

Congressional Update: Congress Passes Landmark Transportation R&D Legislation

Lewis-Burke Associates LLC – November 8, 2021

On November 5, Congress passed the \$1.2 trillion *Infrastructure Investment and Jobs Act*, a significant component of which includes a five-year re-authorization and funding for ongoing and new research and development (R&D) programs across the Department of Transportation's (DOT's) surface transportation modal administrations. The bipartisan legislation includes many provisions of interest to the R&D community. This includes changes to the University Transportation Centers (UTC) program, a new competitive climate-focused Centers of Excellence (COE) program, and the establishment of an Advanced Research Projects Agency-Infrastructure (ARPA-I) within DOT. Highlights of these and other notable programs are included below.

University Transportation Centers Program

The UTC program is DOT's largest competitive extramural research opportunity available to universities. The current make-up of the UTC program supports 35 university consortia across three categories (Tier 1, Regional, and National UTCs) with each corresponding to different funding levels and emphases. Once the bill is signed into law, DOT will begin the process of re-competing all 35 UTCs. Given timing of prior UTC competitions and the relatively minor changes Congress made to the program, Lewis-Burke anticipates that DOT will issue a Notice of Funding Opportunity (NOFO) in early winter of 2022.

The bill makes several technical revisions to the UTCs while expanding overall funding for the program by \$95 million spread over five years. The number of National, Regional, and Tier 1 UTCs would remain fixed. The six thematic areas that guide DOT's R&D activities - at least one of which must be addressed by a UTC applicant - would be expanded with the addition of a seventh topic focusing on "reducing transportation cybersecurity risks." The legislation also updates the "focused research" topics for Regional UTCs by directing at least one center focus on the "cybersecurity implications of technologies relating to connected vehicles, connected infrastructure, and autonomous vehicles." This is in addition to the requirement that one Regional UTC focus on "comprehensive transportation safety, congestion, connected vehicles, connected infrastructure, and autonomous vehicles."

Congress also revised technical aspects associated with the UTC competition process. The legislation restricts the ability for universities to apply for and lead up to three UTCs (i.e., one in each category). Under the new framework, a university could lead only one center, however it would not restrict the number of UTC consortia it joins as a member. DOT has not awarded multiple UTCs to a single university but has permitted applicants to submit proposals to lead multiple UTCs, and it is unclear whether the changes made by Congress will be interpreted to also restrict institutional application submissions. Lastly, and in acknowledgement of irregularities that arose during past UTC competitions, the Secretary of Transportation will now be required to publish a description of the process used to select UTCs on DOT's website.

Transportation Resilience and Adaptation Centers of Excellence

The bill establishes 10 regional university-led *Transportation Resilience and Adaptation Centers of Excellence*. Centers would advance R&D that improves surface transportation resilience to natural

disasters and extreme weather. This includes supporting climate vulnerability assessments; R&D on new materials, data, tools; workforce development and training; and new infrastructure design, operations, and maintenance standards. Each COE would receive \$10 million annually for fiscal years (FY) 2022 through FY 2031, although funding to start and maintain the new program would need to be provided either by Congress (through the annual appropriations process) or by DOT shifting funds from other accounts.

Advanced Research Projects Agency-Infrastructure

The bill establishes a new Advanced Research Projects Agency-Infrastructure (ARPA-I) to fund R&D on advanced transportation infrastructure technologies. ARPA-I will support novel, early-stage research as well as advance conceptual research into testing and development. UTCs are noted eligible to partner with ARPA-I to accomplish its goals.

The goals of ARPA-I are to advance transportation infrastructure by developing innovative science and technology solutions that:

- “Lower the long-term costs of infrastructure development, including costs of planning, construction, and maintenance;
- Reduce the lifecycle impacts of transportation infrastructure on the environment, including through the reduction of greenhouse gas emissions; and
- Contribute significantly to improving the safe, secure, and efficient movement of goods and people; and promote the resilience of infrastructure from physical and cyber threats.”

ARPA-I will operate as a distinct entity within DOT and is imbued with independence – both in funding and personnel – relative to existing DOT R&D programs. This approach was modeled closely after the establishment of ARPA-E at Department of Energy (DOE). The bill does not provide funding for ARPA-I, which Congress would need allocate through the annual appropriations process. The FY 2022 President’s Budget Request called for \$2 billion to establish ARPA-I, however no funding was provided in the House or Senate FY 2022 appropriations bills.

Other New or Notable Provisions

Advanced Transportation Research Initiative

The bill authorizes \$50 million per year for five years to establish an Advanced Transportation Research Initiative pilot program. Universities, state and local governments, and nonprofits are eligible to provide unsolicited proposals to DOT that addresses a research need identified by the Secretary or modal administration leadership. In establishing the pilot, DOT is required to coordinate on how it would fund fundamental research that has potential applications in the transportation sector with the National Science Foundation (NSF), DOE, National Institute for Standards and Technology (NIST), Department of Homeland Security (DHS), National Oceanic and Atmospheric Administration (NOAA), and Department of Defense (DOD). The federal share of funding cannot exceed 80 percent.

Emerging Technology Research Pilot Program

The bill establishes the Emerging Technology Research Pilot Program and authorizes \$5 million annually for DOT to support advanced additive manufacturing technologies and R&D that reduces the impact of automated vehicles on transportation infrastructure and improves its design to accommodate growth in anticipation of expanded automated vehicle deployment.

Research and Technology Development and Deployment

The bill establishes the Open Challenge and Research Proposal Pilot Program that provides grants for proposals to research needs or challenges identified or determined to be important by the Secretary of Transportation or the Administrator of the Federal Highway Administration (FHWA). This differs from the Emerging Technology Research Pilot Program outlined above by allowing grants for a wider range of research proposals. The bill also expands the Technology and Innovation Deployment Program by adding a focus on accelerated market readiness efforts, including new and innovative construction technologies.

Advanced Transportation Technologies and Innovative Mobility Deployment Program

The bill modifies the existing Advanced Transportation and Congestion Management Technologies Deployment program by expanding its objectives beyond just congestion and to encompass improving the mobility of people and goods, improving the durability, and extending the life of transportation infrastructure, preserving the environment, among other objectives. The Advanced Transportation Technologies and Innovative Mobility Deployment Program will emphasize intermodal connectivity and include a rural set aside of 20 percent. Funding remains flat at \$60 million per year, however the federal match is increased to 50 percent.

Center of Excellence on New Mobility and Automated Vehicles

The bill establishes a Center of Excellence on New Mobility and Automated Vehicles to collect, conduct, and fund research on the impacts of new mobility, such as docked and dock less bicycles and electric scooters, and automated vehicles on land use, urban design, transportation, real estate, equity, and municipal budgets.

Sources and Additional Information:

- Lewis-Burke's snapshot of the *Infrastructure Investment and Jobs Act* can be found at https://old.lewis-burke.com/sites/default/files/congressional_update_-_senate_reaches_agreement_on_bipartisan_infrastructure_proposal.pdf
- The full text of the *Infrastructure Investment and Jobs Act* can be found at <https://www.congress.gov/bill/117th-congress/house-bill/3684/text>