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

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**Central Florida Expressway Authority**
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

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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

LEGEND
0,000 0,000 00.0%
- FY 2014 AADT
- FY 2043 AADT
- Percent Growth
Traffic Growth at Mainline Plazas
From 2014 Traffic and Earnings Consultant’s Annual Report
Estimates with TRI
Traffic Growth at Mainline Plazas
From 2014 Traffic and Earnings Consultant’s Annual Report Estimates with TRI
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Estimates with TRI

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Existing System Improvement Needs

Nathan Silva, P.E.
Atkins North America
Presentation Agenda

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

Capacity expansion needs by 2040

Under Construction
Capacity Expansion Needs

- SR 408 through downtown area is “Built-out”
- I-4 interchange influences traffic flow
- Additional analysis required after I-4 completion

Capacity expansion needs by 2040
System Renewal Needs

Roadway Resurfacings

- 742 lane miles systemwide
- 9 to 12 year resurfacing life cycle
- Coordinated with capacity improvement projects
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
<table>
<thead>
<tr>
<th>Transit Technologies</th>
<th>Bus Rapid Transit</th>
<th>Automated Guideway Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Separated and mixed flow</td>
<td>• Separated alignment</td>
<td>• Separated alignment</td>
</tr>
<tr>
<td>• Rubber-tired, often articulated,</td>
<td>• Rubber-tired on guideway with under-car power</td>
<td>• Rubber-tired on guideway with under-car power</td>
</tr>
<tr>
<td>clean diesel or CNG fuel</td>
<td>• Stops: 4 - 10 blocks, 10-20 mph</td>
<td>• Stops: 4 - 10 blocks, 10-20 mph</td>
</tr>
<tr>
<td>• Stops: ½ - 1 mile, 15-30 mph</td>
<td>• 3 - 6 mile long routes</td>
<td>• 3 - 6 mile long routes</td>
</tr>
<tr>
<td>• 7 - 20 mile long routes</td>
<td>• Activity center circulator</td>
<td>• Activity center circulator</td>
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<tr>
<td>• Longer distance trips</td>
<td>• Ridership: 8,000 - 20,000</td>
<td>• Ridership: 8,000 - 30,000</td>
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<tr>
<td>• Ridership: 8,000 - 20,000</td>
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</tbody>
</table>
## 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 3rd 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

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

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
SR 874 Bus on Shoulder
• In operation for several years
• Allows Miami-Dade Transit buses to avoid congestion

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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