Today's Agenda

- Updates

- Speaker

- Discussion

Alabama
Transportation
Institute

Get in Touch

Strategic Plan
2020–2024
Advancing Alabama's Economy, Safety, and
Quality of Life Through Transportation

$85M
Helped obtain in federally-supported
projects to help communities build
their transportation infrastructure.

$189M
in external funding to The University
of Alabama

1.2B
Uses of ATI products in Alabama and
beyond (as of October 2020)

241

107K

204

THE UNIVERSITY OF
ALABAMA® | Alabama Transportation
Institute

CAPS

EC2R

ACIIR

Sustainable Transportation Infrastructure

CSI

CBER

MaPN
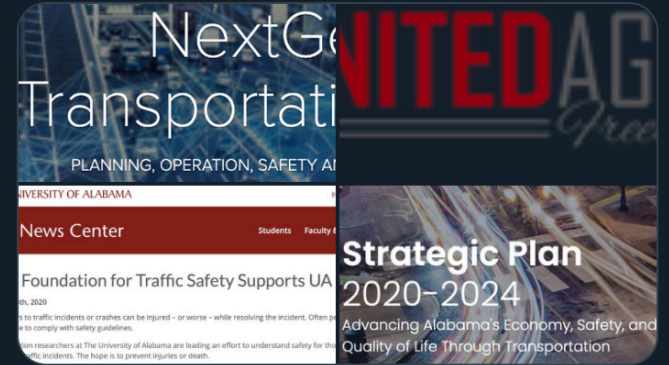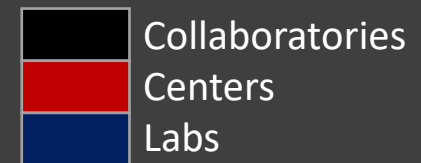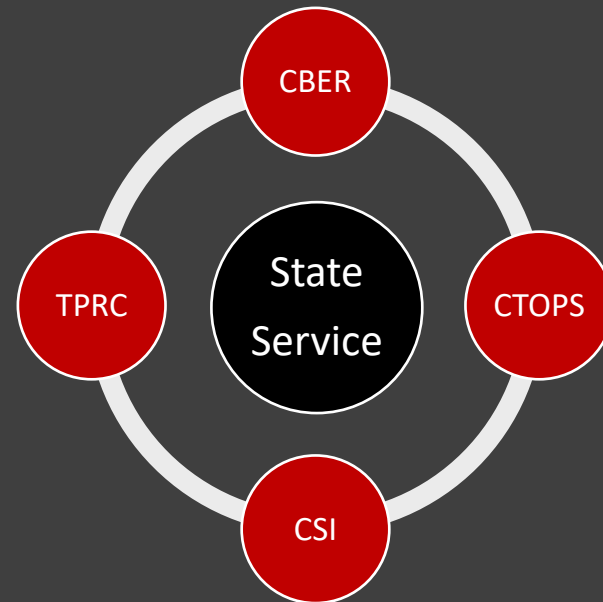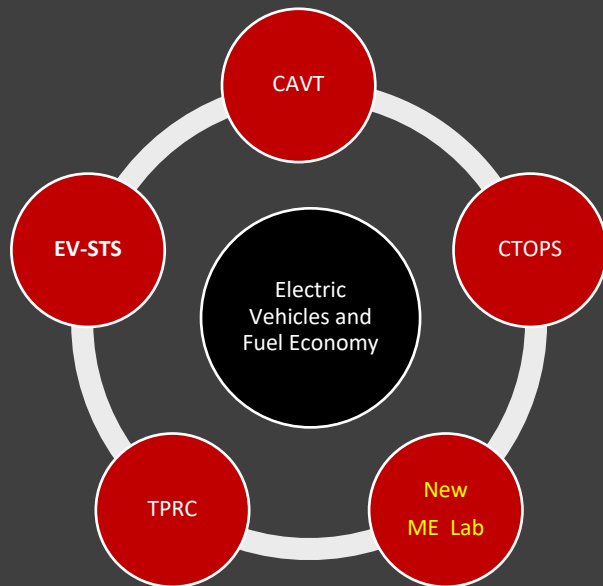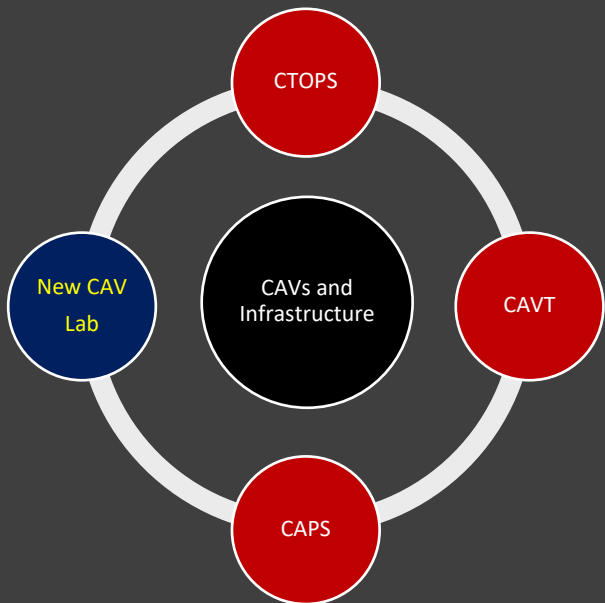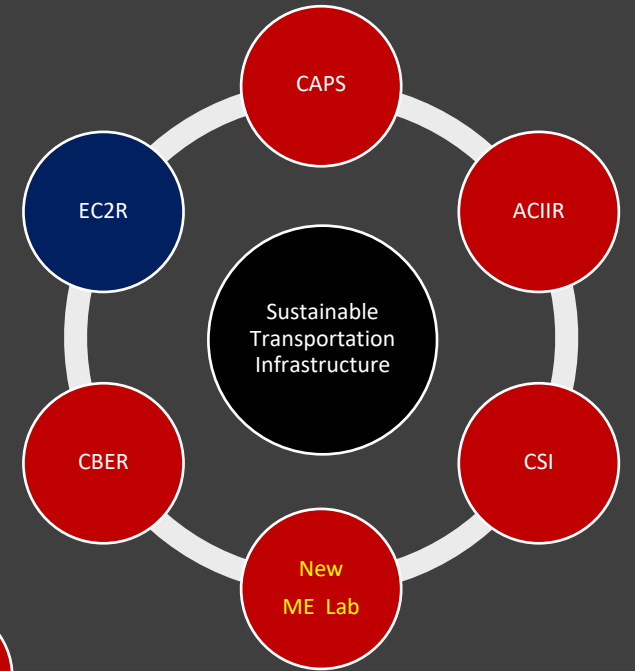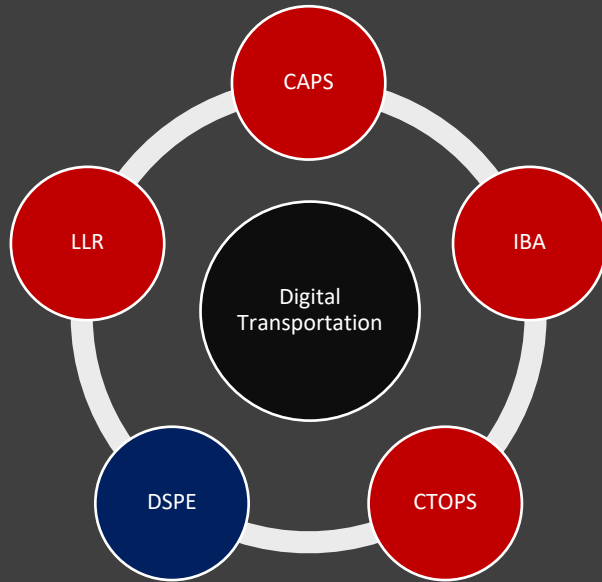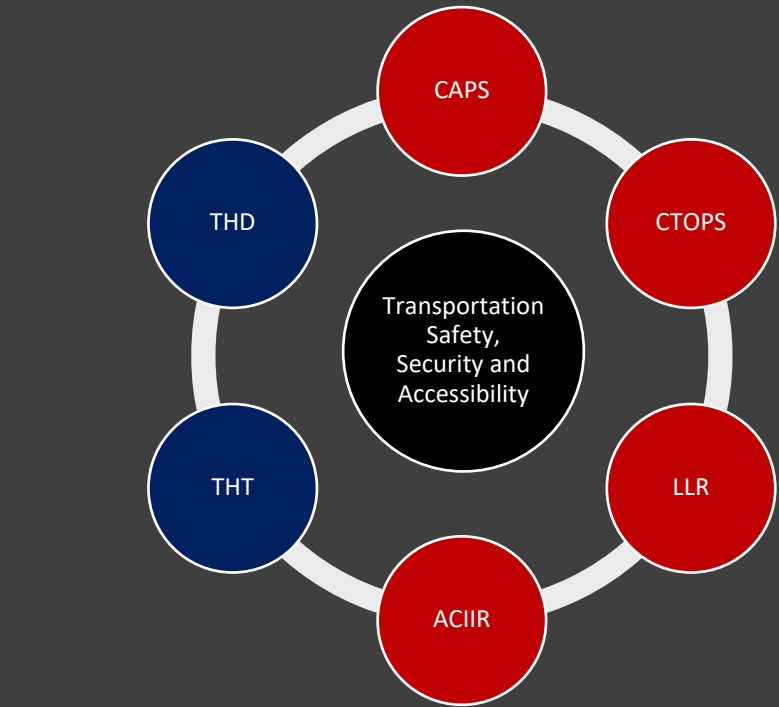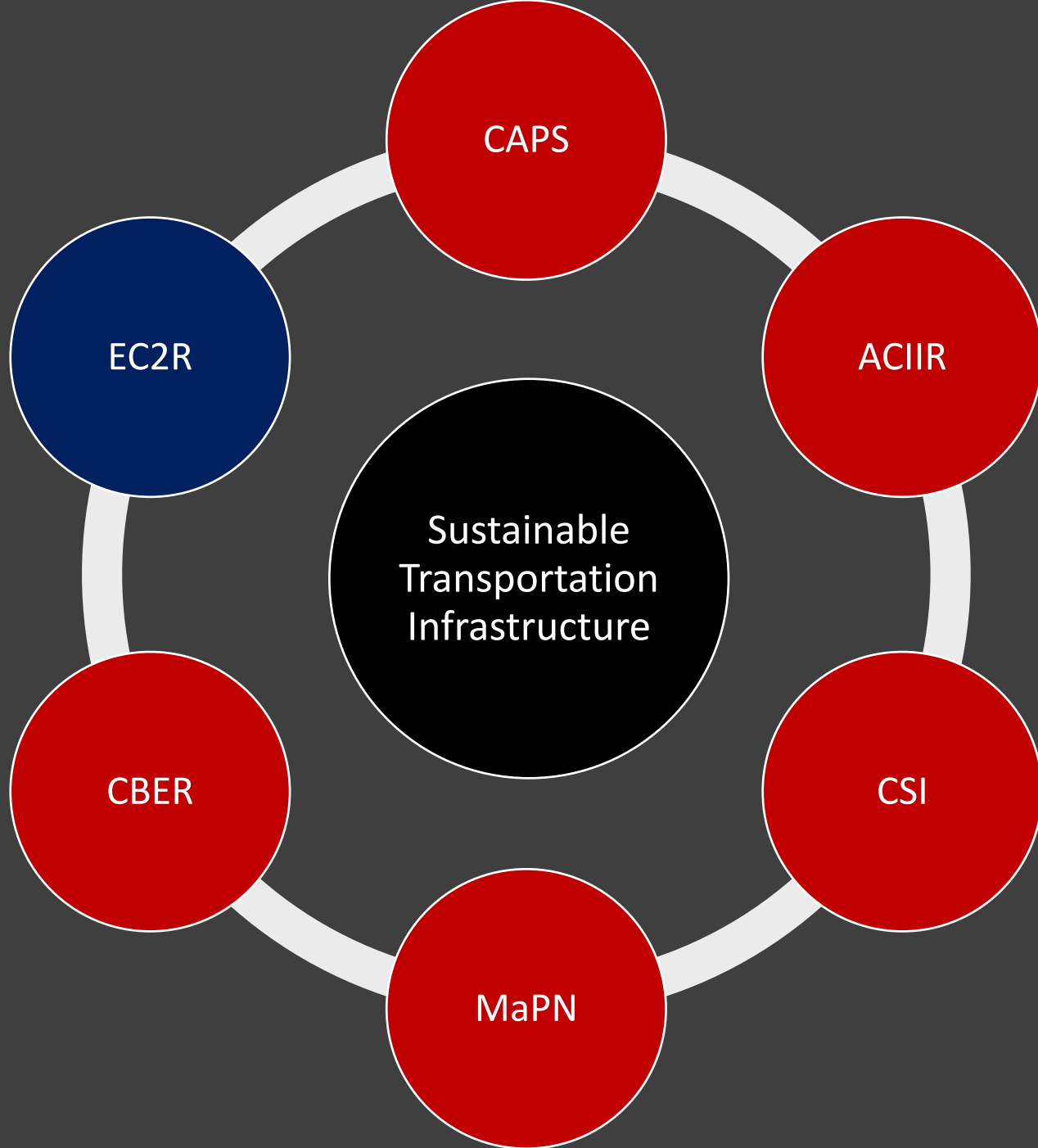
Proposed Title: Sea Level Rise Adaptation Planning for First-Mile/Last Mile Operations at the Port of Mobile, Alabama

Program Name: ESLR 2021 Focus Area: Surface Transportation Resilience

Principal Investigators:
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- Daan Liang, Ctr. for Sustainable Infrastructure, UA, daan.liang@ua.edu, (205) 348-2783
- Hamid Moradkhani, Ctr. for Complex Hydrosystems Research, UA, hmoradkhani@ua.edu, (205) 348-9125
- Douglas Sherman, Dept. of Geography, UA, douglas.j.sherman@ua.edu, (205) 348-5047
- Scientists from NOAA-NCCOS

Approximate Project Cost: $1,000,000 (3-year project)

Problem Statement and Management Relevance: The potential for sea level rise (SLR) to negatively impact surface transportation infrastructure is well established in both the academic literature and government-issued reports (e.g., Federal Highway Administration, US Army Corps of Engineers). The scientific concepts of applying Nature and Nature-based Features (NNBF) to mitigate these impacts are also established. The SLR effect on transportation infrastructure is as varied as it is significant – projected rise in sea levels by 2100 range from 0.2m to 2m. As such, the risk from inundation, saltwater contact, tropical storms, etc. will vary by region as well as by types and significance (locally and regionally) of specific facilities and assets. While many previous studies of SLR-induced impacts to surface transportation have focused on of roads and bridges (e.g., coastal highways), there has been an increasing amount of investigation towards ports and their waterside operations. What is critically lacking is the robust knowledge and best practices on SLR impacts to surface transportation aspects of port facilities (i.e., landside) that represent essential first-mile/last-mile (FM/LM) connections between seaports and the economic markets they serve.

The project proposed herein is intended to improve the understanding of how inundation associated with SLR will affect landside assets and operations of a port (i.e., densely spaced, interconnected road and rail infrastructure). Specifically, the project will seek to develop means of measuring and predicting the deterioration of and interruption to these landside assets with a specific goal of incorporating this new knowledge into an end-user focused decision-making process. In particular, the proposed project will use the Port of Mobile on the Gulf Coast of Alabama as a testbed for adaptation planning for SLR impacts to the FM/LM operations.

There is a need for research aimed at increasing the resilience of ports and their landside connections that incorporate green infrastructure (e.g., NNBF) and life-cycle analysis. Some states and other jurisdictions have embarked on efforts to improve port resilience to SLR. For example, the University of Florida established a GIS-based sketch planning tool to assess potential SLR risks to port landside

National Artificial Intelligence (AI) Research Institutes
Accelerating Research, Transforming Society, and Growing the American Workforce

PROGRAM SOLICITATION

CAPS

LLR

D

Theme 1: Human-AI Interaction and Collaboration

AI has significant potential to improve productivity across a growing range of domains. Many of the most impactful uses of AI are in augmenting human abilities; therefore, it is critical to make human and AI collaboration more productive, robust, and fair. To that end, research in the Institute will uphold high standards of scientific excellence and ethics, emphasizing aspects such as inclusive design, being socially beneficial, avoiding unjust bias, and being built and tested for safety, accountability and privacy principles.

An Institute for Human-AI Interaction and Collaboration will support research on all of the modalities through which people can collaborate with intelligent machines toward common goals. Interaction can occur through spoken or written natural language, visual interaction, gesture, body language, affective sensing, tactile and physical interaction, graphical user interfaces, mixed and augmented reality environments, and combinations of these modalities. Most human-AI systems today handle only short, unambiguous exchanges between human and AI. To surpass this limitation, research at the Institute will develop principles and methods for systems that support multi-step interactions and use rich context. This research should encompass multi-user and multi-AI interaction in order to address teamwork in mixed human-AI groups.

AI systems exist across a range of domains, but significant opportunity remains for humans to truly collaborate with AI systems. A key aspect of all work conducted by the Institute will be establishing confidence that AI systems are operating on fair and transparent principles that can be understood and vetted by the community and appropriately modified by stakeholders. Researchers will develop methods for AI systems to learn the goals and preferences of humans during interaction in order to support trustworthy and safe collaboration. Principles include, but are not limited to, ethics, fairness, privacy, lack of deception, explainability, protection of vulnerable and protected populations, and participatory and inclusive design. Research in the Institute should transcend one-size-fits-all solutions for human-AI interaction by, for example, taking an inclusive approach to assessing how personal and social values are embedded in AI systems, accounting for communication conventions that vary among different cultural and linguistic communities, and developing principles and systems that are accessible and adaptive to persons with varying abilities and disabilities.

In addition to developing general methods and technologies, the Institute will include use-inspired research involving multiple domains of human-AI interaction and collaboration. Domains could include healthcare, education, commerce, emergency response, digital assistants, transportation, manufacturing, or any other domain where fluid human-AI interaction and teaming is important.

An important objective of the Institute will be to create new scientific methods, measurement and analysis techniques, effective metrics and engineering best practices for verification, validation, and performance monitoring of human-AI collaboration systems that are robust and generalizable for operation in real-world environments. The research will also demonstrate the effectiveness of these new testing methodologies using one or more domains of real-world applications as described above.

The Institute is encouraged to be broadly multidisciplinary, integrating, as appropriate, fields such as linguistics, robotics, accessibility and human factors, psychology and cognitive science, sociology, ethics, technology studies, and other fields. Fundamental theory, system development, and responsible transition to practice will be supported in the Institute. In addition to research, the Institute will support programs for training students to work effectively in interdisciplinary teams and to go on to become the next generation of leaders in human-AI interaction.

Amazon and Google are each providing partial support for this Institute theme.

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Competitive Funding Opportunity: Public Transportation COVID-19 Research Demonstration Grant Program

AGENCY: Federal Transit Administration (FTA), DOT.

ACTION: Notice of funding opportunity.

SUMMARY: The Coronavirus Disease 2019 (COVID-19) public health emergency has had a significant impact on transit operations. During a series of FTA listening sessions held over the last three months, transit agencies asked FTA to support research to identify solutions to address the operational challenges that they are facing as a result of COVID-19. In response, FTA makes available through this Notice of Funding Opportunity (NOFO) funding to support research demonstration grants to public transit agencies to develop, deploy, and demonstrate innovative solutions that improve the operational efficiency of transit agencies, as well as enhance the mobility of transit users affected by the COVID-19 public health emergency. Demonstration grants under this NOFO are authorized under FTA's Public Transportation Innovation Program (49 U.S.C. 5312). Eligible projects will demonstrate innovative solutions to improve the operational efficiencies of transit systems and enhance mobility for their communities in four major areas: (1) vehicle, facility, equipment and infrastructure cleaning and disinfection; (2) exposure mitigation measures; (3) innovative mobility such as contactless payments; and (4) measures that strengthen public confidence in transit services. The total funding available for awards under this NOFO is $10,000,000. FTA may supplement this amount if additional funding becomes available.

Cyber-Physical Systems (CPS)

PROGRAM SOLICITATION
NSF 20-563

REPLACES DOCUMENT(S):
NSF 19-553

National Science Foundation

Directorate for Computer and Information Science and Engineering
- Division of Computer and Network Systems
- Division of Computing and Communication Foundations
- Division of Information and Intelligent Systems
- Office of Advanced Cyberinfrastructure

Directorate for Engineering
- Division of Civil, Mechanical and Manufacturing Innovation
- Division of Electrical, Communications and Cyber Systems

Department of Homeland Security, Science & Technology Directorate

U.S. Department of Transportation, Federal Highway Administration

National Institutes of Health
- National Institute of Biomedical Imaging and Bioengineering
- National Cancer Institute

National Center for Advancing Translational Sciences
- Office of Behavioral and Social Sciences Research

U.S. Dept. of Agriculture

National Institute of Food and Agriculture

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

December 02, 2020

First Wednesday in December, Annually Thereafter

Frontier proposals

Submission Window Date(s) (due by 5 p.m. submitter's local time):

June 08, 2020 - June 22, 2020

Medium Proposals

IMPORTANT INFORMATION AND REVISION NOTES