



NORTH CAROLINA

Department of Transportation



Strategic Transportation Corridors U.S. 321 and U.S. 74 External Steering Committee

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March 30, 2020

Meeting Objectives

- Provide background information on each corridor
- Provide Detailed Review of Corridor Analysis
- Discuss Preliminary Corridor Vision
- Review Upcoming Stakeholder Involvement

Agenda

U.S. 321

- Data Collection Review
- Corridor Analysis Review
- Preliminary Corridor Vision

U.S. 74

- Data Collection Review
- Corridor Analysis Review
- Preliminary Corridor Vision

- Stakeholder Involvement for U.S. 321 and U.S. 74

U.S. 321 – Study Area Map





**NC STRATEGIC
TRANSPORTATION
CORRIDORS (STC)**

DECEMBER 2019
Source: NCOneMap, NCDOT GIS, ESRI

Legend

— STC Highway Corridor D (US 321)	— Interstate	— Blue Ridge Pkwy	 Counties
- - - STC Rail Corridor D (CSX)	— US Route	 State Parks	 NC Seaports
 Municipal Boundaries	— NC Highway	 Major Rivers/Streams	 NC Int'l or Major Freight Airports
	— + — Rail	 Major Water Bodies	

**STRATEGIC
TRANSPORTATION
CORRIDORS
VICINITY MAP**

CORRIDOR D (US 321)

Page 26 of 50 **FIGURE 1**



U.S. 321 - Facilities Inventory

- Highway assets inventory
 - Approx. 106 miles along highway corridor
 - Federally designated truck route from S.C. state line to I-85 in Gastonia and from I-40 in Hickory to US 64 in Lenoir
- Rail network inventory
 - Approx. 118 miles along primary CSX rail corridor
 - 9 at-grade railroad crossings along or adjacent to highway corridor
- Bridges inventory
 - 67 bridges along highway corridor
 - 3 structurally deficient; 12 functionally obsolete

U.S. 321 - Transportation Plan Recommendations

- Compiled transportation plans and recommended projects along the corridor from:
 - Statewide Transportation Improvement Program (STIP) 18 projects
 - Comprehensive Transportation Plans (CTPs) 4 CTPs
 - Metropolitan Transportation Plans (MTPs) 2 MTPs
 - Feasibility Studies (FS) 3 within the past 10 years
 - Traffic Forecasts (TF) 12 with the past 5 years
- Most of corridor recommended to be classified as expressway
 - South of Gastonia recommended to be classified as boulevard
 - Gastonia to Hickory recommended to be classified as freeway

Railroad Crossing Assessment Tool (RCAT)

- A Multi-Criteria Assessment Tool designed to assist transportation officials to evaluate, rank, and prioritize at-grade railroad crossings
- Not intended to produce final recommendations, but rather to provide guidance on examining grade crossing separations
- STC RCAT Results are under review by NCDOT Rail Division

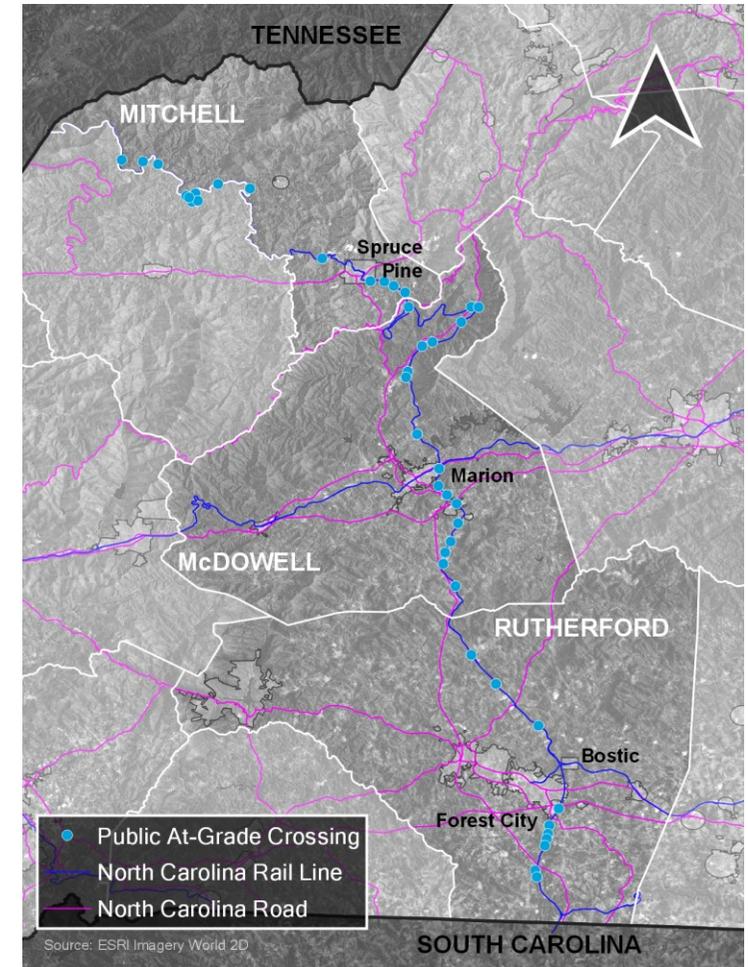
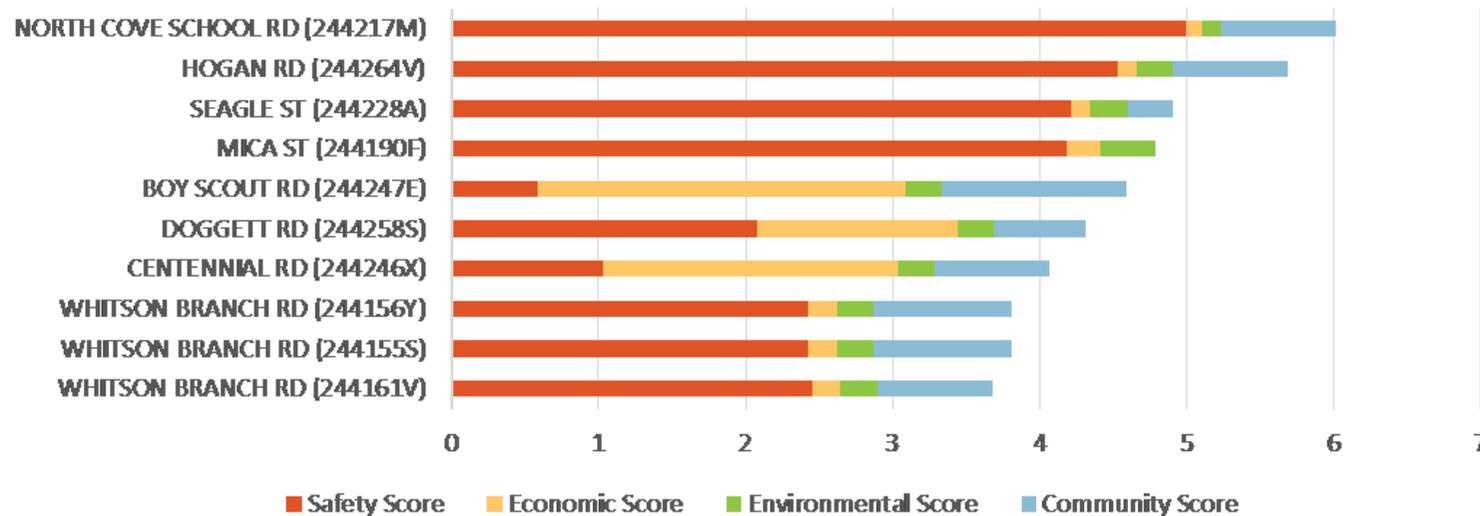
Railroad Crossing Assessment Tool (RCAT)

RCAT Module	RCAT Weight	Corresponding State Freight Plan Goal	SFP Weight
Safety	50%	Safety	High
Economic	25%	Economic Competitiveness Mobility & Reliability	Low Medium
Environmental	12.5%	Environmental Stewardship	Low
Community/ Livability	12.5%	Environmental Stewardship	Low

U.S. 321 - Railroad Crossing Assessment Tool (RCAT)

- ≈ 118 miles of CSX Mainline Track
- Florence Division & Blue Ridge Subdivision
- 43 Public At-Grade Crossings
- Strategic Rail Corridor Network

Top Ten At-Grade Crossings (Weighted Scores)

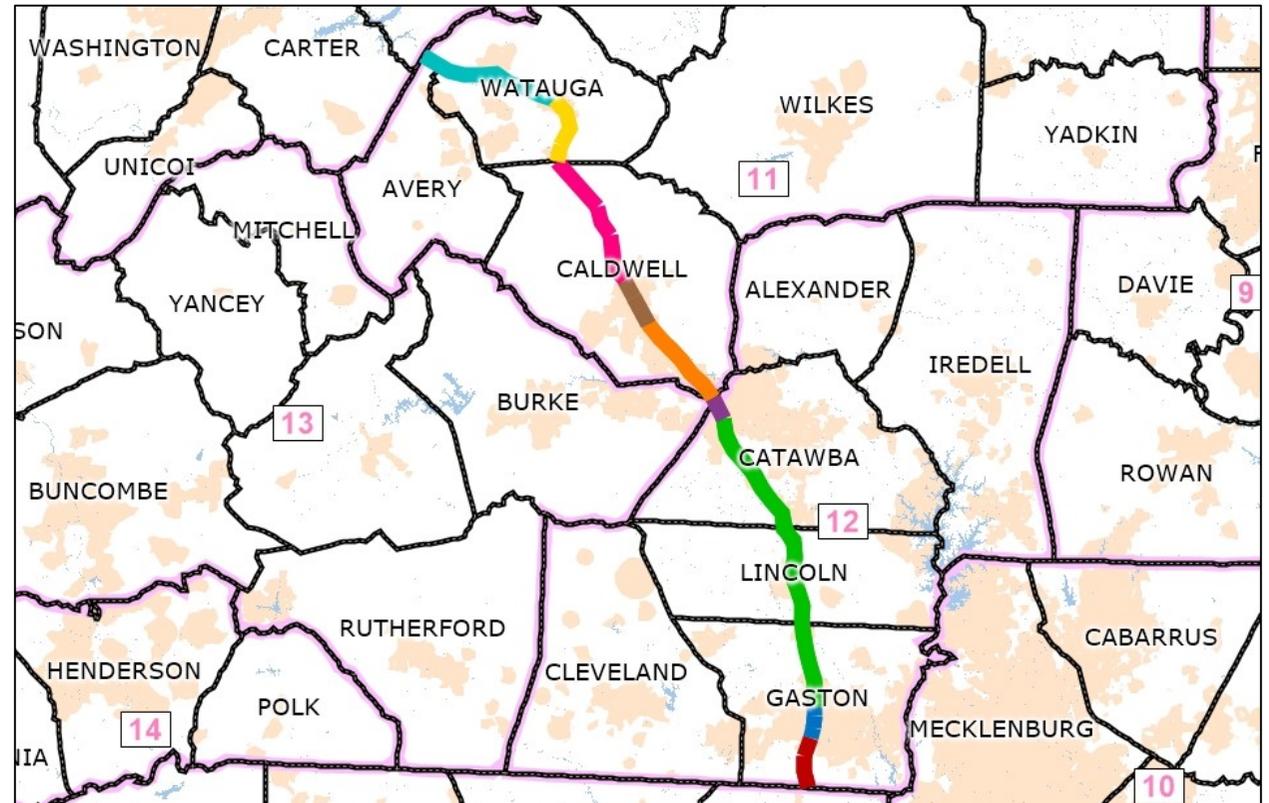


Mobility Analysis

- Capacities based on NCDOT Systems Level Planning
- Analysis completed on daily traffic
- Guide by input from NC Statewide model and MPO Models
- 2018 AADT based on NCDOT Segment AADT
- 2040 AADT based on growth rates from models

U.S. 321 - Mobility Analysis

- Corridors are divided into segments
- 9 Segments are identified for US 321
- AADT, TDM Data, and Performance Measures at segment level



U.S. 321 - Mobility Analysis

Segment	From	To	2018 Conditions			2040 E+C Conditions			2040 Recommended		
			Facility Type	Typical Posted Speed	Lanes	Facility Type	Typical Posted Speed	Lanes	Facility Type	Typical Posted Speed	Lanes
101	SC State Line	Gastonia (Hudson Blvd)	Major Thoroughfare	45	4	Major Thoroughfare	45	4	Boulevard	45	4
102	Gastonia (Hudson Blvd)	Gastonia (I-85)	Major Thoroughfare	35	4	Major Thoroughfare	35	4	Major Thoroughfare	35	4
103	Gastonia (I-85)	Hickory (US 70)	Freeway	65	4	Freeway	65	4	Freeway	65	4
104	Hickory (US 70)	Catawba River	Boulevard	45	4	Boulevard	45	6	Expressway	55	6
105	Catawba River	Lenoir (SW Blvd)	Boulevard	45	4	Boulevard	45	4	Expressway	65	4
106	Lenoir (SW Blvd)	NC 90/Main St	Major Thoroughfare	45	4	Major Thoroughfare	45	4	Expressway	55	4
107	NC 90/Main St	Blowing Rock (Alt 321)	Major Thoroughfare	55	4	Major Thoroughfare	55	4	Expressway	55	4
108	Blowing Rock (Alt 321)	US 421/King St	Major Thoroughfare	40	4	Major Thoroughfare	40	4	Expressway	55	4
109	US 421/King St	TN State Line	Minor Thoroughfare	40	2	Minor Thoroughfare	40	2	Boulevard	50	4

NOTE: Shaded boxes indicate change from 2018 Existing Characteristics

U.S. 321 - Mobility Analysis

- Growth rates applied to 2018 AADT
- No direct model output analyzed
- Used volume-delay curve with daily AADT for 2018/2040

Segment	NC Statewide Model		MTP/CTP Model	STC Growth Rate	
	Annual Growth Rate, 2015-2040 E+C	Annual Growth Rate, 2015-2040 Rec.	Annual Growth Rate	E+C, Selected	Recommended, Selected
101	1.6%	1.9%	0.6%	1.5%	1.8%
102	0.8%	1.6%	0.4%	1.2%	1.5%
103	1.1%	1.6%	1.2%	1.1%	1.5%
104	0.5%	1.4%	1.3%	1.0%	1.4%
105	0.6%	2.3%	0.9%	0.8%	1.5%
106	1.0%	2.8%	0.5%	0.8%	1.5%
107	2.0%	2.4%	0.1%	1.2%	1.5%
108	1.6%	2.1%	0.9%	1.2%	1.6%
109	1.7%	2.7%	0.7%	1.5%	2.0%

U.S. 321 - Mobility Analysis

HIGHWAY MOBILITY BENEFITS STC CORRIDOR D

US 321 – FROM SOUTH CAROLINA STATE LINE TO
TENNESSEE STATE LINE

AVERAGE
TRAVEL SPEED



2018
EXISTING



2040
COMMITTED



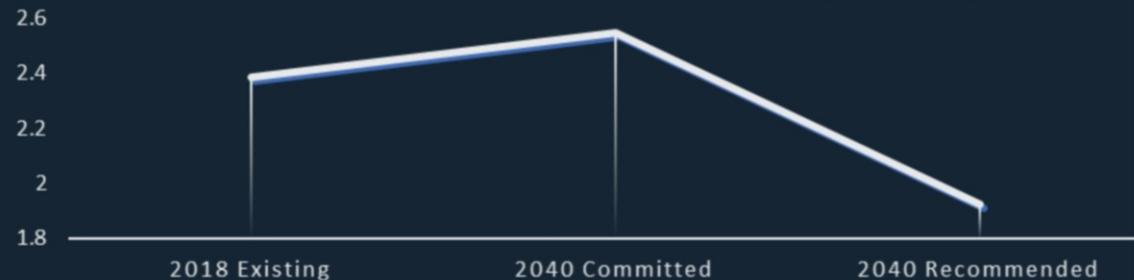
2040
RECOMMENDED

VEHICLE-MILES
TRAVELED



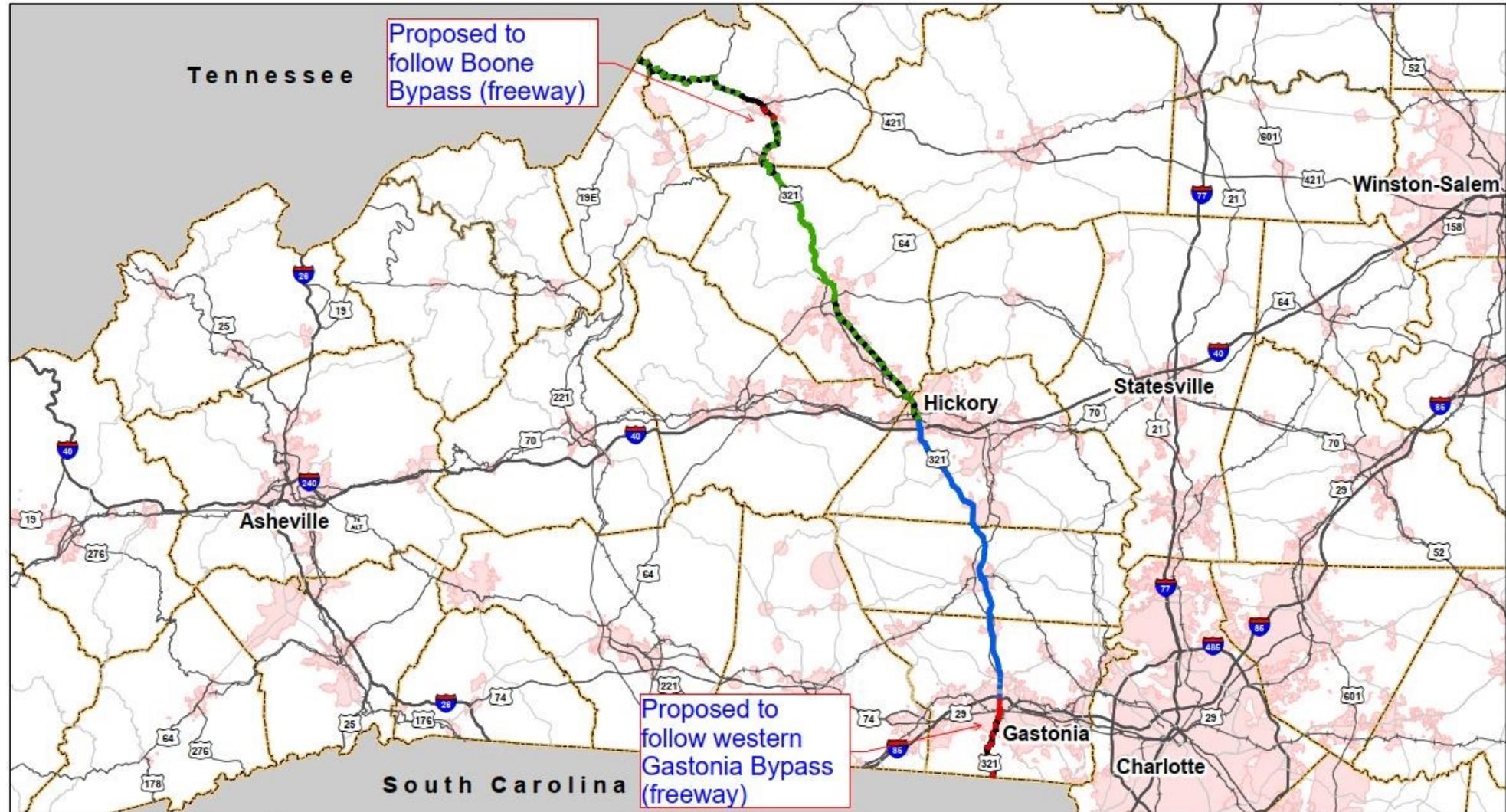
RECOMMENDED PROJECTS REDUCE FUTURE
TRAVEL DELAY BY OVER **75%**

AVERAGE CORRIDOR TRAVEL TIME (HOURS)



U.S. 321 – Preliminary Corridor Vision

- Overall – Freeway from South Carolina to Hickory and Expressway from Hickory to Tennessee; this would include moving the STC to the proposed freeway bypass around Boone.
- Any differences from current adopted transportation plans?
- Potential Areas for additional study
 - Western Gastonia Bypasses
 - Hickory to Lenoir



Proposed to follow Boone Bypass (freeway)

Proposed to follow western Gastonia Bypass (freeway)

NC STRATEGIC TRANSPORTATION CORRIDORS (STC)

DECEMBER 2019

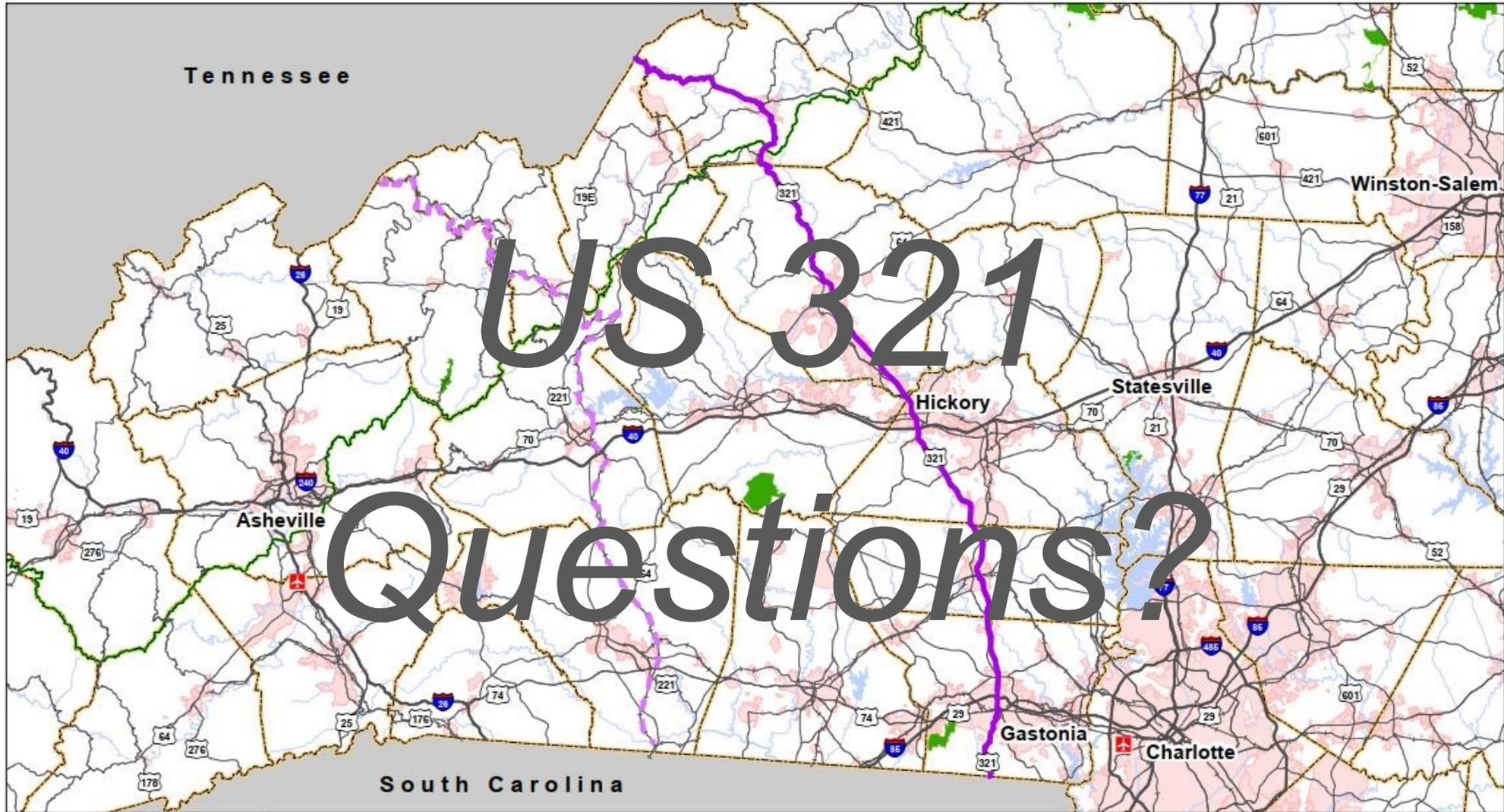
Source: NCOneMap, NCDOT GIS, ESRI

Legend

Freeway Existing	Expressway Needs Improvement	Interstate	Counties
Freeway Needs Improvement	Boulevard Existing	US Route	Municipal Boundaries
Freeway Recommended	Boulevard Needs Improvement	NC Highway	
Expressway Existing	Other Major Thoroughfare Existing	Rail	

STRATEGIC TRANSPORTATION CORRIDORS CHANGES TO CURRENT PLANS

CORRIDOR D (US 321)



US 321
Questions?

 NC STRATEGIC TRANSPORTATION CORRIDORS (STC) DECEMBER 2019 <small>Source: NCOneMap, NCDOT GIS, ESRI</small>	Legend <ul style="list-style-type: none"> — STC Highway Corridor D (US 321) - - - STC Rail Corridor D (CSX) Municipal Boundaries 	<ul style="list-style-type: none"> Interstate US Route NC Highway Rail 	<ul style="list-style-type: none"> Blue Ridge Pkwy State Parks Major Rivers/Streams Major Water Bodies 	<ul style="list-style-type: none"> Counties NC Seaports NC Int'l or Major Freight Airports
				

STRATEGIC TRANSPORTATION CORRIDORS VICINITY MAP

CORRIDOR D (US 321)

Page 26 of 50 **FIGURE 1**

U.S. 74 – Study Area Map





**NC STRATEGIC
TRANSPORTATION
CORRIDORS (STC)**

DECEMBER 2019
Source: NCOneMap, NCDOT GIS, EBRI

Legend

STC Highway Corridor U (US 74W/US 74E)	Interstate	Blue Ridge Pkwy	Counties
STC Rail Corridor U (CSX)	US Route	State Parks	NC Seaports
Municipal Boundaries	NC Highway	Major Rivers/Streams	NC Int'l or Major Freight Airports
	Rail	Major Water Bodies	

**STRATEGIC
TRANSPORTATION CORRIDORS
VICINITY MAP**

CORRIDOR U (US 74)

FIGURE 2



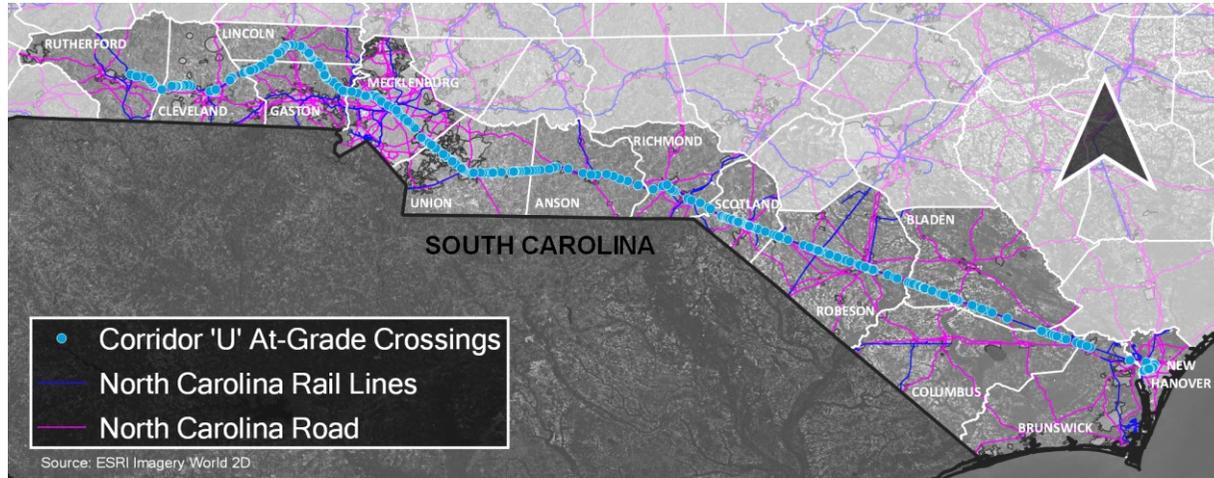
U.S. 74 - Facilities Inventory

- Highway assets inventory
 - Approx. 284 miles along highway corridor
 - Federally designated truck route along entire corridor
- Rail network inventory
 - Approx. 269 miles along primary CSX rail corridor
 - Provides access to 3 intermodal ramps (Charlotte & Wilmington)
 - 3 at-grade railroad crossings along or adjacent to highway corridor
- Bridges inventory
 - 304 bridges along highway corridor
 - 6 structurally deficient; 91 functionally obsolete

U.S. 74 - Transportation Plan Recommendations

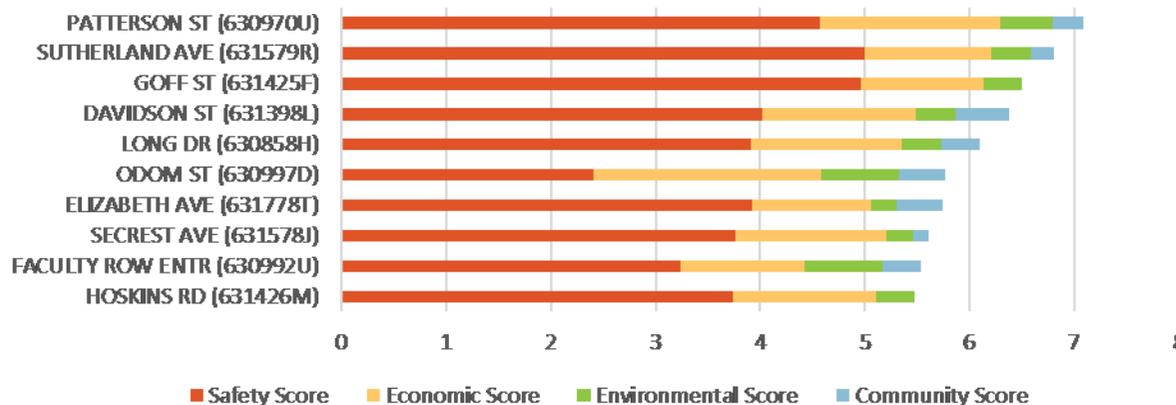
- Compiled transportation plans and recommended projects along the corridor from:
 - Statewide Transportation Improvement Program (STIP) 70 projects
 - Comprehensive Transportation Plans (CTPs) 11 CTPs
 - Metropolitan Transportation Plans (MTPs) 3 MTPs
 - Feasibility Studies (FS) 6 within past 10 years
 - Traffic Forecasts (TF) 37 within past 10 years
- Most of corridor recommended to be classified as freeway
 - Some segments in developed/urban areas recommended to be classified as boulevard (with current or planned bypass)

U.S. 74 - Railroad Crossing Assessment Tool (RCAT)



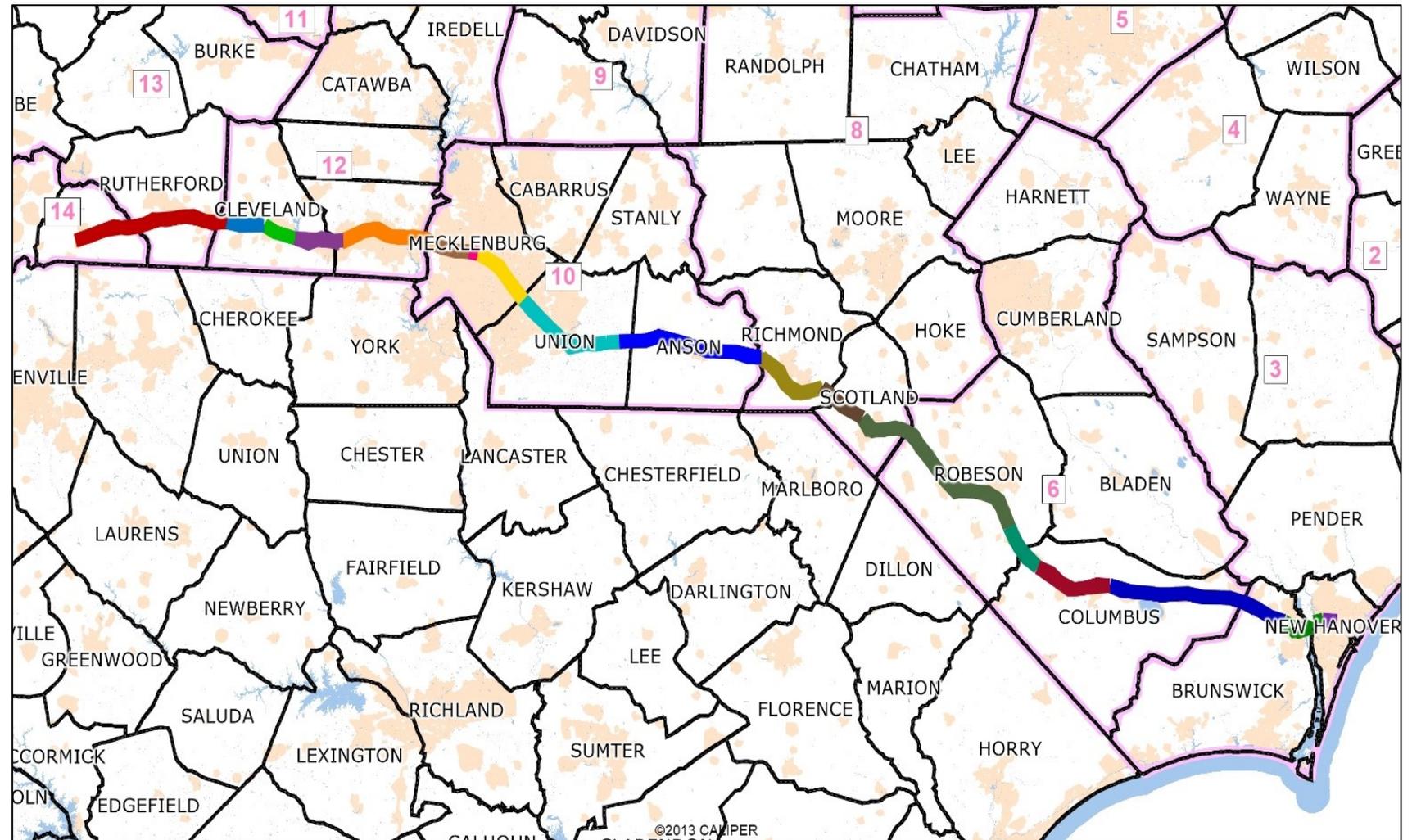
- ≈ 269 Miles of CSX Mainline Track
- Florence Division & Charlotte, Hamlet, Monroe, and Wilmington Subdivisions
- Strategic Rail Corridor Network
- 291 Public At-Grade Rail Crossings

Top Ten At-Grade Crossings (Weighted Scores)



U.S. 74 - Mobility Analysis

- 18 Segments are identified for US 74
- Grouped by facility type, urban/rural, MPO model



U.S. 74 - Mobility Analysis

Segment	From	To	2018 Conditions			2040 E+C Conditions			2040 Recommended		
			Facility Type	Typical Posted Speed	Lanes	Facility Type	Typical Posted Speed	Lanes	Facility Type	Typical Posted Speed	Lanes
201	I-26	SR 1168/Mooresboro	Expressway	65	4	Expressway	65	4	Freeway	70	4
202	SR 1168/Mooresboro	Bus 74/Shelby	Expressway	55	4	Expressway	55	4	Freeway	65	4
203	Bus 74/Shelby	Buffalo Creek/Shelby	Boulevard	45	4	Freeway	70	4	Freeway	70	4
204	Buffalo Creek/Shelby	I-85	Expressway	65	4	Expressway	65	4	Freeway	70	4
205	I-85	I-485/Wilkinson Blvd	Freeway	65	6	Freeway	65	6	Freeway	65	8
206	I-485/Wilkinson Blvd	I-77/I-277	Boulevard	45	6	Boulevard	45	6	Boulevard	45	6
207	I-77/I-277	I-277/US 74	Freeway	55	6	Freeway	55	6	Freeway	55	8
208	I-277/US 74	US 74 Bypass/Monroe	Boulevard	45	6	Expressway	55	8	Expressway	65	10
209	US 74 Bypass/Monroe	Stegall Rd E of Marshville	Boulevard	45	4	Boulevard	45	4	Boulevard	45	4
210	Stegall Rd E of Marshville	Bus 74/Rockingham W	Boulevard	55	4	Boulevard	55	4	Freeway	65	4
211	Bus 74/Rockingham W	Bus 74/Rockingham E	Expressway	65	4	Expressway	65	4	Freeway	65	4
212	Bus 74/Rockingham E	Bus 74 Lauringburg W	Expressway	55	4	Expressway	55	4	Freeway	65	4
213	Bus 74 Lauringburg W	SR 2220 Broadridge Road (E of I-95)	Expressway	65	4	Expressway	65	4	Freeway	65	4
214	SR 2220 Broadridge Road (E of I-95)	NC 242	Expressway	55	4	Expressway	55	4	Freeway	65	4
215	NC 242	Bus 74 E/Whiteville	Expressway	65	4	Expressway	65	4	Freeway	65	4
216	Bus 74 E/Whiteville	Lanvale Rd/SR 4126 (E of I-140)	Boulevard	55	4	Boulevard	55	4	Freeway	65	4
217	Lanvale Rd/SR 4126 (E of I-140)	23rd St/Wilmington	Expressway	55	4	Expressway	55	4	Expressway	55	4
218	23rd St/Wilmington	US 117/College Rd Wilmington	Boulevard	55	6	Boulevard	55	6	Boulevard	55	6

NOTE: Shaded boxes indicate change from 2018 Existing Characteristics

U.S. 74 - Mobility Analysis

- Growth rates applied to 2018 AADT
- MPO models don't consider changes in through trips
- More weight given to NCSTM

Segment	NC Statewide Model		MTP/CTP Model	STC Growth Rate	
	Annual Growth Rate, 2015-2040 E+C	Annual Growth Rate, 2015-2040 Rec.	Annual Growth Rate	E+C, Selected	Recommended, Selected
201	1.6%	2.6%	1.0%	1.3%	2.0%
202	1.6%	2.3%	0.9%	1.3%	2.0%
203	-0.9%	-0.3%	0.7%	0.6%	0.8%
204	0.8%	1.6%	1.7%	1.2%	1.6%
205	0.9%	1.1%	1.2%	0.9%	1.1%
206	1.0%	0.9%	0.7%	0.8%	1.0%
207	1.0%	1.7%	0.4%	0.8%	1.5%
208	1.8%	3.0%	2.2%	2.2%	2.5%
209	1.5%	2.1%	0.8%	1.2%	1.5%
210	1.2%	3.4%	-	1.5%	2.5%
211	1.6%	3.9%	0.4%	1.5%	2.5%
212	1.4%	3.0%	0.6%	1.5%	2.5%
213	0.9%	2.5%	1.0%	1.0%	2.5%
214	1.6%	3.7%	-	1.0%	2.5%
215	1.2%	2.6%	-	1.0%	2.5%
216	0.8%	1.3%	2.1%	1.2%	1.5%
217	1.5%	1.7%	0.7%	1.5%	1.7%
218	0.8%	0.8%	1.6%	1.0%	1.0%

U.S. 74 - Mobility Analysis

HIGHWAY MOBILITY BENEFITS

STC CORRIDOR U

US 74 – FROM I-26 IN POLK COUNTY TO

US-117 IN WILMINGTON

AVERAGE TRAVEL SPEED



2018 EXISTING

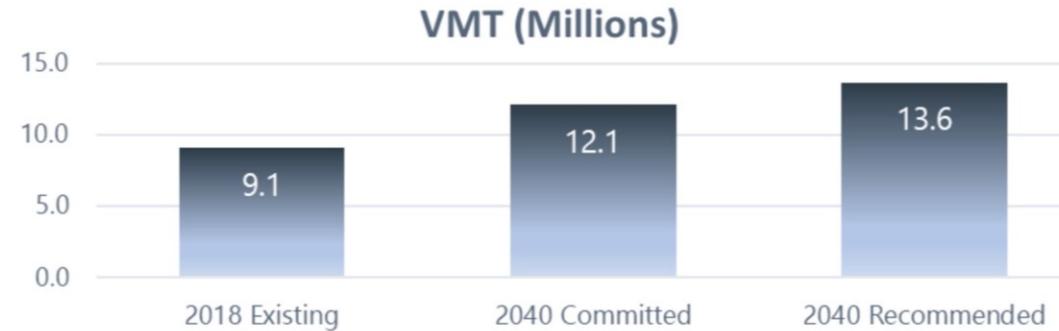


2040 COMMITTED



2040 RECOMMENDED

VEHICLE-MILES TRAVELED



210 ADDITIONAL MILES OF FREEWAY PROVIDE FASTER

TRAVEL TIMES WITH FORECASTED 50% INCREASE IN TRAFFIC

AVERAGE CORRIDOR TRAVEL TIME (HOURS)



U.S. 74 – Preliminary Corridor Vision

- Overall – Freeway for the entire length of the corridor; some sections to Interstate standards
 - Rerouting of the STC to I-485 around southern Mecklenburg County
- Differences from current adopted transportation plans
- Potential Areas for additional study
 - Wilmington/U.S. 421/U.S. 117 area (corridor ends at U.S. 117)
 - Additional bypasses around municipalities (Shelby, Marshville, Wadesboro)



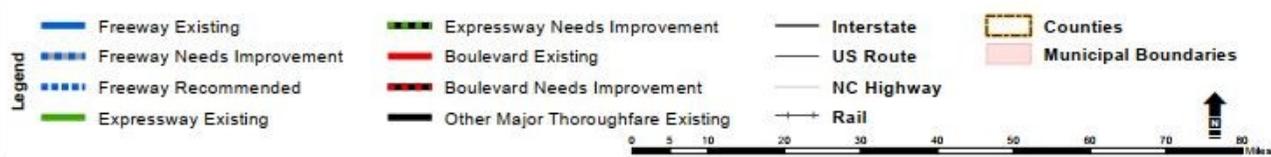
South Carolina



**NC STRATEGIC
TRANSPORTATION
CORRIDORS (STC)**

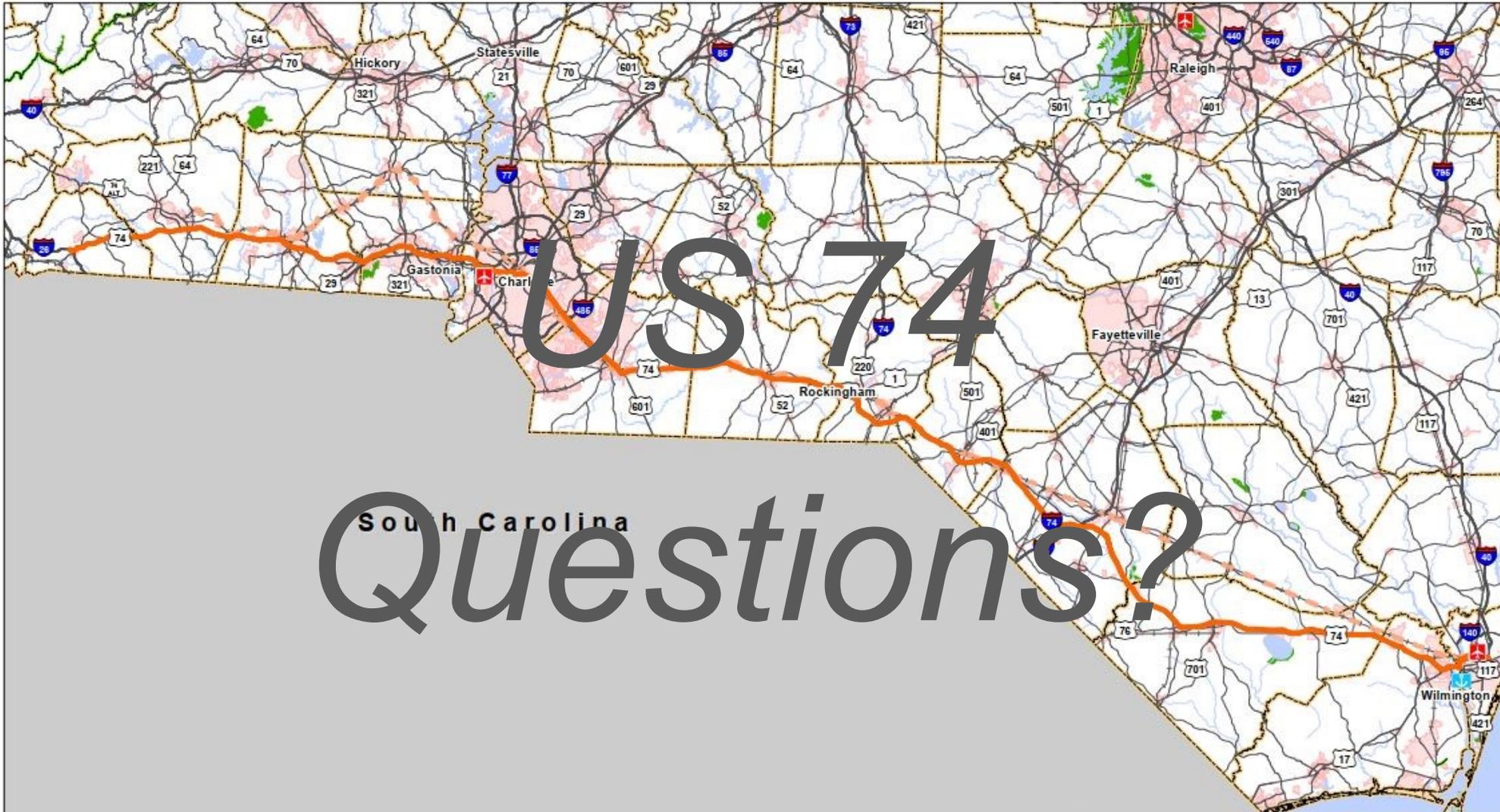
DECEMBER 2019

Source: NCOneMap, NCDOT GIS, ESRI



**STRATEGIC
TRANSPORTATION
CORRIDORS
CHANGES TO CURRENT PLANS**

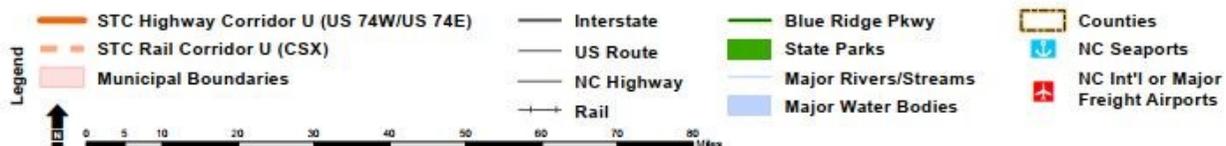
CORRIDOR U (US 74)



**NC STRATEGIC
TRANSPORTATION
CORRIDORS (STC)**

DECEMBER 2019

Source: NCOneMap, NCDOT GIS, ESRI



**STRATEGIC
TRANSPORTATION
CORRIDORS
VICINITY MAP**

CORRIDOR U (US 74)

FIGURE 2

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U.S. 321 and U.S. 74 - Performance Measures

- Aligned with rulemaking by FHWA to adopt performance measures to assess system performance

National Goal Areas

- Safety
- Infrastructure condition
- System Reliability
- Environmental Sustainability
- Congestion Reduction
- Freight movement & Economic vitality

Stakeholder Involvement

- Survey deployment
 - Goal: To understand stakeholder vision and ideas for corridor preservation and improvement
 - NCDOT to post survey on project website
 - External Steering Committee, MPOs, RPOs, Stakeholder List
 - Committee to receive a survey link to share with constituencies
 - Survey will be available for 45 days
- Resolutions of Support

Next Steps

- Finalize Performance Measures and Mobility Analysis
- Develop Resiliency Maps
- Survey

Contact Information

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