Performance Measures Technical Memorandum

North Carolina Department of Transportation

Strategic Transportation Corridor Vision Plans

Corridor P: Future I-42

Wake County to Port of Morehead City

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Tables

1. Introduction

In 2015, the North Carolina Department of Transportation (NCDOT) identified a network of key multi-modal transportation corridors called Strategic Transportation Corridors (STC) to support smart planning, help set long-term investment decisions, and ensure that North Carolina's economic prosperity goals are achieved. The STCs are intended to promote transportation system connectivity, provide high levels of mobility, and improve access to important state and regional activity centers. A key element in the advancement of the STCs is the development of corridor master plan visions.

The purpose of the master plan visions is to:

- identify high-level corridor mobility visions and associated improvement strategies,
- guide improvements and development in a manner that defines a long-term vision and performance level for the corridors, and
- help protect the corridor's key functions as defined in the corridor profiles.

NCDOT has initiated the development of a master plan for Corridor P (Future I-42), which follows US 70E from I-440 in Wake County to the Port of Morehead City. This corridor begins on the south eastern edge of Raleigh and runs through Smithfield, Goldsboro, Kinston, New Bern, and Havelock, ending at the Port of Morehead City.

To assist in developing a master plan vision for Future I-42, goals and performance measures were collected from Comprehensive Transportation Plans (CTP) and Metropolitan Transportation Plans (MTP) and catalogued in this memorandum. Accurate data will serve as the foundation for master plan vision development. The information available to define the corridors and their needs depends on the availability of complete, current, and reliable data.

2. Goals and Objectives

2.1. STC Goals and Objectives

At the outset of the STC program, NCDOT established overarching goals and objectives, as identified in **Table 1**. These goals were developed to guide the master plan visions in a cohesive direction across the corridors. This memorandum compiles the transportation goals of Future I-42 to compare them with statewide and national goals, and incorporate them into the vision of the STC program.

Table 1. STC Goals and Objectives

Goals	Objectives
System Connectivity: Provide essential connections to national transportation networks critical to interstate commerce and national defense.	Provide a continuous, consistent network of reliable, higher speed interstate, defense, and major freight routes. For system connectivity, corridors should provide functional classification and facility type consistent with those attributes; corridors should have high capacity consistent with speed and reliability objectives.
Mobility: Facilitate high volume inter-regional movements of people and goods across the state.	Serve major inter-regional travel corridors with high levels of service, moving higher volumes of passenger or freight traffic, and provide multiple transportation modes or routes for the opportunity of choice and flexibility in travel or shipping in the corridor.
Economic Prosperity: Support efficiency of transport logistics and economic development throughout the state for economic regions and clusters of existing and emerging activity centers.	Provide high-quality access to defined intrastate activity center clusters and to nearby critical activity centers in surrounding states and ensure access to at least one strategic corridor for each multi-county region of Tier 1 Economic Development counties.*

*The North Carolina Department of Commerce annually ranks the state's counties based on economic well-being and assigns each a Tier designation. The 40 most distressed counties are designated as Tier 1, the next 40 as Tier 2 and the 20 least distressed as Tier 3.

2.2. Corridor Segments

Future I-42 is 145 miles in length and spans eastern North Carolina from Raleigh to the Port of Morehead City. The I-40 portion of Future I-42 is included in the National Highway System's (NHS) Eisenhower Interstate System. The remainder of the corridor is classified as part of the Non-Interstate Strategic Highway Network (STRAHNET) and the Strategic Rail Corridor Network (STRACNET). Served by both highway and rail, Future I-42 is the principal freight route from the Port of Morehead City to the state's capital. It is also a vital trucking route for intermediate cities along the corridor.

From a high-level perspective, Future I-42 can be broken into three segments: 1) I-40/I-440 Junction to US 70/US 70 Business Junction; 2) US 70/US 70 Business Junction to US 17/US 70 Junction; and 3) US 17/US 70 Junction to the Port of Morehead City. The first segment is located on the outskirts of the Raleigh metropolitan area. Segment 2 is in predominately rural areas with some small urban centers. The third segment begins just south of New Bern, where it becomes the primary travel route to the eastern coast of North Carolina. While Future I-42 is mostly classified as a freeway, Segment 3 converts to a boulevard in Morehead City. The Future I-42 segments are shown in **Table 2**. The segments shown in this table were identified during the corridor inspection and will be further refined through the STC planning process. Segment definitions and specifications were drawn from the NCDOT Facility Types & Control of Access Definitions (2005), shown in Appendix A: Facility Type and Control of Access.

Table 2. Corridor P: Future I-42 Segments

Segment No.	Segment	Segment Lengths	Existing Facility Type	Control of Access	Sidewalks/Trails
1	I-40/I-440 Junction to U.S. 70/U.S. 70 Business Junction	17.7 miles	Freeway	Full	No
2	U.S. 70/U.S. 70 Business Junction to U.S. 17/U.S. 70 Junction	92.5 miles	Boulevard to Freeway	Partial to Full	No
3	U.S. 17/U.S. 70 Junction to the Port of Morehead City	36.0 miles	Boulevard to Freeway	Partial	Yes, sidewalks present in Havelock and Morehead City

2.3. Corridor Goals and Objectives

Future I-42 traverses Wake, Johnston, Wayne, Lenoir, Jones, Craven, and Carteret counties; Highway Divisions 2, 4, and 5; and the Capital Area Metropolitan Planning Organization (MPO), Goldsboro Urban Area MPO, New Bern Area MPO, Down East Rural Planning Organization (RPO), Eastern Carolina RPO, and Upper Coastal Plain RPO.

Future I-42 is critical to eastern North Carolina prosperity, linking major economic activity centers of the Research Triangle region to principal eastern North Carolina activity centers in Kinston, Goldsboro, New Bern, and Morehead City. The corridor provides a direct route for tourists traveling to North Carolina beaches and this tourism traffic depends on reliable, uninterrupted highway and rail service along the entire length of the corridor. The principal mobility expectation of the corridor is to provide safe, reliable freight service.

To better understand priorities in the Future I-42 planning area, goals were gathered from Comprehensive Transportation Plans (CTP), Metropolitan Transportation Plans (MTP), and one MPO website that include Future I-42. The project team targeted any CTP or MTP that had been collected within 10 years of March 2020 that included goals and performance measures, including the following (plans with asterisks (*) did not include goals and plans with crosses (†) did not include performance measures):

- 2011 Kinston CTP*†
- 2014 Carteret County CTP†
- 2014 Johnston County CTP†
- 2016 Jones County CTP†
- 2016 New Bern Area MPO MTP†
- 2018 Lenoir County CTP†
- 2018 Research Triangle Region's (composed of the Capital Area MPO and Durham-Chapel Hill-Carrboro MPO) MTP
- 2019 Goldsboro MPO MTP
- Capital Area MPO website*

The goals found in these plans are categorized into 12 Goal Areas found at the national, state, and county/MPO levels. The national goal areas, set by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), are defined in **Tables 5 and 6**, respectively. The state goal areas, determined by the NCDOT, match the national goal areas**.** The county/MPO goal areas were created by organizing plan goals that did not fit in a national goal area by similar topics. **Table 3** displays the number of goals that are categorized into a given goal area per plan and **Table 4** displays the goals per plan with their corresponding objectives or strategies and goal area(s).

Table 3. Count of Goal Areas Established in the Future I-42 Planning Area

Plan*	Goal Area**											
	National/State							County/MPO				
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life
Research Triangle Region's MTP	1	1	1	1	1	1	1			3		3
Johnston County CTP	1	1		1	1		4	2		1		
Goldsboro Urban Area MPO MTP		1	1	1	1	1			1	1	1	
Lenoir County CTP	1	1	1		1				2	1		1
Jones County CTP	1	1	1				4		2	1		
New Bern Area MPO MTP	1		1	1			2		2	3		
Carteret County CTP	2	1	2		2		2	2		3	1	1

*The Kinston CTP is not included because it does not identify goals
**The numbers indicate the number of goals that fell within the goal area from the identified plan

Table 4. Goals, Objectives, and Strategies Established in the Future I-42 Planning Area

Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
Research Triangle Region's MTP	X					X							Manage congestion and system reliability	Allow people and goods to move with minimal congestion and time delay, and with greater predictability
														Promote Travel Demand Management (TDM), such as carpooling, vanpooling and park-and-ride
														Enhance Intelligent Transportation Systems (ITS), such as ramp metering, dynamic signal phasing and vehicle detection systems
		X											Protect the environment and address climate change objectives	Reduce mobile source emissions, greenhouse gas emissions and energy consumption
														Minimize negative impacts on the natural and cultural environments
			X				X						Stimulate economic vitality objectives	Improve freight movement
														Link land use and transportation
														Target funding to the most cost-effective solutions
														Improve project delivery for all modes
				X									Improve infrastructure condition	Increase the proportion of highways and highway assets rated in 'Good' condition
														Maintain transit vehicles, facilities and amenities in the best operating condition
														Improve the condition of bicycle and pedestrian facilities
					X					X		X	Promote safety and health objectives	Increase the safety of travelers and residents
														Promote public health through transportation choices
										X			Promote multi-modal and affordable travel choices	Enhance transit services, amenities and facilities
														Improve bicycle and pedestrian facilities
														Increase utilization of affordable non-auto travel modes
										X		X	Connect people	Connect people to jobs, education and other important destinations using all modes
														Ensure transportation needs are met for all populations, especially the aging and youth, economically disadvantaged, mobility impaired, and minorities
												X	Ensure equity and participation objectives	Ensure that transportation investments do not create a disproportionate burden for any community
														Enhance public participation among all communities

*The Kinston CTP is not included because it does not identify goals
**Objectives and Strategies are not targeted to individual goals in the Carteret County CTP
***An "X" indicates the goal outlined in the plan fits within the given goal area

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Table 4. Goals, Objectives, and Strategies Established in the Future I-42 Planning Area (Continued)

Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
Johnston County CTP	X				X								Identify ways to improve safety and congestion as well as programs to educate the public on traffic safety	N/A
		X											Encourage identification and consideration of sustainable practices and environmental sensitivity	N/A
				X				X					Ensure the integrity of the existing transportation system by encouraging planned and strategic development	N/A
							X						Provide a means to identifying and prioritizing transportation system needs on a local and regional scale	N/A
							X						Coordinate transportation and improvement needs between multiple jurisdictions, including the RPO and MPO	N/A
							X						Encourage right-of-way preservation to ensure expansion of the existing system and future roadway projects	N/A
							X						Identify various funding alternatives for traffic improvements and transportation needs	N/A
								X		X			Enhance and expand services for alternative modes of transportation including but not limited to transit, walking and bicycling through increased funding and cooperative regional planning	N/A
Goldsboro Urban Area MTP		X											Environment	Preserve and enhance the Goldsboro region's valued places and environment to provide a resilient transportation system.
				X									Maintenance	Preserve the existing network to maximize benefits to the transportation system while minimizing costs
					X								Safety	Limit crashes in the region and provide safe facilities for bicyclists and pedestrians.
						X							Efficiency	Ensure the transportation system benefits from efficiency in coordinated policy and technology decisions
									X				Accessibility	Ensure that roads provide safe access to local businesses to increase safety and network efficiency.
										X			Connectivity	Provide a well-connected transportation network for automobiles, bicycles, and pedestrians
			X										Economic Development	Support regional economic development with a transportation system that makes it easier to move people and goods within and through the region and promotes overall job growth.
											X		Security	Provide safe access to evacuation routes and Seymour Johnson Air Force Base, while maintaining a flexible transportation system that aids the response to and recovery from natural and man-made disasters

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**Objectives and Strategies are not targeted to individual goals in the Carteret County CTP
***An "X" indicates the goal outlined in the plan fits within the given goal area

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Table 4. Goals, Objectives, and Strategies Established in the Future I-42 Planning Area (Continued)

Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
Lenoir County CTP	X								X				Provide an efficient transportation system through improved connectivity, capacity, and operations	Reduce crash rates, frequency, and severity of vehicle related crashes
														Create a robust network of bicycle and pedestrian facilities delineated from vehicle traffic to increase visual awareness and reduce conflict points for non-motorized travelers
														Protect rail crossings through better awareness, vehicle sightlines, and more gate controlled intersections
		X										X	A transportation system that preserves and promotes the quality of life in Lenoir County	Promote reductions in recurring congestion through transportation capacity, access management, and policy improvements
														Create a well maintained, more accommodating, network of roads with more connections to the various destinations throughout Lenoir County
														Increase travel flow through operational improvements such as additional turn lanes and superstreet designs, including signal removal
			X						X	X			Support regional growth through a transportation network that serves inter- and intra- regional accessibility and mobility needs for both people and goods	Identify transportation recommendations that enable global competitiveness, productivity, and efficiency
														Increase the accessibility and mobility of people and freight within the region to and from the Global TransPark and to other areas in Lenoir County
														Continue to support the upgrade of Future Interstate 42 to interstate design standards
														Provide more transportation choices through the development and expansion of North Carolina's Strategic Transportation Corridors in Lenoir County
					X								Promote a safer multi-modal transportation network through crash reduction, enhanced reliability and predictability, and clearer interaction between the various modes of transportation	Minimize transportation impacts to the natural, social, and historic environment
														Improve bicycle, pedestrian and waterways access opportunities
														Plan for alternative forms of transportation addressing the needs of citizens whose access to transportation is limited by health or economic constraints
														Leverage gateways and aesthetics to create an atmosphere that fosters economic investment

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Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
Jones County CTP	X						X						Develop recommendations that capitalize on the use of existing infrastructure across traditional jurisdictions and add capacity strategically	N/A
		X											Make informed transportation decisions that are sensitive to the environment and existing development patterns	N/A
			X										Create land use and access management policy recommendations that optimize available transportation capacity for agriculture and economic development activities occurring within the County	N/A
							X		X				Develop recommendations that improve and upgrade the connections between local urban areas within the county by identifying major corridors and using access management techniques	N/A
							X			X			Establish a county-wide multi-modal transportation plan in conjunction with the county land use plan in cooperation with local and state organizations including but not limited to the Down East Rural Planning Organization, Town of Maysville, Town of Pollocksville, Town of Trenton, and neighbouring communities	N/A
							X						Offer policy guidance to local governments so that they can ensure the protection of corridors for future transportation use	N/A
									X				Develop recommendations that create opportunities for better mobility from local areas within the county to regional activity centers outside the county	N/A

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Table 4. Goals, Objectives, and Strategies Established in the Future I-42 Planning Area (Continued)

Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
New Bern Area MPO MTP	X		X						X				Promote efficient vehicle and freight movement to bolster regional economic development	Employ access management techniques in retrofitting existing major thoroughfares to expedite freight movement, reduce congestion and increase flow
														Coordinate with NCDOT Rail Division in relocating the current freight rail line outside of the New Bern Downtown area
														Coordinate with local Chambers of Commerce in collecting/maintaining flow data and in improving communication between the MPO and freight providers
				X					X	X			Extend the life of transportation infrastructure through preventative maintenance and access management	Engage and consult with local jurisdictions in the compilation of Short and Medium Range Capital Improvement Projects lists
														Encourage local jurisdictions to apply “Access Management” techniques during development/subdivision reviews, to include reverse frontage, roundabouts, limited access when deemed appropriate
														Promote alternative modes of transportation
														Consult with local government during Capital Improvement Program (CIP) process
							X			X			Expand network of dedicated bicycle and pedestrian infrastructure	Encourage local jurisdictions to establish dedicated local funding for projects included in plans on a priority basis
														Coordinate with jurisdictions on capital improvement program to incorporate bicycle and pedestrian facilities as part of roads improvements
														Identify additional areas of need and recommend appropriate action, including re-striping, bulb-outs and road diets
														Increase communication and coordination with local government and NCDOT
														Encourage local jurisdictions to adopt a “Complete Streets” Policy
							X						Achieve seamless land use and transportation planning connection	Increase communication and coordination with land use and transportation planning staff on the development of long range planning documents and policies
														Increase MPO participation in local planning and zoning and design review meetings
														Promote and support municipalities’ consideration of adopting similar development/subdivision ordinances that support the transportation goals and plans of the area
														Increase communication and coordination with land use and transportation planning staff on the decisions and recommendations on individual projects and requests
										X			Enhance public transportation availability within the MPO Region	Provide additional stops and transfer points at key locations to reduce wait times and increase reliability
														Include added infrastructure such as benches, signage, and shelters
														Increase communication about public transit through marketing
														Consider park and ride services for major employers and in outlying areas

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Plan*	Goal Area***												Goal	Objectives and Strategies**
	National/State							County/MPO						
	Congestion Reduction	Environmental Sustainability	Freight Movement and Economic Vitality	Infrastructure Condition	Safety	System Reliability	Reduced Project Delivery Delays	Cohesive and Strategic Planning	Mobility	Multi-Modal	Security	Socioeconomic and Quality of Life		
Carteret County CTP	X	X						X					Maximize the use of existing facilities and add capacity and connectivity strategically	• Establish a Countywide multi-modal transportation system • Coordinate transportation and land use plans between Carteret County and its Towns, and the Down East Rural Planning Organization, the North Carolina Department of Transportation, plus other local and state organizations • Enhance and expand services for alternative transportation needs, including (but not limited to) transit, walking, and bicycling • Make informed transportation decisions that are sensitive to possible adverse impacts on the environment • Study automobile crashes within the county and make improvement recommendations • Use traffic management techniques to improve and upgrade the connections between communities and to identify major transportation corridors • Coordinate transportation plans and recommendations with Carteret County Emergency Management Office and other relevant local and State organizations • Solicit additional transportation goals and objectives for the future from the municipalities and Carteret County • Educate the public on general transportation issues, as well as alternative forms of transportation
	X				X								Reduce congestion and improve safety	
			X		X					X		X	Provide a safe, reliable, efficient, and sustainable multi-modal regional transportation network that enhances the quality of life within, and economic vitality of, Carteret County and its Towns, as well as Eastern Carolina	
			X					X					Promote the continued improvement of the road and rail networks to and within Carteret County to create a transportation network that promotes and supports economic development, particularly development that is compatible with the existing and future land use goals and patterns	
							X						Promote cooperative local and regional planning	
							X						Promote the orderly design of new rights-of-way	
										X			Plan for alternative forms of transportation	
										X			Seek increased funding of all transportation modes	
											X		Ensure the safe evacuation of the population when hurricanes and other natural hazards occur	

*The Kinston CTP is not included because it does not identify goals
**Objectives and Strategies are not targeted to individual goals in the Carteret County CTP
***An "X" indicates the goal outlined in the plan fits within the given goal area

3. Performance Measures

3.1. National Performance Measures

Consistent with the vision set for the STC network, it is in the public interest that the primary facilities on the STC network provide long-term, high-quality levels of service in terms of safety, travel speed, and reliability. To understand whether the STC goals and objectives are being met, it is necessary to define expectations and measure performance. NCDOT is strongly aligned with recent rulemaking by the FHWA and FTA to adopt performance measures to assess system performance. National and state performance measures and their respective state targets are included in **Table 5**. Performance measures provided by the FTA are in **Table 6**.

Table 5. Federal Highway Administration and State Performance Measures

Goal Area	Goal	Performance Measure	NCDOT Targets
Safety*	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads	Number of Fatalities	1,227.8 (2020)
		Rate of Fatalities	1.084 (2020)
		Number of Serious Injuries	2,812.8 (2020)
		Rate of Serious Injuries	2.462 (2020)
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	426.6 (2020)
Infrastructure Condition	To maintain the highway infrastructure asset system in a state of good repair	Percentage of Pavements in Good Condition (Interstate)	>=37.0% (4 year)
		Percentage of Pavements in Poor Condition (Interstate)	<=2.2% (4 year)
		Percentage of Pavements in Good Condition (Non-Interstate National Highway System [NHS])	>=21.0% (4 year)
		Percentage of Pavements in Poor Condition (Non-Interstate NHS)	<=4.7% (4 year)
		Percentage of Bridges in Good Condition (NHS)	>=30.0% (4 year)
		Percentage of Bridges in Poor Condition (NHS)	<=9.0% (4 year)
System Reliability	To improve the efficiency of the surface transportation system	Percent of Reliable Person-Miles Traveled (Interstate)	>=75.0% (4 year)
		Percent of Reliable Person-Miles Traveled (Non-Interstate NHS)	>=70.0% (4 year)

*NCDOT safety targets are established in the Highway Safety Improvement Program 2019 Annual Report. *(Continued on next page)*
**This performance measure only applies to the Charlotte maintenance area.
***This performance measure only applies to the Charlotte urbanized area.
†This performance measure is specific to NCDOT. High index values indicate unreliable truck travel times while low values indicate more reliable travel times.
††This performance measure is specific to NCDOT. FHWA does not have a defined performance measure for this goal.

Table 5. Federal Highway Administration and State Performance Measures (Continued)

Goal Area	Goal	Performance Measure	NCDOT Targets
Environmental Sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment	Total Emissions Reduction**	4-year target: CO: 23.044 kg/day VOC: 0.504 kg/day NOx: 4.720 kg/day
Congestion Reduction	To achieve a significant reduction in congestion on the NHS	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the NHS***	<=34.0% (4 year)
		Percent of Non-Single Occupancy Vehicle (SOV) Travel***	>=21.0% (4 year)
Freight Movement & Economic Vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development	Interstate Truck Travel Time Reliability Index†	>=1.7 (4 year)
Reduced Project Delivery Delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens	STIP and non-STIP planned projects that are let to contract on schedule††	<= 90%

*NCDOT safety targets are established in the Highway Safety Improvement Program 2019 Annual Report.
**This performance measure only applies to the Charlotte maintenance area.
***This performance measure only applies to the Charlotte urbanized area.
†This performance measure is specific to NCDOT. High index values indicate unreliable truck travel times while low values indicate more reliable travel times.
††This performance measure is specific to NCDOT. FHWA does not have a defined performance measure for this goal.

Table 6. Federal Transit Administration and State Performance Measures

Goal Area	Performance Measures	NCDOT Target
Safety*	Total number of reportable fatalities and rate per total vehicle revenue miles by mode	N/A
	Total number of reportable injuries and rate per total vehicle revenue miles by mode	N/A
	Total number of reportable events and rate per total vehicle revenue miles by mode	N/A
	Mean distance between major mechanical failures by mode	N/A
Infrastructure Condition	Percentage of vehicles that have met or exceeded their Useful Life Benchmark (ULB)**	20% (2020)
	Percentage of revenue vehicles within a particular asset class that have met or exceeded their ULB†	20% (2020)
	Percentage of facilities within an asset class rated below 3.0 on the FTA Transit Economic Requirements Model (TERM) scale	20% (2020)
	Percent of track segments under performance restriction	N/A

*The NCDOT Transit Asset Management Plan does not discuss FTA safety performance measures.
**The NCDOT identifies a ULB of 8 years for the following asset classes: non-revenue/service automobiles, steel wheel vehicles, and trucks and other rubber tire vehicles. For all other asset classes, the NCDOT has left it up to individual agencies to determine the ULB.
†The NCDOT identifies ULBs for each asset class as follows: 14 years for buses, 10 years for cutaway buses and mini-buses, and 8 years for automobiles, mini-vans, sport utility vehicles, vans, and others.

3.2. Corridor Performance Measures

The project team compiled performance measures that were developed in CTPs and MTPs along Future I-42 as shown in **Table 7** and **Table 8**. **Table 7** identifies the plans that align with the performance measures that fall under the national goal areas and **Table 8** defines the performance measures that are found in the plans and identifies which county/MPO goal area the measures support.

Table 7. National and State Performance Measures Established in the Future I-42 Planning Area

National/State Goal Area	Performance Measure		Plan*		
			Research Triangle Region's MTP**	Capital Area MPO (Website)†	Goldsboro Urban Area MPO MTP**
Safety	National/State (Highway)	Number of Fatalities	X	X	X
		Rate of Fatalities	X	X	X
		Number of Serious Injuries	X	X	X
		Rate of Serious Injuries	X	X	X
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	X	X	X
	National/State (Transit)	Total number of reportable fatalities and rate per total vehicle revenue miles by mode			X
		Total number of reportable injuries and rate per total vehicle revenue miles by mode			X
		Total number of reportable events and rate per total vehicle revenue miles by mode			X
		Mean distance between major mechanical failures by mode			X
Infrastructure Condition	National/State (Highway)	Percentage of Bridges in Good Condition (NHS)		X	X
		Percentage of Bridges in Poor Condition (NHS)		X	X
		Percentage of Pavements in Good Condition (Interstate)		X	X
		Percentage of Pavements in Poor Condition (Interstate)		X	X
		Percentage of Pavements in Good Condition (Non-Interstate NHS)		X	X
		Percentage of Pavements in Poor Condition (Non-Interstate NHS)		X	X
	National/State (Transit)	Percentage of vehicles that have met or exceeded their Useful Life Benchmark (ULB)		X	X
		Percentage of revenue vehicles within a particular asset class that have met or exceeded their ULB		X	X
		Percentage of facilities within an asset class rated below 3.0 on the FTA Transit Economic Requirements Model (TERM) scale		X	X
		Percent of track segments under performance restriction			
	MPO	Number and Percentage of Structurally Deficient Bridges	X		
		Percentage of Lane Miles with NCDOT Unacceptable Pavement Condition Rating	X		
		Percentage of Reported Potholes Repaired Within Two Days by NCDOT	X		
System Reliability	National/State (Highway)	Percent of Reliable Person-Miles Traveled (Interstate)		X	X
		Percent of Reliable Person-Miles Traveled (Non-Interstate NHS)		X	X
	MPO	Vehicle Miles of Travel (VMT) Per Capita	X		
		Amount of ITS Investments	X		
Environmental Sustainability	National/State (Highway)	Total Emissions Reduction			X
	MPO	Emissions per Capita from On-road Mobile Sources (ozone, carbon monoxide,particulate matter, greenhouse gases)	X		
		Energy Consumption per Capita from Transportation Sources	X		
		Percentage of Planned Investment in Existing Roadways (Versus New Alignment)	X		
Congestion Reduction	National/State (Highway)	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the NHS			X
		Percent of Non-Single Occupancy Vehicle (SOV) Travel			X
	MPO	Average Clearance Time for Crashes on Principal Roadways	X		
		Daily Minutes of Delay per Capita	X		
		Percentage of Work and Non-Work Trips by Auto That Take Less Than 30 Minutes	X		
Freight Movement & Economic Vitality	National/State (Highway)	Interstate Truck Travel Time Reliability Index		X	X
	MPO	Freight Buffer Time Index	X		
		Minutes of Truck Delay Per Trip	X		
		Percent Interstate miles Level of Travel Time Reliability		X	
		Percent Non-Interstate NHS miles Level of Travel Time Reliability		X	
Reduced Project Delivery Delays	State (Highway)	STIP and non-STIP planned projects that are let to contract on schedule			X
	MPO	Total Individuals Provided Transportation Demand Management Program and Activity Support	X		
		Percentage of TIP Projects Completed On-time (Let to Construction) by Mode	X		
		Percentage of MTP Projects Built in the Time Period in Which They First Appeared	X		
		Percentage of TIP Projects Built in the Time Period in Which They First Appeared	X		
		Average Payback Period of Investments by Mode	X		

*The Kinston County, Carteret County, Johnston County, Jones County, and Lenoir County CTPs, and the New Bern Area MPO MTP are not listed because they do not identify performance measures

**An "X" indicates the performance measure is included in the plan

†The Capital Area MPO Website is included because it provides additional performance measures for the Research Triangle Region that are not included in the MTP

Table 8. County/MPO Performance Measures Established in the Future I-42 Planning Area

County/MPO Goal Area	Performance Measure	Plan* Research Triangle Region's MTP**
Cohesive and Strategic Planning	*None*	
Mobility	*None*	
Multi-Modal	5-Year Average of Expenditures on Cycling/Walking Facilities	X
	Percentage of Work and Non-Work Trips by Transit That Take Less Than 45 Minutes	X
	Percentage of Cycling Facilities by Type (Bike Lanes, Shared Use Paths, Etc.) Rated in Good Condition	X
	Percentage of Peak Hour Travelers Driving Alone	X
	Percentage of Urbanized Area Within ¼ Mile of Pedestrian Facilities	X
	Proportion of Jurisdictions with Ordinance Requirements for Sidewalk Construction or in-Lieu Fees	X
	Percentage of Adults Who Are Physically Active	X
	Amount and Percentage of Population and Jobs in "Travel Choice Neighborhoods:" Areas Accessible to Light Rail, Bus Rapid Transit, Commuter Rail and Frequent Bus Service (½ Mile to Stations, ¼ Mile to Frequent Bus Service)	X
	Total Transit Boardings Per Capital	X
	Percentage of Bus Stops Meeting Defined Facility Criteria (E.G. Benches, Shelters, Arriving Bus Status)	X
	Per Capita Transit Service Hours	X
	Transit, Cycling and Walking Mode Shares (Overall, in Transit Corridors, in Travel Choice Neighborhoods)	X
Security	*None*	
Socioeconomic and Quality of Life	Number of Public Participants in Each Process by Type (In-Person, Email, Survey, Social Media)	X
	Percentage of Environmental Justice Population and Total Population Within ½ Mile of Bus Service, 1 Mile of Rail Service, ½ Mile of Bike Facilities or ¼ Mile of Sidewalk	X
	Amount and Percentage of Legally Binding Affordable Housing Units Located with ½ Mile of Transit Infrastructure Stations or Frequent Bus Service	X
	Number of Employees Working for Best Workplace for Commuters Employers	X
	Environmental Justice Requirements Met by 2045 MTP	X

*The Kinston County, Carteret County, Johnston County, Jones County, and Lenoir County CTPs, and the New Bern Area MPO MTP are not listed because they do not identify performance measures. The Goldsboro Urban Area MPO MTP is not listed because all of its performance measures fit into the national/state goal areas.
**An "X" indicates the performance measure is included in the plan
†The Capital Area MPO Website is included because it provides additional performance measures for the Research Triangle Region that are not included in the MTP

Appendix A

Appendix A. Facility Type and Control of Access

A.1. NCDOT Facility Type

Roadways can be categorized into facility types based on their purpose, design classification, speed limit, and control of access. These facility types are listed below in **Table A-1**.

Table A-1. Highway Functional Class Definitions

	Freeways	Expressways	Boulevards	Thoroughfares
Functional Purpose	High Mobility, Low Access	High Mobility, Low to Moderate Access	Moderate Mobility, Low to Moderate Access	Moderate to Low Mobility, High Access
AASHTO Design Classification	Interstate or Freeway	Arterial	Arterial or Collector	Collector or Local
Speed Limit	55 mph or greater	45 mph to 60 mph	30 mph to 55 mph	25 mph to 55 mph
Control of Access	Full	Limited or Partial	Limited or Partial	None
Traffic Signals	Not Allowed	Not Allowed	Allowed	Allowed
Driveways	Not Allowed	Limited Control of Access - Not Allowed Partial Control of Access - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out	Limited Control of Access - Not Allowed Partial Control of Access - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out	Allowed with Full Movements; Consolidate or Share Connections, if possible
Cross-Section	Minimum 4 Lanes with a Median	Minimum 4 Lanes with a Median	Minimum 2 Lanes with a Median	Minimum 2 Lanes; No Median; Includes Facilities with Two Way Left Turn Lane
Connections	Provided only at Interchanges; All Cross Streets are Grade-Separated	Provided only at Interchanges for Major Cross Streets and At-Grade Intersections for Minor Cross Streets; Use of Acceleration and Deceleration Lanes for At-Grade Intersections	At-Grade Intersections for most Major and Minor Cross Streets (Occasional Interchange at Major Crossing); Use of Acceleration and Deceleration Lanes	Primarily At-Grade Intersections
Median Crossovers	Public-use Crossovers Not Allowed; U-turn Median Openings for Use by Authorized Vehicles Only when Need is Justified	Allowed; Alternatives to All Movement Crossovers Encouraged; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)	Allowed; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)	Not Applicable

Information taken from NCDOT Facility Types & Control of Access Definitions (2005)

A.2. Highway Access Control

Roadways are categorized into different levels of control of access describing the amount of connectivity provided to adjacent land uses and other roadways. These levels are listed below in **Table A-2** in order of mobility function.

Table A-2. Control of Access Definitions

Classification	Description
Full Control	Connectivity provided only via ramps at interchanges. All cross-streets are grade separated and no driveway connections are allowed. A control of access fence is placed along the entire length of the facility and at a minimum of 1000 feet beyond the ramp intersections on the minor facility at interchanges if possible.
Limited Control	Connectivity provided only via ramps at interchanges for major crossings and at-grade intersections for minor crossings and service roads. No driveway connections allowed. A control of access fence is placed along the entire length of the facility, except at intersections, and at a minimum of 1000 feet beyond the ramp intersections on the minor facility at interchanges if possible.
Partial Control	Connectivity provided via ramps at interchanges, at-grade intersections, and driveways. Private driveway connections are generally at a maximum of one per parcel. The use of shared or consolidated connections is highly encouraged, and connections may be restricted or prohibited if alternate access is available through adjacent public facilities. A control of access fence is placed along the entire length of the facility, except at intersections and driveways, and at a minimum of 1000 feet beyond the ramp terminals on the minor facility at interchanges if possible.
No Control	Connectivity provided via ramps at interchanges, at-grade intersections, and driveways. No physical restrictions (i.e., a control of access fence) exist. Private driveway connections are generally at a maximum of one per parcel. Additional connections may be considered if they are justified and if such connections do not negatively impact traffic operations and public safety.

Information taken from NCDOT Facility Type & Control of Access Definitions:
https://connect.ncdot.gov/projects/planning/TPB%20Documents/NCDOT%20Facility%20Types%20-%20Control%20of%20Access%20Definitions.pdf

Appendix B

Appendix B. Goal Areas

B.1. Goal Areas

The goals in this report are found at the national, state, and county/MPO levels. The national goal areas are set and defined by the FHWA and FTA. The county/MPO goal areas represent additional goals found in the MTPs and CTPs included this document that did not fit in a national goal area. The county/MPO goal areas are defined by NCDOT for the purposes of the STC Vision Plan development. These definitions of the goal areas are listed below in **Table B-1**.

Table B-1. Goal Area Definitions

Goal Area	Definition
National	
Congestion Reduction	To achieve a significant reduction in congestion on the National Highway System.
Environmental Sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment.
Freight Movement and Economic Vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Infrastructure Condition	FHWA: To maintain the highway infrastructure asset system in a state of good repair.
	FTA: The strategic and systematic practice of procuring, operating, inspecting, maintaining, rehabilitating, and replacing transit capital assets to manage their performance, risks, and costs over their life cycles, for the purpose of providing safe, cost-effective, and reliable public transportation.
Safety	FHWA: To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
	FTA: To improve the safety of all public transportation systems that receive Federal financial assistance.
System Reliability	To improve the efficiency of the surface transportation system.
Reduced Project Delivery Delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.
County/MPO	
Cohesive and Strategic Planning	To promote the integration of transportation, land use, and policy planning through the cooperation and communication between local and regional agencies.
Mobility	To increase the transportation network's ability to move people and goods locally and regionally.
Multi-Modal	Promote the ability to travel using a variety of transportation methods, such as walking, biking, and using transit, in addition to personal vehicle.
Security	To enhance a transportation system that provides access to evacuation routes, facilitates disaster response, and protects access to military bases.
Socioeconomic and Quality of Life	To provide transportation options and access to destinations for all user groups regardless of socioeconomic status or physical ability.