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Project Title: Leveraging Innovative Technology to Develop the Smart Travel Concierge System to Facilitate Pre-Trip Planning and Virtualization for Individuals with Cognitive Disabilities

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Produced by (Name of Contract)
U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology
(List all USDOT agencies sponsoring this report; only list one agency on the report cover)

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Technical Report Documentation Page

1. Report No. **FHWA-JPO-19-770**	2. Government Accession No.	3. Recipient's Catalog No. (Delete and insert information here or leave blank)
4. Title and Subtitle STCS Assessment Content Summary Leveraging Innovative Technology to Develop the Smart Travel Concierge System to Facilitate Pre-Trip Planning and Virtualization for Individuals with Cognitive Disabilities		5. Report Date January 20, 2019
		6. Performing Organization Code
7. Author(s) Steven E. Stock Daniel K. Davies		8. Performing Organization Report No.
9. Performing Organization Name and Address AbleLink Smart Living Technologies, LLC 6745 Rangewood Dr. Suite 210 Colorado Springs, CO 80918 719-592-0347		10. Work Unit No. (TRAIS)
		11. Contract or Grant No. DTFH617C000013
12. Sponsoring Agency Name and Address Federal Highway Administration PO Box 268865 Oklahoma City, OK 73126-8865		13. Type of Report and Period Covered
		14. Sponsoring Agency Code
15. Supplementary Notes		

16. Abstract

The Smart Travel Concierge System includes a series of travel readiness assessments designed to be used by individuals with cognitive disabilities and other users to self-assess their knowledge and experience in preparation for engaging in the use of fixed route public transit systems. This document provides an overview of the process used to create the assessments, as well as information regarding the assessments themselves.

17. Keywords technology, disability, transportation, independence	18. Distribution Statement	
19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages 80	22. Price

Form DOT F 1700.7 (8-72)   **Reproduction of completed page authorized**

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Executive Summary

This document serves as the Program Deliverable titled *Smart Travel Concierge System (STCS) Assessment Content Summary* as described in Project Proposal Part G – Schedule, Milestones, and Evaluation Metrics.

It incorporates the STCS Assessment Content Summary Overview, which provides a summary of the methodology used to develop the assessments as well as information pertaining to the resources that contributed to their development. Additionally, much of the design and content of the surveys incorporate findings from previous research, development, and evaluation projects conducted by AbleLink. Much of this previously conducted research and development includes work toward creation of AbleLink's Accessible Testing, Learning, and Assessment System (ATLAS), a cognitively accessible approach for enabling increased independence in completing various question and answer format inquiries by individuals with intellectual and other cognitive disabilities, including those who have significant functional literacy skill deficits.

Following the Executive Summary, text versions of the assessments are presented. These text versions describe all question and answer sets in each assessment. Each assessment begins with an optional opportunity to enter a name or ID number to facilitate administrator review on the reporting web site.

The five draft assessments are organized as follows:

- Transportation Skills and Experience Survey
- Street Crossing Skills Survey
- Safety/Social Skills Survey
- Bus Identification Survey
- Light Rail Skills and Experience Survey

Following the assessments, Appendix A includes a list of the most relevant web site resources reviewed in researching the content for these assessments.

Appendix B provides a sample of a .JSON (JavaScript Object Notation) file taken from the Transportation Skills and Experience Survey. The .JSON files organize all assessment content in a format that enables its use in the ATLAS survey engine.

Appendix C includes comments from the Project Steering Committee Assessment Review beta testers which have subsequently been reviewed, discussed and implemented in the relevant assessments.

Appendix D provides a table of acronyms used throughout the document.

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Conclusion

The results of this research process have been used to draft assessment categories and content areas, which in turn was used to draft ATTRI Transportation Readiness Assessment question/answer sets and development of multimedia content to facilitate use in the cognitively accessible, self-directed format of the ATLAS survey engine.

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Document Revision History

DOCUMENT REVISION HISTORY			
Version Number	Approved Date	Description of Change(s)	Created/ Modified By
2		The images used in the Assessments undergo continuous feedback from field evaluators, the Project Steering Committee and customer implementations and are continually being upgraded or changed to reflect the actual local environment in which they are being used in larger scale deployments. Due to this , the images have been removed from the document as their inclusion may not accurately reflect the Assessments, and a general text description of a representative image is provided instead.	Steven E. Stock

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Chapter 1. ATTRI ATLAS Assessment Research Overview

An initial focus for this research activity began with reviewing the most recent research, tools and approaches for transportation readiness assessment, pre-trip planning, and travel training. Activities included discussions with current WayFinder customers/partners, review of the project with stakeholder audiences during a series of presentations, solicitation and discussion with Steering Committee members, and an extensive review of current assessment tools, processes, literature, and web site information.

Customer discussions and stakeholder presentations have included but are not limited to Rocky Mountain Human Services, Merakey, Cheyenne Village, Inc., ARCA, Black Hills Works, Ohio State University's Nisonger Center and School of Health and Rehabilitation Services, the Georgia Institute of Technology, Horizons Unlimited, the Westchester Institute for Human Development, and the State of Tennessee's Department of Intellectual and Developmental Disabilities. These exchanges were beneficial in understanding the practices, tools, resources, challenges, questions, and successes of these entities in supporting the transportation needs of individuals with intellectual and other disabilities. The bulk of the work on this activity was in the literature and web site review, discussed subsequently. The approach for this activity has been a practical one with a focus on information that may directly inform the content needs of transit readiness assessment and self-assessment for individuals with intellectual and other significant cognitive disabilities.

Table summarizes the assessment documents and tools reviewed, as well as their focus and the potential to inform the AbleLink ATTRI II project.

Table 1: Documents and Tools Reviewed

Resource	Focus	Benefits/Comments
ATTRI User Needs Assessment: Stakeholder Engagement Report	To solicit feedback and information from stakeholders on user needs for ATTRI's user groups.	- Provides conclusions on providing information, options, assistance, and access to travelers with disabilities - Information section most useful for assessment and training content development

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Resource	Focus	Benefits/Comments
Smart Cities for All Toolkit	Resources to help Smart Cities worldwide include a focus on Information and Communication Technology (ICT) accessibility and digital inclusion of persons with disabilities and older persons.	• Database of solutions • See also www.smartcities4all.org
A Chance to Ride-The Kennedy Center	Introducing Young Adults with Autism to Independent Travel	• Pre-screening assessment (p.8) • Scores are prescriptive • General ("Understands street safety") skills assessment • Facilitator based • 3 level curricula (red/yellow/green)
Travel Training Good Practice Guidance-Halcrow Group Limited	United Kingdom (UK) based project.	• Focus on development of travel training schemes • Case study approach • Example approaches to hands-on travel training • Often school-based
ATTRI Innovation Scan	To survey technologies that have been recently introduced to public use and are being evaluated for effectiveness in select test markets prior to deployment at larger scales.	• Includes wayfinding and navigation • ITS (intelligent transportation system) and assistive tech • Automation and robotics • Data integration • Enhanced human service navigation • Identifies further resources for review as related to travel readiness assessment

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Resource	Focus	Benefits/Comments
ATTRI State of Practice Scan	To survey technologies that have been recently introduced to public use and are being evaluated for effectiveness in select test markets prior to deployment at larger scales.	• Includes wayfinding and navigation • ITS and assistive tech • Automation and robotics • Data integration • Enhanced human service navigation • Identifies further resources for review as related to travel readiness assessment
ATTRI Review of Relevant Research Scan	To report on research technologies - both within and outside of the transportation domain - that show promise at addressing the challenges that face ATTRI stakeholders.	• Includes wayfinding and navigation • ITS and assistive tech • Automation and robotics • Data integration • Enhanced human service navigation • Identifies further resources for review as related to travel readiness assessment
Core Competencies for Travel Trainers-Project Action	Focus on training the trainers.	• Explores classroom/academic vs. hands-on/mentorship approaches to training travel instructors • Identifies further resources for review as related to travel readiness assessment
Ride Wise-A Guide to Travel Training (Ride Connection)	Discussions and suggested lesson plans.	• Identifies specific assessment areas and potential content • Signage assessment • Extrapolate assessment content • Extrapolate training content

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Resource	Focus	Benefits/Comments
Travel Training Manual (Centro/UK)	Research was undertaken, existing travel training schemes visited and a workshop held to determine how Centro could support independent travel throughout the West Midlands. The best practice findings and key issues from the workshop and research have been incorporated.	• Red/yellow/green assessment results category-- (complete/some/no) • Travel training scheme approach • Includes training needs • Chapter 7 Assessment of Trainee services assessment content • Sample trainee • Route assessments • Initial skills assessment • Risk assessment
Individualized Travel Training- The Kennedy Center	To help those using the curriculum to introduce the concept of fully independent use of public transportation to a student with Autism Spectrum Disorder (ASD) on a one-to-one basis.	• Practical guide to travel assessment and training • Specific to IDD • Includes Travel Pre-Assessment • Trainee Info Sheet • Pre/Post Travel Training Test • Progress Level of Travel Skills
Safety First! Staying Safe While Travel Training (MTM Regional Transportation Authority)	Safety first during travel training.	• Includes high level transit skills and safety assessment info • High level assessment content • More applicable to training
Students on the Go, Safely and Independently— A Travel Training Manual (Gallaudet Univ.)	A Travel Training Protocol-What to Do Before, During, and After Travel Training.	• Includes Family Plan – Unexpected Travel Events • Includes a 25-question pre-assessment guide • Contributes to safety assessment content and training • Designed for students who are deaf

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Resource	Focus	Benefits/Comments
Functional Assessment of Cognitive Transit Skills-FACTS (Project Action)	Development of a cognitive functional assessment protocol designed to enable determination of whether applicants either possessed the cognitive skills required to use fixed route transit services or could be trained to use such services.	• Research based, hands on assessment • Requires props, rooms, simulation scenarios • Specific to cognitive disabilities • Can derive self-directed assessment content from process
Toolkit for the Assessment of Bus Stop Accessibility and Safety (National Aging and Disability Transportation Center-NADTC)	This toolkit is primarily targeted toward staff at transit agencies and public works departments who are responsible for bus stop design and placement.	• Bus stop checklists • How to conduct a bus stop inventory • Informs content of bus stop accessibility assessment
Building Awareness in Accessible Transportation: Transit assessment guide for students, families and educators (NADTC)	Students, families, and educators can selectively draw on the sections of this guide that are most relevant to their intended purpose. The checklists are designed to be a resource to enhance the accessibility of a transit system by evaluating individual routes/trips and fostering awareness of people's different needs and abilities.	• Excellent series of checklists • Informs assessment content and categories

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Resource	Focus	Benefits/Comments
Guidebook for Attracting Paratransit Patrons to Fixed-Route Services (Transit Cooperative Research Program-TCRP)	The Guidebook identifies the characteristics and preferences of four distinct market segments: people with disabilities who use fixed-route transit; people with disabilities who use paratransit; others who currently use paratransit; and people with disabilities who normally do not use transit. The Guidebook also provides step-by-step procedures for estimating demand, locating bus stops, training drivers, providing travel training for patrons, marketing services, and evaluating successes.	• Targets transit agencies • Best practices may inform assessment and training content
Strategy Guide to Enable and Promote the Use of Fixed-Route Transit by People with Disabilities (TCRP)	Similar to above with focus on people with disabilities.	• Targets transit agencies • Addresses all disabilities • Best practices may inform assessment and training content
Checklist for Assessing the Accessibility of Transportation and Mobility (Project Action)	There are three checklists that cover walking to the transit stop, riding on the vehicle and the transit stop/station.	• Excellent series of checklists • Provides information regarding the Stop/Station • Provides information regarding At the Stop/Station • Provides information regarding On the Vehicle
Yolobus Americans with Disabilities Act (ADA) Paratransit Policies Related to Individual Riders	The purpose of this document is to set policy, in accordance with Federal Transit Administration (FTA) regulation and the ADA, regarding Yolobus Special service for individual riders.	• Comprehensive policy manual • Not directly applicable • May extrapolate assessment content

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Resource	Focus	Benefits/Comments
Long Distance Transportation Checklist (Ameritrans)	Topics to consider when selecting a long-distance transportation company.	• Medical transportation only • May extrapolate information related to wheelchair users-minimal application
Bus Training Handbook (1996 conference paper for Council for Exceptional Children)	This manual presents guidelines for teaching students with disabilities necessary skills for safe and independent travel on public buses.	• List-based information on bus rules, safety practices, street crossing, travel readiness/skills, bus training and progress tracking • Bus crisis planning • Informs assessment and training content • Good focus on safety
Neighborhood Wayfinding Pocket Guide (NADTC)	This guide to neighborhood wayfinding describes things to consider when walking, driving, bicycling, or taking a bus or train to reach stores, community centers, libraries, parks, trails, restaurants, places of worship, or any destination.	• Includes Wayfinding Checklist • Addresses barriers and supporting environmental elements • Safety assessment • Training information.
Checklist for Assessing the Accessibility of Transportation and Mobility (NADTC)	There are three checklists that cover walking to the transit stop, riding on the vehicle and the transit stop/station.	• Appears to be very similar version of Checklist for Assessing the Accessibility of Transportation and Mobility (Project Action)
A Cost-Benefit Model for Travel Training (NADTC)	To accurately estimate benefits and costs derived from travel training services. Used expert panel approach.	• Benefits of travel training from the perspective of the public transit agency, trainee, and community • Risks if travel training services are not provided • May extrapolate assessment and training content

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Resource	Focus	Benefits/Comments
Promoting Accessible Fixed-Route Transit: Strategies (from TCRP Report 163)	The Transportation Research Board conducted a study to help determine if, how, and why people with disabilities are using fixed-route services and identify ways in which transit systems can or are encouraging and enabling such use.	• Literature review • Interviews • Nationwide survey methodologies • Narrative format outlines user needs that may inform assessments.
Transportation Technology (NADTC Information Brief)	To provide high-level guidance and resources for an agency to plan for, fund and implement technology.	• Focuses on process of transit agency integration of transportation tech • Funding resources • Broad agency scope • Minimal application to assessments/training • Not specific technologies
First Mile/Last Mile: Challenges and Opportunities (from NADTC Trend Report)	Successful completion of the First Mile and Last Mile of any public transportation trip is critical for older adults and people with disabilities who want to independently move around their communities.	• Highlights challenges and opportunities for critical fist mile/last mile travel • Informs both assessment and training processes in area of First Mile/Last Mile
Chicago Public Schools (CPS) Travel Training Evaluation Project (Urban Transportation Center/Univ. Illinois-Chicago)	This project undertook a systematic effort to place Travel Training Program evaluation on a more professionally recognizable and practically implementable footing.	• Well-rounded focus on CPS students • May extrapolate assessment and training content
Travel Training for Youth with Disabilities (National Dissemination Center for Children with Disabilities-NICHY)	To know what systems of transport are available, how to access these, how to plan their travel, and how to execute their travel plans safely.	• Primary focus on physical and vision disabilities • Some focus on cognitive disabilities • Good source for training content regardless of disability

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Resource	Focus	Benefits/Comments
Public Transit Assessments (MTM On the Move program)	(Private business) In-person assessments assist caregivers and educators in determining if passengers have the ability to safely and effectively utilize public transportation for daily travel to school, work, and medical appointments.	• Uses FACTS assessment noted previously • FACTS is specific to cognitive disabilities and is conducted with props • Addresses two aspects of the passenger's functional abilities—physical and cognitive • Assessment is conducted in the real transit environments • Performance observation and community-based assessment • Nationally recognized assessment is designed to assess the cognitive skills the candidate needs to utilize fixed route transportation • Complimentary and not competitively associated with the ATTRI assessments (self-report ATTRI assessments are most appropriately used in combination with FACTS results to inform the subsequent training content and process)
Rider's Guide to Public Transit for People with Disabilities (Transit Access Project/Meeting the Challenge)	This guide is designed to assist in accessing fixed route and ADA complementary paratransit systems by describing rights and responsibilities under the ADA and by offering useful tips that may increase chances for a successful ride.	• Information on ADA requirements for physical environments • May inform route assessment • May inform first mile/last mile content

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Resource	Focus	Benefits/Comments
Transportation Skills Assessment Tool (TSAT): Test Protocol for Understanding and Using Paratransit Services (Rutgers's Center for Advanced Infrastructure and Transportation)	The TSAT is developed as a component for determining the skills required for various types of paratransit services. It is designed for individuals who may have difficulty in utilizing available paratransit services. TSAT is an assessment designed to evaluate the component skills needed for using ADA complementary paratransit, curb-to-curb paratransit, door-to-door paratransit, door-through-door paratransit, and hand-to-hand paratransit.	• TSAT is designed to represent the communicative and cognitive skills an applicant needs to take various types of paratransit services • May extrapolate some content to inform assessments
Before You Give Up the Keys: Create a Roadmap for Transportation Independence (Eldercare Locator)	Brochure developed to help elders do three important things—learn, prepare and act—so that, should they need to give up the keys, they will already have a roadmap to guide them toward a healthy, happy, and safe non-driving future.	• Focused on older individuals • Includes links to additional resources

In addition to the table on tools and documents reviewed during this research process, Appendix A provides a list of the most relevant web sites reviewed for this activity.

Summary

The results of this research have been used to draft assessment categories and content areas, which in turn was used to draft ATTRI Transportation Readiness Assessment question/answer sets and development of multimedia content to facilitate use in the cognitively accessible, self-directed format of the ATLAS survey engine. The five assessment areas for the STCS are:

1. AbleLink ATTRI Assessment-Travel Skills and Experience

2. AbleLink ATTRI Assessment-Street Crossing Skills

3. AbleLink ATTRI Assessment-Social Skills

4. AbleLink ATTRI Assessment-Bus Identification

5. AbleLink ATTRI Assessment-Light Rail Skills and Experience

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Chapter 2. Assessments

Introduction to Assessments

The following sections detail the content of the five assessments. To aid in understanding the following survey content documents, please note:

- Each numbered survey question is presented first, and these represent both the on-screen text and the audio rendition of the question.

- Note some questions have an image associated with them and the nature of the image is described in parentheses following the question text. Questions that require larger images for answers do not have pictures and are labeled "Grid question-no image".

- Answers are provided in lettered lists and always include an image description, text and audio.

- The image descriptions for answers are provided first in parentheses for each possible response in an answer set, followed by the on-screen text for the answer and then the audio version of the answer in parentheses and italics.

- Audio versions of possible answers are sometimes expanded versions of the on-screen text to provide more information (such as rephrasing the response within the context of the question) for individuals with significant functional literacy challenges. Previous research by the project team has shown that the expanded audio descriptions are helpful to some individuals without providing confusion.

- An asterisk is used to indicate the best response to each question in the assessments. The best response can indicate the greatest degree of independence or knowledge pertaining to a question (e.g., have never gotten lost on a bus, have ridden the bus many times), or simply the correct answer (e.g., identifying the correct bus number.) Most importantly, responses to specific questions can trigger recommendations to corresponding training modules in the Learning Library subsystem to help address specific skill or experience deficits identified during the assessment process. For example, an individual who indicates they do not know how to ride an elevator would be channeled to the Learning Library module "Using Escalators and Elevators", or an individual who chose unsafe responses to street crossing scenario questions would be referred to "Using Intersections and Crosswalks" and/or "Crossing Without a Signal" training modules depending upon specific responses in the assessments.

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Transportation Skills and Experience Assessment

Introduction: "Welcome to the Transportation Skills and Experience survey. This survey will ask you questions about how you get around in the community. It will also ask you if you have ever ridden the bus before and how you liked it. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the blue Start button to begin."

Optional Text Box: "If you want, tap in the box and enter a name or user ID for this survey ... or else just press the Next button to continue."

1. Have you ever ridden on a city bus before? (Image of bus passenger looking out window.)

a) *(Image of two hands both showing thumbs up.) Yes, many times. *("Yes, I have ridden a city bus many times.")*

b) (Image of one hand showing thumbs up.) Yes, a few times. *("I have ridden a city bus a few times.")*

c) (Image of public transit bus with red "x" over it.) I used to ride the bus but not anymore. *("I used to ride the bus but not anymore.")*

d) (Image of hand showing thumbs down.) No. *("No, I have not ridden a city bus.")*

e) (Image of a question mark.) I am not sure. *("I am not sure.")*

2. (IF YES TO QUESTION 1) How many different bus routes do you know? (Image of city bus with large red question mark over it.)

a) *(Collage image of various landmark destinations.) I know a lot of different bus routes. *("I know a lot of different bus routes.")*

b) (Image showing two or three city buses on the street.) I know two or three different bus routes. *("I know two or three different bus routes.")*

c) (Image of city bus on highway.) I only know one bus route. *("I only know one bus route.")*

d) (Image of a red circle with cross through it.) None. *("I do not know any bus routes.")*

3. (IF YES TO QUESTION 1) How often have you missed your bus? (Image of person running to catch a bus.)

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a) (Image of a person running to catch a bus.) I have missed my bus many times. *("I have missed my bus many times.")*

b) (Image of city bus leaving the curb.) Once in a while I miss my bus. *("Once in a while I miss my bus.")*

c) (Image of several people in line to get on a bus.) In the past I have, but not for a long time. *("In the past I have, but not for a long time.")*

d) *(Image of several people in line to get on a bus.) I have never missed my bus. *("I have never missed my bus.")*

e) (Image of a question mark.) I am not sure. *("I am not sure.")*

4. (IF YES TO QUESTION 1) When you ride the city bus, who do you go with? (Image of a people sitting on a city bus.)

a) *(Image of person sitting alone on a bus.) I usually go by myself. *("I usually ride the bus by myself.")*

b) (Image of two people together.) I usually go with someone else. *("I usually go with someone else when I ride the bus.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

5. (IF YES TO QUESTION 1) How do you get to the bus stop? (Image of bus stop shelter with no people in it.)

a) *(Image of a person walking down a sidewalk alone.) I usually go by myself. *("I usually go to the bus stop by myself.")*

b) (Image of two people walking together across a street.) Someone usually goes with me. *("Someone usually goes with me to the bus stop.")*

c) (Image of a a person getting out of a car.) I get dropped off. *("I get dropped off at the bus stop.")*

d)   (Image of group of people waiting at a bus stop.) Different ways. *("I get to the bus stop different ways depending on where I am going.")*

e) (Image of a question mark.) I am not sure. *("I am not sure.")*

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6. (IF YES TO QUESTION 1) Do you know how to transfer from one bus to another? (Image of two buses with a bus transfer card superimposed over the upper left corner of the image.)

a) *(Image of two hands showing thumbs up.) Yes *("Yes, I know how to transfer from one bus to another.")*

b) (Image of one hand showing thumbs up.) Yes, but only on routes I already know. *("Yes, I can transfer but only on routes that I already know.")*

c) (Image of hand showing thumbs down.) No. *("No, I do not know how to transfer from one bus to another.")*

d) (Image of a question mark.) I am not sure. *("I am not sure.")*

7. (IF YES TO QUESTION 1) Have you ever forgot anything on the bus? (Image of purse or backpack sitting on an empty seat inside a bus.)

a) (Image of purse or backpack sitting on an empty seat inside a bus.) Yes *("Yes, I have forgot things on the bus before.")*

b) (Image of a person standing at door of bus looking in.) In the past, but not for a long time. *("I have in the past, but not for a long time.")*

c) *(Image of a person getting off a bus carrying personal items.) No. *("No, I never forget anything on the bus.")*

d) (Image of a question mark.) I am not sure. *("I am not sure.")*

8. (IF YES TO QUESTION 1) Do look out the window for landmarks to help you know where you are while riding the bus? (Image taken from inside a bus looking out the window at a store or other landmark.)

a) *(Image of a hand showing thumbs up.) Yes, I use landmarks. *("Yes, I look out the window for landmarks when I am riding the bus.")*

b) (Image of a hand showing thumbs down.) No. *("No, I do not look out the window for landmarks.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

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9. (IF YES TO QUESTION 1) Can you pull the cable or signal the bus driver when it is time for you to get off the bus? (Image of figure pulling the stop signal cord on a bus.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I can signal the bus driver.")*

b) (Image of a hand showing thumbs down.) No. *("No, I cannot signal the bus driver.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

10. (IF YES TO QUESTION 1) Have you ever missed your bus stop while riding the bus? (Image of passenger on bus looking out window.)

a) (Image of a person sleeping on a bus.) Yes. *("Yes, I have missed my bus stop while riding the bus.")*

b) (Image of a person riding bus looking out window and paying attention.) In the past, but not for a long time. *("I have in the past, but not for a long time.")*

c) *(Image of passengers getting off a city bus.) No. *("No, I have not missed my bus stop before.")*

d) (Image of a question mark.) I am not sure. *("I am not sure.")*

11. (IF YES TO QUESTION 1) Once you get off the bus, how do you get the rest of the way to your destination? (Image of passengers unloading and walking away from a bus.)

a) *(Image of a person walking alone down a sidewalk.) I can go the rest of the way by myself. *("After getting off the bus, I can go the rest of the way by myself.")*

b) (Image of a person standing next to a map kiosk pointing out the way to another person.) Someone helps me get the rest of the way. *("Someone usually helps me get the rest of the way after I get off the bus.")*

c) (Image of a person getting into the passenger side of a car with another person driving.) Someone picks me up gives me a ride. *("Someone picks me up and gives me a ride the rest of the way.")*

d) (Image of people loading and unloading in a bus station.) I use different ways to get the rest of the way. *("I use different ways to get the rest of the way, depending on where I am going.")*

e) (Image of a question mark.) I am not sure*. ("I am not sure.")*

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12. (IF YES TO QUESTION 1) Can you pay the bus fare by yourself? (Image of a smiling bus driver next to a fare box on a bus.)

a) *(Image looking in door of a bus at person paying a fare.) Yes. *("Yes, I can pay the bus fare by myself.")*

b) (Close up image of a fare box on a bus.) No. *("No, I cannot pay the bus fare by myself.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.)*

13. (IF YES OR NO TO QUESTION 1) Have you ever had training to ride the bus? (Image of a person explaining something to another person sitting next to him/her on a bus.)

a) *(Image of a person explaining something to another person sitting next to him/her on a bus.) Yes. *("Yes, I have had training to learn to ride the bus.")*

b) (Image of a bus with traffic cones around it and a red circle with a cross drawn over it.) No. *("No, I have not had any training.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.)*

14. (IF YES OR NO TO QUESTION 1) Do you know how to use an elevator? (Close up image of a person on an elevator selecting a floor button.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I can use an elevator.")*

b) (Image of a hand showing thumbs down.) No. *("No, I cannot use an elevator.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

15. (IF YES OR NO TO QUESTION 1) Do you know how to ride an escalator? (Close up image of an escalator.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I can use an escalator.")*

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b) (Image of a hand showing thumbs down.) No. *("No, I cannot use an escalator.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

16. (IF YES OR NO TO QUESTION 1) Can you wait in line for your turn to get on a bus? (Image of a long line of people waiting to board a city bus.)

a) *(Image of a hand showing thumbs up.) Yes*. *("Yes, I can wait in line.")*

b) (Image of two hands, one showing thumbs up and the other showing thumbs down.) Sometimes. *("Sometimes I am able to wait in line but sometimes it is hard.")*

c) (Image of a hand showing thumbs down.) No. *("No, it is very hard for me to wait in line.")*

d) (Image of a question mark.) I am not sure. *("I am not sure.")*

17. (IF YES OR NO TO QUESTION 1) Do you know how to use a bus map? (Image of a city bus map.)

a) *(Image of a hand showing thumbs up.) Yes*. *("Yes, I can use bus map.")*

b) (Image of a hand showing thumbs down.) No. *("No, I cannot use a bus map.")*

c) (Image of a question mark.) I am not sure. *("I am not sure.")*

18. (IF YES OR NO TO QUESTION 1) How do you get on the bus? (Split image with one side showing the entrance and steps to a bus and the other side showing a person using a lift to get on a bus.)

a) (Image showing a person using a lift to get on a bus.) I use a lift. *("I use a lift to get on a bus.")*

b) (Image showing the entrance and steps to a bus.) I use the steps. *("I use the steps to get on a bus.")*

c) (Image showing a question mark.) I am not sure. *("I am not sure.")*

19. (IF YES OR NO TO QUESTION 1) Does riding the bus make you nervous or scared? (Image showing a clearly scared person.)

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a) (Different image showing a clearly scared person.) Yes. *("Yes, I get very nervous about riding the bus.")*

b) (Image showing a nervous or slightly scared person.) Sometimes*. ("Sometimes I get nervous about riding the bus.")*

c) *(Image showing a person smiling while riding on a city bus.) No. *("No, I do not get nervous about riding the bus.")*

d) (Image showing a question mark.) I am not sure. *("I am not sure.")*

20. (IF YES OR NO TO QUESTION 1) Does being around a lot of people make you nervous? (Image showing large group of people waiting at a bus stop.)

a) (Image of a large group of people waiting by a curb with a red circle and red cross over it.) Yes. *("Yes, being around a lot of other people makes me nervous.")*

b) (Image showing a nervous or slightly scared person.) Sometimes. *("Sometimes being around other people makes me nervous.")*

c) *(Image showing group of smiling people riding a bus.) No. *("No, I do not get nervous when I am around other people.")*

d) (Image showing a question mark.) I am not sure. *("I am not sure.")*

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Street Crossing Skills Assessment

Introduction: "Welcome to the Street Crossing Skills survey. This survey will show you pictures and ask questions about them. The questions will be about how and where to cross the street safely. It will also ask about signs that show where to wait for a bus. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the green Start button to begin."

Optional Text Box: "If you want, tap in the box and enter a name or user ID for this survey ... or else just press the Next button to continue."

1. Which picture shows a safe place to cross a street? (Grid question-no image)

a) (Image of a person walking in the street through congested traffic.) Safe place to cross the street. *("This picture shows a safe place to cross a street.")*

b) (Image of a person walking through an intersection outside of the crosswalk.) *Safe place to cross the street. ("This picture shows a safe place to cross a street.")*

c) ***(**Image of a group of people crossing a street in a crosswalk with no cars present.) *Safe place to cross the street. ("This picture shows a safe place to cross a street.")*

2. Which picture shows a good place to wait for a bus? (Grid question-no image)

a) *(Image of an empty glass bus shelter with a bench in it.) This is a good place to wait for a bus. *("This is a good place to wait for a bus.")*

b) (Image of an inner-city alley way between large brick buildings with graffiti.) This is a good place to wait for a bus. *("This is a good place to wait for a bus.")*

c) (Image of two people walking on a downtown sidewalk with cars going by.) This is a good place to wait for a bus. *("This is a good place to wait for a bus.")*

3. Which picture shows a safe way to cross the street? (Grid question-no image)

a) *(Image of group of people crossing a street in a crosswalk and watching for traffic with no cars present.) This is a safe way to cross the street. *("This picture shows a safe way to cross the street.")*

b) (Image of a person walking while being preoccupied with her cell phone.) This is a safe way to cross

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the street. *("This picture shows a safe way to cross the street.")*

c) (Image of two people running across a busy highway.) This is a safe way to cross the street. *("This picture shows a safe way to cross the street.")*

4. Which picture shows a safe way to cross the street? (Grid question-no image)

a) (Image of a crosswalk with a signal showing the symbol for Do Not Cross.) . Safe to cross the street *("This picture shows when it is safe to cross the street.")*

b) *(Image of a crosswalk with a signal showing the symbol indicating it is safe to cross.) Safe to cross the street *("This picture shows when it is safe to cross the street.")*

5. Which picture shows a "Do Not Cross" signal? (Grid question-no image)

a) (Image of a vehicle traffic signal showing a red light.) This picture shows a "Do Not Cross" signal. *("I think this picture shows a do not cross signal.")*

b) (Image of pedestrian crossing signal showing the symbol that it is okay to cross.) This picture shows a "Do Not Cross" signal. *("I think this picture shows a do not cross signal.")*

c) *(Image of a crossing signal showing the open hand symbol indicating Do Not Cross.) This picture shows a "Do Not Cross" signal. *("I think this picture shows a do not cross signal.")*

6. Which signal shows when it is safe to cross the street? (Grid question-no image)

a) *(Image of pedestrian crossing signal showing the symbol that it is okay to cross.) This signal shows it is safe to cross the street *("This signal shows it is safe to cross the street.")*

b) (Image of a pedestrian crossing signal showing the open hand symbol indicating Do Not Cross.) This signal shows it is safe to cross the street *("This signal shows it is safe to cross the street.")*

c) (Image of a pedestrian crossing signal showing the words Dont Walk.) This signal shows it is safe to cross the street *("This signal shows it is safe to cross the street.")*

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7. Which of these signs shows where it is safe for people to cross the street? (Grid question-no image)

a) (Image of crossing sign symbol showing a red circle with a cross over a human outline and indicating it is not safe to cross.) This sign shows where it is safe to cross. *("This sign shows where it is safe for people to cross the street.")*

b) *(Image of a yellow pedestrian safety sign showing an outline of a human in a crosswalk and indicating it is safe to cross.) This sign shows where it is safe to cross. *("This sign shows where it is safe for people to cross the street.")*

c) (Image of a pedestrian safety sign showing outlines of two people running.) This sign shows where it is safe to cross. *("This sign shows where it is safe for people to cross the street.")*

8. Which sign shows a bus stop? (Grid question-no image)

a) *(Image of a blue sign with a white bus outline.) This sign shows a bus stop *("This sign shows a bus stop.")*

b) (Image of a blue sign with a white outline of a pay phone.) This sign shows a bus stop *("This sign shows a bus stop.")*

c) (Image of a traffic sign showing the road ahead is divided.) This sign shows a bus stop *("This sign shows a bus stop.")*

9. Which of these signals means "Do Not Walk"? (Grid question-no image)

a) (Image of a pedestrian crossing signal with human outline walking, showing it is safe to cross.) This signal means "Do Not Walk". *("This signal means do not walk.")*

b) (Image of a pedestrian crossing signal with a green human figure walking, showing it is safe to cross.) This signal means "Do Not Walk". *("This signal means do not walk.")*

c) *(Image of a pedestrian crossing signal with an open hand palm, showing it is not safe to cross.) This signal means "Do Not Walk". *("This signal means do not walk.")*

10. Which picture shows when it is safe for people to cross the street? (Grid question-no image)

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a) *(Image of a downtown intersection with crosswalks and no moving cars present.) This picture shows when it is safe to cross. *("This picture shows when it is safe for people to cross the street.")*

b) (Image of a downtown intersection with several cars moving in and through a crosswalk.) This picture shows when it is safe to cross. *("This picture shows when it is safe for people to cross the street.")*

c) (Image of two people running across a busy highway.) This picture shows when it is safe to cross. *("This picture shows when it is safe for people to cross the street.")*

11. Which picture shows the button you can push so you can safely cross the street? (Grid question-no image)

a) (Close up image of someone pushing a floor selection button in an elevator.) You can push this button to safely cross. *("You can push this button to safely cross the street.")*

b) (Close up image of an automatic door opener button.) You can push this button to safely cross. *("You can push this button to safely cross the street.")*

c) *(Close up image showing a "Push Button to Cross" sign with a pedestrian crossing signal button below it.) You can push this button to safely cross. *("You can push this button to safely cross the street.")*

12. Which picture shows when it is safe for people to cross the street? (Grid question-no image)

a) (Image of a busy crosswalk with many moving cars moving through and a person waiting to cross.) This picture shows when it is safe to cross. *"I think this picture shows when it is safe for people to cross the street.")*

b) *(Image of a rural street crosswalk with crossing signs and no moving cars present.) This picture shows when it is safe to cross. *"I think this picture shows when it is safe for people to cross the street.")*

13. Which sign shows where you would wait for a bus? (Grid question-no image)

a) *(Image of a sign showing the outline of a bus and the words "Bus Stop".) This sign shows where to wait for the bus *("This sign shows where to wait for the bus.")*

b) (Image of a railroad crossing sign.) This sign shows where to wait for the bus *("This sign shows where to wait for the bus.")*

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c) (Image a bicycle route sign showing outline of a bicycle.) This sign shows where to wait for the bus *("This sign shows where to wait for the bus.")*

14. What should you do to cross the street safely? (Grid question-no image)

a) *(Image showing a person standing on a curb looking down the street.) Keep looking both ways while crossing. *("I should keep looking both ways for cars while crossing the street.")*

b) (Image of a person walking in a street while looking at their cell phone.) Check my cell phone while crossing the street. *("I should check my cell phone while crossing the street.")*

15. Which is the best way to cross a street? (Grid question-no image)

a) (Image of a person running across a street but not in a crosswalk.) Run as fast as I can when crossing the street. *("I should run as fast as I can while crossing the street.")*

b) *(Image of a person crossing a street briskly in a crosswalk with no moving cars present.) Walk quickly without stopping when crossing. *("I should walk quickly without stopping when crossing the street.")*

16. Is it safe to stop in the crosswalk while crossing the street? (Grid question-no image)

a) (Image of a woman standing still in a crosswalk in the street while looking at her cell phone.) Yes, it is safe to stop in the cross walk. *("Yes, it is safe to stop while crossing the street.")*

b) *(Image of a person walking across the street in a crosswalk with no moving cars present.) No, you need to keep walking. *("No, you need to keep walking when crossing the street.")*

17. After you get off a bus, is it safer to cross the street in front of the bus or to wait for the bus to drive away first? (Grid question-no image)

a) *(Image of a person waiting on the sidewalk while a municipal bus leaves.) Safer to wait until the bus has left before crossing. *("It is safer to wait until the bus has left before crossing the street.")*

b) (Image of one or more people walking in a street in front of an oncoming municipal bus.) Safer to cross

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the street in front of the bus. *("It is safer to cross the street in front of the bus.")*

18. Do you know how to use street crossing signals to cross the street safely? (Image of a crossing signal showing the symbol of an open hand and the number of seconds remaining.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I know how to use the street crossing signal to cross the street safely.")*

b) (Image of a hand showing thumbs down.) No. *("No, I do not know how to use the street crossing signal to cross the street safely.")*

c) (Image of a question mark.) I am not sure. *("I am not sure if I can use the street crossing signal to cross the street safely.")*

19. Can you cross the street safely when there is no signal? (Image of two people standing on a curb waiting to cross a street with no electronic signal.)

a) *(Image of a hand showing thumbs up.) Yes. ("*Yes, I can cross the street safely when there is no signal."*")

b) (Image of a hand showing thumbs down.) No. *("No, I do not know how to cross the street safely when there is no signal.")*

c) (Image of a question mark.) I am not sure *("I am not sure if I can cross the street safely when there is no signal.")*

20. Can you cross the street safely at intersections where there is only a Stop Sign? (Image of an intersection with a stop sign and no signals.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I can cross the street safely at intersections where there is only a Stop Sign.")*

b) (Image of a hand showing thumbs down.) No. *("No, I cannot cross the street safely at intersections where there is only a Stop Sign.")*

c) (Image of a question mark.) I am not sure *("I am not sure if I can cross the street safely at intersections where there is only a Stop Sign.")*

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21. Do you know how to use the traffic signal button to help cross the street? (Image of a pedestrian crossing traffic sign and signal button.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I know how to use the traffic signal button to help me cross the street.")*

b) (Image of a hand showing thumbs down.) No. *("No, I do not know how to use the traffic signal button to help cross the street.")*

c) (Image of a question mark.) I am not sure *("I am not sure if I know how to use the traffic signal button to help cross the street.")*

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Social and Safety Skills Assessment

Introduction: "Welcome to the Social Skills survey. This survey will ask questions about how you may interact with other people while you are in the community. Please answer these questions as best you can. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the green Start button to begin."

Optional Text Box: "If you want, tap in the box and enter a name or user ID for this survey ... or else just press the Next button to continue."

1. How do you communicate with other people? (Image of group of people interacting outside a bus.)

a) *(Image of man and woman holding coffee cups and talking.) I talk to them with my voice. *("I talk to them with my voice or a communication device.")*

b) *(Image of group of people using sign language.) I use sign language. *("I to talk to other people using sign language.")*

c) *(Image of a person holding a written note that says "Thanks!") I use written notes to communicate. *("I use written notes to communicate with other people.")*

d) (Image of three people sitting and talking.) Someone else helps me talk to other people. *("Someone else usually helps me talk to other people.")*

e) (Image of a question mark.) I am not sure. *("I am not sure how I communicate with other people.")*

2. If you need something can you ask someone for help? (Image of two people talking.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I am good at asking other people for help.")*

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Sometimes. *("Sometimes I can ask other people for help.")*

c) (Image of a hand showing thumbs down.) No. *("No, I do not usually ask other people for help.")*

d) (Image of a question mark.) I am not sure *("I am not sure.")*

3. Do you use a cell phone? (Close up image of someone holding a cell phone with one hand while tapping the screen with the other hand.)

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a) *(Close up image of someone holding a cell phone with one hand while tapping the screen with the other hand.) Yes, I use a cell phone. *("Yes, I use a cell phone.")*

b) (Close up image of someone holding a cell phone with one hand while tapping the screen with the other hand and a large red circle with a cross over it.) No, I do not use a cell phone. *("No, I do not use a cell phone.")*

c) (Image of two people both using the same cell phone.) I use a cell phone with help from someone else. *("I use a cell phone with help from someone else.")*

4. What would you do if someone on the bus that you did not know asked to borrow your phone? (Image of a person handing a cell phone to another person with the words "Can I Borrow Your Phone" superimposed over it.)

a) (Image of two people, one using a cell phone and the other watching.) I would let someone on the bus use my phone. *("I would let someone on the bus use my phone.")*

b) *(Image of a cell phone tucked into a pocket.) I would tell them that I do not let people use my phone. *("I would tell them that I do not let people use my phone.")*

c) (Image of a question mark.) I am not sure what I would do if someone on the bus that asked to use my phone. *("I am not sure what I would do if someone on the bus asked to use my phone.")*

5. Do you know your phone number and address? (Image showing a typed note with a sample address and phone number for Jane Doe.)

a) *(Imager of a woman with a thought cloud showing a typed note of a sample address and phone number for Jane Doe.) Yes, I have them memorized. *("Yes, I have my phone number and address memorized.")*

b) *(Image of a sample ID card.) Yes, I have them on a card. *("Yes, I have my phone number and address on a card that I carry with me.")*

c) (Image of a question mark.) No, I do not know my phone number and address. *("No, I do not know my phone number and address.")*

6. Do you know the difference between a stranger and a friend? (Dual image showing a hooded, faceless person on the left and a group of happy friends on the right.)

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a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I know the difference between a stranger and a friend.")*

b) (Image of a hand showing thumbs down.) No. *("No, I do not know the difference between a stranger and a friend.")*

c) (Image of a question mark.) I am not sure *("I am not sure if I always know the difference between a stranger and a friend.")*

7. Do you ever talk to strangers? (Grid question-no image)

a) (Image of a person standing in a bus aisle talking to other passengers.) Yes, I talk to strangers sometimes. *("Yes, I talk to strangers sometimes.")*

b) *(Image of a person sitting by themselves on a bus looking out the window.) No. *("No, I do not talk to strangers.")*

c) (Image of a question mark.) I am not sure if I talk to strangers. *("I am not sure if I talk to strangers.")*

8. What would you say if someone on the bus asked to borrow some money? (Image of a person sitting on a sidewalk with their hand out and showing a "Please Help" sign.)

a) *(Image of a person looking away while holding their open palm out as if to gesture "no".) I would say "no" if someone asked for money. *("I would say No, I don't have money to give to anyone.")*

b) (Image of someone giving cash to another person.) I would say "yes" if someone asked for money. *("I would say yes and give them some money if I had it.")*

c) (Image of a question mark.) I am not sure what I would say. *("I am not sure if I would give anyone money.")*

9. Which picture shows a bus driver? (Grid question-no image.)

a) (Image of a person walking down the aisle of a bus.) I think this person is a bus driver. *("I think this person is a bus driver.")*

b) *(Image of a bus driver in uniform and in the drivers seat of a bus.) I think this person is a bus driver.

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("I think this person is a bus driver.")

c) (Image of a person sitting alone in the back of a bus.) I think this person is a bus driver. *("I think this person is a bus driver.")*

10. Which of these people would be the best to ask for help? (Grid question-no image.)

a) (Image of a man in sunglasses sitting on a bus stop bench.) I would ask this person for help. *("I would ask this person for help.")*

b) (Image of a woman pedestrian on a downtown sidewalk.) I would ask this person for help. *("I would ask this person for help.")*

c) *(Image of a uniformed police officer.) I would ask this person for help. *("I would ask this person for help.")*

11. Which of these places would you go to if you needed help? (Image of two people talking.)

a) (Image of a private home.) I would go to a house to ask for help. *("I would go to a house to ask for help.")*

b) *(Image of a bus depot ticket counter.) I would go to a ticket counter or information booth for help. *("I would go to a ticket counter or information booth for help.")*

c) *(Image of the front of a convenience store.) I would go to a business to ask for help. *("I would go to a store or business to ask for help.")*

d) (Image showing entrance to an apartment building.) I would go to an apartment building to ask for help. *("I would go to an apartment to ask for help.")*

12. Where is the safest place to sit on the bus? (Grid question-no image.)

a) *(Image of a person sitting in the front row of a bus showing the bus driver close by.) Close to the bus driver. *("I think it is safest to sit close to the bus driver.")*

b) (Image of a person sitting alone in the rear of a bus.) At the back of the bus. *("I think it is safest to sit at the back of the bus.")*

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c) (Image of the inside of an empty bus.) Anywhere. *("I think it is safe to sit anywhere on the bus.")*

d) *(Image of a question mark.)* I am not sure. *("I am not sure where the safest place to sit on the bus is.")*

13. Have you ever fallen asleep on the bus? (Image of a person sleeping on a bus.)

a) (Image of a hand showing thumbs up.) Yes. *("Yes, I have fallen asleep on the bus.")*

b) *(Image of a hand showing thumbs down.) No. *("No, I have never fallen asleep on the bus.")*

c) (Image of a question mark.) No, I do not ride the bus. *("No, I do not ride the bus.")*

14. What would you do if you missed your bus? (Image of the back of a bus that is driving away.)

a) *(Image of a group of people waiting at a bus stop.) I would wait for the next bus. *("I would wait for the next bus.")*

b) (Image of a person walking up a driveway to a house.) I would go back home. *("I would go back home.")*

c) (Image of a person out in the community using a cell phone.) I would call someone for help. *("I would call someone for help.")*

d) (Image of a yellow taxi cab.) I would call a taxi or ride share company. *("I would call a taxi or ride share company.")*

e) (Image of a question mark.) I am not sure. *("I am not sure.")*

15. What would you do if you were riding the bus and missed your bus stop? (Image of a person sitting alone on a bus.)

a) (Image of a person looking out the window of a bus.) I would stay on the bus until it came all the way back around to my bus stop. *("I would stay on the bus until it came all the way back around to my bus stop.")*

b) (Image of a person walking down a neighborhood sidewalk.) I would get off at the next bus stop and walk the rest of the way. *("I would get off at the next bus stop and walk the rest of the way.")*

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c) *(Image of a person talking on a cell phone out in the community.) I would call someone for help. *("I would call someone for help.")*

d) (Image of an empty bus stop shelter.) It depends on which bus stop I missed. *("It depends on which bus stop I missed.")*

e) (Image of a question mark.) I am not sure. *("I am not sure.")*

16. Do you know who to call if you need help? (Image of a person talking outside on a cell phone.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I know who to call if I need help.")*

b) (Image of a hand showing thumbs down.) No. *("No, I am not sure who to call if I need help.")*

c) (Close up image of someone holding a cell phone with a red circle and cross over it.) I do not use a cell phone. *("I do not use a cell phone.")*

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Vehicle Identification Assessment

Introduction: "Welcome to the Bus Identification survey. This survey will show you pictures of city busses and ask questions about how to tell difference between them. It may ask about bus numbers or names. It may also ask about where a bus is going or what time a bus will be arriving. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the green Start button to begin."

Optional Text Box: "If you want, tap in the box and enter a name or user ID for this survey ... or else just press the Next button to continue."

1.   Which picture shows Bus Number 18? (Grid question-no image.)

a)   (Image of bus number 2.) This is bus number 18. *("I think this is bus number 18.")*

b)   *(Image of bus number18.) This is bus number 18. *("I think this is bus number 18.")*

c)   (Image of bus number 47.) This is bus number 18. *("This is bus number 18.")*

2.   Which picture shows Bus Number 26? (Grid question-no image.)

a)   *(Image of bus number 26.) This is bus number 26 *("This is bus number 26.")*

b)   (Image of bus number 23.) This is bus number 26 *("I think this is bus number 26.")*

c)   (Image of bus number 24.) This is bus number 26 *("I think this is bus number 26.")*

3.   Which picture shows Bus Number 43? (Grid question-no image.)

a)   (Image of bus number 51.) This is bus number 43. *("I think this is bus number 43.")*

b)   (Image of bus number 2.) This is bus number 43. *("This is bus number 43.")*

c)   *(Image of bus number 43.) This is bus number 43. *("I think this is bus number 43.")*

4.   Which picture shows Bus Number 81? (Grid question-no image)

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a) *(Image of bus number 81.) This is bus number 81. *("I think this is bus number 81.")*

b) (Image of bus number 47.) This is bus number 81. *("I think this is bus number 81.")*

c) (Image of bus number 18.) This is bus number 81. *("This one is bus 81.")*

5. Which picture shows Bus Number 232? (Grid question-no image)

a) (Image of bus number 20.) This is bus number 232. *("I think this is bus number 232.")*

b) (Image of bus number 270.) This is bus number 232. *("I think this is bus number 232.")*

c) *(Image of bus number 232.) This is bus number 232. *("This one is bus 232.")*

6. Which picture shows Bus Number 13? (Grid question-no image)

a) (Image of bus number 26.) This is bus number 13. *("I think this is bus number 3.")*

b) *(Image of bus number 13.) This is bus number 13. *("I think this is bus number 13.")*

c) (Image of bus number 43.) This is bus number 13. *("This one is bus 13.")*

7. Which picture shows a bus going to LAX? (Grid question-no image.)

a) (Image of bus with City Centre displayed over windshield.) I think this is the bus going to LAX. *("I think this is the bus going to LAX.")*

b) *(Image of bus with LAX displayed over windshield.) I think this is the bus going to LAX. *("I think this is the bus going to LAX.")*

8. Which picture shows a bus going to Roslindale? (Grid question-no image.)

a) *(Image of bus with Roslindale displayed over windshield.) I think this is the bus going to Roslindale. *("I think this is the bus going to LAX.")*

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b) (Image of bus with Hove Station displayed over windshield.) I think this is the bus going to Roslindale. *("I think this is the bus going to LAX.")*

c) (Image of a question mark.) I am not sure which bus is going to Roslindale. *("I am not sure which bus is going to Roslindale.")*

9. Which picture shows a bus going to Dunedin City? (Grid question-no image.)

a) (Image of bus with Union Manor displayed over windshield.) I think this is the bus going to Dunedin City. *("I think this is the bus going to Dunedin City.")*

b) *(Image of bus with Dunedin City displayed over windshield.) I think this is the bus going to Dunedin City. *("I think this is the bus going to Dunedin City.")*

c) (Image of a question mark.) I am not sure which bus is going to Dunedin City. *("I am not sure which bus is going to Dunedin City.")*

10. According to this picture, how long will it be before Bus 9 Powell to Gresham TC arrives? (Image showing electronic sign with bus arrival times.)

a) (No image-answer only.)5 minutes. *("5 minutes.")*

b) (No image-answer only.) 8 minutes. *("8 minutes.")*

c) *(No image-answer only.) 23 minutes. *("23 minutes.")*

d) (Image of a question mark.) I am not sure. *("I am not sure how long it will be before Bus 9 Powell to Gresham TC arrives.")*

11. Now look at this picture. What time does Train 14 Coast Starlight arrive? (Image showing electronic sign with train arrival times.)

a) (No image-answer only.) 11:30 am. *("11:30 am.")*

b) *(No image-answer only.) 6:05 pm. *("6:05 pm.")*

c) (No image-answer only.) 9:30 pm. *("9:30 pm.")*

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d) (Image of a question mark.) I am not sure. *("I am not sure what time Train 14 Coast Starlight arrives.")*

12. According to this picture, how long before train Car 6 Silver Springs arrives? (Image showing electronic sign with train arrival times.)

a) (No image-answer only.) 3 minutes*. ("3 minutes.")*

b) (No image-answer only.) 12 minutes. *("12 minutes.")*

c) *(No image-answer only.) 14 minutes. ("14 minutes.")*

d) (Image of a question mark.) I am not sure. *("I am not sure how long it will before train Car 6 Silver Springs arrives."*

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Light Rail Skills and Experience Assessment

Introduction: "Welcome to the Light Rail Skills and Experience survey. This survey will ask you questions about your experience in using light rail transportation. It will also ask you if you have ever used light rail before and how you liked it. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the blue Start button to begin."

Optional Text Box: "If you want, tap in the box and enter a name or user ID for this survey ... or else just press the Next button to continue."

1. Have you ever ridden on light rail transportation before? (Image of a light rail train going down the track.)

a) *(Image of a hand showing thumbs up.) Yes, I ride on light rail a lot. *("Yes, I ride on light rail a lot.")*

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Yes, I have ridden on light rail a little. *("Yes, I have ridden on light rail train little.")*

c) (Image of a hand showing thumbs down.) No, I have never ridden on light rail before. *("No, I have never ridden on light rail before.")*

d) (Image of a question mark.) I am not sure. *("I am not sure if I have ridden on light rail before.")*

2. (IF YES TO QUESTION 1) When you ride light rail, who do you go with? (Grid question-no image).

a) *(Image of a person going up the steps to a light rail car.) I usually go by myself. *("I usually go by myself when I ride light rail.")*

b) (Image of two friends smiling, side-by-side with their arms over each other's shoulders.) I usually go with someone else. *("I usually go with someone else when I ride light rail.")*

c) (A group of people sitting on a train.) It depends on where I am going. *("It depends on where I am going.")*

d) (Image of a question mark.) I am not sure. *("I am not sure who I go with when I ride light rail.")*

3. (IF YES TO QUESTION 1) How do you get to the light rail stop? (Grid question-no image).

a) *(Image of a person walking alone down a sidewalk.) I usually go by myself. *("I usually go to the light

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rail stop by myself.”)

b) (Image of two people walking together.) Someone usually goes with me. *(“Someone usually goes with me to the light rail stop.”)*

c) (Image of a person getting out of a car.) I get dropped off. *(“I get dropped off at the light rail stop.”)*

d) (Image of a several people coming and going next to a stopped train at a light rail station.) I get to the light rail stop different ways. *(“I get to the light rail stop different ways depending on where I am going.”)*

e) (Image of a question mark.) I am not sure. *(“I am not sure how I usually get to the light rail stop.”)*

4. (IF YES TO QUESTION 1) How many different light rail routes do you know? (Image of a light rail train with a question mark superimposed over it.)

a) *(Image of a collage showing different destination landmarks.) I know a lot of different light rail routes. *(“I know how to take a lot of different light rail routes.”)*

b) (Clip art or other image of a person with a briefcase and the word "job".) I know two or three different light rail routes. *(“I know two or three different light rail routes, like to the mall or a job.”)*

c) (Image of a single light rail train moving alongside a street.) I only know one light rail route. *(“I only know one light rail route.”)*

d) (Image of a question mark.) I am not sure. *(“I am not sure how many different light rail routes I know.”)*

5. (IF YES TO QUESTION 1) Have you ever missed your stop or station while riding light rail? (Image of a group of people riding a light rail train.)

a) (Image of a person sleeping on a train.) Yes. *(“Yes, I have missed my light rail stop before.”)*

b) *(Image of a person exiting a train at a station.) No. *(“No, I have not missed my light rail stop before.”)*

c) (Image of a question mark.) I am not sure. *(“I am not sure if I have missed my light rail stop before.”)*

6. Do you know how to get from the light rail station out to the street? (An image of stairs and/or hallway in a station leading to the street.)

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a) *(Image of a hand showing thumbs up.) Yes ("Yes, I know how to get out to the street from the light rail station.)"

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Yes, but only for light rail stations that I already know. *("Yes, but I only for light rail stations that I already know.")*

c) (Image of a hand showing thumbs down.) No, I have trouble finding my way out to the street from a light rail station. *("No, I have trouble finding my way outside from a light rail station.")*

d) (Image of a question mark.) I am not sure. *("I am not sure if I can find my way out to the street from a light rail station.")*

7. Once you get off the light rail, how do you get the rest of the way to where you are going? (Image of a person getting off of a light rail train.)

a) *(Image of a person walking away from a train.) I can find the rest of the way by myself*. *("I can find the rest of the way by myself.")*

b) (Image of a person giving directions to another person at a map kiosk.) Someone helps me get the rest of the way. *("Someone usually helps me get the rest of the way.")*

c) (Image of a person smiling and getting into a car.) Someone picks me up and I ride the rest of the way*. ("Someone picks me up and I ride the rest of the way.")*

d) (Image of many people exiting a train.) I use different ways to get the rest of the way. *("I use different ways to get the rest of the way.")*

e) (Image of a question mark.) I am not sure*. ("I am not sure how I get the rest of the way.")*

8. Do you know how to buy a ticket for a light rail ride? (A picture of a person purchasing a light rail train ticket from a ticket kiosk machine.)

a) *(Image of a hand showing thumbs up.) Yes. ("Yes, I know how to buy a ticket for a light rail ride.")*

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Sometimes. *("Sometimes I know how to buy a ticket for a light rail ride."*

c) (Image of a hand showing thumbs down.) No. *("No, I do not know how to buy a ticket for a light rail ride."*

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d) (Image of a question mark.) I am not sure. *("I am not sure if I know how to buy a ticket for a light rail ride.")*

9. Do you know how to ride an escalator? (Image of an escalator.)

a) *(Image of a person riding an escalator.) Yes. *("Yes, I can ride an escalator without help.")*

b) (Image of an escalator with a red circle and cross in front of it.) No. *("No, I cannot use an escalator.")*

c) (Image of a question mark.) I am not sure. *("I am not sure if I can use an escalator.")*

10. Do you know how to use an elevator? (Image of a person pressing a floor selection button on an elevator.)

a) *(Image of a person inside an elevator with doors still open.) Yes. *("Yes, I can use an elevator without help.")*

b) (Image of elevator doors with a red circle and cross in front of them.) No. *("No, I cannot use an elevator.")*

c) (Image of a question mark.) I am not sure. *("I am not sure if I can use an elevator.")*

11. Do you know how to safely board the light rail? (Image of a group of people waiting to board a light rail train.)

a) *(Image of a hand showing thumbs up.) Yes. *("Yes, I know how to safely board the light rail.")*

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Sometimes. *("Sometimes I know how to safely board some light rail cars but not all of them.")*

c) (Image of a hand showing thumbs down.) No. *("No, , I do not know how to safely board the light rail.")*

d) (Image of a question mark.) I am not sure. *("I am not sure if I know how to safely board the light rail.")*

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12. Do you know how to transfer from one light rail train to a different one? (Image of two passenger trains on opposites sides at a train station.)

a) *(Image of a hand showing thumbs up.) Yes *("Yes, I have transferred from one light rail train to another many times.)"*

b) (Image of two hands, one showing thumbs up and one showing thumbs down.) Yes, but only on routes I already know. *("Yes, but I only know how to make a light rail transfer on routes that I already know.")*

c) (Image of a hand showing thumbs down.) No, I have never transferred to a different light rail by myself before. *("No, I have never transferred to a different light rail by myself before.")*

d) (Image of a question mark.) I am not sure. *("I am not sure.")*

13. (IF YES OR NO TO QUESTION 1) Does riding the light rail make you nervous or scared? (Image of a person, wide-eyed and covering mouth with hand.)

a) (Image of a distressed person crying on someones shoulder.) Yes. *("Yes, I get very nervous about riding the light rail.")*

b) (Image of a pensive person on the street biting their fingernail.) Sometimes. *("Sometimes I get a little nervous about riding the light rail.")*

c) *(Image of one or two people smiling on a train.) No. *("No, I am not nervous about riding the light rail.")*

d) (Image of a question mark.) I am not sure. *("I am not sure if I get nervous about riding the light rail.")*

14. (IF YES OR NO TO QUESTION 1) Does being around a crowd of people make you nervous? (Image of a large group of people waiting at a train station.)

a) (Image of a large group of people waiting outside a light rail train with a red circle and cross over it.) Yes. *("Yes, being around a crowd of people makes me nervous.")*

b) (Image of a person looking scared.) Sometimes. *("Sometimes I get nervous around a crowd of people.")*

c) *(Image of a large group of smiling people riding on a train or waiting on platform.) No. *("No, I do not get nervous around a crowd of people.")*

d) (Image of a question mark.) I am not sure. *("I am not sure if I get nervous around a crowd of people.")*

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Appendix A. Web Resources

The following list includes the most relevant web sites reviewed during development of assessments described in this report.

App & Town, https://www.appandtown.com/

Assn. of Travel Instruction, https://www.travelinstruction.org/

ATTRI, https://www.its.dot.gov/research_archives/attri/index.htm

CEATI, http://www.ceati-travelinstruction.org/

City-Go-Round Transit App Gallery, http://www.citygoround.org/apps/

Easter Seals Project Action, http://www.projectaction.com/

FTA Research and Innovation, https://www.transit.dot.gov/about/research-innovation

Go Go Grandparent, https://gogograndparent.com/

Google Maps Transit, https://maps.google.com/landing/transit/index.html

ITS ePrimer Module 7: Public Transportation, https://www.pcb.its.dot.gov/eprimer/module7.aspx

Legible London, https://tfl.gov.uk/info-for/boroughs/legible-london

NADTC Transportation Education Curriculum, http://www.nadtc.org/resources-publications/transportation-education-curriculum/

National Aging and Disability Transportation Center, http://www.nadtc.org/

National Center for Mobility Management, http://nationalcenterformobilitymanagement.org/

RERC Accessible Public Transportation, http://www.rercapt.org/

Rider-How to Ride, http://www.ckrider.com/how-to-ride/#code-of-conduct

Smart Cities for All, http://smartcities4all.org/

Tiramisu, http://www.tiramisutransit.com/

Transportation Research Board TRID, https://trid.trb.org/

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Wayfinder UK, https://www.wayfinding.co.uk/projects/transport-wayfinding/

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Appendix B. JSON File Example

(Taken from Transportation Skills and Experience Survey)

```json
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  "surveyversion": 0,
  "surveycustomer": "ablelink-stcs",
  "logresults": true,
  "showsurveyid": false,
  "openingmessage": "Welcome to the Transportation Skills and Experience survey. This survey will ask you questions about how you get around in the community. It will also ask you if you have ever ridden the bus before and how you liked it. When answering these questions, you can tap on the answers to hear them read out loud if you like. When you are ready, press the blue Start button to begin.",
  "closingmessage": "Thank you for completing this assessment. Press the Close Assessment button to exit.",
  "closingbutton": "Close Assessment",
  "openingfont": 36,
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  "questionfont": 36,
  "answerfont": 36,
  "accentcolor": "0,33,66",
  "questions": [
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      "answers": [],
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      "image": "",
      "video": "",
      "id": "0",
      "value": "",
      "optional": true,
      "type": ""
    },
    {
      "answers": [
        {
```

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```
        "text": "Yes, many times.",
        "audio": "07840_55841_audio.wav",
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        "video": "",
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        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "2"
     },
     {
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        "image": "B1-veryeasy.png",
        "video": "",
        "id": "2",
        "branch": "",
        "branchtext": "",
        "value": "2",
        "weight": "1"
     },
     {
        "text": "I used to ride the bus, but not any more.",
        "audio": "No9829_64602_audio.wav",
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        "video": "",
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        "branch": "14",
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        "value": "3",
        "weight": "0"
     },
     {
        "text": "No.",
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        "id": "4",
        "branch": "14",
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```

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```
    },
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     "video": "",
     "id": "5",
     "branch": "",
     "branchtext": "",
     "value": "5",
     "weight": "0"
    }
   ],
   "optional": false,
   "text": "Have you ever ridden on a city bus before?",
   "audio": "0983_76705_audio.wav",
   "image": "passenger looking out bus window.jpg",
   "video": "",
   "id": "1",
   "type": ""
  },
  {
   "answers": [
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     "audio": "02573_6728_audio.wav",
     "image": "collage-places.jpg",
     "video": "",
     "id": "1",
     "branch": "",
     "branchtext": "",
     "value": "1",
     "weight": "2"
    },
    {
     "text": "I know two or three different bus routes.",
     "audio": "24137_1761_audio.wav",
     "image": "buses at terminal.jpg",
     "video": "",
     "id": "2",
     "branch": "",
     "branchtext": "",
```

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```json
      "value": "2",
      "weight": "2"
     },
     {
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      "image": "bus-one.jpg",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "1"
     },
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      "video": "",
      "id": "4",
      "branch": "",
      "branchtext": "",
      "value": "4",
      "weight": "0"
     }
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    "optional": false,
    "type": "grid"
   },
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```

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```
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  "weight": "0"
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  "branch": "",
  "branchtext": "",
  "value": "2",
  "weight": "0"
},
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  "image": "41932_421.png",
  "video": "",
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  "branch": "",
  "branchtext": "",
  "value": "3",
  "weight": "1"
},
{
  "text": "I have never missed my bus.",
  "audio": "iha3.wav",
  "image": "29329_448.png",
  "video": "",
  "id": "4",
  "branch": "",
  "branchtext": "",
  "value": "4",
  "weight": "2"
},
{
  "text": "I am not sure.",
  "audio": "34614_59839_audio.wav",
  "image": "question1.png",
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```json
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        "branchtext": "",
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        "weight": "0"
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    "answers": [
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        "weight": "2"
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        "branchtext": "",
        "value": "2",
        "weight": "1"
      },
      {
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```
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      "weight": "0"
    }
  ],
  "text": "When you ride the city bus, who do you go with?",
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  "image": "passenger 1.jpg",
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  "optional": false,
  "type": ""
},
{
  "answers": [
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      "audio": "09628_88005_audio.wav",
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      "video": "",
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      "branch": "",
      "branchtext": "",
      "value": "1",
      "weight": "2"
    },
    {
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      "video": "",
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      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "1"
    },
```

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```
  {
   "text": "I get dropped off.",
   "audio": "32755_29021_audio.wav",
   "image": "dropping off at bus stop.jpg",
   "video": "",
   "id": "3",
   "branch": "",
   "branchtext": "",
   "value": "3",
   "weight": "1"
  },
  {
   "text": "Different ways.",
   "audio": "44328_94445_audio.wav",
   "image": "waiting at bus stop.jpg",
   "video": "",
   "id": "4",
   "branch": "",
   "branchtext": "",
   "value": "4",
   "weight": "1"
  },
  {
   "text": "I am not sure.",
   "audio": "57531_34600_audio.wav",
   "image": "question1.png",
   "video": "",
   "id": "5",
   "branch": "",
   "branchtext": "",
   "value": "5",
   "weight": "0"
  }
 ],
 "text": "How do you get to the bus stop?",
 "audio": "3757_73167_audio.wav",
 "image": "37571423.png",
 "video": "",
 "id": "5",
 "optional": false,
 "type": ""
},
```

_____

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```json
{
 "answers": [
   {
    "text": "Yes.",
    "audio": "05007_61891_audio.wav",
    "image": "double-yes.JPG",
    "video": "",
    "id": "1",
    "branch": "",
    "branchtext": "",
    "value": "1",
    "weight": "2"
   },
   {
    "text": "Yes, but only on routes I already know.",
    "audio": "29338_6693_audio.wav",
    "image": "B1-veryeasy.png",
    "video": "",
    "id": "2",
    "branch": "",
    "branchtext": "",
    "value": "2",
    "weight": "1"
   },
   {
    "text": "No.",
    "audio": "35394_37661_audio.wav",
    "image": "B3-littlehard.png",
    "video": "",
    "id": "3",
    "branch": "",
    "branchtext": "",
    "value": "3",
    "weight": "0"
   },
   {
    "text": "I am not sure.",
    "audio": "44711_56155_audio.wav",
    "image": "question1.png",
    "video": "",
    "id": "4",
    "branch": "",
```

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```
        "branchtext": "",
        "value": "4",
        "weight": "0"
      }
    ],
    "text": "Do you know how to transfer from one bus to another?",
    "audio": "5903_37686_audio.wav",
    "image": "transfer1.JPG",
    "video": "",
    "id": "6",
    "optional": false,
    "type": ""
  },
  {
    "answers": [
      {
        "text": "Yes.",
        "audio": "07656_70784_audio.wav",
        "image": "leftbackpackJPG.JPG",
        "video": "",
        "id": "1",
        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "0"
      },
      {
        "text": "In the past, but not for a long time.",
        "audio": "iha.wav",
        "image": "Yes.7236_3452.png",
        "video": "",
        "id": "2",
        "branch": "",
        "branchtext": "",
        "value": "2",
        "weight": "1"
      },
      {
        "text": "No.",
        "audio": "24853_17362_audio.wav",
        "image": "getting off bus.jpg",
        "video": "",
```

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```
        "id": "3",
        "branch": "",
        "branchtext": "",
        "value": "3",
        "weight": "2"
      },
      {
        "text": "I am not sure.",
        "audio": "36971_58725_audio.wav",
        "image": "question1.png",
        "video": "",
        "id": "4",
        "branch": "",
        "branchtext": "",
        "value": "4",
        "weight": "0"
      }
    ],
    "text": "Have you ever forgotten anything on the bus?",
    "audio": "6296_25988_audio.wav",
    "image": "62965357.png",
    "video": "",
    "id": "7",
    "optional": false,
    "type": "grid"
  },
  {
    "answers": [
      {
        "text": "Yes.",
        "audio": "00390_8799_audio.wav",
        "image": "B1-veryeasy.png",
        "video": "",
        "id": "1",
        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "2"
      },
      {
        "text": "No.",
        "audio": "20835_30756_audio.wav",
```

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```
        "image": "B3-littlehard.png",
        "video": "",
        "id": "2",
        "branch": "",
        "branchtext": "",
        "value": "2",
        "weight": "0"
      },
      {
        "text": "I am not sure.",
        "audio": "38563_51108_audio.wav",
        "image": "question1.png",
        "video": "",
        "id": "3",
        "branch": "",
        "branchtext": "",
        "value": "3",
        "weight": "0"
      }
    ],
    "text": "Do you look out the bus window for landmarks to help you know where you are
while riding the bus?",
    "audio": "7641_2042_audio.wav",
    "image": "landmark out bus window.jpg",
    "video": "",
    "id": "8",
    "optional": false,
    "type": ""
  },
  {
    "answers": [
      {
        "text": "Yes.",
        "audio": "05522_10297_audio.wav",
        "image": "B1-veryeasy.png",
        "video": "",
        "id": "1",
        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "2"
      },
```

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```json
    {
      "text": "No.",
      "audio": "34412_71523_audio.wav",
      "image": "B3-littlehard.png",
      "video": "",
      "id": "2",
      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "0"
    },
    {
      "text": "I am not sure.",
      "audio": "49592_67798_audio.wav",
      "image": "question1.png",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "0"
    }
  ],
  "text": "Can you pull the cable or signal the bus driver when it is time for you to get off the bus?",
  "audio": "can.wav",
  "image": "passenger signaling stop-clipart.png",
  "video": "",
  "id": "9",
  "optional": false,
  "type": ""
},
{
  "answers": [
    {
      "text": "Yes.",
      "audio": "01656_79354_audio.wav",
      "image": "passenger sleeping.jpg",
      "video": "",
      "id": "1",
      "branch": "",
      "branchtext": "",
```

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```json
      "value": "1",
      "weight": "0"
    },
    {
      "text": "In the past, but not for a long time.",
      "audio": "iha.wav",
      "image": "ready.JPG",
      "video": "",
      "id": "2",
      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "1"
    },
    {
      "text": "No.",
      "audio": "29329_44741_audio.wav",
      "image": "bus disembarkment.jpg",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "2"
    },
    {
      "text": "I am not sure.",
      "audio": "34614_59839_audio.wav",
      "image": "question1.png",
      "video": "",
      "id": "4",
      "branch": "",
      "branchtext": "",
      "value": "4",
      "weight": "0"
    }
  ],
  "text": "Have you ever missed your bus stop while riding on the bus?",
  "audio": "8553_53365_audio.wav",
  "image": "passenger wheelchair on bus.jpg",
  "video": "",
  "id": "10",
```

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```
  "optional": false,
 "type": "grid"
},
{
 "answers": [
  {
   "text": "I can go the rest of the way by myself.",
   "audio": "03357_93298_audio.wav",
   "image": "walking to bus stop.jpg",
   "video": "",
   "id": "1",
   "branch": "",
   "branchtext": "",
   "value": "1",
   "weight": "2"
  },
  {
   "text": "Someone helps me get the rest of the way.",
   "audio": "29622_53477_audio.wav",
   "image": "passenger giving directions.jpg",
   "video": "",
   "id": "2",
   "branch": "",
   "branchtext": "",
   "value": "2",
   "weight": "1"
  },
  {
   "text": "Someone picks me up and gives me a ride.",
   "audio": "35739_23166_audio.wav",
   "image": "passenger and car driver.jpg",
   "video": "",
   "id": "3",
   "branch": "",
   "branchtext": "",
   "value": "2",
   "weight": "1"
  },
  {
   "text": "I use different ways to get the rest of the way.",
   "audio": "45428_3917_audio.wav",
   "image": "passengers leaving train.jpg",
```

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```
        "video": "",
        "id": "4",
        "branch": "",
        "branchtext": "",
        "value": "4",
        "weight": "1"
      },
      {
        "text": "I am not sure.",
        "audio": "55389_65592_audio.wav",
        "image": "question1.png",
        "video": "",
        "id": "5",
        "branch": "",
        "branchtext": "",
        "value": "5",
        "weight": "0"
      }
    ],
    "text": "Once you get off the bus, how do you get the rest of the way?",
    "audio": "10376_60795_audio.wav",
    "image": "passenger leaving bus.jpg",
    "video": "",
    "id": "11",
    "optional": false,
    "type": "grid"
  },
  {
    "answers": [
      {
        "text": "Yes.",
        "audio": "08858_49120_audio.wav",
        "image": "B1-veryeasy.png",
        "video": "",
        "id": "1",
        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "2"
      },
      {
        "text": "No.",
```

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```
      "audio": "noi.wav",
      "image": "B3-littlehard.png",
      "video": "",
      "id": "2",
      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "0"
    },
    {
      "text": "I am not sure.",
      "audio": "32459_78771_audio.wav",
      "image": "question1.png",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "0"
    }
  ],
  "text": "Can you pay the bus fare by yourself?",
  "audio": "11377_54628_audio.wav",
  "image": "bus-driver-taking-ticket-card-passenger-transport-tourism-road-trip-people-concept-smiling-plastic-86334387.jpg",
  "video": "",
  "id": "12",
  "optional": false,
  "type": ""
},
{
  "answers": [
    {
      "text": "Yes.",
      "audio": "06602_20051_audio.wav",
      "image": "B1-veryeasy.png",
      "video": "",
      "id": "1",
      "branch": "",
      "branchtext": "",
      "value": "1",
      "weight": "2"
```

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```
      },
      {
       "text": "No.",
       "audio": "28104_70216_audio.wav",
       "image": "B3-littlehard.png",
       "video": "",
       "id": "2",
       "branch": "",
       "branchtext": "",
       "value": "2",
       "weight": "0"
      },
      {
       "text": "I am not sure.",
       "audio": "32065_49811_audio.wav",
       "image": "question1.png",
       "video": "",
       "id": "3",
       "branch": "",
       "branchtext": "",
       "value": "3",
       "weight": "0"
      }
     ],
     "text": "Have you ever had training to ride the bus?",
     "audio": "12682_10321_audio.wav",
     "image": "bus training.PNG",
     "video": "",
     "id": "13",
     "optional": false,
     "type": ""
    },
    {
     "answers": [
      {
       "text": "Yes.",
       "audio": "07748_96293_audio.wav",
       "image": "B1-veryeasy.png",
       "video": "",
       "id": "1",
       "branch": "",
       "branchtext": "",
```

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```
      "value": "1",
      "weight": "2"
    },
    {
      "text": "No.",
      "audio": "22823_45355_audio.wav",
      "image": "B3-littlehard.png",
      "video": "",
      "id": "2",
      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "0"
    },
    {
      "text": "I am not sure.",
      "audio": "36035_18364_audio.wav",
      "image": "question1.png",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "0"
    }
  ],
  "text": "Do you know how to use an elevator?",
  "audio": "15180_90416_audio.wav",
  "image": "elevator buttons.jpg",
  "video": "",
  "id": "14",
  "optional": false,
  "type": ""
},
{
  "answers": [
    {
      "text": "Yes.",
      "audio": "02218_13045_audio.wav",
      "image": "B1-veryeasy.png",
      "video": "",
      "id": "1",
```

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```
        "branch": "",
        "branchtext": "",
        "value": "1",
        "weight": "2"
      },
      {
        "text": "No.",
        "audio": "29594_39427_audio.wav",
        "image": "B3-littlehard.png",
        "video": "",
        "id": "2",
        "branch": "",
        "branchtext": "",
        "value": "2",
        "weight": "0"
      },
      {
        "text": "I use the elevator.",
        "audio": "ius.wav",
        "image": "elevator with wheelchair user.jpg",
        "video": "",
        "id": "3",
        "branch": "",
        "branchtext": "",
        "value": "3",
        "weight": "2"
      },
      {
        "text": "I am not sure.",
        "audio": "31920_30207_audio.wav",
        "image": "question1.png",
        "video": "",
        "id": "4",
        "branch": "",
        "branchtext": "",
        "value": "4",
        "weight": "0"
      }
    ],
    "text": "Do you know how to ride an escalator?",
    "audio": "13605_51215_audio.wav",
    "image": "escalator.jpg",
```

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```
            "video": "",
           "id": "15",
           "optional": false,
           "type": ""
       },
       {
         "answers": [
           {
             "text": "Yes.",
             "audio": "03329_55220_audio.wav",
             "image": "B1-veryeasy.png",
             "video": "",
             "id": "1",
             "branch": "",
             "branchtext": "",
             "value": "1",
             "weight": "2"
           },
           {
             "text": "Sometimes.",
             "audio": "25541_11496_audio.wav",
             "image": "B2-littleeasy.png",
             "video": "",
             "id": "2",
             "branch": "",
             "branchtext": "",
             "value": "2",
             "weight": "1"
           },
           {
             "text": "No.",
             "audio": "35762_99454_audio.wav",
             "image": "B3-littlehard.png",
             "video": "",
             "id": "3",
             "branch": "",
             "branchtext": "",
             "value": "3",
             "weight": "0"
           },
           {
             "text": "I am not sure.",
```

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```
            "audio": "42076_74980_audio.wav",
            "image": "question1.png",
            "video": "",
            "id": "4",
            "branch": "",
            "branchtext": "",
            "value": "4",
            "weight": "0"
          }
        ],
        "text": "Can you wait in line for your turn to get on the bus?",
        "audio": "15994_67897_audio.wav",
        "image": "passengers waiting in line.JPG",
        "video": "",
        "id": "16",
        "optional": false,
        "type": ""
      },
      {
        "answers": [
          {
            "text": "Yes.",
            "audio": "03167_68842_audio.wav",
            "image": "B1-veryeasy.png",
            "video": "",
            "id": "1",
            "branch": "",
            "branchtext": "",
            "value": "1",
            "weight": "2"
          },
          {
            "text": "No.",
            "audio": "23906_92254_audio.wav",
            "image": "B3-littlehard.png",
            "video": "",
            "id": "2",
            "branch": "",
            "branchtext": "",
            "value": "2",
            "weight": "0"
          },
```

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```
          {
            "text": "I am not sure.",
            "audio": "35834_17036_audio.wav",
            "image": "question1.png",
            "video": "",
            "id": "3",
            "branch": "",
            "branchtext": "",
            "value": "3",
            "weight": "0"
          }
        ],
        "text": "Do you know how to use a bus map?",
        "audio": "16837_43056_audio.wav",
        "image": "bus map.png",
        "video": "",
        "id": "17",
        "optional": false
      },
      {
        "answers": [
          {
            "text": "I use a lift.",
            "audio": "09898_65873_audio.wav",
            "image": "bus lift.jpg",
            "video": "",
            "id": "1",
            "branch": "",
            "branchtext": "",
            "value": "1",
            "weight": "2"
          },
          {
            "text": "I use the steps.",
            "audio": "ius_steps.wav",
            "image": "bus steps.jpg",
            "video": "",
            "id": "2",
            "branch": "",
            "branchtext": "",
            "value": "2",
            "weight": "2"
```

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```
      },
      {
       "text": "I am not sure.",
       "audio": "36575_93529_audio.wav",
       "image": "question1.png",
       "video": "",
       "id": "3",
       "branch": "",
       "branchtext": "",
       "value": "3",
       "weight": "0"
      }
     ],
     "text": "How do you get on the bus?",
     "audio": "how.wav",
     "image": "bus lift vs steps.jpg",
     "video": "",
     "id": "18",
     "optional": false,
     "type": ""
    },
    {
     "answers": [
      {
       "text": "Yes.",
       "audio": "04992_88152_audio.wav",
       "image": "04992_5219.png",
       "video": "",
       "id": "1",
       "branch": "",
       "branchtext": "",
       "value": "1",
       "weight": "0"
      },
      {
       "text": "Sometimes.",
       "audio": "23723_45164_audio.wav",
       "image": "passenger-scared a little.jpg",
       "video": "",
       "id": "2",
       "branch": "",
       "branchtext": "",
```

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```
        "value": "2",
        "weight": "1"
      },
      {
        "text": "No.",
        "audio": "33683_51658_audio.wav",
        "image": "passenger-happy.jpg",
        "video": "",
        "id": "3",
        "branch": "",
        "branchtext": "",
        "value": "3",
        "weight": "2"
      },
      {
        "text": "I am not sure.",
        "audio": "41761_14012_audio.wav",
        "image": "question1.png",
        "video": "",
        "id": "4",
        "branch": "",
        "branchtext": "",
        "value": "4",
        "weight": "0"
      }
    ],
    "text": "Does riding the bus make you feel nervous or scared?",
    "audio": "18946_25999_audio.wav",
    "image": "passenger-scared2.jpg",
    "video": "",
    "id": "19",
    "optional": false,
    "type": "grid"
  },
  {
    "answers": [
      {
        "text": "Yes.",
        "audio": "00095_28312_audio.wav",
        "image": "bus stop-crowded NO.jpg",
        "video": "",
        "id": "1",
```

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```
      "branch": "",
      "branchtext": "",
      "value": "1",
      "weight": "0"
    },
    {
      "text": "Sometimes.",
      "audio": "27972_67041_audio.wav",
      "image": "passenger-scared a little.jpg",
      "video": "",
      "id": "2",
      "branch": "",
      "branchtext": "",
      "value": "2",
      "weight": "1"
    },
    {
      "text": "No.",
      "audio": "33493_74814_audio.wav",
      "image": "happy.jpg",
      "video": "",
      "id": "3",
      "branch": "",
      "branchtext": "",
      "value": "3",
      "weight": "2"
    },
    {
      "text": "I am not sure.",
      "audio": "42580_87216_audio.wav",
      "image": "question1.png",
      "video": "",
      "id": "4",
      "branch": "",
      "branchtext": "",
      "value": "4",
      "weight": "0"
    }
  ],
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  "image": "bus stop-crowded.jpg",
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      "optional": false,
      "type": "grid"
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Appendix C. ATTRI Steering Committee Survey Comments

Reviewer #1

Travel Readiness Assessment Prototype

General comments

Great work!

On several screens, I would be tempted to use the same picture with changes on specific details to avoid confusion with multiple stimuli when using very different pictures.

Once completed, maybe you could have the material form refined by someone specialized in Art (designer maybe) just to make it look super attractive to potential buyers/users. With Marti, we joined a Designer colleague from another University and she had students and herself working on it so it served them and cost virtually nothing ;-)

Transportation Skills and Experience Survey Comments

First screen has too much text and information. I would split in 3-4 screens with the *Start* button at the end. I wonder if a little video introducing the system would make it more dynamic and easier to follow. You could also maybe consider adding *Name* or *ID* under the box in screen 2. I know it is written in the left part of the screen but some persons are quite focused on one thing at a time so when looking at the box they would also see *Name* or *ID*.

On screen 4, you could expand the numbers sequence by writing «I know 4 or more different routes» instead of «a lot» of different bus routes». Also, would it be relevant to add an answer option like «I don't know any bus routes» ?

On screen 6, the 4th option (I get to the bus stop different ways) can be confusing. It can mean *by myself and with someone else*, or *myself and get dropped off*, or *something else*. I would get rid of it and, if applicable, add another possible option.

The Bus Transfer picture isn't very clear. Could be one with two buses and people transferring from one bus to another.

On the *forgotten anything on the bus* screen, you could put a picture with something left on one seat (bag, purse, etc.). That picture shows an empty bus but nothing forgotten. ;-) And then, use the same picture for yes and no as within the other screens.

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On the «Can you signal the bus driver…» screen, I would reformulate the question and question #1 of the options. The picture shows someone pulling the cable. Although the finality of this action is to let the driver know you want to leave the bus, the action is pulling that cable (not sure of the good wording in English) so I would ask, «Can you pull the … cable to let the driver know you want to leave the bus?» Also, I am not sure with the sometimes option. If the question was *Do you…* then it would be OK but not with *Can you…*

On the «Once you get off the bus…» screen, similar comment then a previous one about different ways to get the rest… Not sure about this option.

I would use Yes or No on the *Can you pay the bus fare? Sometimes* doesn't provide precise information.

The *Can you wait in line* screen options are Yes, sometimes or no it is very hard for me…. I would use *yes/no* or *yes it is very easy/no it is very hard* options. Also, I seem to have a problem with sometimes. We can discuss this in person ;-)

For the *Bus map* screen, I would use the same picture throughout since the *Yes* picture seems easier because of the presence of people while the *No* picture seems very difficult.

The *Do you use the steps or a lift to get…* screen is confusing. The question asks about using one or the other while the options are I use one or I *can* use the other. Should be *I use a lift or steps* and *I don't use a lift or steps*.

The *nervous or scared* screen «Yes» picture looks more like the lady is crying then being scared. The next screen also asks about being nervous so I would use the same picture as the previous screen.

Street Crossing Skills Survey Comments

Screen 1 shows two pictures of someone crossing the street and the third one shows the right place but with nobody ;-) I would have someone crossing that street in that picture as well (like picture 2 of screen 3). Moreover, the middle one isn't clear for me. Is the problem crossing where there are no lines?

Screen 4; I would use the same picture (first one) with one when light is green and the same when light is red so the respondent focuses on the light color and not other confusing details.

Screen 6; not sure. I believe there are a lot of places where you would have to rely on a green light to know when it is OK to cross a street (smaller towns for example).

What is the meaning of picture #3 on screen 7? Does it clearly show that it isn't safe to cross?

Social Skills. Survey Comments

Screen 1; I would not use the word «usually» in the third option's audio.

Screen 3; I would split that screen in 2. One asking about cell uses and one asking about doing it alone or with the help of someone.

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Screen 8; I would get rid of the *I do not use a cell phone* option since we already asked that.

Screen 11; Asking about places to go get some help is tricky. Depending on the kind of needed help, all places can potentially be a good answer. Maybe being specific like *need help to buy a ticket or get information about a bus route*…

Vehicle Identification Survey

No specific comments. All good to me.

Questions

1. Given that some overlap is expected, do the questions in each survey seem to fit?

Overall, absolutely. When it does overlap, I would suggest using the same wording and images to strengthen what is learned.

2. Are there questions missing?

Don't think so.

3. Are there any broad areas where additional surveys should be developed?

Eventually, could be appropriate to add Subway, Taxi and Adapted transportation…

4. Do the answer sets seem adequate, or are there too few or too many responses?

Very good overall. Read specific comments above.

5. Do the images make sense, or are any confusing? Suggestions for any replacements?

See comments above.

6. Do you have any opinion on the approach of using limited text on most answers and expanded responses in the audio playback of answers?

Although it could be annoying or confusing for some people, I believe it is a good thing to do since it should help the participant to stay focused on the question and task

Reviewer #2

Each Survey

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Would it be beneficial to have the description or intro page before starting each survey? Or maybe just having a "Read" button so the option is there for folks who cant read?

Where does the survey results go? Would it give some sort of a score at the end, or just go to some sort of administrator?

Would it be possible to edit the questions to fit the environment better, for example: use the signs we have here around town and use our bus photos or can we take out the questions of "how long will this bus be here - we dont have those kinds of signs here.

Transport Skills Survey

For the question - How many routes do you know? Add "none" option.

For the question - Can you ride an escalator? Add "I cant or I use a walker or wheelchair" option.

For the question - Do people make you nervous? I thought the smiley face picture for the "no" option is strange, but Im not sure what a better picture would be. It might just be weird to me to have a smiley face associated with "no."

Street Crossing Survey

We dont have those generic bus stop signs here

Social Skills Survey

For the question - How do you communicate? Add "writing things down or facial expressions"

Reviewer #3

I went through the travel readiness surveys. I have a few comments and suggestions.

I like the different assessments. These are all four very helpful categories.

1. Given that some overlap is expected, do the questions in each survey seem to fit?

The questions in each survey fit.

2. Are there questions missing?

Should there be more questions about *when* to ask someone for help?

For example: what would you do if you think you missed your stop? A. Get off at the next stop B. Stay on the bus until it is passed again

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3. Are there any broad areas where additional surveys should be developed?

Should there be a section about paying for the bus? Would someone be transferred to a survey like that after they have identified that they don't know how to pay for the bus.

4. Do the answer sets seem adequate, or are there too few or too many responses?

I do think some of the questions and responses might be a little wordy. For example: instead of "someone picks me up and gives me a ride the rest of the way," does it makes sense to just say – "Someone picks me up."

I'm not that familiar with the transit system. So I think my feedback should be taken with that in mind.

I was a little confused about the questions about whether or not the respondent "*can*" do something in combination with the response "*sometimes*." Is the respondent being asked about their capabilities or their experience? For example: I'm not sure why someone would only be able to signal the bus driver sometimes; or pay for the bus by themselves "*sometimes*" – is this because of different payment machines? Should there be a "*No*" response?

Does it make more sense for this question to be "*have you*" instead of "*Can you?*" (i.e. Have you signaled the bus driver before?)

5. Do the images make sense, or are any confusing? Suggestions for any replacements?

In the social skills category

Do you know the difference between a stranger and a friend?

I think the image for friend and stranger should both be adults.

should the picture for stranger be different?

The image of the woman sitting alone with sunglasses might work for stranger

Or maybe labeling the images – "someone you've never met before" vs. "someone you know from work"

6. Do you have any opinion on the approach of using limited text on most answers and expanded responses in the audio playback of answers?

I think that is a good approach

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Appendix D. Acronym List

Table 2 Acronym List

Acronym	Description
ADA	Americans with Disabilities Act
ARCA	A developmental disabilities service agency in Albuquerque, New Mexico
ASD	Autism Spectrum Disorder
ATLAS	Accessible Testing, Learning and Assessment System
ATTRI	Accessible Transportation Technologies Research Initiative
CEATI	Centre for Energy Advancement through Technological Innovation
CPS	Chicago Public Schools
FACTS	Functional Assessment of Cognitive Transit Skills
FTA	Federal Transit Administration
ICT	Information and communication technology
ITS	Intelligent transportation system
JSON	JavaScript Object Notation
NADTC	National Aging and Disability Transportation Center
NICHY	National Dissemination Center for Children with Disabilities
RERC	Rehabilitation Engineering Research Center
STCS	Smart Travel Concierge System
TCRP	Transit Cooperative Research Program
TRID	Transport Research International Documentation
TSAT	Transportation Skills Assessment Tool
UK	United Kingdom

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