

Memphis Innovation Corridor Bus Rapid Transit

**Tennessee Section
Institute of Transportation
Engineers (TSITE)**

Spring Meeting - May 18, 2022



Kimley»»Horn

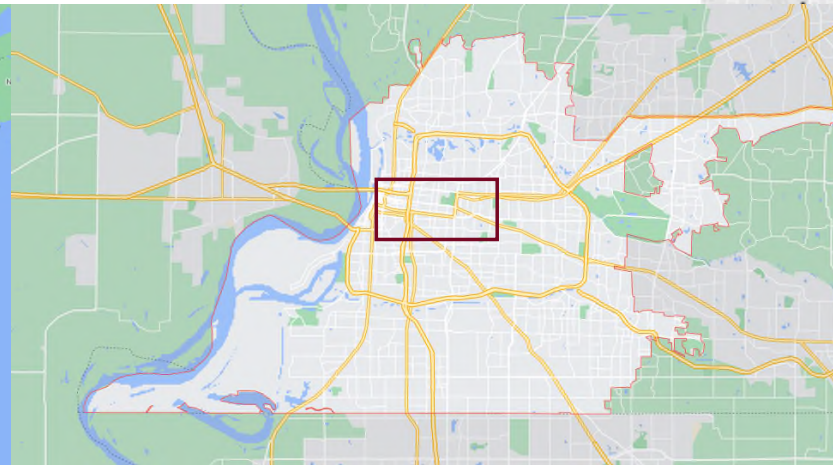
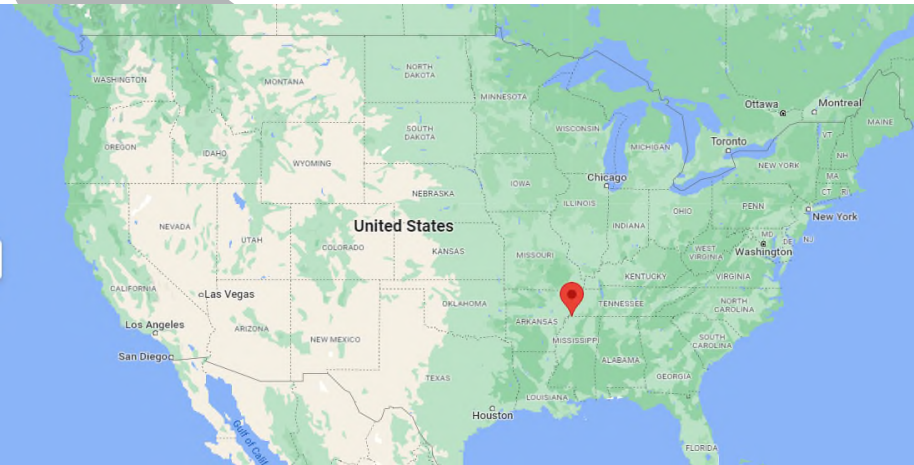
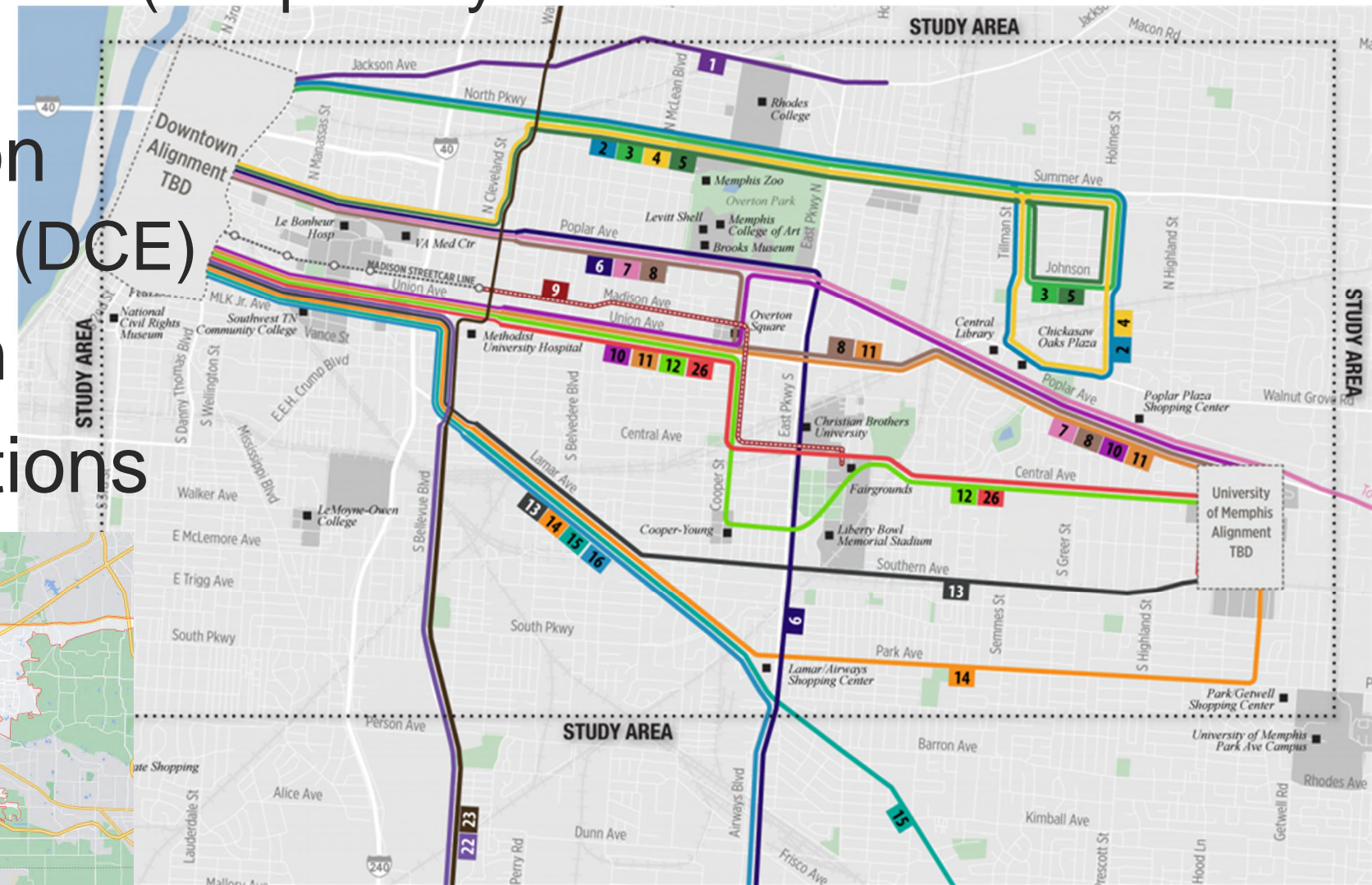
HDR



SELF + TUCKER
ARCHITECTS

About the Project - History

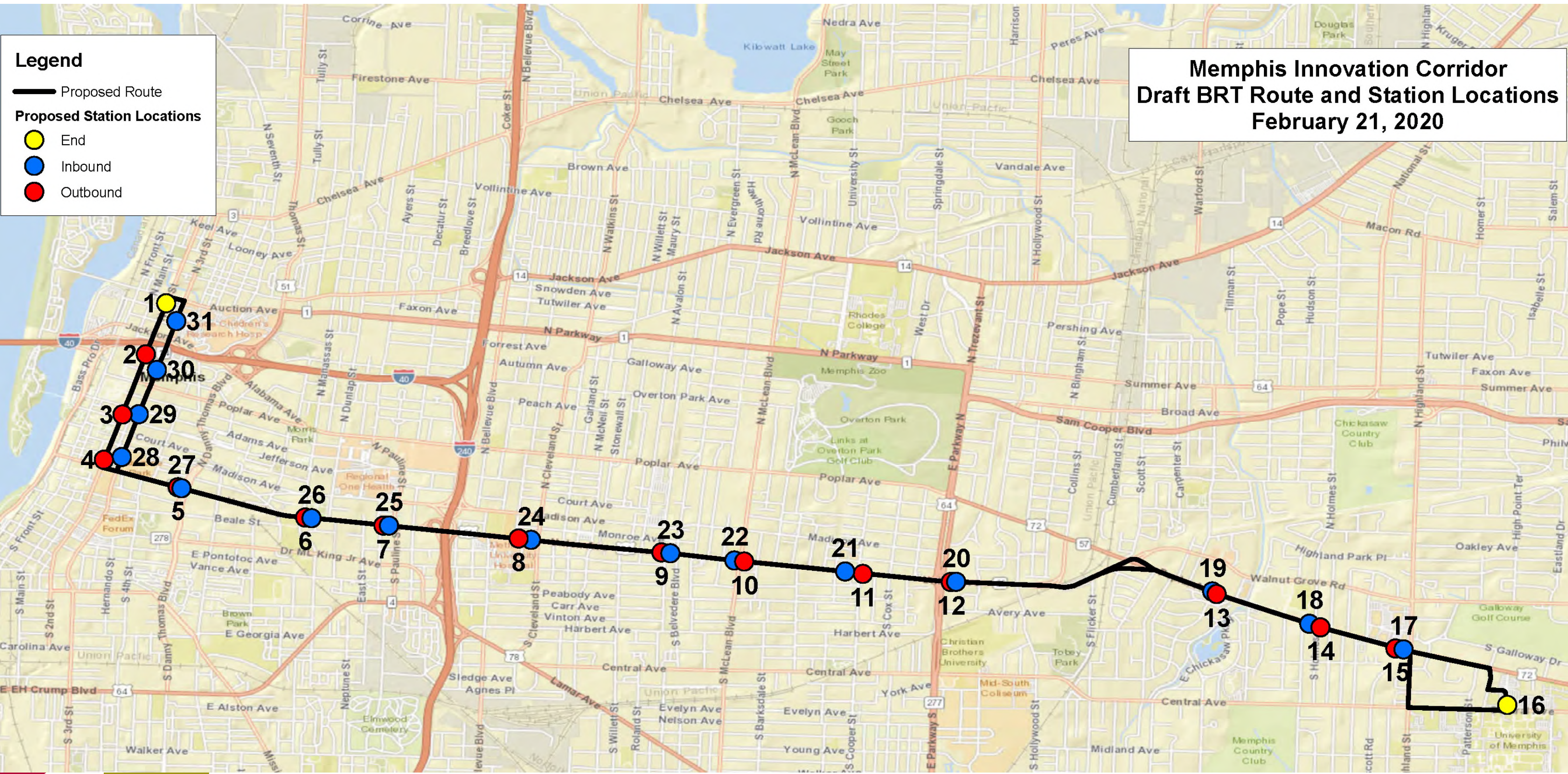
- MATA Short Range Transit Plan – 2012
- Midtown Alternatives Analysis – 2014
- Locally Preferred Alternative (LPA)
 - Bus Rapid Transit – Downtown to UofM (Adopted by MATA Board May 2017)
- FTA Environmental Class of Action
 - Documented Categorical Exclusion (DCE)
- Memphis 3.0 / Transit Vision Plan
- TIGER and BUILD Grant Applications



Memphis Innovation Corridor Draft BRT Route and Station Locations February 21, 2020

Legend

- Proposed Route
- Proposed Station Locations**
- End
- Inbound
- Outbound



About the Project

The Memphis Innovation Corridor will include the following features along the eight-mile corridor:

- Bus Rapid Transit vehicles arriving every 10 minutes during peak periods
- 16 modern transit stations/31 individual platforms
- Branded all-electric BRT vehicles
- Dedicated transit only lanes on B. B. King Boulevard and Second Street
- Roadway Improvements
- Green Infrastructure
- Upgrades to all traffic signals
- Pedestrian improvements
- Intersection improvements

Operating Plan

- Frequency and Duration of Service



- Operating Policy

- No flag stop service
- Other fixed route buses to use Bus Only lanes
- No bus passing in Bus Only lanes

- Fare Policy

- Same as current fixed route service





Features and Amenities – BRT Stations

- Real-Time Bus Arrival Information
- Security
 - Cameras
 - Emergency Call Box
- Off-Board Fare Collection
- Electronic signage and communications

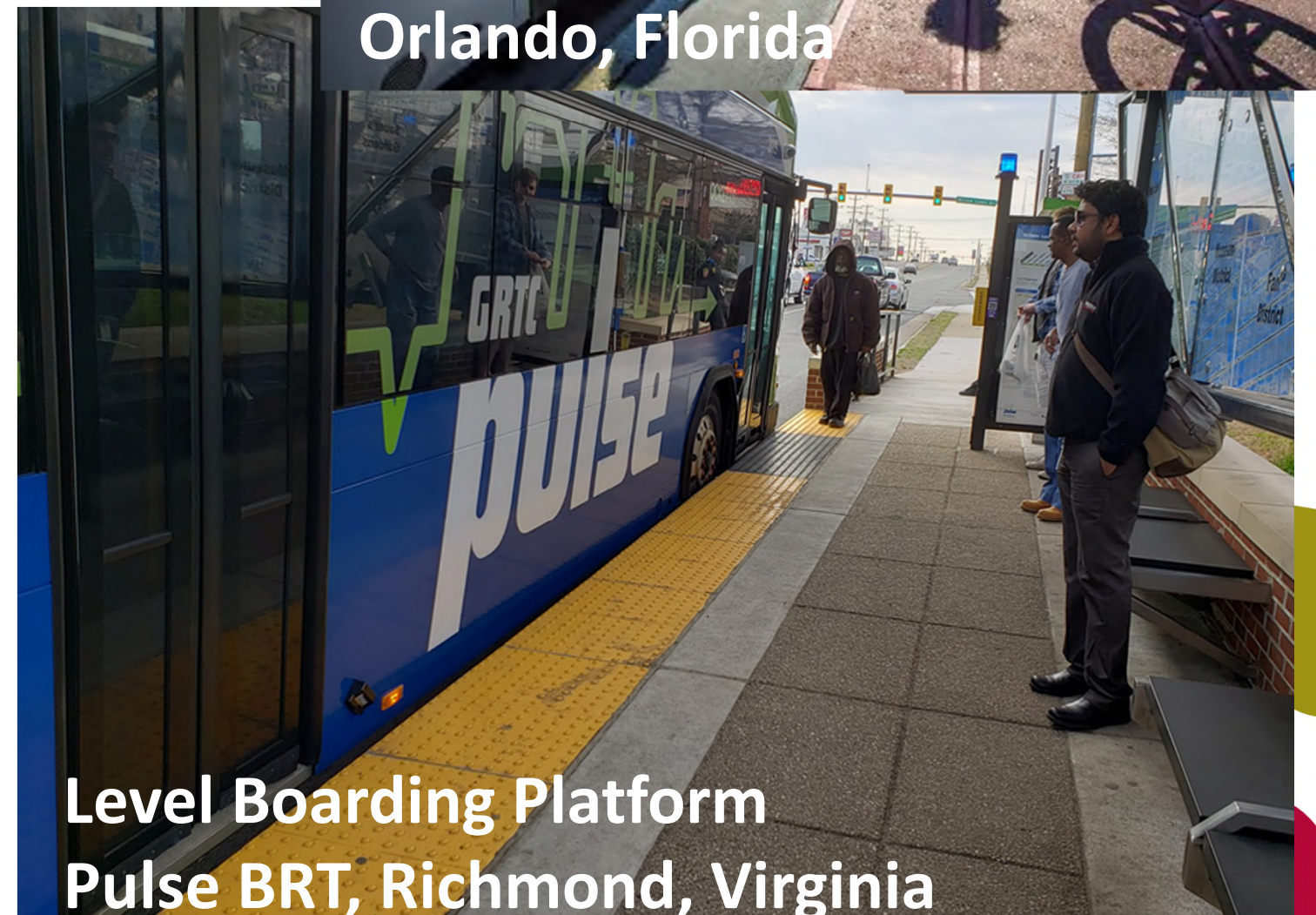


Station Features (cont.)

- Level Boarding at 29 Transit Stations
- ADA tactile signage
- ADA voice announcements for next bus arrival
- Tactile strips at the boarding edge
- Bicycle and scooter parking areas
- Seating
- Concrete bus pads
- Opportunities for public art



Typical Boarding Platform Lynx,
Orlando, Florida



Level Boarding Platform
Pulse BRT, Richmond, Virginia

Typical mConnect Station Downtown - North Second at Monroe



Typical mConnect Station Medical Center – Union at Health Sciences Park



Typical mConnect Station Midtown – Union at Cooper Street





Transit Only Lanes

- B.B. King Blvd Northbound
- North 2nd Street Southbound



Project Description

- Roadway/Safety Improvements

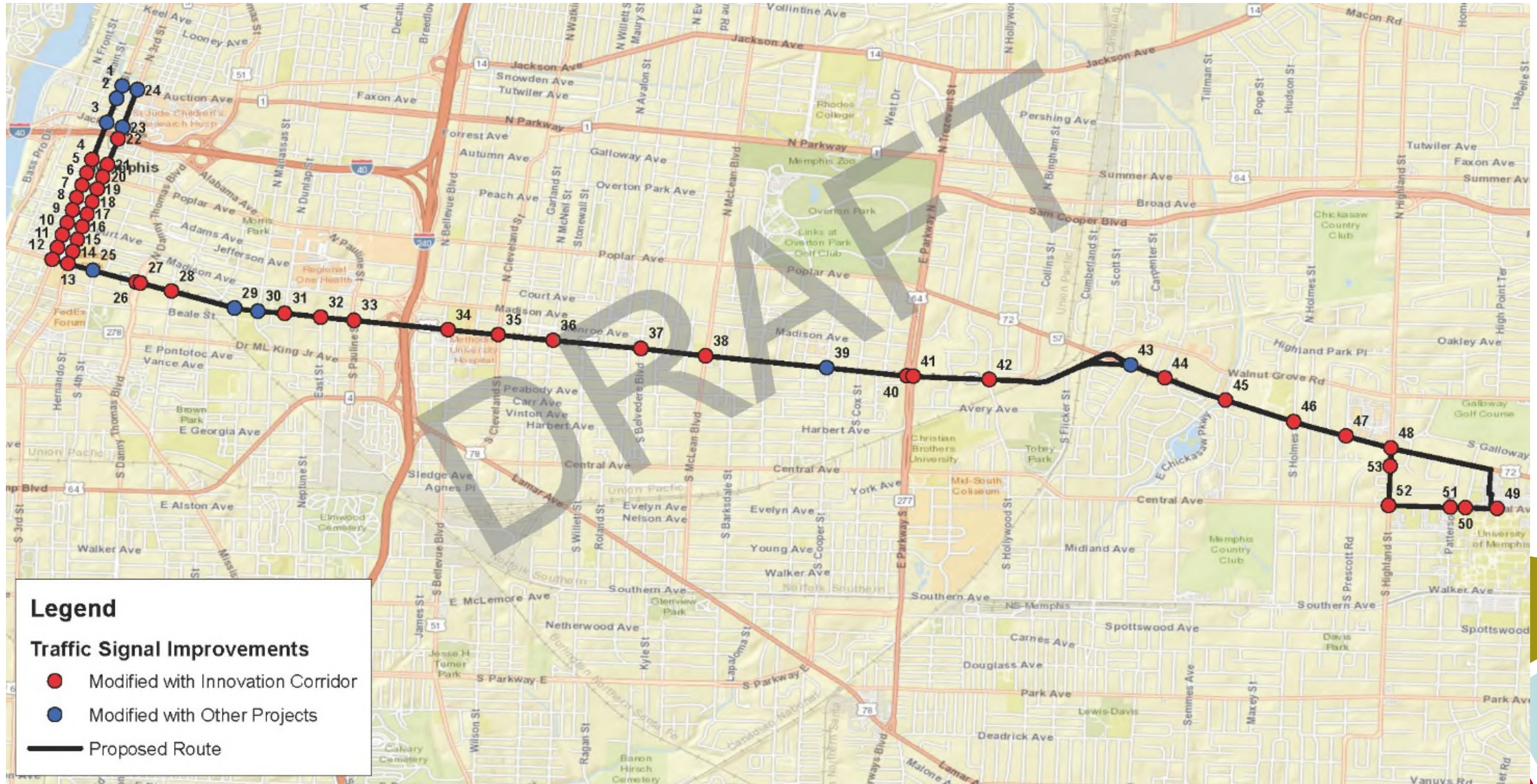


Project Description

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

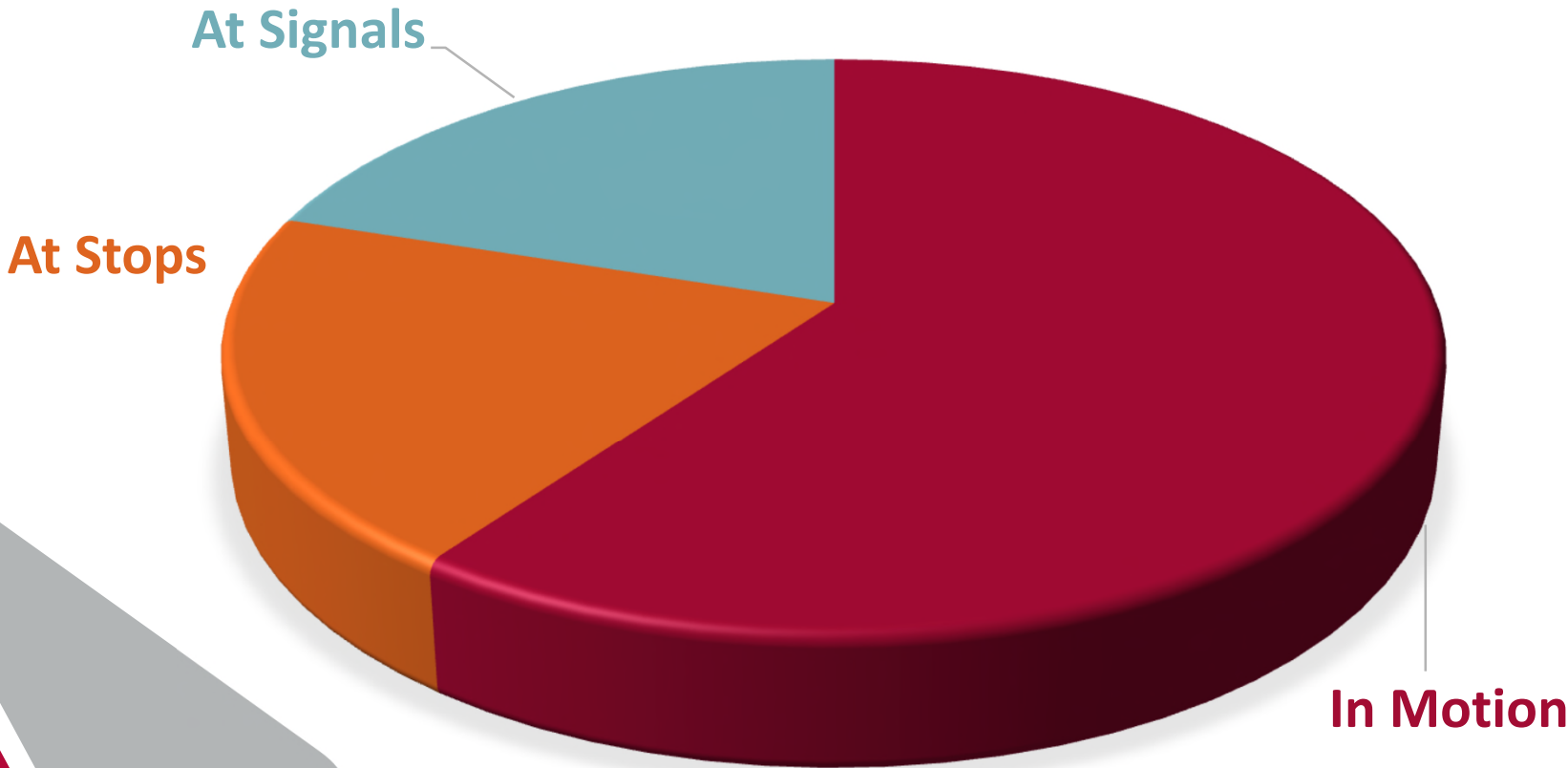


Traffic Signal Improvements

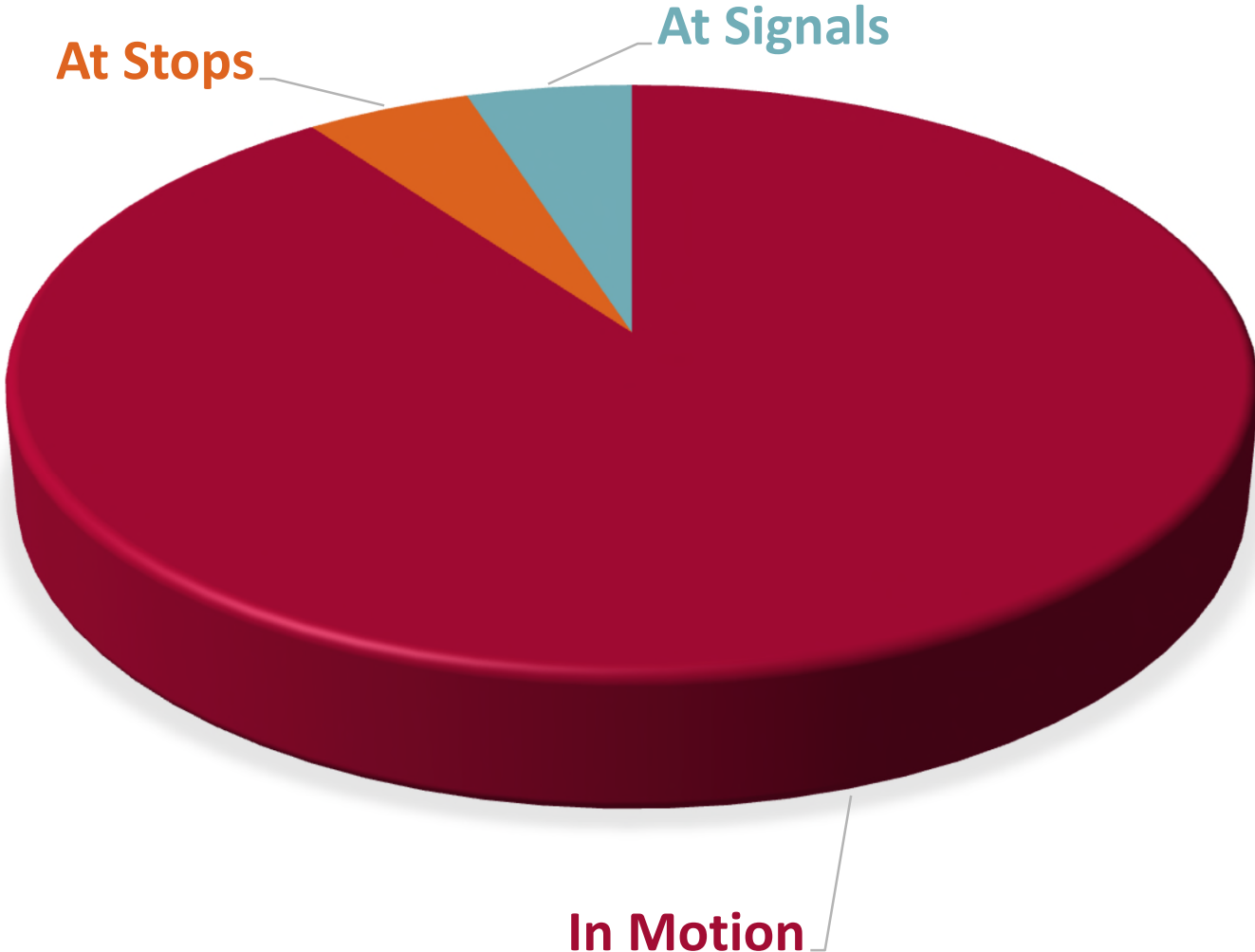


Why BRT and TSP?

- Regular Bus Operations



- BRT Bus Operations with TSP

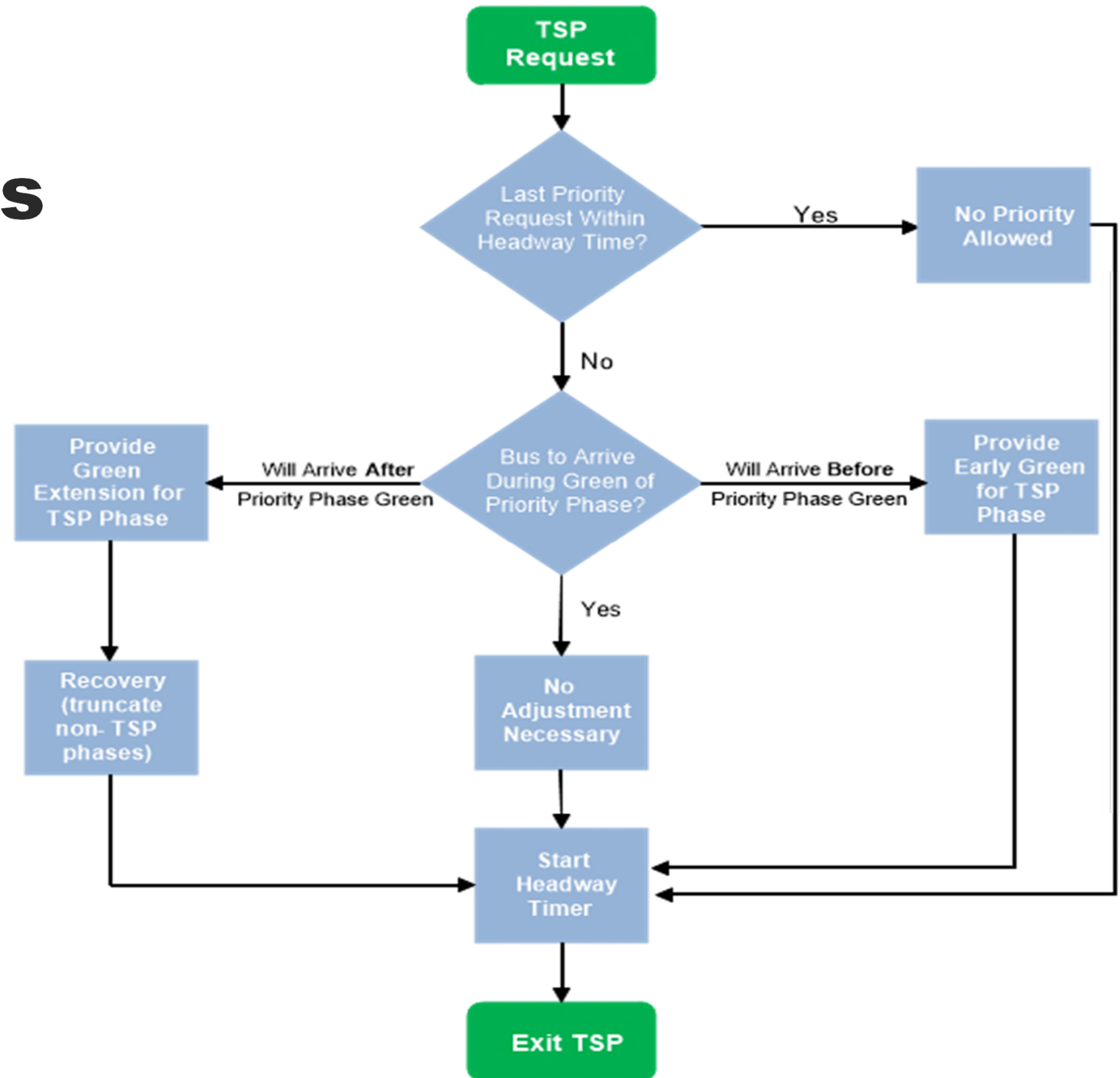


Transit Signal Priority

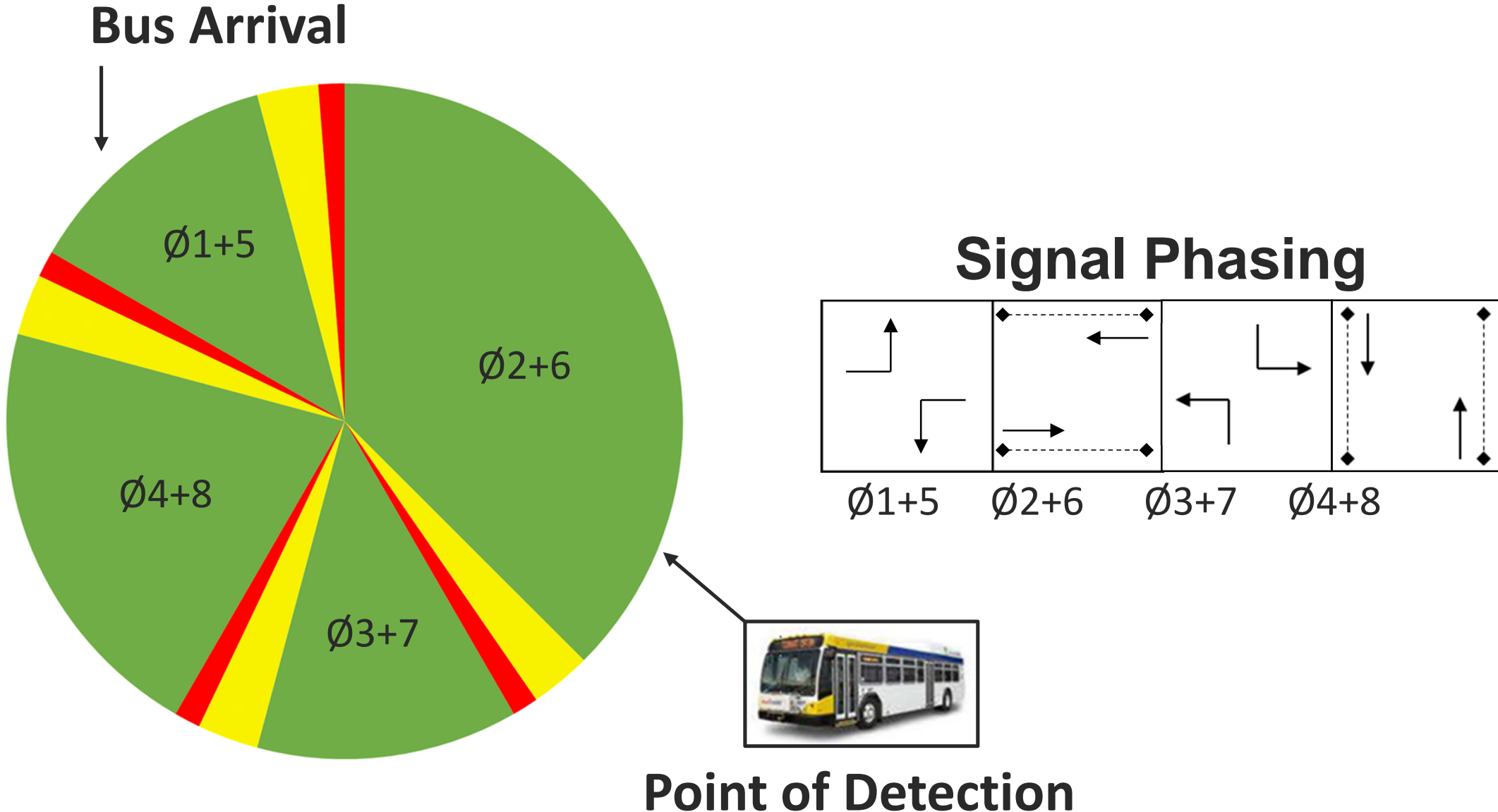
- **Passive Priority** – Based on an optimal signal coordination, considering the transit operations / speeds
 - “*Good Ole Fashioned Signal Timing Optimization*”
- **Active Priority** – Priority treatment following detection and subsequent priority request activation
 - *Green Extension*
 - *Early Green*
 - *Actuated Transit Phases*
 - Exclusive left turn transit only lane
 - Queue Jump (QJ) phase
 - *Phase Insertion/Re-Service*
 - i.e. Insertion of a leading left-turn-only phase for transit vehicles
 - *Phase Rotation*
 - *Phase Omission / Skipping*



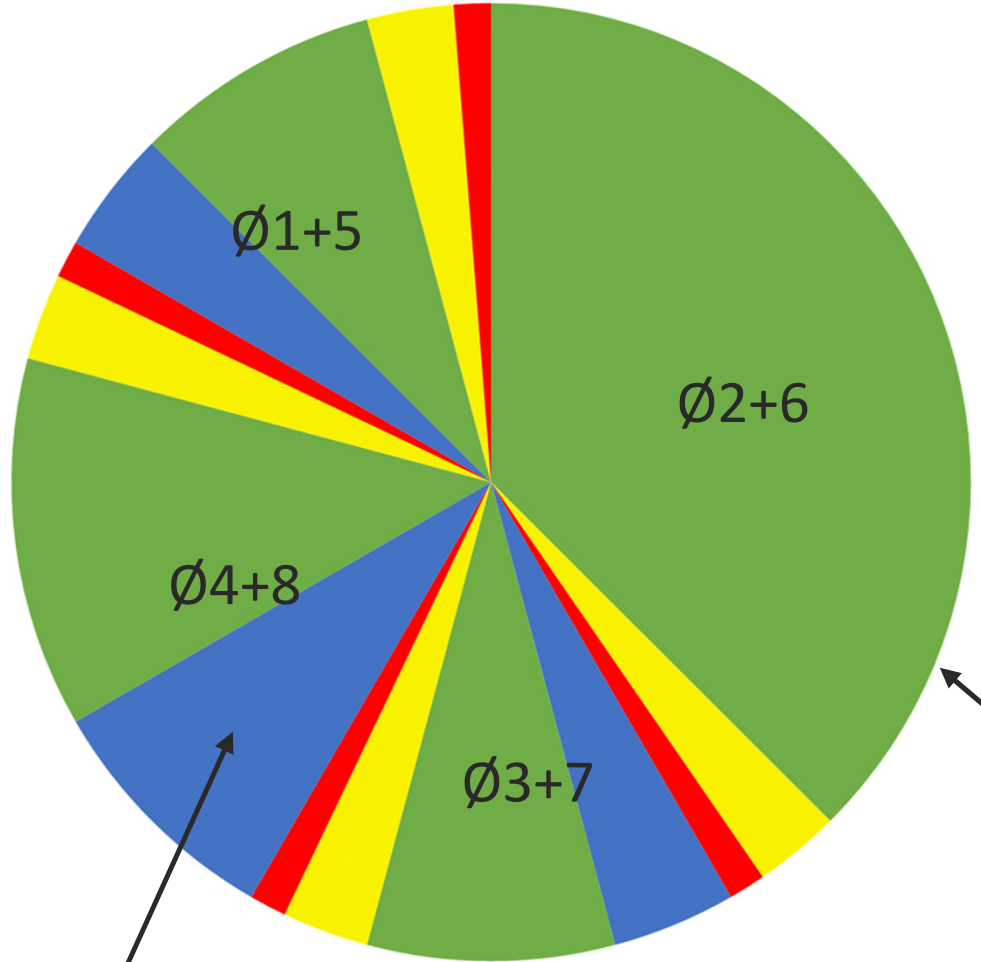
Transit Signal Priority Process



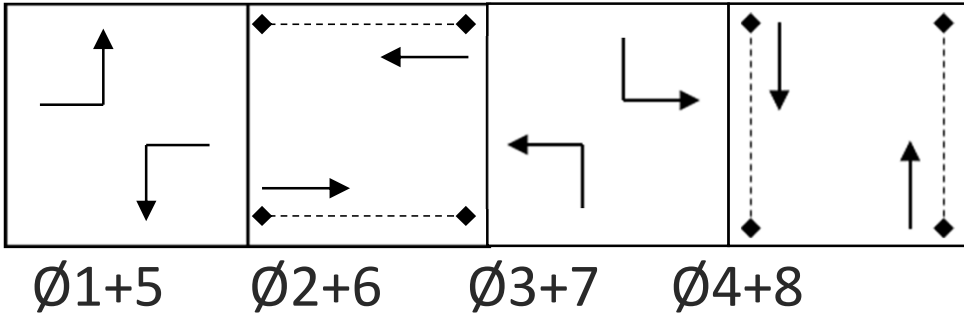
Active Priority: Early Green



Active Priority: Early Green



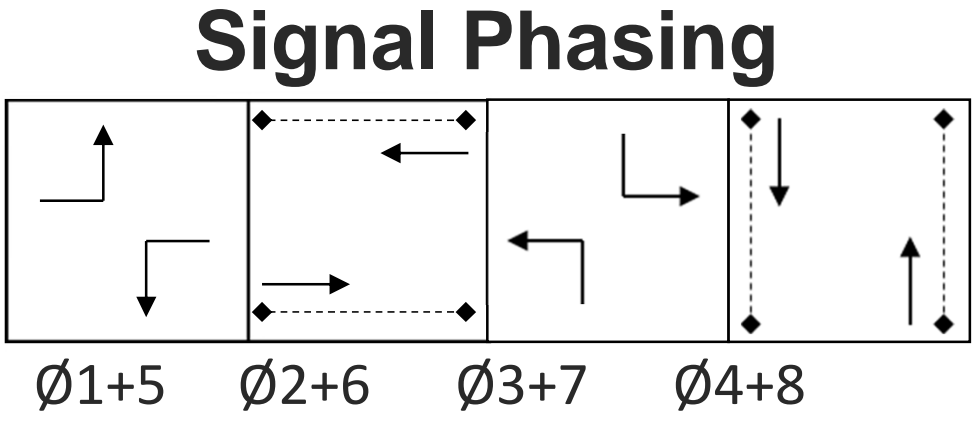
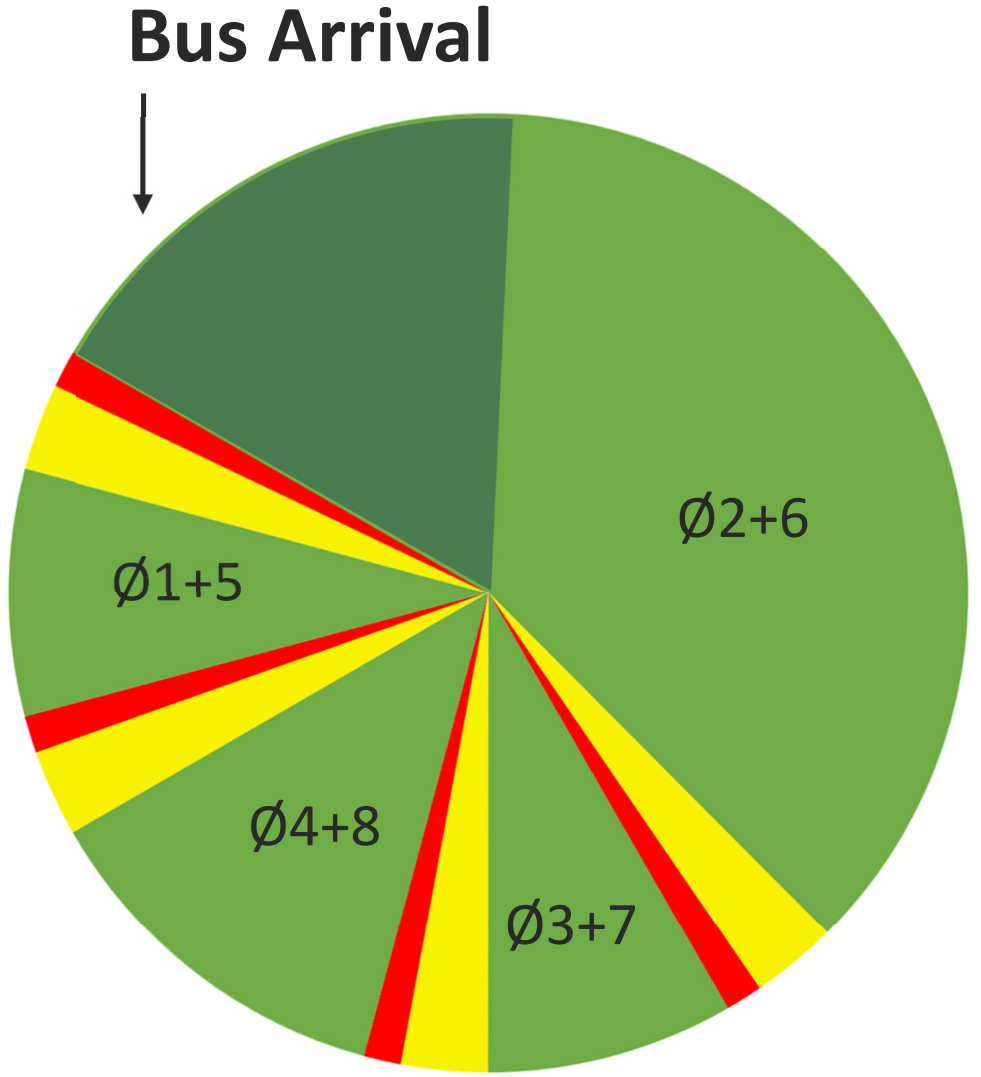
Signal Phasing



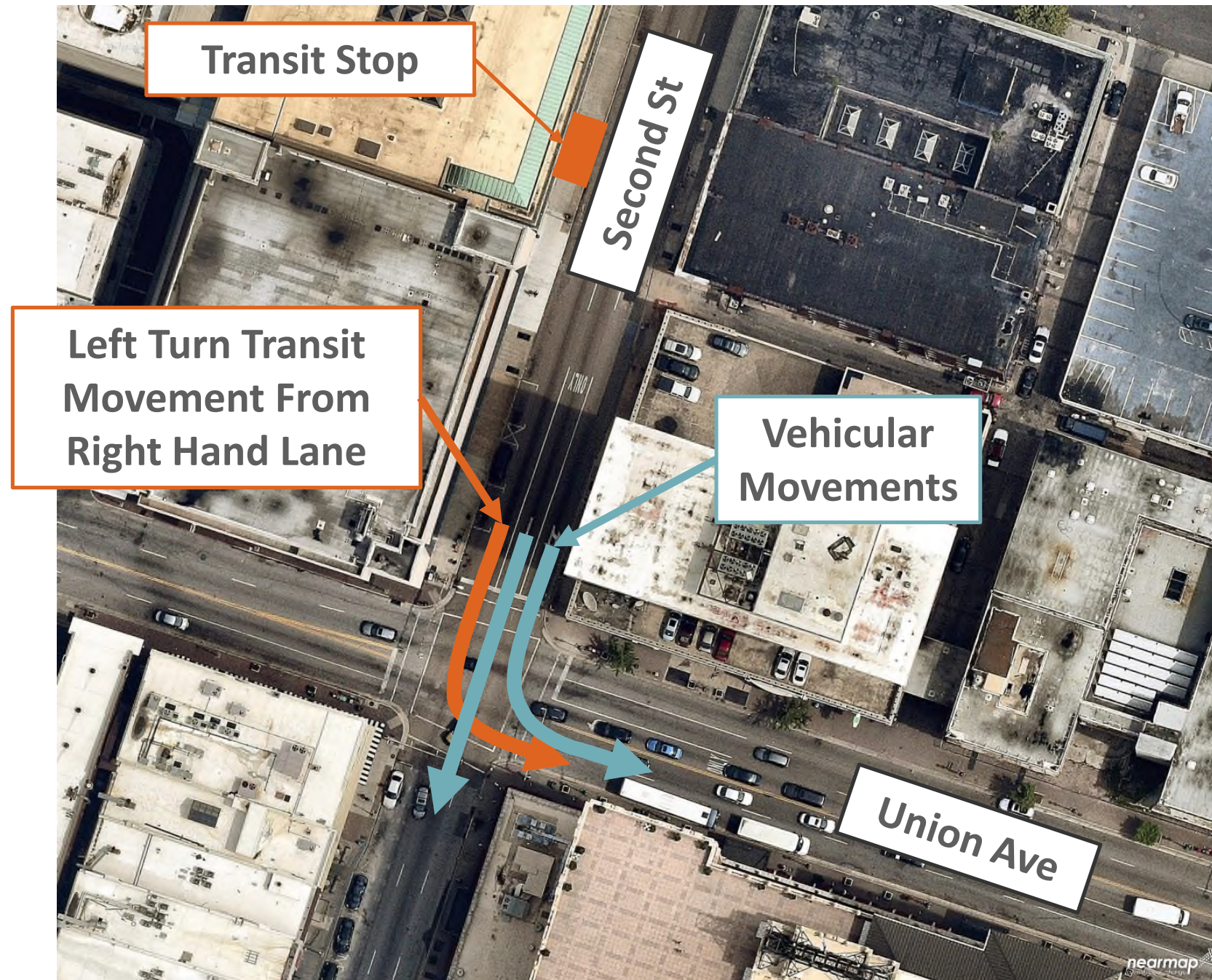
Truncated Green Time



Active Priority: Early Green



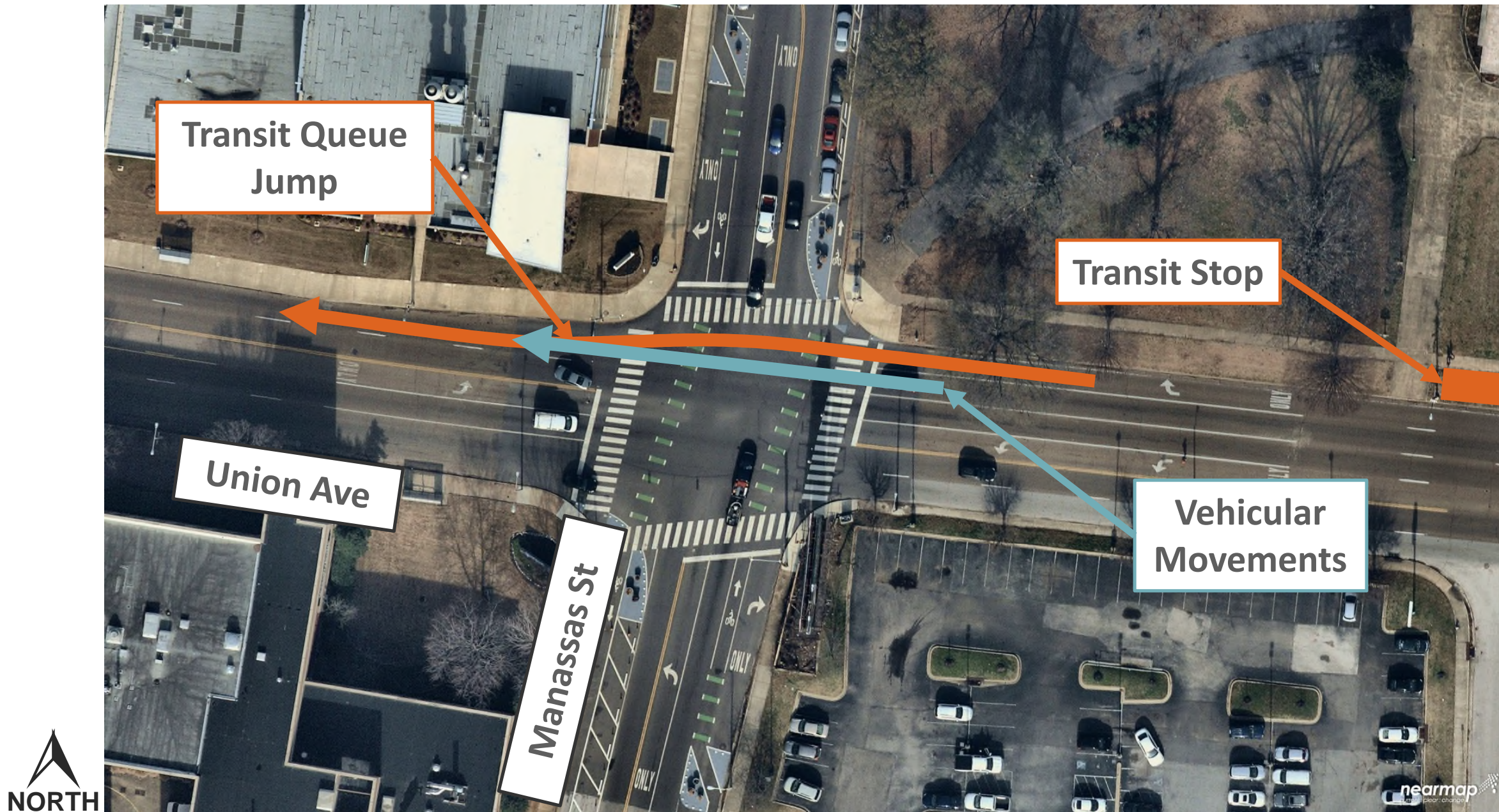
Queue Jump: Shared Lane Union Ave at Second St



NORTH



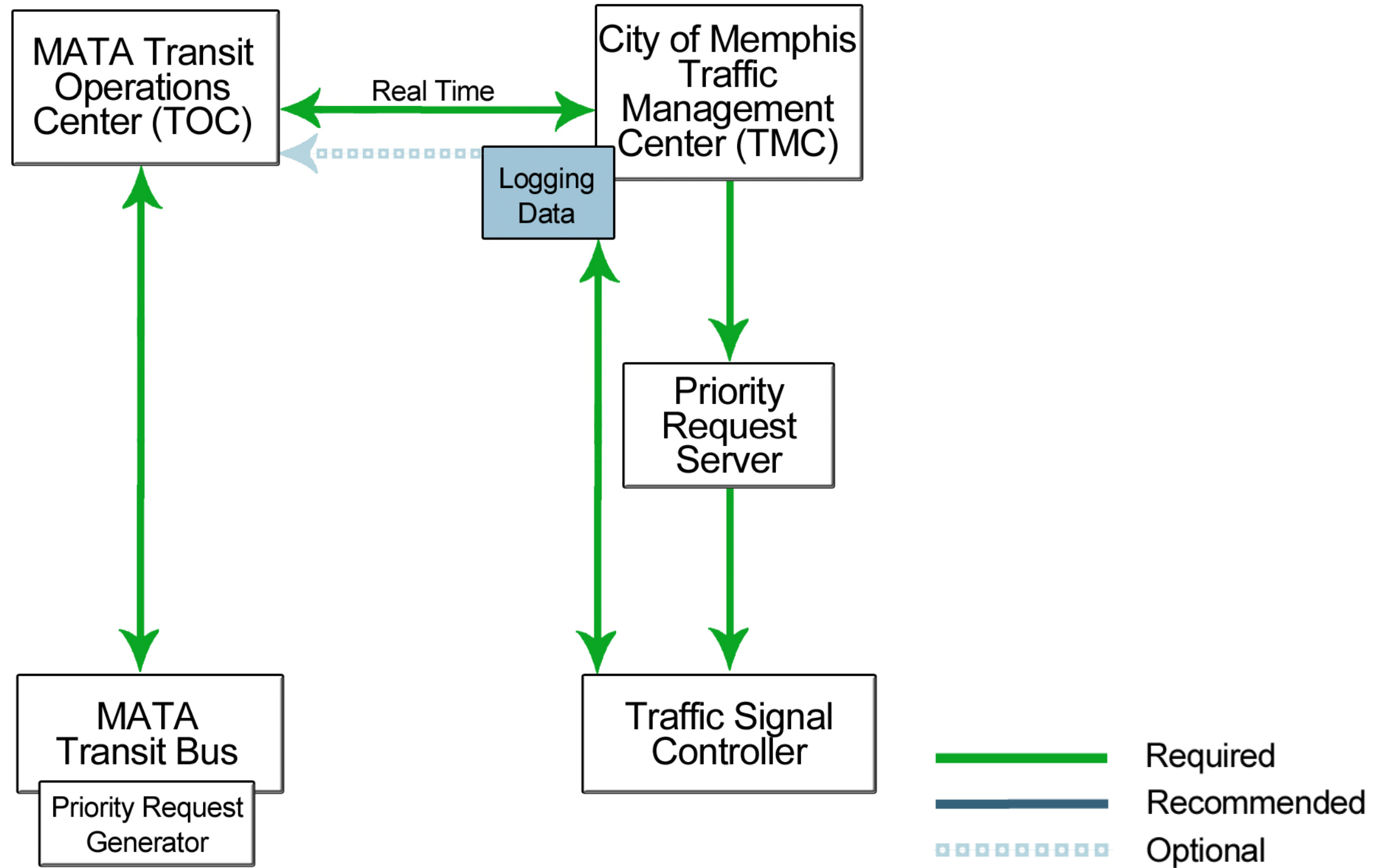
Queue Jump: Shared Lane Union Ave at Manassas St

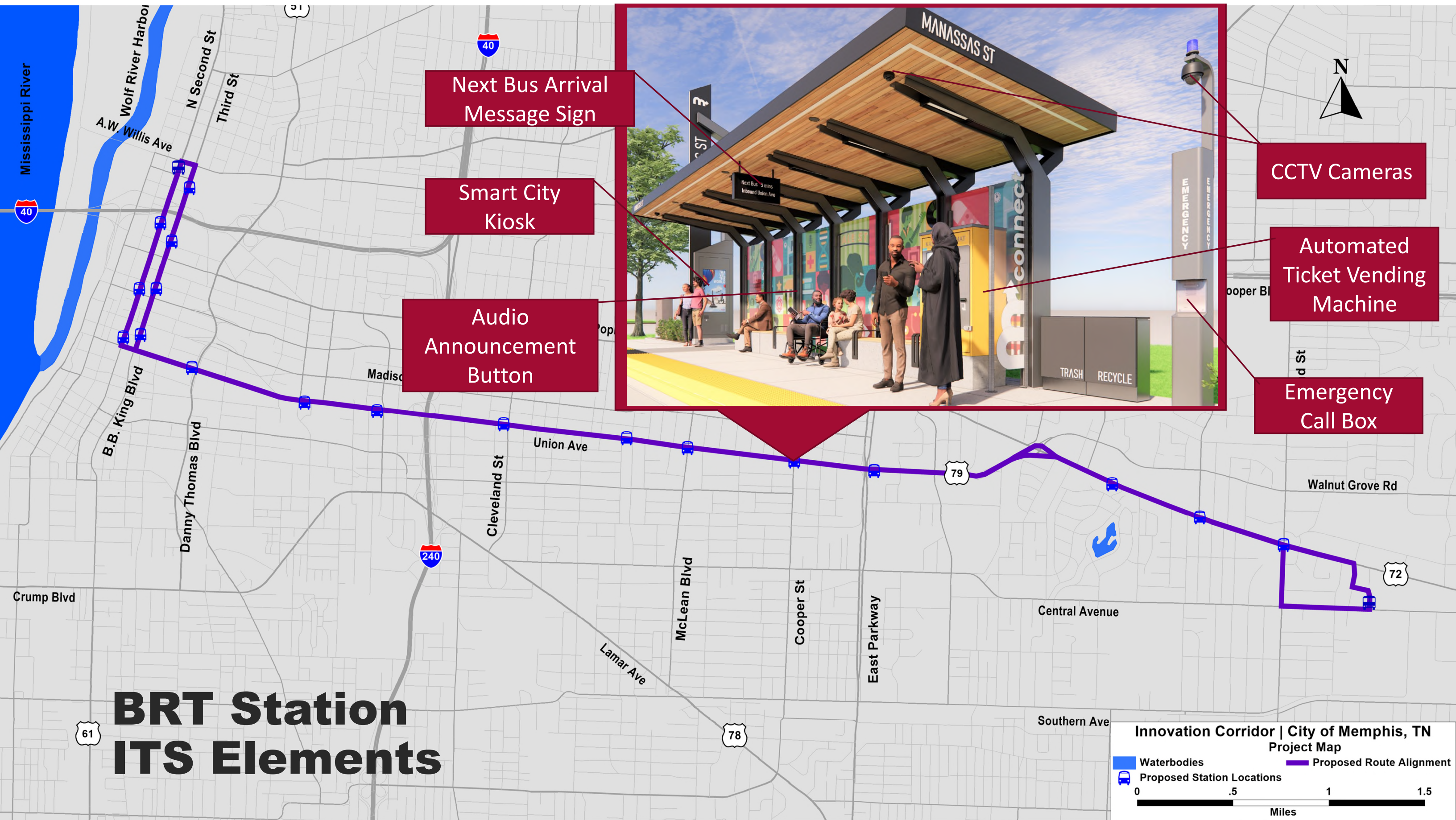


Queue Jump



Centralized TSP Architecture





BRT Station ITS Elements

Next Bus Arrival Message Sign

Smart City Kiosk

Audio Announcement Button



CCTV Cameras

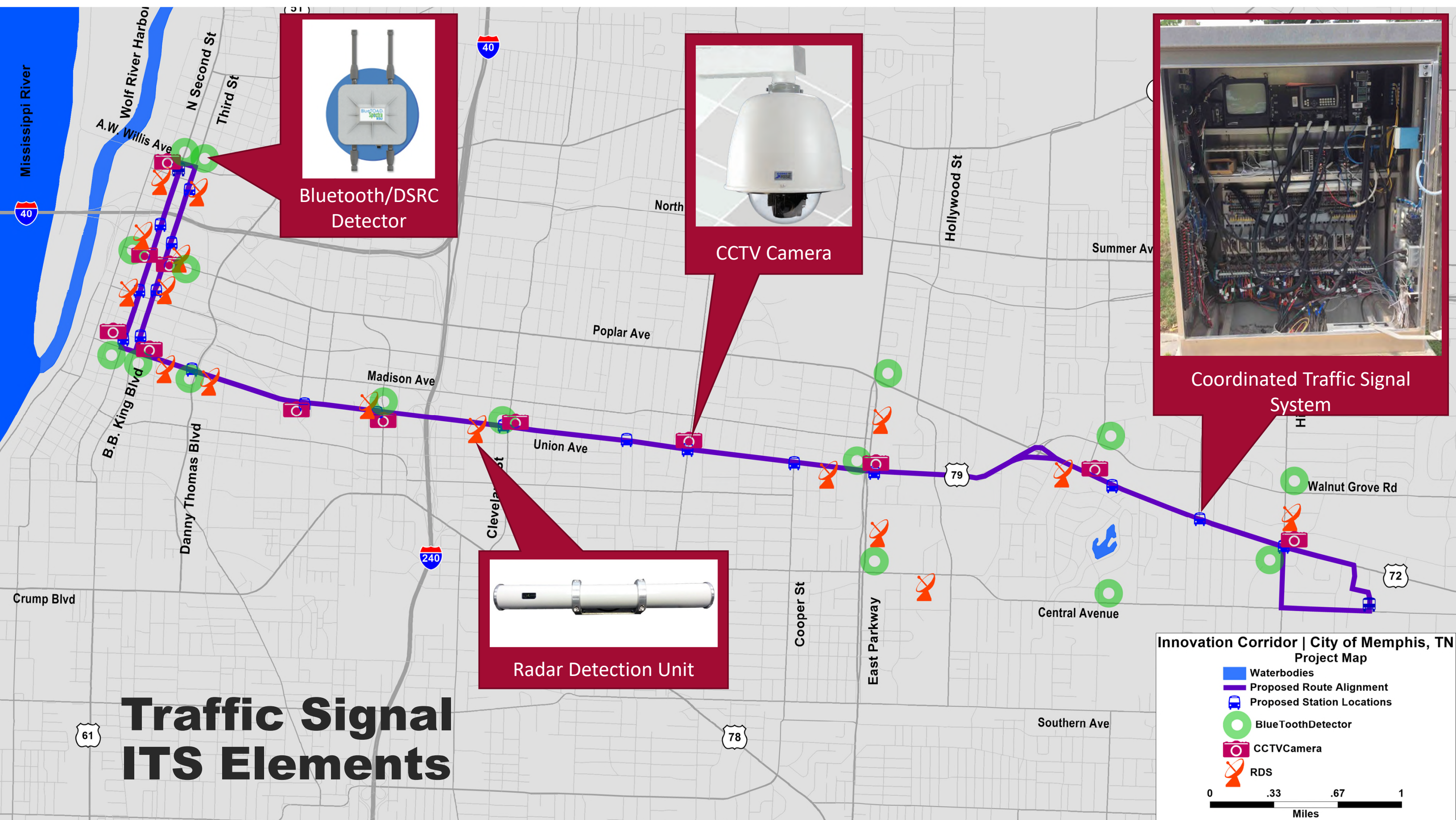
Automated Ticket Vending Machine

Emergency Call Box

Innovation Corridor | City of Memphis, TN
Project Map

- Waterbodies
- Proposed Route Alignment
- 🚌 Proposed Station Locations

0 .5 1 1.5
 Miles



Bluetooth/DSRC Detector



CCTV Camera



Radar Detection Unit



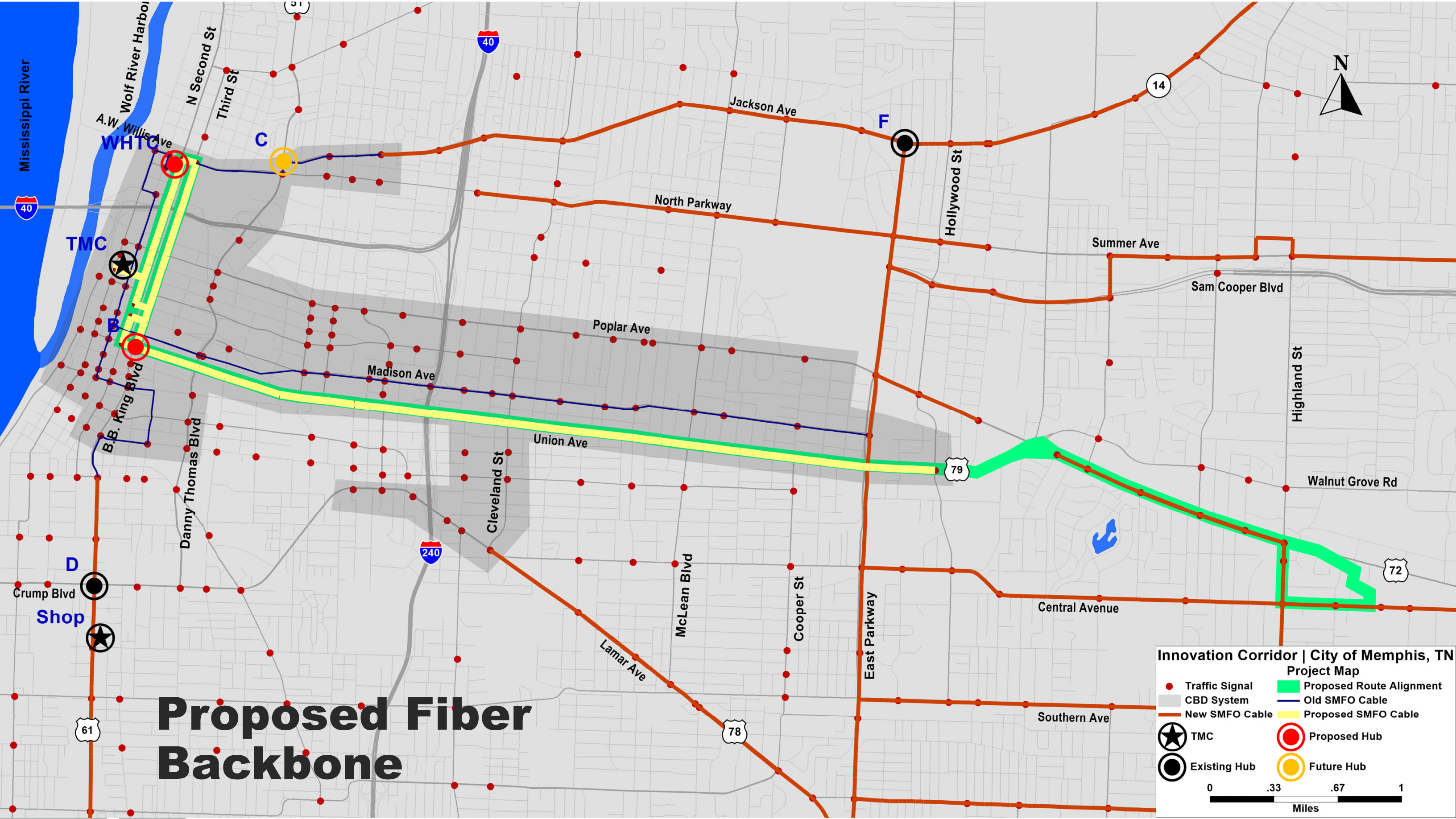
Coordinated Traffic Signal System

Traffic Signal ITS Elements

Innovation Corridor | City of Memphis, TN
Project Map

- Waterbodies
- Proposed Route Alignment
- Proposed Station Locations
- BlueToothDetector
- CCTVCamera
- RDS

0 .33 .67 1
Miles



Proposed Fiber Backbone

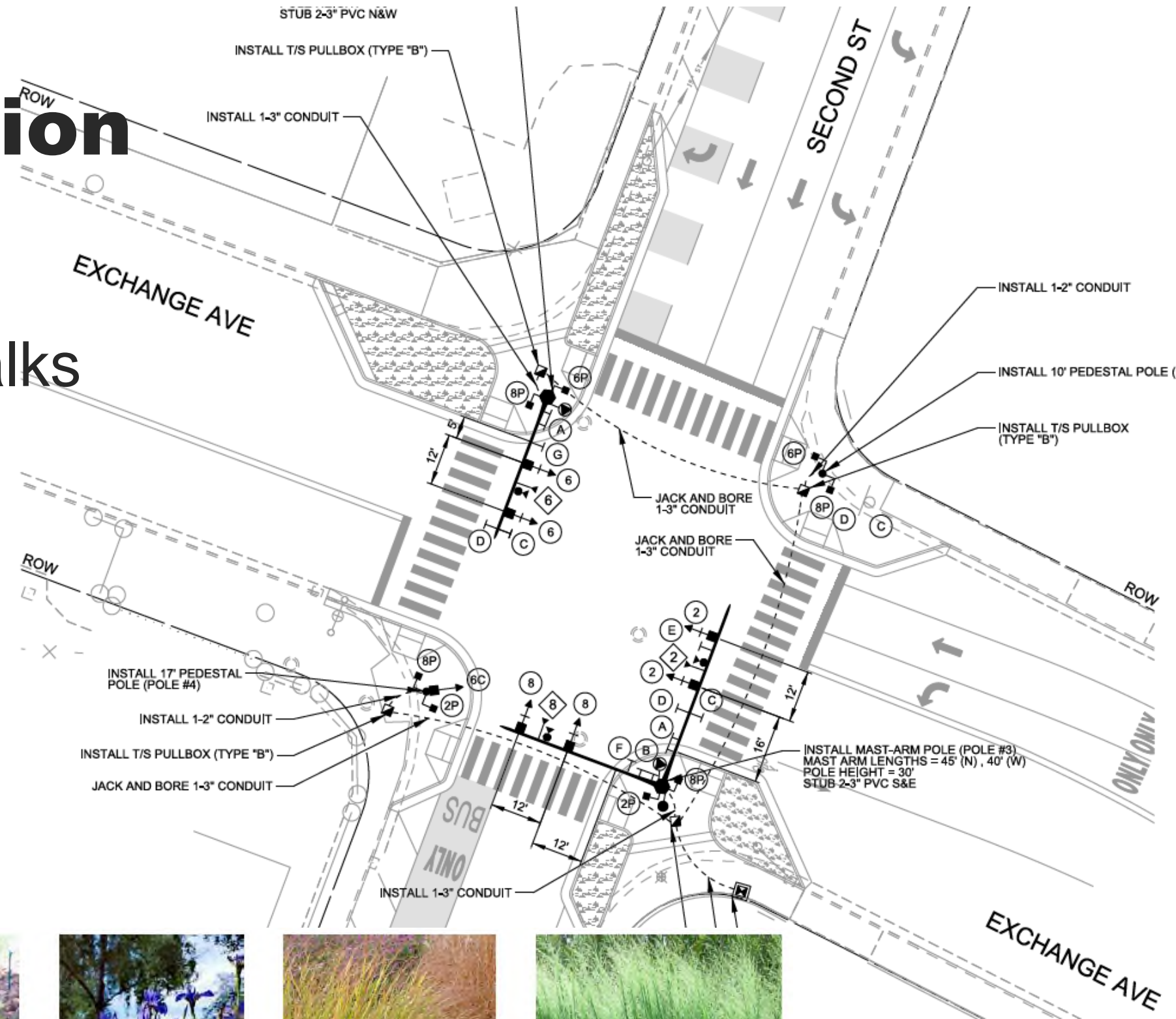
Innovation Corridor | City of Memphis, TN
Project Map

- Traffic Signal
- CBD System
- Old SMFO Cable
- New SMFO Cable
- Proposed Route Alignment
- Proposed SMFO Cable
- TMC
- Existing Hub
- Proposed Hub
- Future Hub

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 Miles

Downtown Intersection Improvements

- Reduced Pedestrian Crosswalks
- Improved Pedestrian Striping and Signals
- Bioswales
 - Low maintenance plantings
 - Maintenance Agreements



BIOSWALE PLANTINGS



AMSONIA



BLACK EYED SUSAN



EVERILLO CAREX



IRIS



PANICUM



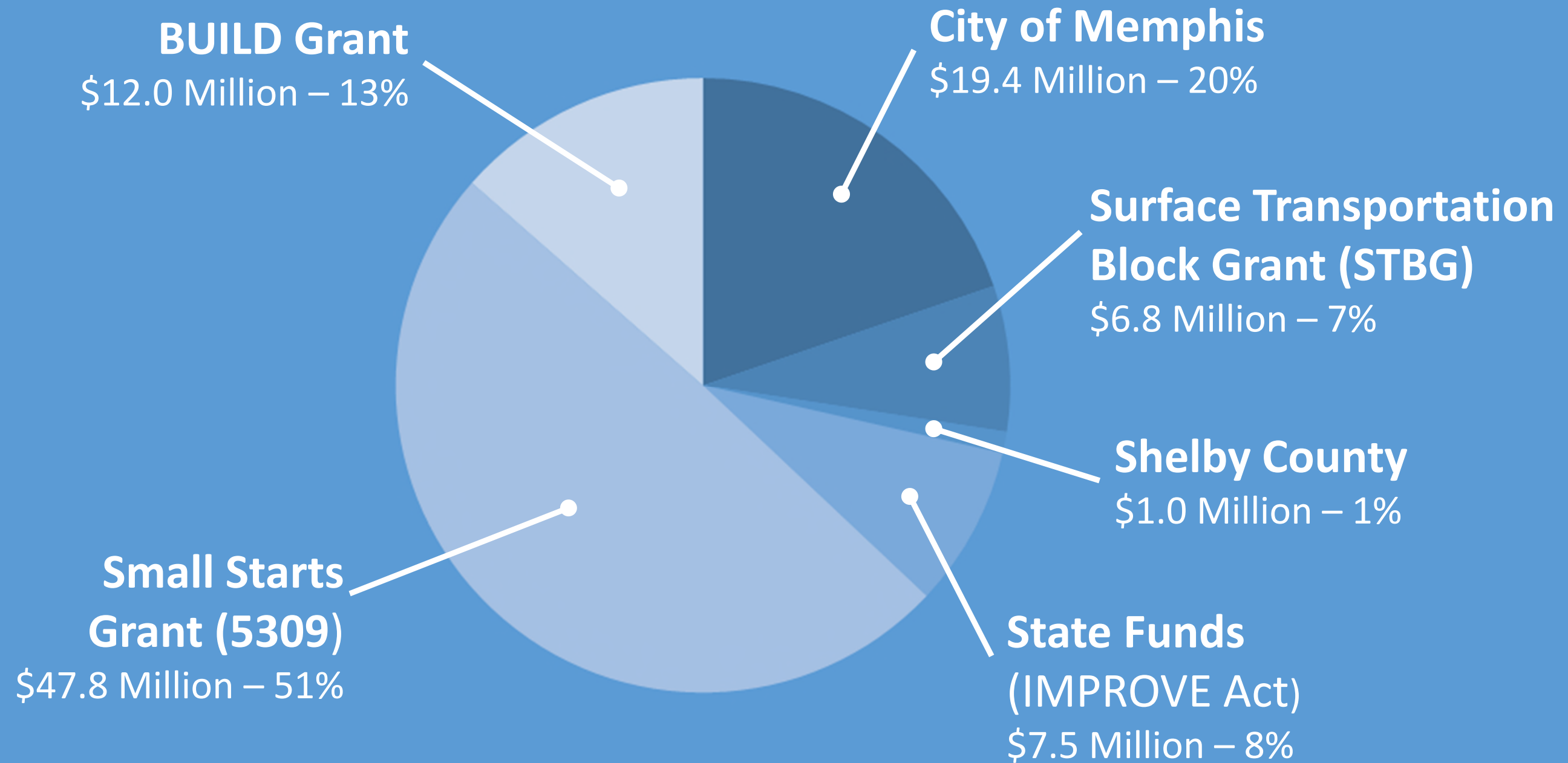
SWITCHGRASS



Test Platform

Project Funding

Total Planned Project Funding - \$94.6 Million



* Funding amounts are subject to change

Memphis Innovation Corridor – Project Schedule



Environmental Clearance and Preliminary Engineering
May 2019 - Feb 2021

● Small Starts Grant Approval
January 2022

2019

2020

2021

2022

2023

2024

2025

2026

Final Design
May 2020 - Mar 2022

Construction: 2022-2026

● BUILD Grant Award Notification
Nov 2019

● Environmental Document Approved
Feb 2021

● Groundbreaking
Oct 2022

● mConnect Begins Service
Spring 2026

Questions / Comments?

