Southeast Corridor
High Performance Transit Alternatives Study

Public Meetings
July 18-20, 2006
Transit in the Southeast Corridor

- Project Update
- Description of Evaluation Process
- Initial Evaluation
- Detailed Evaluation
- Next Steps
Project Update

- Delay due to on-board survey
- Detailed Screening
- Development of Preferred Alternative: August 2006
- Next Round of Public Meeting: September-October 2006
- Selection of Preferred
Needs and Goals

- 15-year commitment to high-capacity transit
- East Corridor – Open September 2006
- Southeast Corridor – Alternatives Study
- Northeast Corridor - Next

Middle Tennessee Transit Network
Project Purpose

Provide alternatives to driving in congested conditions in Southeast Corridor
Demographic Analysis

- Corridor population and employment will grow substantially
- Residences and jobs will be more dispersed
## Traffic Congestion - Murfreesboro Road

<table>
<thead>
<tr>
<th>Murfreesboro Road</th>
<th>From 8th Avenue to:</th>
<th>2003</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Daily Traffic (ADT)</td>
<td>Level of Service (LOS)</td>
<td>Existing Number of Lanes</td>
</tr>
<tr>
<td>Fesslers Lane</td>
<td>28,700</td>
<td>B</td>
<td>5</td>
</tr>
<tr>
<td>Thompson Lane</td>
<td>24,340</td>
<td>B</td>
<td>5</td>
</tr>
<tr>
<td>Briley Pkwy (SR155)</td>
<td>27,670</td>
<td>A</td>
<td>7</td>
</tr>
<tr>
<td>Bell Road</td>
<td>37,510</td>
<td>F</td>
<td>4</td>
</tr>
<tr>
<td>OHB/Hobson Pike (SR 171)</td>
<td>21,820</td>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>Sam Ridley Pkwy</td>
<td>22,790</td>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>Nissan Pkwy</td>
<td>21,920</td>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>SR-840</td>
<td>40,780</td>
<td>F</td>
<td>4</td>
</tr>
<tr>
<td>SR 96</td>
<td>32,190</td>
<td>D</td>
<td>4</td>
</tr>
<tr>
<td>S Church Street (SR 231)</td>
<td>33,250</td>
<td>B</td>
<td>6</td>
</tr>
</tbody>
</table>

* Based on Nashville Area MPO 2025 Long Range Transportation Plan
Source: Nashville Area MPO and TDOT
## Traffic Congestion-I-24

### I-24

<table>
<thead>
<tr>
<th>From I-40 Downtown Nashville to:</th>
<th>Average Daily Traffic (ADT)</th>
<th>Level of Service (LOS)</th>
<th>Existing Number of Lanes</th>
<th>Traffic Forecasts</th>
<th>Level of Service (LOS)</th>
<th>Future Number of Lanes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fesslers Lane</td>
<td>176,060</td>
<td>F</td>
<td>8</td>
<td>216,557</td>
<td>F</td>
<td>8</td>
</tr>
<tr>
<td>Briley Parkway (SR 155)</td>
<td>121,230</td>
<td>D</td>
<td>8</td>
<td>133,746</td>
<td>E</td>
<td>8</td>
</tr>
<tr>
<td>Bell Road</td>
<td>100,660</td>
<td>D</td>
<td>8</td>
<td>140,220</td>
<td>E</td>
<td>8</td>
</tr>
<tr>
<td>Old Hickory Blvd (SR 171)</td>
<td>102,180</td>
<td>D</td>
<td>8</td>
<td>131,881</td>
<td>E</td>
<td>8</td>
</tr>
<tr>
<td>Sam Ridley Pkwy (SR 266)</td>
<td>84,940</td>
<td>C</td>
<td>8</td>
<td>123,583</td>
<td>E</td>
<td>8</td>
</tr>
<tr>
<td>Nissan Drive (SR 102)</td>
<td>83,910</td>
<td>C</td>
<td>8</td>
<td>103,948</td>
<td>D</td>
<td>8</td>
</tr>
<tr>
<td>SR 840</td>
<td>80,710</td>
<td>E</td>
<td>8</td>
<td>88,693</td>
<td>C</td>
<td>8</td>
</tr>
<tr>
<td>SR 96</td>
<td>64,240</td>
<td>E</td>
<td>4</td>
<td>92,954</td>
<td>C</td>
<td>8</td>
</tr>
<tr>
<td>US 231</td>
<td>52,550</td>
<td>D</td>
<td>4</td>
<td>88,572</td>
<td>C</td>
<td>8</td>
</tr>
<tr>
<td>Rutherford/Coffee Co. Line</td>
<td>39,230</td>
<td>C</td>
<td>4</td>
<td>62,710</td>
<td>E</td>
<td>4</td>
</tr>
</tbody>
</table>

* Based on Nashville Area MPO 2025 Long Range Transportation Plan
Source: Nashville Area MPO and TDOT
Needs Assessment
Results

- Traffic congestion will worsen significantly
- Few transit alternatives to driving in congested conditions
- Travel patterns are mixed—Improvements must support both longer-distance and shorter trips
What We Have Heard

- 400+ Visitors to Public Meetings and Forums
- Interviews with more than 20 Key Regional Leaders
- Input from the public through phone, e-mail, Web Site
What We Have Heard

- Need for Transit Options
- Skepticism that Nashville will Use Transit – “Car Town,” Rural Lifestyle
- Enthusiasm for Rail
- Need for “Cost-Realistic” Options
Making More Capacity

- Average passengers in a commuting automobile: about 1.1
- Seated capacity of a commuter bus: 50
- Seated capacity of a commuter rail car: 135 (can operate in up to 4 car trains)
Vehicle Capacity

- 1 Person Car
- 2 Person Carpool
- Vanpool
- Bus
- Light Rail
- Commuter Rail

Number of Vehicles Needed to Carry 90 People

- 1 Person Car: [Diagram showing multiple cars]
- 2 Person Carpool: [Diagram showing multiple cars]
- Vanpool: [Diagram showing multiple vans]
- Bus: [Diagram showing two buses]
- Light Rail: [Diagram showing a single train]
- Commuter Rail: [Diagram showing a single train]
Evaluation of Alternatives

Three Step Evaluation Process

- Initial Screening of Alternatives: Project Need and Goals, Order-of-Magnitude Costs
- Detailed Screening of 3 Alternatives: Detailed Costs, Ridership Estimates
- Refinement of Alternative, Comparison of Alternative to Baseline
Evaluation of Alternatives

- Project Goals and Objectives
- Federal Transit Administration “New Starts” Evaluation Measures
  - Capital Investment Costs
  - Operating Costs
  - User Benefits
  - Land Use
  - Financial Feasibility
Alternatives

Alignment
The road, rail line or other right of way along which the transit service would run

Transit Mode
The combination of vehicle type and guideway
Alternatives

Alignments
- Murfreesboro Rd.
- I-24
- CSX Railroad
- Old Nashville Pike (added after initial screening)

Transit Modes
- Commuter Rail
- Light Rail
- Bus Rapid Transit
- Heavy Rail (subway-elevated)
- High-speed rail
Alignment

- I-24
  - HOV Lane
  - New Alignment
- CSX Rail Line
- US 41/70S (Murfreesboro Rd)
- Old Nashville Pike (Added after initial screening)
- Combinations
**Alignment**

- I-24
  - HOV Lane
  - New Alignment
- CSX Rail Line
- US 41/70S (Murfreesboro Rd)
- Old Nashville Pike (Added after initial screening)
- Combinations
Alignment:

- I-24
  - HOV Lane
  - New Alignment
- CSX Rail Line
- US 41/70S (Murfreesboro Rd)
- Old Nashville Pike (Added after initial screening)
- Combinations
Commuter Rail

- Rail operating on existing railroad tracks
- Infrequent stops, high travel speed
- Primarily for longer-distance trips
Light Rail (LRT)

- Electric rail operating in traffic, or on exclusive ROW with crossings
- Serves short trips downtown, longer trips outside
Bus Rapid Transit (BRT)

- Wide range of improvements to enhance bus performance
- Improved amenities, vehicles
- May feature dedicated ROW
Selected Modes for Initial Screening

- Commuter Rail, Bus Rapid Transit, Light Rail were retained as applicable to this corridor
- Heavy Rail (subway/elevated rail), Monorail, high speed rail were determined to be inapplicable
Initial Screening Alternatives

- Six alternatives (mode and alignment combinations)
- Light rail, commuter rail, bus rapid transit, BRT “Light”
- Optional Airport alignments
- Analyzed based on project goals to identify relative strengths and weaknesses
Initial Screening
Alternatives

1. I-24
   - Light Rail or Bus Rapid Transit
   - Bus Rapid Transit “Light”

2. CSX
   3. Commuter Rail
   4. Light Rail or Bus Rapid Transit
   5. Light Rail or Bus Rapid Transit
Initial Screening Results

- Evenly matched in benefits, impacts
- High projected capital costs
- Light rail not carried forward due to high electrification costs, other factors
- Airport alignments not carried forward
- Old Nashville Pike—added as result of public input, as alignment option
Initial Alternatives

I-24

1. LRT/BRT
2. BRT Light

CSX

3. Comm Rail
4. LRT/BRT

M’bоро Rd

5. LRT/BRT
6. BRT Light

Initial Screening

Detailed Alternatives

A. I-24 BRT
B. CSX Comm Rail
C. M’bоро Rd. /Old Nashville BRT
Alt A: BRT on I-24

- Dedicated two lane busway along I-24 and I-40 Bell Road north to Downtown Nashville
- Uses HOV Lanes *(with increased enforcement)* south of Bell Road
- 14 Stations south of Downtown Nashville, 8 stops Downtown
- Park-and-Ride at all stations south of Bell Road
- 48 mins travel time, M’boro to N’ville
Alt B: Commuter Rail on CSX

- New track along existing CSX line
- Examined single and double track configuration
- 9 Stations, most park-and-ride south of Bell Rd.
- 60 mins travel time M’boro to N’ville
- Operating plan assumes 16 trains/day
- Required level of infrastructure subject to discussion with CSX
Alt C: BRT on Murfreesboro Rd/ Old Nashville Pike

- Dedicated two lane busway along Murfreesboro Rd north of Bell Rd
- Single lane dedicated busway south of Bell Rd
- 17 Stations south of Downtown Nashville, 10 stops downtown
- Park-and-Ride at stations south of Bell Rd
- 56 mins minimum travel time, M’boro to N’ville
Low-Cost Enhanced Bus Alternative

- Operationally, same as Alternative A (BRT on I-24)
- Eliminates Busway on I-24 from Bell Rd. to Hermitage Ave.
- Assumes buses operate in mixed traffic in that area
<table>
<thead>
<tr>
<th></th>
<th>A. BRT I-24</th>
<th>B. Commuter Rail CSX</th>
<th>C. BRT M’boro Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ Mile Radius</td>
<td>16,000</td>
<td>5,400</td>
<td>15,500</td>
</tr>
<tr>
<td>5 Mile Radius</td>
<td>491,000</td>
<td>219,000</td>
<td>335,500</td>
</tr>
</tbody>
</table>
## Station Area Employment

<table>
<thead>
<tr>
<th></th>
<th>A. BRT I-24</th>
<th>B. Commuter Rail CSX</th>
<th>C. BRT M’boro Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ Mile Radius</td>
<td>33,000</td>
<td>21,000</td>
<td>40,500</td>
</tr>
</tbody>
</table>

Excludes downtown Nashville station
## Targeted Groups

<table>
<thead>
<tr>
<th></th>
<th>A. BRT I-24</th>
<th>B. Commuter Rail CSX</th>
<th>C. BRT M’boro Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority HH w/in 5 mi.</td>
<td>64,000</td>
<td>40,000</td>
<td>64,500</td>
</tr>
<tr>
<td>Low income HH w/in 5 mi.</td>
<td>87,500</td>
<td>62,500</td>
<td>90,000</td>
</tr>
<tr>
<td>Zero Car HH w/in ½ mi.</td>
<td>3,350</td>
<td>1,550</td>
<td>4,000</td>
</tr>
</tbody>
</table>
Environmental Analysis

- Murfreesboro Road and Old Nashville Pike have greatest potential conflicts
- I-24 and other freeways have fewer potential conflicts
- Air quality impacts assessment is on-going
## Capital Costs of Improvements

<table>
<thead>
<tr>
<th>A. BRT I-24</th>
<th>B. Commuter Rail CSX</th>
<th>C. BRT M’boro Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$220 m</td>
<td>$230 m (Single Track)</td>
<td>$430 m</td>
</tr>
<tr>
<td>Low-Cost Option:</td>
<td>$245 m (Double Track)</td>
<td></td>
</tr>
<tr>
<td>$90 m</td>
<td>$330 m (Full Double Track)</td>
<td></td>
</tr>
</tbody>
</table>

Excludes cost of additional vehicles (buses and/or...
## Annual Operating Costs (Preliminary)

<table>
<thead>
<tr>
<th></th>
<th>1. BRT I-24</th>
<th>2. Commuter Rail CSX</th>
<th>3. BRT M’boro Rd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$1.6 m</td>
<td>$3.0 m</td>
<td>$2.0 m</td>
</tr>
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</table>
Next Steps

- Complete ridership and cost forecasting
- Define Preferred Alternative
- Next Public Meetings September-October
- Approval by Nashville MPO, FTA
- Possible next phase 2007-2008