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**March 20, 2025**

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## TECHNICAL COORDINATION COMMITTEE MEETING

March 20, 2025

### Opening Remarks and Introductions

The North Carolina Transportation Innovation Council (NC-TIC) Technical Coordination Committee (TCC) convened for its quarterly meeting on March 20, 2025, in person at the NCDOT Transportation Building and on Microsoft Teams. The purpose of the meeting was to provide the committee with key updates from the Federal Highway Administration (FHWA), key updates on the NC-TIC, presentations from guest speakers, a review of the scoring approach for applications submitted to the 2025 State Transportation Innovation Councils (STIC) Incentive Program, and an update on the program's timeline and the NC-TIC's expected role to select funded projects. The NC-TIC's mission is to cultivate a culture of collaboration within the North Carolina Department of Transportation (NCDOT), ensuring the swift adoption of significant innovations that contribute to the delivery of a contemporary, high-quality transportation system to the public.

**Sarah Searcy** welcomed attendees and introduced the meeting's agenda. The meeting's agenda, attendance, and the presentation slides are provided at the end of these minutes.

### FHWA Update

After opening remarks and introductions, **Sarah Searcy** provided updates on behalf of **Edward Parker**, the Deputy Division Administrator of the North Carolina FHWA office.

Sarah shared that FHWA solicited a Call for Ideas for Every Day Counts (EDC)-8 innovations this past December through February. The call requested feedback and comments on a list of eight innovations of interest compiled by FHWA and suggestions on other innovations and topics. Twenty-three comments were received on the innovations of interest list and 44 suggestions were received on new topics or innovations. No timetable has been announced yet on the next step towards EDC-8. The timeframe is to be determined.

Sarah explained that nominations for the 2024 STIC Excellence Award closed on December 31, 2024 and that the award recipient(s) are anticipated to be announced at the American Association of State Highway and Transportation Officials (AASHTO) Spring Meeting in May 2025. The STIC Excellence Award recognizes STICs that have made a significant impact on fostering a strong culture of innovation. The NC-TIC won this award in 2021. STIC Excellence Award nominations for calendar year 2025 will be requested in the fall.

Sarah reminded the committee that progress reports on STIC Incentive Program projects and EDC initiatives are due twice a year, in May and in November, after the first project year. The May report is due to the appropriate FHWA contact before May 15 (i.e., the



Division office will request them at least a week in advance to the 15th to allow time to address any comments).

Sarah shared that the [FY 2025 State Transportation Innovation Councils \(STIC\) Incentive Program](#) funds are now available, FHWA is accepting applications from STICs now, and the application period closes on July 1, 2025. \$125,000 is available to North Carolina which is an increase from the \$100,000 that was available two years ago. NCDOT facilitates the application solicitation, submission, review, and selection process for North Carolina's STIC Incentive Program projects with support from the NC-TIC. The NC-TIC decides which projects are selected to receive an award. The NC-TIC will select project(s) to recommend for funding by June to meet FHWA's July deadline.

### **NC-TIC Update**

After the FHWA updates, **Sarah Searcy** provided updates on the NC-TIC and NCDOT's participation in FHWA's incentive programs. Sarah reminded the committee about the NC-TIC's purpose which is "to foster a collaborative culture within NCDOT for the rapid implementation of meaningful innovations to efficiently deliver to the public a modern, high quality transportation system."

The committee has historically helped FHWA with the receipt and review of applications for incentive programs focused on technology and innovation. Based on their review and evaluation of applications, the committee recommends projects to FHWA for award.

Example incentive programs include the Accelerated Innovation Deployment (AID) Demo, State Transportation Innovation Councils (STIC) Incentive, and Every Day Counts (EDC) programs. The AID Demo Program provides a maximum of \$1 million in funding to cover the full cost of an innovation in a project. Eligible capital projects can be infrastructure, non-infrastructure strategies, and other activities, which incorporate proven innovative practices, or technologies intended to be adopted as a significant improvement from conventional practice. The STIC Incentive Program provides technical assistance and up to \$125,000 in total funds per state to offset the cost of standardizing innovative practices. The program funds activities such as conducting internal assessments, initiating capacity building, developing guidance, drafting standards and specifications, organizing peer exchanges, and implementing system process changes. EDC is a State-based model that identifies and rapidly deploys proven, yet underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce traffic congestion, and integrate automation. Proven innovations promoted through EDC facilitate greater efficiency at the State and local levels, saving time, money and resources that can be used to deliver more projects.

More information about the NC-TIC and NCDOT's participation in FHWA's incentive programs is provided on [NCDOT's webpage](#). This webpage provides overview information,



program guidance, the NC-TIC charter, the TCC membership roster, meeting minutes, incentive program reporting and final reports, and details on other innovation activities at NCDOT, including value management/engineering and research and development.

### **STIC Highlight – Knowledge Transfer**

After the NC-TIC updates, **Sarah Searcy** welcomed **Jessica Kuse**, a project manager with HNTB representing NCDOT's Value Management Unit, to share an update on NCDOT's Knowledge Transfer Guides that began as a STIC Incentive Program project.

In 2021, NCDOT submitted an application for STIC Incentive Program funding to begin developing tools to improve organizational knowledge transfer within the department. The goals of the project were to create a repeatable process and form that could be implemented across the department for all positions, break down knowledge silos and encourage knowledge transfer, and ensure consistency of services during staff transitions. The pilot began in 2022 to develop Knowledge Transfer Guides for two positions: one field position (Resident Engineer) and one office position (Engineer II in the Hydraulics Unit). The original scope was also expanded to include a County Maintenance Engineer position. Interviews were conducted with five individuals currently working in each position. A questionnaire, a Standard Operating Procedure (SOP) for how to fill out the questionnaire, and an example Job Transfer Guide were developed for each position based on the interview findings. A findings memo was also developed for the entire project.

The questionnaire asked respondents to describe their current position and share information about specific job functions and the computer programs and other technology that they use for their position. The questionnaire also asked respondents to share information about any additional responsibilities that may not be listed in their job description, training, and extracurricular activities within their job function and to provide a contact chart of people and resources that helped them in their position. The questionnaire responses became the foundation for the Job Transfer Guides that would assist a new employee to more efficiently transition into their role and that ultimately evolved into the Knowledge Transfer Guides. The Job Transfer Guide would be completed by the person leaving the position and is more detailed and specific than a job description. The Job Transfer Guide could be used by an employee going on extended leave, ranging from two weeks to three months (e.g., FMLA, short-term disability, etc.).

The findings memo documented how Resident Engineers faced challenges related to utility coordination and railroad coordination. In addition, more development opportunities for soft skills and people management were needed. One response indicated that it was ideal to start as an Assistant Resident Engineer before moving into a Resident Engineer position. A safe environment for construction teams on job sites was also identified as important.



Hydraulic Engineers faced challenges related to continuing to gain design experience, technical skills, and software proficiency. The position is now mainly a design review role and there are less opportunities for actual design. The role requires constant communication to ensure deadlines are met, strong organizational skills, and the ability to be a self-starter by taking initiative.

County Maintenance Engineers faced challenges with developing effective soft skills for their frequent interactions with the public and a labor shortage. The role requires a good geographical and working knowledge of their jurisdiction.

Overall, the project team determined that the contact chart across all positions needed to be reworked but was helpful for employees new to the roles. The questionnaire also needed to be reorganized for better flow with a more efficient process for completing the forms. The project team further identified that there was no need to have separate Job Transfer Guides for temporary positions.

In 2023, NCDOT's Value Management Unit initiated a Knowledge Transfer Technical Advisory Group (TAG). The TAG reviewed the information from the STIC Incentive Program project and decided to incorporate higher level positions to gain more leadership buy in and capture the knowledge from employees that would soon be retiring. The Technical Services Unit provided a list of employees with 28 years or more of service that included many unit heads. The TAG used the STIC Incentive Program project's questionnaire and additional questions to gather information from the unit heads that were soon to retire. In parallel, the group began coordinating with NCDOT's Human Resources (HR) team to gather feedback and define a vision for how the Knowledge Transfer Guides would be rolled out across the department.

After interviewing ten people in unit head or other unique leadership positions, the TAG began modifying the Knowledge Transfer Guides to optimize how they are put together and make them more user-friendly. With feedback from NCDOT's HR team, the TAG decided to have non-supervisory and supervisory Knowledge Transfer Guides. The TAG tested the guides by asking several people who were planning to retire to complete the forms and provide feedback. The TAG also shared information about the guides with NCDOT's Division Engineers and executive leadership.

The current Knowledge Transfer Guides include the position overview, essential job duties and expectations, projects and initiatives, guidance on succeeding in the role, manuals, and additional resources. The Knowledge Transfer Guide templates will be sent out in job aids as needed with a department-wide rollout coordinated by NCDOT's HR team as the keeper of the guides. The guides will be updated as needed, and at least annually to support employees during their annual review and for onboarding.



## **STIC Highlight – Pilot Debris Removal Systems**

**Sarah Searcy** next introduced **Courtney Weeter**, NCDOT’s State Traffic Operations Engineer, to provide an update on her team’s ongoing STIC Incentive Program project focused on testing and evaluating different debris removal systems.

Courtney explained that her team was awarded \$65,680 in STIC Incentive Program funding with \$16,420 in state match in 2023 for a project that supports the EDC-7 initiative of “Next Generation Traffic Incident Management (TIM): Technology for Saving Lives.” Her team is piloting four different debris removals systems. One of the systems was already under procurement prior to the grant award so the additional funding allowed the team to test more systems. Courtney and her team have been collaborating with statewide fleet management for the procurement.

The debris removal systems are installed on NCDOT’s IMAP responder vehicles. The systems allow the safe removal of debris out of the roadway without the driver leaving the truck or having to manually move the debris. Courtney and her team have completed the initial documentation phase of the project and have acquired two of the four systems that are currently undergoing testing on IMAP vehicles. The remaining two systems are still under procurement.

Courtney and her team are testing JAWS, SWIPER, LaneBlade, and Debris Clear systems. The LaneBlade and Debris Clear systems are off-the-shelf products, installed and in use, while the JAWS and SWIPER systems were designed by Missouri DOT and are to be custom fabricated and then installed on new trucks in May 2025 before beginning regional rotations. Courtney noted that the IMAP vehicles lose the capability of having a winch in the front due to the placement of the debris removal systems.

The LaneBlade system was deployed in October 2023 and is currently being tested in the mountain region. The system has been found to be user-friendly, and the cameras are well-positioned so the driver can see the debris while it is being moved off the roadway to a safe location. However, the system’s width can make it hard for the driver to navigate during heavy traffic. The system’s weight lowers the vehicle’s ground clearance so the vehicle cannot be driven on cut throughs or shoulders with dips.

The Debris Clear system was deployed in January 2025 and is currently being tested in the Metrolina area. The system is concealed within the bumper and includes two cameras for visibility of debris and plow contact. The system has been found to be user-friendly with no damage to the roadway. However, the system is limited to a maximum speed of 20 mph for effective use and smaller debris may not be contained by the plow resulting in the need for manual removal.



Courtney and her team will be evaluating the four debris removal systems based on several criteria, including utility, control of debris (i.e., the ability for the equipment to capture the debris and control the path and the potential for debris to bounce back when the vehicle begins to push), whether the equipment causes any damage to the roadway or pavement markings, and whether the equipment impacts other vehicle equipment or performance (e.g., push bumper, winch, etc.). Data collected from IMAP responders through interviews and a survey that is completed every time they use the systems will inform the evaluation. The evaluation is expected to be completed in February 2026 after the remaining two systems are deployed and tested starting in May 2025. The final report will be completed by April 2026.

## Innovation Challenge

**Sarah Searcy** next introduced **Jiana Brown**, a project manager with HDR representing NCDOT's Value Management Unit and CLEAR Program, to share information about NCDOT's Innovation Challenge.

The Innovation Challenge was launched in 2020 and is an annual contest to encourage all NCDOT employees to develop and share ideas and best practices that help the department operate more efficiently. The challenge allows employees at any level to share their ideas, be recognized for their innovations, and be encouraged to continue engaging in meaningful processes that improve the department. Employees typically develop proposals in response to real-world experiences and challenges that led to creative troubleshooting and problem solving. Submissions to the challenge are archived in NCDOT's CLEAR database.

A new theme is created or chosen by the CLEAR team every year and the period of submissions is open for a month. A panel of judges reviews all responses based on scoring criteria. The top two winners receive a certificate and NCDOT-branded tokens of appreciation. A yearly video features the winners and allows them to explain their innovations. NCDOT provides implementation support for the innovations in the year following the award.

In 2020, the theme, "The Lightbulb Moment," focused on an innovation, solution or technology from outside of NCDOT to be adopted within the department. In 2021, the theme, "Implemented Innovation," highlighted active innovation projects already initiated within the department. In 2022, the theme, "Observation is Key," focused on adopting innovations from other state DOTs. In 2023, the challenge focused on "Idea Sharing."

In 2024, there were 17 total submissions, eight NCDOT Divisions and ten different topics represented, and ten different supplemental materials provided. The theme was developed by Daniel Ross, the Division 14 Assistant Resident Engineer, with a focus on improving training. The submission period was adjusted to January through February 2025 due to



impacts from Hurricane Helene. Winners are expected to be announced in April after video production is completed.

Jiana and the CLEAR Program are currently collecting suggestions and ideas for the 2025 Innovation Challenge's theme.

### **Innovation Culture Index (ICI)**

**Sarah Searcy** next introduced **Clare Fullerton**, a project manager with Jacobs representing the Value Management Unit, to share information about the Innovation Culture Index (ICI).

Clare shared that the ICI was administered by NCDOT in 2021, 2023, and 2024. The first ICI was implemented as a part of the technology transfer that led to the creation of the CLEAR Program. The Value Management Unit used responses to the ICI to optimize how innovation is approached and supported in the department. The ICI informed Key Performance Indicators (KPIs) on the Knowledge Management and Innovation programs within NCDOT and can further be used as a tool to shape and refine initiatives to better foster a culture of innovation. Overarching themes across the three years of survey results include the need for ongoing and consistent communication on programs and initiatives, including highlighting the value, need, and areas of focus identified by executive leadership.

Sarah added that the Value Management Unit is interested now in making the committee aware that the ICI was completed in the past and that the tool can be used in the future to gather input across the department on employees' perception of innovation, where they find innovation in different areas and offices, and how we might become better aligned as a department around innovation. This includes finding out how different leaders across the department do innovation and developing strategic goals around innovation to make sure the department is collectively aligned. The ongoing departmental strategic plan update may be a guide to help inform the next generation of the ICI. The ICI could be a useful tool to guide and help quantify the department's activities and impact around innovation and support better collaboration within and across teams.

### **2025 STIC Scoring Review**

**Sarah Searcy** concluded the meeting by reviewing the 2025 State Transportation Innovation Councils (STIC) Incentive Program scoring criteria and schedule.

The STIC Incentive Program application window opened in February and is expected to close on April 18, 2025. According to the [STIC Incentive Program guidance](#), the project or activity for which incentive funding is requested must:

- Have a statewide impact in fostering a culture for innovation or in making an innovation a standard practice.



- Align with Technology and Innovation Deployment Program (TIDP) goals.
- Be eligible for Federal-aid assistance and adhere to applicable federal requirements.
- Be started as soon as practical (preferably within 6 months, but no later than 1 year) after notification of approval for funding and the funds must be expended within 2 years.

Key considerations for proposals include:

- 20% match required.
- Align with NCDOT and/or FHWA goals and initiatives (such as EDC or Mission Statement).
- Scope to be completed within 2 years.
- Certain level of readiness must be demonstrated (if still in early stages, consider a research project followed by a STIC project; research project could be a technical assistance request, annual research program project, or technology transfer through NCDOT's Research and Development Unit).

The committee is expected to work as a group to review and score applications to the STIC Incentive Program using a defined set of scoring criteria. The six criteria that were used to evaluate last year's applications are:

Criterion No.	Description	Weight
1	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal advance the identification or practice of the identified innovation?	20%
2	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much would the proposal advance the innovation into application beyond research?	15%
3	On a scale from 1 - 5, with 1 being a mainstreamed idea and 5 being completely new, how new is this innovation for NCDOT?	15%
4	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal advance the goals and mission of NCDOT?	30%
5	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal meet the goals of the STIC Incentive Program?	20%
6	Is the proposal eligible for federal-aid funding under Title 23 U.S.C?	Y/N

The committee members in attendance generally agreed to convey last year's scoring criteria forward to evaluate the 2025 applications. The committee members in attendance discussed revising the second criterion to "On a scale from 1 - 5, with 1 being not at all and



5 being completely, how will the proposed project implement the innovation beyond research?” and the third criterion to “On a scale from 1 - 5, with 1 being a current idea/technology/process already being used by NCDOT and 5 being a completely new idea to NCDOT, how new is the innovation?” The committee members in attendance were supportive of these changes to the scoring criteria.

After the STIC Incentive Program application window closes, NCDOT will provide a summary of the applications to the committee. The committee reviewers can provide questions to the applicants, and then those applicants can provide responses back to the reviewers on those questions. In June, NCDOT will hold another TCC meeting where applicants will present, and the committee will vote on the projects. The remainder of the schedule with key dates is provided below.

### **2025 STIC Incentive Program Schedule – April through June**

#### **April**

- STIC application window closes on April 18

#### **May**

- Summary of STIC applications distributed to TCC by May 1
- TCC reviewers provide questions to applicants by May 16
- Applicants provide responses to questions from TCC reviewers by May 30

#### **June**

- NC-TIC TCC Meeting – applicants present and TCC votes on projects on June 17

### **Adjournment**

**Sarah Searcy** adjourned the meeting.



### Attendance and Voting Members

Name	Organization	Role	Voting Member
Yolonda Jordan	FHWA	Member	X
Edward Parker	FHWA	Member	X
Kristin Barnes	NCDOT	Member	X
Curtis Bradley	NCDOT	Member	X
Ryan Brumfield	NCDOT	Member	X
Amna Cameron	NCDOT	Member	
Jennifer Portanova	NCDOT	Member	
Emily Richards	NCDOT	Member	
Jason Schronce	NCDOT	Member	
Sarah Searcy	NCDOT	NC-TIC Lead	
Alyson Tamer	NCDOT	Member	X
Julie White	NCDOT	Member	X
Victor Barbour	Carolinas AGC	Member	X
Kate Davison	NC LTAP	Member	X
Jiana Brown	HDR	Support	
Kailey Aycock	HNTB	Support	
Jessica Kuse	HNTB	Guest Speaker	
Clare Fullerton	Jacobs	Support	
Voting Members Not in Attendance			
Robert Barrier	NCDOT	Member	X
Sam Boswell	Cape Fear RPO	Member	X
Matt Clarke	NCDOT	Member	X
Greg Dean	Carolinas CPA	Member	X
Jed Dixon	NCDOT	Member	X
Becca Gallas	NCDOT	Member	X
Chris Lukasina	NC Association of MPOs	Member	X
Brian Mayhew	NCDOT	Member	X
Amanda Olive	NCDOT	Member	X
Jason Orthner	NCDOT	Member	X
Catherine Peele	NCDOT	Member	X
Ellis Powell	Carolina APA	Member	X
Tara Robbins	ACEC NC	Member	X
Tunya Smith	NCDOT	Member	X
Lamar Sylvester	NCDOT	Member	X



## **Attachment A: Meeting Slides**



**NORTH CAROLINA**  
Department of Transportation

# North Carolina Transportation Innovation Council (NC-TIC)

Technical Coordination Committee (TCC) Meeting

March 20, 2025

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

## Meeting Agenda

10:00 am	Opening Remarks – FHWA Update	Sarah Searcy
10:05 am	Opening Remarks – NC-TIC Update	Sarah Searcy
10:15 am	STIC Highlight – Knowledge Transfer	Jessica Kuse
10:35 am	STIC Highlight – Pilot Debris Removal Systems	Courtney Weeter
10:55 am	Innovation Challenge	Jiana Brown
11:05 am	Innovation Culture Index (ICI)	Clare Fullerton
11:10 am	2025 STIC Scoring Review	Sarah Searcy
11:20 am	Open Discussion	

# FHWA Update



## FHWA Update

On behalf of Edward Parker, Deputy Division Administrator, FHWA NC Division

### EDC-8 Status

- FHWA solicited a Call for Ideas for EDC-8 innovations this past December through February.
- Call requested feedback/comments on a list of eight innovations of interest compiled by FHWA and suggestions on other innovations/topics.
- 23 comments were received on the innovations of interest list.
- 44 suggestions of new topics/innovations.
- No timetable has been announced yet on the next step towards EDC-8. The timeframe is TBD.

### STIC Excellence Award

- FY 2024
  - The STIC Excellence Award recognizes STICs that have made a significant impact on fostering a strong culture of innovation.
  - The NC-TIC won this award in 2021.
  - Nominations for the 2024 Excellence Awards closed on December 31.
  - The 2024 STIC Excellence Award recipient(s) are anticipated to be announced at the Spring AASHTO Annual Meeting in May.
- FY 2025
  - STIC Excellence Award nominations for calendar year 2025 will be requested in the fall.

## **FHWA Update**

**On behalf of Edward Parker, Deputy Division Administrator, FHWA NC Division**

### **Progress Reports**

- Progress reports on EDC initiatives and STIC incentive projects are due twice a year, in November and May.
- May report is due to your FHWA contact before May 15th (i.e., the Division office will request them at least a week in advance to the 15th to allow time to address any comments).

### **FY 2025 Incentive Funds**

- Applications are being accepted from the STICs to FHWA now.
- The application period closes on July 1, 2025.

# NC-TIC Update

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## NC-TIC Overview

*The purpose of the NC-TIC is to foster a collaborative culture within NCDOT for the rapid implementation of meaningful innovations to efficiently deliver to the public a modern, high quality transportation system.*

NC-TIC's activities are focused on three primary areas – **internal innovation, academic partnerships, and industry partnerships** – and supported by stakeholders and committees.

FHWA has established several incentive programs to encourage the consideration and deployment of technology and innovation.

Through multi-discipline collaboration, the NC-TIC leads the consideration and approval of proposals for technical assistance and/or funding from such programs.



# NC-TIC Incentive Programs

## State Transportation Innovation Councils (STIC)



- Provides technical assistance and up to \$125,000 in total funds per state to offset the costs of standardizing innovative practices.
- Funds activities such as conducting internal assessments, initiating capacity building, developing guidance, drafting standards and specifications, organizing peer exchanges, implementing system process changes, etc.

<u>Project Name</u>	<u>Funding Year</u>	<u>Point of Contact</u>	<u>Status</u>
Pilot Debris Removal Systems	2023	Jennifer Portanova	Ongoing
Develop Data Governance for Rail Division	2023	Todd Meyer	Ongoing
Use of AI to Improve Vulnerable Road User Safety	2024	Daniel Carter	Ongoing

# NC-TIC Incentive Programs

## EDC-7 Innovations



<u>Innovations</u>	<u>Where we are now?</u>	<u>Where do we want to be in two years?</u>	<u>Point of Contact</u>
Nighttime Visibility for Safety	Development Stage	Assessment Stage	Greg Hall; Shawn Troy
Next Generation TIM: Technology for Saving Lives	Development Stage	Assessment Stage	Dom Ciaramitaro; Jennifer Portanova
Integrating Green House Gas Assessment and Reduction Targets in Transportation Planning	Demonstration Stage	Assessment Stage	Heather Hildebrandt
Rethinking DBE for Design-Build	Development Stage	Development Stage	Lisa Wilson; Tonya Marriott
Strategic Workforce Development	Development Stage	Institutionalized Stage	Dan DeMaioNewton; Ebony Pittman; Ayanna Wallace

## NC-TIC Incentive Programs

For more information, please visit NCDOT's NC-TIC webpage.

<https://connect.ncdot.gov/groups/NCSTIC/Pages/default.aspx>

- Overview information
- Program guidance, NC-TIC charter, NC-TIC TCC membership
- TCC meeting minutes
- Incentive program reporting and final reports
- Other innovation activities at NCDOT, including value management/engineering and research & development

# Knowledge Transfer

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**NORTH CAROLINA**  
Department of Transportation

# 2025 STIC Knowledge Transfer Guide Updates

Jessica Kuse, PE, CPM, PMP

March 20, 2025

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

# History and Background

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## Purpose and Goal



Create a repeatable process and form that can be implemented across the Department for any other position to use.



Break down knowledge silos and encourage knowledge transfer.



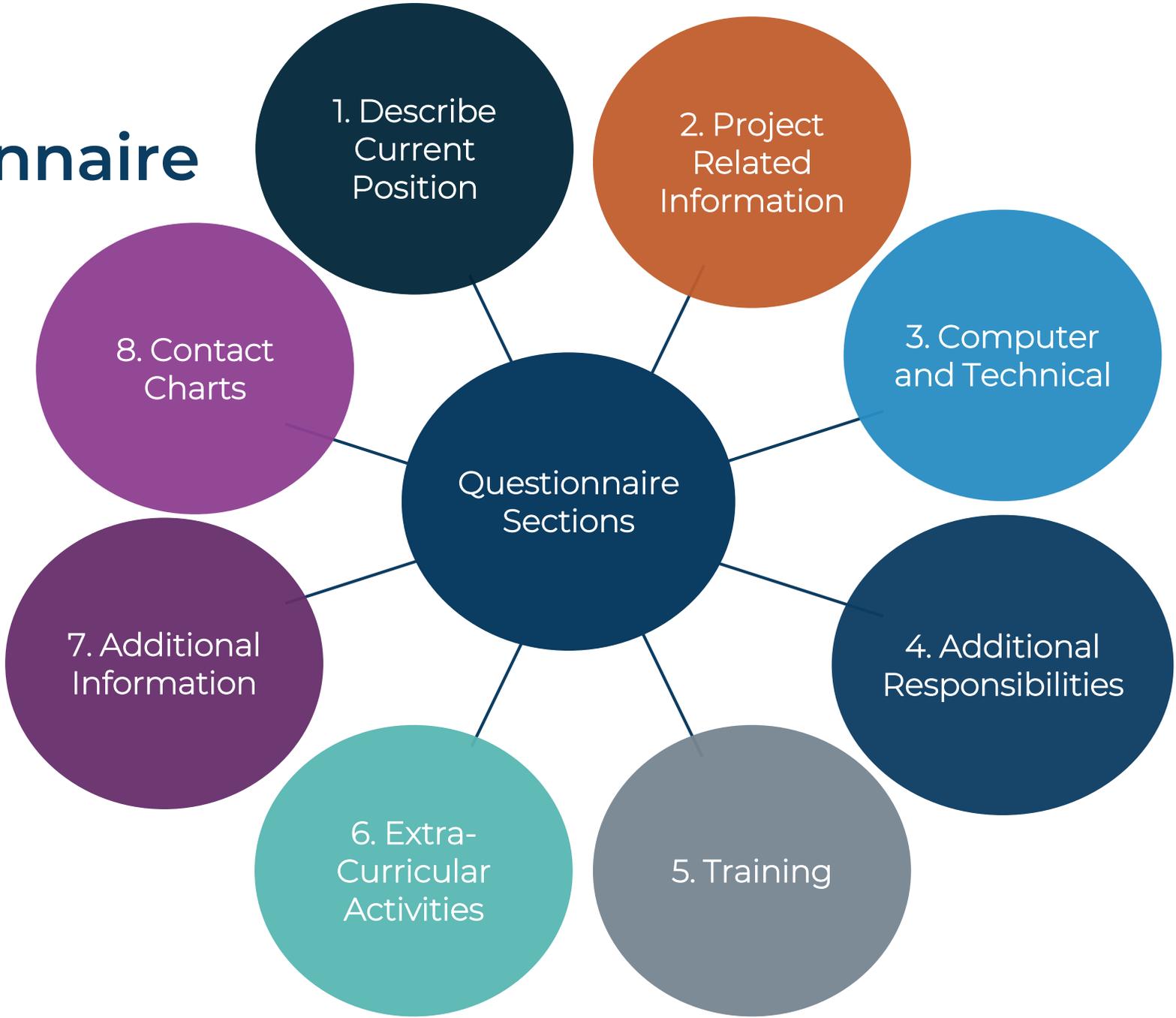
Ensure consistency of services during transitions of staff.

# History and Background

- Piloted in 2022
- Conducted interviews
- Developed for each position:
  - Questionnaire
  - Standard Operating Procedure (SOP)
  - Example Job Transfer Guides
  - Findings Memo



# Initial Questionnaire



## What is a Job Transfer Guide?

- Assist a new employee to execute the role
- Completed by the person leaving the position
- More detailed and specific than a Job Description
- Utilized by employees going on extended leave ranging from 2 weeks to 3 months (FMLA, short term disability, etc.)

# Research Findings

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# Research Findings

## Resident Engineer

Largest challenges faced:

- Need for soft skills and people management
- Entry level position
- Safety component

## Engineer II

Largest challenges faced:

- Mainly a design review role
- Constant communication to ensure deadlines are met
- Strong organizational skills necessary
- Requires employee to be a self starter

# Research Findings

## Maintenance

- Interviewed 5 County Maintenance Engineers
- Interact with the public often
- Labor shortage impacts
- Good geographical and working knowledge of the area they are presiding over

## Overall Findings

- Revise contact charts
- Re-arrange sections for better flow
- Create more efficient process
- No need for separate temporary job transfer guides

# Implementation and Future Development

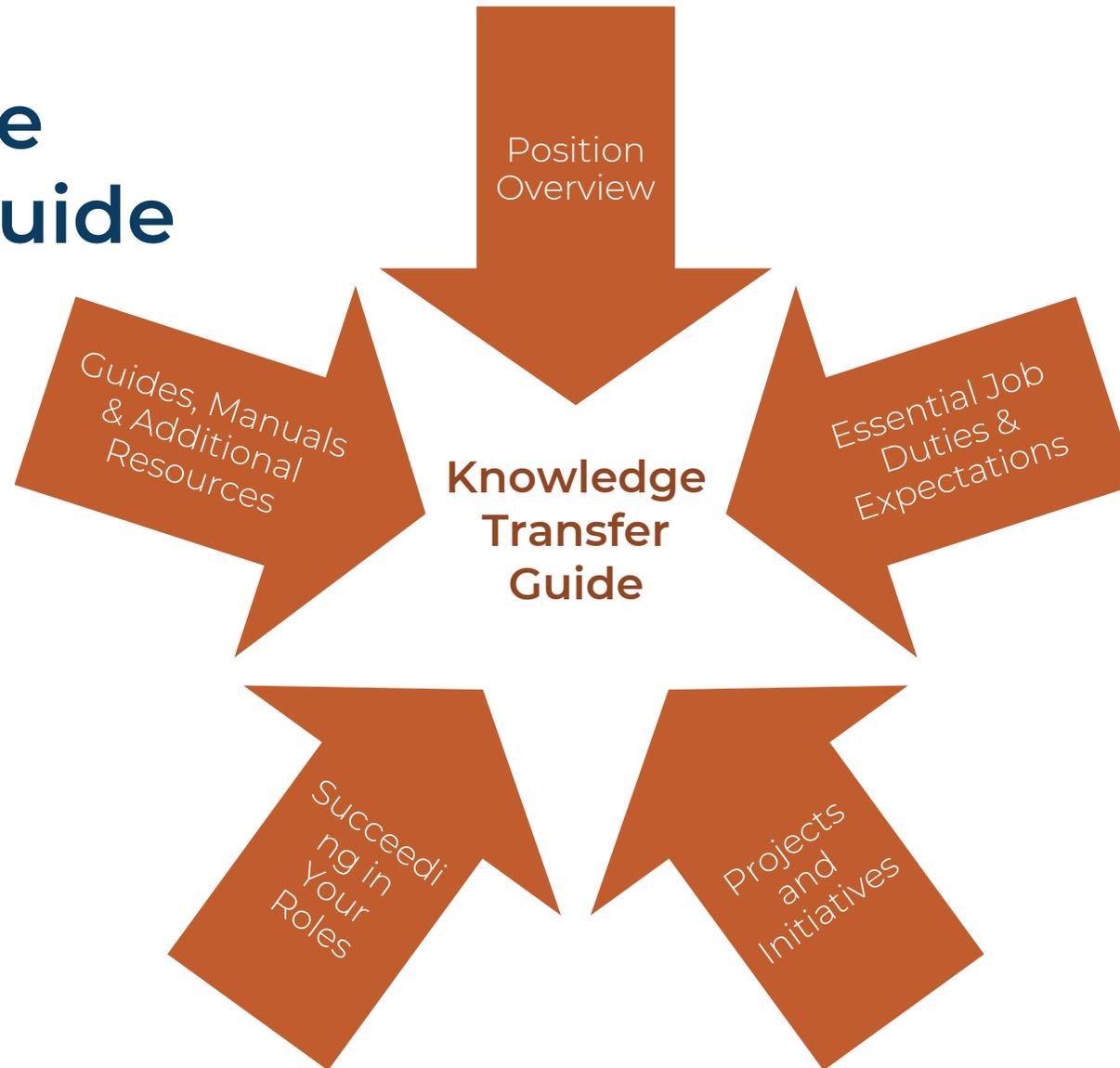
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# Implementation of Transfer Guides

- 2023 Value Management initiated a Knowledge Transfer TAG
- Interviews of leaders with over 28 years of experience
- Developed Guides and Job Aids

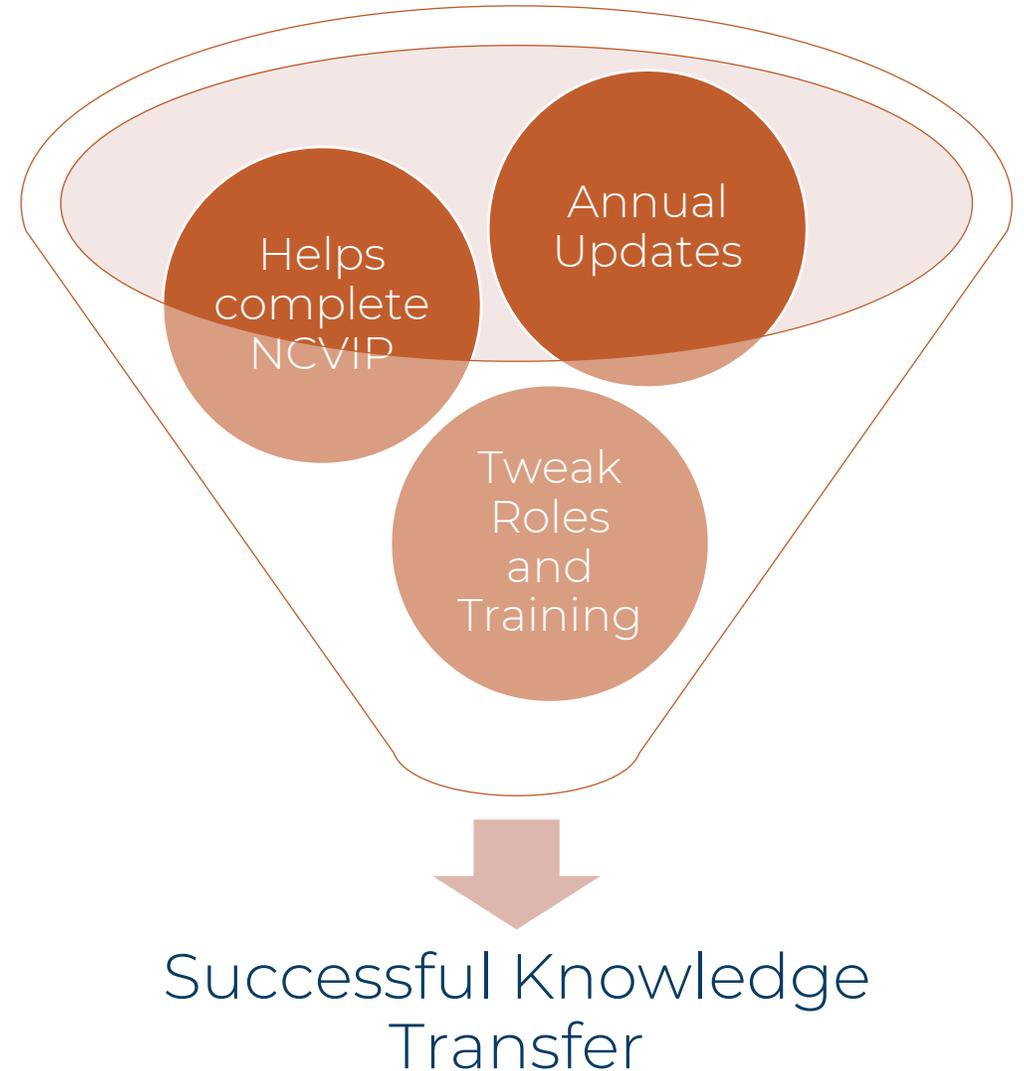


# Current Knowledge Transfer Guide



## Future of Transfer Guides

- Guides will be rolled out Department wide through HR
- HR will be the keeper of the guides
- Updated annually and as needed



# Contact Us

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# Pilot Debris Removal Systems

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**NORTH CAROLINA**  
Department of Transportation

# Debris Removal Status Update

Courtney Weeter, PE, PMP

March 20, 2025

Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina

## Debris Removal Tool Status Update

- 2023 STIC Grant - \$66k
- EDC-7 Innovations: Next Generation TIM Technology
- Piloting 4 debris removal systems
- Collaboration with SW Fleet Management
- Equipment designed to safely and efficiently clear debris from roads



### TIM Technologies for Saving Lives

Debris Removal

Smart Emergency Vehicle Lighting

UAS for TIM

Advance Warning

Emergency Vehicle Preemption

EMS Post-Crash Care

Source: Florida Department of Transportation

Source: Sarasota, FL Fire Department

All images from Enforcement Engineering, unless otherwise noted.

EDC

US Department of Transportation  
Federal Highway Administration

7

# Project Plan



## DOCUMENT

potential benefits and metrics to evaluate the technology and partner with Fleet Management



## PROCURE

equipment and confirm pilot vehicles



## INSTALL

the Debris Removal System on IMAP vehicles



## CONDUCT

pilot use of the debris removal system



## DOCUMENT

findings and provide recommendations

## STIC Prototypes



JAWS

To be Fabricated – Not in Use



LaneBlade

Installed – In Use



SWIPER

To be Fabricated – Not in Use



Debris Clear

Installed - In Use

## JAWS & SWIPER Fabrication

1. Fleet purchasing bumpers without winches
2. Fleet coordinating with fabricators
3. Install on 2025 truck (May)
4. Begin regional rotations



PROCURE



JAWS



SWIPER

## LaneBlade Feedback

### Pros

- User friendly deployment and use
- Camera is well positioned for range of view while approaching and pushing debris

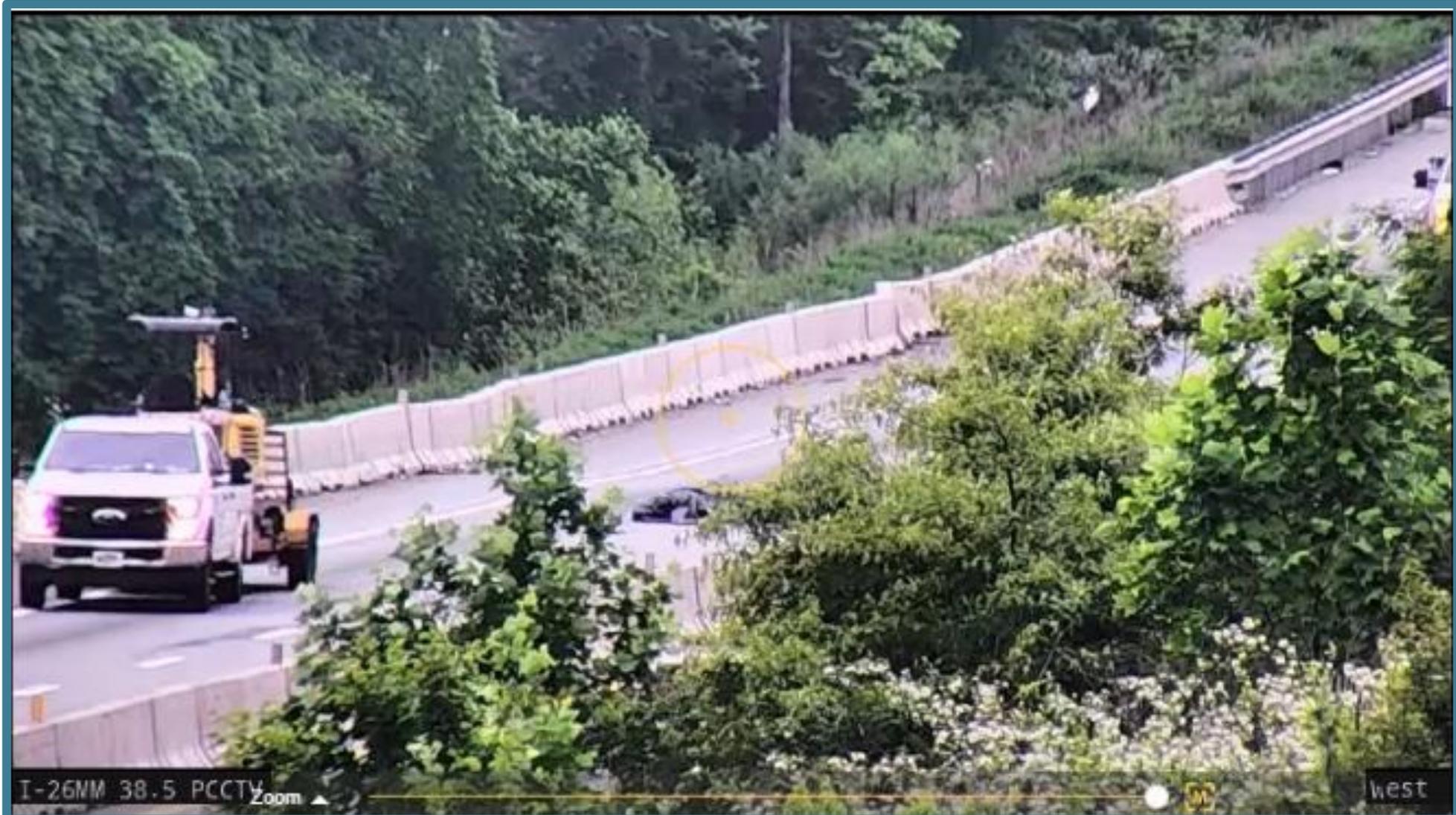
### Cons

- Width of Lane Blade can make navigating heavy traffic difficult
- Ground clearance makes it unable to use cut throughs or shoulders with dips



CONDUCT





Lane Blade in Use

## Debris Clear Feedback

### Pros

- Concealed within bumper
- Two cameras for visibility of debris and plow contact
- User-friendly and no damage to the roadway

### Cons

- Limited to a max speed of 20 mph for effective use
- Smaller debris may not be contained by the plow resulting in a manual remove



CONDUCT



## Equipment Evaluation

- Utility – integration with the vehicle; ease of deployment when needed
- Control of debris
  - Ability for the equipment to capture the debris and control the path
  - Potential for debris to bounce when vehicle begins to push
- Does the equipment cause any damage to roadway or pavement markings
- Does the equipment impact other vehicle equipment or performance (push bumper, winch, etc.)



DOCUMENT

## Schedule & Budget

- August 2023 - Received Funding
- October 2023 – Lane Blade Solution Deployed
- January 2025 – Debris Clear Solution Deployed
- May 2025 – SWIPER Solution Deployed
- May 2025 – JAWS Solution Deployed
- December 2026 – Regional Rotations Completed
- February 2026 – Equipment Evaluation Completed
- April 2026 – Final Report Completed

Task	Estimated Cost	Actual Cost
MoDOT JAWS Solution	\$25,000	-
Debris Clear Solution	\$20,000	\$24,999
SWIPER Solution	\$5,000	-
Lane Blade Solution	\$30,000	\$31,125
<b>Total</b>	<b>\$82,100</b>	
STIC Incentive Funds Received	\$65,680	
State Match	\$16,420	

# Contact Us

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# Innovation Challenge

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# Innovation Challenge

March 20, 2025



**CLEAR**

Communicate Lessons, Exchange Advice, Record

**Jiana Brown, HDR**  
*Strategic Communications*

# Innovation Challenge

NCDOT launches the **annual Innovation Challenge** to encourage all NCDOT employees to submit their ideas and/or best practices that help NCDOT operate more efficiently.



A new **theme** is created and/or chosen by the CLEAR team every year.



The period for **submissions** is open for a month.



A panel of **judges** review all responses based on scoring criteria.



The top two **winners** are notified and receive a certificate with NCDOT merch.



A yearly **video** features the winners and allows them to explain their innovative idea.

# Recap

2022 Innovation Challenge

**OBSERVATION  
IS THE KEY**



2023 Innovation Challenge

**IDEA  
SHARING**



- Launched in 2020
  - 2025 Challenge will mark 5<sup>th</sup> year
- New theme every year
  - 2020: The Lightbulb Moment
  - 2021: Implemented Innovation
  - 2022: Observation is the Key
  - 2023: Idea Sharing
  - 2024: Improving Training

# 2024 Innovation Challenge Stats

**17**

**Total Submissions**

**8**

**Divisions Represented**

**10**

**Topics Represented**

**10**

**Supplemental Materials**



# NCDOT's 2024 Innovation Challenge

**Daniel Ross**, District 14  
*Assistant Resident Engineer*



2024 Innovation Challenge

**CALL FOR  
INNOVATIVE  
IDEAS!**

- Theme developed by Daniel Ross
  - 2024: Improving Training
- Submission period: Jan-Feb 2025
- Winners selected in March
- Winners to be announced in April
  - receive a certificate & NCDOT swag
  - feature in an NCDOT COMS video
- Current Phase: Filming Winners



# 2025 Innovation Challenge

*Crafting the theme for the 5<sup>th</sup> year of the Challenge*

Suggestions?  
Ideas?



**CLEAR**

Communicate Lessons, Exchange Advice, Record

# Innovation Culture Index (ICI)

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## Innovation Culture Index (ICI)

2021, 2023, 2024

- Captures the Culture of Innovation.
- Key Performance Indicators (KPIs) on the Knowledge Management and Innovation Programs within NCDOT.
- Provides valuable feedback on how Innovation and Knowledge sharing initiatives need to be shaped.



### **Overarching themes across survey results:**

Ongoing and consistent communication on the program and initiatives, including highlighting the value, need, and areas of focus identified by Executive Leadership.

# 2025 STIC Incentive Program

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**The State Transportation Innovation Council (STIC) Incentive Program funds activities such as:**

- conducting internal assessments,
- initiating capacity building,
- developing guidance,
- drafting standards and specifications,
- organizing peer exchanges, and
- implementing system process changes.

**Now Accepting Applications**

until April 18, 2025

**Awards up to \$125,000**

*to offset the costs of standardizing innovative practices*



Example STIC Projects in NC



Online Application

## STIC Projects Completed in North Carolina

- Advancing Collaboration Technology Best Use Study – REKOR One Pilot
- Automated Waze Road Closures
- Highway Emergency Linked Platform (HELP) Alerts
- Knowledge Transfer Tools
- Ladders of Opportunity
- Safety Service Patrol Technology Pilot Project
- Tactical Library and Deployment Selection Tool for Bike and Pedestrian Safety Countermeasures

# STIC Eligibility Criteria

Calendar Year 2025

STIC Incentive Program  
Guidance (October 2024)  
[Webpage](#)

## The project/activity for which incentive funding is requested must:

- Have a statewide impact in fostering a culture for innovation or in making an innovation a standard practice.
- Align with Technology and Innovation Deployment Program (TIDP) goals.
- Be eligible for Federal-aid assistance and adhere to applicable federal requirements.
- Be started as soon as practical (preferably within 6 months, but no later than 1 year) after notification of approval for funding and the funds must be expended within 2 years.

# STIC Key Considerations

Calendar Year 2025

STIC Incentive Program  
Guidance (October 2024)  
[Webpage](#)

## Key considerations for proposals include:

- 20% match required.
- Align with NCDOT and/or FHWA goals and initiatives (such as EDC or Mission Statement).
- Scope to be completed within 2 years.
- Certain level of readiness must be demonstrated – if still in early stages consider a research project followed by a STIC project.

# NC-TIC's Scoring Criteria for Proposals

Calendar Year 2025

Criterion No.	Description	Weight
1	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal advance the identification or practice of the identified innovation?	20%
2	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much would the proposal advance the innovation into application beyond research?	15%
3	On a scale from 1 - 5, with 1 being a mainstreamed idea and 5 being completely new, how new is this innovation for NCDOT?	15%
4	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal advance the goals and mission of NCDOT?	30%
5	On a scale from 1 - 5, with 1 being not at all and 5 being completely, how much does the proposal meet the goals of the STIC Incentive Program?	20%
6	Is the proposal eligible for federal-aid funding under Title 23 U.S.C?	Y/N

# Upcoming STIC Schedule

## Calendar Year 2025

### February

- ✓ STIC application window opens on February 17

### March

- ✓ NC-TIC TCC Meeting – committee reviews and confirms scoring criteria on March 20

### April

- STIC application window closes on April 18

### May

- Summary of STIC applications distributed to TCC by May 1
- TCC reviewers provide questions to applicants by May 16
- Applicants provide responses to questions from TCC reviewers by May 30

### June

- NC-TIC TCC Meeting – applicants present and TCC votes on projects on June 17

# Open Discussion

