

Memphis Innovation Corridor

Reimagining a Major Commercial Corridor for Bus Rapid Transit and Smart City Infrastructure

Tennessee Section
Institute of Transportation Engineers
(TSITE)
May 16, 2019



Agenda

- Project Goals
 - Project History
 - Project Location
 - Scope of Project
 - Level of Impact / Benefit
 - Project Budget
 - Project Schedule
- 

Project Goals



Enhance

Make the Midtown
Corridor transit
service more
compelling



Connect

neighborhoods
and improve local
circulation



Develop

Support local and
regional economic
development goals



Thrive

Strengthen Midtown
Corridor
neighborhoods and
business areas



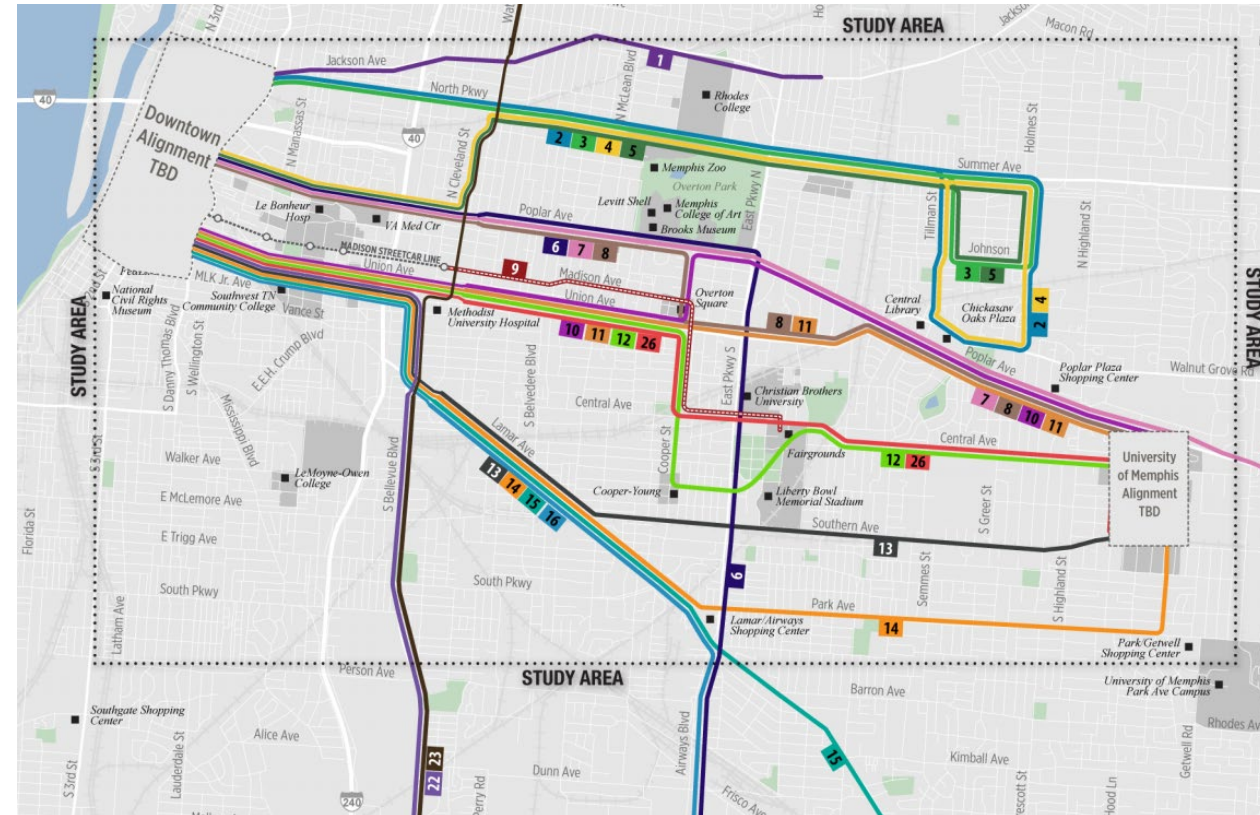
Sustain

Create an
environment that
will be sustainable
over the long term



Innovation Corridor - Project History

- MATA Short Range Transit Plan
- Midtown Alternatives Analysis –
- Locally Preferred Alternative (LPA) –
 - Bus Rapid Transit – Downtown to University of Memphis
- TIGER Grant Application
- BUILD Grant Application
- FTA Class of Action (DCE)
- STBG monies flexed to FTA



Bus Rapid Transit (BRT) - What is it?

- Fixed Guideway BRT
 - Over 50% of route in separated right-of-way dedicated for transit use
 - Defined stations providing information on schedules and routes
 - Faster passenger travel times
 - Short headway (10-15 min.) bidirectional service for 14 hrs/weekday and 10 hrs/weekend day
 - Branded vehicles
- Corridor Based BRT
 - Service that emulates service of rail fixed guideway
 - Defined stations
 - Transit Signal Priority
 - Short headway bidirectional service
 - Other features USDOT may determine



Project Team

Kimley»»Horn

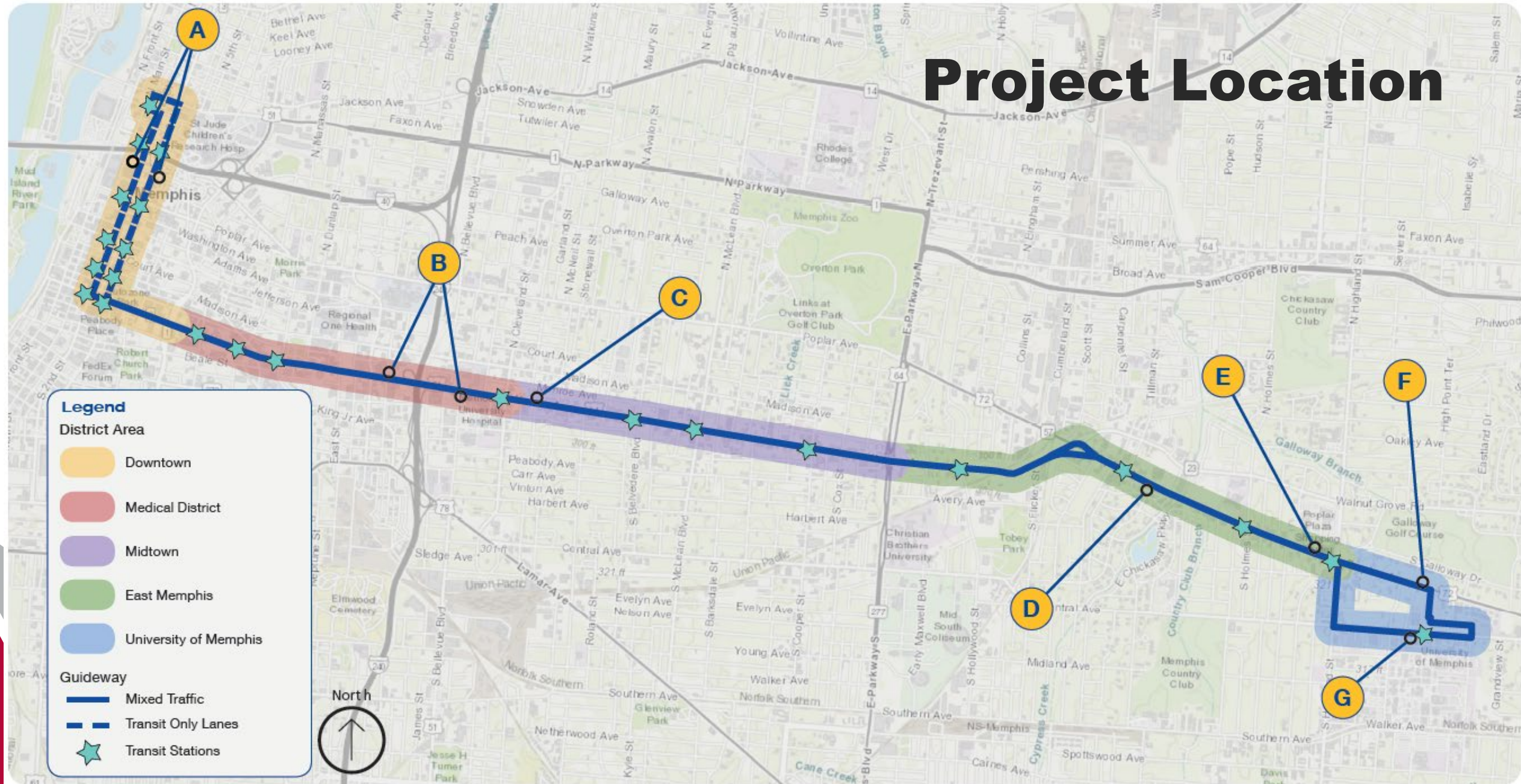
HDR



THY INC
ENGINEERS
SURVEYORS

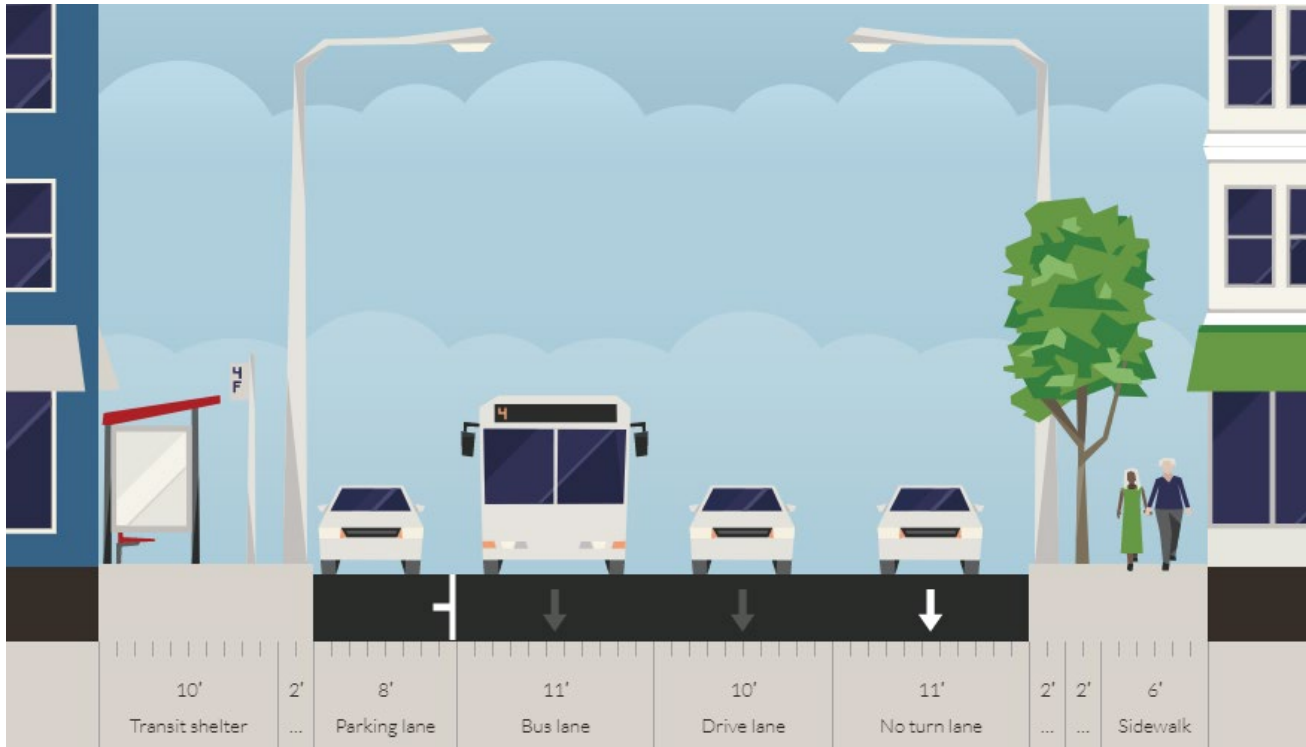
Firm	Role
Kimley-Horn	PM, NEPA, Design, CEI
HDR	Planning, Design, Public Engagement, CEI
Carter Malone Group	Public Engagement
Nelson Nygaard	Transit Planning
THY	Surveying
Self Tucker	Architecture
K.S. Ware	Geotech, NEPA (hazardous materials)
Bass River	Finance
New South	NEPA (cultural resources)
PDC	Data Collection (traffic counts)
Trotz Real Estate	Right of Way Acquisition
Douglas B. Hall	Right of Way Acquisition
Steve Tacker	Right of Way Acquisition

Project Location



Project Description

- Bus Rapid Transit (BRT)
 - Corridor Based BRT – 8.5 mile corridor
 - Bus Only lanes on North Second Street and BB King Boulevard
 - 10-minute headways



Project Description

- Bus Rapid Transit (BRT)
 - Level boarding at 33 branded transit stations
 - Off-board fare collection
 - Provision for ADA and security



Project Description

- Bus and Communications Technology
 - 12 branded 40' electric buses with charging stations
 - On-Board Wi-Fi
 - Automatic Vehicle Location (AVL)
 - Automated Passenger Counters (APC)



- Automatic Voice Annunciation (AVA)
- On-Board security cameras
- Dedicated Short Range Communications (DSRC) vehicle to infrastructure communication
- Vehicle health monitoring



Project Description

- Traffic Signal Improvements
 - Signal reconstruction or modification (54 total)
 - Transit Communications
 - ADA Improvements
 - Transit signal priority (TSP)
 - Advanced Traffic Management System (ATMS)



Project Description

- Roadway/Safety Improvements
 - Union Avenue converted from 6 to 5 lanes from Manassas to East Parkway
 - Streetscape Improvements Downtown
 - Water Resource Improvements
 - ADA/Sidewalk Improvements to PROWAG standards
 - HAWK signal at Central Library
 - Replace conventional street lights with LED



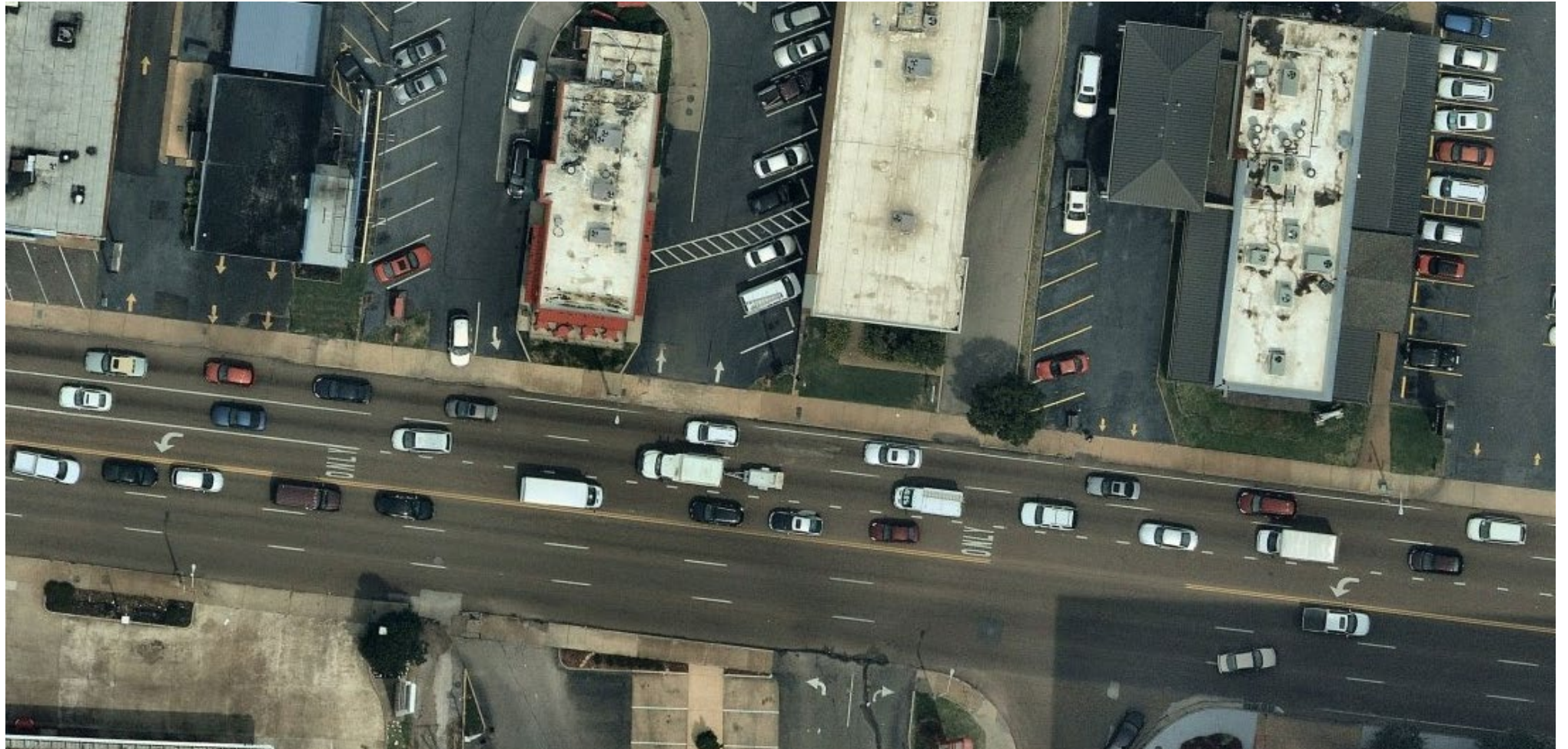
Before



After (Rendering)

Scope of Project

- Roadway/Safety Improvements
 - Access Management



Project Impact

- Safety
- Traffic Operations
- Accessibility
- Environmental Impact



Transportation Safety

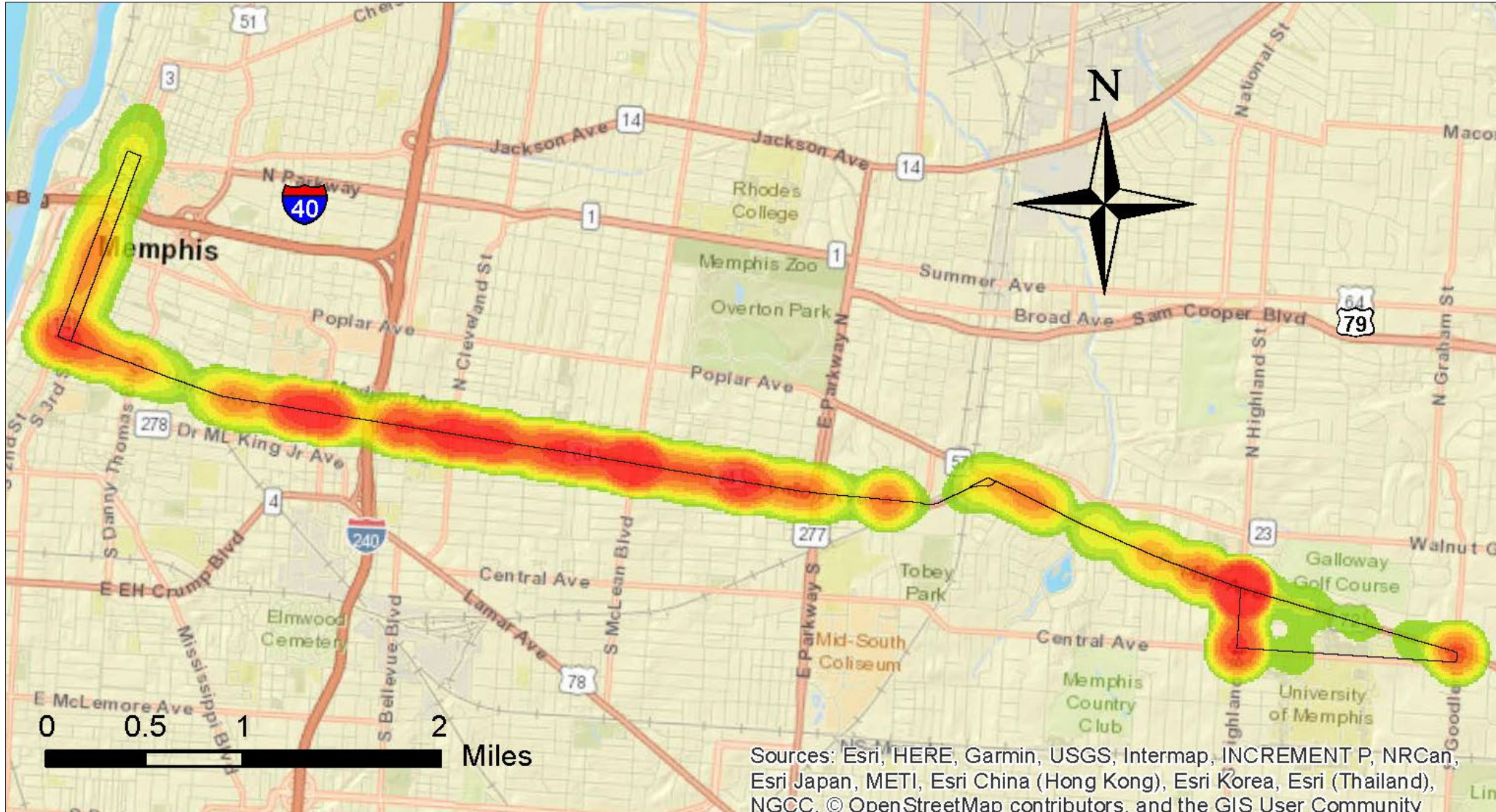
- Existing Crashes by Mode and Severity (2015-2017)

Travel Mode	Fatal Crashes	Injury	Non-Injury	Total Crashes	Average per Year
Pedestrian	5	51	6	62	20
Bicycle	0	6	2	8	3
Motor Vehicle(s) only	4	201	2,619	2,824	941
Total	9	258	2,627	2,894	964



Transportation Safety

- Crash Density Mapping



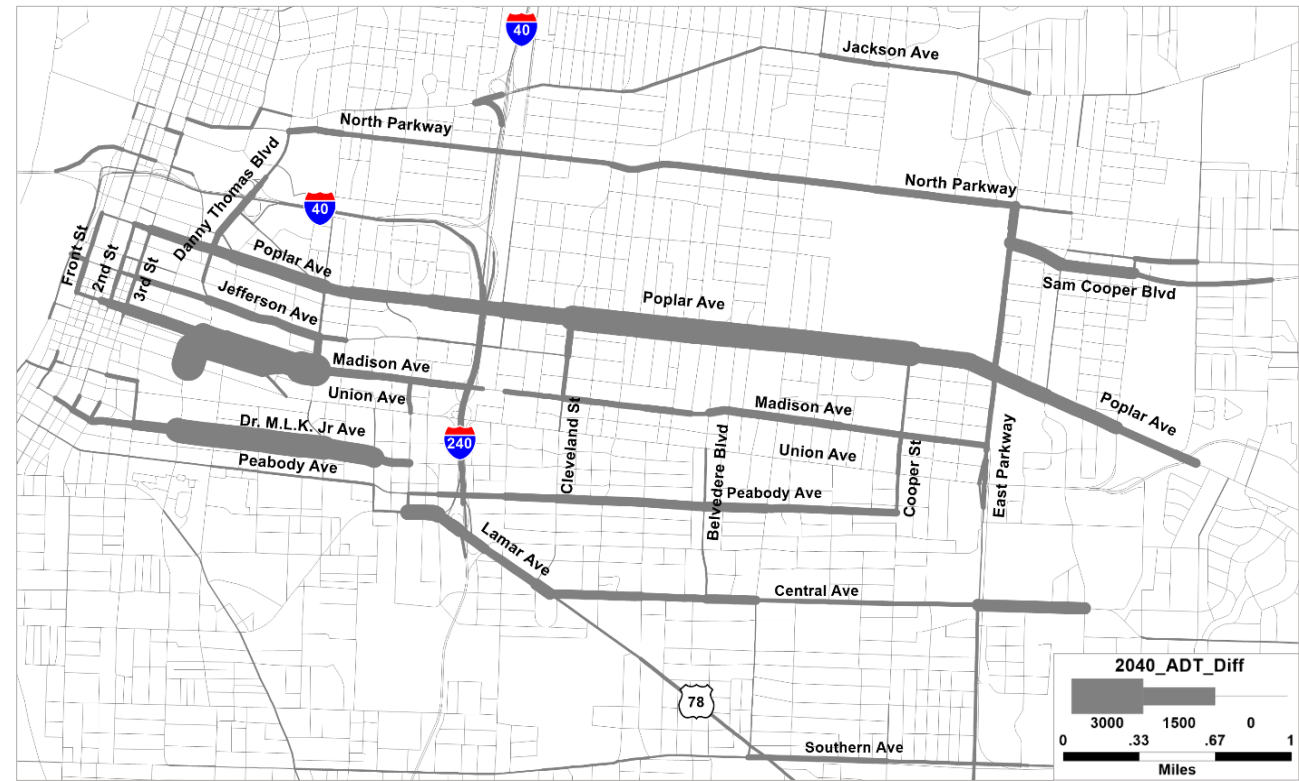
Transportation Safety

- Intersection Safety Improvements
 - Crash Mitigation Factors (CMF) from AASHTO's *Highway Safety Manual* (HSM), 2010
 - Adding left-turn lanes on two approaches (CMF – 0.81)
 - Reducing access point density (CMF – 0.71)
 - Estimated crash reduction of 55 crashes per year in 2040
 - Other improvements not yet quantified (Undivided to TWLTL)



Traffic Impact

- Methodology
 - Regional travel demand model
 - Estimate shift in traffic
 - Estimate growth
 - Microsimulation model to evaluate impacts
 - Slight reduction in areawide VMT and VHT



Performance Measure	Analysis Scenario							
	No Build				Proposed			
	2025		2040		2025		2040	
AM	PM	AM	PM	AM	PM	AM	PM	
Total Delay (hr)	63.5	74.9	79.2	95.7	59.2	70.0	59.2	70.0
Total Delay/Veh (sec)	120.3	157.9	127.9	178.5	118.5	121.6	118.5	121.6
Travel Time (hr)	171.6	194.0	200.8	229.9	161.4	185.0	161.4	185.0

Environmental Impact

- FTA Class of Action – Documented Categorical Exclusion (DCE)
- Improved air quality
 - Change in fleet mix – electric buses
 - Reduction in delay and VMT
- Reduced noise/vibration
- Cultural resource impacts



Cultural Resource Impacts

- Historic Impact
 - Area of Potential Effect (APE) includes:
 - 300 architectural resources
 - 29 National Register listed resources
 - 8 historic districts
 - 3 National Register listed districts
 - 1 public housing complex
 - Spans a National Register Listed parkway
 - Sun Studio – a National Historic Landmark



Cultural Resource Requirements

- Historic
 - Historic Architecture Section 106 Assessment of Effects
 - Section 4(f) Evaluation for Historic Resources
- Archaeology
 - Identify resources that are listed in, or eligible for the National Register of Historic Places (NRHP)
 - Identify effects to resources (36 CFR 800)



Project Capital Cost

Item/Description	Base Year Cost
10 - Guideway and Track Elements	\$4,189,000
20 – Stations, Stops, Terminals, Intermodal	\$12,342,000
30 – Support Facilities: Yards, Shops, Admin. Bldgs.	\$0
40 – Sitework and Special Conditions	\$5,584,000
50 – Systems	\$16,070,000
60 – ROW, Land, and Existing Improvements	\$3,080,000
70 – Vehicles	\$8,514,000
80 – Professional Services	\$12,601,000
90 – Unallocated Contingency	\$3,119,000
100 – Finance Charges - Inflation	\$0
Total Project Cost	\$65,499,000

Project Funding Sources

Funding Type	Funding Source	Cost (in millions)	Total Percentage
BUILD	BUILD Grant	\$10.0	15%
Federal	Federal (TIP# 5309-2017-01)	\$32.4	49%
	Federal (TIP# STBG-M-2017-04)	\$4.8	7%
Non-Federal	State (TIP# 5309-2017-01 Match)	\$3.5	5%
	City (CIP)	\$10.0	15%
	City (TIP# 5309-2017-01 Match)	\$3.5	5%
	City (TIP# STBG-M-2017-04 Match)	\$1.2	2%
Total Innovation Corridor		\$65.5	100%



Project Schedule

- MATA Board Approval – March 26, 2019
- Complete Bid Phase Services – April 18, 2021

Tasks	2019								2020												2021						
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Ongoing Stakeholder Engagement		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
Update Project Definition and Options	■																										
Internal Small Start Evaluation		■																									
Preliminary Risk Management Plan		★																									
BUILD Grant Application	■		★				★																				★
Public and Stakeholder Involvement -			■	■																							
30% Preliminary Engineering		■	■	■	■	■	■																				
Preliminary Finance Plan					■	■	■																				
Environmental Evaluation - DCE	■	■	■	■	■	■	■	★																			
FTA Environmental Review and Approval								■	★																		
60% Design								■	■	■	■	■															
Independent Cost Estimate										■	■																
Update Risk Management Plan										■	★																
Public and Stakeholder Involvement - 2											■	■															
100% Design												■	■	■	■	■											
Non-Federal Funding Commitment												■	■														
Small Starts Application													■	■	■	■	★										
FTA Small Starts Review and Construction Grant Agreement																■	■	■	■	★							
Procurement Documents																■	■	★									
Construction Procurement																			■	■	■	■					
ROW Acquisition									■	■	■	■	■	■	■	■	■	■	■	■	■	■					

Questions?

- Let's Eat BBQ!

