
NCDOT Research Reels: Final Report



NCDOT Project RP2024-38
FHWA/NC/2024-38
April 2026

Jennifer Palcher-Silliman
UNC Highway Safety Research Center
University of North Carolina at Chapel Hill



**RESEARCH &
DEVELOPMENT**

Technical Report Documentation Page

1. Report No. FHWA/NC/2024-38	2. Government Accession No. ...leave blank...	3. Recipient's Catalog No. ...leave blank...	
4. Title and Subtitle NCDOT Research Reels		5. Report Date April 2026	
		6. Performing Organization Code ...leave blank...	
7. Author(s) Jennifer Palcher-Silliman https://orcid.org/0009-0007-7995-6513 Strategic Communications and Education Manager		8. Performing Organization Report No. ...leave blank...	
9. Performing Organization Name and Address UNC Highway Safety Research Center 130 Mason Farm Rd. CB # 3430 Chapel Hill, NC 27514		10. Work Unit No. (TRAIS) ...leave blank...	
		11. Contract or Grant No. ...leave blank...	
12. Sponsoring Agency Name and Address North Carolina Department of Transportation Research and Development Office 1549 Mail Service Center Raleigh, North Carolina 27699-1549		13. Type of Report and Period Covered January 1, 2024 to December 31, 2025	
		14. Sponsoring Agency Code RP2024-38	
15. Supplementary Notes ...leave blank...			
16. Abstract Telling the story of how the North Carolina Department of Transportation's (NCDOT's) research projects have been implemented, and how they can be further implemented across the state and by other peer states, is imperative. In early 2024, the UNC Highway Safety Research Center (HSRC) began working with NCDOT's Research and Development Office to produce videos showcasing transportation research funded by NCDOT and conducted at North Carolina universities. The aim of this video project was to showcase how NCDOT research products can be used and implemented by communities across the state. The videos are also intended to highlight the benefits of transportation research and how it makes North Carolina's transportation system safer and more efficient. During the course of the project, HSRC produced five videos, and completed partial work on two more, covering a range of North Carolina transportation research areas.			
17. Keywords Tech transfer, transportation, communication, value, video, information management, knowledge management, information dissemination and retrieval, research implementation		18. Distribution Statement ...leave blank...	
19. Security Classif. (of this report) unclassified	20. Security Classif. (of this page) unclassified	21. No. of Pages 30	22. Price ...leave blank...

Form DOT F 1700.7 (8-72)

Reproduction of completed page authorized

NCDOT Research Reels

FINAL REPORT

Submitted to:
North Carolina Department of Transportation
Research and Development Unit
(Research Project No. RP2024-38)

Submitted by

Jennifer Palcher-Silliman
UNC Highway Safety Research Center
University of North Carolina at Chapel Hill
130 Mason Farm Rd., CB #3430
Chapel Hill, NC, 27514
919-962-2202
silliman@hsrc.unc.edu

April 2026

DISCLAIMER

The contents of this report reflect the views of the authors and are not necessarily the views of the University. The authors are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the North Carolina Department of Transportation at the time of publication. This report does not constitute a standard, specification, or regulation.

ACKNOWLEDGEMENTS

This research was sponsored by North Carolina Department of Transportation's Research and Development Office. Thank you for the opportunity to work with you on this project.

Special thanks to UNC Highway Safety Research Center team members, especially Jonathon Weisenfeld, Design Services Manager, who was heavily involved with the planning and production of all videos.

EXECUTIVE SUMMARY

The North Carolina Department of Transportation (NCDOT) Research and Development Office's research projects are multifaceted and focus on safety, materials, operations, planning, mobility, human environments, natural environments, and more, and are having a real impact on people and communities across the state. In early 2024, the UNC Highway Safety Research Center (HSRC) started working with NCDOT to produce informative videos highlighting the benefits of NCDOT-funded university research in the state to explain how these research products can or have been applied, as well as promote the benefits to potential users.

HSRC conducted all steps of the video production process, creating succinct videos showcasing different key projects and areas of NCDOT's research portfolio with interviews, footage/images of research implementation, narration and editing, and distribution. HSRC worked closely with the NCDOT Research and Development Office and the Communications Office on the videos.

During the course of this project, the team was flexible and adjusted processes to meet project needs, learning many lessons. Ultimately, this process led to five completed videos, with work on two more almost completed.

TABLE OF CONTENTS

Chapter 1. Project Background.....	7
Chapter 2. Description of Work	8
Chapter 3. Lessons Learned	13
Appendix A. Links to Videos	14
Appendix B. Video Scripts.....	15
B.1. NCDOT Research Reel Video 1: R&D Intro	15
B.2. NCDOT Research Reel Video 2: Rail Safety Script	17
B.3. NCDOT Research Reel Video 3: Zoysiagrass	19
B.4. NCDOT Research Reel Video 4: Concrete	21
B.5. NCDOT Research Reel Video 5: Automated Vehicles	24
B.6. NCDOT Research Reel Video 6: Bridge Beams.....	26
B.7. NCDOT Research Reel Video 7: Ped Bike Counters	28

Chapter 1. Project Background

The North Carolina Department of Transportation (NCDOT) Research and Development Office manages complex research projects that are implemented to benefit the North Carolina transportation system. North Carolinians, and those who use the state's roads, airways, ports, ferries, railways, and other forms of transportation, deserve to know how NCDOT's research investment directly benefits them and how these research products can be used. NCDOT issued a request for proposals for an ideal implementation partner to lead the agency's proposed project *Communicating the Impacts of Research Projects in North Carolina*.

The concept of HSRC being a great fit to work on NCDOT Research Reels came from HSRC's combination of expertise in transportation research, knowledge of North Carolina's transportation network, and deep background in packaging and framing research stories for a wide variety of audiences.

The project period started in January 2024, and the project was officially launched in February 2024 with a kick-off meeting. Because this was a brand-new program, it was understood that it would take some time to iron out details on how to format the videos and create and adjust a process for production. Ultimately the program moved into a rhythm, and by the end of the project (which did include a no-cost extension), five videos were finalized (see Appendix A for links to the videos), with work two more partially completed.

Chapter 2. Description of Work

The purpose of the NCDOT Research Reels project is to promote the use of NCDOT research products. The videos also highlight important areas of NCDOT research, convey how research results are implemented into real-life transportation improvements, and communicate in a digestible manner the benefits of NCDOT research and its implementation to North Carolinians. There were several facets to this project.

Team Members

The principal investigator for the project was Jennifer Palcher-Silliman, HSRC's Strategic Communications and Education Manager, who worked closely with Jonathon Weisenfeld, HSRC's Design Services Manager, throughout the project period. Other HSRC staff members assisted with tasks as needed.

The HSRC team coordinated with the project's NCDOT Steering & Implementation Team, which included Catherine Bryant, Project Lead and Research Implementation Manager; Curtis Bradley, Research Manager; and Lamara Williams-Jones, Research Librarian; all of whom are members of NCDOT's Research and Development Office. Jamie Kritzer and Alfred Inman, and later Athena Stanfield, coordinated through the NCDOT Communications office.

Throughout the project there were regular team meetings which usually included HSRC team members and the NCDOT Steering & Implementation Team.

Video Topics

The first video produced was an introduction to the NCDOT Research and Development Office. After the introduction video the team started working on the research-focused videos. Early in the project period the NCDOT Research and Development Office Unit provided a list of completed NCDOT-funded research projects ideal for being featured in videos. From that list it was decided that the first research video would focus on a couple of North Carolina rail safety projects. The next project-based video was about zoysiagrass, a sustainable type of grass planted to reduce the need for roadside maintenance.

In September 2024 the NCDOT Research and Development Office provided an updated list of research projects to be featured in videos; the list served as an editorial calendar. This table shows the entire project list:

	Video Title	Project #(s)	Research Project Title(s)
1st	Introduction to NCDOT Research & Development	N/A	N/A
2nd	The real cost of train collisions in North Carolina	RP 2019-08 RP 2020-44	Rail Network Trespass Statewide Severity Assessment and Predictive Modeling Comprehensive Cost of Rail Incidents in North Carolina
3rd	Zoysiagrass: Innovative solution for NC roadway maintenance	RP 2018-02 RP2021-01	Selection, Installation, and Evaluation of Zoysiagrass Zoysiagrass Expansion on Roadsides
4th	Performance-engineered concrete: A reliable foundation for NC roadways	RP 2018 14	Durable and Sustainable Concrete Through Performance Engineered Concrete Mixtures
5th	Automated shuttle research provides a glimpse of a driverless transit future in North Carolina	RP 2022-16 TCE2020-03 RP 2023-35	Developing and Operationalizing a Testbed of Connected Self-driving Shuttles to Test and Develop CAV Applications in North Carolina/ NC Transportation Center of Excellence on Connected and Autonomous Vehicle Technology (NC-CAV)/ Microtransit Pilot Project in Greensboro, NC
6th*	Research leads to repair solution for North Carolina bridges	RP 2018-16	Mechanically-Fastened FRP to Retrofit Existing Prestressed Concrete Bridge Beams
7th**	Guiding local agencies on choosing pedestrian & bicycle monitoring equipment	RP 2020-39	State of the Art Approaches to Bicycle and Pedestrian Counters

**A complete draft of this video was finished by the end of the project period. The only edits needed involved replacing images in the video.*

***This script for this video was completed before the end of the project period.*

Note: It was determined in September 2025 to postpone production on a sign replacement strategy research video.

The first step for each video was meeting with the lead project researcher and a key NCDOT project subject matter expert.

These meetings centered around the following general questions:

1. Which communities were impacted by the project?
2. What do you want communities to know about how this research benefits them?
3. Who else can use the research besides who's already utilizing it?
4. Do you know of any success stories in North Carolina related to people using this tool/research?
5. Do you have any images or video available for the Research Reel?

Script Writing

Jennifer Palcher-Silliman wrote all of the scripts during the project period; scripts for videos on bridge beam repair and on ped/bike counter research were also completed and approved, though the videos did not get completed during the project period. Jennifer used information gleaned during researcher and subject matter expert interviews, reviewed projects reports, and utilized other resources as needed.

The videos were meant to be public-facing, so it was important to convey the material with simple language, avoiding "research-ese." This became an important factor in the review process, making sure the scripts maintained simple language after including comments. The scripts were reviewed by the

project researchers, NCDOT research team, and NCDOT Communications. (See Appendix B for the scripts.)

Filming and Production

The first video (introduction to the NCDOT Research and Development Office) was narrated by Curtis Bradley. The remaining videos were narrated by Catherine Bryant. There were times when the narration audio needed to be re-recorded, but Catherine was always ready and available to do so. She also recorded multiple versions of her narrations, which came in very handy during production and editing. Catherine did the narration for a seventh video on ped/bike counter research, but that video did not get completed during the project period.

The HSRC team secured all filming equipment and created a filming studio in the HSRC office in Chapel Hill. For the first research video on rail safety, the HSRC team went to Raleigh to the NCDOT Rail Division location in Raleigh. Unfortunately, the footage from that filming was unusable. The two interviewees for that video, Roger Smock and Steve Bert, were willing to come to Chapel Hill to re-record their interviews. For all subsequent videos, the researchers and subject matter experts came to the Chapel Hill office studio to film their segments. One exception was the concrete video; for this, Tara Cavalline was filmed in her UNC Charlotte lab by her university's AV department.

Each video contained two interviews: one with the lead university researcher and one with an NCDOT subject matter expert familiar with the research. Here is the list of interviewees:

- Rail Safety:
 - Steve Bert, Program Manager, Economics & Policy Assessment Group, Institute for Transportation Research and Education (ITRE), North Carolina State University (NCSU)
 - Roger Smock, Rail Safety Consultant, NCDOT Rail Division
- Zoysiagrass:
 - Kevin Clemmer, Roadside Management Engineering Supervisor, NCDOT
 - Susana R. Milla-Lewis, Professor and University Faculty Scholar, Turfgrass Breeding and Genetics; Co-Director of the Center for Turfgrass Environmental Research and Education; Crop & Soil Sciences Dept., NCSU
- Concrete:
 - Tara Cavalline, Professor, Department of Engineering Technology and Construction Management, UNC Charlotte
 - Joshua A. Law, Structural Materials Workgroup Supervisor, Materials & Tests Unit, NCDOT
- Automated Shuttles:
 - Ali Karimoddini, Associate Professor, Electrical and Computer Engineering, North Carolina Agricultural and Technical State University (NCA&T)
 - Sarah Searcy, Emerging Technologies and Innovation Manager, Office of Strategic Initiatives and Program Support, NCDOT
- Bridge Beams:
 - Adam Britt, Division Bridge Program Manager, NCDOT
 - Rudi Seracino, Professor of Structural Engineering and Director of the Constructed Facilities Laboratory, Department of Civil, Construction, and Environmental Engineering, NCSU
 - *Note: A complete first draft of this video was completed and submitted. Edits to some of the images included to show proper personal protective equipment were still pending as of the end of the project period.*

- Ped/Bike Counters (the interviews for this video were completed, but the video was not completed):
 - Nikki Abija, Regional Planner, Mountains, Integrated Mobility Division, NCDOT
 - Erol Ozan, Professor, College of Engineering and Technology, East Carolina University (ECU)

Reviews and Approvals

Coordinating NCDOT reviews and approvals took some time to get used to. NCDOT is a very busy agency, so it became increasingly crucial to build in review times for members of the NCDOT Research and Development Office and Communications team. Still, there were a few instances where it became necessary to re-record narration or edit videos based on feedback coming in late in the production process.

Starting in spring 2025, Athena Stanfield from the NCDOT Communications office was assigned to help facilitate reviews coming through that department. Occasionally others were asked to review scripts and videos; for example, Elizabeth Macam, Marketing & Communications Officer, Rail Division, NCDOT, was included in review requests for multiple videos. There was a checklist to make sure Elizabeth or any other extra stakeholders were notified of needed approvals.

Dissemination

Once videos were finalized, HSRC would make them available by saving them in the project SharePoint folder. HSRC also posted the approved videos to YouTube (see Appendix A for links). And the NCDOT Research and Development Office created a project page where the YouTube videos were embedded (<https://connect.ncdot.gov/projects/research/Pages/Research-Videos.aspx>). NCDOT Communications was planning to start promoting the videos using its channels once a solid round of the videos were completed.

People who are deaf or have hearing loss can access the videos on YouTube via the closed captioning feature.

Results

The project team created and completed five engaging videos on a wide variety of topics.

The videos demonstrated the value of NCDOT-funded research in the state including:

- Facilitating the movement of people and goods
- Promoting safety
- Saving money/improving efficiency
- Letting communities know how they can use the research
- Impacts of research implementation

The videos also showcased the wide-ranging impact of research connected to these different NCDOT departments and offices:

- Research and Development Office
- Rail Division

- Roadside Environmental
- Structural Materials
- Strategic Initiatives & Program Support
- Highway Division
- Integrated Mobility

And, they highlighted the value of research partnerships with multiple NC state universities:

- NCSU
- UNC Charlotte
- NCA&T
- ECU
- UNC

Also, during the course of the project there was a budget revision to account for certain direct costs, including travel and incentive payments, not being needed and increasing tasks taken on by staff. There was also a six-month no-cost extension for the project.

Chapter 3. Lessons Learned

During the course of the project we learned several lessons that will be helpful for working on such a project in the future:

- Overall, the feedback on the videos was positive.
- Every researcher seemed excited about being involved in the project and being able to showcase their work.
- There was some back and forth regarding how to focus the first video efforts. Discussion of more creative, entertaining formats were eventually abandoned for a more straightforward approach.
- Multiple times we had to re-record narration or other parts as a result of reviewer comments. Building in plenty of time for NCDOT Communications and researchers to review the scripts and videos was key.
- It became important to manage expectations regarding what script and video edits were needed vs. what wasn't critical. There were multiple occasions where discussions centered around whether suggested changes were necessary, and in some cases, it was decided they were not.
- Recording multiple versions of narration turned out to be very helpful.
- Coordinating images and b-roll early makes production go more smoothly.

Appendix A. Links to Videos

These videos are all posted via the HSRC YouTube channel.

The NCDOT Research and Development Office created a web page to feature the videos:

<https://connect.ncdot.gov/projects/research/Pages/Research-Videos.aspx>

1. Introduction to NCDOT Research & Development Unit: https://youtu.be/-OkbS27_bMM?si=grdfincAD6szd6BA
2. Rail Safety: The real cost of train collisions in North Carolina: <https://youtu.be/34YNnDMuhFs?si=zxSGhC6ooi4P1FiM>
3. Zoysiagrass: Innovative solution for NC roadway maintenance: https://youtu.be/hgyDcjNIQgU?si=Ep-kmCo9YKBR_GFI
4. Concrete: Performance-engineered concrete: A reliable foundation for NC roadways: <https://youtu.be/F8BSfG36GdU>
5. Automated shuttles: Automated shuttle research provides a glimpse of a driverless transit future in North Carolina: https://youtu.be/gQY_XZEa1H8?si=KXNdE3qTzyMKWQpn

A sixth almost completed video focused on a solution to keep older bridges in service until full replacement is possible was still awaiting approved images from NCDOT when the project ended. This video could be quickly finalized if a new project is awarded.

Appendix B. Video Scripts

B.1. NCDOT Research Reel Video 1: R&D Intro

Suggested title: Who is NCDOT R&D?

	Script Text	Person Talking	Notes on video
1	The North Carolina Department of Transportation is responsible for nearly eighty thousand miles of roads. It's the second largest state-maintained highway system in the United States.	Curtis Bradley	- Charlotte city b-roll - Different font for words
2	But NCDOT's programs cover much more than just roads. There are bridges, bike lanes, rail, public transit, aviation, and even ferries.	Curtis Bradley	- Photos – see suggestions for Basnight Bridge, bikes lanes, “public transportation bus” - Note public transit to replace “sidewalks) - assuming pics you have for rail and aviation are still okay
3	And big changes are underway in transportation as people transition away from gas-powered cars and trucks to electric, autonomous, and connected vehicles.	Curtis Bradley	AV video – will reach out to Alfred about this
4	It is more important than ever that every travel option is safe and reliable.	Curtis Bradley	Footage from the montage
5	That's why NCDOT's Research & Development Unit works with university researchers and NCDOT engineers to develop innovative transportation solutions to make travel in North Carolina safer and more efficient.	Curtis Bradley	b-roll of R&D Office and Staff
6	Our office solicits and manages research projects primarily with North Carolina colleges and universities. NCDOT engineers, from various disciplines, champion these projects and ensure the project goals are met.	Curtis Bradley	- Replace video of books with something that shows Catherine - b-roll of colleges/universities/students and NCDOT

7	For more information on NCDOT-supported research, visit the NCDOT Research & Development website.	Curtis Bradley	NCDOT branding
8	We hope you enjoy learning about the work we support to make North Carolina safe and efficient for all travelers.	Curtis Bradley	• b-roll of R&D Office and Staff • need to confirm what to do with URL in the video

B.2. NCDOT Research Reel Video 2: Rail Safety Script

Suggested title: The real cost of train collisions in North Carolina

	Script Text	Person Talking	Notes on video
1	Some people may look at train tracks and see: • A scenic hiking trail, or • A picturesque setting for an engagement or graduation photo	Catherine Bryant	stock images & video
2	But the romanticized nature of these images contradicts the danger of walking and standing on active train tracks. Trespassing on train tracks in North Carolina is illegal and can be deadly.	Catherine Bryant	montage of rail incident headlines
3	These actions highlight a dangerous situation where the actual cost of a train hitting a pedestrian is underappreciated and easily forgotten.	Catherine Bryant	b-roll footage of ped trespassing on the tracks
4	Promoting rail safety is a big priority for the North Carolina Department of Transportation.	Catherine Bryant	map of NC rail system, NCDOT branding
5	As such, NCDOT's Research and Development Unit & the Rail Division works with North Carolina State University's Institute for Transportation Research and Education to support rail safety research projects.	Catherine Bryant	Show NCSU ITRE branding
6	The institute known as ITRE and NCDOT are laser focused on identifying and communicating the true costs of rail collisions.	Catherine Bryant	b-roll footage of train crash simulation
7	Rail trespassing doesn't get the attention it should. People who trespass on train tracks represent the largest share of rail-related deaths. But there are financial costs as well.	Roger Smock	Video of Roger speaking
8	Between 2010 and 2019, the total cost for North Carolina rail incidents was around \$2.4 billion for things like repairing property damage or rerouting trains after an incident.	Roger Smock	Video of Roger speaking
9	We needed a more complete understanding of pedestrian trespassing along the rail network in North Carolina.	Roger Smock	Video of Roger speaking
10	The ITRE team worked on clarifying the scope of rail network trespassing including events that don't involve injury or death. They developed models for predicting rail trespassing and profiles of trespassing activity. These models helped communities understand and prepare for future rail incidents.	Catherine Bryant	b-roll, images

11	Another NCDOT-sponsored rail safety research project extended this concept by developing an interactive tool for evaluating the costs of rail incidents in North Carolina.	Catherine Bryant	b-roll, images
12	The North Carolina Rail Cost Tool helps communities calculate the comprehensive cost of rail incidents.	Steve Bert	Video of Steve speaking
13	It incorporates costs for injuries and fatalities, property damage, supply chain disruptions due to delays and rerouting, and emergency responses.	Steve Bert	Video of tool
14	The tool can help planners, local lawmakers, law enforcement, emergency responders, and others prepare for the impact of rail incidents. We created this tool to be dynamic so it can accommodate user input and adjust to changes in the cost of living and labor, for instance.	Steve Bert	Video of Steve speaking
15	Other states and the federal government have shown interest in using the tool.	Catherine Bryant	stock images, U.S. map
16	What should North Carolina communities know about this work?	Catherine Bryant	stock image
17	It is important to understand the economic impact of train collisions.	Catherine Bryant	Image with word summary overlay
18	Communities can better prepare for the impact of train collisions by using the cost calculation tool models to estimate trespassing casualties and crossing crashes.	Catherine Bryant	Image with word summary overlay
19	They can also use the cost tool to estimate the total costs of such collisions to help them understand and budget for the human and economic toll.	Catherine Bryant	Image with word summary overlay
20	Anyone interested in learning more can find these resources on the NCDOT Research & Development website.	Catherine Bryant	NCDOT branding
21	Until next time this has been NCDOT Research Reels where we're Reelin' in the Research.	Catherine Bryant	b-roll and/or NCDOT branding

B.3. NCDOT Research Reel Video 3: Zoysiagrass

Suggested title: What is Zoysiagrass, and why is it good for North Carolina's roadways?

	Script Text	Person Talking	Notes on video
1	<i>(About 11 seconds for intro)</i>		
2	North Carolina is a picturesque state to drive in with countless scenic views.	Catherine Bryant	B-roll
3	The North Carolina Department of Transportation's wildflower program and well-maintained highways have beautified the state's roadway system for years.	Catherine Bryant	B-roll of the beach, Blue Ridge Parkway, wildflowers
4	However, few drivers may think about what a complicated and expensive process it is to maintain North Carolina's roadways.	Catherine Bryant	Photo of mowing?
5	Even the variety of grass planted along roads can impact the costs of mowing, erosion control, litter clean up, and more.	Catherine Bryant	Grass photos
6	To address this, NCDOT's Research and Development Unit partnered with North Carolina State University on research exploring cost-effective approaches to managing roadside grass.	Catherine Bryant	NC State images
7	A variety called zoysiagrass emerged as a sustainable approach to roadside maintenance.	Catherine Bryant	B-roll/photos of people working on roads
8	Zoysiagrasses are dense, drought-resistant turfgrass species that minimize weed invasion, making them ideal for planting along roadways.	Susana Milla-Lewis	Susana in front of green screen
9	My team worked on a project to identify the most suitable zoysiagrass types for roadsides and the most efficient options for growing them.	Susana Milla-Lewis	Susana in front of green screen
10	Our research showed that planting seeds, instead of small stems called sprigs, is the most effective way to plant zoysiagrasses, and that springtime is the ideal time to plant.	Susana Milla-Lewis	Susana in front of green screen
11	Our research is ongoing and expanding to develop new zoysiagrasses especially adapted to roadsides.	Susana Milla-Lewis	Susana in front of green screen

12	Another key project expands this work by looking at scaling up the planting process to adequately cover North Carolina roadside plots.	Susana Milla-Lewis	Susana in front of green screen
13	NCDOT is responsible for maintaining around three hundred thousand acres, or sixty thousand shoulder miles, of roadside vegetation.	Kevin Clemmer	Kevin in front of green screen; show the number
14	Following droughts in recent years, we started installing zoysiagrass along North Carolina roads, and we've saved resources by using less water, fewer herbicides, and less frequent mowing.	Kevin Clemmer	“
15	We are one of the first states in the country to plant zoysiagrass along its roadways.	Kevin Clemmer	“
16	By doing this, NCDOT could potentially cut NCDOT mowing and trimming expenses in half.	Kevin Clemmer	Kevin in front of green screen; show the number
17	We've already explored additional ways to apply this zoysiagrass research, such as planting at rest areas and welcome centers.	Kevin Clemmer	
18	While this research was conducted with NCDOT-maintained roads in mind, it is the hope that local community officials can also consider using zoysiagrass along the roads they maintain.	Catherine Bryant	B-roll of planting, maybe zoysiagrass nursery
19	Anyone interested in learning more can find these resources on the NCDOT Research & Development website.	Catherine Bryant	Standard closing screen
	<i>(About 12 seconds for intro)</i>		

B.4. NCDOT Research Reel Video 4: Concrete

Suggested title: Performance-engineered concrete: A reliable foundation for NC roadways

	Script Text	Person Talking	Notes on video
1	<i>(About 11 seconds for intro)</i>		
2	Cracked concrete, potholes, and the associated road work can be nuisances for drivers in North Carolina.	Catherine Bryant	Pics of potholes, etc.
3	Planning for the concrete used on our state's roadways to be long-lasting and durable can reduce distress and alleviate disruptions needed to address issues.	Catherine Bryant	Video of concrete pouring
4	Researchers at UNC Charlotte are working with the North Carolina Department of Transportation on projects to develop what are called performance engineered concrete mixtures.	Catherine Bryant	Logos
5	Through this collaboration they are creating specifications for these concrete mixtures that, when implemented into road construction, are expected to make North Carolina roads more durable and sustainable.	Catherine Bryant	B-roll/images showing collaboration
6	Concrete is a building block of civilization and a major component of our nation's transportation infrastructure.	Tara Cavalline	Green screen
7	Like many agencies, NCDOT wants to optimize its resources and reduce maintenance by using more durable and sustainable concrete.	Tara Cavalline	Green screen
8	Our work has focused on developing specifications for performance-engineered concrete, which provides flexibility for contractors and producers, while ensuring the long-life and durable performance of our state's concrete infrastructure.	Tara Cavalline	Green screen
9	Incorporating materials like fly ash and portland limestone cement into mixtures can improve durability and provide a reduced carbon footprint for our concrete mixtures.	Tara Cavalline	Green screen

10	NCDOT is looking ahead toward incorporating performance engineered concrete mixtures into specifications for roadways and structures.	Catherine Bryant	Concrete b-roll, pics
11	Trial specifications for these concrete mixture approaches and testing technologies are already being used in pilot projects across the state, which allows stakeholders to become familiar with them, and provides NCDOT a better understanding of the benefits of performance engineered mixtures.	Catherine Bryant	Pic of kind of documents specs will be in?
12	Engaging stakeholders such as concrete suppliers and paving contractors is a critical part of implementing NCDOT's specifications for improved concrete infrastructure.	Catherine Bryant	B-roll showing collaboration, map of NC
13	Performance-engineered concrete has the potential to help improve concrete infrastructure durability across North Carolina.	Joshua Law	Green screen
14	By developing these specification approaches and embracing these new testing technologies, we will give designers and contractors tools they can use to build more durable and sustainable pavements and structures.	Joshua Law	Green screen
15	These mixtures can be beneficial by providing increased protection from the damaging effects of roadway de-icers as well as a reduced susceptibility to cracking.	Joshua Law	Green screen
16	This research can also be impactful in coastal areas where saltwater can affect concrete infrastructure, as well as in mountainous areas where salt is used to de-ice bridges and pavements and freezing and thawing can cause damage.	Joshua Law	Green screen
17	The sustainability benefits associated with performance engineered mixtures, as well as their longer lifespan and reduced maintenance, will help conserve our state's resources and improve the travel quality of our state's citizens.	Joshua Law	
18	The next time you're driving on a road or over a bridge in North Carolina, keep in mind that North Carolina researchers are working to	Catherine Bryant	B-roll of cars on roads,

	assist NCDOT in ensuring more durable and sustainable infrastructure for the state's future.		people driving
19	Anyone interested in learning more can find these resources on the NCDOT Research & Development website.	Catherine Bryant	Standard closing screen
20	<i>(About 12 seconds for intro)</i>		

B.5. NCDOT Research Reel Video 5: Automated Vehicles

Suggested title: Automated shuttle research provides a glimpse of a driverless transit future in North Carolina

	Script Text	Person Talking	Notes on video
1	<i>(About 11 seconds for intro)</i>		
2	Automated vehicles, also known as self-driving vehicles, are expected to change the way we travel.	Catherine Bryant	
3	As this technology matures, automated shuttles may provide smart and affordable alternatives to expand transit to areas of North Carolina with limited access to public transportation, including in rural areas.	Catherine Bryant	
4	Supported by the North Carolina Department of Transportation and other partners, researchers at North Carolina A&T State University have explored the benefits of developing a fleet of automated shuttles in the state.	Catherine Bryant	
5	With support from NCDOT, we have established infrastructure and expertise at NCA&T to advance transportation technology through our automated shuttle project.	Ali Karimoddini	
6	We call our vehicles the Aggie Auto Shuttles. They are equipped with powerful computing units and a full suite of sensors, including cameras, radars, and other required sensors.	Ali Karimoddini	
7	These features enable the shuttles to perceive their surroundings, make safe decisions, and navigate efficiently to their destinations.	Ali Karimoddini	
8	As part of this work, a state-of-the-art facility, including a 2-mile test track, was developed for testing the shuttles.	Ali Karimoddini	
9	The track features segments that simulate rural terrain, including narrow and curvy roads, steep hills, canopy roads, bus stops, and more.	Catherine Bryant	
10	This facility enables NCA&T researchers to validate the automated shuttles and their supporting technology under real-world conditions.	Catherine Bryant	
11	NCA&T researchers also piloted the automated shuttles by providing passenger service that connected the university campus to downtown Greensboro.	Sarah Searcy	

12	Through the pilot, NC&T researchers tested the shuttles' capabilities on open roads, gathered feedback from riders, and applied what they learned to continuously improve the technology and service.	Sarah Searcy	
13	One opportunity to improve future projects includes adding in vehicle-to-infrastructure communication.	Sarah Searcy	
14	This technology will enable shuttles to communicate with traffic signals, thereby improving safety and efficiency at intersections.	Sarah Searcy	
15	The pilot also contributed to increasing public awareness of automated vehicle technologies.	Catherine Bryant	
16	Researchers are continuing their work by improving vehicle-to-infrastructure communication and identifying further opportunities to pilot these technologies on public streets.	Catherine Bryant	
17	Communities across North Carolina should know:	Catherine Bryant	
18	- Automated vehicles are still under development. - Projects like NCA&T's Aggie Auto Shuttles help us better understand the capabilities and limitations of the technology now. - They engage and educate our community partners and the public, build trust and partnerships to ensure the vehicles and services meet real transportation needs, and better prepare our state for a driverless future. - Next steps for the NCA&T team include applying their lessons learned to explore how Aggie Auto Shuttles can connect people to places in rural communities in neighboring Rockingham County.	Catherine Bryant	
19	Anyone interested in learning more can find these resources on the NCDOT Research & Development website.	Catherine Bryant	Standard closing screen
	<i>(About 12 seconds for outro)</i>		

B.6. NCDOT Research Reel Video 6: Bridge Beams

Suggested title: Research leads to repair solution for North Carolina bridges

	Script Text	Person Talking	Notes on video
1	<i>(About 11 seconds for intro)</i>		
2	The North Carolina Department of Transportation maintains around thirteen thousand eight hundred bridges across the state.	Catherine Bryant	
3	As of January 2025, about seven point five percent of those bridges were classified in poor condition.	Catherine Bryant	
4	Replacing all the bridges at once would cost more than four billion dollars.	Catherine Bryant	
5	But keeping the bridges safe and functional is essential for North Carolinians who rely on them daily.	Catherine Bryant	
6	Thanks to a partnership between NCDOT and researchers at North Carolina State University, there's now a solution to keep older bridges in service until full replacement is possible.	Catherine Bryant	
7	Many of the state's bridges are decades old. Traffic, weather and time has taken a toll on them.	Adam Britt	
8	We worked with NC State on research that led to a repair solution that extends the service life of a bridge without load posting, which means placing weight limit signs to restrict usage.	Adam Britt	
	The solution, called a mechanically fastened fiber-reinforced polymer strengthening system, is an externally attached and easy to install repair system that restores capacity to bridge beams.	Adam Britt	
9	This means bridges can stay open safely until permanent repairs or replacements are made.	Catherine Bryant	
10	When we first started this research we conducted cost-benefit analyses to determine how the proposed retrofit solution might impact costs related to materials, installation, inspections, and maintenance.	Rudi Seracino	
11	Installation of the system is quick and does not require specialized equipment, and it's easy to inspect the condition of the repaired bridges.	Rudi Seracino	
12	We installed the system on three bridges in the state, then tested the bridges to see how the bridge beams performed.	Rudi Seracino	
13	After approximately two years in service, the repair system remained in good condition, and the repaired beams had an estimated two additional years or remaining service life.	Rudi Seracino	

14	Using a method developed to evaluate benefits of implement research in North Carolina, NCDOT calculated the cost benefit analysis of this research project.	Catherine Bryant	
15	This means that for every one dollar spent, this project has yielded a 608 dollar benefit for the State.	Catherine Bryant	
16	What should North Carolinians know about this research?	Catherine Bryant	
17	This research will help keep North Carolina bridges open, reducing the need to reroute traffic or load-post when a bridge is in poor condition.	Catherine Bryant	
18	The retrofit system is cost-effective, easy to install and easy to inspect, and elements may be reused after the bridge is replaced.	Catherine Bryant	
19	Researchers continue to test its long-term durability, aiming to ensure the bridges remain open for all travelers.	Catherine Bryant	
20	For more information and resources, visit NCDOT's Research & Development website. (adding a QR code may be helpful)	Catherine Bryant	Standard closing screen
	<i>(About 12 seconds for outro)</i>		

B.7. NCDOT Research Reel Video 7: Ped Bike Counters

Suggested title: Guiding local agencies on choosing pedestrian & bicycle monitoring equipment

	Script Text	Person Talking	Notes on video
1	<i>(About 11 seconds for intro)</i>		
2	While the U.S. federal government requires states to collect automobile traffic data through the Highway Performance Monitoring System, it does not require that similar data be collected for bicycle and pedestrian traffic.	Catherine Bryant	Standard b-roll of cars
3	Still, as more people walk and bike for exercise and transportation, understanding the volume of these modes can help planners design bike lanes, walking trails and other infrastructure.	Catherine Bryant	B-roll of people walking and biking on trails, etc.
4	The North Carolina Department of Transportation recognizes that data on bicycle and pedestrian traffic data is needed to guide such transportation planning decisions.	Catherine Bryant	B-roll/images of people walking and biking on trails, etc.
5	Working with North Carolina State University's Institute for Transportation Research and Education, the North Carolina Non-Motorized Volume Data Program was launched to test bicycle and pedestrian counting protocols statewide.	Catherine Bryant	ITRE and NCDOT logos
6	NCDOT needed a common, consistent way to measure the volume of non-motorized traffic.	Nikki Abija	Green screen
7	We wanted to understand current trends, model future use of our bicycle and pedestrian infrastructure, evaluate it at both the site and regional levels, and share the data.	Nikki Abija	Green screen
8	The North Carolina Non-Motorized Volume Data Program has helped NCDOT gain knowledge of local patterns, as well as provide technology installation and monitoring assistance.	Nikki Abija	Green screen
9	A guiding principle for this work is "What gets measured, gets done."	Nikki Abija	Green screen
10	A natural continuation of this work was collecting in-depth information on available monitoring technologies.	Catherine Bryant	

11	NCDOT partnered with East Carolina University on a project to evaluate and create guidelines on the various technologies used for bicycle and pedestrian traffic monitoring.	Catherine Bryant	ECU logo, image of project page
12	As part of this project, we reviewed existing literature and interviewed agencies and manufacturers to determine the availability of non-motorized counting technologies, identify where they've been deployed, and gauge customer satisfaction with different tools.	Erol Ozan	Green screen
13	The technologies are varied – some use infrared sensors and imaging, others rely on debris plates embedded in asphalt, some are radar-based, and others use camera technology.	Erol Ozan	Green screen
14	Some technologies can even monitor traveler behaviors including risky behaviors.	Erol Ozan	Green screen
15	We then tested a number of those technologies by installing them in selected locations including in urban areas and parks, then evaluating their performance.	Erol Ozan	Green screen
16	Municipalities can use our final report to decide which data collection technology best fits their needs and budgets.	Erol Ozan	Green screen
17	What should North Carolinians know about this research?	Catherine Bryant	Words on screen
18	North Carolina local and regional planners and other agencies may use non-motorized counting data to inform decisions on bicycle and pedestrian infrastructure.	Catherine Bryant	Words on screen
19	Using such monitoring data can enhance future project planning such as trails, pavement maintenance, and other local needs.	Catherine Bryant	Words on screen
20	NCDOT research led to detailed guidance on the different kinds of bicycle and pedestrian counting technologies.	Catherine Bryant	Words on screen
21	Local agencies can make informed decisions about what kinds of monitoring equipment they need and can afford using this research.	Catherine Bryant	Words on screen
22	For more information and resources, visit NCDOT's Research & Development website. (ad QR code)	Catherine Bryant	Standard closing screen
	<i>(About 12 seconds for outro)</i>		