First Coast Commuter Rail Study

Assess feasibility of commuter rail to address First Coast mobility needs in the context of:

- Travel demand
- Alignments
- Other regional multimodal services
- Railroad network capacity
- Financial capacity
North American Commuter Rail Systems

- "Heritage" Systems (Pre-1985)
  - Vancouver
  - Seattle
  - Portland
  - Montreal
  - Ottawa
  - Montreal
  - Syracuse
  - New York City
  - Newark
  - Baltimore
  - Washington DC

- "New" Systems (Since 1985)
  - Miami
  - Los Angeles
  - San Diego
  - Salt Lake City
  - Austin
  - Minneapolis
  - Charlotte
  - Orlando
  - San Francisco
  - San Jose
  - Sacramento

- Systems in Development
  - Seattle
  - Portland
  - Sacramento
  - Salt Lake City
  - Austin
  - Minneapolis
  - Charlotte
  - Orlando
  - San Francisco

"Heritage" Systems (Pre-1985)

"New" Systems (Since 1985)

Systems in Development
What is Commuter Rail?

• A Form of Rapid Transit
  – Moves people at speeds greater than automobile traffic in a corridor
    • Typically 35 to 45 mph “commercial” speeds
• Focus on Longer-Distance, Regional Travel Markets
  • 20- to 50-mile line lengths
  • Stops typically spaced every one to four miles
  • Heavy reliance on park-ride access
• Joint Use of Existing Railroad Infrastructure
  – Emphasis on fewer, longer trains
  – FRA vs. FTA regulatory environment
Form of Rail Rapid Transit

Transit Productive Capacity

From: Vukan R. Vuchic - Urban Public Transportation: Systems & Technology
Focus on Regional Travel Markets

**Light Rail**
- Station Spacing: ½ to 1 mile
- System Extent: 15 to 20 miles
- Maximum Speed: 65 mph
- Average Speed (with stops): 25 mph

**Commuter Rail**
- Station Spacing: 1 to 4 miles
- System Extent: 20 to 75 miles
- Maximum Speed: 79 mph
- Average Speed (with stops): 45 mph

**Intercity Rail**
- Station Spacing: 20 to 30 miles
- System Extent: 50 to 300 miles
- Maximum Speed: 110 mph
- Average Speed (with stops): 55 mph
Focus on Regional Travel Markets

CHESTNUT HILL WEST

Highland

St Martins

CHESTNUT HILL EAST

Gravers

Wyndmoor

Mount Airy

Sedgwick

Allen Lane

Carpenter

Stenton

Washington Lane
Focus on Regional Travel Markets

- Cost-effective service in lower residential densities in conjunction with...
Focus on Regional Travel Markets

• …a vibrant downtown concentration of employment, drawing longer-distance commuters.
Shared Use of Railroad Infrastructure

Sharing railroad facilities can:

- Reduce start-up and on-going O&M costs
- Restrict service frequencies and growth
  -- Often results in fewer, longer trains
Commuter Rail Rolling Stock

Shared facilities with railroads results in FRA regulation:

- Prescriptive safety, operating & rolling stock requirements
  - Results in larger, heavier rolling stock than other modes
  - Leads to less frequent, longer train service strategy
Commuter Rail Rolling Stock

Rolling Stock Choices
- FRA-Compliant or Not
- Electric or “Diesel”
- Locomotive-Hauled or Self-Propelled (“MU”) Coaches
Commuter Rail Rolling Stock

Locomotive with Superliner Coaches
(Intercity Amtrak Train)
Commuter Rail Rolling Stock

Locomotive with “Tri-Level” Push-Pull Coaches
Commuter Rail Rolling Stock

Locomotive with Single Level Push-Pull Coaches
Commuter Rail Rolling Stock

Diesel-Electric or Electric Locomotives
Commuter Rail Rolling Stock

Multiple Units (MUs):
- Self-propelled
  - No locomotives
- Power distributed throughout trains
  - Matched to cars
  - Better acceleration
- More economical in shorter consists
Commuter Rail Rolling Stock

Self-Propelled Diesel Coaches
("DMU")
Commuter Rail Rolling Stock

Self-Propelled Diesel Coaches ("DMU")

- Single-Level
- Bi-Level
Commuter Rail Rolling Stock

Non-Compliant DMUs are allowed, but...

- Must satisfy FRA waiver process
- Service hours sometimes constrained

Option for Light Branch Lines

- South Jersey, Ottawa
- Austin, San Diego
Commuter Rail Options for Jacksonville?

It depends...
New Starts Evaluation & Rating Framework

Overall Project Rating

Summary Ratings

Criterion Ratings

Measures

Project Justification Rating

Financial Rating

Mobility Improvements (33%)
Cost Effectiveness (33%)
Land Use (33%)
Other Factors
Non-Section 5309 Share (20%)
Capital Finances (50%)
Operating Finances (30%)

Travel Time Savings (TSUB / pax-mi) (25%)
No. of Transit Dependent (TD) Riders (25%)
TD User Benefit / pax-mi (25%)
User Benefit Share (Project TDs vs. Regional TDs) (25%)
Incremental Cost per Incremental Passenger (100%)
Incremental Cost Per TSUB
Existing Land Use (33%)
Transit Supportive Plans & Policies (33%)
Performance & Impact of Policies (33%)
Other Factors
Economic Development (33-50%)
Congestion Management (33-50%)
Optional Considerations (0-33%)

User Benefit Share (Project TDs vs. Regional TDs) (25%)
Existing Land Use

Intensity of Development
• Entire corridor and within ½-mile radius of stations

Development Character
• Urban design features
• Mix of uses

Pedestrian Facilities
• Direct routes
• Sidewalk network

Parking Supply
• Supply, location and cost
Growth Management

- Concentrate higher density development around:
  - Regional activity centers
  - Stations
- Infrastructure restrictions outside growth areas
- ‘Smart growth’ zoning
- Land conservation and management
Supportive Zoning Regulations

- Increased development density in station areas
- Enhanced transit-oriented character including pedestrian access to station areas
- Reduced parking and traffic mitigation
Future Population & Employment Density

2025 Population Density by TZA

2025 Employment Density by TZA

Legend:
- No Data
- Up to 1 Person per Acre
- 1 to 5 Persons per Acre
- 5 to 10 Persons per Acre
- More than 10 Persons per Acre

Legend:
- No Data
- Up to 1 Employee per Acre
- 1 to 4 Employees per Acre
- 4 to 10 Employees per Acre
- More Than 10 Employees per Acre
Initial Impressions

- Six Radial Rail Lines
  - CSXT Sanford
  - FEC Main
  - CSXT Kingsland
  - CSXT Nahunta
  - Norfolk Southern Main
  - CSXT Wildwood

- Very Good Track Conditions
- High to Medium Traffic
First Coast Commuter Rail Study

Challenges

- Downtown Access and Terminals
- Downtown Employment
- Downtown Parking Availability
- Main Line Capacity
First Coast Commuter Rail Feasibility Study