

University of Washington Transportation Data Equity Initiative

ITS4US Deployment Program – Phase 2



Photo source: U.S. DOT

ITS4US DEPLOYMENT PROGRAM OVERVIEW

ITS4US Deployment Program is a \$40 million multimodal effort, led by the Intelligent Transportation Systems (ITS) Joint Program Office (JPO) and supported by the Office of the Secretary, the Federal Highway Administration, and the Federal Transit Administration, to identify ways to provide more efficient, affordable, and accessible transportation options for underserved communities that often face greater challenges in accessing essential services.

The program aims to solve mobility challenges for all travelers with a specific focus on underserved communities, including people with disabilities, older adults, low-income individuals, rural residents, veterans, and travelers with limited English proficiency.

This program enables communities to build local partnerships and develop and deploy integrated and replicable mobility solutions to achieve complete trips for all travelers.

The U.S. Department of Transportation (U.S. DOT) launched Phase 1 of the program in January 2021 and, across 18 months, supported the concept development efforts of select sites. In June 2022, four projects were selected for Phases 2 and 3 deployment, which includes the design, testing, operation, and evaluation of their deployments.

Vision

Innovative and integrated complete trip deployments support seamless travel for all users across all modes, regardless of location, income, or disability.

Goals

- Spur high-impact integrated complete trip deployments nationwide
- Identify needs and challenges by population
- Develop and deploy mobility solutions that meet user needs
- Measure impact of integrated deployments
- Identify replicable solutions and disseminate lessons learned

SITE DEPLOYMENT SUMMARY

Millions of Americans, those with disabilities, older adults, or those living in rural or suburban locales, cannot or do not use private vehicles or fixed-route transit. Yet, while many of the new mobility tools (such as trip planning, digital mapping, and navigation applications) provide users amazing capabilities to access travel directions, locate transit services, learn about amenities along segments of their trip, and compare travel options within one application, they are only informative about scheduled transit services and private vehicle modes.

Vision of the UW project - All travelers need information they can trust. Detailed, accurate data about pedestrian spaces, travel environments and travel services are crucial for any trip planner, trip concierge, wayfinding, or exploratory mobility application.

All travelers, regardless of abilities, need reliable, consistent information to inform comfortable, safe, accessible travel in all transportation environments and services, including information needed to find appropriate paths along sidewalks, in transit stations, and when using flexible modes of transport like shuttles and paratransit. Today, useful information about travel environments and many travel modes is neither consistently collected nor shared. Current transportation data cannot answer traveler questions such as:

- Is there a sidewalk or curb ramp there to support travel?
- Does this intersection have crosswalks that are signalized and marked?
- Is there lighting at this bus stop?
- Where is the stairs-free path to the platform?

The Transportation Data Equity Initiative (TDEI) project, supported by the U.S. DOT ITS4US Deployment Program and led by the University of Washington's Taskar Center for Accessible Technology (TCAT) and the Washington State Transportation Center (TRAC) will create data infrastructure to introduce data interoperability and consistency in travel environments and services that are not currently systematically collected or shared.



The TDEI project will focus on six pilot counties in three states: King and Snohomish counties in Washington state, Multnomah and Columbia counties in Oregon, and Harford and Baltimore counties in Maryland.



U.S. Department of Transportation

APPROACH – PROJECT CHALLENGES AND SOLUTIONS

This project aims to develop a complete data ecosystem that allows third-party providers to build applications for all travelers to complete trips more effectively and efficiently. This system is specifically designed to scale nationally. The TDEI will achieve this aim through:

- **Data standard coordinated releases:** The TDEI team will work with existing standards committees to extend and update the three data standards to digitally specify data about: routable sidewalk and outdoor path data, routable paths through multi-level transit stations, and on-demand transit services. This work will enable the consistent collection and reporting of accessibility data.
- **Publish and maintain interoperable data infrastructure, data collection and vetting tools and data governance policies:** The TDEI project will develop open-source tools that help stakeholders collect standardized data, lower the cost, and improve data quality. The project will also develop documented, open-source tools, policies, and procedures that allow sharing and governance of the data. Finally, the project will develop a publicly available data repository.
- **Deploy and sustain datasets and three accessible mobility applications:** The project will demonstrate the value, usability, and interoperability of the TDEI data and infrastructure through example applications (AccessMap, Soundscape, and Audiom) that provide travel information throughout the complete trip. This will show other developers how the data can be used for the development of additional applications.

MEASURING DEPLOYMENT IMPACT

The TDEI project evaluation focuses on the TDEI infrastructure and its ability to collect, combine into coherent travel networks, store, and publish the data using sustainable and scalable software and procedures. Downstream evaluations will focus on the ability of application developers to access the data in an interoperable manner in six different counties through multiple types of travel regions, interpret the data for distinct types of accessible travel applications, and deliver the information in a coherent way to travelers.

Some of the key performance goals and targets include:

1. **Capacity for collection of three data standards by agencies.** The TDEI aims to introduce usable data standards that are manageable and data that is collectible for agencies across six deployment counties. The team will measure the target by the capacity of municipalities and travel agencies to collect and disseminate data.
2. **Evaluating data collection and vetting.** The TDEI aims to incorporate tools producing high-quality accessibility data that can be used for routing purposes. This target will be measured by the ability to collect new data within variable transportation environments.
3. **Measuring performance of data dissemination procedures: evaluating third-party access to data via APIs.** The TDEI will create an interoperable data-sharing system with high availability. This target will be measured by the success rate and efficiency of data requests made against the system.
4. **Travel outcomes and performance of three demonstration applications using TDEI data.** The downstream consuming applications will be evaluated to measure traveler outcomes when using the data, with the primary analysis based on the benefits obtained from 40 travelers using the Multimodal AccessMap demonstration.

PROJECT PARTNERS

- | | |
|------------------------------------|--|
| • Sound Transit | • King County Metro Access |
| • Cambridge Systematics | • Cities of Bellevue, Seattle, Portland |
| • Gaussian Solutions | • Washington DOT, Oregon DOT, Maryland DOT |
| • Smith-Kettlewell / XR Navigation | • Maryland Transit Administration |
| • Microsoft | • Google |
| • Studio Pacifica | |
| • Hopelink | |

Site Points of Contact

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Social Media and Website Links

<https://transitequity.cs.washington.edu>
#TDEI #map4dataequity #transitequity #moveequity
@OpenSidewalks, @TaskarCenter
https://join.slack.com/t/opensidewalks/shared_invite/zt-111cr22s0-9rUz6jYlj7w_OkHetV_fxg

www.facebook.com/TaskarCenter
<https://www.linkedin.com/showcase/transportation-data-equity-initiative>
<https://www.linkedin.com/company/taskar-center-for-accessible-technology>



ITS JPO High-Priority Research Areas

- Automation
- Data Access and Exchanges
- Emerging and Enabling Technologies
- ITS Cybersecurity Research
- ITS4US Deployment
- Accelerating ITS Deployment

Alignment with U.S. DOT Strategic Goals

Safety
Economic Strength and Global Competitiveness
Equity
Climate and Sustainability
Transformation
Organizational Excellence

PHASE 2 | ITS4US DEPLOYMENT PROGRAM

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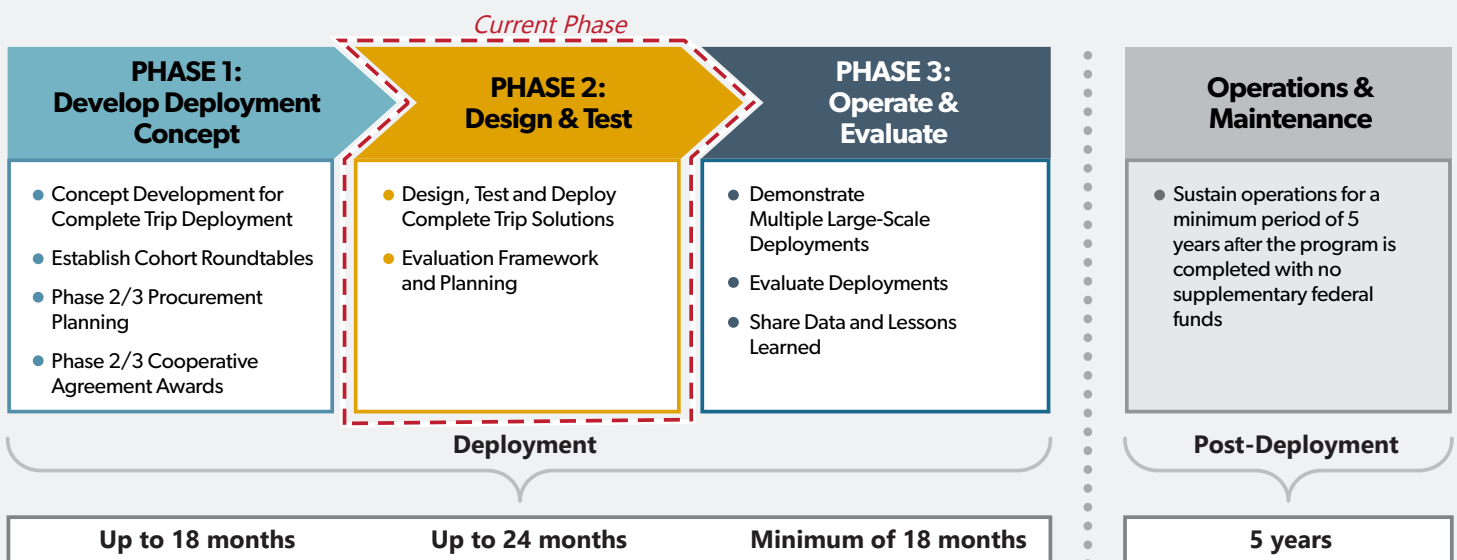
The ITS4US program will enable communities to build local partnerships and develop and deploy integrated, replicable mobility solutions to achieve complete trips for all travelers.

ITS4US DEPLOYMENT PROGRAM PHASES

ITS4US Deployment Program was designed to fund multiple, large-scale, replicable deployments in three phases:

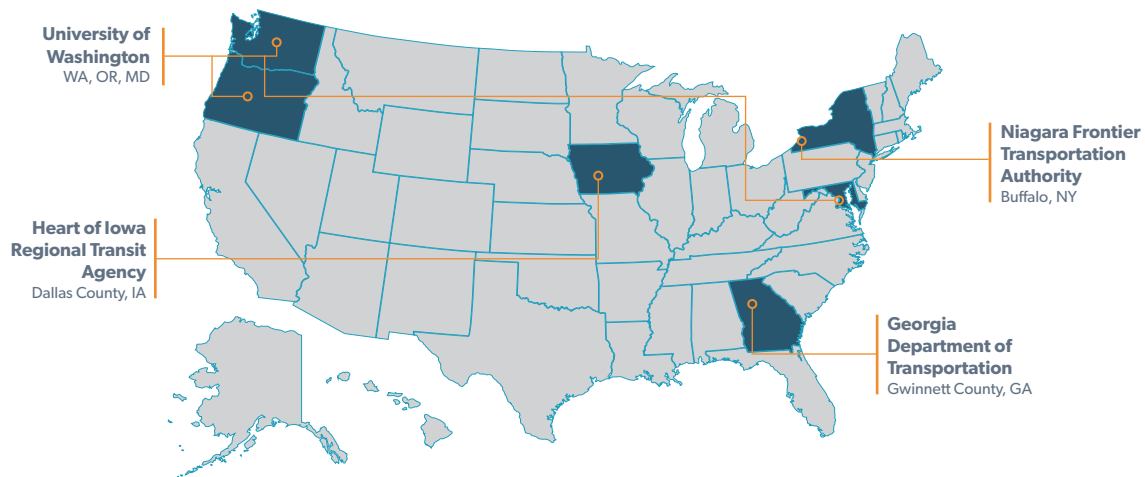
- Phase 1: Develop Deployment Concept
- Phase 2: Design & Test (Current Phase)
- Phase 3: Operate & Evaluate.

ITS4US Deployment sites that successfully completed Phase 1 were awarded Cooperative Agreements to conduct Phases 2 and 3 activities.



ITS4US DEPLOYMENT PROGRAM PHASE 2 PROJECTS






Deployment Site	Project Description
 <p>Heart of Iowa Regional Transit Agency</p>	<p>The Health Connector for the Most Vulnerable: An Inclusive Mobility Experience from Beginning to End (Health Connector) Complete Trip deployment project in Dallas County, Iowa is led by the Heart of Iowa Regional Transit Agency (HIRTA). This project will implement a scalable and replicable solution that enables inclusive transportation access to healthcare for all underserved populations and their caregivers by resolving access to barriers with the use of advanced technologies. Further, this solution will include information and wayfinding services to guide users for every step of their trip. This deployment will provide enhanced access to healthcare options for “all travelers” in Dallas County.</p>
 <p>Georgia Department of Transportation</p>	<p>The Safe Trips in a Connected Transportation Network (ST-CTN) project is led by the Georgia Department of Transportation with support from the Atlanta Regional Commission in Gwinnett County, Georgia. The ST-CTN system will provide Gwinnett County residents with detailed information and step-by-step navigation tailored for users’ specific needs along with a range of other features geared to improve trip efficiency and safety. This concept is comprised of an integrated set of advanced transportation technology solutions including connected vehicles, transit signal priority, machine learning, and predictive analytics to support safe and complete trips, with a focus on accessibility for those with disabilities, aging adults, and those with limited English proficiency. The ST-CTN system includes a mobile application that will provide users with the ability to create a personalized trip plan with information on the navigation of physical infrastructure, provide users with safe alternative trip routes when encountering unexpected obstacles, and ensure user safety throughout the trip.</p>
 <p>University of Washington</p>	<p>The Transportation Data Equity Initiative, a Complete Trip deployment project led by the University of Washington, will span three states—Washington, Oregon, and Maryland. The project aims to create the foundational data tools necessary for both public and private entities to collect, share, manage, and use transportation data that provide equitable outcomes to all travelers regardless of location, income, or disability. This effort includes: 1) working with existing standards committees to extend and update three existing, early-stage international data standards—OpenSidewalks, GTFS-Flex, and GTFS-Pathways; 2) developing a series of tools that help agencies, jurisdictions, and other stakeholders collect the data that can be stored with these refined data standards; and 3) using three unique accessible mobility applications to demonstrate the different uses of the data.</p>
 <p>Niagara Frontier Transportation Authority</p>	<p>The Complete Trip Deployment in Buffalo, New York, led by the Niagara Frontier Transportation Authority, will improve mobility to, from, and within the Buffalo Niagara Medical Campus (BNMC) by deploying new and advanced technologies focused on addressing existing mobility and accessibility challenges. The project integrates an accessible trip planning tool with current transit services, indoor/outdoor wayfinding, community-based on-demand shuttle services that include a fleet of fully autonomous shuttles, and intersection pedestrian safety technologies aimed at providing complete trip support to travelers with disabilities in BNMC and neighboring communities. Central to the project is a complete trip platform that can factor in travelers’ preferences and accessibility-related needs in providing comprehensive trip planning and execution support to registered users. The platform, accessed both offline and online via multiple interfaces including an app, will integrate with multiple enabling technologies and services including fixed-route transit, community shuttles, smart intersections that use tactile and mobile technologies to assist travelers with disabilities in navigating intersections safely, and wayfinding infrastructure such as smart signs and information hubs to support outdoor and indoor navigation.</p>



To learn more about this program, visit:
<https://its.dot.gov/its4us>

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