



NORTH CAROLINA
Department of Transportation

North Carolina Department of Transportation Research & Development

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Manager of Research
NCDOT Research & Development Unit

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

Table of Contents



Overview of Research and Development

Who can Conduct Research?

 Appalachian State

 East Carolina

 Elizabeth City State

 Fayetteville State

 NC A&T

 NC Central

 UNC-Charlotte

 UNC-Greensboro

 UNC-Wilmington

 UNC - Chapel Hill

 NC State

 UNC-Asheville

 Out of State Partners



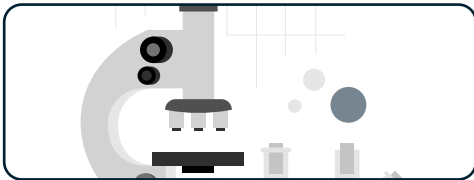
Not For Profit

Research Basics



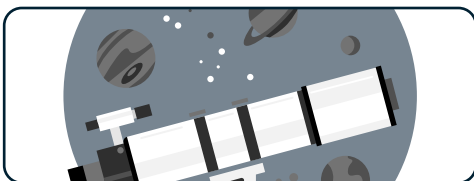
Research

- The process to gain a better understanding of subject studied.
- Typically has a problem statement, literature review, methodology, conclusion (implementation plan).



Applied Research

- Gain knowledge to answer a question or find a solution to a current problem.
- Solution can “typically” be implemented into practice.



Basic Research

- Study of facts to increase knowledge
- Solution is “typically” more experimental and requires further investigation.



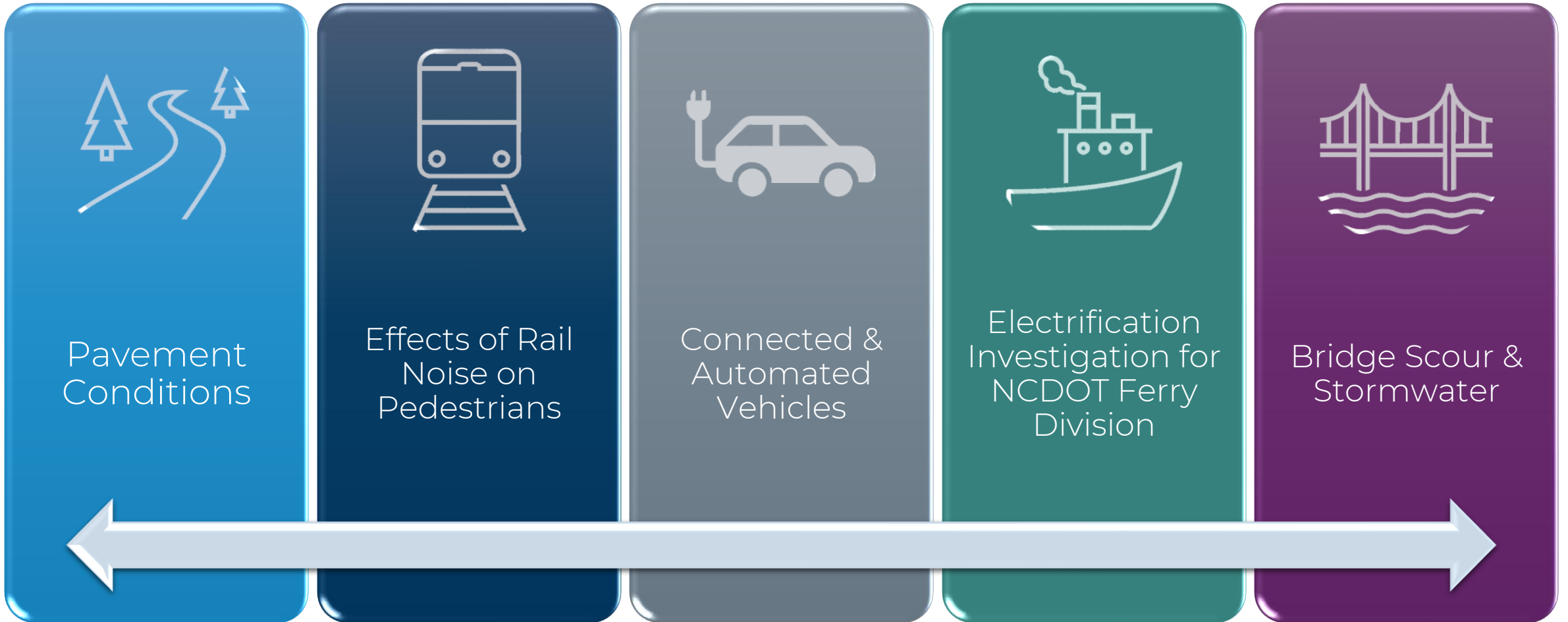
Technology Transfer

- Activities that lead to adoption of research product via dissemination, demonstration, training, etc.
- Process that leads to implementation.

What Makes a Good Research Idea / Proposal for NCDOT?



What Kinds of Projects does NCDOT Research?



Research Idea Collaboration Cheat Sheet

NCDOT Subject Matter Expert

- Research Idea must have a NCDOT Champion
- Ideas with no NCDOT Champion will automatically be rejected

Researcher Idea

- Researchers may submit Research Ideas (with NCDOT Champion)
- Researcher submitted Ideas are treated as proprietary

Coordination of Research Ideas

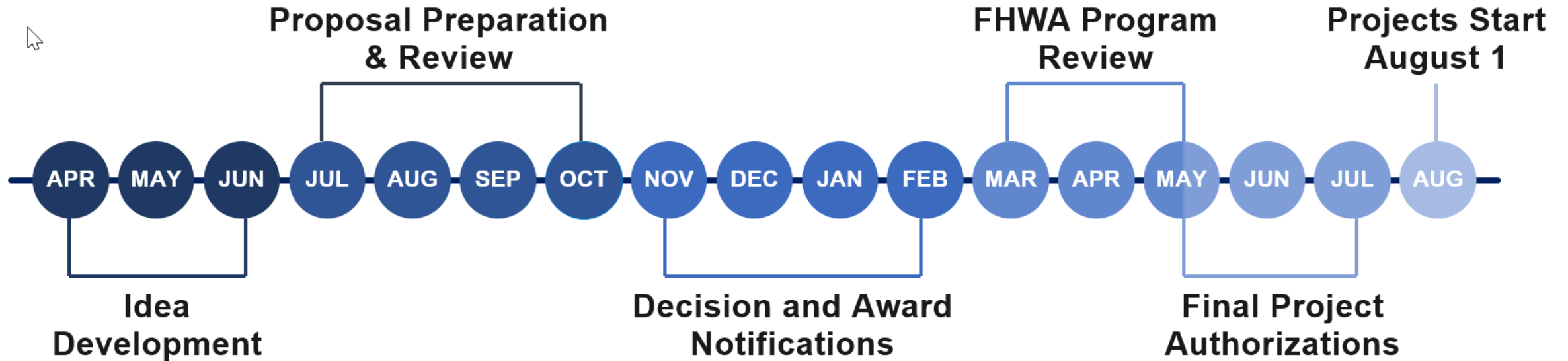
- Researchers may work with NCDOT Champion on developing Ideas
- Work cannot be promised by NCDOT Champion

Useful Resources

- 
- [NCDOT Research & Development – Research Projects](#)
 - [Transport Research International Documentation \(TRID\)](#)
 - [Transportation Research Information Services \(TRIS\)](#)
 - [Research in Progress \(RIP\) Database](#)

Annual Research Program

Annual Research Timeline



Things to Consider – Research Idea



Need / Urgency

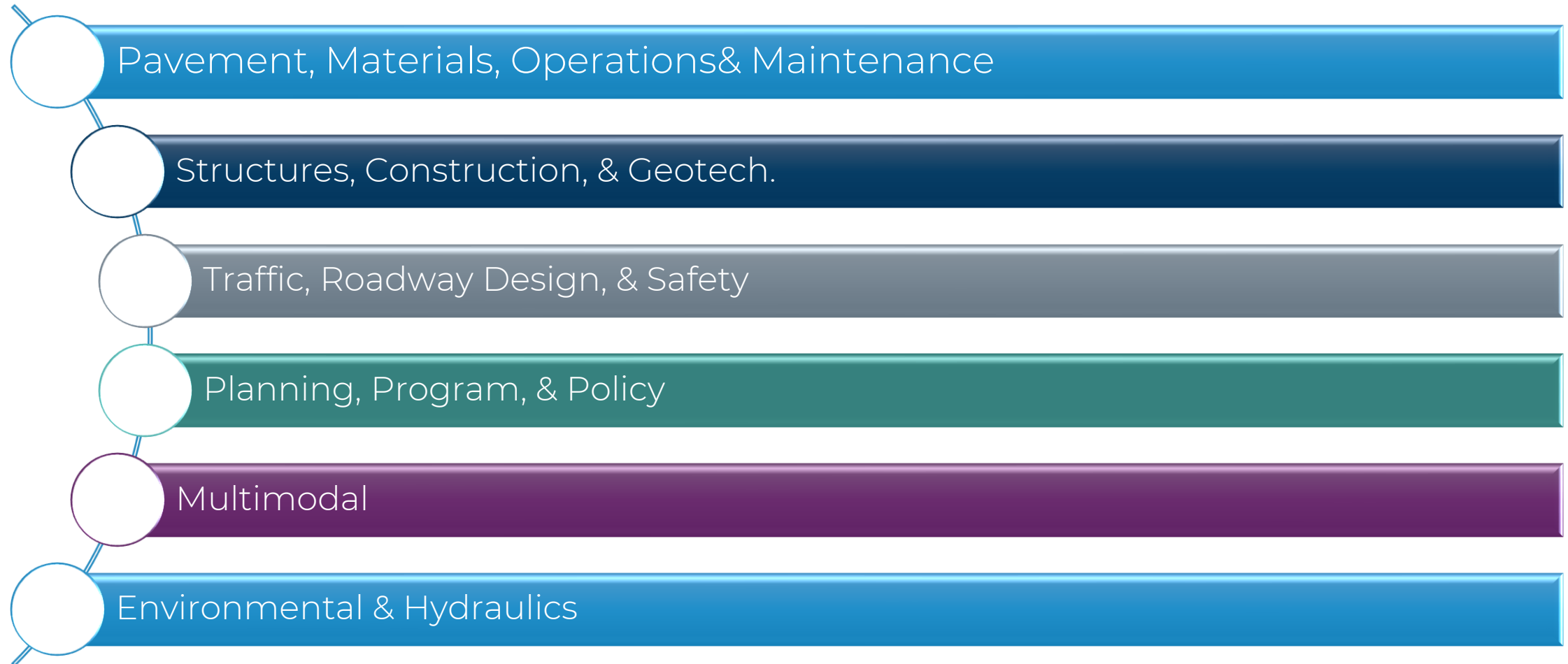


Implementation



Feasibility of Research

Research Subcommittees



Annual Research Program Basics

Purpose

- Conduct applied research for NCDOT needs.

Duration

- Idea – Start Date: 17 months
- Project Duration: 2 – 3 Years
- Overall Duration: 3 – 4 Years

Coordination

- Researchers & NCDOT SME's may work together on Research Ideas (work cannot be promised)
- Ideas from Universities are considered Proprietary

Key Dates

- April – Research Idea Solicitation
- February - Notification of Project Selection
- August – Project Start Date

Points of Contact

Points of Contact for Programs



NCHRP Coordination /
Environmental /
Hydraulics / Multimodal
– Katherine Harrison –
kmharrison1@ncdot.gov



Technology Transfer /
Planning,
Programming, Policy –
Catherine Bryant P.E., -
cbryant6@ncdot.gov



Pooled Fund
Engagement /
Pavement / Materials /
Structures / Geotech /
Construction –
Mustansir A. Kadibhai,
PE, CPM –
makadibhai@ncdot.gov



Library Assistance –
Lamara Williams –
Jones –
lcwilliams2@ncdot.gov



Technical Assistance /
University Initiatives and
Engagement / Traffic /
Safety / Roadway
Design – Jay Kim, Ph.D.
– jkim@ncdot.gov



Submitting a Research Idea

Research Idea – Sponsor / Champion Review



Research and Development

The Research & Development Office oversees transportation-related research investigating materials, operations, planning, mobility, safety, structures, human environments, natural environments, and more.

Connect NCDOT > Projects > Research

Research Highlights

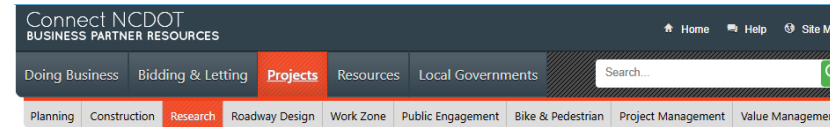
- NCDOT Research Reels
- NCDOT Research Reels – Zoysiagrass

Research Links

- Grants Management System (via EBS)
- Research Idea and Proposal Submittal**
- Research Training Sessions
- Search Research Projects
- NC State Government Documents
- TRB News and Feed Subscriptions
- Transportation Research Record (TRR) Journal
- NCHRP Reports and Publications

Research Ideas From Previous Years

View Research Projects | Research Projects Map



Research & Development

Ideas and NCDOT Proposals

Connect NCDOT > Projects > Research > Research & Development

External Users - Get Access

New External Users will need a NCID **BUSINESS** account to sign in. An individual NCID will not work properly for access to NCDOT Connect websites. Follow these steps to get your NCID and access to the Research and Development Research Idea and Proposal Submission Site. *Internal NCDOT users can proceed directly to the forms and do not need to request an ID.*

External access is simultaneously granted for both Idea and Proposal Submission.

If you do not have a NCID Business account or it is expired:

- Click this link to get your NCID Business account. <https://connect.ncdot.gov/getaccount/>
- Please check your email to complete the registration process or you will have to re-register again after 3 days. Follow the link in the email to confirm your email address. Then fill out the form below - Request Access to the Research Idea and Proposal Site.
- Once your NCID is synced and added to the DOT site you will receive another email letting you know you have been added. **You must then follow the link in the email to change your password BEFORE YOU CAN ACCESS to DOT site.**

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This process is not automated. It may take up to two business days to completely process your request. Any errors with the NCID process will delay access to the idea form.

Idea Submission Form

Click the button below to submit your new idea.

Submit New Idea

[Research Idea Instructions](#)

Review Your Submitted Ideas

Click the button below to access the Research & Development site and review your submitted idea.

Login

NCDOT Proposal Form Submission

Click the button below to submit your proposal.

Submit NCDOT Proposal

Review Your Submitted Proposal

Click the button below to access the Research & Development site and review your submitted proposal.

External User Guide

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You will receive a notification email that your request has been received and another notification email once access has been granted or if additional information is required.

Please provide your **NCID Business** userID

The screenshot shows a 'New User Registration' form with the title 'Self Service Password Reset'. Below the title, there is a note: 'To create your account, NCID will email you a code. You will need this code once you complete the form below and click the "Continue" button.' There are two input fields: 'Desired Username:' containing 'janesmith86' and another field containing 'The NCID username you entered here should be provided in this form'. A red arrow points from the second field to the first.

Required *

*Email:

*Name:

*Company:

*NCID Business UserID:

Submit

Once you have been granted access, proceed using the links on the right.

Research Idea Submission Screenshots

Research Idea Instructions

Select Form Type *
Select Internal for NCDOT employees and External for University and others.

Submitter Name: Curtis Bradley

Affiliation/Division/Unit *

Phone *
Enter only one phone number.
Ex. (919) 123-4567

Email *
cbradley@ncdot.gov
Enter only one email address

Research Idea Title *

What is the problem or issue needing investigation? *

Background *
Provide supporting information about the business unit, processes and tools

Research Tasks *
Describe specific activities that are anticipated (gathering data, structural testing, traffic analysis, etc.)

Products of the Research *
Examples of products could include models, specifications, policies, general guidance...etc.

Benefit or Knowledge Gain for NCDOT *
 Increase Operational Efficiency/Time Savings
 Cost Savings
 Improved Material Structure/Pavement/Performance
 Improved Models Performance/Traffic/Financial etc.
 New or Improved Specifications
 Improved Worker or Public Safety
 Permitting or Regulatory Compliance
 Other (Specify below)
Benefit or Knowledge Gain for NCDOT. Check all that apply.

Internal vs. External

Explain Anticipated Benefits *
Provide details for the benefits checked above.

Possible IT Components *
Describe any IT products or components

Implementation *
Discuss Implementation Ideas

NCDOT Research Subcommittee Recommendation
 Environment & Hydraulics
 Multimodal
 Planning, Programming & Policy
 Pavement, Maintenance & Materials
 Structures, Construction & Geotechnical
 Traffic, Safety & Roadway Design
Check all that apply. Additional checkboxes will appear below.

Additional Comments and Information

Sponsor/Champion Name *
Enter only one full name

Sponsor/Champion Title *
Provide Sponsor/Champion Position Title

Sponsor/Champion Unit *
Provide Sponsor/Champion Unit Name

Sponsor/Champion Phone *
Enter only one phone number. Ex. (919) 123-4567

Sponsor/Champion Email *
Enter only one email address

NCDOT Sponsor/Champion Confirmation
 Yes
 No
 Pending
External Submitters: This field is for Sponsor/Champion use only.

Date: 4/16/2026
Submission Date

Attach Files: Choose File No file chosen

Initial Subcommittee Recommendation

NCDOT Champion Info.

Research Idea – Confirmation (Submitter / Sponsor Confirmation)

Research Idea Submission Confirmation

Thank you for submitting your research idea.

Research Idea Title:	THIS IS A TEST FOR THE EXTERNAL SUBMISSION PROCESS
Sponsor/Champion Name:	Curtis Bradley
Sponsor/Champion Title:	Research Manager
Sponsor/Champion Unit:	Research and Development Unit
Sponsor/Champion Email:	cbradley8@ncdot.gov
Sponsor/Champion Phone:	(919) 707-6661
Submitter's Name:	Daehee Kim
Date of Submission:	4/22/2025 10:52 PM

If you would like to view your submission, please [click here](#).

Sponsor / Champion Review Confirmation

Sponsor/Champion has confirmed the following research idea.

Research Idea Title:	THIS IS A TEST FOR THE EXTERNAL SUBMISSION PROCESS
Sponsor/Champion Confirmation:	Yes
Sponsor/Champion Name:	Curtis Bradley
Sponsor/Champion Title:	Research Manager
Sponsor/Champion Unit:	Research and Development Unit
Sponsor/Champion Email:	cbradley8@ncdot.gov
Sponsor/Champion Phone:	(919) 707-6661
Submitter's Name:	Daehee Kim
Date of Submission:	4/22/2025

Please [click here](#) to view the submission.

Sponsor / Champion Review

A research idea has been submitted that has listed you as Sponsor/Champion.

Research Idea Title:	THIS IS A TEST FOR THE EXTERNAL SUBMISSION PROCESS
Submitter's Name:	Daehee Kim
Submitter's Email:	daehee.kim@aecom.com
Sponsor's Name:	Curtis Bradley
Date of Submission:	4/22/2025 10:52 PM

To confirm the submission, click the link below.

[Review the Submitted Research Idea](#)

- Go to the ribbon in upper left corner of the screen and click the **Edit item button**.
- Go to the field **NCDOT Sponsor/Champion Confirmation** at the bottom of the form.
- Check the appropriate radio button: **Yes**, **No**, or **Pending** if you need time to review.
- Click the **Save button**.

Thank you,
 Research & Development Unit
 North Carolina Department of Transportation

Thank you!

<https://connect.ncdot.gov/projects/research/Pages/default.aspx>

research@ncdot.gov



NORTH CAROLINA

Department of Transportation



Better NCDOT Research Ideas

Joe Hummer, PhD, PE, NCDOT State Traffic Mgmt. Engineer
Mobility and Safety Division

For NCDOT Lunch and Learn, April 20, 2026

Recovering Academic

- Civil engineering faculty member
 - 3 years at UNC Charlotte
 - 20 years at NC State
 - 4 years Dept. Chair at Wayne State
- PI or Investigator on 26 NCDOT funded projects
- Been at NCDOT for 10 years
 - Have now generated >15 funded ideas

Good Ideas ← My focus

Where Do They Come From?

- For me, mostly from tough road projects
- Talk and **listen**
 - Keep no secrets
- Travel and drive
- Keep asking
 - Why not? What if?
 - What is preventing us?



An Idea File

- When an idea occurs to you, jot it down and throw it into a file
- Sift your idea file occasionally
 - But just prioritize, rarely throw anything out
- Never be caught without when someone asks for ideas
- I have done this for over 30 years
- Worry if you stop generating ideas

Good Ideas

Who To Talk With Generally

- Colleagues within your university
- Colleagues elsewhere
 - I have a small “go-to” email list
 - One colleague visits occasionally just to share ideas
- City and consultant contacts
- Top students and former students
- Avoid: naysayers, one-trick ponies, committees

Good Ideas

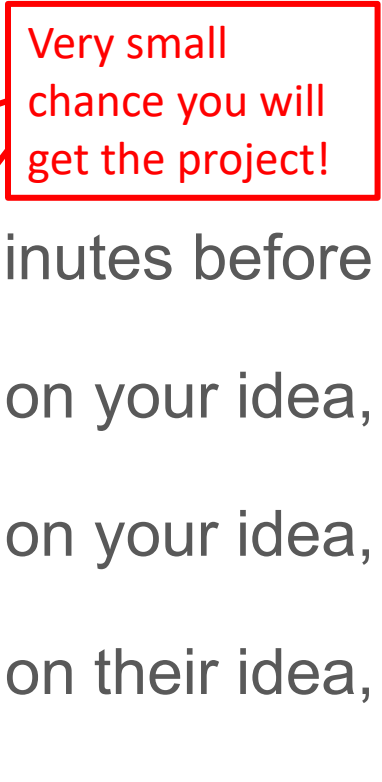
Who To Talk With at NCDOT

- Look at the org chart
- Know staff members' interests
- Who is the in-house expert?
- Who is on the selection subcommittee?
- Field division opinions are important
- Good question for NCDOT staff: “Who else should I talk with?”

Collaboration With NCDOT on Idea

- At least five possibilities:
 - Get NCDOT sponsor for your idea ten minutes before you submit it
 - Collaborate closely with NCDOT people on your idea, you submit it
 - Collaborate closely with NCDOT people on your idea, they submit it
 - Collaborate closely with NCDOT people on their idea, they submit it
 - NCDOT people submit their idea without discussing it with you
- No harm in asking what ideas staff are working on
- Get multiple sponsors on multiple committees

Very small
chance you will
get the project!



Good Ideas Criteria

- Helps NCDOT
 - Urgency / importance
 - Probability of implementation
 - Likelihood of tangible benefits

“Not sure this has a large applicability and may not affect a lot of NCDOT project decisions.”
- Not already answered
 - We know the literature

“There will be plenty of national research on this topic which we can rely on as it comes available.”
- Can NCDOT hire a consultant or do in-house?
 - Exception: we could hire a consultant but cannot do so within budget constraints

“Do we need scientific research on this?”

Good Ideas Criteria

- Can be answered within budget
 - Research method is available
 - Scope appropriate (~\$200k, two years)
 - Or, if problem broken into chunks, each chunk is useful
- Should be funded some other way?
 - National or international problems
 - Should do small trial first

“Difficulty in collecting any necessary and typical data given the current environment.”

“Could this be a pilot demonstration project?”

Just Because You Care Deeply Doesn't Mean We Do!

- Also does not matter to NCDOT:
 - Your long-term research interests
 - Whether this is regarded as an easy or hard problem
 - What your dean or tenure committee think
 - Whether this will be a good project for students
 - Whether this will be a good project for publication
 - Whether this idea failed to be funded elsewhere

Good Ideas

Where the Money Is

- NCDOT does two main things
 - Build transportation facilities (46% of spending)
 - Maintain transportation facilities (32%)
- Mostly highways (~ 90% of spending)
- How does your idea help project planning, design, or construction? More directly the better.
- How does your idea help maintain our transportation system?

Throw Lots of Darts

- In the end, idea submittal is a low effort, low risk, high reward activity
 - 20 percent success rate
- So don't be shy
 - Have some self-control
 - But when in doubt, lean toward submittal
- Become known as an idea person



Responding to NCDOT Ideas in the RFP

- If you are seeing the idea for the first time in the RFP, it might be too late
- Nonetheless, give each idea some thought
 - Maybe it was a last-minute submittal
 - Maybe the sponsor really did not know any researchers to talk with
- If the idea is a possible fit with you, talk with the sponsor

Are You the Best Researcher For This NCDOT Idea?

- Sometimes NCDOT needs the best person in the world in an area
- Sometimes NCDOT needs a competent person who is the best available in an area
 - How far are you willing to stretch? **“Boxing out”**
- Know your competition and potential collaborators
- Donating or trading ideas is fine
 - Become an idea broker

Team Formation

- I almost never worked alone
- Better to have part of a project than all of an unsuccessful proposal
- Sometimes I reached out
 - If you do your homework, almost always they will say yes
- Sometimes others reached out to me
 - I almost always said yes
- Help younger researchers get started
- Never compete with someone from your univ.

For example, the driving simulator.

Boost Your Local Profile

- Become better known to those who could help
 - At your university, at other NC universities, at NCDOT, at cities, at MPOs, at consultants,...
- Make presentations at local and state meetings
 - Local and state people don't attend int'l. meetings
- Never turn down a chance
- Create chances
 - Organizing committees usually looking for speakers
- Learn to talk with practitioners. Be interesting!



Thank You!

Let's Talk Intersections or AVs (or Research) Anytime

- Joe Hummer
 - 919-814-5040
 - jehummer@ncdot.gov

