

Phase 1 Participant Training and Stakeholder Education Plan

ARC ITS4US Deployment Project

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16. Abstract The Atlanta Regional Commission Complete Trip - ITS4US Deployment project, Safe Trips in a Connected Transportation Network (ST-CTN), is leveraging innovative solutions, existing deployments, and collaboration to make a positive impact using transportation technology to support safety, mobility, sustainability, and accessibility. The ST-CTN concept is comprised of an integrated set of advanced transportation technology solutions (connected vehicle, transit signal priority, machine learning, 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. This document serves as the Participant Training and Stakeholder Education Plan (PTSEP) for the deployment project. The PTSEP provides a foundational guide for developing and delivering training efforts to participants and caregivers of the system's deployment. The document consists of identifying participants, determining eligibility, defining the recruitment and selection process, developing a retention plan and discussion of training methodology and assessment. This plan places an emphasis on ST-CTN end users, infrastructure owner/operators, and system developers.					
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1 Introduction

The Safe Trips in a Connected Transportation Network (ST-CTN) project seeks to enhance the traveler's complete trip travel experience by enhancing mobility, accessibility, reliability, and safety for system users, particularly for underserved communities, including those with disabilities, aging adults, and users with limited English proficiency (LEP). This is done by leveraging innovative solutions, existing deployments and team collaboration.

The Participant Training and Stakeholder Education Plan (PTSEP) describes the method that will be implemented for training and educating stakeholders how to use the system. The PTSEP defines how the ST-CTN team will train and educate participants in preparation for Phase 3 and the subsequent operational phase. Participants are defined in several groups including Technical System Administrators and Researchers, Infrastructure Owner Operators (IOO), and End Users. An approach to training and education is then defined for each group.

The document also describes the training and education methods including virtual, on-demand, and in-person classrooms.

Objectives of the training include:

- Ensuring stakeholders are aware of their roles and responsibilities within the system
- Specifying the approach for maintaining and operating all physical infrastructure of the system
- Training end users on how to use the system based on their preferences

This plan does not cover the need for general education of the public and other external stakeholders about the ST-CTN Program. That information is contained in the Outreach Plan.

The PTSEP is a companion document to the program and project-level systems engineering documents, including the User Needs Identification Requirements and Planning (UNIRP), Concept of Operations (ConOps), Safety Management Plan (SMP), Performance Measurements and Evaluation Support Plan (PMESP), Human Use Approval Summary (HUAS), and Outreach Plan. The PTSEP will also serve as input into the development of the Integrated Complete Trip Deployment Plan (ICTDP). Any changes to the companion documents, specifically the SMP and the HUAS, must remain consistent with content in the PTSEP.

1.1 Document Purpose

The purpose of the PTSEP is to provide guidance and a foundation for developing and delivering training throughout Phase 2 and Phase 3 of the project. This high-level plan discusses training and education efforts for all travelers and personnel participating in deployment, with a focus on travelers in the user groups identified within the UNIRP and ConOps. This plan will discuss training and education for end users, IOOs, system developers and ongoing support staff and will

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include information about recruiting and retaining stakeholder participants in each of these groups.

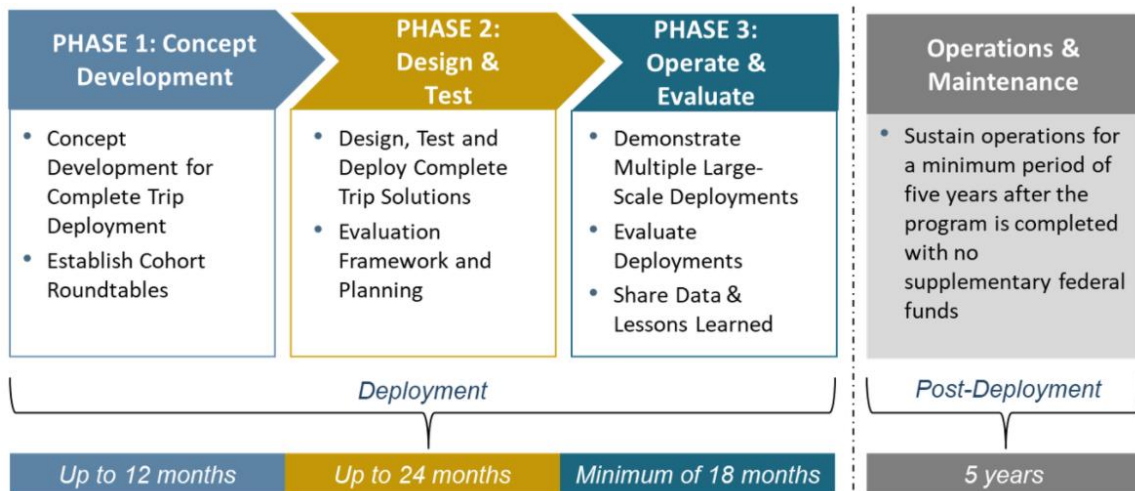
1.2 Project Overview

The Complete Trip - ITS4US Deployment Program is a multimodal effort – led by the Intelligent Transportation Systems (ITS) Joint Program Office (JPO) – and supported by the Office of the Secretary (OST), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) – 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 a variety of disabilities, older adults, low-income individuals, and LEP travelers. This program seeks to enable communities to build local partnerships, develop and deploy integrated and replicable mobility solutions to achieve complete trips for all travelers.

The Complete Trip – ITS4US Deployment Program will be executed in three phases. As depicted in **Figure 1**, deployment sites are expected to go through three phases:

- **Phase 1.** Concept Development
- **Phase 2.** Design and Testing
- **Phase 3.** Operations and Evaluation

Post deployment, sites are expected to sustain operations for a minimum period of five years without supplementary federal funds.



Source: USDOT, 2020

Figure 1. Phases of the Complete Trip – ITS4US Deployment Program

Atlanta Regional Commission (ARC) was selected by the U.S. Department of Transportation (USDOT) as one of the Phase 1 projects to showcase innovative business partnerships, technologies, and practices that promote independent mobility for all travelers regardless of

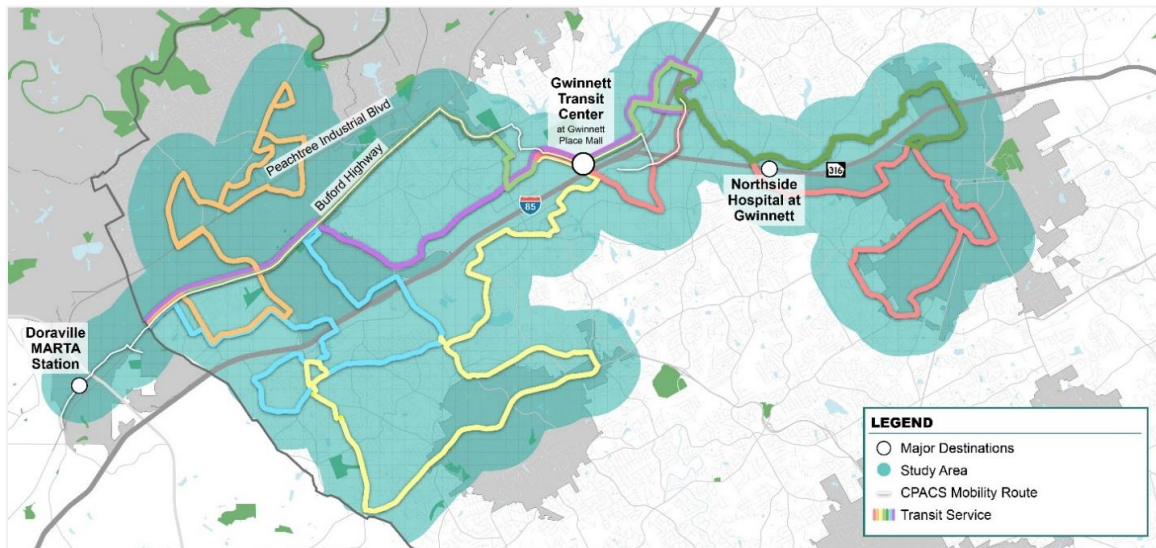
location, income, or disability. The project team intends to address multiple aspects of the Complete Trip by integrating multiple technological innovations. The ST-CTN system will integrate connected vehicle (CV) data with an open-sourced web-based and mobile application. The application will provide users with the ability to create a personalized trip plan with information regarding the navigation of physical infrastructure, the ability to resolve unexpected obstacles, and ensure users visibility throughout the trip. The proposed deployment will provide targeted users with the ability to dynamically plan and navigate trips. Underserved communities of interest include:

- **People with Disabilities.** People with disabilities experience a broad range of travel limitations and associated needs. For the purpose of the Complete Trip-ITS4US Deployment Program, four functional ability groups are discussed below as examples. Each of these groups has different transportation needs and barriers that may also vary significantly within the group. Some individuals have multiple disabilities. The four groups are mobility, vision, cognitive/developmental and hearing.
 - **Mobility.** Functional physical ability is a large category that covers any physical movement of the body and can include use of hands, arms, legs, feet, neck and back. This group includes wheelchair users and others.
 - **Vision.** There is a broad spectrum of functional visual ability, from needing reading glasses to total blindness. Vision impairments result from conditions that range from the presence of some usable vision, low vision, to the absence of any vision, total blindness. Some people with visual impairments have some vision sufficient to read large print, navigate around obstacles, or distinguish between light and shadow.
 - **Cognitive/developmental.** Cognition is the set of all mental abilities and processes related to knowledge, attention, memory, judgment and evaluation, reasoning, and computation, problem-solving and decision-making, comprehension, and production of language. Many things can affect a person's cognitive ability resulting in differing levels of functional need. People with cognitive/developmental disabilities may not be able to transfer skills learned from one situation to another.
 - **Hearing.** The Centers for Disease Control and Prevention (CDC) refer to hearing impairments as conditions that affect the frequency and/or intensity of one's hearing. According to the CDC, "deaf" individuals do not hear well enough to rely on their hearing to process speech and language. Individuals with mild to moderate hearing impairments may be "hard of hearing," but are not "deaf." These individuals differ from deaf individuals in that they use their hearing to assist in communication with others. Aids can assist with some types of hearing loss, though even these may not work well in crowded, noisy places. American sign language (ASL), lip-reading and the exchange of written notes are sometimes helpful in communication, but not everyone will display the same level of ability to use these techniques and sometimes the particular environment is not conducive to these communication efforts.
- **Older Adults.** Older adults form a substantial demographic of US residents. There are currently approximately 50 million US residents above the age of 65. As individuals age, many develop mobility, vision, hearing and cognitive disabilities making it difficult to travel on their own and may experience a growing need for reliable transportation services in order to maintain their independence and mobility. Approximately 35 percent of older adults have some type of disability, while two out of three have some form of chronic medical condition. Many older adults choose not to drive or are unable to drive.

Accordingly, they are often in particular need of flexible, reliable, and affordable transportation to access medical appointments, shopping, or other necessary services.

- **Limited English Proficiency (LEP) Communities.** A person with LEP refers to a person who is not fluent in the English language. Users who have LEP may have trouble understanding directions and alerts when delivered in their non-native language, may have different cultural norms that make it difficult to follow directions, or may have difficulty understanding wayfinding signs, such as landscape-based directions versus street name-based directions.
- **Low-Income Populations.** Low-income Americans, defined by the USDOT as persons whose household income is at or below the Department of Health and Human Services poverty guidelines, are a demographic that require reliable and affordable transportation. They are less likely to own private vehicles, thus increasing the importance of having access to public transportation. A person who has low income has a median household income that is at or below the Department of Health and Human Services poverty guidelines. Poverty guidelines designate \$26,500 as the threshold for a household of four in the state of Georgia in 2021.

The ST-CTN project will be implemented in Gwinnett County. The project area is home to a significant portion of the underserved communities that reside in Gwinnett County. Over 50% of people with disabilities, people with LEP, and zero vehicle household population in Gwinnett County is located within the project area. Approximately 50% of the low-income population and approximately 25% of the older adult population in Gwinnett County is located within the project area. It also faces many of the same challenges as much of Metro Atlanta, including suburban land-uses; wide, high-speed roadways; and inconsistent pedestrian infrastructure. This area also was chosen to leverage its implementation readiness and the planning work recently completed at the County level on CVs, as well as transit needs and expansion. A map of the project area can be found in **Figure 2**.

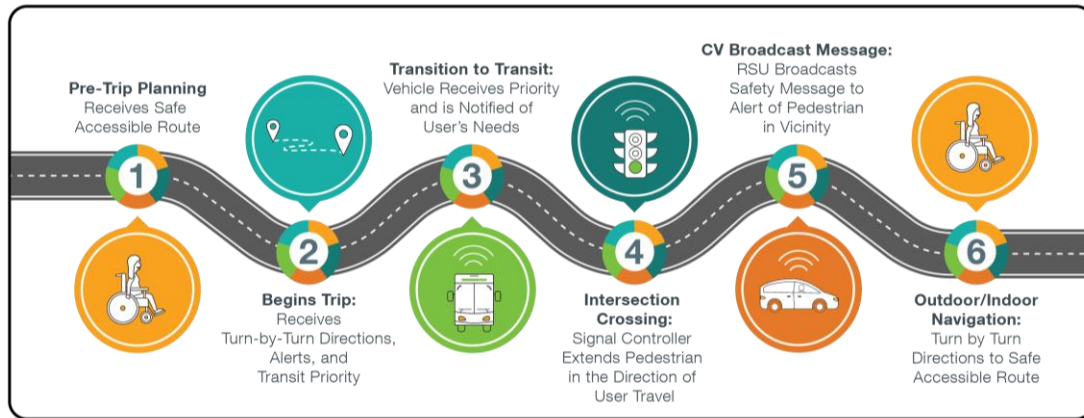


Source: ARC, 2020

Figure 2. ST-CTN Deployment Site Map

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 users complete trip functionality with directions, conditions, and status on the links between trip legs that are personalized based on the user's profile, while connecting the user to CV infrastructure to provide safer trips and more transportation network awareness. Transit based trips were delineated into 6 segments (as depicted in **Figure 3**) to allow for easier understanding and a greater breakdown of priorities and goals.



Source: ARC, 2020

Figure 3. Traveler's Complete Trip

The delineated trip segments include the following steps and project components:

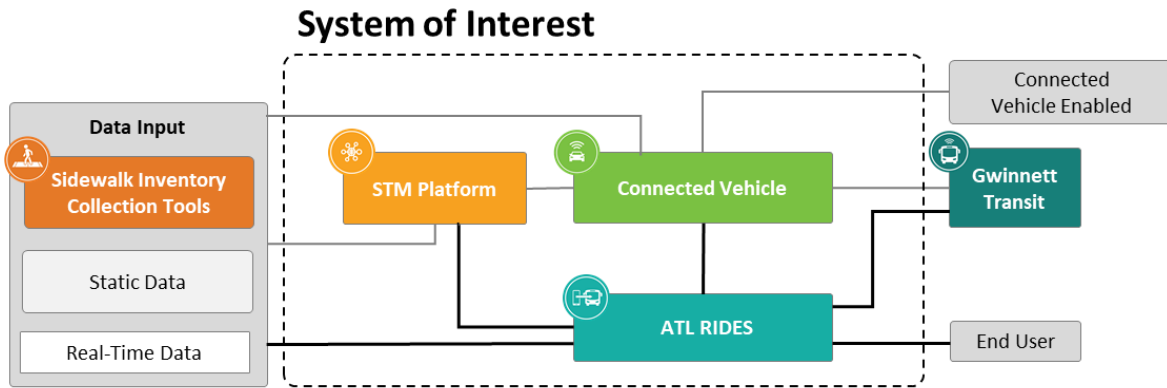
- **Step 1 Pre-Trip Planning.** The traveler plans for and receives a safe accessible route.
 - The ability to customize trip preferences based on the user's abilities.
- **Step 2 Begins Trip.** The traveler begins their trip and receives turn-by-turn directions, alerts, remote pedestrian activation, and can trigger transit signal priority (TSP) if the user is unable to stand for long periods or is sensitive to weather conditions.
 - Turn-by-turn, shortest path, directions along pathways that meet user defined preferences.
 - Provides support services for users if they become disoriented or have issues accessing defined paths.
 - Activates TSP for buses if the user requires additional time boarding or alighting a transit vehicle, is unable to stand for long periods, or is sensitive to weather conditions.
- **Step 3 Transition to Transit.** The traveler transitions to transit and the transit vehicle receives priority and is notified of users' needs. TSP can be triggered if the bus is running behind schedule.
 - Provides users with transit trips that have accommodations that meet user defined preferences.
 - Sends alerts to transit vehicles when users need additional time to board, navigate internally, or alight the transit vehicle.
 - Remotely requests service from transit vehicles while waiting to board or alight.

- Triggers TSP if the bus is running behind schedule.
- **Step 4 Intersection Crossing.** When crossing a signalized intersection, the traveler interacts with the signal controller which extends the pedestrian phase in the direction of user travel.
 - Allows the user to communicate with connected intersections if they are unable to reach or press the crosswalk button.
 - Provides the user with information about the intersection crossing and adds time to the crossing if needed.
- **Step 5 CV Broadcast Message.** Roadside units (RSUs) broadcast safety message to alert CVs of pedestrians/bicyclists in the vicinity.
 - Provides the ability for users to remotely request service from transit vehicles while waiting to board or alight.
 - Provides communications between CVs and users to make them aware of each other when crossing a roadway or waiting at a transit stop.
- **Step 6 Outdoor/Indoor Navigation.** The traveler is provided with turn-by-turn directions to a safe accessible route.
 - Hands-free navigation via mobile apps and/or wearables and accessible channels (haptic, voice, text).
 - Alerts and dynamic rerouting in response to changes in path conditions.
 - Provides the user with accessible routes into and through transit hubs within the project area.
 - Provides users with updates on the operating status of indoor infrastructure such as elevators and escalators.

Additionally, user reporting will be available through the application to allow users to provide feedback on infrastructure that is currently out of service (bus ramps/lifts, elevators, escalators, etc.) or not accessible due to temporary or permanent obstructions (sidewalks, shared use-paths, etc.). This feature will help users avoid becoming delayed or inconvenienced because of unforeseen outages. Transit providers, city, county, and/or construction crews currently flag outages into the system. New features being proposed as part of the project will allow users to flag infrastructure that has not already been flagged by public agency staff. System development and system integrations completed within the scope of this pilot will enable travelers – specifically those in the underserved community – to program and safely complete single mode or multimodal trips that are based on their abilities; improve the transition between modes by providing additional details to users and transit service operators; suggest dynamic routing changes based on infrastructure condition and calculated delay; and use crowdsourced data collection to update infrastructure conditions.

The ST-CTN project will use open-source software (OSS) tools allowing for the results to be replicable across the region and sidewalk inventory innovations will reduce the costs of managing pedestrian assets in any community.

The conceptual diagram presented in **Figure 4** illustrates the concept, including the software, hardware, communications, and services planned for ST-CTN as shown.

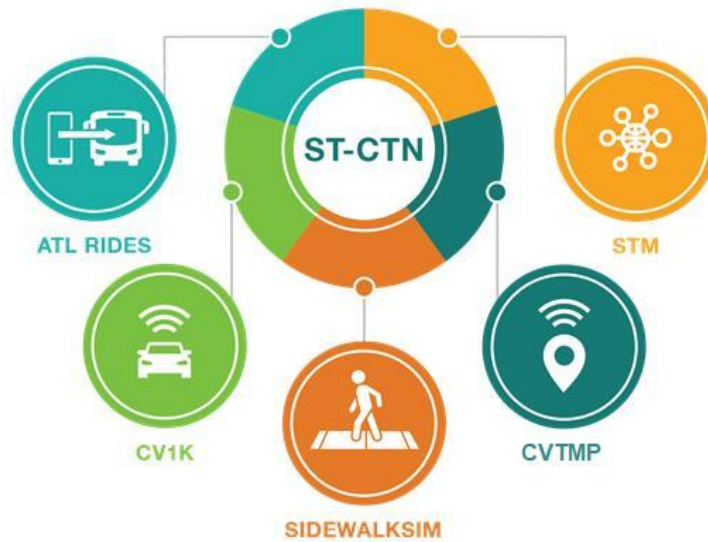


Source: ARC, 2021

Figure 4. ST-CTN High-Level Context Diagram

The scope of the project is limited to development of interfaces between existing programs that expand the capabilities of these programs. The existing initiatives that are being leveraged to support the proposed ST-CTN system are shown in **Figure 5** and defined in more detail below.

These icons and colors will be used throughout the training materials to clearly identify the critical components of ST-CTN.



Source: ARC, 2020

Figure 5. ST-CTN Integrated Initiatives



ATL RIDES. Atlanta Rider Information and Data Evaluation System (ATL RIDES) includes an OSS multi-modal trip planning and mobile application, integrated mobile fare payment options, and a Connected Data Platform (CDP) using regional General Transit Feed Specification (GTFS). The tool supports multi-agency context, multilingual support, and live-tracking capabilities using

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GTFS feeds. The Open Trip Planner (OTP) architecture facilitates integration with additional OSS tools including a data analytics engine, call center with integrated voice response (IVR), and account management system.



SIDEWALKSIM. SidewalkSim is an asset management system and shortest path (lowest impedance) routing tool for pedestrian pathways. Site inspections provide more detailed Americans with Disabilities Act (ADA) and inclusive design and condition data for use in pathway accessibility analysis. SidewalkSim identifies the best path between any two points in the pedestrian network, given the set of pathway characteristics and any user-specified needs and route impedances.



CV1K. The Atlanta region is home to one of the largest CV deployments in the United States – Regional Connected Vehicle Infrastructure Deployment Program (CV1K). CV1K is deploying interoperable CV technologies at signalized intersections throughout the Atlanta region using both Dedicated Short-Range Communications (DSRC) and Cellular Vehicle to Everything (C-V2X) technologies to deliver safety and mobility-based applications. The program provides support to configure, operate, and maintain CV infrastructure and applications, including TSP. Gwinnett County will be one of the largest recipients of the first phase of this deployment.



CVTMP. Gwinnett County's Connected Vehicle Technology Master Plan (CVTMP) sets out to develop and improve economic viability and quality of life, address the needs and challenges to motorized and non-motorized modes, establish guidelines for deploying technology, and have broad applicability to Gwinnett, other local jurisdictions, and across the state—to set the standard for implementing CVs. Among the high priorities is establishing a mobile accessible safety program and alternative strategies for TSP in Gwinnett County.



STM. The Space Time Memory (STM) platform processes traffic volume and speed data from multiple monitoring and modeling sources, tracks network performance measures, and predicts evolving route conditions using traditional and machine learning techniques. The STM projects trip trajectories through the transportation network, as network conditions change in space and time. This tool will be applied to analyze and predict performance through the multi-modal transportation network. The shortest path analysis will be applied to the combined roadway, transit, sidewalk, and shared-use path networks, allowing routing decisions to incorporate travel time, safety, and other costs into path selection.

In some cases, partner agencies are upgrading the services within their current systems to create a more robust data set or toolset for the ST-CTN program.

1.3 References

This section includes a list of documents referenced during the plan, including URLs and USDOT Publication Numbers, where possible.

Table 1. References

ID	Referenced Documents
[CVTMP]	AECOM. "Gwinnett County Connected Vehicle Technology Master Plan (CVTMP)." Duluth: Gwinnett County Department of Transportation. (2019). https://smarcities.ipat.gatech.edu/sites/default/files/Gwinnett-Co_CV_Technology_Master_Plan_Final_Oct-2019.pdf
[UNIRP]	Atlanta Regional Commission. Deliverable Task 1B User Needs Identification and Requirements Planning (FHWA-JPO-21-852). Atlanta: U.S. Department of Transportation. (2021). https://rosap.ntl.bts.gov/view/dot/57010
[ConOps]	Atlanta Regional Commission. Deliverable Task 2 Concept of Operations (FHWA-JPO-21-857). Atlanta: U.S Department of Transportation. (2021).
[SMP]	Atlanta Regional Commission. Deliverable Task 4 Safety Management Plan (FHWA-JPO-21-870). Atlanta: U.S Department of Transportation. (2021).
[PMESP]	Atlanta Regional Commission. Deliverable Task 5 Performance Measurement and Evaluation Support Plan (FHWA-JPO-21-875). Atlanta: U.S Department of Transportation. (2021).
[SyRS]	Atlanta Regional Commission. Deliverable Task 6 System Requirements Specifications (FHWA-JPO-21-880). Atlanta: U.S Department of Transportation. (2021).
[HUAS]	Atlanta Regional Commission. Deliverable Task 8 Human Use Approval Summary (FHWA-JPO-21-895). Atlanta: U.S Department of Transportation. (2021).
[GTFS]	GTFS. General Transit Feed Specification Reference. Washington D.C.: GTFS. (2019). https://gtfs.org/reference/realtime/v2/
[CI]	ICF, Wyoming Department of Transportation. Connected Intersection - Concept of Operations. Cheyenne: USDOT (2018). https://rosap.ntl.bts.gov/view/dot/41917
[IRBd]	Office of Research Integrity Assurance. IRB Required Training. Atlanta: Georgia Institute of Technology. (2021).

ID	Referenced Documents
[CAV]	Park, Hyungjun; Khattak, Zulqarnain; Smith, Brian. Glossary of Connected and Automated Vehicle Terms <i>Version 1.0</i> . Charlottesville.: University of Virginia Center for Transportation Studies. (2018). http://www.ctb.virginia.gov/resources/2018/oct/tech/glossary-of-cav-terms-ver1.0-03052018-1.pdf
[ADA]	United States Department of Justice, Civil Rights Division. (2009). Americans with Disabilities Act of 1990. Washington D.C.: United States Government.
[BAA]	U.S. Department of Transportation, Federal Highway Administration. (2020). ITS4US Broad Agency Announcement. Washington D.C.: U.S. Department of Transportation.

1.4 Organization of the Report

The PTSEP includes the following sections, which will guide all training efforts for the remainder of the project deployment and testing.

- **Section 2** (Identification of Participants and Necessary Training) addresses the defined groups of project participants and trainers. The roles and responsibilities of each group are defined.
- **Section 3** (Participant Eligibility, Recruitment, Selection, and Retention) describes the conditions that must be met for a participant to be part of the deployment. It also describes the recruitment process of participants and challenges that may prevent retention of participants.
- **Section 4** (Training Plan) explains the objective, topics, content, format and materials used during group trainings. Training venues and materials are identified, and high-level training courses are presented.
- **Section 5** (Training Summary and Schedule) presents the anticipated training schedule for Phase 2 and Phase 3 of the project.

2 Identification of Participants and Necessary Training

Participants of the ST-CTN project deployment will be organized into three groups based on necessary training and the general nature in which they interact with the system. The three groups are technical system administrators and researchers, IOOs, and end users. Subgroups were created within each participant group to reflect specific needs of participants. The roles and responsibilities of each subgroup are discussed below in **Table 2**.

The ST-CTN project team will develop training materials and conduct training for the technical system administrators and researchers as well as the IOOs. The ST-CTN project team will develop training materials and conduct training for end user trainers who will then be responsible for training end users (i.e. train the trainers). The ST-CTN project team will develop and provide end user training materials for end user trainers to utilize during their training sessions which will accommodate each of the identified end user subgroups.

Table 2. Participant Group Role and Responsibilities

Group/ Subgroup	Name	Role	Responsibilities
1	Technical System Administrators and Researchers		
1A	ST-CTN Operations and Maintenance Staff	System administrators of the ST-CTN system and subsystems.	Operate and maintain the systems including data provisioning, security and privacy monitoring, preventive and corrective maintenance, system enhancements as necessary.
1B	Information Technology Staff	Owner / operator of the current Gwinnett County, GDOT, and ATL Information Technology Departments.	Manages and operates the communications, security, data management and all server systems for their respective organizations.
1C	Researchers	Use data to understand system effectiveness and traveler behavior.	Review, use, analyze, and evaluate raw and processed data from the system. Understand privacy and security policies.

2. Identification of Participants and Necessary Training

Group/ Subgroup	Name	Role	Responsibilities
2	Infrastructure Owner / Operator		
2A	Gwinnett County Transit (GCT) Staff	Owner / operator of the current GCT system including call center operators and transit vehicle operators.	Operate fixed route transit services; monitor and maintain transit schedules; facilitate planning and operations of transit service; and operate and maintain their bus fleet. In addition, GCT staff generate and distribute transit data such as GTFS and GTFS-RT.
2B	Gwinnett County Traffic and Operations Staff	Owner / operator of the current Gwinnett County transportation system, including Gwinnett County TCC, traffic signals, and CV infrastructure.	Manages and operates infrastructure to support efficient traffic operations, including TCC; traffic signal system (Maxtime and Maxview); field traffic signal equipment; CV infrastructure – RSUs; and the GDOT NaviGator server located at Gwinnett County.
2C	The ATL Staff	Owner / operator of the current ATL RIDES application.	Manages and operates ATL RIDES application and supporting infrastructure.
2D	GDOT Staff	Owner / operator of the GDOT TMC, statewide ATMS (NaviGator), existing CV infrastructure.	Collaborates with Gwinnett County to manage and operate infrastructure to support efficient traffic operations including, traffic signal system (Maxtime and Maxview); field traffic signal equipment; CV infrastructure – RSUs; GDOT NaviGator server located at GDOT TMC; and ITS Hub.
2E	ARC Staff	Leads regional owner / operator collaboration to enhance the efficiency and optimization of the regional transportation network.	Responsible for encouraging and coordinating regional expansion of the ST-CTN concept and potentially owning and operating subsystem component infrastructure.
3	End Users		

Group/ Subgroup	Name	Role	Responsibilities
3A	End User Trainers	End user trainers of the ST-CTN system.	Recruits and trains end users how to interact with the system through the provided user interface (UI); provides feedback and input to enhance the functionality and accuracy of the system.
3B	End Users with Physical Disability	End user of the system.	Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.
3C	End Users with Cognitive Disability	End user of the system.	Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.
3D	Older Adults	End user of the system.	Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.
3E	End Users with Limited English Proficiency	End user of the system.	Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.
3F	End Users with Low Income	End user of the system.	Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.1 Participant Group 1 – Technical System Administrators and Researchers

The technical system administrators and researchers are responsible for the operational performance of the ST-CTN system. System administrators will be performing the standard operations and maintenance as well as any system upgrades. Researchers will be focused on

evaluating the performance of the system and may have interest in analyzing data that will be output by the system. Training for this participant group will focus on ST-CTN system administration, operations, and performance.

2.1.1 Subgroup 1A – ST-CTN Operations and Maintenance Staff

ST-CTN operations and maintenance staff will have regular interaction with the ST-CTN system and subsystem. They will need to understand not only how their subsystem works, but also how it interacts with other systems and supports the functionality of the ST-CTN system. ST-CTN operations and maintenance staff will include partners from the Atlanta Transit Link Authority (ATL), ARC, Georgia Department of Transportation (GDOT), Gwinnett County Department of Transportation (GCDOT), Gwinnett County Transit (GCT), and Georgia Institute of Technology (GA Tech). It is expected that these individuals will be focused on the technical administration and operations of the ST-CTN system. Trainings will be technical in nature and will require an understanding of existing subsystems.

Role: System administrators of the ST-CTN system and subsystems.

Responsibilities: Operate and maintain the systems including data provisioning, security and privacy monitoring, preventive and corrective maintenance, system enhancements as necessary.

2.1.2 Subgroup 1B – Information Technology Staff

The Information Technology Staff participant group includes administrative staff, engineering staff, IT support staff, and programmers who work with the various Information Technology organizations that support the ST-CTN system. It is expected that GCT, GCDOT, GDOT, ATL, and ARC Information Technology Departments will interact with the ST-CTN system at varying levels and will need to understand the network architecture, security, and data management structure of the system.

Role: Owner / operator of the current Gwinnett County, GDOT, and ATL Information Technology Departments.

Responsibility: Manages and operates the communications, security, data management and all server systems for their respective organizations.

2.1.3 Subgroup 1C – Researchers

GA Tech will be primarily responsible for the development of the performance management dashboard. It is expected that researchers from GA Tech and potentially other researchers throughout the industry will interact with the ST-CTN system to evaluate its performance. In addition, researchers may also be interested in the data output from the system to analyze traveler or system component behavior. The ST-CTN project team will work with researchers to support the access and receipt of various datasets that are required to support evaluation and research efforts.

Role: Use data to understand system effectiveness and traveler behavior.

Responsibilities: Review, use, analyze, and evaluate raw and processed data from the system. Understand privacy and security policies.

2.2 Participant Group 2 – Infrastructure Owner Operators

These participants represent infrastructure owners and operators of the ST-CTN system. This includes public or private agencies that will set policy regarding the deployment and maintenance of the deployed infrastructure and services such as transit, communications, CV, signal, and information technology. Training for this participant group will be conducted by ST-CTN project team members and will focus on the operations of the system and public awareness of the overall program.

Since many customers in the County will likely have disabilities, personnel associated with this deployment must, per the USDOT ADA regulations at 49 CFR 37.173, be “trained to proficiency, as appropriate to their duties, so that they operate vehicles and equipment safely and properly assist and treat individuals with disabilities who use the service in a respectful and courteous way, with appropriate attention to the difference among individuals with disabilities.”

2.2.1 Subgroup 2A – Gwinnett County Transit Staff

The GCT staff participant group includes the administrative staff, maintenance staff, operations staff, and vehicle drivers that work within the GCT organization.

Role: Owner / operator of the current GCT system including call center operators and transit vehicle operators.

Responsibility: Gwinnett County transit staff operate fixed route transit services; monitor and maintain transit schedules; facilitate planning and operations of transit service; and operate and maintain their bus fleet, including CV infrastructure – on-board units (OBUs). In addition, GCT staff generate and distribute transit data such as GTFS and GTFS-RT.

2.2.2 Subgroup 2B – Gwinnett County Traffic and Operations Staff

The Gwinnett County Traffic and Operations participant group includes administrative staff, engineering staff, Traffic Control Center (TCC) operators, and technicians who work within the GCDOT organization.

Role: Owner / operator of the current Gwinnett County transportation system, including Gwinnett County TCC, traffic signals, and CV infrastructure.

Responsibility: Manages and operates infrastructure to support efficient traffic operations, including TCC; traffic signal system (Maxtime and Maxview); field traffic signal equipment; CV infrastructure – RSUs; and the GDOT NaviGator server located at Gwinnett County.

2.2.3 Subgroup 2C – The ATL Staff

The ATL participant group includes administrative staff, engineering staff, operators, and support personnel who work with the ATL organization.

Role: Owner / operator of the current ATL RIDES application.

Responsibility: Manages and operates ATL RIDES application and supporting infrastructure.

2.2.4 Subgroup 2D – Georgia Department of Transportation Staff

The GDOT participant group includes administrative staff, engineering staff, Traffic Management Center (TMC) operators, and technicians who work with the GDOT organization.

Role: Owner / operator of the GDOT TMC, statewide ATMS (NaviGator), existing CV infrastructure.

Responsibility: Collaborates with Gwinnett County to manage and operate infrastructure to support efficient traffic operations including, traffic signal system (Maxtime and Maxview); field traffic signal equipment; CV infrastructure – RSUs; GDOT NaviGator server located at GDOT TMC; and ITS Hub.

2.2.5 Subgroup 2E – ARC Staff

The ARC participant group includes administrative staff, engineering staff, operators, and support personnel who work with the ARC organization.

Role: Leads regional owner / operator collaboration to enhance the efficiency and optimization of the regional transportation network.

Responsibility: Responsible for encouraging and coordinating regional expansion of the ST-CTN concept and potentially owning and operating subsystem component infrastructure.

2.3 Participant Group 3 – End Users

These participants directly interact or support those who directly interact with the front end of the system. This user classification includes all individuals who choose to use the system for travel. Individuals that represent the underserved populations that are the primary focus of the ST-CTN project are outlined below to highlight their distinctive needs. Training is conducted for this group to provide end users with an understanding of how to use the ST-CTN system to enhance their complete trip travel experience. It is expected that some end users may fall into more than one subgroup depending on what their needs of the system may be. In this case, training materials and methods will be modified to accommodate their needs.

2.3.1 Subgroup 3A – End User Trainers

The ST-CTN project team will leverage existing training opportunities conducted by partner agencies and advocacy organizations to recruit and train end users. Stakeholder partner agencies and advocacy organizations (described further in the Outreach Plan) that have provided interest in supporting these efforts include Tools for Life, disABILITY Link, Georgia Vocational Rehab, and Department of Health. End user trainers will require in-depth training so that they may integrate the ST-CTN end user training module within their existing course offerings. It will be critical that the end user trainers feel comfortable with the material so that they are able to answer questions and provide end users with the information they need to effectively use the system.

Role: End user trainers of the ST-CTN system.

Responsibility: Recruits and trains end users on how to interact with the system through the provided user interface (UI); provides feedback and input to enhance the functionality and accuracy of the system.

2.3.2 Subgroup 3B – End Users with Mobility, Vision, and/or Hearing Disability

End users with a mobility disability may be unable to, or have trouble, performing specific tasks (i.e., boarding a bus, navigating a sidewalk, or accessing a bus stop) without the use of a device such as a wheelchair, crutches, or scooter. End users with a vision disability may include people who are blind or have low-vision. These end users may be unable, or have trouble, navigating a pedestrian path with obstructions, locating, or boarding a bus without the use of a device such as a white cane or navigation support. End users with a hearing disability may be deaf or hard of hearing. These end users may be unable, or have trouble, hearing audible alerts or signal indications without the use of a hearing aid.

Trainings will be developed specific to the needs of the end users within this subgroup. In some cases, end users with mobility, vision, and/or hearing disabilities may depend on a caregiver who will participate with them during training. Information about system functions and features that are available to assist caregivers will be included within these trainings.

Role: End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.3.3 Subgroup 3C – End Users with Cognitive/Developmental Disability

End users with cognitive disabilities may have trouble understanding specific instructions, word-based prompts or directions; may have trigger words or actions that disrupt them or may have trouble repeating tasks on a day-to-day basis. A cognitive disability is a condition that makes it more difficult for a person to interact or participate in the environment around them. Cognitive disabilities may affect a person's thinking, remembering, learning, communicating, mental health, sensory processing, or social interactions.

Trainings will be developed specific to the needs of the end users within this subgroup. In some cases, end users with cognitive/developmental disabilities may depend on a caregiver who will participate with them during training. Information about system functions and features that are available to assist caregivers will be included within these trainings.

Role: End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.3.4 Subgroup 3D – Older Adults

End users who are aging adults may have trouble performing specific tasks within a set time (i.e., crossing a road or boarding a transit vehicle), or standing for an extended period of time, or be more sensitive to the elements (e.g., waiting for transit in excessive heat). Older adults are people (typically 65 years of age or older) who often have physical or cognitive limitations that impact their ability to perform daily activities. They may also lack experience using certain technologies.

Trainings will be developed specific to the needs of the end users within this subgroup. In some cases, end users who are older adults may depend on a caregiver who will participate with them during training. Information about system functions and features that are available to assist caregivers will be included within these trainings.

Role: End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.3.5 Subgroup 3E – End Users with Limited English Proficiency

A person with LEP refers to a person who is not fluent in the English language. End users who have LEP may have trouble understanding directions and alerts when delivered in their non-native language, may have different culture norms that make it difficult to follow directions others would feel are standard, or may have difficulty understanding wayfinding signs. An example of this would be that some people prefer street name-based directions while others prefer landscape based directions.

Role: End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.3.6 Subgroup 3F – End Users with Low Income

A person who is considered to have low income has a median household income that is at or below the Department of Health and Human Services poverty guidelines. Poverty guidelines designate \$26,500 as the threshold for a household of four in the state of Georgia in 2021. End users who fall into the low-income category may be single or no-vehicle households, may have trouble accessing different forms of technology (i.e., cellphone or personal computer), may be on reduced payment or fixed payment transit plans, or may be unbanked (i.e., not have access to a bank account or credit card). **Role:** End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

2.3.7 Subgroup 3G – General End Users

End users of the ST-CTN system may not be part of an underserved community or subgroup defined above. These are general end users who are interested in leveraging the ST-CTN system to enhance their complete trip travel experience but may not find a number of specific features and functions relevant to their needs.

Role: End user of the system.

Responsibility: Interact with the system through the provided UI; provides preferences and abilities; provides feedback and input to enhance the functionality and accuracy of the system.

3 Participant Eligibility, Recruitment, Selection, and Retention

This section provides an overview of the participant eligibility, recruitment, selection, and retention processes that the ST-CTN project team will implement for the technical system administrators and researchers, IOOs, and end user participants.

3.1 Eligibility, Recruitment, and Selection

This section defines the eligibility of each identified group for both participation in trainings and within the study as users of the system. It also outlines the recruitment and selection process for Groups 1, 2, and 3.

3.1.1 Group 1 – Technical System Administrators and Researchers

Technical system administrators and researchers are critical to the on-going management and operations of the system. Eligibility, recruitment, and selection of end user participants is described below.

Eligibility

All technical system administrators and researchers working with the system will be eligible and required to participate in the trainings as designated in **Section 4.3** prior to being given access to the system. Any staff or researchers who are not working on the system directly but have an interest in learning more about the system will be eligible to participate in trainings if there are available spots on an ad hoc basis.

Recruitment and Selection

The recruitment and selection process for technical system administrators and researchers will be through the individual's employment. Those persons responsible for system administration or research will be required to participate in trainings and administer the system. It is estimated that approximately two system administrators will be trained per subsystem and that an additional four administrators who have an interest in the system will be trained – approximately ten total system administrators. It is estimated that approximately four researchers will be trained within this group. Group 1 is expected to include approximately fourteen (14) total participants.

3.1.2 Group 2 – Infrastructure Owner Operators

Infrastructure owners and operators are critical to the on-going management and operations of the system. Eligibility, recruitment, and selection of end user participants is described below.

Eligibility

All IOOs working with the system will be required to participate in the trainings as designated in **Section 4.4** prior to being given access to the system. Staff who are only working on the system indirectly will be required to participate in Course 6: High-Level Overview for IOOs, as described in **Section 4.4.2**. Any staff not involved in the system will also be encouraged to participate in Course 6: High-Level Overview for IOOs as well.

Recruitment and Selection

The recruitment and selection process for IOOs will be through the individual's employment. Those persons responsible for management and day-to-day operations of the system will be required to participate in training on the ST-CTN system. It is estimated that approximately two IOO staff members will be trained per agency (GCT, GCDOT, the ATL, ARC, GDOT, and MARTA). Group 2 is expected to include approximately twelve (12) total participants.

3.1.3 Group 3 – End Users

Any individual who lives within or regularly travels within the study area will be encouraged to participate as an end user. Eligibility, recruitment, and selection of end user participants and Subgroup 3A End User Trainers are described below.

Eligibility

Subgroup 3A, End User Trainers, who are not working on the system directly but have an interest in learning more about the system will be eligible to participate in trainings if there are available spots on an ad hoc basis. All End Users, Subgroups B-G will be required to fulfill the eligibility requirements for participating in the study. Study participants could include caregivers who want to use the system to offer additional support to those they care for. Study participants will also be eligible for any participation incentives. All end users will be given access to, and encouraged to participate in, the end user trainings as outlined in **Section 4.5**.

Eligibility for study participants in subgroups 3B through 3G (including caregivers) will require the ability for the participant to provide legal consent and for the individual to have taken the end user trainings as outlined in **Section 4.5**. Study participants will also need to have the ability to input their needs and create a profile. This could be done with the assistance of someone else, but the individual must have the ability to understand what is being inputted. The trip planner will be accessible to all travelers, so Study Participants will be required to have the ability to use the trip planner throughout every stage of their trip once they are provided adequate training. Finally, study participants will be required to opt-in to the data-gathering app features. Access to mobile data connected devices will not be an eligibility requirement. However, data collected from non-data connected device users will be evaluated separately because real-time data will not be able to be collected.

Recruitment and Selection

Recruitment for study participants in subgroups 3B through 3G will primarily leverage already existing programs by working with organizations that serve the populations outlined in **Section 2.3**. For example, most of the advocacy groups that have been incorporated as stakeholders during Phase 1 provide resources to the community for learning about new services. Many of these organizations also offer travel training and independent living skills classes to their communities. These stakeholder organizations are outlined in **Section 4.1**. Their current outreach

activities and focus will provide a great opportunity for the trip planner to be introduced and demonstrated to the various communities that the ST-CTN project team is wanting to recruit as end users of the system.

Additional recruitment strategies are outlined in more detail in the Phase 1 Outreach Plan and include having information tables and presentations at local events, sharing user stories through various media platforms, and holding public meetings to describe the ST-CTN project. Additionally, advertisements may be posted inside transit vehicles or at transit stops. Individuals will be incentivized to join the study through potential transit pass discounts, gift cards, and any retention bonuses. Budget will be set aside for this purpose along with opportunities for local businesses to provide support as described in **Section 3.2**. Study participant selection will include any interested individuals who meet the eligibility requirements outlined in **Section 3.1.3**.

Recruitment materials will be developed in different formats to accommodate those with various disabilities and languages. The ST-CTN project team will coordinate with each partner organization to understand the needs of their expected participants. Examples of recruitment material formats may include, 508 compliant, video with closed captioning, large font, minimized text, translated content, etc.

The ST-CTN project team has a goal of recruiting approximately 1,000 end users (Group 3). Minimum targets for each end user subgroup are provided in **Table 3**. These are expected to be approximate and will be used to understand the scale of training materials and preparation that will be required. It is expected that these targets will be refined during Phase 2.

Table 3. Group 3 – End User Participant Targets

Subgroup	Participant Minimum Target
3A – End User Trainers	40
3B – End Users with Mobility, Vision, and/or Hearing Disability	100
3C – End Users with Cognitive/Developmental Disability	50
3D – Older Adults	100
3E – End Users with Limited English Proficiency	100
3F – End Users with Low Income	100
3G – General End Users	100

3.2 Retention

The primary goal of the project's retention efforts will be to gather as much data as possible to adequately measure and evaluate system performance through end user participation. As such, this section will only focus on study participants. It is expected that technical system administrators, researchers, and IOOs will continue their participation in the project as part of their employment. However, it will be important to retain the participation of these individuals to ensure that their unique perspectives are gained throughout the project. The ST-CTN project team intends to retain these participants by maintaining consistent engagement and creating a sense of ownership for the project. This will be done through consistent collaboration and coordination, requesting and acting on participant feedback, and communicating project milestones and challenges.

Understanding that system administrators, researchers, and IOOs will participate as directed by their employers, the EMT plans to work with project partners and IOOs to ensure resiliency within the system. This includes thorough communication of responsibilities and training multiple staff to perform the role. These efforts will help mitigate the risk of staff being unavailable to serve in their project role should there be staff turnover or a shift in responsibilities.

Performance metrics for this study rely heavily on survey responses from study participants and their changes in attitude and behavior over time. It will be crucial to ensure that they continue to both use the system and answer surveys throughout the study. One method to incentivize continued use of the system and survey completion at the same time is through monetary incentives.

The Phase 1 Performance Measurement and Evaluation Support Plan details the survey strategy for the study. Surveys will include short, trip-based surveys given through the application at trip completion at random intervals.

It is anticipated that sustained participation across the ST-CTN deployment may be challenging due to the sporadic nature of survey opportunities, as well as the total duration of participation. To ensure a consistent pool of study participants are active and engaged throughout the life of the ST-CTN deployment, the ST-CTN project team has developed a list of strategies designed to ensure and promote retention. These strategies include:

- Ensuring training sessions are accessible to all participants.
 - Create training materials that are accessible to all participants. Training materials will be available in several formats depending on the needs of participants, including 508 compliant, audible and visual, large font versions, braille, variety of language translations, minimized text, etc.
 - Ensure that in-person trainings are held at ADA compliant facilities.
- Ensuring training sessions are engaging and interactive to help keep participants interested in the project.
 - Being respectful of participants' time by asking only for information we need from them for project success as well as tailoring training sessions and other related content so it provides necessary details without being cumbersome or too time consuming.

- Creating the participant surveys in a manner that helps to game-ify participation—such as earning more points for completing more components or actions—to encourage consistent participation and make it fun, while also being sure to connect their participation as meaningful and critical to the ST-CTN project.
 - Designing participation campaigns or mini-challenges to drive consistent engagement and foster a sense of comradery and encouragement amongst participants.
- Providing project updates to participants outside of active participation windows to keep participants engaged in the ST-CTN project, informed about project development, and aware of the importance of their participation and how it ties into overall ST-CTN project development.
- Generating results summaries after major participant engagement efforts, especially campaigns and mini-challenges, to share with participants to provide transparency throughout the process and connect their participation to the ST-CTN project.
- Leveraging study dollars to provide monetary incentives for participants to compensate them for their time and to encourage further participation.
 - Dedicating project budget for monetary incentives, such as gift cards to local businesses.
 - Working with local businesses and sponsors to further ST-CTN incentivization budget resources.
 - **Note:** monetary incentives will be reserved for long-form surveys as well as overall ST-CTN deployment participation (determined through participants earning/acruing points across the full participation cycle).

4 Training Plan

The purpose of the training plan is to define a comprehensive training program that meets the training requirements of the ST-CTN project and its function while in operation. This program defines each training course, high-level course content, training aide, training approach, and evaluation methodology.

A comprehensive training plan establishes a program that meets the learning objectives of multiple, interdisciplinary, and targeted audiences. The training plan includes the following information:

- Target training populations (as described in **Section 2**),
- Training coordinators and trainers (**Section 4.1**),
- Types of resources to implement training (**Section 4.2**), and
- Specific training topics, learning objectives, and logistics needed to implement each course by stakeholder group (**Sections 4.3 through Section 4.5**).

4.1 Training Coordinators

Training will be conducted by ST-CTN project team members and various training coordinators of existing county agency trainings and local advocacy group travel trainings.

End user trainings will be offered using a train-the-trainer methodology. The team will work with organizations that specialize in travel trainings as described in **Section 4**. These organizations each have their own training methods and delivery platforms including classroom based, in the field, live online, and/or pre-recorded online. **Section 4.1** contains information about the existing training capabilities of ST-CTN project partners and the stakeholder organizations their existing training activities and which subgroups would be their focus audiences.

4.1.1 ST-CTN Project Team Training Coordinators

The following ST-CTN project team members will provide training to participant groups as summarized below.

Gwinnett County Transit

Gwinnett County Transit (GCT) currently provides training through various methods based on their intended audience. The ST-CTN system training will be integrated within existing training opportunities wherever possible. In addition, for those who may have already completed an existing training but are interested in participating in the ST-CTN system training, a detailed schedule of the existing training course will be shared such that the ST-CTN system training can occur at the end of the course allowing participation in that portion of the course only. There will also be training material provided online, independent of GCT trainings.

- **Existing Training Activities / Methods:** Travel trainings on how to use the transit system, vehicle operator training, call center staff training.
- **Target Participant Groups:** Group 1 (1A, 1B), Group 2 (2A), Group 3 (3A - 3G) – All transit riders in Gwinnett County.

IBI

IBI is the lead developer of the ATL RIDES subsystem and will provide training on the ATL RIDES subsystem and interfaces.

- **Existing Training Activities / Methods:** ATL RIDES system administration, operations, and use.
- **Target Participant Groups:** Group 1 (1A-1C), Group 2 (2A - 2E), Group 3 (3A)

Georgia Tech

GA Tech is the lead developer of the STM subsystem and Performance Measurement Dashboard (PMD). GA Tech will provide training on the STM subsystem and PMD.

- **Existing Training Activities / Methods:** Operations, maintenance, and use training.
- **Target Participant Groups:** Group 1 (1A-1C), Group 2 (2A - 2E), Group 3 (3A).

4.1.2 ST-CTN Stakeholder Training Coordinators

The following stakeholders have been contacted and are interested in supporting the ST-CTN project through integrating end user training modules within their existing training and/or services.

Tools for Life

Tools for Life (TFL), Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work, and play independently and with greater freedom in communities of their choice.

- **Existing Training Activities / Methods:** Training webinars on a variety of AT. Provides additional resources including presentation slides and handouts. All webinars are recorded and all materials are available in accessible formats on the TFL website.
- **Training Material Formats:** Virtual and in-person
- **Target Participant Groups:** Group 3 (3A, 3B, 3C, and 3F) – Persons with disabilities/ low-income

disABILITY LINK

disABILITY LINK is an organization led by and for people with disabilities and promotes choice and full participation in community life. disABILITY LINK's Mobility Management Program provides comprehensive, customized trip planning assistance and travel training for persons with disabilities. This service provides the opportunity for people to be in control of their own travel plans and promotes a more independent life.

- **Existing Training Activities / Methods:** Group training workshops and presentations on trip planning and travel-training options for the region's Voucher Travel Assistance Program (VTAP) community.
- **Training Material Formats:** Virtual and in-person

- **Target Participant Groups:** Group 3 (3A, 3B, and 3C) – Persons with disabilities/ low-income

Georgia Vocational Rehab

The Georgia Vocational Rehabilitation Agency operates five integrated and interdependent statutory programs that share a primary goal – to help people with disabilities to become fully productive members of society by achieving independence and meaningful employment.

- **Existing Training Activities / Methods:** Trainings on transitioning into the workplace.
- **Training Material Formats:** Virtual and in-person
- **Target Participant Groups:** Group 3 (3A, 3B, 3C, and 3F) – Persons with disabilities / low-income

Department of Health

The Georgia Department of Human Services (DHS) Division of Aging Services (DAS) supports the larger goals of DHS by assisting older individuals, at-risk adults, persons with disabilities, their families, and caregivers to achieve safe, healthy, independent, and self-reliant lives.

- **Existing Training Activities / Methods:** Prerecorded training videos and online resources.
- **Training Material Formats:** Virtual and in-person
- **Target Participant Groups:** Group 3 (3A, 3B, 3C and 3D) – Persons with disabilities / low income, older adults

Center for Pan Asian Community Services

The Center for Pan Asian Community Services (CPACS) is the first and largest Asian and Pacific Islander health and human service agency in the Southeast region. The CPACS mission is “to promote self-sufficiency and equity for immigrants, refugees, and the underprivileged through comprehensive health and social services, capacity building, and advocacy.” CPACS provides an on-demand transit service within Gwinnett County and provides regular travel trainings.

- **Existing Training Activities / Methods:** In-person travel trainings and online resources.
- **Training Material Formats:** In-person and virtual
- **Target Participant Groups:** Group 3 (3E) – Persons with LEP

4.1.3 Potential ST-CTN Stakeholder Training Partners

Other potential training partners that will be contacted during Phase 2 include the following organizations:

- Gwinnett County Schools
- Bobby Dodd Institute
- The Exceptional Foundation of Atlanta
- Spectrum Autism Support Group
- Southeastrans
- Georgia Council on Developmental Disabilities
- Bennett’s Place

- The Arc Georgia
- Creative Enterprises
- GA Department of Behavioral Health and Developmental Disabilities

4.2 Training Materials and Locations

Training may be conducted through different methods. The methods are distinguished by the venues and/or media in which they are offered and the types of materials that are generated to meet the learning objectives. In addition, a variety of methods and materials will be used to ensure that the learning objectives are met due to the fact that individuals learn differently.

The following section summarizes the training venues and instructor setup which is described by the types of locations, media and equipment setup needed by the instructor or training coordinator to conduct the training. The training materials section describes end user equipment needed by the student to learn as well as written documentation generated for the training participant and instructor.

4.2.1 Training Venues and Instructor Setup

Train-the-trainer courses will be developed for in-class, field, or on-line presentation.

In-class venues are presented in a temperature-controlled, accessible, and comfortable classroom with chairs and tables for each participant. The following equipment is required for in-class venues:

- Computer terminals for 1 to 2 participants with internet connections to the ST-CTN system
- Instructor lectern with microphone
- Instructor computer and projector
- Screen for projection
- Accessibility resources (e.g., alternate formats, signer, closed captions) as needed.

Field sessions will be offered to small groups in a designated geographic area to demonstrate specific features. Instructors will require equipment loaded with the software and connectivity needed to demonstrate use (e.g., mobile/smart phone, SidewalkSim tools, bus in a box, etc.). Accessibility resources (e.g., wheelchair accessible locations) will be available as needed.

On-line presentation will be offered as a virtual method to teach (and record) courses. Instructors will require webinar services. Other collaboration tools may be required such as polls / quiz tools, mobile simulation, or collaboration room. The on-line presentations will be by registration only. The recorded classes will be available for viewing or download via the ST-CTN project or a training coordinator website. Accessibility resources (e.g., alternate formats, signer, closed captions) will be available as needed.

Short Vlog (video log) sessions will be offered that record short, complex procedures for end user's instruction. The Vlog sessions require video logging tools such as high-quality cell phone or video recorder with microphone. The Vlog collection will be available for viewing via the ST-

CTN project website. Accessibility resources (e.g., alternate formats, signer, closed captions) will be available as needed.

On-line assessment will be offered to support a user's eligibility to provide specific, crowdsourced services such as collecting asset (sidewalk) condition information. These assessments will be available for all end users who create a profile. The method to distribute and assess users will be defined during Phase 2. Accessibility resources (e.g., alternate formats, signer) will be available as needed.

4.2.2 Training Materials

The following subsections provide a summary of the anticipated training materials that will be required to conduct ST-CTN system training.

4.2.2.1 Training Documentation

The following types of documentation will be developed for courses (as specified in each training course template):

- **Student Guide** – a presentation with student notes (MS Powerpoint and / or PDF formats); a supplemental document (PDF) will be included that includes resources, diagrams, acronym / glossary, and references.
- **Instructor Guide** – a supplement to the Student Guide with additional notes and additional background information, such as architecture, operations, policy impacts (e.g., personally identifiable information (PII)/Institutional Review Board (IRB)) and shortcuts.
- **System Administration Manual** – for operational software, a System Administration (SysAdm) manual will be developed. The manual will describe how to navigate the application including the purpose of each function, recommended setting for configuration parameters, how to generate reports, how to turn on / shut down software, error codes and troubleshooting. If applicable the SysAdm manual will identify how to handle PII.
- **User Manual**– for end users of traveler facing software, a user manual will be developed that includes how to navigate the application and implement common user functions.
- **User Videos** – for end users of traveler facing software, short videos that show how to operate the software will be developed that shows common and complicated user functions.
- **Assessment Tool** – specified for each course, a self or instructor driven assessment tool (assignment or quiz) that can be scored based on a rubric used to evaluate students' responses.
- **Evaluation Feedback Tool** – each course will include an evaluation feedback form that is provided to the participant to assess the value of the course content and instruction. The feedback tool will be commensurate with the length and complexity of the course. For example, the Vlogs may include a five-star assessment for content and instruction while the SysAdm classes may ask more detailed questions about the content, length, instruction method, instructor and how the course could be improved.

Training materials will be developed and provided electronically in MS Word and PDF version to training coordinators and will be 508 compliant. Alternate formats will be provided as a reasonable accommodation as needed. Language assistance will be available as needed for

travelers with LEP. Any materials helpful to the general public will be available to download on the project website.

4.2.2.2 Participant Equipment

Participant equipment will vary depending on the course needs including course venue. Trainer-led trainings will have all the required materials as described in **Section 4.2.1** including a computer with internet access. However, self-led on-line training will require that the participant use a computer or mobile device connected to the internet. Additionally, field training may require the participant use a mobile device that uses cellular data and supports Bluetooth. End users without access to a mobile device that uses cellular data will only be trained on the portion of the system they would be able to access without that equipment including the web app navigation and call center assistance. Equipment expectations will be clearly defined to ensure the participant is able to fully engage in the training.

4.3 Group 1 – Technical System Administrator and Researcher Training Courses

Group 1 training courses discuss the three subsystems, ethical responsibilities relating to privacy, and performance measurements management. Each course will be described below and will include information on the learning objectives, prerequisites, target audience, training organization, venue, materials, equipment, training method, assessment, duration, and maximum class size.

4.3.1 Course 1: Sidewalk Scout Data Collection

Sidewalk Scout™ is an Android app that allows researchers to record photos of individual sidewalk elements and report specific defects in sidewalk conditions or pedestrian amenities, including sidewalk obstruction, inadequate sidewalk width, improper slope and cross-slope, pavement discontinuities, broken walk signal heads, etc. The Sidewalk Scout™ app feeds data directly into the GA Tech sidewalk inventory system. **Table 4** discusses details of Course 1 – Sidewalk Scout Data Collection.

Table 4. Course 1 – Sidewalk Scout Data Collection Overview

Course Title	Sidewalk Scout Data Collection
Description	The course will train the technical research staff in using the asset data collection tool, Sidewalk Scout, for data quality checks and data processing.

Course Title	Sidewalk Scout Data Collection
Learning Objectives	<ol style="list-style-type: none"> 1. Understand about the features and attributes associated with Public Right Of Way (PROW) facilities and accessibility guidelines. 2. Understand challenges and anomalies that introduce challenges for accessibility and travel. 3. Learn the techniques and methods used to collect information using a mobile handset (smart phone). 4. Learn how to collect, verify, and quality check PROW data.
Prerequisites	Download Sidewalk Scout app
Target Audience	Data collection research staff
Training Organization	GA Tech staff
Venue	GA Tech and in the field
Materials	Not applicable
Equipment (setup)	Computer, GA Tech's data collection outfitted wheelchairs
Training method	In-person classes and field work
Assessment	Manager based QA/QC
Duration	2-4 hours
Max class size	10-15 people

4.3.2 Course 2: STM System Administration

Table 5 discusses details of Course 2 – STM System Administration.

Table 5. Course 2 – STM System Administration Overview

Course Title	Space Time Memory (STM) System Administration
Description	The course provides hands-on training on operating and maintaining the STM System Administration. An overview of the STM will be provided, information on preparing datasets, managing the STM modules, configuration parameters, operations, and maintenance. The course will focus on data management but will also present information on the physical infrastructure (e.g., cloud, database, web services, etc.)

Course Title	Space Time Memory (STM) System Administration
Learning Objectives	<ol style="list-style-type: none"> 1. Understand the STM functional architecture, modules, and interfaces. 2. Understand the STM system architecture (physical) including processing, presentation, and data storage systems. 3. Describe the curation methods used to generate the Whole Transportation Network. 4. Describe the methods used to generate differences in trip impedances and predictive measures for various underserved communities. 5. Learn to manage the application programming interfaces exchanged between the STM and ATL RIDES. 6. Learn to manage the APIs received from the CV subsystem and other external sources. 7. Learn how to configure and operate the data broker and fusion processes for integrating real time data for the PMD. 8. Understand the operations and monitoring tools associated with the STM (physical architecture).
Prerequisites	<p>Complex software knowledge</p> <p>IRB training (see Course #4)</p> <p>Access to training environment for STM</p> <p>Knowledge about GIS concepts</p> <p>Familiarity with provisioning resources in a cloud environment, preferably AWS</p> <p>Familiarity with Python</p>
Target Audience	STM System Administrators and Product Owners
Training Organization	Georgia Tech
Venue	Classroom with computers
Materials	<p>STM operations manual</p> <p>Instructor Guide</p> <p>Student slides and supplemental materials</p>
Equipment (setup)	Computer classroom with video recording capabilities
Training method	<p>Hands-on course</p> <p>Will be recorded and stored within the open-source code repository</p>

Course Title	Space Time Memory (STM) System Administration
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	6-8 hours
Max class size	4-8 maximum

4.3.3 Course 3: ATL RIDES System Administration

Table 6 discusses the details of Course 3 – ATL RIDES System Administration.

Table 6. Course 3 – ATL RIDES System Administration Overview

Course Title	ATL RIDES System Administration
Description	The ATL RIDES application includes a system administration tool to manage the configuration, operations, and system monitoring for the ATL RIDES routing engine, web application, and native mobile applications. This course will give an overview of the ATL RIDES system functionality, as well as the workflows to setup, configure and manage the ATL RIDES system.
Learning Objectives	<ol style="list-style-type: none"> 1. Understand the ATL RIDES functional architecture, modules, and interfaces. 2. Understand the ATL RIDES system architecture (physical) including processing, presentation, and data storage systems. 3. Describe the methods used to setup input data and system configuration needed to manage the ATL RIDES routing engine. 4. Learn to manage the application programming interfaces exchanged between ATL RIDES and other ST-CTN subsystems. 5. Understand the operations and monitoring tools associated with the ATL RIDES routing engine, web application, and native mobile apps. 6. Understand the ST-CTN system from an end user's perspective.
Prerequisites	Complex software knowledge Access to training environment for ATL RIDES
Target Audience	ATL RIDES System Administrators and Product Owners
Training Organization	The ATL

Course Title	ATL RIDES System Administration
Venue	Classroom with computers
Materials	ATL RIDES operations manual Instructor Guide Student slides and supplemental materials
Equipment (setup)	Computer classroom with video recording capabilities
Training method	Hands-on course Will be recorded and stored within the open-source code repository
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	6-8 hours
Max class size	4-8 maximum

4.3.4 Course 4: IRB Training for ST-CTN Research Data

Table 7 discusses the details of Course 4 – IRB Training for ST-CTN Research Data.

Table 7. Course 4 – IRB Training Overview

Course Title	IRB Training for ST-CTN Research Data
Description	The IRB training consists of two curricula administered by the Collaborative Institutional Training Initiative (CITI). The first is Responsible Conduct of Research – RCR Basic Course (CITI Curriculum ID 104819), which discusses the norms, principles, and regulations around research practices. The second is Human Research – Group 2 Social/Behavioral Research Investigators and Key Personnel (CITI Curriculum ID 935).

Course Title	IRB Training for ST-CTN Research Data
Learning Objectives	<ol style="list-style-type: none"> 1. Understand the ethical responsibilities of collaborative research partnerships including conflicts of interest, mentoring, peer review, and plagiarism. 2. Understand the ethical issues associated with data collection, management, ownership, and privacy. 3. Understand factors that can cause a lack of research reproducibility. 4. Gain an introduction to the regulatory issues pertaining to research done involving human subjects.
Prerequisites	CITI account registration
Target Audience	Anyone who plans to access research data for the ST-CTN project and ST-CTN project team members involved with PII on an annual basis
Training Organization	CITI/GA Tech
Venue	Online (link and account will be provided by GA Tech ST-CTN project team members)
Materials	Not applicable
Equipment (setup)	Computer with audio
Training method	Online, self-driven classes
Assessment	<p>Exercises throughout the course</p> <p>Final quiz at the end of the course</p> <p>Current certificates of completion</p>
Duration	3-5 hours
Max class size	Self learning

4.3.5 Course 5: Performance Measurement Dashboard Management

Table 8 discusses the details of Course 5 – Performance Measurement Dashboard Management.

Table 8. Course 5 – Performance Measurement Dashboard Management Overview

Course Title	Performance Measurement Dashboard Management
Description	This course covers the functionality and data sources available in the PMD. It provides a researcher or analyst information on the different sources and types of data, how to access the data sources, their metadata, methods to filter and download data from the Dashboard. This course only identifies publicly available data.
Learning Objectives	<ol style="list-style-type: none"> 1. Understand the ST-CTN functional architecture, modules, and interfaces. 2. Understand the various data sources and protected datasets used in the Performance Measurement analysis. 3. Learn about the open data, their sources, and metadata. 4. Learn how to filter and download open data from the PMD.
Prerequisites	Recommended – IRB
Target Audience	Analysts, independent evaluators, researchers
Training Organization	GA Tech
Venue	Classroom or virtual
Materials	PMD operations manual Instructor Guide Student slides and supplemental materials
Equipment (setup)	Computer and projector
Training method	Participant training
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	2 hours
Max class size	10

4.4 Group 2 – Infrastructure Owner Operators Training Courses

Group 2 training courses discuss the high-level overview, call center operations, and driver operations information needed for IOOs of the ST-CTN system. Each course is described below and includes information on the learning objectives, prerequisites, target audience, training organization, venue, materials, equipment, training method, assessment, duration, and maximum class size.

4.4.1 Course 6: High-Level Overview for IOOs

Table 9 discusses the details of Course 6 – High-Level Overview for IOOs.

Table 9. Course 6 – High-Level Overview for IOOs

Course Title	High-Level Overview for IOOs
Description	This course provides a high-level overview of the ST-CTN system. Relevant information to IOOs will be presented, including high-level ST-CTN system architecture, subsystem administration policy and procedures, operations and maintenance responsibilities, data management, security and privacy procedures, and safety practices. It provides an IOO with an understanding of the ST-CTN system and the procedures and practices of how it is operated and maintained.
Learning Objectives	<ol style="list-style-type: none"> 1. Understand a high level overview of the ST-CTN system.. 2. Understand the various data sources and protected datasets used to support the ST-CTN system. 3. Understand ST-CTN system operations and maintenance roles and responsibilities. 4. Learn ST-CTN security and privacy procedures. 5. Learn ST-CTN safety practices and procedures. 6. Learn about the PMD, open data, their sources, and metadata. 7. Learn how to filter and download open data from the PMD.
Prerequisites	Recommended – IRB
Target Audience	All IOOs
Training Organization	ST-CTN project team
Venue	IOO agency offices or virtual
Materials	ST-CTN operations manual Instructor Guide Student slides and supplemental materials

Course Title	High-Level Overview for IOOs
Equipment (setup)	Computer and projector
Training method	Participant training
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	2 hours
Max class size	10

4.4.2 Course 7: Call Center Operations for ST-CTN

Table 10 discusses the details of Course 7 – Call Center Operations for ST-CTN.

Table 10. Course 7 – Call Center Operations Overview

Course Title	Call Center Operations for ST-CTN
Description	This course provides a high-level overview of the ST-CTN system, how it works and the various subsystems that support it. Relevant information to call center operators will be presented, including high-level ST-CTN system architecture, subsystem administration policy and procedures, operations and maintenance responsibilities, data management, security and privacy procedures, and safety practices. In addition, ST-CTN access to the call center will be described and various scenarios in which end users would call the center through the application will be presented.
Learning Objectives	<ol style="list-style-type: none"> 1. Understand a high level overview of the ST-CTN system.. 2. Understand the various data sources and protected datasets used to support the ST-CTN system. 3. Understand ST-CTN system operations and maintenance roles and responsibilities. 4. Learn ST-CTN security and privacy procedures. 5. Learn ST-CTN safety practices and procedures. 6. Understand various scenarios in which an end user may access the call center while using the ST-CTN system. 7. Learn about resources and access available to the call center operator to support end user needs. 8. Learn the appropriate procedure and practice to log call center requests for support.
Prerequisites	Recommended – IRB
Target Audience	GCT call center operators

Course Title	Call Center Operations for ST-CTN
Training Organization	GCT call center trainers
Venue	GCT offices
Materials	ST-CTN operations manual Call center operations manual Instructor Guide Student slides and supplemental materials
Equipment (setup)	Computer and projector
Training method	Participant training
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	2 hours
Max class size	10

4.4.3 Course 8: Transit Driver Operations

Table 11 discusses the details of Course 8 – Transit Driver Operations.

Table 11. Course 8 – Transit Driver Operations Overview

Course Title	Driver Operations
Description	This course provides a high-level overview of the ST-CTN system, how it works and the various subsystems that support it. Relevant information to transit drivers will be presented, including the operations of the enhanced transit signal priority (TSP), connection protection, and PED-SIG applications.

Course Title	Driver Operations
Learning Objectives	<ol style="list-style-type: none"> 1. Understand a high level overview of the ST-CTN system. 2. Understand ST-CTN system operations and maintenance roles and responsibilities. 3. Learn ST-CTN security and privacy procedures. 4. Learn ST-CTN safety practices and procedures. 5. Learn about ST-CTN features including enhanced TSP, connection protection, and PED-SIG applications. 6. Understand various scenarios in which an end user may interact with the transit operator while using the ST-CTN system. 7. Learn about resources and access available to the transit operator to support end user needs. 8. Learn the appropriate procedure and practice to log issues or concerns about ST-CTN.
Prerequisites	None
Target Audience	GCT Vehicle Operators
Training Organization	GCT trainers
Venue	GCT offices
Materials	ST-CTN operations manual GCT ST-CTN training manual Instructor Guide Student slides and supplemental materials
Equipment (setup)	Computer and projector
Training method	Participant training
Assessment	Exercises throughout the course Final quiz at the end of the course
Duration	2 hours

4.5 Group 3 – End User Training Courses

Group 3 training courses discuss information on how to use and navigate the ATL RIDES website, mobile application, and how to trip plan with the call center. In addition, training focused on how to provide sidewalk data through the application will be presented. Each course will be described below and will include information on the learning objectives, prerequisites, target audience, training organization, venue, materials, equipment, training method, assessment, duration, and

maximum class size. Training materials will be developed in different formats to accommodate those with various disabilities and language needs as described within the end user participants within **Section 2.3**. The ST-CTN project team will coordinate with each partner organization to understand the needs of their expected participants. Examples of recruitment material formats may include, 508 compliant, video with closed captioning, large font, minimized text, translated content, etc.

4.5.1 Course 9: ATL RIDES Website

Table 12 discusses the details of Course 9 – ATL RIDES Website.

Table 12. Course 9 Overview

Course Title	ATL-RIDES Website
Description	This course will train end users how to use the ATL RIDES Website. The website can be used in combination with the app and call center.
Learning Objectives	<ol style="list-style-type: none"> 1. Learn about website features and functions and how they differ from the full app experience. 2. Learn how to set up a user profile and preferences. 3. Learn how plan a trip. 4. Learn how to download trip directions. 5. Learn about resources available during travel.
Prerequisites	Access to computer
Target Audience	All end users
Training Organization	Training Coordinator (as described in Section 4.1)
Venue	Varies by organization
Materials	Training Video PDF Quick Guide
Equipment (setup)	Computer and projector
Training method	Participant training
Assessment	<p>Self-test exercise which will allow users to create a trip plan with the ST-CTN system</p> <p>Monitoring traveler activity to see if the user books a trip outside of the class within 4 weeks of the training/launch.</p> <p>Participant survey regarding training and training materials efficacy.</p>
Duration	30 minutes

Course Title	ATL-RIDES Website
Max class size	10-15 people

4.5.2 Course 10: ATL RIDES Mobile App

Table 13 discusses the details of Course 10 – ATL RIDES Mobile App.

Table 13. Course 10 – ATL RIDES Mobile App Overview

Course Title	ATL RIDES Mobile App
Description	This course will train end users how to use the ST-CTN system within the ATL RIDES mobile app. Modules will be developed to focus on how the ST-CTN functions and features can be leveraged further based on an end user's specific needs (i.e. how does someone who uses a wheelchair use the features in the ST-CTN system to enhance their complete trip).
Learning Objectives	<ol style="list-style-type: none"> 1. Learn about ATL RIDES mobile app with ST-CTN system features and functions. 2. Learn how to set up a user profile and preferences. 3. Learn how plan a trip. 4. Learn how to download trip directions. 5. Learn about resources available during travel. 6. Learn how the ATL RIDES mobile app with ST-CTN system features and functions can be leveraged to support the needs of specific user subgroups (as described in Section 2.3).
Prerequisites	Download ATL RIDES mobile app with ST-CTN system
Target Audience	All end users
Training Organization	Training Coordinator (as described in Section 4.1)
Venue	Varies by organization
Materials	Training Video PDF Quick Guide
Equipment (setup)	Varies by organization
Training method	Participant training
Assessment	<p>Self-test exercise which will allow users to create a trip plan with the ST-CTN system</p> <p>Monitoring traveler activity to see if the user books a trip outside of the class within 4 weeks of the training/launch.</p> <p>Participant survey regarding training and training materials efficacy.</p>

Course Title	ATL RIDES Mobile App
Duration	1 hour
Max class size	Varies based on organization and environment

4.5.3 Course 11: Call Center Trip Planning

Table 14 discusses the details of Course 11 – Call Center Trip Planning.

Table 14. Course 11 – Call Center Trip Planning Overview

Course Title	Call Center Trip Planning
Description	This course will train end users how to use the ST-CTN system within the ATL RIDES call center trip planning feature.
Learning Objectives	<ol style="list-style-type: none"> 1. Learn about the ST-CTN system features and functions that can be accessed through the ATL RIDES call center trip planning feature. 2. Learn how to set up a user profile and preferences. 3. Learn how plan a trip. 4. Learn how to access trip directions. 5. Learn about resources available during travel.
Prerequisites	Access to ATL RIDES call center with ST-CTN system
Target Audience	All end users
Training Organization	Training Coordinator (as described in Section 4.1)
Venue	Varies by organization
Materials	Training Video PDF Quick Guide
Equipment (setup)	Varies by organization
Training method	Participant training
Assessment	<p>Self-test exercise which will allow users to create a trip plan with the ST-CTN system</p> <p>Monitoring traveler activity to see if the user books a trip outside of the class within 4 weeks of the training/launch.</p> <p>Participant survey regarding training and training materials efficacy.</p>
Duration	30 minutes
Max class size	Varies based on organization and environment

4.5.4 Course 12: Crowdsourcing Sidewalk Data Collection

Table 15 discusses details of Course 12 – Crowdsourcing Sidewalk Data Collection.

Table 15. Course 12 – Crowdsourcing Sidewalk Data Collection Overview

Course Title	Crowdsourcing Sidewalk Data Collection
Description	The course will train the end users in inputting information into the crowdsourcing data collection tool integrated into the ATL RIDES app. The crowdsourcing data collection is an optional way users can alert the system to disruptions and obstacles during their trip. The effort will train the user on the terms and techniques used to accurately collect and attribute public right of way (PROW) facilities – sidewalks, curbs, parking lots, indoor pathways, entrances and more.
Learning Objectives	<ol style="list-style-type: none"> 1. Understand about the features and attributes associated with PROW facilities and a basic understanding of accessibility guidelines. 2. Understand challenges and anomalies that introduce challenges for accessibility and travel. 3. Learn the techniques and methods used to collect information using a mobile handset (smart phone). 4. Learn how to collect, verify, and quality check PROW data.
Prerequisites	Download ATL RIDES app
Target Audience	ATL RIDES users who want to provide data for the ST-CTN system
Training Organization	GA Tech staff
Venue	On-line (will be posted on ST-CTN website)
Materials	Training Video PDF Quick Guide
Equipment (setup)	Computer, smart phone with ATL RIDES app
Training method	Online, self-driven
Assessment	Self-test exercise which will allow users to submit crowdsourced data to the ST-CTN system Participant survey regarding training and training materials efficacy.
Duration	Several short videos
Max class size	Self-learning

4.6 Training Feedback

It will be important to assess the effectiveness of the training courses provided to participants. Each training course will conclude with a survey in which participants can provide feedback general to their overall assessment of the course, specific to the course content, facilitation effectiveness, training method and materials effectiveness, and suggestions for improvement. The information collected from these surveys will be reviewed after each course (or regularly for online self-led courses) and feedback will be incorporated where possible to strengthen the effectiveness of the course.

5 Training Summary and Schedule

Training will be conducted during phases 2 and 3 of the ST-CTN project. Phase 2 trainings will be focused on providing the necessary support and information to system developers, IOOs, system administrators, researchers, and early adopting end users whose participation will provide baseline data for the pilot deployment of the system. Phase 3 training will primarily focus on providing end users with an introduction to the ST-CTN system and the skills necessary to leverage the system to complete their trips.

Training for the various groups depend on when the subsystem is made available for controlled testing (alpha or beta testing) and Operational Readiness. For example, the ATL RIDES website and mobile app might be available during Phase 2 for controlled testing. **Table 16** provides a high-level schedule of the anticipated trainings that will occur during phases 2 and 3 of the ST-CTN project.

Table 16. High-Level Training Summary and Schedule

Training Course	Subgroup	Training Time Frame (Dependency)	Phase	Frequency
Course 1: Sidewalk Scout Data Collection	Researchers (Data Collection Team)	Phase 2 NTP	Early Phase 2	As Needed
Course 1: STM System Administration	System Administrators	Phase 2 Completion	Early Phase 3	As Needed
Course 1: ATL RIDES System Administration	System Administrators	Phase 2 Completion	Early Phase 3	As Needed
Course 1: IRB Training for Research Data	Researchers, ST-CTN Project Team	Prior to collecting, processing, or viewing PII	Early Phase 2	Continuous and Maintained
Performance Management Dashboard Management	Researchers, ST-CTN Project Team	Phase 2 Completion	Early Phase 3	As Needed
High-Level Overview for IOOs	ST-CTN IOOs	ST-CTN Minimal Viable Product (MVP)	Mid Phase 2	As Needed

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5. Training Summary and Schedule

Training Course	Subgroup	Training Time Frame (Dependency)	Phase	Frequency
Call Center Operators on ATL RIDES	GCT Call Center Operators	Phase 2 Completion	Phase 3	Coordination with Existing
Transit Driver Operations	GCT Drivers	Phase 2 Completion	Phase 3	Coordination with Existing
ATL RIDES Website	End Users	ST-CTN Minimal Viable Product (MVP)	Mid Phase 2	As Needed
ATL RIDES Mobile App	End Users	ST-CTN Minimal Viable Product (MVP)	Mid Phase 2	As Needed
Call Center Trip Planning	End Users	ST-CTN Minimal Viable Product (MVP)	Mid Phase 2	As Needed
Crowdsource Sidewalk Data	End Users	Phase 2 Completion	Phase 3	As Needed

Appendix A. Acronyms and Glossary

This section includes a list of acronyms and a glossary of key terms used in the document.

Table 17. Acronyms

Acronym	Meaning
ADA	Americans with Disabilities Act
ARC	Atlanta Regional Commission
AT	Assistive Technology
ATL	Atlanta Transit Link Authority
ATL RIDES	Atlanta Rider Information and Data Evaluation System
ATMS	Advanced Traffic Management System
CDP	Connected Data Platform
CITI	Collaborative Institutional Training Initiative
ConOps	Concept of Operations
CV	Connected Vehicle
CV1K	Regional Connected Vehicle Infrastructure Deployment Program
C-V2X	Cellular – Vehicle to Everything
CVTMP	Connected Vehicle Technology Master Plan
DAS	Division of Aging Services
DHS	Department of Human Services
DSRC	Dedicated Short-Range Communication
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GA Tech	Georgia Institute of Technology
GCDOT	Gwinnett County Department of Transportation
GCT	Gwinnett County Transit

Acronym	Meaning
GDOT	Georgia Department of Transportation
GTFS	General Transit Feed Specification
HUAS	Human Use Approval Summary
ICTDP	Integrated Complete Trip Deployment Plan
IOO	Infrastructure Owner/Operator
IRB	Institutional Review Board
ITS	Intelligent Transportation System
IVR	Integrated Voice Response
JPO	Joint Program Office
LEP	Limited English Proficiency
OSS	Open-Source Software
OST	Office of the Secretary of Transportation
OTP	Open Trip Planner
PII	Personally Identifiable Information
PMD	Performance Measurement Dashboard
PMESP	Performance Measurement and Evaluation Support Plan
POC	Point of Contact
PROW	Public Right of Way
PTSEP	Participant Training and Stakeholder Education Plan
RSU	Roadside Unit
SMP	Safety Management Plan
ST-CTN	Safe Trips in a Connected Transportation Network
STM	Space Time Memory
SysAdm	System Administration
TCC	Traffic Control Center
TFL	Tools for Life
TMC	Traffic Management Center

Acronym	Meaning
TSP	Transit Signal Priority
UI	User Interface
USDOT	U.S. Department of Transportation
VTAP	Voucher Travel Assistance Program

The following table provides a summary of definitions for terms used throughout the document.

Table 18. Glossary

Term	Definition
Americans with Disabilities Act (ADA)	An act to “provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities.” The act provides enforceable standards to address discrimination against individuals with disabilities and requires public facilities to be readily accessible and usable by individuals with disabilities [ADA]. The USDOT ADA regulations at 49 CFR Parts 37 and 38 set the requirements for accessible transit vehicles and services.
Cellular – Vehicle to Everything (C-V2X)	A connected vehicle platform that works over the cellular network to provide vehicle-to-vehicle, vehicle-to-infrastructure, and vehicle-to-pedestrian communication. It is similar to DSRC but uses the cellular network instead of a short-range spectrum [CVTMP].
Connected Vehicle (CV)	A vehicle (car, truck, bus, etc.) that is equipped with a wireless communication device (1). A CV uses any of the available wireless communication technologies to communicate with other cars on the road (vehicle-to-vehicle [V2V]), roadside infrastructure (vehicle-to-infrastructure [V2I]), and other travelers and the cloud. [CAV]
General Transit Feed Specification (GTFS)	A data specification that allows public transit agencies to publish their data to be consumed by a variety of transit-related applications. This data includes schedule, fare, and vehicle position which can be used to predict arrival times and display real-time information [GTFS].
Roadside Unit (RSU)	A transportation field device that performs the data exchange between OBUs, MUs, and other infrastructure elements. [CI]
Signal Phase and Timing (SPaT)	The signal state of the intersection and how long this state will persist for each approach and lane that is active, according to the SPaT Benefits Report. The SPaT message sends the current state of each phase, with all-red intervals not transmitted. Movements are given to specific lanes and approaches by use of the lane numbers present in the message. In a connected vehicle environment, the message is sent from the roadway infrastructure to approaching vehicles. [CAV]

Term	Definition
Transit Signal Priority (TSP)	A part of a signal system that allows transit agencies to manage service by prioritizes buses and granting their right of way based on schedule adherence or passenger loads. [CAV]

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