National Center for
INFRASTRUCTURE
TRANSFORMATION
Led by: Prairie View A&M University

- **Federal Agency and Organization Element to Which Report is Submitted** – US Department of Transportation, Office of the Assistant Secretary for Research and Technology (OST-R), University Transportation Center Program (UTC)
- **Federal Grant or Other Identifying Number Assigned by Agency** - National University Transportation Center (UTC) headquartered at Prairie View A&M University and focused on Improving the Durability and Extending the Life of Transportation Infrastructure
- **Project Title** – National Center for Infrastructure Transformation
- **Center Director Name, Title, and Contact Information (e-mail address and phone number)** – Judy A. Perkins, Ph.D., PE, Director, juperkins@pvamu.edu, 936-261-1655.
- **Name of Submitting Official** – Same as Center Director
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- **Signature of Submitting Official** -

PRAIRIE VIEW A&M UNIVERSITY
Texas A&M Transportation Institute
RUTGERS Center for Advanced Infrastructure and Transportation
MICHIGAN STATE UNIVERSITY
ASU Arizona State University
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1. ACCOMPLISHMENTS

a. *What are the major goals and objectives of the program?*
Prairie View A&M University (PVAMU) leads the National Center for Infrastructure Transformation (NCIT). The following consortium partners supporting PVAMU are Arizona State University (ASU), Blinn College District (BCD), Michigan State University (MSU), Rutgers University (RU), Texas A&M Transportation Institute (TTI) and Texas A&M University (TAMU). NCIT's goal is to support improving durability and extending the life of transportation infrastructure by transforming the transportation system through leadership, research, education and workforce development (EWD), and technology transfer and collaboration (T2C).

b. *What was accomplished under these goals?*

Leadership/Management Important Activities

- The NCIT Leadership meets weekly and consists of the following individuals:
  - Judy Perkins – Director/Advancing Education in Excellence (AEIE) Coordinator
  - Melissa Tooley - Deputy Director/Research Coordinator
  - Claudia Zapata – ASU - Associate Director & AEIE Coordinator
  - Marshall Rich – BCD - Associate Director & EWD Coordinator
  - Bora Cetin – MSU – Associate Director
  - Md Jobair Bin Alam – PVAMU- Associate Director
  - Yonggao Yang – PVAMU- Associate Director & EWD Coordinator
  - Patrick Szary – RU – Associate Director
  - Anand Puppala – TAMU – Associate Director
  - Charles Gurganus – TTI – Associate Director & EWD Coordinator
  - Paul Carlson – TTI – T2C Coordinator
- The NCIT Executive Leadership consisting of the Director and Deputy Director met with all Associate Directors, the AEIE Coordinators, EWD Coordinators, and T2C Coordinator to discuss management and operational matters, their roles and responsibilities, and policies and Standard Operating Procedures that will guide NCIT's business practices.
- The Director and Deputy Director meet virtually and in person on a regular basis to ensure the execution of NCIT's implementation plan and calendar of events for Year #3 and the upcoming Year #4.
- The Associate Directors meet periodically with the research faculty at their respective institutions to share Center information, ensure implementation of individual and collaborative projects/programs, and respond to questions and/or comments.
- NCIT's Advisory Board held a virtual meeting on December 5, 2025. Participating in the meeting were nine members of the Advisory Board, nine members of the Leadership Team, and three staff members. The agenda topics included an update on NCIT's accomplishments, 2026 Transportation Research Board (TRB) Annual meeting activities, 2026 NCIT Student of the Year, Year #4 plans, and an open discussion on future research priorities, EWD initiatives, and the participation of industry.
- NCIT's executive leadership consisting of the Director and Deputy Director participated in the NCIT PVAMU Internal Oversight Committee third meeting on December 5, 2025. The Committee members consist of the Provost and Senior Vice President for Academic Affairs, Senior Vice President for Business Affairs and Chief Financial Officer, Vice President of Research & Innovation, and Dean of Roy G. Perry College of Engineering

(RGPCOE). This committee is responsible for monitoring the effectiveness of NCIT's internal processes, thus ensuring compliance with the Notice of Funding Opportunity. The agenda topics included an update on NCIT's progress to date, Year #3 priorities, the reconciliation of Year #1 and Year #2 funds, and additions to the current membership.

- At the 2026 Council of University Transportation Centers (CUTC) Winter Annual Meeting and Awards Banquet, NCIT was recognized as a Silver Sponsor, reflecting its continued support and participation in national transportation initiatives. As shown in Picture 1, the Outstanding Student of the Year Awards Ceremony was held during the CUTC annual banquet, where PVAMU student Terrance Bolton was honored for his outstanding achievements.

Picture 1 - Terrance Bolton Outstanding Student of the Year

Collectively and individually, NCIT's leadership cadre is making a significant impact on the UTC infrastructure community through the education, research, and outreach efforts conducted on their campuses and beyond. NCIT consortium members continue to mentor and encourage students, early-career faculty, and experienced researchers to pursue more prominent roles within the transportation profession. Below are the achievements of NCIT's faculty, students, and staff for this reporting period.

- BCD
  - In January 2026, Marshall Rich (NCIT BCD Associate Director), four BCD students (Amanda Gonzalez, Andreea Turcanu, Carlos Hernandez and Tanner Bartow) and one staff member (Lauren Buth) attended the TRB Annual meeting in Washington, DC.
- MSU
  - In March 2026, Dr. Surya Congress received the Arthur Casagrande Professional Development Award, one of the American Society of Civil Engineers Geo-Institute's most prestigious honors recognizing rising leaders in geotechnical engineering.
- PVAMU
  - On January 10, 2026, the Outstanding Student of the Year Awards Ceremony was held during the annual banquet. Presented through the U.S. Department of Transportation's (USDOT's) UTC Program in partnership with CUTC, this recognition honors students across the country for excellence in research, leadership, and academics. During the ceremony, PVAMU student Terrance Bolton was recognized as a Student of the Year.
  - Dr. Judy Perkins delivered the opening remarks at the 2026 NCIT Virtual Colloquium on March 23, 2026.

- RU
  - Dr. Patrick Szary, NCIT associate director for Rutgers, along with Rutgers staff, hosted the 2026 NCIT Virtual Colloquium on March 23, 2026. More than 100 participants joined the event, including representatives from all NCIT partner schools, NCIT students engaged in research, USDOT, and a former regional transit executive.
  - Dr. Ali Maher, NCIT Advisory Board member for Rutgers, received an Engineering Excellence Distinguished Award from the American Council of Engineering Companies of New Jersey in March 2026.
  - Dr. Ali Maher gave an opening speech in the 2026 NCIT Virtual Colloquium on March 23, 2026.
  - Rutgers PI, Dr. Hao Wang, received the 2025 New Jersey Department of Transportation (NJDOT) Research Showcase Implementation Award in October 2025.
  - Rutgers PI, Dr. John Braley, was invited to participate in an interview by news media on November 7, 2025, to discuss infrastructure challenges in Northeast region and the Bridge Evaluation and Accelerated Structural Testing (BEAST) Lab's bridge testing capabilities.

Research Important Activities

- NCIT's research program includes traditional engineering and planning research but also policy research to ensure that the Infrastructure Investment and Jobs Act's unprecedented investment is made wisely. NCIT now has a total of 39 active projects - 30 research, 6 EWD, and 3 T2C operating in the first three years of the grant.
- NCIT researchers have completed 11 of the 21 projects implemented between 2023 and 2025. As per Table 1 below, the remaining 10 projects - 7 applied research, 2 EWD, and 1 T2C will end by May 2026 except one EWD project, which is expected to end in August 2026. Also, 8 of the 10 projects are operating on a no-cost time extension (NCTE).

Table 1 - Status of Year #1 and #2 NCIT Projects

No.	Project number	Project Type			Project Status	
		Applied Research	EWD	T2C	NCTE	On schedule
1	01-05-MSU	√			√	
2	01-06-MSU	√			√	
3	01-08-PVAMU	√			√	
4	01-09-PVAMU	√			√	
5	01-20-PVAMU			√	√	
6	01-13-TAMU	√			√	
7	01-17-TTI		√		√	
8	01-26-RU	√			√	
9	01-19-PVAMU		√			√
10	01-23-TTI	√				√

- During Year #3, NCIT managed a highly productive project cycle, with 31 proposals submitted and 29 projects approved, reflecting strong involvement across the consortium and alignment with the Center's research mission. The portfolio addressed a broad range of infrastructure durability, performance, and management topics while advancing practical, data-driven solutions for transportation agencies. Collectively, the Year #3 projects demonstrated NCIT's continued progress in delivering impactful research,

fostering collaboration, and supporting implementation-oriented outcomes for the transportation community.

- Also, during this reporting period, NCIT launched their Year #4 procurement process on January 30, 2026. The initial timeline included a January 30th Call for Problem Statements and would conclude with rendering a decision on Full Proposals by June 5th. Once the screening committee evaluations are complete, shortlisted applicants are formally notified and invited to submit full proposals, while non-selected submissions receive communication for transparency and future improvement. The process concludes with the submission of final proposals and a comprehensive decision-making phase, where selected projects are approved for funding and implementation.
- In Year #4, NCIT's project portfolio advances the Center's mission to improve durability and extend the service life of transportation infrastructure through integrated research, education, and outreach. While the screening process for more than 80 submitted problem statements is still ongoing, NCIT's Year #4 projects reflect a maturation of the Center's research agenda, shifting from foundational investigations toward validated methods, deployable tools, and agency-ready recommendations that directly support safer, long-lasting, and more cost-effective transportation infrastructure. Year #4 also strengthens NCIT's commitment to technology transfer and workforce development. Research tasks are paired with student training, curriculum enrichment, and practitioner involvement through workshops, webinars, and technical briefs. Another important focus in Year #4 is collaborative, multi-institutional research across consortium universities.

EWD Important Activities

The scope and reach of the NCIT consortium will have a major impact on the transportation workforce through its EWD programs. NCIT is creating an inclusive environment to develop a globally competitive workforce by educating the next generation of transportation leaders. Through collaboration with various educational stakeholders, programs and activities are designed to address critical workforce needs and prepare distinct pool of future professionals who are innovative and creative thinkers. To support the goal of producing graduates and a professional workforce proficient in the skills needed in the infrastructure focus areas, a collection of strategies and approaches are used.

NCIT Student Council

- The NCIT Student Council Meeting, held virtually on February 6, 2026, brought together student council members, faculty advisors, and participating students to foster collaboration, leadership, and active participation across the Center. The meeting served as a platform for students to contribute meaningfully to NCIT initiatives while strengthening communication and teamwork within the student community. Through a series of meetings and interactive initiatives, the council has created meaningful opportunities for students to contribute ideas, share experiences, and actively participate in shaping the future of transportation.
- The key focus of the meeting was preparing for the 2026 NCIT Virtual Colloquium. Participants were briefed on what to expect for the national event and engaged in discussions aimed at enhancing participation and visibility. Council members were tasked with developing innovative strategies to help boost viewership and increase student involvement, reinforcing the importance of student-led contributions to the success of NCIT programs.

- The Student Council emphasized professional development and experiential learning by engaging students involved in the TRB Annual Meeting (January 11–16, 2026). Students who attended TRB were given the opportunity to share their experiences, insights, and key takeaways with their peers during council meetings. These discussions provided valuable exposure to current research trends, networking opportunities, and real-world applications within the transportation field.
- The significance of this meeting lies in its role in strengthening student involvement and leadership development within NCIT. By creating a space for collaboration and idea generation, the Student Council continues to play a vital role in aligning student perspectives with the Center's ongoing projects and strategic objectives.
- This initiative directly supports NCIT's mission by cultivating the next generation of transportation and infrastructure professionals. Through active involvement, students gain exposure to research, innovation, and workforce development opportunities, while contributing to initiatives that advance infrastructure transformation. The Student Council Meeting highlights NCIT's commitment to empowering students as key contributors to its mission and future impact.

NCIT Student Graduates for Fall 2025

Five students affiliated with NCIT achieved significant academic milestones during this reporting period. Amarachi Mgbemele, Precious Ejikeme, and Valentina Palama each earned a master's degree in computer information systems from PVAMU. Additionally, Mehnaz Antora completed a master's degree in computer science, and Amie Aikens earned a bachelor's degree in business administration from PVAMU. These accomplishments reflect NCIT's continued commitment to supporting student success and developing a highly skilled and mixed workforce in infrastructure-related fields.

PVAMU 2026 Six Sigma Yellow Belt Certification Training Workshops

- The Lean Six Sigma Yellow Belt Training, held on February 21 and 28, 2026, at PVAMU, brought together NCIT faculty, staff, and students for a hands-on learning experience focused on process improvement and operational efficiency. The in-person training sessions as highlighted in Picture 2 provided participants with foundational knowledge of Lean Six Sigma principles and methodologies widely used across industry and research environments.
- During the training, participants were introduced to the Define, Measure, Analyze, Improve, and Control (DMAIC) framework, which serves as a structured approach to identifying inefficiencies, improving processes, and enhancing overall quality. Through guided instruction and practical examples, attendees gained exposure to tools and techniques that support data-driven decision-making and continuous improvement across projects and workflows.
- The workshop covered the five phases of DMAIC methodology. Participants learned how to define business opportunities, develop project charters, analyze processes to distinguish value-added from non-value-added activities, and identify elements of waste. The training also introduced techniques for defining customer requirements and building effective project teams.
- The impact of this training is already evident in the strengthening of NCIT's internal capabilities. By equipping faculty, staff, and student workers with Yellow Belt skills, the program helps foster a lifestyle of continuous improvement, empowering individuals to streamline administrative processes, enhance research operations, and increase overall

productivity. In addition, the Yellow Belt certification provides participants with a globally recognized credential that supports their ongoing professional development.

Picture 2 – Lean Six Sigma Yellow Belt Training Session, February 2026

- The workshop engaged a total of 22 participants (5 faculty and 17 students) in understanding Lean Six Sigma and understanding of the DMAIC improvement methodology.
- Building on this momentum, NCIT plans to further invest in capacity development by supporting staff and students in pursuing Lean Six Sigma Green Belt certification and by expanding opportunities for advanced training. The Center also intends to create additional pathways for similar professional development programs, ensuring sustained growth in technical and operational excellence across its workforce.

PVAMU Digital Information Organization Training Program

- PVAMU hosted a training session on organizing files and emails which was conducted on October 23, 2025, to enhance digital organization, productivity, and information management practices among NCIT staff and students. The training addressed common challenges individuals face when handling large volumes of digital information, such as disorganized folders, cluttered inboxes, and difficulty locating important documents.
- The organizing files and emails training focused on best practices for managing digital information, structuring shared file systems, and maintaining organized email communication to improve workflow efficiency of information. Participants learned strategies for creating standardized folder structures, managing file naming conventions, archiving and categorizing emails, and implementing tools within common productivity platforms to streamline communication and documentation processes.
- Beyond immediate productivity benefits, the training also supported long-term professional development. Strong organizational skills are highly valued across all industries, as they contribute to better time management, improved communication, and enhanced performance. By developing these skills, participants are better equipped to manage responsibilities, meet deadlines, and maintain a higher level of professionalism in both academic and workplace environments.
- The training engaged a total of 6 participants (2 headquarter staff personnel, 3 graduate students and 1 undergraduate student) in gaining best practices digital organization, productivity, and information management practices.

PVAMU RGPCOE Dean's Lecture Series

- Dean's Lecture Series #4 on October 15, 2025. The series highlighted research aligned with the NCIT research pillars on policy and technology. The event brought together faculty and graduate researchers to present innovative research addressing transportation systems, infrastructure resilience, and sustainable energy solutions.
- The lecture series featured presentations on several interdisciplinary topics, including the use of Geographic Information Systems (GIS) and machine learning (ML) for transportation asset management, AI-driven optimization of bicycle routes for electric bike usage, and ML approaches to identify hidden crash contributing factors in transportation safety analysis. Additional presentations examined the lifecycle performance and cost analysis of electric vehicle charging and hydrogen refueling infrastructure, as well as the use of innovative geosynthetics and Internet of Things (IoT)-enabled monitoring technologies to improve slope stability and infrastructure durability.
- The speakers included faculty members and graduate researchers from PVAMU Civil Engineering and Computer Science departments. Their research demonstrated how advanced technologies such as artificial intelligence (AI), ML, GIS, and sustainable infrastructure analysis can support data-driven decision-making and improve the performance and safety of transportation systems. The lecture series served as a platform to showcase ongoing research initiatives while fostering collaboration and knowledge sharing among faculty, students, and researchers within the NCIT community.
- Dean's Lecture Series #5 on November 13, 2025. The series focused on the theme "Machine Learning and Additive Manufacturing (ML/AM)". The lecture featured presentations from Dr. Noushin Ghaffari (PVAMU) and Dr. Mohsen Taheri Andani (TAMU), who shared insights on emerging research at the intersection of ML, advanced manufacturing, and engineered materials.
- Dr. Ghaffari discussed the application of ML and data-driven modeling in advanced manufacturing and engineering systems. Her research highlights how computational and experimental approaches can improve the performance and reliability of complex engineered materials and processes. Dr. Taheri Andani presented work related to metal additive manufacturing, alloy design, and qualification frameworks for applications in sectors such as defense, aerospace, and energy. His research integrates AI, in-situ monitoring, and microstructural engineering to advance next-generation materials.

T2C Important Activities

Proven T2C techniques combined with strong industry, agency, and association partnerships will ensure that NCIT's outputs are translated into practice.

2026 TRB Annual Meeting

- The 105th Annual Meeting was held January 11–15, 2026, at the Walter E. Washington Convention Center and the Marriott Marquis Washington DC in Washington, D.C. The NCIT hosted an exhibitor booth and organized networking opportunities for researchers, students, and collaborators.
- NCIT continues to prioritize building connections within the transportation community. The center traditionally hosts a TRB reception, where attendees can learn more about its work in infrastructure, technology, and policy. While a previous reception was cancelled due to severe weather in Washington, DC, NCIT resumed its participation efforts in 2026.

In addition, NCIT planned a networking session and group activities to bring together its team and partners during the conference.

2026 NCIT Virtual Colloquium

- The 2026 NCIT Virtual Colloquium, hosted by RU on March 23, 2026, brought together transportation leaders, researchers, educators, and students from across the United States for a dynamic exchange of ideas focused on the future of infrastructure. Delivered through an interactive virtual platform, the one-day event served as a national hub for collaboration, highlighting cutting-edge research, emerging technologies, and workforce development initiatives shaping the transportation sector.
- The program opened with remarks from key leaders, including Dr. Judy Perkins, NCIT Director, alongside RU leadership and advisory board representatives. A keynote address from Dr. Firas Ibrahim of the U.S. Department of Transportation's OST-R, as well as insights from former NJ Transit CEO Kevin Corbett, set the tone for a forward-looking discussion on innovation, resilience, and the evolving needs of the nation's transportation systems.
- Read more about the speaker summaries here https://ncit.pvamu.edu/2026-ncit-virtual-colloquium/speakers/.
- A central component of the colloquium was its concurrent research sessions, which were organized across three critical focus areas: infrastructure, technology, and policy. These sessions featured contributions from NCIT partner institutions including PVAMU, MU, RU, TTI, and ASU. Topics ranged from enhancing the durability of bridge superstructures and optimizing recycled pavement materials to advancing automated emergency braking systems and leveraging AI and uncrewed aerial vehicles (UAVs) for infrastructure asset management.
- In addition to research presentations, the event emphasized EWD activities through a dedicated student panel and an education-focused session. These discussions explored strategies for strengthening the transportation workforce pipeline, including innovative training programs, digital technologies for inspector development, and collaborative partnerships between academia and industry. The colloquium also featured student presentations from across NCIT partner institutions, showcasing emerging research and innovative ideas from the next generation of transportation professionals, including contributions from students such as Terrance Bolton, NCIT's 2025 Student of the Year.
- Interactive elements, including virtual laboratory tours of the BEAST Lab and pavement research facilities, as well as closing virtual reception, provided attendees with opportunities to engage beyond formal sessions, fostering meaningful connections across institutions and disciplines.
- The 2026 NCIT Virtual Colloquium reinforced NCIT's role as a national leader in advancing transportation research and collaboration. By facilitating high-level dialogue, promoting interdisciplinary partnerships, and disseminating impactful research, the event directly supports NCIT's mission to drive innovation and develop resilient, future-ready transportation systems.

NCIT Training Session

- NCIT was successful in hosting an online training session during this period. All new PIs and Co-PIs completed the required T2C/Intellectual Property (IP)/Commercialization Training in Year #3 on December 1, 2025. NCIT had the T2C Coordinator conduct the training and ensure topics on patents, research-based IP, licensing, the benefits of

commercializing your research, transitioning research products into startup companies, and invention disclosures. Paul Carlson was joined by Dean Alberson (Research Engineer at Bulwark Design Innovation) and Vibhav Veldore (Executive in Residence at Plug and Play Tech Center) to discuss valuable field experiences acquired over the years of working to move research deliverables into the hands of our stakeholders.

Administrative/Management Important Activities

- Occupy designated NCIT office space and prepare for NCIT Open House Event.
- Ensure NCIT business practices adhere to the new UTC Program guidelines and requirements. These guidelines and requirements align with the new Executive Administration Orders and memoranda.

c. *How have the results been disseminated?*

Combining the efforts of supported researchers, we successfully disseminate the results from our three core areas of research, EWD, and T2C, through the following avenues:

- NCIT website [https://ncit.pvamu.edu/], total visits to the site during this reporting period was 13,760 and there were 5,966 visitors.
- 4 journal article publication
- 35 conference poster presentation
- 22 conference lectern presentations
- 2 invited speakers to give opening remarks
- 6 served as moderators
- Released fourth and fifth newsletters. Click the links for more information: [https://online.flippingbook.com/view/58765657/] and [https://online.flippingbook.com/view/843404084/].
- Once approved, access will be granted to the final reports and associated materials (e.g., presentation slides, recordings, and other resources).

d. *What do you plan to do during the next reporting period to accomplish the goals?*

Leadership/Management Important Activities

- The NCIT Committees listed below used their Year #3 and plan to use their Year #4 Plans of Action to ensure programs/projects involving all partners are successfully implemented.
  - NCIT AEIE Scholarship – Perkins (Chair), Tooley, and Zapata
  - NCIT T2C/IP/Commercialization Training – Carlson (Chair) and Perkins
  - NCIT Student Council – Rich (Chair), Gurganus, and Yang
  - NCIT Traveling Assistance to TRB Annual Meeting – Cetin (Chair), Zapata, and Puppala
  - NCIT 2025 Virtual Colloquium Event – Szary (Chair), RU Personnel, and Yang
  - NCIT Webinars – Puppala (Chair), Alam, Szary, and Tooley
- NCIT's executive leadership consisting of the Director and Deputy Director will meet with the NCIT PVAMU Internal Oversight Committee on June 5, 2026 (specific date is pending). The Committee members consist of the Provost and Senior Vice President for Academic Affairs; Senior Vice President for Business Affairs and Chief Financial Officer; Vice President of Research & Innovation; and Dean of RGPCOE. The details of this meeting will be discussed in the next semi-annual progress report (SAPR).
- Meet with the advisory board in June 16-17, 2026. The details of this meeting will be discussed in the next SAPR.
- By May 2026, select one more NCIT T2C coordinator to fill the current vacancy.

Research Important Activities

- Ensure PVAMU and the UTC Grants Manager receive all Institutional Review Board (IRB) approvals for specific research projects/programs.
- Finalize the Year #4 procurement process by selecting projects to be funded by June 5, 2026.

EWD Important Activities

For all EWD activities, we will ensure PVAMU and the UTC Grants Manager receive all IRB approvals for specific EWD projects/programs.

- ASU
  - Undergraduate students will be attracted to transportation engineering through the Vertically Integrated Project (VIP) Program, where students will be engaged in long-term research projects led by faculty and industry members, while receiving academic credit.
  - Summer Research Experience for Teachers Program science, technology, engineering, and mathematics teachers from underserved K-12 schools and community colleges will participate in authentic research experiences with faculty researchers and develop curricula based on NCIT research to implement in the classroom. Assessment and evaluation will be integrated into all aspects of the programming to enable systematic ongoing improvement of activities and materials.
- BCD
  - BCD have plans to deploy a new Infrastructure Workforce Training Program in summer 2026. The program will offer the upcoming cohort the opportunity to gain exposure to topics such as Basic Construction Safety, Project Site Layout, and Heavy Equipment Operation. The goal is to continue aligning with local industry needs, thus increasing the pool of trained transportation professionals.
- PVAMU
  - PVAMU will host the 3rd Smart Transportation Technology Workshop from May 12 - 14, 2026. It will offer a brief introduction to modern AI and IoT techniques and provides hands-on experience in leveraging AI and IoT technologies in the smart transportation sector. Approximately 20 students from various states are expected to participate in the workshop.
- TTI
  - TTI Summer Undergraduate Research Internship Program will begin recruiting participants for summer 2026. This is an opportunity for undergraduate students to embark on a journey of discovery within the dynamic and ever-evolving field of transportation.

T2C Important Activities

- Future Publications and Presentations
  - MSU
    - Manuscript titled “Long Term Mechanical and Environmental Performance Monitoring of Steel Slags in Granular Roadways” has been accepted for Transportation Research Board 2026 meeting and for publication in the Transportation Research Records Journal.
    - Abstract titled “Investigating the Layer-Wise Hydration Process in Recycled Concrete Aggregates Under Laboratory Conditions” by Qasim Zulfiqar was submitted for

presentation at International Airfield and Highway Pavements Conference (Pavements 2026).
  - PVAMU
    - A manuscript entitled "Bridging Theory and Deployment: A Business Performance Analysis of Autonomous Driving Frameworks" is submitted on April 2026 to IEEE Transactions on Emerging Topics in Computational Intelligence.
  - TAMU
    - For Project#03-27-TAMU: Wang, Z., & Liang, X. Learning Probabilistic Damage Fields on 3D Gaussian Splatting for Component-Aware Localization. Automation in Construction, to be submitted April 2026.

Administrative/Management Important Activities

- Finalize hiring NCIT's headquarters primary staff that will fill 2 vacant positions – (1) Communications Manager and (2) Multimedia Production Specialist (II).
- Occupy designated NCIT office space and prepare for NCIT Open House Event.
- Ensure NCIT business practices adhere to the new UTC Program guidelines and requirements. These guidelines and requirements align with the new Executive Administration Orders and memoranda.

2. PARTICIPANTS & COLLABORATING ORGRANIZATIONS

a. What organizations have been involved as partners?

As part of every NCIT project proposal, the PI is required to designate a Project Monitor (i.e., stakeholder representative[s]). In addition, the PI must clearly describe how industry stakeholders will be engaged throughout the project and specify the value they are expected to contribute. Early and continuous participation of stakeholders will ensure that all projects are aligned toward improving the durability and extending the service life of the nation's infrastructure, while fostering a strong focus on the adoption and implementation of research findings.

For example, as shown in Table 2, the Technical Director from Ash Grove Cement Company collaborated closely with the team at ASU to develop innovative Ultra-High-Performance concrete mixture designs using limestone calcined clay cement for Project #03-35-MSU.

Table 2 - Organizations Involved as Partners

Organization Name	Organization Location	Partner's Contribution	Project Lead
Maricopa Department of Transportation	Phoenix, AZ	Collaborative Research and Personnel Exchanges	ASU
Ash Grove Cement	Overland Park, KS	In-kind Support and Collaborative Research	ASU

b. Have other collaborators or contacts been involved?

Nothing to Report

3. OUTPUTS

a. Publications, conference papers, policy papers, and presentations

During this reporting period, NCIT faculty and students achieved notable success by publishing journal articles and presenting their research findings at a variety of venues. NCIT

takes great pride in the accomplishments of its students and faculty, as well as in the strong mentorship that supports student development. A summary of these outputs is provided below.

1) *Journal publications*
   - Zulfiqar, Q., Bulduk, M., Farina, A., and Cetin, B. (2025). "Analysis of Long-Term Leachate from Pavement Constructed with Recycled Concrete Aggregates," Journal of Environmental Management, vol. 395, article no. 128003.
   - Zulfiqar, Q., Haider, S.W., Cetin, B., Coban, H.S., Abdollahi, S.F. (2026). "Performance of Recycled Aggregate Base Using Linear and Non-Linear Prediction Models," Proceedings of the Institution of Civil Engineers-Ground Improvement, pages 1-15.
   - M. H. Antora, F. N. Rahman, R. Debnath, A. A. Ahmed, and M. J. B. Alam. (2026). A Scalable Hydrology-Informed Monitoring System for Early Detection of Slope Failures Using IoT and ML," in IEEE Access.
   - Antora, M., Rahman, F., Debnath, R., Miloudi, O., Alam, M. J. B., & Ahmed, A. (2026). An ML-Based System for the Early Detection of Earth Slope Failures Using IoT Sensing Technology. In Geo-Congress 2026 (pp. 35-45).
2) *Books or other non-periodical, one-time publications*
   Nothing to Report
3) *Identify for each one-time publication*
   Nothing to Report
4) *Other publications, conference papers, and presentations*
   <u>NCIT Virtual Colloquium Lectern Presentations March 23, 2026 – Total is 11</u>
   - Presentation by A. Ahmed (PVAMU) on "A Smart IoT-Based Detection System for Remote Earth Movement of Highway and Embankment" occurred at the 2026 NCIT Virtual Colloquium, Policy Session.
   - Presentation by C. Gurganus (TAMU/BCD) on "Highway Construction Workforce Partnership — Creating the Next Generation Heavy Highway Worker" occurred at the 2026 NCIT Virtual Colloquium, EWD Session.
   - Presentation by J. Kim (TTI) on "Development of a Regional Model for Pavement Design for Local Low-Volume Road Conditions" occurred at the 2026 NCIT Virtual Colloquium, Policy Session.
   - Presentation by R. Kommalapati (PVAMU) and M. Mannar (TTI) on "Potential Use of Nano Clay in Waste Polymer Modified Asphalt" occurred at the 2026 NCIT Virtual Colloquium, Infrastructure Session.
   - Presentation by M. Lanotte (MSU) on "Optimizing Recycled Aggregates for Unbound Pavement Layers: Performance, Durability, and Policy Recommendations" occurred at the 2026 NCIT Virtual Colloquium, Infrastructure Session.
   - Presentation by X. Liu (RU) on Design and Planning of a Testbed for Automated Emergency Braking Technology for Bus" occurred at the 2026 NCIT Virtual Colloquium, Technology Session.
   - Presentation by H. Ozer (ASU) on "Automated Construction Quality Monitoring and Inspection Protocols Using Uncrewed Aerial Vehicles" occurred at the 2026 NCIT Virtual Colloquium, EWD Session.
   - Presentation by D. Srivatsava (MSU) on "Asset Management of Bridges Using Uncrewed Aerial Vehicles and Machine Learning Models" occurred at the 2026 NCIT Virtual Colloquium, Technology Session.

- Presentation by A. Strauss-Wieder (RU) on “Cost-Effectively Building Resilience into Freight Transportation Operations and Capital/Infrastructure Investments” occurred at the 2026 NCIT Virtual Colloquium, Policy Session.
- Presentation by L. Wang (PVAMU) on “Smart Transportation Workshop for Workforce Development Empowering AI and IoT Technologies” occurred at the 2026 NCIT Virtual Colloquium, EWD Session.
- Presentation by C. Zapata (ASU) on “A Regional Approach to Pavement Design for Low-Volume Roads” occurred at the 2026 NCIT Virtual Colloquium, Technology Session.

TRB Poster Presentations January 11-15, 2026 – Total is 32

- Poster presentation by P. Xie, H. Wang (RU) and T. Bennert (RU) on “Assessment and evaluation will be integrated into all aspects of the programming to enable systematic ongoing improvement of activities and materials” occurred at the 2026 TRB Annual Meeting, Session 2129.
- Poster Presentation by A. Martin (TAMU) on “Asphalt Mixtures: Characterization Advancements” occurred at the 2026 TRB Annual Meeting, Session 3172.
- Poster presentation by A. Albdour (MSU), M. Fares (MSU), B. Cetin (MSU), and M. Lanotte (MSU) on "Sensitivity of Drainage Requirements in Pavement Input Parameters and Limitations in Pavement Subsurface Drainage Design," occurred at the 2026 TRB Annual Meeting, Session 2129.
- Poster presentation by M. Alhozaimy (ASU), M. Hasan (ASU), J. Medina (ASU), and K. Kaloush (ASU) on "A Practical Approach to Pavement Life Prediction: Validating Tool Using Long-Term Pavement Performance Data," occurred at the 2026 TRB Annual Meeting, Session 4080.
- Poster presentation by C. Bierman (TTI), D. Goehl (TTI), K. Liu (PVAMU), and J. Hsu on "Performance-Based Guidelines for Use of Prime and Cure Treatments in Texas Pavement Construction," occurred at the 2026 TRB Annual Meeting, Session 2128.
- Poster presentation by Z. Chen (Kunming University), X. Liu (Kunming University), and Z. Qin (Kunming University) on "Research on Modeling Mechanical Behavior of Cement Stabilized Macadam and Multi-Scale Evaluation Criteria of Skeleton Structure Based on Discrete Element Method," occurred at the 2026 TRB Annual Meeting, Session 4078.
- Poster presentation by P. Chen (Guangzhou Maritime University), B. Cetin (MSU), and M. Lanotte (MSU) on "Forensic Evaluation of Detour Traffic Damage and Compensation Frameworks for Local Roads," occurred at the 2026 TRB Annual Meeting, Session 3158.
- Poster presentation by S. Congress (MSU), M. Gajapaka (MSU), A. Puppala (TAMU), J. Escamilla (ADOT&PF), B. Cetin (MSU), and K. Cetin (MSU) on "Application of Deep Neural Network Models for Timeline Monitoring of Bridge Condition Using Uncrewed Aerial Vehicle Datasets," occurred at the 2026 TRB Annual Meeting, Session 3154.
- Poster presentation by R. Daoud (UT Tyler), M. Vechione (ACU), O. Gurbuz (TTI), and P. Sundaravadivel (UT Tyler) on "Application of Machine Learning to Predict Nighttime Crash Rates from Street Light Intensity Data," occurred at the 2026 TRB Annual Meeting, Session 2167.

- Poster presentation by M. Fares (MSU), C. Vangaveeti (MSU), M. Lanotte (MSU), and B. Cetin (MSU) on "Quantifying the Effects of Resilient Modulus Testing and Modeling Variability on Flexible Pavement Design Performance," occurred at the 2026 TRB Annual Meeting, Session 4078.
- Poster presentation by M. Fares (MSU), M. Lanotte (MSU), B. Cetin (MSU), M. Ordaz (ERDC), and J. Tingle on "Influence of Mineralogy on the Resilient Modulus and Anisotropic Response of Aggregates," occurred at the 2026 TRB Annual Meeting, Session 4079.
- Poster presentation by A. Gonnabathula (TAMU), P. Bhaskar (TTI), B. Lakkimsetti (TAMU), and A. Puppala (TAMU) on "Drainage and Interface Behavior of Wicking Geotextile with Expansive Soil Under Varying Moisture Conditions," occurred at the 2026 TRB Annual Meeting, Session 2120.
- Poster presentation by M. Islam (Rowan), M. Nayeem (STV, Inc.), M. Jalayer (Rowan), and P. Szary (RU) on "Analyzing School Bus-Related Crashes in New Jersey Using Machine Learning Techniques," occurred at the 2026 TRB Annual Meeting, Session 2110.
- Poster presentation by S. Kommidi (TAMU), Y. Kim (TAMU), J. Montanez (TAMU), A. Martin (TAMU), M. Verma (Auburn University), and N. Tran (NCAT) on "Crack Performance Modeling of Mixtures and Pavements with Consideration of Aging, Moisture Conditioning, Climatic Zone, and Reclaimed Asphalt Pavement Mitigation Strategies," occurred at the 2026 TRB Annual Meeting, Session 2168.
- Poster presentation by A. Leavitt (FHWA), A. Martin (TAMU), E. Arámbula-Mercado (TTI), and V. Revelli (TTI) on "Initial Validation of Balanced Mix Design Performance Test Thresholds Through Laboratory, Field, and Accelerated Testing," occurred at the 2026 TRB Annual Meeting, Session 3170.
- Poster presentation by N. Leungbootnak (TAMU), E. Cheung (TxDOT), and M. Burris (TAMU) on "Can Random Regret Minimization Models Predict Traveler Choices on Freeways with Managed Lanes?," occurred at the 2026 TRB Annual Meeting, Session 4030.
- Poster presentation by C. Liu (TTI), and A. Najafi (TAMU) on "Transit IDEA Project T-107: Autonomous Internet of Things and Vision-Based Geometry Monitoring for Railway Tracks," occurred at the 2026 TRB Annual Meeting, Session 3032.
- Poster presentation by F. Liu (UIUC), I. Al-Qadi (UIUC), M. Beheshti (ASU), and H. Ozer (ASU) on "Machine Learning–Based Predicted Stress Intensity Factor to Estimate Reflective Cracking in Airfield Asphalt Concrete Overlay Under Aircraft Loading," occurred at the 2026 TRB Annual Meeting, Session 2165.
- Poster presentation by X. Liu (Tongji University), and Y. Tao (Southeast University) on "Is Transport Infrastructure Really Effective in Shaping the Location of Economic Activity?: A Longitudinal Analysis of Shanghai," occurred at the 2026 TRB Annual Meeting, Session 2160.
- Poster presentation by D. Madrid (TTI), O. Gurbuz (TTI), E. Vargas (TTI), and R. Aldrete (TTI) on "Border Crossing Delay Cost Analysis: Integration of Various Data Sources in the Direct Cost Estimation Tool," occurred at the 2026 TRB Annual Meeting, Session 2163.

- Poster presentation by M. Morgese (CAIT), H. Bal (NJDOT), and A. Maher (RU) on "Automated Text Extraction from Bridge Inspection Images to Support Infrastructure Management Systems," occurred at the 2026 TRB Annual Meeting, Session 3154.
- Poster presentation by S. Mostatab (UMass Amherst), U. Yildirim (UMass Amherst), M. Zeigham (UMass Amherst), E. Okte (UMass-Amherst), E. Tseng (TEST, Inc.), H. Ozer (ASU), and I. Al-Qadi (UIUC) on "Network-Level Pavement Life-Cycle Assessment for Pavement Management Systems," occurred at the 2026 TRB Annual Meeting, Session 3159.
- Poster presentation by K. Parr (TAMU), J. Huang (TAMU), B. Lakkimsetti (TAMU), J. Tingle, S. Chou (TAMU), and A. Puppala (TAMU) on "Novel Four-Season Durability Methods for Cement-Stabilized Clays," occurred at the 2026 TRB Annual Meeting, Session 4079.
- Poster presentation by A. Saady (UAB), S. Ghasemi (UAB), J. Braley (RU), P. Balaguru (RU), and A. Maher (Rutgers) on "Reliability Assessment of Steel Bridge Elements in Terms of the Condition Ratings Under Varying Environmental Conditions: A Case Study of New Jersey Bridges," occurred at the 2026 TRB Annual Meeting, Session 3155.
- Poster presentation by F. Sammour (TAMU), M. Wu (TAMU), Z. Zhang (TAMU), and K. Choi (TAMU) on "From Human to Connected and Autonomous Vehicles: A Systematic Review of Behavioral Research in Disrupted Roadway Situations," occurred at the 2026 TRB Annual Meeting, Session 3068.
- Poster presentation by M. Sanei (TAMU), V. Krishnan (TAMU), and A. Puppala (TAMU) on "Assessment of Geopolymer Synthesis Parameters for Strength of Stabilized Fat Clay Using Statistical and Machine Learning Techniques," occurred at the 2026 TRB Annual Meeting, Session 2120.
- Poster presentation by A. Tanshette (TAMU), J. Huang (TAMU), B. Lakkimsetti (TAMU), P. Sideris (TAMU), and A. Puppala (TAMU) on "Transforming Local Soils into Sustainable 3D Printable Construction Materials Using CSA Cement," occurred at the 2026 TRB Annual Meeting, Session 3076.
- Poster presentation by C. Vangaveeti (MSU), M. Bulduk (MSU), M. Fares (MSU), and B. Cetin (MSU) on "Gradation Optimization of Locally Sourced Materials for Improved Long-Term Behavior of Unbound Layers," occurred at the 2026 TRB Annual Meeting, Session 4077.
- Poster presentation by M. Wu (TAMU), K. Choi (TAMU), D. Goehl (TTI), F. Sammour (TAMU), and Z. Zhang (TAMU) on "Pavement Maintenance GPT: Facilitating Pavement Maintenance Decisions Through Multimodal Large Language Models," occurred at the 2026 TRB Annual Meeting, Session 4086.
- Poster presentation by U. Yildirim (UMass Amherst), S. Mostatab (UMass-Amherst), M. Zeigham (UMass-Amherst), E. Okte (UMass-Amherst), E. Tseng (TEST, Inc.), H. Ozer (ASU), and I. Al-Qadi (UIUC) on "Integration of Network-Level Life-Cycle Cost Analysis in Pavement Management Systems," occurred at the 2026 TRB Annual Meeting, Session 4083.
- Poster presentation by Q. Zulfiqar (MSU), U. Farooq (MSU), B. Cetin (MSU), and J. Ashlock (ISU) on "Long-Term Mechanical and Environmental Performance Monitoring of Steel Slags in Granular Roadways," occurred at the 2026 TRB Annual Meeting, Session 4085.

TRB Lectern Presentations January 11-15, 2026 – Total is 11

- Lectern presentation by S. Chou (TAMU), J. Huang (TAMU), B. Lakkimsetti (TAMU), A. Puppala (TAMU), and R. Velasquez (MnDOT) on "Insights into the Influence of Environmental Stressors on Expansive Subgrades Stabilized with Different Calcium-Based Stabilizers for Resilient Transportation Infrastructure," occurred at the 2026 TRB Annual Meeting, Session 2009.
- Lectern presentation by P. Carlson (TTI) on "Pavement Markings for Automated Vehicles" occurred at the 2026 TRB Annual Meeting, Session 2086.
- Lectern presentation by R. Debnath (PVAMU), M. Antora (PVAMU), M. Alam (PVAMU), and A. Ahmed (PVAMU) on "An Internet of Things–Driven Machine Learning Framework for Slope Movement Detection," occurred at the 2026 TRB Annual Meeting, Session 2140.
- Lectern presentation by V. Gupta (NextLegacy AI Solutions), J. Thomas (TTI), C. Gurganus (TAMU), M. Martin (TTI), S. Turner (TTI), and N. Gharaibeh (TAMU) on "Comparison of Pavement Roughness Indicators from Traditional Inertial Profilers and Emerging Connected Vehicle Sensors," occurred at the 2026 TRB Annual Meeting, Session 2015.
- Lectern presentation by C. Gurganus (TAMU), E. Fernando (TTI), C. Gurganus (Auburn University), and M. Sellards (TAMU) on "Lessons Learned from 10 Years of a Ride Quality Verification Program," occurred at the 2026 TRB Annual Meeting, Session 4012.
- Lectern presentation by X. Huang (TAMU), A. Mahmud (TAMU), C. Gurganus (TAMU), and N. Gharaibeh (TAMU) on "Bridge Strikes: Collision Analysis and Risk Reduction Through Accurate Vertical Clearance Measurements Using Mobile LiDAR," occurred at the 2026 TRB Annual Meeting, Session 2096.
- Lectern presentation by H. Ju (TAMU), M. Burris (TAMU), N. Wood (TTI), and D. Lamers (NCTCOG) on "Who Changed Their Travel Due to Travel Incentives: Evidence from Dallas, Texas," occurred at the 2026 TRB Annual Meeting, Session 4006.
- Lectern presentation by A. Kumar (TAMU), V. Krishnan (TAMU), and A. Puppala (TAMU) on "Experimental Modeling of Artificial Mangrove Systems for Protection of Coastal Highway Embankments," occurred at the 2026 TRB Annual Meeting, Session 2054.
- Lectern presentation by A. Mukhopadhyay (TTI) on "Mix Design Formulation and Evaluation of Portland Cement Concrete Paving Mixtures Containing Reclaimed Asphalt Pavement," occurred at the 2026 TRB Annual Meeting, Session 4046.
- Lectern presentation by A. Strauss-Wieder (RU), J. Prozzi (UNT), and J. Bryan (WSP) on "Supply Chains: How to Identify the Crucial Commodity Movements for Your Region and Translate That into Transportation Infrastructure Priorities," occurred at the 2026 TRB Annual Meeting, Session 2152.
- Lectern presentation by N. Wood (TTI) on "Incentivizing Behavior Through Road User Credits," occurred at the 2026 TRB Annual Meeting, Session 4037.

Other Conference Presentations

- Poster presentation by Ozer, H. on "Field Implementation of UAV-Based Thermal Monitoring Protocol for HMA Construction" at the Arizona Pavement Materials Conference held at ASU in November 2025.

- Poster presentation by Ozer, H. on "Field Implementation of UAV-Based Thermal Monitoring Protocol for HMA Construction" at the Graduate Symposium held at ASU in February 2026.
- Presentation by Zapata, C. and Rajamanthri, K. on an abstract titled "Nonlinear Shear Strength Characteristics of Frost-Susceptible Silty Soils Under Varying Moisture Conditions" at the 2026 Geo-Congress Conference, held on March 9–12, 2026, in Salt Lake City, Utah.

b. *Website(s) or other Internet site(s)*
- NCIT will continue to be a national showplace through the Internet and social media platforms such as Facebook, Instagram, Twitter, and YouTube to transfer research results to practitioners and the research community. Currently, the NCIT website is accessible via the following link [ncit.pvamu.edu]. The site provides comprehensive information about NCIT and its programs/projects. Updates to the NCIT website will occur on a continual basis. Currently, there are major tabs covering the NCIT's background, organization, research, education, technology transfer, and events. To directly access NCIT's active and completed research projects use the following link [https://ncit.pvamu.edu/projects/] and [https://ncit.pvamu.edu/research/final-reports/], respectively.
- All information published on the NCIT website will adhere to the new UTC Program guidelines and requirements. These guidelines and requirements align with the new Executive Administration Orders and memoranda.
- Project #03-30-ASU is titled "Near Real-time Construction Quality Monitoring and Inspection Protocols using Uncrewed Aerial Vehicles" got highlighted in AsphaltPro LinkedIn page and the January 2026 magazine edition.
  - LinkedIn highlight: *https://www.linkedin.com/posts/asphalt-pro-magazine_asphalttech-uavmapping-thermalsegregation-activity-7423033000881418240 wksC?utm_source=share&utm_medium=member_desktop&rcm=ACoAABafwZsBqJ9_50lZbhYq-Dy5igRw6ZvW8x8*.
  - Magazine: *https://issuu.com/asphaltpro/docs/asphalt_pro_-_january_2026/58*.
  - Website Mention: *https://theasphaltpro.com/articles/uav-thermal-mapping-for-asphalt-paving-quality/*.

c. *Technologies or techniques*

Nothing to Report

d. *Inventions, patents, and/or licenses*

Nothing to Report

e. *Other products, such as data or databases, physical collections, audio or video products, application software, analytical models, educational aids, courses or curricula, instruments, equipment, or research material.*
- Project #03-30-ASU Survey link created and shared with the local/national industry through canvassing.
  - Survey link – https://asu.questionpro.com/2025-UAV-Survey

a. *Increased understanding and awareness of transportation issues*
Nothing to Report

b. *Passage of new policies, regulation, rulemaking, or legislation*
Nothing to Report

c. *Increases in the body of knowledge*
Nothing to Report

d. *Improved processes, technologies, techniques, and skills in addressing transportation issues*
- ASU
  - Project #03-30-ASU developed an automated framework for capturing and evaluating thermal images from an Unmanned Aerial Vehicle equipped with a thermal sensor. Thermal image scans at 2-second intervals allow detection of thermal segregation and compaction uniformities of a freshly paved asphalt mat. A ML object detection model was developed to capture roller movements, enabling more granular analysis of the monitored sections. This updated framework was used in the field over a 15-20 minute span to compact the mat. Once the necessary tools are developed, a near-real-time construction quality monitoring tool can be available for contractors' use.
- MSU
  - The presentations and papers produced from MSU projects improve the following knowledge in the field of transportation (1) The benefits of the use of innovative geosynthetics against freeze-thaw and extreme weather cycles; (2) method development for implementing these innovative geosynthetics; (3) adoption of new technologies such as drone use; (4) strengthened the team's expertise in flood-related pavement challenges and guided targeted laboratory testing; (5) raised awareness among stakeholders about the importance of flood resilience in pavement design and informed, data-driven decision-making; (6) expanded understanding of how flooding affects flexible pavement systems, particularly in flood-prone regions; (7) developed a new pavement analysis tool capable of simulating the effects of flooding on pavement performance using enhanced hydrological modeling; (8) provided graduate students with hands-on experience in modeling, laboratory testing, field testing, and flood impact analysis, freeze-thaw analysis, wet-dry analysis.

e. *Enlargement of the pool of trained transportation professionals*
We are proud to celebrate the NCIT students at PVAMU graduating in Fall 2025. Each graduate made meaningful contributions to different NCIT-funded research projects, demonstrating strong commitment to advancing transportation infrastructure research and innovation.
- Amie Aikens - Bachelor's Graduate - Business Administration – Fall 2025.
  - Project #01-20-PVAMU "Identification and Elimination of Barriers to Technology Transfer at U.S. Institutions of Higher Education."
- Mehnaz Antora - Master Graduate - Computer Science – Fall 2025.
  - Project #01-08-PVAMU "A Smart IoT-Based Detection System for Remote Earth Movement of Highway Embankment."
- Precious Ejikeme - Master Graduate - Computer Information Systems – Fall 2025.
  - External Collaboration Project titled, "Integrating GIS and Machine Learning to Uncover Spatial, Temporal, and Contributing Factors to Bicycle Crashes."

- Amarachi Mgbemele - Master Graduate - Computer Information Systems – Fall 2025.
  - Project #01-20-PVAMU "Identification and Elimination of Barriers to Technology Transfer at U.S. Institutions of Higher Education."
- Valentina Palama - Master Graduate - Computer Information Systems – Fall 2025
  - Project #01-20-PVAMU "Identification and Elimination of Barriers to Technology Transfer at U.S. Institutions of Higher Education."

f. Adoption of new technologies, techniques, or practices

Nothing to Report

5. IMPACTS

a. *What is the impact on the effectiveness of the transportation system?*
Nothing to Report

b. *What is the impact of technology transfer on industry and government entities, on the adoption of new practices, or on research outcomes which have led to initiating a start-up company?*
Nothing to Report

c. *What is the impact on the body of scientific knowledge?*
Nothing to Report

d. *What is the impact on transportation workforce development?*

- ASU
  - The developed framework from Project #03-30-ASU will serve as a tool for contractors to obtain near-real-time data on temperature and rolling patterns, providing insights into where anomalies occur. Technology's promise was demonstrated during the site visits and communicated to the paving contractors. The tools produced from the NCIT studies will help paving crews identify construction anomalies and take actions to improve overall construction quality. The tools developed will also help train their workforce to identify construction problems and deficiencies at the job site, thereby improving workmanship.
  - Barrett Honors student, Adam Fruehe, a freshman, worked on Dr. Zapata's project, "A Regional Approach to Pavement Design for Low-Volume Roads" as part of the VIP Program for the Fall 2025 semester.
  - Two Barrett Honors students were recruited to participate in the VIP Program for the Spring 2026 semester. John Rouhana, a sophomore, worked on Dr. Ozer's project, "Automated Construction Quality Monitoring and Inspection Protocols using Unmanned Aerial Vehicles" and Eman Abdalla, also a sophomore, worked on Dr. Claudia Zapata's project.
  - Four undergraduate students have been recruited to participate in the NCIT VIP program in the Fall 2026 semester – two Honors students and two Fulton Schools of Engineering (FSE) students. John Rouhana will continue working with Dr. Ozer and Eman Abdalla will continue working with Dr. Zapata. Carlos Pacheco Vazquez, a civil engineering junior will join Dr. Kamil Kaloush's "Implementation of Recycled-Aerogel Composite (RaC) for Enhanced Asphalt Concrete in Transportation Infrastructure" project, and Chaitanya Nookala, a computer science sophomore, will join Dr. Ozer's "Automated Construction Quality Monitoring and Inspection Protocols using Unmanned Aerial Vehicles" project.

- PVAMU
  - A total of five NCIT students graduated from transportation-related disciplines. This milestone provides these students with the opportunity to apply and demonstrate the knowledge and skills they gained through active participation in NCIT-supported transportation research projects during their time in higher education.
- TTI
  - In Project#03-50-TTI, the established framework is expected to offer guidance to state agencies on selecting appropriate acceptance protocols for BMD implementation. This study also offers a state of practice on BMD acceptance protocols currently summarized in an excel based spreadsheet format, which will later be compiled with a report and peer-reviewed journal article. This volume of information will significantly contribute to the body of scientific knowledge.

6. CHANGES/PROBLEMS

a. Changes in approach and reasons for change
Nothing to Report

b. Actual or anticipated problems or delays and actions or plans to resolve them
Nothing to Report

c. Changes that have a significant impact on expenditure
The final approval of Year #3 projects took place in December 2025. The implementation of the new UTC program requirements has affected the start dates of all projects, which will consequently have an impact on the overall spending of Year #3 funds.

d. Significant changes in use or care of animals, human subjects, and/or biohazards
Nothing to Report

e. Change of primary performance site location from that originally proposed
Nothing to Report

7. SPECIAL REPORTING REQUIREMENTS

NCIT completed the Exhibit D Form for one new project and entered required information for these new projects into the TRB's RiP Database (https://rip.trb.org/).