



MEMPHIS AREA TRANSIT AUTHORITY

Midtown Alternatives Analysis





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- 02 **What is a High Capacity Transit (HCT) System?**
- 03 **The Screening Process & Results**
- 04 **Recommended Alternative**
- 05 **The Federal Funding Process**
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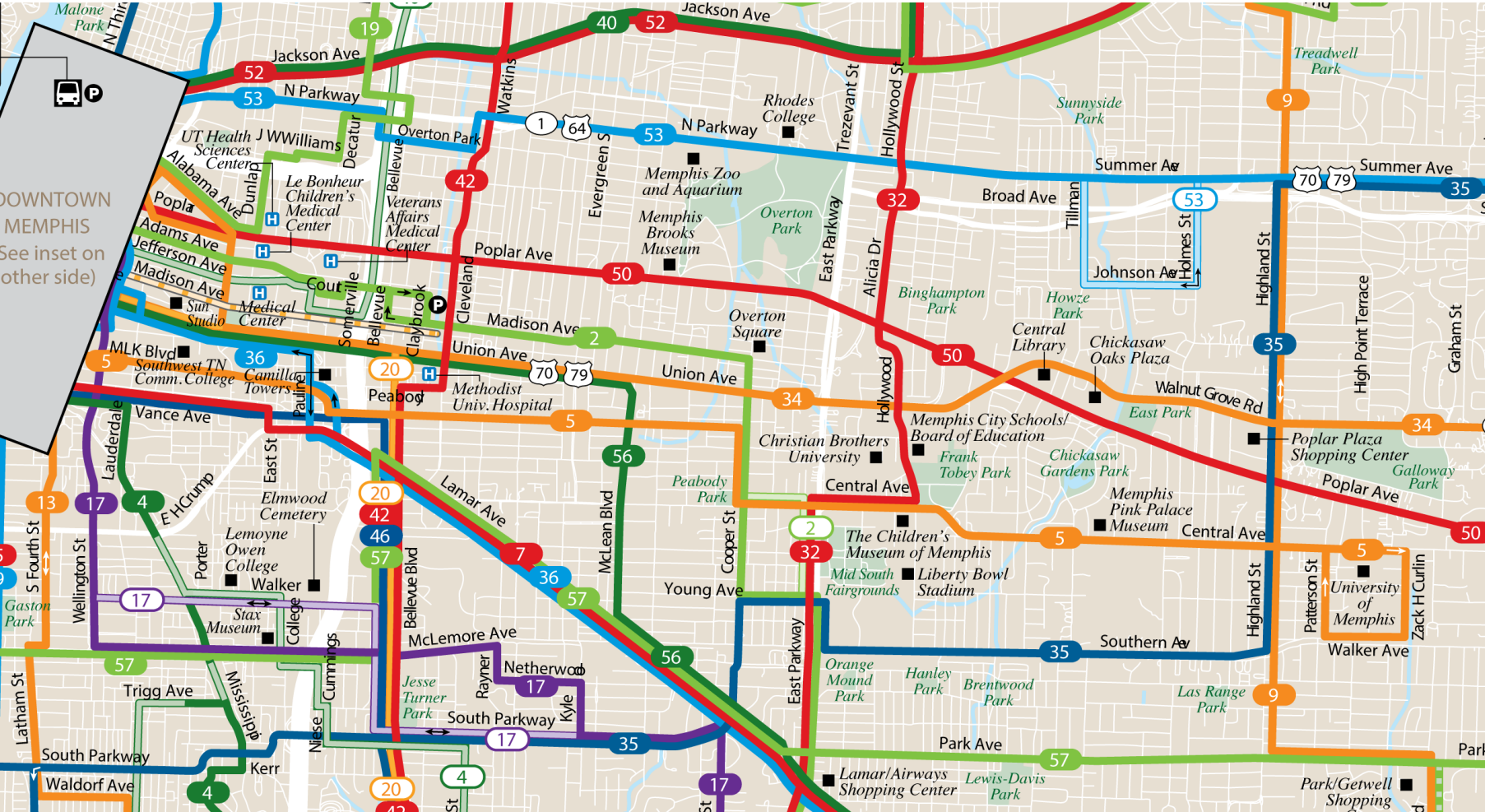




01

Study Goals and Objectives

Study Area (with Existing Bus Routes)





Study Goals & Objectives

- **ENHANCE**

- Make Midtown Corridor transit service more compelling

- **CONNECT**

- Connect neighborhoods and improve local circulation

- **DEVELOP**

- Support local and regional economic development goals

- **THRIVE**

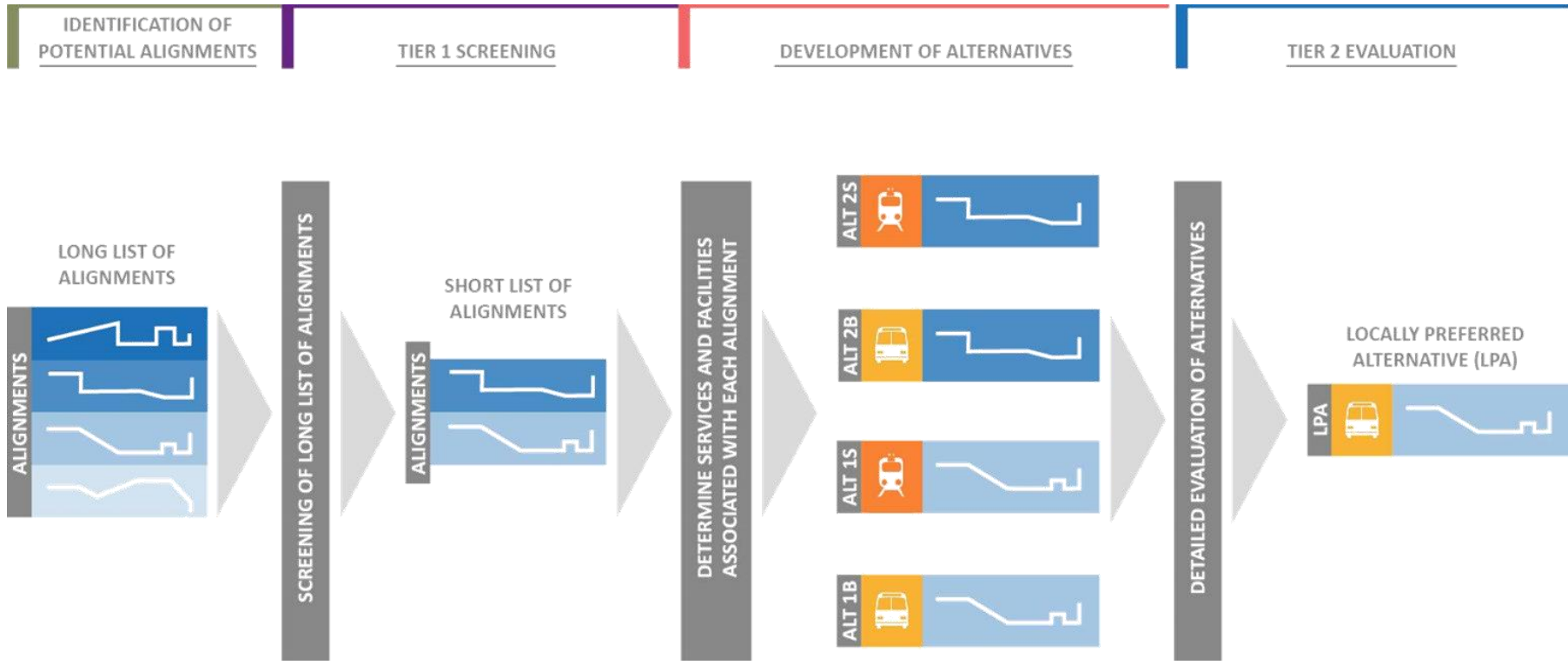
- Strengthen Midtown Corridor neighborhoods and business areas

- **SUSTAIN**

- Create an environment that will be sustainable over the long term



Overall Alternatives Analysis (AA) Process





02

What is a High Capacity Transit (HCT) System?

What Is A High Capacity Transit (HCT) System?

- Moves more people than regular bus
- Typically has fewer stops, higher speeds, and more frequent service than local bus service
- Elements include one or all of the following:
 - *Dedicated lanes/right-of-way for at least a portion of its route,*
 - *Transit priority (i.e. queue jumps, transit signal priority)*
 - *Enhanced stops/shelter*
- Examples include Light Rail Transit (LRT), Bus Rapid Transit (BRT), Streetcar, Commuter Rail Transit (CRT)





03 The Screening Process & Results



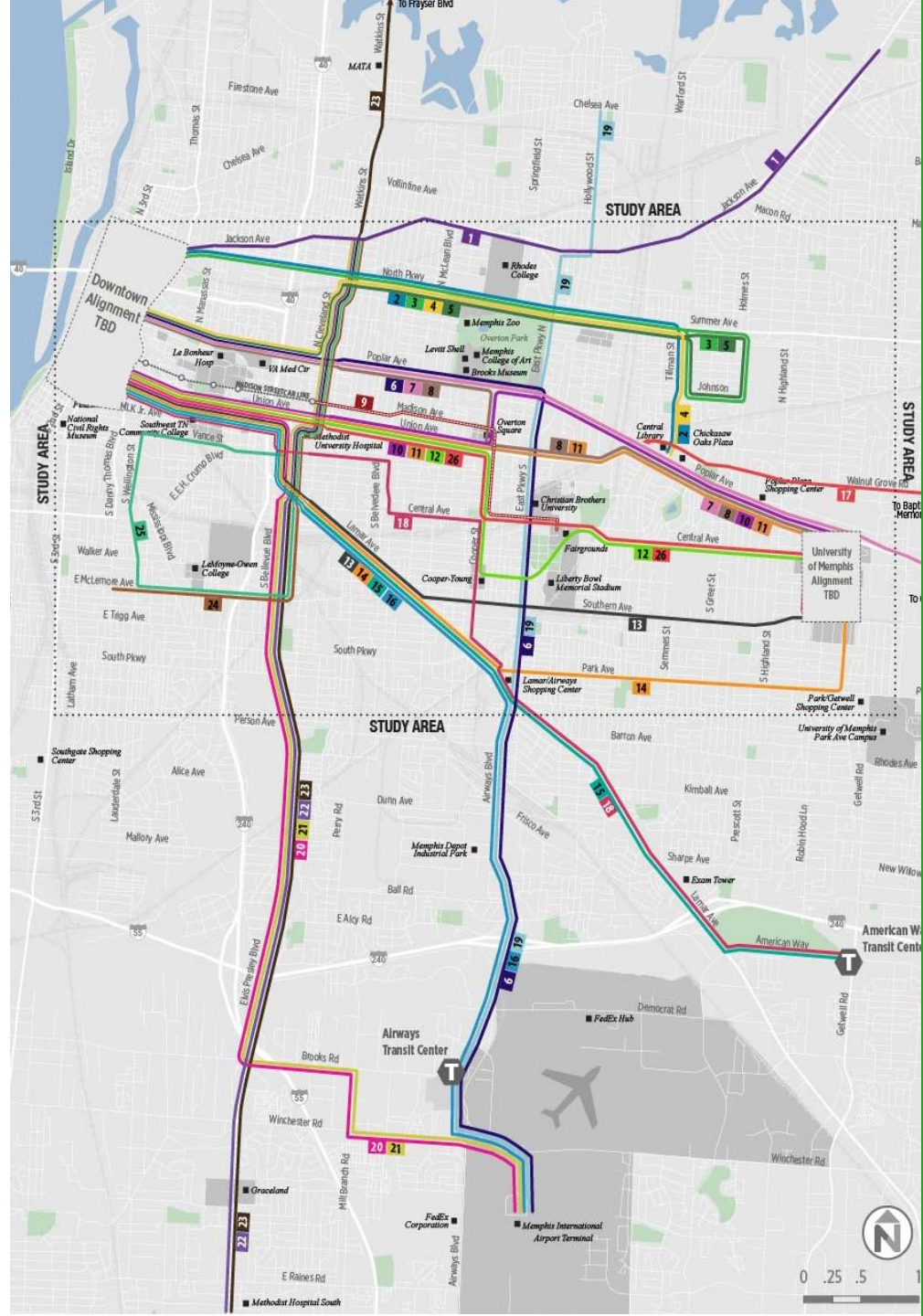
Initial Alignments

26 Initial Alignments

- 18 East-West alignments
- 8 North-South alignments

These alignments were identified based on these considerations:

- Input from the public and the Technical Advisory Committee
- Ridership on existing routes
- Population and employment densities along corridors
- Service to major activity centers/planned developments
- Streets that would be suitable for High Capacity Transit (HCT) service

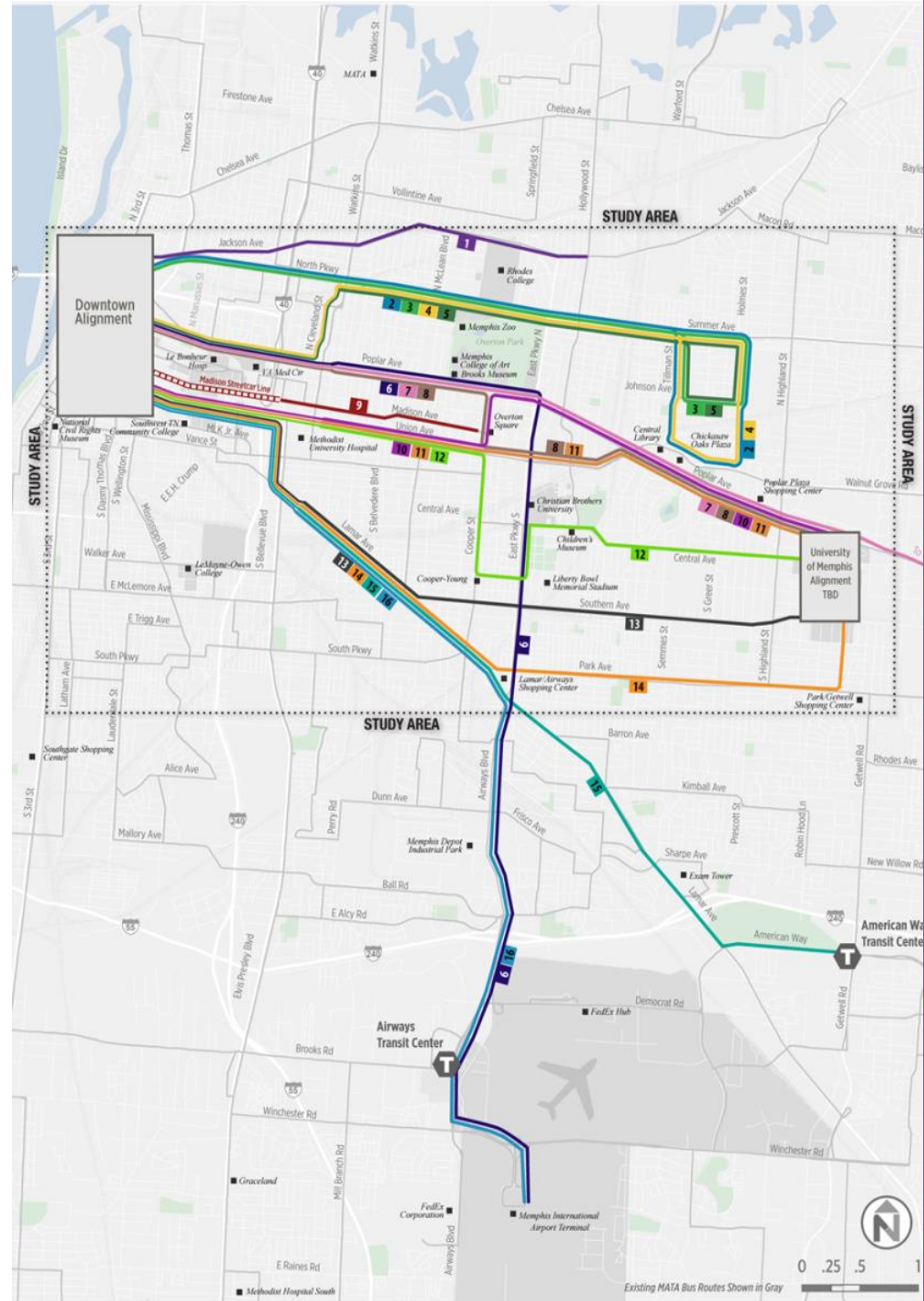


Pre-Screening of Alignments

□ 26 Initial Alignments pre-screened based on the following criteria:

- Does the corridor have adequate terminal anchors?
- Does it meet MATA's service design guidelines?
- Does it have adequate population/employment density to generate demand for high capacity transit service?

□ 16 of 26 alignments were advanced into Tier 1 Screening using on these criteria.



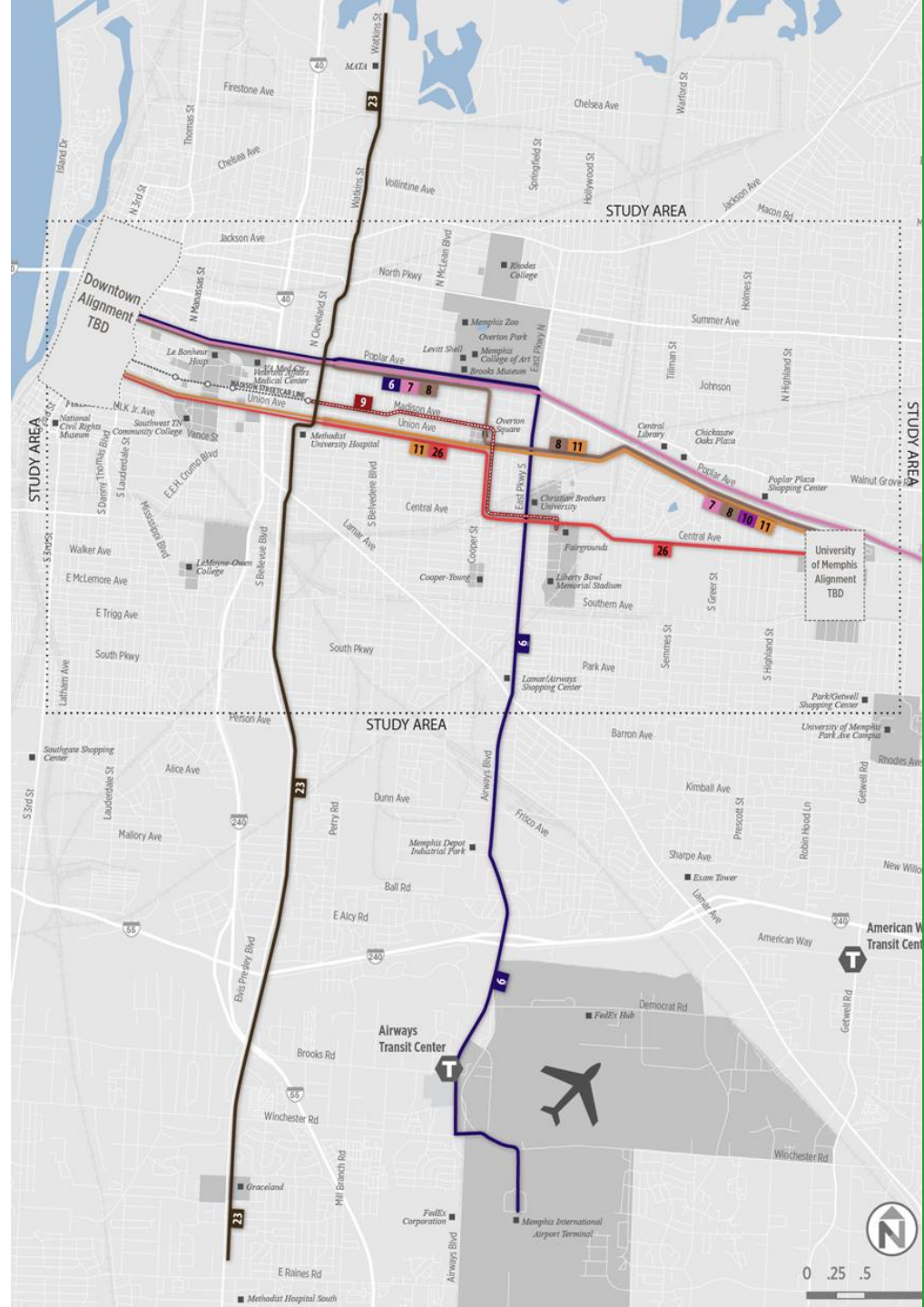
Tier-1 : 16 Alignments

- ❑ 16 of initial 26 alignments were evaluated in Tier 1
 - Alignments were evaluated based on a set of 15 criteria shown here (second column)
 - These criteria were based on the previously developed study goals and objectives.
- ❑ 7 alignments were advanced into Tier 2 for further evaluation based on these criteria.
- ❑ These 7 alignments became alternatives for operating HCT service.

Objective	Screening Criteria
ENHANCE <i>Make Midtown Corridor transit service more compelling</i>	
Provide better transit service for existing riders and attract new riders	<ul style="list-style-type: none"> ➤ Ridership on existing transit services ➤ Population and employment density within ½-mile of alignment
Provide fast, frequent, and reliable service	<ul style="list-style-type: none"> ➤ Directness and average auto speeds
Improve transit options for Memphis' most vulnerable residents	<ul style="list-style-type: none"> ➤ Transit-sensitive residents and social service centers within ½-mile of alignment
CONNECT <i>Connect neighborhoods and improve local circulation</i>	
Improve access for residents	<ul style="list-style-type: none"> ➤ Residents within ½-mile of alignment (current and projected)
Improve access to jobs	<ul style="list-style-type: none"> ➤ Jobs within ½-mile of alignment (current and projected)
Improve connections with major attractions and destinations	<ul style="list-style-type: none"> ➤ Anchors and major activity centers within ½-mile of alignment
Improve access to civic and cultural assets	<ul style="list-style-type: none"> ➤ Special use generators within ½-mile of alignment
Improve access to visitor destinations and accommodations	<ul style="list-style-type: none"> ➤ Visitor destinations and visitor accommodations within ½-mile of service
Complement other transit investments and transit plans	<ul style="list-style-type: none"> ➤ Consistency with other transit investments and plans
DEVELOP <i>Support local and regional economic development goals</i>	
Support small businesses and retail districts	<ul style="list-style-type: none"> ➤ Small businesses within ½-mile of alignment
Foster compact, mixed-use development	<ul style="list-style-type: none"> ➤ Transit-supportive land uses within ½-mile of alignment
Attract residential and commercial growth	<ul style="list-style-type: none"> ➤ Amount of undeveloped and underdeveloped land along alignment
THRIVE <i>Strengthen Memphis neighborhoods and downtown</i>	
Support community desires	<ul style="list-style-type: none"> ➤ Community and stakeholder support
SUSTAIN <i>Create an environment that will be sustainable over the long term</i>	
Develop implementable transit services	<ul style="list-style-type: none"> ➤ Design Challenges

Tier-2 : 7 Alternatives

- 7 alternatives were evaluated further in Tier 2:
 - 6 Airport via Poplar and East Parkway
 - 8 U of M via Poplar, Cooper, and Union
 - 9 Fairgrounds via Madison
 - 10 U of M via Union, Cooper, and Poplar
 - 11 U of M via Union and Poplar
 - 23 Elvis Presley, Cleveland, Watkins Crosstown
 - 26 U of M via Union, Cooper, and Central



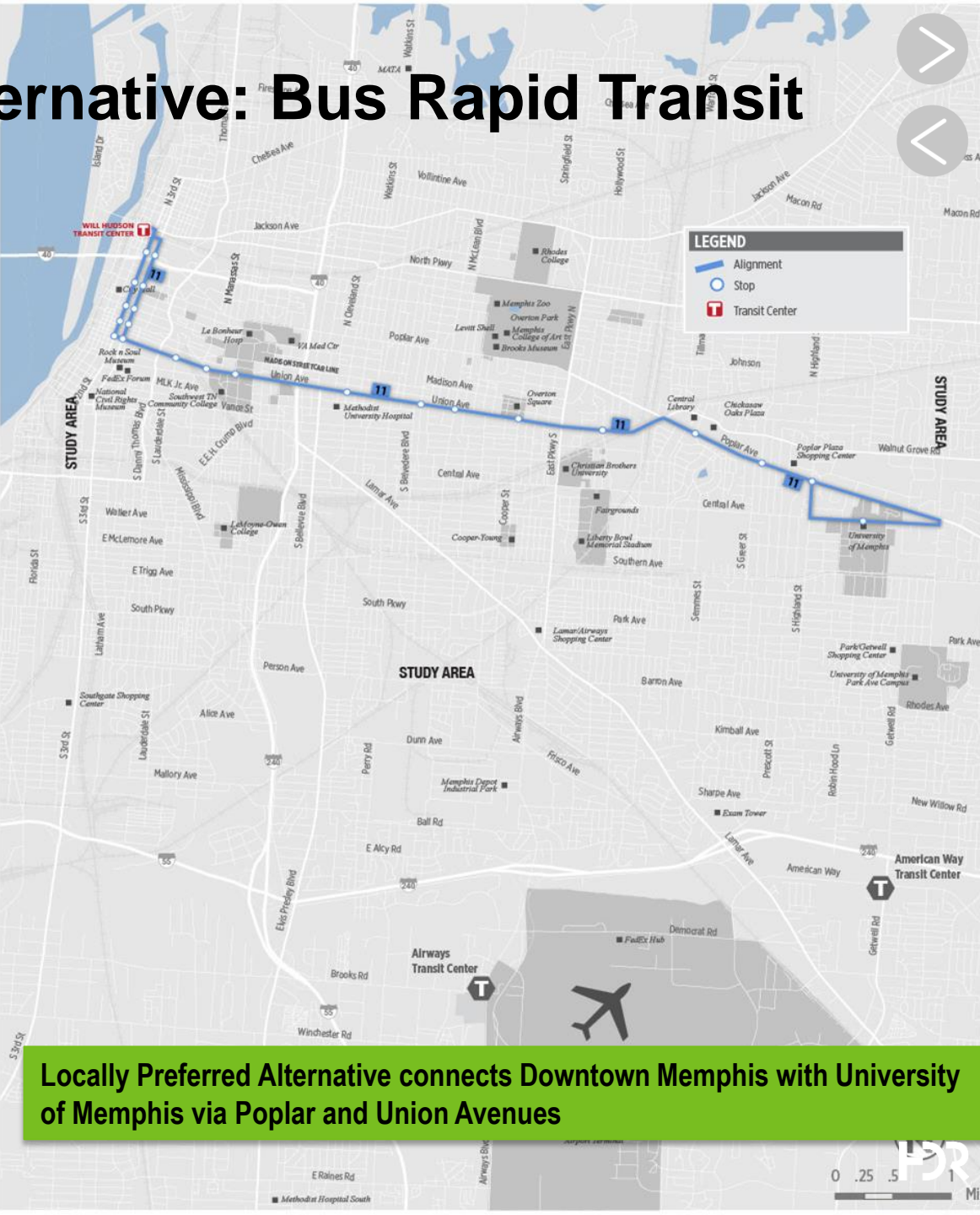


04

Recommended Alternative - Locally Preferred Alternative

Locally Preferred Alternative: Bus Rapid Transit

Length	8.6 miles
Stations	23 stations
Peak Service Frequency	10 minutes
Capital Cost	\$25.50
Span of Service	5am – 12am
Annual Operating Cost	\$3.7 million
Projected Ridership	3,100
Existing Ridership	1,600
Passengers/Mile	356
One-Way Travel	28-31 minutes
Development Opportunities	19%
Percent of MATA FY16 Operating Budget	6.3%

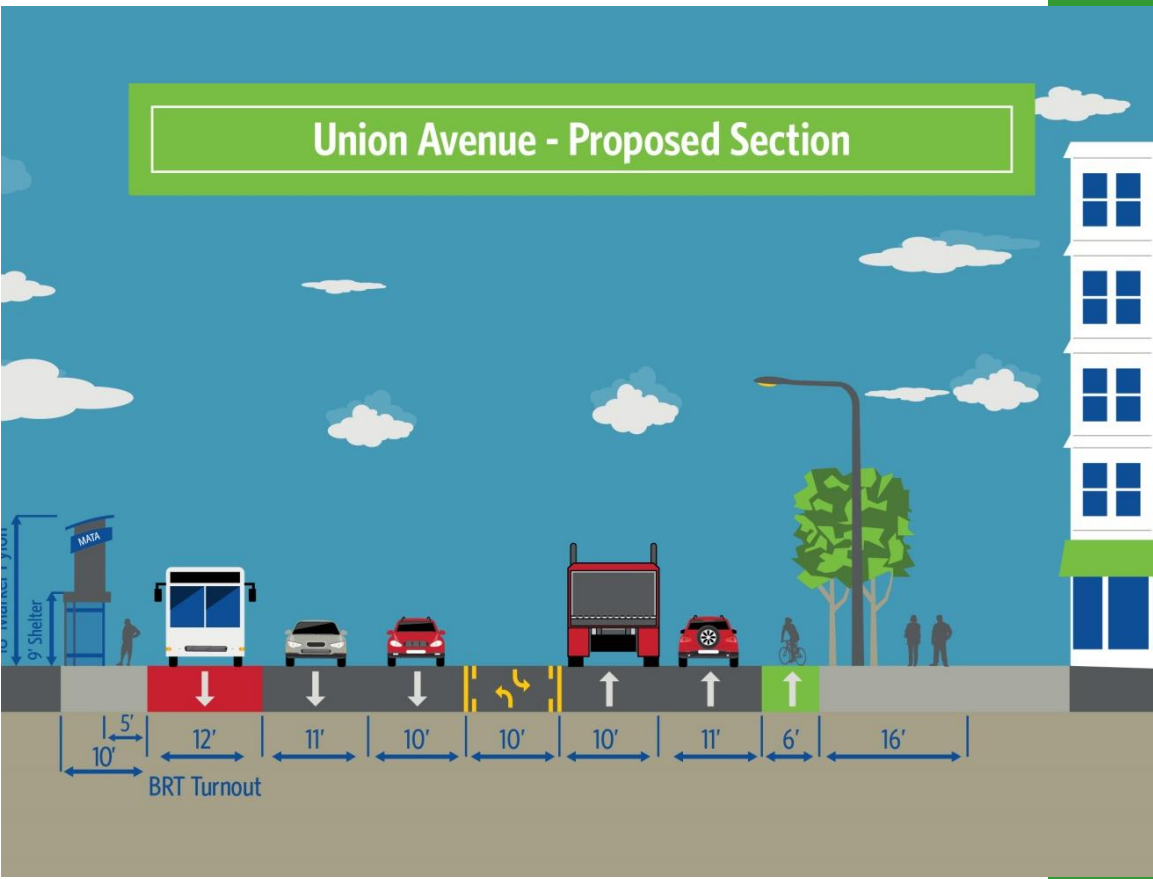


Locally Preferred Alternative connects Downtown Memphis with University of Memphis via Poplar and Union Avenues

BRT Operating Along Union/Poplar Avenues - #11



Length	8.6 miles
Stations	23 stations
Peak Service Frequency	10 minutes
Capital Cost	\$25.50
Span of Service	5am – 12am
Annual Operating Cost	\$3.7 million
Projected Ridership	3,100
Existing Ridership	1,600
Passengers/Mile	356
One-Way Travel	28-31 minutes
Development Opportunities	19%
Percent of MATA FY16 Operating Budget	6.3%



Note: BRT Turnout lane is shared lane – No exclusive lane for BRT





BRT Station – Union Avenue/East Parkway



How does this BRT Compare?



BRT Project	Year of Implementation	Existing Ridership	Projected Ridership	Capital Cost (000)	Fed Transit Adm. Participation	Annual Operating Cost (000)	Corridor Length	Average Travel Time (Minutes)	Number of Stations	Number of Vehicles (Total Fleet)	Stops Per Mile
***Alt. 11 BRT, Memphis , TN	-	1,600	3100	\$25.50	\$30.00	\$3.70	8.63	28-31	23	8	2.7
Troost Max, Kansas City, KS	2011	7,500	8500	\$31.00	\$25.00	\$4.90	13	35-40	47	14	3.6
Silver Line, Grand Rapids, MI	2014	3,000	4800	\$40.00	\$32.00	\$5.53	9.6	33	18	10	1.9
*CMax, Columbus, OH	2017	4,800	6600	\$47.00	\$37.00	\$2.66	15.6	39-56	32	15	2.1
Laker Line, Grand Rapids, MI	2017	10,000	13000	\$71.00	\$57.00	\$4.47	13.3	37-40	14	16	1.1
**Rapid Transit, Albuquerque, NM	2017	8,500	16500	\$119.00	\$69.00	\$6.20	8.75	47	20	16	2.3

NOTE

*Columbus CMax project operates BRT for 10.3 miles and express bus service for 5.3 miles

**ART (Albuquerque) Small Starts capital cost is for 8.75 mile project, while the operating plan covers a 17-mile corridor

***Assumptions: 80% Federal contributions towards capital cost and 2035 ridership. Cost is comparable with Kansas City Troost Line and will be adjusted due to inflation for Year of Expenditure. Design elements will be similar.

Conceptual Capital Cost Breakdown

Elements	Cost
Route Length (Miles)	8.63 miles
Roadway Improvements (11.11 miles)	\$ 1,298,000.00
Number of Stations (23)	\$ 8,750,000.00
Sitework (Demolition, Clearing, Landscaping, Bike/Ped. Improvements, etc.)	\$ 888,000.00
Systems (Traffic Signals, Communications, etc.)	\$ 3,170,000.00
Right-Of-Way Acquisitions	\$ 754,000.00
Vehicles (9)	\$ 4,950,000.00
Project Development, Engineering, and Other Administrative Costs	\$ 4,475,000.00
5% Contingency	\$ 1,214,000.00
TOTAL CAPITAL COSTS (2016 \$)	\$ 25,499,000.00

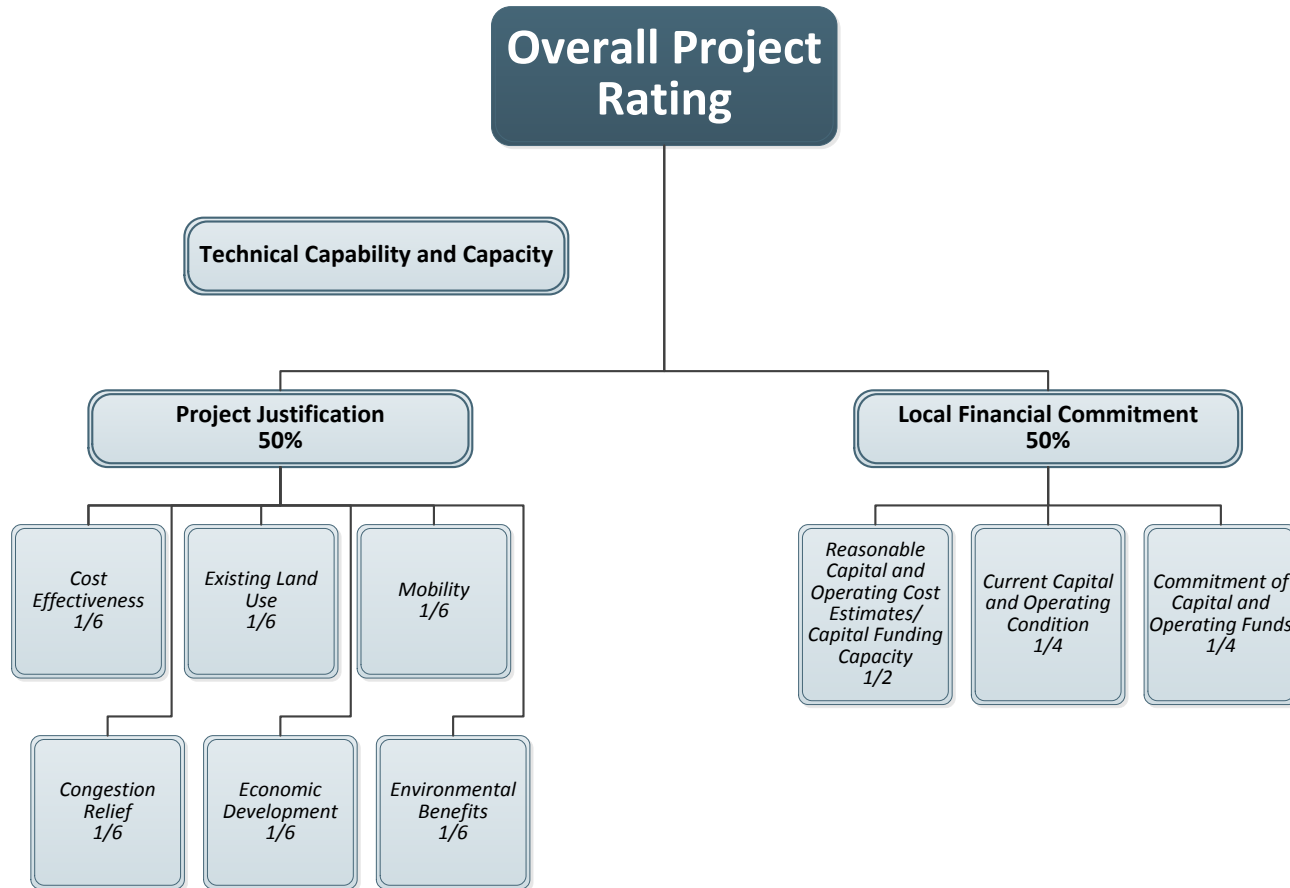


05

Federal Funding Process



Federal Capital Investment Grant Program – Small Starts



Project must receive at least a medium rating in both Project Justification and Local Financial Commitment

FTA Small Starts Financial Planning Process

Capital Costs < \$300 M



Evaluation of Alternatives

Realistic funding approaches possible?

FTA Acceptance into Project Development

General description of potential financial strategy

Project Development
Select LPA
Complete NEPA Process
Complete Engineering (Preliminary Engineering & Final Design)

Develop system-wide financial plan

- Project costs / revenue
- Non-Small Starts funds committed documented
- System-wide costs / revenues
- Financial strength of agency
- Ability to cover revenue shortfalls
- Finance template / SCC workbook

Adopted in Financially Constrained L RTP

Small Starts Grant Agreement

Construction

FTA Project Management Oversight

Major Development Stage

FTA Decision Point



FTA Small Starts Financial Planning Process

Capital Costs < \$300 M



Evaluation of Alternatives

← Realistic funding approaches possible?

FTA Acceptance into Project Development

Funding to complete Project Development Committed

□ Major Development Stage
 ◆ FTA Decision Point

Project Development
 Select LPA
 Complete NEPA Process
 Complete Engineering (Preliminary Engineering & Final Design)

50% of Non-Small Starts funds committed to be included in Federal Budget
 100% of Non-Small Starts funds committed for Small Starts Grant Agreement

FTA Project Management Oversight

Small Starts Grant Agreement

Construction





06 Next Steps

Funding Strategy

□ **USDOT TIGER Grant Opportunity – April 2016**

- ✓ TIGER (Transportation Investments Generating Economic Recovery)
- ✓ In partnership with the City of Memphis
- ✓ Includes the following elements
 - 8.63-mile Rapid Bus Transit on Union/Poplar
 - Memphis Heritage Trail
 - Main Avenue Trolley
 - South City Development
- ✓ Deadline for submission: April 29, 2016
- ✓ Amount Requested:

□ **FTA Small Starts Application – Fall 2016**

LEGEND

Proposed BRT Alignment

- Route 11
- Proposed Stop

Trolley Alignments

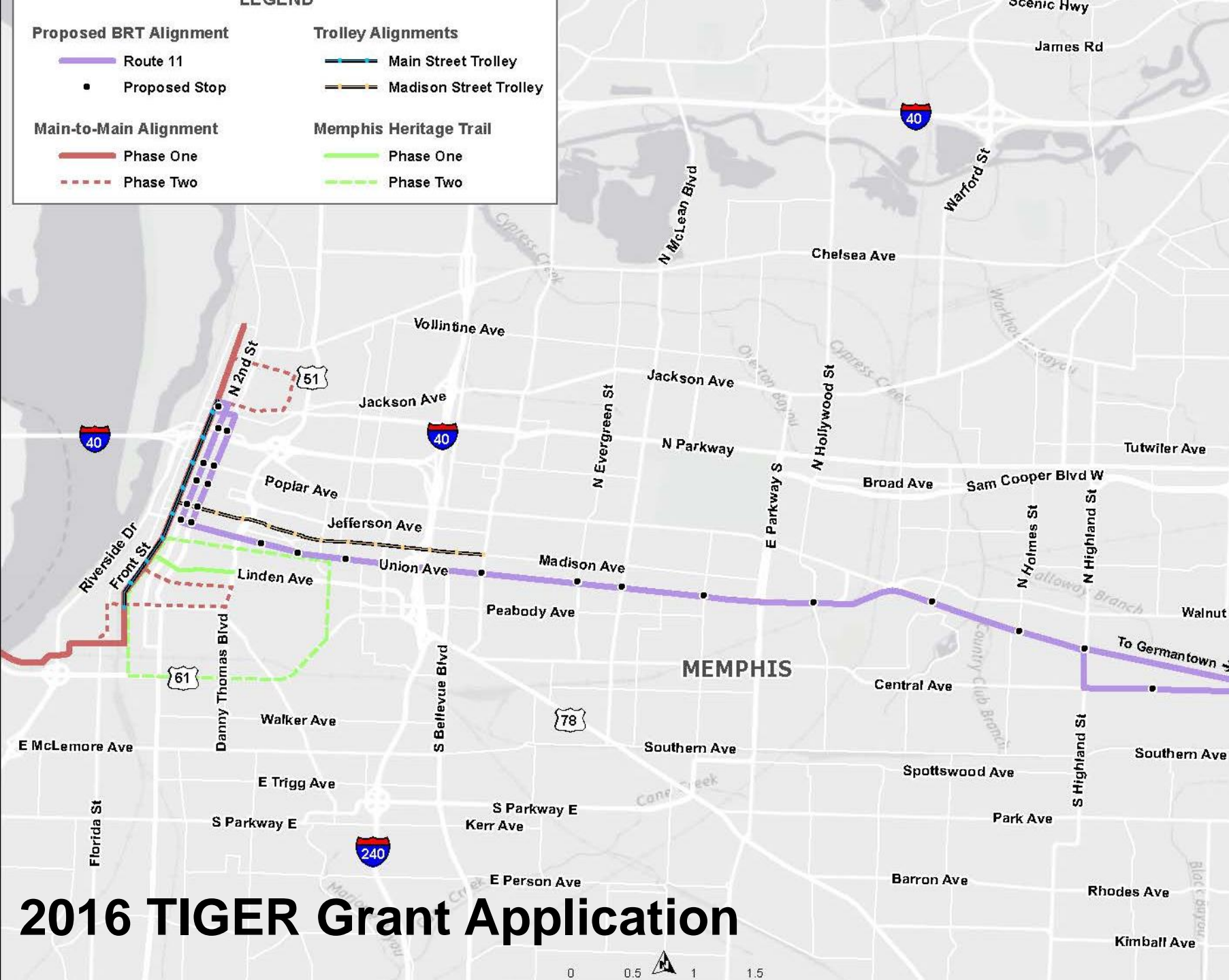
- Main Street Trolley
- Madison Street Trolley

Main-to-Main Alignment

- Phase One
- Phase Two

Memphis Heritage Trail

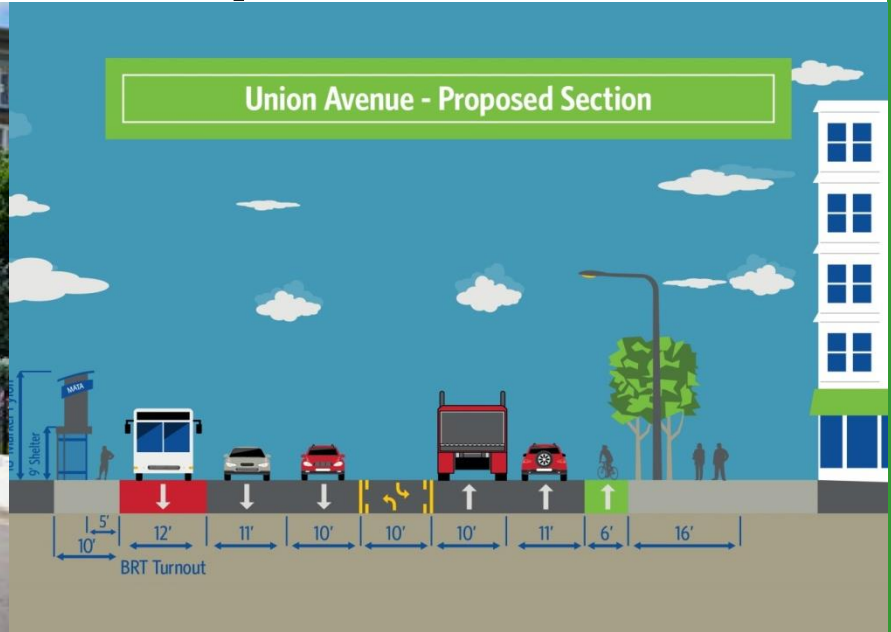
- Phase One
- Phase Two



2016 TIGER Grant Application



Proposed Schedule for BRT Implementation



Preliminary Design, Engineering and Environmental Clearance

Nov 2016 to Nov 2017

FTA Review

Dec 2017 to Apr 2018

Final Design

May 2018 to Feb 2019

FTA Review

Mar 2019 to Jul 2019

Construction

Aug 2019 to Sep 2020

System Test BRT Service Begins

Oct. to Dec 2020

2016

2017

2018

2019

2020

- **TIGER grant released:** Jun 2016
- **City/MATA Procurement:** Aug 2016
- **Consultant Selected:** Oct 2016
- **FTA approval of Environmental Study:** Sep 2017

High Capacity Transit Project – Sample TIGER Awards (2010 – 2015)

Year	Project	TIGER Award
BRT Projects		
2010	Las Vegas: Sahara Ave BRT	\$34 M
2011	Orlando: Parramore BRT	\$10 M
2014	Omaha BRT	\$15 M
2014	Reno: Washoe County BRT	\$16 M
2014	Richmond: Broad Street BRT	\$25 M
2015	Louisville BRT	\$17 M
2015	Birmingham BRT	\$20 M
Streetcar Projects		
2010	Tucson Streetcar	\$63 M
2010	Detroit / M-1 Rail Streetcar	\$25 M
2011	Salt Lake City Streetcar	\$26 M
2011	Atlanta Streetcar	\$48 M
2012	Fort Lauderdale Streetcar	\$18 M
2013	Kansas City Streetcar	\$20 M
2014	Providence Streetcar	\$13 M
2014	Detroit / M-1 Rail Streetcar	\$12 M
2015	Tacoma Streetcar Extension	\$15 M
2015	Milwaukee Streetcar Extension	\$14 M



Questions 

Superstop Example



