



# CONCEPT DESIGN MEMO

July 2025

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## Introduction

The FAST 2.0 study focuses on ways to advance the implementation of transit priority infrastructure throughout the study area. The purpose of this memo is to highlight the recommended transit priority infrastructure improvements along the priority corridors, that were previously identified with the project stakeholders.

Figure 1 shows the priority corridors and Table 1 lists each corridor and their limits.

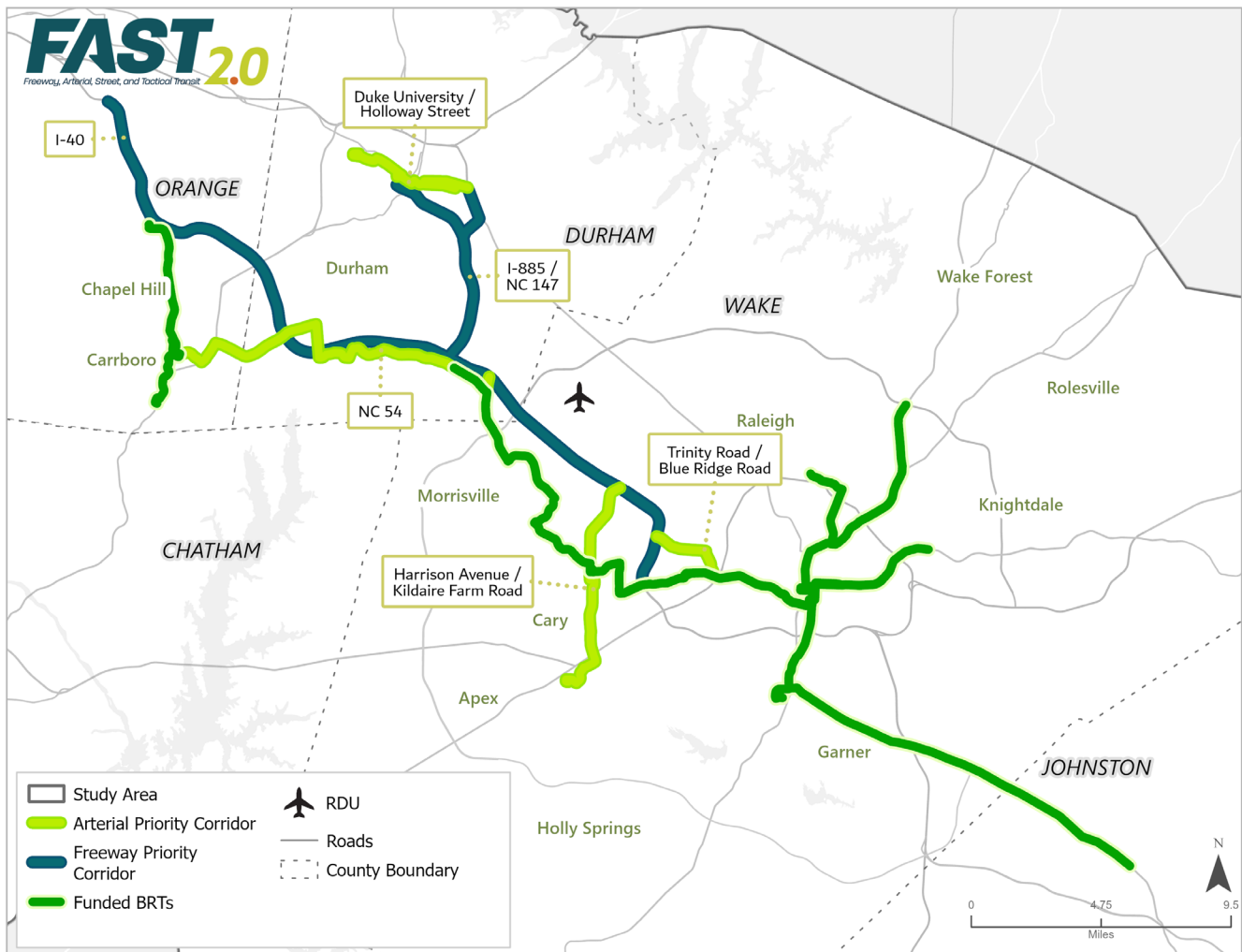


Figure 1: Priority Corridors

Table 1: Priority Corridors

Priority Corridor Name	Corridor	From	To	Corridor Type
I-40	I-40	Cary Towne Blvd	Old NC 86	Freeway
I-885 / NC 147	I-885	NC 98	I-40	Freeway
	NC 147	I-885	Duke St	
	Harrison Avenue	I-40	US 64	Arterial





<b>Harrison Avenue/ Kildaire Farm Road</b>	Dry Avenue	South Harrison Ave	Kildaire Farm Rd	
	Kildaire Farm Road	Dry Ave	Tryon Rd	
	Tryon Road	Kildaire Farm Rd	Regency Pkwy	
	Regency Parkway	Tryon Rd	Koka Booth Amphitheatre	
<b>Duke University / Holloway Street</b>	Erwin Road	Duke University Hospital	West Main St	Arterial
	West Main Street (US 70 Business)	Erwin Rd	North Gregson St (Southbound) / North Duke St (Northbound)	
	North Gregson Street (Southbound)	West Main St (US 70 Business)	West Chapel Hill St	
	North Duke Street (Northbound)	West Main St (US 70 Business)	West Chapel Hill St	
	West Chapel Hill	North Gregson St (Southbound) / North Duke St (Northbound)	West Pettigrew St (Eastbound) / Ramseur St (Westbound)	
	West Pettigrew Street (Eastbound)	West Chapel Hill St	North Roxboro St (US 15 Business)	
	Ramseur Street (Westbound)	West Chapel Hill St	North Roxboro St (US 15 Business)	
	North Roxboro Street (US 15 Business)	West Pettigrew St (Eastbound) / Ramseur St (Westbound)	Liberty St	
	Liberty Street (Bidirectional)	North Roxboro St (US 15 Business)	Elizabeth St	
	Elizabeth Street (Westbound)	Liberty St	Holloway St	
	Liberty Street (Eastbound)	Elizabeth St	North Miami Blvd	
	Holloway Street (Westbound)	Elizabeth St	Raynor St	
	Raynor Street (Westbound)	Holloway St	North Miami Blvd	
	North Miami Boulevard	Raynor St	Liberty St	
<b>Trinity Road / Blue Ridge Road</b>	Trinity Road	Blue Ridge Rd	I-40	Arterial
	Blue Ridge Road	Western Blvd	Trinity Rd	
<b>NC 54</b>	Miami Boulevard	NC 54	I-40	Arterial
	NC 54	South Miami Blvd	Fayetteville Road	
	Fayetteville Road	NC 54	Renaissance Pkwy	
	Renaissance Pkwy	Fayetteville Rd	NC 751	
	NC 751	Renaissance Pkwy	NC 54	
	NC 54	NC 751	Fordham Blvd (US 15-501)	
	Fordham Boulevard (US 15-501)	NC 54	Manning Drive	
	Manning Drive (Bidirectional)	Fordham Blvd (US 15-501)	East Dr/Jackson Cir/Mason Farm Rd	









East Drive/Jackson Circle/Mason Farm Road	Manning Drive	S Columbia St (NC 86)	
South Columbia Street (NC 86)	Mason Farm Road	Manning Drive	
Manning Drive (Eastbound)	S Columbia St (NC 86)	East Dr/Jackson Cir/Mason Farm Rd	

The table below provides a general overview of the types of improvements being recommended and how those improvements are shown in the concept designs within this memo.

*Table 2: Concept Design Improvements*

Symbol	Recommendation	Definition
	Dedicated Transit Lane (Arterials)	<p>A fully dedicated transit lane is a transit-priority travel lane, reserved exclusively for transit vehicles, with restrictions for other modes. These lanes are meant to optimize bus operations in a corridor to maximize transit competitiveness and reliability, by reducing delays caused by mixed traffic</p> <p>A semi-dedicated transit lane is a lane that is reserved for transit travel but allows general purpose vehicles to use the lane for accessing businesses or make a turn into driveways or side streets. These lanes are also often referred to as Business Access &amp; Transit Lanes (BAT Lanes). These lanes are able provide a dedicated travel lane for transit while maintaining general purpose access to businesses and cross streets.</p>
	Dedicated Transit Lane (Freeways)	A dedicated freeway transit lane is a transit-priority travel lane, reserved exclusively for transit vehicles, with restrictions for other modes. These lanes are meant to optimize bus operations on a freeway corridor to maximize transit competitiveness and reliability by reducing delays caused by congestion.
	Transit Signal Priority (TSP)	Transit signal priority (TSP) involves periodically modifying traffic signal timings to give priority to transit vehicles at intersections, reducing delays and improving schedule adherence. TSP allows transit vehicles to communicate with traffic signals along their routes and can work, for example, by extending the green light for a few seconds, allowing a bus to continue moving through that signalized intersection. The intention of TSP is to enhance the efficiency and reliability of transit services by minimizing delays at signalized intersections.
	Queue Jump at Intersections	A queue jump lane is a short stretch of bus lane combined with traffic signal priority, allowing buses to bypass waiting vehicles at intersections by getting an early green signal to jump ahead of traffic. The early green signal allows buses to safely merge back into traffic, ahead of waiting vehicles. The

		intention is to reduce delays at congested intersections and improve the operational efficiency of the transit system.
	Mobility Hub	Mobility hubs are spaces where public, shared and active travel modes are co-located alongside improvements to the public realm. Mobility hubs enable people to make smooth and safe transfers between modes, transferring from public transit to other modes such as park and ride lots, shared vehicles, bikes, scooters, or walking.
	Super Stop	A super stop is a bus stop that is served by multiple routes that have enhanced amenities, such as larger or multiple shelters and real-time information. In addition to multiple routes, a Super Stop could be a location where there is a local bus stop and a BRT station at a single location. These stops are also used to switch between different transit service providers.
	Park and Ride	A park and ride is a strategically located parking lot that is free of charge to anyone who parks a vehicle and commutes by transit or in a carpool. These are often located at the end of routes or intersections with regional roadways, such as interstates.
	Dynamic Median Shoulder System (DMSS)	A dynamic median shoulder system (DMSS) allows buses to utilize a freeway median or inside shoulder. The DMSS is designed to allow general-purpose traffic to use for emergencies, along with allowing buses to travel on the shoulder during all hours of the day. This strategy aims to alleviate congestion and improve bus transit efficiency by providing buses with a dedicated lane during high-traffic periods.
	Bus on Shoulder System (BOSS)	A bus on shoulder system (BOSS) allows buses to use the outside shoulder of a freeway or major arterial during peak traffic hours. This strategy aims to reduce congestion and improve bus transit efficiency by allowing buses to bypass congestion and maintain a more reliable schedule.
	Direct Access Ramps (DAR)	A direct access ramp (DAR) provides access for buses to directly enter and exit the inside median lanes, from arterial overpasses, allowing these vehicles to avoid the need to weave across the other lanes of traffic. The location of direct transit access ramps can be coordinated with DMSS, dedicated transit lanes, or express lanes to increase bus freeway access.

The improvement recommendations included in the concept design for each priority corridor are based on the type of corridor (freeway or arterial), along with the physical environment of the roadway, such as number of general purpose lanes, right-of-way (ROW) width, and traffic operations. In general, the recommendations are as follows:

- Mixed flow is the default runningway type for locations where there are not enough general purpose lanes to repurpose for a dedicated transit lane or there is insufficient ROW to widen for a dedicated transit lane.
- Business Access & Transit Lanes (BAT Lanes) are recommended where outside curbs or right turn lanes have enough capacity to accommodate transit vehicles along with turning general purpose vehicles.





- Dedicated transit lanes are recommended where general purpose lanes could be repurposed or where the roadway could be widened with no or minimal additional ROW.
- DMSS is recommended where freeways have median or inside shoulder lanes that are wide enough, or can be widened, to accommodate transit vehicles.
- BOSS is recommended where freeways or major arterials have outside shoulder lanes that are wide enough, or can be widened, to accommodate transit vehicles.
- DARs connect arterial priority corridors to freeways and also to mobility hubs, such as the Triangle Mobility Hub or the Raleigh-Durham International Airport (RDU) airport platform exchange.


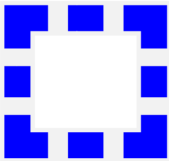
## Pedestrian and Bicycle Improvements

The table below provides a general overview of the types of pedestrian and bicycle improvements being recommended and how those improvements are shown on the concept designs within this memo. The assumption for pedestrian and bicycle improvements is that there should be a continuous pedestrian and bicycle network along all the arterial corridors in the FAST 2.0 priority network to provide safe and comfortable access to all transit stops in each corridor. Intersection or mid-block crossing improvements are assumed at any proposed transit stop location and approximately every ½ mile along each arterial corridor in the FAST 2.0 priority network.

Pedestrian and bicycle improvements are shown on their own maps and not included on the concept design maps, but they are included in the cost estimates. As the corridor designs are advanced, further investigation is required to confirm the specific locations, designs, and ROW requirements of pedestrian and bicycle improvements.

*Table 3: Pedestrian and Bicycle Improvements*

Symbol	Recommendation	Definition
<b>Linear Improvements</b>		
	Triangle Bikeway mode-separated sidepath	The <a href="#">Triangle Bikeway</a> is a proposed multi-use sidepath for the FAST 2.0 priority corridors along I-40. While the cross-section would likely change along its path, for planning purposes it is assumed to be a 16-foot separated pathway for people walking and biking as envisioned in the study and is included along any FAST 2.0 priority corridor segment that does not already have an existing multi-use path.
	Sidepath	A 12-foot multi-use sidepath is proposed along any portion of an arterial priority corridor that does not currently have pedestrian and bicycle facilities. In some circumstances, individual municipalities may opt to construct separated bicycle and pedestrian facilities instead. Sidepaths are assumed to be on one side of the street only.
	Separated Bike Lane	Because most of the improvements are proposed outside of the curb, only a few on-street separated bike lanes are proposed, but the number of these could increase along certain corridors if municipalities prefer sidewalks and separated bike lanes over sidepaths.
	Walking lane (on bridge)	Emulating the Cornwallis Road bridge over I-885, walking lanes are proposed on two existing bridges over highways where space is available.

	Sidewalk	While sidepaths are proposed in most segments of the priority arterial corridors where safe pedestrian infrastructure does not exist, sidewalks may be needed on one side of the street if a sidepath is provided on the other or if there are existing, safe on-street bicycle facilities.
<b>Intersections/Crossings</b>		
	Minor mid-block crossing with RRFB	Mid-block crossings may be needed at major transit stop locations and other currently unsignalized locations. A minor mid-block crossing is defined as one that could be constructed across narrower (2-3 lanes of traffic) and lower speed (less than 40mph) and streets and may be designed with Rectangular Rapid Flashing Beacons (RRFBs).
	Major mid-block crossing with PHB/HAWK	A major mid-block crossing is defined as one that could be constructed across wider streets (4+ lanes of traffic) and higher speed (greater than 40 mph) streets and may be designed with a pedestrian refuge island and Pedestrian Hybrid Beacon (PHB)/HAWK signal.
	Major Intersection Improvements	A major intersection is one where at least one leg of the intersection is at least 75 feet across for a pedestrian to cross. Elements for major intersection improvements may include concrete curb extensions, Leading Pedestrian Intervals (LPIs), pedestrian refuge islands, and high-visibility crosswalks. Mountable truck aprons may also be appropriate at specific locations.
	Minor Intersection Improvements	A minor intersection is one where at least one leg of the intersection is between 50-75 feet across for a pedestrian to cross. Elements for a minor intersection may include striped curb extensions with flexposts, Leading Pedestrian Intervals (LPIs), and high-visibility crosswalks.

## I-40

### Purpose

The I-40 freeway priority corridor would be a regional transit backbone that provides frequent and reliable transit connections between Raleigh, Cary, Research Triangle Park (RTP), Durham, and Chapel Hill. The I-40 corridor would include dedicated transit infrastructure, BOSS, and DMSS, to allow transit vehicles to reliably move along I-40 and connect to priority arterial corridors in each jurisdiction, along with the Triangle Mobility Hub, through a series of DARs. The corridor would also include a DAR at RDU that is discussed under a separate memorandum.

<b>Limits</b>	I-40 from Old NC 86 in Orange County to Cary Towne Boulevard in Wake County
<b>Length</b>	<b>Orange County:</b> 9.0 Miles <b>Durham County:</b> 11.4 Miles <b>Wake County:</b> 7.0 Miles
<b>Length by Runningway Type</b>	<b>Orange County:</b> 9.0 Miles (BOSS) <b>Durham County:</b> 8.8 Miles (DMSS); 2.6 Miles (BOSS) <b>Wake County:</b> 7.0 Miles (DMSS)
<b>Anticipated Number of BRT Stations</b>	N/A
<b>Anticipated Number of BRT Buses</b>	N/A
<b>Assumed Service Type</b>	Freeway Bus Rapid Transit
<b>Location</b>	Orange, Durham, and Wake Counties
<b>MPO</b>	Triangle West Transportation Planning Organization (TWTPO); Capital Area Metropolitan Planning Organization (CAMPO)
<b>NCDOT Division</b>	Division 5; Division 7



## Concept Design

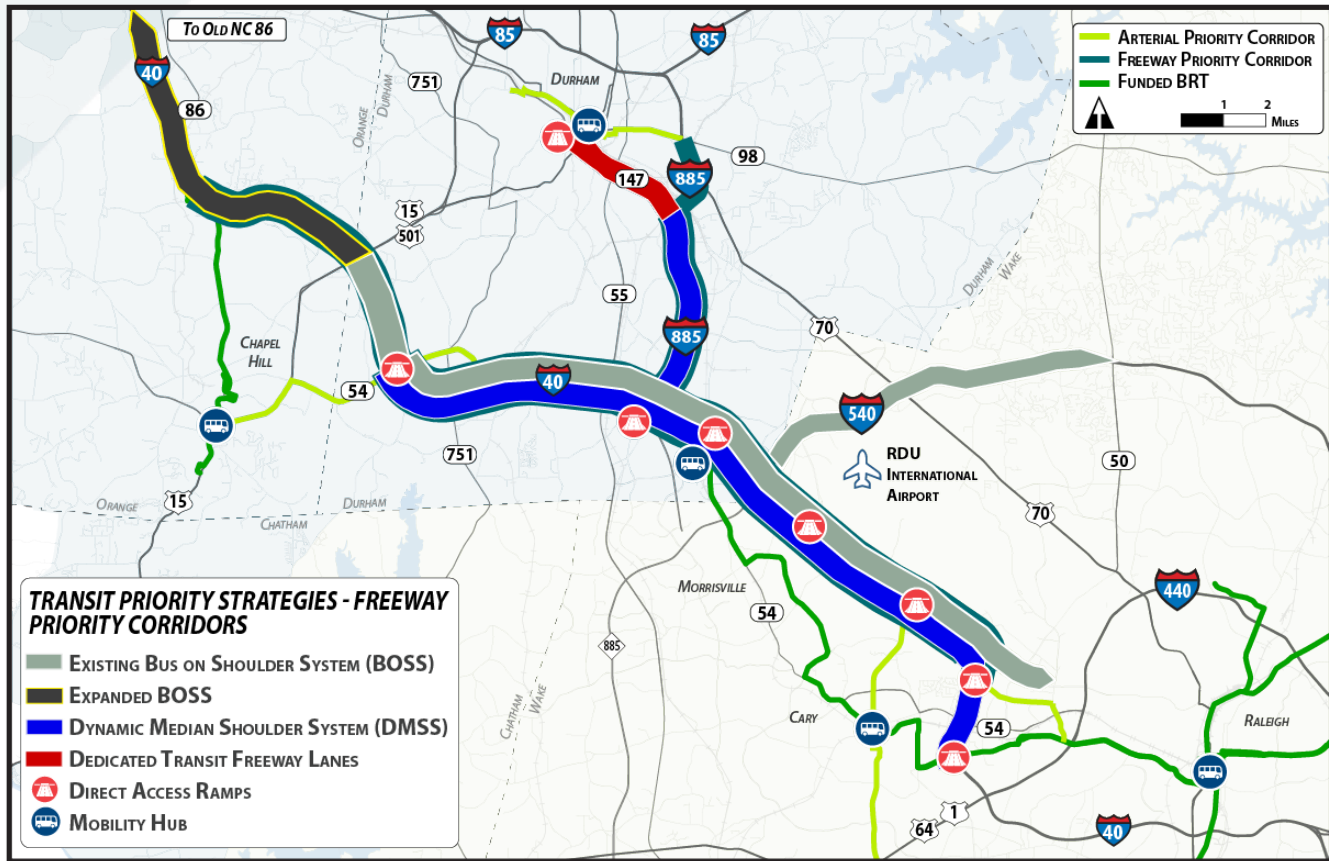


Figure 2: I-40 Concept Design

## Proposed Design Elements

Treatments on the I-40 corridor would further prioritize dedicated transit space along freeways in the Triangle region of North Carolina. These freeway segments are some of the highest-traveled corridors in the entire state, connecting key destinations and municipalities in Orange, Durham, and Wake Counties. The design intends to expand the existing BOSS on I-40, Wade Avenue, and I-540 to connect to arterial priority corridors and funded BRT projects. Constructing dedicated transit-priority infrastructure like DMSS and DARs would indicate that there is significant investment and priority for transit in the state.

### Runningway by Section

#### Expanded Bus on Shoulder System (BOSS)

- I-40 from US 15-501 to Old NC 86
  - Widening to the outside to provide 12' BOSS lanes on both sides

#### Dynamic Median Shoulder System (DMSS)

- I-40 from NC 54 to Cary Towne Boulevard
  - Widening to the inside to provide 14' DMSS lanes with a 3' median barrier
  - Some widening to the outside to keep existing shoulder widths



Figure 3: I-40 Near Erwin Rd

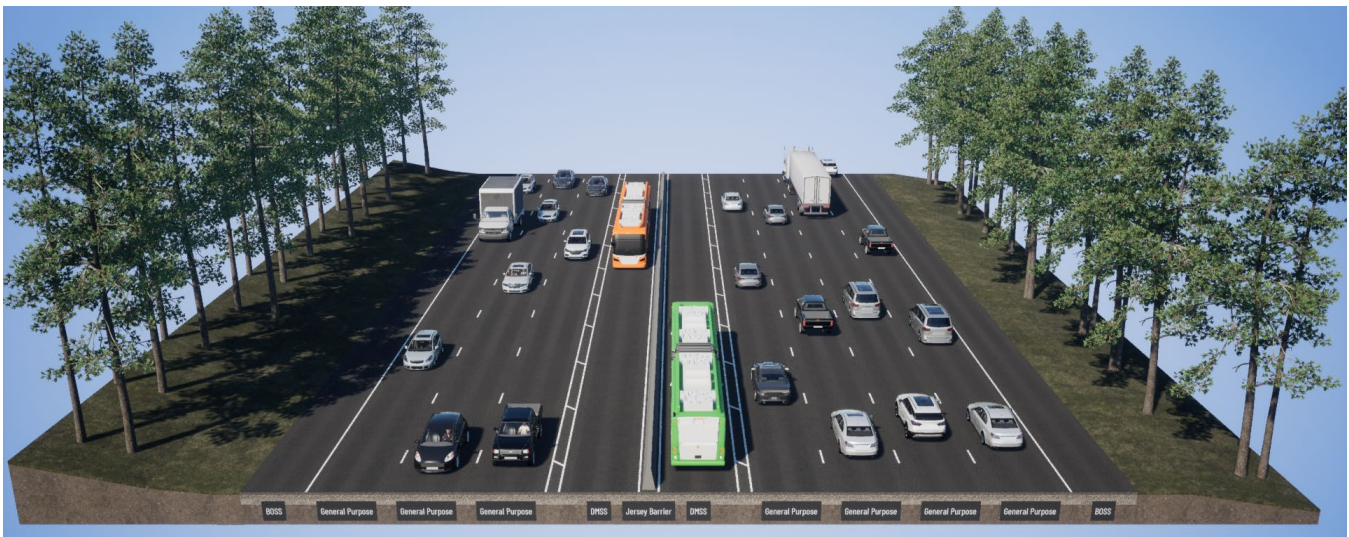


Figure 4: I-40 Near NC 55



Figure 5: I-40 Near Lake Crabtree



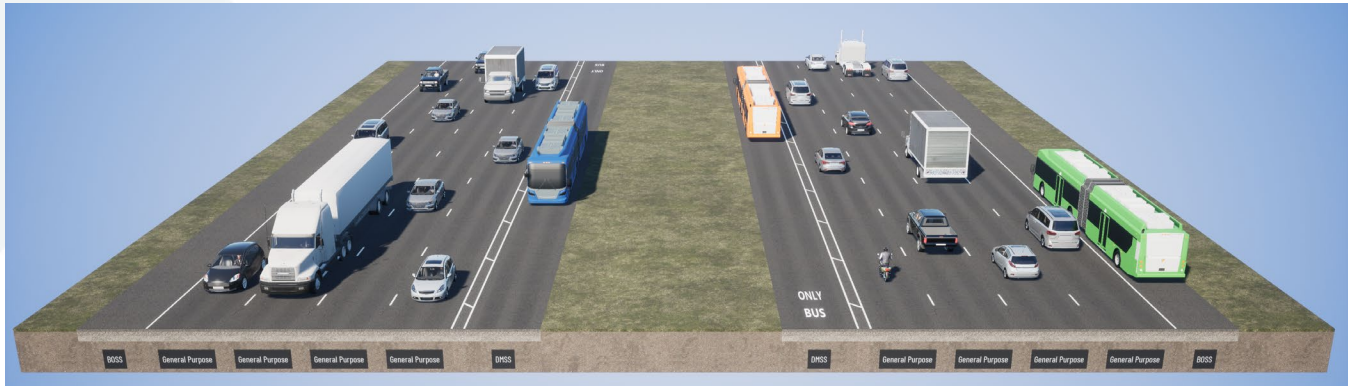


Figure 6: I-40 Near Trinity

### Interstate Direct Access Ramps

- I-40 at NC 54 (Exit 273)
- I-40 at Triangle Mobility Hub, west of Miami Boulevard interchange (Exit 281)
  - Figure 7 shows the DAR that would provide access to the Triangle Mobility Hub via NC 54. The DAR would utilize dedicated transit lanes on a new alignment to access NC 54 and would include a new signal at NC 54 that would include TSP and a queue jump.
- I-40 at RDU, north of Aviation Parkway (Exit 285)
- I-40 at Harrison Avenue (Exit 287)
- I-40 at Trinity Road overpass, north of NC 54 (Exit 290)
- I-40 at Western Boulevard/Cary Towne Boulevard (Exit 291)

### Station and Transfer Locations

- Triangle Mobility Hub near the intersection of Miami Boulevard and NC 54 to connect with GoTriangle regional transit services and Wake BRT: Western Rapid Bus Extension Project
- Connection to NC 54 arterial priority corridor at NC 54 (Exit 273)
- Connection to Harrison Avenue/Kildaire Farm Road arterial priority corridor (Exit 287)
- Connection to Trinity Road arterial priority corridor (north of NC 54 (Exit 290)
- Connection to Wake BRT: Western Corridor (Exit 291)

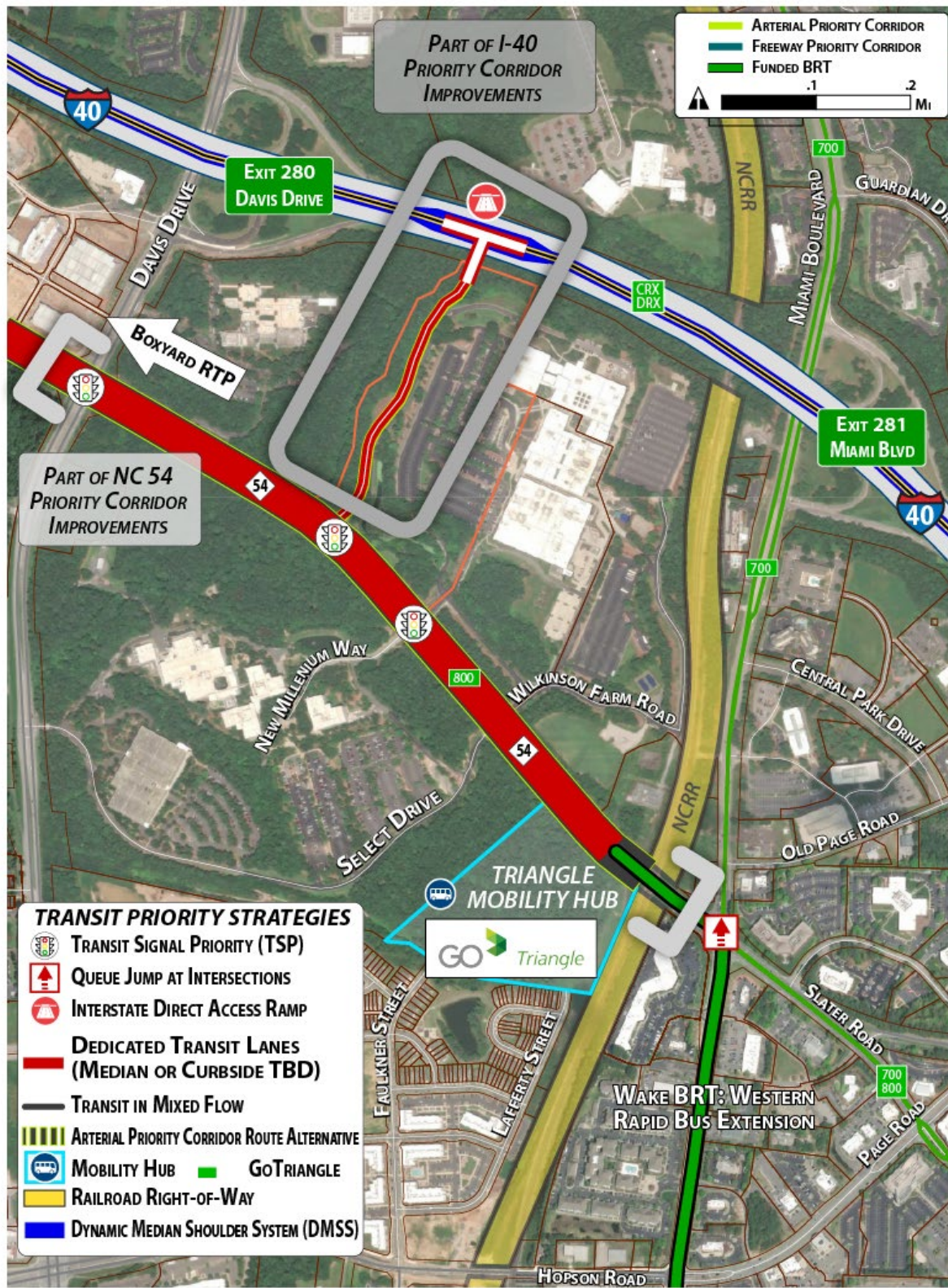


Figure 7: Direct Access Ramp to Triangle Mobility Hub via NC 54



## Proposed Pedestrian and Bicycle Accommodations

When implementing the proposed improvements, it is recommended to coordinate with the Triangle Bikeway project sidepath along I-40 between NC-54 in Durham County and Wade Avenue in Wake County.

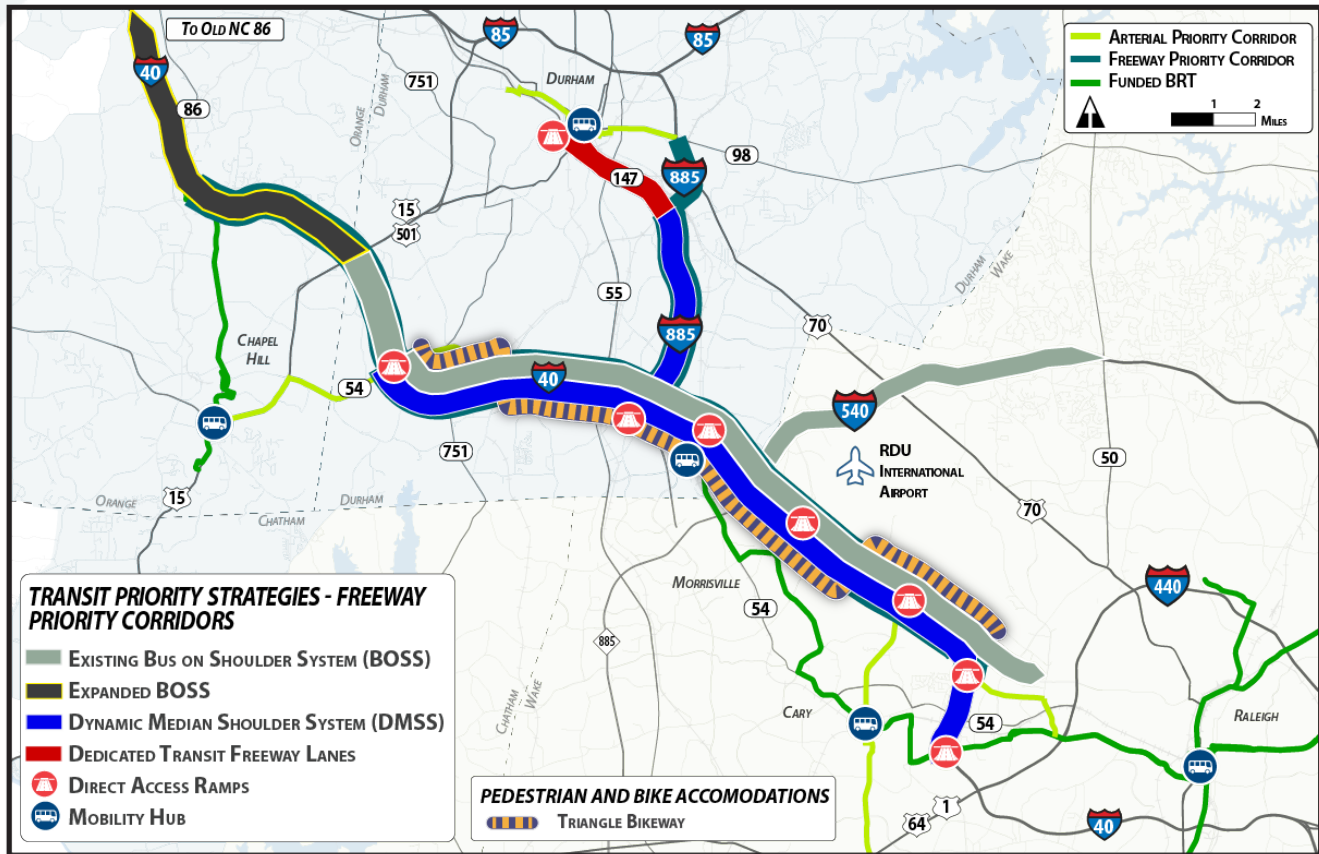


Figure 8: Proposed Pedestrian and Bicycle Accommodations on the I-40 Corridor

## Other Considerations

### Top Destinations Along the Corridor

I-40 is the key transportation facility connection between most of the job hubs in the area and serves as a regional transit backbone. While some of the key job hubs are not directly connected to I-40, like Chapel Hill, Durham, and Cary, the other arterial priority corridors help connect I-40 to these destinations and provide enhanced transit service. In addition to key job hubs, I-40 is critical in connecting to the regions' colleges and universities, such as UNC Chapel Hill, Duke University, North Carolina Central University (NCCU), and NC State University.



Key destinations adjacent to I-40 include:

- UNC Hospitals Hillsborough Campus
- Southpoint Mall
- RTP
- RDU
- Lenovo Center
- North Carolina State Fairgrounds
- WakeMed Soccer Park
- Fenton

### Existing and Planned Transit Along the Corridor

Several agencies serve the corridor with existing transit, including:

- GoTriangle Routes:
  - Route 100
  - Route 800
  - Route 805
  - Route CRX
  - Route DRX
- GoDurham Routes:
  - Route 5

In addition to the existing routes, Chapel Hill Transit is currently advancing the design of the North-South BRT project, which terminates at the Eubanks Park and Ride, adjacent to I-40. Piedmont Authority for Regional Transportation (PART) operates along I-40 between Mebane and Chapel Hill, connecting the Triad Region to UNC. Orange County Public Transit operates the Orange-Alamance Connector Route that travels along Old NC 86 and I-40.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- Projects in the NCDOT 2024-2033 STIP:
  - I-5701, which will add lanes on I-40 from I-440 / US 1 / US 64 to SR 1370 (Lake Wheeler Road). Construction is scheduled to begin in 2027.
    - This project is included in the draft 2026-2035 STIP, with construction scheduled to begin in 2027.
  - I-5707, which will construct a westbound auxiliary lane on I-40 from NC 55 (Alston Avenue) to I-885 (Durham Freeway). ROW is scheduled to begin in 2025 and construction in 2027.
    - This project is included in the draft 2026-2035 STIP, with ROW scheduled to begin in 2025 and construction in 2027.
  - U-5774F, which will construct interchange improvements at the I-40 / NC 54 interchange, including upgrading NC 54 from east of Little Creek to east of I-40. ROW is scheduled to begin in 2028 and construction in 2031.

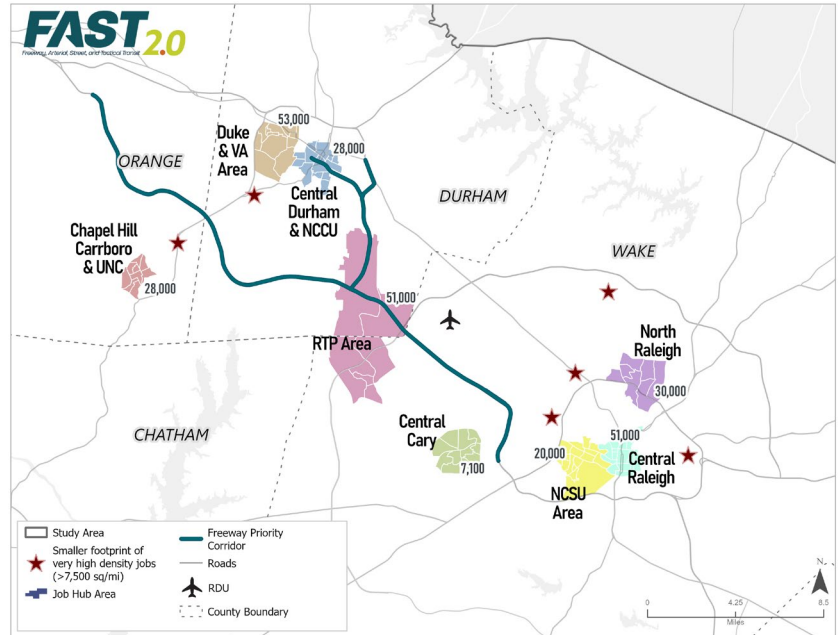


Figure 9: Key Job Hubs in the Study Area

- This project is included in the draft 2026-2035 STIP, with ROW scheduled for 2030 and construction in 2033.
  - I-5966, which will construct auxiliary lanes in both directions, along I-40 from SR 1002 (Aviation Parkway) to SR 1652 (Harrison Avenue). ROW is slated to begin in 2028 and construction in 2031.
    - This project is included in the draft 2026-2035 STIP, with ROW slated to begin in 2029 and construction in 2032.
  - I-5993, which will rehabilitate pavement, from US 15 / US 501 to east of NC 147. Construction is currently slated to begin in 2026.
    - This project is included in the draft 2026-2035 STIP, with construction slated to begin in 2026.
  - I-5995, which will rehabilitate pavement on I-40 from east of NC 147 to SR 1728 (Wade Avenue).
    - This project is included in the draft 2026-2035 STIP, with construction slated to begin in 2026.
  - I-6006, which will convert I-40 and SR 1728 (Wade Avenue) to a managed freeway with ramp metering and other Active Traffic Management (ATM) / Intelligent Transportation Systems (ITS) components from NC 54 (Exit 273) to SR 1728 (Wade Avenue) on I-40 and from I-40 to SR 1664 (Blue Ridge Road) on SR 1728 (Wade Avenue). This project is currently only funded for preliminary engineering.
    - This project is not included in the draft 2026-2035 STIP.
  - U-6101, which will convert I-40 to a managed freeway, including ramp metering, from SR 1728 (Wade Avenue) to NC 42. The project is currently not funded.
    - This project is not included in the draft 2026-2035 STIP.
- This corridor provides a connection to GoTriangle's Triangle Mobility Hub on NC 54, near Miami Boulevard, which received a \$25 million federal RAISE grant to support the design and construction of the facility and is slated to open in 2029. The Triangle Mobility Hub also has funding programmed in the county Transit Plans - Wake, Durham and Orange.
- The 2035 Wake Transit Plan Update is underway to identify the priorities of Wake Transit Plan funding over the next ten years. The April 2025 update includes studying BRT along I-40 connecting Raleigh to the Regional Transit Center, along with DARs at Trinity Road and RDU.
- Projects in Connect 2050 MTP:
  - TWTPO
    - I-40 Managed Roadway (MTP ID 45.1) proposes to modernize I-40 from the Wake County Line to NC 54. This project has a horizon year of 2040 and has a TIP number (I-6006).
    - I-40/NC 54 Interchange (MTP ID 2040) proposes to upgrade the interchange at I-40 and NC 54. This project has a horizon year of 2040 and has a TIP number (U-5774F).
  - CAMPO
    - I-40 Corridor Improvements (Project ID F112a) proposes to widen I-40 from 8 lanes to 10 lanes from Aviation Parkway to Harrison Avenue. This project has a horizon year of 2040 and has a TIP number (I-5966).
    - I-40 Corridor Improvements (Project ID F112b) that proposes to widen I-40 from 8 lanes to 10 lanes from Harrison Avenue to Wade Avenue. This project has a horizon year of 2040.

*The FAST 2.0 study assumes that projects listed in the NCDOT 2024-2033 STIP, but not included in the 2026-2035 STIP could return in future STIPs. While their likely return is dependent on additional NCDOT funding, it is important to consider these projects in the future planning and design of the I-40 freeway priority corridor.*

- I-40 Managed Lanes (Project ID F40) that proposes adding tolls lanes on I-40 from the Durham County line to Wade Avenue by widening from I-40 8 lanes to 10 lanes. This project has a horizon year of 2050.
- I-40 Widening (Project ID F81a), with a horizon year of 2040, proposes to widen I-40 from 6 lanes to 8 lanes from Wade Avenue to US 1/64.
- I-40 Managed Lanes (Project ID F41), with a horizon year in 2050, proposes to add toll lanes on I-40 from Wade Avenue to Johnston County by widening I-40 from 8 lanes to 10 lanes.
- As of Summer 2025, CAMPO and TWTPo are in the process of updating the 2055 MTP called *Destination 2055*. The CAMPO executive board selected a preferred scenario in June 2025 that includes freeway-based BRT along the I-40 corridor.

### Traffic Considerations

The proposed transit infrastructure along the I-40 corridor would not alter the existing general purpose lanes and would be operationally feasible based on the analysis of the proposed general purpose traffic conditions. Under existing conditions, there are several locations that can be congested with slower traffic speeds, particularly during PM peak periods. The proposed DARs, DMSS lanes, and BOSS lanes would allow buses bypass both recurring and non-recurring congestion, improving travel time reliability and overall system performance.

Table 4 summarizes the proposed general purpose lanes included in the concept design, along with corresponding existing 2023 Annual Average Daily Traffic (AADT) data and posted speed limits. As the corridor design is advanced, close coordination with multiple NCDOT departments and divisions would be required to integrate the proposed transit infrastructure with existing and planned general purpose conditions.

*Table 4: Traffic Characteristics on I-40 Corridor*

Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
	To	From			
I-40	US 15-501 (Exit 270)	NC 86 (Exit 266)	3	73,500	65
I-40	NC 54 (Exit 273)	US 15-501 (Exit 270)	3	96,500	65
I-40	NC 751 (Exit 274)	NC 54 (Exit 273)	3	120,000	65
I-40	Fayetteville Rd (Exit 276)	NC 751 (Exit 274)	3	117,000	65
I-40	NC 55 (Exit 278)	Fayetteville Rd (Exit 276)	3	124,000	65
I-40	NC 147 (Exit 279)	NC 55 (Exit 278)	3	131,000	65
I-40	Davis Dr (Exit 280)	NC 147 (Exit 279)	3	88,500	65
I-40	Miami Blvd (Exit 281)	Davis Dr (Exit 280)	4	168,000	65
I-40	Page Rd (Exit 282)	Miami Blvd (Exit 281)	4	179,000	65
I-40	I-540 (Exit 283)	Page Rd (Exit 282)	4	183,000	65
I-40	Airport Blvd (Exit 284)	I-540 (Exit 283)	4	147,000	65
I-40	Aviation Pkwy (Exit 285)	Airport Blvd (Exit 284)	4	143,000	65

<b>I-40</b>	Harrison Ave (Exit 287)	Aviation Pkwy (Exit 285)	4	164,000	65
<b>I-40</b>	Wade Ave (Exit 289)	Harrison Ave (Exit 287)	5	159,000	65
<b>I-40</b>	NC 54 (Exit 290)	Wade Ave (Exit 289)	4	98,000	65
<b>I-40</b>	Cary Towne Blvd/Farm Gate Rd (Exit 291)	NC 54 (Exit 290)	4	116,000	65

### Notable Projects

#### ***NCDOT Express Design H184316***

NCDOT Division 5 completed an Express Design project in April 2023 to widen I-40 between Miami Boulevard and Alston Avenue that includes adding median dynamic shoulders. NCDOT plans to investigate additional sections of I-40 within the FAST 2.0 network to further add median dynamic shoulders.

## I-885 / NC 147

### Purpose

The I-885 / NC 147 freeway priority corridor provides another piece to the regional freeway transit backbone that, with transit priority improvements, such as DMSS, would provide frequent and reliable transit connections between I-40, RTP, and Durham. The NC 147 portion would provide dedicated transit infrastructure to allow transit vehicles to reliably connect to Downtown Durham.

<b>Limits</b>	<ul style="list-style-type: none"> <li>I-885 from NC 98 to I-40</li> <li>NC 147 from I-885 to Duke Street</li> </ul>
<b>Length</b>	<b>I-885:</b> 5.8 Miles <b>NC 147:</b> 3.7 Miles
<b>Length by Runningway Type</b>	<b>I-885:</b> <ul style="list-style-type: none"> <li>0.1 Miles (Fully Dedicated)</li> <li>3.9 (DMSS)</li> <li>1.8 (Mixed Flow)</li> </ul> <b>NC 147:</b> <ul style="list-style-type: none"> <li>3.1 Miles (Fully Dedicated)</li> <li>0.1 (DMSS)</li> <li>0.5 (Mixed Flow)</li> </ul>
<b>Anticipated Number of BRT Stations</b>	N/A
<b>Anticipated Number of BRT Buses</b>	N/A
<b>Assumed Service Type</b>	Freeway Bus Rapid Transit
<b>Location</b>	Durham County
<b>MPO</b>	TWTPD
<b>NCDOT Division</b>	Division 5



## Concept Design

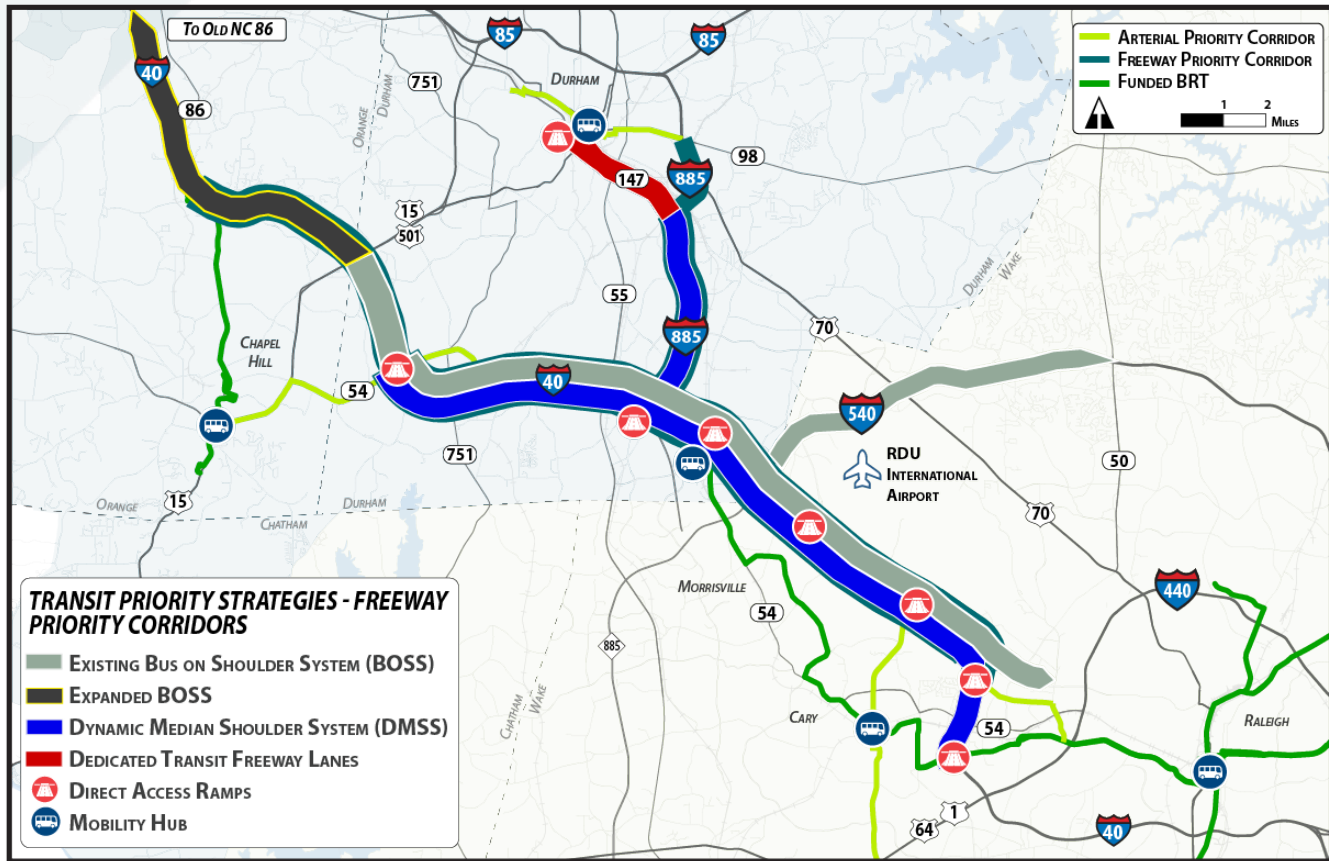


Figure 10: I-885 / NC 147 Concept Design

## Proposed Design Elements

Treatments on the I-885 / NC 147 corridor would further prioritize dedicated transit space along freeways in the Triangle region of North Carolina. The design would include DMSS on I-885 between the I-40 Interchange and I-885's interchange with the NC 147. On NC 147 between the I-885 Interchange and Downtown Durham at Duke Street, the design would include dedicated transit freeway lanes as to provide separate space for transit service connecting to Durham Station and the Duke University / Holloway Street arterial priority corridor.

### Runningway by Section

#### Dedicated Freeway Transit Lanes

- NC 147 between I-885 and Duke Street
  - Widening to the inside to provide 14' lanes on both sides

#### NC 147 / I-885 Interchange

- Northbound NC 147 would go under the bridge alongside the general purpose lanes
- Southbound NC 147 would use a new flyover bridge through the interchange

#### Dynamic Median Shoulder System (DMSS)

- I-885 between I-40 and NC 147 interchange

- Widening to the inside to provide 14' lanes on both sides

### Mixed Flow

- I-885 between NC 147 and NC 98

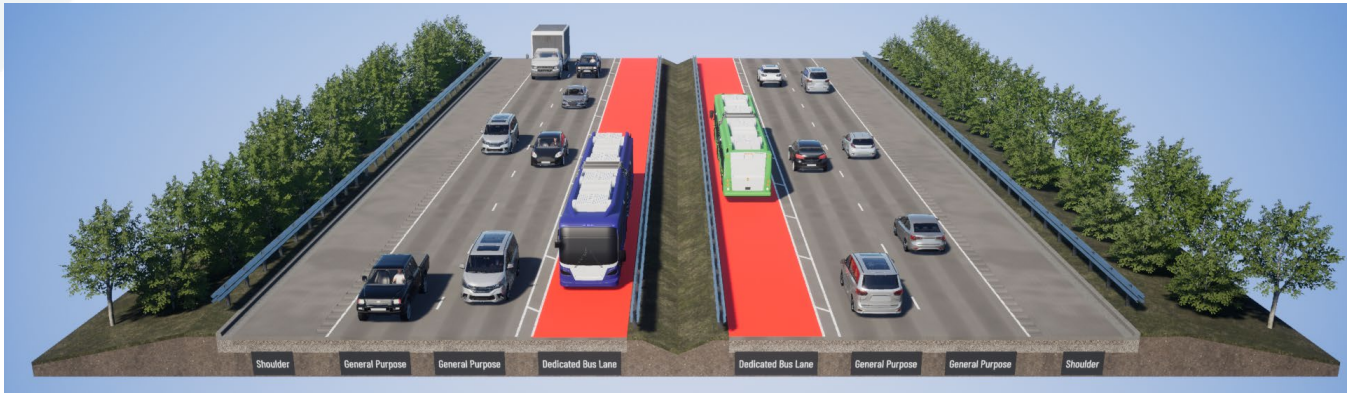


Figure 11: NC 147 near Alston Avenue

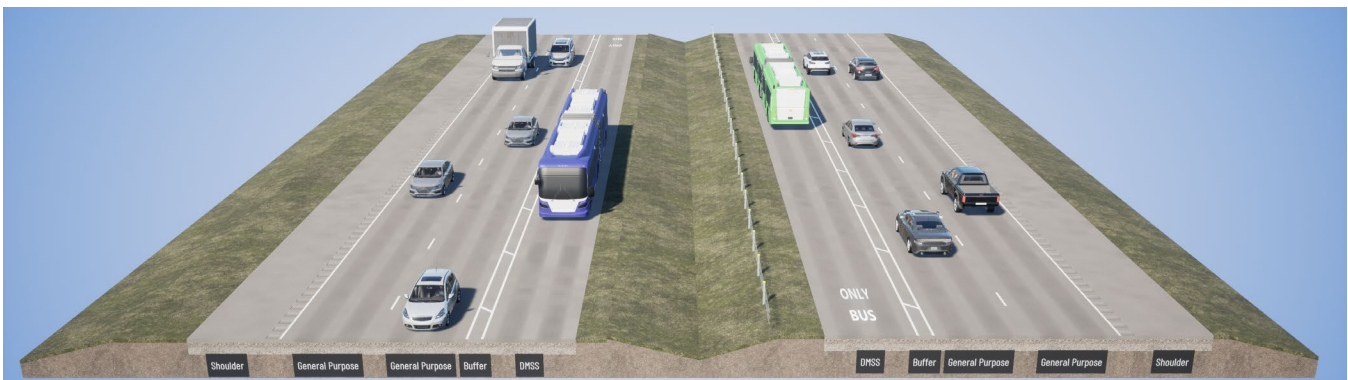


Figure 12: I-885 near Ellis Road

### Interstate Direct Access Transit Ramp

- NC 147 at Duke Street (Exit 3C)
- I-885 at NC 54, overpass south of I-40/I-885 Interchange (Exit 5B)

### Station and Transfer Locations

- Durham Station near Duke Street to connect with GoDurham service, GoTriangle regional transit services, and the Duke University / Holloway Street arterial priority corridor.

### Other Considerations

#### Top Destinations Along the Corridor

The corridor's northern limits are in Downtown Durham. There are numerous destinations along the corridor that provide employment and educational opportunities, along with venues that host large, special events. These include:

- RTP
- Hayti Heritage Center

- Durham Technical Community College
- Downtown Durham
  - Durham Performing Arts Center
  - Durham Bulls Athletic Park
  - American Tobacco Campus
- North Carolina Central University (NCCU)
- Durham Station and Durham Amtrak Station

### Existing and Planned Transit Along the Corridor

Several agencies serve the corridor with existing transit, including:

- GoTriangle Routes:
  - Durham-Regional Transit Center – Route 700
  - Durham-Raleigh Express – Route DRX
- All GoDurham Routes at Durham Station

Durham Station, in Downtown Durham, is a local and regional mobility hub for GoDurham, GoTriangle, and intercity bus services. GoTriangle buses use NC 147 and I-885 to connect to the Regional Transit Center and other urban centers in the Region and having dedicated transit freeway lanes and DMSS for those services could improve operational speed and reliability of service. This freeway priority corridor also provides multiple connections in Downtown Durham and near I-885 to the Duke University / Holloway Street arterial priority corridor. In addition to the existing routes, the City of Durham is also completing the Reimagine Durham Freeway Study that may change the roadway characteristics of NC 147 in Downtown Durham.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- Projects in the 2024-2033 STIP include:
  - U-5934 on I-885 between I-40 and NC 147, that will add lanes, rehabilitate pavement, and prioritize the addition of transit accommodations. The current timing of the project, which is currently slated to begin ROW in 2028 and begin construction in 2029, provides a great opportunity to advance the planning of transit accommodations along I-885.
    - The draft 2026-2035 STIP, which is expected to be adopted in Summer 2025, includes U-5934, but the construction year is shown as 2030.
  - U-5937, which will construct auxiliary lanes and operational improvements, on NC 147 (Durham Freeway) from SR 1127 (West Chapel Hill Street) to Briggs Avenue. This project is funded for preliminary engineering only.
    - This project is not included in the draft 2026-2035 STIP.
- Projects in *Connect 2050 MTP*:
  - NC 147 (possible boulevard conversion (MTP ID 64.13) proposes a modernization on NC 147 from Swift Avenue to the East End Connector. This project has a horizon year of 2040.
  - Bus Rapid Transit (NCCU to RTP) which utilizes NC 147.
  - Bus Rapid Transit (Duke-Downtown Durham-NCCU) which mostly utilizes NC 147 and E Main Street.

### Special Event Considerations

This freeway priority corridor connects the region to Downtown Durham. As mentioned above, there are numerous destinations along the corridor, and these places and venues frequently host events that are major traffic generators along the corridor. Durham Bulls Athletic Park is a baseball stadium that hosts professional and college games. Durham Performing Arts Center hosts concerts and shows throughout the year.

### Traffic Considerations

The proposed transit infrastructure along the I-885 / NC 147 corridor would not alter the existing general purpose lanes and would be operationally feasible based on the analysis of the proposed general purpose traffic conditions. Although some segments experience slower speeds, particularly during PM peak periods, the proposed DARs, Dedicated Transit Lanes, DMSS lanes, and BOSS lanes would allow buses to bypass both recurring and non-recurring congestion, enhancing transit reliability and reducing delays.

Table 5 summarizes the proposed general purpose lanes included in the concept design, along with corresponding existing 2023 AADT data and posted speed limits. As the corridor design is advanced, close coordination with multiple NCDOT departments and divisions would be required to integrate the proposed transit infrastructure with existing and planned general purpose conditions.

*Table 5: Traffic Characteristics on I-885 / NC 147 Corridor*

Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
	To	From			
<b>I-885</b>	I-40	Cornwallis Rd	3	72,000	65
<b>I-885</b>	Cornwallis Rd	T W Alexander Dr	3	70,000	65
<b>I-885</b>	T W Alexander Dr	Ellis Rd	3	76,000	65
<b>I-885</b>	East End Connector	Briggs Ave	2	73,000	
<b>NC 147</b>	Briggs Ave	NC 55 / Alston Ave	2	69,000	55
<b>NC 147</b>	NC 55 / Alston Ave	Fayetteville St	2	84,000	55
<b>NC 147</b>	Fayetteville St	Roxboro St	2	65,000	55
<b>NC 147</b>	Roxboro St	Duke St	2	65,000	55

### Notable Projects

#### *Reimagine Durham Freeway*

The City of Durham Transportation Department has kicked off the Reimagine Durham Freeway Study. The first phase of this work aims to develop a community-led vision for the Durham Freeway corridor (also known as NC 147) through central Durham. Findings from this vision plan may suggest changes to the operations and characteristics of NC 147 in Downtown Durham. Future phases of the project are expected to include engineering and traffic operations analysis and design of the freeway, which may include transit priority improvements identified in FAST 2.0. NCDOT Division 5 Staff have been active technical stakeholders in the first phase of work and continue to be involved throughout the lifespan of the project.





## Harrison Avenue/Kildaire Farm Road

### Purpose

The Harrison Avenue / Kildaire Farm Road arterial priority corridor would provide quick and reliable north/south transit connections in Cary, connecting I-40, SAS campus, Downtown Cary, including the Cary Depot, WakeMed Cary, US 1, and Koka Booth Amphitheatre. The corridor provides the opportunity for a potential park and ride lot at the southern terminus, includes a direct access ramp to I-40 at the existing Harrison Avenue interchange, and would connect to the Wake BRT: Western Corridor.

<b>Limits</b>	<ul style="list-style-type: none"> <li>Harrison Avenue from I-40 to Dry Avenue</li> <li>Dry Avenue from South Harrison Avenue to Kildaire Farm Road</li> <li>Kildaire Farm Road from Dry Ave to Tryon Road</li> <li>Tryon Road from Kildaire Farm Road to Regency Parkway</li> <li>Regency Parkway from Tryon Road to Koka Booth Amphitheatre</li> </ul>
<b>Length</b>	8.3 Miles
<b>Length by Runningway Type</b>	<ul style="list-style-type: none"> <li>2.99 Miles (Fully Dedicated)</li> <li>2.45 Miles (BAT)</li> <li>2.86 (Mixed Flow)</li> </ul>
<b>Anticipated Number of BRT Stations</b>	11
<b>Anticipated Number of BRT Buses</b>	10 Total (8 peak; 2 spare)
<b>Assumed Service Type</b>	Arterial Bus Rapid Transit
<b>Location</b>	Wake County
<b>MPO</b>	CAMPO
<b>NCDOT Division</b>	Division 5

## Concept Design

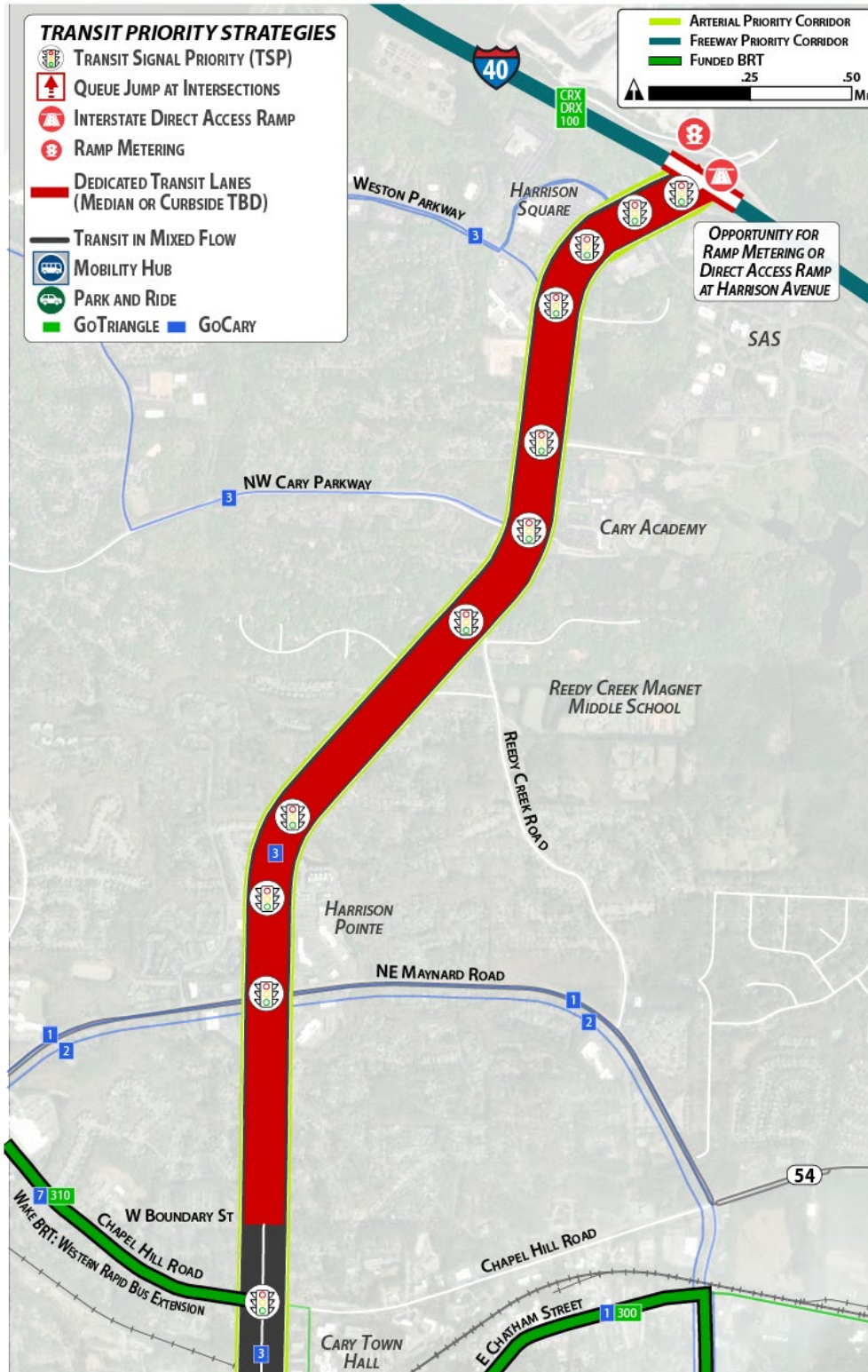


Figure 13: Harrison Avenue / Kildaire Farm Road Concept Design North of Downtown Cary



Figure 14: Harrison Avenue / Kildaire Farm Road Concept Design in Downtown Cary



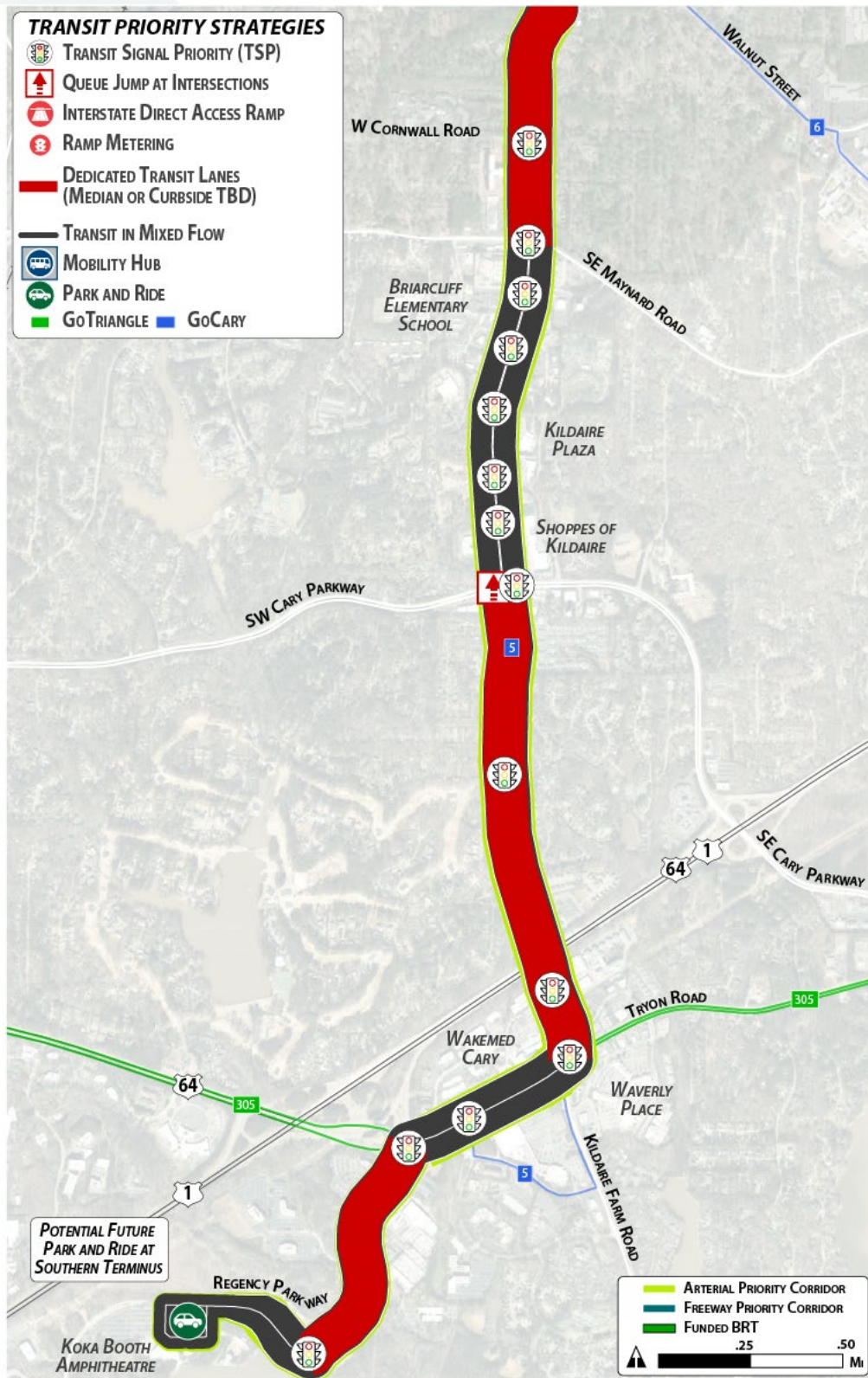


Figure 15: Harrison Avenue / Kildaire Farm Road Concept Design South of Downtown Cary



## Proposed Design Elements

This arterial priority corridor in Cary runs primarily north and south along Harrison Avenue and Kildaire Farm Road on dedicated transit lanes and in some areas, mixed traffic flow. The corridor travels through Downtown Cary and intersects the Wake BRT: Western Corridor and its Rapid Bus Extension that connects Downtown Cary, Raleigh, and Morrisville at the future Downtown Cary Multi-Modal Center. The corridor utilizes funded Wake BRT: Western Corridor runningway where the two corridors overlap, along Harrison Avenue in Downtown Cary. Treatments on this corridor would prioritize transit connections along a central north-south spine in the Town of Cary, and would connect to GoCary, GoTriangle, and Amtrak rail Routes, as well as serve destinations like Koka Booth Amphitheatre, Cary Town Hall, Downtown Cary Park, SAS Campus, Cary Depot, WakeMed Cary Hospital, and other employment and commercial destinations.

### Runningway by Section

#### *Dedicated Transit Lanes*

- Harrison Avenue from I-40 to Saint Charles Place
  - *Widening to both the inside and outside where necessary to keep same number of general purpose lanes*
  - *ROW is needed in several locations along this segment*
- Harrison Avenue from Saint Charles Place to West Boundary Street
  - *Repurposing center lane in each direction to create dedicated lanes*
- Kildaire Farm Road from Shirley Drive to SE Maynard Road
  - *Some widening to the outside along this segment*
  - *Repurposing right lane to be a BAT lane, both directions*
- Kildaire Farm Road from SW Cary Parkway to Tryon Road
  - *Widening in both directions*
  - *Repurposing right lane to be a BAT lane, both directions*
- Regency Parkway from Tryon Road to Koka Booth Amphitheatre
  - *Some widening in both directions*
  - *Repurposing right lane to be a BAT lane, both directions*

#### *Mixed Flow*

- Harrison Avenue from West Boundary Street to Chatham Street
- Chatham Street from Harrison Avenue to Academy Street
- South Academy Street from Chatham Street to Dry Avenue
- Dry Avenue from South Academy Street to Kildaire Farm Road
- Kildaire Farm Road from Dry Avenue to Shirley Drive
- Kildaire Farm Road from SE Maynard Road to SW Cary Parkway
- Tryon Road from Kildaire Farm Road to Regency Parkway



Figure 16: Harrison Avenue at Weston Parkway

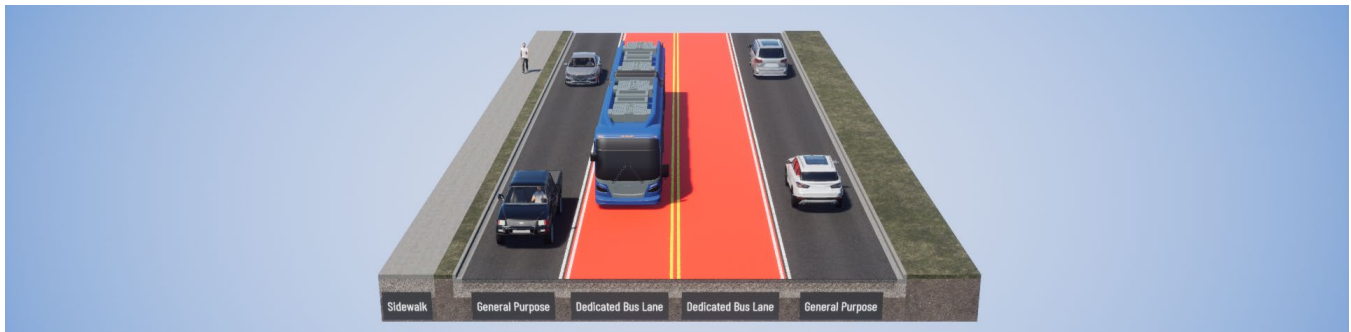


Figure 17: Harrison Avenue at Ashley Drive

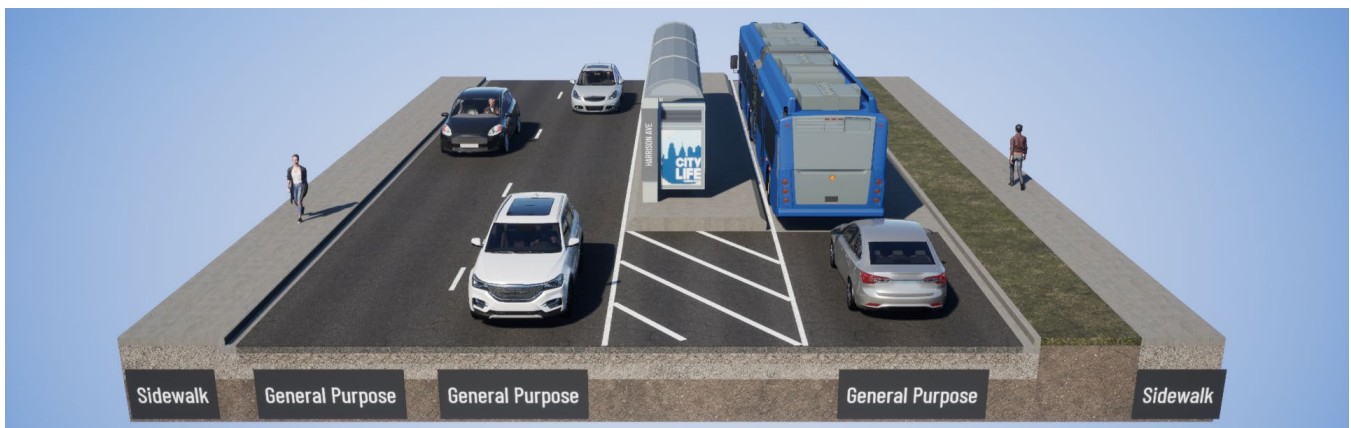


Figure 18: Harrison Avenue at Proposed Downtown Cary Multi-Modal Center

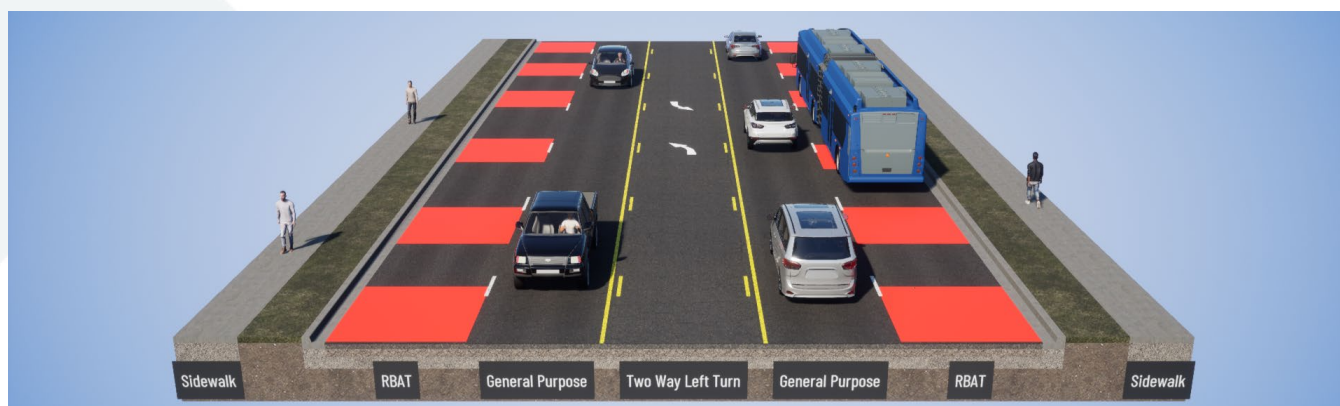


Figure 19: Kildaire Farm Road at Shirley Drive

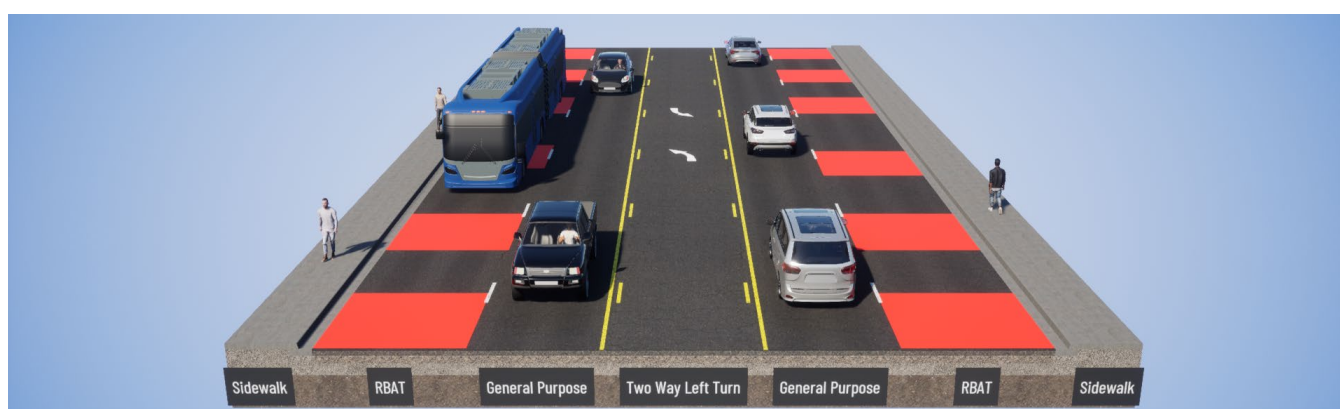


Figure 20: Kildaire Farm Road at Glasgow Road

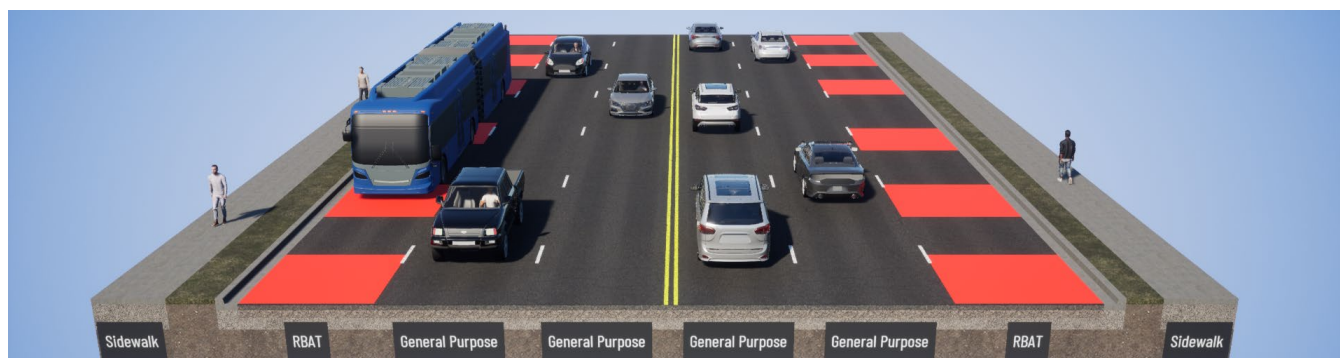


Figure 21: Regency Parkway at Regency Forest Drive

### TSP Locations

- Harrison Avenue at I-40 Interchange
- Harrison Avenue at SAS Campus Drive
- Harrison Avenue at Bass Pro Lane
- Harrison Avenue at Weston Parkway
- Harrison Avenue at Research Drive
- Harrison Avenue at NW Cary Parkway
- Harrison Avenue at Reedy Creek Road
- Harrison Avenue at Dynasty Drive
- Harrison Avenue at Harrison Pointe Drive
- Harrison Avenue at NE/NW Maynard Road
- Harrison Avenue at Chapel Hill Road
- Harrison Avenue at Chatham Street
- South Academy Street at Dry Avenue
- Kildaire Farm Road at Walnut Street

- Kildaire Farm Road at Cornwall Road
- Kildaire Farm Road at Maynard Road
- Kildaire Farm Road at Kilmayne Drive
- Kildaire Farm Road at Commonwealth Court
- Kildaire Farm Road at Wrenn Drive
- Kildaire Farm Road at High Meadow Drive
- Kildaire Farm Road at Shoppes of Kildaire Shopping Center
- Kildaire Farm Road at Cary Parkway
- Kildaire Farm Road at Queensferry Road
- Kildaire Farm Road at Wake Medical Drive/Kildaire Park Drive
- Kildaire Farm Road at Tryon Road
- Tryon Road at Crescent Green
- Tryon Road at Regency Parkway
- Regency Parkway at Ederlee Drive

### Queue Jump Lane Locations

- Kildaire Farm Road at SW/SE Cary Parkway

### Station and Transfer Locations

- Mobility Hub and park and ride at the Cary Depot and future Downtown Cary Multi-Modal Center in Downtown Cary to connect to the Wake BRT: Western Corridor and Rapid Bus Extension, GoCary and GoTriangle Service, and Amtrak.
- Potential future park and ride lot near Koka Booth Amphitheatre, near US 1 and US 64, at the southern terminus of the arterial priority corridor.

### Proposed Pedestrian and Bicycle Accommodations

The assumption for pedestrian and bicycle improvements is that there should be a continuous pedestrian and bicycle network along all the arterial priority corridors in the FAST 2.0 network to provide safe and comfortable access to all transit stops in each corridor. Below are pedestrian and bicycle improvements that could be implemented along the corridor to provide safe, comfortable access along the corridor:

- Add sidepath along:
  - Harrison Avenue from I-40 to Kingswood Drive
  - Harrison Avenue between Kingswood Drive and Chatham Street
  - Kildaire Farm Road between Shirley Drive and Tryon Road
  - Tryon Road between Kildaire Farm Road and Regency Parkway
  - Regency Parkway from Tryon Road and Ederlee Drive
- Add major intersection improvements at:
  - Harrison Avenue and SAS Campus Drive
  - Harrison Avenue and Weston Parkway/Richard Drive
  - Harrison Avenue and NW Cary Parkway
  - Harrison Avenue and Maynard Road
  - Kildaire Farm Road and Maynard Road
  - Kildaire Farm Road and Wrenn Drive/Farmington Woods Drive
  - Kildaire Farm Road and Cary Parkway
  - Kildaire Farm Road and Queensferry Road and McEnroe Court
  - Kildaire Farm Road and Tryon Road
  - Tryon Road and Regency Parkway
- Add major mid-block crossings at:
  - Harrison Avenue and Reedy Creek Greenway
  - Harrison Avenue and Kingswood Drive



- Add a minor intersection improvement at Harrison Avenue and Chapel Hill Road
- Add sidewalk along one side of Regency Parkway between Tryon Road and first office driveway
- Add walking bridge on Kildaire Farm Road over US-1/64

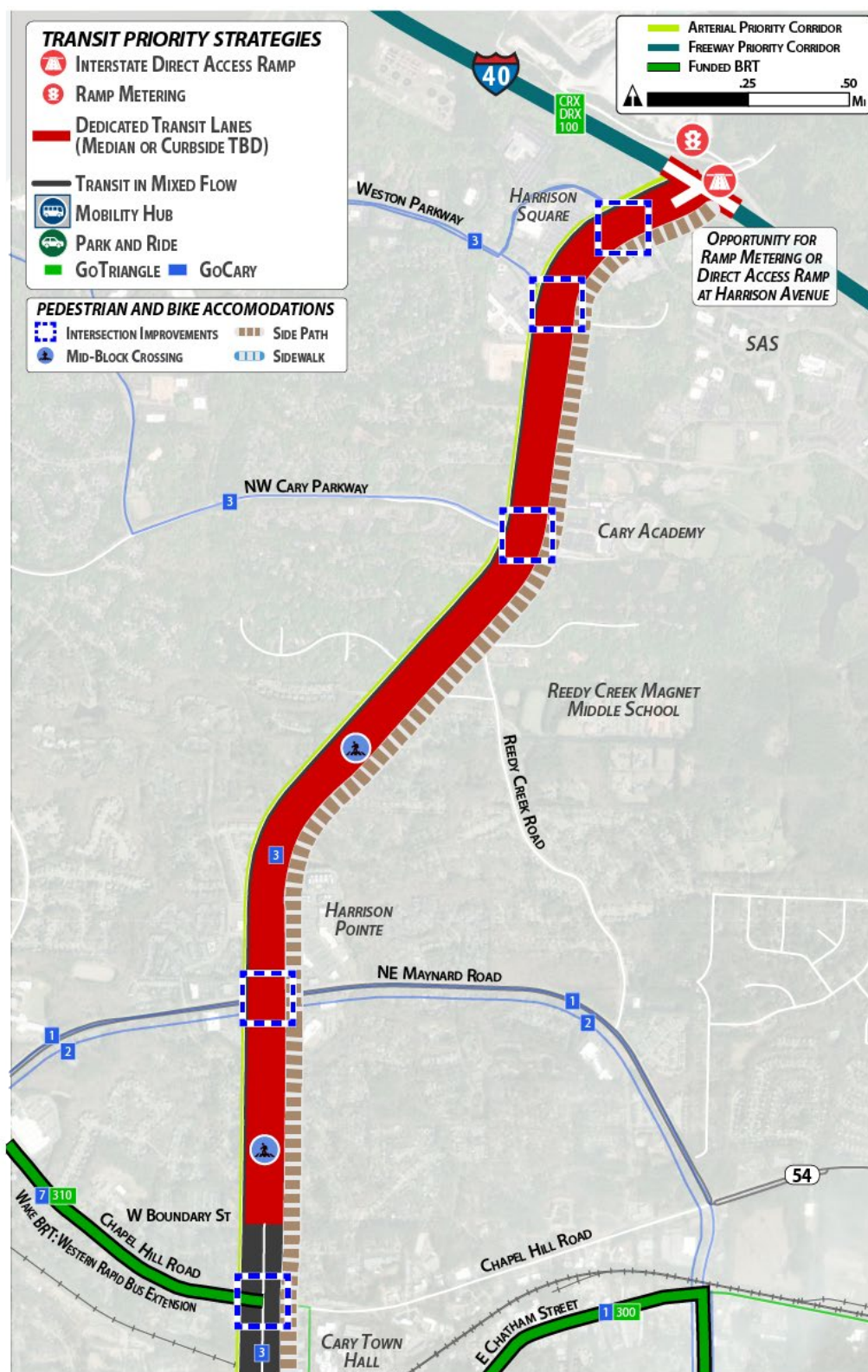


Figure 22: Proposed Pedestrian and Bicycle Accommodations North of Downtown Cary

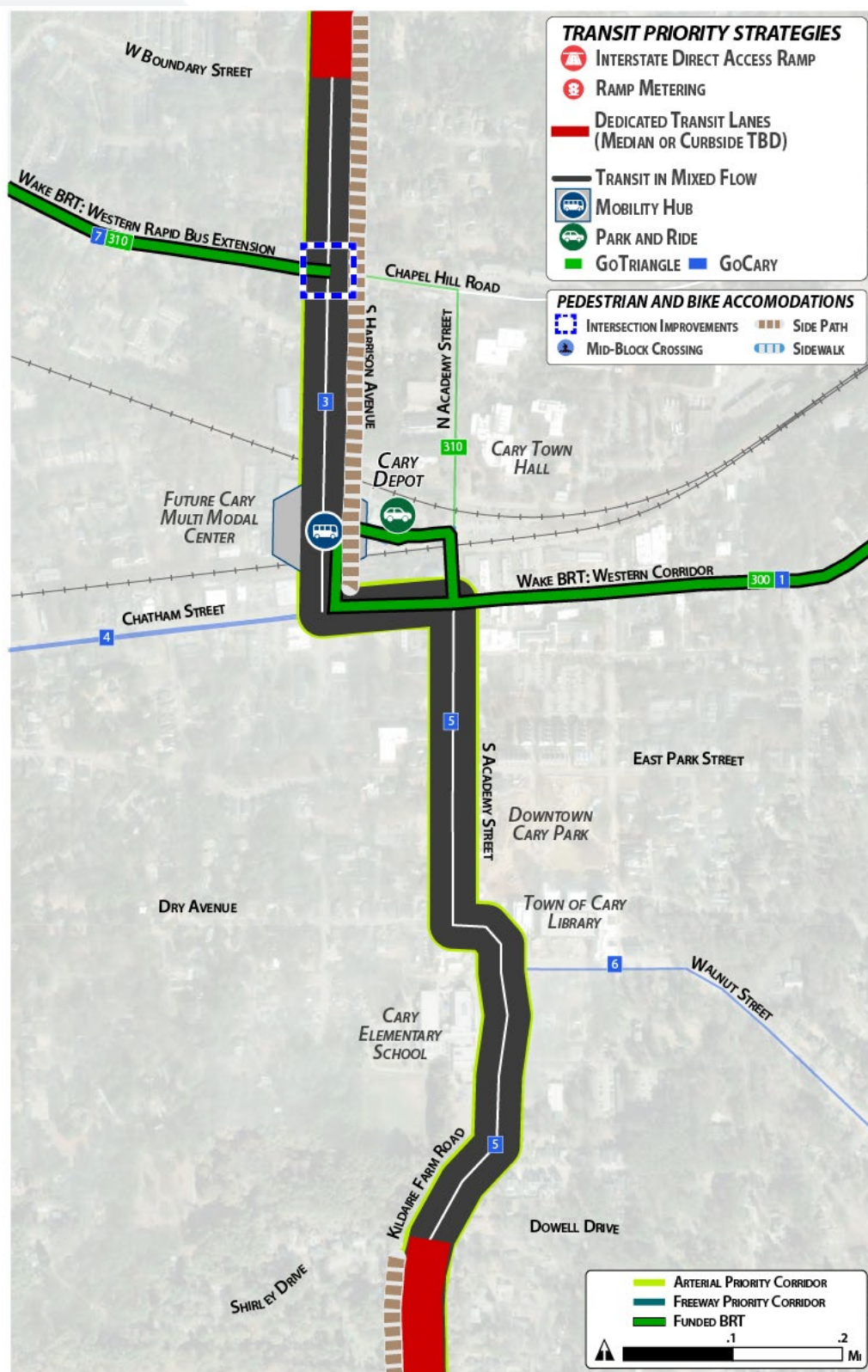


Figure 23: Proposed Pedestrian and Bicycle Accommodations in Downtown Cary



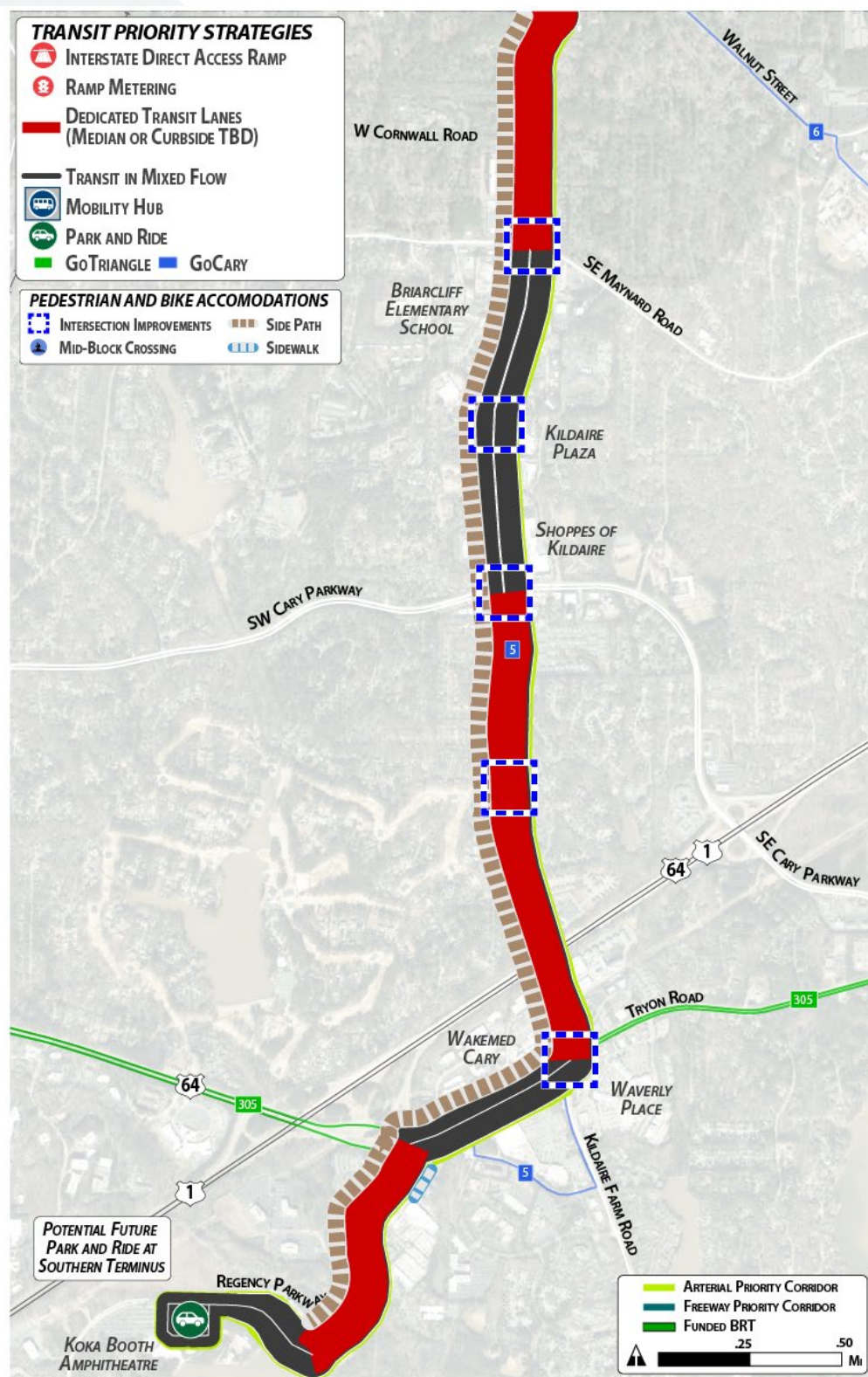


Figure 24: Proposed Pedestrian and Bicycle Accommodations South of Downtown Cary



## Other Considerations

### Top Destinations Along the Corridor

The corridor includes several key destinations that provide employment opportunities, along with commercial, medical, and recreational resources. Some of these destinations are also venues that host large, special events. These include:

- SAS
- Downtown Cary
- Downtown Cary Park
- WakeMed Cary Hospital
- Koka Booth Amphitheatre

### Existing and Planned Transit Along the Corridor

Several agencies serve the corridor with existing transit, including:

- GoTriangle Routes:
  - Route 300
  - Route 305
  - Route 310
- GoCary Routes:
  - 1 - Crossroads
  - 3 – Harrison
  - 4 – High House
  - 5 – Kildaire Farm
  - 6 – Buck Jones
  - 7 – Weston
  - Downtown Loop
  - Apex-Cary Express

The presence of numerous transit agencies provides the opportunity for enhanced transfer locations, such as a super stop, to allow passengers the ability to easily transfer between systems. In addition to the existing routes, GoRaleigh is currently advancing the design of the Wake BRT: Western Corridor, which would connect with the corridor at the Cary Depot.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- Projects in *Connect 2050 MTP*:
  - North Harrison Avenue (MTP ID A240a) proposes widening Harrison Avenue from Reedy Creek Road to Weston Parkway from 5 lanes to 6 lanes. This project has a horizon year of 2040.
  - Harrison Turn Lane (MTP ID A565) proposes adding a center turn lane on Harrison Avenue from Chatham Street to Dry Avenue. This project has a horizon year of 2030.
  - South Harrison Avenue proposes constructing a new 2-lane roadway from Dry Road to Kildaire Farm Road
  - Cary-Apex (MTP ID T152b) is a BRT project that runs the extent of this corridor.
- This corridor would provide a connection from the funded Wake BRT: Western Corridor project, which is currently in the final design phase, to the I-40 freeway priority corridor.

### Special Event / Traffic Considerations

There are several destinations along the corridor, including Downtown Cary and Koka Booth Amphitheatre that often hold large events and could be major traffic generators along the corridor. In addition to event traffic, the presence of WakeMed Cary presents unique traffic conditions that should be considered during implementation, such as access to hospital facilities and shift-change traffic patterns.

### Traffic Considerations

The proposed transit infrastructure along the Harrison Avenue / Kildaire Farm Road corridor is generally considered operationally feasible based on the analysis of the proposed general purpose traffic conditions, including 2023 AADT volumes, travel time reliability, vehicle speeds, and levels of congestion. Table 6 summarizes the proposed general purpose lanes included in the concept design, along with corresponding existing 2023 AADT data and posted speed limits. As the corridor design is advanced, further investigation is required to confirm specific locations and designs for the conceptual runningway, TSP, and queue jump locations, especially where STIP or MTP projects are identified.

*Table 6: Traffic Characteristics on Harrison Avenue / Kildaire Farm Road Corridor*

Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
	To	From			
<b>Regency Pkwy</b>	Koka Booth Amphitheatre	Ederlee Dr	2	N/A	35
<b>Regency Pkwy</b>	Ederlee Dr	Tryon Rd	2	N/A	40
<b>Tryon Rd</b>	Regency Pkwy	Cary Pkwy	2	26,000	45
<b>Kildaire Farm Rd</b>	Cary Pkwy	Farmington Woods Dr	2	27,500	45
<b>Kildaire Farm Rd</b>	Farmington Woods Dr	SE Maynard Rd	2	22,000	35
<b>Kildaire Farm Rd</b>	SE Maynard Rd	Walnut St	1	22,000	35
<b>Kildaire Farm Rd</b>	Walnut St	Academy St	1	11,000	35
<b>Academy St</b>	Dry Ave / Kildaire Farm Rd	Chatham St	1	9,800	35
<b>Chatham St</b>	Academy St	Harrison Ave	1	9,800	45
<b>Harrison Ave</b>	Chapel Hill Rd	Boundary St	2	13,000	45
<b>Harrison Ave</b>	Boundary St	Maynard Rd	1	13,000	45
<b>Harrison Ave</b>	Maynard Rd	Reedy Creek Rd	2	12,000	45
<b>Harrison Ave</b>	Reedy Creek Rd	NW Cary Pkwy	2	13,000	45
<b>Harrison Ave</b>	NW Cary Pkwy	Weston Pkwy	2	23,000	45
<b>Harrison Ave</b>	Weston Pkwy	I-40	3	28,500	45

## Notable Projects

### ***Downtown Cary Multi Modal Center Transit Facility***

The Town of Cary is planning for a new Downtown Cary Multi-Modal Center to accommodate a variety of existing and future transit modes and services, including local and regional bus service, BRT, future commuter rail service, and Amtrak intercity passenger rail services. The project's feasibility study is complete, and concept planning is consistent with the vision set out in the *Imagine Cary Community Plan* with the goal of creating a vibrant and connected public space within Downtown Cary.

## Duke University / Holloway Street

### Purpose

The Duke University / Holloway Street arterial priority corridor would provide quick and reliable transit connections between Duke University, Duke University Hospital, Durham VA Health Care System, and Downtown Durham, including Durham Station, the Village Shopping Center, and GoDurham's Route 3 family (3/3B/3C), which is both the City's highest ridership and most productive route family in the GoDurham system.

<b>Limits</b>	<ul style="list-style-type: none"> <li>• Erwin Road from Duke University Hospital to West Main St</li> <li>• West Main Street (US 70 Business) from Erwin Rd to North Gregson St (Southbound) / North Duke St (Northbound)</li> <li>• North Gregson Street (Southbound) from West Main St (US 70 Business) to West Chapel Hill St</li> <li>• North Duke Street (Northbound) from West Main St (US 70 Business) to West Chapel Hill St</li> <li>• West Chapel Hill from North Gregson St (Southbound) / North Duke St (Northbound) to West Pettigrew St (Eastbound) / Ramseur St (Westbound)</li> <li>• West Pettigrew Street (Eastbound) from West Chapel Hill St to North Roxboro St (US 15 Business)</li> <li>• Ramseur Street (Westbound) from West Chapel Hill St North to Roxboro St (US 15 Business)</li> <li>• North Roxboro Street (US 15 Business) from West Pettigrew St (Eastbound) / Ramseur St (Westbound) to Liberty St</li> <li>• Liberty Street (Bidirectional) from North Roxboro St (US 15 Business) to Elizabeth St</li> <li>• Elizabeth Street (Westbound) from Liberty St to Holloway St (Westbound)</li> <li>• Liberty Street (Eastbound) from Elizabeth St to North Miami Blvd</li> <li>• Holloway Street (Westbound) from Elizabeth St to Raynor St</li> <li>• Raynor Street (Westbound) from Holloway St to North Miami Blvd</li> <li>• North Miami Boulevard from Raynor St to Liberty St</li> <li>• Holloway Street from North Miami Boulevard to I-885</li> </ul>
<b>Length</b>	4.8 Miles
<b>Length by Runningway Type</b>	<ul style="list-style-type: none"> <li>• 0.4 Miles Fully Dedicated</li> <li>• 0.4 Miles BAT</li> <li>• 4.0 Miles Mixed Flow</li> </ul>
<b>Anticipated Number of BRT Stations</b>	8
<b>Anticipated Number of BRT Buses</b>	6 Total (5 peak; 1 spare)
<b>Assumed Service Type</b>	Arterial Bus Rapid Transit
<b>Location</b>	Durham County
<b>MPO</b>	TWTPD
<b>NCDOT Division</b>	Division 5



## Concept Design



Figure 25: Duke University / Holloway Street Concept Design near Duke University

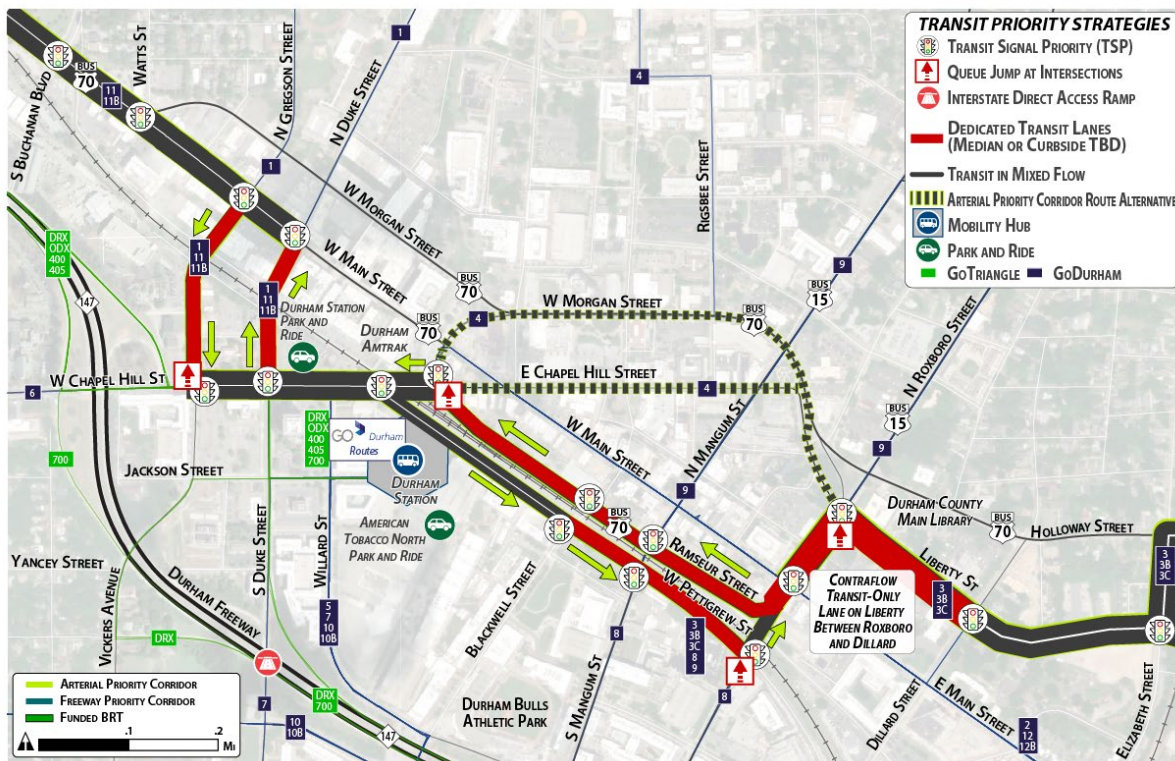


Figure 26: Duke University / Holloway Street Concept Design in Downtown Durham

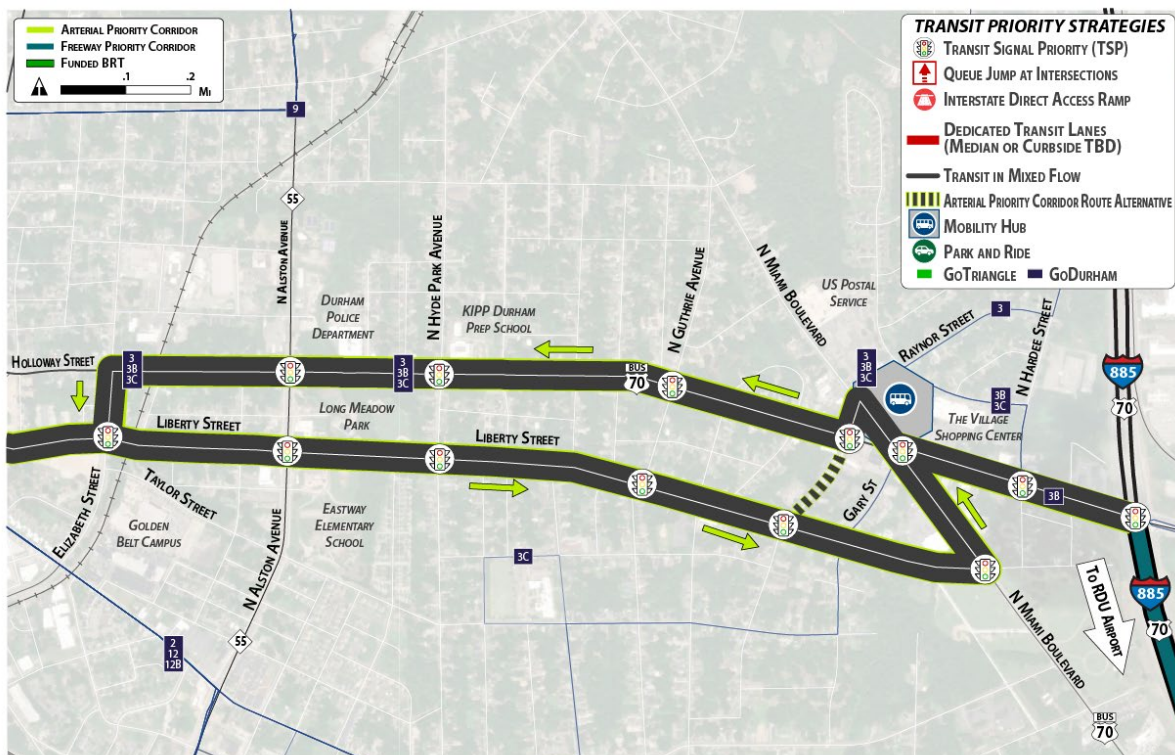


Figure 27: Duke University / Holloway Street Concept Design along Holloway Street and Liberty Street



## Proposed Design Elements

This corridor connects Downtown Durham to Duke University Hospital to the west and the Village Shopping Center and I-885 freeway priority corridor to the east, with opportunities to expand the corridor's limits in both directions in the future. Treatments on this corridor would prioritize east-west transit reliability for some of GoDurham's most productive routes in its system using TSP, queue jumps, and dedicated transit lanes.

### Runningway by Section

#### *Dedicated Transit Lanes*

- Elba Street from Elf Street to Trent Drive
  - *Repurposing eastbound right lane to be a BAT lane*
- North Gregson Street (Southbound) from West Main Street (US 70 Business) to West Chapel Hill Street
  - *Repurposing right lane to be a BAT lane*
- North Duke Street (Northbound) from West Main Street (US 70 Business) to West Chapel Hill Street
  - *Repurposing left lane to be a BAT lane*
- West Pettigrew Street (Eastbound) from Blackwell Street to North Roxboro Street (US 15 Business)
  - *Remove parking to create a BAT lane*
- Ramseur Street (Westbound) from West Chapel Hill Street to North to Roxboro St (US 15 Business)
  - *Remove parking to create a contraflow lane that aligns with the GoDurham Better Bus Project*
- North Roxboro Street (US 15 Business) from West Pettigrew Street (Eastbound) / Ramseur Street (Westbound) to Liberty Street
  - *Eastbound is in mixed flow*
  - *Westbound is repurposing lane to create a contraflow lane that aligns with the GoDurham Better Bus Project*
- Liberty Street (Bidirectional) from North Roxboro Street (US 15 Business) to N Dillard Street
  - *Eastbound is in mixed flow*
  - *Westbound is repurposing lane to create a contraflow lane that aligns with the GoDurham Better Bus Project*

#### *Mixed Flow*

- Fulton Street from Elba Street to Erwin Road
- Trent Drive from Erwin Road to Elba Street
- Erwin Road from Duke University Hospital to West Main Street
- West Main Street (US 70 Business) from Erwin Road to North Gregson Street (Southbound) / North Duke Street (Northbound)
- West Chapel Hill from North Gregson Street (Southbound) / North Duke Street (Northbound) to West Pettigrew Street (Eastbound) / Ramseur Street (Westbound)
- West Pettigrew Street (Eastbound) from West Chapel Hill Street to Blackwell Street (Eastbound)
- Liberty Street from Dillard Street to Elizabeth Street
- Liberty Street from Elizabeth Street to North Miami Boulevard (Eastbound)
- Elizabeth Street (Westbound) from Liberty Street to Holloway Street (Westbound)
- Holloway Street (Westbound) from Elizabeth Street to Raynor Street
- Raynor Street (Westbound) from Holloway Street to North Miami Boulevard
- North Miami Boulevard from Raynor Street to Liberty Street

- Holloway Street from North Miami Boulevard to I-885

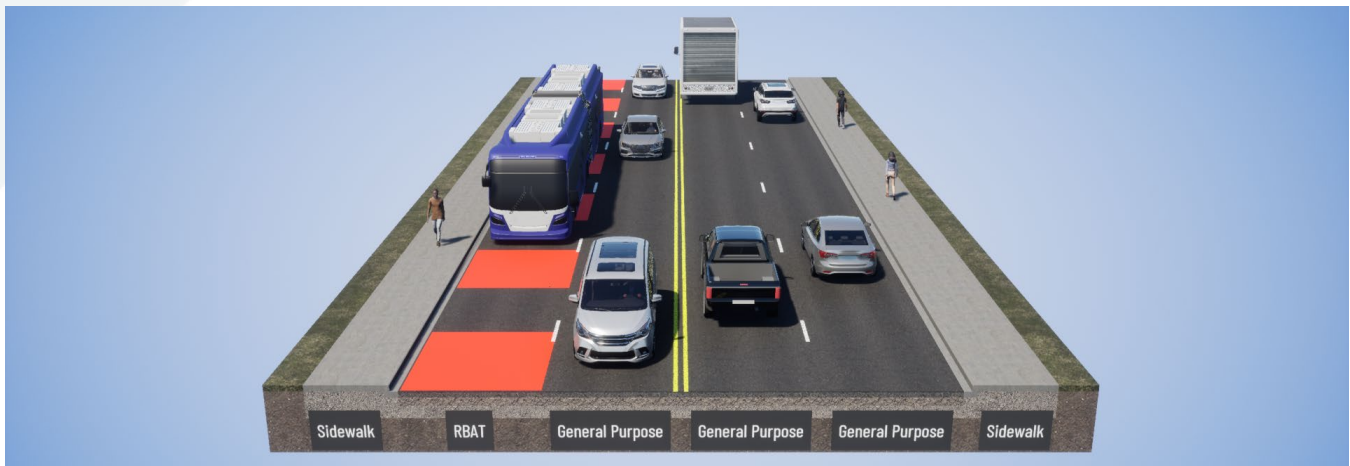


Figure 28: Elba Street

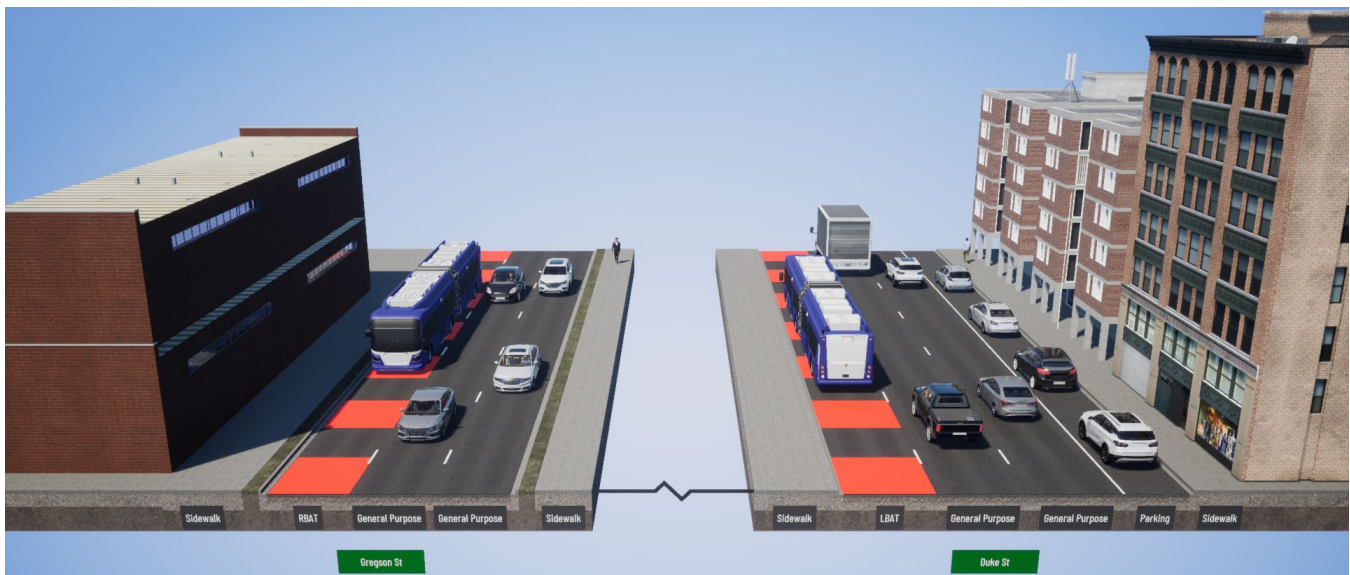


Figure 29: Gregson Street and Duke Street

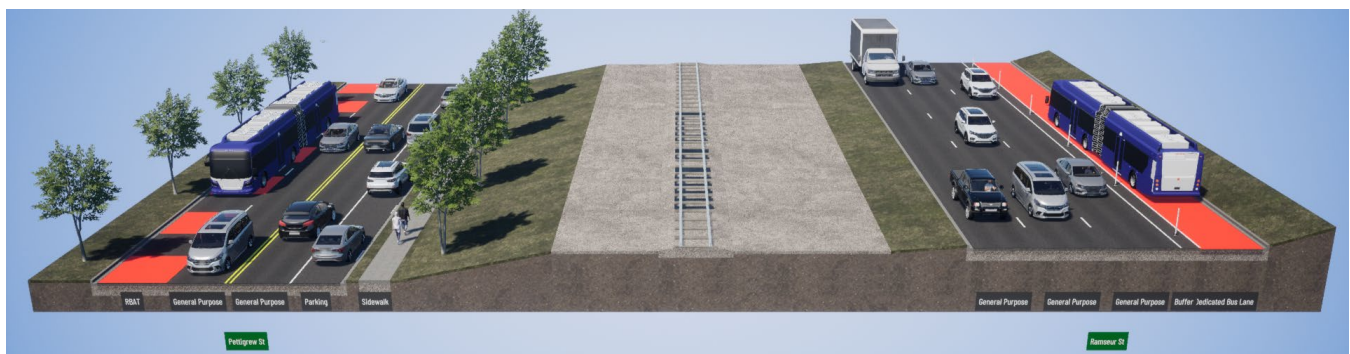


Figure 30: Pettigrew Street and Ramseur Street



Figure 31: Roxboro Street



Figure 32: Liberty Street between Roxboro Street and Dillard Street

### TSP Locations

- Erwin Road at Fulton Street
- Erwin Road at Trent Drive
- Erwin Road at 15<sup>th</sup> Street
- Erwin Road at Main Street/9<sup>th</sup> Street
- Main Street at Broad Street
- Main Street at Campus Drive
- Main Street at North Buchanan Boulevard
- Main Street at Watts Street
- Main Street at North Gregson Street
- Main Street at North Duke Street
- West Chapel Hill Street at South Gregson Street
- West Chapel Hill Street at South Duke Street
- West Chapel Hill Street at West Pettigrew Street
- West Chapel Hill Street at Ramseur Street
- West Pettigrew Street at Blackwell Street



- West Pettigrew Street at South Mangum Street
- West Pettigrew Street at South Roxboro Street
- Ramseur Street at Blackwell Street
- Ramseur Street at North Mangum Street
- South Roxboro Street at East Main Street
- North Roxboro Street at Liberty Street
- Liberty Street at Dillard Street
- Liberty Street at Elizabeth Street
- Liberty Street at North Alston Avenue
- Liberty Street at North Hyde Park Avenue
- Liberty Street at North Guthrie Avenue
- Liberty Street at Raynor Street
- Liberty Street at North Miami Boulevard
- Holloway Street at I-885 Interchange
- Holloway Street at North Hardee Street
- North Miami Boulevard at Holloway Street
- Holloway Street at North Alston Avenue
- Holloway Street at North Hyde Park Avenue
- Holloway Street at North Guthrie Avenue
- Holloway Street at Raynor Street

### Queue Jump Lane Locations

- Trent Drive at Erwin Road
- South Gregson Street at West Chapel Hill Street
- Ramseur Street at West Chapel Hill Street
- West Pettigrew Street at South Roxboro Street
- Liberty Street at North Roxboro Street

### Station and Transfer Locations

- Mobility Hub and park and ride lot at Durham Station in Downtown Durham to connect to local GoDurham services, regional GoTriangle service, and intercity bus service. There is also the additional American Tobacco North park and ride lot between Durham Station and American Tobacco Campus, as well as the Durham Amtrak Station in Downtown Durham. A DAR is also proposed on NC 147 at South Duke Street to improve access and operations between Durham Station and the I-885 / NC 147 freeway priority corridor.
- Future Mobility Hub at the Village Shopping Center in the eastern terminus of the arterial priority corridor. The Village bus stops where the Mobility Hub would be located are the most used bus stops in the GoDurham system behind Durham Station. This Mobility Hub would serve as a transfer point between GoDurham routes and proposed regional routes that will use the I-885 / NC 147 freeway priority corridor.

### Proposed Pedestrian and Bicycle Accommodations

The assumption for pedestrian and bicycle improvements is that there should be a continuous pedestrian and bicycle network along all the arterial priority corridors in the FAST 2.0 network to provide safe and comfortable access to all transit stops in each corridor. Below are pedestrian and bicycle improvements that could be implemented along the corridor to provide safe, comfortable access along the corridor:

- Add separated bike lanes along:
  - Erwin Road between Flowers Drive and Fulton Street
  - Fulton Street between Erwin Road and Elba Street
  - Westbound Main Street between Buchanan Boulevard and Watts Street/Morgan Street
- Add minor intersection improvements at:
  - Erwin Road and Trent Drive
  - Main Street and Buchanan Boulevard
  - Chapel Hill Street and Pettigrew Street
  - Liberty Street and N Guthrie Avenue

- Add major intersection improvements at:
  - Erwin Road and Fulton Street
  - Erwin Road and Anderson Street
  - Main Street and Broad Street/Swift Avenue
  - Chapel Hill Street and Great Jones Street/Ramseur Street
  - Roxboro Street and Liberty Street
  - Liberty Street and Elizabeth Street
  - Holloway Street and N Miami Boulevard/Gary Street
- Add sidewalks along:
  - North side of Ramseur Street between Main Street and the Corcoran Street Parking Garage
  - North side of Ramseur Street between Corcoran Street and Mangum Street
  - South side of Pettigrew Street between Blackwell Street and Mangum Street
- Add sidepaths along:
  - N Miami Boulevard between Raynor Street and Liberty Street
  - Holloway Street between N Miami Boulevard and I-885



Figure 33: Proposed Pedestrian and Bicycle Accommodations near Duke University

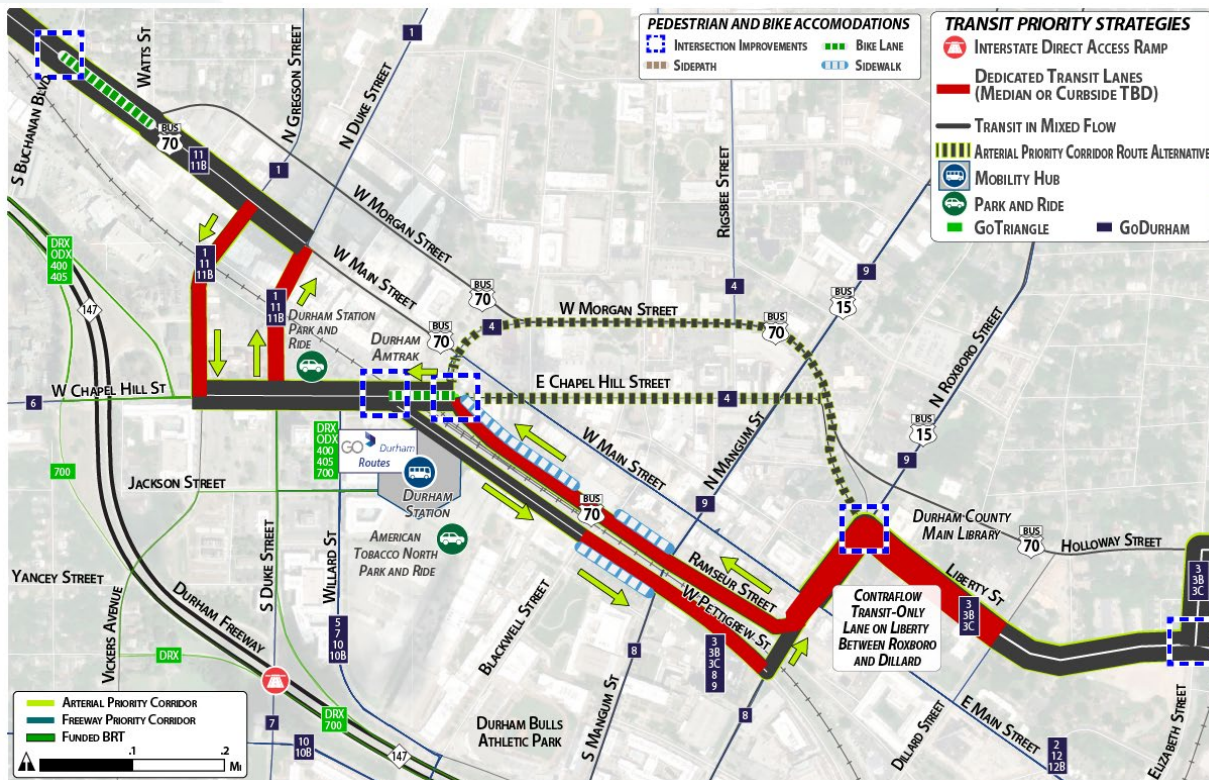


Figure 34: Proposed Pedestrian and Bicycle Accommodations in Downtown Durham





The corridor includes several key destinations that provide employment opportunities, along with educational, commercial, medical, cultural, and recreational resources. Some of these destinations are also venues that host large, special events. These include:

- 49



- |           |            |
|-----------|------------|
| ○ 1       | ○ 7        |
| ○ 3/3B/3C | ○ 8        |
| ○ 4       | ○ 9        |
| ○ 5       | ○ 11 / 11B |
| ○ 6       | ○ 12/12B   |

The presence of numerous transit agencies provides the opportunity for enhanced transfer locations, such as a super stop, to allow passengers the ability to easily transfer between systems. Along with enhanced transfer locations, the Durham Station is a local and regional mobility hub for GoDurham, GoTriangle, and intercity bus services. It is also across the street from the Durham Amtrak Station, allowing easy connections to passenger rail services. GoTriangle buses use NC 147 and I-885 to connect to the Regional Transit Center and other urban centers in the Region and having dedicated transit freeway lanes and DMSS for those services could improve operational speed and reliability of service.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- Projects in *Connect 2050 MTP*:
  - N Gregson St / Vickers Ave (MTP ID 123) proposes a two-way conversion on N Gregson Street / Vickers Avenue from W Club Blvd to University Dr. This project has a horizon year of 2040.
  - Duke St (MTP ID 124) proposes a two-way conversion on Duke St from I-85 to W Lakewood Ave. This project has a horizon year of 2040.
  - Mangum St (MTP ID 121) proposes a two-way conversion from W Lakewood Ave to N Roxboro St. This project has a horizon year of 2040.
  - Roxboro St (MTP ID 122) proposes a two-way conversion from W Lakewood Ave to W Markham Ave. This project has a horizon year of 2040.
  - W Morgan / W Ramseur (MTP ID 120) proposes a two-way conversion from N Roxboro St to W Main St. This project has a horizon year of 2040.
  - Holloway St (NC 98) (MTP ID 434) proposes modernization of Holloway Street (NC 98) from Miami Blvd to Nichols Farm Dr. This project has a horizon year of 2050.
- This corridor aligns with a portion of Duke-Downtown Durham-NCCU BRT, which is noted in *Connect 2050 MTP*, between Duke University, Downtown Durham, and NCCU.
- Part of this corridor aligns with the City of Durham's Holloway Street Transit Emphasis Corridor, which received federal funding for pedestrian and bus stop improvements along Holloway Street.
- The *2035 Wake Transit Plan Update* is underway to identify the priorities of Wake Transit Plan funding over the next ten years. The April 2025 update shows BRT along I-40 connecting Raleigh to the Regional Transit Center and then to Durham, utilizing I-885 and NC 147.

### Special Event Considerations

The corridor is home to major destinations that frequently host major events that are major traffic generators along the corridor, including Duke University and Downtown Durham. Athletic events throughout the year, move-in weekend, and graduation weekend, can bring large volumes of traffic to the corridor near Duke University. Along with hosting festivals and events throughout the year, Downtown Durham is home to the Durham Performing Arts Center and Durham Bulls Athletic Park, that regularly host events, bringing large volumes of traffic to Downtown Durham.

In addition to event traffic, the presence of Duke University Hospitals and the Durham VA Healthcare System also presents unique traffic conditions that should be considered during implementation, such as access to hospital facilities and shift-change traffic patterns. The project utilizes Erwin Road and Fulton Road, which are the main roads that provide access to the medical facilities, including the emergency room entrance.

### Traffic Considerations

The proposed transit infrastructure along the Duke University / Holloway Street corridor would be generally operationally feasible based on the analysis of the proposed general purpose traffic conditions, including 2023 AADT volumes, travel time reliability, vehicle speeds, and levels of congestion. Table 7 summarizes the proposed general purpose lanes included in the concept design, along with corresponding existing 2023 AADT data and posted speed limits. As the corridor design is advanced, further investigation is required to confirm specific locations and designs for the conceptual runningway, TSP, and queue jump locations, especially where STIP or MTP projects are identified.

*Table 7: Traffic Characteristics on Duke University / Holloway Street Corridor*

Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
	To	From			
<b>Fulton St</b>	Elba St	Erwin Rd	2	13,500	35
<b>Elba St</b>	Fulton St	Trent Dr	2	N/A	N/A
<b>Trent Dr</b>	Erwin Rd	Elba St	3	N/A	N/A
<b>Erwin Rd</b>	Fulton St	Trent Dr	2	9,100	35
<b>Erwin Rd</b>	Trent Dr	Anderson St	2	9,100	35
<b>Erwin Rd</b>	W Main St	Anderson St	1	7,000	35
<b>W Main St</b>	Broad St/Swift Ave	9 <sup>th</sup> St	1	13,000	35
<b>W Main St</b>	Buchanan Blvd	Broad St/Swift Ave	1	9,600	35
<b>W Main St</b>	W Morgan St	Buchanan Blvd	1	7,900	25
<b>W Main St</b>	Gregson St	W Morgan St	1	6,200	25
<b>W Main St</b>	Gregson St	Duke St	1	6,400	25
<b>S Gregson St</b>	W Chapel Hill St	W Main St	2*	6,300	25
<b>S Duke St</b>	W Main St	W Chapel Hill St	2*	7,900	25
<b>W Chapel Hill St</b>	S Duke St	S Gregson St	1	10,000	35
<b>W Chapel Hill St</b>	W Pettigrew St	S Duke St	1	9,300	35
<b>W Chapel Hill St</b>	W Pettigrew	Ramseur St	1	7,800	35
<b>W Pettigrew St</b>	Roxboro St	W Chapel Hill St	1	2,700	35
<b>Roxboro St</b>	E Main St	W Pettigrew St	2*	7,900	25
<b>Roxboro St</b>	Liberty St	E Main St	4*	9,100	25
<b>Liberty St</b>	N Dillard St	Roxboro St	1*	3,700	35
<b>Liberty St</b>	N Miami Blvd	N Dillard St	1	3,700	35
<b>N Miami Blvd</b>	Raynor St	Liberty St	2	3,400	35
<b>Raynor St</b>	Holloway St	N Miami Blvd	1	N/A	N/A

<b>Holloway St</b>	Park Ave	Raynor St	1	8,600	35
<b>Holloway St</b>	N Alston Ave	Park Ave	1	9,100	35
<b>Holloway St</b>	N Elizabeth St	N Alston Ave	1	5,800	35
<b>N Elizabeth St</b>	Liberty St	Holloway St	1	12,000	35
<b>Ramseur St</b>	S Mangum St	W Chapel Hill St	2*	2,200	25
<b>Ramseur St</b>	Roxboro St	Mangum St	2	2,200	35

\*General Purpose lanes are only in one direction

### Notable Projects

The City of Durham is designing improvements for Holloway Street and plans for a Transit Center near the Village Shopping Center that will provide safe access to bus stops, enhance comfort at bus stops, and improve bus service. The proposed concept design is compatible with the design alternatives proposed as part of the Holloway Street improvements.

## Trinity Road / Blue Ridge Road

### Purpose

The Trinity Road / Blue Ridge Road arterial priority corridor would provide quick and reliable transit connections between Downtown Raleigh, North Carolina State University (NCSU), NC State Fairgrounds, Carter Finley Stadium, and Lenovo Center, which is planning to redevelop into an 80-acre mixed-use entertainment district along Trinity Road between Blue Ridge Road and I-40. The corridor includes a DAR to I-40 at the existing Trinity Road overpass. BRT service would traverse Western Boulevard from Blue Ridge Road to connect to GoRaleigh Station and GoTriangle RUSBUS in Downtown Raleigh.

The concept design utilizes the existing capacity of the roadways that is available outside of large events or NC State Fair traffic. During large events, police/traffic control could temporarily allow general purpose traffic in the dedicated transit lanes. The regional transit agencies would coordinate with police/traffic control to ensure priority is given to BRT at locations traffic flow is manually controlled.

<b>Limits</b>	<ul style="list-style-type: none"> <li>Trinity Road from I-40 to Blue Ridge Road</li> <li>Blue Ridge Road from Trinity Road to Western Boulevard</li> </ul>
<b>Length</b>	2.9 Miles
<b>Length by Runningway Type</b>	<ul style="list-style-type: none"> <li>1.55 Miles (BAT)</li> <li>1.34 Miles (Mixed Flow)</li> </ul>
<b>Anticipated Number of BRT Stations</b>	4
<b>Anticipated Number of BRT Buses</b>	10 Total (8 peak; 2 spare)
<b>Assumed Service Type</b>	Arterial Bus Rapid Transit
<b>Location</b>	Wake
<b>MPO</b>	CAMPO
<b>NCDOT Division</b>	Division 5



## Concept Design



Figure 36: Trinity Road / Blue Ridge Road Concept Design

## Proposed Design Elements

This corridor connects the Wake BRT: Western Corridor and I-40's DAR via Blue Ridge Road and Trinity Road with limited Business Access & Transit lanes along the outside curb (RBAT). Treatments on this corridor would prioritize transit connections for Wolfline, GoRaleigh, and GoTriangle Routes, as well as serve key regional destinations like the Lenovo Center, Carter-Finley Stadium, and the NC State Fairgrounds.

### Runningway by Section

#### Dedicated Transit Lanes

- Trinity Road from Edwards Mill Road to Blue Ridge Road
  - Repurposing right outside lanes to RBAT.
  - During special events, vehicles might operate mixed flow in RBAT with police traffic control.
- Blue Ridge Road from Pylon Drive to Western Boulevard
  - Repurposing lanes to accommodate RBAT while being mindful of ROW constraints. See Figure 37 for example.

### Mixed Flow

- Trinity Road from I-40 to Edwards Mill Road
- Blue Ridge Road from Trinity Road to Pylon Drive

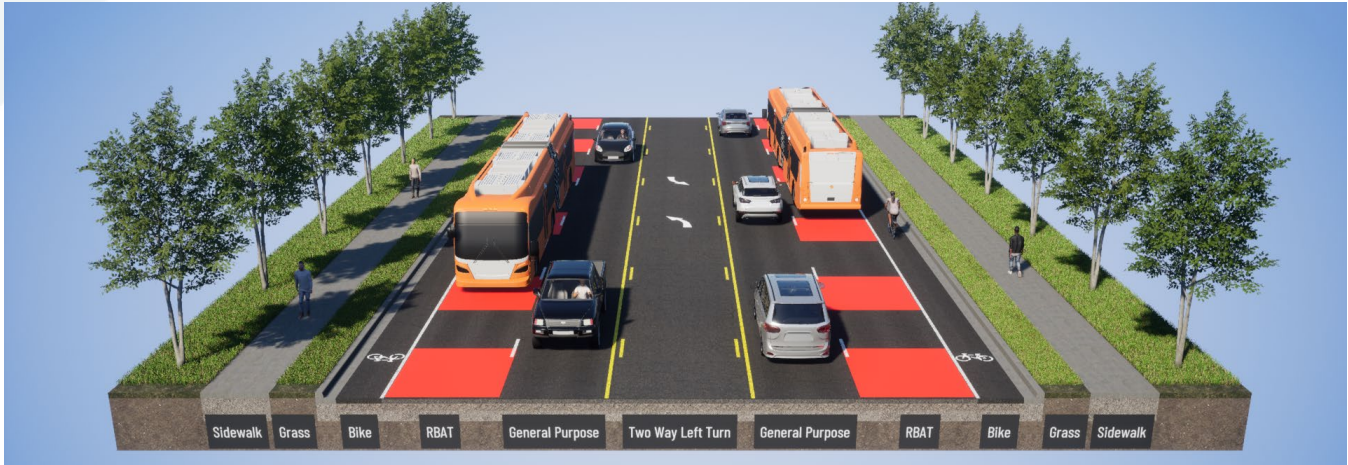


Figure 37: Proposed Blue Ridge Road Cross Section

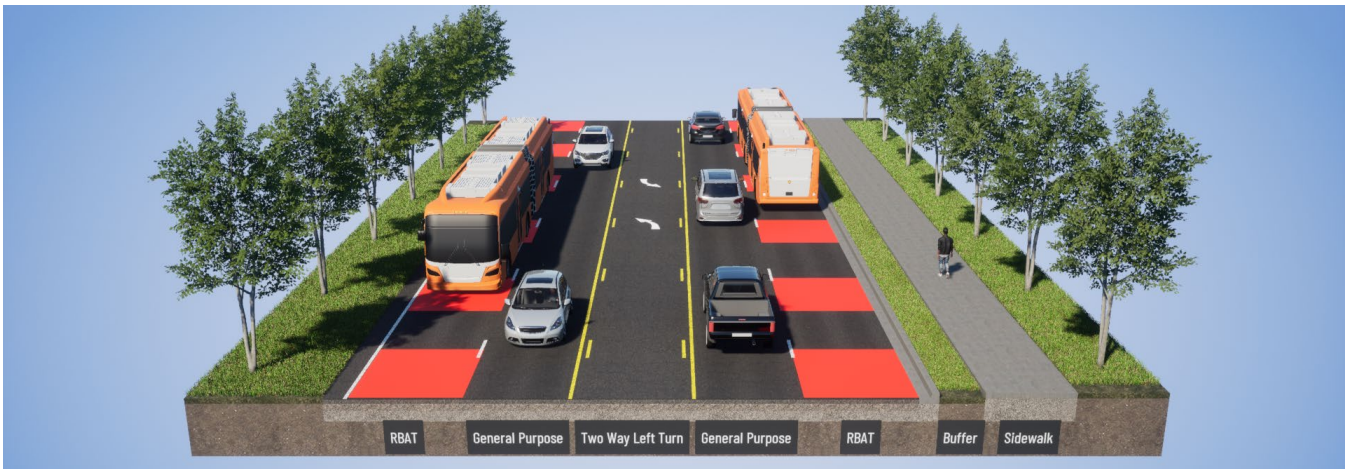


Figure 38: Proposed Trinity Road Cross Section

### TSP Locations

- Trinity Road at Corporate Center Drive
- Trinity Road at Nowell Road
- Trinity Road at Edwards Mill Road
- Trinity Road at Blue Ridge Road
- Blue Ridge Road at Hillsborough Street
- Blue Ridge Road at Western Boulevard
- Blue Ridge Road at Pylon Drive
  - Pylon Drive signal being installed as part of U-4437, which is currently under construction.

### Queue Jump Lane Locations

- Trinity Road at Edwards Mill Road

- Blue Ridge Road at Pylon Drive
- Blue Ridge Road at Western Boulevard

### Station and Transfer Locations

- Super stop near the intersection of Trinity Road and Blue Ridge Road to connect GoTriangle, GoRaleigh, and Wolfline Routes.

### Proposed Pedestrian and Bicycle Accommodations

The assumption for pedestrian and bicycle improvements is that there should be a continuous pedestrian and bicycle network along all the arterial priority corridors in the FAST 2.0 network to provide safe and comfortable access to all transit stops in each corridor. Below are pedestrian and bicycle improvements that could be implemented along the corridor to provide safe, comfortable access along the corridor:

- Add sidepaths along:
  - Trinity Road between Wade Park Boulevard and Edwards Mill Road
  - Trinity Road between Hurricane Alley Way and Blue Ridge Road
  - Blue Ridge Road between Trinity Road and Hillsborough Road (note: some of this may be addressed by the current grade separation project)
- Add sidewalks along:
  - One side of Trinity Road between Wade Park Boulevard and Nowell Road
  - One side of Blue Ridge Road between Hillsborough Road and Faber Drive
  - One side of Blue Ridge Road between Trinity Road and the new connecting road to Hillsborough Road
- Add a minor intersection improvement at Trinity Road and Nowell Road
- Add a major intersection improvement at Blue Ridge Road and Western Boulevard
- Add major mid-block crossings at future transit stops at:
  - Trinity Road near the Lenovo Center
  - Trinity Road just west of Blue Ridge Road
  - Blue Ridge Road near Ligon Street



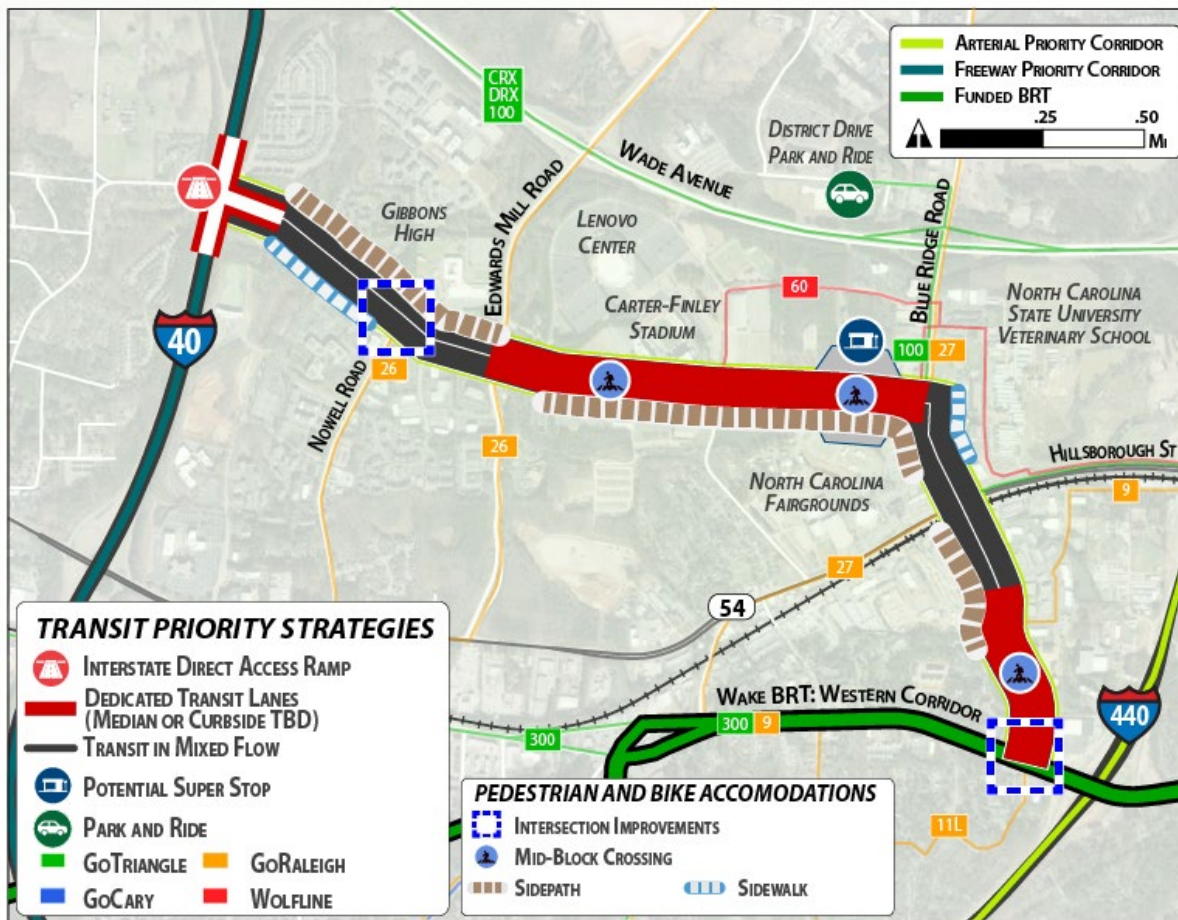


Figure 39: Proposed Pedestrian and Bicycle Accommodations on the Trinty Road / Blue Ridge Road Corridor

## Other Considerations

### Top Destinations Along the Corridor

The corridor includes several key destinations that provide employment and educational opportunities, along with venues that host large, special events. These include:

- North Carolina State Veterinary School
- North Carolina State Fairgrounds
- Lenovo Center
- Carter-Finley Stadium

### Existing and Planned Transit Along the Corridor

Several agencies serve the corridor with existing transit, including:

- GoTriangle Routes:
  - Route 300
  - Route 100
- GoRaleigh Routes:



- Route 26
- Route 9 and 27
- Wofline Routes
  - Route 60

The presence of numerous transit agencies provides the opportunity for enhanced transfer locations, such as a super stop, to allow passengers the ability to easily transfer between systems. In addition to the existing routes, GoRaleigh is currently advancing the design of the Wake BRT: Western Corridor, which will connect with the corridor at the intersection of Blue Ridge Road and Western Boulevard.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- *Connect 2050 MTP* lists a roadway widening along Trinity Road from Edwards Mill Road Extension to Wake Park Boulevard in the 2030 Horizon Year (A231a). The timing of this roadway project presents the opportunity to consider how enhanced transit infrastructure may be incorporated into the roadway project.
- *Connect 2050 MTP* includes the Blue Ridge Connector, a project to construct a protected bike lane along Blue Ridge Road. The horizon year for this project is 2050.

### Special Event Considerations

The corridor is home to major destinations that frequently host major events that are major traffic generators along the corridor. At the Lenovo Center, those events include NHL games, concerts, and NC State basketball games and at Carter-Finley Stadium those events include NC State football games and concerts. The NC State Fairgrounds are most well-known for hosting the NC State Fair each fall, that attracts visitors from around the state but also host large trade shows throughout the year.

### Notable Projects

This corridor would connect to the Lenovo Center property, formerly PNC arena, which is currently planning to redevelop as an entertainment district, with new development on the existing surface parking lots surrounding the Lenovo Center arena. In April 2025, the Raleigh City Council approved the rezoning of the site, which covers roughly 80 acres and provides the ability to build more than 4,000 dwelling units and approximately 3 million square feet of non-residential space.

### Traffic Considerations

The proposed transit infrastructure along the Trinity Road / Blue Ridge Road corridor would be generally operationally feasible based on the analysis of the proposed general purpose traffic conditions, including 2023 AADT volumes, travel time reliability, vehicle speeds, and levels of congestion. Table 8 summarizes the proposed general purpose lanes included in the Trinity Road concept design, along with corresponding existing 2023 AADT data and posted speed limits. As the corridor design is advanced, further investigation is required to confirm specific locations and designs for the conceptual runningway, TSP, and queue jump locations, especially where STIP or MTP projects are identified.

Table 8: Traffic Characteristics on Trinity Road / Blue Ridge Road Corridor

Direction	Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
		To	From			
EB	Blue Ridge Rd	Western Blvd	Pylon Dr	1	11,500	45
WB	Blue Ridge Rd	Western Blvd	Pylon Dr	1	11,500	45
EB	Blue Ridge Rd	Pylon Dr	Trinity Rd	2	17,500	45
WB	Blue Ridge Rd	Pylon Dr	Trinity Rd	2	11,500	45
EB	Trinity Rd	Blue Ridge Rd	Edwards Mill Rd	1	8,000	45
WB	Trinity Rd	Blue Ridge Rd	Edwards Mill Rd	1	9,500	45
EB	Trinity Rd	Edwards Mill Rd	I-40	1	9,500	45
WB	Trinity Rd	Edwards Mill Rd	I-40	1	5,900	45

## NC 54

### Purpose

The NC 54 arterial priority corridor would provide quick and reliable transit connections between Chapel Hill and south Durham, connecting UNC, UNC Hospitals, Southpoint Mall, RTP, and the Triangle Mobility Hub. The corridor includes a DAR to I-40 at the existing NC 54 interchange and another providing access to I-885. The portion of the corridor in Chapel Hill serves similar markets to the previously planned Durham-Orange Light Rail alignment and connects to the North-South BRT project at UNC Hospitals.

<b>Limits</b>	<ul style="list-style-type: none"> <li>NC 54 from Triangle Mobility Hub to Fayetteville Road</li> <li>Fayetteville Road from NC 54 to Renaissance Pkwy</li> <li>Renaissance Pkwy from Fayetteville Rd to NC 751</li> <li>NC 751 from Renaissance Pkwy to NC 54</li> <li>NC 54 from NC 751 to Fordham Blvd (US 15-501)</li> <li>Fordham Boulevard (US 15-501) from NC 54 to Manning Drive</li> <li>Manning Drive from Fordham Blvd (US 15-501) to East Dr/Jackson Cir/Mason Farm Rd</li> <li>East Drive/Jackson Circle/Mason Farm Road from Manning Drive to S Columbia St (NC 86)</li> <li>South Columbia Street (NC 86) from Mason Farm Road to Manning Drive</li> <li>Manning Drive (Eastbound) from S Columbia St (NC 86) to East Dr/Jackson Cir/Mason Farm Rd</li> </ul>
<b>Length</b>	<b>Orange County:</b> 3.4 Miles <b>Durham County:</b> 11.3 Miles
<b>Length by Runningway Type</b>	<b>Orange County:</b> <ul style="list-style-type: none"> <li>0.9 Miles (Fully Dedicated)</li> <li>1.3 Miles (BAT)</li> <li>1.2 (Mixed Flow)</li> </ul> <b>Durham County:</b> <ul style="list-style-type: none"> <li>3.8 Miles (Fully Dedicated)</li> <li>2.0 Miles (BAT)</li> <li>5.5 (Mixed Flow)</li> </ul>
<b>Anticipated Number of BRT Stations</b>	13
<b>Anticipated Number of BRT Buses</b>	16 Total (13 peak; 3 spare)
<b>Assumed Service Type</b>	Arterial Bus Rapid Transit
<b>Location</b>	Orange and Durham Counties
<b>MPO</b>	TWTPO
<b>NCDOT Division</b>	Division 5; Division 7





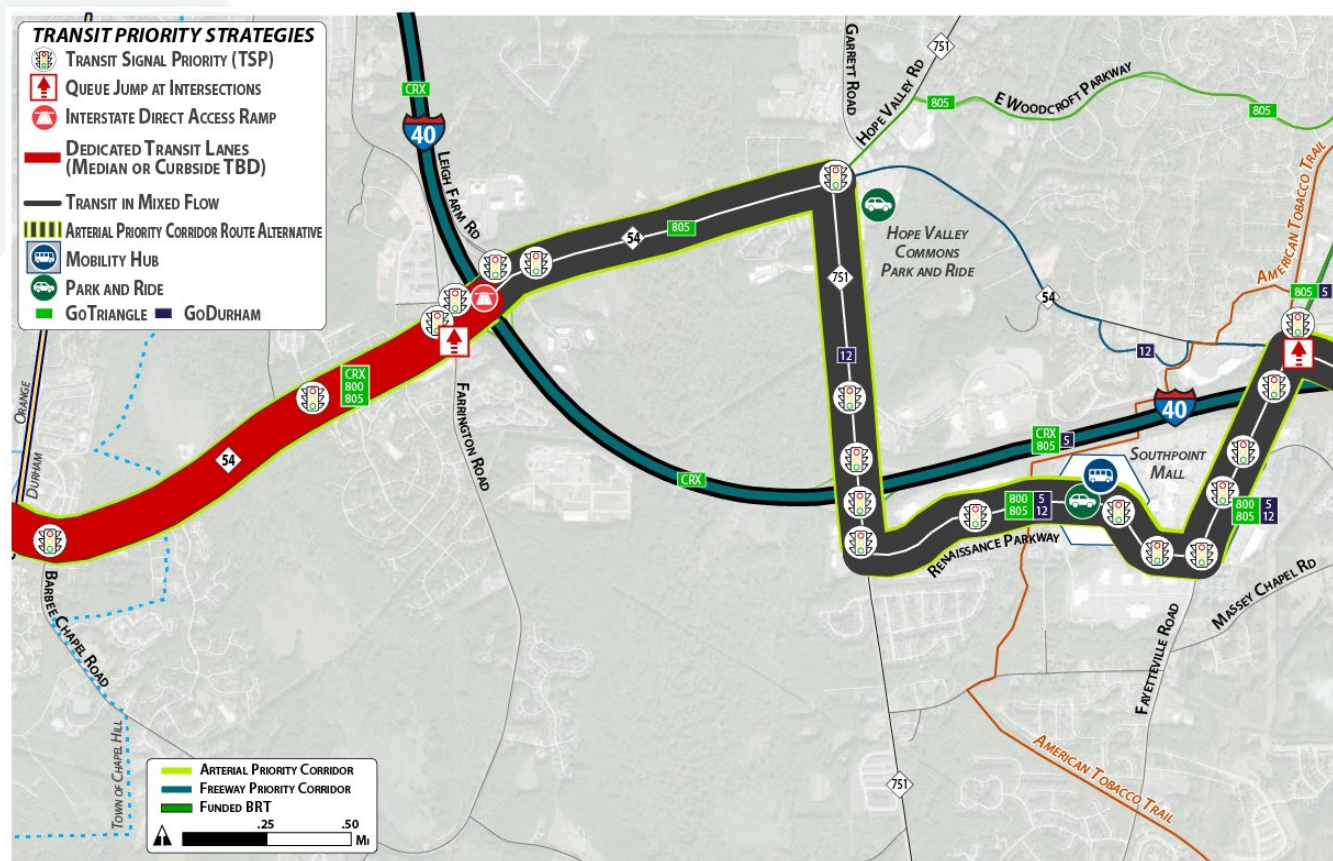


Figure 41: NC 54 Concept Design in Durham County

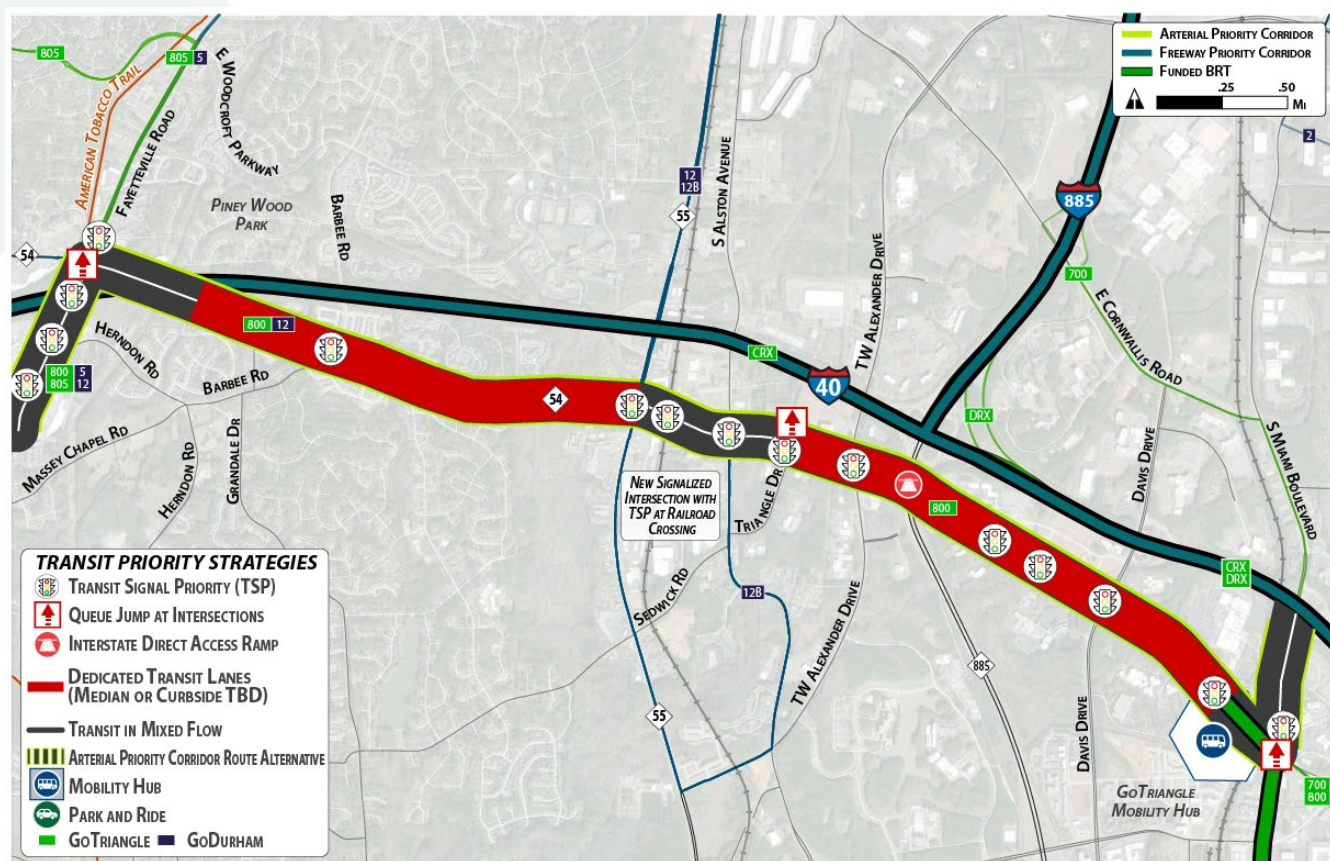


Figure 42: NC 54 Concept Design in RTP

## Proposed Design Elements

This corridor runs along NC 54 between GoTriangle's Triangle Mobility Hub near South Miami Boulevard to UNC Hospitals at UNC Chapel Hill. The corridor intersects the North-South BRT at UNC Hospitals and utilizes funded North-South BRT runningway where the two corridors overlap, along South Columbia Street and Manning Drive near UNC Hospitals. Transit priority strategies including dedicated transit lanes, queue jumps, and TSP on this corridor would prioritize east-west transit reliability to and from the Triangle Mobility Hub to major employment, commercial, educational, and entertainment locations in Durham and Orange Counties. This arterial priority corridor also links the most park and ride lots and mobility hubs of all arterial priority corridors.

## Runningway by Section

### Dedicated Transit Lanes

- Manning Drive from Paul Hardin Drive to Fordham Boulevard South
  - Repurposing right lane in each direction to create BAT lane
- Fordham Boulevard South from Manning Drive to Raleigh Road (NC 54)
  - Some widening necessary to add BAT lane in each direction
- Raleigh Road (NC 54) from Hamilton Road to I-40
  - Some widening to both the inside and outside to allow center running along this segment
- NC 54 from Fayetteville Road to Southpoint Professional Center
  - Repurposing pavement to create BAT lane for the westbound direction

- NC 54 from Boulder Road to NC 55
  - *Some widening is needed to allow for BAT lane in each direction as well as a general purpose lane in each direction*
- NC 54 from Triangle Drive to Triangle Mobility Hub
  - *Widening to the outside to allow for center running lanes*

#### **Mixed Flow**

- East Drive from Manning Drive to Mason Farm Road
- Mason Farm Road from East Drive to South Columbia Street (NC 86)
- South Columbia Street (NC 86) from Mason Farm Road to Manning Drive
- Manning Drive from South Columbia Street (NC 86) to Paul Hardin Drive
- Raleigh Road (NC 54) from Fordham Boulevard South to Hamilton Road
- NC 54 from I-40 to NC 751
- NC 751 from NC 54 to Renaissance Parkway
- Renaissance Parkway from NC 751 to Fayetteville Road
- Fayetteville Road from Renaissance Parkway to NC 54
- NC 54 from Fayetteville Road to Boulder Road
- NC 54 from NC 55 to Triangle Drive
- NC 54 from New Millennium Way to South Miami Boulevard
- South Miami Boulevard from NC 54 to I-40

#### **Interstate Direct Access Ramps**

- NC 54 Interchange at I-40 near Farrington Road (Exit 273)
- NC 54 south of I-885/I-40 Interchange (Exit 279)

#### **TSP Locations**

- |  |  |
|--|--|
| • Manning Drive at Ridge Road/Skipper Bowles Drive | • NC 54 at Hope Valley Road (NC 751)       |
| • Manning Drive at Fordham Boulevard South         | • NC 751 at Southpoint Autopark Boulevard  |
| • Fordham Boulevard South at Old Mason Farm Road   | • NC 751 at I-40 Westbound Interchange     |
| • NC 54 at Fordham Boulevard South                 | • NC 751 at I-40 Eastbound Interchange     |
| • NC 54 at Hamilton Road                           | • NC 751 at Renaissance Parkway            |
| • NC 54 at Rogerson Drive                          | • Renaissance Parkway at Knoll Circle      |
| • NC 54 at Finley Golf Course Road                 | • Renaissance Parkway at Southpoint Mall   |
| • NC 54 at West Barbee Chapel Road                 | • Renaissance Parkway at Rolando Drive     |
| • NC 54 at Meadowmont Lane                         | • Renaissance Parkway at Fayetteville Road |
| • NC 54 at Barbee Chapel Road                      | • Fayetteville Road at Herndon Road        |
| • NC 54 at Huntingridge Road                       | • Fayetteville Road at I-40 Interchange    |
| • NC 54 at Farrington Road                         | • Fayetteville Road at NC 54               |
| • NC 54 at I-40 Eastbound Interchange              | • NC 54 at Barbee Road                     |
| • NC 54 at I-40 Westbound Interchange              | • NC 54 at NC 55                           |
| • NC 54 at Leigh Farm Road/Quadrangle Drive        | • NC 54 at CSX Railroad Crossing           |
|  | • NC 54 at South Alston Avenue             |
|  | • NC 54 at Triangle Drive                  |



- NC 54 at TW Alexander Drive
- NC 54 at Rodbell Street
- NC 54 at Davis Drive

- NC 54 at New Millennium Way
- NC 54 at South Miami Boulevard

### Queue Jump Lane Locations

- NC 54 at Hamilton Road
- NC 54 at Farrington Road
- Fayetteville Road at NC 54
- NC 54 at Triangle Drive
- NC 54 at South Miami Boulevard

### Station and Transfer Locations

- Mobility Hub near UNC Hospitals to connect to North-South BRT, GoTriangle, and Chapel Hill Transit services. This mobility hub provides access to UNC-Chapel Hill as an employment, medical, and educational hub, as well as major venues like Kenan Stadium and the Dean E. Smith Center for cultural and sporting events.
- Connection to the existing Friday Center park and ride lot for commuters accessing UNC Chapel Hill's campus. This park and ride lot is also serviced by GoTriangle and Chapel Hill Transit routes.
- Connection to the Hope Valley Commons park and ride lot. This park and ride lot is serviced by GoTriangle and GoDurham.
- Mobility Hub and park and ride lot near Southpoint Mall. Southpoint mall is a regional commercial destination near I-40. Multiple GoTriangle and GoDurham routes already serve this destination. Southpoint Mall also is near the American Tobacco Trail, a 20+ mile rail trail that connects Durham, Chatham, and Wake counties.
- Triangle Mobility Hub near the intersection of Miami Boulevard and NC 54 to connect with GoTriangle regional transit services and Wake BRT: Western Rapid Bus Extension Project.

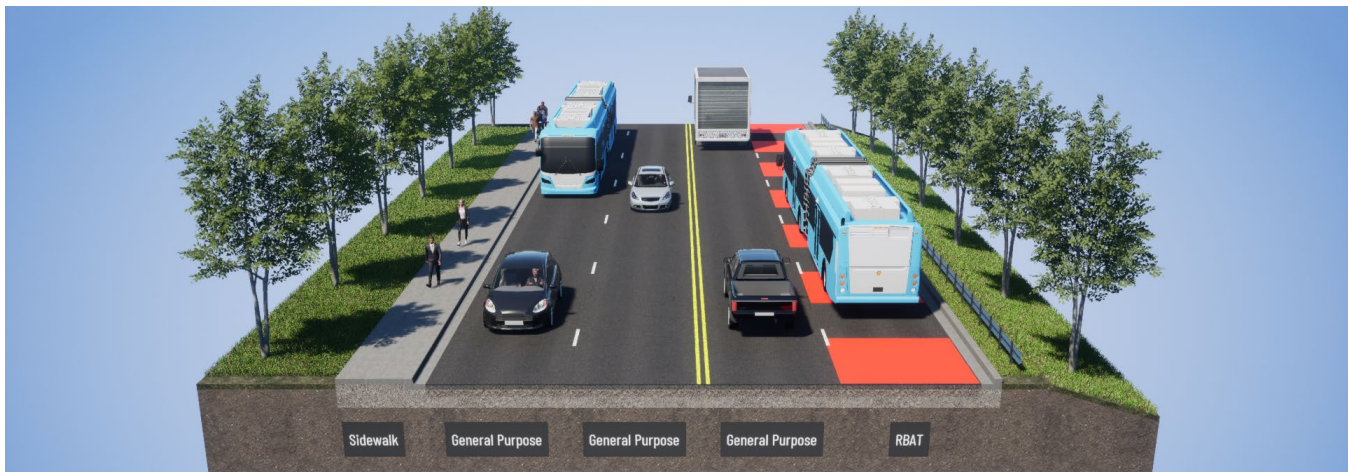


Figure 43: Manning Drive



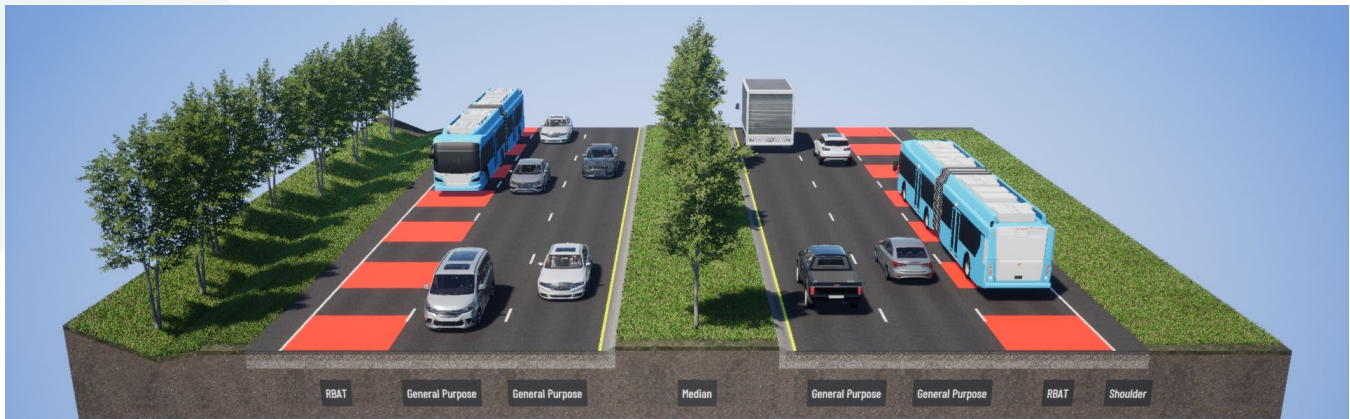


Figure 44: Fordham Boulevard

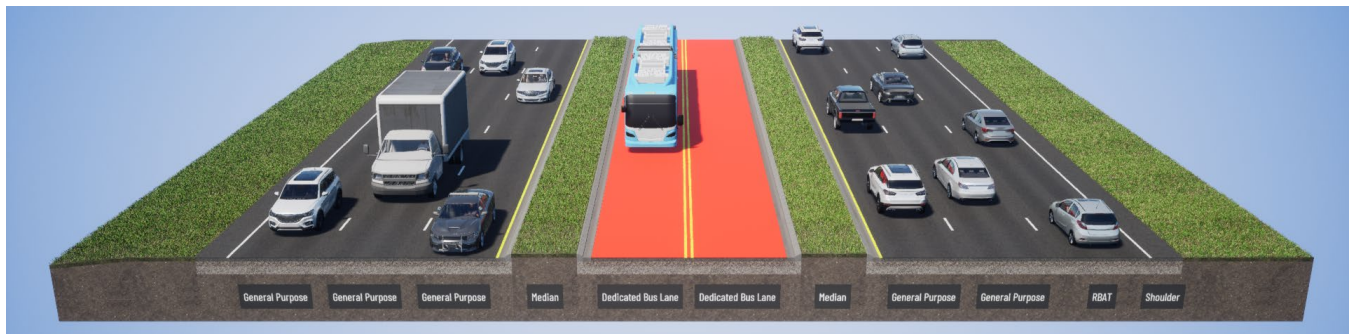


Figure 45: Raleigh Road near Barbee Chapel Road

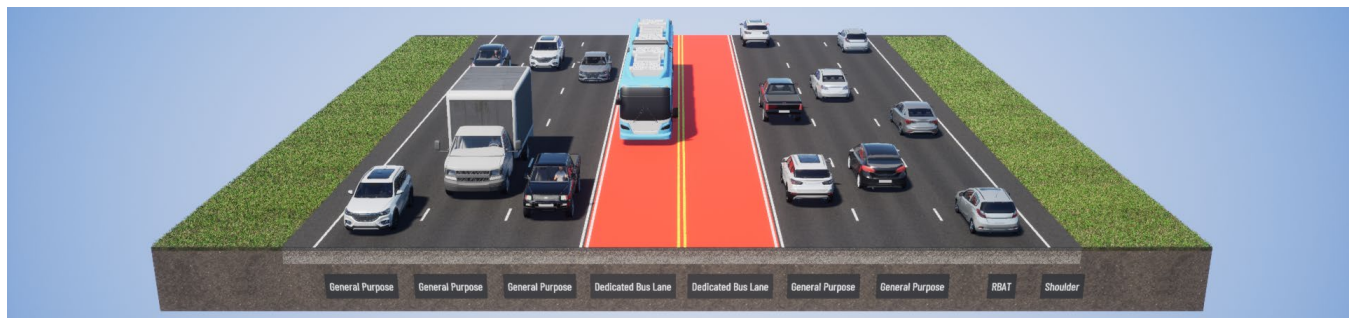


Figure 46: NC 54 near Falconbridge Road

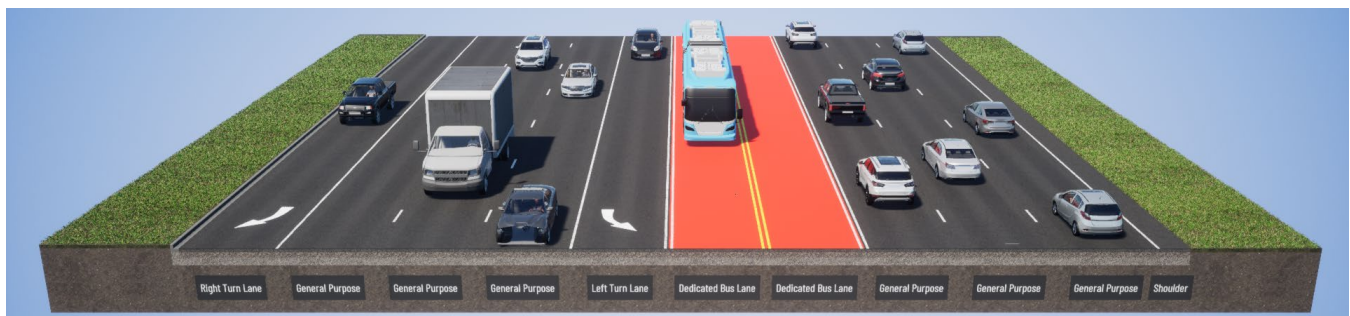


Figure 47: NC 54 near Farrington Road

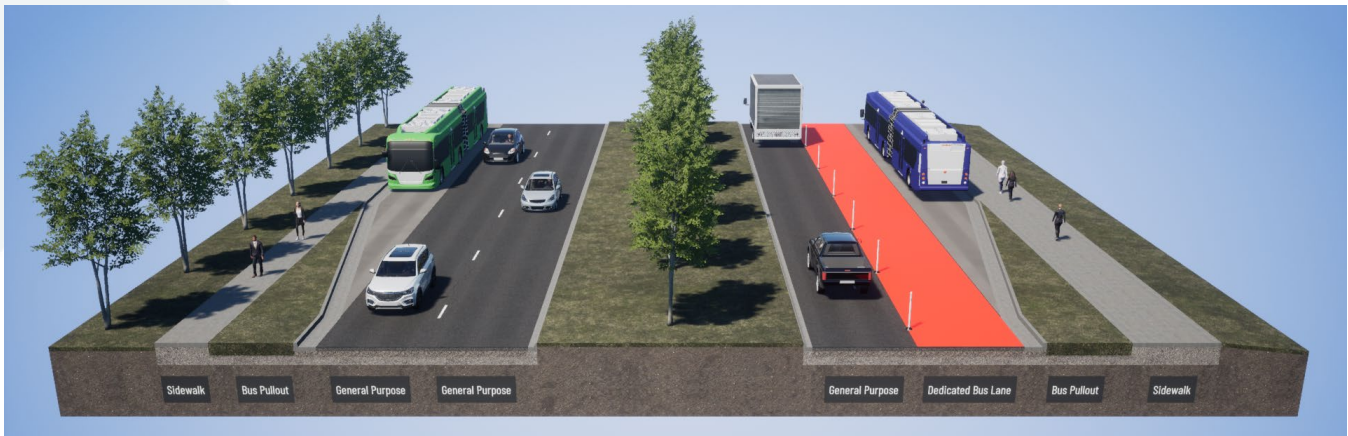


Figure 48: Renaissance Parkway

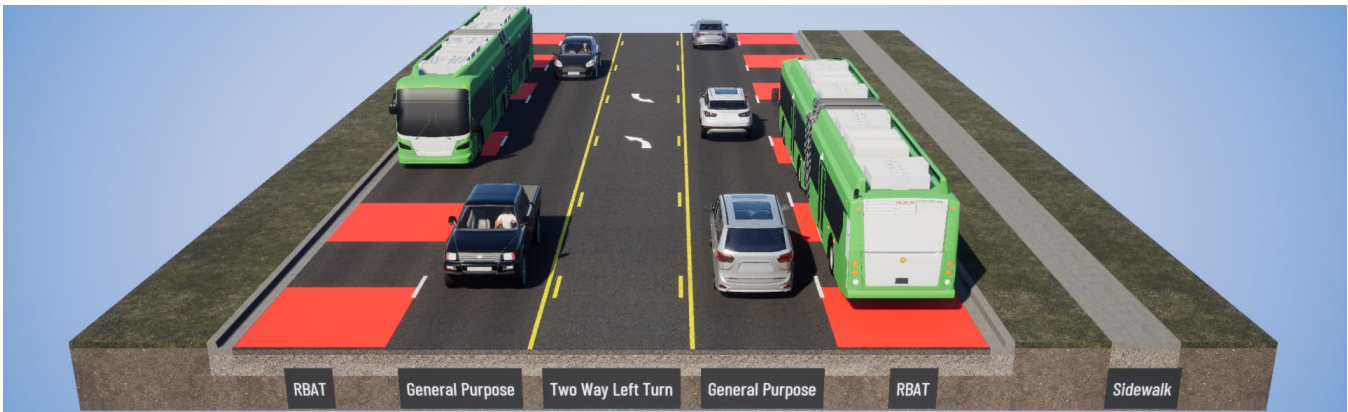


Figure 49: NC 54 at Amhurst Road

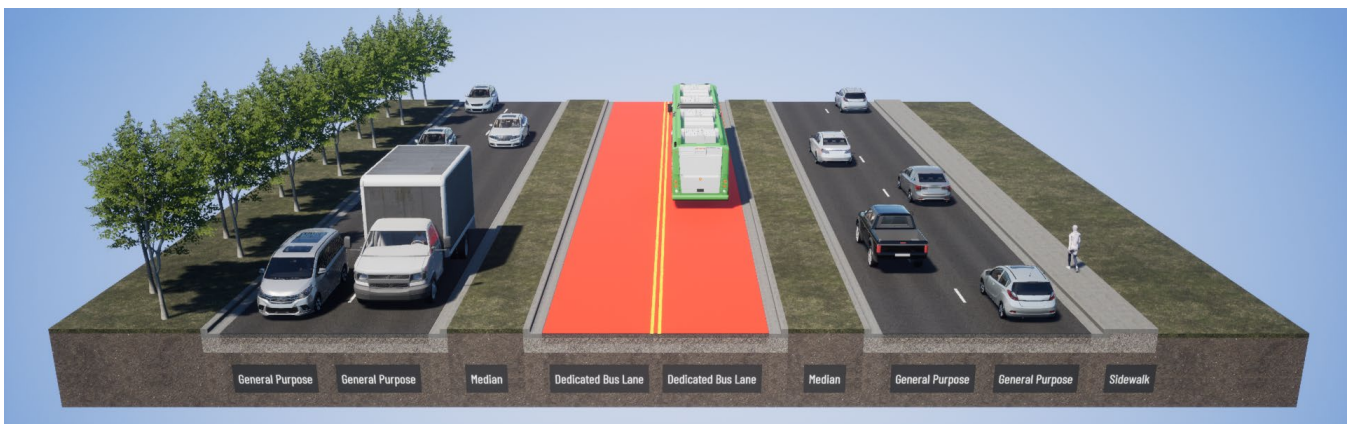


Figure 50: NC 54 at Park Drive

## Proposed Pedestrian and Bicycle Accommodations

The assumption for pedestrian and bicycle improvements is that there should be a continuous pedestrian and bicycle network along all the arterial priority corridors in the FAST 2.0 priority network to provide safe and comfortable access to all transit stops in each corridor. Below are pedestrian and bicycle improvements that could be implemented along the corridor to provide safe, comfortable access along the corridor:



- Coordinate with the Triangle Bikeway sidepath along:
  - NC 54 between Fordham Boulevard and Hamilton Road
  - NC 54 between E Barbee Chapel Road and I-40
  - NC 54 between Davis Drive and Miami Boulevard
- Add sidepaths along:
  - Manning Drive between East Drive and Fordham Boulevard
  - Fordham Boulevard between Manning Drive and NC 54 / Raleigh Road
  - NC 54 between I-40 and NC 751
  - NC 751 between NC 54 and Renaissance Parkway
  - Fayetteville Road between Renaissance Parkway and northern mall entrance
  - NC 54 between Fayetteville Road and Triangle Drive
- Add major intersection improvements at:
  - Manning Drive and Ridge Road/Skipper Bowles Drive
  - Manning Drive and Fordham Boulevard
  - Fordham Boulevard and Old Mason Farm Road/Carmichael Street
  - NC 54 and Hamilton Road
  - NC 54 and W Barbee Chapel Road
  - NC 54 and E Barbee Chapel Road
  - NC 54 and Huntingridge Road
  - NC 54 and Leigh Farm Road/Quadrangle Drive
  - NC 54 and NC 751
  - NC 751 and Southpoint Autopark Boulevard
  - NC 751 and Renaissance Parkway
  - Renaissance Parkway and Knoll Circle
  - Renaissance Parkway and the main mall entrance
  - Renaissance Parkway and Fayetteville Road
  - Fayetteville Road and Herndon Road
  - Fayetteville Road and NC 54
  - NC 54 and Revere Road
  - NC 54 and NC 55
  - NC 54 and S Alston Avenue
  - NC 54 and TW Alexander Drive
  - NC 54 and Davis Drive
  - NC 54 and new intersection to access I-40 DAR
  - NC 54 / Slater Road and Miami Blvd
- Add a minor intersection improvement at NC 54 and Barbee Road
- Add sidewalks along one side of NC 54 between Fayetteville Road and Rodbell Street (note: there are some existing sidewalk segments)
- Add a major mid-block crossing across NC 54 at the future Triangle Mobility Hub

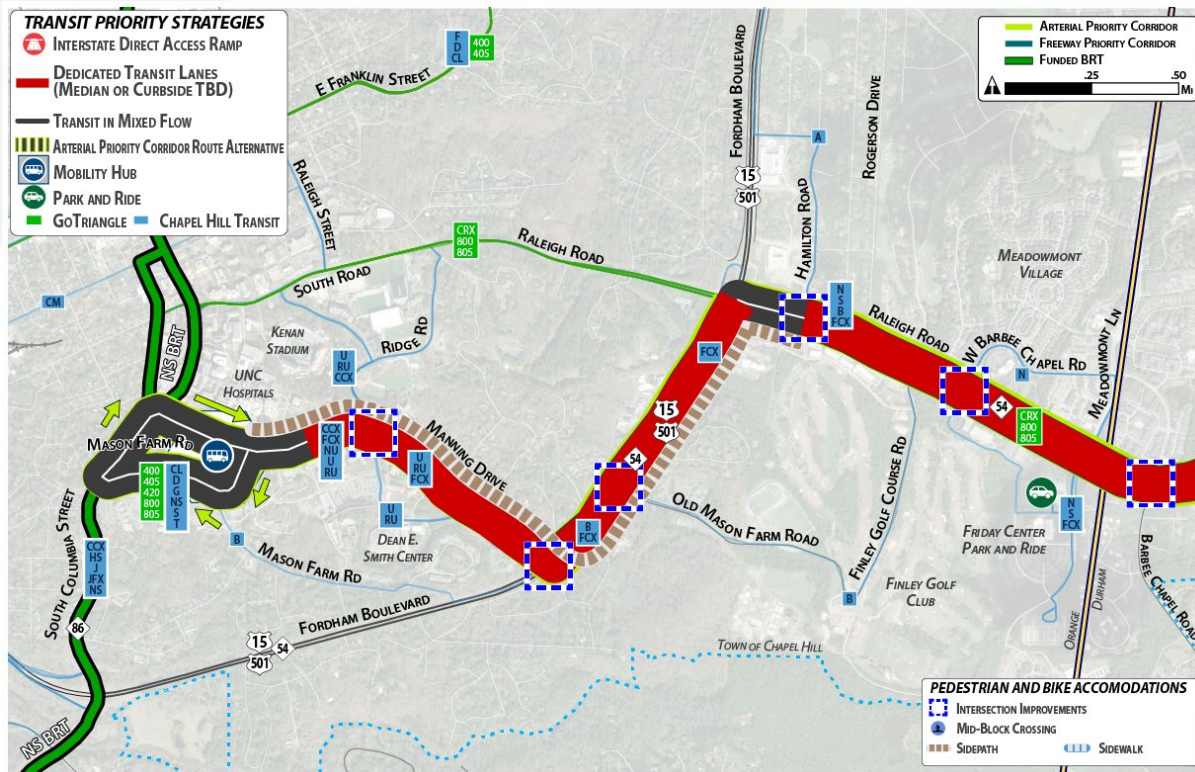


Figure 51: Proposed Pedestrian and Bicycle Accommodations in Orange County



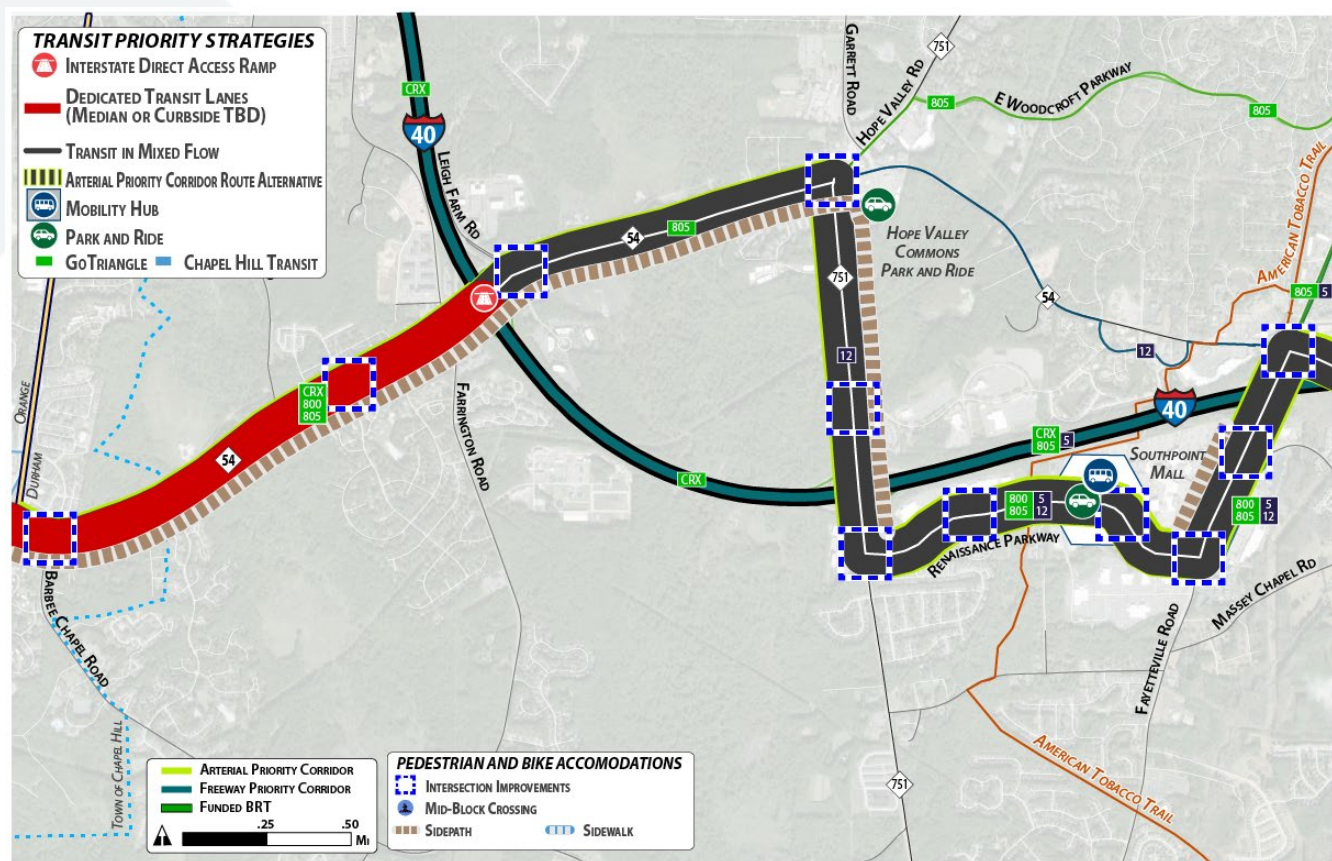


Figure 52: Proposed Pedestrian and Bicycle Accommodations in Durham County

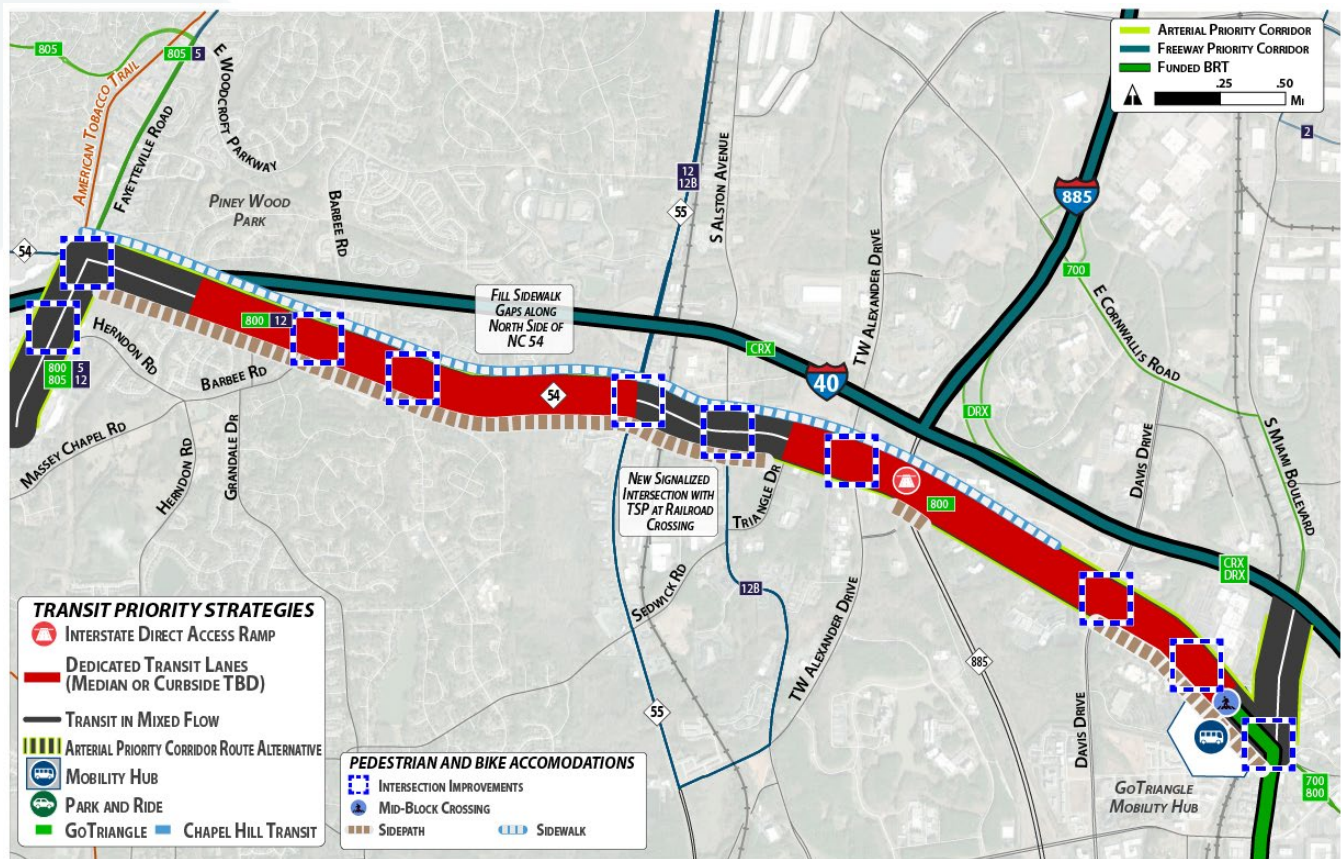


Figure 53: Proposed Pedestrian and Bicycle Accommodations in RTP

## Other Considerations

### Top Destinations Along the Corridor

The corridor includes several key destinations that provide employment opportunities, along with educational, commercial, medical, and recreational resources. Some of these destinations are also venues that host large, special events. These include:

- University of North Carolina at Chapel Hill (UNC)
  - Kenan Stadium
  - Dean E. Smith Center
- UNC Hospitals
- Friday Center
- Southpoint Mall
- RTP

### Existing and Planned Transit Along the Corridor

Several agencies serve the corridor with existing transit, including:

- GoTriangle Routes:
  - 400
  - 405
  - 425

- 800
- 805
- CRX
- GoDurham Routes
  - 5
  - 12 / 12B
- Chapel Hill Transit Routes:
  - A
  - B
  - CCX
  - CL
  - D
  - FCX
  - G
  - HS
  - J
  - JFX
  - N
  - NS
  - NU
  - RU
  - S
  - T
  - U

The presence of numerous transit agencies provides the opportunity for enhanced transfer locations, such as a super stop, to allow passengers the ability to easily transfer between systems. Currently, UNC Hospitals is served by numerous Chapel Hill Transit, GoTriangle, and PART routes, providing the opportunity for transit riders to connect to urban centers across the region, from the Triad to Raleigh. In addition to the existing routes, Chapel Hill Transit is currently advancing the design of the North-South BRT, which will connect with the corridor at UNC Hospitals.

### Planned Projects Along Corridor

There are several planned projects along the corridor that may provide opportunities to incorporate the transit priority improvements recommended in this study with the planning and design phases of the ongoing projects, including:

- Projects in the 2024-2033 STIP include:
  - U-5304B, which includes capacity improvements, with sidewalks, wide outside lanes and transit accommodations, along US 15 / US 501 from NC 86 (South Columbia Street) to NC 54 (Raleigh Road). This project is currently not funded.
    - This project is included in the draft 2026-2035 STIP and is not funded.
  - U-5304E, which will convert the at-grade intersection at SR 1902 (Manning Drive) on US 15 / US 501 to an interchange. This project is currently not funded.
    - This project is included in the draft 2026-2035 STIP and is not funded.
  - U-5774B, which will upgrade the roadway corridor on NC 54 from west of US 15 / US 501 to east of SR 1110 (Barbee Chapel Road). The project is funded for preliminary engineering only.
    - This project is included in the draft 2026-2035 STIP and is not funded.
  - U-5774C, which will upgrade the roadway corridor on NC 54 from east of SR1110 (Barbee Chapel Road) to east of Little Creek. The project is funded for preliminary engineering only.
    - This project is included in the draft 2026-2035 STIP and is not funded.
  - U-5774F, which will construct interchange improvements at the I-40 / NC 54 interchange, including upgrading NC 54 from east of Little Creek to east of I-40. ROW is scheduled to begin in 2028 and construction in 2031.
    - This project is included in the draft 2026-2035 STIP, with ROW scheduled for 2030 and construction in 2033.
- This corridor provides a connection to GoTriangle's Triangle Mobility Hub on NC 54, near Miami Boulevard, which received a \$25 million federal RAISE grant to support the design and construction of the facility and is slated to open in 2028.



- Projects in *Connect 2050 MTP*:
  - Fordham Blvd (US 15-501) (MTP ID 73) proposes modernization on Fordham Blvd (US 15-501) from NC 54 to NC 86 (S Columbia St). This project has a horizon year of 2040 and has a TIP number (U-5304B).
  - NC 54 (MTD ID 70.3) proposes modernization on NC 54 from Fordham Blvd (US 15-501) to Barbee Chapel Road. This project has a horizon year of 2040 and has a TIP number (U-5774B).
  - NC (MTP ID 70) proposes modernization on NC 54 from I-40 to Barbee Chapel Rd. This project has a horizon year of 2040 and has a TIP number of U-5774C.
  - NC 54/Farrington Rd proposes a new grade separation at the intersection of NC 54 and Farrington Rd. This project has a horizon year of 2040 and has a TIP number of U-5774F.
  - NC 54 (MTP ID 69.11) proposes modernization on NC 54 from the I-40 interchange to NC 751. This project has a horizon year of 2040 and a TIP number of U-5774G.
  - NC 54 (MTP ID 69.31) proposes modernization on NC 54 from Fayetteville Rd to Barbee Rd. This project has a horizon year of 2040 and a TIP number of U-5774I.
  - NC 54 (MTP ID 69.41) proposes modernization on NC 54 from Barbee Rd to NC 55. This project has a horizon year of 2040 and a TIP number of U-5774J.
  - Bus Rapid Transit (Chapel Hill to RTP) proposes bus rapid transit between Chapel Hill and RTP that uses NC 54 in Chapel Hill and Renaissance Parkway in Durham.

### Special Event Considerations

The corridor is home to major destinations that frequently host major events that are major traffic generators along the corridor. At UNC, those events include UNC football and basketball games, at Kenan Stadium and the Dean Smith Center, respectively. During the academic school year, move-in weekend and graduation weekend, also bring large volumes of traffic to the corridor.

In addition to event traffic, the presence of UNC Hospitals presents unique traffic conditions that should be considered during implementation, such as access to hospital facilities and shift-change traffic patterns. The project utilizes Manning Drive, which is the main road that provides access to UNC Hospitals, including the emergency room entrance.

### Traffic Considerations

The proposed transit infrastructure along the NC 54 corridor would be generally operationally feasible based on the analysis of the proposed general purpose traffic conditions, including 2023 AADT volumes, travel time reliability, vehicle speeds, and levels of congestion. Table 9 summarizes the proposed general purpose lanes included in the concept design, along with corresponding existing 2023 AADT data and posted speed limits. As the corridor design is advanced, further investigation is required to confirm specific locations and designs for the conceptual runningway, TSP, and queue jump locations, especially where STIP or MTP projects are identified.



Table 9: Traffic Characteristics on NC 54 Corridor

Road	Limits		Proposed General Purpose Lanes Per Direction	2023 AADT	Existing Posted Speed
	To	From			
<b>Manning Dr</b>	Mason Farm Rd	NC 86	2	8,600	25
<b>NC 86</b>	Manning Dr	Mason Farm Rd	2	10,500	35
<b>Mason Farm Rd</b>	NC 86	Manning Dr	1	6,400	25
<b>Manning Dr</b>	Mason Farm Rd	Skipper Bowles Dr	1	14,000	25
<b>Manning Dr</b>	Skipper Bowles Dr	US 15-501	2	14,000	25
<b>US 15-501</b>	Manning Dr	NC 54	2	52,000	45
<b>NC 54</b>	US 15-501	Finley Golf Course Rd	3	44,500	45
<b>NC 54</b>	Finley Golf Course Rd	Barbee Chapel Rd	3	47,000	45
<b>NC 54</b>	Barbee Chapel Rd	Huntingridge Rd	2	41,500	45
<b>NC 54</b>	Huntingridge Rd	I-40 (Chapel Hill)	3	43,000	45
<b>NC 54</b>	I-40 (Chapel Hill)	NC 751	1	13,500	45
<b>NC 751</b>	NC 54	Renaissance Pkwy	1	16,000	35
<b>Renaissance Pkwy</b>	NC 751	Fayetteville Rd	2	15,500	35
<b>Fayetteville Rd</b>	Renaissance Pkwy	Herndon Rd	2	16,000	45
<b>Fayetteville Rd</b>	Herndon Rd	NC 54	2	30,500	35
<b>NC 54</b>	Fayetteville Rd	Barbee Rd	1	15,000	45
<b>NC 54</b>	Barbee Rd	Blanchard Rd	1	17,000	45
<b>NC 54</b>	Blanchard Rd	NC 55	1	20,500	45
<b>NC 54</b>	NC 55	S Alston Ave	2	17,000	45
<b>NC 54</b>	S Alston Ave	NC 147	2	15,000	45
<b>NC 54</b>	NC 147	Davis Dr	2	14,000	45
<b>NC 54</b>	Davis Dr	S Miami Blvd	2	10,000	45

### Notable Projects

This corridor terminates at GoTriangle's Triangle Mobility Hub on NC 54, near Miami Boulevard, which received a \$25 million federal RAISE grant to support the design and construction of the facility and is slated to open in 2029.

GoTriangle announced in May 2025 the selection of a Master Developer for the hub. The Triangle Mobility Hub will include:

- A multi-modal transit center, including covered boarding bays, covered loading zones for paratransit, microtransit and rideshare vehicles, air-conditioned waiting areas and additional passenger amenities;
- A mix of residential and commercial offerings – including new headquarters for GoTriangle – designed to bring energy and activity to the district, with housing seamlessly integrated alongside retail, office and public spaces; and
- A hotel to welcome travelers and visitors.

Along the corridor is the Hub RTP, which is a mixed-use campus along NC 54 between the Triangle Expressway and Davis Drive, that when fully built out will offer:

- 1,200 residential units,
- 1M+ square feet of office and lab space,
- 50,000 square feet of retail,
- 250 hotel rooms, and
- 16 acres of parks and greenspace.

The first building of apartments, which are the first apartments in RTP, opened in Fall 2024 and the Horseshoe, which offers 35,000 sf of restaurant and retail space, 121,000 square feet of office space and a 1-acre courtyard is slated to open in 2025. The development of Hub RTP will boost the density of residential, commercial, and employment opportunities along this section of the corridor.