Georgia Department of Transportation (GDOT) Safe Trips in a Connected Transportation Network

ITS4US Deployment Program – Phase 2

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IT'S TRANSPORTATION FOR ALL OF US

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

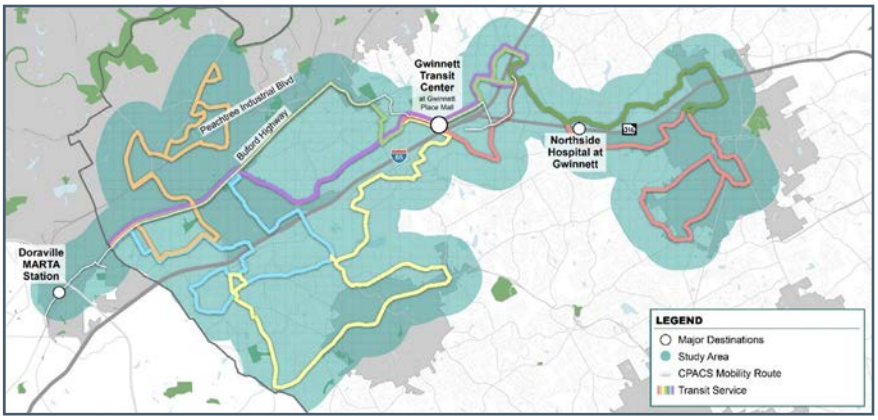
- Spur high-impact integrated complete trip deployments nationwide
- Identify needs and challenges by population
- Develop and deploy mobility solutions that meet user needs
- Measure impact of integrated deployments
- Identify replicable solutions and disseminate lessons learned

SITE DEPLOYMENT SUMMARY

Safe Trips in a Connected Transportation Network (ST-CTN) seeks to enhance the travel experience for underserved communities, including people with disabilities, older adults, and travelers with limited English proficiency (LEP). It will leverage innovative solutions and existing systems such as connected vehicle (CV) deployments, an advanced trip routing engine, and a regional trip planner—all to be developed within an open-sourced application. The application will allow travelers to create a personalized trip plan to navigate physical infrastructure, resolve unexpected obstacles, and ensure visibility throughout their travel.

> *"We know that older adults and people with disabilities in the Atlanta region are in need of better transportation options. The Complete Trip project leverages the latest in transportation technology, such as connected vehicles, smart traffic lights, and trip navigation tools, to provide a much improved travel experience that increases independence and autonomy."*
> *- Mike Alexander, Chief Operating Officer of the Atlanta Regional Commission*

The proposed deployment pilot project will be led by GDOT with support from Atlanta Regional Commission in Gwinnett County, GA, which is a suburban county located directly Northeast of Atlanta. The ST-CTN system will be founded on five programs currently underway with regional commitments (i.e., ATL Rides - Atlanta-Region Rider Information and Data Evaluation System, SidewalkSim - asset management system, CV1K - The Regional Connected Vehicle Infrastructure Deployment Program, CVMP - Connected Vehicle Master Plan, and STM - Space Time Memory). These projects are pushing the Atlanta region to innovative mobility solutions. ST-CTN will merge these separate initiatives through data fusion and communication network integration. Successes from the infrastructure, tools, and capabilities of these programs will be leveraged to support trip planning and wayfinding for all travelers, particularly underserved groups.



ST-CTN Study Area in Gwinnett County

U.S. Department of Transportation

GDOT Safe Trips in a Connected Transportation Network

ITS4US Deployment Program – Phase 2

APPROACH – PROJECT CHALLENGES AND SOLUTIONS

The ST-CTN project aims to upgrade and integrate existing technologies and services to assist underserved populations with completing their trip successfully, safely, and reliably. The vision of the project is to provide travelers with directions, conditions, and status on the links between trip legs that are personalized based on their preferences and capabilities, while connecting them to CV infrastructure to provide safer trips and greater transportation network awareness. The ST-CTN project includes the following key elements that will address identified stakeholder challenges:

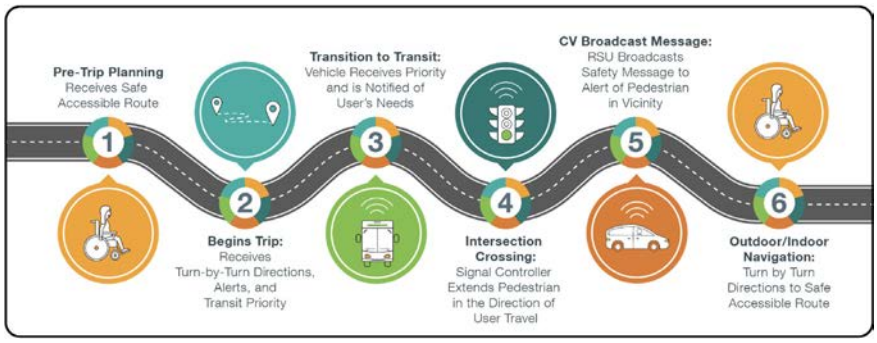
- **Accessible Route Planning:** Comprehensive data collected on sidewalk conditions and the ability to customize trip preferences based on specific needs (e.g., sidewalk width, sidewalk slope, available elevators) will give users reliable trips and greater confidence.
- **Navigation:** Personalized navigation settings for hands-free and accessible options including haptic, voice, and text. Turn-by-turn directions include building entrances and indoor navigation.
- **Safety:** Information flows between systems, which enables remote service requests to transit vehicles, information about intersection crossings and pedestrian crossing time extensions if needed, and alerts to CVs and users increasing traveler awareness.

ST-CTN Integrated Initiatives

MEASURING DEPLOYMENT IMPACT

Some of the key performance goals and targets include:

- **Enhance the traveler's multimodal complete trip experience:** Accessible ST-CTN system functions and features, enroute traveler support, and the ability for travelers to seamlessly transfer between modes while considering changes in routes due to unplanned events. Travel experience surveys, unique user logins, anonymized user date, and GCT complaints logs will be used to understand impact.
- **Enhance safety:** Reduction of transportation-related incidents, injuries, and near misses along pedestrian routes and at intersections, increased driver awareness of pedestrians, and pedestrian awareness of connected and emergency vehicles at intersections.
- **Improve reliability:** Implementation of enhanced transit signal priority (TSP) configurations resulting in reduced wait times at bus stops and timely traveler information and routing.
- **Improve mobility and accessibility:** Optimized transit schedules and travel times as part of TSP operations, traveler knowledge of accessible routes, automated actuation of walk phase requests, transit stop requests through travelers' mobile device or automated based on a traveler's planned route within the application, and identification of existing barriers for infrastructure enhancements.



A Traveler's Complete Trip Using Components of the ST-CTN Project

PROJECT PARTNERS

- Georgia Department of Transportation
- Atlanta Regional Commission
- Gwinnett County
- Statewide Independent Living Council of Georgia
- Georgia Institute of Technology
- ICF
- Kimley-Horn Associates
- GO Systems and Solutions
- Arcadis | IBI Group
- HNTB

Site Point of Contact

Bennett Foster
Atlanta Regional Commission
bfoster@atlantaregional.org

Social Media and Website Links

Facebook: **@GeorgiaDOT**
Twitter: **@GADeptofTrans**
georgia-map.com
https://www.dot.ga.gov/Pages/Default.aspx

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Photo source: U.S. DOT

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 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 limited English proficiency travelers.

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.

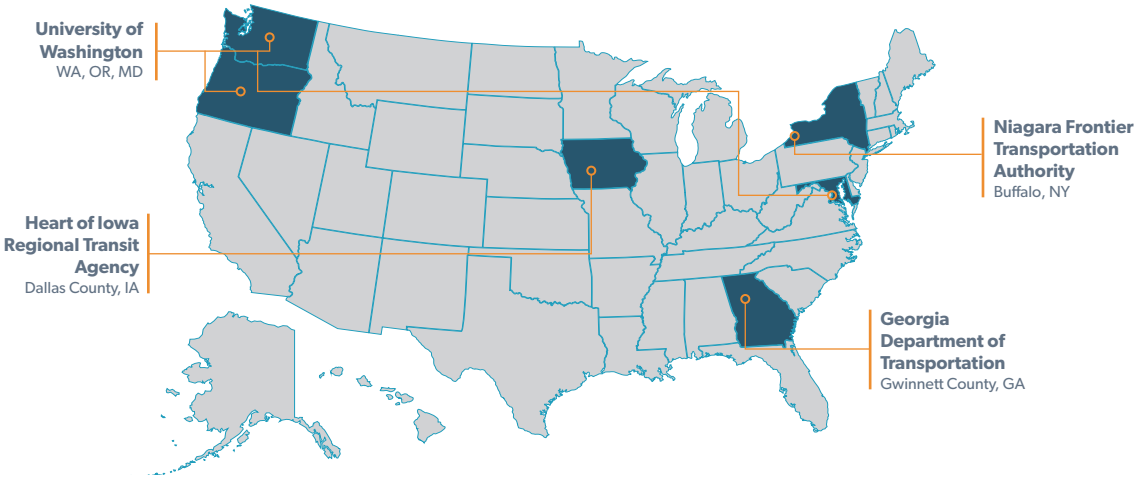
ITS4US Deployment sites that successfully completed Phase 1 were awarded Cooperative Agreements to conduct Phases 2 and 3 activities.

Current Phase

PHASE 1: Develop Deployment Concept	PHASE 2: Design & Test	PHASE 3: Operate & Evaluate	Operations & Maintenance
• Concept Development for Complete Trip Deployment • Establish Cohort Roundtables • Phase 2/3 Procurement Planning • Phase 2/3 Cooperative Agreement Awards	• Design, Test and Deploy Complete Trip Solutions • Evaluation Framework and Planning	• Demonstrate Multiple Large-Scale Deployments • Evaluate Deployments • Share Data and Lessons Learned	• Sustain operations for a minimum period of 5 years after the program is completed with no supplementary federal funds
	Deployment		Post-Deployment
Up to 18 months	Up to 24 months	Minimum of 18 months	5 years

ITS4US DEPLOYMENT PROGRAM PHASE 2 PROJECTS

Deployment Site	Project Description
Heart of Iowa Regional Transit Agency	**Health Connector for the Most Vulnerable: An Inclusive Mobility Experience from Beginning to End** (Health Connector) 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.
Georgia Department of Transportation	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 travelers 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, older adults, and those with limited English proficiency. The ST-CTN system includes a mobile application (G-MAP) 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 enhances user safety throughout the trip.
University of Washington	The **Transportation Data Equity Initiative**, 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.
Niagara Frontier Transportation Authority	The **Buffalo All Access project**, 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, an



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

Elina Zlotchenko, Program Manager
U.S. DOT ITS Joint Program Office
(202) 366-1697
Elina.Zlotchenko@dot.gov

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