Why LUCIS ?

Land Use Conflict Identification Strategy

Land Use Modeling and Visualization
GeoPlan Center at the University of Florida

UF UNIVERSITY of FLORIDA

LUCIS

Land Use Conflict Identification Strategy is a

"What if?" land use scenario model developed by professors and researchers at the University of Florida GeoPlan Center

Goal-driven GIS model that produces a spatial representation of probable patterns of future land use

How does the LUCIS model work?

LUCIS analyzes historical development patterns and their relationship to show how suitable specific land areas are for certain uses.

- **Agricultural, Conservation, and Urban**
- **LUCIS identifies sensitive environmental factors that would be impacted by urban development, and conversely areas that are positive factors for conservation uses (i.e. wetlands, floodplains, endangered species or habitat, biodiversity).**
- **LUCIS also identifies suitable and/or unsuitable lands for specific types of urban development potential or agricultural productivity (i.e. crops, timber production, or residential and commercial suitability).**

LUCIS Modeling Process

1. Determine Land Use Suitability

   How appropriate are certain locations for future development, future agricultural use, or future conservation opportunities given existing physical, access or location characteristics and economic value?

2. Categorize Land Use Preference

   There are numerous factors to consider when determining if land is suitable for a particular use (e.g. Agriculture, Conservation, or Urban). When all of these factors are considered together, then LUCIS assists in determining which lands are preferred for those uses?

3. Determine Land Use Conflict

   The intrinsic value of lands dictate the appropriateness of future use, but are there areas that can naturally support more than one type of use? Therefore, to what degree is one future use preferred over another?

LUCIS Alternative Futures Depend Upon

What Type of Future We Are Trying to Achieve?

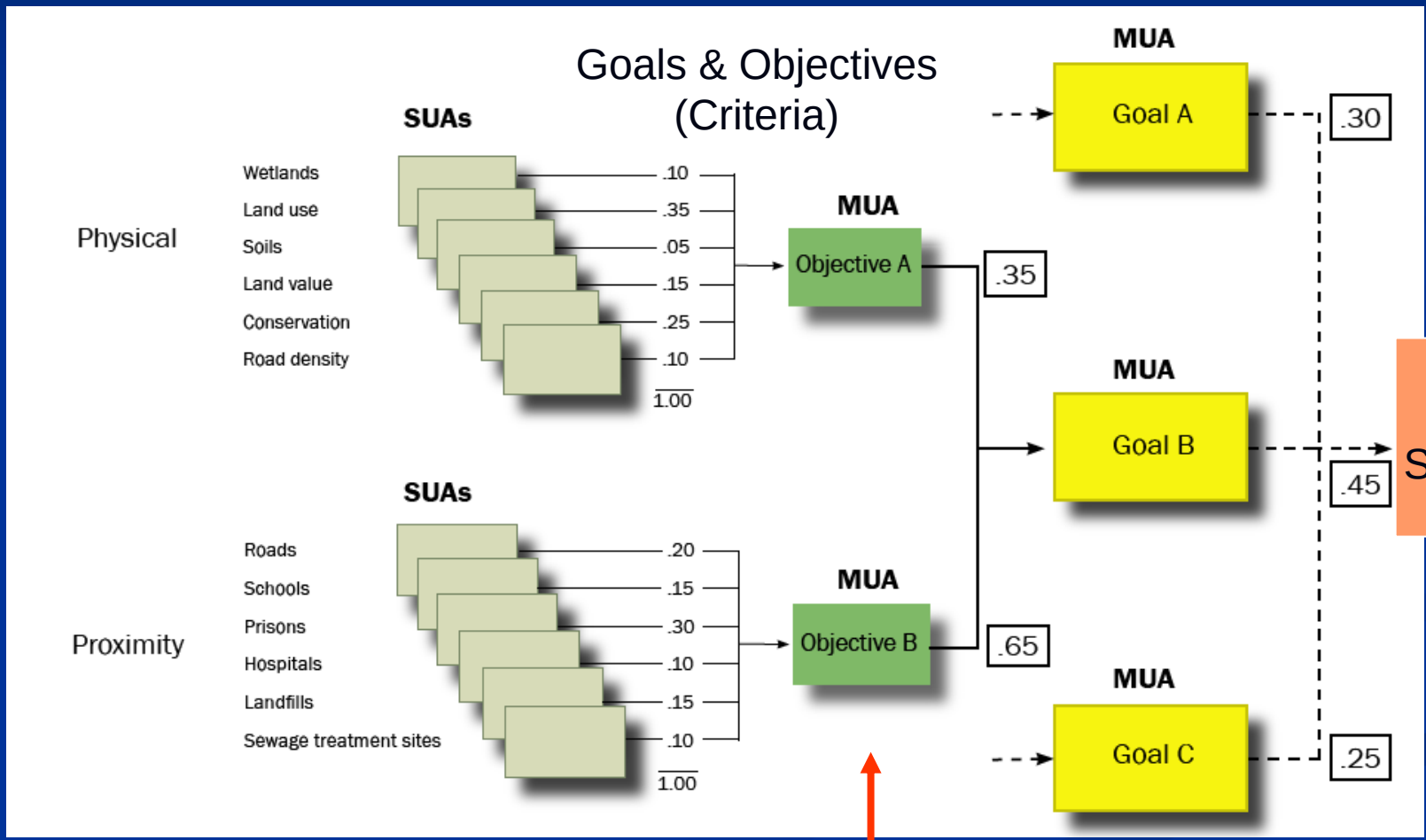
Continued Trend, Urban Centers, Increased Green Areas

How Local or Regional Policy Changes Guide Future Development?

Increased Redevelopment, Implementation of Mass Transit Options

What might be the Impact of Future Growth on Transportation, Sensitive Natural Areas, and the Economy?

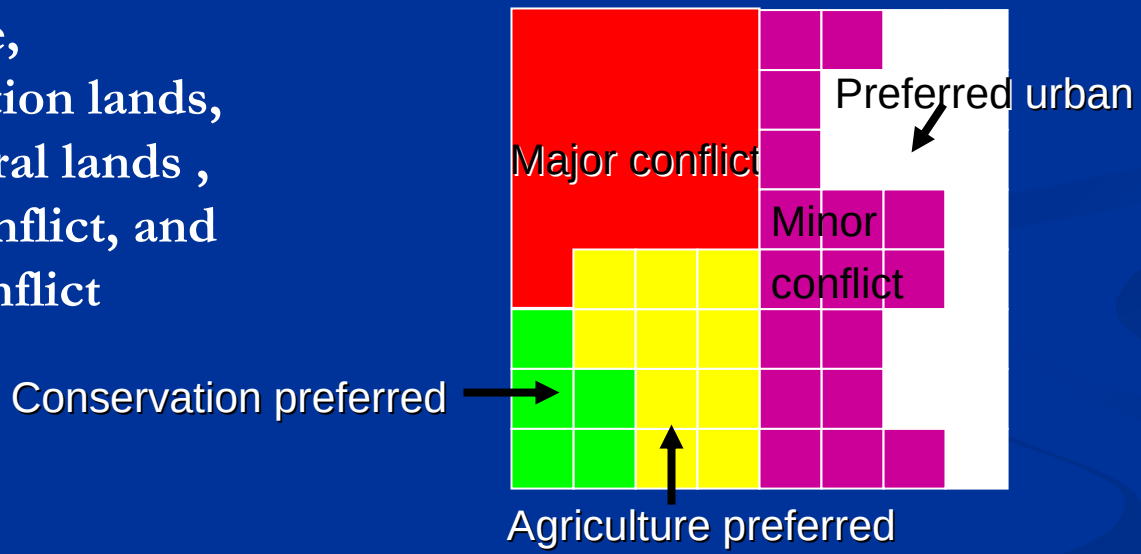
Conceptual GIS Suitability Modeling



Preference is Organized to Identify Conflict

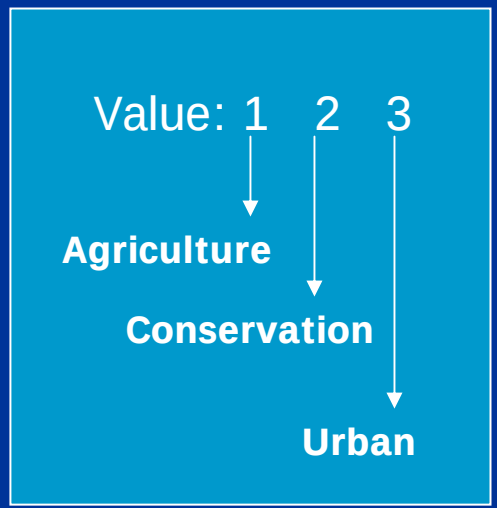
The computer model detects conflict, based on which lands are most appropriate (based on their) characteristics for:

1) urban use,
2) conservation lands,
3) agricultural lands ,
4) minor conflict, and
5) major conflict



LUCIS Conflict Analysis

- The collapsed preference scores are organized to spatially identify land use conflict



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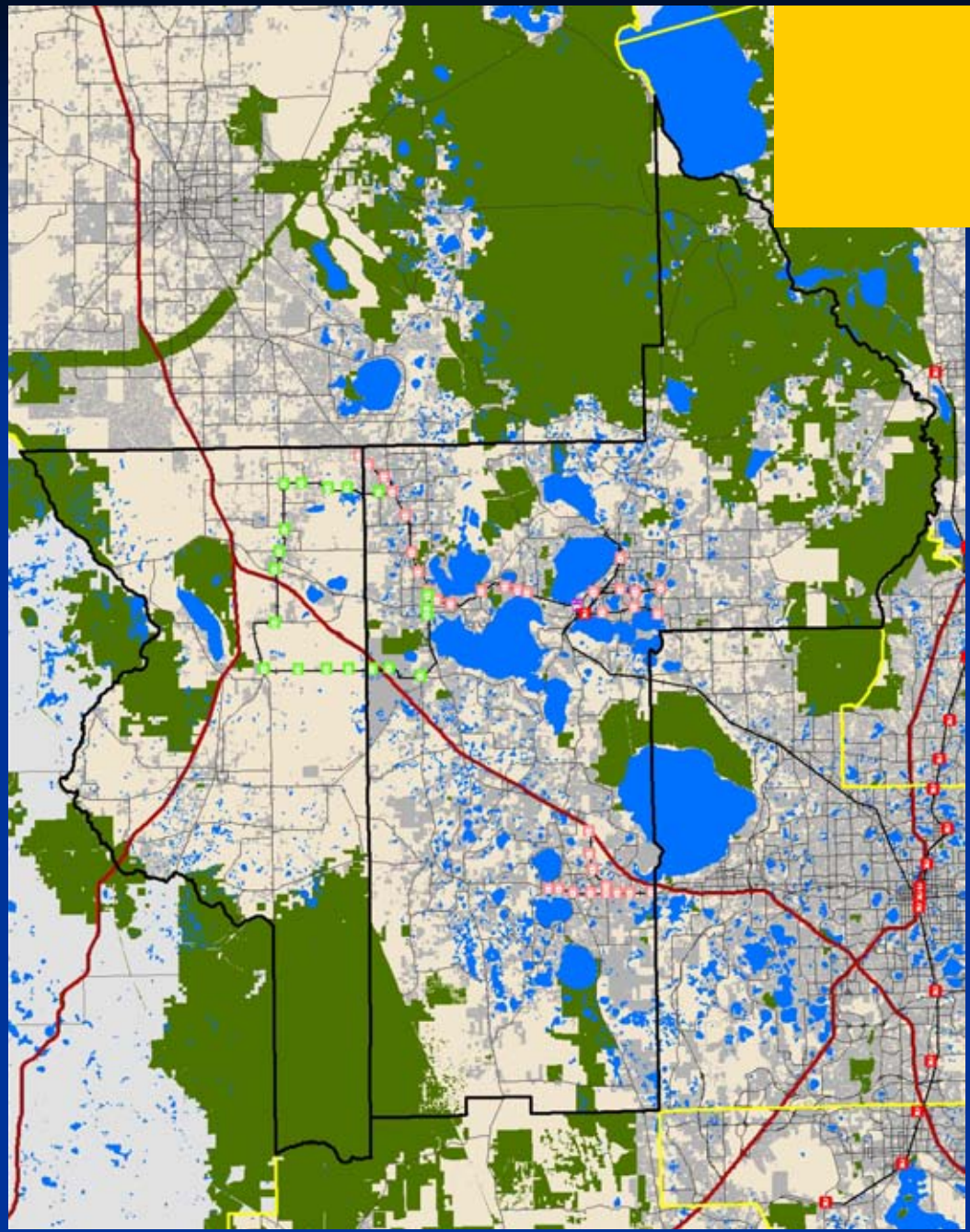
An Example of Future Growth Potential in Lake and Sumter Counties

Allocation Summary
Employment – Lake County

	2005	2015 (new)	2020 (new)	2025 (new)	2030 (new)	2035 (new)	Total New
Service TREND COMPOSITE	57,493 57,493	21, 362 20,796	9,194 9,544	7,501 7,894	7,143 7,143	7,640 7,652	52,840 (Total Empl.: 110,333) 53,029 (Total Empl: 110,552)
Comm TREND COMPOSITE	24,283 24,283	10,379 9,838	2,597 3,134	2,198 2,161	1,687 1,817	2,249 2,130	19,110 (Total Empl: 43,393) 19,080 (Total empl: 43,363)
Industrial TREND COMPOSITE	19,808 19,808	5,241 5,248	1,893 1,894	1,572 1,544	1,685 1,736	2,170 2,132	12,561 (Total Empl: 32,369) 12,554 (Total Empl: 32,362)

Allocation Summary
Employment – Sumter County

	2005	2015 (new)	2020 (new)	2025 (new)	2030 (new)	2035 (new)	Total New
Service TREND COMPOSITE	8,523 8,523	3,465 3,396	1,451 1,487	1,135 1,195	1,105 1,068	1,110 1,316	8,266 (Total Empl.: 16,789) 8,462 (Total Empl.: 16,985)
Comm TREND COMPOSITE	3,256 3,256	2,500 2,427	710 713	484 505	440 428	454 450	4,588 (Total Empl: 7,844) 4,523 (Total Empl.: 7,779)
Industrial TREND COMPOSITE	3,504 3,504	1,536 1,638	562 520	368 386	423 396	501 530	3,390 (Total Empl: 6,894) 3,470 (Total Empl.: 6,974)



Overview

LAKE COUNTY

2005 Population: 263,642

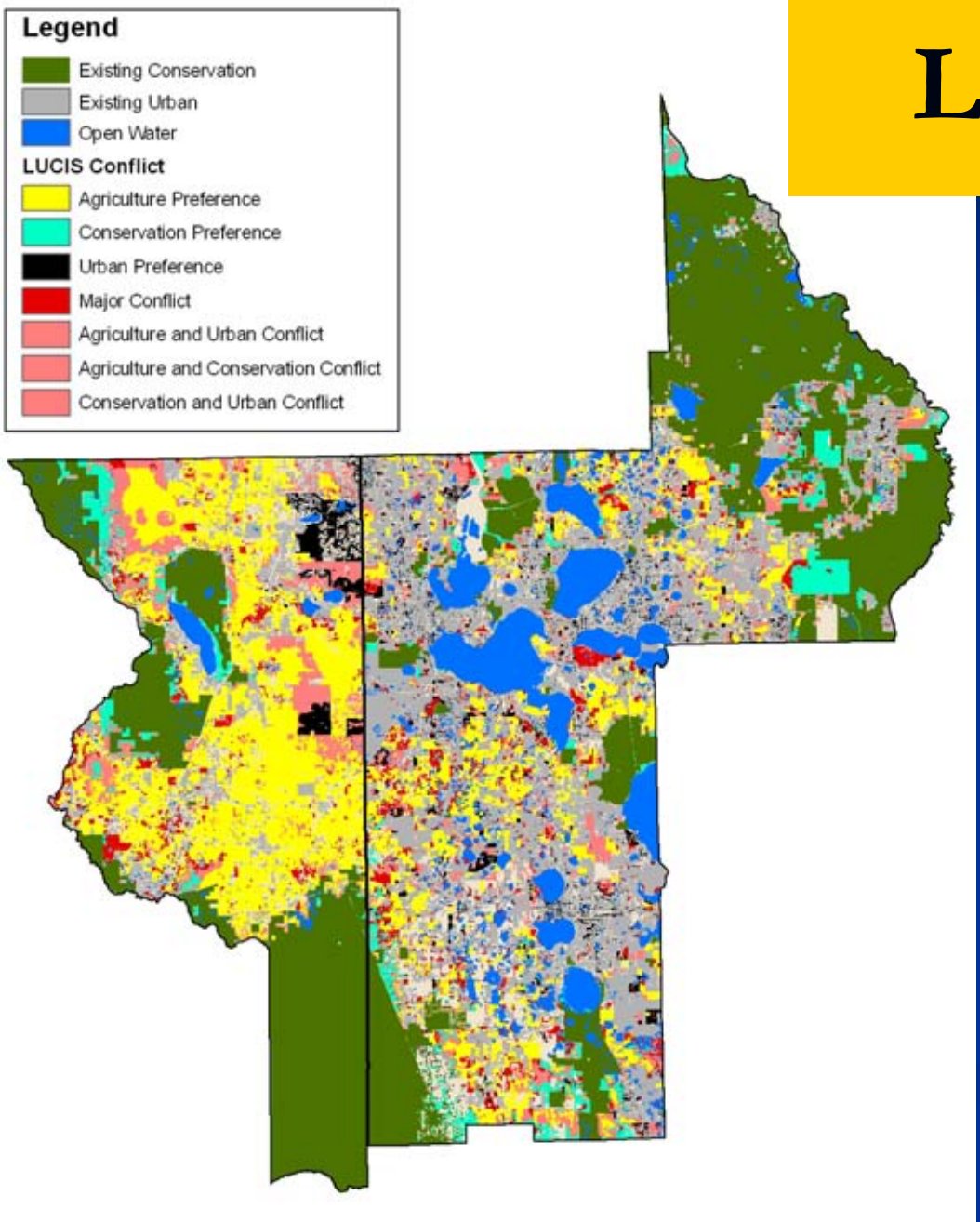
Projected 2035 Population: 504,500

SUMTER COUNTY

2005 Population: 66,447

Projected 2035 Population: 188,500

LUCIS Conflict



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16	1323	224
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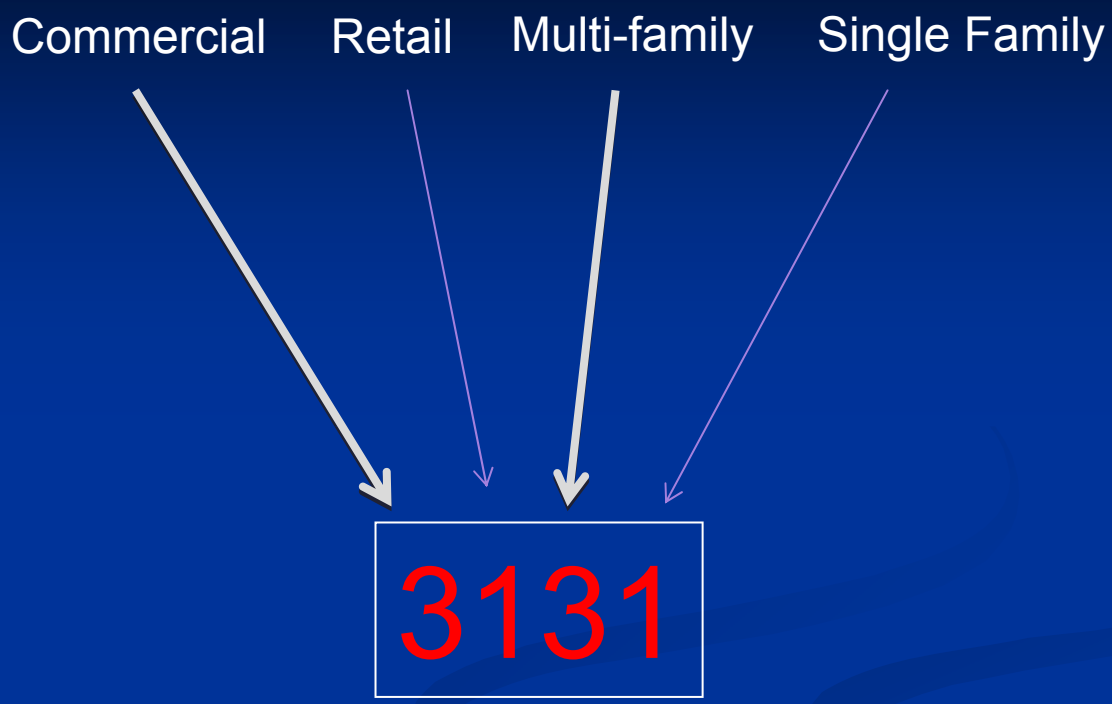
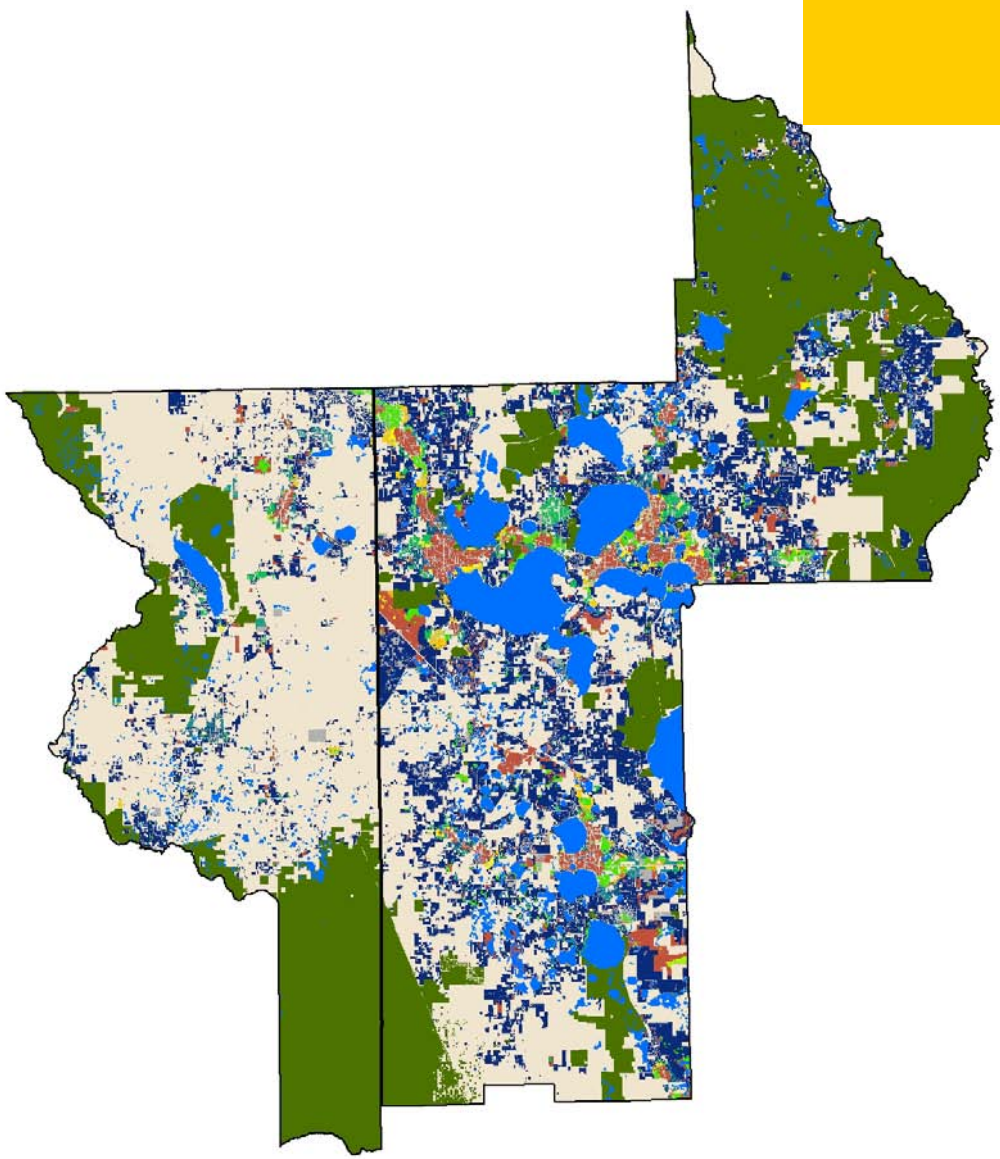


LUCIS Mixed Use Conflict



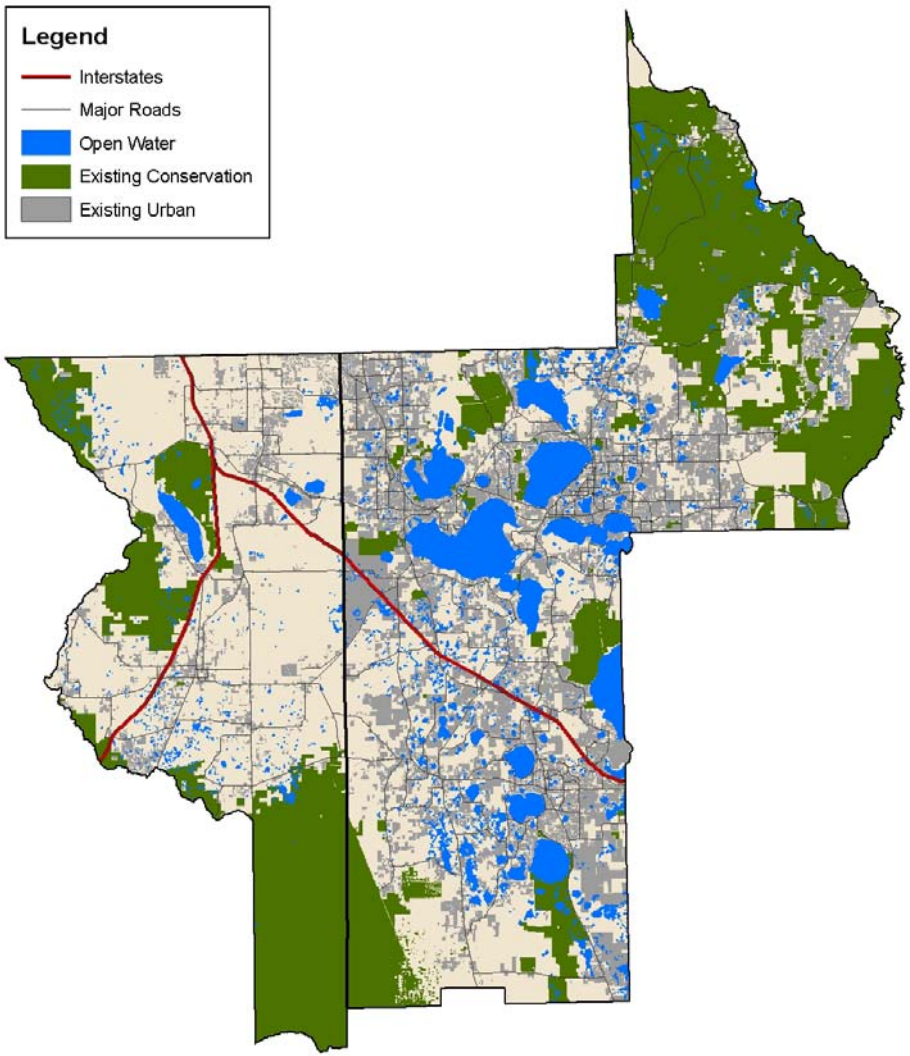
Legend

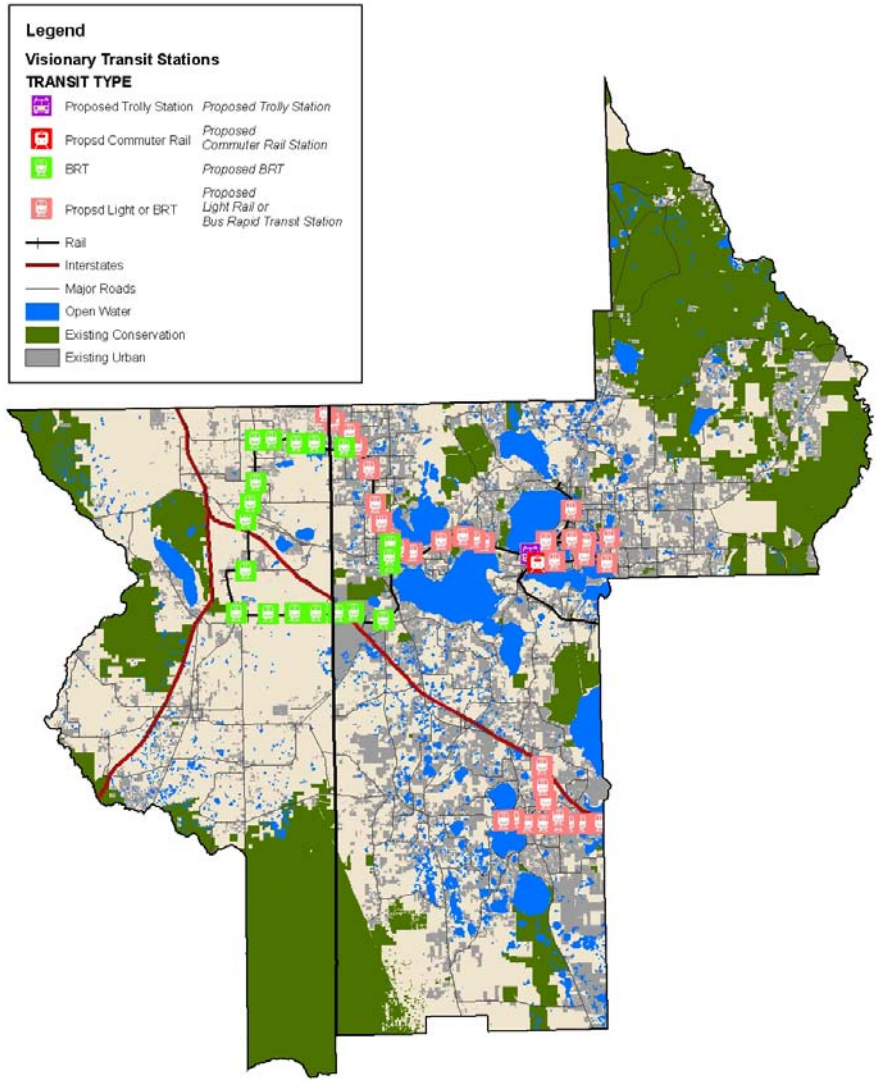
- Existing Conservation
- Existing Urban
- Open Water

CONFLICT

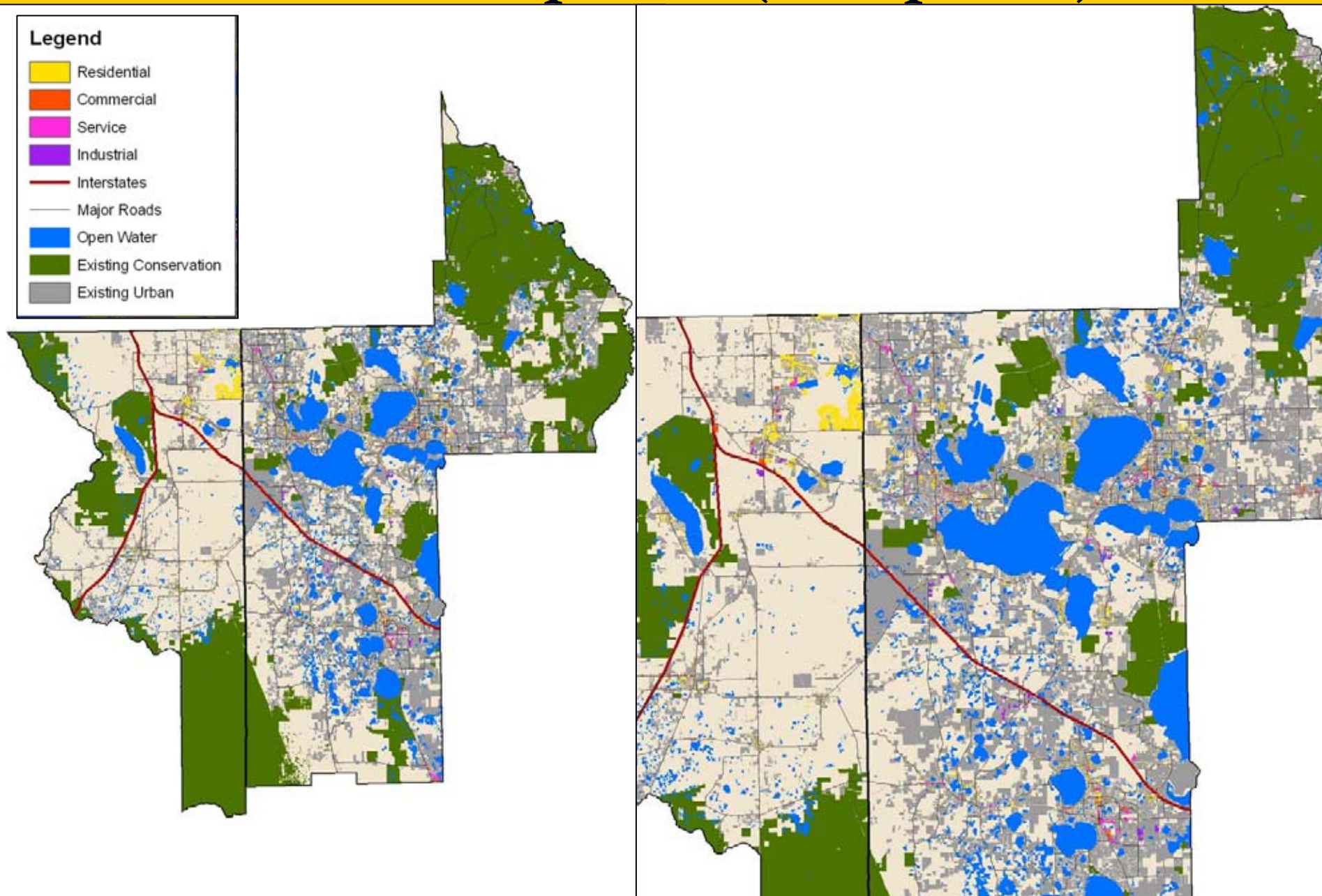
- All
- Commercial
- Commercial and Multifamily
- Commercial and Retail
- Commercial and Single Family
- Commercial, Multifamily and Single Family
- Commercial, Retail and Multifamily
- Commercial, Retail and Single Family
- Multifamily
- Multifamily and Single Family
- Retail
- Retail and Single Family
- Retail, Multifamily and Single Family
- Single Family

Existing Urban

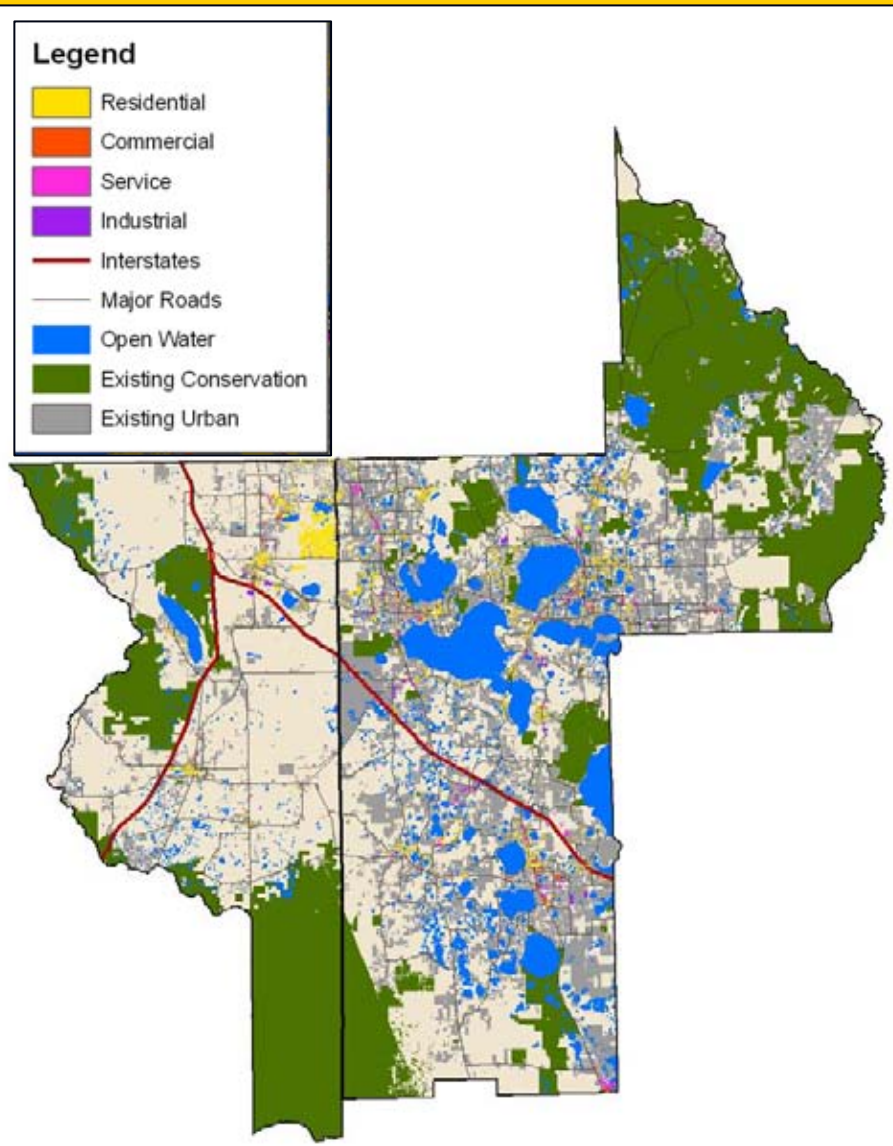


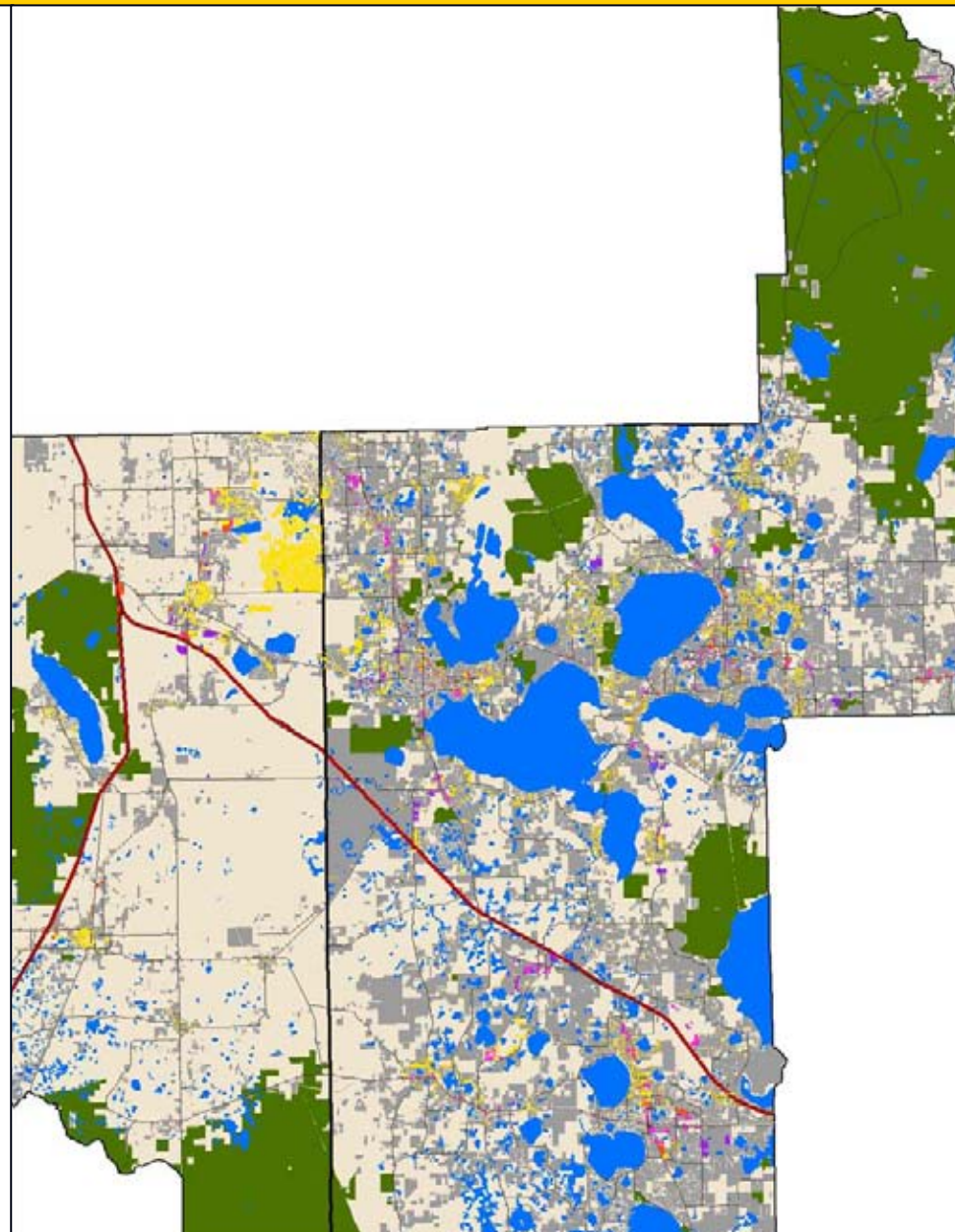


2015 Development (Composite)

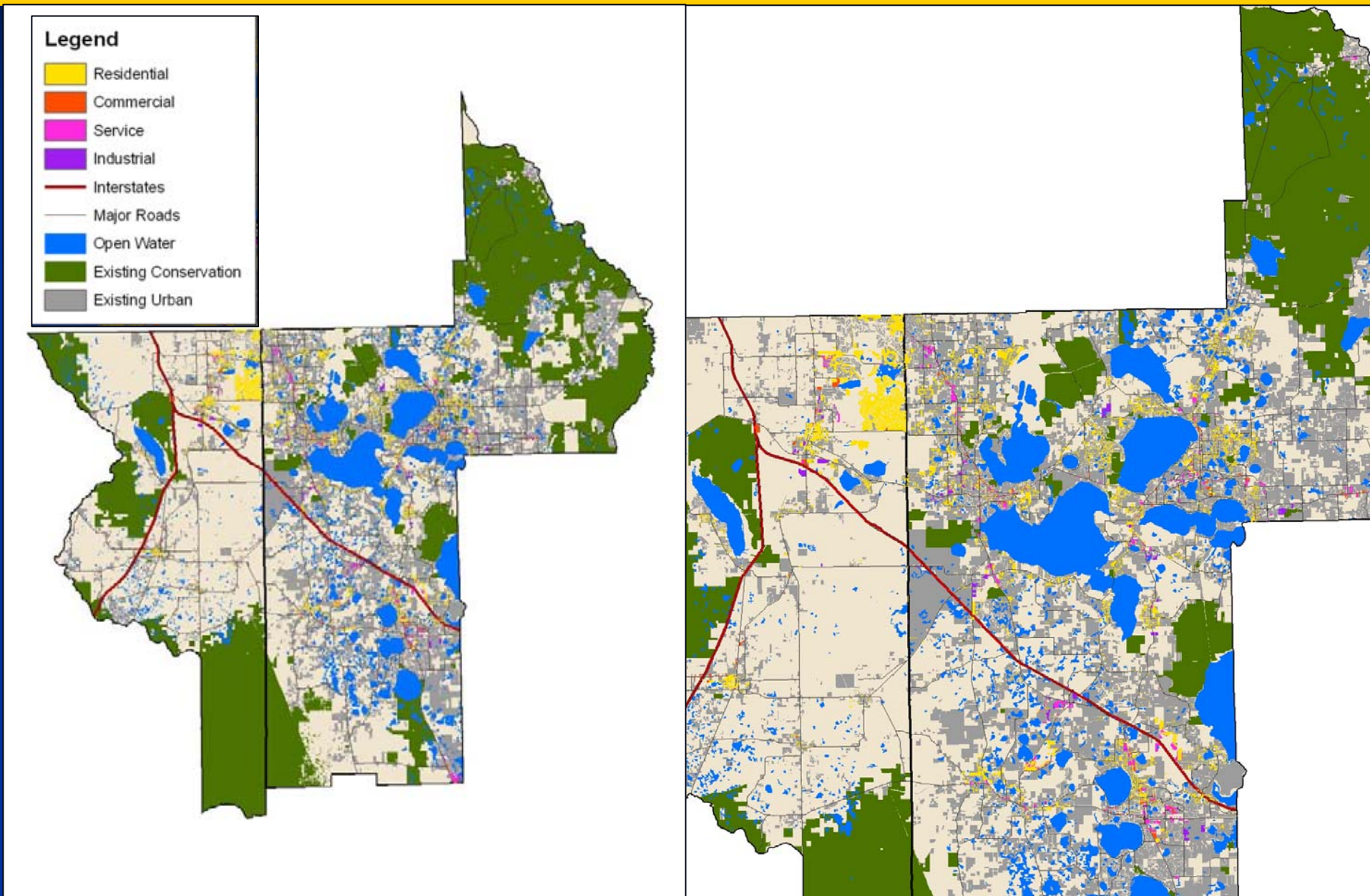


2020 Development (Composite)

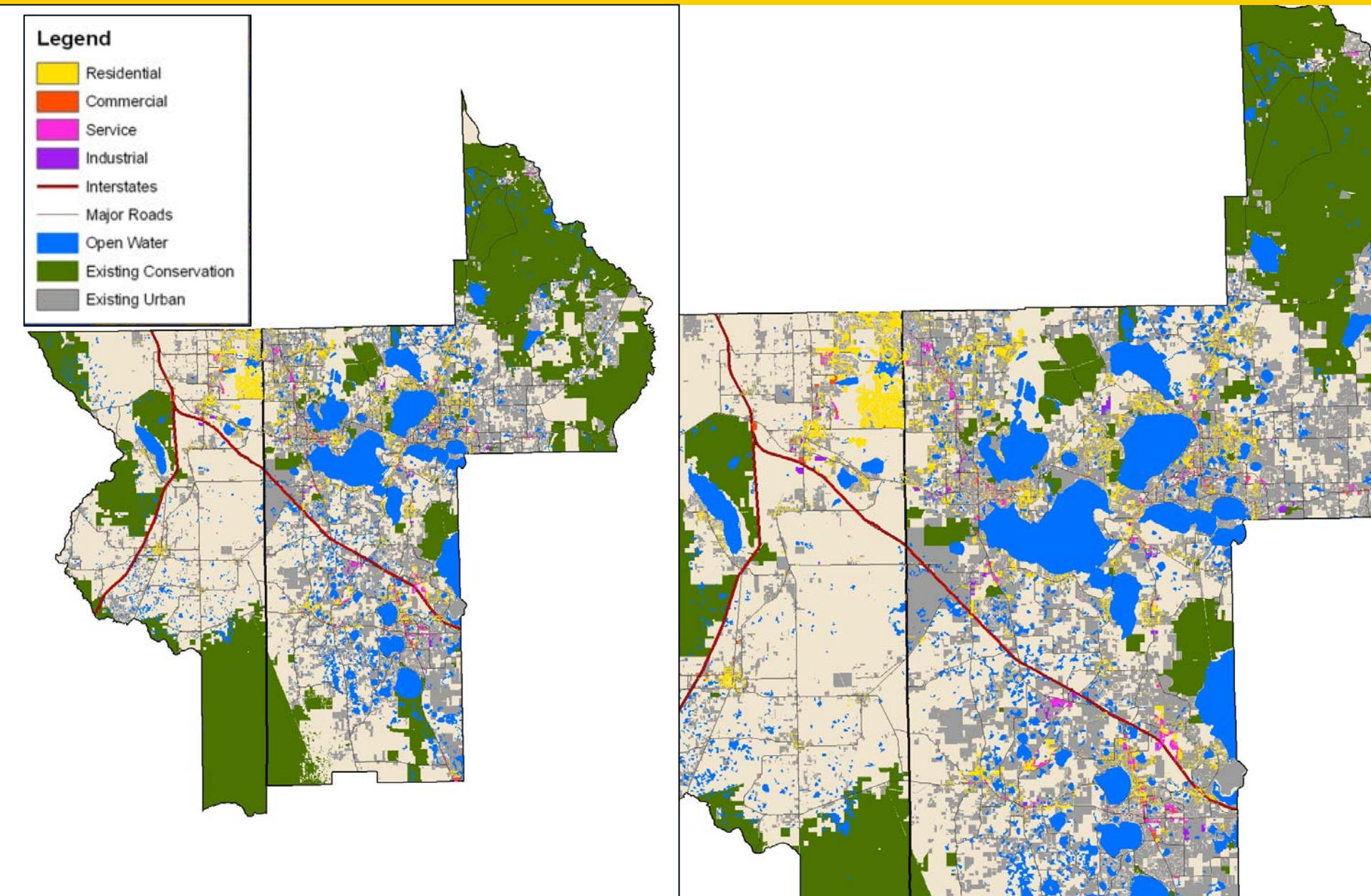




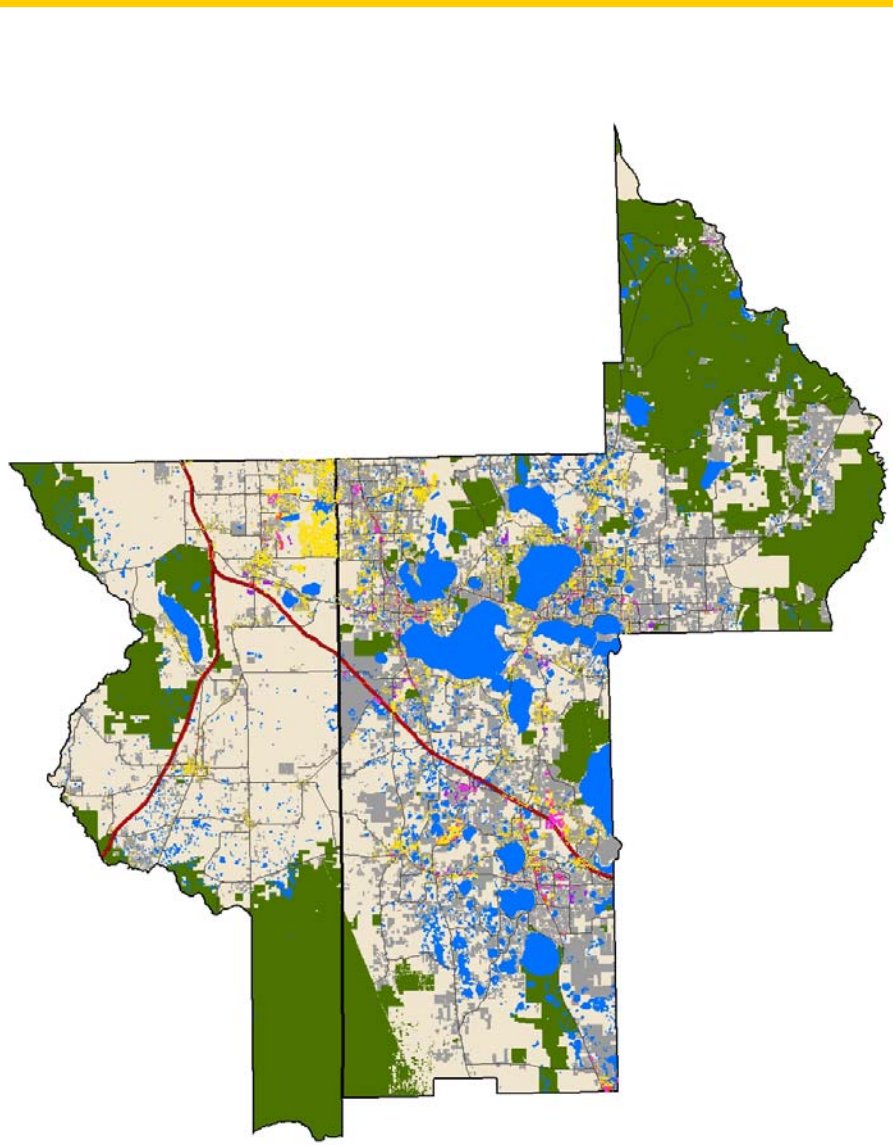
2025 Development (Composite)

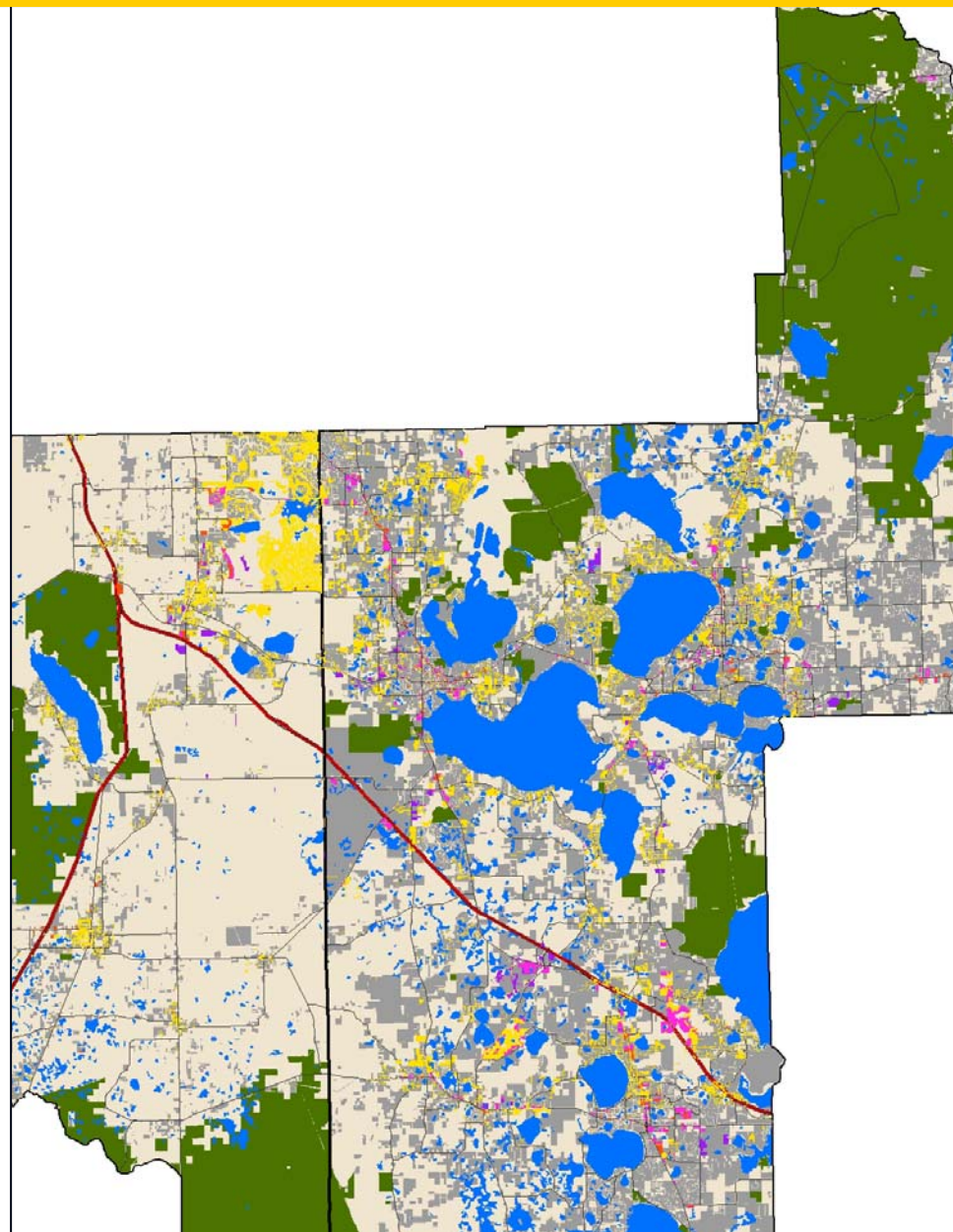


2030 Development (Composite)



2035 Development (Composite)

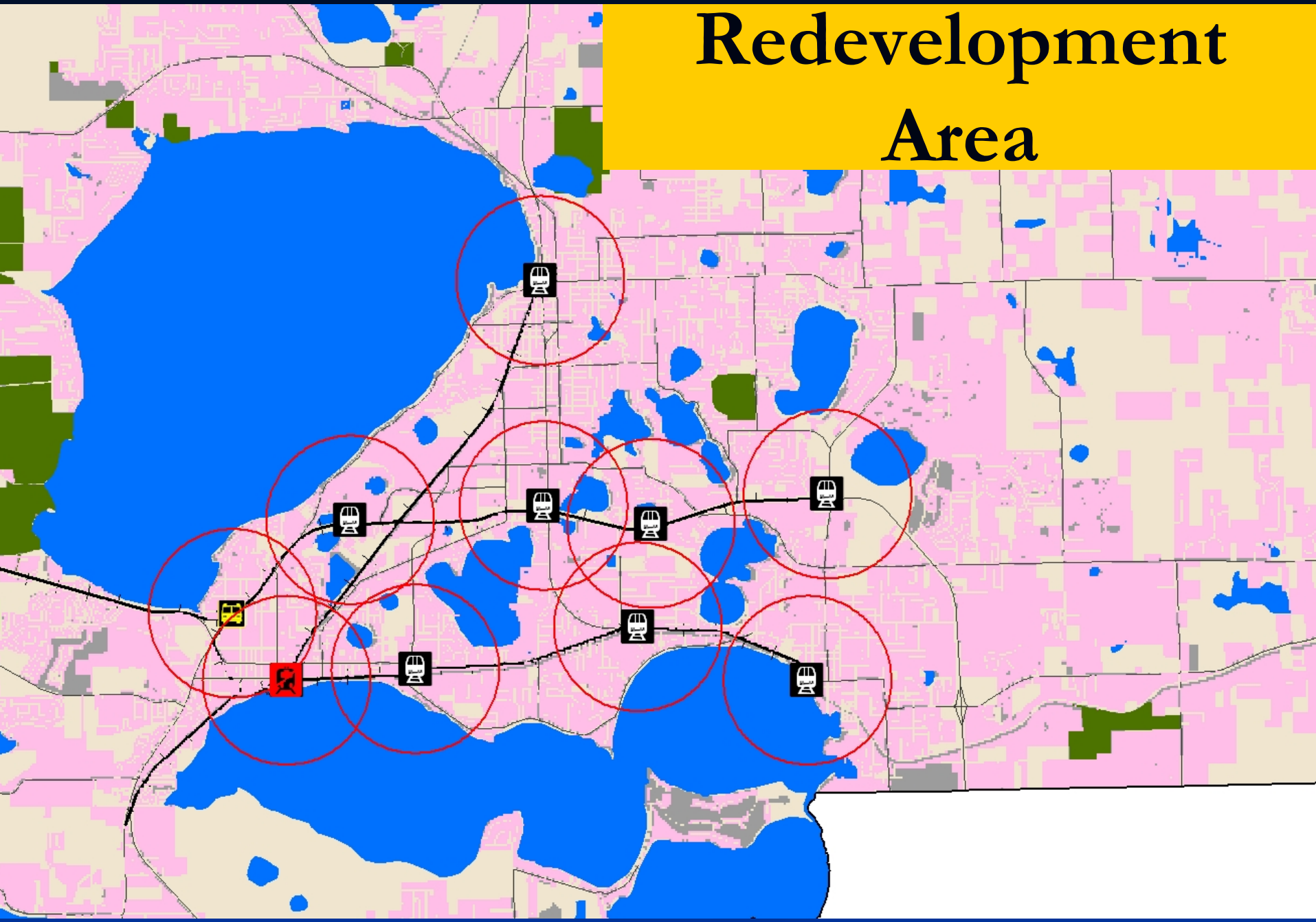




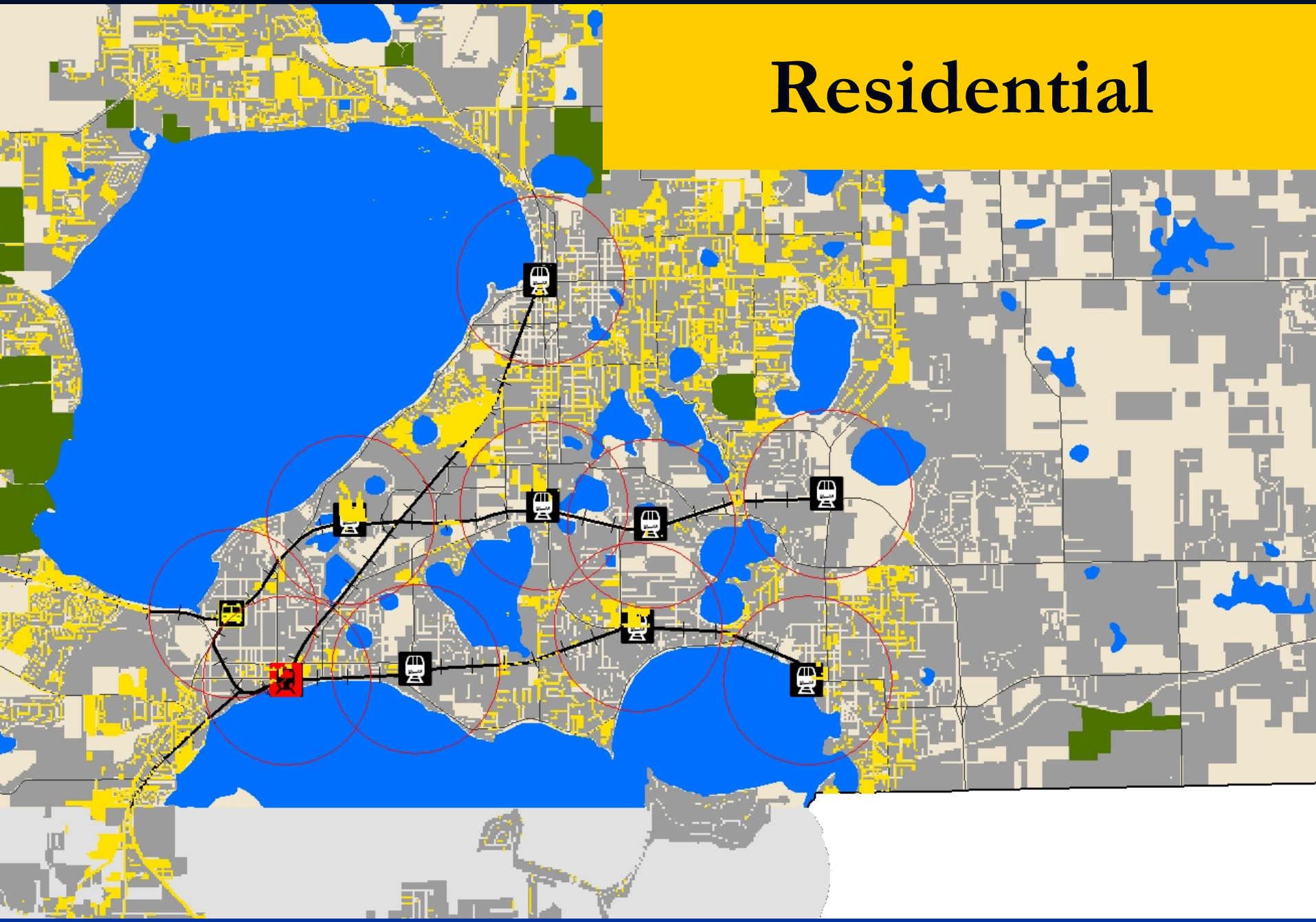
LUCIS – Redevelopment and Densification

The Land Use Conflict Identification Strategy also provides for the identification of areas in existing regional cities that, through redevelopment, i.e. mixed use development, new retail and commercial opportunities, and higher density multi-family residential development might increase the regional density and thereby decrease open space development in low density sprawl.

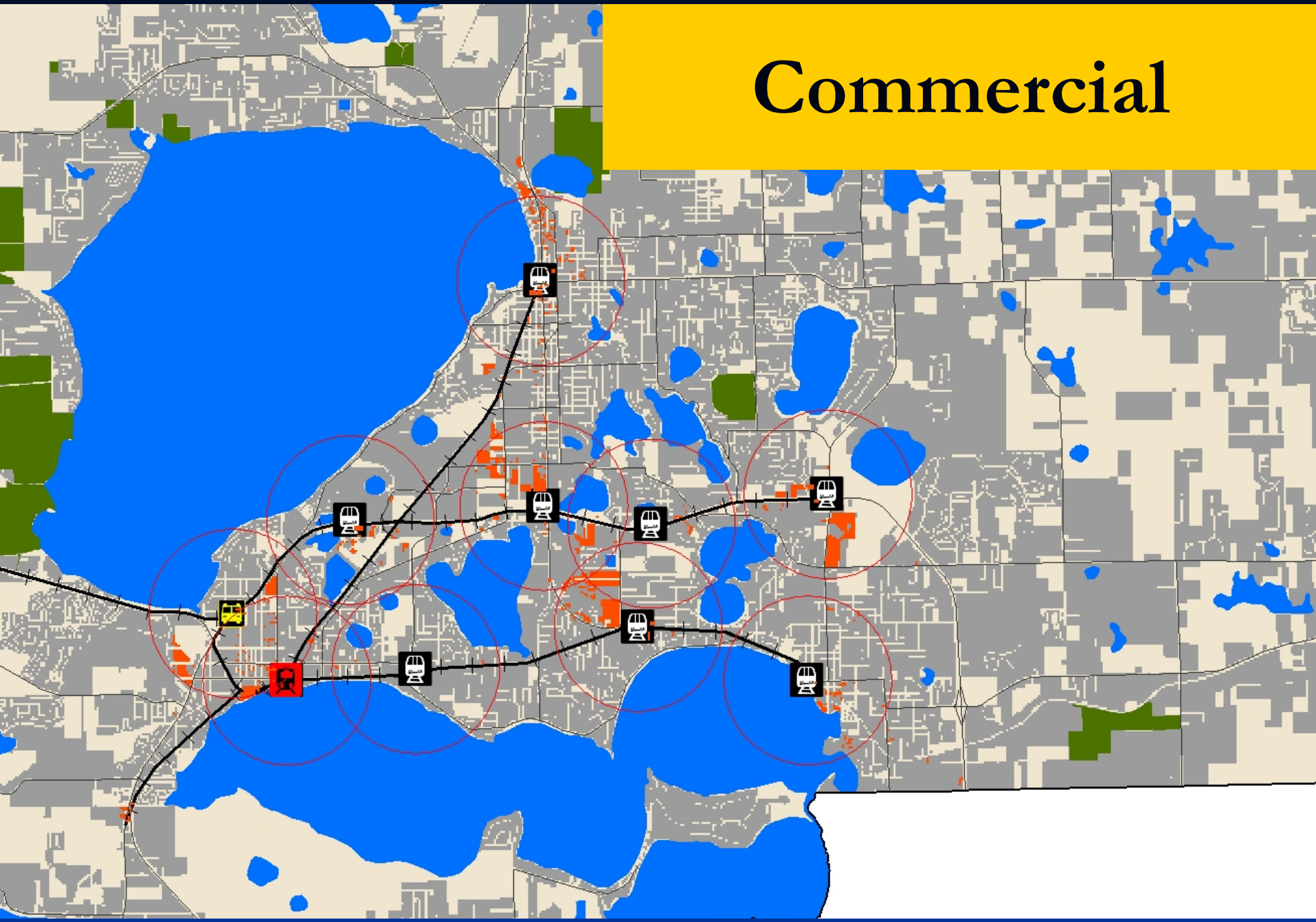
Redevelopment Area



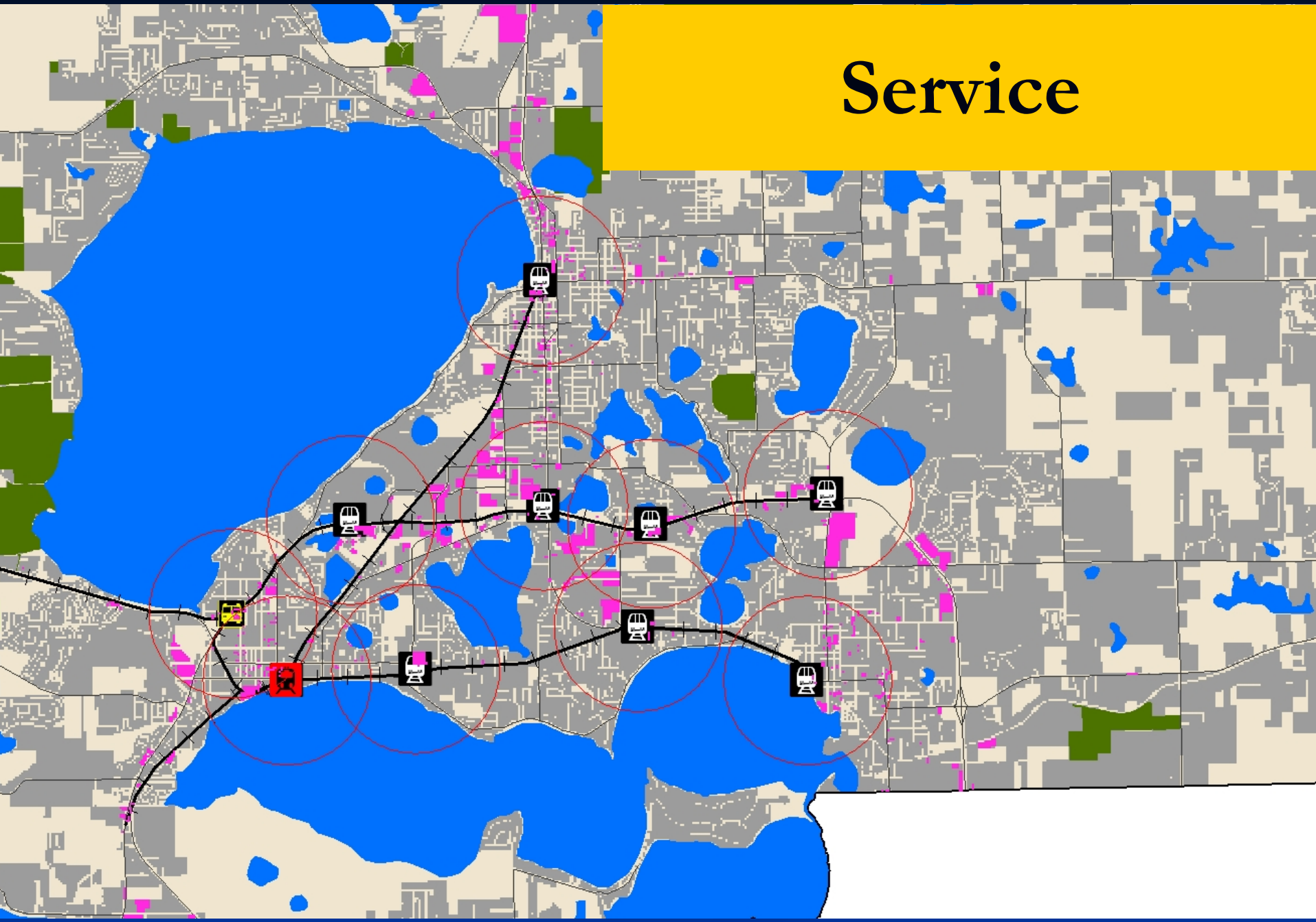
Residential



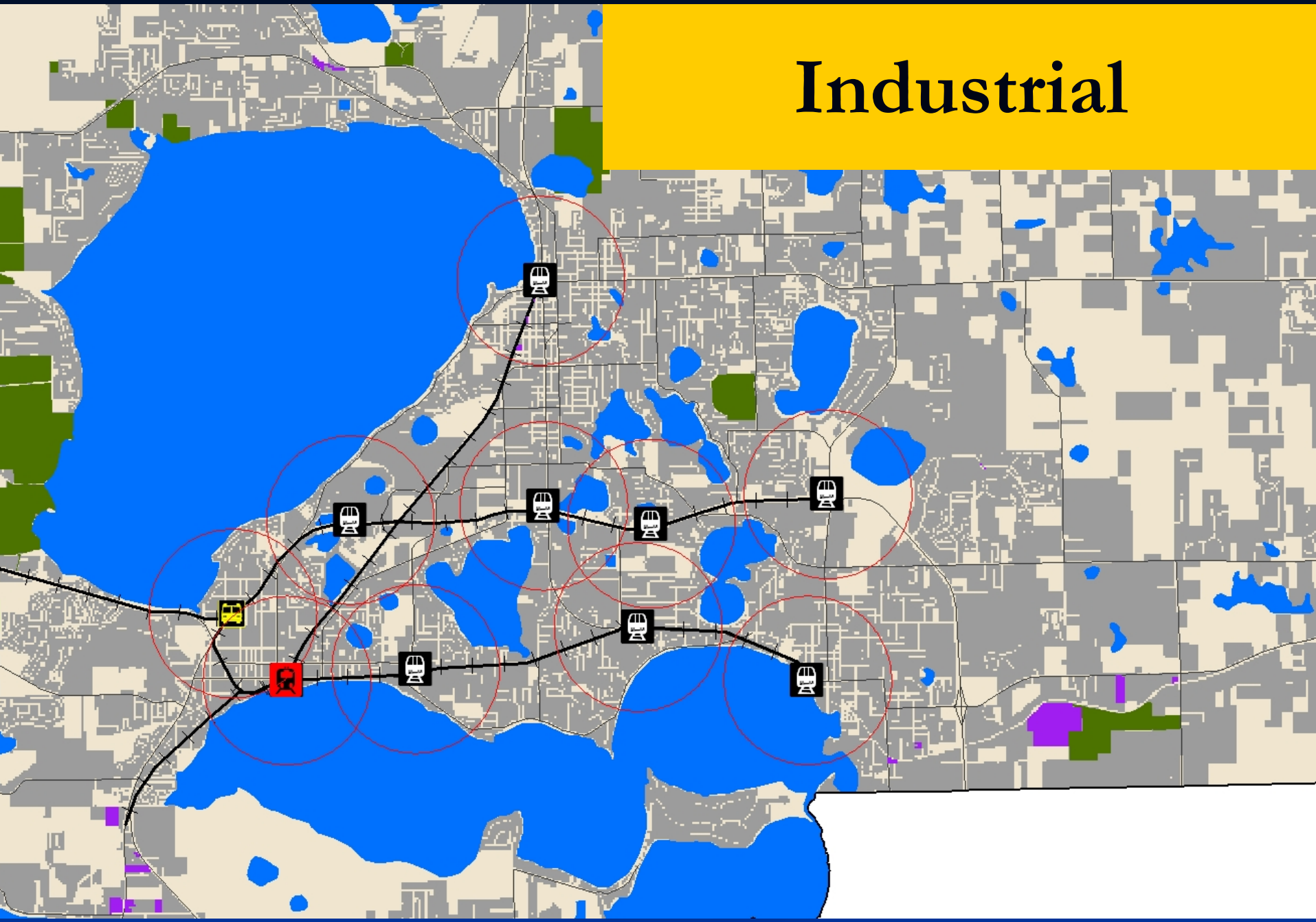
Commercial



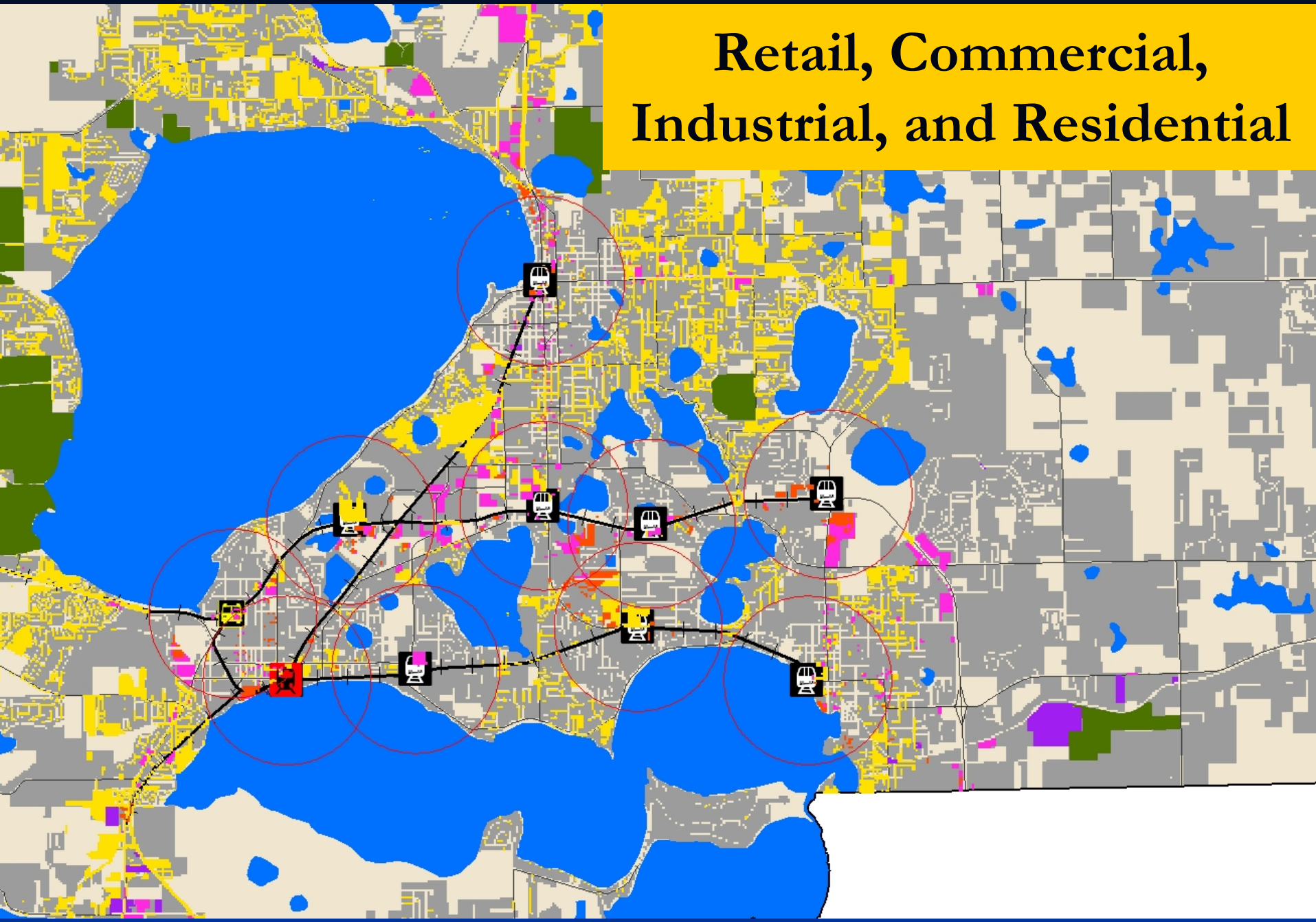
Service



Industrial



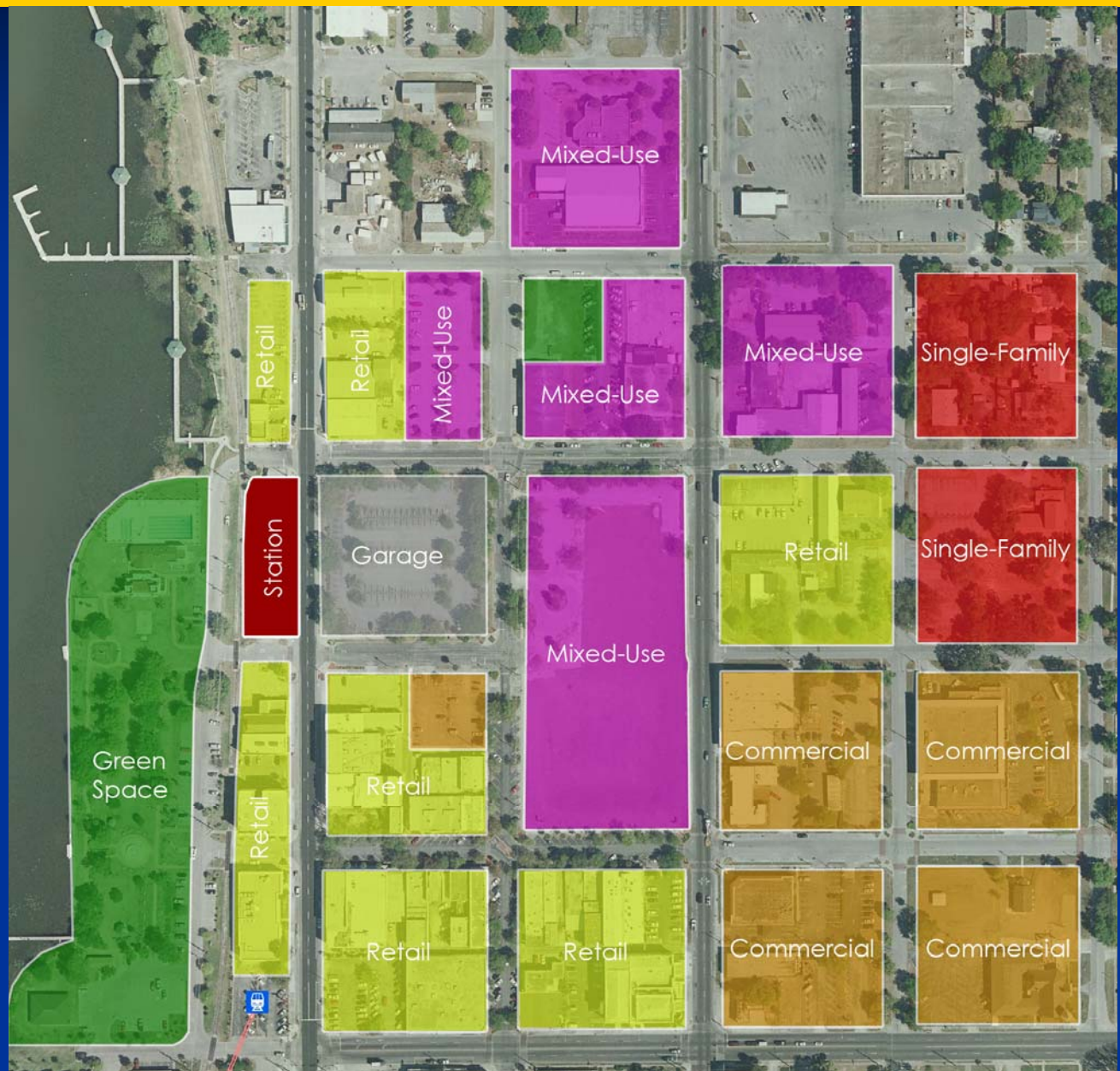
Retail, Commercial, Industrial, and Residential



Downtown Eustis
Before

Downtown Eustis
After

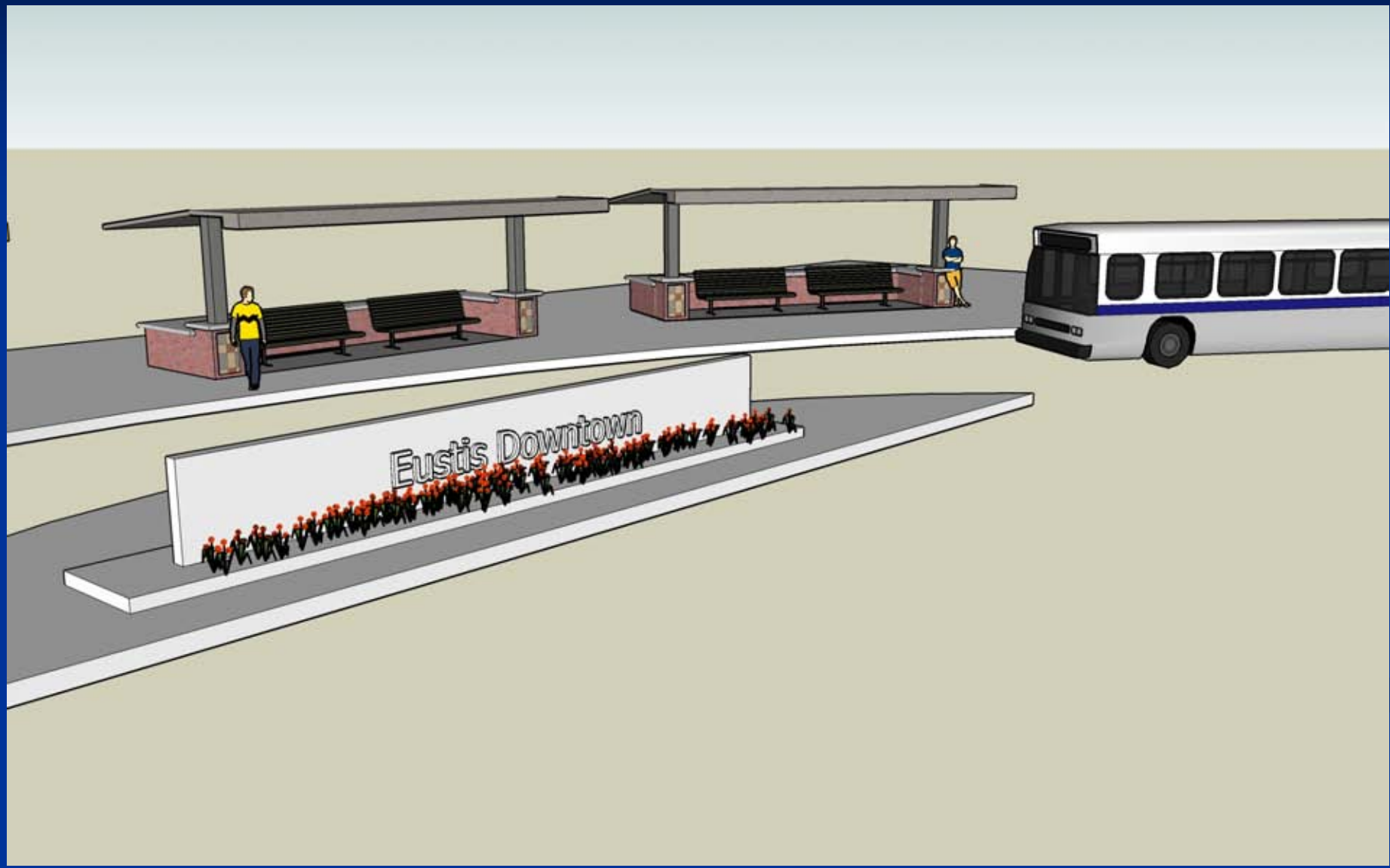
Downtown Eustis Land Use Plan



Downtown Eustis Site Plan

Integration of BRT into Downtown Landscape

Integration of BRT into Downtown Landscape



Some Final Remarks

LUCIS is a method/model for identifying land use opportunities and conflict?

LUCIS helps in the understanding/allocation of employment and population? However, the allocation of population and employment is more often than not policy oriented, which can be either development based or conservation based?

LUCIS is a tool not the final answer – if the land use policy is toward low density development (sometimes called sprawl) then LUCIS shows where the conflict will occur --- often indicating that the areas of high agricultural and conservation preference will be developed.

Question