MEMPHIS AREA TRANSIT AUTHORITY

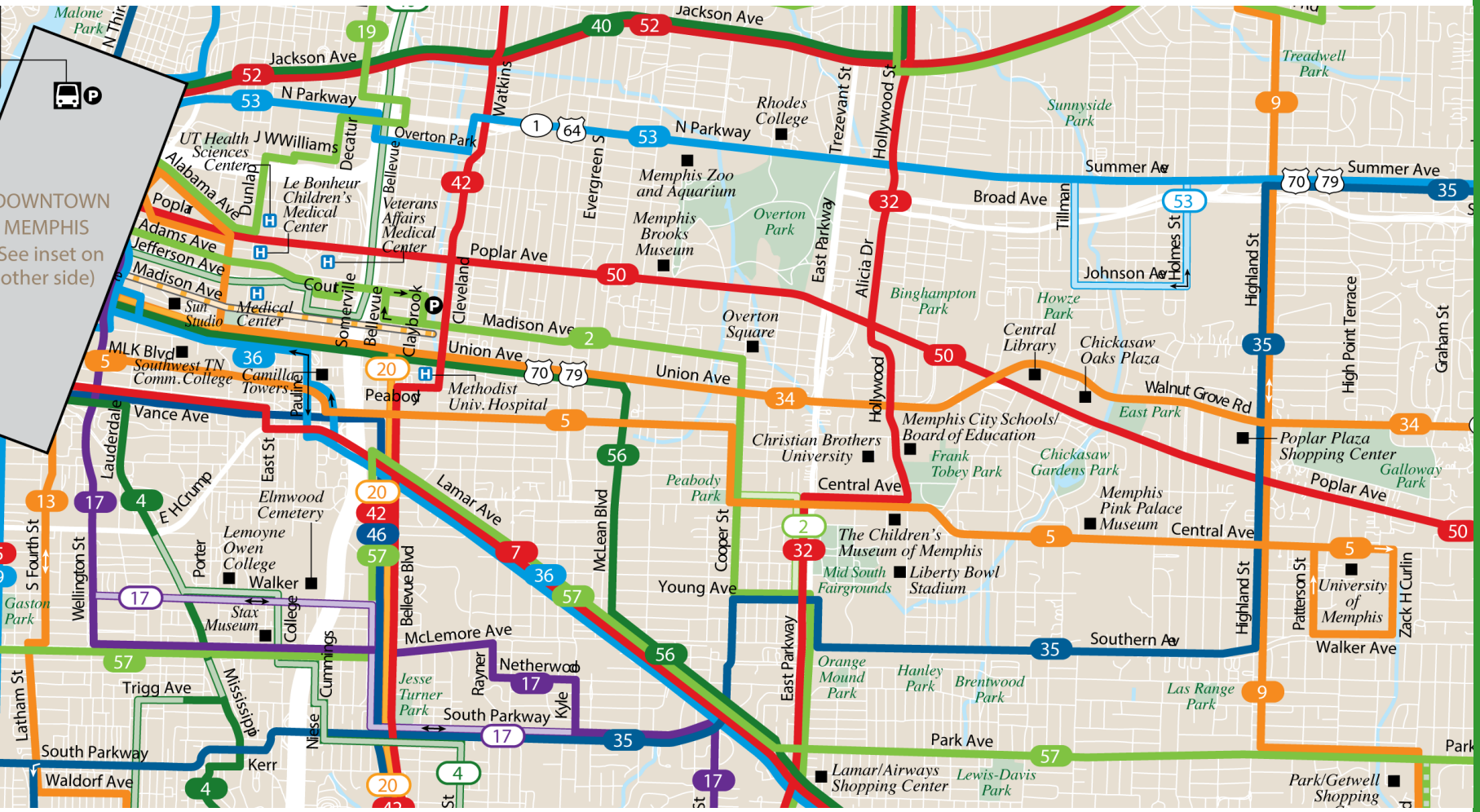
Midtown Alternatives Analysis

MATA

HDR

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

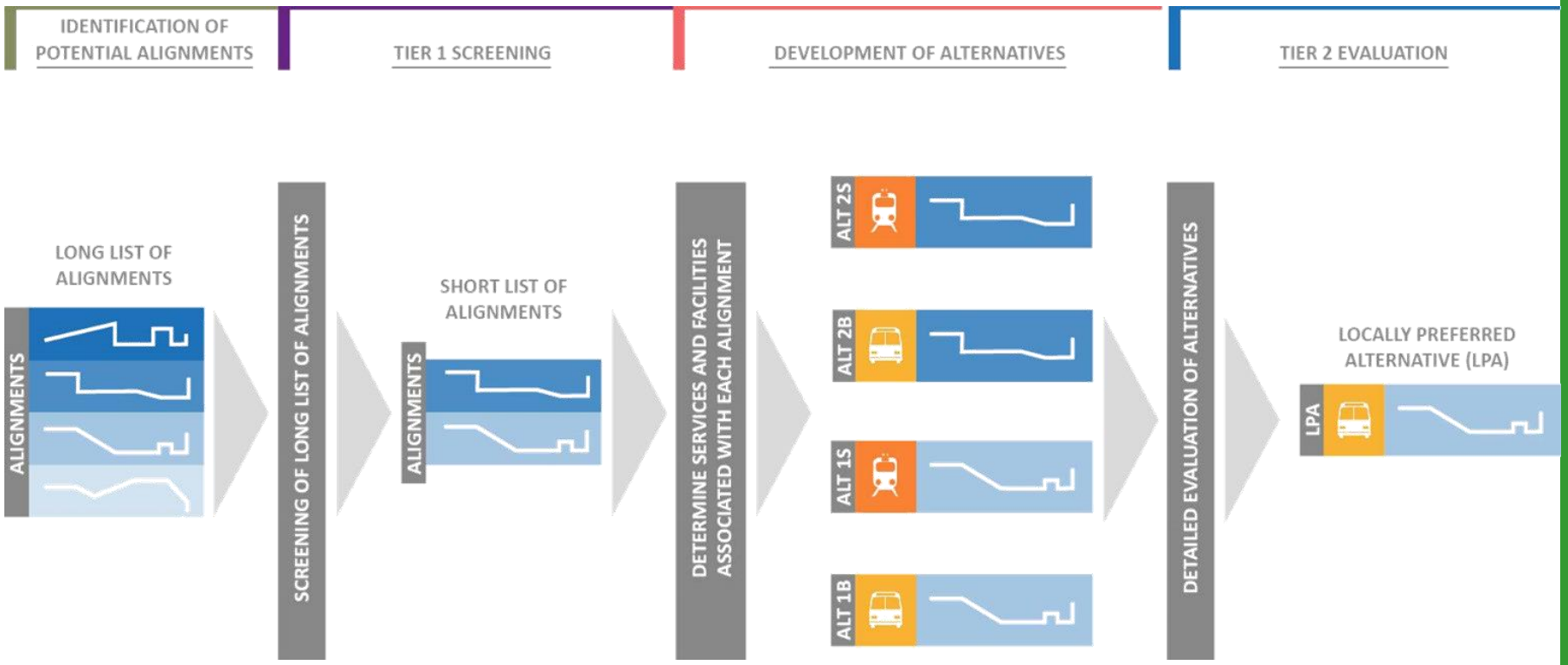
02 What is a High Capacity Transit (HCT) system?

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 Update/Overview of the Study

Overall Alternatives Analysis (AA) Process



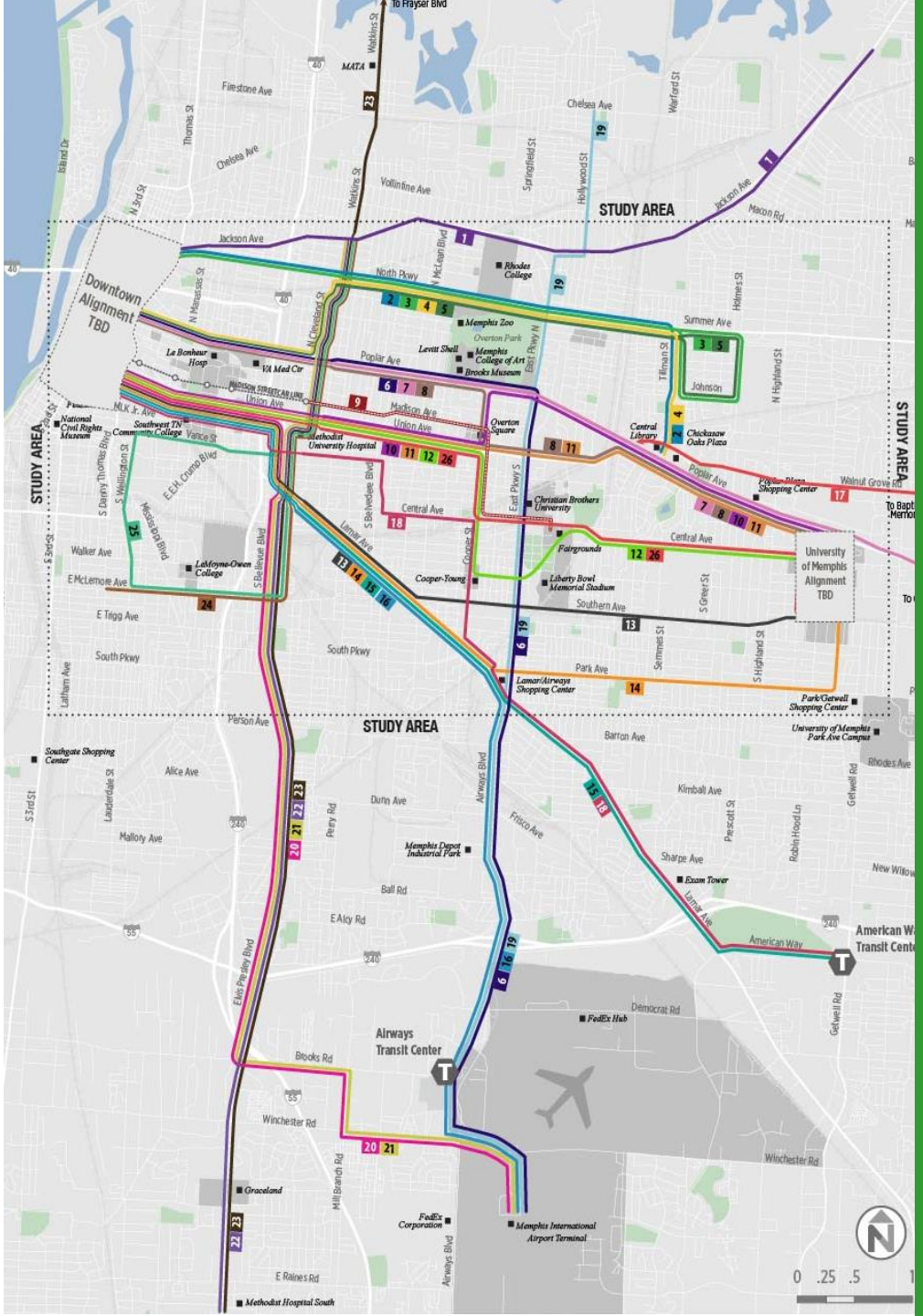
Tasks Completed to Date

- ✓ Environmental Scan
- ✓ Analysis of Development Potentials
- ✓ Ridership Projections
- ✓ Fatal Flaw Analysis
- ✓ Funding Strategy
- ✓ Conceptual Branding
- ✓ Cost Estimation (Capital Cost/Operating & Maintenance Cost)
- ✓ Conceptual Design

04 The Screening Process & Results

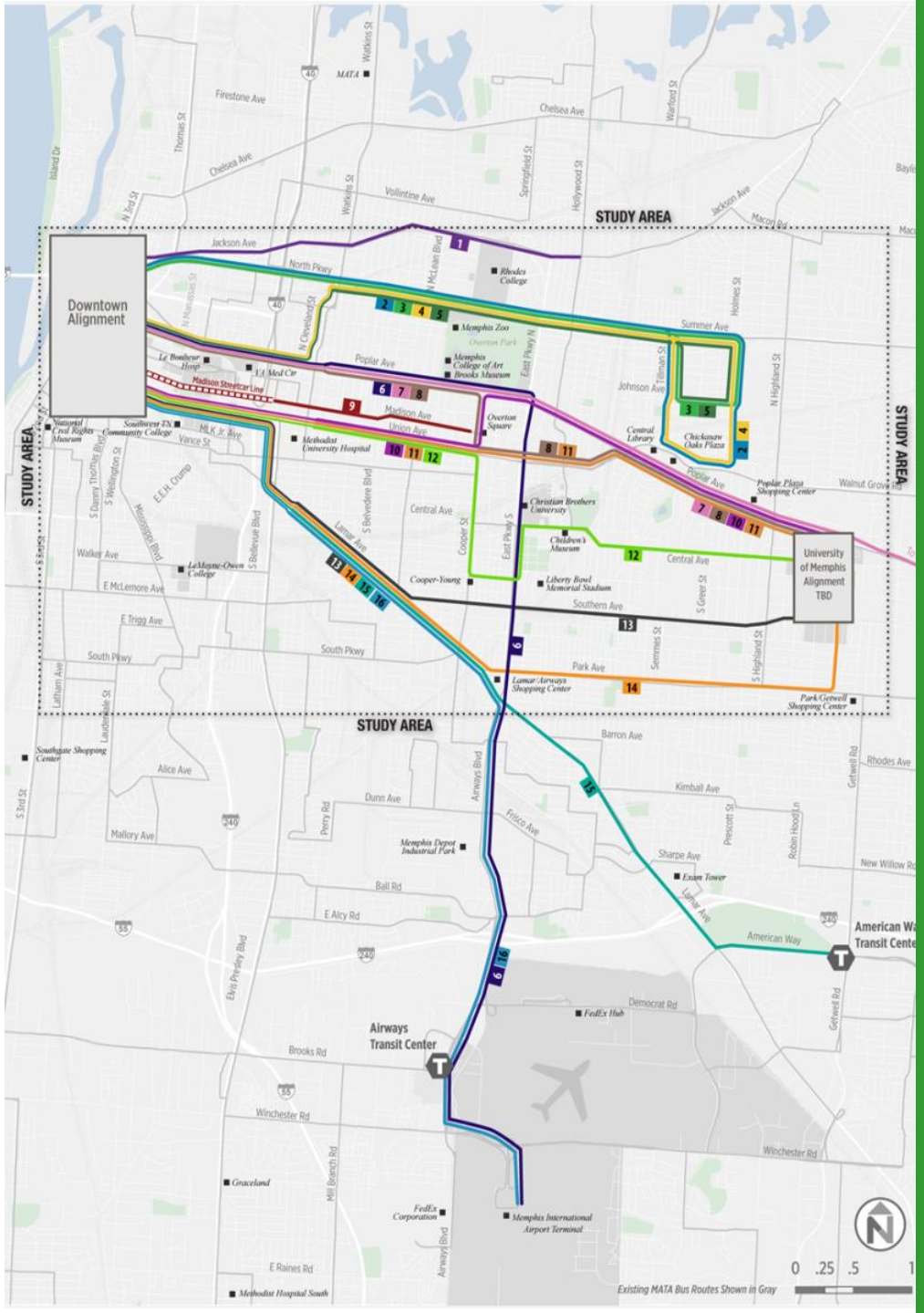
Initial Alignments

- Alignments identified based on input from the Community and Technical Advisory Committee
- 26 Initial Alignments
  - 18 East-West alignments
  - 8 North-South alignments
- 16 of 26 alignments were advanced into Tier 1 Screening.



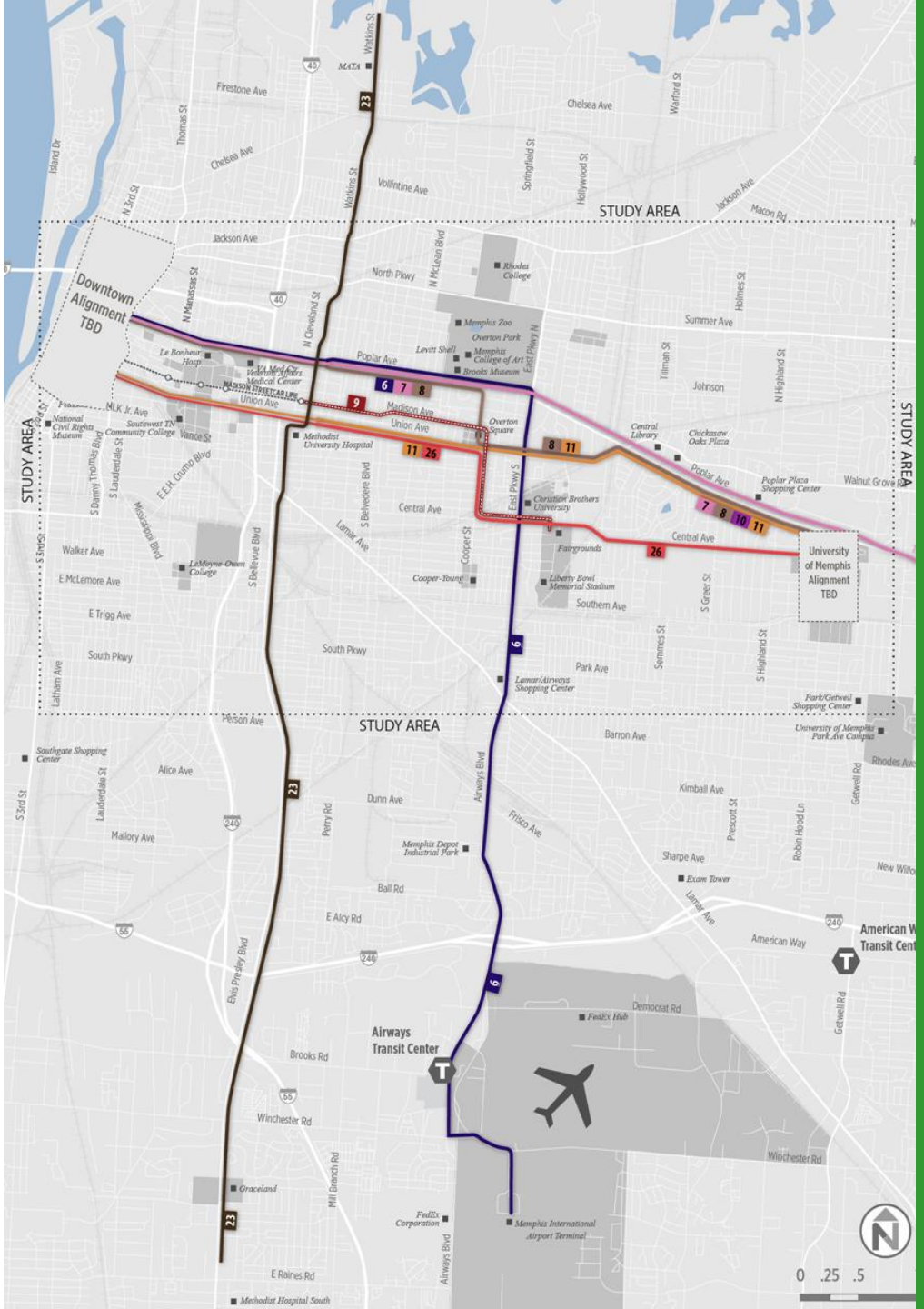
Tier-1 : 16 Alignments

- 16 of initial 26 alignments were evaluated in Tier 1
  - Alignments were evaluated based on a set of 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?
- 7 alignments were advanced into Tier 2 for further evaluation



Tier-2 : 7 Alignments

- 7 alignments were evaluated further in Tier 2:
  - 6 Airport via Poplar and East Pkwy
  - 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



05 Recommended Alternative

Recommended Alternative - #11

Major Features Include:

Connects Downtown with University of Memphis Via Union and Poplar Avenues; Operates every 10 minutes between 5am and 12am daily; Transit Signal Priority; Double Door Buses; Branded Shelters.

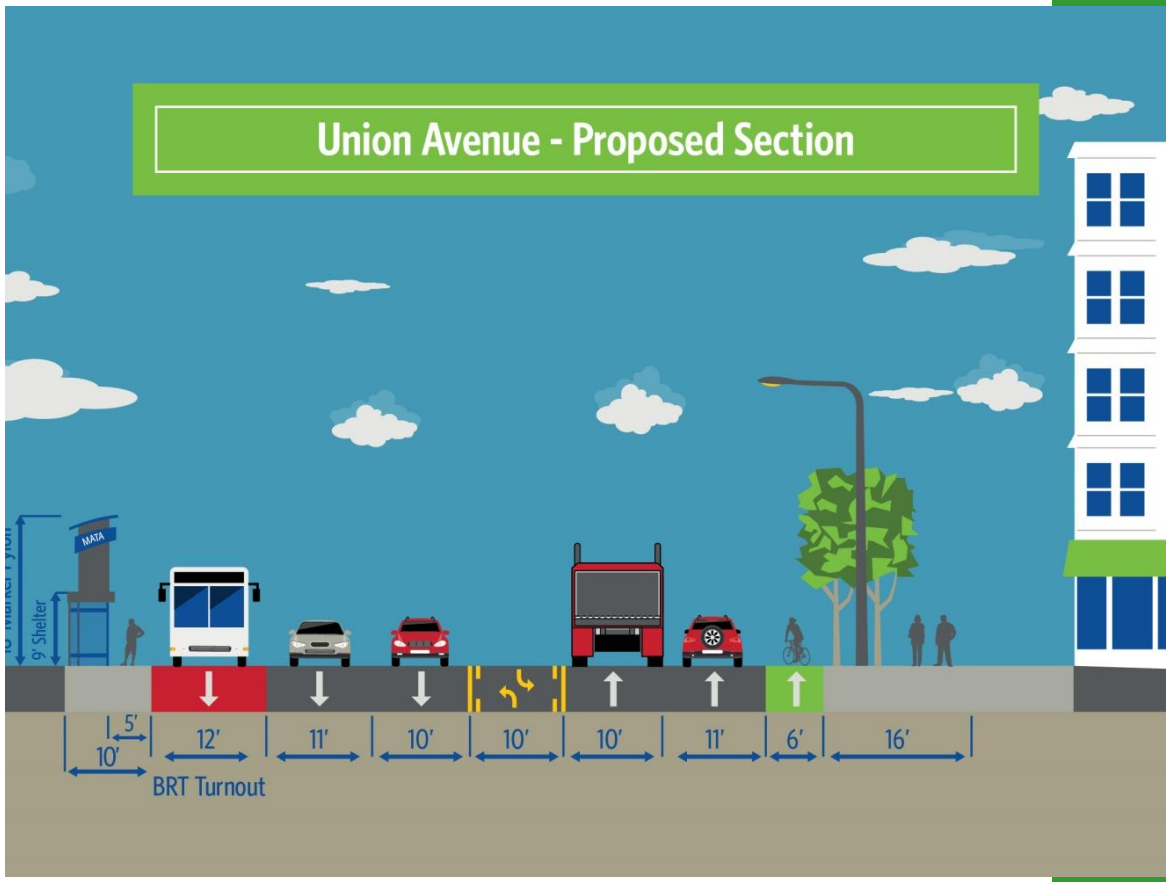
Evaluation Results

Alternative	Corridor Description	Mode of Travel	Daily Ridership (2035)	2016 Capital Cost (in millions)	2016 Annual Operations & Maintenance Costs (in millions)	Corridor Length (Miles)	One Way Travel Time (Minutes)	Number of Stops/Stations	Number of Vehicles	Development Potential (% of underutilized parcels)	Passengers per Mile
6	Airport via Poplar & Airways	BRT	1726	$43.70	$5.51	11.75	51.00	39	13	22%	147
7	Germantown via Poplar	BRT	2138	$37.00	$4.06	7.81	38.00	27	11	17%	274
8	U of M via Poplar, Cooper & Union	BRT	1205	$35.20	$4.52	8.49	42.00	30	12	18%	142
9*	Extension of Madison Ave Streetcar to Fairground	Streetcar	1301	$65.00	$3.41	2.82	28.00	4	8	13%	461
11	**U of M via Union & Poplar**	**BRT**	**3061**	**$37.20**	**$4.55**	**8.59**	**44.00**	**31**	**12**	**19%**	**356**
23	Elvis Presley, Cleveland, Watkins Crosstown	BRT	3512	$40.00	$5.29	11.04	47.00	39	13	22%	318
26	U of M via Union & Central	BRT	2430	$38.40	$4.65	9.1	45.00	32	12	20%	267

**NOTE: Total length of Streetcar is 7.20 miles (extension line is 2.82 miles)*

BRT Operating Along Union/Poplar Avenues - #11

Length	8.59 miles
# of Stations	31 stations
Peak Service Freq.	10 minutes
Capital Cost	$37.20
Ann. Operating Cost	$4.6 million
Avg. Daily Ridership	3,061
Existing Ridership	1,600
Passengers/Mile	356
One way Travel	44 minutes
Dev. Opportunities	19%
% of MATA FY16 Operating Budget	7.8%
Span of Service	5am – 12am



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

BRT Station – Union Avenue/East Parkway

Superstop Example

How does this BRT Compare?

BRT Project	Year of Implementation	Existing Ridership	Projected Ridership	Capital Cost (000)	FTA 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	-	1600	3061	$37.20	$29.76	$4.55	8.59	44.05	31	12	3.6
Troost Max, Kansas City, KS	2011	7500	8500	$30.70	$24.50	$4.90	13	35-40	47	14	3.6
Silver Line, Grand Rapids, MI	2014	3000	4800	$39.90	$32.00	$5.53	9.6	33.00	18	10	1.9
*CMax, Columbus, OH	2017	4800	6625	$46.80	$37.45	$2.66	15.6	39-56	32	15	2.1
Laker Line, Grand Rapids, MI	2017	10000	13000	$71.01	$56.81	$4.47	13.3	37-40	14	16	1.1
**Rapid Transit, Albuquerque, NM	2017	8500	16500	$119.30	$69.00	$6.20	8.75	47.00	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.

06 Funding Strategy

How would it be paid for?

- **CAPITAL COSTS**
  - Various Sources:
    - USDOT (TIGER), FTA, FHWA
    - State
    - Local
  - Combination of Funding Sources
- **OPERATING COSTS**
  - Fare Revenue
  - CMAQ
  - Private Partners Contributions
  - Assessment District/Tax Increment Financing District
  - Parking Fees
  - Other Operating Revenues
  - Reallocation of Existing Bus Services Costs Within Corridor

Conceptual Funding Strategy

Alternative #11

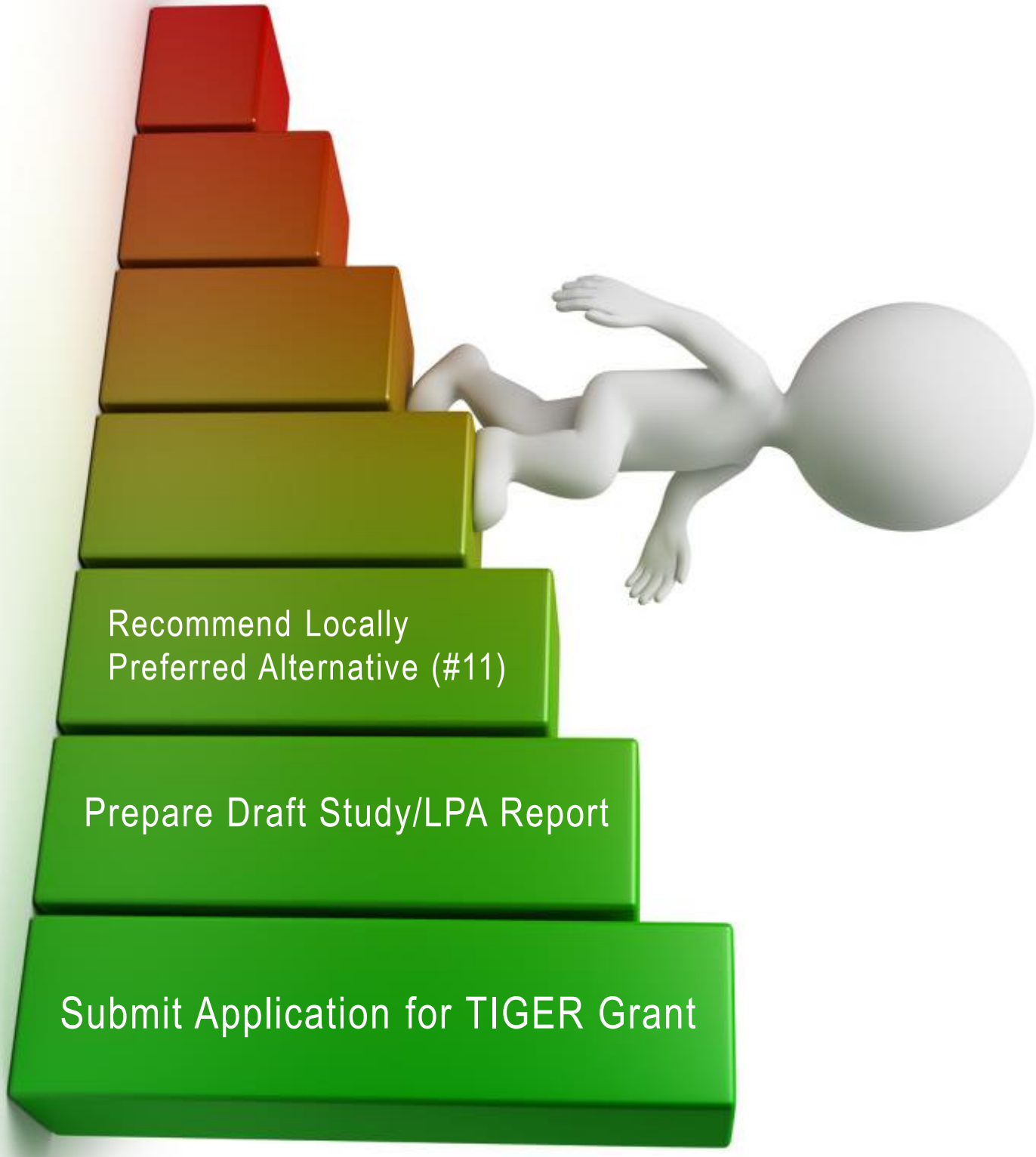
Corridor Description	University of Memphis via Union & Cooper	
Mode of Travel		BRT
Capital Cost (2016$, in Millions)		$37.20
SCENARIO #1 **Maximum Small Starts Funding**		
Small Starts (80%)	$	29.80
State (10%)	$	3.70
City (10%)	$	3.70
TOTAL	**$**	**37.20**
SCENARIO #2 **Combined Small Starts and Other Federal Programs**		
Small Starts (50%)	$	18.60
Other Federal Funds (30%)	$	11.20
State (10%)	$	3.70
City (10%)	$	3.70
TOTAL	**$**	**37.20**
SCENARIO #3 **TIGER Grant**		
TIGER Grant	$	20.00
State	$	8.60
City	$	8.60
TOTAL	**$**	**37.20**
SCENARIO #4 **Combined TIGER Grant and Other Federal Programs**		
TIGER Grant	$	20.00
Other Federal Funds	$	9.80
State	$	3.70
City	$	3.70
TOTAL	**$**	**37.20**

Conceptual Capital Cost Breakdown

Elements	Cost
Route Length (Miles)	8.59
Roadway Improvements (10.99 miles)	$ 1,290,761.10
Number of Stations (31)	$ 15,250,000.00
Sitework (Demolition, Clearing, Landscaping, Bike/Ped. Improvements, etc.)	$ 1,224,425.70
Systems (Traffic Signals, Communications, etc.)	$ 3,151,099.75
Right-Of-Way Acquisitions	$ 1,313,318.95
Vehicles (12)	$ 6,600,000.00
Project Development, Engineering, and Other Administrative Costs	$ 6,627,635.25
5% Contingency	$ 1,772,862.04
TOTAL	**$ 37,230,102.79**

07 Next Steps


what's
next
?


Recommend Locally
Preferred Alternative (#11)
Prepare Draft Study/LPA Report
Submit Application for TIGER Grant

Questions ?