



Photo Source: USDOT

ACCESSIBLE TRANSPORTATION TECHNOLOGIES RESEARCH INITIATIVE (ATTRI)



For people with disabilities, including injured veterans and older adults, inadequate mobility and transportation can hinder them from completing important tasks, such as obtaining employment, commuting to appointments, shopping for groceries, or even attending social events that many take for granted. The Accessible Transportation Technologies Research Initiative (ATTRI) leads efforts to research, develop, and implement transformative solutions, applications, and systems to help all people, focusing on those with disabilities, effectively plan and execute their travel, addressing individual mobility needs. The initiative will enhance the capability of travelers to reliably, safely, and independently accomplish their unique travel plans.

ATTRI leverages recent advances in vehicle, infrastructure, and pedestrian-based technologies, as well as accessible data, mobile computing, robotics, artificial intelligence, object detection, and navigation. These technologies are enabled by ever present wireless communications that connect travelers and their mobile devices, vehicles, and roadside infrastructure.



Photo Source: USDOT

ATTRI is being implemented in three phases: 1) exploratory and user needs research; 2) innovation, prototype development, and testing; and 3) a demonstration phase. ATTRI has completed Phase 1 and is currently focused on Phase 2 activities.

User Needs Assessment

A key differentiator of ATTRI is its emphasis on stakeholder engagement and understanding user needs. Early engagement activities include several public workshops and webinars, a user needs assessment, a public request for information, technology and innovation scans and an interagency roundtable on accessible transportation. Feedback from these activities revealed several barriers, user needs, issues with technology, and the need for foundational considerations as described below. The most critical user needs reported were related to real time and reliable traveler information. This could indicate a significant yet simple opportunity to provide better and more accessible information about transportation options. The top user needs responses are identified below.

Advancing Mobility Solutions for All Travelers

Targeted Populations

-  Person with Disabilities
-  Older Adults
-  Veterans with Disabilities

Types of Disabilities

-  Vision
-  Mobility
-  Hearing
-  Cognition



Foundational Considerations

Applying foundational considerations to all technologies developed under ATTRI will ensure they adhere to all necessary elements of accessible transportation applications identified in stakeholder engagement activities. They are:

- **Standard Accessible Data Platform:** providing almost ubiquitous access to a wealth of real-time, situational data sources, including data specific to transportation systems, municipalities, points of interest, crowd-sourced information, and accessibility data
- **Universal Design Standards:** developing new applications that can be used by all travelers or leveraging existing solutions and enhancing them to meet the needs of all users
- **Integrated Mobile Payment:** incorporating or including, to the degree appropriate, integrated payment systems where travelers of any ability can use the same application to pay for various types of transportation needs, mobility options, parking, and possibly other transactions
- **Existing Technologies:** Leveraging existing promising technologies, including but not limited to intelligent transportation systems (ITS), on-demand technologies, data standards, innovative smartphone and mobile technology, and transportation and other assistive and enabling technologies, operations, and/or techniques whether currently being pursued in research, or readily available in the market.



Photo Source: USDOT

Technology Solutions

ATTRI focuses on the following four applications to help travelers:

- **Smart Wayfinding and Navigation Systems:** Include wearable technologies as well as software for navigating specific communities, both indoor and outdoor
- **Pre-trip Concierge and Virtualization:** Provide pre-trip planning and en route traveler information, including virtual caregiver support
- **Robotics and Automation:** Enhance mobility and provide the ability to both plan and execute trips and associated services
- **Safe Intersection Crossings:** Enable pedestrians to use their connected mobile devices to interface with vehicles, traffic signals, and other infrastructure to help them cross an intersection safely; guidance notification and alerts optimize the technology.

All ATTRI applications will follow the ATTRI foundational considerations.

The technologies should serve to reduce difficulty in traveling and tailor solutions to each individual's unique set of abilities and challenges. ATTRI research will continue to improve the mobility of travelers with disabilities and provide enhanced capabilities for all travelers to reliably and safely execute independent travel.

Strong Partnerships

ATTRI is a joint U.S. Department of Transportation initiative, co-led by the Federal Highway Administration and Federal Transit Administration, with support from the ITS Joint Program Office and these Federal partners:

- National Institute on Disability, Independent Living, and Rehabilitation Research
- Office of Disability Employment Policy, Department of Labor
- U.S. Army Tank Automotive Research, Development and Engineering Center
- Interagency Committee on Disability Research
- National Aeronautics and Space Administration
- U.S. Access Board
- Others

ATTRI also relies on collaboration with research institutions, international partnerships, and private industry input.

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