



# CENTRAL FLORIDA EXPRESSWAY AUTHORITY

2040 Master Plan Update  
Board Workshop #2

May 14, 2015



# Workshop Agenda

- Introduction
- Schedule Review
- Community Outreach Update
- Transportation Planning and Regional Growth
- Existing System Improvement Needs
- Transit Overview
- Board Discussion



# Schedule

## Activity

Board Workshops

Data Collection / Existing  
System Needs

Community Outreach  
and Interviews

Expansion Projects &  
Multi-Modal Options

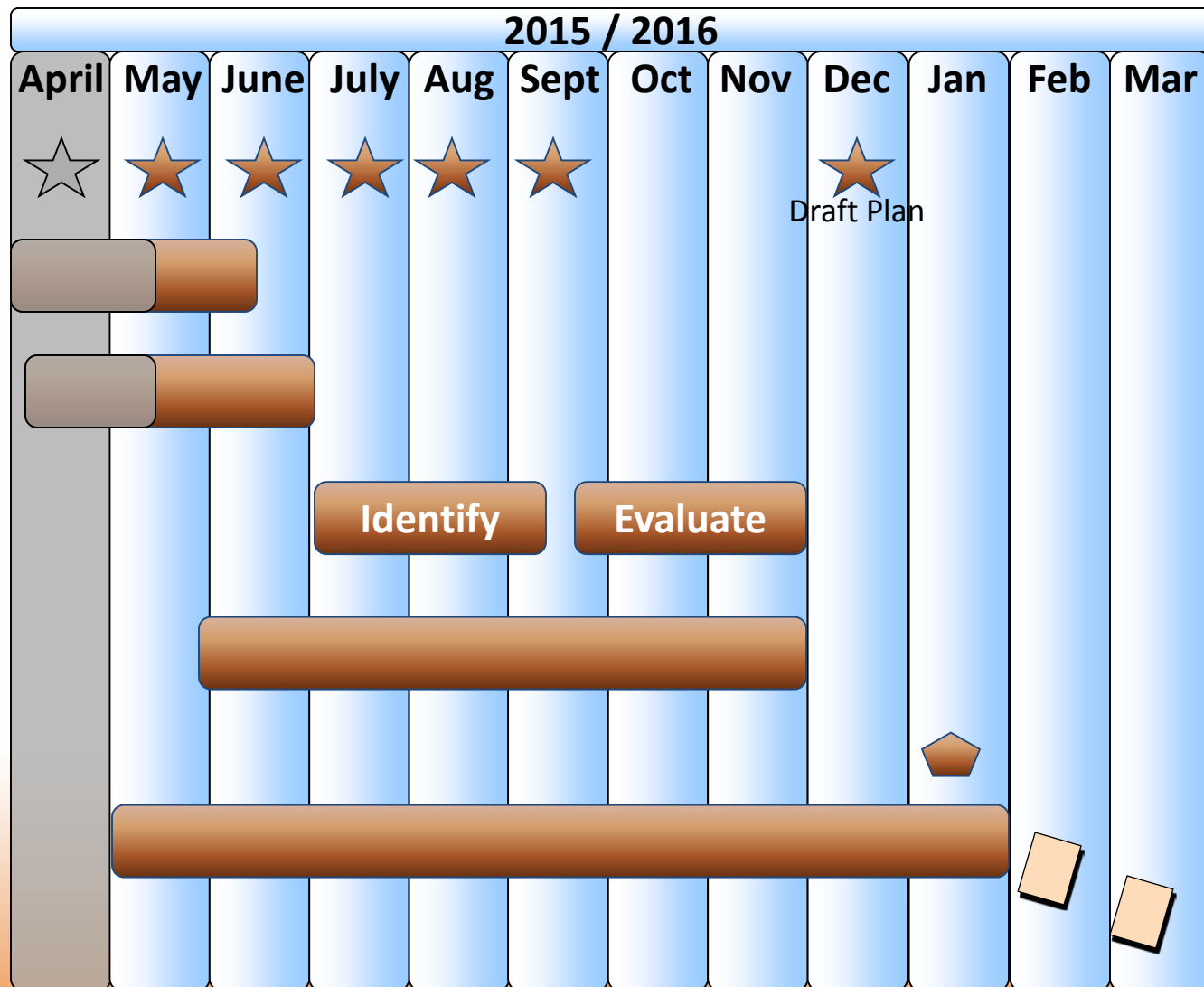
Traffic & Revenue and  
Tolling Analysis

Public Meeting

Documentation

Draft Report

Final Report





# Upcoming Activities

- Community and Agency Outreach Continues
- June Workshop (TBD)
- July Workshop - CFX Vision
- Policies



# Community Outreach Update

**Michelle Maikisch**

Director of Public Affairs and Communications



# Community Outreach Update

- 13 meetings/presentations
- Over 90 survey responses



# Transportation Planning and Regional Growth

**Hugh Miller, Ph.D., P.E.**  
**CDM Smith**



# Transportation Planning and Regional Growth

- How does the CFX 2040 Master Plan fit into other transportation plans for Central Florida?
- Where will growth occur and how will CFX respond?





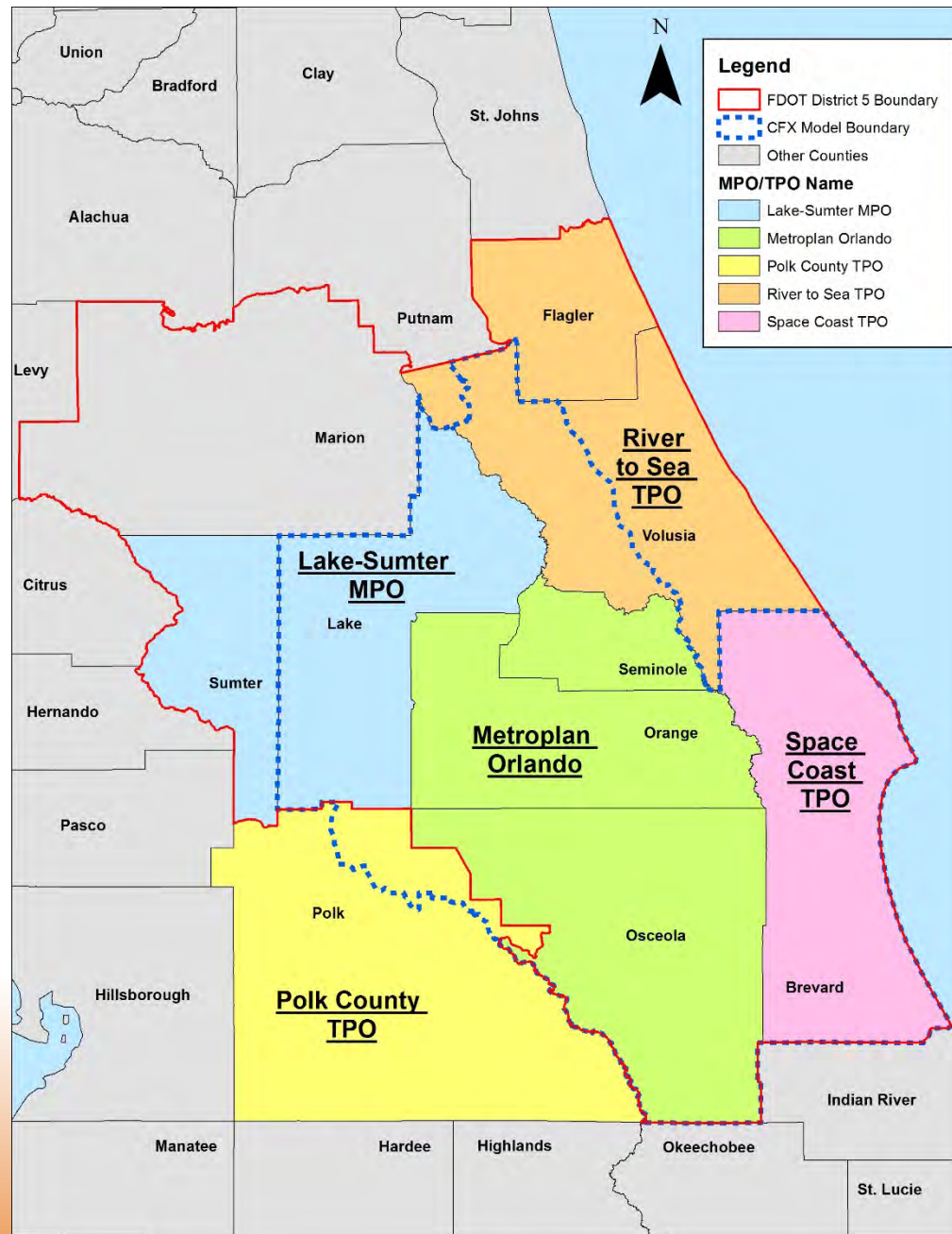
## CFX is not alone

- Florida Department of Transportation (FDOT)
  - County and City Governments
  - Airport Authorities
  - Transit Authorities
  - Expressway Authorities
- 
- Metropolitan Planning Organizations (MPOs)



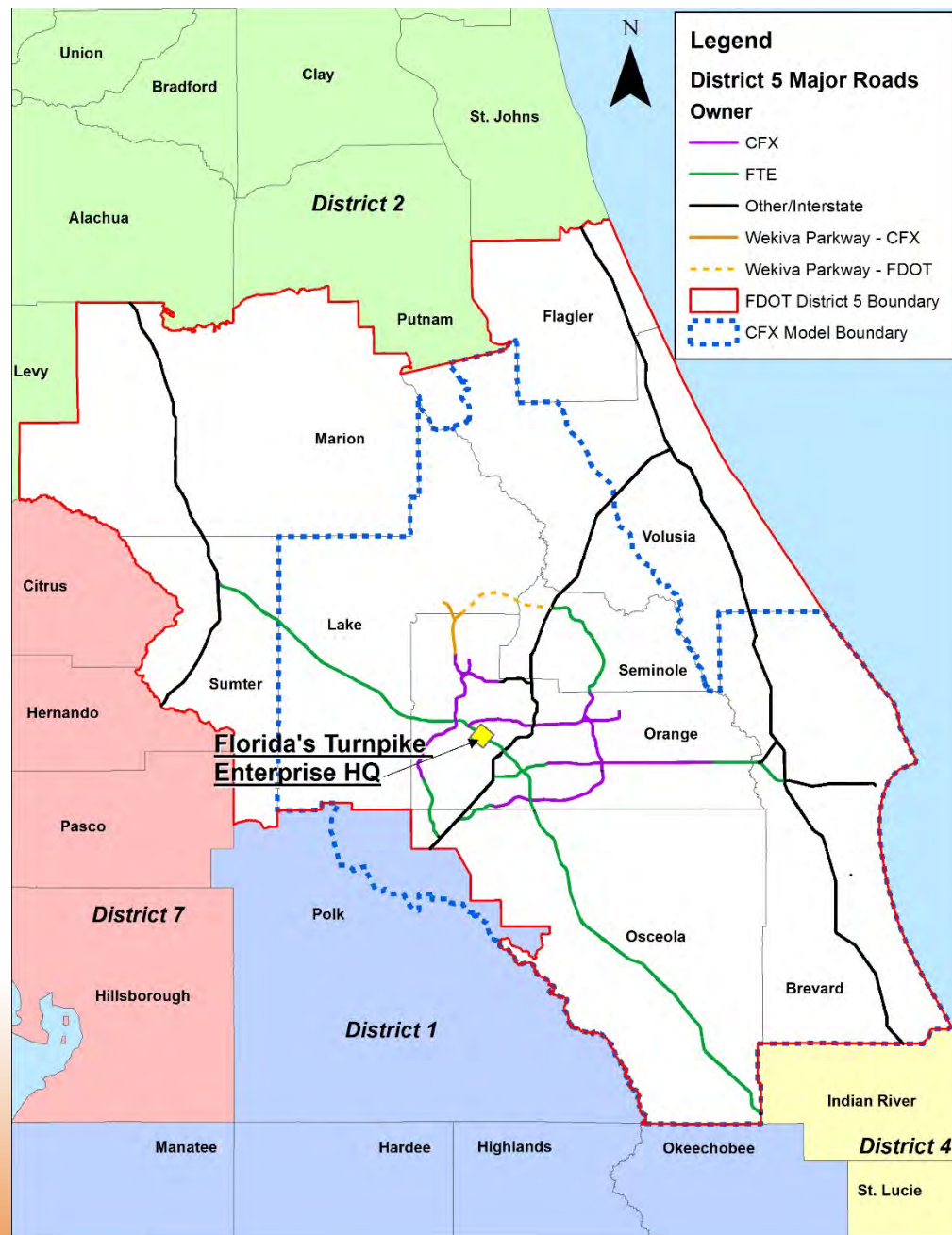
# Metropolitan Planning Organization

MetroPlan Orlando  
Lake-Sumter MPO



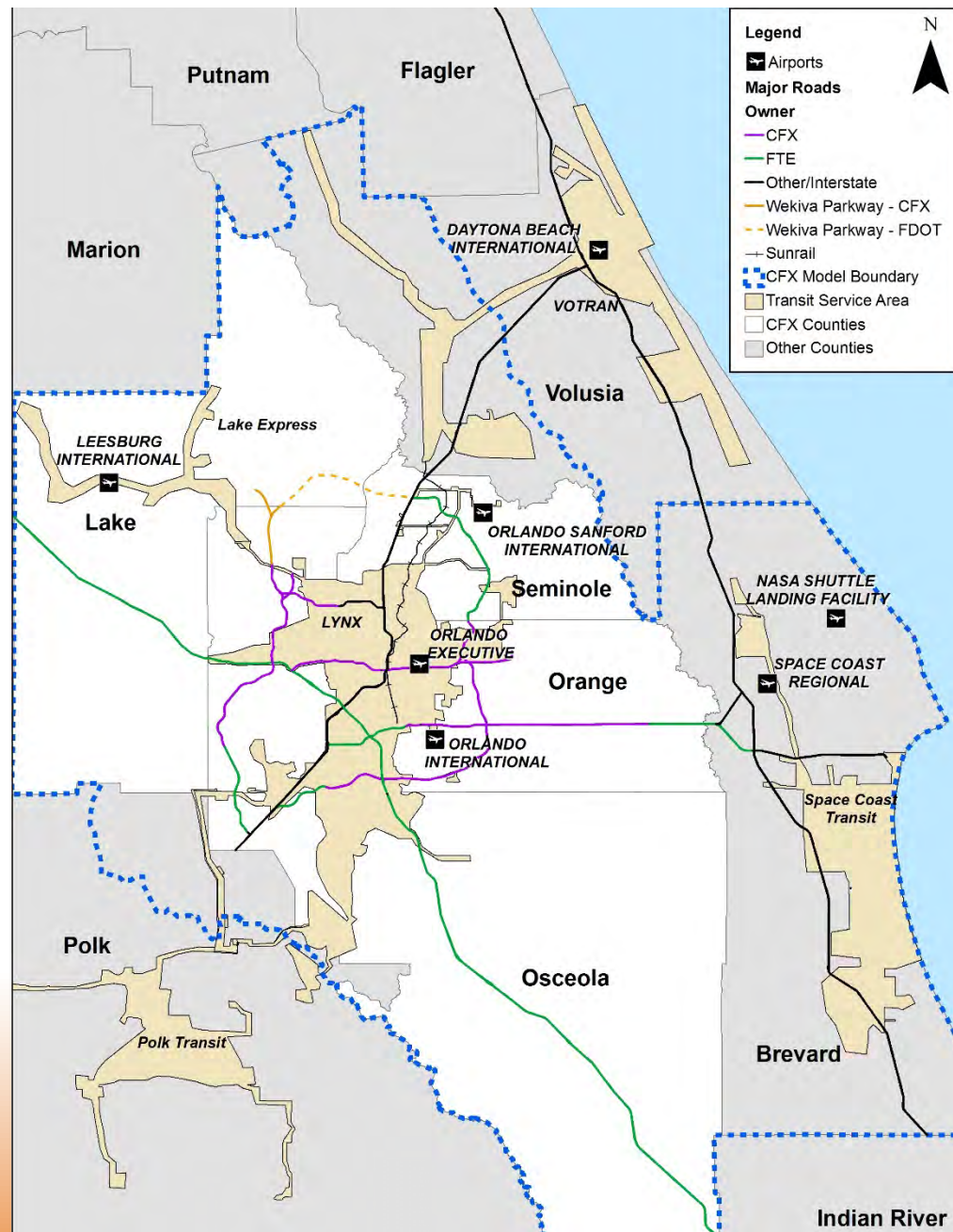
# Florida Department of Transportation

## District 5 Florida's Turnpike Enterprise



# Other Transportation Agencies

LYNX  
LakeXpress





# Metropolitan Planning Organizations

- Primary responsibility for transportation planning resides with the MPOs (and FDOT)
  - Multimodal
  - 3 C's (continuing, cooperative and comprehensive)
- MPO Governance
  - Board of Directors (elected officials from cities and counties, agency representation)
- MPO Products
  - Transportation Improvement Program (TIP) - 5 year program
  - Long Range Transportation Plan (LRTP) - 20+ year plan
  - Financial Plan for LRTP
  - Prioritized Project List (after the TIP)



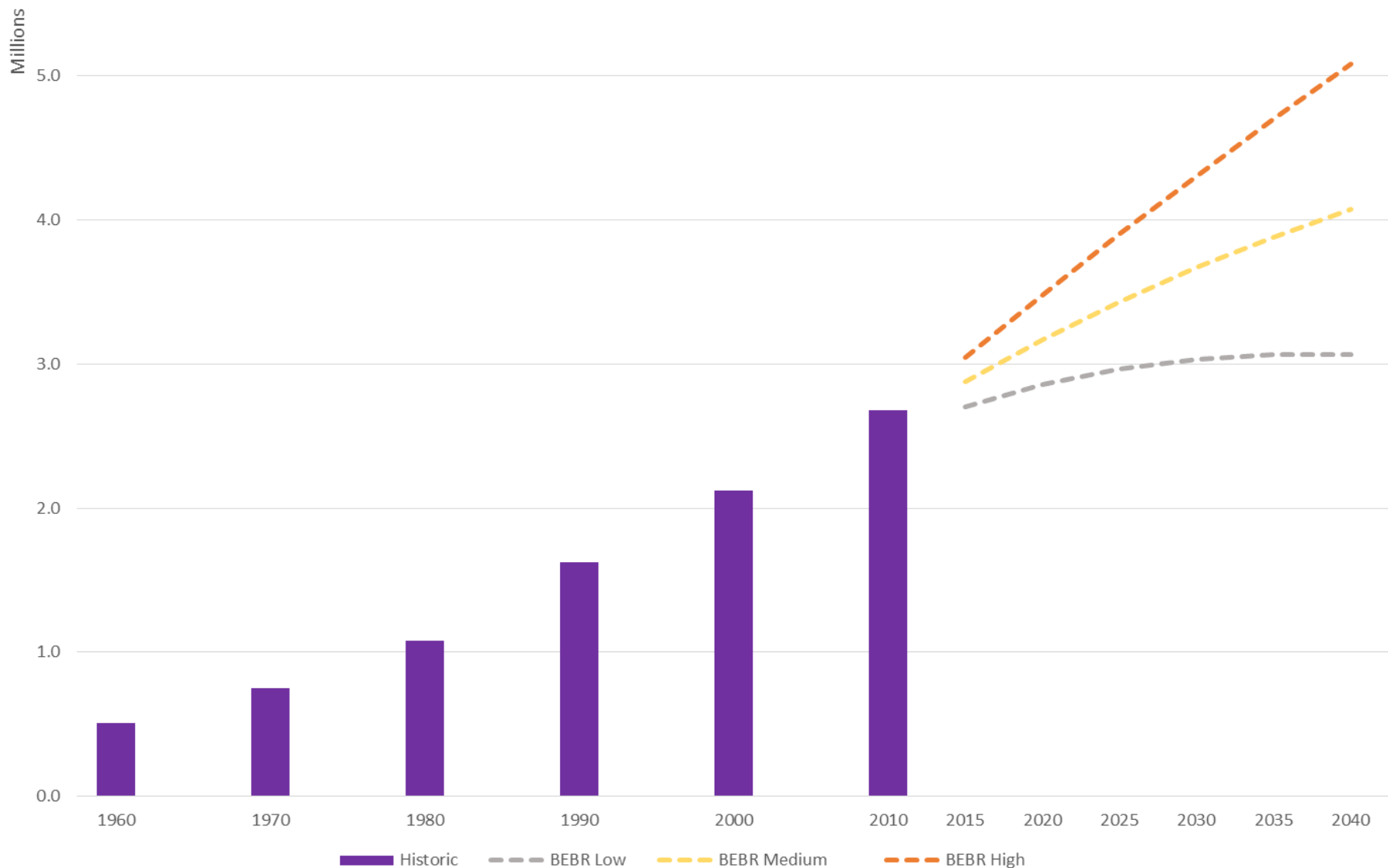


## Bureau of Economic and Business Research (BEBR)

- University of Florida in Gainesville
- Official population forecasts for the state and local governments
- Demographic models
- Updated every year
- Three forecasts (Low, Medium and High)

# Historic Population and BEBR Projections

(Lake, Orange, Osceola, Seminole and Brevard)





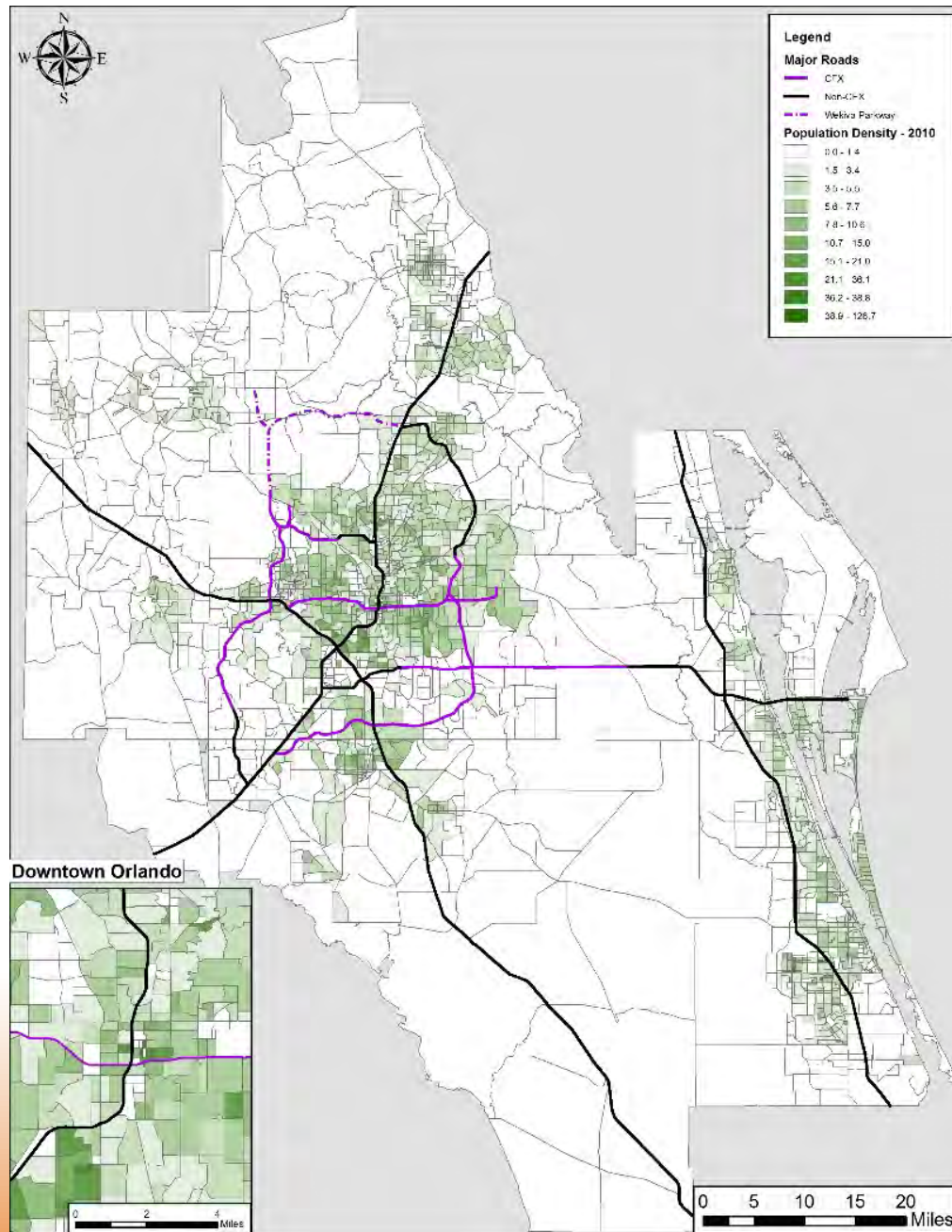
# Planning for CFX

- Created a special-purpose computer model from the latest versions of the models by MetroPlan Orlando and District 5
- Model covers CFX Counties, plus Brevard County and parts of Volusia and Polk Counties
- Used patterns of land development from the MPOs (counties)
- Controlled population forecasts to meet BEBR Medium population forecasts by County
- Based other variables on control totals from Moody's Analytics and Woods & Poole



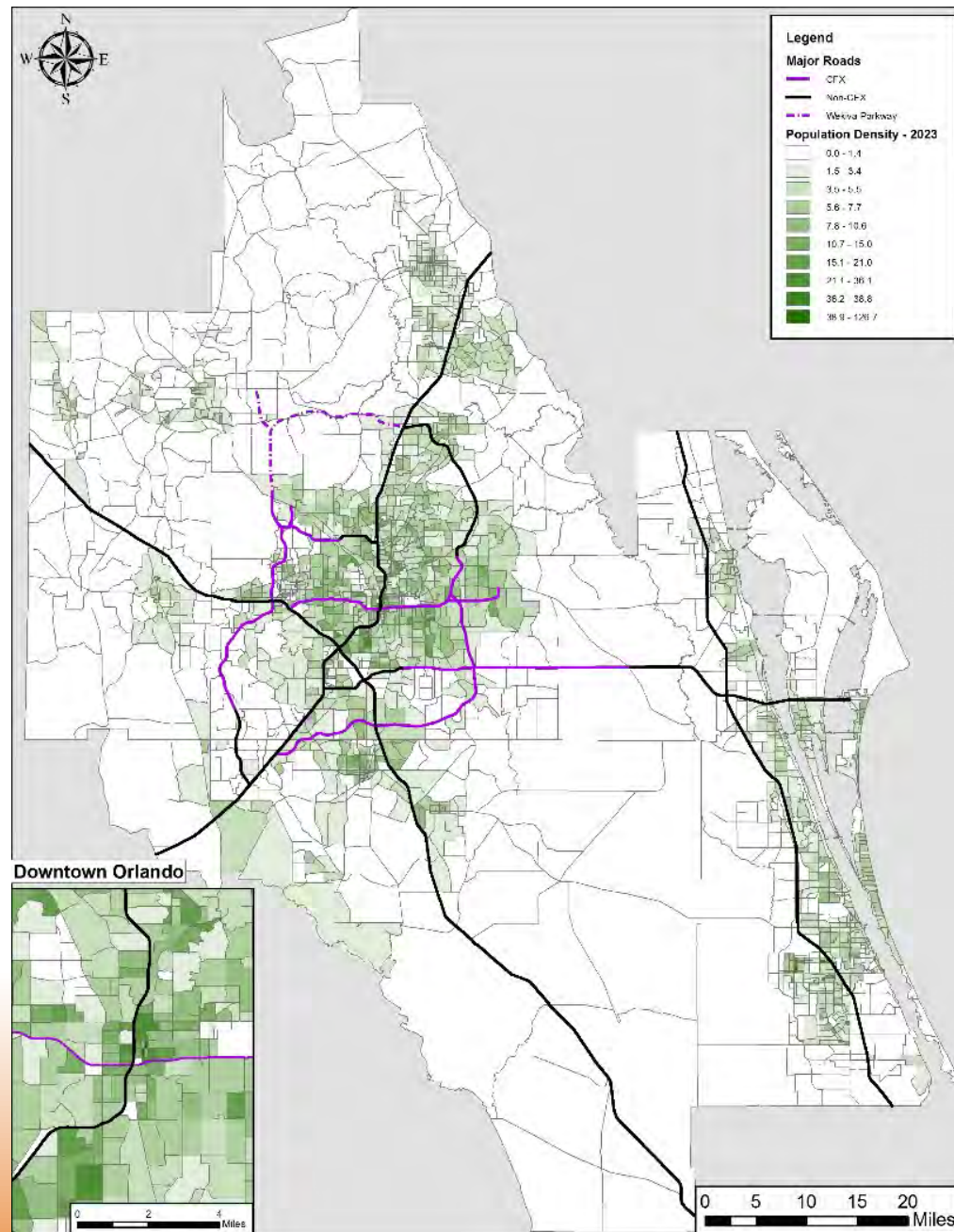


# 2010 Population Density



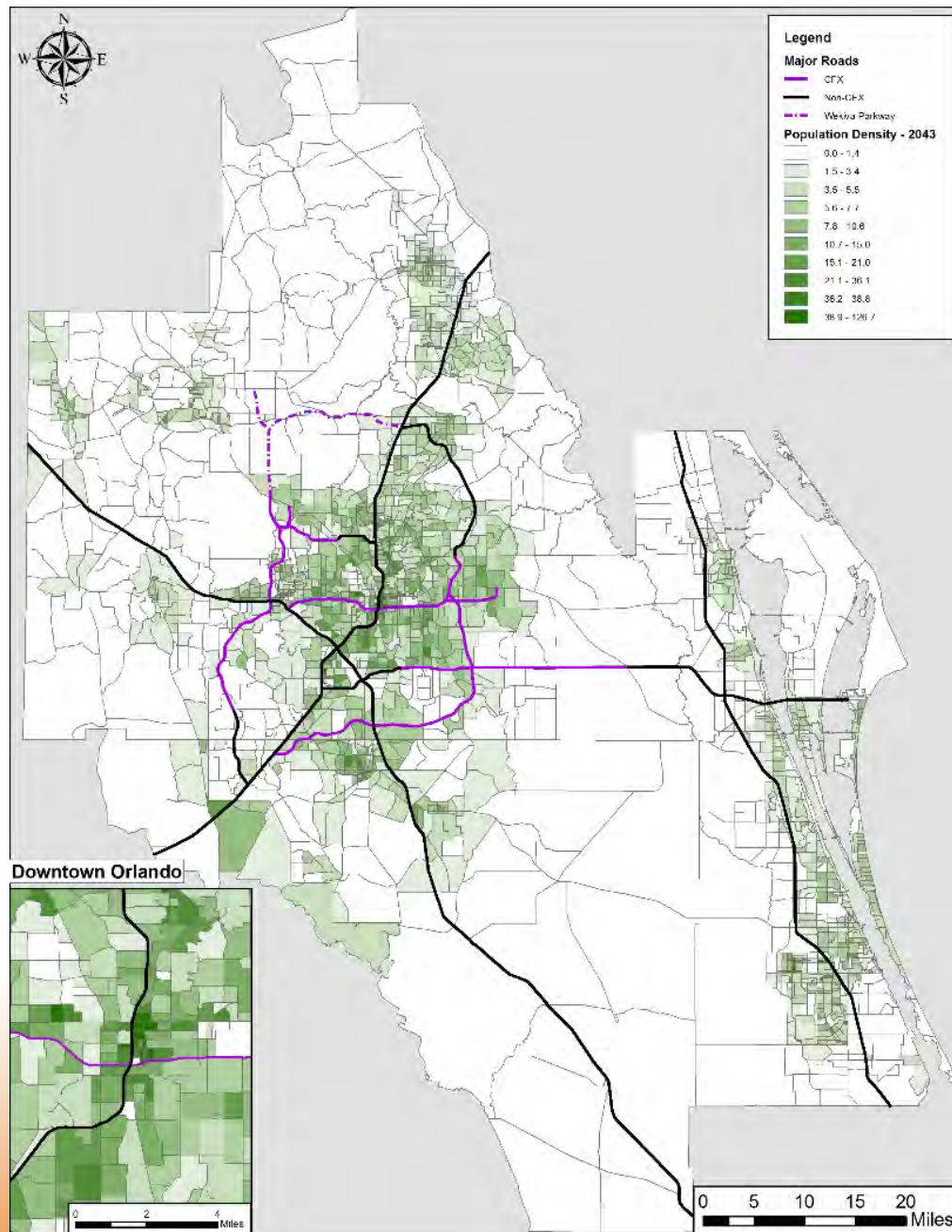


# 2023 Population Density





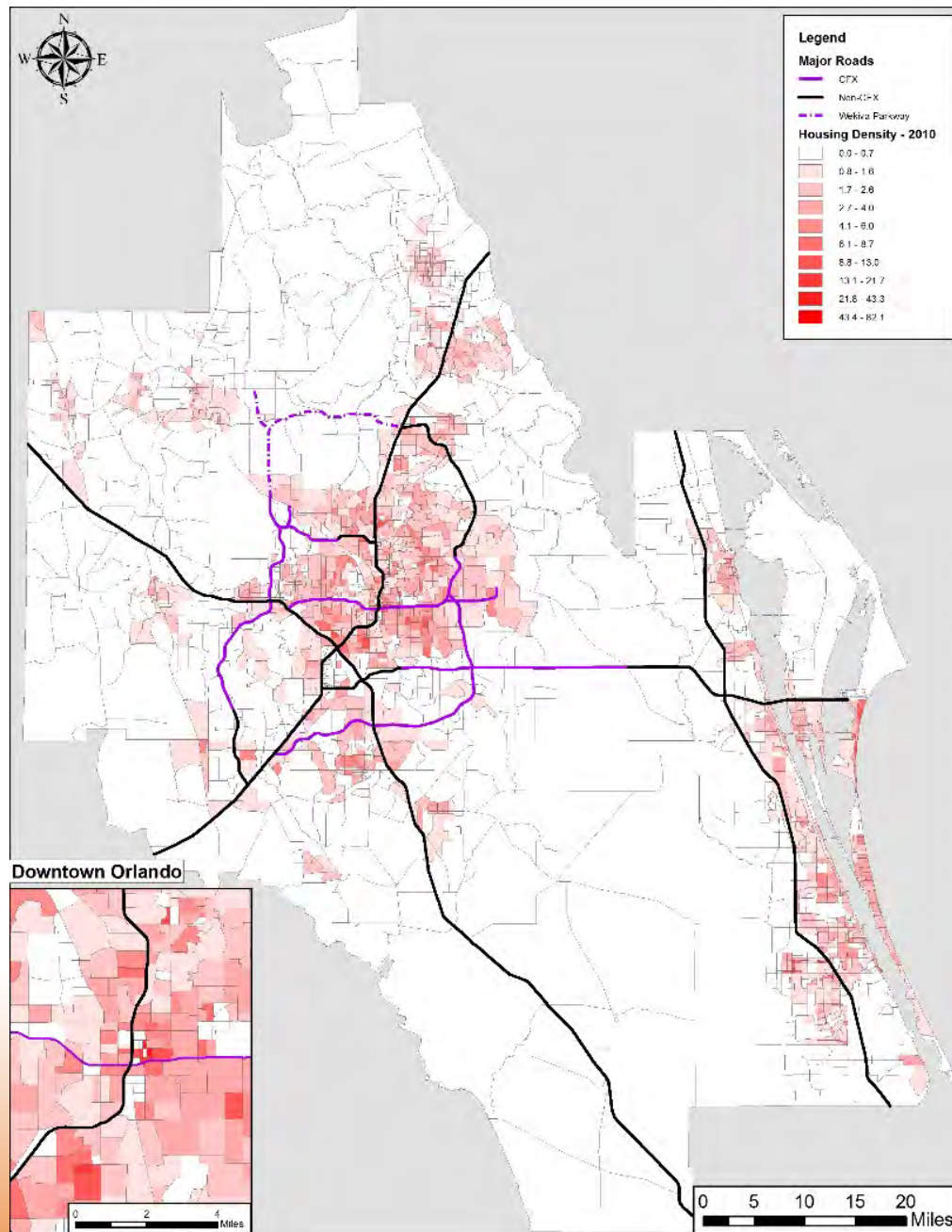
# 2043 Population Density





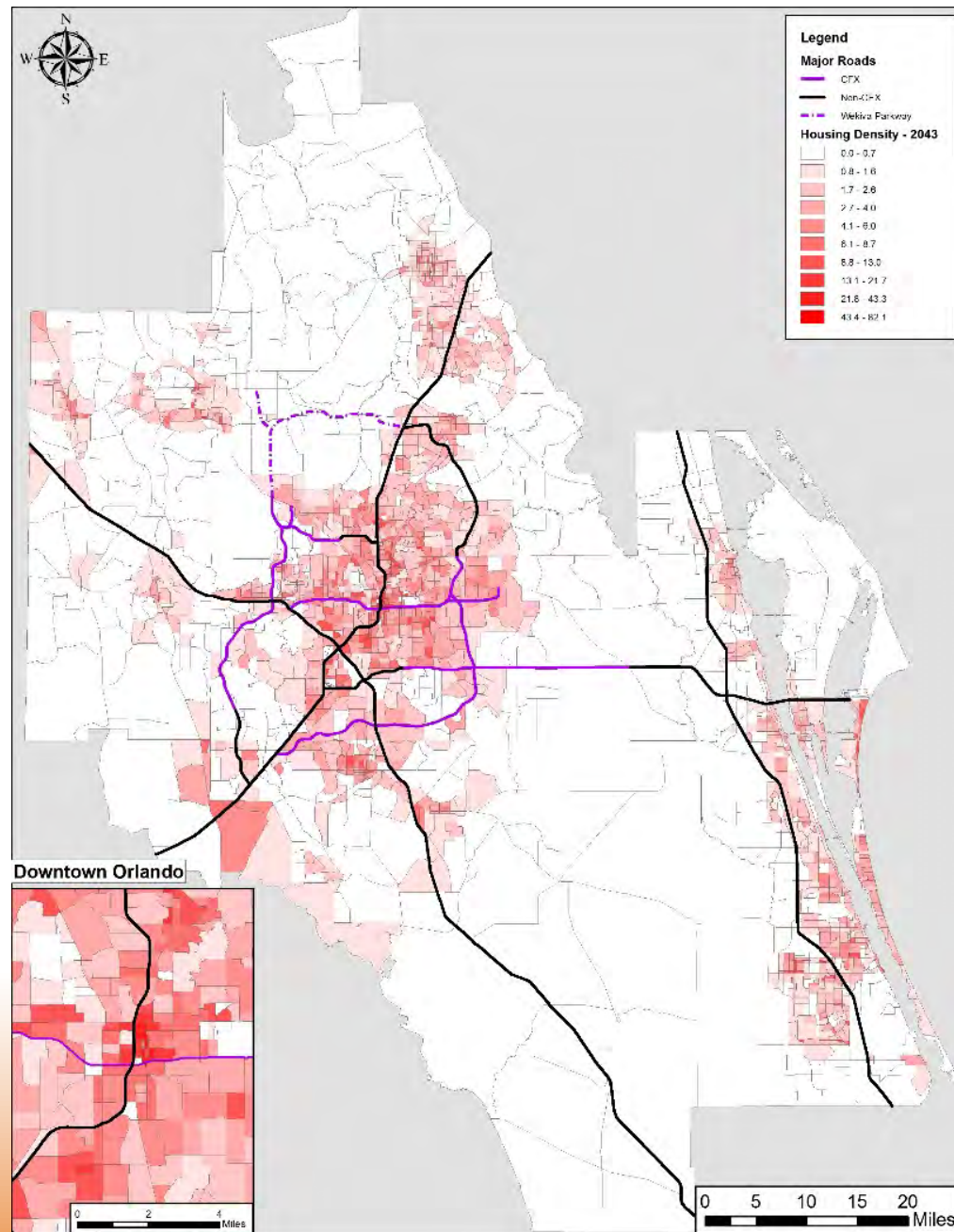


# 2010 Housing Density



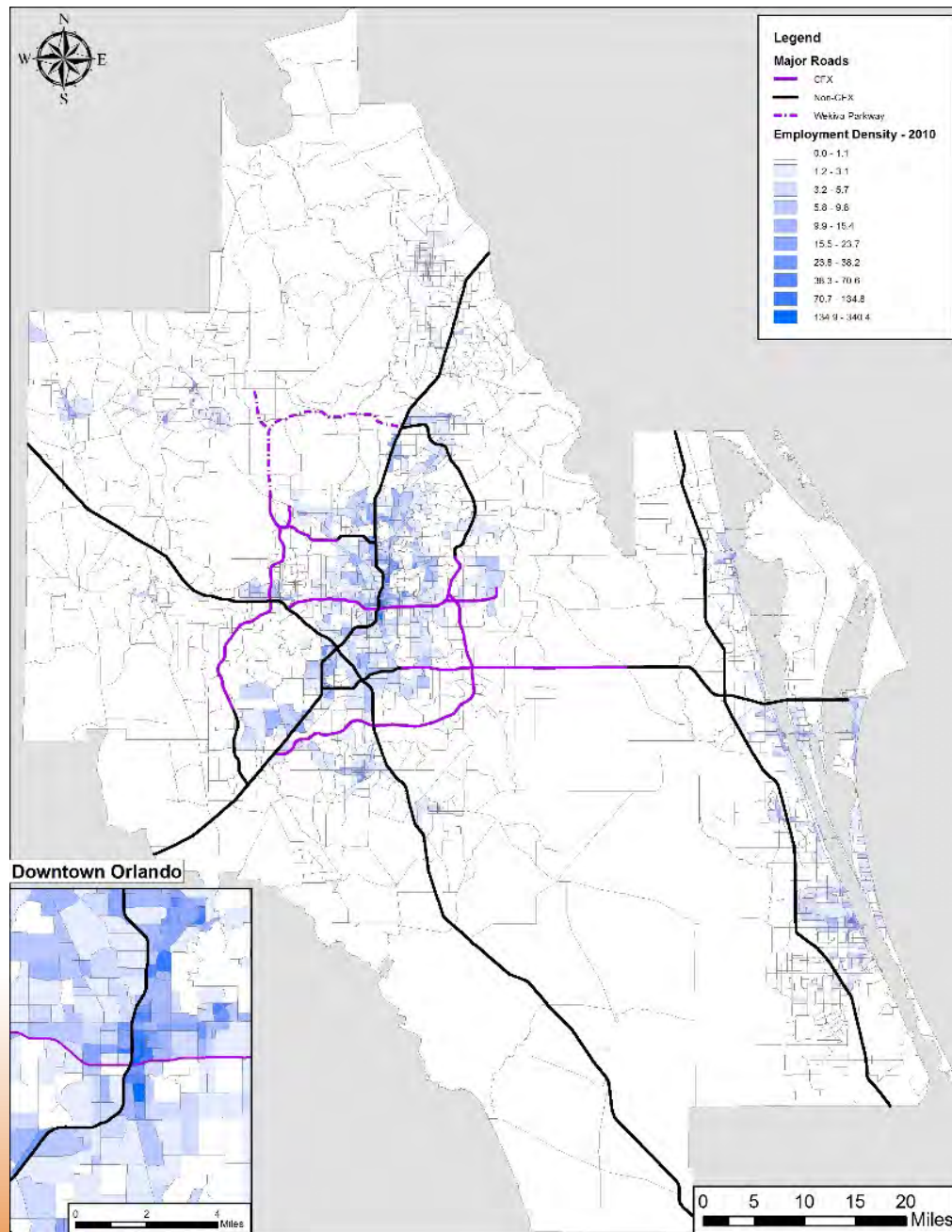


# 2043 Housing Density





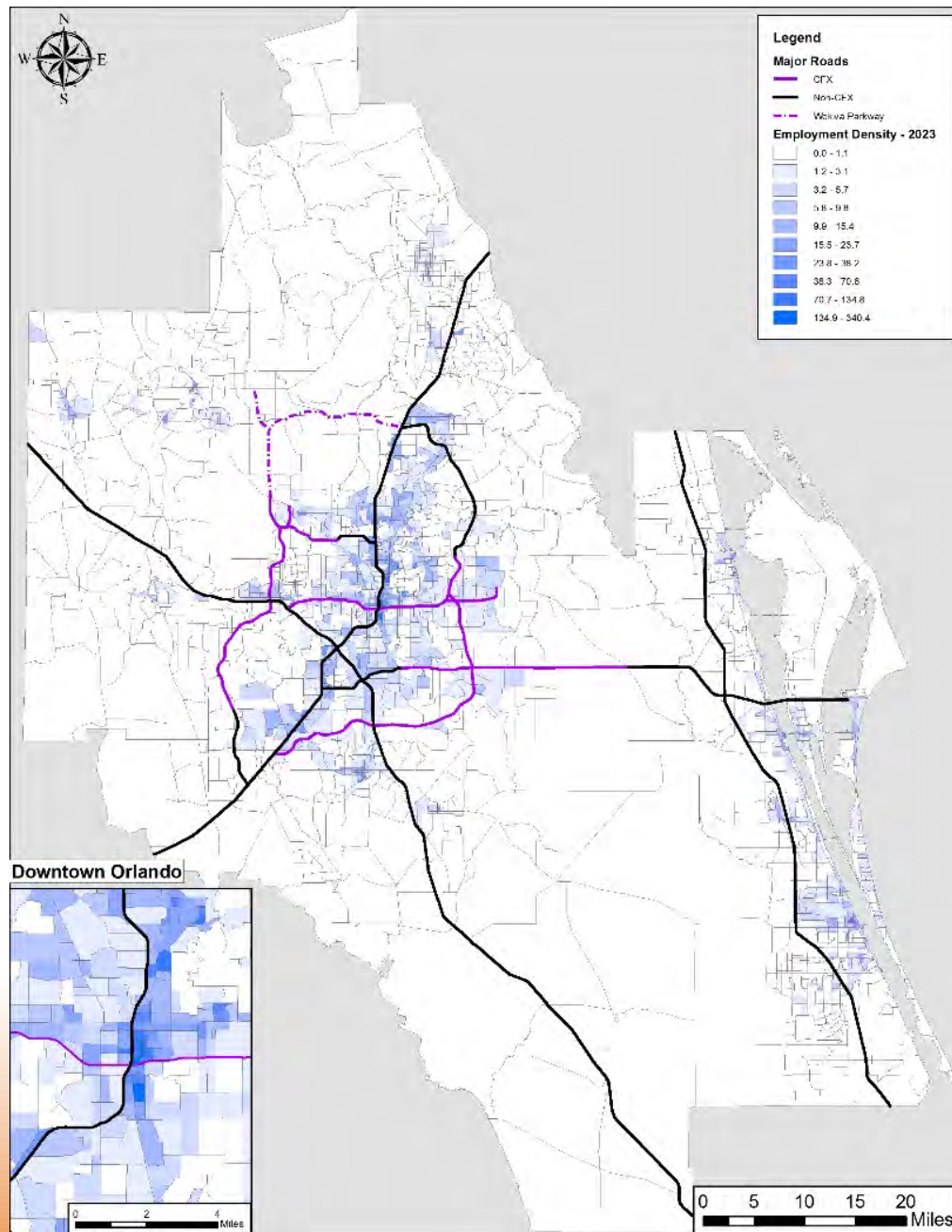
# 2010 Employment Density





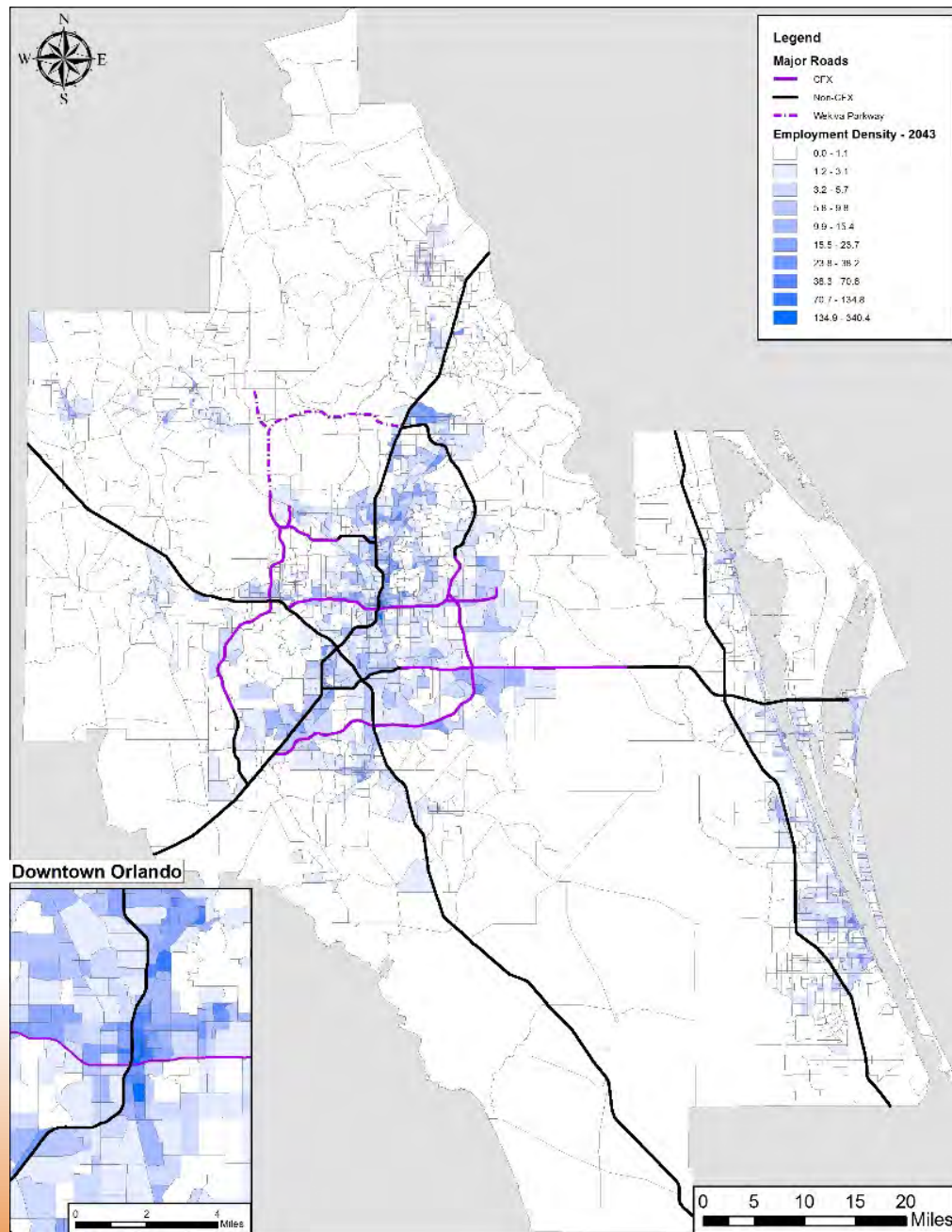


# 2023 Employment Density





# 2043 Employment Density

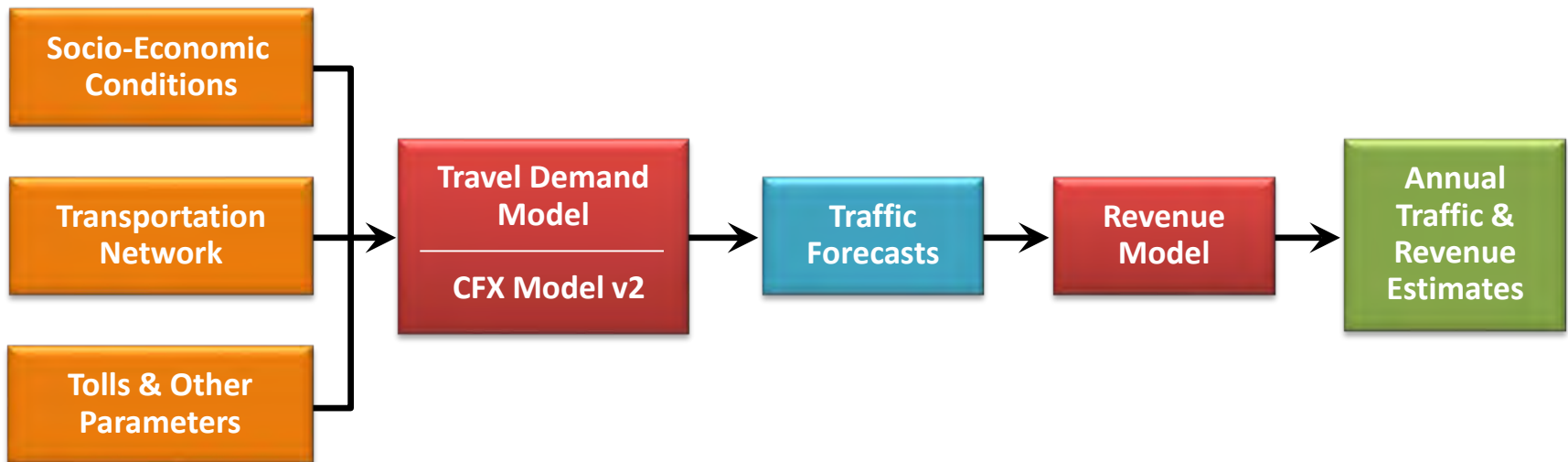






# Planning for CFX

- Suite of computer models designed for the sole purpose of planning CFX toll facilities

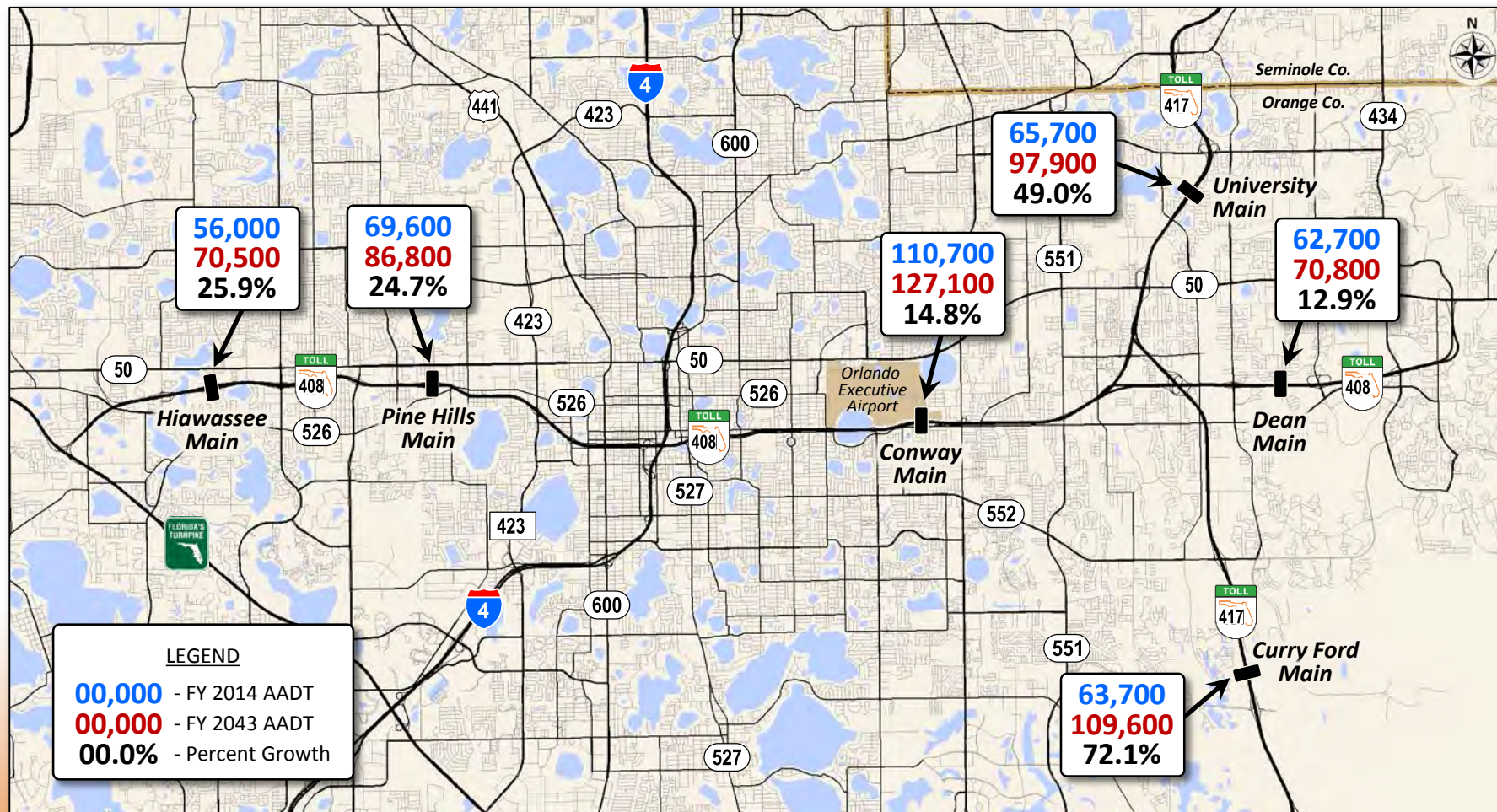


- Travel demand model uses data from the 6 model years with planned toll rate increases
- Revenue model uses all traffic forecasts



# Traffic Growth at Mainline Plazas

From 2014 Traffic and Earnings Consultant's Annual Report  
Estimates with TRI

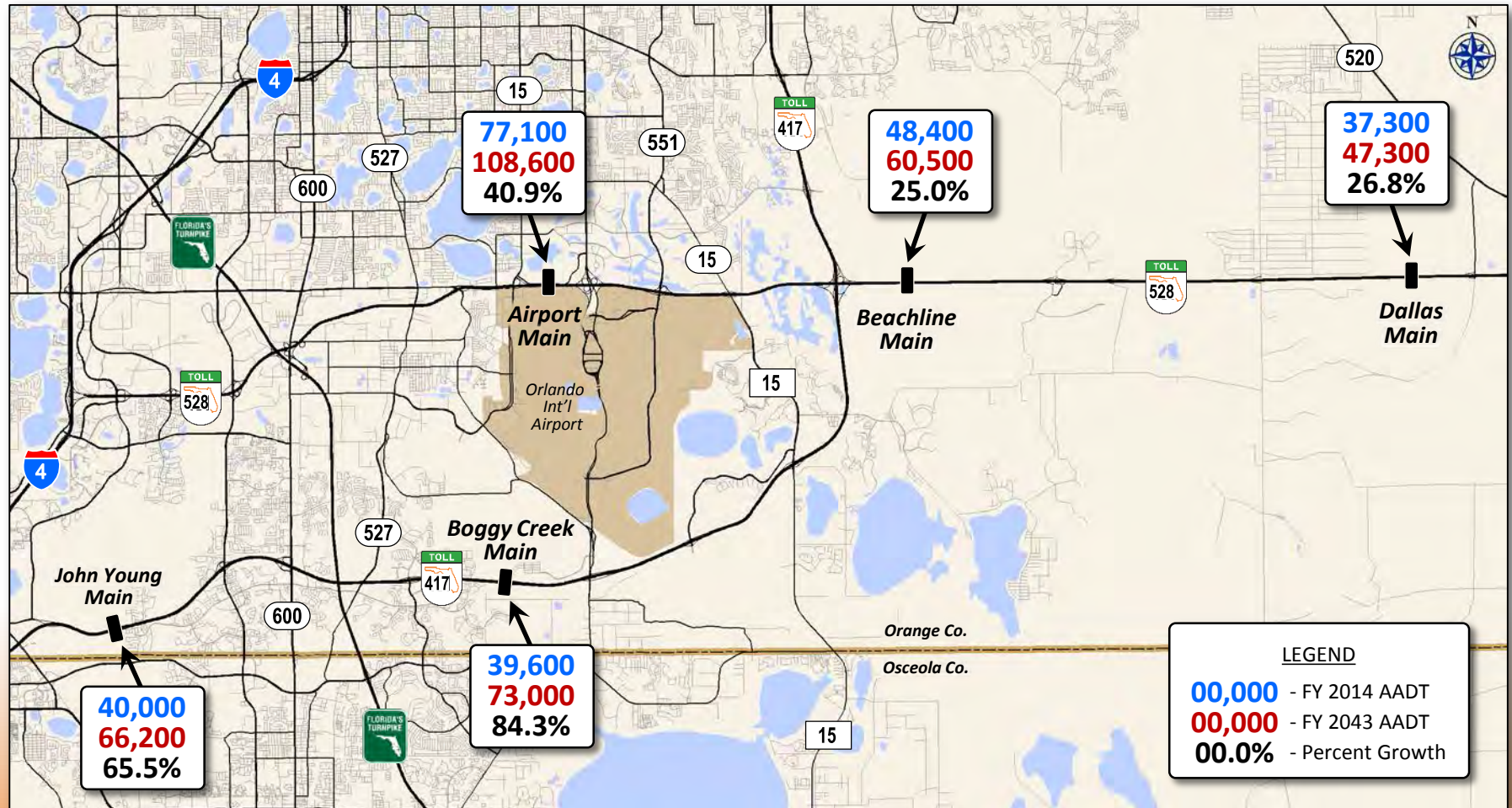






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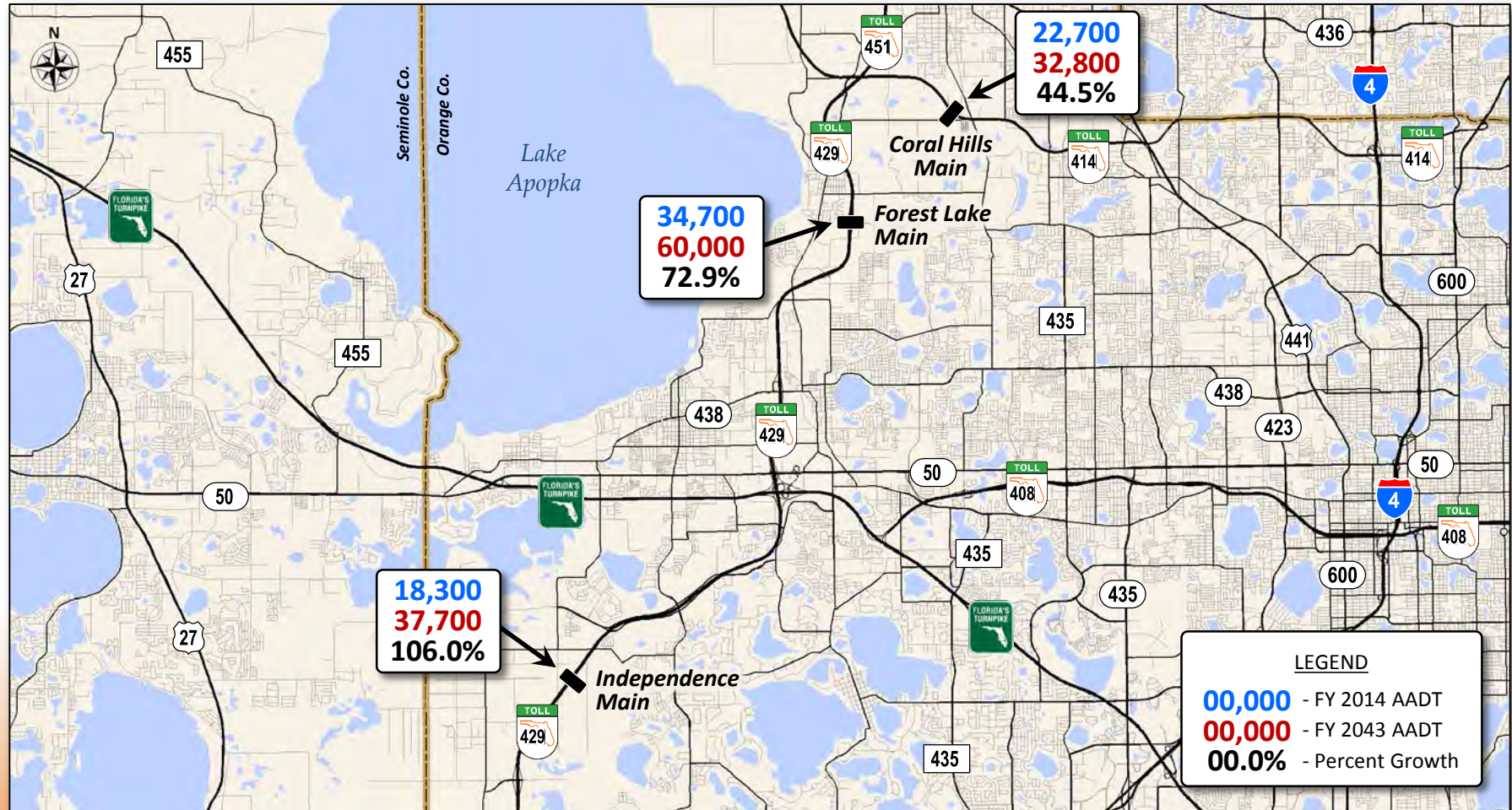






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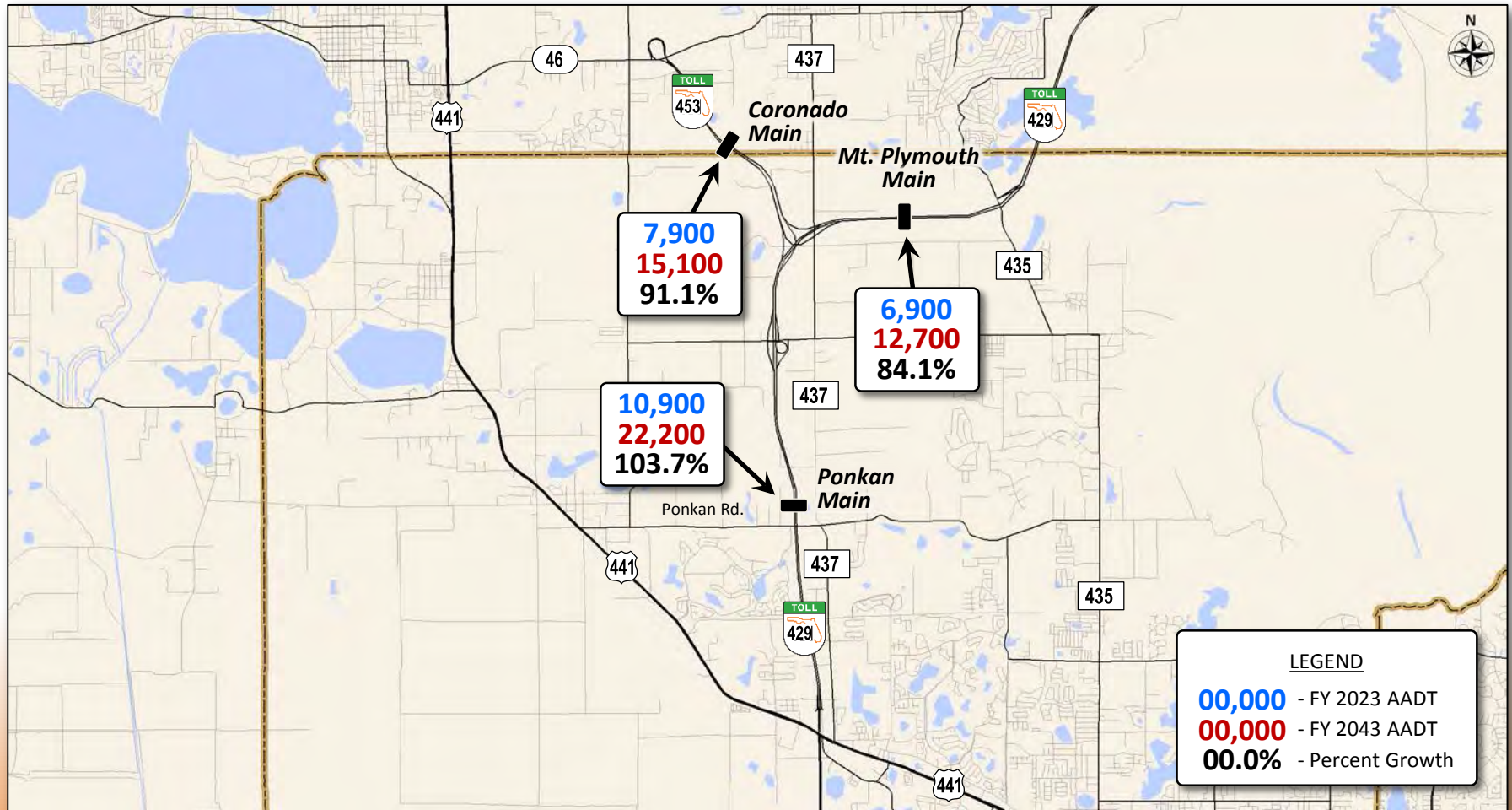
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# Traffic Growth at Mainline Plazas

From 2014 Traffic and Earnings Consultant's Annual Report  
Estimates with TRI





# Questions



# Existing System Improvement Needs

**Nathan Silva, P.E.**  
**Atkins North America**





# Presentation Agenda

- Existing System Needs Overview
- Capacity Expansion Projections
- Systemwide Renewal Programs





# Existing System Needs

## MASTER PLAN PURPOSE

- Establish policy for future operations and capital investment decisions
- Basis for Five Year Work Plan



# Existing System Needs

- Capacity Expansion
- Systemwide Renewal Programs

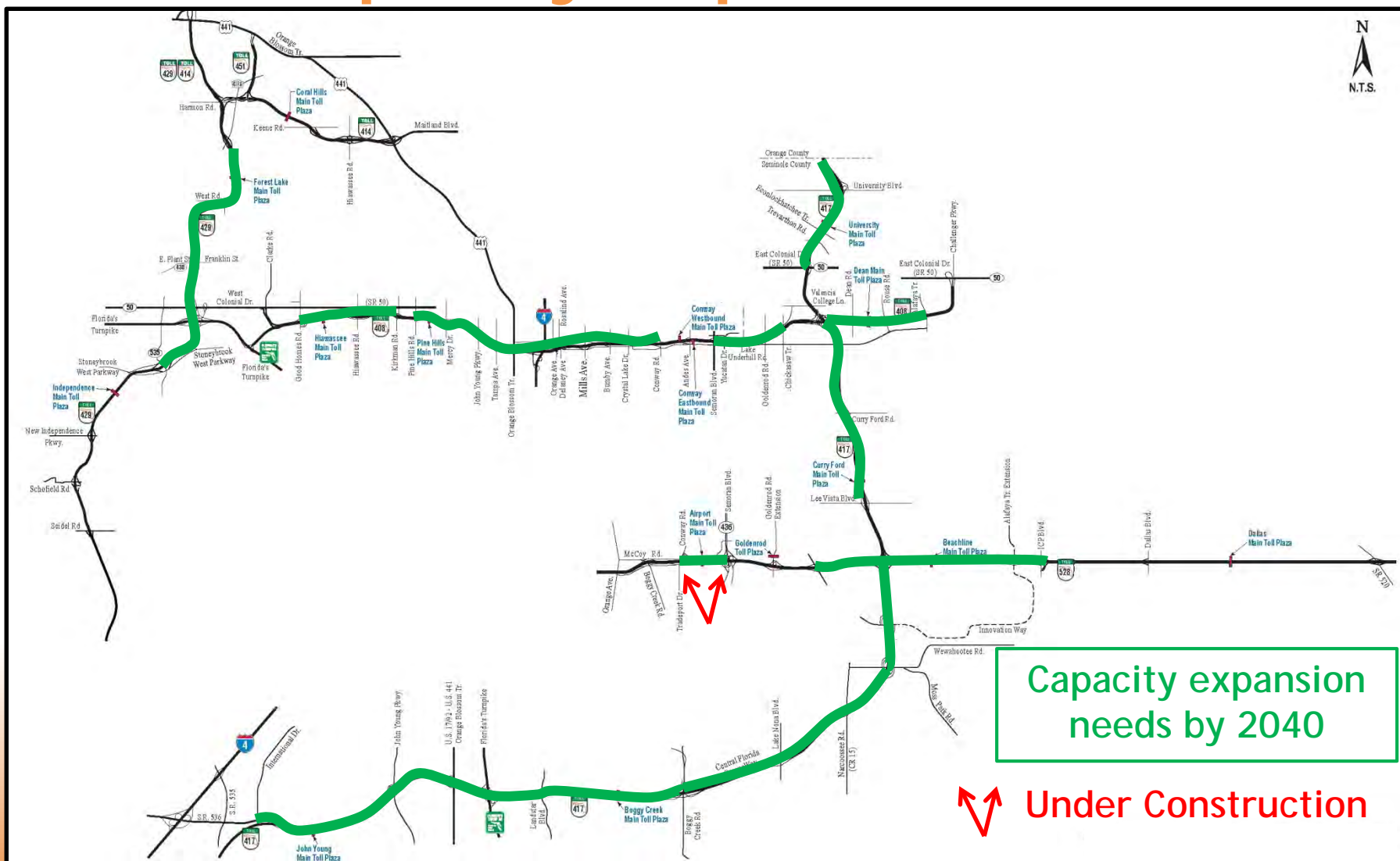
# Capacity Expansion Needs

- Policy to maintain Level of Service D or better
- Approximately 55 miles of capacity expansion needed by 2040



SR 417 Widening  
Curry Ford to Lake Underhill

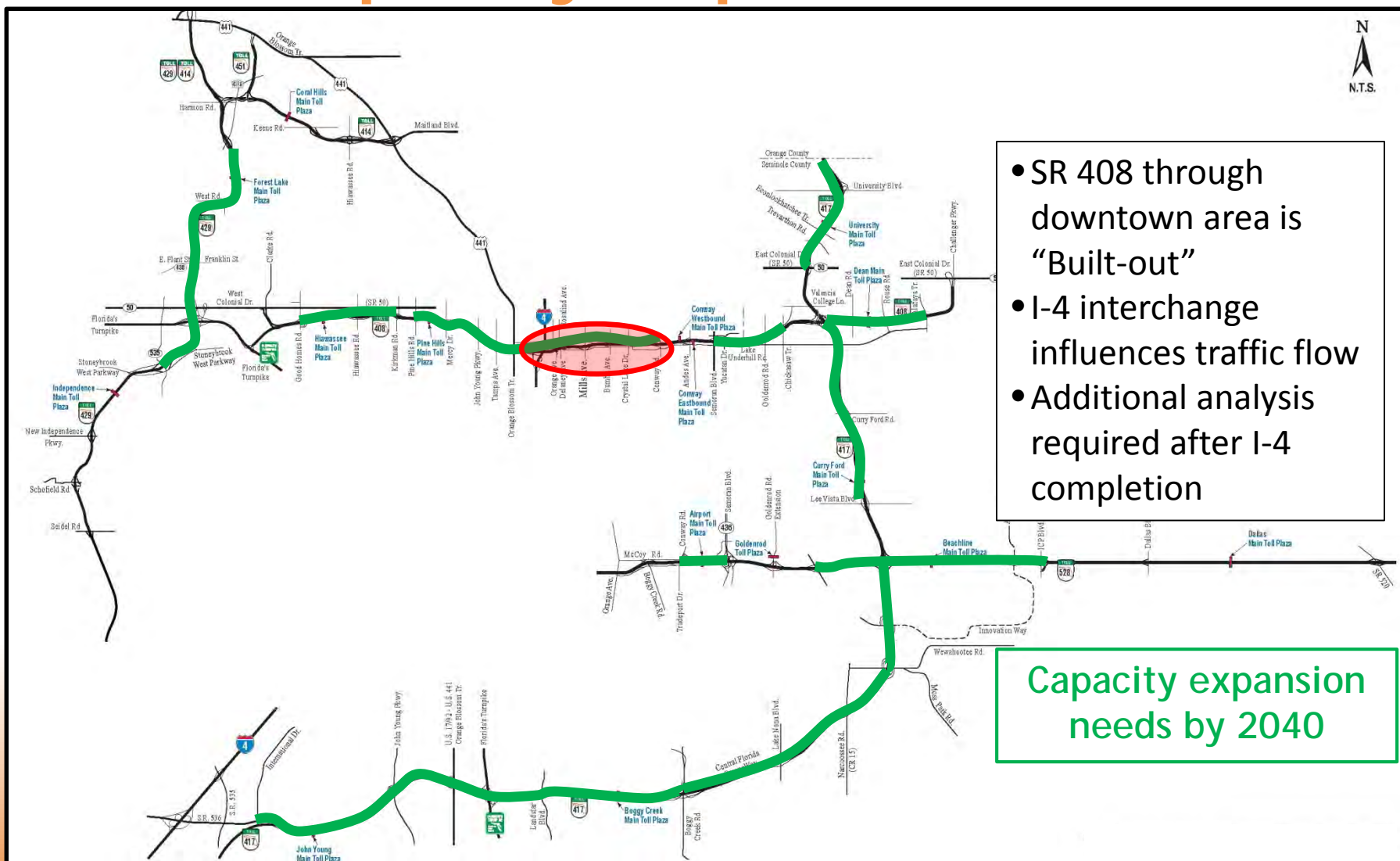
# Capacity Expansion Needs



# CENTRAL FLORIDA EXPRESSWAY AUTHORITY



# Capacity Expansion Needs



# System Renewal Needs

## Roadway Resurfacings

- 742 lane miles systemwide
- 9 to 12 year resurfacing life cycle
- Coordinated with capacity improvement projects





# System Renewal Needs

## Toll Equipment and Facilities

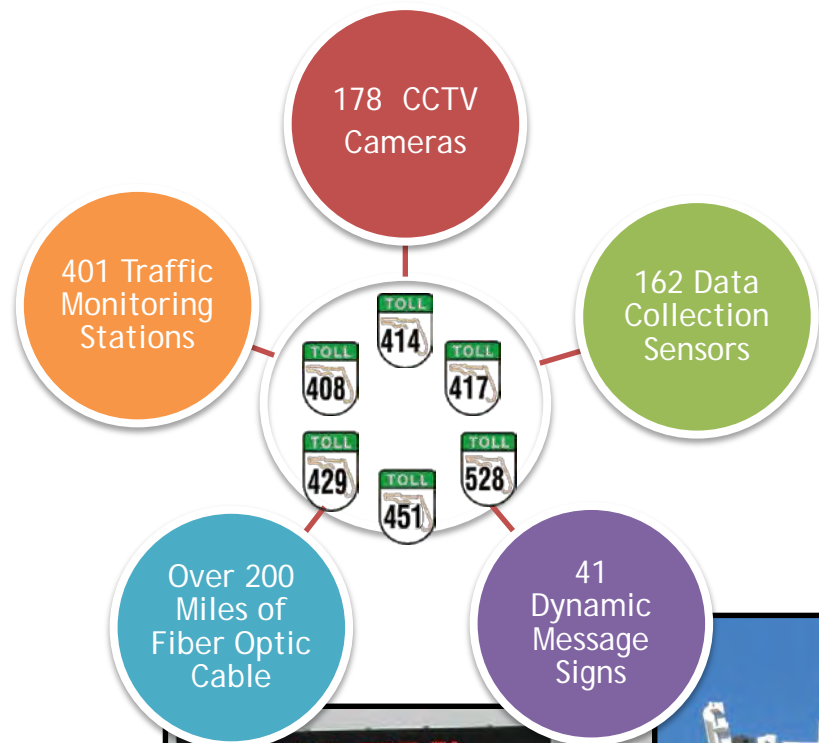
- 14 mainline plazas and 64 ramp plazas
- Generators, air conditioners and roofs on older segments of the system are reaching their useful life



# System Renewal Needs

## ITS Equipment

- Equipment lifecycle is generally 7 to 10 years
- Equipment upgraded with more cost-effective new technology

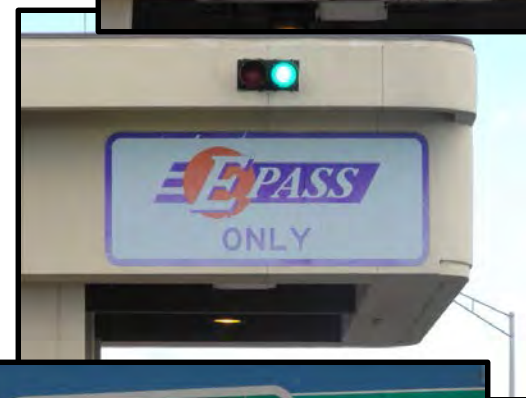




# System Renewal Needs

## Signs

- Overhead and ground mounted
- Sign life cycle generally 7 to 15 years depending on type, sheeting and reflectivity





# QUESTIONS



# Transit Overview

**Jack Schnettler, P.E.**  
**Atkins North America**



# Presentation Agenda

- Transit Basics
- Tollroad Agency Partnering Examples
- Summary



# What is transit?

The collective movement of people within urban areas using a variety of travel technologies, such as buses and trains.



# Transit in the United States

## QUICK FACTS

- 35 million daily trips
- \$57 billion/year industry
- 400,000 employees
- 7,200 agencies



# »» Transit Funding Sources

- Federal Grants
- State DOT
- Local
- User fees
- Special Assessments
- Concessions / Advertising

# Transit Technologies

## Bus Rapid Transit



- Separated and mixed flow
- Rubber-tired, often articulated, clean diesel or CNG fuel
- Stops: ½ - 1 mile, 15-30 mph
- 7 - 20 mile long routes
- Longer distance trips
- Ridership: 8,000 - 20,000

## Automated Guideway Transit



- Separated alignment
- Rubber-tired on guideway with under-car power
- Stops: 4 - 10 blocks, 10-20 mph
- 3 - 6 mile long routes
- Activity center circulator
- Ridership: 8,000 - 30,000





# Transit Technologies

## Streetcar



- In-street, mixed flow
- Operates on rail tracks with overhead power supply
- Frequent stops, 5-15 mph
- 3-6 mile long routes
- Activity center circulator
- Ridership: 2,500 - 12,000

## Light Rail Transit



- Separated and mixed flow
- Operates on rail tracks with overhead power supply
- Stops: ½ to 1 mile, 20-30 mph
- 7 to 20 mile long routes
- Longer distance trips
- Ridership: 8,000 - 20,000



# Transit Technologies

## Commuter Rail



- Separated alignment, grade crossings
- Operates on rail tracks, typically with diesel engines, can be electrified
- Stops: 2-5 miles, 30-40 mph
- 3-6 miles long
- Activity center circulator
- Ridership: 2,500 - 10,000

## Heavy Rail Transit



- Separated alignment
- Operates on rail tracks, with 3<sup>rd</sup> rail power
- Stops: 1-2 miles, 25-35 mph
- 12-30 mile long routes
- Activity center circulator
- Ridership: 20,000 - 80,000



# Approximate Transit Costs

Transit Mode	Capital Cost/Mile (Millions)	Capital Cost / Vehicle (Millions)	Typical Operating Cost / Vehicle Revenue Hour	15-mile Route Operating Cost/Year (Millions)
BUS RAPID TRANSIT	\$1 to \$5	\$0.5 to \$1	\$120 to \$160	\$6
STREETCAR	\$40 to \$65	\$1.5 to \$3	\$150 to \$190	\$10
LIGHT RAIL TRANSIT	\$45 to \$85	\$4 to \$6	\$250 to \$350	\$25
HEAVY RAIL TRANSIT	\$150 to \$250	\$3 to \$4	\$200 to \$250	\$45
COMMUTER RAIL (existing rail)	\$5 to \$25	\$3 to \$5	\$550	\$12

Multiple sources compiled by Atkins



# Transit in Florida

- 37 - Agencies
- 29 - Fixed route systems
- 270 M - Annual ridership
- \$1.01 B - Consolidated O&M budget
- 25 minutes - Average headway
- \$0.97 - Average fare per passenger
- 25.86% - Farebox recovery ratio

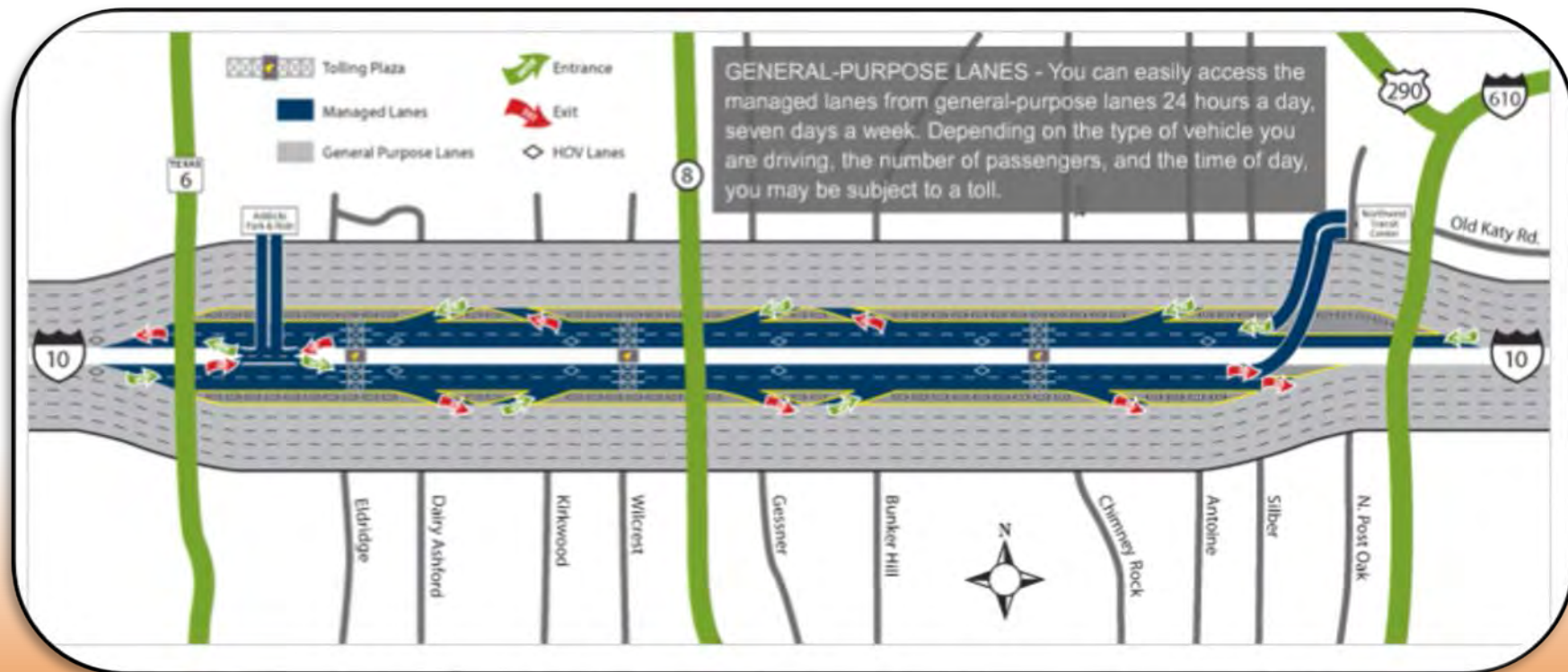


# TOLLROAD AGENCY PARTNERING EXAMPLES



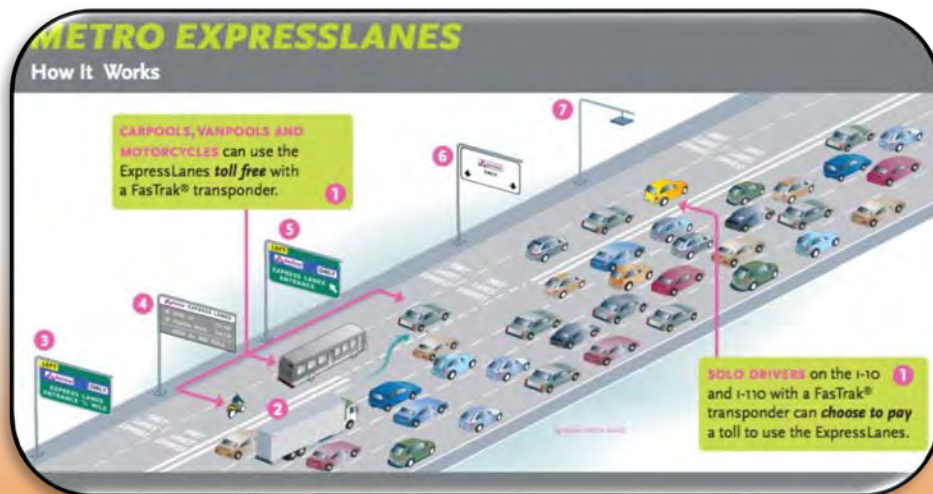
# ➤➤➤ Harris County, TX

- Katy Expressway Managed Lanes
- Demand pricing by time of day schedule
- Carpoolers and express buses pay no tolls



# Los Angeles, CA

- Los Angeles County Metropolitan Transportation Authority (the Metro) ExpressLanes converts:
  - 14 miles on the I-10 El Monte Busway
  - 11 miles on the I-110 Harbor Transitway
  - Los Angeles County voters could be asked in 2016 to fund a toll highway and rail line through the Sepulveda Pass.





# Tampa Hillsborough Expressway Authority (THEA)

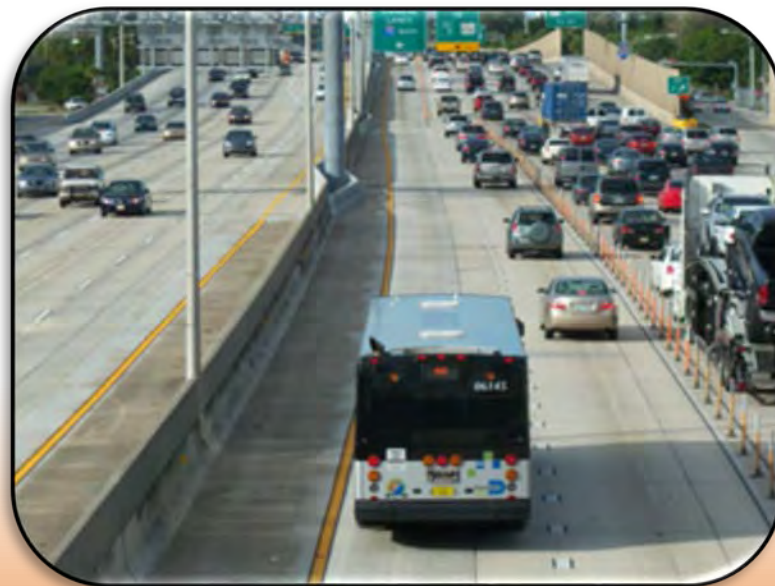
## Bus Toll Lane Corridors

- In the planning stages
- Similar to the Miami I-95 Express Lanes
- Toll revenue to support transit O&M

### What is a Bus Toll Lane?



New Lanes in Limited-Access Highway in Existing Right of Way







# Miami Dade County Expressway Authority (MDX)

## South Busway Toll Road

- In the planning stages
- Toll managed lanes would share space with transit in existing busway





# MDX

## SR 874 Bus on Shoulder

- In operation for several years
- Allows Miami-Dade Transit buses to avoid congestion



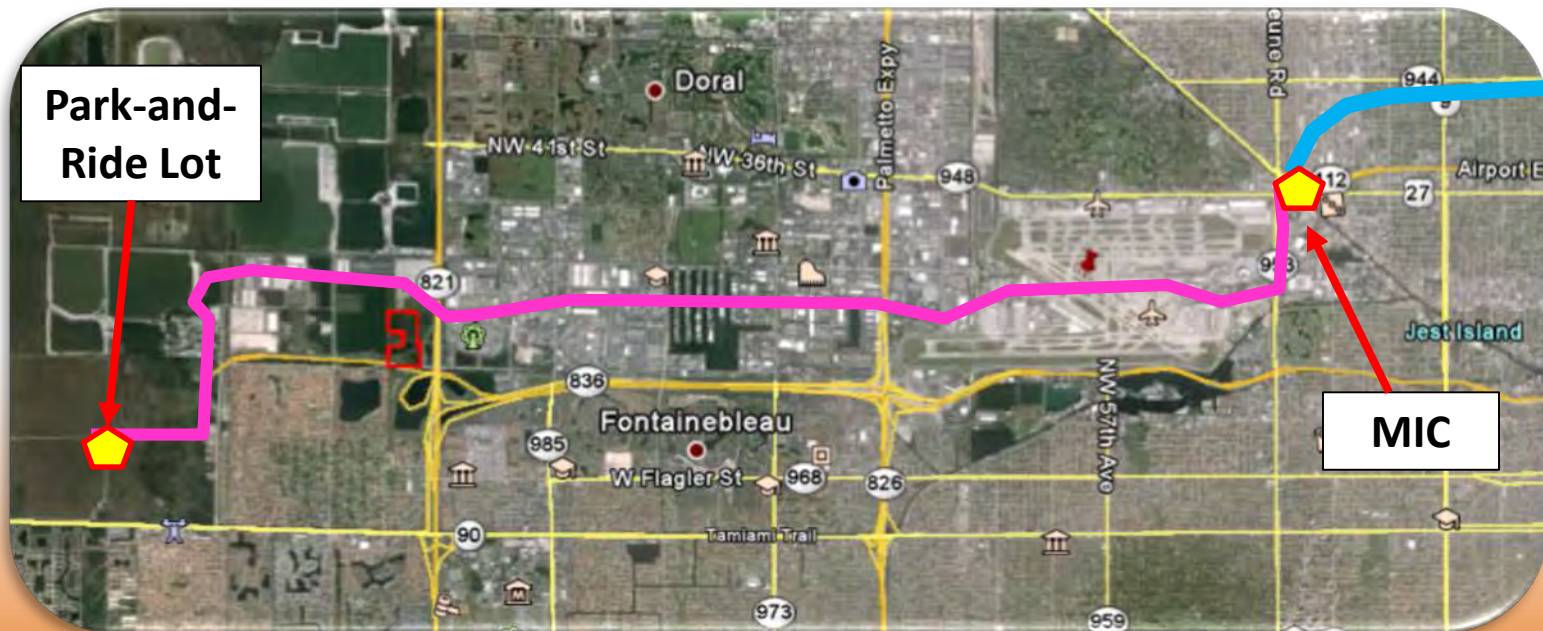




# MDX - SR 836 Toll Road / Bus Rapid Transit (BRT) Service

## SR 836 Toll Road BRT Service

- Implementation in 2019
- BRT operation in mixed traffic flow
- Connects park-and-ride lot to Miami Intermodal Center and Metrorail





## Summary

There are many partnering opportunities the Authority can explore with existing regional transit agencies in Central Florida



# QUESTIONS



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