
Vision Statement

North Carolina Department of Transportation
Strategic Transportation Corridor Vision Plans

Corridor P: I-40/Future I-42/U.S. 70

Wake County to Port of Morehead City

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1. Overview and Project Background

This memorandum presents base and future year mobility analyses for Corridor P (I-40/Future I-42/U.S. 70) of the North Carolina Strategic Transportation Corridors (STC). All data, maps, and conclusions are based on information available as of May 2022 and stakeholder input from November 2022. It is recognized that local plans are updated regularly, and this Vision Statement reflects information current at the time of preparation.

1.1. Overview of Strategic Transportation Corridors

In 2015, the North Carolina Department of Transportation (NCDOT) identified a network of key multimodal 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.

1.2. Corridor Description

I-40/Future I-42/U.S. 70 is 147 miles in length and spans eastern North Carolina from Raleigh to the Port of Morehead City. I-40/Future I-42/U.S. 70 is critical to eastern North Carolina prosperity, linking major economic activity centers of the Research Triangle region to major 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 service along the entire length of the corridor. The principal mobility expectation of the corridor is to provide safe, reliable freight service.

2. Existing Conditions

Existing conditions are detailed in the Transportation Facilities Inventory Technical Memorandum (May 2022) and summarized below.

2.1. Highway Network Inventory

- Approximately 147 miles long
- National Highway System's (NHS) Eisenhower Interstate System on I-40
- Non-Interstate Strategic Highway Network (STRAHNET) on U.S. 70
- Federally designated truck route
- NC Priority Freight Network
- Critical Urban Freight Corridor on U.S. 70 in New Bern
- Military route
- Evacuation route



Table 1. Existing Facility Types Along I-40/Future I-42/U.S. 70

Facility Type	Length (miles)
Freeway	87
Boulevard	48

Note: The corridor includes 15 miles of unconstructed freeway on new location

Table 2. Recommended and Programmed Facility Types Along I-40/Future I-42/U.S. 70

Facility Type	Length (miles)
Freeway	102
Boulevard	48

2.2. Rail Network Inventory

- Four at-grade railroad crossings along the corridor
- 6.7 miles of railroad runs parallel with the corridor through Morehead City

2.3. Bridge Inventory

- 121 bridges along corridor
- None structurally deficient
- 28 functionally obsolete

2.4. Safety Inventory

Table 3. Planning Level Section Safety Scores Along I-40/Future I-42/U.S. 70

Section Safety Score*	Length of Corridor per Safety Score (miles)
0 to 33	26.5
33 to 66	38.4
66 to 100	44.3
Less than 60% Mileposted**	28.8

*Higher scores are considered to have poorer highway safety performance.

**Routes having a mileposted crash percentage of 60% or lower were not scored.

2.5. Resiliency Inventory

The resiliency of I-40/Future I-42/U.S. 70 is critical to achieving the goal of providing safe and reliable travel. The resiliency is defined by the corridor’s ability to continue to provide service during natural disasters and weather events and to recover from crashes, accidents, and other safety concerns in a timely manner. Environmental resiliency along the corridor was analyzed using North Carolina Flood Risk Information System (FRIS) floodplain data, historic flood events catalogued in the NCDOT Drive N.C. database from 2011 to 2019, and road inundation incidents. Data is summarized below and provided in additional detail in the Baseline and Future Year Mobility Conditions Report (May 2022).



- Flood Incident Summary—12 flood incidents in 2016 and 2018 along the corridor as recorded in the NCDOT Drive N.C. database of historic flood incidents from 2011-2019.
- Flood Zone Summary—12.9 of 146.8 miles of corridor within the floodway, 100-year, and 500-year floodplains.
- Road Inundation Incident Summary:
 - At the 10-year recurrence interval, 0.05% of the corridor’s total length is inundated at an average depth of 0.4 feet.
 - At the 25-year recurrence interval, 0.07% of the corridor’s length is inundated at an average depth of 0.8 feet.
 - At the 50-year recurrence interval, 1.40% of the corridor’s length is inundated at an average depth of 0.5 feet.
 - At the 100-year recurrence interval, 2.61% of the corridor’s length is inundated at an average depth of 1.3 feet.

3. Intelligent Transportation Systems

Connected and Autonomous Vehicle (CAV) emerging technologies cover a wide range of potential solutions along a roadway to improve mobility, safety, and operations. These may include additional infrastructure or expansions of current programs and can either build upon existing infrastructure or deploy additional infrastructure. A CAV Emerging Technologies Memo (March 2022) provides potential solutions for Corridor P, which are summarized below.

3.1. Existing Infrastructure

Corridor P currently includes intelligent transportation system (ITS) devices along both I-40 and US 70/Future I-42. Most of the devices are placed along the I-40 section, with a small percentage of devices along US 70, mostly near the Clayton/Smithfield area. These devices consist of closed-circuit television (CCTV) cameras, dynamic message signs (DMS), and vehicle detectors and speed probe data. The current ITS infrastructure is primarily used for situational awareness, providing traveler information messages to motorists reflecting travel time and incident information, and collecting data to be used for identifying congestion points. There are several ongoing projects along this corridor that will expand the number of ITS devices and provide the necessary fiber communications.

3.2. Strategies

Based on a qualitative review of the limitations of the existing geometrics of the corridor and potential stakeholder needs, the Department can determine the best strategy or combination of strategies that address the specific corridor needs. This assessment is typically done at the project level, although can be done as part of a longer corridor study. The CAV memo includes a list of possible strategies for arterial improvements (connected vehicle notifications, pedestrian notification, transit applications) and motorist information (e.g., hard shoulder running, incident reporting and notification, ramp metering).

3.3. Mitigations

There are always risks involved when deploying infrastructure or the need for additional technology, such as alternative power to devices, operational strategies in event of an evacuation, and design considerations for hard shoulder running. Additional detail is in the CAV memo.



4. Programmed Improvements

4.1. Grants

DOT Infrastructure for Rebuilding America (INFRA) Grant

NCDOT was awarded an INFRA Grant in 2018 which gives North Carolina federal funds to improve I-40/Future I-42/U.S. 70. Projects and initiatives that are proposed to be funded by this grant include:

- STIP Projects R-5829 and R-5777A/B/C/D (listed below)
- Converting U.S. 70 to freeway standards, enhancing freight movement throughout the state
- Creating freeway links between military bases
- Improving connections between the Port of Morehead City and North Carolina Global TransPark
- Improving travel safety and reliability
- Constructing message signs with real-time information on driving conditions (time to port, flooding, accident ahead)
- Supporting connected/autonomous vehicle technology
- Installing fiber to offer opportunities for schools, police, emergency response, economic development, and NCDOT revenue

4.2. NCDOT STIP Projects

NCDOT STIP Projects

I-40/Future I-42/U.S. 70 is programmed to freeway standards with access only at interchanges and ramps, speed limits of 55 mph or greater, and no traffic signals. STIP projects supporting conversion to a freeway include those listed in **Table 4**.

Table 4. Freeway Projects Funded by NCDOT along Corridor P

STIP No.	County	Description	Length (Miles)	Dates*
I-5111	Wake	Add two general purpose lanes in each direction on I-40 from I-440 / U.S. 64 to N.C. 42	8.6	Under Construction
P-5742	Carteret	Construct grade separation at US 70 and NS/NCRR EC line	N/A	Right-of-Way: FY 2027 Construction: Unfunded
R-1015	Craven	Construct Havelock Bypass from north of Pine Grove Road to north of Carteret County Line	10.1	Under Construction
R-2553B	Lenoir	Upgrade U.S. 70 to freeway standards from Albert Suggs Road to NC 148	6.5	Right-of-Way: FY 2029 Construction: Unfunded
R-2553C	Lenoir	Construct Kinston Bypass from NC 148 (Harvey Parkway) to NC 58.	6.5	Right-of-Way: FY 2026 Construction: Unfunded
R-5777A	Craven	Convert at-grade intersection of US 70 and Taberna Way to an interchange	N/A	Right-of-Way: FY 2020 Construction: FY 2020
R-5777B	Craven	Convert at-grade intersection of US 70 and Thurman Road to an interchange	N/A	Right-of-Way: FY 2020 Construction: FY 2020



STIP No.	County	Description	Length (Miles)	Dates*
R-5777C	Craven	Upgrade US 70 to a freeway from east of Thurman Road to the Havelock Bypass and construct service roads	8.6	Right-of-Way: FY 2023 Construction: FY 2023
R-5813	Lenoir	Convert at-grade intersection of US 70 and SR 1227 (Jim Sutton Road)/SR 1252 (Willie Measley Road) to an interchange	N/A	Right-of-Way: FY 2026 Construction: FY 2028
R-5829A	Johnston/ Wayne	Upgrade US 70 to freeway standards from the US 70 Bypass to west of SR 1229 (Lube Smith Road)	3.6	Right-of-Way: FY 2025 Construction: FY 2027
R-5829B	Johnston	Upgrade US 70 to freeway standards from west of Lube Smith Road to east of Pondfield Road	3.4	Right-of-Way: FY 2025 Construction: FY 2029
U-5713	Craven	Upgrade US 70 to a freeway from SR 1124 (Grantham Road) to Neuse River Bridge	2.5	Right-of-Way: FY 2020 Construction: FY 2020
W-5600	Johnston	Convert US 70 to a freeway from US 70 Business to the Neuse River Bridge	5.7	Right-of-Way: Complete Construction: FY 2021

*Based on February 2021 NCDOT 2020-2029 STIP

5. MPO and County Characteristics

To better understand priorities in the I-40/Future I-42/U.S. 70 planning area, goals were gathered from Comprehensive Transportation Plans (CTP), Metropolitan Transportation Plans (MTP), and one MPO website that include I-40/Future I-42/U.S. 70. The goals found in these plans are categorized into 12 Goal Areas found at the national, state, and county/MPO levels. These are detailed in the Performance Measures Technical Memorandum (May 2022) and summarized below.

5.1. Recommendations

The corridor from the Craven/Carteret County Boundary exists as a boulevard. The corridor exists as a freeway around Smithfield, Goldsboro, in Jones County, and from New Bern to Havelock. Recommendations in current plans include:

- Segments from I-40 through Smithfield and in Lenoir County outside of Kinston are recommended to be upgraded to a freeway.
- A new location freeway is recommended to bypass Kinston.
- The corridor from the Johnston/Wayne County Boundary to Goldsboro and through Morehead City is recommended to be upgraded to a boulevard.

Segments of the corridor near Princeton, from the Jones/Craven County Boundary to New Bern, and south of Havelock to the Craven/Carteret County Boundary have no recommendations.

5.2. Major Goal Areas

- Federal, Reduced project delivery delays—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.
- MPO/County, 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.



5.3. Major Performance Measures

- Federal, Safety—To achieve a significant reduction in traffic fatalities and serious injuries on public roads.
- MPO/County, 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.

6. Visions

6.1. Long-Term Vision (30 years)

I-40/Future I-42/U.S. 70 is envisioned to support reliable freight service by having uninterrupted highway conditions along the entire length of the corridor, with the exception of the portion that runs through Morehead City. To accomplish this expectation, the following is proposed:

- I-40/Future I-42/U.S. 70 is programmed to freeway standards from Wake County to Carteret County, with access only at interchanges and ramps, speed limits of 55 mph or greater, and no traffic signals.
- The section that runs through Morehead City and potentially all of Carteret County will not be programmed to freeway standards but instead will be upgraded where appropriate to increase mobility and capacity.
- Other roadways—existing or new—may be part of the solution to improve mobility into the Port of Morehead City.
- Change the existing U.S. 70 evacuation route to follow the Corridor P alignment.

I-40/Future I-42/U.S. 70 will facilitate economic development and safety by providing a more resilient route, along with regional connectivity which will consider transit, such as bus routes or anticipated passenger rail, and active transportation needs for the communities the corridor passes through. Additionally, it will afford safe, reliable travel as part of the STRAHNET to support Seymour Johnson Air Force Base and Marine Corps Air Station Cherry Point.

6.2. Interim Solution (15 years)

The section of I-40/Future I-42/U.S. 70 within Carteret County is the only segment that is not currently funded to become a freeway that meets freeway standards. The Carteret County CTP includes goals that emphasize the importance of reducing congestion, supporting freight movement and economic vitality, and increasing access to multi-modal options. As such, a short-term solution to the transportation concerns along the segment of I-40/Future I-42/U.S. 70 located within Carteret County would be to focus on increased mobility by rerouting left-turns to U-turns and adding U-turn bulbs.

As projects are funded, bicycle and pedestrian needs along and across the corridor should be identified, and strategies to minimize barriers to those users should be implemented.

7. Next Steps

7.1. Areas of Additional Study

Topics that need to be studied in greater depth following the STC Master Plan Vision Development include the safety of I-40/Future I-42/U.S. 70, railroad considerations, and a vulnerability assessment. These areas should be evaluated further to have a comprehensive understanding of the corridor's existing conditions and future needs.

Additional study is recommended to consider improvements for the following segments:



- U.S. 70 from the I-40/U.S. 70 Interchange to the U.S. 70/U.S. 70 Business Interchange is recommended to be upgraded to freeway standards but does not currently have any programmed projects to construct these improvements.
- U.S. 70 from Wilson Mills to Princeton is recommended to be upgraded to freeway standards but does not currently have any programmed projects to construct these improvements. Upgrades should also improve areas of frequent flood inundation.

U.S. 70 within Carteret County exists partially as a boulevard or is recommended to be upgraded to a boulevard but does not currently have any programmed projects to construct these improvements. Upgrades to U.S. 70 should be considered along with other potentially different roadways to improve mobility into the Port of Morehead City. Upgrades should also improve areas of frequent flood inundation

7.2. Future Outreach Needs

Targeted outreach is needed at the Port of Morehead City in Carteret County where I-40/Future I-42/U.S. 70 is currently a boulevard and not funded to be upgraded to freeway standards. The outreach should be conducted with the purpose to identify an interim solution and long-term vision for this area. This section of I-40/Future I-42/U.S. 70 serves as a connector to businesses in the area through Morehead City. This outreach should take the form of public meetings and additional surveys that engage the community in options for the vision for I-40/Future I-42/U.S. 70 in that area.