Preliminary Findings

Taruna Tayal, PMP
VHB | Project Manager

Don Bryson, PE
VHB | Principal-in-Charge

Chris Brasier, EI
VHB | Transit Planner

Roberta MK Fox, AIA, ASLA
Catalyst Design | Stakeholder Engagement and Implementation

Sasha Pejcic, PMP
Stantec | Innovative Solutions
Business community framework for enhanced transit

- Expectation that cost-effective, useful travel options will be in place
- Pushing for rapid implementation of an effective, scalable, regional, multimodal transportation system
• **Advance ideas for improving and accelerating regional connectivity**

• Accelerate effective, all-day mobility along our freeway and street-system that can expand and improve over time

• Complement existing and emerging travel options

• Serve as a valuable template for other regions of the state
FAST study approach
Preliminary Findings

Regional Freeway System

Orange County

Durham County

Wake County
Preliminary Findings
Preliminary Findings

[Map showing Planned Commuter Rail in Orange County and Wake County]
**Preliminary Findings**

**Existing System**

**Regional Linkage**

**BRT:** High frequency, subregional

**Commuter rail:** Regional, low/moderate frequency

**FAST:**
- Provide complementary, effective, regional linkages
- **Accelerate creation of true regional transit network**
Creating a regional FAST network

**FAST mindset**
Add improvements quickly, then scale them over time
Preliminary Findings

2030 Trip Origins to Chapel Hill
Preliminary Findings

2030 Trip Origins to Durham and Duke
Preliminary Findings

2030 Trip Origins to RTP
Preliminary Findings
Preliminary Findings

FAST Network

2030 Trip Origins to Blue Ridge/ Crabtree
Preliminary Findings

2030 Trip Origins to NCSU
Preliminary Findings

2030 Trip Origins to Downtown Raleigh
Preliminary Findings

2030 Trip Origins to WakeMed/St. Albans
Preliminary Findings

2030 Trip Origins to All Zones
Potential transit advantages
Low-cost transit advantages -- Freeways

- On-ramp signal bypass
- Bus On Shoulder System (BOSS)
- Yield-to-Bus

Prioritize corridor features where they are anticipated to have the greatest impact.
Prioritize corridor features where they are anticipated to have the greatest impact.

**FAST Network Characteristics**

**Low-cost transit advantages - Streets**

- **Transit Signal Priority**
- **Queue Jump Lanes**
- **RED Lanes**

Source: NACTO
FAST Network Characteristics

Stop Features

- **Level Boarding**
  - Source: Metropolitan Council

- **Enhanced Bus Stop**
  - Source: KCATA

- **“Floating” Bus Stop**
  - Source: Oran Viriyincy
Proposed 2025 FAST network
Preliminary Findings
Preliminary Findings

**FAST Network**

**Immediate Freeway Corridors**

- **US 15/501**: Bus On Shoulder System
- **I-40 & NC 147**: Bus On Shoulder Expansion, Increased Service Frequency & Span
- **South Durham**: Direct Pedestrian Access
- **RTP/Davis Drive**: Direct Access Ramps
- **RDU**: Direct Access Ramps
- **Wilmington St**: Direct Access Ramps

[Map showing the locations and connections]
Preliminary Findings

FAST Network

Immediate Freeway & Street Corridors

Systemwide: Increased Frequency
- Off-Board Fare Collection

Orange County
Durham County
Wake County
**Preliminary Findings**

**FAST Network**

**Immediate Freeway & Street Corridors**

- **US 15/501**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding

- **NC 54/Raleigh Rd**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding
  - RED Bus Lanes (portions)

- **Holloway/Main/Erwin**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding
  - Floating Bus Stops

- **Six Forks Rd**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding
  - RED Bus Lanes (portion)
  - Floating Bus Stops

- **Glenwood Ave (west of I-440)**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding
  - RED Bus Lanes (portions)

- **Capital Blvd**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Future Through Lanes
  - Enhanced Access/Stops/Boarding

- **Poole Road**
  - Traffic Signal Priority
  - Queue Jump Lanes
  - Enhanced Access/Stops/Boarding
  - Floating Bus Stops

**Systemwide**

- Increased Frequency
- Off-Board Fare Collection

*Pag 470 of 513*
Preliminary Findings

10 freeway and street FAST corridors

7 of 10 begin at a proposed BRT linkage
"Interlining" with 2+ routes along part of BRT lane (e.g.)

- Increased speed and reliability
- Higher frequency
- Multiple travel options
Minneapolis: I-35W Lake Street Station

Source: https://www.metrotransit.org/i-35w-lake-street-station
Example future FAST corridors
Preliminary Findings

FAST Network

Immediate Freeway & Street Corridors
Preliminary Findings

FAST Network

Mid-Term Freeway & Street Corridors
Public Comment Period

• Download a version of this presentation at letsgetmoving.org/FAST

• Email comments to FAST@letsgetmoving.org

• 45-Day Comment Period
  July 16-August 31
Next Steps

• Review ongoing/upcoming highway projects for potential transit advantage incorporation opportunities

• Develop implementation playbook for several illustrative examples
  • 2022
  • 2025
Preliminary Findings

FAST Network

Purpose
Public Comment Period

- Download a version of this presentation at letsgetmoving.org/FAST
- Email comments to FAST@letsgetmoving.org
- 45-Day Comment Period
  July 16-August 31
Preliminary Findings and Information Report

Proposed FAST network for North Carolina’s Research Triangle Region

Funding partners

Catalyst Design

Consultant team

Stantec

Catalyst Design
About the funding partners

The Regional Transportation Alliance (RTA) business coalition is the voice of the regional business community on transportation in North Carolina’s Research Triangle region.

“The regional business community and our study partners are committed to the transformation of our highway network into true multimodal freeways and streets that provide significant and sustainable advantages for public transit, along with enhanced accessibility and mobility for all modes of travel.” - Joe Milazzo II, PE, executive director, Regional Transportation Alliance

GoTriangle is the Triangle’s regional transit provider, improving our area’s quality of life by connecting people and places through safe, reliable and easy-to-use travel choices.

“GoTriangle is constantly looking for more efficient and innovative ways to serve the growing Triangle region. The FAST approach offers an additional array of tools that can be used by our agency and other transit providers in the region to continue to improve transit and transportation for our community.” – Michael Parker, chair, GoTriangle Board of Trustees

The NC Department of Transportation mission is connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina.

“The Department believes the FAST approach could serve as a template for many areas across the state to advance regional transit—we greatly appreciate RTA for initiating the study effort.” – Julie White, Deputy Secretary for Multimodal Transportation, NC Department of Transportation
Contents

5 FAST network: Project and concept overview
5 FAST Objectives: Aspirational and Actionable
5 FAST Features: Sample Strategies for the Triangle
7 Analysis Method and Preliminary Findings
15 Next Steps
16 FAST network study: Frequently Asked Questions (FAQs)
FAST network: Project and concept overview

The regional business community along with local and state transportation partners seek to **accelerate a region-wide network of high-quality transit routes** to better connect and serve the entire Triangle area.

**Funded by RTA, GoTriangle and NCDOT**, the Freeway And Street-based Transit (FAST) study is developing an illustrative, scalable approach to transform our roadways into multimodal corridors that can provide rapid, frequent, and reliable transit service across the region.

A FAST network will **Capitalizethe** great work that has already been done by the various agencies in the Triangle, **Complement** the existing investments being made on transit studies, plans and implementation, and become a **Champion** to leverage the existing freeway and street system with targeted transit advantage to improve accessibility and opportunity.

The FAST study envisions a truly regional transit network, connecting our largest communities and activity centers and serving RDU Airport and Research Triangle Park.

**FAST Objectives: Aspirational and Actionable**

- Define an illustrative regional FAST network for the Triangle
- Identify rapid projects and pilots for the next 18 months
- Create scalable network buildouts for High Priority, 0-5 Year, 5-10 Year, and 10+ Year horizons
- Develop a FAST guide for prioritizing transit on roadways

The FAST study is the pre-planning work designed to inspire, inform, and advance ideas for improving regional connectivity, supported by technical analysis.

**FAST Features: Sample Strategies for the Triangle**

- Freeway priority lanes for transit
- Bus On Shoulder System (BOSS) expansion
- Dedicated ‘RED’ transit lanes on streets
- Direct linkages, ramps, and bypass lanes for transit
- High quality stations that provide regional accessibility

The FAST study aims to institutionalize transit accommodations as part of roadway projects to improve mobility for all travelers.
The FAST network will successfully link the five approved bus rapid transit corridors and connect to the proposed commuter rail.
FAST network: Analysis Method and Preliminary Findings

A robust technical analysis was conducted that considered a host of evaluation measures for determining relative transit demand potential:

**TIER 1  Mobility**
- Travel demand
- Transit performance
- Traffic performance
- Context

**TIER 2  Accessibility**
- Access equity
- Planned projects
- Missing links

**Design Standards ➤ Measured & Targets**

These factors incorporate existing and proposed or projected roadway, transit, land use, population, employment, and travel pattern elements.

Future potential transit demand to activity zones shown in Figure 2 was examined using spatial analysis to determine promising areas of and opportunities for enhanced regional connectivity. The graphic on the following page (page 8) highlight the broad corridors that emerged from this portion of the analysis.

After identifying these corridors of promise, and examining the existing GoTriangle regional core transit network as well as the region’s proposed five bus rapid transit (BRT) corridors, the consultant team then identified a series of example higher frequency enhanced transit corridors along the region’s freeway and street network (i.e., proposed FAST corridors).

“The regional business community recognizes the need for effective transportation as our market grows. The preliminary findings from the FAST study provide a game plan to strengthen the mobility connections essential for our region’s ongoing success.” – Maeve Gardner, GlaxoSmithKline; chair, Regional Transportation Alliance
Figure 2. Potential FAST corridor based on demand
These specific FAST corridors were then examined at a pre-planning level for possible transit advantage opportunities for the High Priority, 0-5 Year, 5-10 Year, and 10+ Year horizons, including (partial list):

**Figure 3. Freeway transit advantage opportunities**

- Left: Direct access or priority ramps. Source: SounderBruce
- Middle: Direct pedestrian access / slip stations. Source: Bing Maps
- Right: Bus On Shoulder System (BOSS) expansion. Source: u/dm919

**Figure 4. Street transit advantage opportunities**

- Left: Traffic signal priority. Source: MichaelBell/Regina Leader-Post
- Middle left: Queue jump lanes. Source: NACTO
- Middle right: RED transit lanes. Source: NACTO
- Right: Floating bus stops. Source: Oran Viriyincy

“We believe that the accelerated deployment of enhanced transit service using the FAST network approach will advance economic opportunity, equitable prosperity, fiscal responsibility, and environmental sustainability.”- Jay Irby, First Citizens Bank; regional transit chair, Regional Transportation Alliance
Figure 5. Immediate Freeway & Street Corridors
The 10 proposed, interconnected corridors, outlined in the table below, directly serve Raleigh, Durham, Cary, Chapel Hill, RDU Airport, and Research Triangle Park.

**Proposed high priority and 0-5 years FAST freeway and street corridors, with future BRT linkages underlined.**

<table>
<thead>
<tr>
<th>Corridor</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. I-40</strong></td>
<td>future South Wilmington Street <strong>BRT</strong></td>
<td>NC 54 / Raleigh Road in South Durham</td>
</tr>
<tr>
<td><strong>2. I-885 / NC 147</strong></td>
<td>I-40 in RTP</td>
<td>Duke University</td>
</tr>
<tr>
<td><strong>4. US 15-501</strong></td>
<td>future MLK / NC 86 <strong>BRT</strong></td>
<td>15-501 freeway</td>
</tr>
<tr>
<td><strong>5. Raleigh Rd / NC 54</strong></td>
<td>future MLK / NC 86 <strong>BRT</strong></td>
<td>I-40</td>
</tr>
<tr>
<td><strong>7. US 70</strong></td>
<td>future Downtown Raleigh <strong>BRT</strong></td>
<td>Brier Creek/I-540</td>
</tr>
<tr>
<td><strong>8. Six Forks Road</strong></td>
<td>future Capital Boulevard <strong>BRT</strong></td>
<td>I-540</td>
</tr>
<tr>
<td><strong>9. Capital Boulevard</strong></td>
<td>future Capital Boulevard <strong>BRT</strong></td>
<td>I-540</td>
</tr>
<tr>
<td><strong>10. Poole Road</strong></td>
<td>future New Bern Avenue <strong>BRT</strong></td>
<td>New Hope Road</td>
</tr>
<tr>
<td>Transit Improvement</td>
<td>Corridor (reference table on page 10 for numbering)</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Bus On Shoulder Expansion</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Traffic Signal Priority</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Future Through Lanes</td>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>Queue Jump Lanes</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>RED Bus Lanes (portion)</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Enhanced Access/ Stops/Boarding</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Increased Frequency</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Off-Board Fare Collection</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
<tr>
<td>Floating Bus Stops</td>
<td>[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]</td>
<td></td>
</tr>
</tbody>
</table>
Note that seven of the 10 proposed FAST corridors commence at an approved future BRT corridor, which will leverage and strengthen the upcoming investment in the region’s enhanced transit network over the next few years. In addition, potential “interlining” operation can eliminate the need for transferring between BRT and FAST networks for some or all of those corridor linkages.

The graphics on the previous pages (pages 10 and 12) highlight the example immediate corridors and transit advantages.

The resulting proposed Freeway And Street-based Transit (FAST) network concept is a scalable approach to transform our roadways into “multimodal corridors” that could quickly provide significant and sustainable advantages for public transit, along with enhanced access and mobility for all modes of travel.

The consultant team also provided an initial review of potential freeway and streets with longer-term “FAST” opportunities for the 5-10 and 10+ horizon years, including potential connections to future commuter rail. The graphic on the following page (page 14) highlight the example future corridors and transit advantages.

7 of the 10 proposed FAST corridors commence at an approved future BRT corridor.

“We look forward to using this study as a cooperative approach for building transit solutions that will better serve the community, strengthen our transportation network and maintain the region’s reputation as a great place to live and work.” - Charles Lattuca, president and CEO, GoTriangle
Figure 6. Long Term Freeway and Street Corridors
Next Steps

The study team is refining project proposals, including illustrative examples of the types of improvements being considered, promoting the generation and collection of meaningful feedback from stakeholders and the general public. Planning-level estimates of probable costs will be developed, along with a strategic implementation plan. An important outcome of this plan will be the identification of agency responsibilities and project triggers, constraints, and contingencies.

Another critical task is coordinating with stakeholders to take advantage of opportunities to integrate FAST proposals with planned or pending roadway and transit projects. Recent and ongoing transit studies (such as CAMPO’s BOSS and Red Lane studies; Go Triangle’s Regional Transit Center planning and Commuter Rail Study; Orange and Durham Counties’ transit plan updates; and the five BRT corridor plans) will also be carefully reviewed to ensure that FAST enhancements are optimized to best complement these local and regional transit initiatives.
Frequently Asked Questions (FAQs)
FAST network study:
Frequently Asked Questions (FAQs)

What is the purpose of the FAST network study, and why do we need it?
The regional business community along with local and state transportation partners seek to accelerate a region-wide network of high-quality transit routes to better connect and serve the entire Triangle area.

Who is leading the study?
The study is being funded by a 50:50 private:public partnership, via the Regional Transportation Alliance business leadership group, our state NCDOT, and regional transit provider GoTriangle. In addition, a number of local, regional, and state partners are engaged in the study.

What is a FAST network?
The FAST network concept seeks to transform many of our roadways into multimodal freeways and streets, through purposeful, scalable investments in “transit advantage” infrastructure, complementary operational priority measures, and enhanced, higher-frequency transit service. The FAST study seeks to accrue network benefits for current and future transit users by quickly advancing improved mobility across the region.

What are some of the unique elements of the FAST network concept?
The proposed network incorporates multiple connections between our cities and towns, Research Triangle Park, and RDU Airport. It includes transit advantages that we have not yet used in our market, including transit bypasses of on-ramp signals, direct priority connections between freeways and streets, and interlining of high-frequency routes along busway segments to optimize transit operations and the user experience.

What are FAST corridors?
Proposed FAST freeways are corridors like I-40, 540, and US 1 that could incorporate higher frequency express service and future high-frequency all day service to connect the region. Transit vehicles will use Bus On Shoulder System (BOSS) operation and/or our growing turnpike system, and potential future express lanes, to avoid traffic and stay on schedule.

Proposed FAST streets are roadways like NC 54, US 70, and 15-501 that could add to or expand existing local and regional transit service by activating high-frequency, all-day service to connect communities and our region. All corridors will add transit advantage techniques including transit signal priority, queue jumps, and other provisions to keep transit moving.
What are High Priority projects?
High Priority projects proposed for the most immediate implementation within the 0-5 Year time horizon increase frequency for existing bus routes, coupled with one or more low-cost transit advantage methods to keep transit vehicles moving.

How were the various proposed FAST corridors and elements selected?
The proposed corridor elements were identified through a robust technical process that reviewed existing roadway footprints and proposed enhancements, transit, land use, population, employment, travel, and other considerations that highlight potential demand for enhanced transit. The corridors were also reviewed for the potential for accelerating new connections and expanding overall network benefits across the entire regional roadway system.

How does the proposed FAST network concept tie into other transit plans: the approved Wake County Transit Plan, and developing plans in Orange and Durham counties?
There are six active transit corridor projects in the region: five bus rapid transit and one regional commuter rail project – all of which will be funded by county transit taxes, state funding, and federal funding. This study builds on those efforts by identifying ways to extend and connect enhanced transit routes, and highlighting a scalable vision for a robust regional network.

How does the FAST network tie into GoTriangle’s strategic goals for regional connectivity?
GoTriangle is charged with providing reliable, effective regional transit service, via buses, vanpools, paratransit, and future commuter rail. This study speaks to the future of GoTriangle’s freeway and street-based services and provides an opportunity to explore and accelerate new ways of connectivity.

How might this study influence future investments and priorities of GoTriangle and NCDOT?
As a regional transit provider, GoTriangle is constantly looking for more efficient and innovative ways to serve the growing Triangle market. The North Carolina Department of Transportation has a statewide responsibility that includes multimodal partnerships with local and regional areas. This study will inform the thinking and planning for both entities and other transit partners.
Why is multi-modal transit important?
Improved access to a variety of mobility options will connect people to greater employment and educational opportunities, supporting individuals in their career goals and contributions to their family and community. In our spread-out region, personal automobile travel is both efficient and empowering, but not everyone wants to or can drive. This accelerated “FAST” study gives us the opportunity to transform important roadways into multimodal freeways and streets that can effectively serve cars, buses, vanpools, and other shared vehicles.

How, and why should we, push beyond local jurisdictional lines in transit planning?
This region already collaborates very well together from a transit planning perspective. The FAST study is one more example of partnerships with regional and state governmental partners and the private sector.