

# US 17/SR 15 MULTIMODAL CORRIDOR PLANNING STUDY – PHASE II



Stakeholders Workshop

April 5, 2016

Tindale & Oliver

# Overview

- Study Purpose and Objectives
- Baseline Conditions Overview
- Discussion
  - Corridor Character Districts
  - Project Evaluation Criteria/Measures
  - Development of Alternatives/Project Recommendations
- Next Steps



# Corridor Study Area



# What is Phase II of the US 17 Multimodal Corridor Planning Study?

- Purpose:

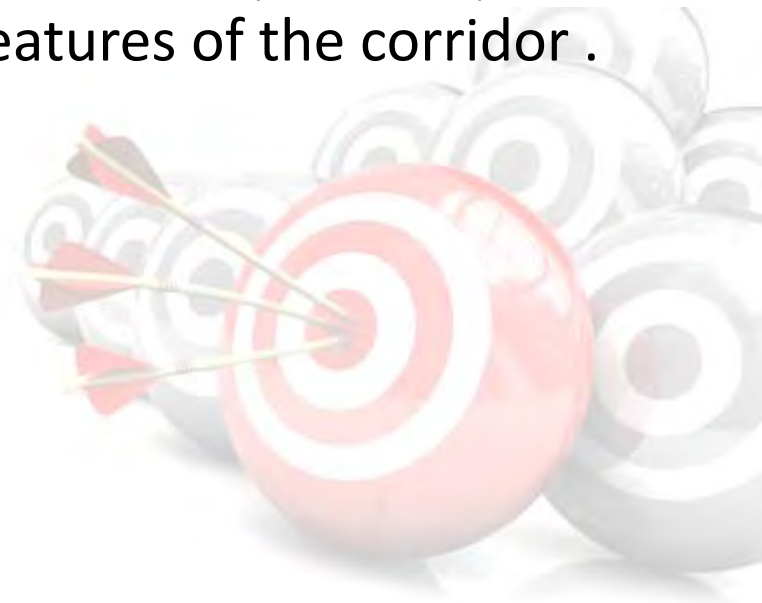
*To maintain and improve safety and mobility while creating a more secure and comfortable environment for all users of the corridor.*

Secure		Safe
Comfortable	=	Mobility
Environment		All Users



# What Will **THIS** Study Accomplish?

- Build on efforts of Phase I to...
  - Identify, develop, and evaluate project recommendations aimed at improving safety and mobility options for all persons, and
  - Preserve and enhance the scenic, aesthetic, historic, community, and environmental features of the corridor .



# Summary Baseline Conditions Review



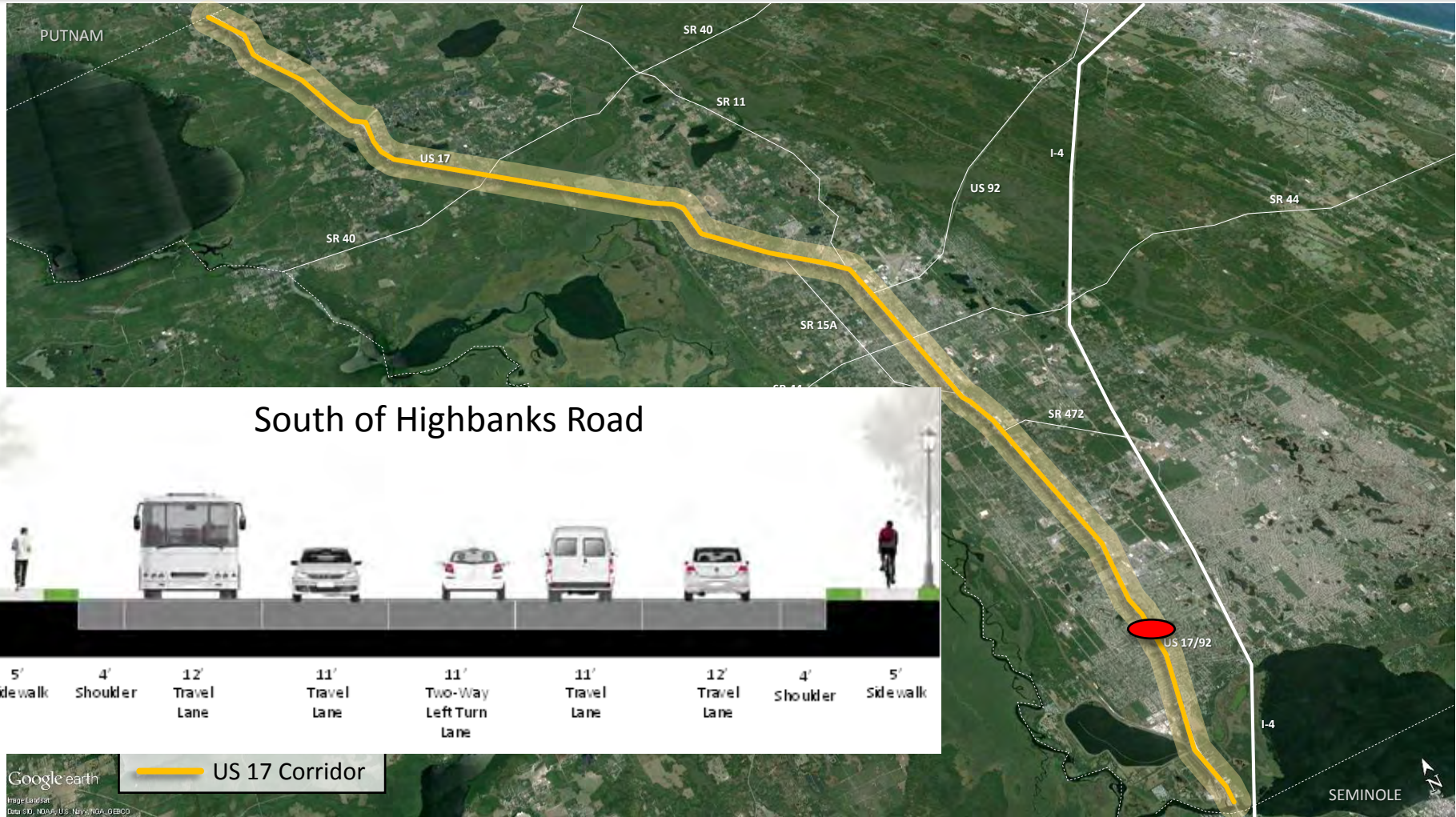
# Roadway & Traffic Conditions

- Existing Designations
- Existing Typical Sections
- Existing & Projected Traffic Volume



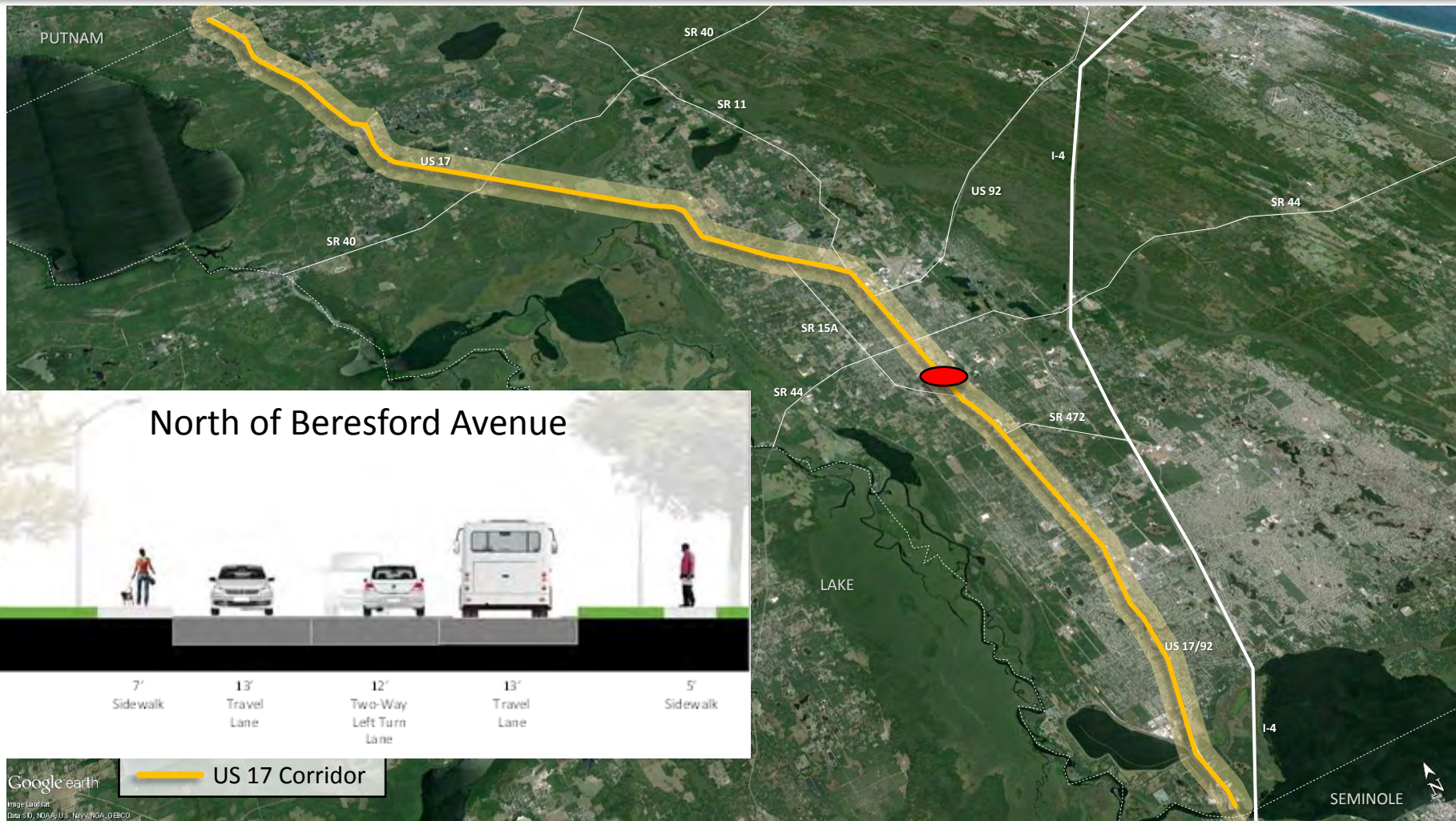


# Typical Sections



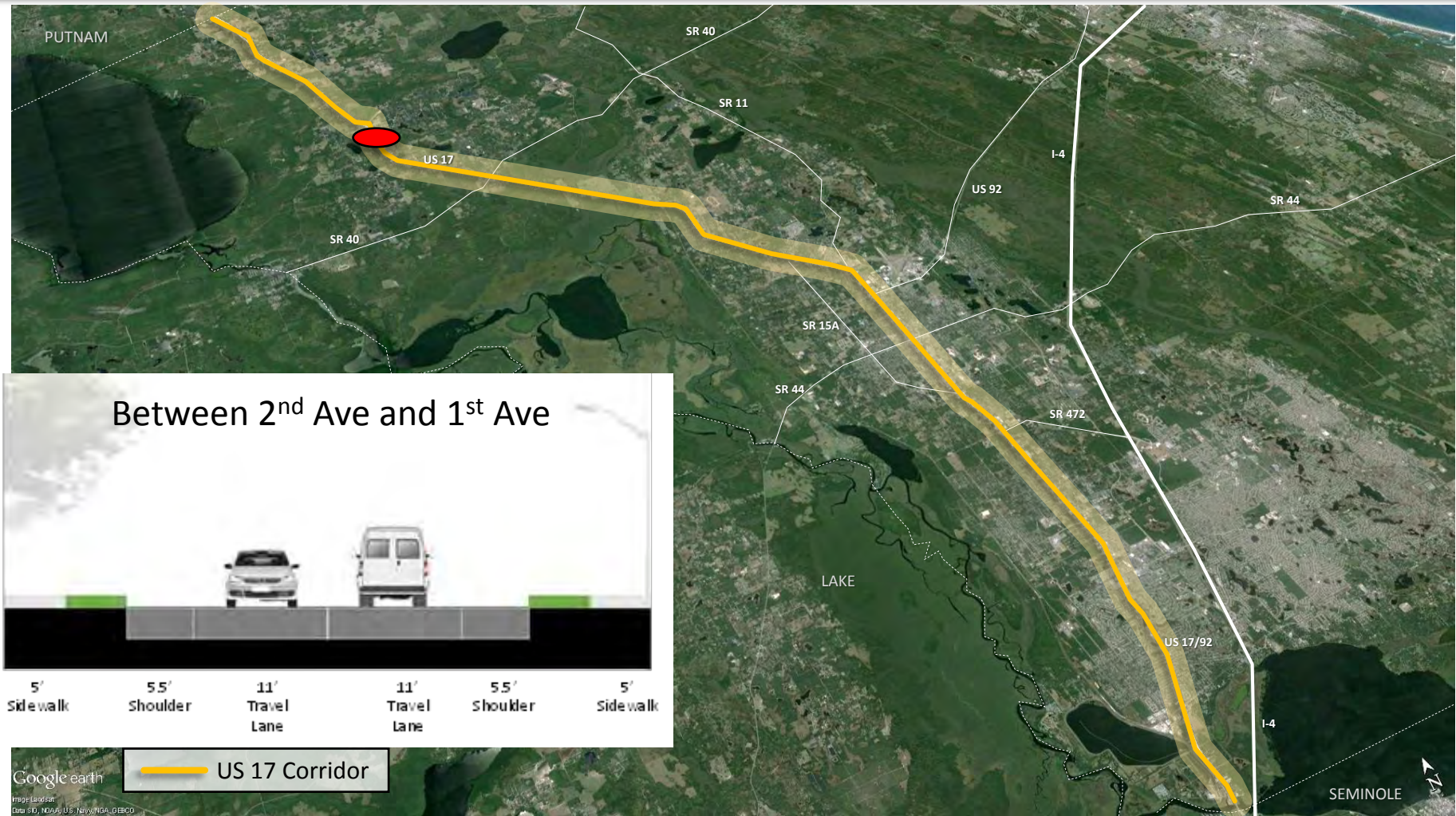


# Typical Sections





# Typical Sections





# Transit Service



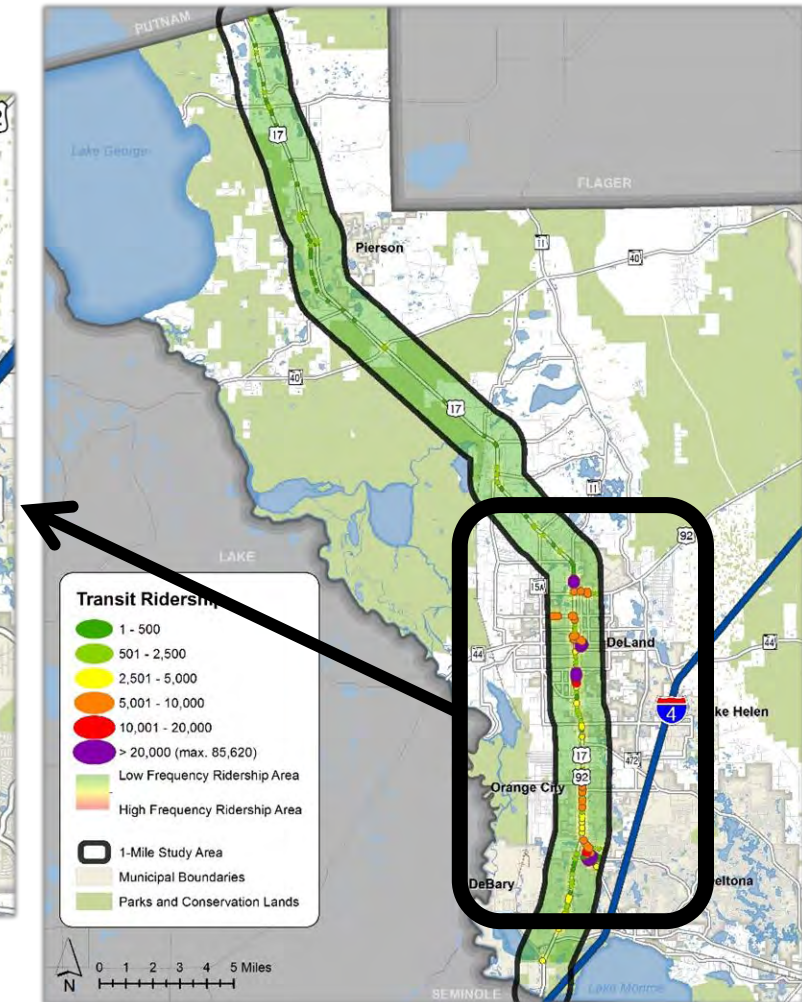
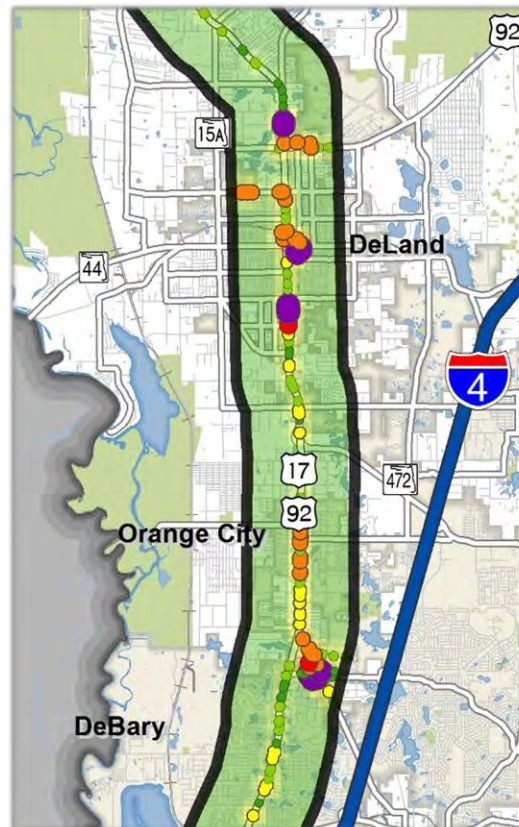


# Transit Service

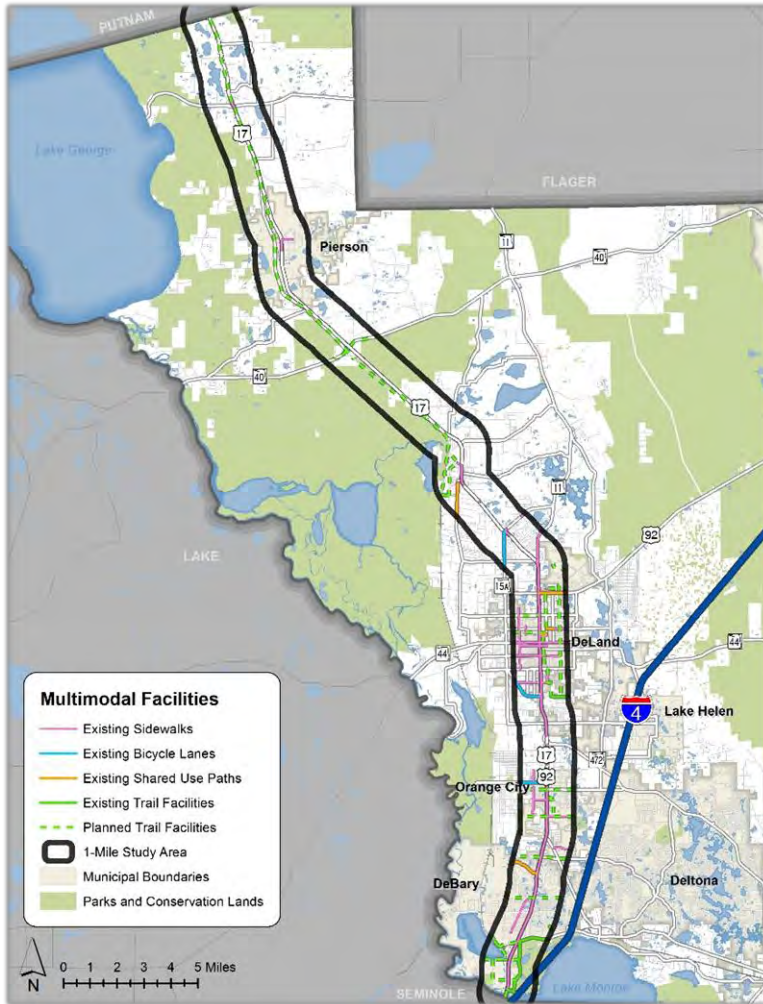
## Ridership

### High Frequency Transit Ridership Locations

Saxon Blvd at Enterprise Rd
SR 44/New York Ave at Amelia Ave
US 17 at Violetwood Rd/DeLand Walmart
US 17 at Carroll Ave (S. of Beresford Ave)
US 17 at New Hampshire Ave
US 17 at US 92
US 17 at Plymouth Ave
US 17 at Rich Ave
Plymouth Ave at Stone St
US 92/International Speedway Blvd at Garfield Ave
US 17 at Wisconsin Ave
US 17 at Graves Ave
US 17 at Ohio Ave
US 92/International Speedway Blvd at Amelia Ave
US 17 at French Ave
US 17 at Blue Springs Ave



# Multimodal Network

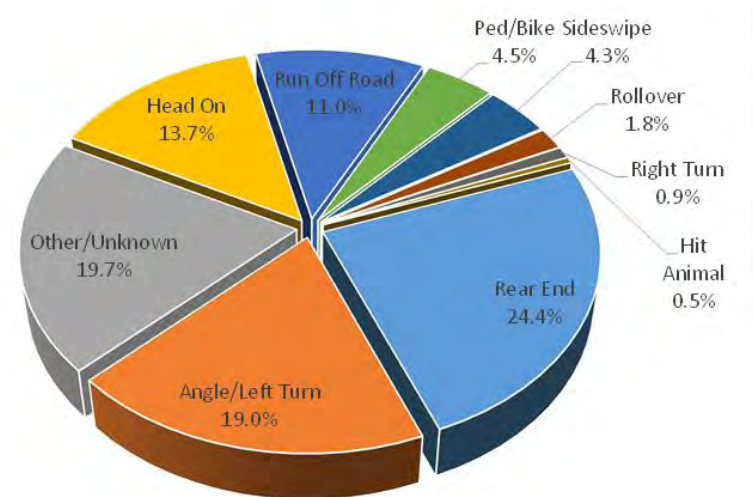
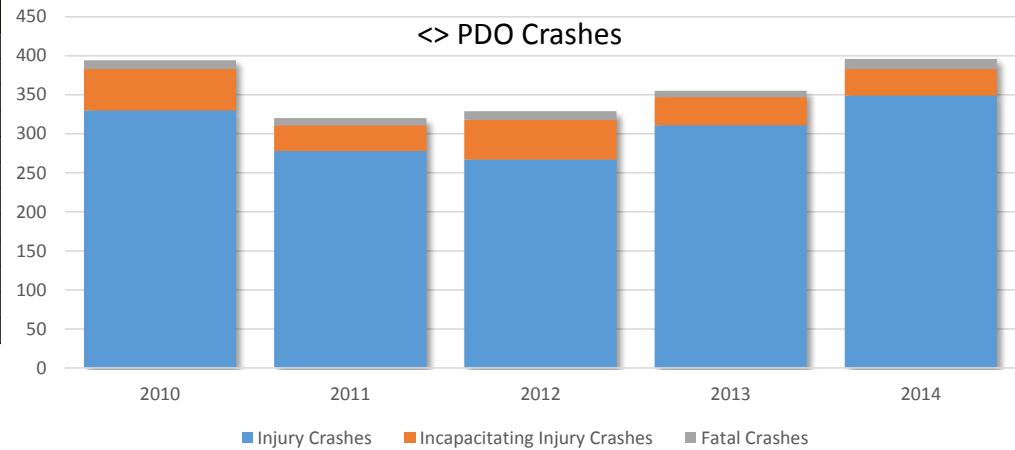
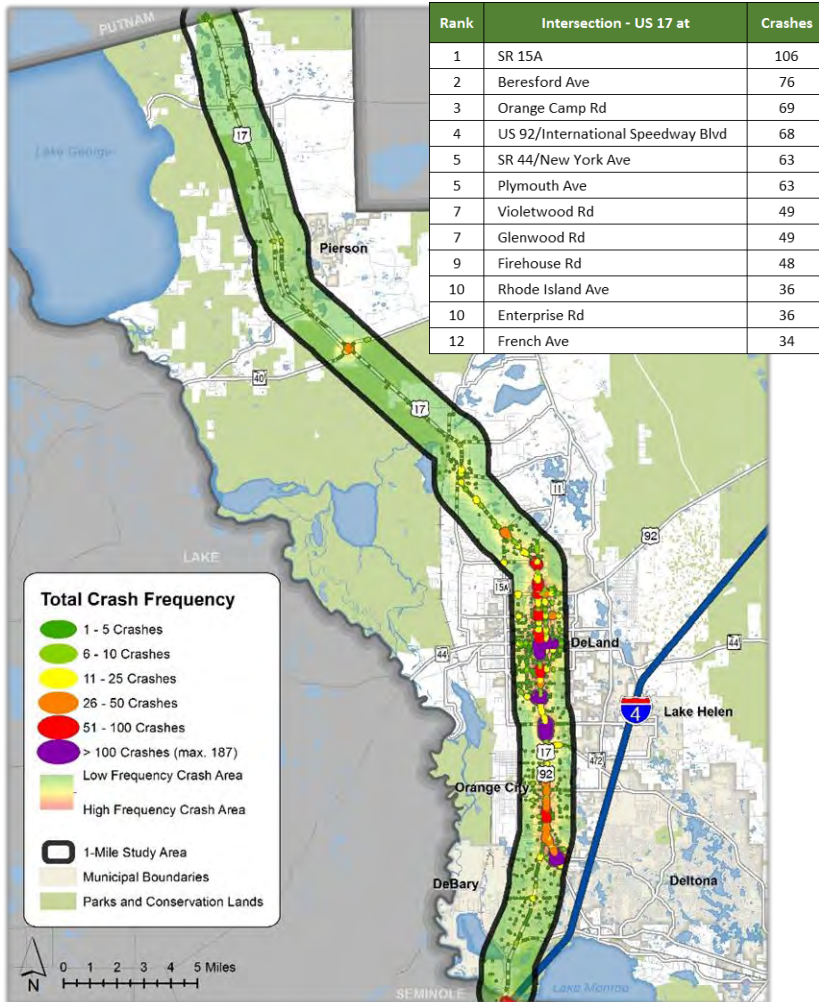




# Crash History Analysis

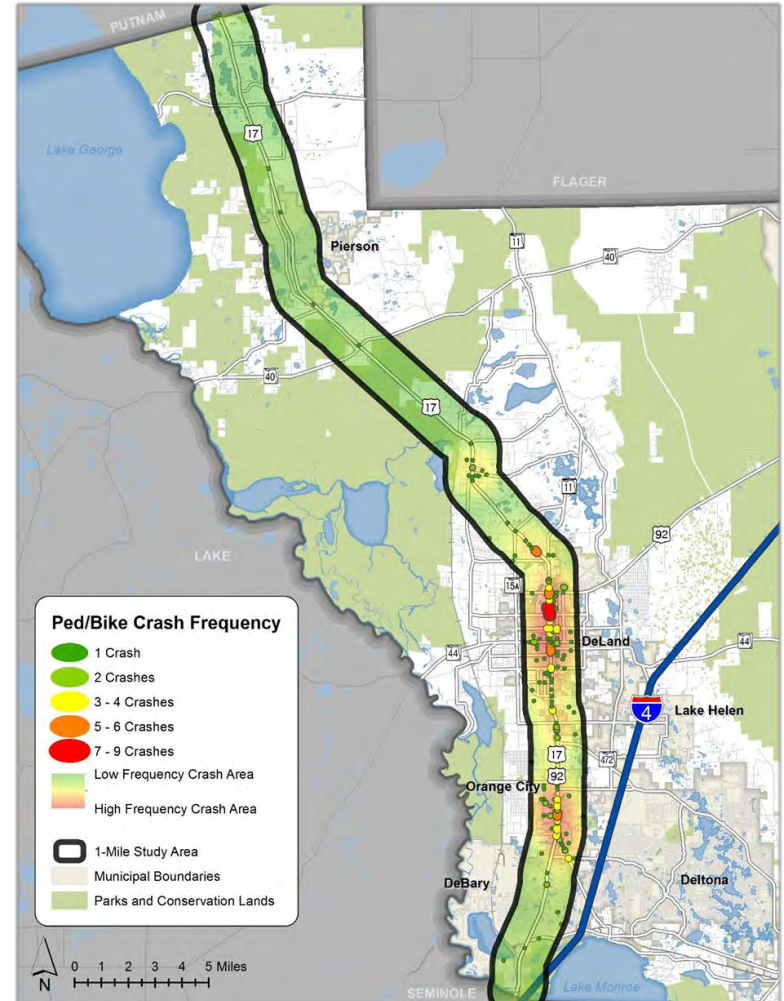
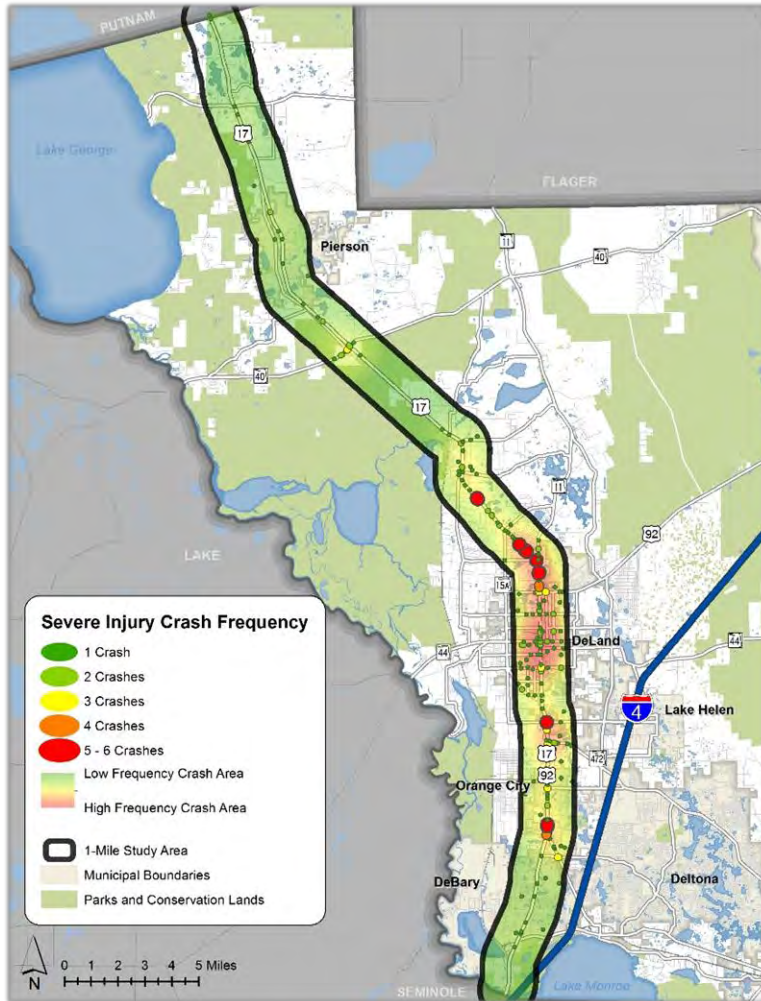


# Total Crashes





# Crashes

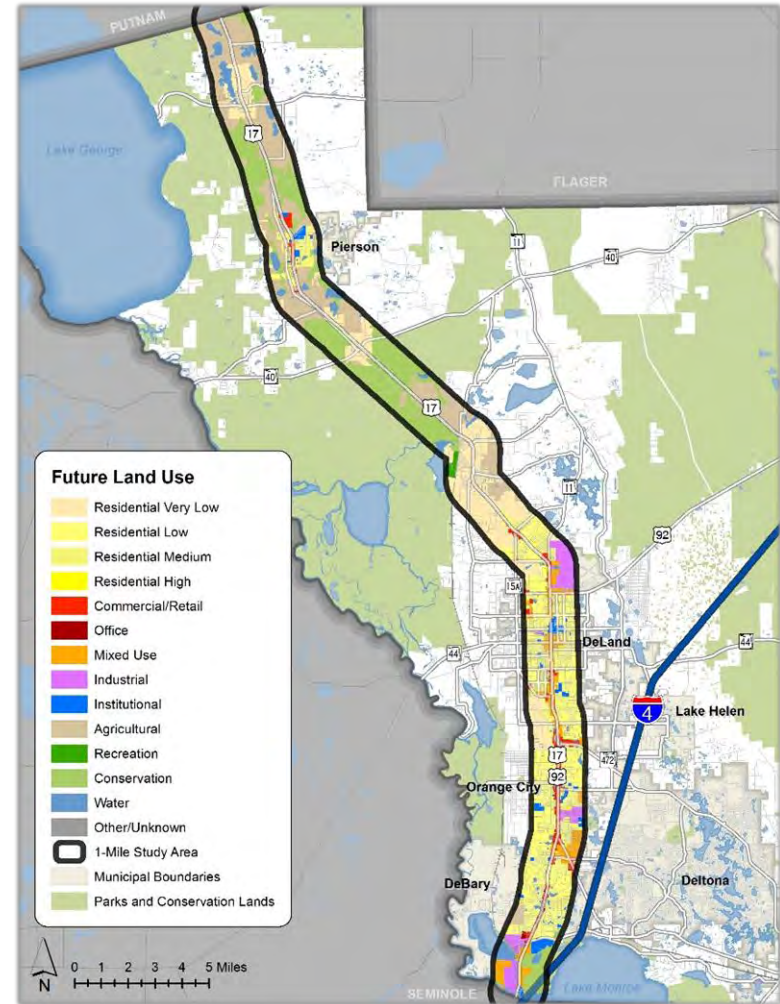
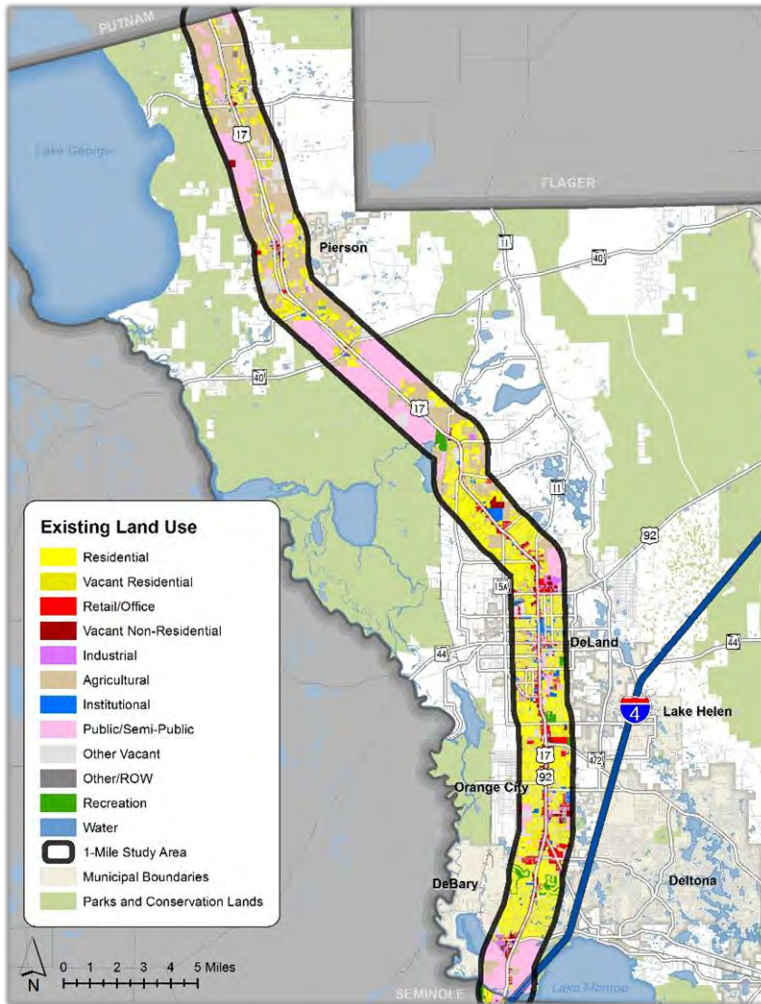




# Land Use Evaluation

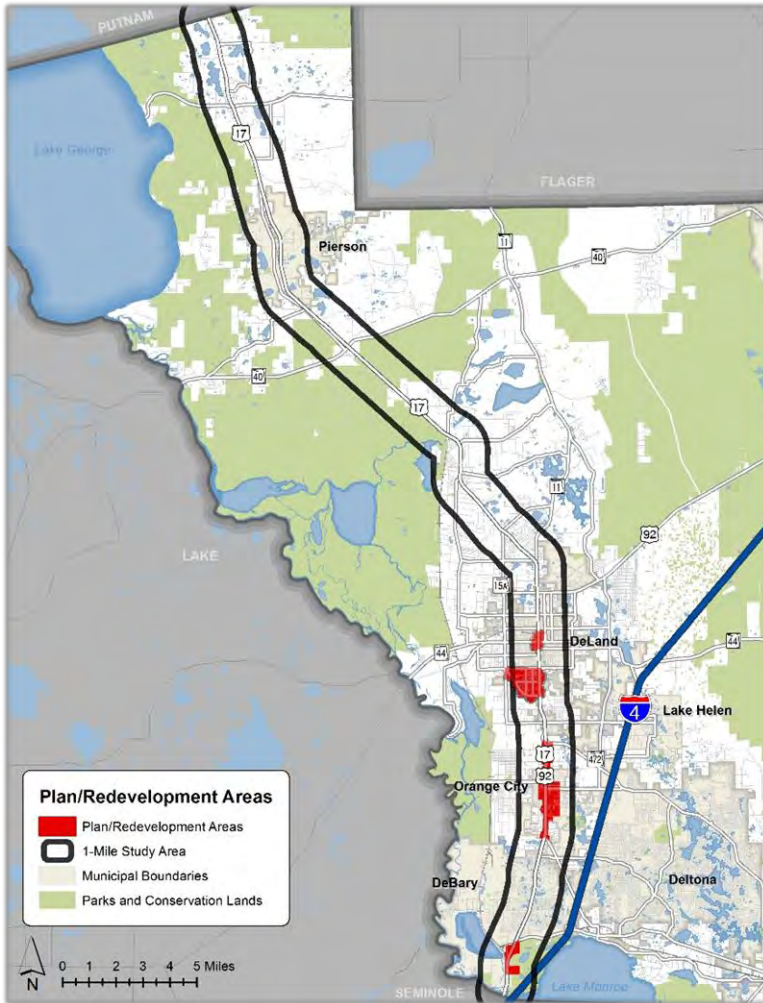


# Land Use



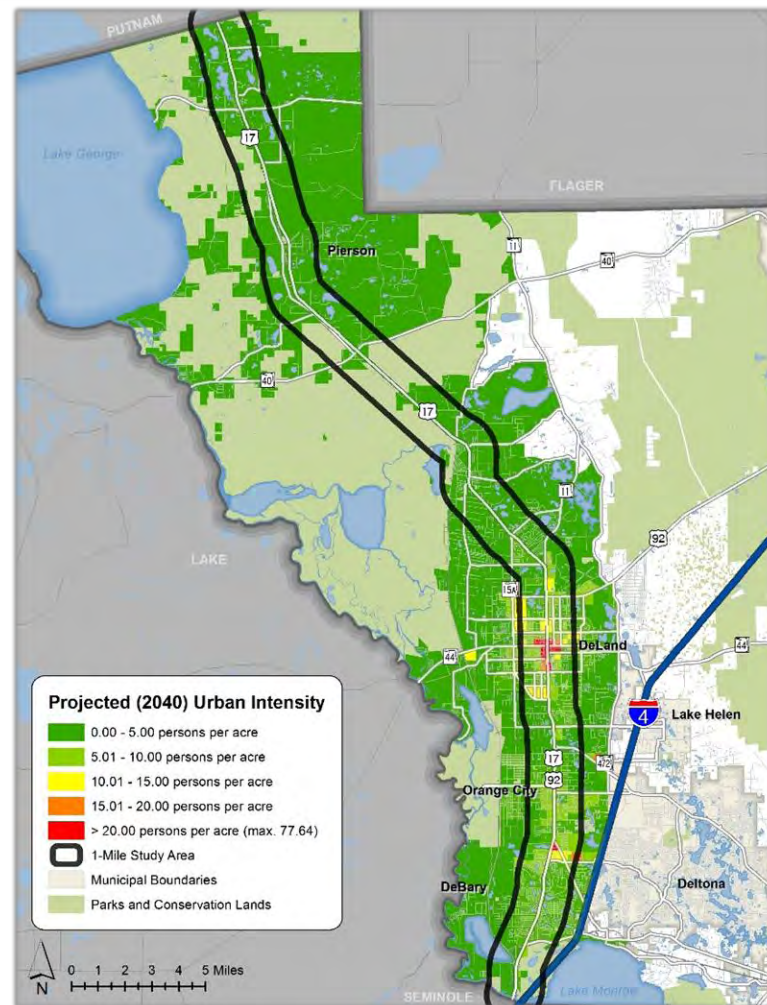
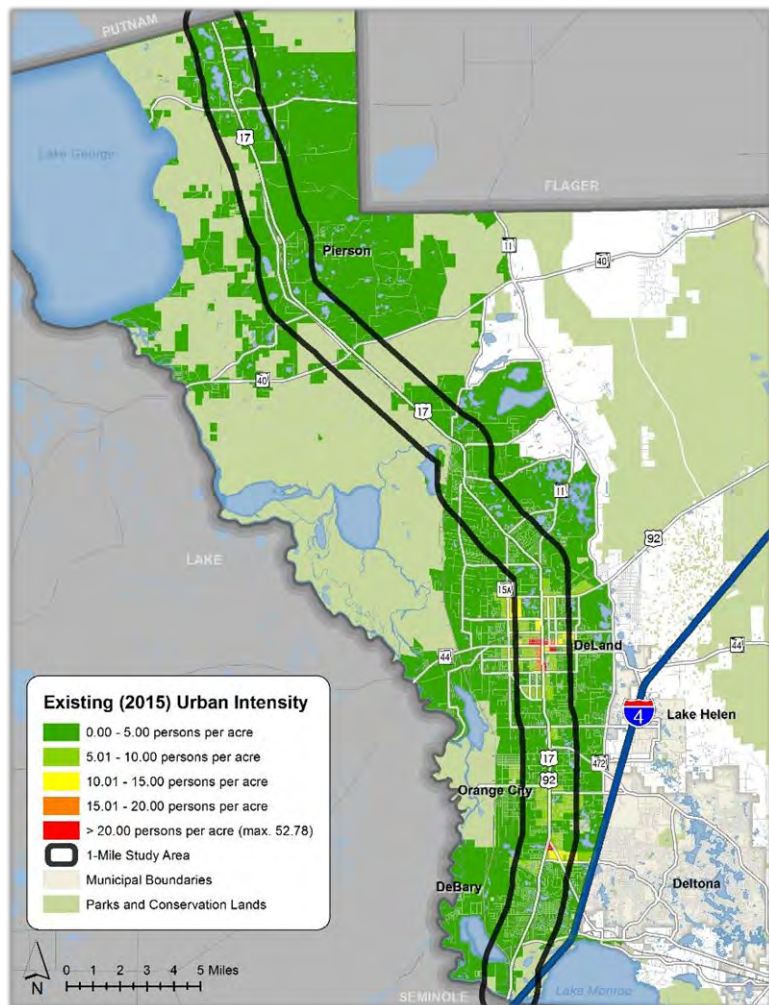


# Plan Areas

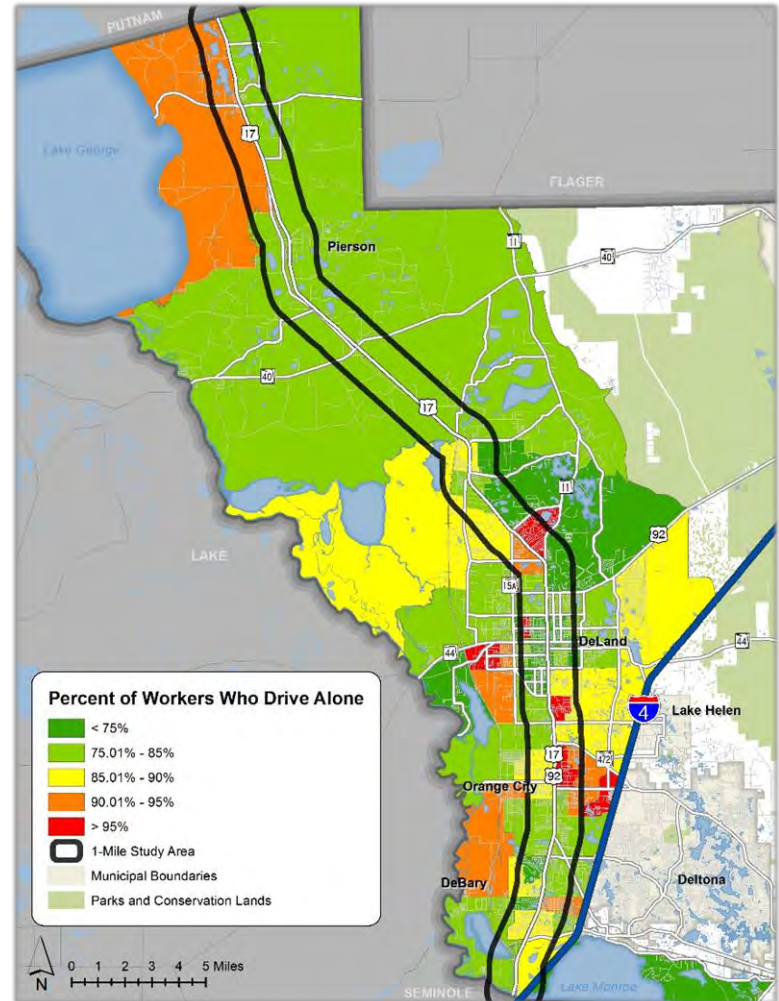
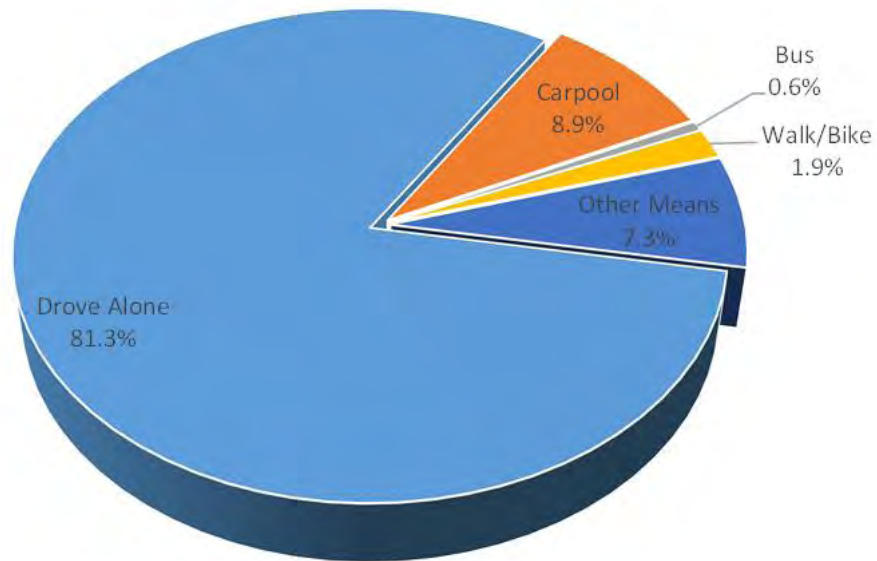




# Urban Intensity

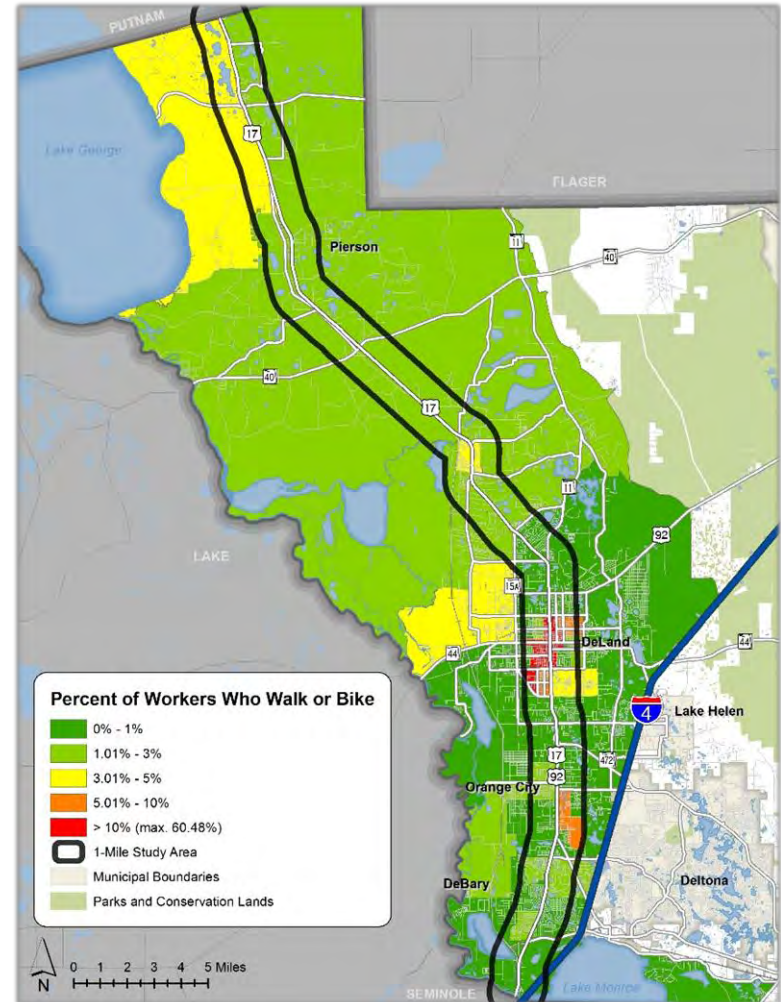
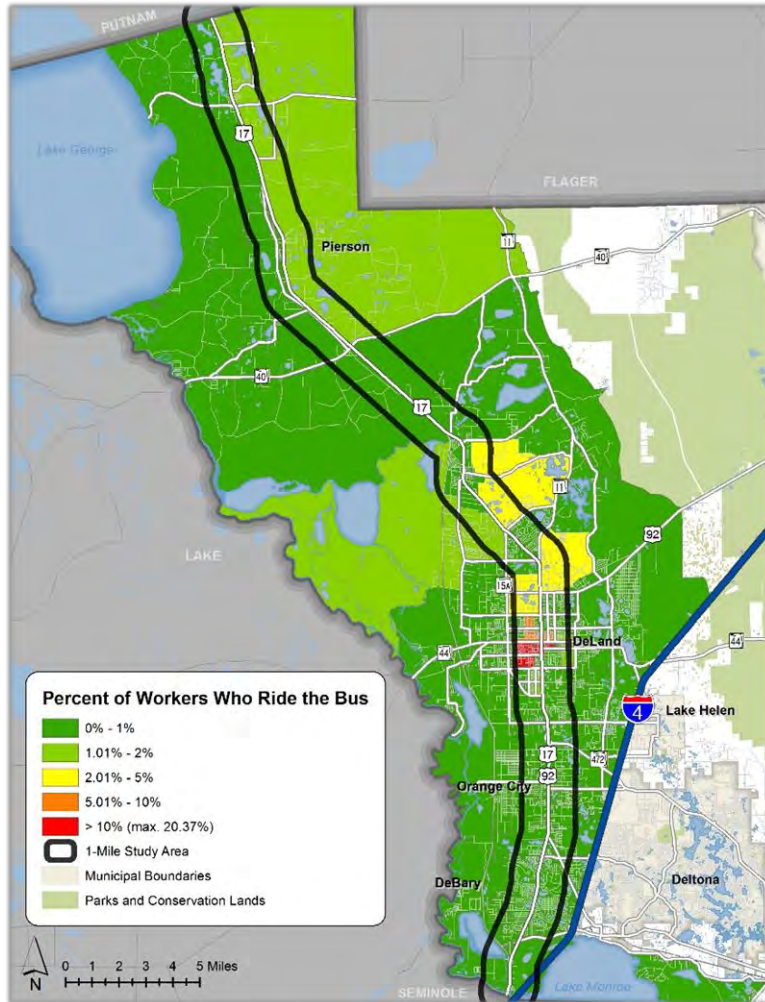


# Means to Work





# Means to Work





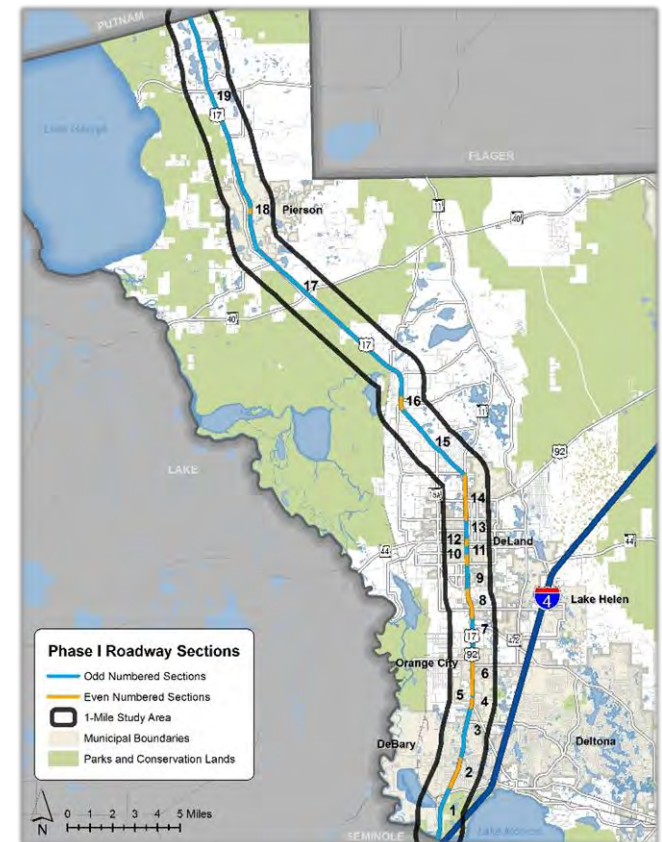
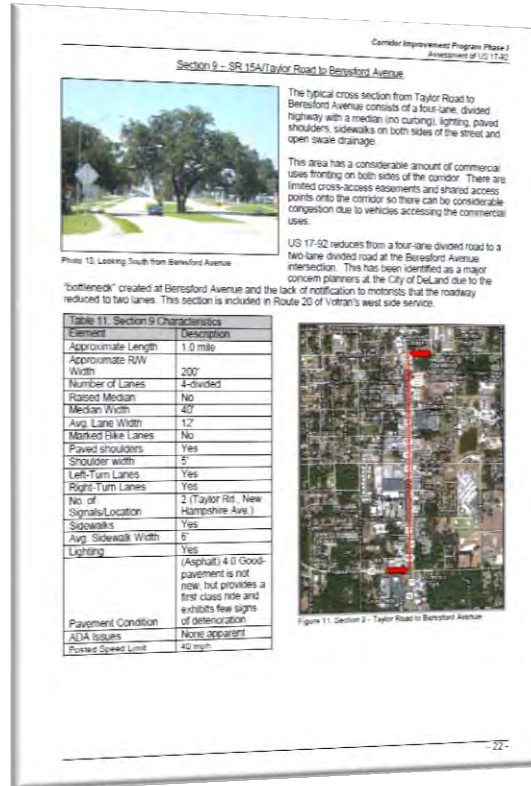
# Corridor Character Districts



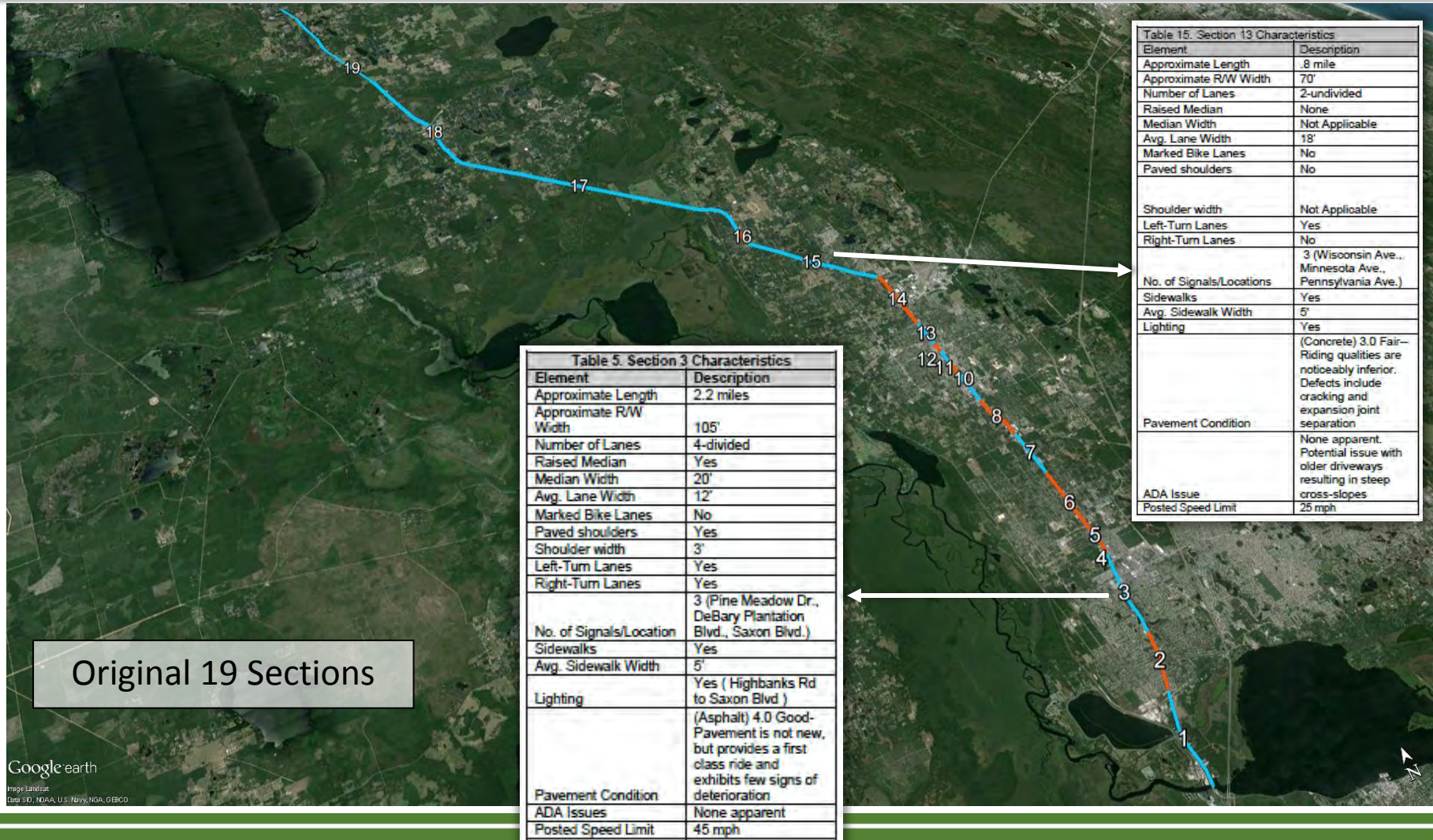


# Corridor Character Districts

- Phase I Study Identified 19 various roadway sections based on physical characteristics of the roadway.



# Corridor Character Districts





# Corridor Character Districts

- Purpose:
  - Acknowledge differing character as you move along the corridor.
    - Influenced by existing infrastructure, operating characteristics, and land use/socioeconomic context

***Basis for establishing design elements and characteristics***



# Corridor Character District

- Six Identified Character Districts:
  - Rural
  - Rural Town
  - Suburban
  - Urban
  - Transitioning
  - Traditional Urban



# Rural Districts



# Rural Districts

## Characteristics

- Agricultural, environmental, and undeveloped land
- Low density residential, limited commercial uses – spread-out
- Vehicular Trips
- Regional connections
- Rural roadway cross-section with limited multimodal facilities





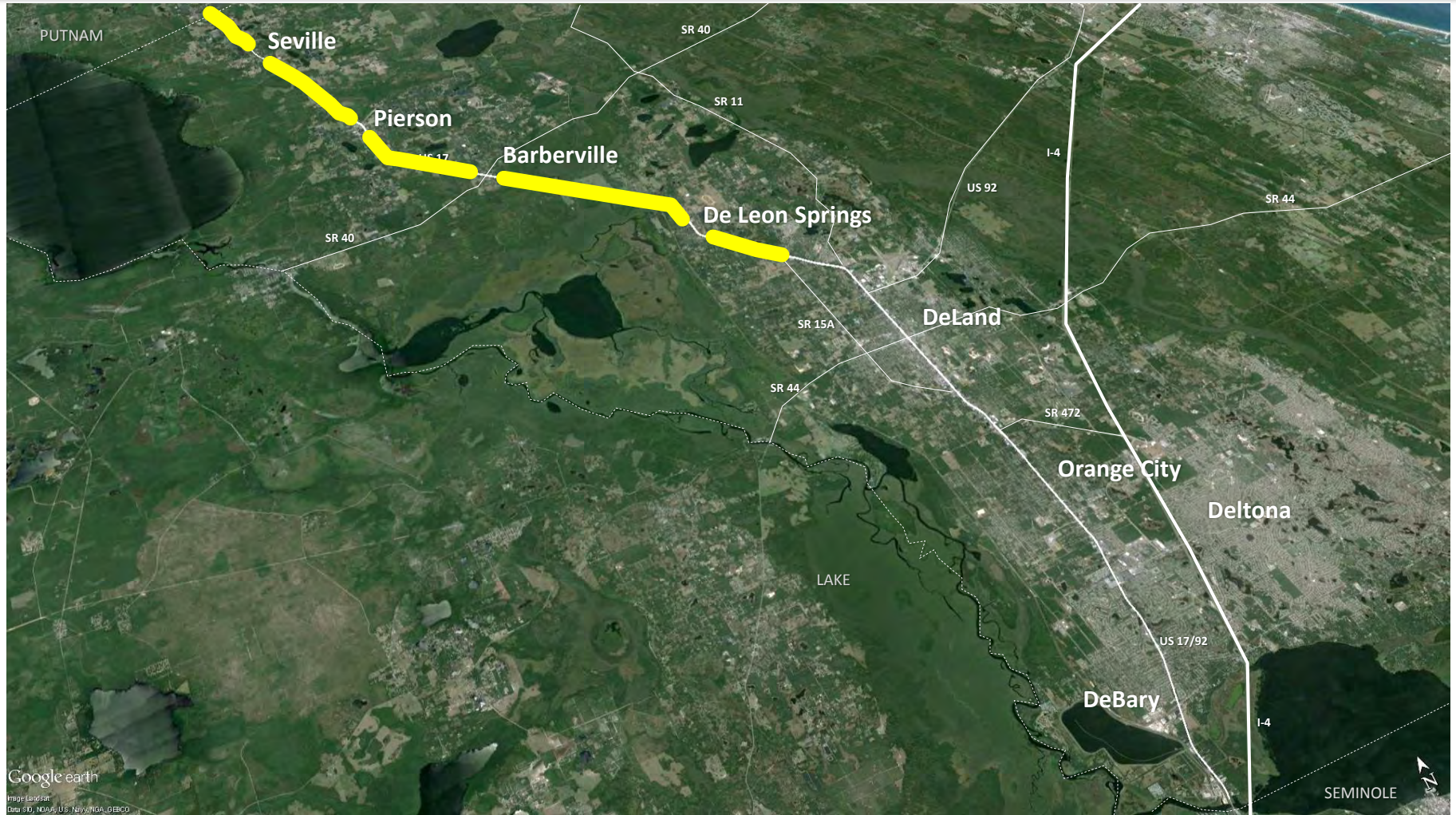
# Rural Districts

## Goals

- Retain/Protect rural character
- Provide safe and efficient movement of people and goods – regional focus
- Opportunities for non-vehicular modes
  - Multimodal facilities mainly recreational or destination based, e.g., trail connections



# Rural Districts





# Rural Town Districts



# Rural Town Districts

## Characteristics

- Distinct areas within the Rural Districts
- Clusters of businesses and residential uses (mix of uses)
- Clusters of roadways creating small grid-like pattern
- More “developed” roadway cross-section (curb and drainage)
- Some basic multimodal facilities, but not consistent





# Rural Town Districts

## Goals

- Provide safe and efficient vehicular mobility
  - Through and Within the District
- Provide more basic multimodal facilities and connections
- Encourage more multimodal modes for local trip purposes
- Opportunities for traffic calming and gateway features



# Rural Town Districts





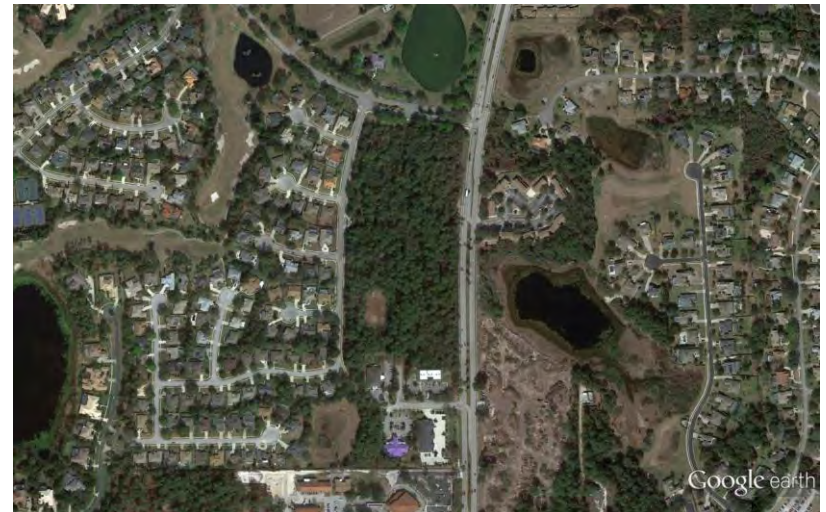
# Suburban Districts



# Suburban Districts

## Characteristics

- Traditional suburban (post WW II) development styles and roadway network
- Automobile oriented – parking lots and strip-style commercial adjacent to the corridor
- Wider roadway/right-of-way
- Some multimodal facilities – basic with gaps
- Fairly developed and stable





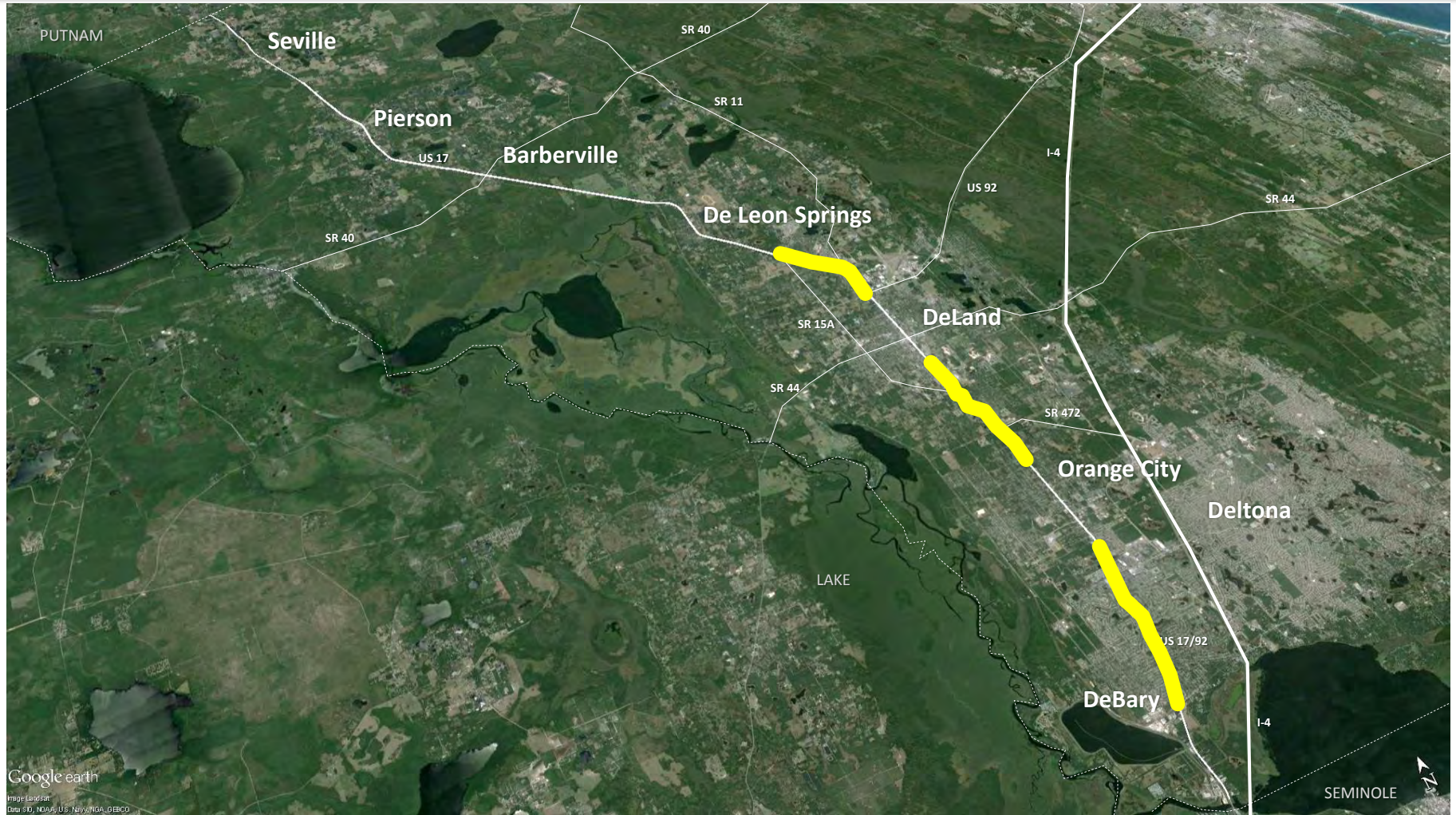
# Suburban Districts

## Goals

- Maintain/improve the safety and efficiency of automobile traffic
  - Traffic operational improvements
- Promote a better balance of modes through enhanced facilities
  - Enhanced multimodal environment could shift some trips to non-automobile modes



# Suburban Districts





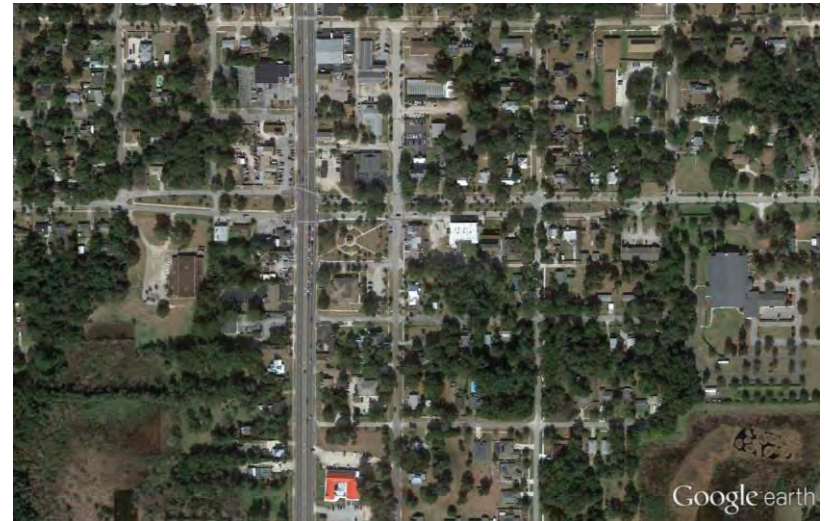
# Urban Districts



# Urban Districts

## Characteristics

- More intensely developed – commercial, office, and institutional uses along with mix of residential
- Tighter/shorter block lengths and more grid-like street pattern
- Buildings closer to the roadway
- More conducive to multimodal trips





# Urban Districts

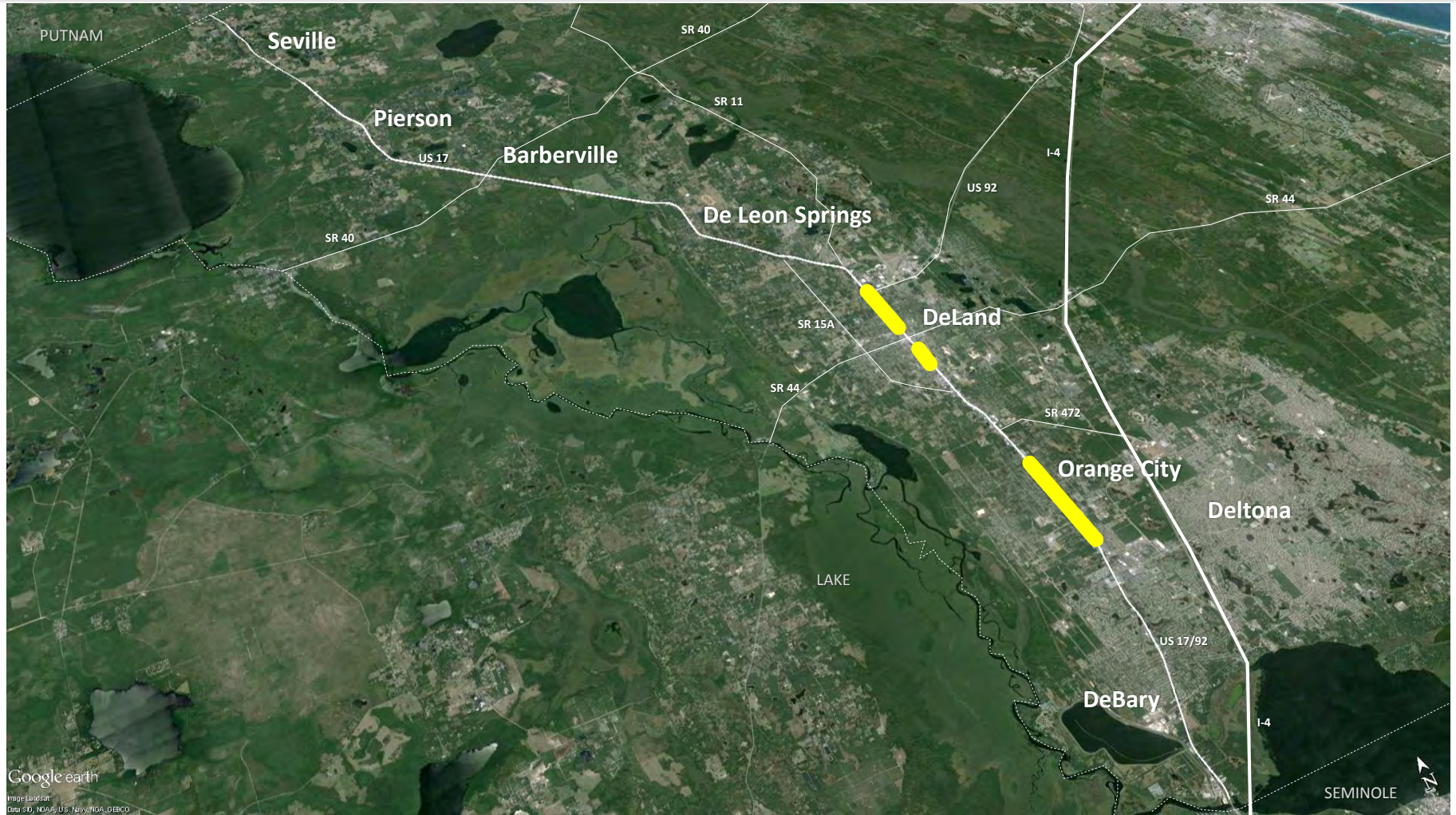
## Goals

- Encourage multimodal travel options with enhanced facilities and connections
- Shift from serving regional needs to more local focus
- Enhancement of safety and feel of the corridor





# Urban Districts





# Transitioning District



# Transitioning District

## Characteristics

- Existing driver of “change” – SunRail Station
- Plans for (re)development and/or increased diversity of land uses and travel modes
- Some multimodal facilities, but may not be sufficient to support envisioned needs





# Transitioning District

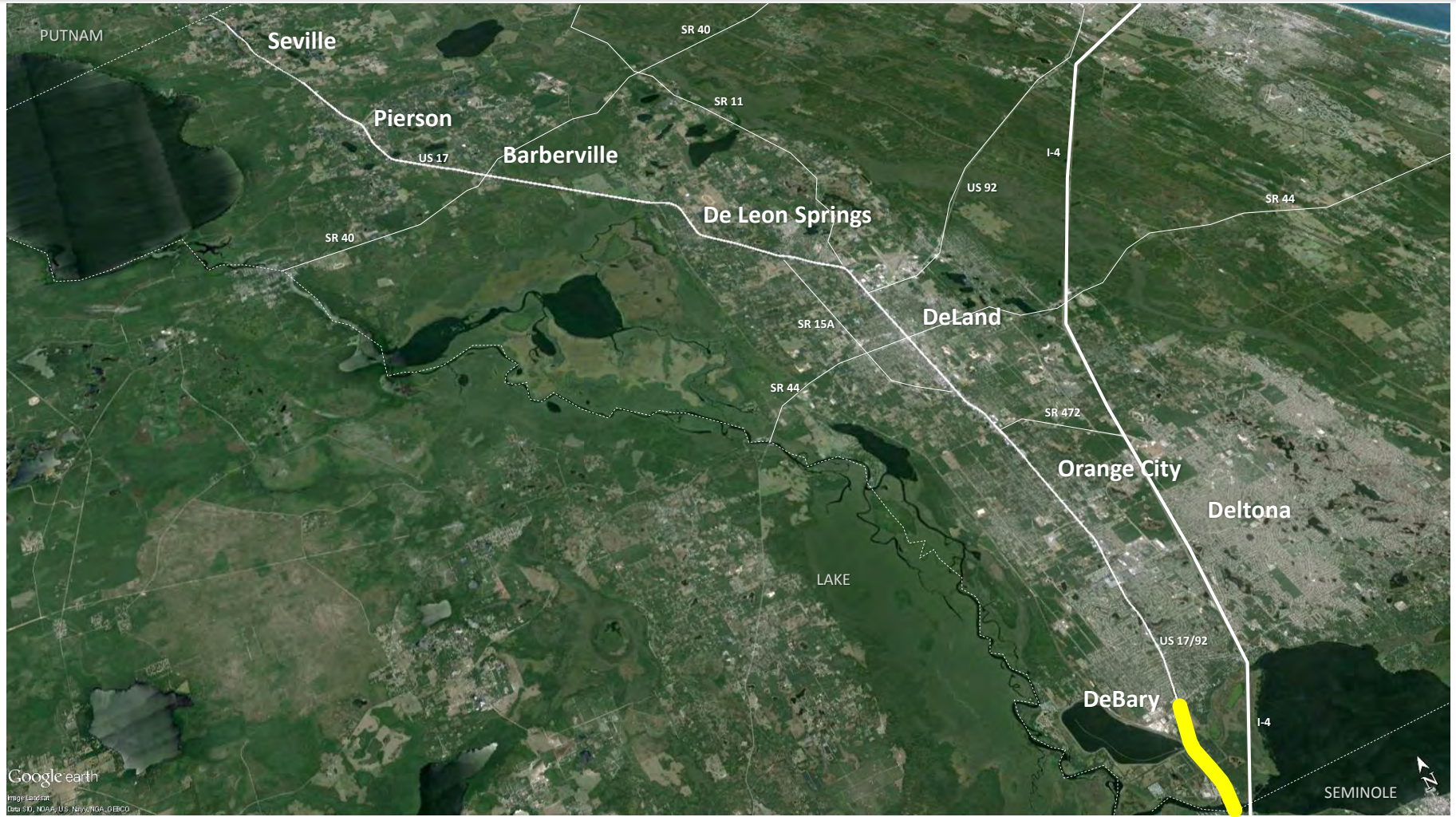
## Goals

- Identify strategies and opportunities to support development efforts and local plans/vision
- Better balance of regional and local mobility needs as areas transition
- Opportunities to attract higher percentage of multimodal trips, especially for local trip purposes





# Transitioning District





# Traditional Urban District



# Traditional Urban District

## Characteristics

- Quaint, walkable, distinct downtown core (DeLand)
- Land use diversity and roadway network support multimodal trips
- Wider sidewalks
- On-street parking
- Adjacent bike facilities





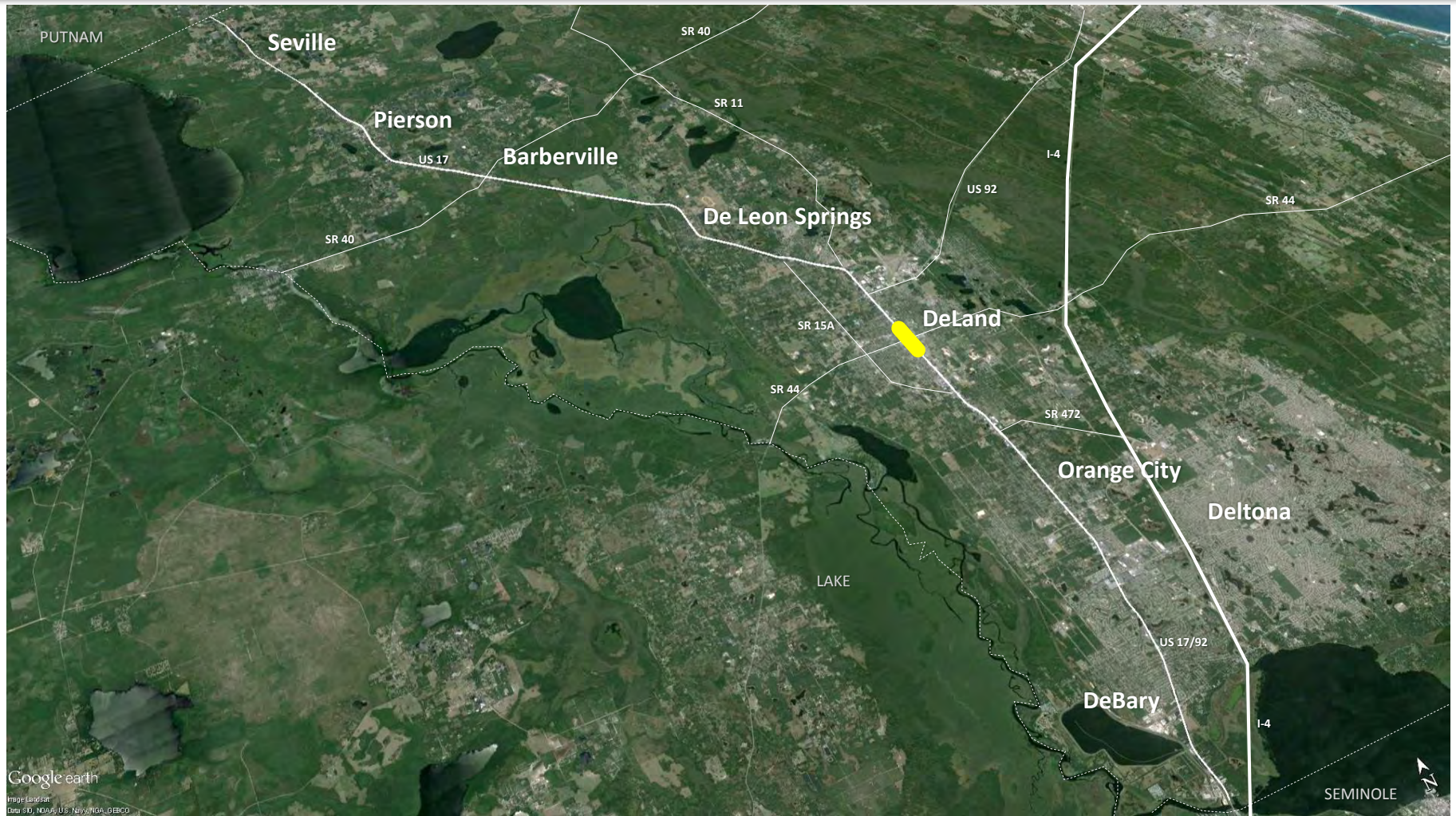
# Traditional Urban District

## Goals

- Retain existing character while enhancing safety and improving multimodal access, where needed
- Maintain and promote “Main Street” feel while enhancing traffic circulation and flow

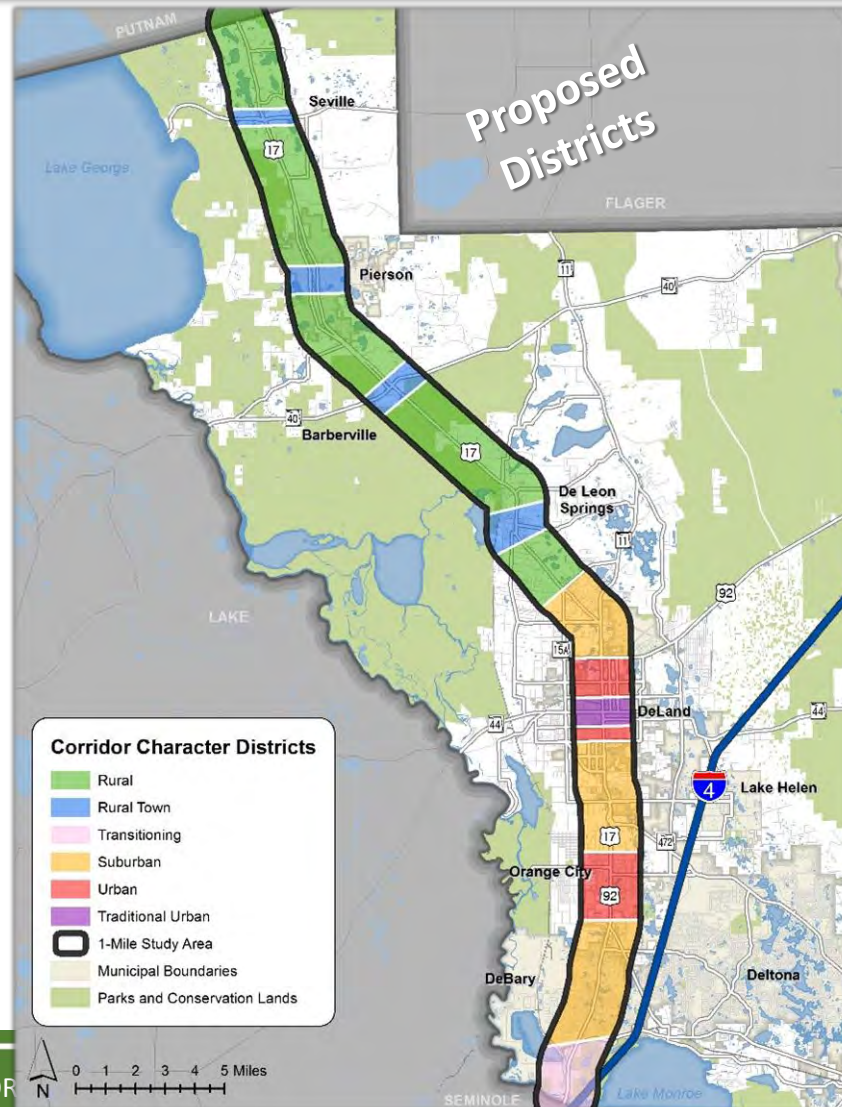


# Traditional Urban District





# Corridor Character Districts



# Developing Alternatives/Project Recommendations





# Developing Alternatives/Project Recommendations

## Develop Alternatives to Improve Mobility and Safety:

- Pedestrian and Bicycle Improvements
  - New and Enhanced Connections
- Geometric Improvements
  - Focus on improved safety, mobility, and connectivity
- Operational Improvements
  - Could include signal phasing modifications
- Transit Related Improvements
  - Stop-level strategies

# Evaluation Criteria

- Planning level evaluation
  - High level screening to identify feasibility, potential costs, impacts, and benefits





# Evaluation Criteria

## What is being evaluated?

Existing Multimodal Facilities and Traffic Operation Characteristics



```
graph TD; A[Existing Multimodal Facilities and Traffic Operation Characteristics] --> B[Support Density]; A --> C[Connectivity]; A --> D[Safety]; A --> E[Local Compatibility]; A --> F[Implementation];
```

Support Density

Connectivity

Safety

Local Compatibility

Implementation

# Existing Facilities and Traffic Operation Characteristics

Measures		
Roadway	Arterial Street	
	Collector, Higher Volume (> 5,000 ADT)	
	Collector, Lower Volume (< 5,000 ADT)	
	Local (Residential) Street	
Pedestrian	No Sidewalk	
	Complete Sidewalk on one side only	
	Some Sidewalk, but Significant Gaps	
	Adjacent Trail/Multi-Use Path	
	Complete Sidewalk Along Both Sides	Could be improved based on existing condition
		Adequate for existing conditions
Bicycle	No Bicycle Facilities	
	Un-Marked Paved Shoulder	
	Adjacent Trail (limited hours)	
	Adjacent Multi-Use Pathway	Along US 17 Corridor
		Along parallel roadway/facility
	Marked Bicycle Lanes	



# Support Density

Measures	
Transit	Transfer Location
	Higher Ridership Location (non-transfer activity)
	Existing Stop with Enhanced Amenities (transit shelters)
	Existing Stop with Limited Amenities (e.g., bench, but no shelter)
	Existing Stop, No Amenities (sign only)
	No Transit Service Nearby
Density	Higher (> 10 persons per acre)
	Medium (5-10 persons per acre)
	Low (2-5 persons per acre)
	Very Low (< 2 persons per acre)

# Connectivity

Measures	
Connections	Provides Connection Across Major Highway
	Provides Neighborhood Connectivity
	Provides Connection to Schools/Parks
	None – Facility Complemented by Other Routes



# Safety

Measures	
Connections	Address Documented Safety/Crash Issue
	Safety Best Practice – Arterial Street
	Safety Best Practice – Collector Street
	Safety Best Practice – Local Street

# Local Compatibility

Measures	
Supports Vision	Supports Local Plans/Goals/Vision
	Partially Supports Local Plans/Goals/Vision
	Does Not Support Local Plans/Goals/Vision



# Implementation

Measures	
Timeframe	Short-Term (< 2 Years)
	Mid-Term (< 5 Years)
	Longer Term (5+ Years)
Cost	Low (< \$100,000)
	Medium (\$100,000 - \$500,000)
	High (\$500,000+)
Level of Effort	Low
	Medium
	High

# Evaluation Criteria

## How do they Perform?

Existing Multimodal Facilities and Traffic Operation Characteristics

Support Density

Connectivity

Safety

Local Compatibility

Implementation

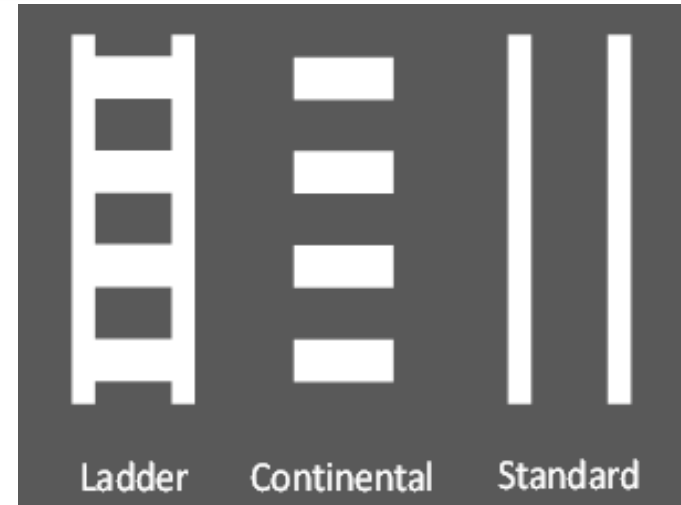
Quantify the Outcomes, then address weighting (if necessary)



# Short-Term Concepts

## Crosswalk Markings

Crosswalks are a vital part of the pedestrian network; they define a designated crossing area for pedestrians and alert drivers to the likelihood of pedestrian activity. There are many different types of crosswalk markings/treatments, but the ladder crosswalk marking is often considered the preferred treatment due to its high-visibility.



## Signage

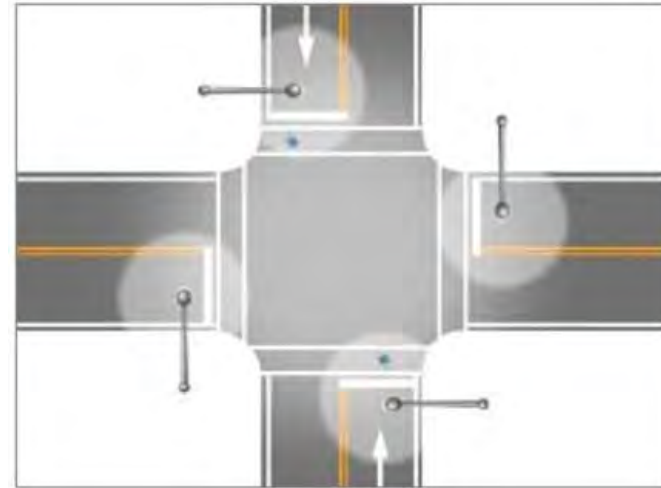
Right-Turn Yield to Pedestrian Signs (R10-15) should be considered where high speed/volume right turns are likely.



# Short-Term Concepts

## Intersection/Crosswalk Lighting

Critical component of roadway safety and should be designed to provide adequate illumination for all roadway users. There are many factors that affect roadway lighting and its effectiveness in increasing safety.



## Pedestrian Countdown Signals

Countdown signals provide more definitive feedback to pedestrians compared to flashing “Don’t Walk” indicators. If installed, they should be timed such that the maximum “Walk” phase is provided and the countdown will reach zero concurrent with the thru phase going amber.

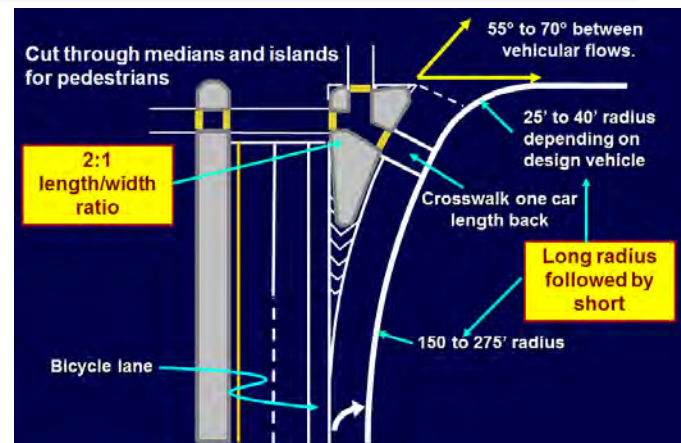




# Short-Term Concepts

## Right-Turn Channelization

At intersections where wide curb radius is necessary to accommodate heavy vehicles, consideration should be given to installing right-turn islands to reduce vehicle/pedestrian conflict and exposure.



## Permissive Left Turn Flashing Yellow Arrows

For intersections with protected/permissive left turn operation installing a 4-signal head with left turn flashing yellow arrow (FYA). FYAs can provide flexibility in traffic management options and have been shown help to reduce crashes.



# Short-Term Concepts

## Pedestrian Channelization

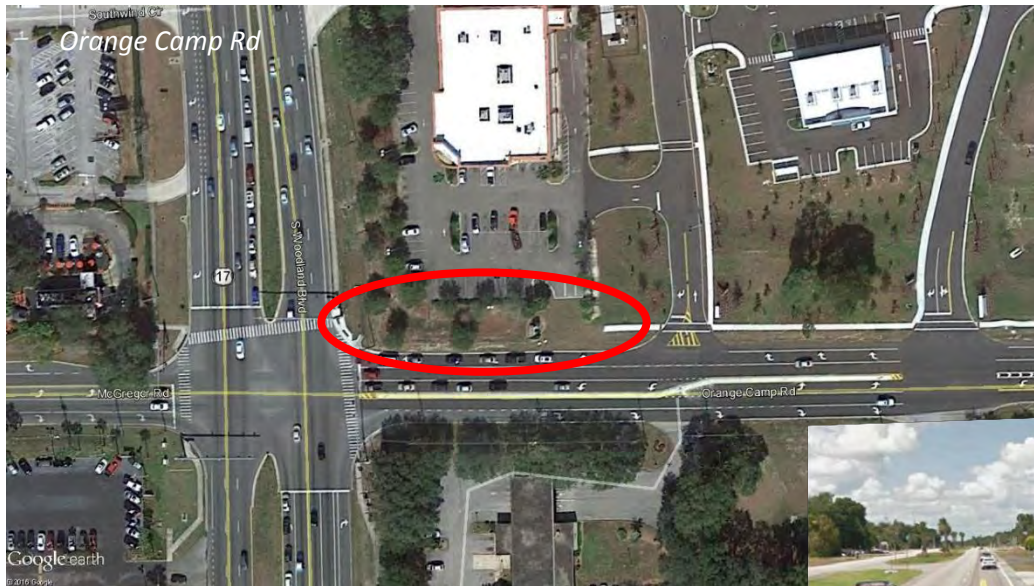
- Can be used to encourage pedestrians to cross at signals/marked crosswalks.
- Should be applied in combination with proper signalized intersection safety enhancements and bus stop siting (if applicable).





# Potential Project Recommendations

- Sidewalk connections





# Potential Project Recommendations

- Sidewalk connections

Multi-Use Trail/Sidewalk  
along east side



CONCEPT

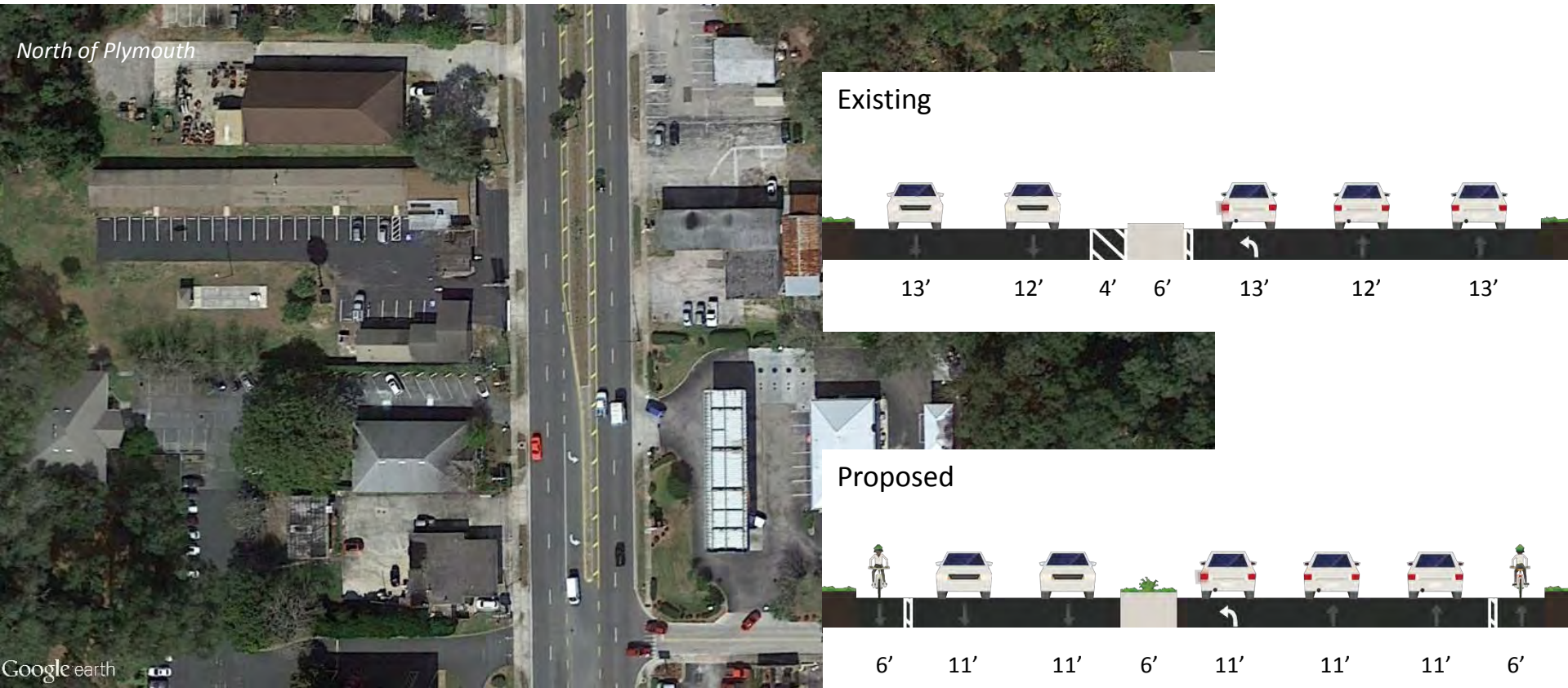
Evaluate  
Impacts to  
Drainage





# Potential Project Recommendations

- Adjust lane widths to provide bike facilities



# Potential Project Recommendations

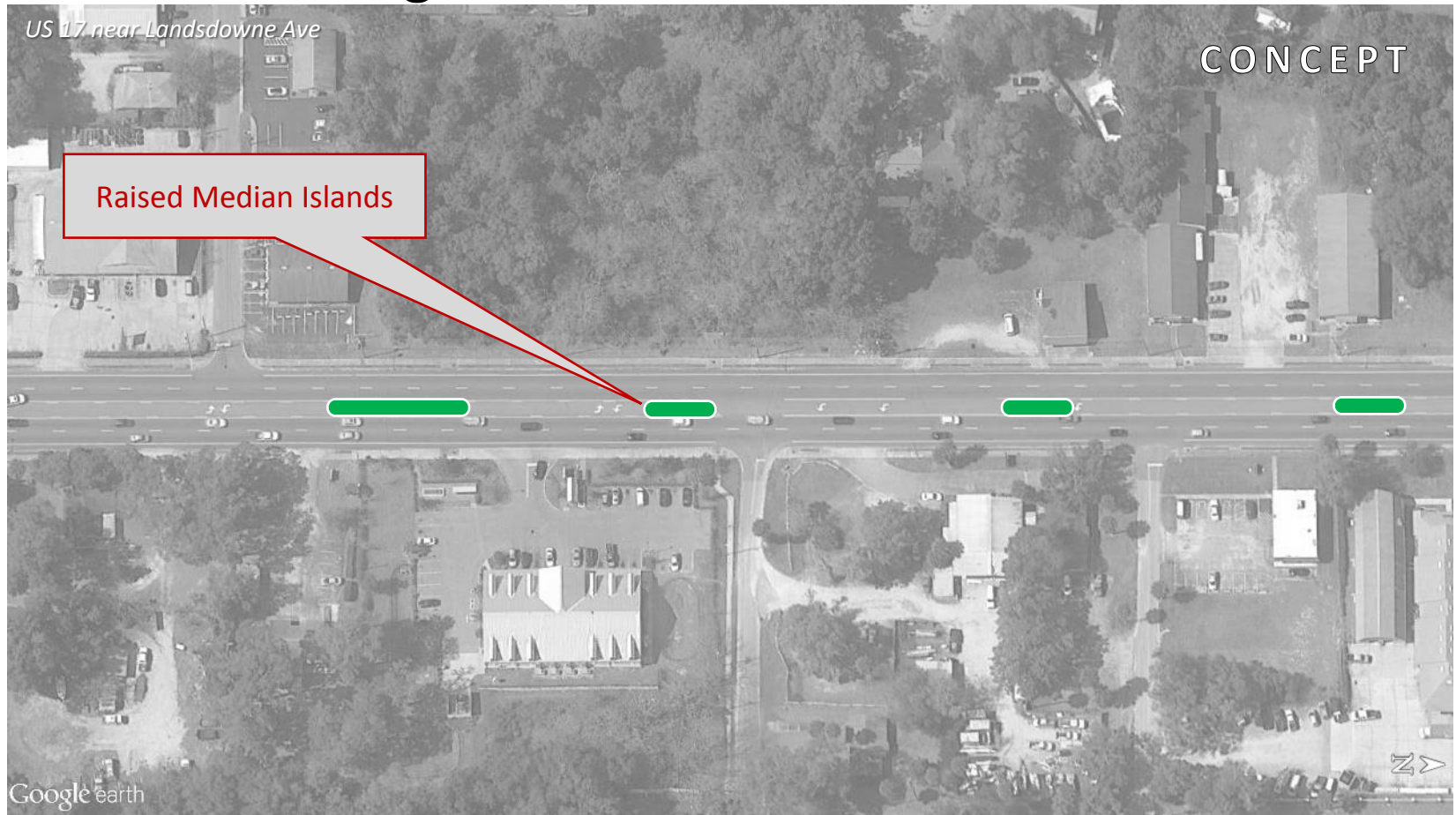
- Access management





# Potential Project Recommendations

- Access management



# Potential Project Recommendations

- Intersection geometric enhancements





# Potential Project Recommendations

- Intersection geometric enhancements





# Potential Project Recommendations

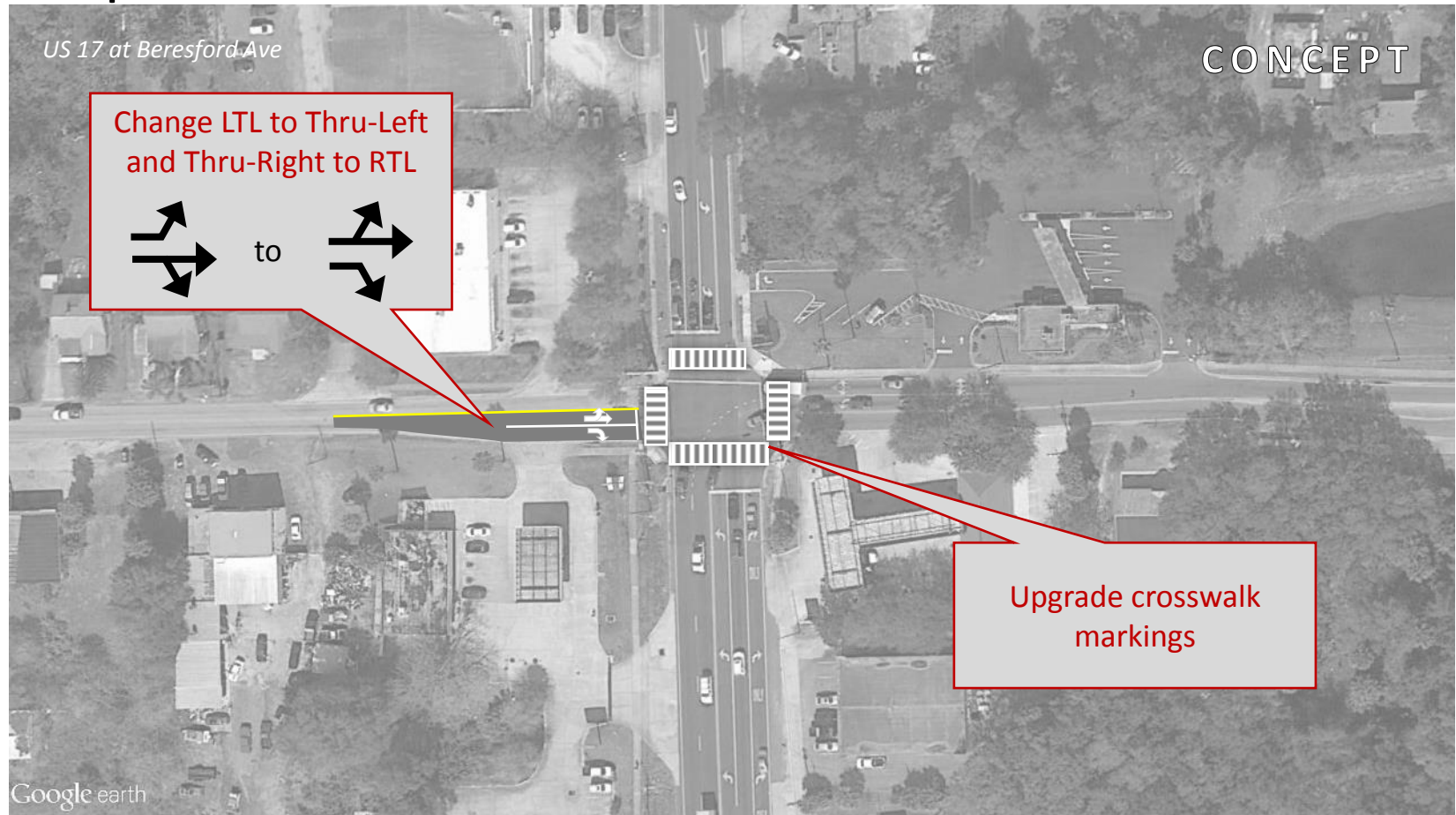
- Operational enhancements





# Potential Project Recommendations

- Operational enhancements



# Potential Project Recommendations

- Operational enhancements





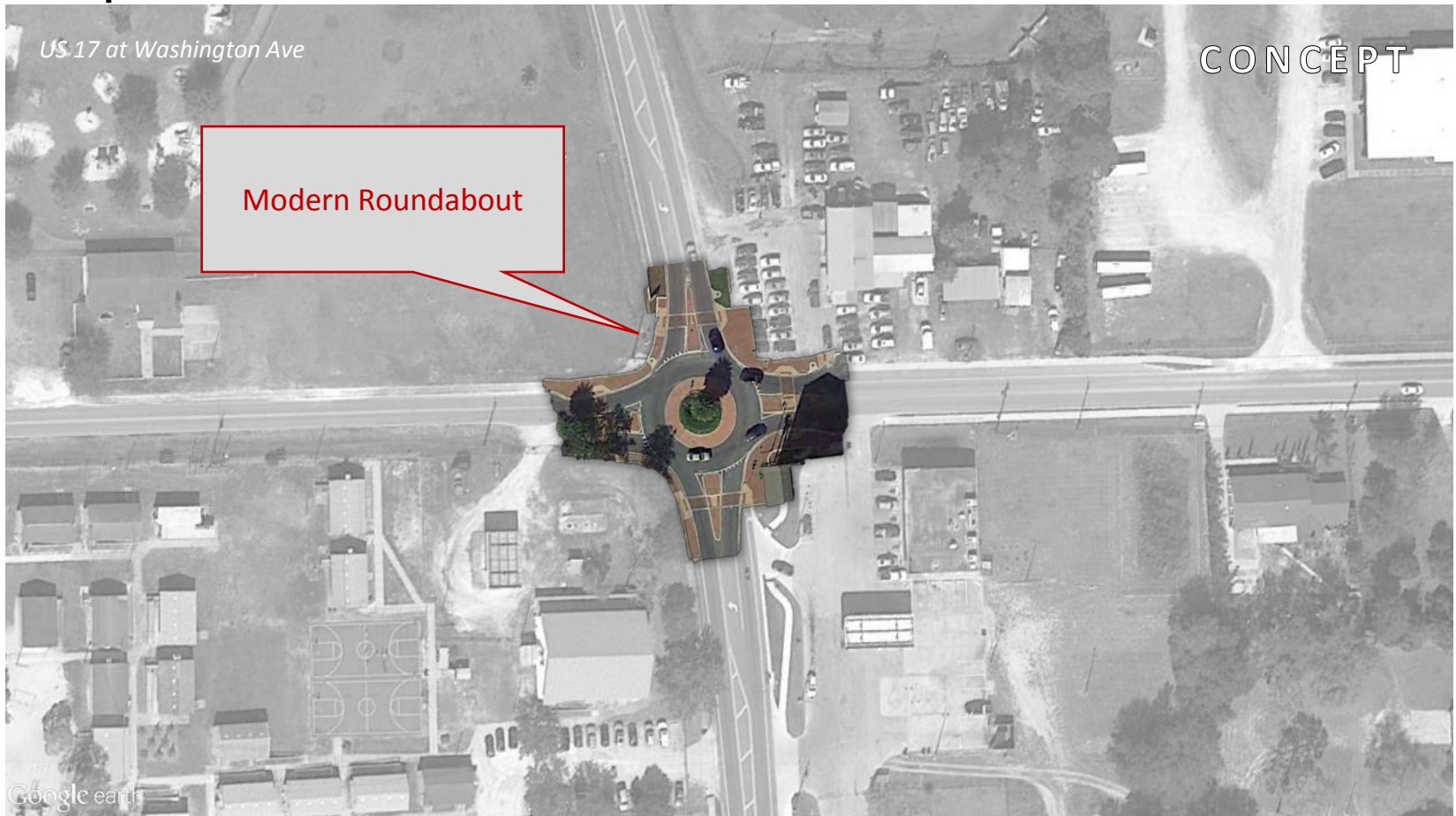
# Potential Project Recommendations

- Operational enhancements



# Potential Project Recommendations

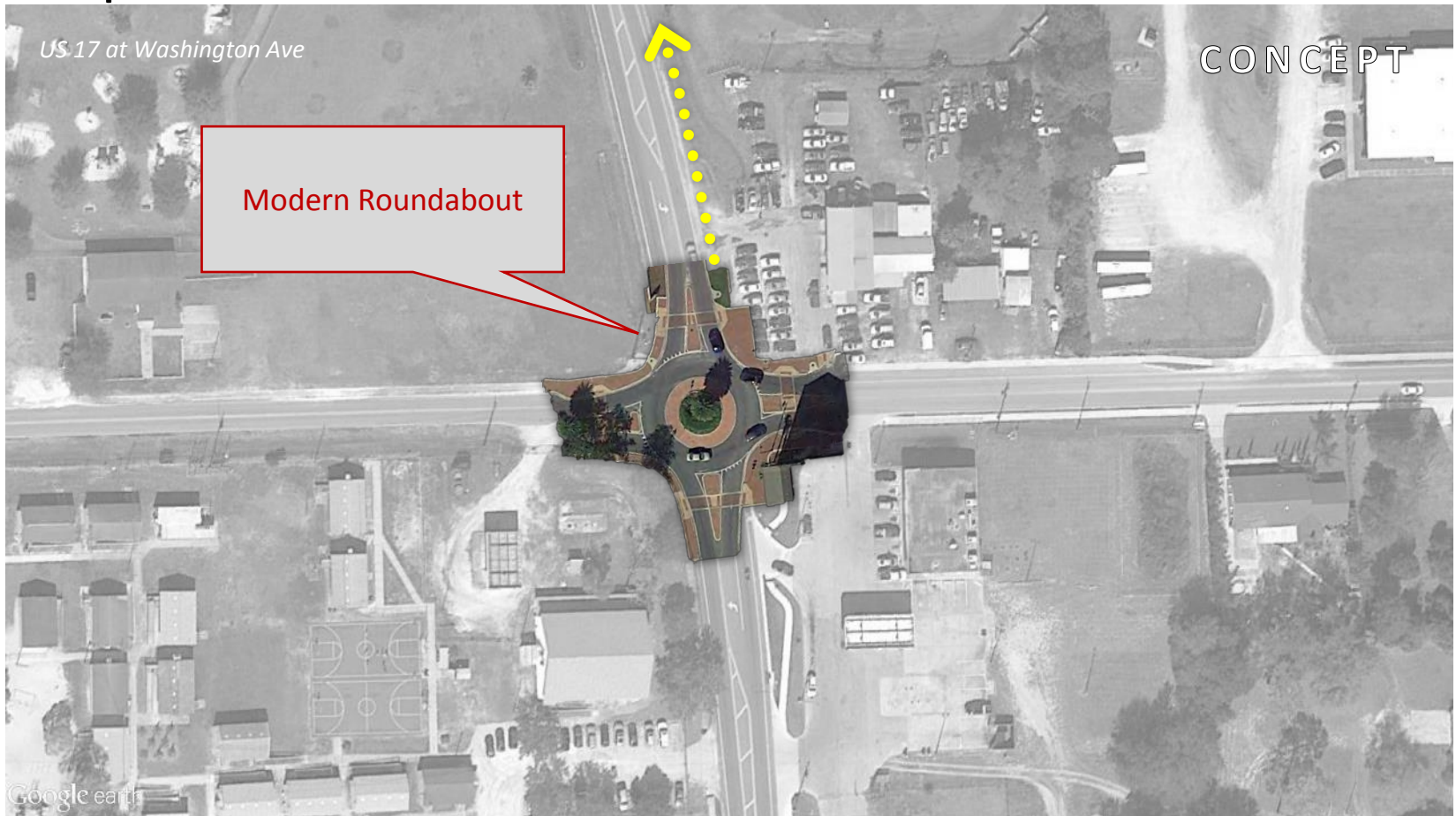
- Operational enhancements





# Potential Project Recommendations

- Operational enhancements



# Next Steps





# THANK YOU!



Tindale  Oliver

# Corridor Study Area

