

# Finding Suitable Industrial Park Sites in Forsyth County

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Glenn Simmons \*\*\* Steve Smotherman

City-County  
**Planning**  
BOARD  
FORSYTH COUNTY  
& WINSTON-SALEM,  
NORTH CAROLINA

# Industrial Site Selection Process

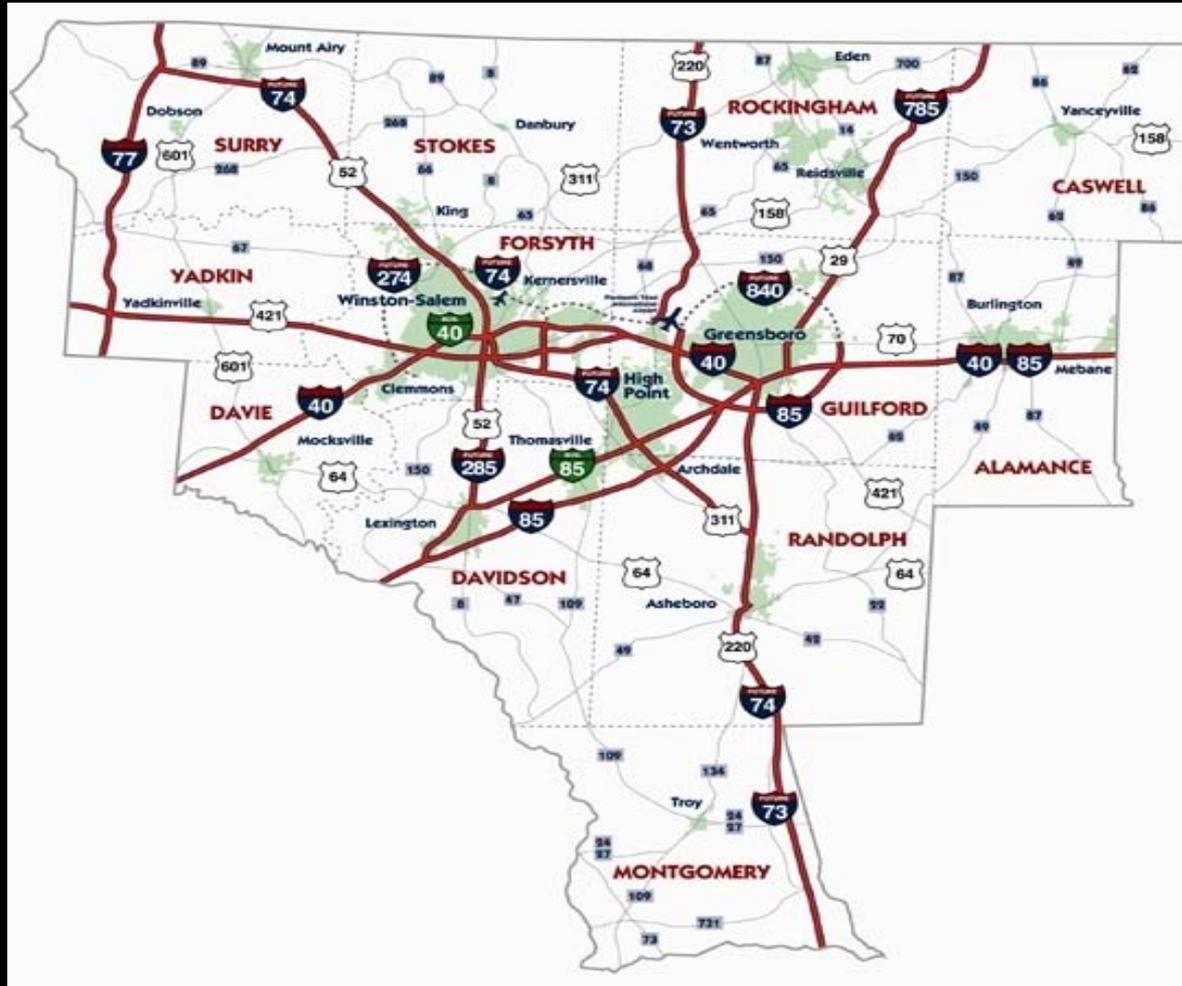
- Finding suitable Industrial Park sites result from the filtering and interaction of several factors:
  - Location/Climate
  - Regional Context
  - History/Natural Features/Constraints
  - Development Patterns
  - Infrastructure (Highways, Water, Sewer)
  - Public Regulations
  - The Market

# Regional Context

- Piedmont Triad is one of 13 regions in U.S. with 4 Interstates: I-40, I-85, I-73, I-74.
- Piedmont Triad 1.5 million Metropolitan Statistical Area (MSA) population is equal to Raleigh-Durham and Charlotte MSA populations.
- Greensboro - High Point - Winston-Salem population is estimated at 650,000.

# Regional Context

## Piedmont Triad Region



# Regional Context

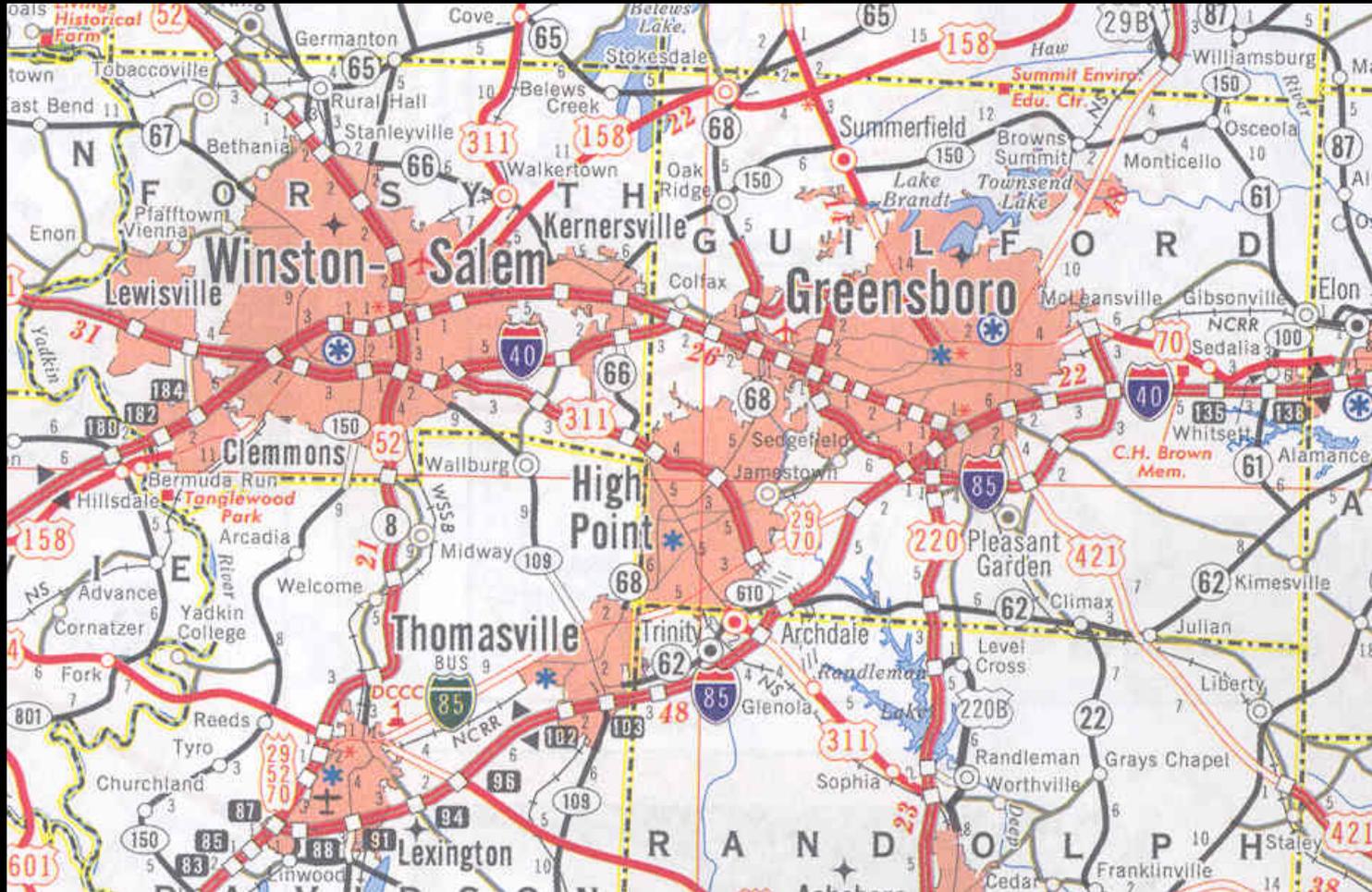
## Top 5 Populated Counties

<u>County</u>	<u>Population</u>	<u>Acreage</u>
Forsyth	343,000	264,000
Guilford	472,000	421,000
Alamance	148,000	278,000
Davidson	158,000	363,000
Randolph	141,000	506,000

- Forsyth Co. 2<sup>nd</sup> in population, smallest in size

# Regional Context

## Winston-Salem/Greensboro/High Point

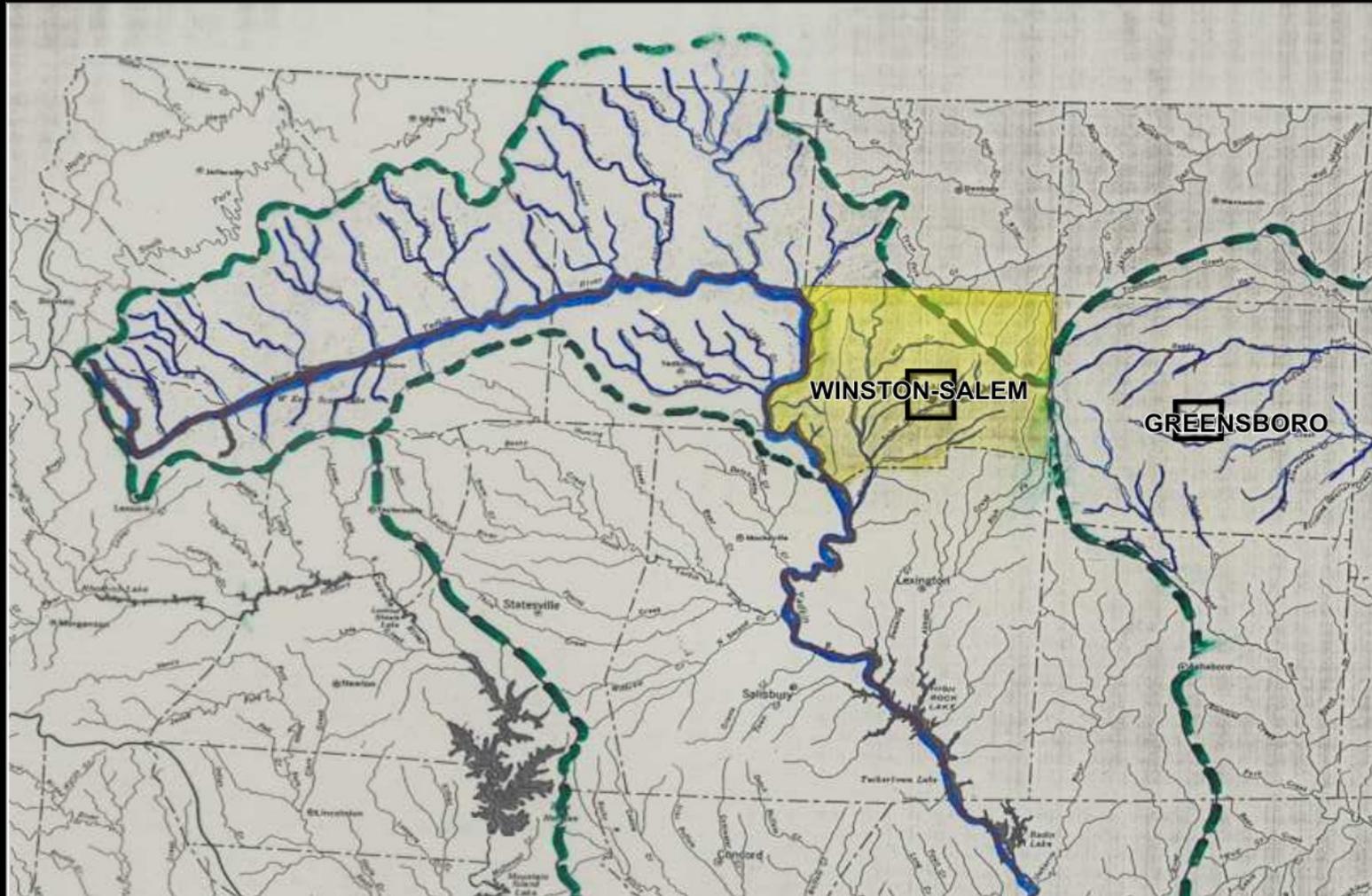


# Regional Context

## Yadkin River Basin

- **Forsyth County** is blessed with abundant water supply. Yadkin River provides between 1,000-1,500 cfs (cubic feet per second) of water.
- Yadkin River drainage basin upstream of Forsyth County is 1,694 square miles (1,084,000 acres).
- Rhode Island is only 1,545 square miles.

# Yadkin River Basin



# Regional Context

## Cape Fear River Basin

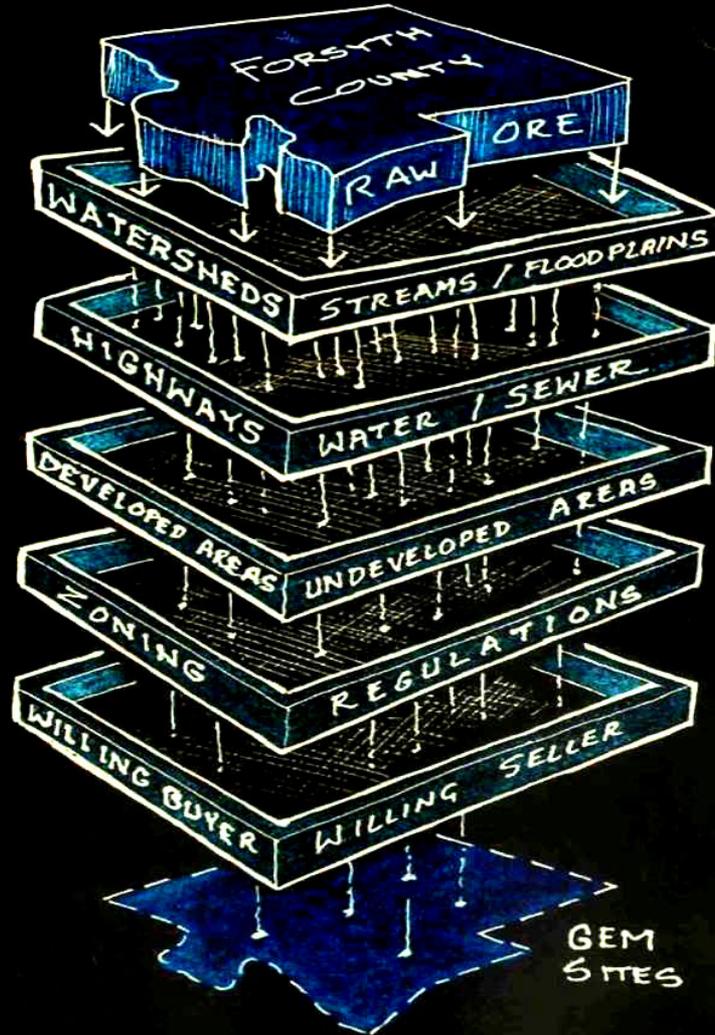
- **Greensboro:** Haw River provides 50 - 100 cfs of water east of Greensboro
- **High Point:** Deep River provides 20 - 50 cfs of water

# Cape Fear River Basin



- Greensboro in Haw River headwaters
- High Point in Deep River headwaters

# Industrial Site Filtering Process



# Industrial Site Filtering Process

- Finding good industrial sites is much like mining for gems.
- Process filters land through several sieves including drainage basins, infrastructure, developed areas, public policies/plans, and willing buyers & sellers.

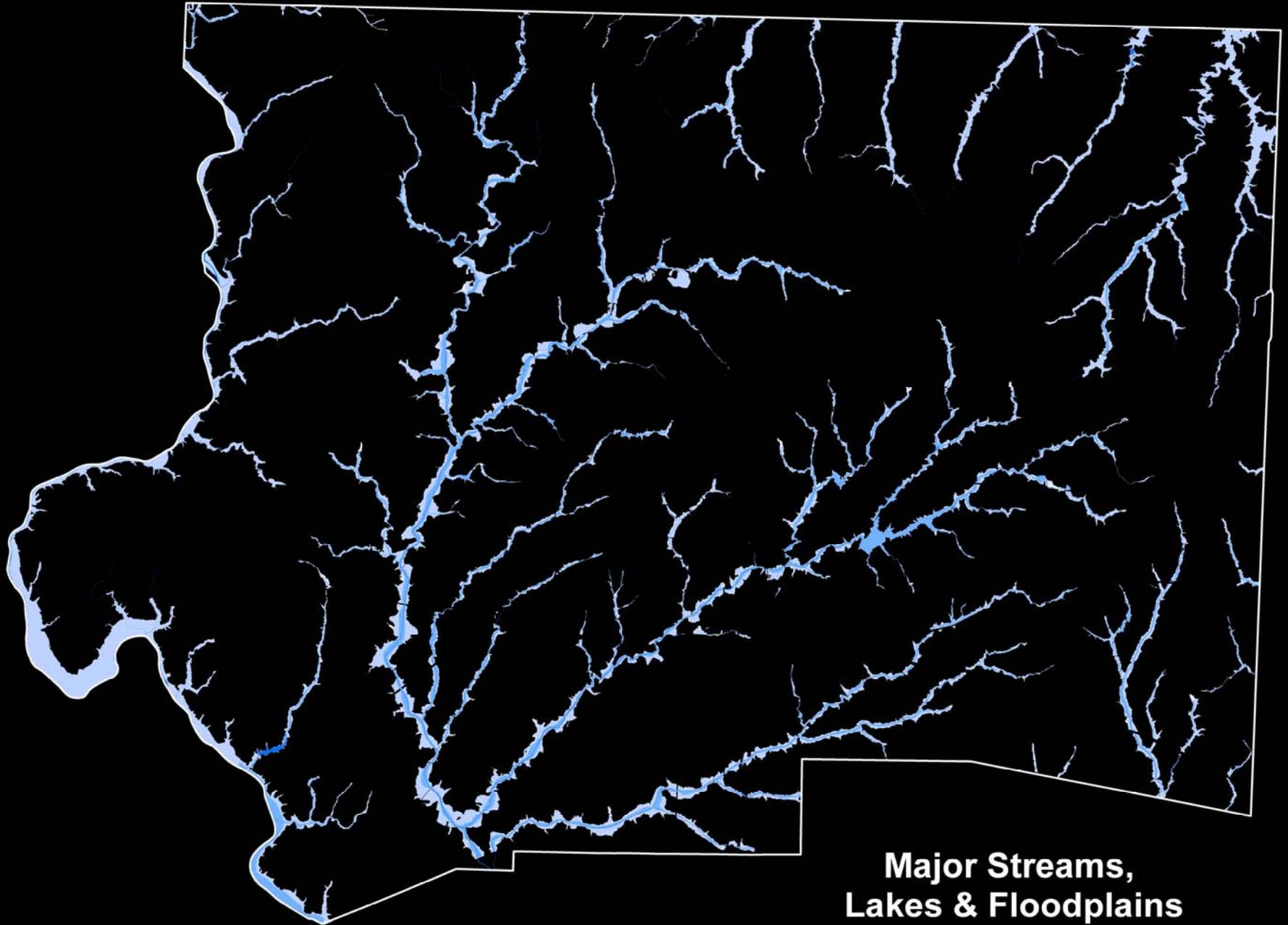
# Possible Constraints to Industrial Sites

## Major Streams – Lakes – Floodplains

- Watersheds – Drainage Basins
- Wachovia Tract
- Sewer Service Areas
- Development Patterns

# Major Streams, Lakes & Floodplains

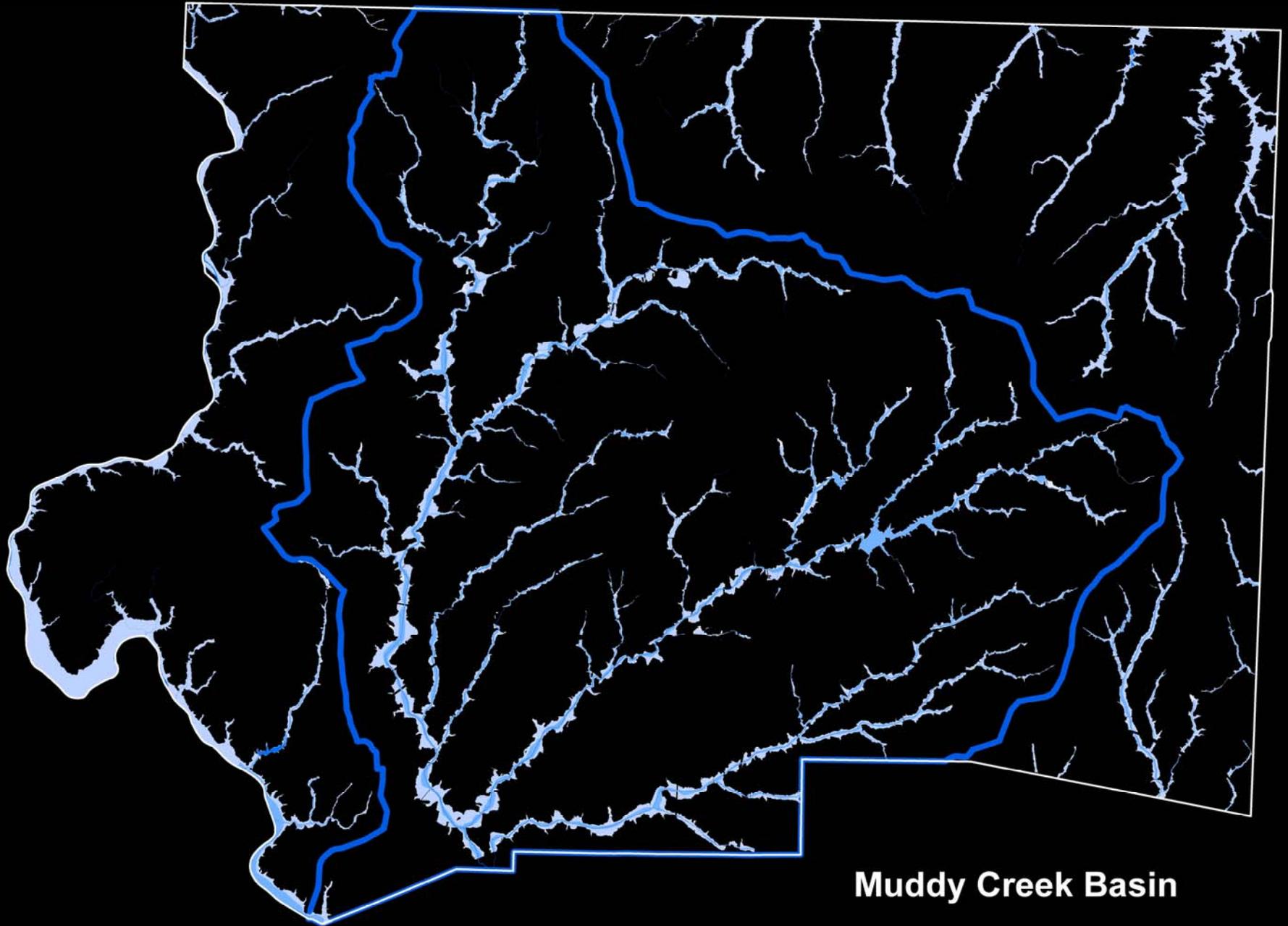
- Three major stream/creek branches drain to the southwest to the Yadkin River (shown in dark blue)
  - Muddy Creek heading south from Tobaccoville in NW Forsyth County
  - Salem Creek traveling southwestward from Salem Lake in E Forsyth County
  - South Fork of Muddy Creek traveling westward from Union Cross in SE Forsyth County
- Each of these creeks have 100- and 500-year floodplains (shown in light blue)



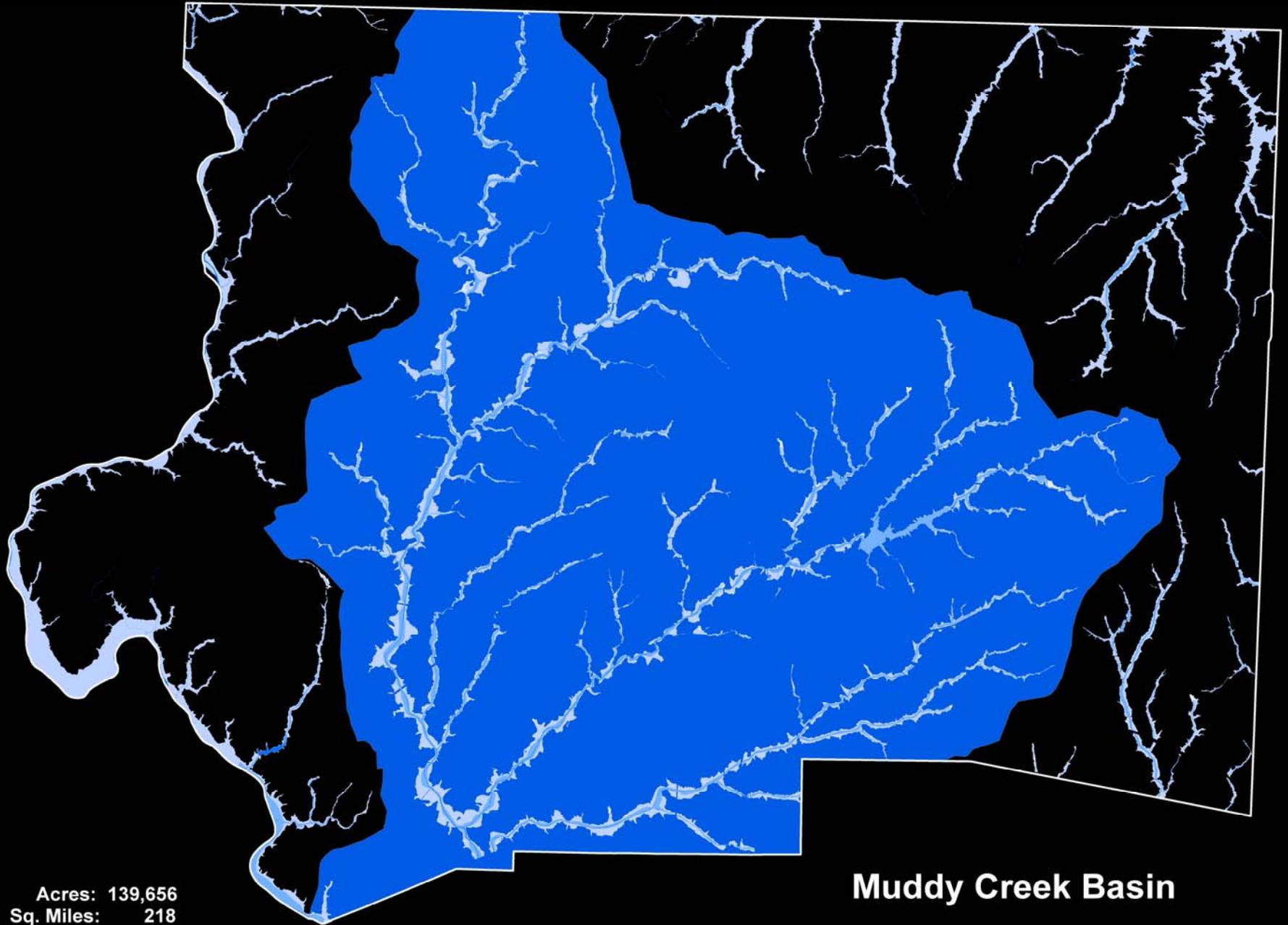
**Major Streams,  
Lakes & Floodplains**

# Muddy Creek Basin

- Basin ridgelines (shown in blue) are followed by the entire drainage basin outlined.
- Muddy Creek Basin contains 140,000 acres and includes the three major streams:
  - Muddy Creek
  - Salem Creek
  - South Fork of Muddy Creek



**Muddy Creek Basin**

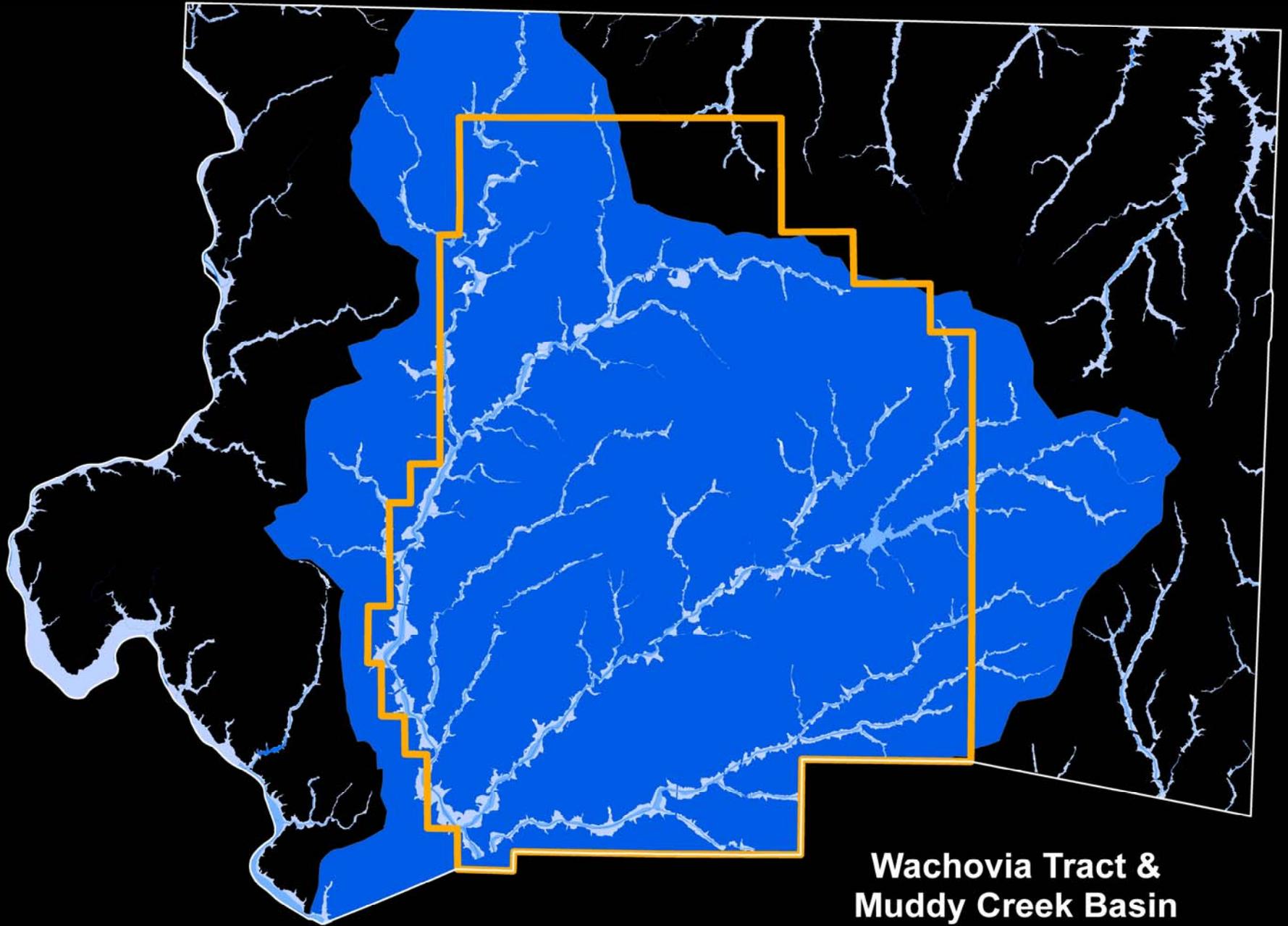


Acres: 139,656  
Sq. Miles: 218

## Muddy Creek Basin

# Wachovia Tract

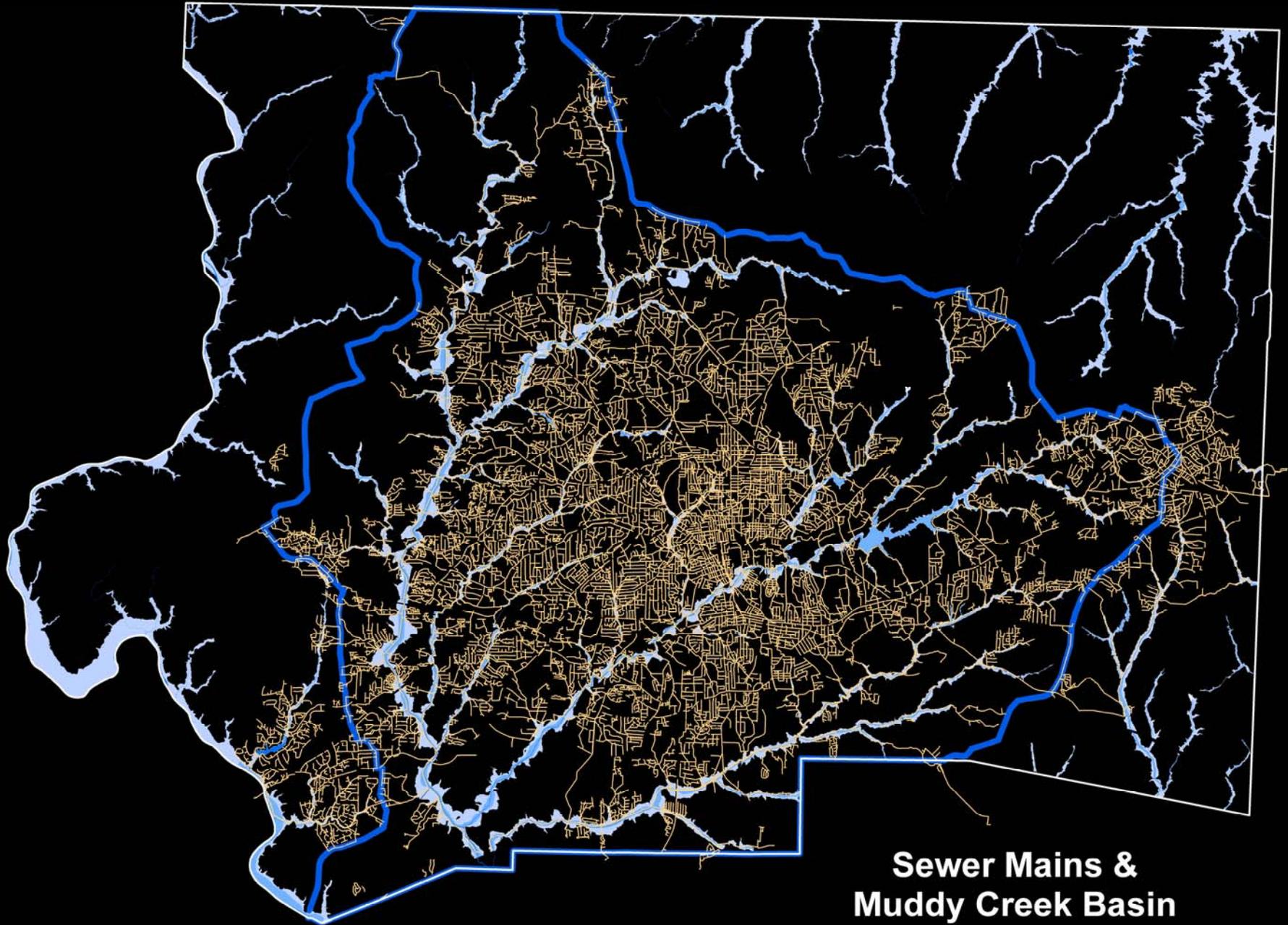
- Lord Granville of England invited Moravians in Bethlehem, PA, to purchase 100,000 acres in North Carolina.
- After 5 months of searching, Moravians selected “Wachovia” Tract (shown in orange).
- Six settlements established: Bethania, Bethabara, Hope, Friedland, Friedberg and Salem.
- Selected area is very similar to the Muddy Creek Drainage basin.



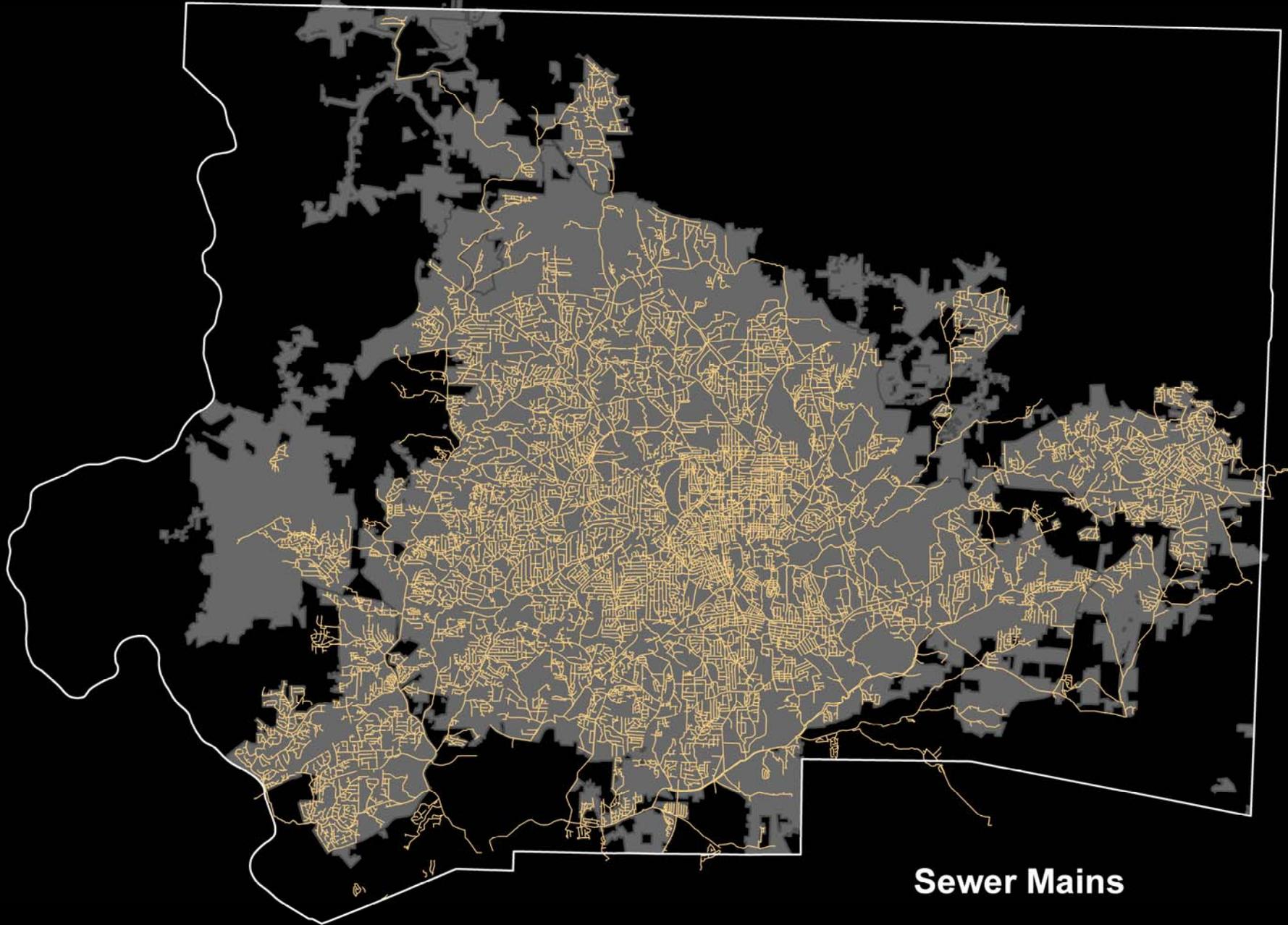
**Wachovia Tract &  
Muddy Creek Basin**

# Sewer Service Areas

- Wastewater treatment capabilities are critical to some industries.
- Since sewer systems rely on gravity for processing effluent, the limits of sewer service areas (i.e. municipal service area) typically correspond to drainage basins and are a constraint for siting industrial parks.
- Sewer mains are shown in rust color and municipalities are shown in gray.



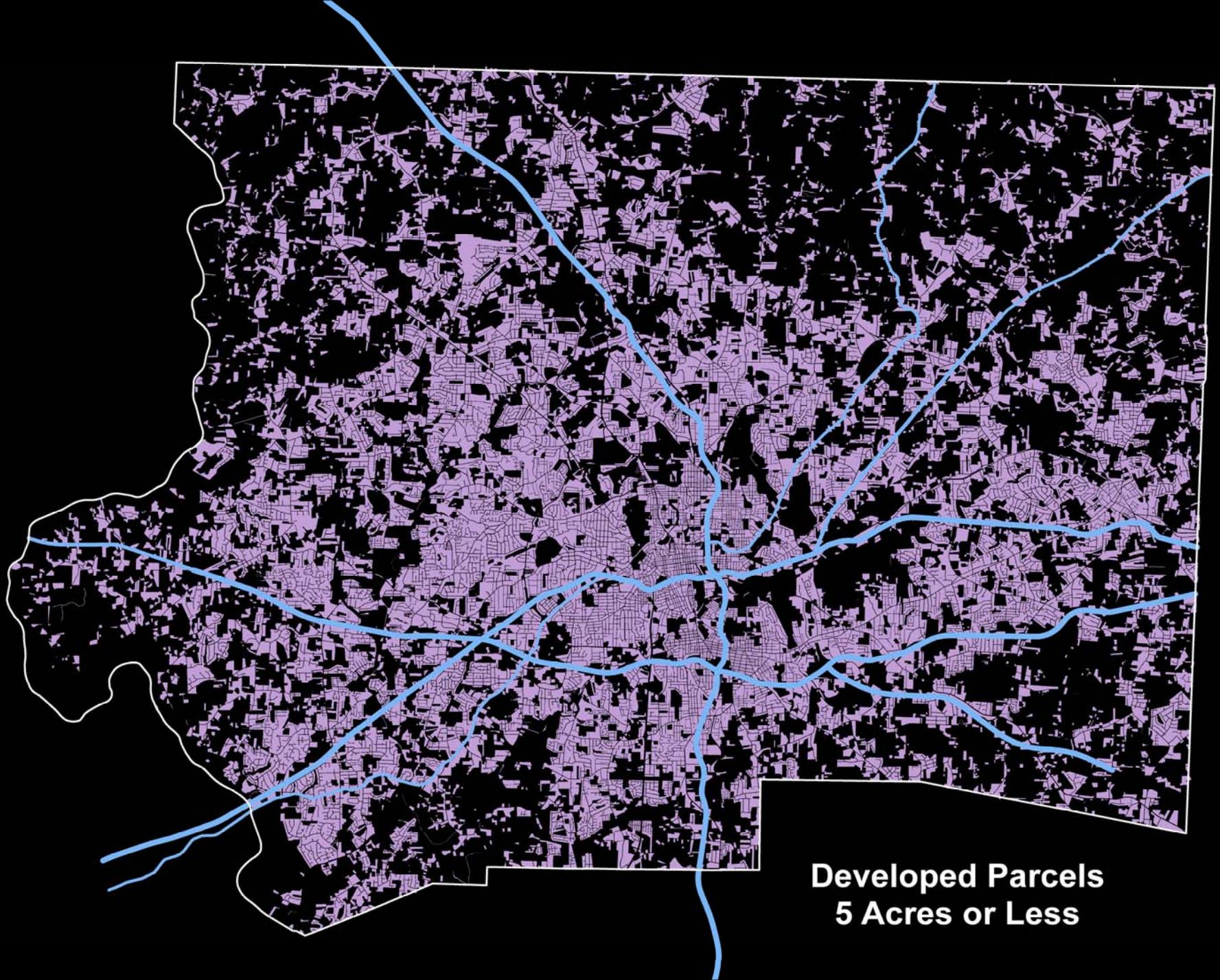
**Sewer Mains &  
Muddy Creek Basin**



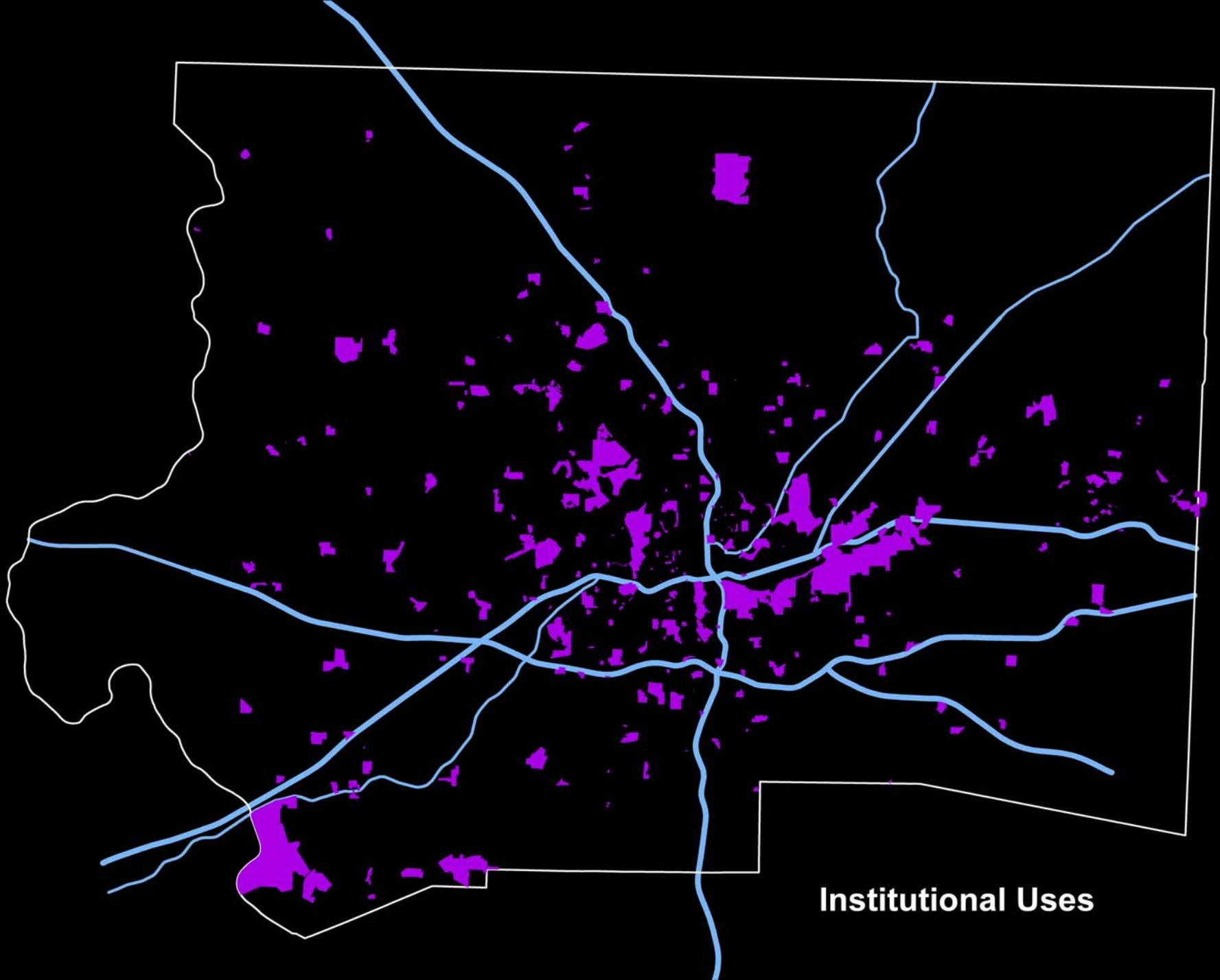
**Sewer Mains**

# Existing Developed Areas

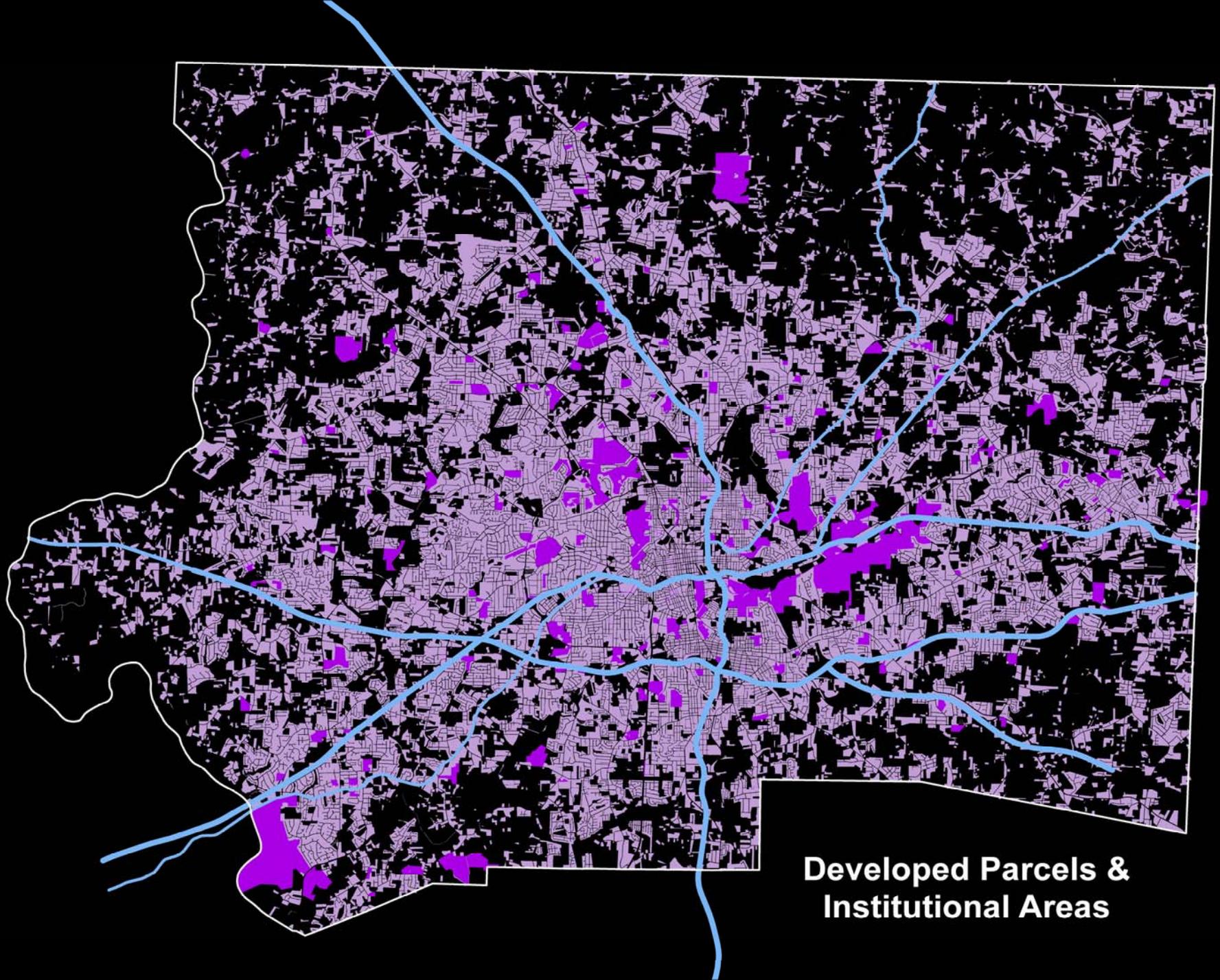
- All areas developed with 5-acre parcels or less are shown in lavender.
- Industrially-related highways and interstates are shown in light blue.
- Existing institutional uses shown in purple.
- Designated Rural Areas shown in green.



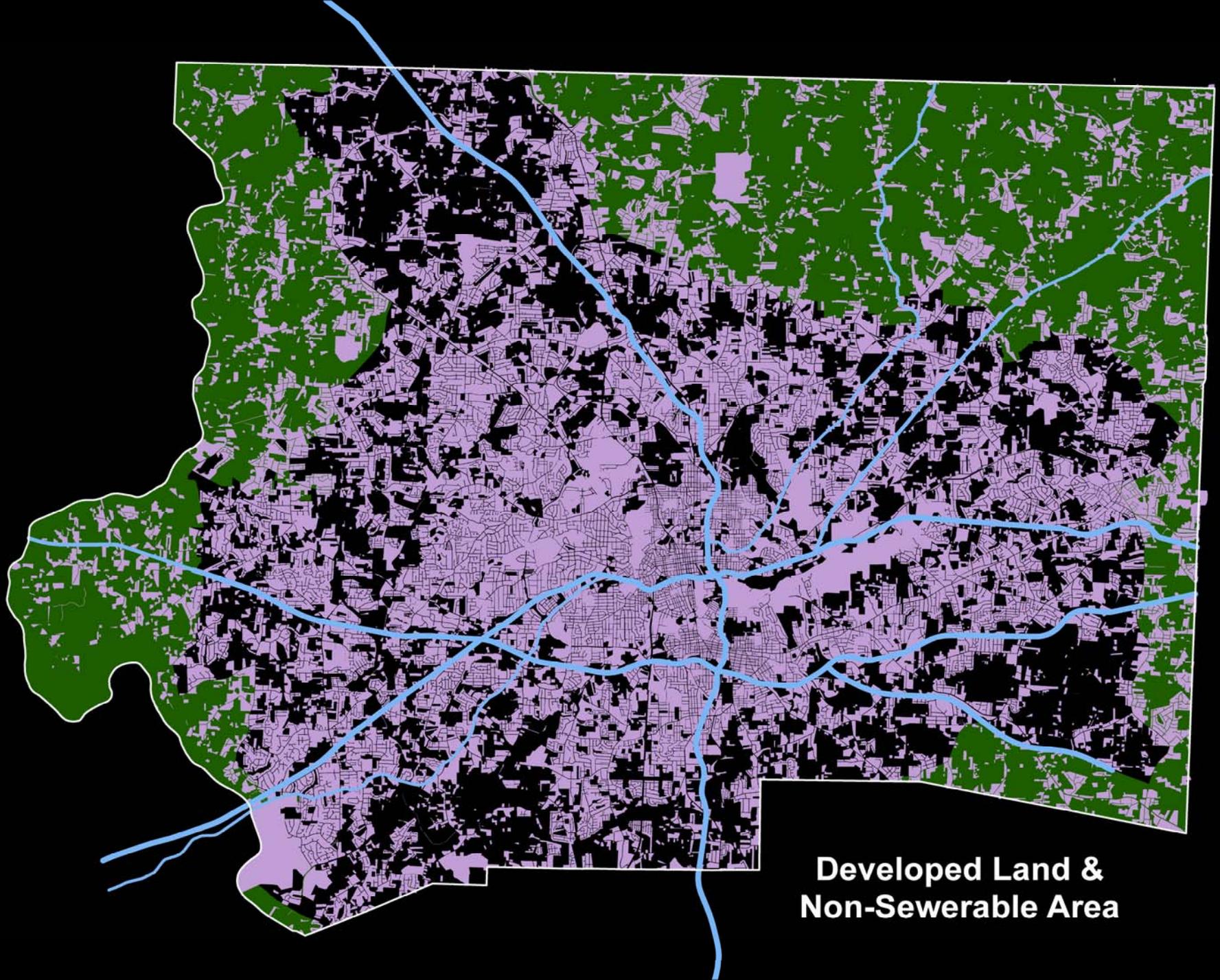
**Developed Parcels  
5 Acres or Less**



**Institutional Uses**



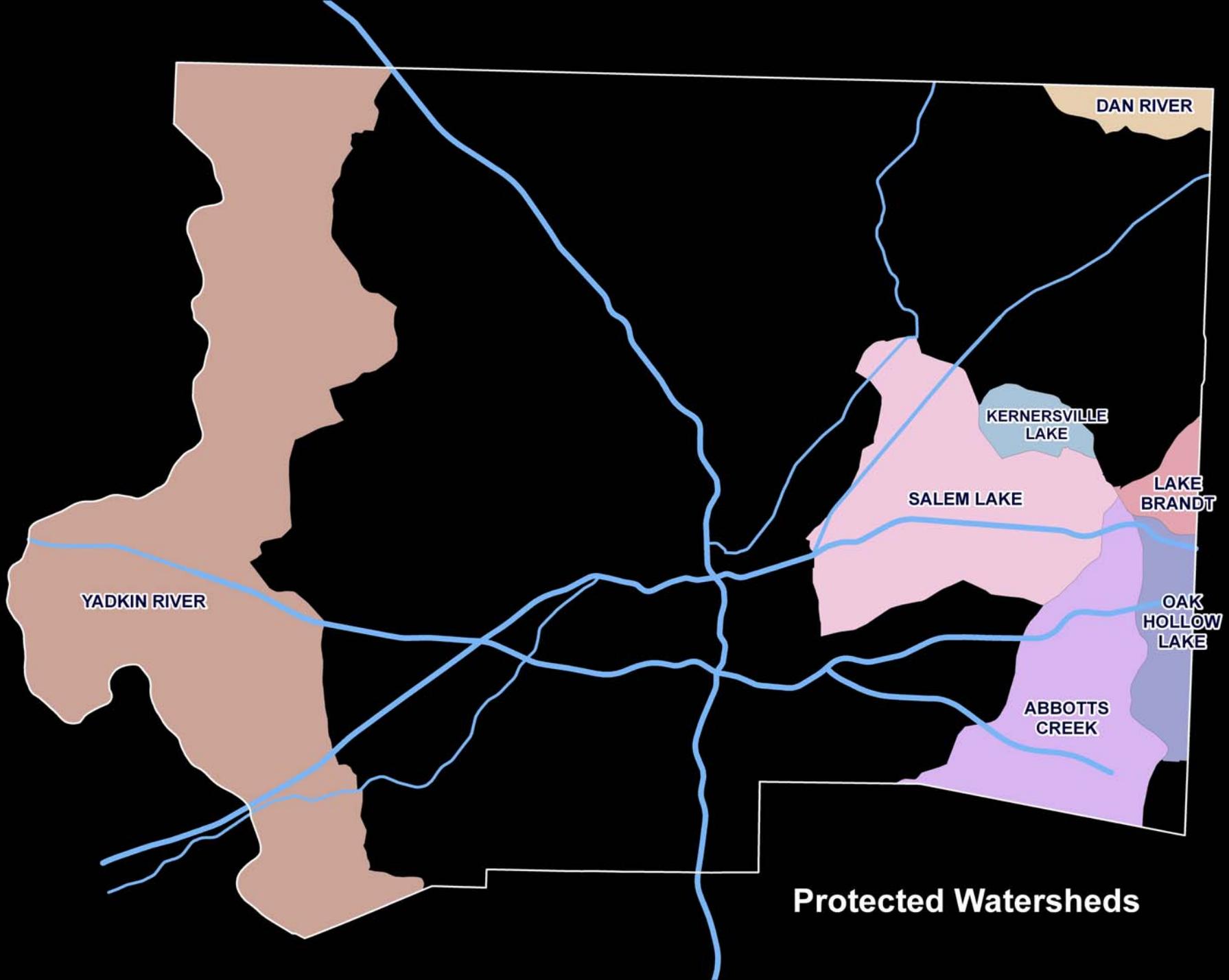
**Developed Parcels & Institutional Areas**



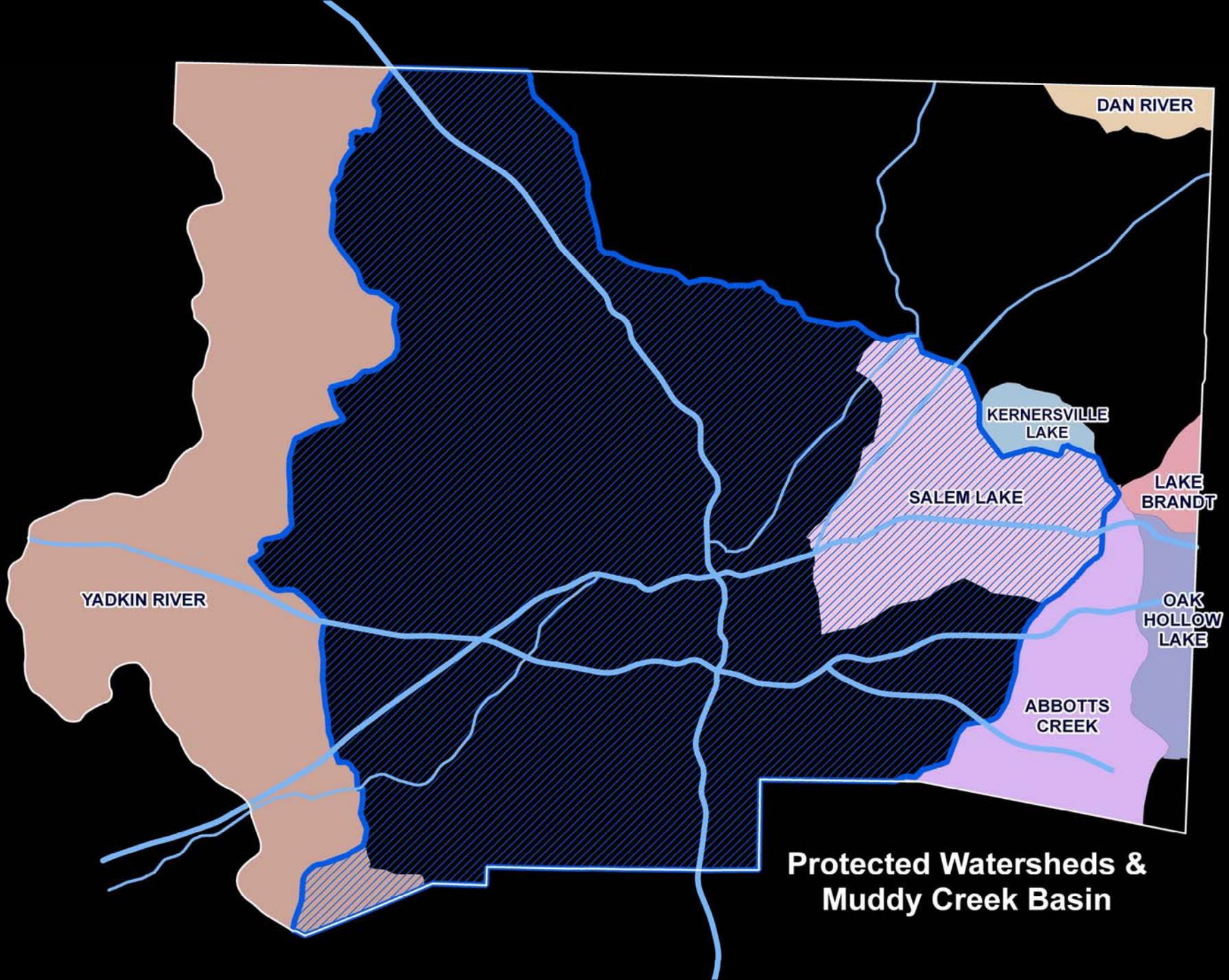
**Developed Land &  
Non-Sewerable Area**

# Watersheds

- Seven different water-supply watersheds are located in Forsyth County:
  - the largest, the Yadkin River Basin in the west (Winston-Salem)
  - the Dan River Basin in the northeast (Eden)
  - the Salem Lake, Kernersville Lake, Lake Brandt (Greensboro), Oak Hollow Lake (High Point), and Abbotts Creek (Lexington) basins in the southeast.



**Protected Watersheds**



**Protected Watersheds & Muddy Creek Basin**

# Rural Areas/Future Growth Areas

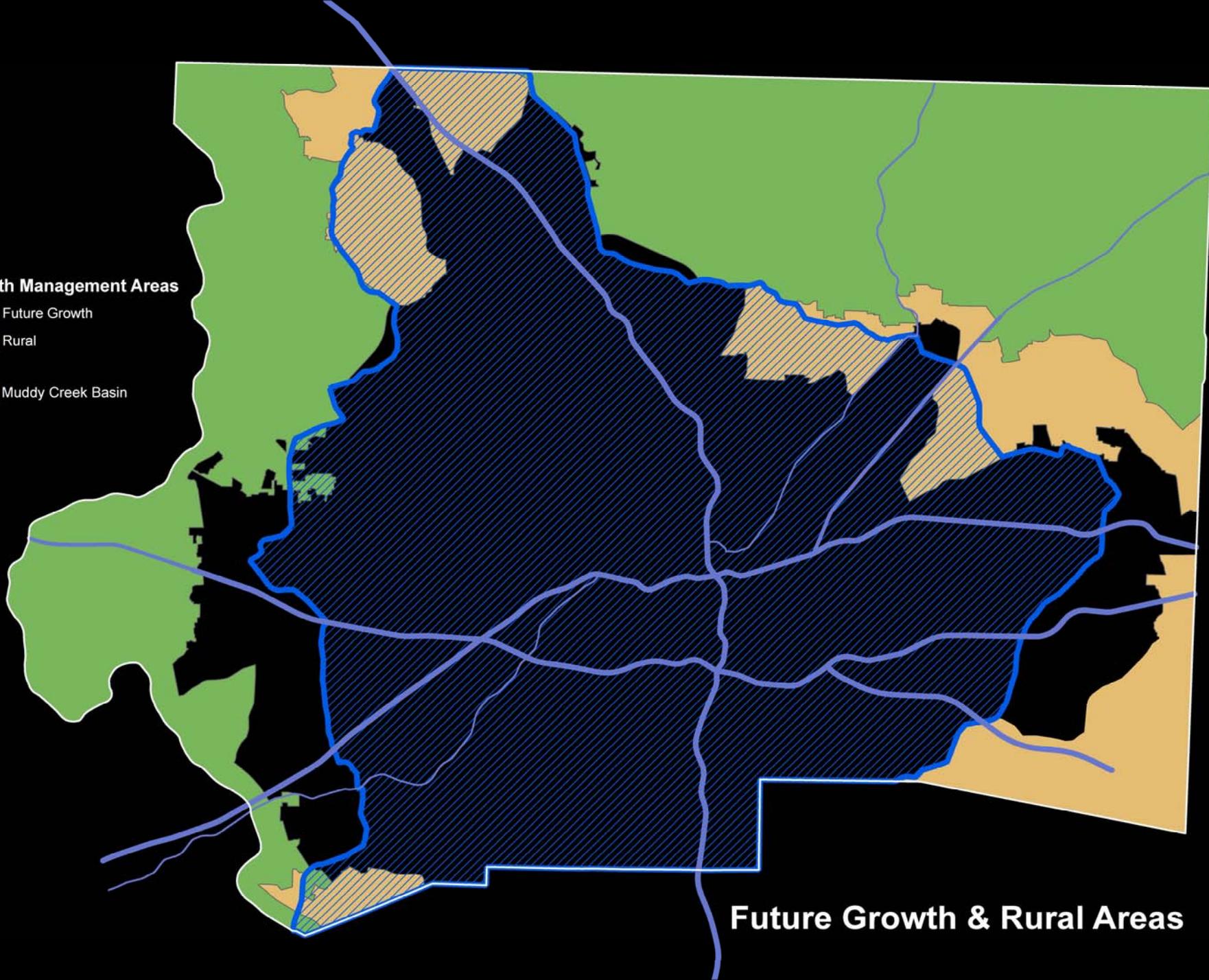
- Forsyth County's comprehensive plan, *Legacy*, designates areas in the Dan River basin and areas to the west outside of the Muddy Creek drainage basin as Rural Areas (shown in green).
- Rural Areas total approximately 81,000 acres.
- Areas with no or limited sewer mains are indicated as Future Growth Areas (shown in orange).
- *Legacy* also takes into account future highways and interstates (shown in purple).

**Growth Management Areas**

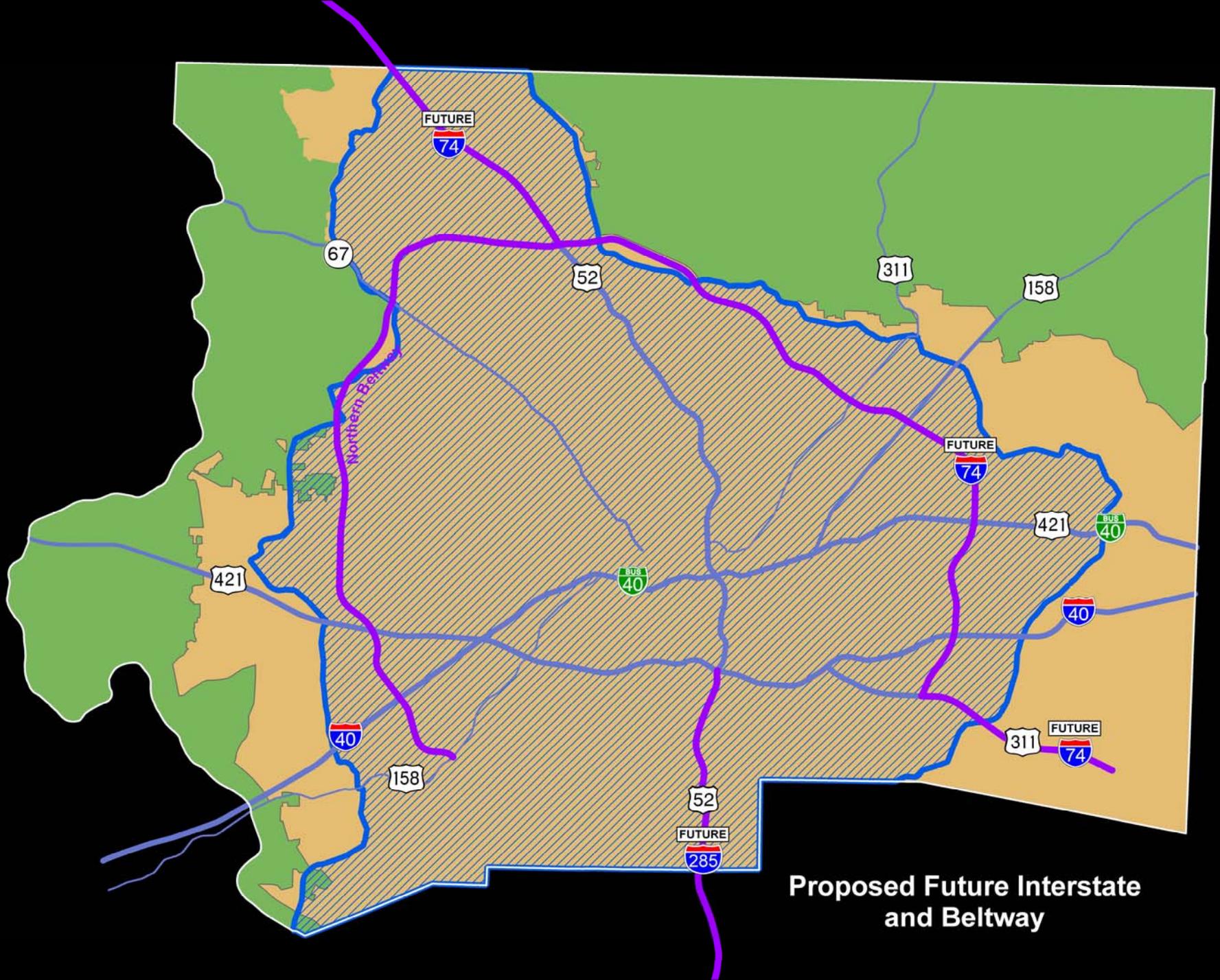
 Future Growth

 Rural

 Muddy Creek Basin



**Future Growth & Rural Areas**



Northern Beltway

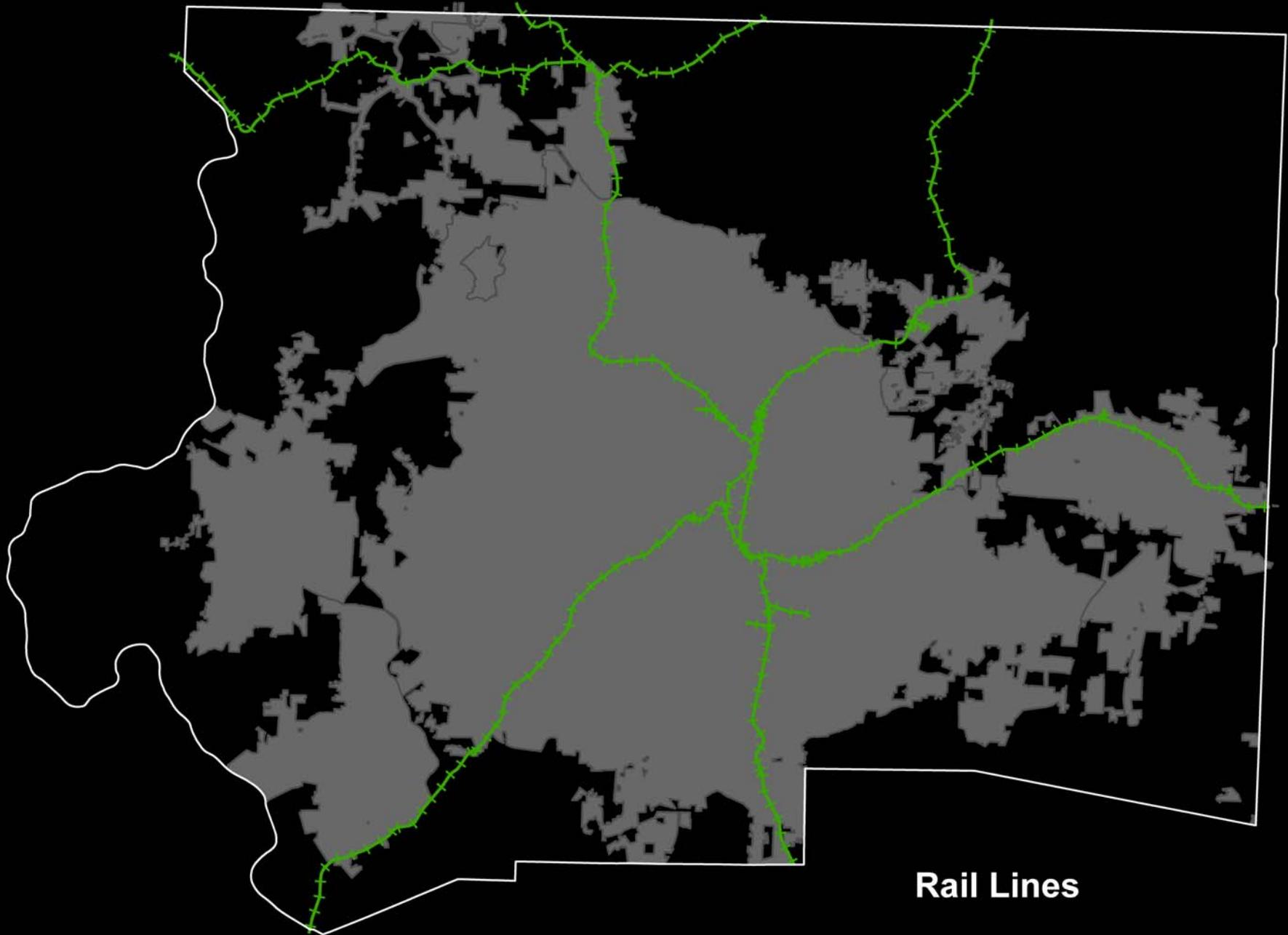
Proposed Future Interstate and Beltway

# Magnets for Industrial Sites

- Rail Lines
- Existing Industrial Parks
- Existing Interstates/Highways
- Future Interstates/Highways

# Existing Rail Companies

- Norfolk Southern primary service
- Winston Salem Southbound
- Yadkin Valley Railroad
- Existing Rail lines are shown in green with existing municipalities shown in grey.



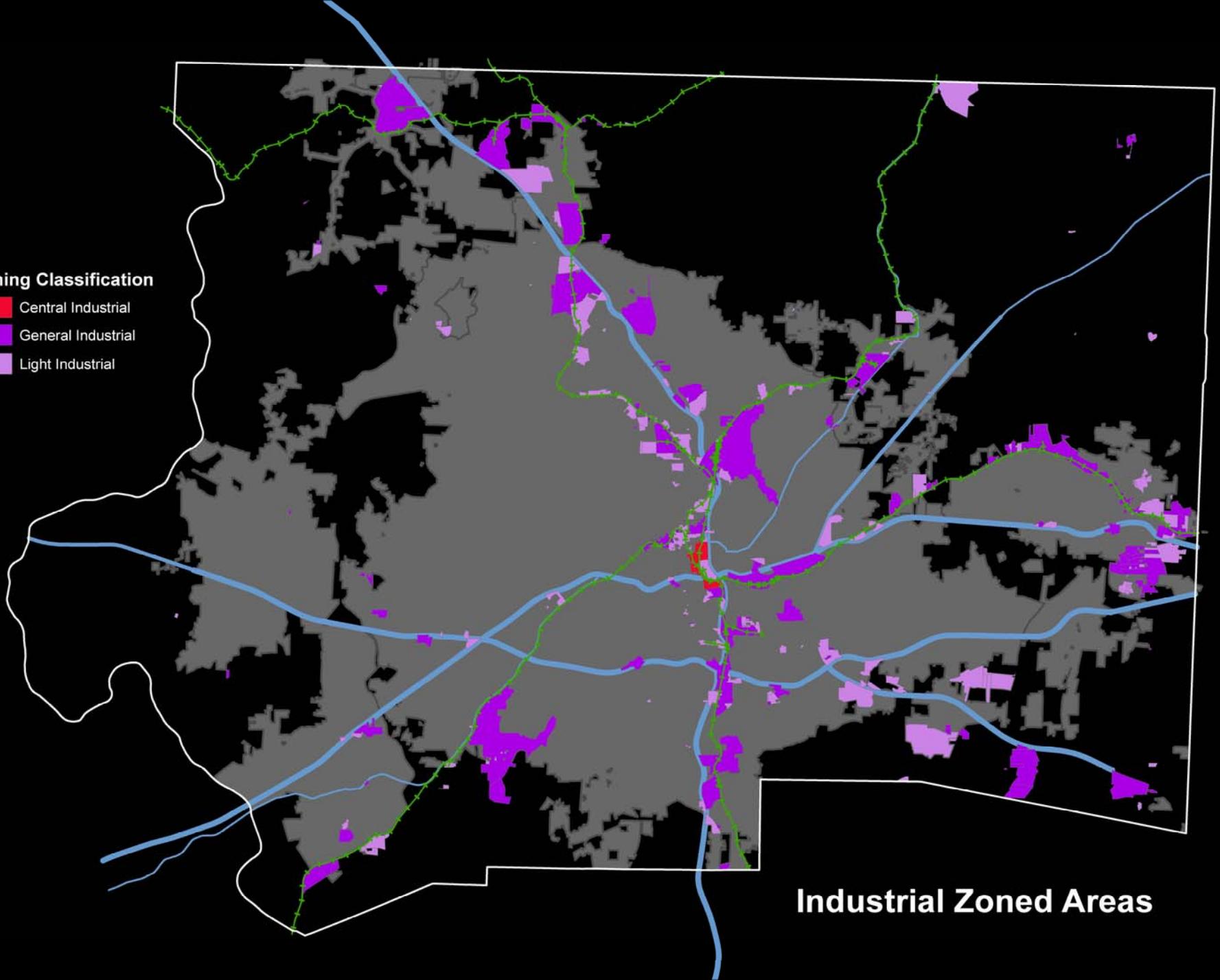
**Rail Lines**

# Existing Industrial Zones

- Older industrial areas are located along rail lines and US Highway 52.
- Approximately 14,000 acres is zoned for industrial use in Forsyth County.
- Existing industrial zones are shown in purple, lavender or red.

**Zoning Classification**

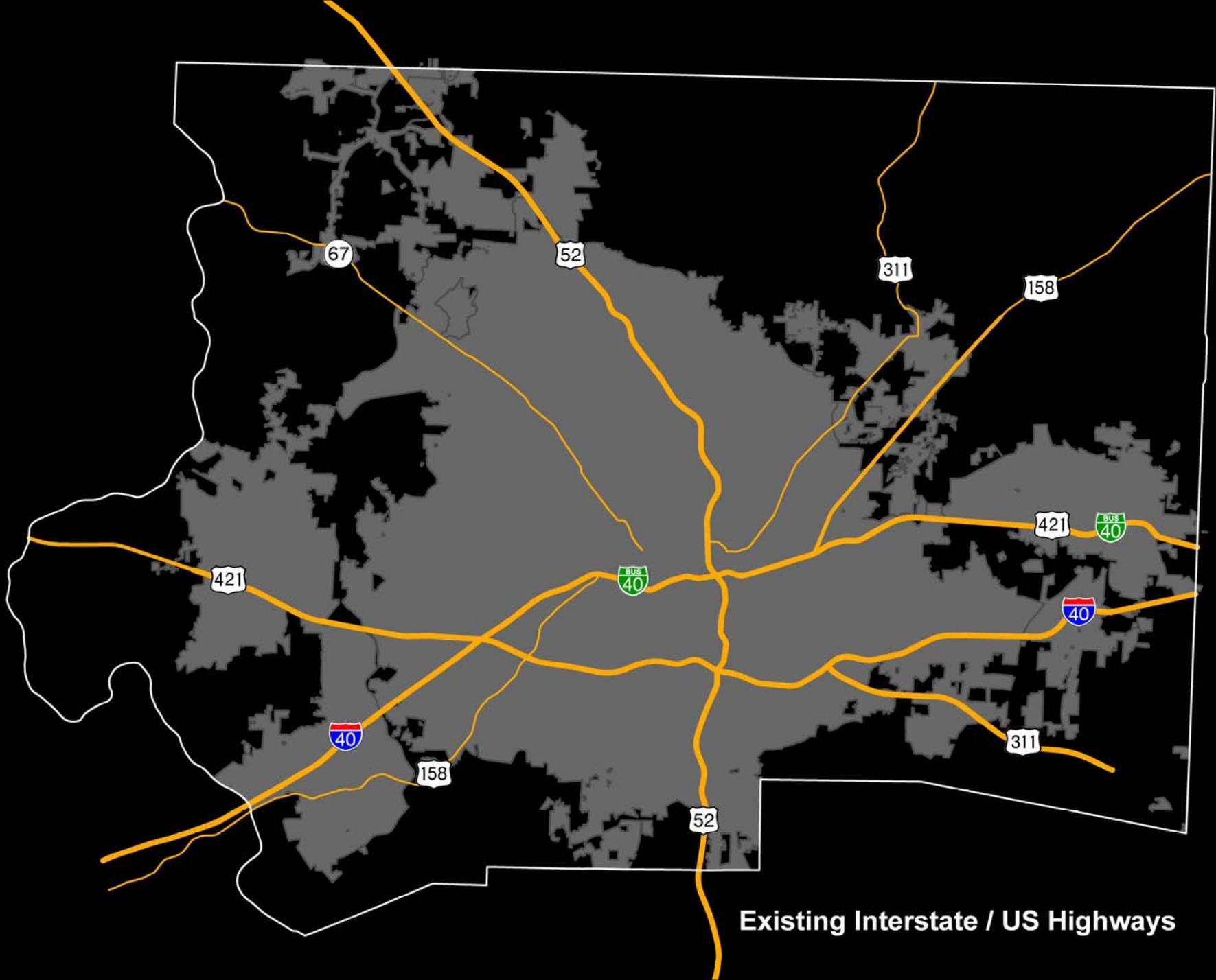
-  Central Industrial
-  General Industrial
-  Light Industrial



**Industrial Zoned Areas**

# Existing Interstates/Highways (shown in orange)

- Interstate 40
- US Highway 421/Business 40
- US Highway 52
- US Highway 311/Future Interstate 74
- US Highway 158
- NC Highway 109

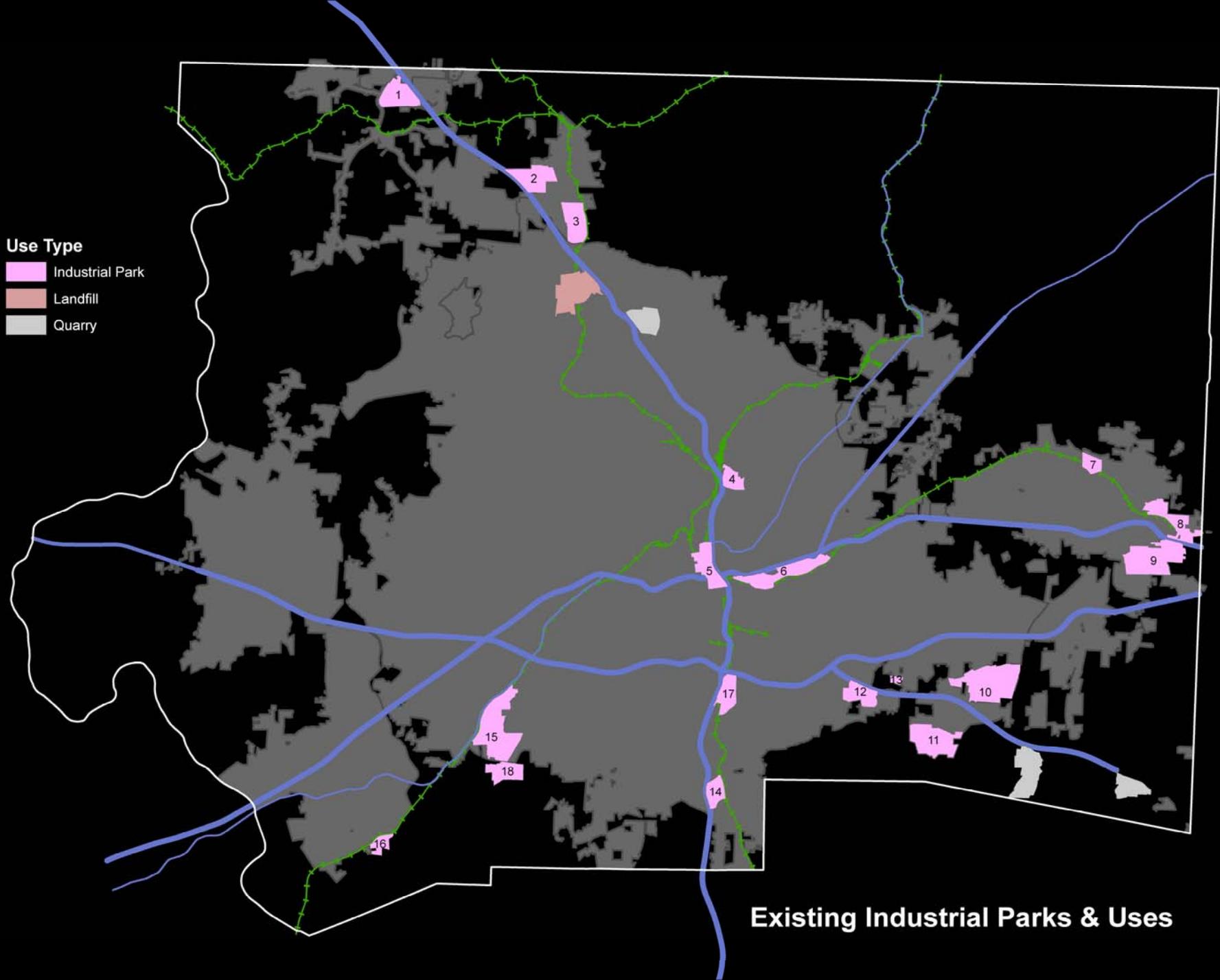


Existing Interstate / US Highways

# Existing Industrial Parks

- Most of the 18 existing Industrial Parks (shown in pink) are located near divided interstates/ highways.
- Existing Industrial Parks total more than 5,000 acres (see table).
- Industrial Parks are equal to 46% of the existing 14,000 industrially-zoned acres.
- Existing quarries are shown in grey with existing landfill shown in peach.

- Use Type**
- Industrial Park
  - Landfill
  - Quarry



**Existing Industrial Parks & Uses**

# EXISTING INDUSTRIAL PARKS

<u>#</u>	<u>Acres</u>	<u>Name</u>
1	275	Big Oak Industrial Park
2	275	Northridge Business Park
3	340	Forum 52
4	65	Airport Business Park
5	230	Piedmont Triad Research Park
6	350	Winston-Salem Business Park (Lowery St.)
7	100	North Park Business Center
8	440	Old Greensboro Road Industrial Area
9	540	South Park Business Center
10	630	Dell Plant and Surrounding Sites
11	400	Union Cross Business Park
12	170	Centre 311
13	50	Ridgewood Business Park
14	130	Piedmont Triad Industrial Center
15	620	West Point/Stratford Road Industrial Area
16	160	Idols Industrial Area
17	210	Salem Industrial Park Area
18	70	Salem Creek Industrial Park

**Total : 5,055 Acres**

# Land Use Ratios

- Studies of selected cities since the 1930s have found these general land use ratios:

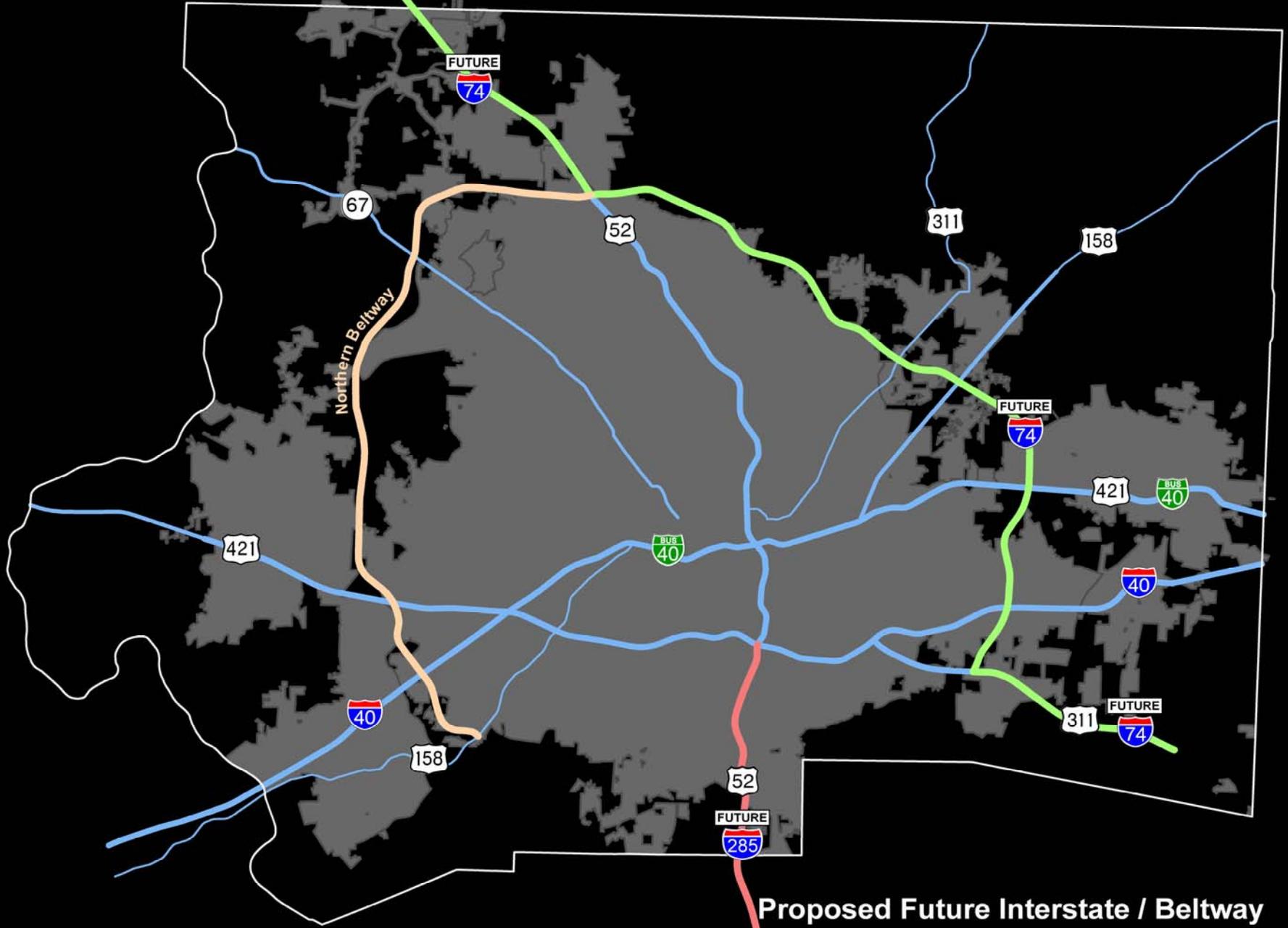
<b>Single Family Residential</b>	<b>38%</b>
<b>Multifamily Residential</b>	<b>10%</b>
<b>Commercial</b>	<b>10%</b>
<b>Industrial</b>	<b>10%</b>
<b>Institutional/Rights of way</b>	<b>32%</b>
<b>Total</b>	<b>100%</b>

# Land Use Ratios

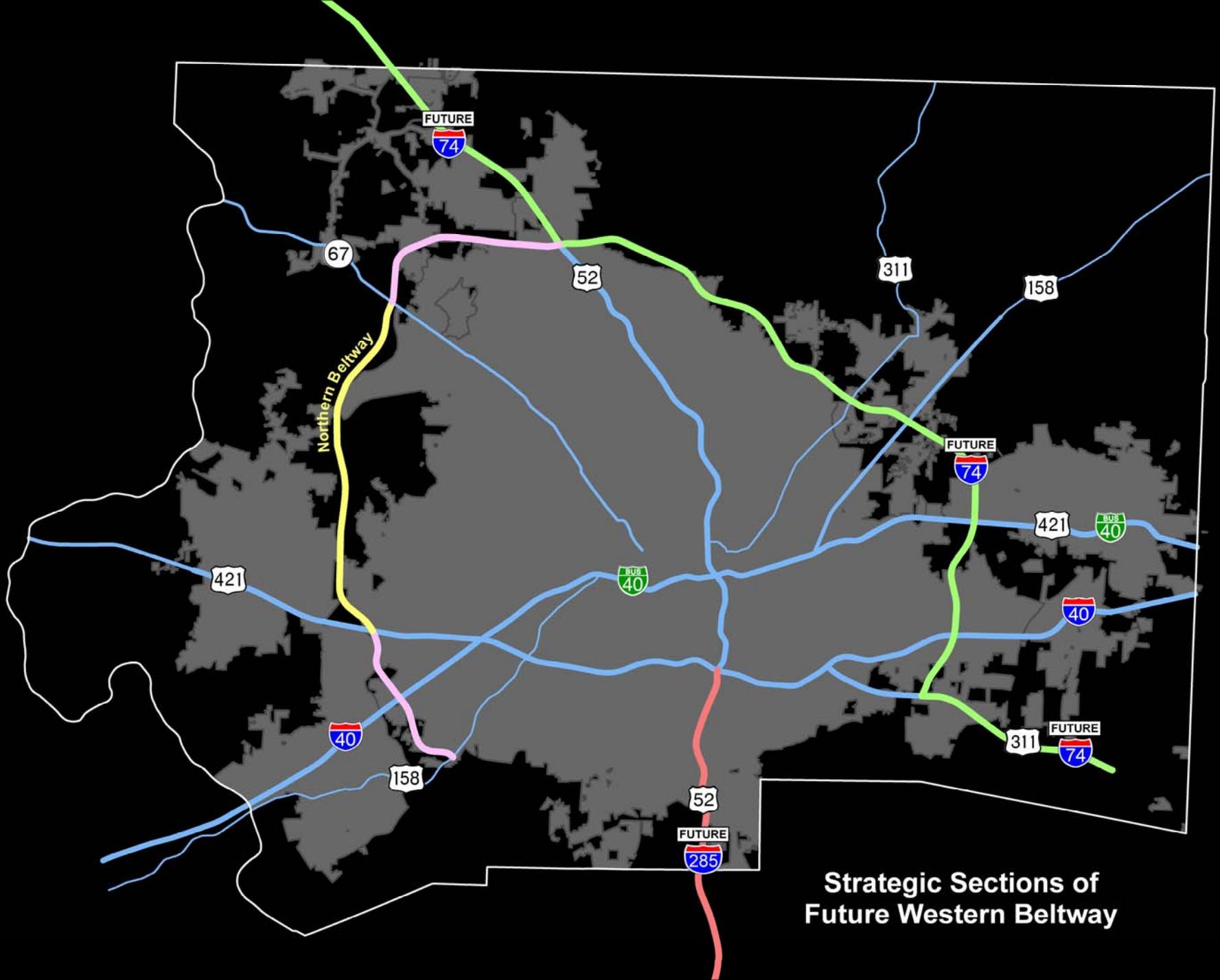
- Forsyth County presently has 14,000 acres zoned Industrial.
- Equivalent to 7.5% of the 183,000 acres not in designated Rural Areas.
- Need an additional 4,000–5,000 acres to reach a 10% ratio.
- Where to locate?
  - Near Interstates and divided highways.

# Future Interstates/Highways

- Future Interstate 74/Northern Beltway (shown in green, beige and pink)
- NC Highway 109 widening and possible relocation (not shown)
- Two segments of Western Beltway strategic (shown in lavender)  
(U.S. 421 to U.S. 158, U.S. 52 to N.C. 67)



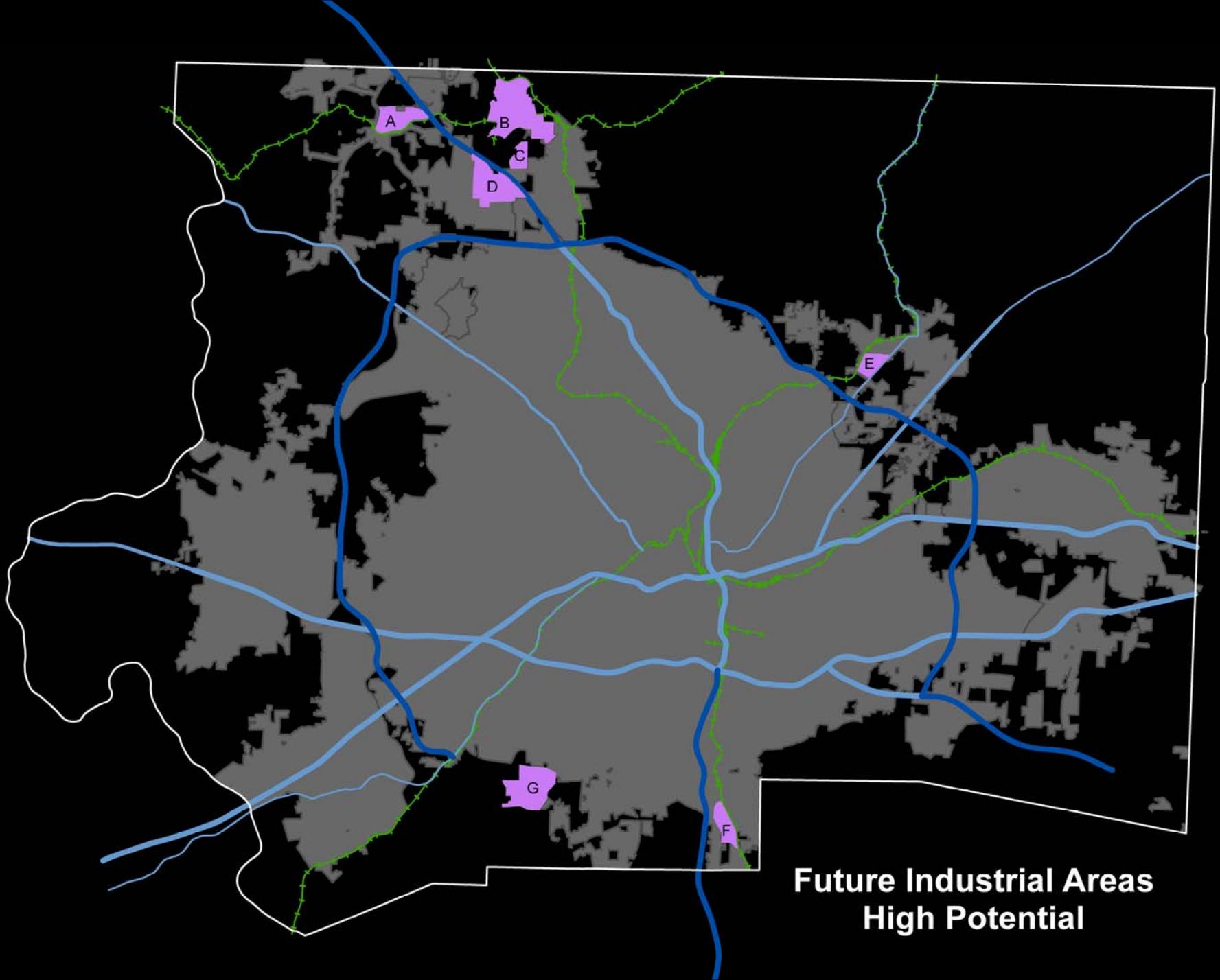
Proposed Future Interstate / Beltway



**Strategic Sections of  
Future Western Beltway**

# Future Industrial Areas

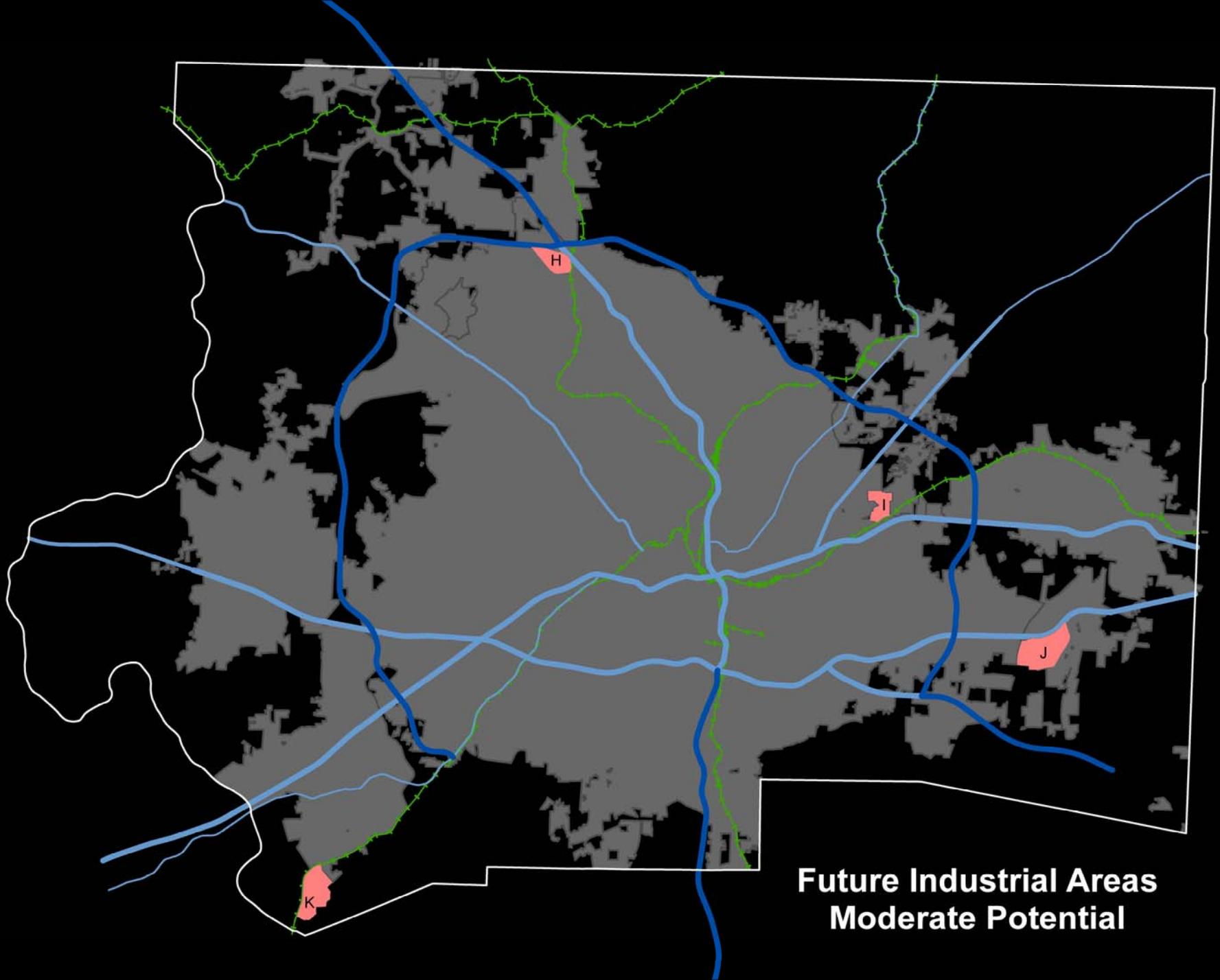
- Planning staff prepared an Industrial Opportunity Areas Study in 1992.
- Study is still very pertinent in determining future locations.
- Future Industrial locations have been identified based on high- (shown in purple), moderate- (shown in salmon), or low-potential (shown in peach).
- Rankings based on size, interstate access, water/sewer availability and zoning (see accompanying tables).



**Future Industrial Areas  
High Potential**

## HIGH POTENTIAL FUTURE INDUSTRIAL AREAS

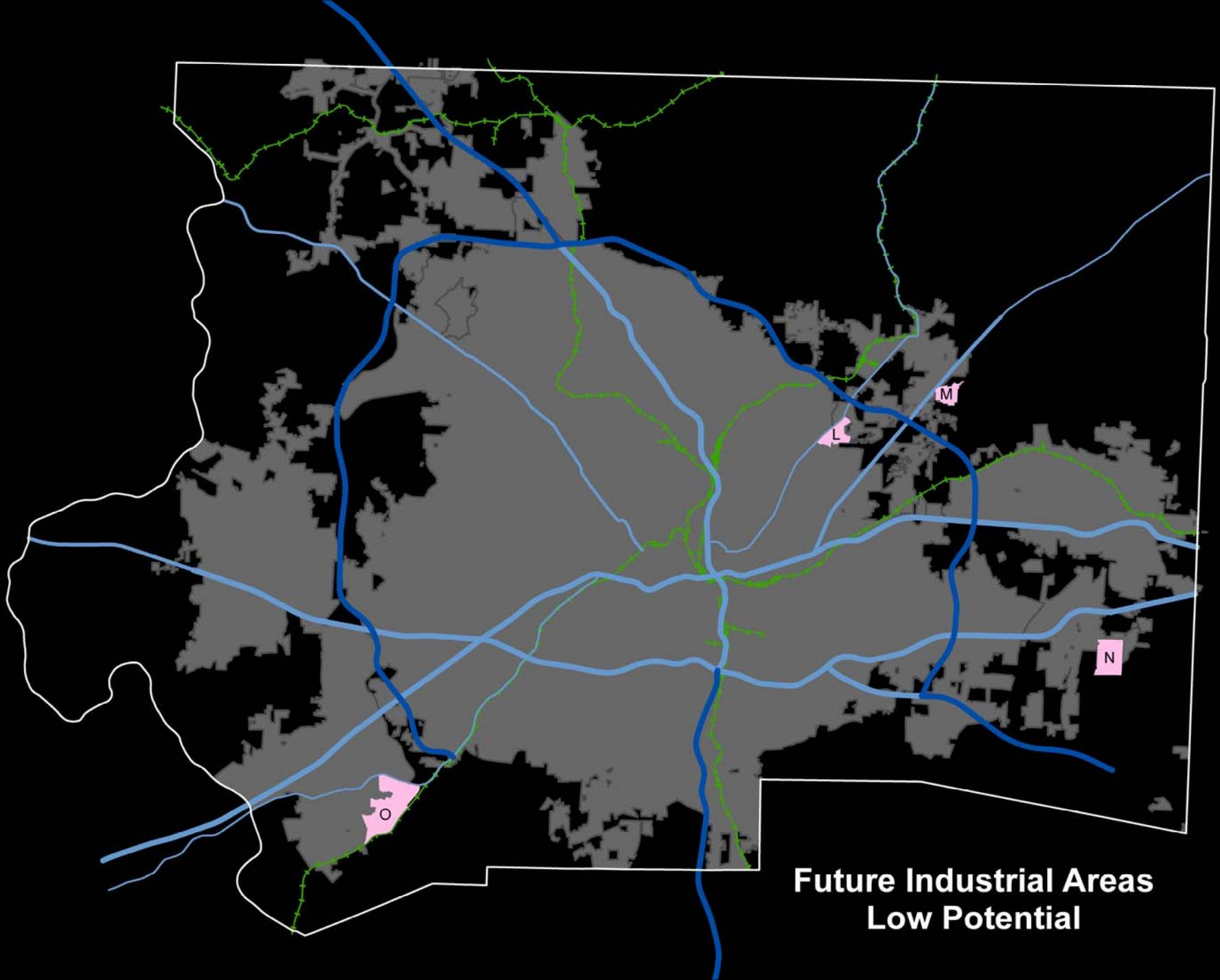
Site	Acres	> 200 Acre	Interstate		Water < 1/2 mi	Sewer < 1/2 mi	Zoning
			Access < 1 mi				
A	390	X	X		X	X	100 %
B	640	X	X		X	X	
C	85		X		X	X	
D	530	X	X		X	X	
E	180				X	X	100 %
F	200		X		X	X	
G	410	X			X		
<b>TOT</b>	<b>2,435</b>	<b>4</b>	<b>5</b>		<b>7</b>	<b>6</b>	<b>23%</b>



**Future Industrial Areas  
Moderate Potential**

## MODERATE POTENTIAL FUTURE INDUSTRIAL AREAS

Site	Acres	> 200 Acres	Interstate Access < 1 mi	Water < 1/2 mi	Sewer < 1/2 mi	Zoning
H	180		X	X	X	50 %
I	150		X	X	X	
J	475	X	X	X	X	
K	350	X		X	X	30 %
<b>TOT</b>	<b>1,155</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>16 %</b>



**Future Industrial Areas  
Low Potential**

## LOW POTENTIAL FUTURE INDUSTRIAL AREAS

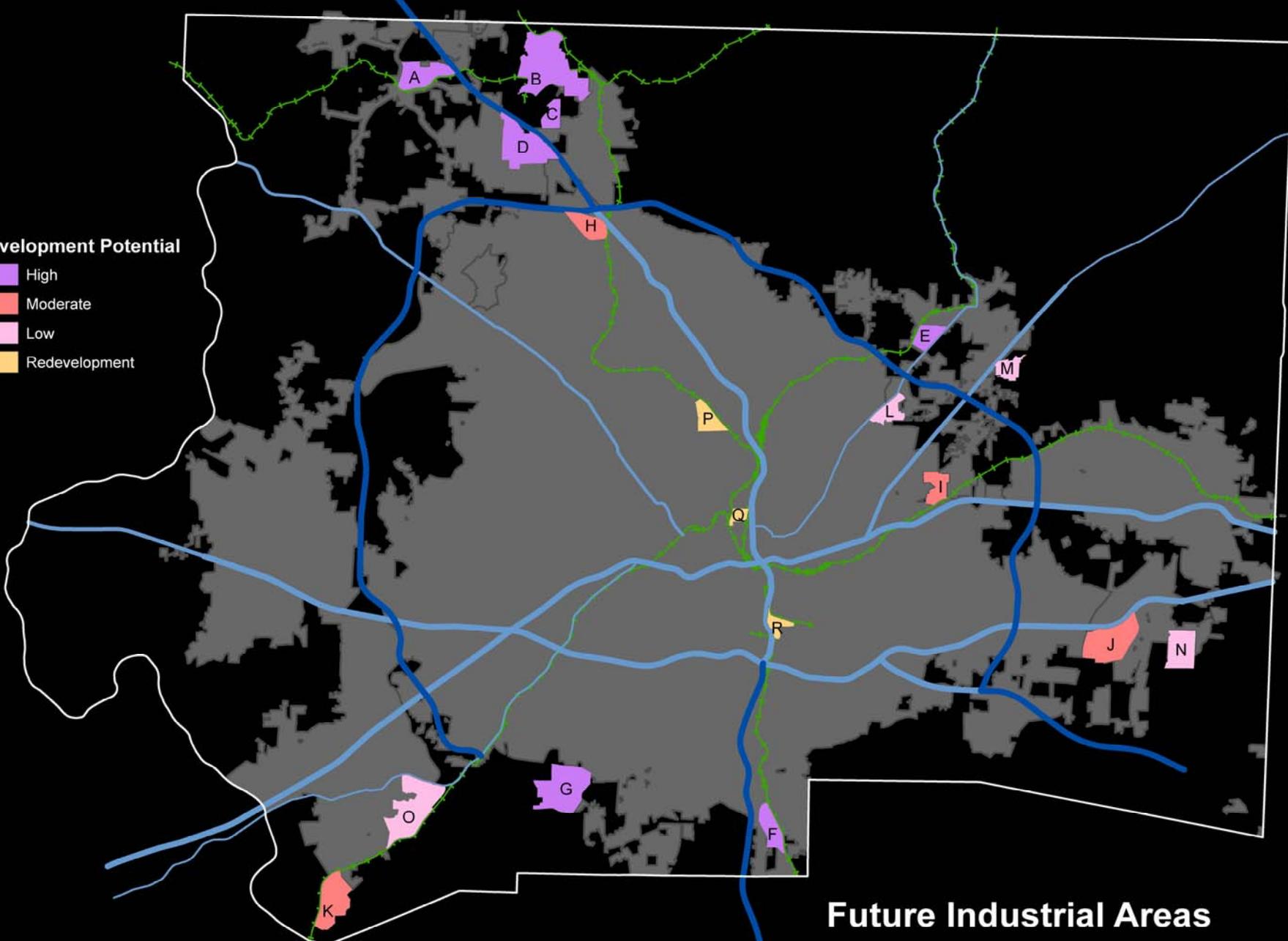
Site	Acres	> 200 Acres	Interstate Access < 1 mi	Water < 1/2 mi	Sewer < 1/2 mi	Zoning
L	100			X	X	5 %
M	125			X	X	
N	260	X		X	X	30 %
O	550	X		X	X	
<b>TOT</b>	<b>1,035</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>8 %</b>

# Future Industrial Sites

- There are 15 future sites shown, in total encompassing 4,600 acres.
- Adding these sites to the industrial supply would bring the county's Industrial Land Use Ratio to 10%.
- Additional locations are needed since all identified sites will not develop industrially.
- Of these 15 future sites, only portions of 2 sites (G & N) are presently available.
- Three potential redevelopment areas are shown in yellow.

**Development Potential**

- High
- Moderate
- Low
- Redevelopment



**Future Industrial Areas**