



NORTH CAROLINA
Department of Transportation

Research & Innovation Summit - 2020



NC-TIC Minorities in Transportation Technology Initiative

Kristal High Taylor, Esq.

October 14, 2020

Minorities in Transportation Technology Initiative (MITTI)



Reduce disparities in the transportation technology sector

Leverage technology to help create and support a pipeline for meaningful engagement of minorities and women in this space



GALLUP®



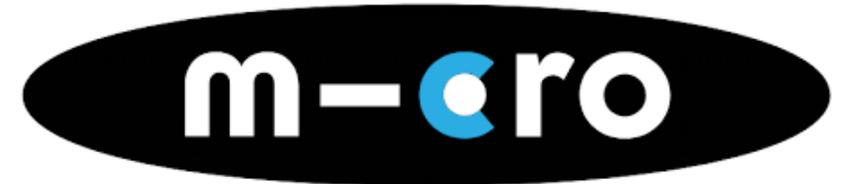
RTP

BROOKINGS



AIRBUS

UNC | KENAN-FLAGLER BUSINESS SCHOOL



Union of Concerned Scientists
Science for a healthy planet and safer world



Minority Engagement in Transportation Technology



**Engagement in
Research and
Innovation**



**Employment in
Transportation Technical
Work**



**Entrepreneurship
and Business
creation**



**Leadership in
Transportation
Technology**

MITTI Report Top Lines

- **CHALLENGE:** The current field of transportation technology does not include minorities at a representative rate – and the emergence of new transportation technologies represents an important opportunity to expand access to the field to minority workers, entrepreneurs and researchers.
- **OPPORTUNITY:** Consider, develop, and implement new programs that help expand access for minority groups in the transportation technology field requires a multi-sector approach.

Report Release Slated for November 2020



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NCDOT's Every Day Counts

Rebecca Gallas, PE

October 14, 2020

NC-TIC Mission



STIC

State Transportation Innovation Councils

The mission of the NC-TIC is to ***accelerate and help scale innovation*** within NCDOT and the state's surrounding transportation ecosystem by providing a platform for innovation, programming, and guidance on policies and best practices to ensure efficient investment in, and development and management of, North Carolina's transportation infrastructure.

NC-TIC History

- 2010 FHWA initiates “Every Day Counts”
- 2011, NCDOT and FHWA established the North Carolina Transportation Innovation Council (NC-TIC)
 - Co-led by NCDOT’s Chief Engineer and FHWA’s NC Division Administrator
- 2019- rechartered to be inclusive of multimodal units and expand opportunities with internal, academic and industry partnerships



Internal Innovation

- CLEAR (Ideas Generator)
- FHWA STIC, AID, Every Day Counts
- Innovation Survey and Assessment
- Strategic Implementation Teams (SIT)

Academic Partnerships

- University Transportation Centers of Excellence
- Academia Innovation Initiatives
- Industry Research & Development partnerships

Industry Partnerships

- Industry Information Exchanges
- Minorities in Transportation Tech Initiatives
- Industry & Government Initiatives

Promoting Internal Innovation



Internal Innovation

GOALS:

- FHWA Programs
 - Every Day Counts
 - STIC Incentive Funds & AID
- CLEAR Internal Ideas Generator Program
 - Rank & File Ideas (Policy Council Method)
 - Leadership
- Strategic Implementation Teams (SIT)





CLEAR is an internally-developed knowledge management program that gives voice to every NCDOT employee. It promotes cross-unit communication, sharing of best practices, and organizational enhancements through an easy to use technical platform.



Strategic Implementation Teams (SIT)

UAS

- POC: Basil Yap
- Develop uniform policies and procedures for internal use of UAS
- Drone loaner program



EV Conversion of Fleet Vehicles

- POC: Heather Hildebrant
- Response to Executive Order 80 & Secretary direction



FHWA Innovation Programs



STIC Incentive Funds



- Federal funding of up to \$100,000 per State, per Federal fiscal year
- To support or offset some of the costs of standardizing innovative practices in a State transportation agency or other public sector STIC stakeholder.
- Projects selected by NC-TIC

Selection of Current STIC Projects

**Hydraulic
Design
Practices**

**Standardizing
the Leading
Pedestrian
Interval (LPI)**

**Advanced
Safety Service
Patrol
Technology
Assessment**

Every Day Counts



State-based initiative to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery.

EDC-5: Innovations Pursued

2019-2020
Crowdsourcing for Operations*
Advanced Geotechnical Methods in Exploration
Collaborative Hydraulics (CHANGE)
Unmanned Aerial Systems
Safe Transportation For Every Pedestrian
Value Capture
Project Bundling
Virtual Public Engagement*

*Continued in EDC-6

EDC-6 Innovations

2021-2022
Crowdsourcing for Operations*
Virtual Public Engagement*
E-Ticketing and Digital As-Builts
Next-Generation TIM
Strategic Workforce Development
Targeted Pavement Overlay Solutions
UHPC For Bridge Preservation and Repair

*Continued from EDC-5

NCDOT has not finalized decision on which innovations will be pursued

EDC 5/6: Virtual Public Engagement

Public engagement during transportation project planning and development helps agencies identify issues and concerns early in the process, which can ultimately accelerate delivery.

NCDOT Initiatives:

- MetroQuest and Public Input.com
 - MetroQuest for long range planning and statewide initiatives
 - NCDOT.PublicInput.com during project development and construction phases
- Project Visualization
 - 3D Models, animations, virtual reality, utilizing in-house team
- Next Door and Geotargeting/Geofencing Social media

NCDOT Expert

Jamille Robbins

Public Involvement, Community Studies and Visualization

EDC 5/6: Virtual Public Engagement

To Date:

74K

Participants

160

Project Sites

608K

Responses

Since Stay at Home Order:

+97%

FB Interaction

+231%

FB Video Views

3.5

Comments per Minute-
reviewed on peak day

EDC 5/6: Crowd Sourcing for Advancing Operations

Agencies at all levels can use crowdsourced data integrated from multiple streams to optimize roadway use for reduced congestion and increased safety and reliability.

NCDOT Initiatives:

- **Waze**
 - Using Waze to expedite the identification of crashes has become a best practice among traffic management professionals
 - Currently procuring Traffic Management Software to integrate Waze into traffic management
 - Continue to use Waze Live Map while awaiting automated integration
- **Wejo**
 - Obtains data from car manufacturers that shows real time vehicle positions every three seconds
 - NCDOT considering how Wejo data can be most helpful in monitoring hurricane evacuation traffic and considering other applications

NCDOT Expert

Jennifer Portanova, PE, CPM
Traffic Systems Operations

NEW

EDC-6: Next Generation TIM

Traffic Incident Management (TIM) programs aim to shorten the duration and impact of roadway incidents and improve the safety of motorists, crash victims, and responders. New tools, data, and training mechanisms are available that can benefit both new and existing TIM programs, including local agency and off-interstate applications.

NCDOT Initiatives:

- Traffic Incident Management (TIM) Training Track
 - Provides realistic situations for SSP (IMAP) training as well as inter-agency training.
 - CMAQ funding supported the construction of the track.
- State Highway Patrol (SHP) and NCDOT Partnership w/ Drones
 - Mapping the scenes with the drones, the incident is cleared much faster
 - Provide real-time feedback of the status of the queue of vehicles behind the incident

NCDOT Expert

Jennifer Portanova, PE, CPM
Traffic Systems Operations

NEW

EDC-6: Next Generation TIM

NCDOT Initiatives (cont):

- Waycare Pilot
 - Utilizes in-vehicle telematics and traffic sensor data to aid dispatch of Safety Service Patrol (SSP)
 - Purchasing mobile data terminals to support advanced dispatch
- Connected Technology Pilot for Safety Service Patrol (IMAP)
 - Deploy Emergency Vehicle Alerting Devices for SSP/IMAP
 - Disseminate current responding vehicle locations to Waze, Google Maps, etc
- Tethered UAV
 - Provide live video feed to STOC and TMC's
 - Improve situational awareness and mobility

NEW

EDC-6: E-Ticketing

Converting paper-based materials ticketing systems and as-built plans into electronic (e-Ticketing) workflows and digital as-builts enhances the accessibility of highway project data. e-Ticketing improves the tracking, exchange, and archiving of materials tickets.

NCDOT Initiatives:

- Pursuing the development of a hybrid E-ticketing
 - Receive real-time e-ticket information to a web portal
 - Ticket info available to Inspectors
 - Automate daily summaries
 - Automate estimate entries into HiCAMS
- Active Pilot with one E-ticket Vendor
 - Anticipate additional pilots with additional vendors
- 2-year migration timeframe

NCDOT Expert

Brian Edwards, PE, CPM
Construction Unit

Thank you!

Becca Gallas, PE
Staff Engineer, Chief Engineer's Office
rjgallas@ncdot.gov