



U.S. Department of Transportation

Complete Trip - ITS4US Deployment Program

COMPLETE TRIP

ITS4US

The logo for ITS4US, where the number '4' is stylized as a blue and white graphic with a red location pin at the top and bottom, and a dashed orange line forming a path through it.

**Deployment Scenario Examples:
Desert City & Pepperton**

March 26, 2020



Sofia Gallo

Special Assistant

Office of the Secretary

USDOT Secretary Chao's Priority: Expanding Access to Transportation

- USDOT is launching a new department-wide initiative to expand access to transportation for people with disabilities, older adults, and individuals of low income. The **Complete Trip Portfolio** will identify ways to provide more efficient, affordable, and accessible transportation for underserved communities.
- Secretary Chao announced her intent to fund 3 new programs as part of the Complete Trip Portfolio to develop and deploy innovations in technology and further interagency partnerships to improve mobility:
 - Complete Trip – ITS4US Deployment Program
 - Inclusive Design Challenge
 - Mobility for All Pilot Program

Complete Trip - ITS4US Deployment Program

- A USDOT Multimodal Deployment Effort, led by ITSJPO and supported by OST, FHWA and FTA
- Built upon previous USDOT research investments, the Complete Trip-ITS4US Deployment Program supports communities in developing innovative integrated technologies and creating public-private partnerships to move towards complete trip deployments

Vision

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



Elina Zlotchenko

Program Manager

ITS Joint Program Office

Webinar Series

- ✓ 1. Overview of the Complete Trip - ITS4US Deployment Program
- ✓ 2. Engaging Stakeholders, Developing Partnerships, and Following the Planning Process
- ✓ 3. Enablers and Technologies
- ✓ 4. Deployment Scenario Examples
5. Deployment Scenario Examples
6. Privacy, Security, and Open Data
7. Procurement Path

Links to webinar recordings will be available on the ITS4US website:

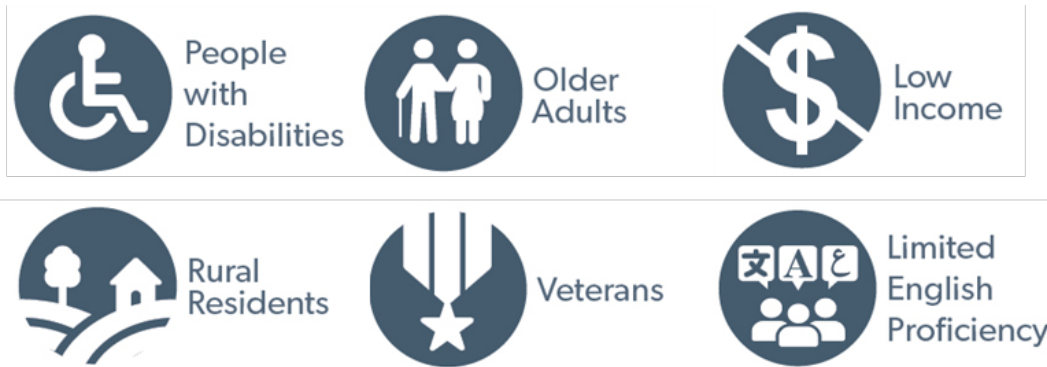
https://its.dot.gov/its4us/its4us_webinar.htm

Today's Agenda

- Program Overview
- Planning and Stakeholder Outreach
- Technology and Enablers Takeaways
- Building a Complete Trip Vision
- Deployment Scenario – Desert City
- Deployment Scenario - Pepperton
- Stakeholder Q&A

Program Overview

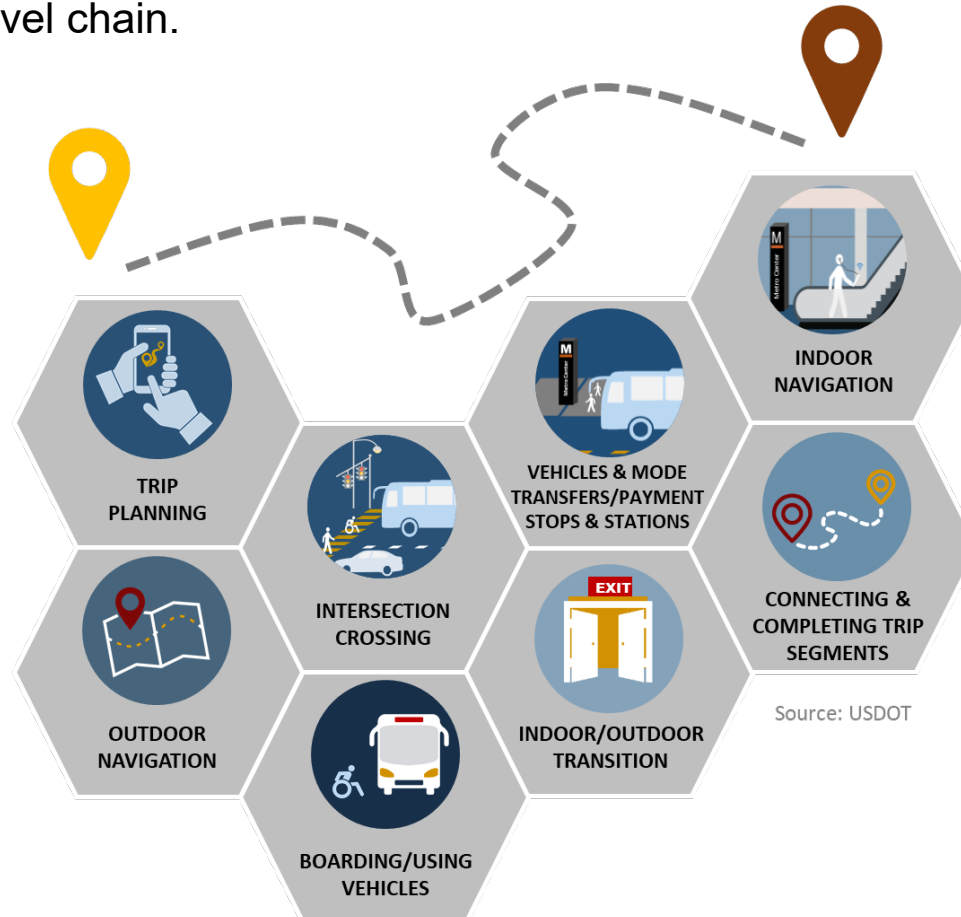
- Up to \$40 million available for communities to demonstrate innovative and integrated complete trip deployments to support seamless travel for all users across all modes, regardless of location, income, or disability
- The Program aims to solve mobility challenges for all travelers, including:



- Procure and award multiple large-scale, replicable deployments to address the challenges of planning and executing all segments of a complete trip

The Complete Trip

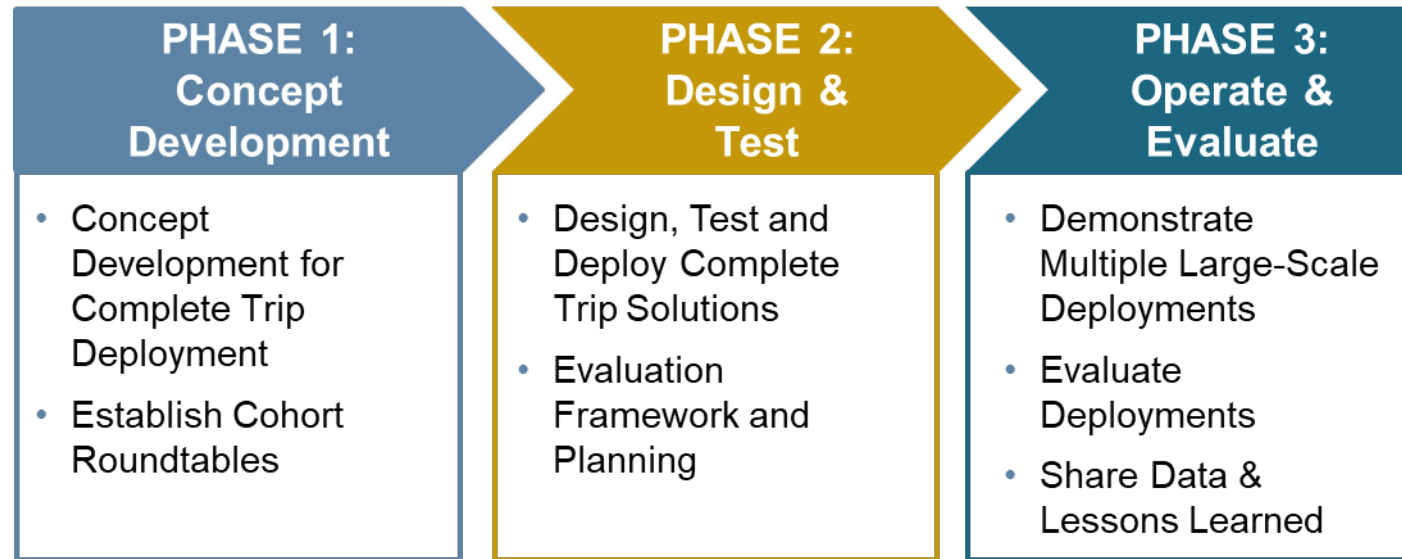
- The *Complete Trip Concept*: An individual's ability to go from origin to destination reliably, spontaneously, confidently, independently, safely, and efficiently without gaps in the travel chain.



Complete Trip Deployment Concept: Fundamental Elements

- Complete Trip deployments will be real-world environment **deployments**
 - If successful, deployed technologies are expected to remain as permanent operational elements
 - Successful sites will serve as replicable models for other candidate deployers
- There will be **multiple** Complete Trip deployments
 - Each site will have different solutions based on their population travel needs
 - Deployments must address their populations' challenges of planning and executing complete trips
 - The unique needs of each site must drive the deployment process
- Complete Trip deployments are expected to be both **large-scale and multi-modal**
 - **Large-scale** implies deployments will have measurable impact, not a specific minimum geographic size
 - Sites will deploy **multiple technologies and modes**

Deployment Phases and Schedule



■ Program 2020 Schedule

- Pre-Deployment Outreach Webinars (Winter-Spring)
- Solicitation for Deployment Phase 1 Released (Summer 2020)
- Solicitation Award (Fall 2020)



Kevin Adderly

Program Coordinator, Office of Planning,
Environment, and Realty

Federal Highway Administration

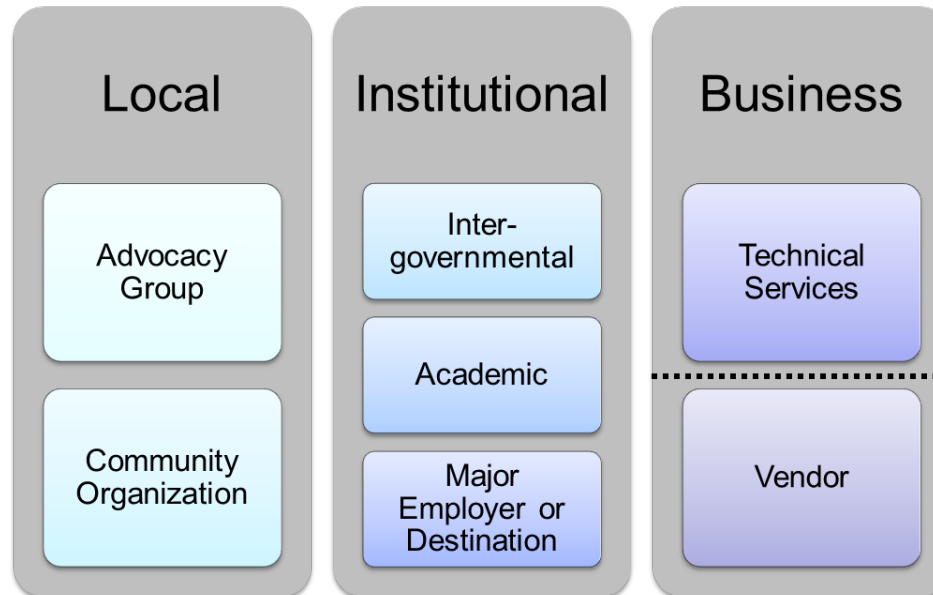
Solving a Problem

- **Identify local needs**
 - Understand the complete trip challenges by:
 - Trip Segments
 - Underserved Populations

- **Design solutions that solves a problem**
 - Deployment Concepts must address the travel challenges of your particular community.

Partnerships

- **Identify stakeholder groups and determine their roles:**



- **Build the right team from the beginning.** Successful projects have brought together diverse, well-rounded teams.
- **Needs should drive solution development and selection of vendors.** Identify needs before developing formal partnerships to ensure that the needs will be met by the vendor solutions.

Stakeholder Outreach and Planning

- **Leverage your existing planning processes to develop your concept:**
 - Formalize partnerships and define roles
 - Inventory high-level community needs and transportation challenges from previous projects and outreach activities

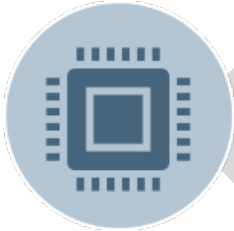
- **Stakeholder Engagement is critical to success of any deployment program:**
 - Early and frequent involvement of stakeholders brings diverse viewpoints and inputs to the project and builds trust between public agencies, the public and other partners.
 - The more effective stakeholder engagement is the better an agency can make informed decisions about project concepts and direction
 - Stakeholders need to be engaged throughout the entire process



Enabling Components

- An enabling component is a technology or service that can be leveraged to build solutions that address the challenges to trip segments.
 - Multiple enabling components may be used in a single solution.
 - Deployments should include multiple solutions that are integrated together to support complete trips for all.
- Enabling components fall into four categories:
 - Software
 - Hardware
 - Communications
 - Service Model(s)

Creating Innovative Complete Trip Solutions



Leverage enabling components to solve your specific transportation problems

- Ensure technologies work together between trip segments
- Consider solutions that support spontaneous travel



Integrate with existing ITS and transportation services

- Utilize existing infrastructure and services when feasible
- Deploy new capabilities without adversely impacting current services



Plan for Scalability

- Consider phased roll-out to beta users
- Identify scalability risks and how to mitigate them



Performance Measurement Plan

- Identify how you will collect the data to measure performance metrics
- Identify if you need to collect pre-deployment performance data

Complete Trip (ITS4US) Deployment Scenario Examples

Desert City

Desert City, USA

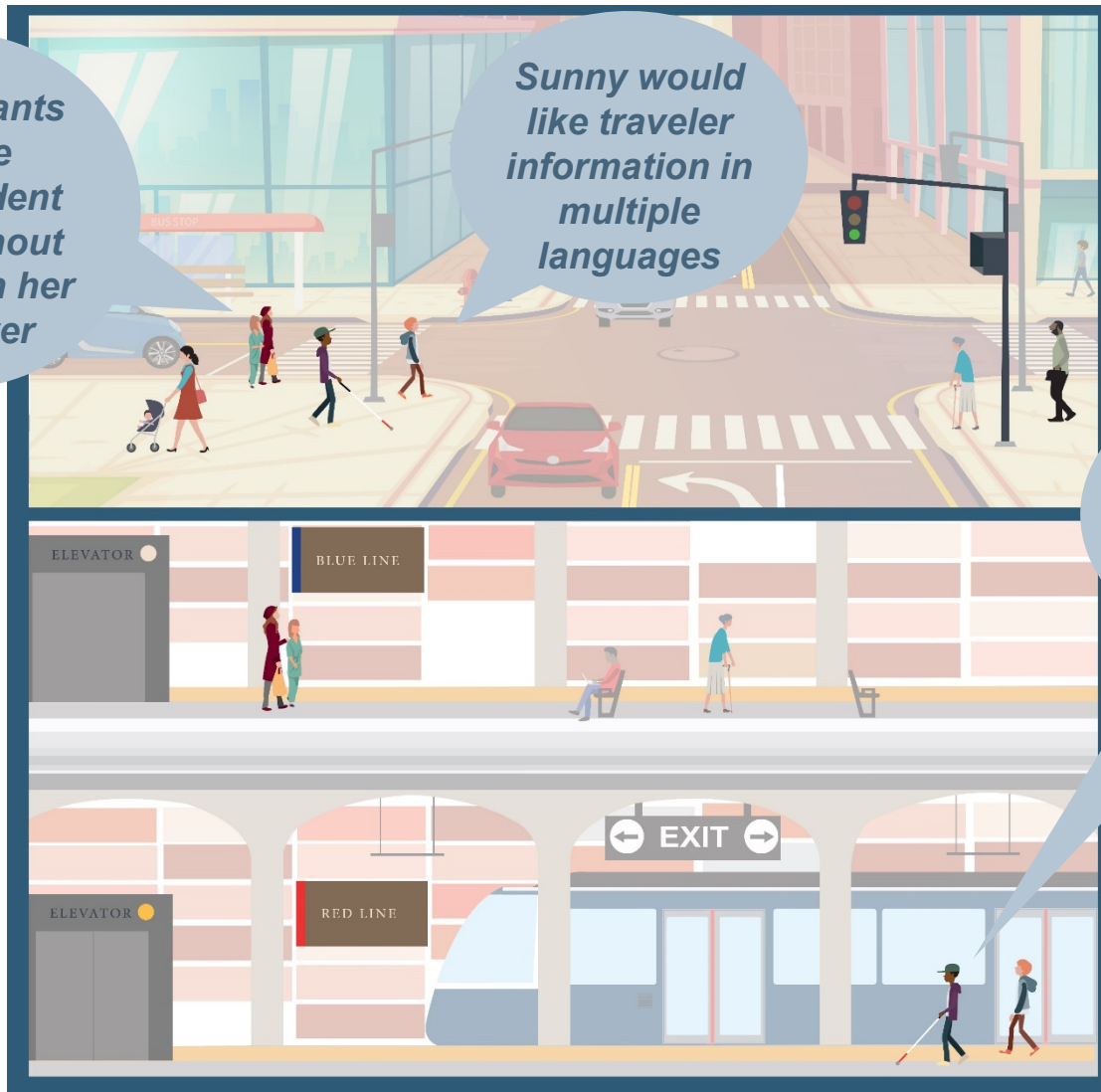


Desert City, USA

Sandy wants to take independent trips without relying on her caregiver

Sunny would like traveler information in multiple languages

Jasper wants assistive tools for safe intersection crossing and indoor navigation



COMPLETE TRIP

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Building the Team



Champion & Advocates

Desert City Mayor Sahara Gibson has served as deployment champion, guiding the project through early phases.



Partnership Building

Developing new relationships with Desert City Transit Agency Lead Rocky Sierra and integrator company Scorpion Solutions.



Stakeholder Engagement

Desert City local advocacy groups for Low English Proficiency (LEP) community and advocates for people with disabilities, local businesses and tourist industry



Dedicated Resources

Key partners committed personnel and resources to assist with Complete Trip deployment efforts.

Transportation Needs



TRIP
PLANNING

- Pre-trip planning visualization
- Single portal for all available modes
- Detailed public transit information and navigation planning



TRANSFERS/PAYMENTS
STOPS & STATIONS

- Detailed stop, payment, and transfer information



OUTDOOR
NAVIGATION

- Detailed step-by-step wayfinding



INDOOR
NAVIGATION

- Information about transfers and navigating stations
- Signage in multiple languages



INTERSECTION
CROSSING

- Users need sufficient time to cross busy intersections



INDOOR/OUTDOOR
TRANSITION

- Clear entrance/exit information
- Information to enter and exit stations available in multiple languages



BOARDING/USING
VEHICLES

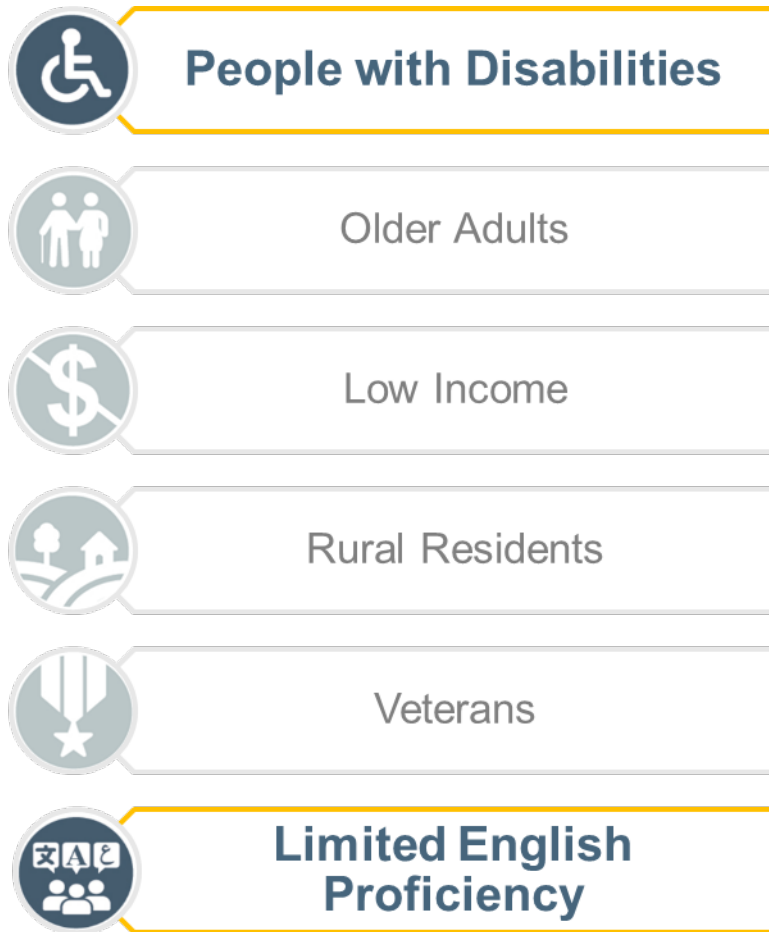
- Clear vehicle identification (line/direction/transfer opportunities)



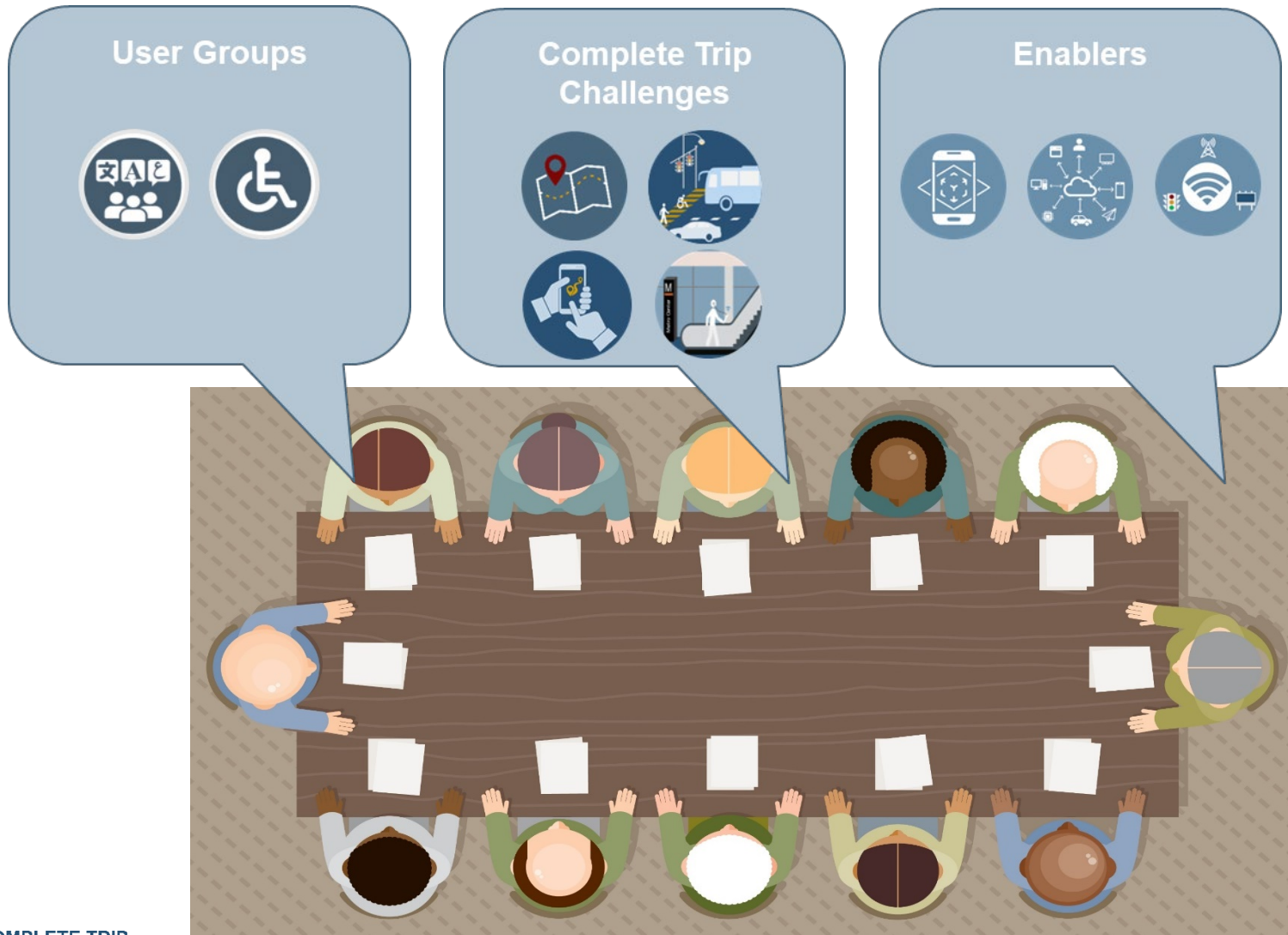
CONNECTING &
COMPLETING TRIP
SEGMENTS

- Detailed guidance for transitioning between trip segments

Complete Trip Segments and User Groups



Preliminary Concept Vision



COMPLETE TRIP

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Source: Getty Images

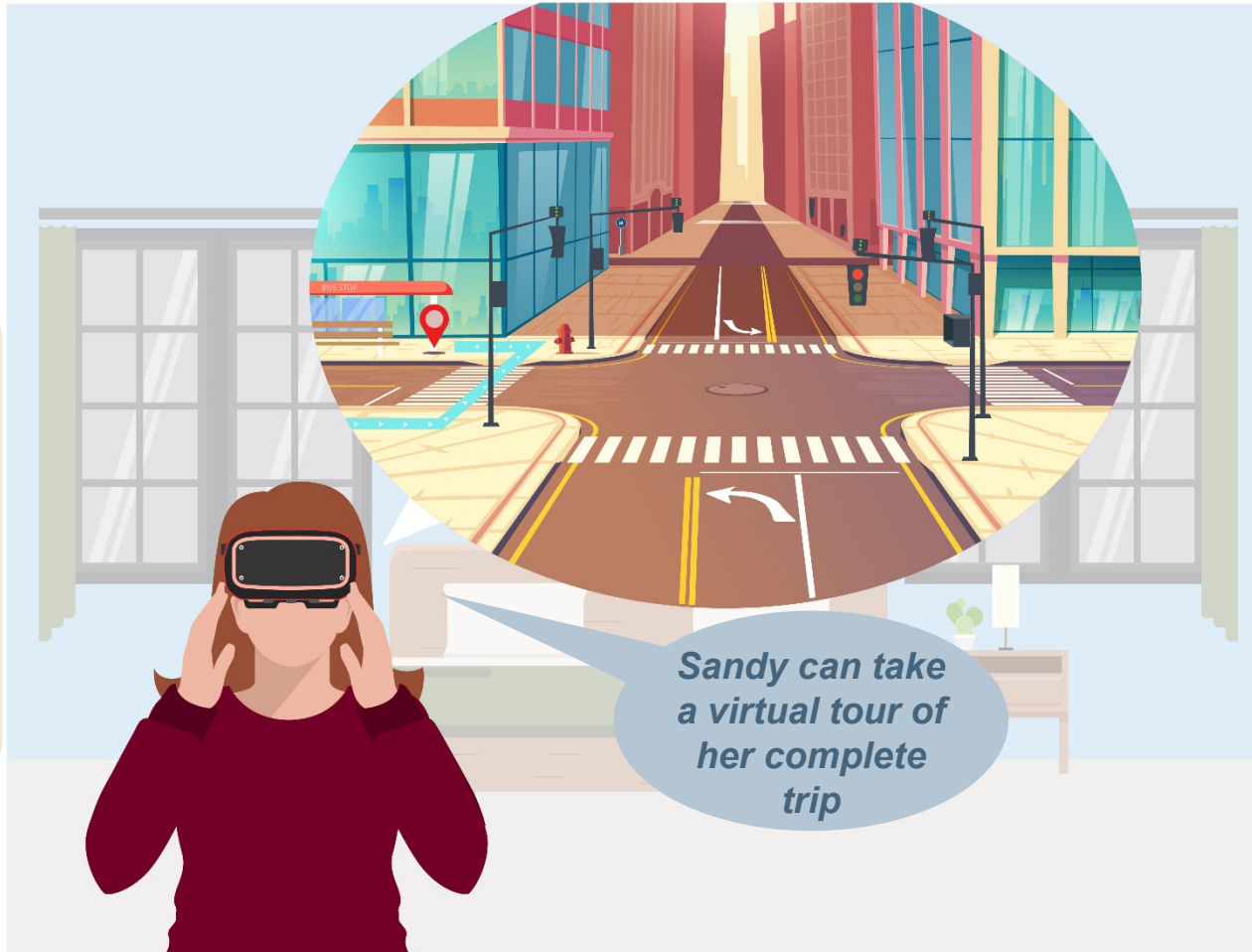


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VR Pre-Trip Planning



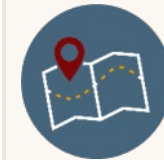
Trip
Planning



*Sandy can take
a virtual tour of
her complete
trip*

AR Navigation Assistance

Sandy and Sunny can get navigation instructions displayed over the real world



Outdoor
Navigation

Crosswalk Assistance

Jasper's phone communicates with the signal controller to extend the signal phase so he can finish crossing the street



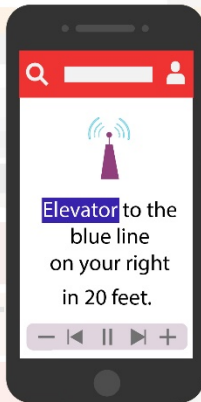
Intersection Crossing

Indoor Navigation Assistance



Sandy is confident that she can travel independently

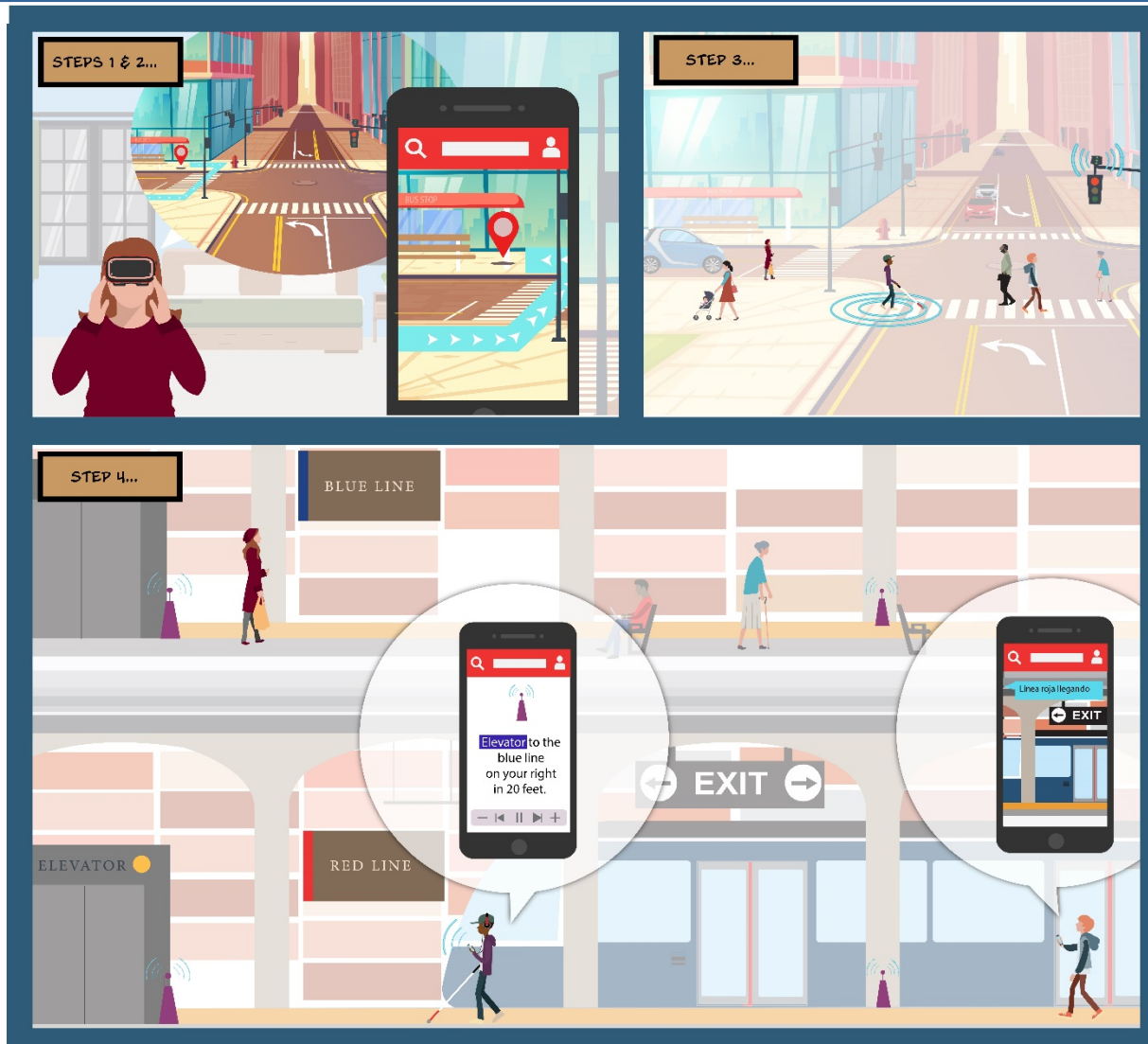
Jasper can get audio instructions to help him navigate the transit station






Sunny can get navigation instructions in Spanish



Integrated Deployment



Metrics Development Example

Trip Segment	Need	Solution(s)	Target
 <p>Outdoor Navigation</p>	<p>People with disabilities need assistance navigation outdoors</p>	<ul style="list-style-type: none"> • Mobile Application • AR Application 	<p>95% of travelers with difficulty navigating intersection crossings indicate they feel safer crossing intersections with the application</p>
 <p>Intersection Crossing</p>	<p>Some people with disabilities need additional time to cross the street</p>	<ul style="list-style-type: none"> • Infrastructure Equipment (ATC Controller) • Mobile Application 	<p>20% reduction in pedestrian crossing crashes</p>
 <p>Indoor Navigation</p>	<p>LEP residents need help navigating transit stations and switching trains</p>	<ul style="list-style-type: none"> • Mobile App • IOT Device (Bluetooth beacon) 	<p>90% of travelers indicate improved access to traveler information tailored to their needs.</p>

This process should be repeated for each need and a need may have several metrics.



Elina Zlotchenko

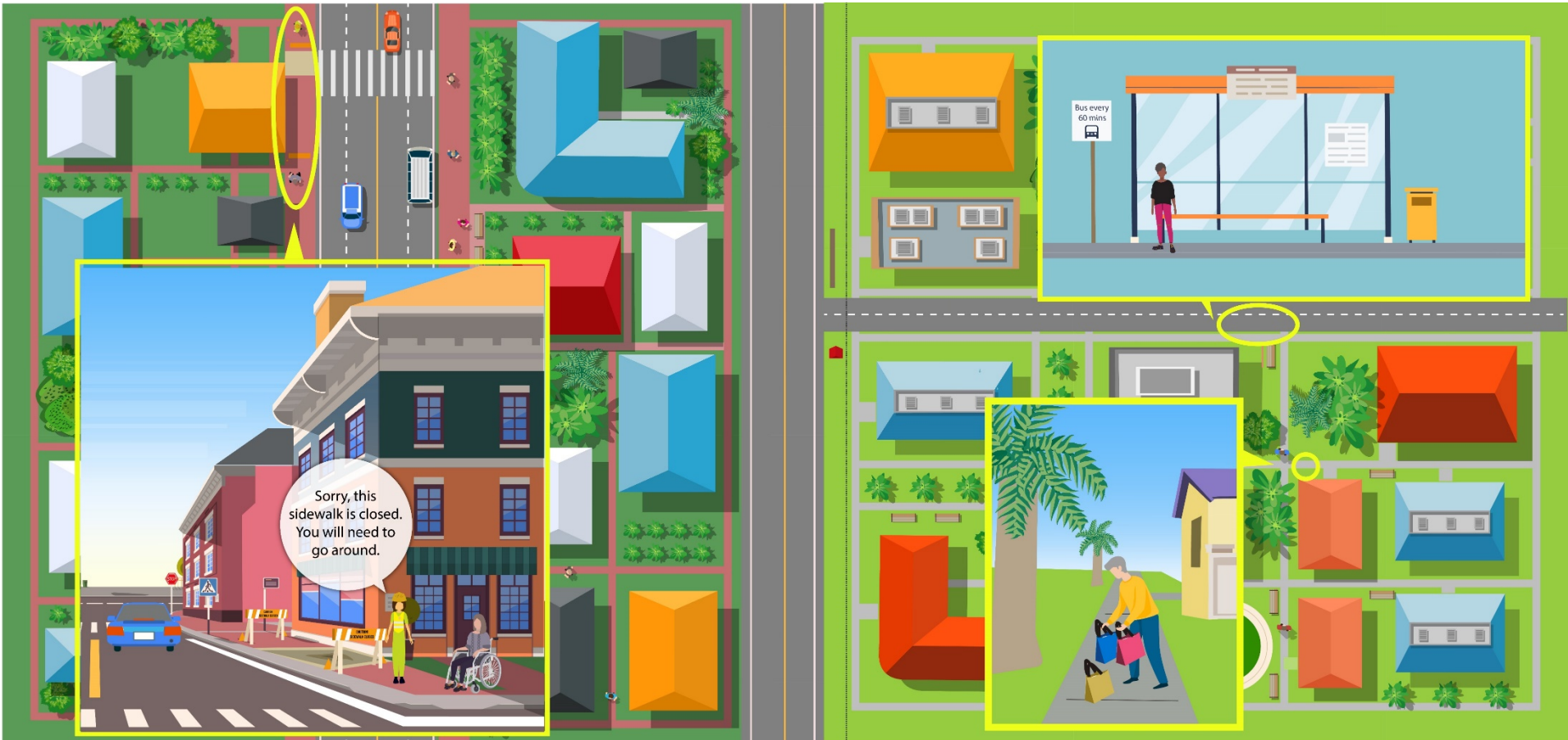
Program Manager

ITS Joint Program Office

Complete Trip (ITS4US) Deployment Scenario Example

Pepperton, USA

Pepperton



Pepperton



Sorry, this sidewalk is closed. You will need to go around.

Ginger needs real-time accessibility information along her route

Rosemary needs convenient mobility options

Herb needs accessible options when returning home with groceries

Building the Team



Champion &
Advocates

Pepperton Mayor Basil, Pepperton City Council, and Director of the Retirement Community have served as deployment champions.



Partnership
Building

Expanding and developing new partnerships with the state transportation department, regional planning organization, regional transit agency, and local businesses.



Stakeholder
Engagement

Held inclusive public meetings with retirement community residents, local business leaders, local chapter of AARP, and advocacy groups for people with disabilities.



Dedicated
Resources

Key stakeholders pledged staff and funds to assist with concept development, deployment, and coordination efforts.

Transportation Needs



TRIP
PLANNING

- Accessible on-demand transportation options
- Information about accessibility along the trip for trip planning



TRANSFERS/PAYMENTS
STOPS & STATIONS

- Assistive solutions for transferring between vehicles or paying for multimodal trips with multiple payment methods



OUTDOOR
NAVIGATION

- Real-time information on accessible amenities, sidewalks and ADA landing pads, and pathways to services



INDOOR
NAVIGATION

- Information on multiple entrances/exits while navigating underground transit center and other buildings



INTERSECTION
CROSSING

- Sufficient time to safely cross busy intersections



INDOOR/OUTDOOR
TRANSITION

- Accessibility and infrastructure information for nearest pathways and entryways such as location of elevators, ramps, and automatic doors



BOARDING/USING
VEHICLES

- Convenient and flexible mobility options with consistent access to accessible vehicles



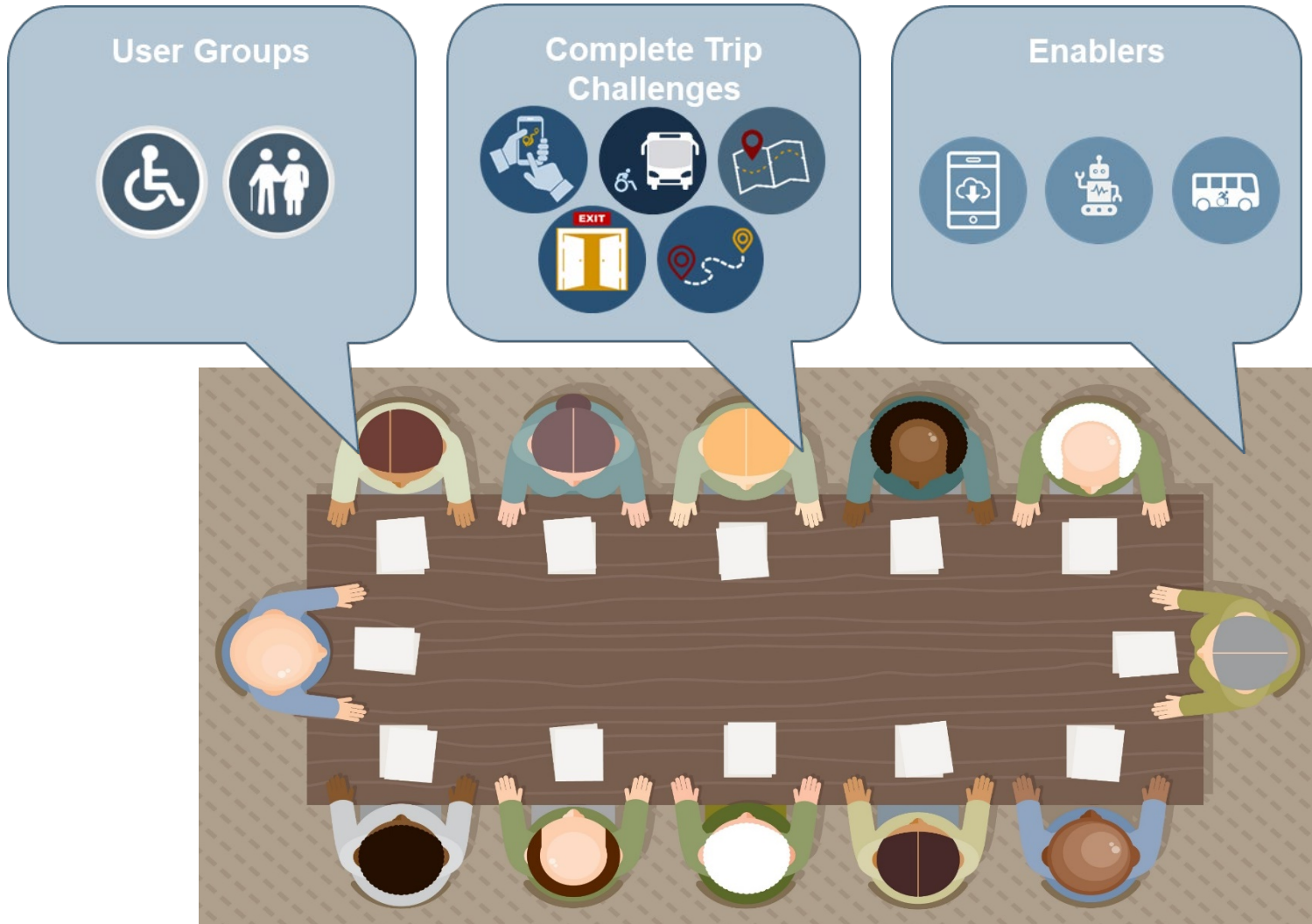
CONNECTING &
COMPLETING TRIP
SEGMENTS

- Assistance completing trips that require them to carry goods and other items to their residence

Complete Trip Segments and User Groups



Preliminary Concept Vision



Accessibility App



Outdoor Navigation



Indoor/Outdoor Transition



Trip Planning

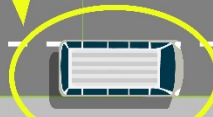


Ginger can view real-time accessibility information to find wheelchair ramps and entrances.

Automated Shuttle



Boarding/Using
Vehicles



Rosemary has convenient mobility options for travel within the retirement community and to the town center

Automated Delivery

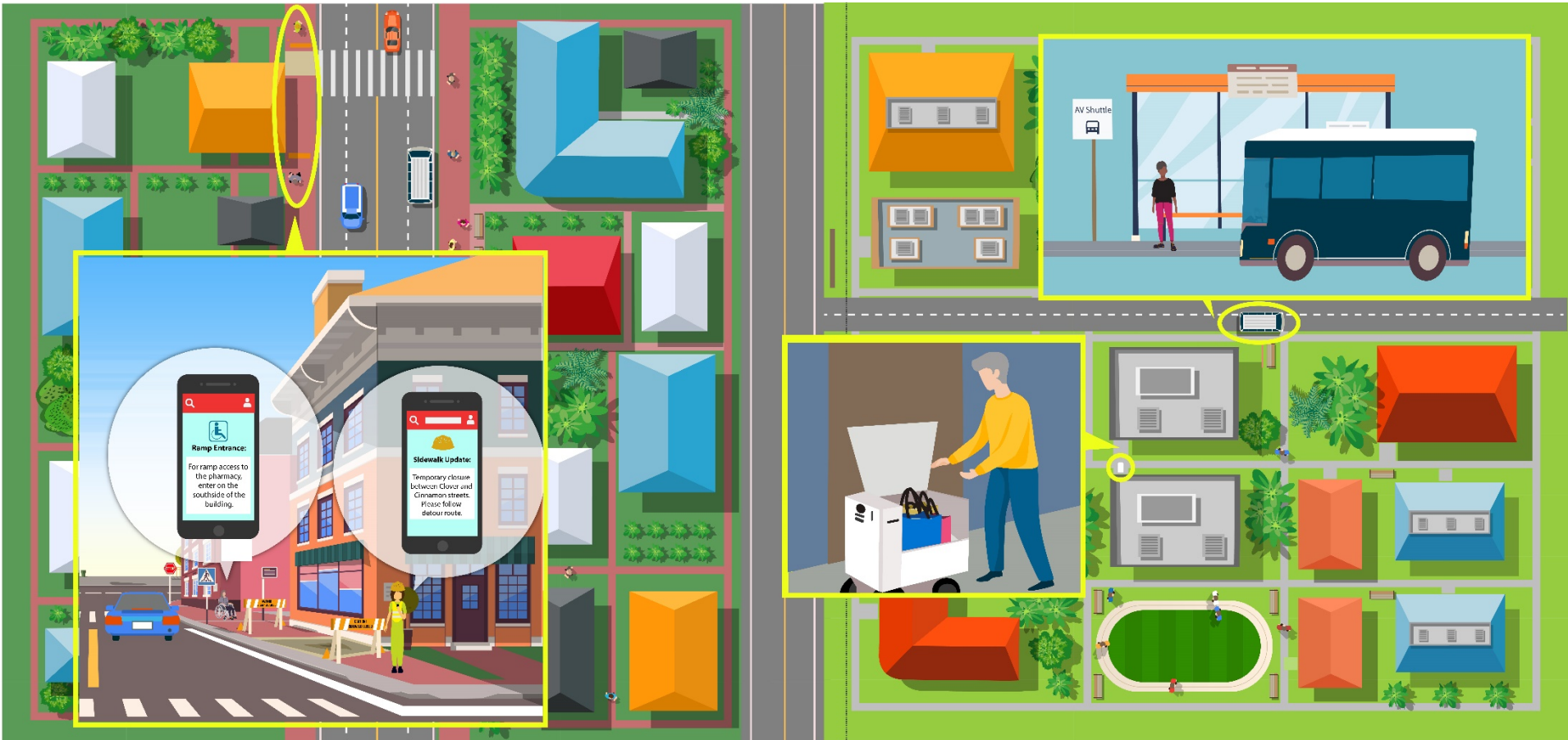


Connecting &
Completing Trip
Segments






Herb can have groceries safely and conveniently delivered to his front door

Integrated Deployment



Metrics Development Example

Trip Segment	Need	Solution(s)	Target
 <p>Trip Planning</p>	Information about accessibility along the trip for trip planning	<ul style="list-style-type: none"> • Accessibility App 	80% of travelers indicating satisfaction with accessibility information within two years
 <p>Boarding/ Using Vehicles</p>	Convenient and flexible mobility options with consistent access to accessible vehicles	<ul style="list-style-type: none"> • Automated Shuttle 	20% increase in number of recreational or shopping trips by retirement community residents completed within 30 minutes
 <p>Connecting & Completing Trip Segments</p>	Ability to complete trips with goods	<ul style="list-style-type: none"> • Automated Shuttle • Automated Delivery 	30% increase in independent shopping trips of retirement community residents over two years

This process should be repeated for each need and a need may have several metrics.

Upcoming Outreach Activity

- Save the date for the remainder of the webinar series:
 - Privacy, Security, and Open Data: April 9, 2020, 1:00 – 2:00 PM ET
 - Procurement Path: April 23, 2020, 1:00 – 2:00 PM ET
- All webinars will be recorded. Recordings and slide decks will be posted on the program website: <https://its.dot.gov/its4us/>

Enabling Components Q&A

For more information please contact:

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Visit the Complete Trip - ITS4US Deployment Program
Website:

<https://its.dot.gov/its4us/>