Proposed Corridor K Improvements from Andrews to Stecoah Cherokee and Graham Counties

STIP Project No. A-0009

February 12 and 14, 2019

The N.C. Department of Transportation (NCDOT) is studying improvement options from Andrews to Stecoah in Cherokee and Graham Counties as part of a proposed project to provide the transportation infrastructure necessary for the well-being of local residents and regional traffic.

BACKGROUND

This project is part of Corridor K of the Appalachian Development Highway System – a network of road corridors that Congress established in 1965 to provide a safe, efficient transportation system for the Appalachian Region. Corridor K extends from Dillsboro in Jackson County, to I-75 in Cleveland, Tennessee.

The project is located in southwestern North Carolina near the Tennessee and Georgia borders. Given the challenges associated with the region's mountainous terrain and the presence of natural and cultural features, the proposed project is among the last of the Appalachian Development Highway System's corridors to be completed.

Transportation options in the area are limited and primarily consist of a few narrow, two-lane roads that have sharp curves and steep grades. Roads in the study area are prone to landslides, fog conditions, and other weather-related effects.

This project was originally proposed under the Appalachian Regional Development Act of 1965 and has reached various points in the project development process over the past several decades. After a pause in 2011 to conduct a regional study and develop County Comprehensive Transportation Plans, the project was restarted in 2015.

In July 2015, transportation and resource agency leadership met to reinitiate studies and identify themes for a new project approach. A "fresh look" approach was developed with a focus on early and ongoing collaboration to help avoid schedule delays by identifying and addressing concerns as they arise.

The new process places emphasis on early and continuous input and participation of local elected officials and local government staffs as well as tribal staff, and federal/state regulatory and resource agencies. This group is collectively referred to as the "project team."

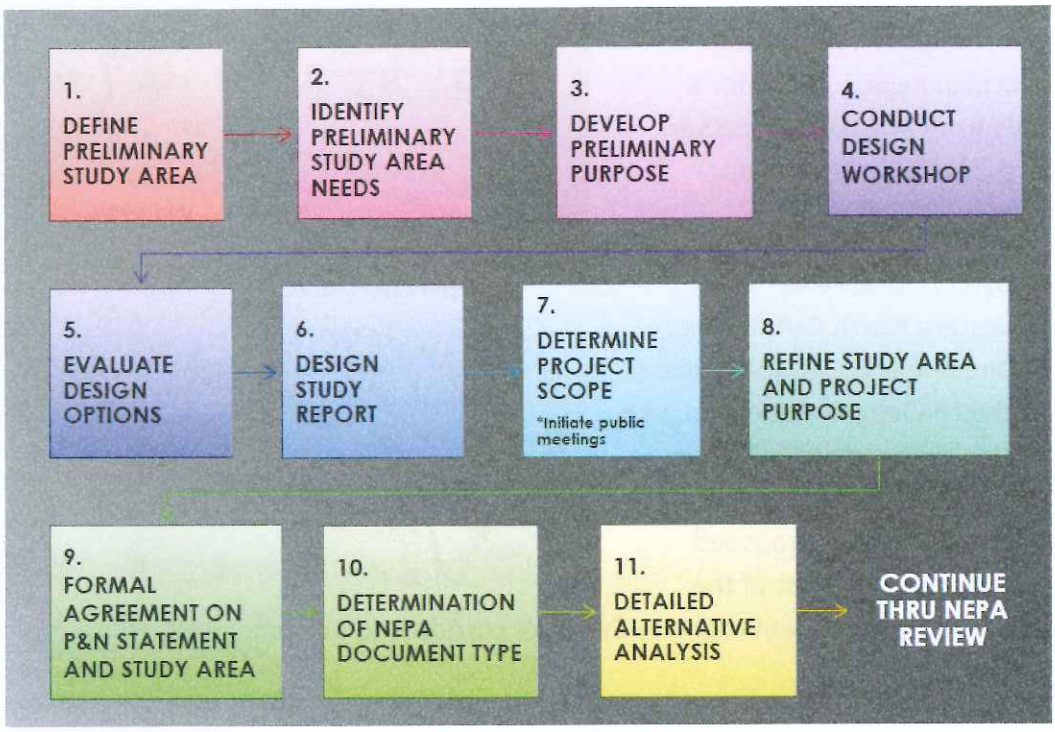
NEW APPROACH

Much of the new approach was based on guidance provided by the U.S. Institute for Environmental Conflict Resolution, which stated in its 2011 report that the team should create, "an atmosphere of exploration where ideas can be expressed freely..." This idea has become a guiding principle for this project.

The project team recognized that a new process was needed to foster collaboration and exploration. The project is described in broad terms in both the county and state transportation plans but these are programming documents that don't include project-specific details. The new process, shown below, was developed to help the team identify the project scope – while making sure that all team members are in agreement at each step. This approach will also help avoid delays during detailed environmental review and permitting by identifying potential concerns early in the process.

The project team is made up of transportation agency staff, resource agency staff, tribal staff, local government staff, and local elected officials. The team also includes technical staff, or subject matter experts, that provide guidance related to their specific area of expertise.

We are currently moving through Steps 5, 6, and 7, evaluating design options and determining the project scope.



PROJECT NEED: MOBILITY AND RELIABILITY

After defining the preliminary study area, the team worked together to identify the needs of the project area. The needs for this project are generally categorized into physical and mobility needs. Physical needs are related to the limited roadway options in Graham and Cherokee Counties and how reliability can be affected by any type of blockage or disruption such as winter weather, fog, washouts, landslides, fallen trees, traffic incidents, vehicle breakdowns, or slow-moving vehicles. Such situations adversely affect travel time as travelers must wait or back-track. Steep grades, narrow lane widths, and sharp curves on U.S. 129, N.C. 143, and N.C. 28 affect travel speed and opportunities to pass slower vehicles. In addition, there are sections of U.S. 129 and N.C. 143 where traffic volumes will be over-capacity in 2040.

Mobility needs are related to improving access to employment, medical facilities, commercial centers, and educational facilities in Graham County and other parts of the region. Improved mobility is needed for emergency response services that are frequently affected by roadway conditions and slow vehicles encountered while responding to emergencies.

PROJECT PURPOSE: SETTING A COMMON VISION

The preliminary purpose and need statement summarizes the goals of the project and provides a common vision for the project as it's further developed. The preliminary purpose and need statement is as follows:

The proposed project purpose is to provide the transportation infrastructure necessary for the well-being of local residents and regional traffic by **improving vehicular travel time, reliability, and safety** between the existing four-lane section on NC 28 at Stecoah and the existing four-lane section on US 74 east of Andrews; **providing an average travel speed of 50 mph**, consistent with the **Appalachian Development Highway System criteria**, and in a manner that is **sensitive to the natural environment**.

DESIGN STUDIES

The next step in the process was to conduct a Design Workshop with the full project team. The team met in Murphy in 2016 to explore design options. The project team identified locations where NCDOT and FHWA should evaluate improving existing roadways and areas where improving the existing roadways may not be feasible. In these areas, it was agreed that NCDOT and FHWA would study options on new location.

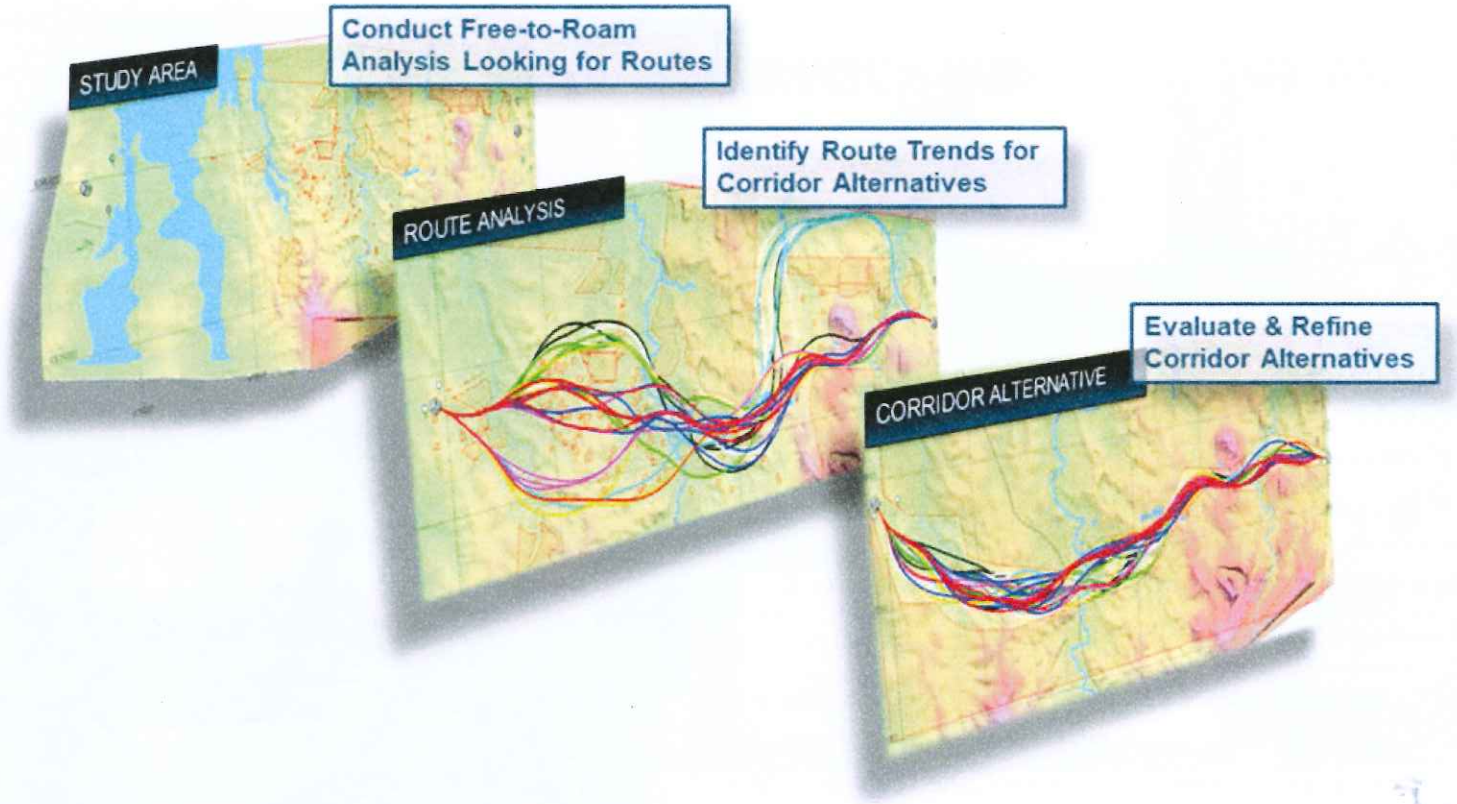
After the Design Workshop, NCDOT and the Federal Highway Administration (FHWA) began evaluating design options. As part of taking a fresh look at the project, the team is using a software tool called Quantm to generate potential design options. Quantm is an alignment optimization software that was used to find and explore options based on the team's feedback at the Design Workshop.

The purpose of the design workshop was to build on the Graham County CTP and "Opt-in" Regional Vision to ultimately define the project scope.

Quantm uses a three-dimensional terrain model to evaluate literally thousands of potential routes between two given points. The software looks for routes that meet the model's design standards – things such as speed limit and maximum grade – and identifies locations where tunnels or bridges are likely needed to maintain the desired design standards. Quantm also estimates construction costs based on NCDOT cost data.

Quantm is an optimization program that identifies route trends to help refine study corridors and optimize alignments within the refined corridors.

The first round of Quantm – the 'route analysis' shown in the middle image below - shows the most representational range of the thousands of scenarios the software goes through to identify where and how the project could be built. In some instances, the results include areas where a number of the routes will run together; this is called a "route trend" and indicates an area that consistently has an advantage over other locations based on how well it meets the model's design standards.



The second round of Quantm – After the route analysis, individual routes were refined to identify route trends for that particular alignment. The second round identified route trends that provided a high-level picture of potential impacts. Because it sets a construction footprint for each route, it can also help form the study corridor for that particular alignment. The study corridors on display at tonight's meeting are based on two rounds of Quantm and have undergone review by roadway designers and geotechnical engineers to expand study areas where shifts in the routes could avoid or minimize potential impacts. A two-lane typical section was used in the Quantm design studies conducted to develop the proposed study corridors shown here. Typical sections will be determined during the project development phase, based on traffic volumes and other considerations such as passing lanes, climbing lanes, and other design needs.

Quantm results were reviewed by members of the project team throughout the design study, including seven meetings with local officials, three meetings on items related to the Appalachian Trail, and one meeting with representatives of the Eastern Band of Cherokee Indians. Among other things, these meetings helped confirm understanding of local perspectives and priorities and generated additional Quantm studies.

PROPOSED STUDY CORRIDORS (SEE MAP ON PAGE 7)

The study corridors presented here tonight represent a range of potential transportation solutions that are recommended for detailed study by the project team. The feedback gathered at tonight's meeting (and during the comment period) will help determine the next steps. As noted previously, the Quantm studies were conducted in order to generate a range of alignments and associated cost estimates which can be used by the project team to help determine the project scope. In addition to the proposed study corridors, NCDOT and FHWA will also conduct detailed studies on an option that improves existing NC 28, N.C. 143, and U.S. 129 with no new location sections.

Although additional design work, geotechnical investigations, and natural resource surveys are required to ultimately refine alignments within the proposed study corridors, the study corridors can be used for high-level planning and programming to help identify priorities and set a path forward for more detailed studies.

STECOAH SCENARIOS

S-2 **Scenario S-2** originates at NC 28 and follows the north side of the Stecoah Valley, then turns south, crossing NC 28 and N.C. 143 south of their intersection, before climbing to a tunnel under the Appalachian Trail, after which the corridor turns south paralleling N.C. 143 to the east before converging with existing N.C. 143. When compared to the range of other Quantm scenarios, this scenario was the shortest new location section and presents opportunities for climbing/passing lanes. Of all the Quantm scenarios in the Stecoah area, this scenario is expected to have the least impacts on the Nantahala Forest and the lowest potential for visual impacts from the Appalachian Trail.

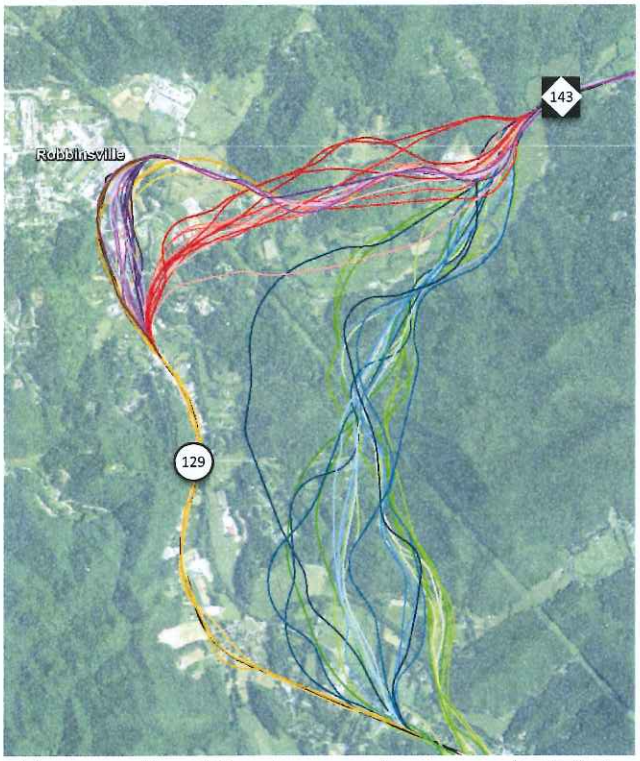
CURRENT STATUS: SUMMARY

NCDOT and FHWA used Quantm to study design options for the proposed project. The entire project team, comprised of local officials, local government staff, regulatory and resource agency staff, and tribal staff were provided frequent opportunities throughout the evaluation process to help shape the Quantm design studies.

NEW MINDSET NEW RESULTS

Through this extensive evaluation and coordination process, the team identified study corridors for presentation here tonight. These study corridors represent the routes being proposed for detailed study in the project development and environmental review phase. They are being presented here tonight to gather your feedback to help inform the next steps in the process.

S-6 **Scenario S-6** originates at NC 28 and follows the south side of Stecoah Valley before turning southward, running westward parallel to Cody Branch and then climbing to a tunnel under the Appalachian Trail, after which the corridor turns southwest converging with existing N.C. 143. This scenario is 0.1-mile longer than S-2, still one of the shortest new location sections, and like S-2, it also presents opportunities for climbing/passing lanes. S-6 avoids tribal landholdings and has the potential for lower residential impacts than S-2.



A large number of Quantm scenarios were evaluated at a preliminary level before R-1 was determined to be the sole study corridor proposed for the Robbinsville area.

ROBBINSVILLE SCENARIOS

R-1 **Scenario R-1** originates on N.C. 143, just south of Pinhook Road and follows the existing N.C. 143 corridor to Five Point Road. From here, the corridor turns southwest on new location for a short section, then connects to the existing intersection of Five Point Road and U.S. 129. This short new location section, and all other potential new location sections, would be studied to develop 'best fit' alignments that avoid and minimize impacts to the maximum extent possible.

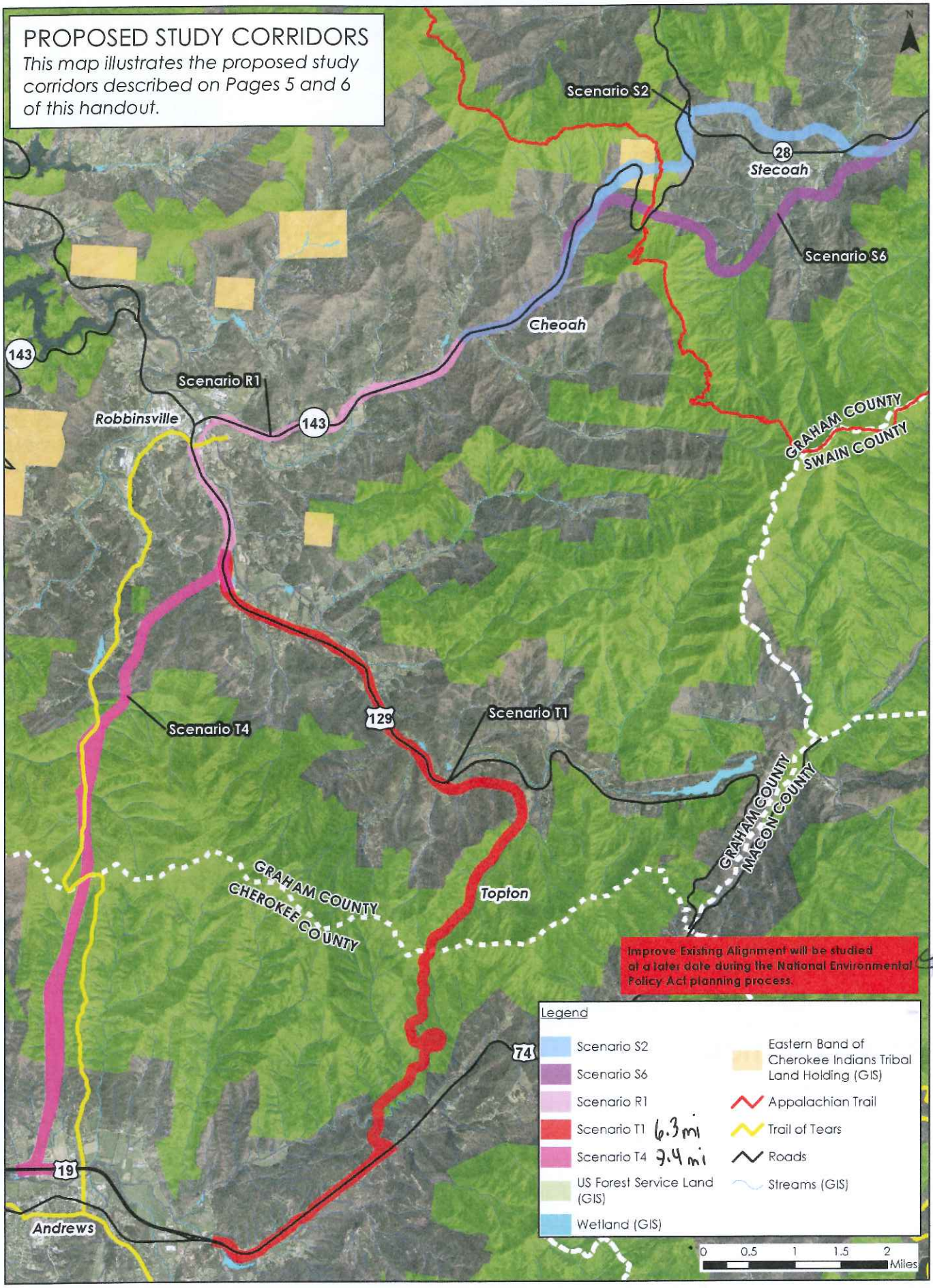
The project team reviewed a wide range of Quantm scenarios to identify the proposed study corridor shown at tonight's meeting. Local officials and local government staff believe that R-1 provides the most opportunity for the Town of Robbinsville as it would not hinder local development goals or other initiatives. It would also avoid and minimize potential impacts to the community better than other Quantm scenarios. R-1 is close to the Robbinsville town center but avoids major impacts to businesses along N.C. 143 and U.S. 129, Old Mother Cemetery, and homes on Five Point Road. Local officials recommended that options further east of Robbinsville should not be recommended for detailed study because they had the potential to pull traffic away from Robbinsville.

TOPTON SCENARIOS (ANDREWS TO ROBBINSVILLE)

T-1 **Scenario T-1** originates south of Airport Road and follows existing U.S. 129 to Campbell Creek Road, where the corridor enters a tunnel south of U.S. 129 and turns southwest towards Andrews paralleling Jutts Creek. The scenario continues south on a new location through the Snowbird Mountains and joins existing US 19/74 near Tunnel Ridge Road, where it continues along the existing roadway into Andrews. This scenario provides an opportunity to improve a large portion of U.S. 129 and would avoid geological 'hot spots' to the east along U.S. 129. It is one of the two shortest Quantm scenarios studied in the Topton area and has the shortest section on new location.

T-4 **Scenario T-4** begins south of Airport Road and continues on new location south towards Andrews, paralleling the Trail of Tears and Long Creek Road. The corridor enters a long tunnel underneath the Snowbird Mountains and ends at US 19/74 near Beaver Creek Road in Andrews. This scenario provides the most direct connection between Robbinsville and Andrews and avoids geological 'hot spots' to the east.

In addition to the proposed study corridors, NCDOT and FHWA will also conduct detailed studies on an option that improves existing NC 28, N.C. 143, and U.S. 129 with no new location sections.


PROPOSED STUDY CORRIDORS
This map illustrates the proposed study corridors described on Pages 5 and 6 of this handout.
N
Scenario S2
28
Stecoah
Scenario S6
Cheoah
143
Scenario R1
Robbinsville
143
GRAHAM COUNTY
SWAIN COUNTY
Scenario T4
129
Scenario T1
GRAHAM COUNTY
MACON COUNTY
GRAHAM COUNTY
CHEROKEE COUNTY
Topton
Improve Existing Alignment will be studied at a later date during the National Environmental Policy Act planning process.
Legend
Scenario S2
Scenario S6
Scenario R1
Scenario T1 6.3 mi
Scenario T4 7.4 mi
US Forest Service Land (GIS)
Wetland (GIS)
Eastern Band of Cherokee Indians Tribal Land Holding (GIS)
Appalachian Trail
Trail of Tears
Roads
Streams (GIS)
74
19
Andrews
0 0.5 1 1.5 2 Miles

YOUR FEEDBACK IS IMPORTANT!

We thank you for participating in the process and sharing your thoughts with us! Team members are available to answer your questions and can be contacted throughout the study process. You are encouraged to review the mapping on display and provide your comments to our project team. Meeting maps are also available online at the project website: https://www.ncdot.gov/projects/corridor-k and can be viewed at the following locations:

NCDOT District 3 Office
191 Robbinsville Road
Andrews, NC 28901

NCDOT Graham County Maintenance Yard
2447 Tallulah Road
Robbinsville, NC 28771

These proposed study corridors are being presented to gather your thoughts on how the project should move forward. The project team will review public feedback which will help shape the project as it moves into detailed study. You are welcome to complete the attached comment sheet or go to https://publicinput.com/Corridor-K to comment online. **Comments received by March 15, 2019 will be presented at upcoming project team meetings.**

The following questions are included on the comment sheet as a way to start the conversation, but you are welcome to provide comments in any format you would prefer, including email, by phone, or you can mail your comments to us. Contact information is included below. We are interested in knowing:

- **Do you feel you have a good understanding of the project based on the information you've been provided?**
- **Is there anything you need more information on?**
- **What is/are your priority location(s) for improvement? Why?**
- **How do you feel about the presented corridors being carried forward for detailed study?**

NEXT STEPS

Visit https://www.ncdot.gov/projects/corridor-k for updates!

The results of the studies and coordination that have occurred up to this point are documented in the preliminary draft Design Study Report. After tonight's meeting, NCDOT and FHWA will meet with local officials and local government staff to review public comments and gather input on local programming priorities. Public feedback and local perspectives will be discussed with the project team and the results will be incorporated into a final Design Study Report, expected to be finalized in Spring 2019. The final report will also document team decisions on which project-specific details will be included in the project scope. Once the project scope is identified, detailed studies will be conducted as part of the environmental review process under the National Environmental Policy Act, also known as NEPA.

CONTACT INFORMATION

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Raleigh, NC 27603
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COMMENT FORM

Proposed Corridor K Improvements from Andrews to Stecoah in Cherokee and Graham Counties

STIP Project No. A-0009

February 12 and 14, 2019

NAME: _____

ADDRESS: _____

PHONE/EMAIL: _____

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COMMENT: _____

Comments may be sent to:

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