



Equity in Transportation Research and Funding Opportunities



Advancing Equity in Transportation

Irene Marion

Director, Departmental Office of Civil Rights

U.S. DEPARTMENT OF TRANSPORTATION
ADVANCING EQUITY THROUGH R+D
JUNE 2022



EQUITY, RESEARCH AND DEVELOPMENT

- Data collection, research and analysis is foundational to policy and programmatic priorities
 - Research and Development (R&D) will inform how we refine our approach to advancing equity
- Advancing common standards and tools for local project partners
 - Help us understand and communicate how equity-focused projects generate greater economic, social and economic outcomes
- University Transportation Centers (UTCs) as incubators for innovation in equity Research and Development
 - Opportunity to inform and influence the future of the transportation industry – and we see equity as a key element
- Minority Serving Institutions (MSI's) are a valuable resource and partner
 - Serving, hiring and cultivating high concentrations of the historically overburdened and underserved communities who will benefit most

DOT EQUITY ACTION PLAN

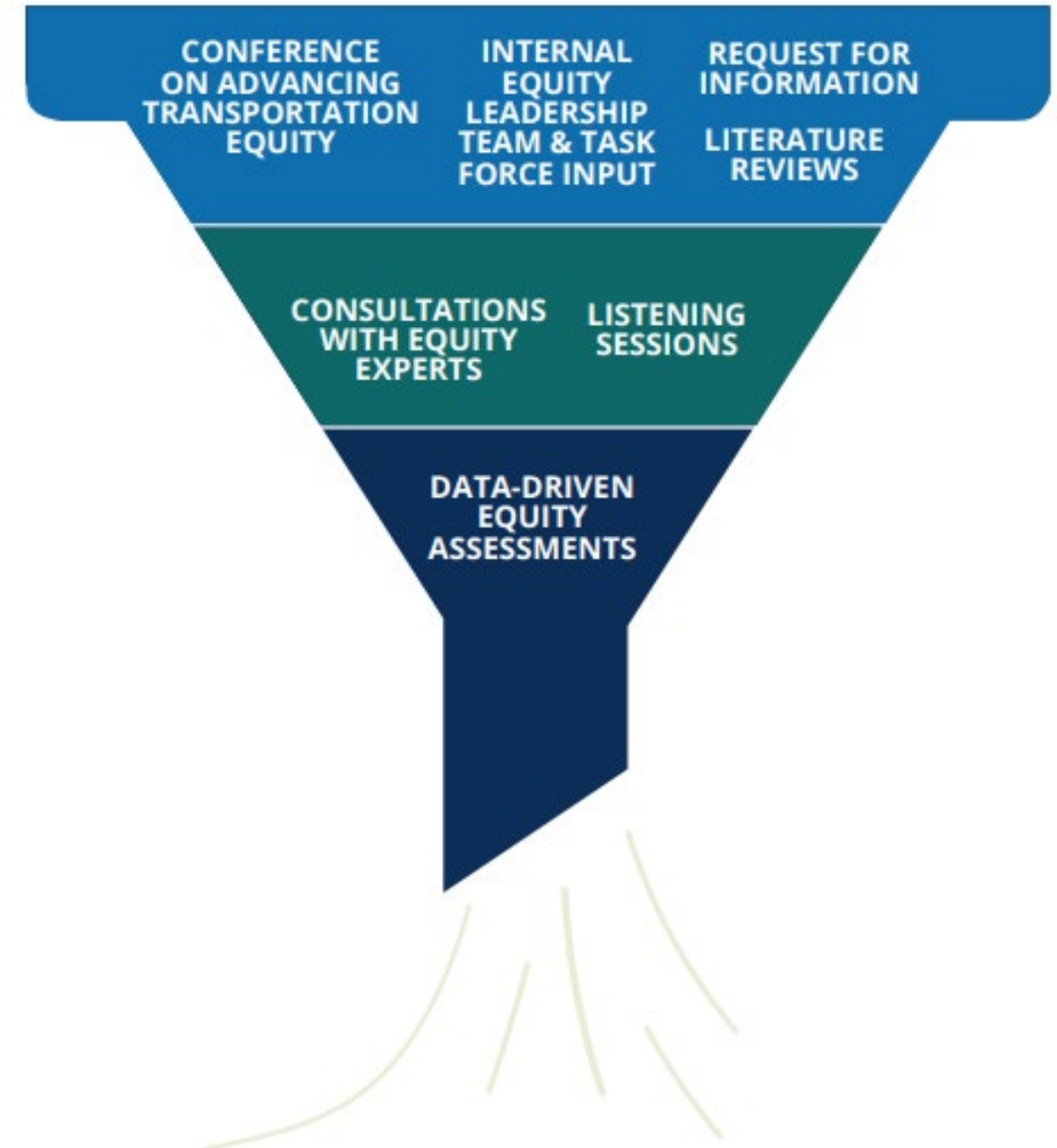
- The Equity Action Plan highlights work that DOT will undertake across four focus areas – wealth creation, power of community, interventions, and expanding access – to expand access and opportunity to all communities **while focusing on underserved, overburdened, and disadvantaged communities.**
- This Equity Action Plan is a major milestone for the Department of Transportation that represents a shift in how we view and deliver transportation programs. It is a living document that will be regularly adapted. At any time, it will represent a portion of the actions the Department is taking to advance equity.

“From the construction of the transcontinental railroad to the Montgomery Bus Boycott, transportation has always been inseparable from America’s struggle for racial and economic justice. At its best, transportation can be a powerful engine of opportunity, connecting people to jobs, education, and resources—whether they live in a big city, a rural community, or anywhere in between. Ensuring equity and accessibility for every member of the traveling public is one of the Department of Transportation’s highest priorities.”

--Message from the
Secretary, DOT Equity
Action Plan

INPUTS TO THE PLAN

- Developed in consultation with the public, experts, and DOT staff, including members of the Equity Leadership Team (EQLT) and Equity Task Force (EQTF)
- Highlighted actions to address DOT's four equity objectives:
 - Wealth Creation
 - Power of Community
 - Interventions
 - Expanding Access
- Aligned with the DOT Strategic Plan, which centers Equity as a Department-wide strategic goal for the first time



IMPACT AREA: INTERVENTIONS

OUTCOME

Historically overburdened and underserved communities in urban and rural areas benefit from access to a generational investment in the nation’s infrastructure through direct, hands-on technical support for transportation projects with local impact.

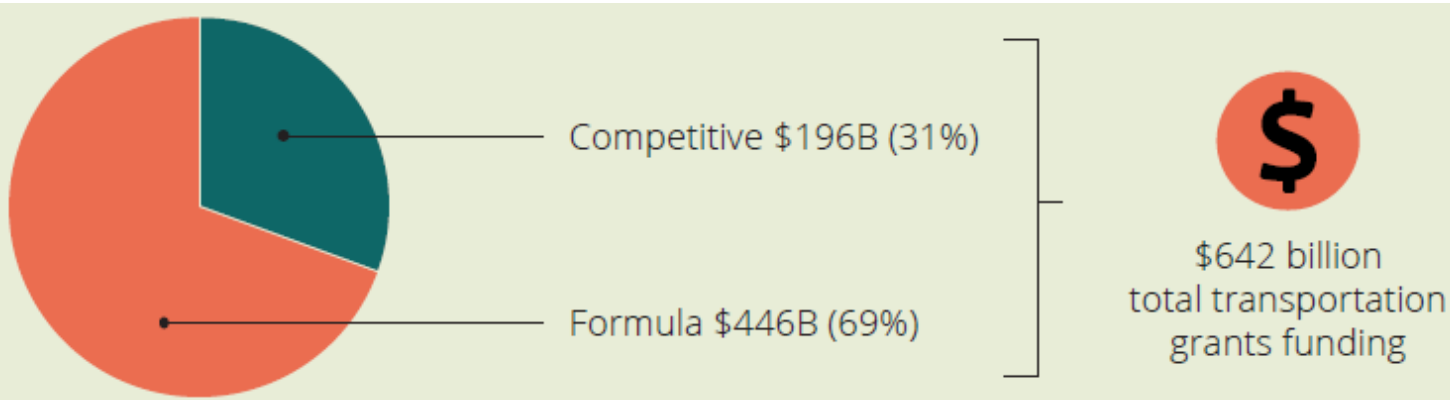
KEY PERFORMANCE INDICATORS

- Increase in the number of USDOT discretionary grant applicants from disadvantaged communities in urban and rural areas who have never applied for USDOT funding before.*
- Increase in the number of new projects in disadvantaged communities utilizing formula funds added to Statewide Transportation Improvement Programs (STIPs) and Transportation Improvement Programs (TIPs).

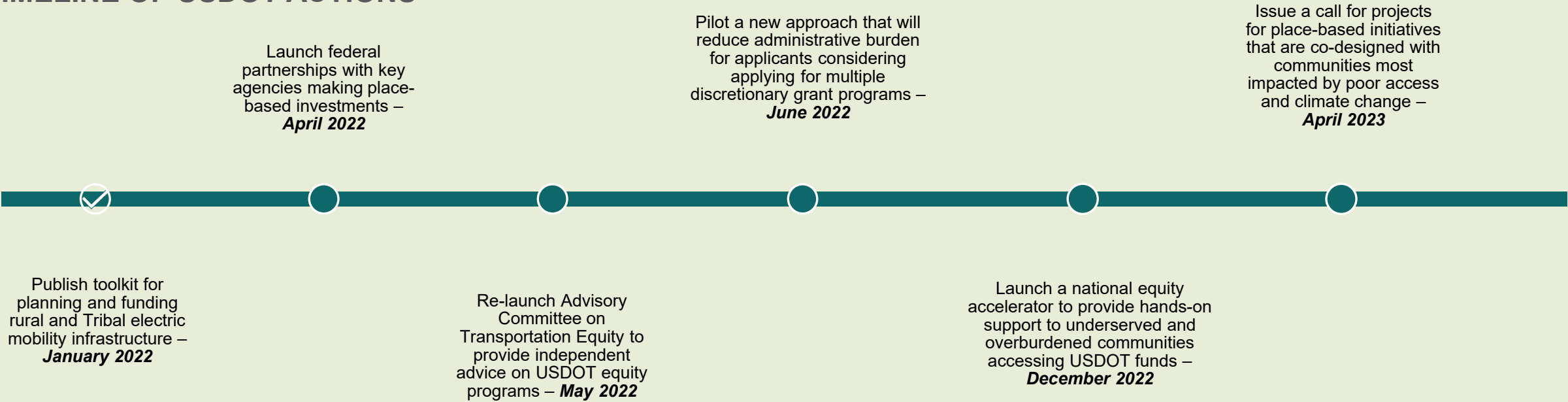
CRITICAL GAPS

BIL provides an **unprecedented level of competitive grant funding** that can directly benefit disadvantaged communities in urban and rural areas under the Justice40 initiative. Yet **69% of transportation funding will be allocated by formulas** set by statute. The formulas are not required to account for equity, limiting the Department’s ability to direct resources to underserved, overburdened, and disadvantaged communities.

Transportation Grants Funding from Bipartisan Infrastructure Law (BIL), FY22 through FY26



TIMELINE OF USDOT ACTIONS



**Related KPI in the DOT Strategic Plan: “By 2025, increase by 5% the number of U.S. DOT discretionary grant applicants from disadvantaged communities who have never applied for U.S. DOT funding before.”*

IMPACT
AREA:
EXPANDING
ACCESS

OUTCOME

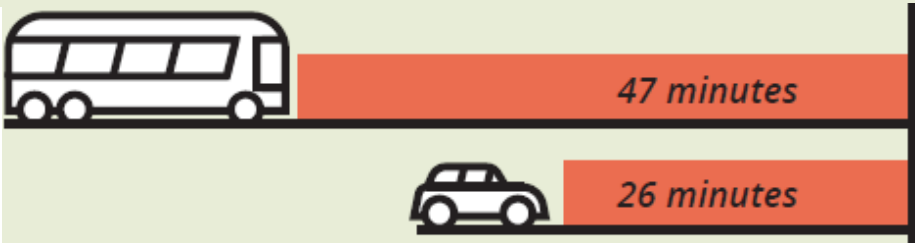
Increase in social and economic opportunity for disadvantaged and underserved communities from the provision of affordable multi-modal transportation options and the development of a transportation cost burden measure.

KEY PERFORMANCE INDICATORS*

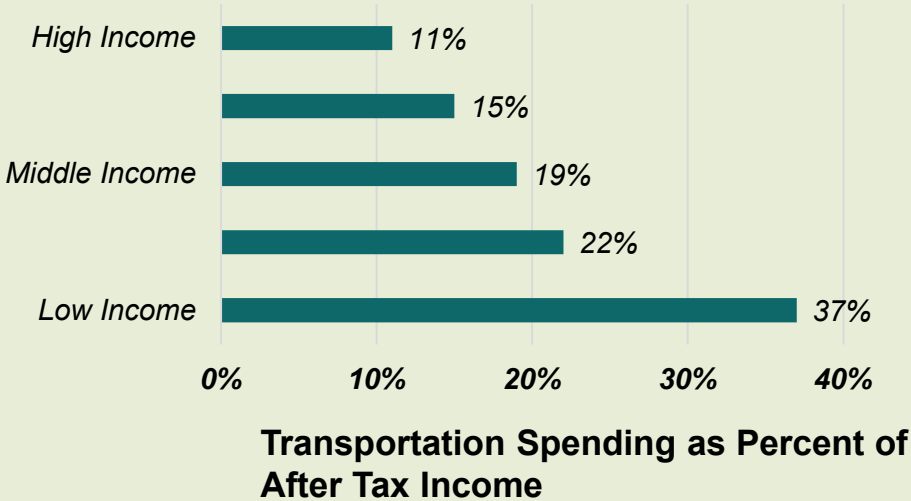
- Reduction in transportation travel cost as a percent of income.
- Reduction in transportation travel time.
- Increase in access to key destinations, including work, education, grocery stores, health care.
- Increase in mobility measured by number of trips at the individual level.

CRITICAL GAPS

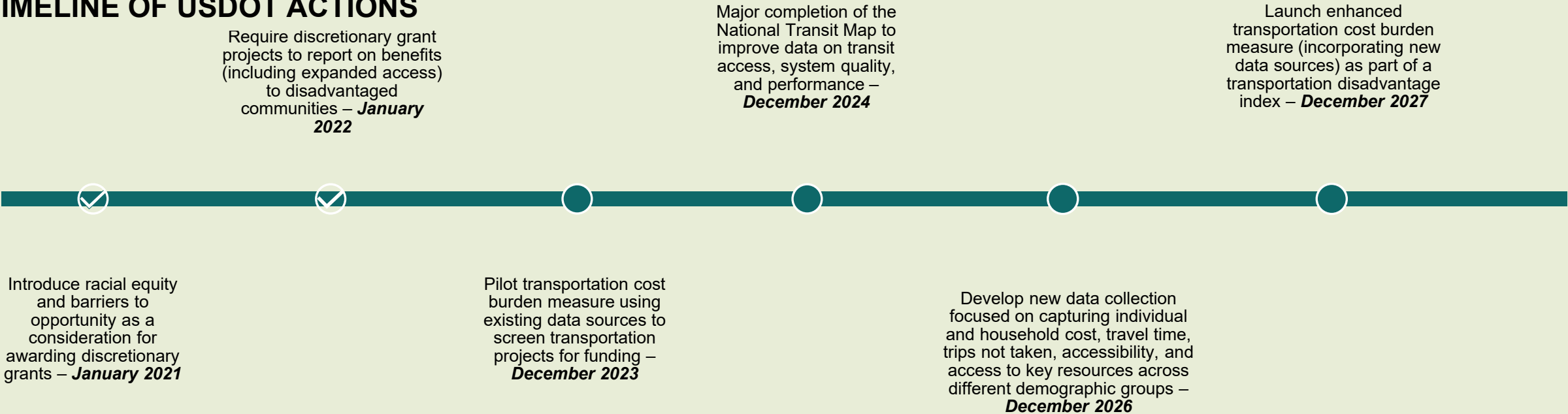
Workers who commute by bus have commute times 1.7x longer than workers who commute alone by car: 47 minutes for bus commuters compared to 26 minutes for car commuters.



The lowest income households spend on average 37% of their after-tax income on transportation, compared to 19% by middle-income households.



TIMELINE OF USDOT ACTIONS



*Related KPI in the DOT Strategic Plan: “Reduce national transportation cost burden by 5%, including transportation travel cost as a percent of income by FY 2030.”

IMPACT
AREA:
WEALTH
CREATION

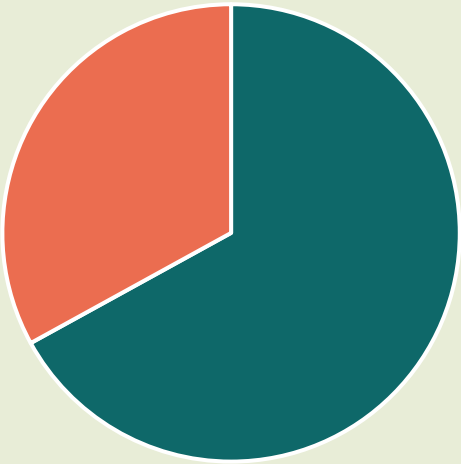
OUTCOME

Building capital, expanding business networks, and attaining new skills and experience through increased USDOT contracts.

KEY PERFORMANCE INDICATORS

Increase U.S. DOT direct contract dollars to small disadvantaged businesses from 18.2% in FY 2021 to 22% by FY 2026.*

CRITICAL GAPS



- 67% of FY20-FY21 USDOT direct contracting dollars were awarded by FAA
- The other 33% of USDOT direct contracting dollars were awarded by other operating administrations

USDOT will focus equity efforts on programs that will have the greatest impact on small disadvantaged business opportunities, *including the many FAA contracting opportunities.*

These top 4 industries accounted for \$2.8B out of \$7.8B total FY20 USDOT direct contract dollars:



Engineering Services



Highway, Street, and Bridge Construction



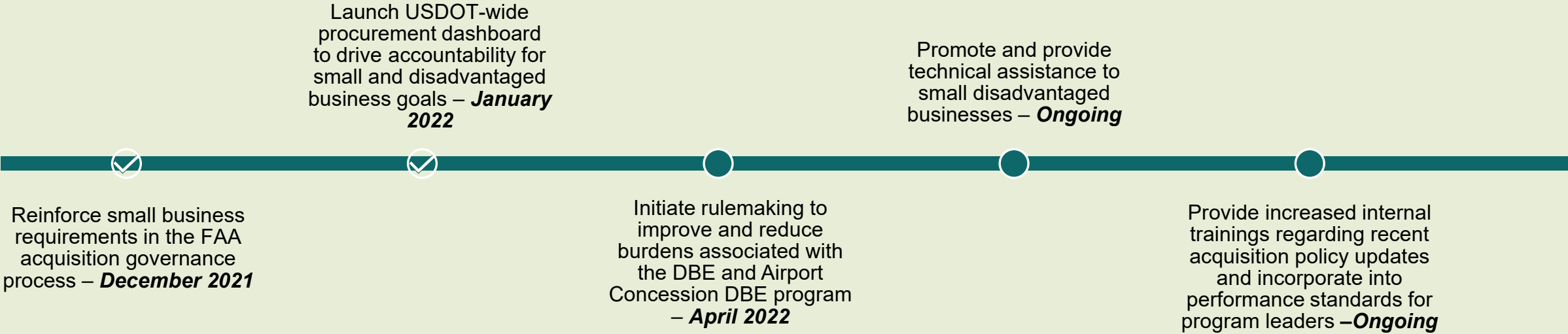
Computer System Design Services



Other Computer Related Services

Black and Hispanic-owned businesses were underrepresented, receiving only 1.7% and 2.4% of FY20 USDOT direct contract dollars in these 4 industries, respectively.

TIMELINE OF USDOT ACTIONS



*This KPI was updated after the Equity Action Plan was finalized in January 2022.

IMPACT
AREA:
POWER OF
COMMUNITY

OUTCOME

Individuals and communities have a greater voice in transportation decisions affecting them.

KEY PERFORMANCE INDICATORS

- Increase in the number of State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) officially adopting a quantitative Equity Screening component to their Statewide Transportation Improvement Program (STIP) and Transportation Improvement Program (TIP) development processes to incorporate community vision and need in project selection and design.*
- Increase in the number of meaningful and representative public participation engagements held by MPOs and State DOTs in the development of STIPs and TIPs in rural and urban communities.

CRITICAL GAPS

More than 30 million Americans live in areas where there is no broadband infrastructure that provides minimally acceptable speeds.

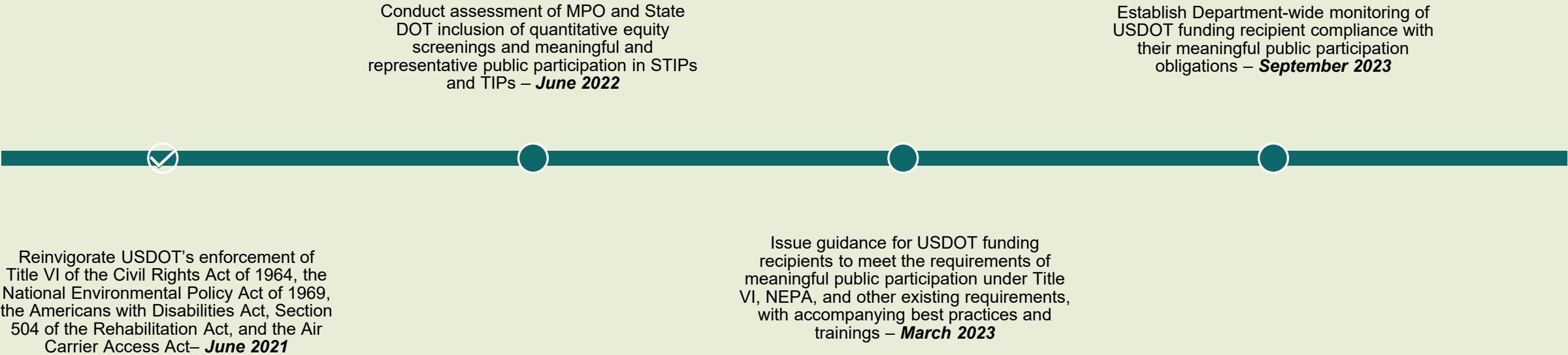


About **1 in 10 Americans lack high-speed internet access**, making it difficult to participate in virtual public involvement activities.

Individuals who are young, have low-incomes, or have less formal education are less likely to attend public meetings. This means that the interests of these groups may be underrepresented in the transportation decision-making process.



TIMELINE OF USDOT ACTIONS

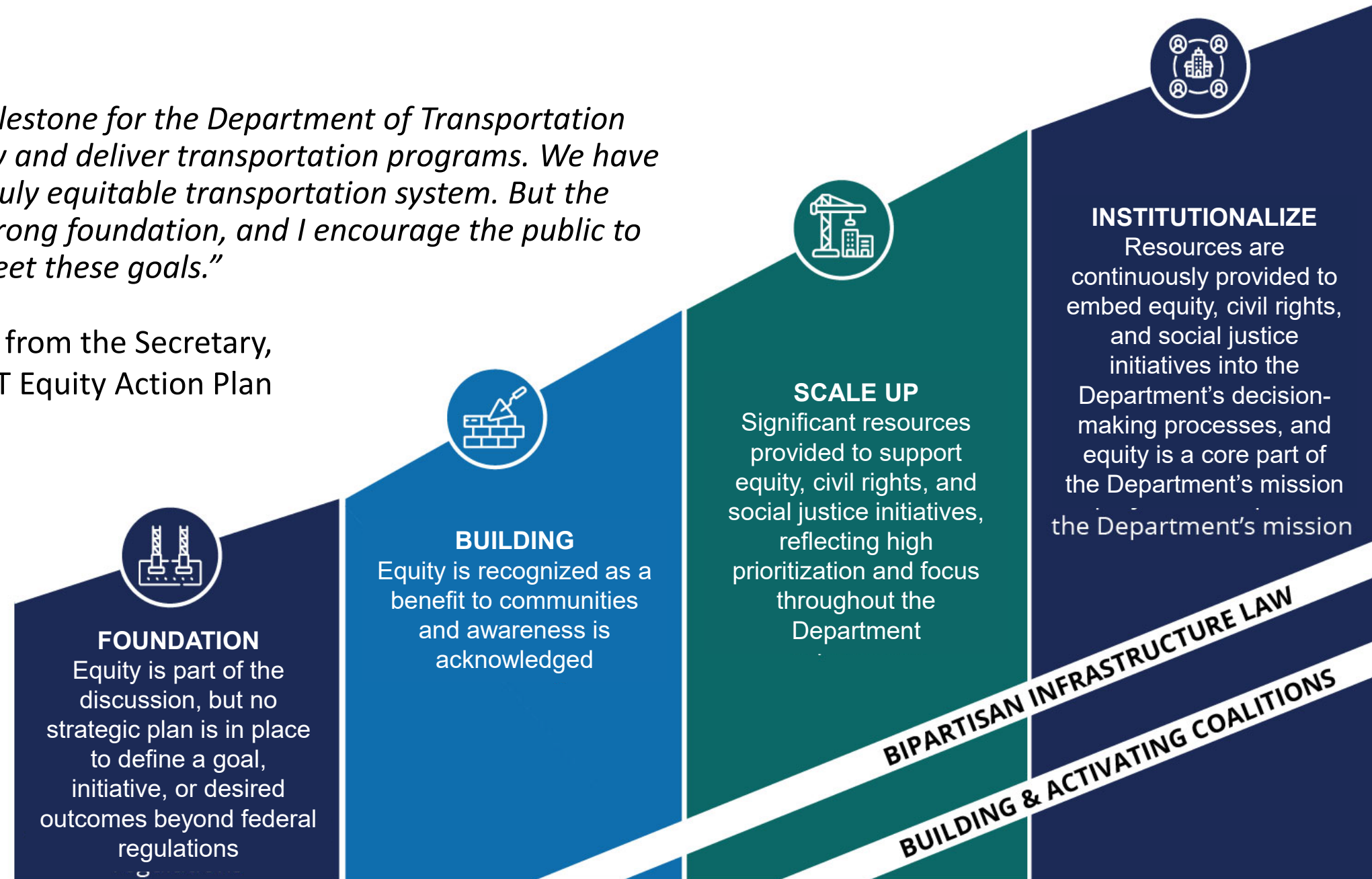


**Related KPI in the DOT Strategic Plan: “All 50 State DOTs and top 100 MPOs adopt a quantitative Equity Screening component to their S/TIP development processes by 2030.”*

WHAT COMES NEXT

"This Equity Action Plan is a major milestone for the Department of Transportation that represents a shift in how we view and deliver transportation programs. We have a long way to go toward creating a truly equitable transportation system. But the actions outlined in this plan form a strong foundation, and I encourage the public to hold us accountable as we work to meet these goals."

--Message from the Secretary,
DOT Equity Action Plan



CONSIDERATIONS FOR UTC APPLICANTS

- Advancing Equity in DOT Research Priorities
 - How can your institution and UTC partners help to
 - Advance Equity R+D within the DOT research priorities?
 - Advance research related to the DOT Equity Action Plan and other Equity priority areas, such as:
 - Environmental Justice + Justice 40
 - National Strategy for Gender Equity and Equality (DOT-specific Action Plan coming soon!)
 - National Strategy for Diversity, Equity and Inclusion in the Federal Workforce (DOT-specific Strategic Plan coming soon!)
- Aligning DOT Equity Priorities with UTC Objectives
 - How can your institution and UTC partners use this opportunity to
 - Diversify the research community and cultivate the next generation of transportation equity practitioners?
 - Advance transportation equity expertise and technology through new approaches to education, research and technology transfer activities?
 - Expand critical multimodal transportation knowledge that includes an equity lens and deepens research and training related to civil rights (Title VI + VII; Disability; Disadvantaged Business Enterprise)
- Resources:
 - www.transportation.gov/priorities/equity
 - www.transportation.gov/equity-Justice40



Federal Aviation Administration Office of NextGen Grants Program

Miranda Haywood, PMP
Procurement Services and Grants Management Division Manager

Grants Program Overview



The Office of NextGen grant programs:

- Aviation Research (AR)
- Centers of Excellence (COE)
- Aviation Workforce Development (AWD)
 - Aircraft Pilots
 - Aviation Maintenance Technical Workers

A banner with a dark blue background and a yellow diagonal stripe on the left. In the top left corner, there is a small inset image showing two construction workers in yellow safety gear on a construction site. The title "Aviation Research Grant Program" is written in white serif font.

Aviation Research Grant Program



Program Description:

Our aviation research grants are designed to conduct advanced research for the potential benefit of long-term growth of civil aviation and commercial space transportation.

Research related to the development of technologies and methods to assess the risk and prevent defects, failures and malfunctions of products, parts, processes, and articles manufactured for use in aircraft, aircraft engines, propellers, and appliances that could result in a catastrophic failure of an aircraft are all opportunities for grant awards.



Aviation Research Grant Program



FAA Research Priorities:

- Aircraft Safety Technology
- Airports
- Aviation Weather
- Capacity and Air Traffic Control Technology
- Communications, Navigation and Surveillance
- Environment and Energy
- Human Factors and Aviation Medicine
- Systems Science/Operations Research
- Unmanned Aircraft System (UAS) Unmanned Traffic Management (UTM), Class E Upper Airspace Traffic Management (ETM), and Urban Air Mobility (UAM)



Aviation Research Grant Program



Success Story: Aircraft Safety Technology – Engine Blade Fragments Effort

Accomplishments:

- Awarded 20 grants totaling \$7.3 million FY21

Plan:

- \$6.3 million in FY22

Notice of Funding Opportunity Listing: (Open Solicitation)

- July 3, 2021 – January 2, 2027



Centers of Excellence Grant Program



Program Description:

Centers of Excellence (COE) program conducts a broad spectrum of research and development to help develop the nation's technology base while educating the next generation of aviation professionals.

- FAA provides grants to institutions of higher education to establish and operate regional centers of air transportation excellence.
- COE's enhance FAA's access to resources and research facilities available at colleges, universities, and other non-profit research institutions.

Centers of Excellence Grant Program



Program Name	Description
Advanced Materials	Damage tolerance, maintenance practices, crashworthiness, environmental effects, structural integrity.
Alternative Jet Fuels and Environment	Jet fuels, feedstock development, processing and conversion research, regional supply and refining infrastructure, environmental benefits analysis, aircraft component deterioration and wear assessment, fuel performance testing.
Commercial Space Transportation	Aerospace access and operations, aerospace vehicles, human Operations and spaceflight, and industry innovation. “has completed their ten year period of performance successfully and they are currently going through the close out phase.”
General Aviation	Airport safety, airport pavements, software and systems, human factors, weather technology in the cockpit.
Human Performance	Curriculum architecture, content management and delivery, simulation and part-task training, human factors, analytics, and safety.
Unmanned Aircraft Systems	Air traffic control interoperability, airport ground operations, control and communication, detect and avoid, human factors, low altitude operations safety, noise reduction, spectrum management.

Centers of Excellence Grant Program



Success Story: Commercial Space Transportation – Improve operational space flight safety.

Accomplishments:

- Awarded 147 grants totaling \$56.3 million for FY21

Plan:

- \$76.8 million in FY22





Aviation Workforce Development Grant Programs



Two Workforce Development Programs:

- Aircraft Pilots
- Aviation Maintenance Technical Workers

Aviation Workforce Development Grant Program – Aircraft Pilots



Program Goal:



Our aircraft pilot grants support the education of future aircraft pilots and the development of the aircraft pilot workforce by preparing high school students to fill the United States aviation industry's anticipated demand for aircraft pilots, aerospace engineers, or unmanned aircraft systems operators, and support the related professional development of teachers.



Aviation Workforce Development Grant Program – Aircraft Pilots



Eligible Projects:

- Create and deliver curriculum designed to provide high school students with meaningful aviation education that is designed to prepare students to become aircraft pilots, aerospace engineers, or unmanned aircraft systems operators
- Support the professional development of teachers using the curriculum

Accomplishments:

- Awarded 16 grants totaling \$5 million for FY21
 - Elizabeth City State University, North Carolina (HBCU)

Notice of Funding Opportunity:

- 3rd Round – Planned Spring of 2023

Aviation Workforce Development Grant Program – Maintenance



Program Goal:

Our aviation maintenance grants support the education and recruitment of aviation maintenance technical workers and the development of the aviation maintenance workforce.





Aviation Workforce Development Grant Program – Maintenance



Eligible Projects include:

- Establish new educational programs that teach technical skills used in aviation maintenance, including purchasing equipment, or to improve existing such programs.
- Establish scholarships or apprenticeships for individuals pursuing employment in the aviation maintenance industry.
- Support outreach careers in the aviation maintenance industry to— (a). primary, secondary, and post-secondary school students; or (b). to communities underrepresented in the industry.



Aviation Workforce Development Grant Program – Maintenance



Eligible Projects continued:

- To support educational opportunities related to aviation maintenance in economically disadvantaged geographic areas.
- Support transition to careers in aviation maintenance, including for members of the Armed Forces.
- Enhance aviation maintenance technical education or the aviation maintenance industry workforce.

Accomplishments:

- Awarded 15 grants totaling \$5 million for FY21
 - Southern University at Shreveport, Louisiana (HBCU)

Notice of Funding Opportunity:

- 3rd Round – Planned Spring of 2023

FAA HBCU Initiative Program Updates



- HBCU Executive Order
- FAA-HBCU Aviation Director's Consortium
- Unmanned Aircraft Systems Collegiate Training Initiative (UAS-CTI)
 - https://www.faa.gov/uas/educational_users/collegiate_training_initiative
- White House HBCU Week
- FAA Minority Internship Program

Closing



Prepared By:

Miranda Haywood, FAA Procurement Services and Grants Management Division Manager

Contact for Questions:

Miranda Haywood: Miranda.Haywood@faa.gov

	Aviation Research Grant Program	Aviation Workforce Development Grant Program	Centers of Excellence Grant Program
Grants Officer	Frances Woodburn	Jazzmin Gayle	Darryl Groves
Phone Number	(267) 844-0968	(202) 267-7684	(202) 267-8315
Website Address	https://www.faa.gov/about/office_org/headquarters_offices/ang/grants/research	www.faa.gov/go/awd	www.faa.gov/go/coe

FAA HBCU Initiative Program



For more information contact:

HBCU Program Initiative -Team


- FAAHBCUProgram@faa.gov

Ronicsa “Roni” Chambers

- Ronicsa.chambers@faa.gov

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- Timmy.Brown@faa.gov



University Outreach & Engagement with the Federal Railroad Administration

Maryam Allahyar, Ph.D.

Director, FRA Office of Research, Development, and Technology (RD&T)

What FRA RD&T Does



RD&T's mission is to ensure the safe movement of people and goods by rail through research and development of innovations and solutions.

Programs

- Human Factors
- Train Control & Communication
- Track
- Rolling Stock
- Railroad Systems Issues

\$40+M annual investment in rail safety research

Safety is DOT's primary Strategic Goal and the principal driver of FRA's RD&T program.

Freight Trains



Amtrak





Highlighted Research

Division	Description	Research Topics
Railroad Systems Issues	Prioritizing R&D projects based on relevance to safety risk reduction and other DOT goals	<ul style="list-style-type: none">▪ Workforce Development▪ Climate and Sustainability▪ Emissions Reduction
Track	Reducing derailments due to track related causes	<ul style="list-style-type: none">▪ Track Safety▪ Automated Track Inspection
Rolling Stock	Reducing derailments due to equipment failures, minimizing the consequences of derailments, and minimizing hazardous material releases	<ul style="list-style-type: none">▪ Very Long Trains▪ Safe Transportation of Energy Products
Train Control and Communication	Reducing train-to-train collisions and train collisions with objects on the line and at grade crossings	<ul style="list-style-type: none">▪ Positive Train Control▪ Trespass Prevention
Human Factors	Reducing accidents caused by human error	<ul style="list-style-type: none">▪ Human Automation Teaming▪ Grade Crossing and Suicide Prevention

Federal Guidance Landscape



EXECUTIVE ORDERS

Executive Order 14041: *Advancing Educational Equity, Excellence, and Economic Opportunity Through Historically Black Colleges and Universities*

Executive Order 13985: *Advancing Racial Equity and Support for Underserved Communities through the Federal Government*

Executive Order 14045: *Advancing Educational Equity, Excellence, and Economic Opportunity for Hispanics*

OBJECTIVES

Increase Participation: *Increase opportunities for HBCUs/MSIs to participate in and benefit from Federal programs and funding opportunities.*

Increase Capacity: *Increase and strengthen the capacity of HBCUs/MSIs to provide the highest quality education.*

Assist Communities: *Assist the communities that MSIs represent.*

Current Efforts: Outreach and Partnership Initiatives



- Contact list of HBCUs and MSIs with a focus on the Offices of Sponsored Research, Career Centers, and Engineering Department faculty
- Representation on White House initiative on HBCUs Interagency Working Group (IWG)
- Email outreach campaigns for research funding opportunities (BAAs)
- Annual funding opportunity webinars
- White House HBCU-Contracting Competitiveness Academy Pilot (C-CAP)

Current Efforts: CRISI Grant Awards



CRISI Grant – *Development and Implementation of HBCU Based Railroad Engineering Program for Underrepresented Communities*

Grant Amount – Up to \$4.6M

Recipients –University of Delaware in partnership with Morgan State University

Period of Performance – 4 years

Objectives

1. Develop and implement an undergraduate and graduate railroad engineering program at Morgan State University, an HBCU in Baltimore, MD. This program will be modeled after the University of Delaware's railroad engineering program.
2. Engage high school students in the study of railroad engineering with MSU's current internship program.
3. Expand similar programs at other HBCUs nationwide by developing procedures and a program template.





Current Efforts: Broad Agency Announcements (BAAs)



Our BAA award “Making Railroading A Career of Choice” focuses on increasing awareness of and education in STEM and rail careers for K-12 youth in underrepresented minority groups.

Fresno State University (HSI): “Railroad Education: On Track To a Great Career” develops a student outreach toolbox and programs for high schoolers in San Joaquin Valley, CA. Partners include the California High-Speed Rail Authority and freight and commuter railroads. **Status:** Active

Michigan Technological University: Virtual Learning & National Campus Network creates a nationwide network of hybrid (virtual and on-campus) rail focused summer programs for high school youth and develops a standardized curriculum of virtual resources and hands-on activities. Partners include Univ. of New Mexico (HSI), Univ. of South Carolina, Fresno State Univ., AREMA and NRC. **Status:** Active

University of New Mexico (HSI): “The Railroader of the Mid-Century” pilot program will expose K-12 youth to futuristic skills, training, and new technologies through summer school, 1-day courses, and annual workshops. Partners include Stanford University, **Florida A&M University (HBCU)**, Canadian National Railway, and TTCL. **Status:** In Progress

How to Get Engaged

Monitor these websites for opportunities:

- [Consolidated Rail Infrastructure and Safety Improvements Program | FRA \(dot.gov\)](#)
- [Broad Agency Announcement | FRA \(dot.gov\)](#)
- [Federal Register: Home](#)

Partner with another university.

Attend an acquisition/federal funding webinar.

Ensure you are on our contact list.



To validate your information on our HBCU/MSI contact list, please contact FRA-WFD.PMO@dot.gov with a university name, contact name, job title, phone number, and email.

Contact Us



Maryam Allahyar, Ph.D.

Phone: (202) 493-6356

Email: maryam.allahyar@dot.gov

[Office of Research, Development, and Technology](#)

<https://railroads.dot.gov/>





Equity Research in Urban Areas

Mansoureh Jeihani, Ph.D., PTP

Director, Urban Mobility & Equity Center

Morgan State University

History of the National Transportation Center



- Established by Congress under the Intermodal Surface Transportation Efficiency Act of 1991
- Authorized in 1998 by the Transportation Equity Act for the 21st Century
- Reauthorized in 2005 by the Safe, Accountable, Flexible, Efficient Transportation Equity Act - a Legacy for Users
- Earmark ended in 2012
- Received the Urban Mobility & Equity Center grant in 2016 by the Fixing America's Surface Transportation Act
- More than 30 years ago started the Maryland Department of Transportation/Morgan State Internship Program
 - ✓ Became a national model and a pipeline to employment (NCHRP- Report 710)
 - ✓ Over 650 Graduate and Undergraduate Interns
- National Summer Transportation Institute in 1998, introducing high school students to the transportation field
 - ✓ Over 600 students

National Transportation Center / Urban Mobility & Equity Center

- Brought about \$40M and Completed 120 research projects
- Technology Transfer
 - 2 utility patents, one on the way
 - 4 provisional patents
- Won 3 Awards from the Council of University Transportation Centers
 - ✓ Technology Transfer Leadership Award - 2020
 - ✓ Workforce Development Leadership- 2020
 - ✓ Lifetime Achievement Award - 2021



Urban Mobility & Equity Center (UMEC)



- Funded under the Fixing America's Surface Transportation Act of 2015
- Awarded about \$1.5M annually by the U.S. DOT in 2016 for six years (~\$9M)
 - ✓ One of 20 Tier-1 Centers
 - ✓ One of two HBCUs (Morgan and NC A&T)
- A three-university consortium led by Morgan State University
 - ✓ University of Maryland – College Park
 - ✓ Virginia Tech
- Urban Mobility & Equity Center Morgan State University – YouTube (ITS-TV)

Support

- Congressional Support
- Other support and relationship (work force development and research agreements/grants)
 - Maryland Department of Transportation
 - State Highway Administration
 - Maryland Transit Administration
 - Maryland Transportation Authority
 - Maryland Motor Vehicle Administration
 - Maryland Highway Safety Office, ...
 - Baltimore City
 - Metropolitan Planning Organizations
 - Transportation Research Board committees
 - Industry
 - Internships and capstone projects
 - Webinars and workshops
 - Equipment donations
 - Research proposals
- Other Universities
 - Part of their team, go beyond WFD
- Faculty with Transportation related research interest/expertise
 - Engineering, Planning, Policy, Computer Science, Business
- New programs or concentrations
 - Morgan has B.S., M.S., Ph.D. in Transportation Systems



Federal Railroad Workforce Development Grant



- University of Delaware and Morgan State University (\$4.5M)
- Railroad Engineering concentration in the department of Transportation at Morgan State
- Student scholarships
- Adjunct Faculty



Key Factors of a Winning Proposal



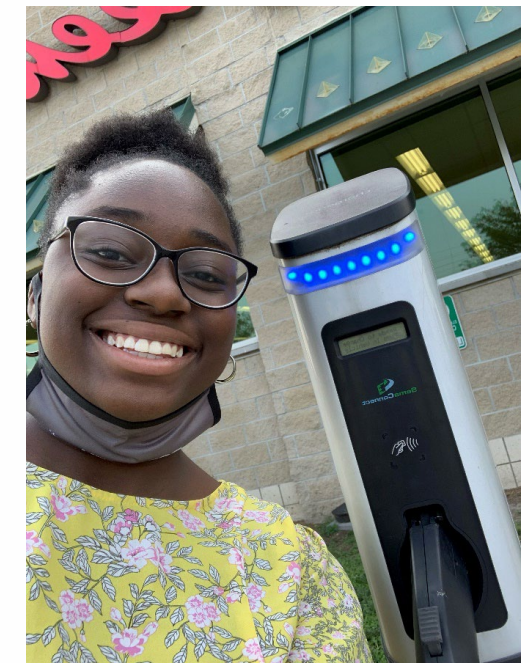
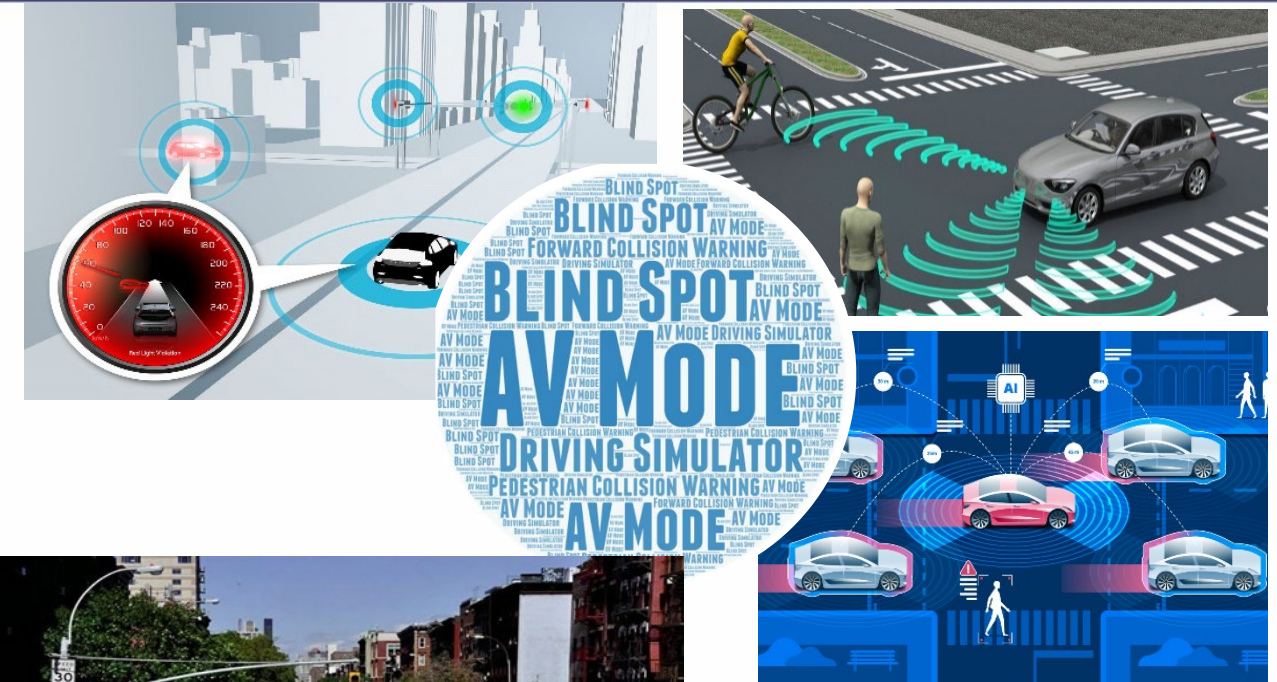
- Leadership Team
- Research & Technology Transfer
- Education & Workforce Development
- Matching
 - University sources
 - Outside partners
 - In-kind
- Support from the University leadership



UMEC Efforts in *Equity*



- Accessibility
 - Food
 - Healthcare
 - Jobs
- Mobility
 - Multimodal/Complete Streets
 - Micro-mobility
 - Natural disasters, evacuation
- Safety
- Advanced Technologies
 - Connected and Automated Vehicles
 - Electric Vehicles





Sample Research



- The Effect of COVID-19 on Mobility and Equity: A Case Study on Transit Users in Baltimore, Maryland
- Shared Bus/Bike Lane Safety Analysis: Assessing Multimodal Access and Conflicts
- EQUITABLE COMPLETE STREETS: Data and Methods for Optimal Design Implementation
- Investigating the Effect of Connected Vehicles Route Guidance on Mobility and Equity
- Innovative Methods for Delivering Fresh Foods to Underserved Populations
- User Preference Analysis for Mobility-as-a-Service and Its Impact in Maryland
- E3: Evaluating Equity in Evacuation: A Practical Tool and A Case Study





THANK YOU!

QUESTIONS?

MANSOUREH.JEIHANI@MORGAN.EDU

Website: <https://www2.morgan.edu/soe/ntc>



National Transportation Center and the Urban
Mobility & Equity Center



Transportation Research at Morgan State University



NTCMorgan



NTCUMEC



Urban Mobility & Equity Center (UMEC)



SUCCESS STORIES OF HBCU COLLABORATIONS IN SOUTH CAROLINA



Mashrur “Ronnie” Chowdhury, Ph.D., P.E., F. ASCE

Eugene Douglas Mays Chair of Transportation

Director, USDOT Center for Connected Multimodal Mobility (C²M²)

Co-Director, Complex Systems, Analytics and Visualization Institute (CSAVI)



Established Alliance through C²M²



It began in 2017 with the support of USDOT UTC C²M²



Two leading HBCUs in the nation with a prominent history of producing African-American graduates and creating diversity in the workforce

C²M² Diversity, Equity & Inclusion Committee



Vareva Harris
Chair



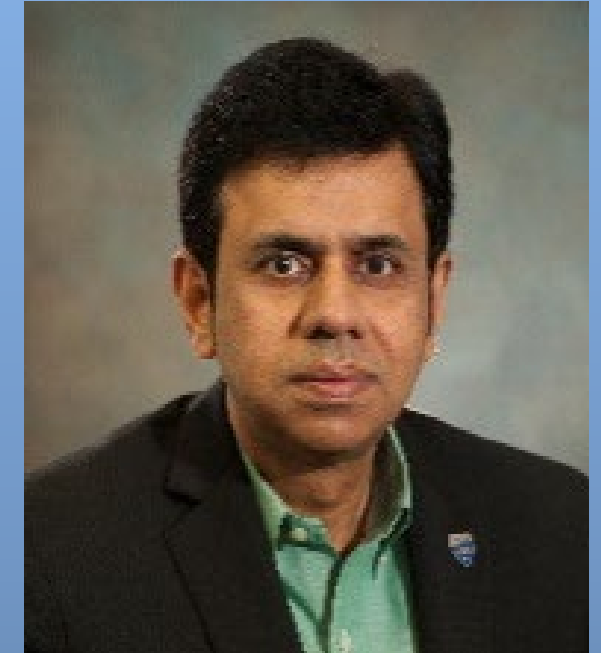
Godwin Mbamalu



Gurcan Comert



Judith Mwakalonge



Ronnie Chowdhury



Clemson's Men of Color National Annual Summit



Mission to create equal opportunities for African-American & Hispanic males



In 2022, “More than 2,200 high school and college students, business professionals, educators and administrators, government officials and community leaders from 26 states attended.”

CLEMSON



C²M² students, faculty, and staff have been supporting this national annual event since 2018

C²M² Technology Engagements



**Benedict's Summer Transportation Institute
Students at Clemson**



C²M² Technology Engagements



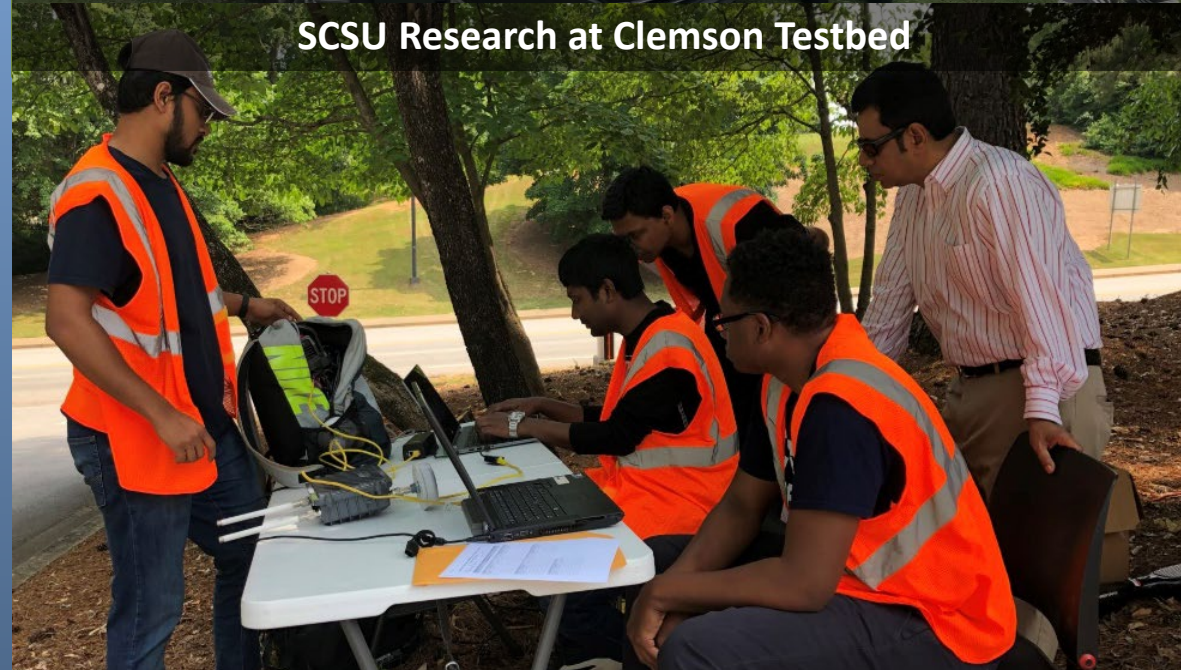
Benedict College Cybersecurity Summer Camp



C²M² at SCSU



SCSU Research at Clemson Testbed



C²M² at Benedict College



A Unique Quantum Artificial Intelligence for Cybersecurity Course Launch at BC

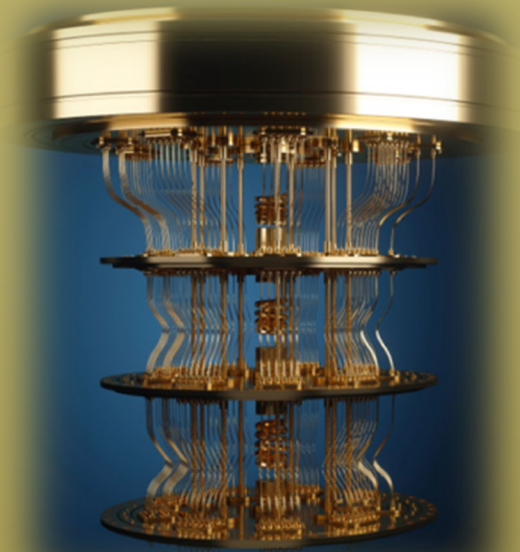


**“It made me want to go to
graduate school and study AI”**
Comment from one attendee

Fundamentals of Quantum Artificial Intelligence (AI)

**Led by Benedict College
and Clemson**

**Focused on
cybersecurity**



C²M² Quantum AI Lab



Lead Institutions



CLEMSON

Partner Institutions



THE CITADEL



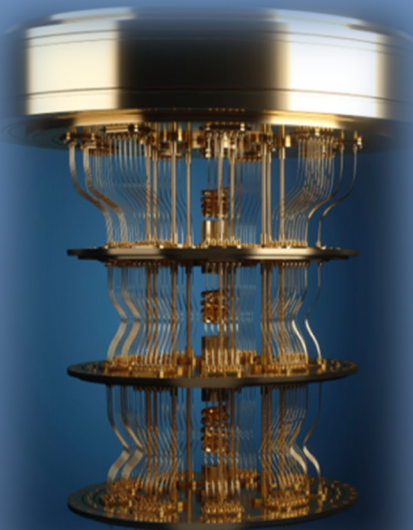
UNIVERSITY OF
SOUTH CAROLINA

Focus Areas

Transportation
Cybersecurity

Connected and Autonomous
Transportation

Infrastructure
Monitoring



HBCU Leadership and Meaningful Partnership in UTCs

5th Annual Fall Conference, C²M²



Keynote

Dr. Firas Ibrahim

Office of Research,
Development and
Technology



Conference Advisor

Dawn Tucker-Thomas

Office of Assistant Secretary
for Research and
Technology



Lifetime Achievement Award

Ms. Pamela Foster received the award from C²M² for
advocating civil rights in transportation for 36 years



Panel Members



Dr. Vareva Harris



Dr. Stephen Arhin



Dr. Nedunuri



Dr. Deo Chimba



Dr. Catherine
Armwood-Gordon



Dr. Mansoureh
Jeihani

Path to Entrepreneurship and Academic Career for HBCU Students: C²M² Series



Shelby Scales

Director, Office of Small and Disadvantaged
Business Utilization

Keynote Speaker



Matt Bell
SCRA



Herbert Drayton
HI Mark Capital

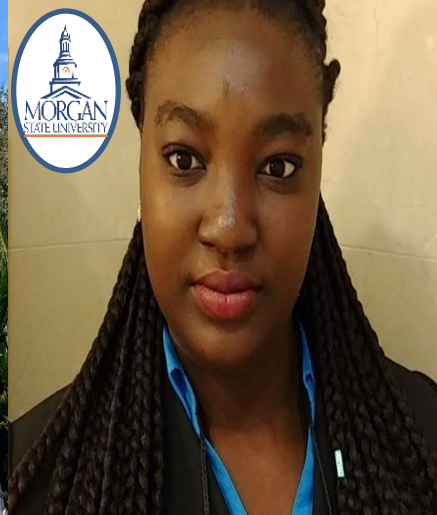


Harold Singletary
BrightMa Farms



Dr. Cephus Simmons
SealCath

Panelists



Winners of the Student Business Pitch Contest



Other Recent Initiatives



C²M² Future Leaders Program



C²M² Trainings at BC and SCSU





Testimonial on C²M²'s Impact



Dr. Vareva Harris

Assistant Vice President for Enrollment
Management, Benedict College

"The continued support and participation of Clemson's C²M² faculty and students in Benedict's Summer Transportation Institute has exposed many high school students to emerging transportation technologies and inspired them to pursue educational opportunities and careers in STEM. In addition to this, the creation of the C²M² Quantum Artificial Intelligence lab through a collaboration between Benedict College and Clemson University has been impactful for participating students and faculty across the state of South Carolina."



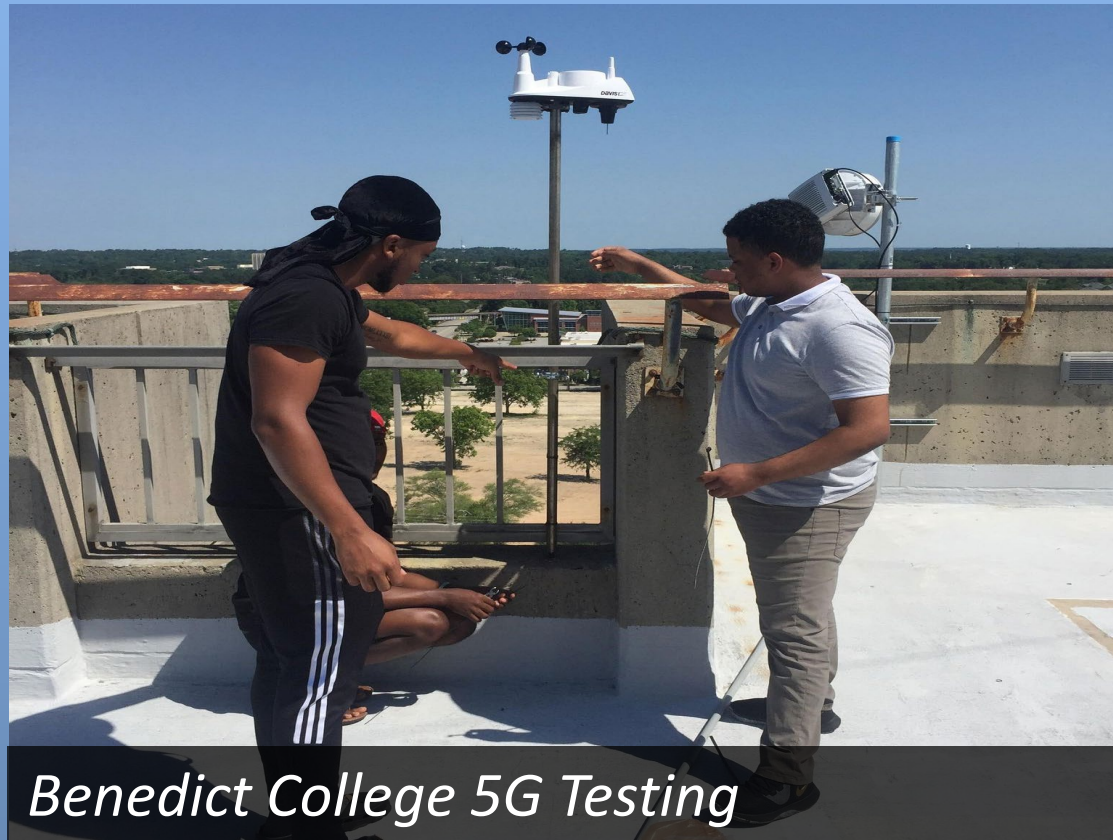
Dr. Godwin Mbamalu

Associate Vice President of Research
Benedict College

"Benedict College has collaborated with different universities before, but the collaboration with Dr. Ronnie Chowdhury and USDOT UTC Center for Connected Multimodal Mobility was the most beneficial and impactful for our institution."

Collaboration between Dr. Chowdhury and Benedict College should be the model for HBCU-non HBCU collaborations."

Recent Outcomes of Our Collaborations



Benedict College 5G Testing



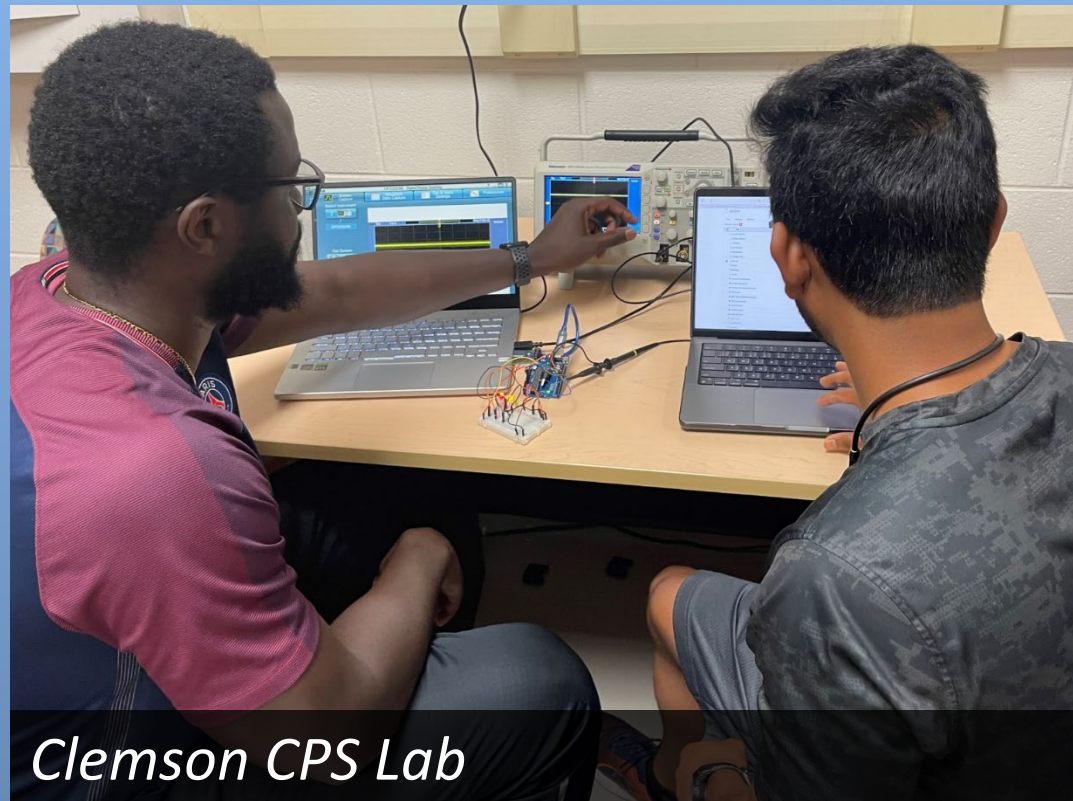
Clemson Drone Testing



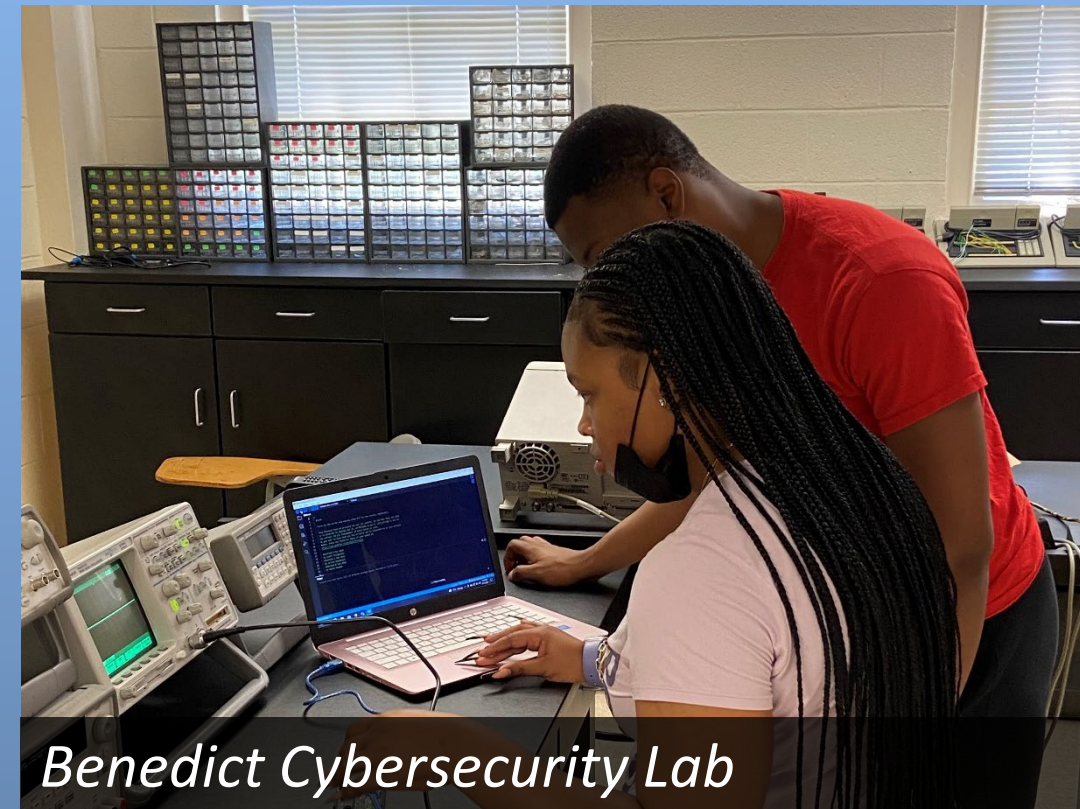
Department of Energy
*Edge-Centric Cloud-Based Distributed Surveillance
for Environmental Detection Surveys*



Recent Outcomes of Our Collaborations



Clemson CPS Lab



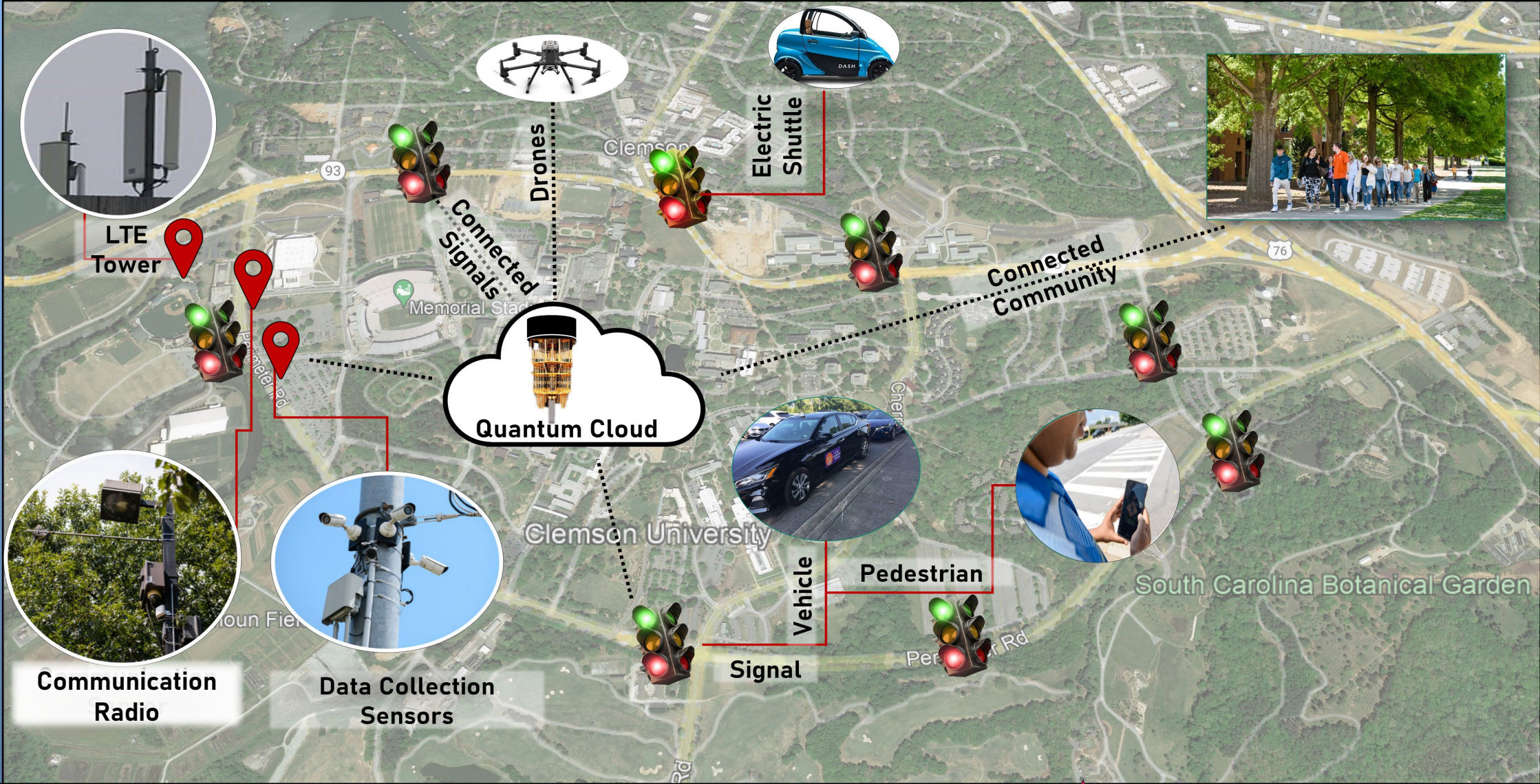
Benedict Cybersecurity Lab



National Science Foundation
*Statistical and Artificial Intelligence-based Cyberattack
Detection Models for Connected Vehicles*



Clemson Smart City Testbed



In the process of being replicated by



C²M²'s Recent Recognitions



IEEE Institutional Lead Award – Collaboration Was The Key

Citation: Contributions to cyber-physical transportation systems by addressing sensing, communication and computing aspects of computerized mobility



Jacquan Pollard

2022 Hatch Engineering Scholarship Recipient

B.S. in Electrical Engineering, Benedict College, 2019

M.S. in Civil Engineering, Clemson University, December 2022



Creating next transportation
frontiers through collaboration



Contact Information

C²M² Website: <https://cecas.clemson.edu/C2M2/>



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QUESTIONS & ANSWERS



THANK YOU FOR PARTICIPATING