



# 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



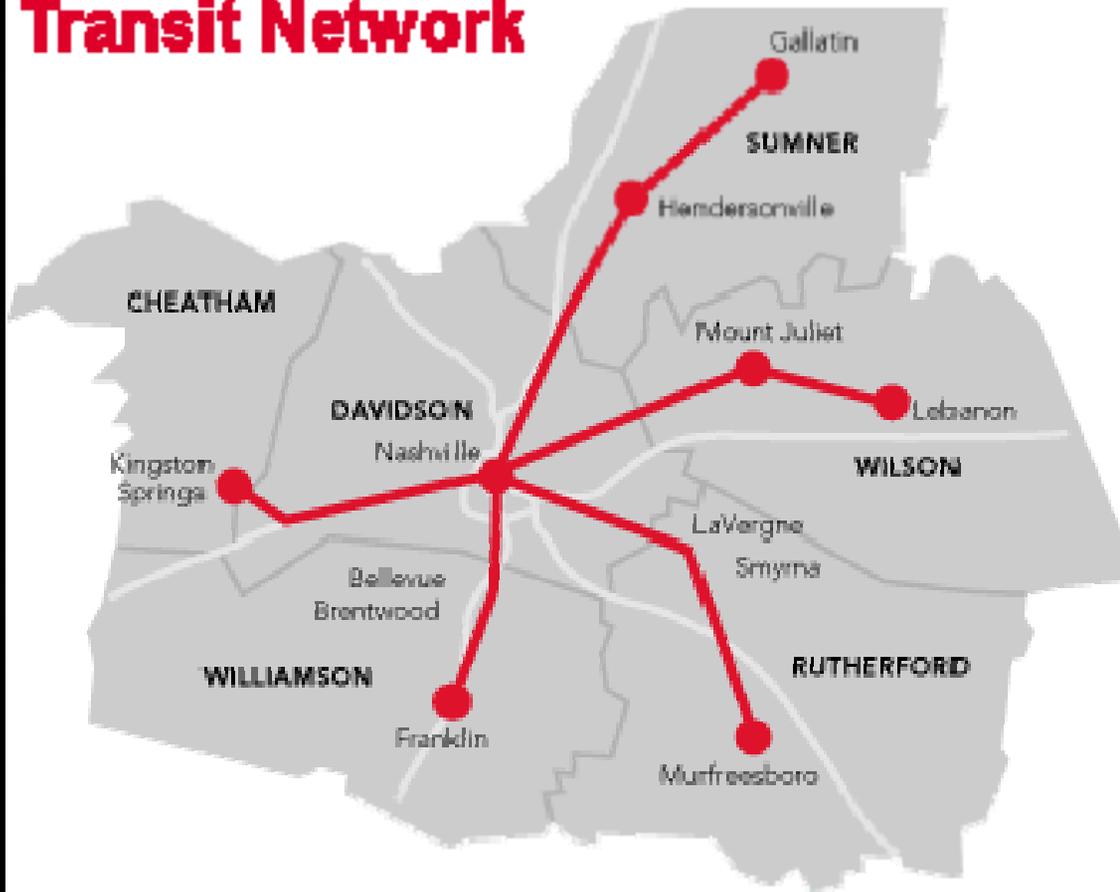
# Project Update

- ❖ 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



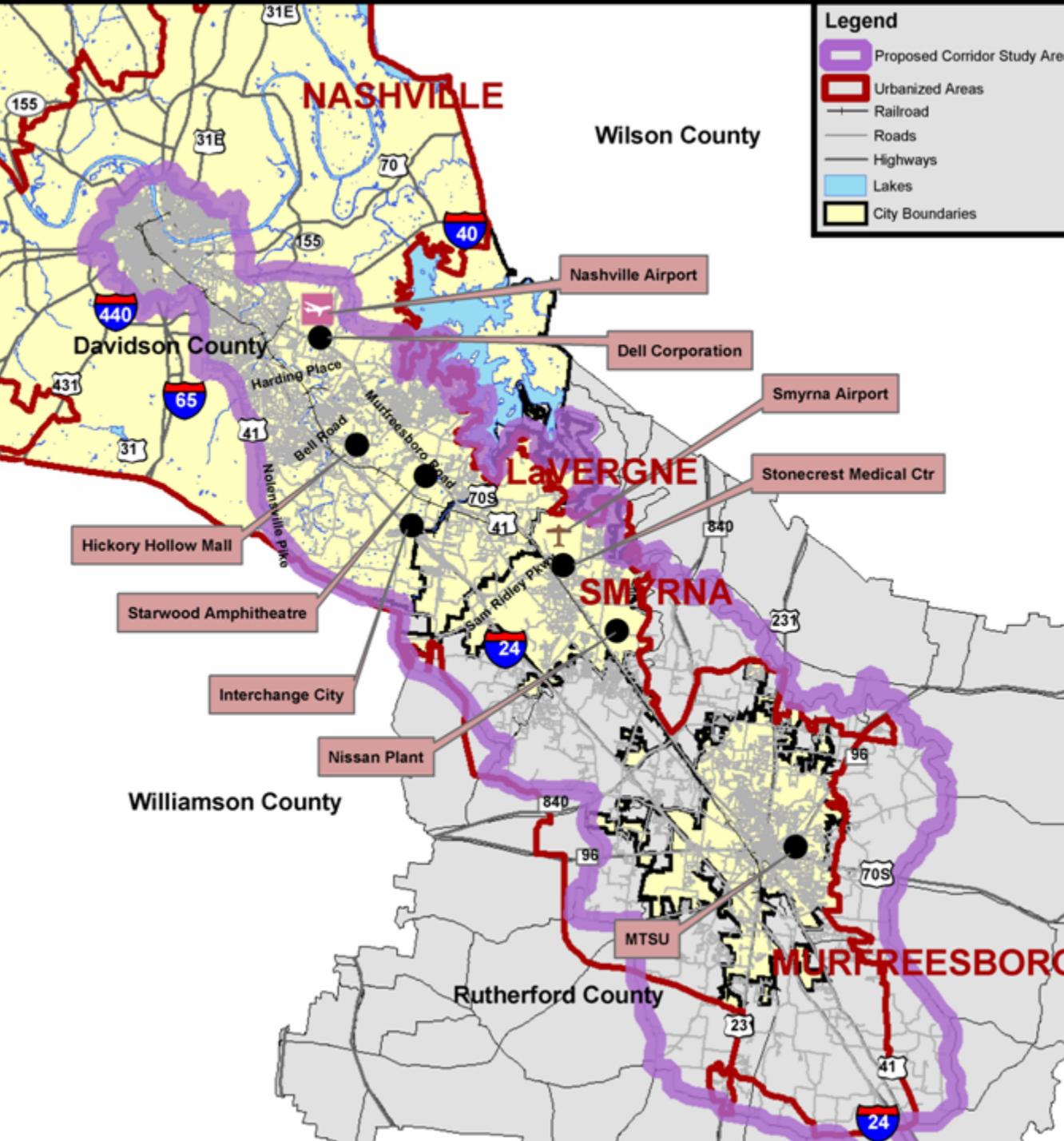
# Needs and Goals

## Middle Tennessee Transit Network



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

# Project Study Area





# 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

Murfreesboro Road  From 8th Avenue to:	2003			2025		
	Average Daily Traffic (ADT)	Level of Service (LOS)	Existing Number of Lanes	Traffic Forecasts	Level of Service (LOS)	Future Number of Lanes*
Fessler's Lane	28,700	B	5	27,206	B	5
Thompson Lane	24,340	B	5	32,206	D	5
Briley Pkwy (SR155)	27,670	A	7	38,741	B	7
Bell Road	37,510	F	4	36,003	F	4
OHB/Hobson Pike (SR 171)	21,820	B	4	64,604	F	4
Sam Ridley Pkwy	22,790	B	4	50,954	F	4
Nissan Pkwy	21,920	B	4	30,338	C	4
SR-840	40,780	F	4	57,002	F	6
SR 96	32,190	D	4	32,227	A	6
S Church Street (SR 231)	33,250	B	6	28,358	A	6

\* Based on Nashville Area MPO 2025 Long Range Transportation Plan  
Source: Nashville Area MPO and TDOT

# Traffic Congestion-I-24

I-24  From I-40 Downtown Nashville to:	2003			2025		
	Average Daily Traffic (ADT)	Level of Service (LOS)	Existing Number of Lanes	Traffic Forecasts	Level of Service (LOS)	Future Number of Lanes*
Fesslers Lane	176,060	F	8	216,557	F	8
Briley Parkway (SR 155)	121,230	D	8	133,746	E	8
Bell Road	100,660	D	8	140,220	E	8
Old Hickory Blvd (SR 171)	102,180	D	8	131,881	E	8
Sam Ridley Pkwy (SR 266)	84,940	C	8	123,583	E	8
Nissan Drive (SR 102)	83,910	C	8	103,948	D	8
SR 840	80,710	E	8	88,693	C	8
SR 96	64,240	E	4	92,954	C	8
US 231	52,550	D	4	88,572	C	8
Rutherford/Coffee Co. Line	39,230	C	4	62,710	E	4

\* 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



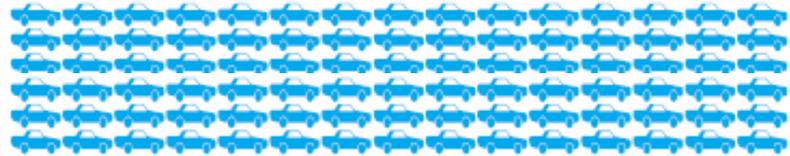


# Making More Capacity

- ❖ 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

# 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**





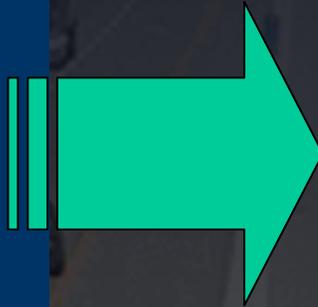
# Evaluation of Alternatives

- ❖ **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*



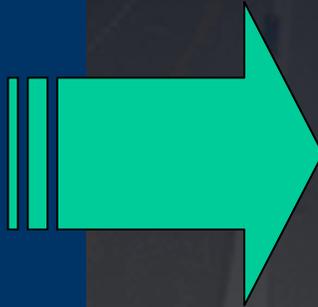
## Transit Mode

*The combination of vehicle type and guideway*

# Alternatives

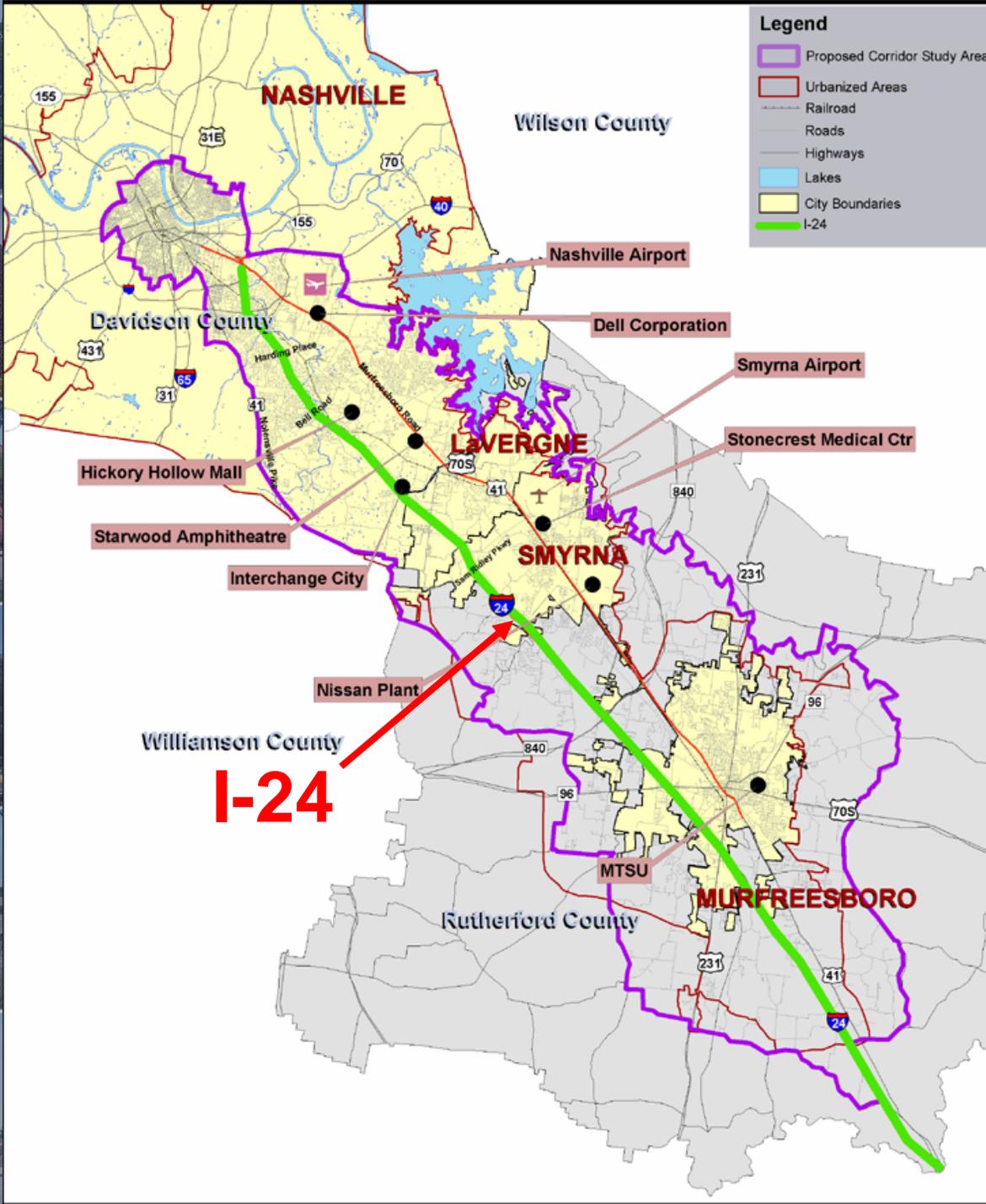
## Alignments

- ❖ 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 S

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



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# 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

I-24

- ❖ Light Rail or Bus Rapid Transit
- ❖ Bus Rapid Transit “Light”

CSX

3. Commuter Rail
4. Light Rail or Bus Rapid Transit

Murfreesboro Road

5. Light Rail or Bus Rapid Transit
6. Bus Rapid Transit “Light”





# 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'boro Rd**

**5. LRT/BRT**

**6. BRT Light**



**Initial  
Screening**



# Detailed Alternatives

**A. I-24  
BRT**

**B. CSX  
Comm Rail**

**C. M'boro  
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



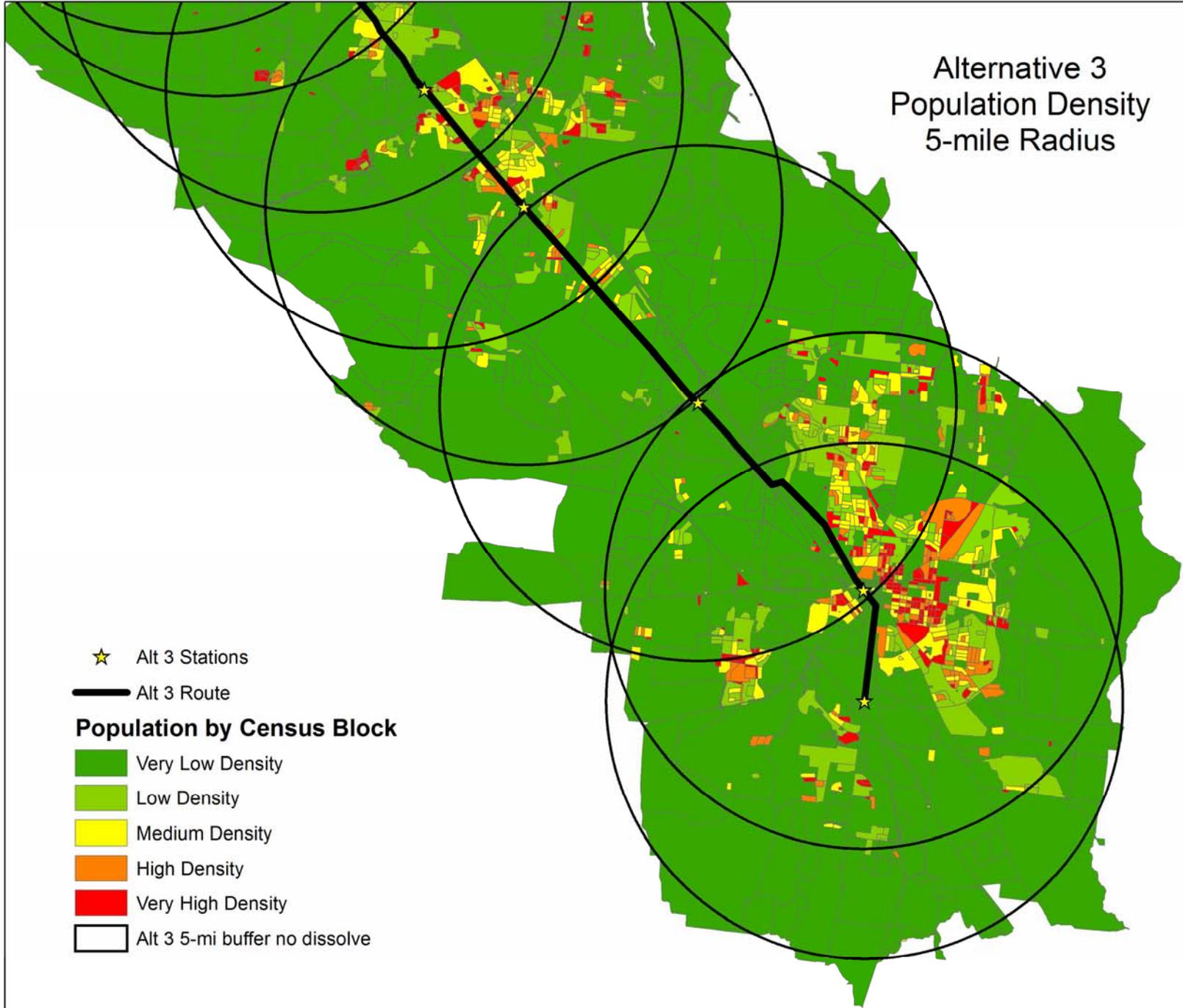
# Low-Cost Enhanced Bus Alternative

- ❖ 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



# Alternative 3 Population Density 5-mile Radius

- ★ Alt 3 Stations
- Alt 3 Route
- Population by Census Block**
- Very Low Density
- Low Density
- Medium Density
- High Density
- Very High Density
- Alt 3 5-mi buffer no dissolve



# Station Area Population

	<b>A. BRT I-24</b>	<b>B. Commuter Rail CSX</b>	<b>C. BRT M'boro Rd.</b>
<b>½ Mile Radius</b>	<b>16,000</b>	<b>5,400</b>	<b>15,500</b>
<b>5 Mile Radius</b>	<b>491,000</b>	<b>219,000</b>	<b>335,500</b>

# Station Area Employment

	<b>A. BRT I-24</b>	<b>B. Commuter Rail CSX</b>	<b>C. BRT M'boro Rd.</b>
<b>1/2 Mile Radius</b>	<b>33,000</b>	<b>21,000</b>	<b>40,500</b>

Excludes downtown Nashville station

# Targeted Groups

	<b>A. BRT I-24</b>	<b>B. Commuter Rail CSX</b>	<b>C. BRT M'boro Rd.</b>
<b>Minority HH w/in 5 mi.</b>	<b>64,000</b>	<b>40,000</b>	<b>64,500</b>
<b>Low income HH w/in 5 mi.</b>	<b>87,500</b>	<b>62,500</b>	<b>90,000</b>
<b>Zero Car HH w/in ½ mi.</b>	<b>3,350</b>	<b>1,550</b>	<b>4,000</b>



# 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

A. BRT I-24	B. Commuter Rail CSX	C. BRT M'boro Rd.
<p>\$220 m</p> <p>Low-Cost Option:</p> <p>\$90 m</p>	<p>\$230 m</p> <p>(Single Track)</p> <p>\$245 m</p> <p>(Double Track North of Bell)</p> <p>\$330 m (Full Double Track)</p>	<p>\$430 m</p>

Excludes cost of additional vehicles (buses and/or

# Annual Operating Costs (Preliminary)

1. BRT I-24	2. Commuter Rail CSX	3. BRT M'boro Rd.
\$1.6 m	\$3.0 m	\$2.0 m



# 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



# Your Questions

