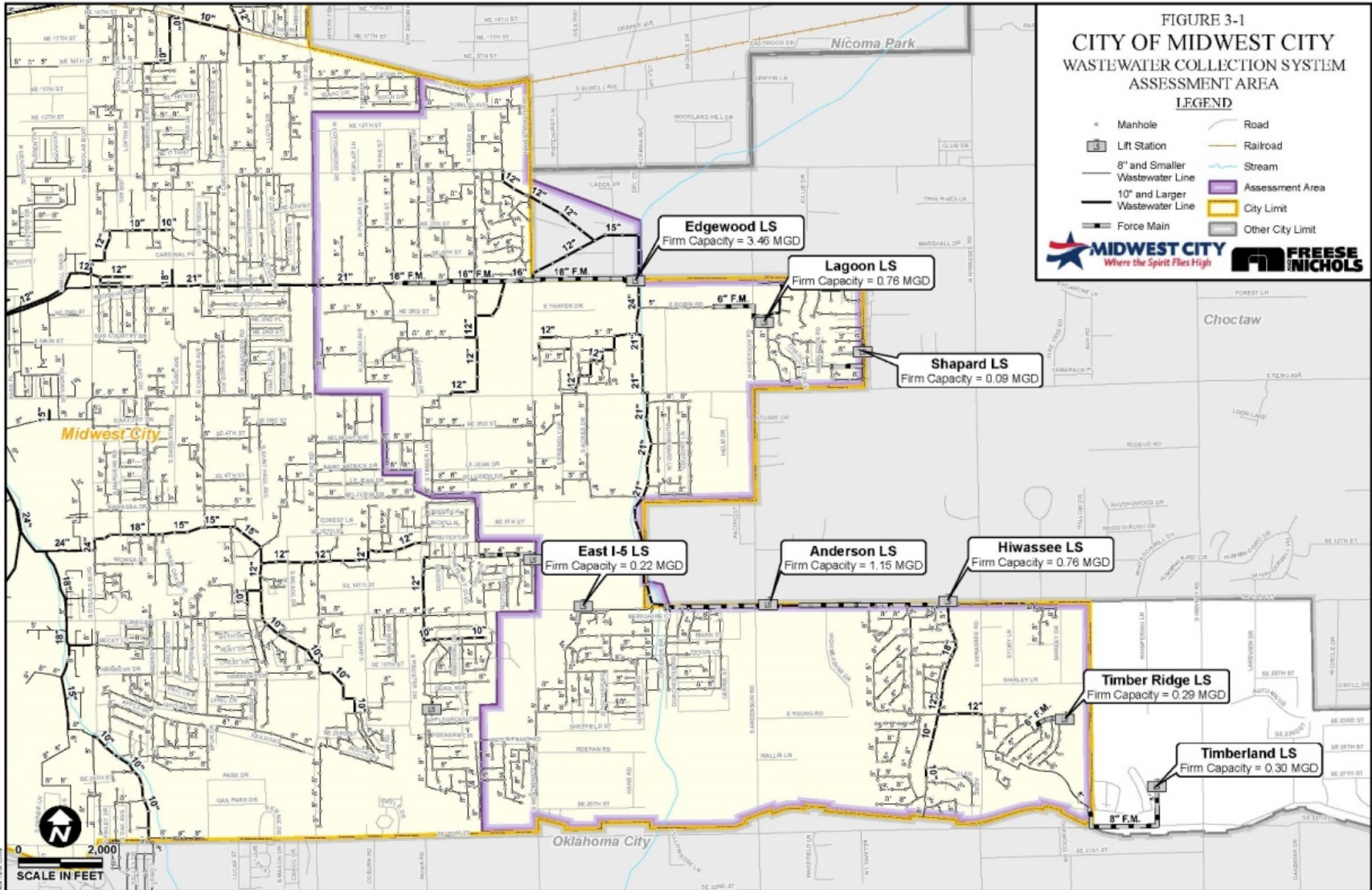
Presented at Meeting 2/8/24

# Citywide Map of System









By the numbers

# Eastside Wastewater Basin

5.6

Square Miles Served

53.4

Miles of Pipe

6,215

Population Served

1,195

Manholes

9

Lift Stations

History and  
growth

# on the Eastside



**1987**

April 7<sup>th</sup>: 3 lift stations were constructed at Edgewood, Anderson, and Hiwassee



**1990**

Construction of Lagoon lift station



**1991**

November 1<sup>st</sup>: City Council authorizes construction of East 1-5 lift station

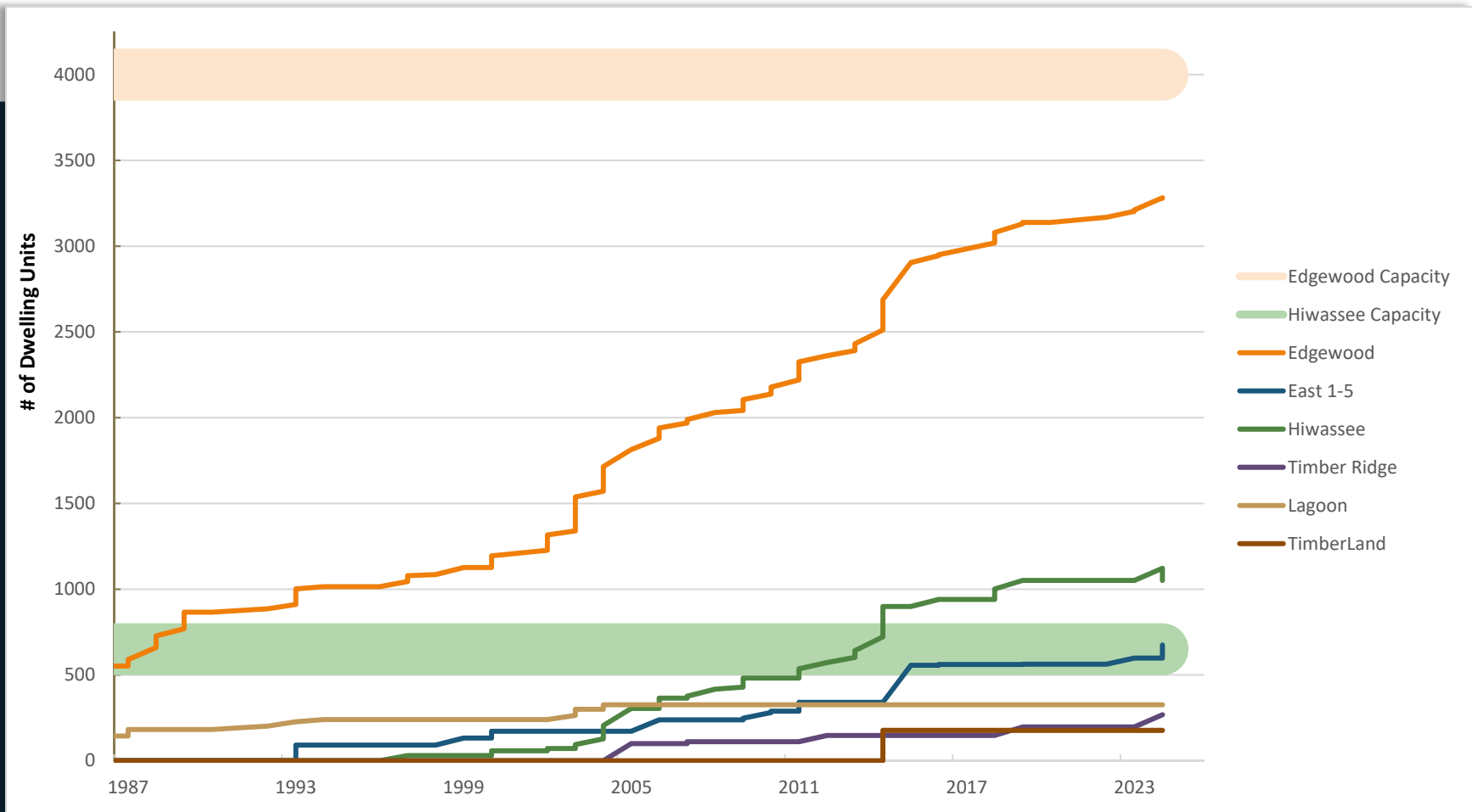


**1996**

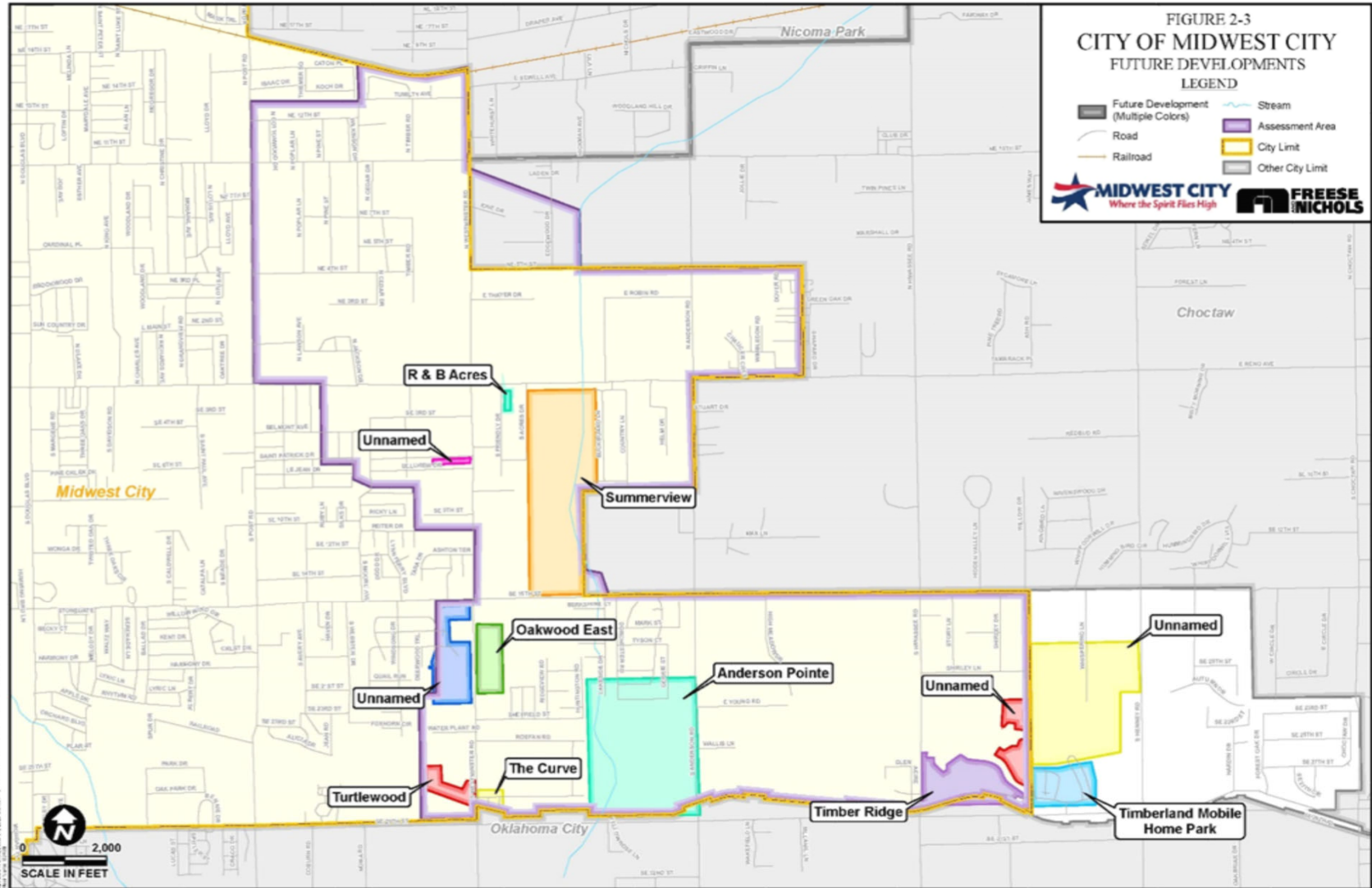
April 23<sup>rd</sup>: City Council authorized extension of trunk line south of Hiwassee lift station.

1987 to current

# Demand on Lift Stations

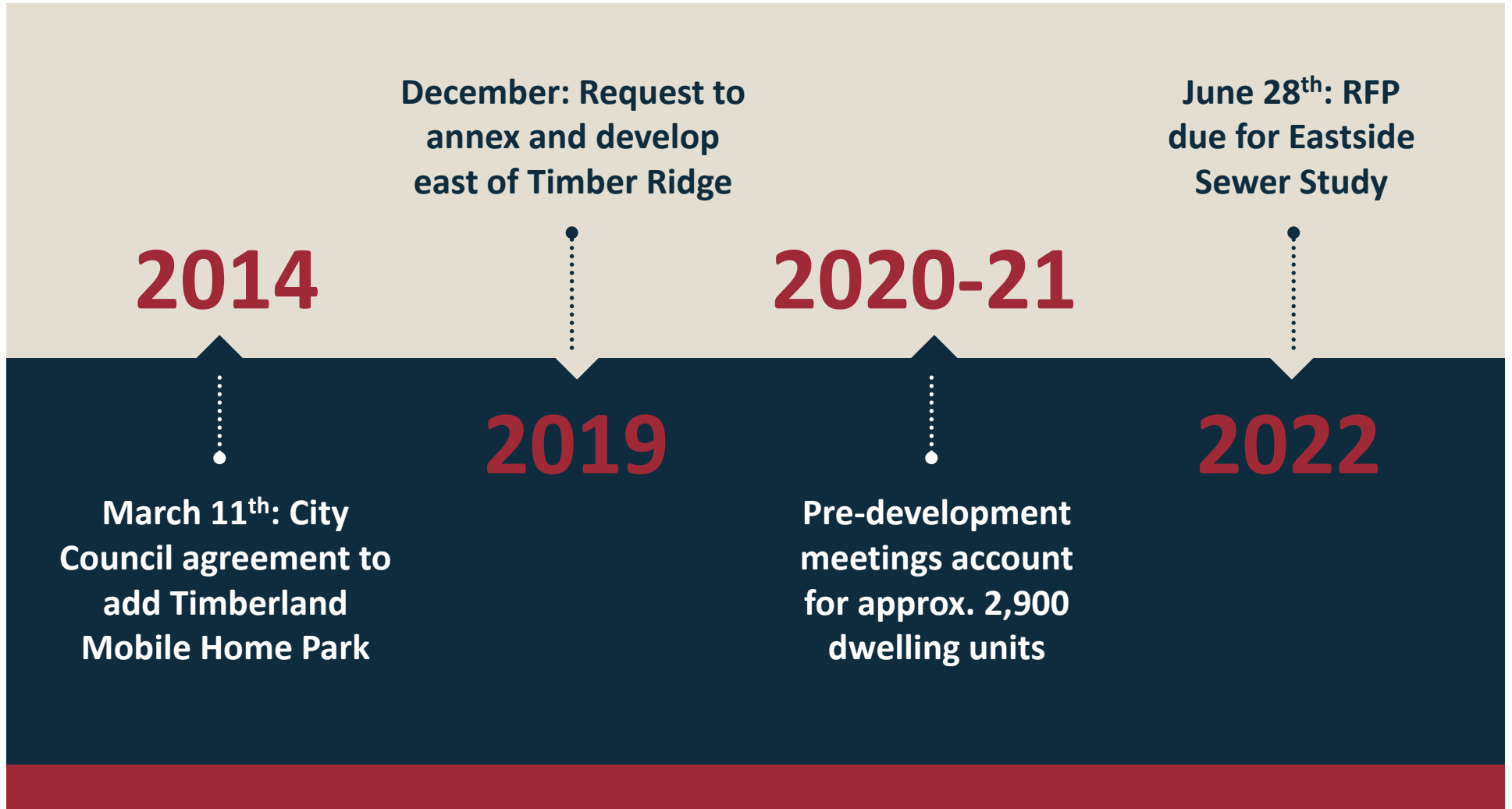






## Eastside Sewer Study (ESS)

# Timeline



# Eastside Sewer Study (ESS)

## Timeline *(cont.)*

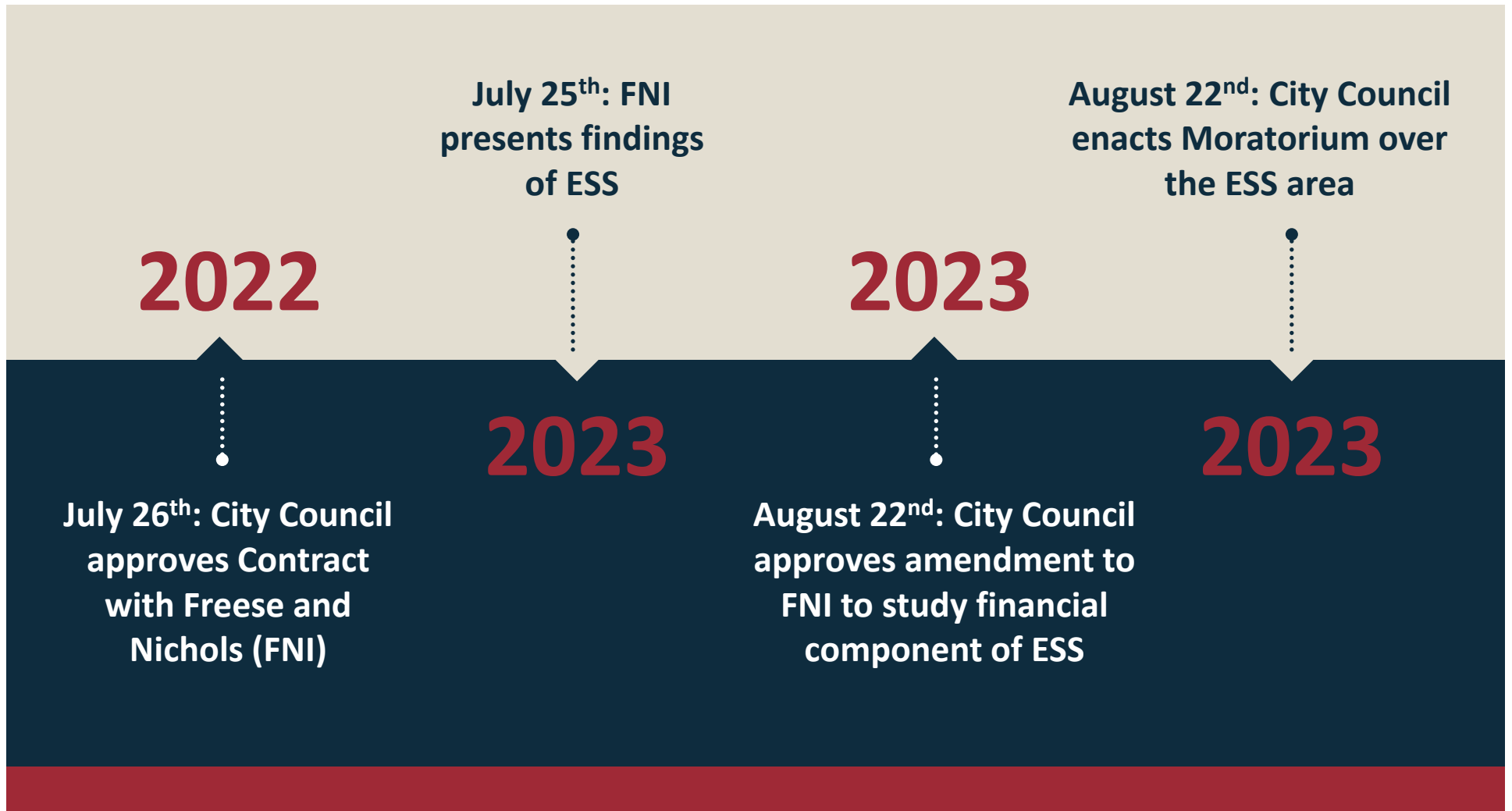
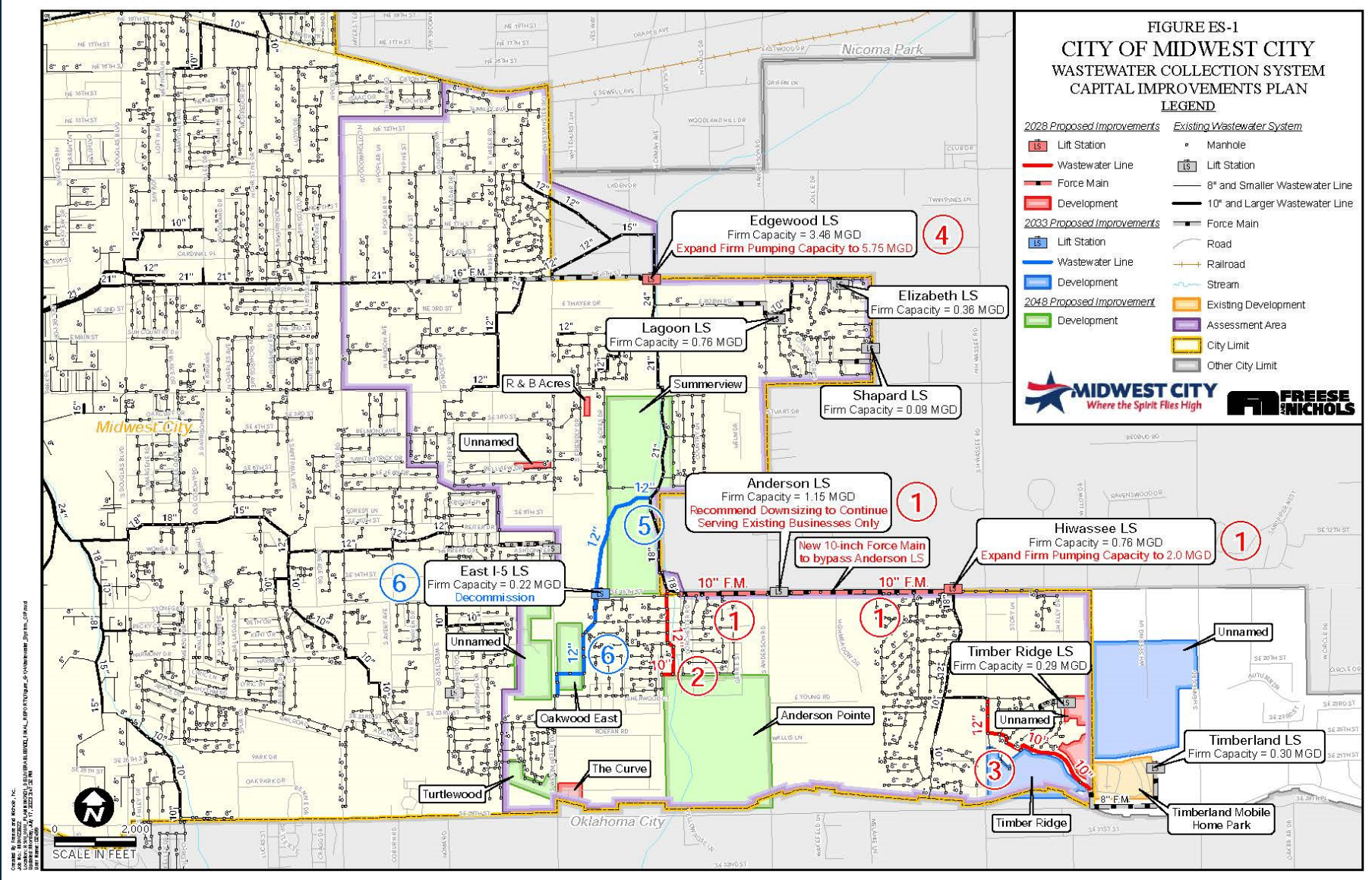


FIGURE ES-1  
**CITY OF MIDWEST CITY**  
**WASTEWATER COLLECTION SYSTEM**  
**CAPITAL IMPROVEMENTS PLAN**  
**LEGEND**

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| <b>2028 Proposed Improvements</b> | <b>Existing Wastewater System</b> |
| Lift Station                      | Manhole                           |
| Wastewater Line                   | Lift Station                      |
| Force Main                        | 8" and Smaller Wastewater Line    |
| Development                       | 10" and Larger Wastewater Line    |
| <b>2033 Proposed Improvements</b> | Force Main                        |
| Lift Station                      | Road                              |
| Wastewater Line                   | Railroad                          |
| Development                       | Stream                            |
| <b>2048 Proposed Improvement</b>  | Existing Development              |
| Development                       | Assessment Area                   |
|                                   | City Limit                        |
|                                   | Other City Limit                  |





## Findings

## Sewer Study

Table ES-4: CIP Estimated Cost Summary

Project Number	Project Name	Cost
<b>Short Term Projects</b>		
1	Expand Hiwassee Lift Station; 10-inch Force Main	\$ 6,727,500
2	10- and 12-inch Sewer Lines along Lakeside Drive	\$ 3,241,200
3	10- and 12-inch Sewer Lines along Timber Ridge Boulevard	\$ 2,685,100
4	Expand Edgewood Lift Station	\$ 11,212,500
<b>Short Term Total</b>		<b>\$ 23,866,300</b>
<b>Long Term Projects</b>		
5	12-inch Sewer Line	\$ 2,158,800
6	12-inch Sewer Line; Decommission East 1-5 Lift Station	\$ 2,816,600
<b>Long Term Total</b>		<b>\$ 4,975,400</b>
<b>CIP Total</b>		<b>\$ 28,841,700</b>