

Chapel Hill
transit

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Chapel Hill Council Work Session
May 13, 2020

NORTH
SOUTH **BUS RAPID TRANSIT**



Agenda

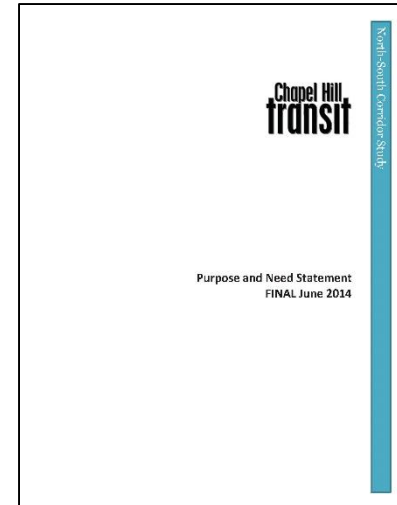
- Background
- Traffic Engineering
- Crosswalks and Multiuse Path
- Draft Recommendation and Next Steps





Project Timeline

- October 2011 – Alternative Analysis Approved
- June 2012 – Chapel Hill 2020 Plan Adopted
- June 2014 – Project Purpose and Need Approved
- April 2016 – Original LPA Adopted by Council
- November 2016 – FTA Approves Entry Into Project Development
- January 2019 – Council Adopts Updated LPA
- February 2019 – FTA Requests Final LPA
- October 2019 – Council Provided Update on LPA
- February 2020 – FTA Small Starts Rating Released





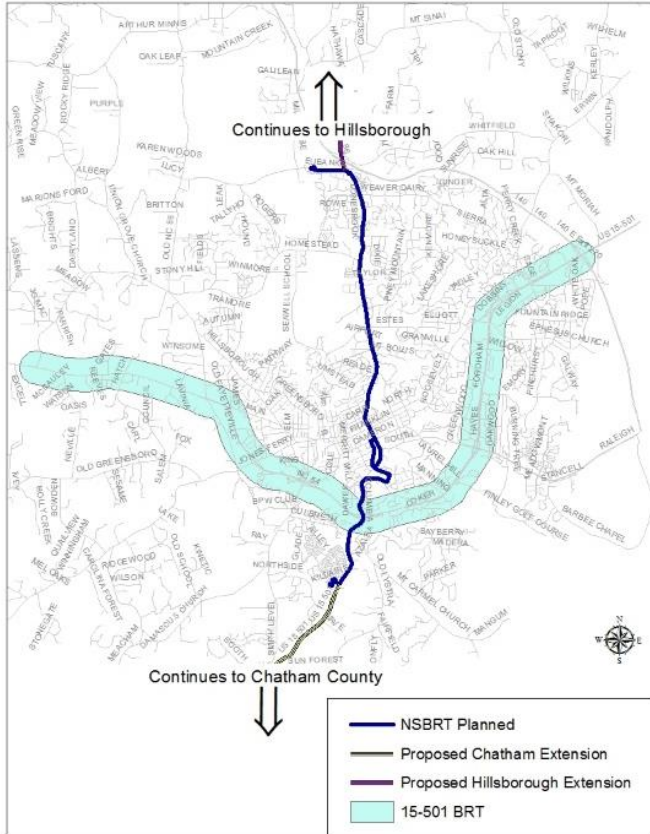
Context and Vision

Prepares the Town and funding partners to meet mobility demand as the region continues to grow:

- Current system close to maximum capacity
- Proposed system provides a long-term, scalable solution for residents and visitors
- Supports current and planned development in the corridor with a multi-modal system that serves cyclists, pedestrians and other users
- Connects to regional transit options



Regional Context



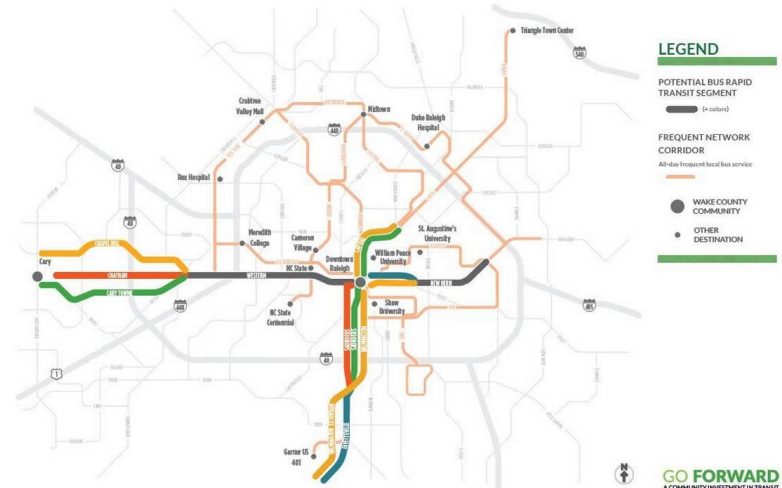
Visualize

FAST

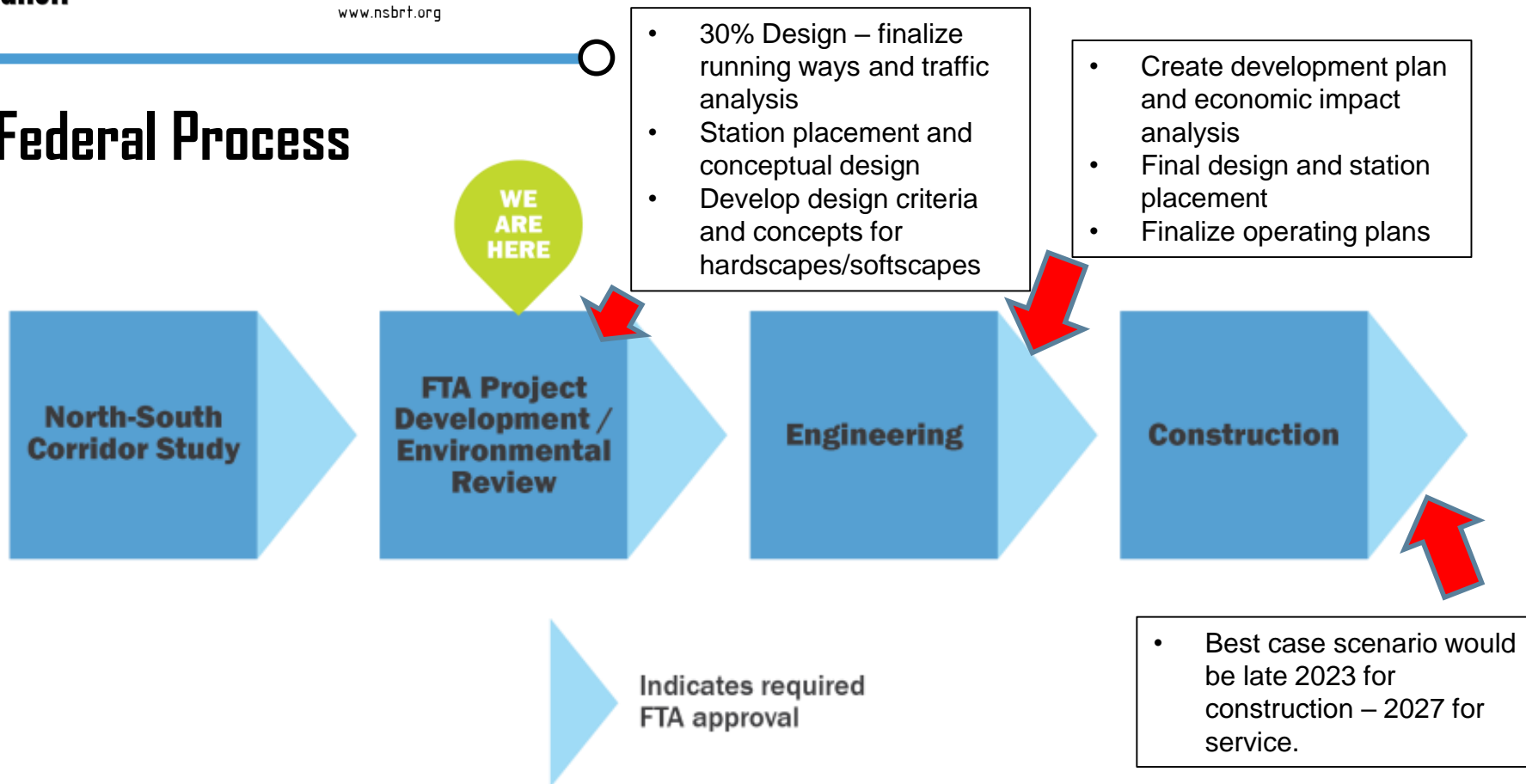
Freeway And Street-based Transit network

FAST Ideas for a Smarter Triangle

2027 HIGH FREQUENCY NETWORK



Federal Process



Locally Preferred Alternative (LPA)

- A general description of the type of transit that will be used (mode), runningway (curb running, median, dedicated lane, mixed traffic, etc.) and the location (alignment and termini).
- Is general; LPA design specifics and definition of additional elements of the project, including station locations, are decided during subsequent engineering and planning efforts.
- Identification of LPA is a critical step in pursuit of federal funding. Tells Federal Transit Administration (FTA) which alternative the local agency expects to be the most competitive in achieving support at the local, regional, and federal levels.
- Can be adjusted through NEPA and design phases – prior to requesting federal funding.





Steps to Adopt Updated LPA

- Transit Partners Committee Approved Updated LPA on April 28, 2020
 - Recommended the Draft LPA be forwarded to Council for consideration.
- Chapel Hill Council Meeting on June 10, 2020* or June 24, 2020*
 - Request adoption of updated LPA coming out of the Council Work Session.

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TRAFFIC ENGINEERING

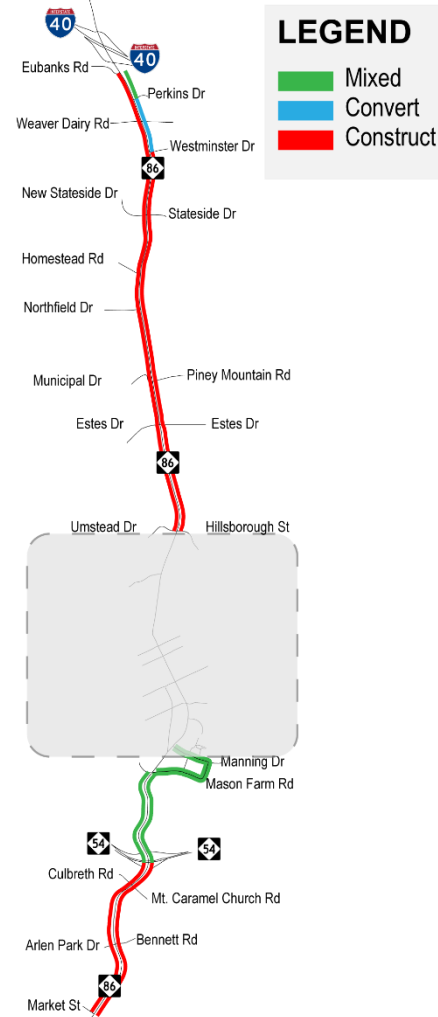
Traffic Engineering Sub-Agenda

- Recap of Past Discussions
- Updates Since Last Meeting
- Overview of Alternatives
- Analysis Results and Findings
- Local or Through Trips?
- Wrap up



How did we get here?

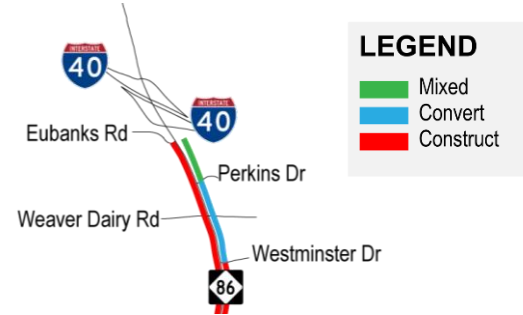
- Traffic analysis evaluated Construct vs. Convert alternatives using 2018, 2024, and 2030 traffic
- Recommending Construct:
 - North of Umstead/Hillsborough
 - Traffic volumes not conducive to removing a lane
- Through downtown – Convert
- Additional analysis requested by Town Council
 - Scenario with lower assumed traffic volumes (mode shift)
 - Evaluate advanced signal timing solutions





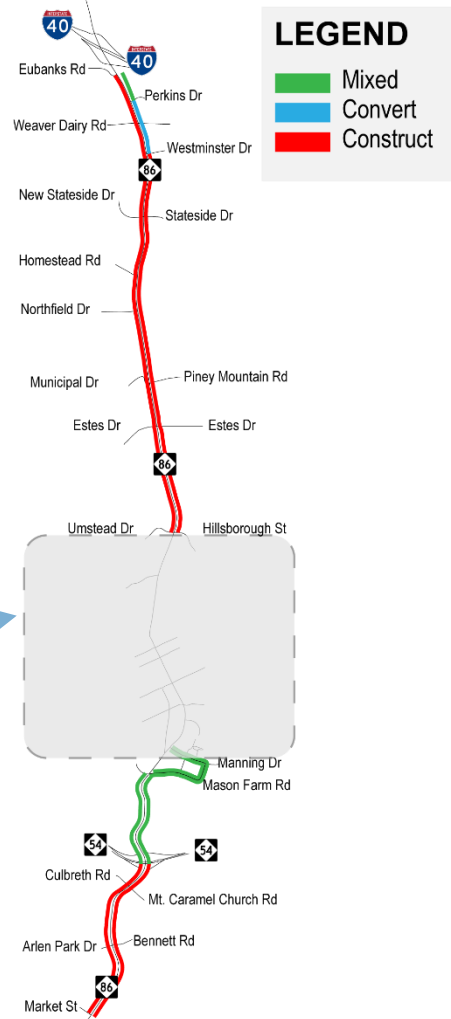
Updates since last time...

- Recommending a convert section along northbound MLK near Weaver Dairy
 - We don't need 3 car lanes there
 - Allows for uniformity in road cross section
- Incorporation of 5% reduction in vehicular volumes due to enhancement of bus service
 - Based on a review of other projects in Virginia and Florida
- Continued coordination between Town project team and NCDOT

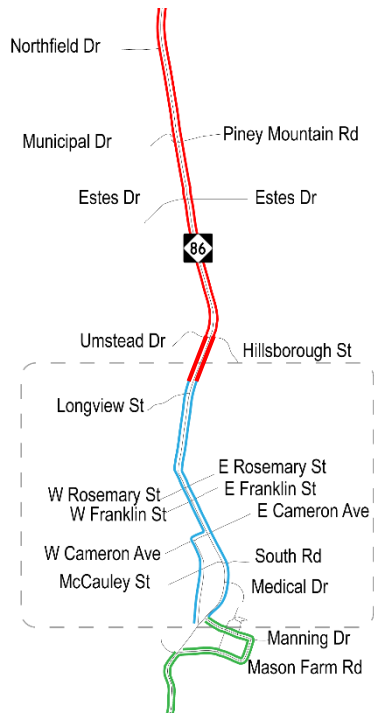


Three alternatives in downtown
evaluated:

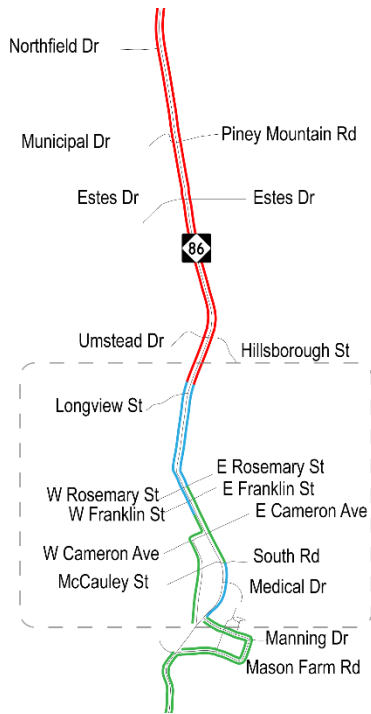
- Full Convert
- Partial Convert
- Mixed Traffic



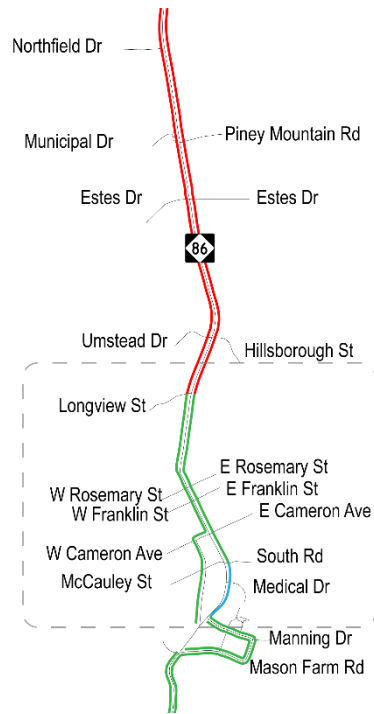
Full Convert



Partial Convert



Mixed Traffic



LEGEND

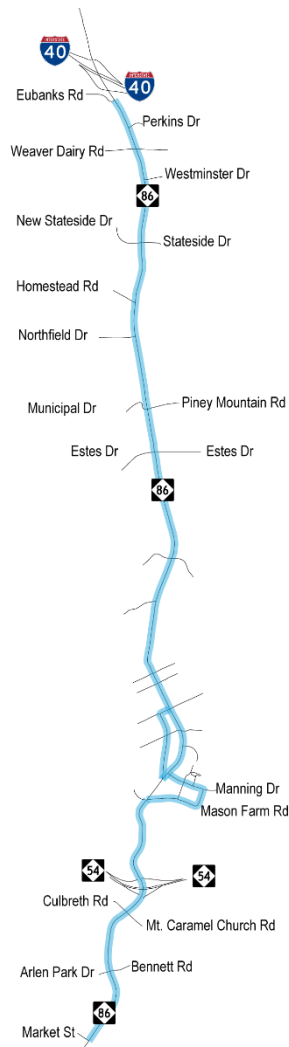
 Mixed

 Convert

 Construct

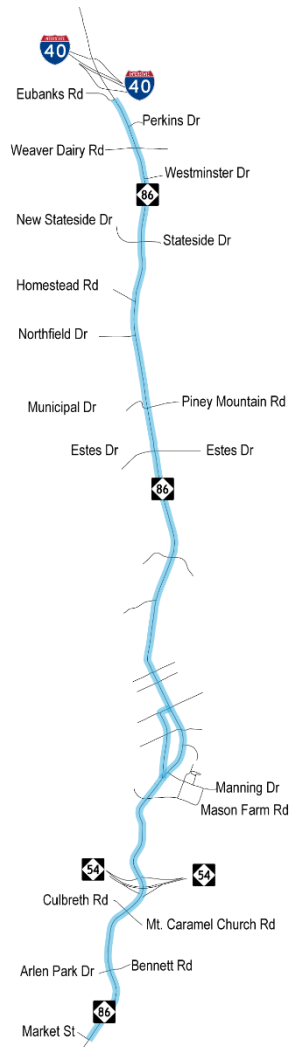


Average Travel Time - Bus (Eubanks Road to Market Street)					
Downtown Condition		AM Peak (minutes)		PM Peak (minutes)	
		Northbound	Southbound	Northbound	Southbound
No Build	2018	27	30	32	35
	2024	28	27	32	38
Full Convert	2018	24	25	29	27
	2024	24	25	30	29
Partial Convert	2018	23	24	29	27
	2024	23	25	30	29
Mixed Traffic	2018	24	25	29	27
	2024	24	25	30	29





Average Travel Time - General Purpose Vehicles (Eubanks Road to Market Street)					
Downtown Condition		AM Peak (minutes)		PM Peak (minutes)	
		Northbound	Southbound	Northbound	Southbound
No Build	2018	18	17	20	22
	2024	19	17	20	23
Full Convert	2018	17	16	20	19
	2024	18	16	20	20
Partial Convert	2018	17	16	19	19
	2024	18	16	20	20
Mixed Traffic	2018	17	15	19	18
	2024	18	15	19	19



Level-of-Service
NC 86 at Rosemary Street

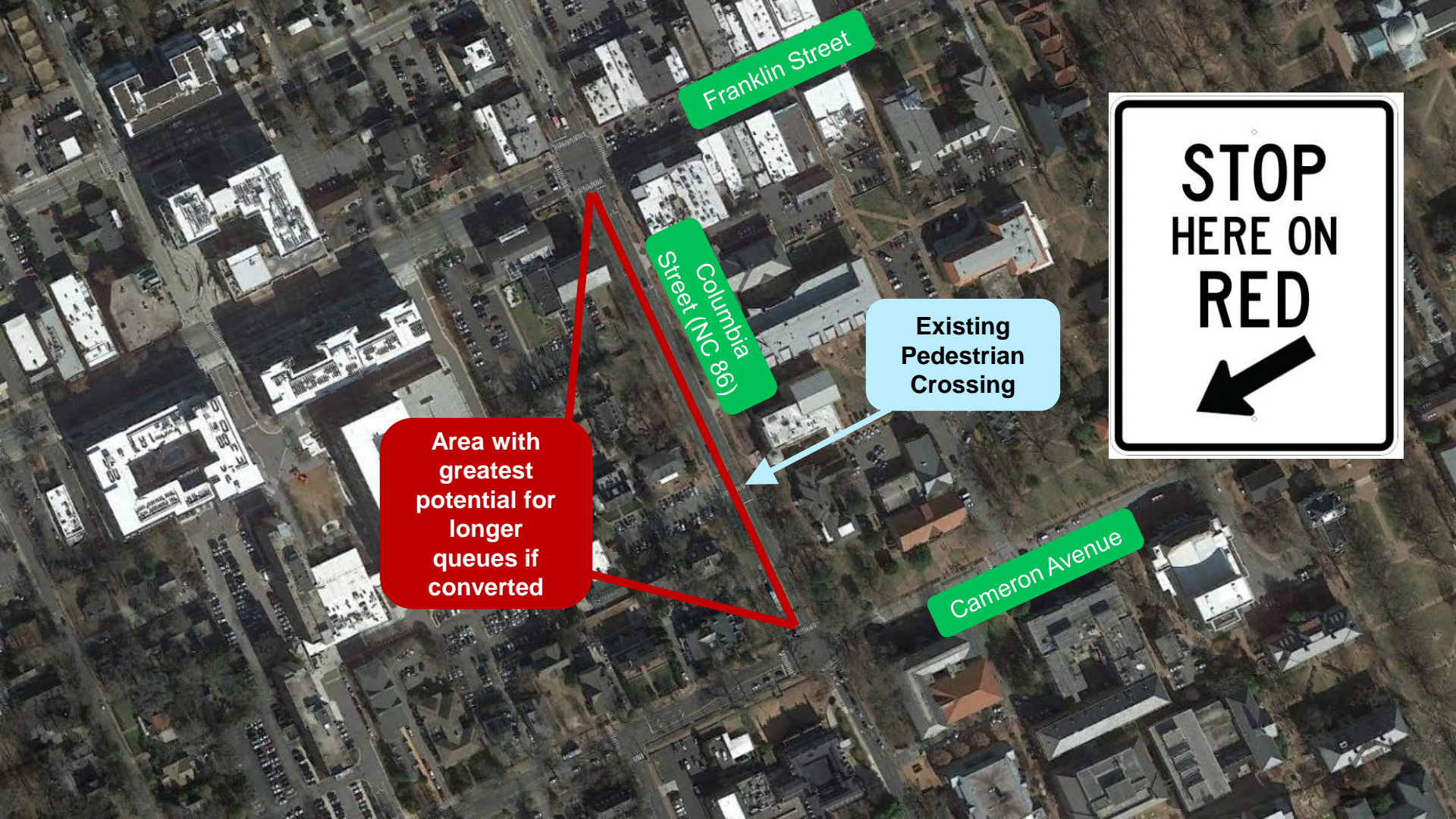
Vehicular LOS

Condition		AM Peak	PM Peak
No Build	2018	C	E
	2024	C	E
Full Convert	2018	C/D	E
	2024	C/D	E
Partial Convert	2018	C	E
	2024	C	E
Mixed Traffic	2018	C	D
	2024	C	D/E



Level-of-Service
NC 86 at Franklin Street

Condition		AM Peak	PM Peak
No Build	2018	C	D
	2024	C	D
Full Convert	2018	C	E
	2024	C	E
Partial Convert	2018	C	E
	2024	C	E
Mixed Traffic	2018	C	D
	2024	C	D



Franklin Street

Columbia
Street (NC 86)

Cameron Avenue

Area with
greatest
potential for
longer
queues if
converted

Existing
Pedestrian
Crossing



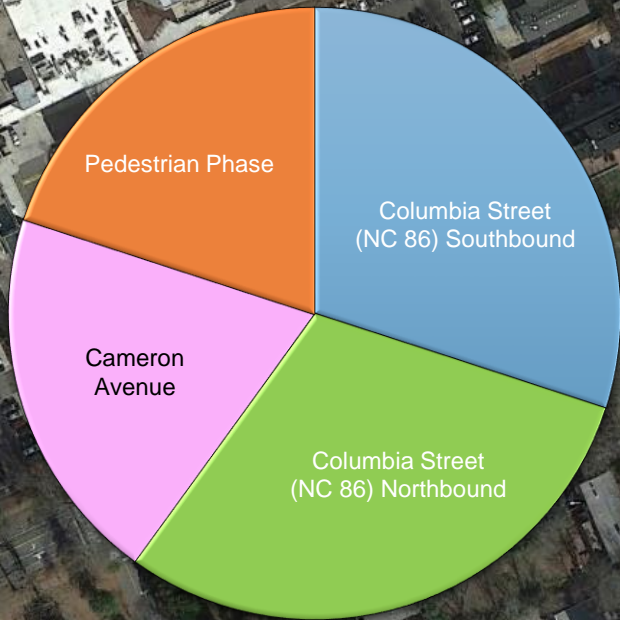
Vehicular LOS

Columbia
Street (NC 86)

Cameron Avenue

Level-of-Service NC 86 at Cameron Avenue			
Condition		AM Peak	PM Peak
No Build	2018	D	E
	2024	D	E
Full Convert	2018	D	E/F
	2024	D	E/F
Partial Convert	2018	D	D
	2024	D	D
Mixed Traffic	2018	C/D	D
	2024	C/D	D

Existing Phasing

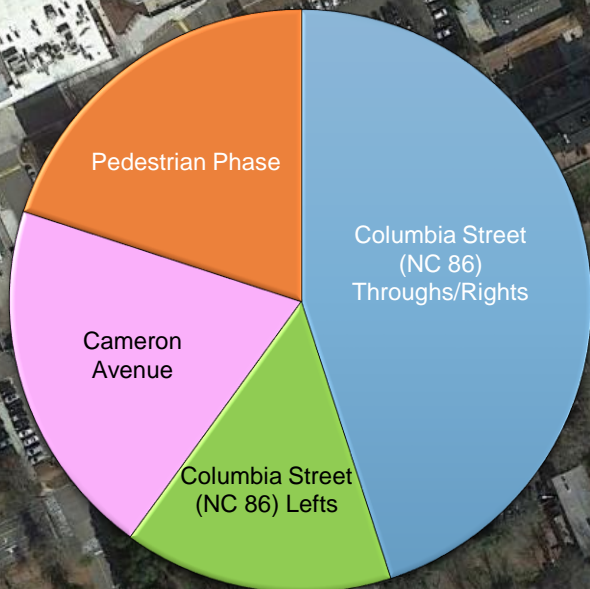


Columbia
Street (NC 86)

Cameron Avenue

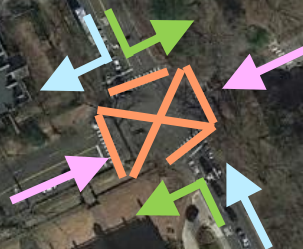


Proposed Phasing



Columbia
Street (NC 86)

Cameron Avenue



Findings for Downtown



- Full Convert **can be considered** further
 - If signal phasing change is made at Columbia Street / Cameron Avenue
- Partial Convert **can be considered** further
- Mixed Traffic **can be considered** further
- NCDOT concurrence on findings
- Final locally-preferred alternative should be chosen based on downtown priorities:
 - Consistent cross section
 - Vehicular vs. bus operations



Bus and Traffic interactions in a dedicated curb lane environment





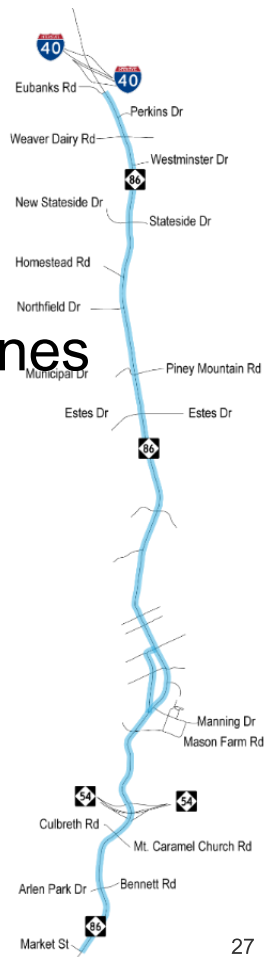
Bus and Traffic interactions in a dedicated curb lane environment





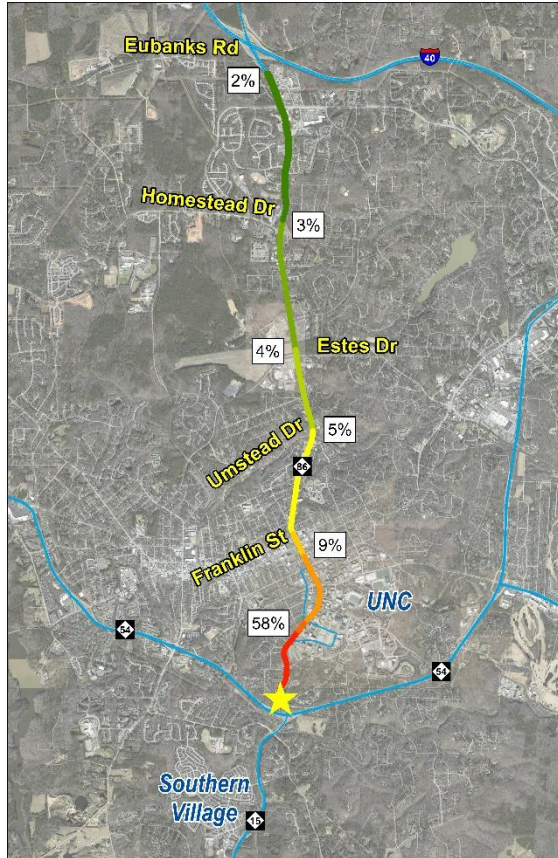
Streetlight Data - Local or Through Trips?

- Streetlight uses location-based services on cell phones
- Used “gates” on NC 86 to determine the origin and destination of trips
 - Helps identify percentage of through trips on corridor
 - Helps identify key destinations



How far do people drive? (Northbound)

Origin: NC 54/US 15-501 Interchange (AM Peak)



Legend:



Starting point

XX%

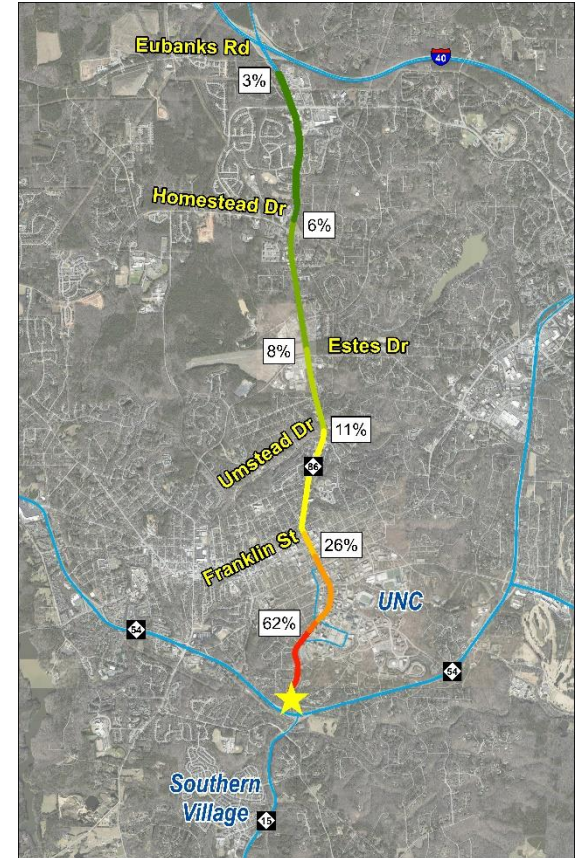
Percent of starting point traffic remaining at each location



Higher remaining traffic

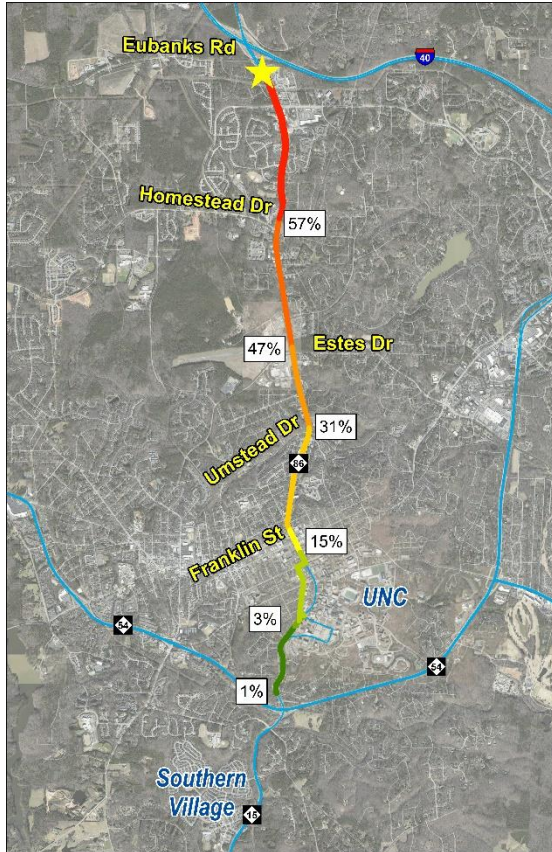
Lower remaining traffic

Origin: NC 54/US 15-501 Interchange (PM Peak)



How far do people drive? (Southbound)

Origin: I-40/Eubanks Road (AM Peak)



Legend:



Starting point

XX%

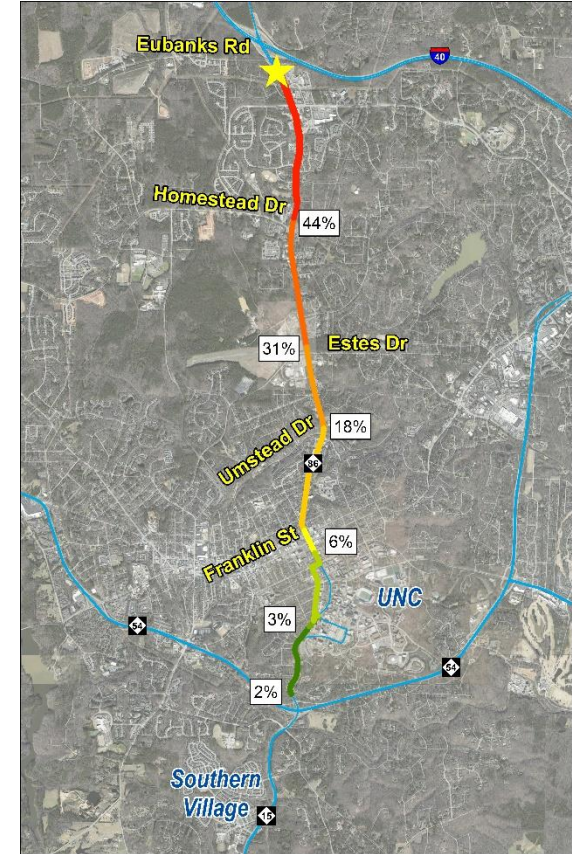
Percent of starting point traffic remaining at each location



Higher remaining traffic

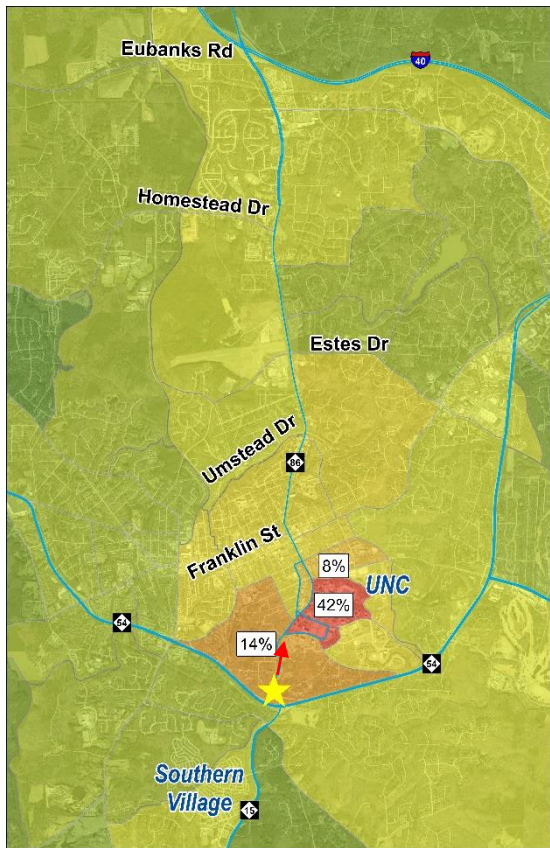
Lower remaining traffic

Origin: I-40/Eubanks Road (PM Peak)



Where do vehicles stop?

Origin: NC 54/US 15-501 Interchange (Daily)



Legend:



Starting point

XX%

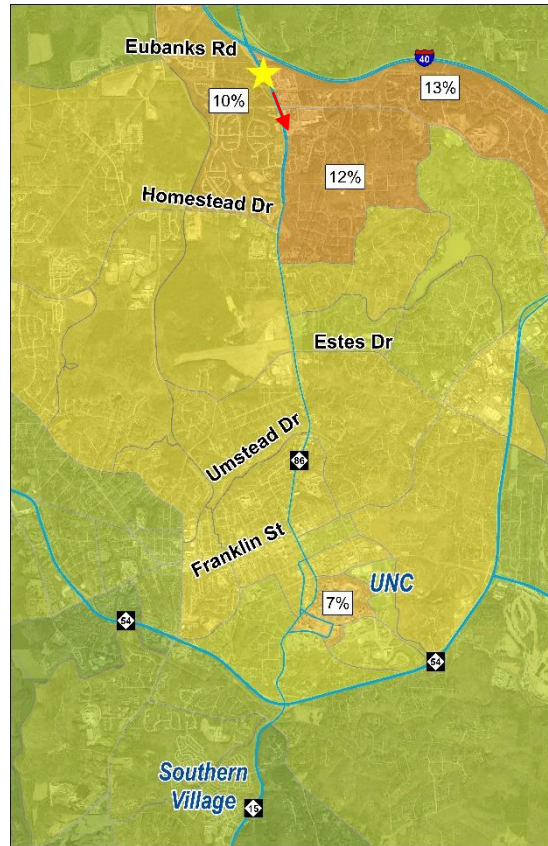
Percent of starting point traffic that stops in noted area



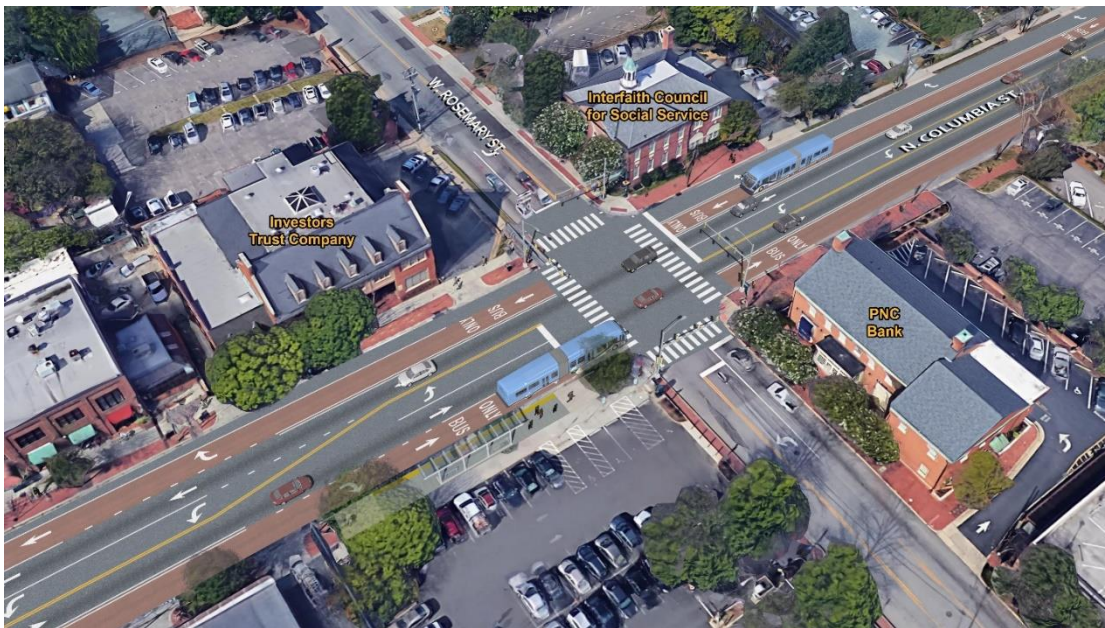
Higher attraction to area

Lower attraction to area

Origin: I-40/Eubanks Road (Daily)



Recommendation for Downtown: Full Convert

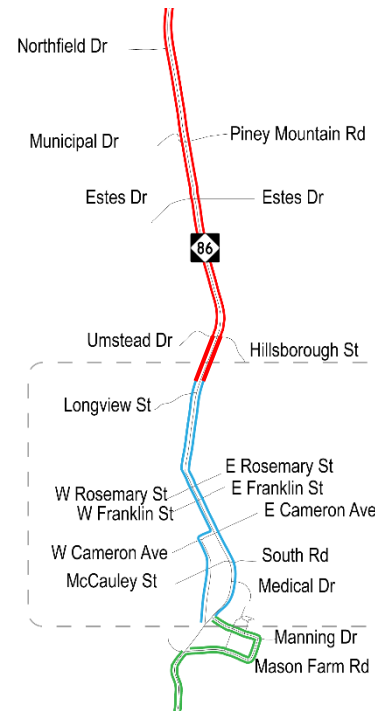


LEGEND

 Mixed

 Convert

 Construct



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CROSSWALKS AND MULTIUSE PATH



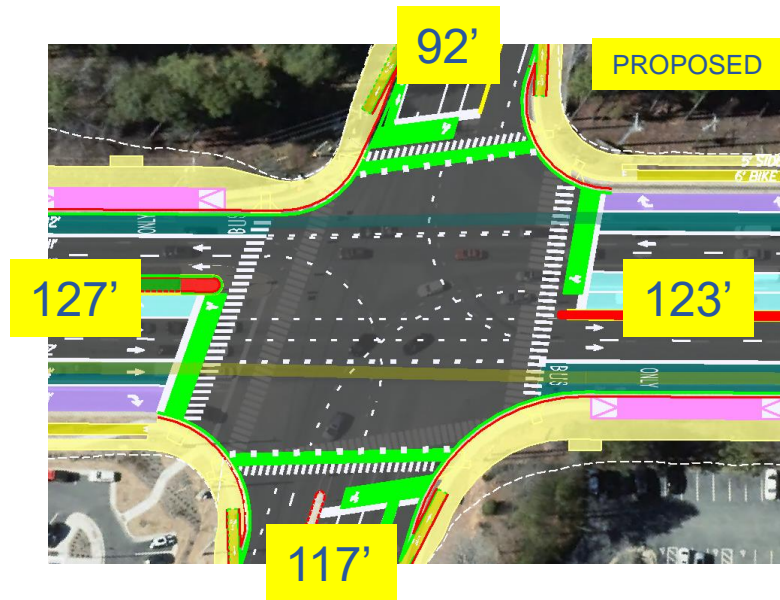
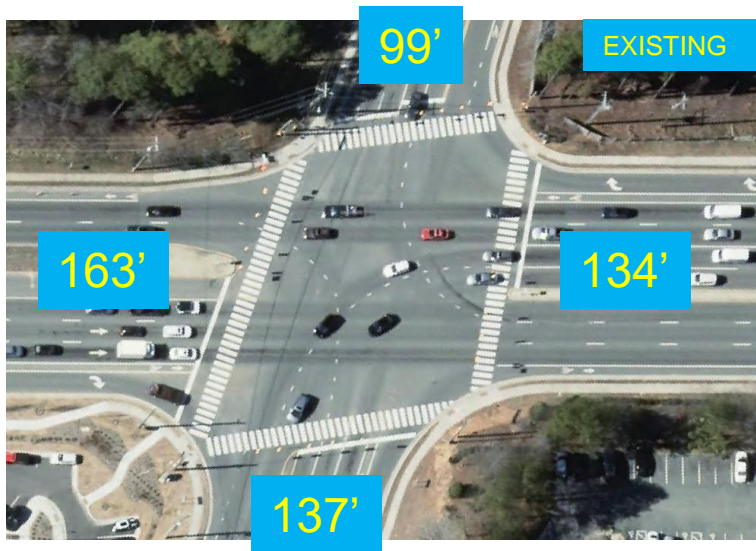
Crosswalks

Crossing	No. of Exist.	No. of Proposed	Ave Length Existing	Ave Length Proposed	Impacts
NSBRT route	48	57	70 ft	71 ft	<ul style="list-style-type: none">• 38 no change• 5 increased• 5 reduced• 9 new designated crossings
Side Streets	46	51	58 ft	57 ft	<ul style="list-style-type: none">• 31 no change• 3 increased• 12 reduced• 5 new designated crossings

- No changes to length with Convert or Mixed Traffic segments
- Construct segment widens MLK Blvd 0 – 8 ft each side
- Most crosswalk decreases and increases were <10 ft
- Largest increase: +30 ft (65 ft to 95 ft at NC 54 interchange)
- Largest reduction: -40 ft (163 ft to 123 ft at Weaver Dairy Rd)



Crosswalks

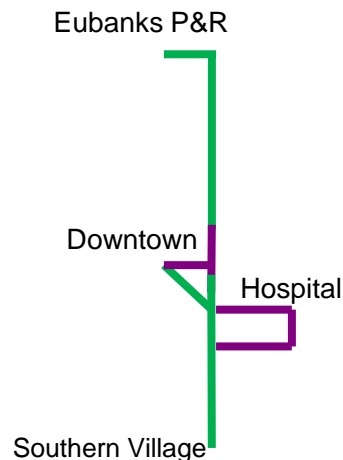


Martin Luther King, Jr. Blvd at Weaver Dairy Rd



Bicycle and Pedestrian Facilities

- **Green** sections – include one of the following types:
 - Bike Path / Sidewalk
 - Multi-Use Path
 - Bike Lane / Sidewalk
- **Purple** sections – include:
 - Sharrow / Sidewalk
- **Downtown Alternatives:**
 - Generally consistent walking experience among Alts
 - Bike sharing lane with general traffic vs. bus-only



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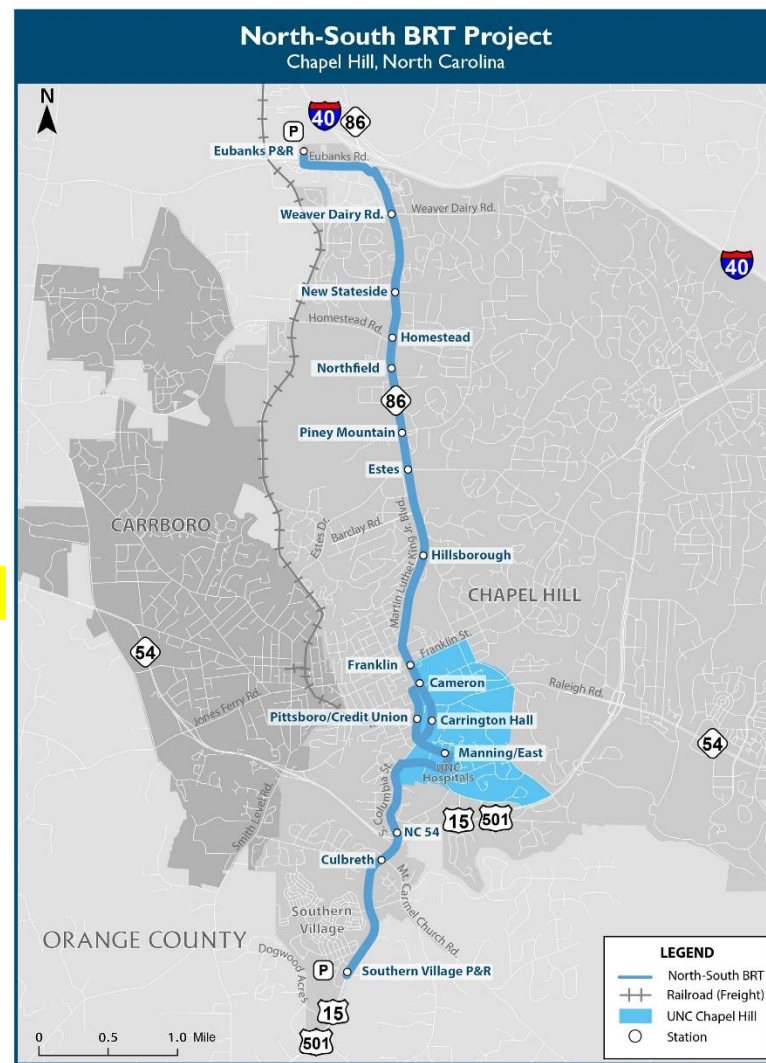
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DRAFT RECOMMENDATION AND NEXT STEPS

Draft LPA Recommendation

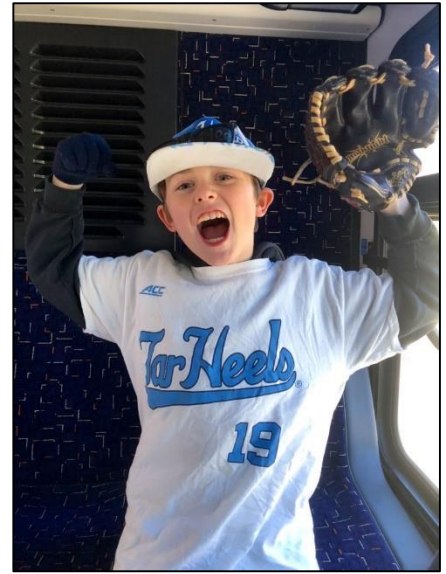
- BRT in Mixed Traffic on Eubanks Road
- Eubanks to Weaver Dairy Road
 - Construct dedicated curb lane
- Weaver Dairy Road to Westminster Drive
 - Convert dedicated curb lane
- Westminster Drive to Umstead Road/Hillsborough Street
 - Construct dedicated curb lane
- Umstead Road/Hillsborough Street to North Street
 - Convert dedicated curb lane
- Convert dedicated curb from North Street to Manning Dr.
- Operate in Mixed Traffic along Manning Drive to Hwy 54/15-501 interchange
- Construct dedicated curb lane from Hwy 54/15-501 to Southern Village





Next Steps

- Request adoption of the recommended LPA for NSBRT (June 10th or 24th – TBD)
- Environmental Review – NEPA
- 30% Design
- Evaluate Small Starts information to improve rating for August/September 2020 FTA evaluation request





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Director

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