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
- **Submission Date** – October 30, 2025
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- **Recipient Organization (Name and Address)** – Prairie View A&M University, 700 University Drive, Prairie View, Texas 77446
- **Recipient Identifying Number or Account Number** - No. 69A3552344813 and No. 69A3552348318.
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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
BLINN
TEXAS A&M UNIVERSITY

1. ACCOMPLISHMENTS

a. What are the major goals of the program?

Prairie View A&M University (PVAMU) leads the National Center for Infrastructure Transformation (NCIT). The following consortium partners support PVAMU - 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 the 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 – PVAMU – Director & Advancing Education in Excellence (AEIE) Coordinator
  - Melissa Tooley – TTI - Deputy Director, Research Coordinator, and Associate Director
  - 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 standing operating procedures (SOPs) 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-1, Year-2, and upcoming Year-3.
- 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.
- 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 standing operating procedures (SOPs) 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-1, Year-2 projects that needing a no-cost time extension, and the new 31 Year-3 projects awaiting approval from the sponsoring agency.
- 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.
- The Director attended the virtual Council of University Transportation Center (CUTC) Summer Business Meeting on June 25, 2025.
- NCIT's Advisory Board met on PVAMU's campus on June 16-17, 2025. NCIT's Advisory Board meeting agenda included topics such as NCIT Update, NCIT Year #3 portfolio of activities (Research, EWD, and T2), NCIT Project #01-15-TTI presentation entitled, "The Impact of Electric Vehicle Infrastructure on Transportation Revenues," review NCIT Advisory Board By-Laws, expanding Advisory Board membership, NCIT Year #4 outlook & recommendations, and touring NCIT related research facilities.
- The next NCIT Advisory Board will be convened on Friday, December 5, 2025.

2025 NCIT Advisory Board Luncheon – Group Photo

- NCIT's Consortium Partners Annual Meeting took place on the campuses of PVAMU and BCD/TAMU/TTI during August 5-8, 2025. The meeting agenda included topics such as closing out Years #1 & #2, review of programmatic changes, Year #3 priorities, committee briefings, Year #3 procurement (Research, EWD, T2), current and future collaboration opportunities, overview of NCIT structure and key operational efforts, student project poster presentations, tour NCIT related research facilities, post-award research presentation from the TAMU Sponsored Research Services Office, 2026 NCIT PVAMU Transportation Research Board (TRB) Exhibit, Year #4 outlook and recommendations, and the state of affairs of the UTC Program.

2025 NCIT Consortium Partners Annual Meeting - Group Photo

Collectively and individually, NCIT's leadership cadre are having a significate impact on the UTC infrastructure community through the education, research, and outreach efforts occurring on their campuses and beyond. The NCIT consortium members continue to mentor and encourage students, early career faculty, and experienced researchers to look for more prominent roles throughout the transportation profession. Below are the achievements of NCIT's faculty, students, and staff for this reporting period.

- ASU
  - Claudia Zapata, NCIT ASU Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave a presentation on ASU's research project.
  - ASU will host the next NCIT Virtual Colloquium.
- BCD
  - Marshall Rich and Jay Anderson are continuing to work on creating a pathway for graduates from the Highway Construction Workforce Partnership (HCWP) Program to enroll in BCD to earn their Associate of Applied Science (AAS) degree in Construction Management and Highway Construction Occupational Skills Award. This will be a shift from a separate highway construction

degree to one that provides coursework related to highway construction as well as have a direct feed into an existing construction related degree offered at BCD.
    - Marshall Rich, NCIT BCD Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave the chair's presentation for the 2025-2026 NCIT Student Council Committee as well as for the BCD AAS Degree Pathways in Construction Management and Occupational Skills Award in Highway Construction proposal. Additionally, he served as the BCD campus host on August 7th.
    - Cody Stelter, BCD Assistant Dean, attended the August 2025 NCIT Consortium Partners Annual Meeting.
- MSU
    - Bora Cetin, NCIT MSU Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave a presentation on MSU's research projects as well as the chair's presentation for the 2026 NCIT Traveling Assistance to TRB Annual Meeting Committee.
    - Michele Lanotte, NCIT MSU faculty researcher attended the August 2025 NCIT Consortium Partners Annual Meeting.
    - MSU will host the 2026 NCIT Consortium Partner Annual Meeting.
- PVAMU
    - Md Jobair Bin Alam and Yonggao Yang are both NCIT PVAMU Associate Directors who attended the August 2025 NCIT Consortium Partners Annual Meeting.
    - Md Jobair Bin Alam gave a presentations on PVAMU's research projects, conducted field demonstrations on both his NCIT funded research projects, and provided tours of the NCIT related research facilities.
    - Yonggao Yang and his research team conducted a live demonstration on his NCIT funded research project.
- RU
    - RU's Center for Advanced Infrastructure and Transportation (CAIT) researcher Dr. Vassiliki Demetracopoulou was featured in a news article published on April 29, 2025, by the Rutgers Department of Civil & Environmental Engineering newsletter. https://cee.rutgers.edu/cee-professor-follows-footsteps-her-father-former-cee-professor.
    - Dr. Ali Maher Rutgers CAIT Director & NCIT Advisory Board member provided opening keynote remarks during a joint seminar on "Ground Improvement for Megaprojects" hosted by RU CAIT and the Deep Foundations Institute on July 16, 2025. More than 100 transportation professionals attended, including participants from the New Jersey Department of Transportation (NJDOT) and from the New York/New Jersey Gateway Program.
    - Patrick Szary, CAIT Associate Director and NCIT RU Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave presentations on RU's research projects as well as the committee chair's presentation for the 2025 NCIT Virtual Colloquium that RU will host.
    - The NJDOT research staff selected Todd Pisani to present a poster on Project #01-12-RU titled "EDC-7 Pilot Evaluation of Strategic Workforce Development for Justice-Challenged Youth," during the 26th Annual NJDOT Research Showcase in October 2025.
- TAMU
    - Anand Puppala, Director of TAMU Center for Infrastructure Renewal (CIR) and NCIT TAMU Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave the presentation on TAMU's research projects, the chair's presentation for the 2025-2026 NCIT Webinar Committee, served as the TAMU campus host on August 7th, and was the tour guide for the TAMU CIR research facility.
- TTI
    - Melissa Tooley, NCIT Deputy Director & Research Coordinator and NCIT TTI Associate Director attended the August 2025 NCIT Consortium Partners Annual Meeting and gave several presentations (see the list below)
        - TTI's research projects, chair's presentation for the 2026 U.S. Department of Transportation (USDOT) UTC Student of Year Committee, the Year #3 Procurement (Research, EWD, T2) presentation, and participate in discussing the state of affairs of the UTC Program

- Melissa Tooley served as the lead for the TTI campus host on August 7th.

- Paul Carlson, NCIT T2C Coordinator, attended the August 2025 NCIT Consortium Partners Annual Meeting and gave a presentation on the NCIT T2C/Intellectual Property (IP)/ Commercialization Training program that will be implemented in Year #3.
- Haylee Yung, Associate Program Director, UTC-Administration attended the August 2025 NCIT Consortium Partners Annual Meeting and gave a presentation on the 2026 NCIT PVAMU TRB Exhibit that will be operational during the 2026 TRB Annual Meeting from January 11-15, 2026. Additionally, she served as the TTI campus host on August 7th.
- Elissa Cuellar, Assistant Director, UTC-Administration Administration attended the August 2025 NCIT Consortium Partners Annual Meeting virtually. Additionally, she served as the TTI campus host on August 7th.

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 (IIJA) unprecedented investment is made wisely. NCIT researchers have completed 8 of the 21 projects implemented between 2023 and 2025. The remaining 13 projects - 10 research, 2 EWD, and 1 T2C will end by May 2026 except one EWD project is expected to be an ongoing project for the life of the grant. Also, during this reporting period, 9 of the 13 projects were approved for a no-cost time extension.

The 8 completed are listed below.

- Project #01-01-ASU titled "Automated Construction Quality Monitoring and Inspection Protocols using Uncrewed Aerial Vehicles."
- Project #01-02-ASU titled "Change: A Resilient Approach for Enhancing Asphalt Pavement Performance under Natural Events."
- Project #01-10-PVAMU titled "Smart Transportation Technology Workshop."
- Project #01-11-RU titled "Integration of Equity and Justice in Transportation Asset Management."
- Project #01-14-TAMU titled "Optimizing Asphalt Mixture Performance Testing for Balanced Mix Design."
- Project #01-15-TTI titled "The Impact of EV Infrastructure on Transportation Revenues."
- Project #01-16-TTI titled "Necessary Infrastructure Accommodations for Automated Trucks and Truck Platoons.'
- Project #01-18-TTI titled "Infrastructure Funding and Policy Considerations for EVs: A Life-Cycle Based Assessment."

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 culture to develop a globally competitive workforce by educating the next generation of transportation leaders. Through collaboration and engagement with various educational stakeholders, programs and activities are designed to address critical workforce needs and prepare a diverse 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.

ASU 2025 Summer Research Experience for Teachers Program

- ASU's K-12 education and outreach efforts include offering a Summer Research Experience for Teachers Program science, technology, engineering, and mathematics (STEM) teachers and community college faculty teaching at schools from rural areas that serve Native American populations. During Summer 2025, the K-12 teachers and community college faculty will take part in authentic research experiences with ASU faculty researchers funded to work on NCIT related research projects. ASU expects to have two STEM teachers take part in this program.
- Two K-14 STEM teachers participated in research in the NCIT research experience for teacher program during June 2025. Recruitment for the program was targeted at underserved schools with a high

population of teachers and students from underrepresented groups. One teacher, Anna Marti-Subirana, who teaches at HSI Phoenix College, worked on Dr. Zapata's project, "Use of Innovative Geosynthetics to Improve the Resiliency of Highway Embankment Slopes Under Extreme Climatic Conditions." Dr. Marti-Subirana was mentored by graduate research assistant, Kalani Rajamanthri during the four-week program. A second teacher, Alejandria Jeffers, teaches at Maricopa Institute of Technology High School and worked on Dr. Ozer's project, "Automated Construction Quality Monitoring and Inspection Protocols using Unmanned Aerial Vehicles." Graduate student Naaga Vedula mentored Ms. Jeffers.

ASU Leadership through Mentoring Program

The goal of the NCIT Leadership through Mentoring programming is for graduate and undergraduate students to learn how to diversify their participation in the leadership processes beyond the hierarchical leader-follower construct. This effort focuses on understanding leadership as a ubiquitous and ever-present social process of influence within groups to prepare students for working in the transportation industry. Transportation industry professionals need a broad array of leadership competencies to engage with multiple simultaneous complex projects responding to communities changing regional needs or remediating past highway projects that harmed historical marginalized communities. Graduate students and undergraduate students apply together for this semester-long collaboration and those undergraduates selected receive a stipend. This structured mentorship process emphasizes shared leadership actions that are distinct from hierarchical leading actions. The mentor pairs develop and implement a mentoring plan that supports both partners' goals and objectives. A mentorship coordinator supports the mentor pairs, meeting individually with pairs to start and then twice monthly. All the mentor pairs also participate in online exercises to expand their leadership knowledge and competencies.

Five versions of the online course have been created thus far to accommodate participants and across the consortium, and 6 students completed the course by August 2025.

ASU Vertically Integrated Program (VIP)

- ASU's Vertically Integrated Project (VIP) Program attracts undergraduate students in the field of transportation engineering by engaging them in long-term research projects led by faculty and industry members. The students receive academic credit for their involvement.
- During this reporting period ASU established course line numbers for undergraduate students to register for the Fall 2025 semester.
- Two Barrett Honors students have been recruited to participate in the VIP Program. Adam Fruehe, a freshman, will work on Dr. Zapata's project, "A Regional Approach to Pavement Design for Low-Volume Roads" and John Rouhana, a sophomore, will work on Dr. Ozer's project, "Automated Construction Quality Monitoring and Inspection Protocols using Unmanned Aerial Vehicles."

BCD & TTI 2025 Highway Construction Workforce Partnership (HCWP) Program

To date, four cohorts (a total of 42 students) have completed the program. During this reporting period, 9 students from Cohort #3 gradated and 16 from Cohort #4. The HCWP certification program offers a new condensed six-week course, and the graduates gain employment with a variety of heavy highway construction companies located across the state of Texas.

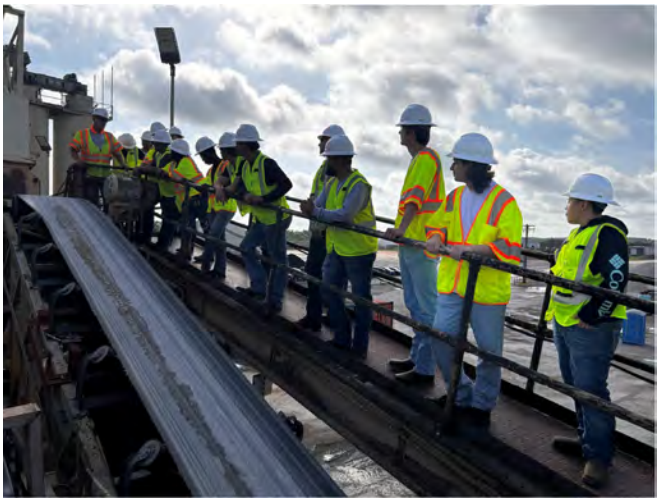
HCWP Cohort #3 – Field Day

Table 1 - 2025 HCWP Cohort #3 Graduates

Names (First & Last)	Names (First & Last)
Francia Baez	Destiny Lewis
Christopher Cook	Jaqueline Silvan Lopez
Gerardo Jimenez	Elijah Ortiz
Synsai Kizzee	Leonardo Rodriguez
Emmanuel Lartey	

Table 2 - 2025 HCWP Cohort #4 Graduates

Names (First & Last)	Names (First & Last)	Names (First & Last)	Names (First & Last)
Jocelyn Anguiano	Yadira Cabrera	Jose Garza	Brian Pickard
Rafael Benitez	Thomas Castro	Francisco Jaimes	Christopher Ramirez
Colton Broesche	Natiya Chopp	Docile Manema	Khambrel Ross
Jack Brown	Dylan Fulgencio	Katie Overman	Kevin Veneros



HCWP Cohort #4 – Field Day

HCWP Cohort #4 – Safety Briefing Knife River Instructors

Found in Section #6 of this report, BCD & TTI describe lessons learned regarding the HWCP program and describe changes to approaching the program for future offerings.

PVAMU 2025 Smart Transportation Technology Workshop

Project #01-10-PVAMU titled "Smart Transportation Technology Workshop" hosted its final workshop from May 20-22, 2025, at PVAMU. Topics covered included the role of Internet Things (IoT) and artificial intelligence (AI) technologies impact on modern infrastructure transportation systems. The PI (Yonggao Yang) and his team did a remarkable job in hosting 15 undergraduate students during the 2025 workshop.

Both the 2024 and 2025 workshops engaged a total of 27 students (26 undergraduates and 1 graduate) in understanding how IoT and AI are changing the smart transportation infrastructure sector.

TTI 2025 Summer Undergraduate Research Internship Program

During the summer of 2026, the TTI's Undergraduate Summer Internship Program provided valuable hands-on research experience for four students supported through NCIT. These interns worked alongside TTI researchers and faculty mentors on active NCIT projects focused on advancing safe, resilient, and infrastructure durability.

Throughout the program, students gained exposure to real-world transportation research methods, data analysis, and field applications. They also participated in professional development activities, including workshops on research communication, graduate school preparation, and career pathways in transportation engineering.

By engaging undergraduates early in applied research, the program supports NCIT's mission to develop the next generation of transportation professionals and strengthen the future workforce in infrastructure-related disciplines.

T2C Important Activities

Proven T2C techniques combined with strong industry, agency, and association partnerships will ensure that NCIT's output is put into practice.

ASU Summer Research Experience for Teachers Program

One of the participants in the summer Research Experience for Teachers program, Alexandria Jeffers, implemented her lesson, "Identifying Thermal Performance and Analysis Parameters Using Data Obtained from Uncrewed Aerial Vehicles (UAV) Flight" over three class periods with high school students at Maricopa Institute of Technology in Phoenix, Arizona (Implementation Report). Her students investigated and measured the emissivity of various materials. Ms. Jeffers, mentored by Naaga Vedula and Dr. Hasan Ozer, also produced the research poster, "Developing UAV Constructed Quality Protocol for Asphalt Pavement," that highlights both her research experience and her lesson plan and implementation.

During the past semester, Anna Marti-Subirana, another Summer Research Experience for Teachers participant, implemented her lesson with 24 community college students (Implementation Report). The lesson, "Laboratory Testing of Expansive Soil Shear Strength and Moisture Retention Properties," developed as part of her summer research experience, was shared with students and colleagues at Phoenix College, where she currently teaches. Students were introduced to types of problematic soil and how they are associated with slope stability. With assistance from her mentors Kalani Rajamanthri, Sravan Kumar Thandrangi, and Dr. Claudia Zapata, Dr. Marti-Subirana also created a research poster titled, "Shear Strength Behavior of Expansive Soils and Slope Stability Assessment Across Various Soil Types." Her presentation showcases how research-based lesson plans can be effectively integrated into classroom instruction to enhance STEM learning.

NCIT Webinar Series

- The NCIT Webinar Committee was successful in hosting three online seminar during this period.
  - The May 2025 webinar was entitled, "The Impact of IoT, LiDAR and AI Technologies on Transportation Geotechnics." Dr. António Gomes Correia, Emeritus Professor at the University of Minho, Honorary President of the Portuguese Geotechnical Society, and a researcher at the Institute for Sustainability and Innovation in Structural Engineering was our speaker and 157 participants registered for the May 27, 2025, webinar. Dr. António Gomes Correia spoke about real-time IoT monitoring, LiDAR-generated 3D modeling, AI-driven analytics, and robotics that are reshaping the way we design, construct, and maintain transportation infrastructure.
  - The June 2025 webinar was entitled, "The Importance of Geotechnical Research to Support Strategic Goals of a Transportation Agency." Dr. Raul Velasquez, PE, Principal Engineer with the Minnesota Department of Transportation was our speaker and 117 participants registered for the June 10, 2025, webinar. Dr. Raul Velasquez, PE, provided the audience with insight into how geotechnical research supports the strategic objectives of transportation agencies.
  - The September 2025 webinar was entitled, "Beyond the Buzz: Practical AI for Public Transportation." Ms. Kristin White, the Google Public Sector's Transportation Industry Executive Head of Transportation and Partnerships, was the speaker and 182 participants registered for the September 15, 2025, webinar. Ms. Kristin White shared information about how to responsibly leverage artificial intelligence to improve public transit operations and decision-making.
    - NCIT special guest, Dr. Firas Ibrahim, Director, Office of Research, Development and Technology, U.S. DOT Office of the Assistant Secretary for Research and Technology (OST-R) attended the webinar.

Administrative/Management Important Activities

- The Director and TAMU Sponsored Research Services (SRS) representatives met periodically with our UTC Grants Manager to ensure NCIT was successfully meeting the UTC reporting requirements.
- Adetola Adewale-Adebero joined NCIT as the Associate Administrator (III) in April 2025
- The Director attended the virtual CUTC Summer Business Meeting on June 25, 2025.
- Joshua Phillips joined NCIT as the Program Coordinator (II) in July 2025.

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 9,329 and there were 3,294 visitors.
- 1 journal article publication
- 1 conference poster presentation
- 1 opening keynote remarks
- 1 seminar presentation
- Release third newsletter [https://online.flippingbook.com/view/276252034/]
- Once approved, access to final reports and webinar materials (e.g., presentation slides, videos, etc.)

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 will use their Year #3 Plans of Action to ensure programs/projects involving all partners are successfully implemented.
  - NCIT AEIE Scholarship – Perkins (**Chair**), Tooley, and Zapata
  - NCIT T2/Intellectual Property/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
- In December 2025 (specific date is pending), the NCIT Director will meet with PVAMU's President, the Provost and Senior Vice President for Academic Affairs, Vice President of Research & Innovation, and the Dean of the Roy G. Perry College of Engineering (RGPCOE). The purpose of the meeting will be to provide an on NCIT's progress to date, Year #3 priorities, and Year #3 challenges. The details of this meeting will be discussed in the next semi-annual progress report (SAPR).
- NCIT's Advisory Board will participate in a virtual meeting at 11am CT on December 5, 2025. Expected participation will include Advisory Board members, members of the Leadership Team, and staff members. The details of this meeting will be discussed in the next SAPR.
- NCIT's executive leadership consisting of the Director and Deputy Director will meet with the NCIT PVAMU Internal Oversight Committee at 12pm CT 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 RGPCOE. The details of this meeting will be discussed in the next SAPR.
- By December 2025, select one more NCIT T2C coordinator to fill the current vacancy.
- BCD is the collaborator on Project #01-17-TTI (Highway Construction Workforce Partnership – Creating the Next Generation Heavy Highway Worker). During the next reporting period, they will continue creating a pathway for graduates from the Highway Construction Workforce Partnership (HCWP) Program to enter their Associate of Applied Science (AAS) degree in Construction Management and Highway Construction Occupational Skills Award. Additionally, BCD will complete the process to add the following courses to the catalog and submit for program approval.
  - CNBT 1344 – Construction Materials Testing
  - CNSE 1321 – Job Site Layout and Development
  - CNSE 1341 – Earth Moving Equipment Operation

Research Important Activities

- Ensure PVAMU and the UTC Grants Manager receive all IRB approvals for specific research projects/programs.
- Finalize the Year #4 procurement process by selecting projects to be funded by May 30, 2026.

EWD Important Activities

- ASU Leadership through Mentoring Program will recruit participants from MSU, RU, and TAMU to join the Spring 2026 courses offerings.
- ASU VIP project will continue to support the undergraduate students currently registered/registering for VIP credit and recruit other students to register for the spring 2026 semester.
- BCD & TTI will continue evaluating the HCWP program to better align with local industry needs.
- TTI Summer Undergraduate Research Internship Program will begin recruiting for summer 2026 participants. This is an opportunity for undergraduate students to embark on a journey of discovery within the dynamic and ever-evolving field of transportation.
- Ensure PVAMU and the UTC Grants Manager receive all IRB approvals for specific EWD projects/programs.

T2C Important Activities

- Ensure that all new PIs and Co-PIs complete the required T2C/IP/Commercialization Webinar in Year #3. NCIT will have the T2C Coordinator conduct the training and ensure topics on IP (license of IP rights), patents (process and timeline), copyrights, trademarks, proprietary information, trade secrets, commercialization, invention disclosures, and public disclosures are covered.
- Support the 2026 NCIT TRB Travel Assistance Program by encouraging all NCIT funded students to participate.
- Host at least two webinars on the topics of infrastructure durability.
- Start planning to host an annual symposium on the research priority areas - (1) improving the durability and extending the life of transportation infrastructure and (2) preserving the existing transportation system.
- Work on activating social media platforms such as Facebook, Instagram, Twitter, and YouTube to transfer research results to practitioners and the transportation infrastructure community.
- By May 2026, develop the NCIT Blog to display current and trending news to practitioners and the transportation infrastructure community.
- Ensure the Research in Progress (RiP) Database is current on all active projects, thus contributing to the dissemination of valuable knowledge and research findings.
- Future Publications and Presentations
  - ASU
    - Zapata, C. and Rajamanthri, K. submitted an abstract titled “Nonlinear Shear Strength Characteristics of Frost-Susceptible Silty Soils Under Varying Moisture Conditions.” It has been accepted for the 2026 Geo-Congress Conference scheduled for March 9-12, 2026, Salt Lake City, Utah.
    - Rajamanthri, K., Thandrangi, S., and Zapata, C.E. (2025) submitted a paper titled “Nonlinear Shear Strength Characteristics of a Silty Soil Under Varying Moisture Conditions.” It has been accepted for publishing in the 2026 Geo-Congress Conference Proceedings, March 9-12, 2026, Salt Lake City, Utah.
  - MSU
    - Cetin, B. submitted an abstract titled “Improving Moisture Resistance/Control of Pavement Foundation Systems via Geosynthetics.” It has been accepted for the 2025 American Society of Civil Engineers Civil Engineering Professional Development Seminar (CEPDS) and Indiana Local Technical Assistance Program scheduled for November 20, 2025, Purdue University in West Lafayette, IN.
    - Cetin, B. and Bulduk Mehdi submitted an abstract titled “Long-Term Performance of Wicking Geotextiles for Moisture Control and Foundation Stabilization in Cold Climates.” It has been accepted for the 2026 International Airfield and Highway Pavements Conference (Pavements), June 28 – July 1, 2026, Detroit, Michigan.
    - Zulfiqar, Q. and Cetin, B. submitted an abstract titled “Investigating the Layer-Wise Hydration Process in Recycled Concrete Aggregates Under Laboratory Conditions.” It has been accepted

for the 2026 International Airfield and Highway Pavements Conference (Pavements), June 28 – July 1, 2026, Detroit, Michigan.

- RU
  - Pisani, T. will present a poster as well as participate in a Breakout Session titled "Introducing Transportation Careers to Youth in New Jersey," during the NJDOT Annual Research Showcase in October 2025.
  - Demetracopoulou, V. will be presenting on "Examining the Suitability of Diverse Equity Metrics in Transportation Asset Management Decisions" during the 2026 TRB Meeting, January 11-15, 2026, Washington, DC.
  - Wang, H. will be presenting on "Assessing Flooding Impact on Flexible Pavement Serviceability Using American Association of State Highway and Transportation Officials (AASHTO) 1993 Method and FWD Testing: Case Study in Florida," during the 2026 TRB Meeting, January 11-15, 2026, Washington, DC.
  - Wang, H. will be presenting on "Multi-Criteria Decision-Making of Hybrid Charging Infrastructure for Fuel Cell and Battery Electric Buses," during the 2026 TRB Meeting, January 11-15, 2026, Washington, DC.
- TAMU
  - Gonnabathula, A. will be presenting on "Drainage and Interface Behavior of Wicking Geotextile with Expansive Soil Under Varying Moisture Conditions" during the 2026 TRB Meeting, January 11-15, 2026, Washington, DC.
  - Gonnabathula, A. submitted an abstract titled "Interface Behavior of Wicking Geotextile with Clayey Soils Under Varying Moisture Conditions." It has been accepted for the 13th International Conference on Geosynthetics (13 ICG), September 13-17, 2026, Montreal, Canada.

Administrative/Management Important Activities

- Finalize hiring NCIT's headquarters primary staff that will fill 3 vacant positions – (1) Budget Specialist (II), (2) Business Manager, and (3) Communications Manager.
- 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 Administration Executive Orders and memoranda.

2. PARTICIPANTS & COLLABORATING ORGRANIZATIONS

a. What organizations have been involved as partners?

As part of every NCIT project proposal, the PI must name a Project Monitor (i.e., stakeholder(s)). Additionally, they must describe how they will engage industry stakeholders(s) and what they expect them to add to the project. Engagement of stakeholders from the outset will ensure that all projects work toward improving the durability and extending the life of the nation's infrastructure, with the mindset of adoption and implementation of research findings. Below is a list of organizations (name, location, and partner's contribution) that are involved with Project #01-12-RU (EDC-7 Pilot Evaluation of Strategic Workforce Development for Justice-Challenged Youth). Todd Pisani is the PI and below is Table 3 which displays the stakeholders that provided feedback and industry knowledge to the research team on youth workforce training needs, what employers are looking for, and what common knowledge and training gaps exist with the population the team is working with for this project. Information/knowledge sharing and building relationships with the organizations out in the field currently doing strategic workforce development was a key criteria for engaging these specific organizations as well as their demonstrated understanding for the needs of the project.

Table 3 – RU Led Project

Organization Name	Organization Location	Partner's Contribution
Goodwill Industries	Maple Shade, NJ	Collaborative Research
Nupaths	Harrisburg, PA	Collaborative Research

TTI's PI (Darlene Goehl) continues to collaborate with the organizations listed in Table 4 These organizations will assist with providing knowledge transfer and training support.

Table 4 – TTI Led Project

Organization Name	Organization Location	Partner's Contribution
Bell County	Belton, TX	Collaborative Research
Brown County	Brownwood, TX	Collaborative Research
City of Brownwood	Brownwood, TX	Collaborative Research
City of Early	Early, TX	Collaborative Research
City of San Angelo	San Angelo, TX	Collaborative Research

The remaining partners, ASU, BCD, MSU, PVAMU, and TAMU continued to engage with the stakeholders listed in previous SAPRs. Collaborative research is still the primary contribution organizations, including other consortium partnering institutions, are providing to the individual as well as collaborative NCIT projects deployed.

b. Have other collaborators or contacts been involved?
Marshall Rich (BCD Associate Director and Co-PI of the HWCP project) collaborated with TTI, and the Texas Department of Transportation's Connect You to Jobs to expand recruitment options for the HWCP.

3. OUTPUTS

a. Publications, conference papers, and presentations.
The NCIT faculty and students were successful in publishing journal articles as well as presenting their research results at different venues. NCIT is extremely proud of our students, faculty, and the mentoring our students receive from the faculty. Below is a summary of the output for this reporting period.

1) *Journal publications:*
   - Members from the ASU partner submitted a paper accepted for publication by Geosciences Journal. Rajamanthri, K., Thandrangi, S.K. and Zapata, C.E. (xxxx), "A Non-linear Suction-Dependent Model for Predicting Unsaturated Shear Strength," [Paper is under revision]
   - Members from the ASU partner submitted a paper for publication in the Automation In Construction Journal. Vedula, N., Beheshti, M., Madasu, S., and Ozer, H. (2025), "Automated Framework for Evaluating Asphalt Pavement Construction Using Unmanned Aerial Vehicle Imagery." Automation in Construction 180 (2025): 106498, December 2025.
   - Members from the TAMU partner published a journal paper. A. Bazarbekova, Y-R. Kim, D. N. Little, and J. F. Rushing. (2025). "A Novel Testing to Assess Moisture-Induced Durability of Stabilized Soils under Cyclic Loading." Transportation Research Record, DOI: 10.1177/03611981251339167, September 2025.
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:*
   - Presentation by Yong-Rak, K. on "Engineering Next-Generation Materials and Structures for Civil and Energy Infrastructure," occurred at the Seoul National University and the Hongik University, Seoul, Korea, July 9, 2025.

- Poster presentation by Zulfiqar, Q. and Cetin, B. on "Long-Term Use of Steel Slags in Granular Roadways" occurred at the 2025 National Slag Association Annual Meeting, September 15-18, 2025, Naples, FL.

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 Administration Executive Orders and memoranda.

c. Technologies or techniques.

- Project #01-14-TAMU is titled "Optimizing Asphalt Mixture Performance Testing for Balanced Mix Design." This is a collaborative project whereby TAMU is the lead and RU serves as collaborator. This project was completed in August 2025 and is in the final stages of completing the final report for publishing. The major outcomes of this project are listed below.
  - Developed guidance on utilization of high reclaimed asphalt pavement (RAP) cracking mitigation strategies based on RAP content (quantity), RAP binder performance grade (quality), and virgin binder content. This guidance was then verified through performance monitoring and laboratory evaluation of cores from five older field projects in New Jersey.
  - Expanded datasets for mixture performance, cost, and environmental impact, supporting broader national research efforts on high RAP mixtures.
  - Documented findings in final report, webinar presentation, and learning module submitted in July 2025; database submitted at the conclusion of the project; and draft journal paper to be submitted to Transportation Research Record this month.

d. Inventions, patent applications, and/or licenses. **Nothing to Report.**

4. OUTCOMES

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.

- The presentations and papers generated thus far from the three MSU led projects has improved knowledge in the field of transportation as follows: (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; and (8) provided graduate students with hands-on experience in modeling, laboratory testing, field testing, and flood impact analysis, freeze-thaw analysis, wet-dry analysis.

d. Improved processes, technologies, techniques, and skills in addressing transportation issues.

- An automated framework for capturing and evaluating the thermal images captured from a UAV mounted with a thermal sensor was developed under Project #01-01-ASU (Automated Construction Quality Monitoring and Inspection Protocols using Uncrewed Aerial Vehicles). Thermal image scans at 2-second intervals allows detection of thermal segregation and compaction uniformities of a freshly paved asphalt mat. A machine learning object detection model was developed to capture the roller movements, thus also enabling more granular analysis of the monitored sections. This updated framework was used in the field within a 15-20 minute span of compacting the mat. Once the necessary tools are developed, a near real-time construction quality monitoring tool can be available for contractors' use.
- Project #01-14-TAMU is titled "Optimizing Asphalt Mixture Performance Testing for Balanced Mix Design." This is a collaborative project whereby TAMU is the lead and RU serves as collaborator. This project was completed in August 2025 and is in the final stages of completing the final report for publishing. Below is evidence of improved processes, technologies, techniques, and skills in addressing asphalt mixture performance testing for a balanced mix design.
  - Improved understanding of how specific high RAP mitigation strategies affect cracking and rutting performance, cost, and their impact on the environment.
  - Developed performance-based recommendations to support SHA implementation of balance mixed design (BMD) systems.
  - Contributed findings to National Asphalt Pavement Association (NAPA) IS-147 Balanced Mix Design Guidance infographic.
  - Validated proposed strategy hierarchy guidance for high RAP mixtures through NJDOT field performance data and laboratory evaluation of cores.
  - Provided laboratory performance data to support future efforts to correlate laboratory test results with field performance through ongoing or future pavement monitoring efforts.

e. Enlargement of the pool of trained transportation professionals.

- Nine students from Cohort #3 and 16 students from Cohort #4 successfully graduated with a Heavy Highway Certificate and obtained employment with a variety of heavy highway construction companies located across the state of Texas.
- A total of 7 NCIT students graduated from transportation related disciplines. This provides opportunities for these students to demonstrate the knowledge gained from engaging in transportation research projects while matriculating at institutions of higher education.

f. Adoption of new technologies, techniques, or practices.

- Project #01-13-TAMU is entitled "Enhancing Durability of Stabilized Soils for Resilient Transportation Infrastructure Under Extreme Weather Conditions." TAMU is the lead and MSU serves as collaborator. Below is evidence for the potential adoption of new technologies, techniques, or practices regarding the durability of stabilizing soils under extreme weather conditions.
  - The integrated experimental procedure for evaluating the durability of stabilized soils under wetting–drying (W–D) cycles was successfully implemented and further refined for different stabilizers and testing conditions. The procedure incorporates mechanical performance assessment and microstructural analysis to capture degradation behavior caused by repeated moisture intrusion. In particular, the dynamic shear rheometer (DSR) test method has been developed as a novel, reliable approach to assess shear properties and fatigue resistance of stabilized soils at various stages of W–D cycles.
  - In addition to the method, the research team has also investigated another novel approach by taking electrical resistivity measurements to evaluate durability changes under W–D cycles. The materials under investigation combine a conventional chemical stabilizer with the biopolymer-type Xanthan gum, and it has shown markedly improved performance compared to conventional stabilizers alone. Measuring durability changes through the electrical resistivity offers a promising, scientific, repeatable, non-destructive means of conveniently monitoring internal microstructural alterations in stabilized soils due to W-D cycles.

- Project #01-14-TAMU is titled "Optimizing Asphalt Mixture Performance Testing for Balanced Mix Design." This is a collaborative project whereby TAMU is the lead and RU serves as collaborator. This project was completed in August 2025 and is in the final stages of completing the final report for publishing. Below is evidence for the potential adoption of new technologies, techniques, or practices regarding asphalt mixture performance testing for a balanced mix design.
  - Improved understanding of how specific high RAP mitigation strategies such as reduced RBA, warm-mix additives, rejuvenators, and plastic additives affect cracking and rutting performance, cost, and their impact on environment.
  - Developed performance-based recommendations to support SHA implementation of BMD systems, particularly in selecting tests and performance thresholds for high RAP mixtures.
  - Contributed findings to an infographic created by the national BMD Implementation Working Group as NAPA IS-147 *Balanced Mix Design Guidance*, including a hierarchy of strategies categorized by effectiveness and ease of application.
  - Validated the proposed strategy hierarchy through NJDOT field performance data analyzed by RU, particularly for Tier 3 strategies (RAP > 30%), which demonstrated extended service life and improved Surface Distress Index values.
  - Provided laboratory performance data to support future efforts to correlate laboratory test results with field performance through ongoing or future pavement monitoring efforts.

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?
Project #01-01-ASU titled "Automated Construction Quality Monitoring and Inspection Protocols using Uncrewed Aerial Vehicles" developed a framework that overcomes the shortcomings of current in-use technologies for asphalt pavement construction quality monitoring tools. It also serves as a single source of data collection for observing the thermal and compaction uniformity of the monitored mat section.

d. What is the impact on transportation workforce development?
- **ASU**
  - The final deliverable from Project #01-01-ASU titled "Automated Construction Quality Monitoring and Inspection Protocols using Uncrewed Aerial Vehicles" provides a tool for contractors to obtain near-real-time data on temperature and rolling patterns, thus giving them insights into where anomalies are spotted. The promise of the technology was demonstrated during the site visits and communicated to the paving contractors. The tools that will be produced out of this NCIT study will help the paving crews identify construction anomalies and take actions to improve overall construction quality. The tools are resources developed will also help in training their workforce to identify construction problems and deficiencies at the job site, thus resulting in better workmanship.
- **BCD & TTI**
  - The HCWP Cohort #3 consisted of 10 students enrolling in the new condensed six-week course on March 31, 2025. Nine of the 10 students (see Table 5) successfully graduated with a Heavy Highway Certificate and gained initial employment with either the City of College Station, Texas Department of Transportation or Vulcan Materials.

Table 5 - 2025 HCWP Cohort #3 Graduates

Names (First & Last)	Names (First & Last)	Names (First & Last)
Francia Baez	Synsai Kizzee	Jaqueline Silvan Lopez
Christopher Cook	Emmanuel Lartey	Elijah Ortiz
Gerardo Jimenez	Destiny Lewis	Leonardo Rodriguez

- HCWP Cohort #4 started on June 2, 2025. Sixteen students successfully completed the new condensed six-week course and are working with a variety of heavy highway construction companies located across the state of Texas.

Table 6 - 2025 HCWP Cohort #4 Graduates

Names (First & Last)	Names (First & Last)	Names (First & Last)	Names (First & Last)
Jocelyn Anguiano	Yadira Cabrera	Jose Garza	Brian Pickard
Rafael Benitez	Thomas Castro	Francisco Jaimes	Christopher Ramirez
Colton Broesche	Natiya Chopp	Docile Manema	Khambrel Ross
Jack Brown	Dylan Fulgencio	Katie Overman	Kevin Veneros

- **MSU**
  - During this reporting period, Project #01-05-MSU entitled, "Use of Innovative Geosynthetics to Improve the Resiliency of Highway Embankment Slopes Under Extreme Climatic Conditions" focused on analyzing the second year of field monitoring data and conducting laboratory testing using a newly developed custom setup that allows both horizontal and inclined geotextile configurations. The results further demonstrated the effectiveness of wicking geotextiles in reducing moisture accumulation and mitigating seasonal heave and settlement. The test sites continue to serve as a strong case study for the real-world implementation of these materials. Two graduate students continued their involvement and training on this project during this period. Findings from the project have also been shared through abstract submissions and acceptances at upcoming national conferences.
  - Project #01-06-MSU entitled "Asset Management of Bridges Using Uncrewed Aerial Vehicles and Machine Learning Models" produced results that allow for the MSU team to better understand the new technologies for bridge asset management and inventory. During several conferences, the MSU researchers demonstrated the capability of these technologies to practitioners and academicians. There was good discussion regarding the adoption of these new technologies for inspections and a few educators who were interested in incorporating these technologies into teaching practice. Moreover, a postdoc and one graduate student were trained during this reporting period on the use of these new drone technologies for transportation applications.
- **PVAMU**

  We are excited for the NCIT PVAMU graduates for Spring 2025. Each supported different NCIT funded projects.
  - Segun Akinwa – Master Graduate - Computer Information Systems – Spring 2025
    - Project #01-10-PVAMU entitled "Smart Transportation Technology Workshop."
  - Adebowale Daniel Bakare – Master Graduate - Computer Information Systems – Spring 2025
    - Project #01-10-PVAMU entitled "Smart Transportation Technology Workshop."
  - Corian Boyd - Undergraduate Graduate - Communications (Major) & Psychology (Minor) - Spring 2025
    - Project #01-19-PVAMU entitled "NCIT Faculty Professional Development Program."
  - Aaliyha Fuller - Undergraduate graduate - Civil Engineering - Spring 2025
    - Project #01-08-PVAMU "A Smart IoT-Based Detection System for Remote Earth Movement of Highway Embankment"
  - Ezekiel Hunt - Undergraduate Graduate - Psychology - Spring 2025
    - Project #01-19-PVAMU entitled "NCIT Faculty Professional Development Program."
  - Jill Italiya – Master Graduate - Computer Science – Spring 2025
    - Project #01-10-PVAMU entitled "Lifecycle Performance and Cost Analysis of Electricity Charging and Hydrogen Refueling Stations for Advanced Vehicles."

- **RU**

  NCIT is proud of RU's graduate for Spring 2025. She supported the following NCIT funded project.
  - Archee Patel - Master Graduate - Construction Engineering & Management - Spring 2025
    - Project #01-11-RU entitled "Integration of Equity and Justice in Transportation Asset Management."
- **TAMU**
  - Project #01-13-TAMU is entitled "Enhancing Durability of Stabilized Soils for Resilient Transportation Infrastructure Under Extreme Weather Conditions." TAMU is the lead and MSU serves as collaborator. The research has provided a fundamental understanding of moisture-induced degradation in stabilized soils. It supports the use of such materials by demonstrating that they can effectively maintain stiffness and strength over extended periods and across different seasons. The study's environmental tests provide crucial information on the safety of using recycled concrete aggregate and steel slag in road construction. The dynamic shear rheometer test method shows a strong potential for adoption as a simple, scientific, efficient, and standardized protocol by transportation agencies and state Departments of Transportation. A graduate was trained on this project.
  - Another collaborative project is #01-14-TAMU and is titled "Optimizing Asphalt Mixture Performance Testing for Balanced Mix Design." TAMU is the lead and RU serves as collaborator. This project was completed in August 2025 and is in the final stages of completing the final report for publishing. The major results of this project are listed below.
    - Informed and strengthened the recently published AASHTO provisional standard practice PP 127 *Development of Balanced and Durable Asphalt Mixtures with High Recycled Asphalt Materials Contents*.
    - The provisional standard is also being referenced in an additional draft AASHTO standard practice PP XXX *Balanced Mix Design of Asphalt Mixtures Using a Tiered Framework* now approved by technical subcommittee to be balloted by AASHTO Committee on Pavements and Materials (COMP) Fall 2025.
    - Supported NJDOT BMD-based High RAP specification with construction of six new field projects in 2024, advertisement for additional field projects for 2025 with one currently under construction, and the NJDOT is planning for 3–6 projects per year moving forward.
    -

6. CHANGES/PROBLEMS

a. Changes in approach and reasons for change.

- **BCD & TTI**
  - Changes in the approach to implementing the HCWP in the future are under consideration by BCD and TTI. The Team for Project #01-17-TTI (Highway Construction Workforce Partnership – Creating the Next Generation Heavy Highway Worker) is tracking post completion employment and retention as well as evaluating the overall certification training program to see if they can streamline and find a more suitable alignment for the local heavy highway construction industry. The reason for this change is due to a lower number of students than expected finding and maintaining their jobs in the industry and the escalating cost of the program.
- **Project Titles Changes for ASU, MSU, and PVAMU**
  - ASU
    - Project #01-02-ASU title changed from "A Sustainable Approach for Making More Climate Resilient Asphalt Pavements" to "A Resilient Approach for Enhancing Asphalt Pavement Performance under Natural Events."
  - MSU
    - Project #01-21-MSU title changed from "Impact of Climate Change on Road Maintenance Budgets and Practices" to "Impact of Natural Events on Road Maintenance Budgets and Practices."
  - PVAMU
    - Project #01-09-PVAMU title changed from "Environmental Impact and Lifecycle Costs of Electricity Charging and Hydrogen Refueling Stations to Support Future Advanced Vehicles"

to “Lifecycle Performance and Cost Analysis of Electricity Charging and Hydrogen Refueling Stations for Advanced Vehicles.”
    - Project #01-20-PVAMU title changed from “Identification and Elimination of Technology Transfer Barriers at HBCUs and MSIs” to “Identification and Elimination of Barriers to Technology Transfer at U.S. Institutions of Higher Education.”
- **No Cost Time Extensions Approved for MSU, PVAMU, RU, and TAMU**
  - MSU
    - Project #01-05-MSU “Use of Innovative Geosynthetics to Improve the Resiliency of Highway Embankment Slopes Under Extreme Climatic Conditions” (Old Project End Date: 08-31-2025/New Project End Date: 05-31-2026)
    - Project #01-06-MSU ‘Asset Management of Bridges Using Uncrewed Aerial Vehicles and Machine Learning Models” (Old Project End Date: 08-31-2025/New Project End Date: 05-31-2026)
    - Project #01-21-MSU “Impact of Natural Events on Road Maintenance Budgets and Practices” (Old Project End Date: 08-31-2025/New Project End Date: 02-28-2026)
  - PVAMU
    - Project #01-08-PVAMU “A Smart IoT-Based Detection System for Remote Earth Movement of Highway Embankment” (Old Project End Date: 08-31-2025/New Project End Date: 05-31-2026)
    - Project #01-09-PVAMU “Lifecycle Performance and Cost Analysis of Electricity Charging and Hydrogen Refueling Stations for Advanced Vehicles” (Old Project End Date: 08-31-2025/New Project End Date: 05-31-2026)
    - Project #01-20-PVAMU “Identification and Elimination of Barriers to Technology Transfer at U.S. Institutions of Higher Education” (Old Project End Date: 08-31-2025/New Project End Date: 12-31-2025)
  - RU
    - Project #01-12-RU “EDC-7 Pilot Evaluation of Strategic Workforce Development for Justice-Challenged Youth” (Old Project End Date: 08-31-2025/New Project End Date: 11-30-2025)
    - Project #01-26-RU “Impact of Sea-Level Rise on Flexible Pavement Damager of Coastal Roads and Recommendation of Mitigation Strategy” (Old Project End Date: 08-31-2025/New Project End Date: 05-31-2026)
  - TAMU
    - Project #01-13-TAMU “Enhancing Durability of Stabilized Soils for Resilient Transportation Infrastructure Under Extreme Weather Conditions” (Old Project End Date: 08-31-2025/New Project End Date: 02-28-2026)

b. Actual or anticipated problems or delays and actions or plans to resolve them.

- **BCD**
  - The costs continue to be too high to make the program long-term and valid. The project team is looking at ways to reduce the amount, size, and duration of equipment needed for each cohort.

c. Changes that have a significant impact on expenditures.

- **BCD**
  - Tuition began at $4500, went to $8500, and cohort 4 was $6500. To date, students have received full scholarships, future cohorts may need to receive partial scholarships instead of full scholarships.

d. Change of primary performance site location from that originally proposed.

Nothing to Report.

7. SPECIAL REPORTING REQUIREMENTS

NCIT revised the Exhibit D Form for three projects (F. Bonner (#01-19-PVAMU), H. Wang (#01-26-RU), D. Goehl (#01-23-TTI)) and finalize entering the required information for these projects into the TRB's RiP Database (https://rip.trb.org/)