COMPLETE TRIP

ITS4US

Atlanta Regional Commission (ARC)
“Safe Trips in a Connected Transportation Network”
Phase 1 Concept of Operations Webinar

July 14, 2021
Agenda

- **Purpose of this Webinar**
  - To share the Concept Development Activities from ARC with the stakeholders of the project.

- **Webinar Content**
  - Complete Trip – ITS4US Deployment Program Overview (Karen Timpone)
  - Site Orientation & Key Challenges (Kofi Wakhisi & Daniel Piotrowski)
  - Deployment Concept Overview (Polly Okunieff & Natalie Smusz-Mengelkoch)
  - Stakeholder Engagement Efforts (Maria Roell & Jordan Hall)
  - Stakeholder Q&A
  - How to Stay Connected (Karen Timpone)

- **Webinar Protocol**
  - Please mute your phone during the entire webinar
  - You are welcome to ask questions via chatbox at the Q&A Section
  - The webinar recording and the presentation material will be posted on the ITS4US website
Brief Program Overview

Karen Timpone, FHWA, Office of Safety
Complete Trip - ITS4US Deployment Program

- A USDOT Multimodal Deployment effort, led by ITSJPO and supported by OST, FHWA and FTA
- Supports multiple large-scale replicable deployments to address the challenges of planning and executing all segments of a complete trip

**Vision**

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

1. Spur high-impact integrated Complete Trip deployments nationwide
2. Identify needs and challenges by populations
3. Develop and deploy mobility solutions that meet user needs
4. Measure impact of integrated deployments
5. Identify replicable solutions and disseminate lessons learned
Complete Trip Phase 1 Awardees

University of Washington
OR, WA, MD

California Association of Coordinated Transportation
CA, OR, and WA

Heart of Iowa Regional Transit Agency
Dallas County, IA

ICF
Buffalo, NY

Atlanta Regional Commission
Gwinnett County, GA
Deployment Phases

**PHASE 1: Concept Development**
- Concept Development for Complete Trip Deployment
- Establish Cohort Roundtables

**PHASE 2: Design & Test**
- Design, Test and Deploy Complete Trip Solutions
- Evaluation Framework and Planning

**PHASE 3: Operate & Evaluate**
- Demonstrate Multiple Large-Scale Deployments
- Evaluate Deployments
- Share Data & Lessons Learned

**Operations & Maintenance**
- Sustain operations for a minimum period of five years after the program is completed with no supplementary federal funds

**Deployment**
- Up to 12 months
- Up to 24 months
- Minimum of 18 months

**Post-Deployment**
- 5 years
Site Orientation & Key Challenges

Kofi Wakhisi, Project Management Lead
Daniel Piotrowski, Local Development Lead
# Project Team and Partners

## Executive Management Team

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>PROJECT MANAGEMENT LEAD</td>
<td>Kofi Wêkhisi, Esq, AICP (ARC)</td>
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<tr>
<td>PROJECT DIRECTOR</td>
<td>John Orr (ARC)</td>
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<tr>
<td>COMMUNITY COORDINATOR LEAD</td>
<td>Jordon Hall (SILC)</td>
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<tr>
<td>CONCEPT DEVELOPMENT LEAD / POC</td>
<td>Maria Roell (ARC)</td>
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<tr>
<td>SYSTEM DEVELOPMENT LEAD</td>
<td>Polly Okunieff (GOSystems)</td>
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<tr>
<td>LOCAL DEVELOPMENT LEAD</td>
<td>Daniel Piotrowski (Gwinnett County)</td>
</tr>
<tr>
<td>DEPUTY PROJECT MANAGER</td>
<td>Natalie Smusz-Mengelkoch, PE (KHA)</td>
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## Production Team

### Concept Collaborative Lead
- Atlanta Regional Commission (ARC)
  - Joseph Yawn
  - Kyung-hwa Kim
  - Melissa Roberts
  - Daniel Studdard

### Community Coordinator Lead
- Statewide Independent Living Council (SILC)
  - Shelly Simmons

### Technical Innovation Lead
- Georgia Tech
  - Randall Guensler, PhD
  - Angshuman Guin, PhD
  - Pascal Van Hentenryck, PhD

### Local Agency Deployment Lead
- Gwinnett County
  - Tom Sever, PE, Traffic Engineer

### Local Agency Transit Lead
- Gwinnett County Transit
  - Karen Winger, Transit Manager

### CV Integration Lead
- Georgia Department of Transportation (GDOT)
  - John Hibbard
  - Andrew Heath, PE, PTOE
  - Alan Davis, PE, PTOE

### Production Management Lead
- Kimley-Horn (KHA)
  - Jeff Dale, PE, PMP
  - Lisa Burgess, PMP
  - JD Schneeberger, PMP
  - Doug Gettman, PhD
  - Kerr Fink, PE
  - Beth Tucker
  - Tom Glueckert, PE

### ATL Rides Integration Lead
- Atlanta-Region Transit Link Authority (ATL)
  - Daniel Walls
  - Jonathan Ravenelle

### ATL Rides Development Lead
- IBI
  - Jonathan Darton
  - Jon Campbell
  - Ritesh Warade

### ATL Rides Integration Lead
- Atlanta-Region Transit Link Authority (ATL)
  - Daniel Walls
  - Jonathan Ravenelle

### CV Integration Lead
- Georgia Department of Transportation (GDOT)
  - John Hibbard
  - Andrew Heath, PE, PTOE
  - Alan Davis, PE, PTOE
Project Site - Gwinnett County

- Richly diverse area
- 280,000 residents
- Major transit hubs
- Suburban land use
- Wide and high-speed roadways
- Inconsistent pedestrian infrastructure
# Underserved Populations

<table>
<thead>
<tr>
<th>Population Type</th>
<th>Project Site Population</th>
<th>Pop. in Project Site</th>
<th>Gwinnett County Population</th>
<th>Gwinnett Pop. in Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with Disabilities (non-institutional)</td>
<td>16,802</td>
<td>6.0%</td>
<td>32,032</td>
<td>52.5%</td>
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<tr>
<td>Older Adults (Age 65+)</td>
<td>19,435</td>
<td>7.0%</td>
<td>78,898</td>
<td>24.6%</td>
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<tr>
<td>Low-Income (Individual Poverty)</td>
<td>53,223</td>
<td>19.1%</td>
<td>107,267</td>
<td>49.6%</td>
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<tr>
<td>Veterans</td>
<td>8,602</td>
<td>3.1%</td>
<td>37,850</td>
<td>22.7%</td>
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<td>Limited English Proficiency Households</td>
<td>14,098</td>
<td>15.1%</td>
<td>24,069</td>
<td>58.6%</td>
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<tr>
<td>Zero-Vehicle Household</td>
<td>4,921</td>
<td>5.3%</td>
<td>9,467</td>
<td>52.0%</td>
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<tr>
<td>Total Population</td>
<td>278,572</td>
<td>100%</td>
<td>889,954</td>
<td>31.3%</td>
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<tr>
<td>Total Households</td>
<td>93,158</td>
<td>100%</td>
<td>283,256</td>
<td>32.9%</td>
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Source: American Community Survey (2017)
Project Challenges

- Challenge 1 – Lack of knowledge of inadequate pedestrian infrastructure can lead to lengthy detours or inaccessibility.

- Challenge 2 – Lack of transit reliability and added exposure while waiting.

- Challenge 3 – Difficult to recognize and avoid potential conflicts. Lack of visibility to drivers.
Deployment Concept Overview

Polly Okunieff, System Development Lead
Natalie Smusz-Mengelkoch, Deputy Project Manager
Use Case – Wendy’s Complete Trip

1. Pre-Trip Planning
   Receives Safe Accessible Route

2. Begins Trip:
   Receives Turn-by-Turn Directions, Alerts, and Transit Priority

3. Transition to Transit:
   Vehicle Receives Priority and is Notified of User’s Needs

4. Intersection Crossing:
   Signal Controller Extends Pedestrian in the Direction of User Travel

5. CV Broadcast Message:
   RSU Broadcasts Safety Message to Alert of Pedestrian in Vicinity

6. Outdoor/Indoor Navigation:
   Turn by Turn Directions to Safe Accessible Route
Use Case – Wendy’s Complete Trip Step 1

- **Step 1** – The traveler plans for and receives a safe accessible route.
  - Traveler provides origin and destination.
  - Traveler creates a trip or user profile with preferences and abilities.
Use Case – Wendy’s Complete Trip Step 2

- Step 2 – The traveler begins their trip.
  - Receives turn by turn directions.
  - Alerts.
  - Remote pedestrian activation.
  - Can trigger transit signal priority (TSP) if the user has difficulty standing for long periods or is sensitive to weather conditions.
Use Case – Wendy’s Complete Trip Step 3

- Step 3 – The traveler transitions to transit.
  - The transit vehicle receives priority and is notified of users’ needs.
  - TSP can be triggered if the bus is running behind schedule.
Use Case – Wendy’s Complete Trip Step 4

- Step 4 – The traveler crosses the intersection.
  - The traveler can receive additional pedestrian crossing time to cross the intersection.
Use Case – Wendy’s Complete Trip Step 5

- Step 5 – The travelers’ presence sends a message to connected vehicles.
  - Roadside units (RSUs) broadcast a safety message to alert connected vehicles of pedestrians/bicyclists in the vicinity.
Use Case – Wendy’s Complete Trip Step 6

- Step 6 – Outdoor/indoor navigation.
  - The traveler is provided with turn-by-turn directions to a safe accessible route.
Integrated Solution

- ATL Rider Information and Data Evaluation System
- Connected Vehicle Regional Deployment Program
- Sidewalk Inventory Tools
- Gwinnett Connected Vehicle Technology Master Plan
- Space-Time Memory Platform
Integrated Solution – Context Diagram

System of Interest

Data Input
- Sidewalk Inventory Collection Tools
- Static Data
- Real-Time Data

STM Platform

Connected Vehicle

ATL RIDES

Connected Vehicle Enabled

Gwinnett Transit

End User

No Change to Data Exchange

New or Upgraded Data Exchange
Integrated Solution – STM Subsystem

INPUT

1. Sidewalk Inventory (Gwinnett Data)
   - ARC Regional Model (ABM) Network

2. CV Data
   - GDOT NaviGAtor Server
   - RITIS (GDOT)
   - Road Characteristics (GDOT)
   - GA 511 Open Portal
   - NOAA Weather Data
   - Navteq/HERE Network
   - OSM Network

STM Platform

- Impact Assessment and Network-Edge Cost Analysis Engine
- Simulators
  - TransitSim
  - RoadwaySim
  - SidewalkSim

OUTPUT

- Performance Monitoring Dashboard
  - STM Admin
- Network Impedance API
  - Third-Parties
- ATL RIDES
  - End User Traveler

END USER

Major Subsystem Component (ST-CTN)  Major Subsystem Component (Existing)  External System Component
Integrated Solution – Connected Vehicle Subsystem
Stakeholder Engagement Summary

Jordan Hall, Community Coordinator
Maria Roell, Concept Development Lead
Stakeholder Engagement – Interviews

Seven Small Group Interviews

- Center for Pan Asian Community Services
- ARC Aging & Independence Services
- disABILITY Link
- GA Department of Behavioral Health and Developmental Disabilities
- Georgia Tech Tools for Life
- Georgia Tech Office of Disability Services
- Gwinnett Place CID
- Gwinnett County Public Schools
- GA Department of Education
- City Schools of Decatur
- MARTA Accessibility Council Board
- The Arc Georgia
- Southeastrans
- Vocational Rehab
- Georgia Council on Developmental Disabilities
Stakeholder Engagement – Survey

- Developed End User Needs based on interview discussions.
- Conducted a Survey to review needs and understand priorities.

Needs Priorities Survey

Thank you again for your participation in the Safe Trips in a Connected Transportation Network (ST-CTN) User Need Interviews. Based on your interviews, we are developing a needs assessment to determine how to make planning and taking trips as easy as possible. In the survey below you’ll find the needs that have been identified. Please provide feedback regarding whether the needs are accurately depicted based on the description in the survey and prioritize them based on your experience (essential, high, medium, and low priority). You will also see a question marked other. If there is a need you feel that was not addressed, please describe it in the space provided.
End User Needs Steps 1-2

1 Pre-Trip Planning

- Personalized trip information that accommodates their preferences and abilities.
- The ability to customize their App accessibility features to accommodate their abilities.

2 Begin Trip

- Support services during trip planning and traveling based on their preferences and abilities.
- To receive personalized information and alerts during their trip in a way that is accessible to them.
End User Needs Steps 3-4

3 Transition to Transit

- The ability to communicate with transit infrastructure and transit vehicle operators to ensure adequate time to board or alight a transit vehicle based on their abilities.

4 Intersection Crossing

- The ability to communicate with infrastructure and CVs at signalized crosswalks beyond the currently existing push buttons.
End User Needs Steps 5-6

5 CV Broadcast Message

- The ability to remotely request transit service while waiting or traveling to a transit stop.
- The ability to alert CVs to their presence at marked crossings and transit stops.

6 Outdoor/Indoor Navigation

- Accurate information to successfully navigate indoor spaces.

Reporting

- The ability to provide feedback on infrastructure and services.
Next Steps

- Concept of Operations (ConOps) is the foundation of the project
  - Defines *Who, What, Where, When, and How*
    - From each stakeholder perspective (end user, operator, developer)
  - Guides development of requirements
  - Guides design and deployment
  - Required to be updated as needs change

- Development of Outreach and Training Plan
  - Will need your support and engagement
Next Steps (Continued)

- Phase 1 – Concept Development
  - Complete Winter 2022

- Phase 2 – Design and Test
  - Winter 2022 – Winter 2024

- Phase 3 – Operate and Evaluate
  - Winter 2024 – Summer 2025

- Five-year maintenance and operations commitment
Stakeholder Q&A

- Please keep your phone muted
- Please use chatbox to ask questions
- Questions will be answered in the order in which they were received
Stay Connected

For more information please contact:

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Project Management Lead
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Visit the Complete Trip - ITS4US Deployment Program Website and FAQs:
https://its.dot.gov/its4us/
https://www.its.dot.gov/its4us/its4us_faq.htm