Phase 1 Participant Training and Stakeholder Education Plan

University of Washington ITS4US Deployment Project

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Final Report — April 12, 2022
FHWA-JPO-21-904

COMPLETE TRIP
ITS4US

U.S. Department of Transportation

Produced by University of Washington ITS4US Deployment Project, Phase 1
U.S. Department of Transportation
Intelligent Transportation Systems Joint Program Office
Federal Highway Administration
Office of the Assistant Secretary for Research and Technology
Federal Transit Administration

Notice

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA-JPO-21-904		

4. Title and Subtitle	5. Report Date
Phase 1 Participant Training and Stakeholder Education Plan University of Washington ITS4US Deployment Project	April 12, 2022
	6. Performing Organization Code N/A
7. Author(s) Anat Caspi, Niharika Arora, Kristin Tufte, Mark Hallenbeck	**8. Performing Organization Report No.**
9. Performing Organization Name and Address University of Washington 4333 Brooklyn Ave NE Box 359472 Seattle, WA 98195-9472	**10. Work Unit No. (TRAIS)**
	11. Contract or Grant No. 693JJ321C000004
12. Sponsoring Agency Name and Address U.S. Department of Transportation ITS Joint Program Office 1200 New Jersey Avenue, SE Washington, DC 20590	**13. Type of Report and Period Covered** N/A
	14. Sponsoring Agency Code HOIT-1

15. Supplementary Notes

Kate Hartman, COR

16. Abstract

The UW ITS4US Transportation Data Equity Initiative (TDEI) project is designed to improve mobility data infrastructure so all travelers can discover and make informed mobility decisions, and avoid friction caused by lack of data in their trips. The TEDI also will make data handling simpler for mobility service providers through enabling providers to use public data about services and travel environments and by consolidating and making mobility data consistent.

This Participant Training and Stakeholder Education plan describes the participant groups, their training needs, and plans for recruitment, selection, and training of those participants. We address all participants engaged in or associated with the deployment. Participant roles, responsibilities, training needs, training objectives and plans for assessment of training are all included in this document. The UW TDEI team is dedicating significant effort to building the capacity of stakeholders (data producers, consumers, app developers and information consumers at the application level) through training and education. The TDEI project is committed to acknowledging the importance of diversity and equity in transportation through strategic relationship building activities.

17. Keywords	18. Distribution Statement
ITS4US; Complete Trip; Deployment; ITS; Intelligent Transportation Systems; participant training; stakeholder education	N/A

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
N/A	N/A	51	N/A

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

Revision History

Update the revision history table upon each update to the Participant Training and Stakeholder Education Plan (PTSEP). The summary of changes should be descriptive for future updates.

Name	Date	Version	Summary of Changes	Approver
Anat Caspi Taskar Center for Accessible Technology, UW	4 March 2022	1	Initial Draft	
Anat Caspi Taskar Center for Accessible Technology, UW	14 March 2022	2	Draft Final	
Anat Caspi, Taskar Center for Accessible Technology, UW	12 April 2022	3	Final	

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1 Introduction

This document presents the Participant Training and Stakeholder Education Plan for the University of Washington's (UW) ITS4US Deployment Project, the Transportation Data Equity Initiative (TDEI), which is being performed as part of the U.S. Department of Transportation's (USDOT's) Complete Trip - ITS4US Deployment Program.

The Training and Education Plan is informed by the Concept of Operations (ConOps), the Human Use Approval Summary (HUAS), the Safety Management Plan and the Performance Measurement and Evaluation Support Plan for the proposed system. In particular, the ConOps which documents the project's user needs, identifies the project stakeholders, and is the core from which the living stakeholder registry was developed and from which the audiences who will interact with the project team in the outreach effort are identified has influenced this Plan. It and the HUAS are the key bases for identifying the participant and participant groups in this plan.

This Training Plan is intended to sustain changes iteratively and organically throughout the lifetime of the project. Preliminary recommendations are identified herein, however, the UW team is committed to adapt and adopt modifications regarding training channels, mechanisms for recruitment, and training methods through coordination with project participants. Participants include community members, data providers including transit agencies, right of way owners (when owners are public institutions) and other public and private-sector data producers, data consumers including application developers and project staff. This plan will be updated in Phase 2, and as part of Phase 2 deliverables an updated Training Plan will be submitted. While the plan will be updated, the underlying intent and goals of the proposed training and education plan will be preserved.

1.1 Document Purpose

The purpose of the training and education plan is to describe the participant groups, their training needs, and plans for recruitment, selection, and training of those participants for all participants engaged in or associated with the deployment. Participant roles, responsibilities, training needs, training objectives and plans for assessment of training are all included in this document.

1.2 Project Overview

The UW ITS4US Deployment Project is one of five Phase 1 Complete Trip – ITS4US Deployment Program projects selected to showcase innovative business partnerships, technologies, and practices that promote independent mobility for all travelers regardless of location, income, or disability. It aims to create the foundational data tools necessary for both public and private entities to collect, share, manage, and use transportation data that provide equitable outcomes to all travelers. At its core, the project is about creating the foundational requirements for interoperable transportation data sharing that fulfills the informational needs of all travelers. This

requires a specific focus on the unmet needs of people with mobility disabilities and other historically travel-disadvantaged communities that are the focus of this project. Without implementing this type of project, the needs of these communities will continue to remain unmet or underserved, limiting the ability of citizens in these communities to access destinations, explore opportunities, and be aware of all services available to them.

The project consists of five major parts. The first part of the project includes working with existing standards committees to extend and update three existing, early-stage international data standards: OpenSidewalks, GTFS-Flex, and GTFS-Pathways. These three data standards enable the consistent collection and reporting of data that provide the underlying information needed by the currently underserved target populations—people with disabilities, older adults, and individuals with low income—to efficiently travel.

The second part of the project is the development of a series of tools that help agencies, jurisdictions, and other stakeholders collect the data that can be stored with these refined data standards. These tools are needed to lower the cost and improve the quality and consistency of those data collection efforts to increase the availability of the data.

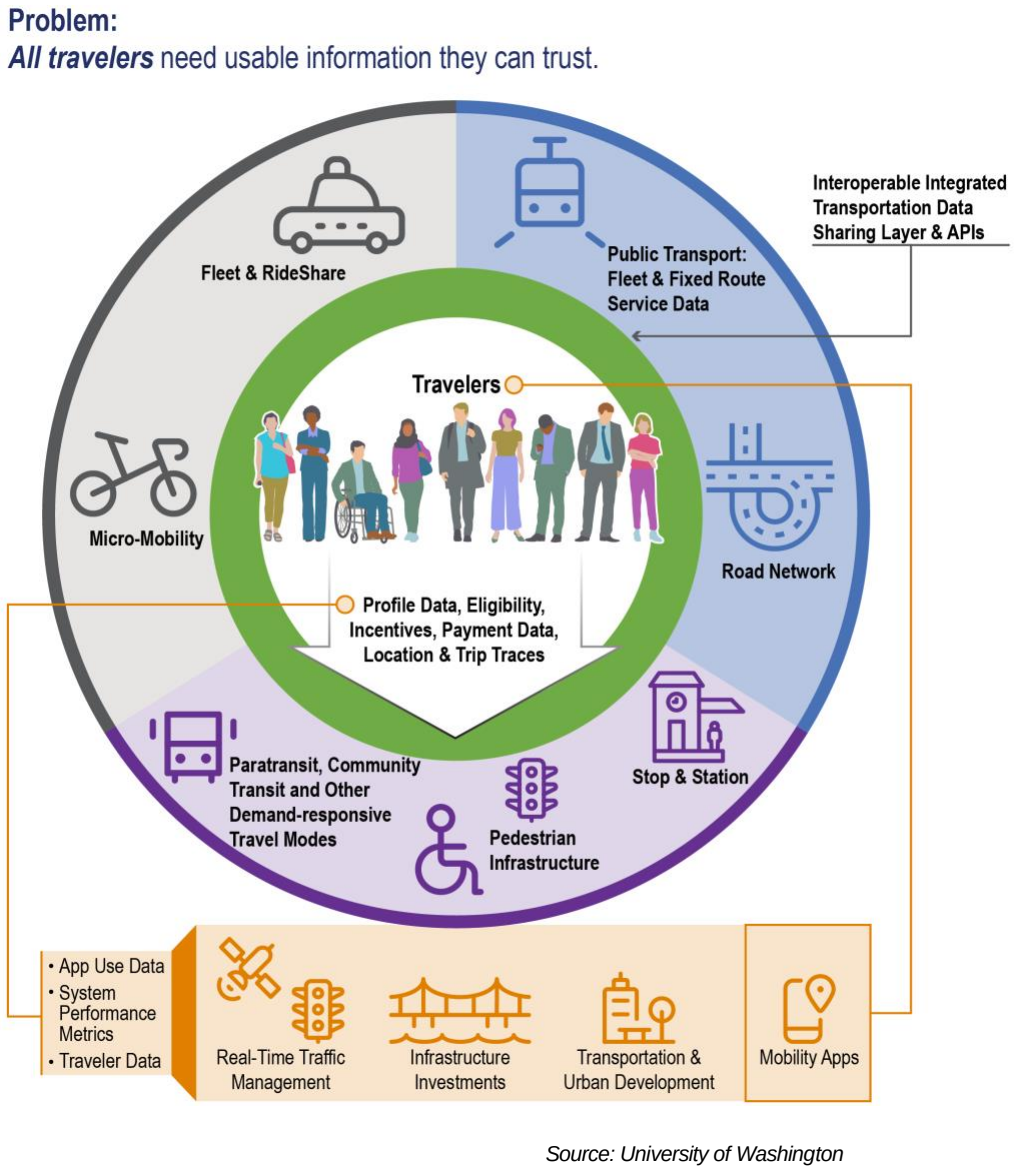
The third portion of the project is the development of tools, policies, and procedures that allow sharing and governance of the collected data. The tasks performed will enable effective and efficient vetting, aggregation, management, and fusion of the data that participating agencies, jurisdictions, and other stakeholders collect. This portion of the project also includes tasks required to enable and manage the sharing of those data with application developers that write software to deliver requested travel information.

The fourth portion of this project is the development of a data repository to contain the data to be shared within the six counties that represent the geographic boundaries for this ITS4US project. The data repository will be developed to illustrate how these data can be collected, stored, governed, updated, and maintained over time and then served upon request to application developers.

Finally, the fifth portion of this project is the development of three example applications that use the collected data. The three applications are intended to demonstrate three very different uses of the data that are collected, maintained, and made available to application developers as a result of the other four aspects of this project. Those data can be used to fulfill a variety of information needs, and those needs can be met through an almost infinite number of applications. The three applications deployed as part of this project are meant to show other application developers how the newly available data can be obtained and delivered.

Figure 1 illustrates the overall “new mobility” ecosystem to which the UW’s ITS4US project is contributing. The outer circle consists of the variety of public transportation services that exist. Many of these services already generate data that can be readily obtained by applications via internet connections – the act which results in the discovery of “new mobility” options. These include fixed route transit services, micro-mobility services, and taxi services. The UW ITS4US Deployment project will help add the data sources that are particularly important to people with mobility disabilities, shown in purple at the bottom of the image. These are data that describe pedestrian pathways, transit station infrastructure, on-demand paratransit and community transit services, and other on-demand shared ride modes. The UW ITS4US Deployment project is also building the interoperable integrated transportation data sharing layer and Application Programming Interfaces (APIs) shown in the green inner circle. This is the functionality needed to

collect, fuse, and aggregate the data from disparate transportation services. Finally, the UW ITS4US project will demonstrate a small number of applications used by the travelers shown in the center of the diagram. The applications take requests for information from the travelers, extract the required data from the data sharing layer (green circle), perform any required tasks—such as computing navigation directions—and deliver information to users in formats (audio, text, tactile displays) designed to meet their needs.



Source: University of Washington

Figure 1: Diagram. UW ITS4US Deployment Project's ecosystem.

The project ConOps[1] describes a set of 62 user needs that drive the design of the system. The user needs statements were developed from extensive interaction with project stakeholders. Project stakeholders have been categorized on the basis of the following five groups:

- Data generators (e.g., municipal infrastructure –owner/operators, private sector pedestrian-built-environment owner/operators, crowdsourced sidewalk reporters, elevation data providers),
- Transportation service providers (e.g., transit agencies and the companies that support the delivery of transit services operated by or for those transit agencies),
- Data service providers (e.g., mapping services, weather data providers),
- Application developers (e.g., AccessMap developers, Soundscape developers, Digital Twin developers, third-party application developers), and
- Digital device end users (e.g., travelers with sidewalk preferences, blind, vision disabled, or deafblind travelers, sighted older adults, multilingual or multicultural travelers, low-income transit users, rural transit users).

The needs described by these groups describe the basic functionality of a successful system deployment. The needs are presented in detail in Chapter 4 of the ConOps.

The project is currently in Phase 1, which focuses on the planning elements of the systems engineering process, in which the initial project idea is decomposed into a structured concept that serves as the foundation for more detailed design, building, testing, and operation. The structured concept includes identifying specific performance measures, targets, and capabilities associated with performance monitoring and performance measurement. The next phase, Phase 2, focuses on the design, testing, and deployment of the proposed system, while in Phase 3, the system will be operational and evaluated for its effectiveness.

[1] Phase 1 Concept of Operations (ConOps)—University of Washington ITS4US Deployment Project, by the University of Washington and Cambridge Systematics, Inc., June 2021, Report Number FHWA-JPO-21-861. Available at: https://rosap.ntl.bts.gov/view/dot/58675

2 Identification of Participants and Necessary Training

The participant groups identified in this section have been developed by referencing the Phase 1 Concept of Operations (ConOps)[2], Safety Management Plan (SMP), Performance Measurement and Evaluation Support Plan (PMESP), and Human Use Approval Summary (HUAS) developed for this project. In particular, the ConOps describes a set of 62 user needs that were developed from extensive interaction with project stakeholders who represented the traveler communities of interest discussed by the Broad Agency Announcement (BAA) and which drive the design of the system. The ConOps identified five key stakeholder groups: Data Generators, Transportation Service Providers, Data Service Providers, Application Developers and Digital Device End Users. These stakeholder groups were refined in the HUAS which identified two key groups of project participants: those involved with data standards and data collection and those demonstrating the smartphone application. These groups from the ConOps and HUAS have been used to help define the participants in the project and their training needs.

For the purpose of this plan, we have defined the key participant groups listed below. These groups, based on the key stakeholder groups from the ConOps and the participant groups identified in the HUAS, group together participants with common training needs. In addition to the participant groups from the ConOps and HUAS, we have added a Project Staff group which includes staff from the UW ITS4US project. The key participant groups are:

Group 1. Participants involved with data standards and data collection (in this participant group we will strive for equitable and appropriate representation of all travel-disadvantaged subpopulations mentioned in the BAA)
Group 2. Application developers
Group 3. Participants demonstrating the smartphone application (in this participant group we will strive for representative participation from travel-disadvantaged subpopulations mentioned in the BAA, see Group 3 description)
Group 4. Project Staff

Group 1: *Participants involved with data standards and data collection* includes the Data Generators, Transportation Service Providers and Data Service Providers from the five key

[2] Phase 1 Concept of Operations (ConOps)—University of Washington ITS4US Deployment Project, by the University of Washington and Cambridge Systematics, Inc., June 2021, Report Number FHWA-JPO-21-861. Available at: https://rosap.ntl.bts.gov/view/dot/58675

stakeholder groups from the ConOps. Group 1 will be broken into four subgroups as described below. Group 3: *Participants demonstrating the smartphone application* includes the Digital Device End Users group from the ConOps. Specifically, as described in the ConOps, our device user stakeholders include people with disabilities, older adults or anyone who belongs to one or more of the following categories:

1. People who experience difficulties accessing pedestrian environments without being provided with detailed prior knowledge about the infrastructure connectivity and built environment (either for lack of accessibility or safety information or signage in their language),
2. People who use demand-responsive transit options (for example, Dial-a-Ride or paratransit services) that are not represented in common mobility apps,
3. People who have difficulty accessing transit stations or transit stops due to inappropriate infrastructure (e.g., broken elevators, only stairs) or inability to access infrastructure (e.g., difficulty using ticket machines),
4. People who have difficulty accessing information technologies that provide travel information and purchasing options (e.g., either inability to understand, afford or use a mobile phone, or inability to consume the information in mobile travel applications because they are not built with multi-lingual or accessibility features in mind).

Group 2 and Group 4 are *Application Developers* and *Project Staff*, respectively. Group 4: *Project Staff* includes all team members on the US ITS4US project and will be broken into two subgroups: those performing community outreach and those working towards data system development.

The community outreach subgroup of Group 4 will be responsible for training staff and community partners in Group 1 as well as training Group 3. The community outreach subgroup will be prepared to provide training materials in accessible formats and meet the language needs of participants, including providing sign language interpreters. The data system development subgroup will be responsible for training on use of the TDEI system for data producers in Group 1 and for training Group 2.

All communications produced for training and created by the TDEI project will be accessible. This includes accessible formats, meeting the language needs of participants including the use of microphones and sign language interpreters as necessary.

Our ongoing accessibility effort for web accessible materials aims to comply with the Web Content Accessibility Guidelines (WCAG) version 2.1, level AA criteria. These guidelines not only help make web content accessible to users with sensory, cognitive and mobility disabilities, but ultimately to all users, regardless of ability.

2.1 Participant Group 1: Participants Involved with Data Standards and Data Collection

The role of participants in this group is to provide quality data to the TDEI and to provide feedback on data standards and suggested modifications to those standards. The participants in this group will typically either use web applications to directly generate and upload data, or

Application Programming Interfaces (APIs) to provide data to the TDEI as a batch upload from an existing database. The project team will develop the data ingest tools that help these participants provide data to the TDEI.

This group includes participants who will provide data to the TDEI. It includes:

- municipal infrastructure owner/operators,
- private sector pedestrian-built-environment owner/operators,
- data service providers such as mapping service providers and
- weather data providers.

This group also includes and community partners who will help collect and vet data. Within this group, we identify four subgroups:

- Consumers of accessibility mobility data experiencing travel disadvantage,
- Data generators,
- Transportation service providers, and
- Data service providers.

These subgroups differ in the types of data they will provide to the TDEI and the mechanisms they use to share their data with the TDEI.

The participants in this group will need training on the TDEI data formats, TDEI data quality checks, and the TDEI Application Programming Interfaces (APIs) and/or the TDEI data collection and upload tools to be used by the group members.

2.1.1 Participant Subgroup 1A: Consumers of Accessibility Mobility Data

Entities in this group include travelers who experience travel disadvantages, particularly due to information gaps about travel environments and travel services. This group also includes community partners who may crowdsource and provide data to the TDEI.

The role of the participants in this group is to identify data attributes that should be included in mobility data standards to reduce the information gap to travelers with travel disadvantages. These participants will also provide validated data to the TDEI. The TDEI's chosen format for sidewalk data is OpenSidewalks[3] which is based on OpenStreetMaps[4]. These participants will use OpenSidewalks Crowdsourcing tools in order to collect, vet, and contest any sidewalk data we provide. The OpenSidewalks collection tools have already been used by people with

[3] https://tcat.cs.washington.edu/opensidewalks-2/

[4] https://wiki.openstreetmap.org/wiki/Main_Page

disabilities to aid in the collection of sidewalk data. The team will address any accessibility concerns that arise as we expand into the pilot regions. Additional tools will enable this group of participants to collect, vet and contest any GTFS-flex v2[5] representations of services they use as well as GTFS-Pathways[6] data in transit stations.

The participants will need training on what data formats are, what makes for a good data standard and the use of the data tools that allow them to collect, vet, contest and suggest modifications to the existing data in the TDEI.

2.1.2 Participant Subgroup 1B: Data Generators

Entities in this group include data producers from governmental bodies, transportation agencies, or the private sector. Governmental bodies and transportation agencies that own and operate sidewalk infrastructure or transportation hubs typically produce data about these assets.

The role of the participants in this group are expected to provide sidewalk data to the TDEI repository. The TDEI's chosen format for sidewalk data is OpenSidewalks which is based on OpenStreetMaps. The TDEI will further promote the use of enhanced modifications for GTFS-Pathways and GTFS-Flex v2 for participants to contribute data about transit facilities and on-demand transportation services, respectively. These participants may or may not produce data that is already in TDEI recognized format.

The participants will need training on the TDEI data formats and the data producer APIs and data ingest tools for the TDEI. Additionally, these participants will require training on the use of TDEI file validation tools to ensure high quality data are contributed. There is an expectation that many of these participants will need to use the TDEI's data ingest tools.

2.1.3 Participant Subgroup 1C: Transportation Service Providers

This group consists of staff from transportation providers (e.g., transit agencies and the companies that support the delivery of transit services operated by or for those transit agencies). Entities in this group include data contributors from public-transit agencies or private-sector transportation operators. These agencies and operators may offer fixed-route or on-demand transit service or may own, operate, and maintain transit station facilities. These participants may share data directly with application developers or make data available to data aggregators.

The role of these participants is to provide data about the transit services they provide to the TDEI. The TDEI's chosen formats for transit data are GTFS-Flex v2 and GTFS-Pathways. The participants in this group may already be familiar with these data formats and may already produce GTFS-Flex v2 and GTFS-Pathways data themselves but will require training about any enhancements and modifications made to the standards during the TDEI's data schema enhancement phase. We will ensure that any new agency partners who are not familiar with

[5] https://github.com/MobilityData/gtfs-flex

[6] https://developers.google.com/transit/gtfs/reference

GTFS-Flex v2 and GTFS-Pathways are trained in those standards as they come onboard the project.

These participants will need training on any updates to these data formats and on TDEI's data producer APIs for providing data to TDEI. There is not expected to be a large need for data ingest tools for these participants as stated above many of these participants are expected to understand the existing formats and may already produce data in those formats.

2.1.4 Participant Subgroup 1D: Data Service Providers

Entities in this group include both transportation service providers that make their own data available to outside application developers and, more importantly, data aggregators that obtain data from multiple sources (e.g., transit service data from multiple transit agencies, or sidewalk data from multiple cities); fuse those data into a seamless data structure; and provide that seamless data structure to application developers.

The data received from these participants will include data for all three TDEI data formats: OpenSidewalks, GTFS-Flex v2, and GTFS-Pathways. These participants are data service providers themselves and are expected to provide data to TDEI in the TDEI's data formats.

These participants will need training on any updates to the data formats and on TDEI's data producer APIs for providing data to TDEI. There is not expected to be a need for data ingest tools for these participants as they are expected to be already producing data in the formats that will be consumed by the TDEI.

2.2 Participant Group 2: Application Developers

Entities in this group include data consumers that create digitally based, user-facing applications with data from public- or private-sector organizations that disseminate data for mapping or travel. Application developers depend on the availability of data from providers of those data to generate solutions that meet the needs of digital-device-users. Application developers include the developers of the three TDEI demonstration applications as well as other application developers that have an interest in developing applications using the TDEI data.

These participants will consume TDEI data using APIs. They will use the TDEI data in their applications in a variety of ways.

These participants will need training on the data formats used by TDEI (OpenSidewalks, GTFS-Flex v2, GTFS-Pathways), on the TDEI APIs for consuming data from TDEI, and UW ITS4US project aims and objectives, accessibility, and cultural sensitivity. Naturally, and as encouraged by the GTFS data format building communities, the data specifications themselves will suggest common use cases of the data and interpretation of the data attributes for information consumers (like application users). Information on development of inclusive and accessible applications will be provided to this group, following the resources available through the Mozilla, Apple and Android developer environments. Note that the training for this group of participants is on the APIs for consuming data TDEI data, also called 'Data Consumer APIs'. These APIs are separate

from the APIs for providing data to TDEI, also called 'Data Producer' APIs, which subgroups 1B, 1C and 1D of Participant Group 1 will be trained on.

2.3 Participant Group 3: Participants Demonstrating Smartphone Application

These participants, also referred to as Digital Device End Users, include a representative sample from a diverse subpopulation of people who have been historically disadvantaged by lack of information about travel environments and services in mobility applications. Specifically, we will pool participants from the following group of diverse stakeholders and their caregivers, therapists, other para-professionals: We consider our main stakeholder population to include people with disabilities, older adults or anyone who belongs to one or more of the following categories:

1. People who experience difficulties accessing pedestrian environments without being provided with detailed prior knowledge about the infrastructure connectivity and built environment (either for lack of accessibility or safety information or signage in their language),
2. People who use demand-responsive transit options (for example, Dial-a-Ride or paratransit services) that are not represented in common mobility apps,
3. People who have difficulty accessing transit stations or transit stops due to inappropriate infrastructure (e.g., broken elevators, only stairs) or inability to access infrastructure (e.g., difficulty using ticket machines),
4. People who have difficulty accessing information technologies that provide travel information and purchasing options (e.g., either inability to understand, afford or use a mobile phone, or inability to consume the information in mobile travel applications because they are not built with multi-lingual or accessibility features in mind).

We will consider our Group 3 participant population to be a representative sample of this diverse population if we can roughly demonstrate equitable demographic participation trends shown by the 2020 US Census. While the U.S. Census Bureau has identified people with disabilities as a hard-to-count population, the 2020 census still presents the most recent representative data we may be able to access. We will additionally seek participation from caretakers who utilize digital cartography and other digitally available information to make informed travel decisions for the above stakeholder population. These decisions include, but are not limited to, identifying and comparing optional routes for desired trips, understanding the accessibility of the route, and obtaining specific navigational directions for route plans they select. This participant group includes travelers with mobility and accessibility considerations including people with mobility disabilities, blind, vision disabled, deaf or deafblind travelers, older adults, multilingual or multicultural travelers, low-income transit users, and rural transit users.

The role of these participants will be to work with our group to co-design and test the TDEI demonstration applications, specifically the MultiModal AccessMap application. Training on the other two demonstration applications is outside of the scope of this project; the developers of those applications will be responsible for training for those applications. Coordination with those developers is discussed in Section 4.3.4.

These participants will need training on installing and using the demonstration applications. As described in the HUAS, as part of the Institutional Review Board (IRB) protocol, these participants will also be given information on their role in the project, the data that will be collected as part of their participation, how that data will be used and their ability to opt out of the data collection and stop participating in the project at any time. All communications will be accessible.

2.4 Participant Group 4: Project Staff

This group includes all UW team project staff.

This role of this group is to implement the ITS4US project which includes among other things developing the TDEI data infrastructure, working with community partners, developing training materials and performing the training itself.

In addition to the training listed below, these participants need training in: the UW ITS4US project aims and objectives, accessibility and cultural sensitivity, UW policies and procedures, data standards, data management, safety management, human use and performance evaluation.

2.4.1 Participant Group 4A: Project Staff for Community Partnerships

This group includes the UW ITS4US project staff that works with the project's community partners.

The role of this group with respect to training and education will be training and development of training materials for Participant Subgroup 1A (Consumers of Accessibility Mobility Data), Participant Group 3 (Participants Demonstrating Smartphone Application), and general training for Participant Group 4 (Project Staff).

The training needs for this group include, in addition to the general staff training described above, training on the training materials, procedures for reporting issues, as well as training on the OpenSidewalks mapping standards and the OpenSidewalks data editing programs.

2.4.2 Participant Group 4B: Project Staff for Data System Development

This group includes the project staff who are assigned to build and integrate data infrastructure tools within the pilot deployment.

The role of this group with respect to training and education will be training and development of training materials for the data system aspects of the project, specifically for Participant Subgroups 1B (Data Generators), 1C (Transportation Service Providers), 1D (Data Service Providers) and Participant Group 2 (Application Developers).

The training needs for this group include, in addition to the general staff training described above, training in the use of the deployment infrastructure, data management skills, data sensitivity, TDEI data formats, all APIs, and data ingest tools provided by the TDEI.

3 Participant Eligibility, Recruitment, Selection, and Retention

3.1 Eligibility

In this section we discuss any conditions that must be met for a person to be an eligible participant in the project. There are two sets of eligibility criteria. The first applies only to individuals who will perform field tests of the MultiModal AccessMap demonstration application. These individuals are covered under the human subjects review performed by the UW IRB.

In contrast, anyone can be a member of the second set of participants. This group includes all transit agency staff that are generating data, all application developers, and members of community and advocacy groups as well as the general public that will vet data and use smartphone applications.

To participate in the field tests for MultiModal AccessMap that will be performed as part of the University of Washington's ITS4US project, a participant must be of legal age (i.e., at least 18 years old). No minors will be engaged as participants in this part of the project. The project will not engage incarcerated persons as participants. Neither will the project specifically recruit Native American or non-U.S. populations, although members of these demographic groups may participate if they respond to the general recruitment material. All participants must be able to provide verifiable informed consent.

3.1.1 Participant Group 1: Participants involved with Data Standards and Data Collection Eligibility

In general, participants in this group need to be affiliated with an organization – such as a public-sector entity or a community group that is explicitly collaborating with the UW ITS4US project, although interested members of the public may participate in these activities. In this group we anticipate between 5 and 20 participants within each subgroup.

3.1.1.1 Participant Subgroup 1A: Consumers of Accessibility Mobility Data

These participants are community members who experience travel disadvantages and community members who wish to help crowdsource and vet data. Typically, these community members will be associated with a community organization that is partnering with the UW ITS4US project on data collection.

3.1.1.2 Participant Subgroup 1B: Data Generators Eligibility

These participants must have an organizational affiliation with at least one of the following: owners or operators of municipal infrastructure, private owners/operators of pedestrian-built-environments, transit facilities, or other sensed data providers in the built environment.

3.1.1.3 Participant Group 1C: Transportation Service Providers Eligibility

Transportation service providers must have an organizational affiliation with transit agencies or the companies that support the delivery of transit services operated by or for those transit agencies.

3.1.1.4 Participant Group 1D: Data Service Providers Eligibility

Data service providers must have an organizational affiliation with public or private mapping services or foundations and other sensed data providers about urban locales or the built environment.

3.1.2 Participant Group 2: Application Developers Eligibility

Application developers must have an organizational affiliation with any product group, team, open-source collaborative or other software team that consumes mobility data to create user experiences in either the mobile or web environment. In this group we anticipate between 3 and 10 participants.

3.1.3 Participant Group 3: Participants Demonstrating Smartphone Application Eligibility

This group includes the 40 individuals that will perform the field test of the MultiModal AccessMap application. To participate in that field test, individuals must be travelers who are legal adults (18+ years old), who experience any of a range of travel barriers, and who live or work within the pilot county regions of the TDEI. Participants must be at least 18 years of age. Under this group, eligible participants may also be representatives from disability advocacy groups, neighborhood or community groups, nonprofit or philanthropic organizations. In this group we anticipate at least 40 participants. These field tests will all performed in the Seattle area. These 40 participants will be covered by the project's HUAS.

Note that general users of applications that take advantage of the data being published in the TDEI do not need to meet these requirements. Any member of the general public is able to use applications which take advantage of the data being published in the TDEI.

3.1.4 Participant Group 4: Project Staff

This group, including subgroups 4A and 4B, consists of UW ITS4US team members. To be eligible for this group, the participant must be on the UW ITS4US Project team. Subcontractors are considered part of that team. In this group we anticipate between 5 and 20 participants.

3.2 Recruitment and Selection

The recruitment and selection of participants varies significantly by group both in the types of recruitment activities and in the level of effort needed for the recruitment and selection activities. A significant portion of the recruitment efforts will be directed towards recruiting participants Demonstrating Smartphone Application.

3.2.1 Participant Group 1: Participants involved with Data Standards and Data Collection Recruitment and Selection

Participant Group 1 (Data Standards and Data Collection) is expected to be recruited in large part from the public and public sector agencies who are collaborating with the UW ITS4US project and from community groups working with the project. Recruitment and selection of the participants in this group will be through direct contact with the agencies in the project's deployment area and through direct contact with community groups collaborating with the project. Due to the UW Teams' extensive prior work in the area of transportation data and accessibility, the UW team has direct contacts that can be used for this recruitment and selection. Many of these contacts are already part of the Phase 1 stakeholder groups, others will be involved through the agency partnerships discussed in the project's institutional partnership and financial plan (IPFP.)

3.2.2 Participant Group 2: Application Developers Recruitment and Selection

This group – the Application Developers – will include developers for the three demonstration applications that are being developed in concert with the TDEI project as well as other application developers interested in using the TDEI data. The TDEI's Data Consumer APIs will be open to the public and open to application developers wanting to develop mobility applications. The UW team will publicize the TDEI APIs through its web site and through mobility organizations and conferences; but will not put significant effort into recruiting application developers outside those developing the three demonstration applications. The UW team's focus will be on enabling and supporting the demonstration of the applications.

In terms of selection, all application developers will be expected to have a general knowledge of software development, API concepts and data standards.

3.2.3 Participant Group 3: Participants Demonstrating Smartphone Application Recruitment and Selection

The UW team will put significant effort into recruiting participants to perform a heuristic evaluation of the demonstration MultiModal AccessMap application. A goal of 40 participants in the Seattle area has been set for this specific group of individuals. The purpose of these participants is to demonstrate the applications and data provisioning functions, not to evaluate the overall travel benefits from the use of the application. Participants for the heuristic evaluation of the smartphone application will be recruited from disability advocacy groups representing a variety of disabilities, pedestrian/bike advocacy groups, neighborhood or community groups, nonprofit or

philanthropic organizations, transportation agencies, industry and businesses, as well as municipal organizations. Recruitment communication to these groups will include:

- regular updates to community groups that include periodic calls to action for potential participants to join ongoing TDEI pilot efforts,
- a project website that supports recruitment by drawing attention to the benefits of participation and by making sign-up barrier free; and
- providing digital, accessible outreach materials that include public service announcements (PSAs) and that link users to recruitment information.

Recruitment will also include sending targeted letters to partner organizations with whom the Taskar Center for Accessible Technology has forged ties as a result of previous work in this topic area. For an example of a letter that would be sent for recruitment purposes, please refer to Appendix A. For a list of potential organizations and institutions that may be included in recruitment, please refer to Appendix B.

Upon responding to a recruitment call, the participants are directed to a recruitment web page, which includes an online questionnaire that will prescreen applicants based on the criteria described in the eligibility section above. In addition to these criteria, the prescreening questionnaire will collect basic demographic information including age, gender, disability status and affiliation and language preference (English/Spanish) on a voluntary basis.

After completing the questionnaire, qualifying applicants will be invited to schedule an appointment for informed consent, registration, training and installation of the mobile application. Participants will be allowed to choose between using their own mobile device and using a mobile device provided by the UW ITS4US project. The recruitment will include a scheduling function so that qualifying applicants can set up their appointments online. For persons without online access, alternative measures (e.g., phone, email) will be offered. The TDEI will communicate electronically with the prospective participants to remind them of their scheduled appointment, unless the specific participant does not have internet access, in which case the team will use a combination of phone and mail to remain in contact.

3.2.4 Participant Group 4: Project Staff

This group, including subgroups 4A and 4B, consists of UW ITS4US team members. Recruitment and selection will be through the UW ITS4US hiring process.

3.3 Retention

The Transportation Data Equity Initiative begins with outreach work with community stakeholders to identify and define challenges they are facing, enabling those challenges to motivate use-inspired technology and data innovations. This engagement with community stakeholders, listening to and engaging them, will – in addition to helping understand user needs for the project – also help with recruitment and retention, particularly for the participants demonstrating the Smartphone Application, where significant recruitment efforts will be needed.

After participants have been recruited and trained, the team will invest in continuous engagement in order to retain those participants and to support downstream sustainability of the project goals and objectives. Community engagement and co-design is a principle and focus of the project. The

community engagement efforts support participant recruitment, training and retention. In particular, the community engagement structure the team will use is specifically intended to allow participants to reach to the entire community for engagement, questions, or to add to the discourse, maintaining participant engagement and recruiting new members. Importantly, the TDEI promotes data collection and downstream data use that considers the sustainability of outcomes beyond the life of the TDEI project itself, including the scalability and transferability of the proposed solutions as well as partnerships with community groups.

Ongoing community engagement will include general information about the TDEI, program objectives, updates, reminders and positive messages emphasizing the value of their involvement. All-to-All communication with participants and among participants is likewise important so that the participants can begin to resiliently support each other. This includes both within group and across group communications.

Prospective participants, who are not staff members of a participating government entity or company, will be offered a modest combination of incentives in the form of participant compensation and early access to data and deployment-developed tools. The incentives will not, however, be a central focus of the recruitment message. The recruitment effort will also emphasize the equity, safety, mobility and environmental benefits of the TDEI and the ability to improve mobility through the use of the software and mobility data that is being made accessible through the project's interoperability infrastructure.

4 Training Methodology

Training for project participants largely depends on their role and responsibilities within the project. Our training will use a variety of formats and styles depending on the audience to be trained. The objectives, key content areas, training topics and training materials for each group are described below.

All communications produced for training and created by the TDEI project will be accessible. This includes accessible formats, meeting the language needs of participants including the use of microphones and sign language interpreters as necessary.

Our ongoing accessibility effort for web accessible materials aims to comply with the Web Content Accessibility Guidelines (WCAG) version 2.1, level AA criteria. These guidelines not only help make web content accessible to users with sensory, cognitive and mobility disabilities, but ultimately to all users, regardless of ability.

4.1 Participant Group 1: Participants Involved with Data Standards and Data Collection

The training and training materials for the participants in this group and the subgroups will be developed as one set of training materials. The materials will be used selectively for the subgroups as described below.

4.1.1 Training Objectives

Training objectives for this group are listed below. The training material for this group and its subgroups will be developed together, different pieces of it will be used for the different subgroups. Table 1 shows how these objectives are mapped to the participant groups.

- Understand the data formats used by the TDEI modifications to those data formats
  - OpenSidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Understand how to use the TDEI APIs for providing data to the TDEI
  - Open Sidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Understand how the TDEI data ingest tools function and how to use those tools
- Understand the TDEI Data Quality requirements

  - OpenSidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Understand the TDEI best practices for accessibility-focused mobility data mapping
  - Collectible: consistent and standardized collections
  - Objective: maintaining best standards
  - Interpretable: how data collected may be used in applications and by application users

4.1.2 Key Content Areas/Training Topics

The training will be broken into modules based on the type of data being collected, and use of that data. Table 1 shows how these modules are mapped to the objectives and participant groups.

- OpenSidewalks Data Format and Mapping Module
  - OpenSidewalks data format
  - Best practices for OpenSidewalks mapping
  - OpenSidewalks data vetting and data quality requirements
- Open Sidewalks Data Collection and Tools Module
  - Function of data collection. tools
  - Usage of data collection tools
- GTFS-Flex v2 Format Module
  - GTFS-Flex v2 data format
  - TDEI GTFS-Flex v2 data quality requirements
- GTFS-Pathways Format Module
  - GTFS Pathways data format
  - TDEI GTFS-Pathways data quality requirements
- Data Producer API Module
  - Open Sidewalks Data Producer API
  - GTFS-Flex v2 Data Producer API
  - GTFS Pathways Data Producer API

4.1.3 Training Format and Materials to be Used

Table 1 summarizes the training objectives for each training module and correlates each module with the subgroup within Group 1 for which it is intended. The materials for training on data formats and APIs will be in the form of online documentation. The data formats used by the TDEI are documented on web sites – wiki, GitHub or custom web sites – depending on the data format. OpenSidewalks is documented as a wiki, GTFS-Flex v2 is documented on GitHub and GTFS-Pathways is documented on the main GTFS web site. We will follow those conventions for documenting APIs and will use the main OpenSidewalks and GTFS web sites when possible. API

documentation will be created using an industry standard API documentation tool, such as swagger[7]. The tool to be used will be selected by the Phase 2 developers.

Materials for OpenSidewalks mapping best practices, data vetting, data quality requirements and data ingest tools will be written documents which will be posted on the TDEI web site. All documents posted on the website will be 508 compliant and accessible. The website itself will also be 508 compliant and accessible. Our ongoing accessibility effort for web accessible materials aims to comply with the Web Content Accessibility Guidelines (WCAG) version 2.1, level AA criteria. These guidelines not only help make web content accessible to users with sensory, cognitive and mobility disabilities, but ultimately to all users, regardless of ability.

Table 1 Mapping of Training Objects and Modules for Participant Group 1

Training Objective	Training Module	Group / Subgroup			
Training Objective	**Training Module**	**1A – Consumers of Accessibility Mobility Data**	**1B – Data Generators**	**1C – Transportation Service Providers**	**1D – Data Service Providers**
Data Formats: OpenSidewalks	OpenSidewalks Data Format and Mapping Module	X	X		X
Data Formats: GTFS Flex v2	GTFS-Flex v2 Format Module			X	X
Data Formats: GTFS Pathways	GTFS-Pathways Format Module			X	X
Data Producer API: OpenSidewalks	Data Producer API Module		X		X
Producer API: GTFS-Flex v2	Data Producer API Module			X	X
Producer API: GTFS-Pathways	Data Producer API Module			X	X
Data Ingest Tools	Open Sidewalks Data Collection and Tools Module	X	X		

[7] https://swagger.io

Training Objective	Training Module	Group / Subgroup			
Training Objective	**Training Module**	**1A – Consumers of Accessibility Mobility Data**	**1B – Data Generators**	**1C – Transportation Service Providers**	**1D – Data Service Providers**
Data Quality: OpenSidewalks	OpenSidewalks Data Format and Mapping Module	X			X
Data Quality: GTFS-Flex v2	GTFS-Flex v2 Format Module			X	X
Data Quality: GTFS-Pathways	GTFS-Pathways Format Module			X	X
Best practices for accessibility-focused mobility data mapping	OpenSidewalks Data Format and Mapping Module	X	X		

4.1.4 Participant Subgroup 1A: Consumers of Accessibility Mobility Data

Training for the Consumers of Accessibility Mobility Data will use the objectives, topics and materials described above, and will include topics on OpenSidewalks, GTFS-Flex v2 and GTFS-

4.2 Participant Group 2: Application Developers

This group will have training on data formats and training on data consumer APIs. Group 1 also needs training on data formats, thus that training need overlaps between Groups 1 and 2, and thus, the training objectives, topics and materials also overlap. Where needs, objectives and topics overlap, these materials will be developed once and used for both groups.

4.2.1 Training Objectives

Training objectives for this group are listed below. The training objectives and topics for data formats are the same as the objectives and topics for data formats for Group 1.

- Understand the data formats used by the TDEI, and the modifications to previous versions of those data formats
  - OpenSidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Understand how to use the TDEI APIs for consuming data from the TDEI Data Consumer APIs

- Open Sidewalks
- GTFS-Flex v2
- GTFS-Pathways

- Understand UW ITS4US project aims and objectives, accessibility and cultural sensitivity

4.2.2 Key Content Areas/Training Topics

The training will be broken into modules based on data format and use of that data format. As stated above, the training needs, objectives and topics for data formats for this group are the same as for Group 1 with respect to data formats, thus the modules developed for Group 1 for data formats will also be use for training this group. One new module on Data Consumer APIs will be developed for this group.

Table 2 shows the mapping between training objectives and training modules for Group 2. Note that several modules described in the Group 1 section above and two modules described in the Group 4 section will be used for this group.

- Data Consumer API Module
  - Open Sidewalks Data Consumer API
  - GTFS-Flex v2 Data Consumer API
  - GTFS Pathways Data Consumer API

Table 2 Mapping of Training Objects and Modules for Participant Group 2

Training Objective	Training Module	Group / Subgroup
Training Objective	**Training Module**	**2 – Application Developers**
Data Formats: OpenSidewalks	OpenSidewalks Data Format and Mapping Module	X
Data Formats: GTFS Flex v2	GTFS-Flex v2 Format Module	X
Data Formats: GTFS Pathways	GTFS-Pathways Format Module	X
Data Consumer API: OpenSidewalks	Data Consumer API Module	X
Data Consumer API: GTFS-Flex v2	Data Consumer API Module	X
Data Consumer API: GTFS-Pathways	Data Consumer API Module	X
Project aims and accessibility	TDEI Project Aims Module; Design Justice Module	X

4.2.3 Training Format and Materials to be Used

Table 2 summarizes the training objectives for each training module for Group 2. The format for the training materials for this group will be the same as the format for training on data formats and APIs for Group 1. As stated above and repeated here for completeness: the data formats used by the TDEI are documented on web sites – wiki, GitHub or custom web sites – depending on the data format. OpenSidewalks is documented as a wiki, GTFS-Flex v2 is documented on GitHub and GTFS-Pathways is documented on the main GTFS web site. We will follow those conventions for documenting APIs and will use the main OpenSidewalks and GTFS web sites when possible. API documentation will be created using an industry standard API documentation tool, which will be selected by the Phase 2 developers.

4.3 Participant Group 3: Participants Demonstrating Smartphone Application

These participants will be asked to test a smartphone-based mobility application associated with travel for usability, accessibility, and feasibility of completing a trip. As an example, the sections below provide information regarding the planned approach for training trainers as well as co-design stakeholders and usability testers / evaluators of the MultiModal AccessMap application. This testing will occur during Phase 2.

A train the trainer approach will be used for training the participants who will co-design, perform usability testing and evaluation of the deployment technology in Multimodal AccessMap. The team will train designated undergraduate researchers (part of Group 4) in instructing participants. These trainers will then train the participants (in co-design, testing and evaluation). We anticipate training approximately three trainers at any stage through the project and approximately 40 testing participants through the duration of the project, and pilot area tests.

The UW team, inclusive of the web site designers, in conjunction with the Concept Lead, will work together to prepare the training materials. Sample training materials from the University of Washington's Taskar Center will be used to guide the training material preparation.

Training materials will be posted on the project's website so that they are accessible for individual or group refresher sessions and for the onboarding trainers to use in their training sessions. Our ongoing accessibility effort for web accessible materials aims to comply with the Web Content Accessibility Guidelines (WCAG) version 2.1, level AA criteria. These guidelines not only help make web content accessible to users with sensory, cognitive and mobility disabilities, but ultimately to all users, regardless of ability. Training materials will additionally be available for download or offline upon request.

4.3.1 Training Objectives

Here we describe sample training objectives for the Multimodal AccessMap training. Audiom and Soundscape application developers will be responsible for the training for their applications.

Audiom[8] and Soundscape[9] are two examples of third-party developers who will create applications that consume data from the TDEI system. Application developers are a stakeholder group as described in the ConOps[10] and as mentioned in the introduction. Coordination with those application developers is described in Section 4.3.4 below.

For participants, prior to committing to any in-field or in-lab testing, online training videos will be created for specific topics (or tasks) with the deployment application and be available for participants for refresher training. Installation guides and other training materials will be specific to the deployment technology being tested as well as the device type the participant has (see our example in this video: AccessMap v 2.0.).

Training materials and sessions will include information on both typical operating procedures and contingency plans to deal with situations where systems are not functioning properly. Once the materials are produced, the trainers will train the participants during onboarding sessions. Online and in-person facilities, including the UW Taskar Center for Accessibility (TCAT)'s research lab, will be utilized for the training. The UW TCAT team has extensive experience in training on topics similar to those that will be covered in these sessions, including having done trials on mobility applications like AccessMap and AbleLink.

The specific training objectives for this group are:

- Understand how to install the AccessMap Application
- Understand how to operate the Access Map Application
- Understand how to report data errors
- Understand how to recover from an application error

4.3.2 Key Content Areas/Training Topics

Key Content Areas & Training Topics for smartphone application are below. These topics are based on the AccessMap Multimodal application. A training module will be developed for each item below.

Table 3 shows the mapping between the training objectives and these modules.

- Installation of AccessMap Multimodal Application (iOS and Android)

[8] https://www.ski.org/project/audiom

[9] https://www.microsoft.com/en-us/research/product/soundscape/

[10] Phase 1 Concept of Operations (ConOps)—University of Washington ITS4US Deployment Project, by the University of Washington and Cambridge Systematics, Inc., June 2021, Report Number FHWA-JPO-21-861. Available at: https://rosap.ntl.bts.gov/view/dot/58675

- AccessMap Multimodal System User Guide
  - Map view screen
- Current location icon (including error & recovery methods)
- Sidewalk demarcations (including errors identifying a sidewalk)
- Curb ramp demarcations (including errors identifying curb ramps)
- Crossing demarcations (including if crossings are wrong or inaccurate)
- Personal profiles
- Centering the map
- Information icon
  - Routing screen (how to plan a route)
- How to select routing starting point
- How to select routing destination
- How to change personal settings to customize the trip for you
- Viewing a route (visual metaphors, trip view, distance & time metrics)
- Reporting screen
    - How to generate reports for erroneous data
    - What can be reported
    - Contact the team
- Recovering from error

4.3.3 Training Format and Materials to be Used

Table 3 summarizes the training objectives for each training module for Group 3. Application training for this group can take place in person or online.

Selected participants will receive links to accessible PDFs, online content, and an accessible introductory video (approximately 3 minutes long) explaining the application that is being tested and its relationship to the TDEI.

Participants will then be invited to a live session via a video conference call which will be assisted via participant-requested accessibility services including ASL interpretation, language translation and/or CART services. Conference calls will not exceed 20 participants per call. The training agenda for these sessions is described in Appendix C. It includes information on how to install the application, testing tasks, and a training outcome evaluation survey to fill out.

Table 3 Mapping of Training Objects and Modules for Participant Group 3

Training Objective	Training Module	Group 3: Demonstrating Smartphone Application
Install Access Map	Installation of AccessMap Application (iOS and Android)	X
Operate Access Map	AccessMap System User Guide	X
Report Data Errors	AccessMap System User Guide	X
Recover from an Application Error	AccessMap System User Guide	X

4.3.4 Coordination with Application Developers

The UW deployment project's main application development partners are the independent entities XRNavigation and the Microsoft ENABLE development team. These development partners will play an important role in promoting the use of data disseminated by the TDEI. Development of the data sharing infrastructure will progress at a rapid pace, and we anticipate that these developers will help shape the consumer APIs of the TDEI. The applications produced by both these teams have the aim of incorporating information about travel environments for populations of travelers with disabilities. Although the two applications have been in development for some time, the developers recognize the opportunity of incorporating additional accessibility data as part of the operational data consumptions for these applications. Our institutional arrangement and processes for development coordination will proceed as follows:

5. The TDEI, through its Technology Development team will establish the regulatory and vetting oversight process required to validate and verify datasets before they are shared with application developers.
6. The TDEI, through its Technology Applications Development manager, will manage the flow of TDEI data that is determined ready for external consumption (as determined by the qualifications established in (1)), coordinate and harmonize the data transaction processes even before the TDEI system consumer API's are ready and deployed
7. Once comprehensive API needs are assessed, and consumer API's have been deployed, the TDEI will promote demonstration application harmonization and coordination efforts with the application development partners through frequent exchange of information and periodic meetings with development team representatives.
8. Throughout the development process, the TDEI Communication and Engagement application development partners will assist with any training, tool tips, tours, or other training collateral the development partners might create for the application releases that utilize TDEI data.

4.4 Participant Group 4: Project Staff

4.4.1 Training Objectives

UW ITS4US staff must be well versed in a number of subject areas and be subject matter experts in their particular domain of contribution to the project. Educating users and systems staff members is essential to a successful implementation of an interoperable data sharing infrastructure. Educators should have a deep understanding of the TDEI data infrastructure concepts and technological solutions.

Training objectives for project staff are:

- Understand project aims and objectives
- Understand project accessibility requirements
- Understand accessibility and cultural sensitivity best practices
- Have a general understanding of project plans
    - Data management plan,
    - Safety management plan,
    - Performance management and evaluation support plan,
    - Human use approval summary,
- Be familiar with UW policies and procedures.
- Be familiar with TDEI data standards so staff can participate standards development discussions with standard development groups external to the TDEI project

4.4.2 Key Content Areas/Topics

Key content areas and topics for full staff training will include the items listed below. Table 4 maps the objects and modules listed below to the group and subgroups. Note that some of the modules that will be used by this group are described in sections above.

- TDEI Project Aims and Objectives Module
    - Project motivation and project outcomes,
    - UW ITS4US organization chart and adopted processes, and
    - A general understanding of accessibility in the built environment
        - Sample case studies of complete trip failure and travel disadvantage in the current system
- Project Accessibility Requirements Module
    - US DOT Project Accessibility Requirements
- Inclusive Engagement Module
    - Learn accessibility and culturally sensitive best practices,
    - Learn to create accessible, inclusive engagement opportunities. Staff will learn inclusive planning techniques

    - Learn accessibility requirements and best practices, including use of inclusive language, and Plain Language[11] translation techniques
- Data Management Module
    - What data the TDEI is expected to acquire, collect, generate and share
    - Understand handling of data routing requests to protect participant privacy and security
    - Safe and secure data management practices
    - Need for data integrity
    - Need for data provenance and transparency
- Safety Management Module
    - How the TDEI Safety Management Plan addresses errors in TDEI data, and the mitigation taken within the smartphone application to address those errors.
    - Change processes to incorporate mitigation steps which will be potentially updated as appropriate based on feedback from project participants in Phase 3 of the project
- Performance Measurement Module
    - Project evaluation
    - Restrictions on data sharing and what and how data will be shared with the independent evaluators
- Human Use Approval Module
    - Human use approval process and procedures
- UW Policies and Procedures
    - Husky prevention & response (Title IX)
    - Violence prevention and response

4.4.3 Training Format and Materials to be Used

The format for these trainings will be summary slides created based on the based on the project deliverables including the Concept of Operations, the Data Management Plan, the Safety Management Plan, the Performance Management and Evaluation Support Plan, the Human Use Approval Summary and this Training Plan. These summary slides will capture the key concepts from those deliverables that project staff need to know. For trainings which are expected to be needed more than five times, videos will be created. All materials will be accessible. The UW Policies and Procedure trainings are in online or in-person format and are created and managed by the UW Human Resources Department.

For our systems staff members, training and educational material will be made available in a repository for TDEI Administration Documents and Training. This repository will be created within the first 3 months of the Phase 2 kickoff. The purpose of this repository is to provide a single point of access, consistency and interoperability for TDEI training material for staff.

[11] https://www.plainlanguage.gov

4.4.4 Participant Group 4A: Project Staff for Community Partnerships and Outreach

This group will receive the staff training described in previous sections. In addition, this group will be trained on items specific to working with community partners and participants demonstrating the smartphone applications.

4.4.4.1 Training Objectives

- Understand how to operate the AccessMap application at a level that enables them to train others in the use of that application
- Understand inclusive planning best practices.
  - Learn to create accessible, inclusive engagement opportunities. Staff will learn inclusive planning techniques
  - Learn accessibility requirements and best practices, including use of inclusive language, and Plain Language translation techniques

4.4.4.2 Key Content Areas/Training Topics

- Access Map Application Training – installation, usage, error reporting
- Inclusive Planning Module – selected topics include:
  - Describe process and expectations of each meeting so stakeholders will understand the sequence of activities and their role in the process.
  - Include stakeholders from the outset and be direct about the information.
  - Follow up with stakeholders and keep promises.
  - Respect the opinions and actions of persons involved by displaying sincerity, credibility and truthfulness.
  - Employ plain language to meet the needs of the public.
  - Focus on building trust as well as producing good scientific data.
  - Materials for this module will be drawn from the King County Mobility Coalition including guidelines, manuals and other materials to assist staff in conduct of accessible public involvement activities will also be used for staff training. Modules created as part of an initiative from the Center for Participatory Research[12] at the University of New Mexico, in collaboration with the Health Promotion Unit of the Pan American Health Organization (PAHO)[13] may be incorporated.

[12] https://cpr.umn.edu

[13] https://www.paho.org.en/topics/health-promotion

4.4.4.3 Training Format and Materials to be Used

The training materials that have been developed and those that will be developed for this project include those listed below. All training material will be stored on the TDEI project website so that they are available to trainers and trainees.

- Quick reference guides
- Training videos and/or PowerPoint presentations
- Online training modules
- Trainer guides
- Training assessment tools
- Inclusive planning training is based on the Inclusive Planning Toolkit produced by the King County Mobility Coalition[14]

4.4.5 Participant Group 4B: Project Staff for Data System Development

This group will receive the staff training described in previous sections. In addition, this group will be trained on items specific to data infrastructure, the APIs for providing data to, and consuming data from, the TDEI, and equitable data management.

At its core, this project is about data science. In the perspective of a data-driven world, we know and hope that these data will be used to tell stories, and hopefully effect change in transportation and mobility for all. We are also aware that different agencies and institutions have concerns (privacy and security), liability, and operational challenges having to do with data. We therefore must provide data responsibly and consider data biases we may be perpetuating or inadvertently introducing. At the same time, the infrastructure we create must be grounded in the reality of data sharing across different organizations and their concerns.

The training for the data team includes training on how to identify oversights in a team's workflow that can generate harmful unintended consequences. These oversights can arise from our unconscious biases or structural inequalities embedded in society. Biased processes can occur at any point before, during, or after the development of a data science system. The consequences of biases are challenging to foresee, but they tend to have adverse effects on historically marginalized communities. Like any biases, those biases in data science systems are universal -- but harm can be mitigated if we intentionally take action to guard against them.

Consequently, the Project staff will undertake training so that they understand that system design mediates much of our realities and has tremendous impact on our lives, yet very few of us participate in the design processes. In particular, the people who are most adversely affected by design decisions — in the case of the TDEI, about mobility data and data culture or the structure of our mobility and transportation systems — tend to have the least influence on those decisions

[14] Inclusive Planning Toolkit (multiscreensite.com)

and how they are made. The training will then include learning how to identify these biases and consequences, and how to use co-design processes to minimize negative outcomes from structural biases and unconscious biases.

4.4.5.1 Training Objectives

The training objectives for this group include training on the data system itself as well as equitable data management:

- Understand the architecture of the TDEI data system
  - Benefits of microservices architecture
  - Cloud systems used by the project
- Understand tools used to manage the TDEI data system
- Understand how to use and explain the APIs for providing data to the TDEI
  - OpenSidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Understand how to use and explain the APIs for consuming data from the TDEI
  - OpenSidewalks
  - GTFS-Flex v2
  - GTFS-Pathways
- Learn about Design Justice and equitable data management

4.4.5.2 Key Content Areas/Training Topics

The training topics for this group include:

- Data Architecture Module
  - Microservices architecture
  - Systems such as: Kafka, Docker
  - TDEI data flow
  - Cloud provider data storage systems
- Development Tools Module
  - GitHub
  - Selected cloud provider monitoring tools
- Design Justice Module sample topics:

- Data systems must center the voices of those who are directly impacted by the outcomes of the design process. (This principle was inspired by and adapted from Design Justice[15]Error! Bookmark not defined.)
- Data systems must prioritize design's impact on the community over the intentions of the designer. (This principle was inspired by and adapted from Design Justice.[15])
- Data systems must view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process. (This principle was inspired by and adapted from Allied Media[Error! Bookmark not defined.])
- ABUSABILITY: Learn to analyze what vulnerabilities a data science system might expose (See Anat Caspi's training on Non-ableist Data Science to the Academic Data Science Alliance[16]
- OPTIMIZATION CRITERIA: Learners will understand how vulnerable or disadvantaged populations can be harmed due to the performance metrics chosen by the system designers. (See Anat Caspi's training on Non-ableist Data Science to the Academic Data Science Alliance[17]
- RIGHT TO CONTEST: How can data system designers ensure that individuals have mechanisms to challenge decisions made by the system (particularly if the system is representing data pertaining to a specific population). (See Anat Caspi's training on Non-ableist Data Science to the Academic Data Science Alliance[17]
- OVERSIGHT: How can data system designers institute inclusive processes for stakeholder input and independent risk assessment. (See Anat Caspi's training on Non-ableist Data Science to the Academic Data Science Alliance[17]
- Proposed Public Rights-of-Way Accessibility Guidelines (PROWAG)[17]
- Materials for this module will be drawn from the Design Justice Network web site[15] and from the Allied Media web site and from Anat Caspi's training on Non-ableist Data Science.[17]

4.4.5.3 Training Format and Materials to be Used

Table 4 summarizes the training objectives for each training module and correlates each module with the subgroup within Group 4 for which it is intended. The training for the system architecture Microservices, GitHub, etc. will be developed by identifying or developing a series of articles and videos on the internet that provide information on the data systems used by the TDEI. Internal documentation on the system architecture, including information from the Phase 2 System Architecture Document and System Design Document, will be created to train staff on the architecture of the system. API documentation, as noted before, will be created by the

[15] https://designjustice.org

[16] https://youtu.be/k1-u7KJ9SpA

[17] https://www.access-board.gov/prowag/

development teams and will be available to all staff. Some of this API documentation may be created by the data team.

Table 4 Mapping of Training Objects and Modules for Participant Group 4

Training Objective	Training Module	Group / Subgroup	
Training Objective	**Training Module**	**4A**	**4B**
Project aims and objectives	TDEI Project Aims Module	X	X
Project accessibility requirements	Project Accessibility Requirements Module	X	X
Accessibility and culturally sensitive best practices	Inclusive Engagement Module	X	X
Recover from an Application Error	AccessMap System User Guide	X	
Project Plans	Data Management Module; Safety Management Module; Performance Measurement Module	X	X
UW Policies and procedures	Training Modules provided by UW HR	X	X
TDEI Data Formats	OpenSidewalks Data Format and Mapping Module; GTFS-Flex v2 Format Module; GTFS-Pathways Format Module	X	X
Understand AccessMap	Installation of AccessMap Application (iOS and Android); AccessMap System User Guide	X	
Inclusive Planning Best Practices	Inclusive Planning Module	X	
TDEI Data system	Data Architecture Module		X
Tools used to manage TDEI Data stem	Development Tools Module		X
Data Producer APIs	Data Producer API Module (PG1)		X
Data Consumer APIs	Data Consumer API Module (PG2)		X
Design Justice and Equitable Data Management	Design Justice Module		X

5 Training Assessment

This section describes how the UW ITS4US team will judge the effectiveness of their training activities and determine whether individuals who have taken that training have successfully obtained the knowledge they require. The training assessments incorporate a variety of types of assessments based on the type of training provided and the participants role in the project. Training assessment needs vary depending on whether the participant is mapping data, testing a smart phone, or using an API to produce or consume data. Each of these needs and how they are addressed is covered below.

5.1 Knowledge Assessments After Training

The assessments performed by the UW ITS4US team to determine if a given training session has been successful will vary based on the task for which training is being provided, as the training tasks vary with the specific participant group.

Testing is most important for participants who will be mapping and vetting for the TDEI system and for those who will be testing the smartphone application; detailed assessment tests will be developed for those groups and will be provided to the Institutional Review Board (IRB), as required by IRB.

For participants who will use APIs and data ingest tools to produce data for TDEI, it is important to note that the TDEI system will check and validate all data sent to the TDEI through its APIs and data ingest tools. Thus, the impact of these participants not absorbing the training material will not be corrupt data in TDEI. Instead, the impacts will include frustration on the part of these data generating participants. Frustration using the TDEI APIs, and data ingest tools may make them less likely to provide data to the TDEI. Frustration using the TDEI APIs, and data ingest tools may make them less likely to provide data to the TDEI. Thus, the focus of assessment testing for these data generating participants (subgroups 1B, 1C and 1D) will be on providing them the mechanisms to practice using the ingest tools and APIs. Obtaining feedback from these participants about the effectiveness of the training is also important and is discussed in the following section. The same is true for participants consuming data from the TDEI system (Group 2) in that the focus needs to be on training these participants to use TDEI data in an effective way.

Training assessments are discussed below for each of the different participant groups identified in Section 2.

5.1.1 Participant Group 1: Participants Involved with Data Standards and Data Collection

5.1.1.1 Participant Subgroup 1A: Consumers of Accessibility Mobility Data

These participants are community members who will map and vet data for the TDEI. They will be trained on the OpenSidewalks data format, best practices for OpenSidewalks mapping, Open Sidewalks data vetting and data quality requirements, and the tools for performing mapping and data vetting. The assessment tests for this subgroup will focus on testing the participants to see if they can correctly map and vet data. These tests can be done in-person or remotely. The tests will at least initially be scored manually. The manual scoring process will be evaluated to see if automation of the scoring process is feasible.

For data mappers, the assessment test will consist of a set of mapping tasks with known outcomes, the participants' responses will be checked to see if they completed the mapping tasks correctly. In addition to this initial assessment, the mappers' work will be monitored by TDEI data vetters; if a mapper has an unusually large number of errors, that mapper will be contacted and may be asked to re-take the training.

For data vetters, the data vetters will be tested by providing each person being trained with a digital map with a set of known data errors; team members will observe to verify that they are able to identify the known errors correctly.

5.1.1.2 Participant Subgroup 1B: Data Generators

These participants are, or are affiliated with, owners or operators of municipal infrastructure, private owners/operators of pedestrian-built-environments, transit facilities, or other sensed data providers in the built environment and will provide data to the TDEI using some combination of mapping tools provided by the project team, the data ingest tools and the TDEI APIs. They will be trained on data formats, on the tools for performing mapping and data vetting, on data ingest tools and 'Data Producer' APIs. Assessments will focus on the participants ability to generate and then upload data using the tools and APIs provided.

As described above, the focus on assessments for this group is on providing the participants mechanisms to practice and learn the TDEI tools and APIs. Sample data sets and maps will be provided in a 'sandbox' where these participants can practice generating and sending data to TDEI, and then seeing if the data passes the TDEI data quality and validity checks that will be provided in conjunction with the API. This 'sandbox' will function like the TDEI's APIs and data ingest tools, but data sent to the sandbox is not loaded into the actual TDEI system.

Finally, all users of the TDEI APIs and data ingest tools will be registered with the TDEI system. Any data generator producing large amounts of data with errors will be identified by the TDEI software monitoring the performance of the API, and team members will contact that participant. Errors to be detected automatically include data formatting errors and clearly erroneous data values such as a sidewalk slope of 70%; manual vetting will only be available via volunteered vetting by Group 3 and will be used to detect errors that cannot be automatically detected in a statistically insignificant fashion – such as missing curb ramp or sidewalk. Errors found by Group 3 will be reported back to agencies and organizations who generate the data.

5.1.1.3 Participant Group 1C: Transportation Service Providers

These participants include transportation service providers. They will use APIs to submit data to the TDEI that is then ingested. They will be trained on TDEI data formats and APIs. As described above for Participant Subgroup 1B, the training for this group will focus on providing opportunities for this group to practice using the TDEI APIs and on obtaining feedback from these participants. The same techniques as used for subgroup 1B will be used for this group, except that this group is not expected to need to use the data generation tools.

5.1.1.4 Participant Group 1D: Data Service Providers

These participants include data service providers with public or private mapping services; they will use APIs to produce data for the TDEI. They will be trained on TDEI data formats and APIs. Training assessments for this group will be the same as for Group 1C, except that they will not be generating data.

5.1.2 Participant Group 2: Application Developers

These participants are application developers who will consume data from the TDEI through the TDEI Data Consumer APIs. They will be trained on the TDEI data formats and Data Consumer APIs.

As with Participant Subgroups 1B, 1C, 1D, the assessment testing for this group will be focused on providing practice opportunities for using the Data Consumer APIs using the same sandbox mechanism. Feedback on the effectiveness of the training is also important and will be gathered as discussed in Section 5.2 below.

5.1.3 Participant Group 3: Participants Demonstrating Smartphone Application

The training assessment will be applied to the participants in the heuristic evaluation of the MultiModal AccessMap smartphone application. The participants in this group will be travelers who are legal adults (18+ years old), who experience any of a range of travel barriers, and who live or work within the six county regions of the TDEI. They may also be representatives from disability advocacy groups, neighborhood or community groups, nonprofit or philanthropic organizations.

Assessment testing is important for this group both to ensure that the participants understand how to use the application as they will be using it for travel routes and to ensure that the data and observations the UW team collects about the smartphone application will be quality data. That is, if a participant is not adept at using the smartphone application, then this may impact that participant in their ability to navigate with AccessMap and may impact the observations collected by the UW team.

The assessment test for this group will be to provide them with a set of routes and routing instructions. For example, “find a route that goes from the UW Stadium Link station to the Electrical Engineering Building on campus, but that does not require using stairs.” The participant

would be requested to find a route meeting those route instructions and the assessment test is whether the participant can find that route or not.

The set of routes used for this exercise will be selected based on different types of known routing problems and will have known possible solutions. As an example, one routing instruction might be find a route from the UW Computer Science & Engineering Building on the UW Campus to the UW Link Light Rail Station without using stairs. In selecting this example, the team would know that there is a route with stairs and a route without stairs.

This assessment test could be both a lab exercise in which the participants use the smartphone application in the lab and are tested to see if they can manipulate the smartphone interface and discover routes. In the lab exercise, the UW team could ask specific questions about their choices – for example, “did you see the option with curb ramps?”). After participants passed the lab exercise assessment, a follow-on physical test (“execute this trip") could be used. In our example, this could be the participant navigating from the UW Computer Science Building to the UW Link Light Rail Station potentially in groups and/or with a UW team member. This assessment test will be used for participants who are demonstrating the AccessMap application as part of project evaluation. That assessment will be limited to the Seattle area.

Participants in Maryland will be able to use and be trained on the Application, that training can be done remotely. The participants in Maryland will not be part of the evaluation process because the goal of evaluating the demonstration application is to test the TDEI data infrastructure. Testing the data infrastructure is independent of where the application is being used. In addition, the UW team can and will verify the application works for Maryland data remotely.

5.1.4 Participant Group 4: Project Staff

This group, including subgroups 4A (Project Staff for Community Partnerships) and 4B (Project Staff for Data System Development), consists of UW ITS4US team members. This group will be trained in UW ITS4US project aims and objectives, accessibility and cultural sensitivity, UW policies and procedures, data standards, data management, safety management, human use and performance evaluation.

In addition, subgroup 4A will be trained on OpenSidewalks mapping standards and the OpenSidewalks data generation, editing and vetting tools. Subgroup 4B will also be trained on the use of the deployment infrastructure, data management skills, data sensitivity, all APIs, and data ingest tools provided by the TDEI.

For the training on project aims, accessibility, safety management, human use and performance management, knowledge assessments will be administered after training. Approximately three months after attending a training session, staff participants will be asked to take a survey that assesses the impact the training has had on behavior. This assessment will test the knowledge participants should have gained through the training. This tool will assess the staff’s ability to perform to our standards, particularly in compliance with the Data Management Plan, Data Safety Management Plan, and the Performance Metrics and Evaluation Support Plan. Additionally, staff will be asked about training material in accessibility requirements and best practices and equitable data science practices. The survey content draft is found in Part I of Appendix A.

For the assessing training specific to subgroups 4A and 4B, many of the assessment tests described above can be used. For example, for assessing subgroup 4A in mapping skills, the

assessment tests for subgroup 1A can be used and for assessing subgroup 4B in use of APIs, the assessment tests for subgroups 1B, 1C and 1D can be used.

As this group consists of UW team members, some of the staff in this group who are already knowledgeable, for example about mapping best practices or the TDEI APIs, will be developing those assessment tests. After the tests are developed, the UW team will use those assessments both to assess team members added to the UW team and to assess participants in other groups.

Additional assessments for items specific to 4A and 4B such as OpenSidewalks data editing programs and data management skills will need to be developed. These assessments may be less formal and may involve senior staff observing and monitoring new staff and/or verifying that new staff have read or viewed the appropriate materials as it is expected that a limited number of staff will need to be trained in this way.

5.1.5 Pre- and Post-Assessment Surveys

To enable a comprehensive assessment of training activities that cover measures of reaction, learning, behavior, and results, Pre- and Post-Training surveys will be used.

- Pre-Training Assessments: Prior to attending a TDEI training session, individuals participating in the heuristic evaluation will be asked to complete the appropriate pre-test to assess their existing knowledge.
- Post-Training Assessments: Immediately following a training session, participants are requested to complete the appropriate post-test and course evaluation. The post-test estimates participants' subject matter knowledge after receiving the training and the course evaluation captures the participant's feelings concerning the training and provides valuable feedback necessary to continually improve the program.

Sample survey material is provided in Part II of Appendix A. The responses from these surveys will also be included as Participant Feedback, which is discussed in the next section.

5.2 Participant Feedback

Feedback will be solicited from participants using several mechanisms. As discussed above, pre- and post-training surveys will be used to obtain participant feedback for engagement events and training. Beyond training and engagement events, especially for participants who are mapping data and using APIs and data ingest tools, feedback will be collected through follow-up surveys and through the use of a comment box on the TDEI website. It is expected that participants will go to the TDEI website to get information about and links to information about mapping, APIs, data ingest tools and data standards. By having a comment form on the website, the team provides these participants an opportunity to submit feedback while the participant is in the process of working with the TDEI system. In addition, all users of APIs, data ingest tools and mappers will be known to the TDEI and the TDEI team will periodically send out short surveys to these users to assess if and how they are using the TDEI tools and to solicit any feedback.

The Taskar Center at UW employs a range of methods and strategies to incorporate people with disabilities and their allies in the many aspects of research, planning, co-design, project implementation and partnerships and oversight. These processes include best practices for

accessibility of meetings, inclusion of underrepresented groups and equity processes. We intend to provide a meaningful, consistent participant engagement process, which includes participant training. With that objective, participant feedback is a key task we undertake to continuously strengthen partnership with participants.

After training and engagement opportunities, we will take suggestions and insights (through anonymous survey tools) from surveyed participants and summarize them. Once we have summarized findings, we will share them with participants as an opportunity for participants to agree, disagree, correct or amend the findings. Corrections or discrepancies will then be incorporated back into meeting records and notes. Any feedback we receive regarding training material, lack of consistency, clarity or other considerations will then be incorporated back into our training syllabi and presentation materials. Any participant feedback that may impact downstream work activities or technology designs will be incorporated into our workplans, and if large enough, may introduce changes to some of our process documents.

Training materials will be updated based on participant feedback on a regular basis. Specifically training materials will be reviewed at least twice a year for potential revisions. If there are any critical changes identified through participant feedback, those changes may be incorporated sooner than the twice-a-year reviews.

6 Planning and Coordination of Training Activities

The purpose of this section is to identify needs for coordination of training activities with other entities including the USDOT, project partners and community groups. The UW team will conduct several types of training activities including:

- Online or in-person trainings for Group 1 (Participants Involved with Data Standards and Data Collection.)
- Development of online training materials, especially online documentation of data formats, APIs and data generation and ingest tools for Group 1, Group 2 (Application Developers), and Group 4 (Project Staff.)
- Online or in-person trainings for Group 3 (Participants Demonstrating Smartphone Application.)
- Online training materials for Group 4, to be stored in a repository as described previously.
- Web-based trainings managed by UW Human Resources for Group 4.

These training activities can be categorized as follows:

1. Online training (via video conferencing software)
2. In-person training, performed in small groups
3. Development of training materials for in-person training
4. Development of online training materials
5. Web-based training managed by UW Human Resources

With reference to item 3 above: all material for online and in-person training will be available electronically, will be accessible and will be posted on the TDEI website. Any hard copies of training materials used for in-person trainings will be print copies of the online materials. Thus, from a material development perspective, we do not distinguish between development of training materials for online and in-person training.

The coordination needs for these types of training activities are described below:

Online trainings: Online trainings will be conducted via video conferencing software. The UW team has access to both Zoom and Microsoft Teams, either of which can be used for training. Preparation for the online training activities, excluding materials development (covered below), involves creating an invite with a Zoom or Teams link and distributing that link to participants. In some cases, these training activities will need to be coordinated with community groups or agency staff. For example, if the team works with a community group to recruit members of that group to perform data mapping or data vetting, the meeting will be coordinated with the community group at least one week and ideally 3-4 weeks in advance to ensure that staff from the community group can be present at the training and sufficient time is given to allow members

of the community group to participate. Similarly, this timeframe is often needed to give agency / company staff time to arrange their work schedule, in order to attend. The 3 to 4-week timeframe assumes that the no one attending the training needs accommodations. If translation services are required for the online training, those need to be coordinated with the translator prior to sending out the meeting notice to ensure translation services will be available. We anticipate a minimum of 4 to 6 weeks lead time needed for ASL interpretation services.

In-person training: In person trainings are expected to be conducted on the UW campus. If the group is small enough (5 or less participants) the Taskar Center for Accessibility lab may be used as the training space in which case room reservations are not required. Larger groups may use space on the UW campus which will be reserved through UW facilities. Available facilities include conference rooms of various sizes and computer labs with multiple terminals that can provide access to online software. We anticipate the need for approximately three weeks lead time to make these reservations. All in-person training will be in spaces that are accessible, and which accommodate wheelchairs and other mobility devices. Microphones will be provided except for small group discussions. For small group discussions, the UW team will monitor and engage to ensure that all participants can hear and participate in discussions. As with the Online Training, these trainings may be coordinated with groups, in which case advance coordination with those groups of a minimum of 3 to 4 weeks will be required as well as any lead time necessary for acquiring interpretation services.

Development of training materials for online and in-person training: The coordination around the development of these materials centers around ensuring that the materials are accessible and are translated into other languages as is needed. The UW team has staff, led by Amy O'Brien, TRAC's Technical Communication's Specialist, who can make documents accessible. These staff need approximately one week lead time to edit any documents and ensure their accessibility. In addition, we anticipate a minimum of 4 to 6 weeks lead time for any translation services needed. Finally, the UW team's webmaster, Dmitri Zyuzin, TRAC's IT Lead, will need 2-3 days' notice to post any materials on the TDEI web site. Ideally, training materials are posted on the TDEI web site one week prior to any training so that the materials are available to participants prior to training.

Development of online training materials: As with the development of training materials for online and in-person training, the coordination for development of these materials centers around ensuring that the materials are accessible, and any translations are completed. The lead times for these materials are similar to the lead times for the lead times for the materials for online and in-person training. The differences being that there is 1) not a need to post the materials one week ahead of the meeting as there is typically not a specific meeting or training date by which the materials will need to be available, and 2) some of these materials will be posted on the TDEI materials repository and so will not need to be posted by the TDEI webmaster. If training videos are created, one week will need to be allowed to verify and validate captions for those videos. Captioning is typically done by having the computer generate captions and then having a human review and edit those captions to fix errors in the computer-generated captions.

Web-based training managed by UW Human Resources: The web-based trainings required of newly hired staff are maintained by UW Human Resources. No coordination is anticipated as these trainings as UW HR keeps the online trainings up to date at all times. The new hires need to go to the specified links which are provided to new hires in their onboarding documentation.

Appendix A. Recruitment Sample

This is a sample recruitment letter to identify those TDEI participants in the Device User group, which falls under Group 3.

Hello XXYY,

We're contacting you as someone who has either been involved with the OpenSidewalks project, with Taskar Center Accessible Technology or affiliate organizations. Perhaps you have indicated you may be interested in the project. I would like to tell you about the Transportation Data Equity Initiative, a 5-year project funded by the USDOT to enhance the availability and shared use of mobility data for sidewalks and pedestrian environments, on-demand transportation, and transit facilities. The intent is to allow public and private entities shared interoperable access to relevant accessibility data which can be provided to all travelers, including those with disabilities. We are asking to see if you wish to participate further in the project helping test and evaluate one of the applications which uses the data you have helped generate.

Why are we asking for you to play a role in this project?

People with lived experience are individuals who have first-hand experience of the travel barriers we are considering. The value of including the viewpoints of people with lived experience in transportation policy and systems research has been recognized, but not practiced at many levels. While there is not much by way of established best practices on how to include people with lived experience in these projects, here I will describe our approach to the inclusion of people with lived experience in every stage of our project process.

The following are ways in which you would be able to participate:

- <Name project activities here>

Please use the following link to sign up, or if you would prefer, you may reach out to us by email (uwtcat@uw.edu). We can also schedule a phone call at a time that is convenient for you.

Best regards,

The TDEI team

University of Washington

Appendix B. Potential Recruitment Associations and Groups

The following are organizations that the TDEI has already contacted.

- Academic Institutions
  - Portland State University
  - Towson University
- Non-Profit Organizations Community & Voluntary organizations
  - Boy Scouts of America
  - Girl Scouts of the USA
- Non-Profit Organizations Local Disability Organizations
  - Disability Rights Washington
  - Lighthouse for the Blind
  - Move Washington

The following are types of organizations and institutions to whom the TDEI may send recruitment messages as we expand our recruitment:

- Academic Institutions Colleges & Universities – Target related Departments or Offices
- Academic Institutions Research Organizations (at academic institutions) Art/Culture Art Associations
- CDCs Community Development Corporations
- Government Agencies Regional agencies and key staff
- Community Health Centers & Hospitals
- Health Workers
- Senior Groups
- Independent Living Centers
- Disability Groups
- Schools for the Deaf
- Schools for the Blind
- Bike & Pedestrian Groups
- Municipal Partners
- Municipality Planners and planning committees
- Non-Profit Organizations Community & Voluntary organizations

- Non-Profit Organizations Local Disability Organizations
- Resident Neighborhood/Resident/Civic Associations

Appendix C. Participant Training: AccessMap Sample Training and Mapping Session Agenda

Link to this document: https://tinyurl.com/ysbjvcst

Agenda

- 10:00am Introduction to and test-ride of the AccessMap mobile application
- 10:45am Teams learn how to map for accessibility with OpenSidewalks
- 11:45am BREAK

(Participants may leave for the day or continue with the team challenge, a mapping activity letting them practice what they just learned.)

Action Items

- Download AccessMap (instructions both in survey and in video conferencing chat)
- Complete the user testing survey
- Try Team Mapping challenges across different cities

Resources

- Access Map mobile specific links
  - User Testing Survey: https://forms.gle/gVAHXUc9RSuogjtY9
  - App download links: (these are also stated on the Survey Form)

- To download the app on Android, please use this link: https://play.google.com/store/apps/details?id=com.accessmap
- For iOS, you will use this link to install the app through TestFlight: https://testflight.apple.com/join/KWFAafCt
  - Video guide to user testing: https://tinyurl.com/45597kca

Appendix D. Post Training Survey

The post staff and project participant training surveys used previously are shown below, with Likert Scale responses used, except where specific examples are requested (e.g., 8.i. and 8.ii for the staff survey) where text entries are requested.

Part I Staff post-training survey

1. The content of this training course was valuable to me in developing my knowledge of the TDEI purpose and aims.
2. The content of this training course was valuable to me in developing my knowledge of the TDEI data science practices and specifically the Data Management Plan.
3. The content of this training course was valuable to me in developing my knowledge of the TDEI physical data collection practices and specifically the Safety Management Plan.
4. The content of this training course was valuable to me in developing my knowledge of the TDEI evaluation practices and specifically the Performance Metrics and Evaluation Support Plan.
5. The content of this training appropriately built on my existing knowledge.
6. I am satisfied that the learning objectives for this training were met.
7. I believe that the time dedicated to the training was appropriate.
8. During the training I learned methods/practices that I can apply to help mitigate Data Management Adverse Incidents
    i) Please name methods and practices suggested by the training
    ii) Please state which methods and practices you have engaged in since the training
9. During the training I learned methods/practices that I can apply to help mitigate Safety Management Adverse Incidents
    i) Please name methods and practices suggested by the training
    ii) Please state which methods and practices you have engaged in since the training
10. During the training I learned methods/practices that I can apply to help support the Evaluation Plan and improve accounting for Performance Metrics
    i) Please name methods and practices suggested by the training
    ii) Please state which methods and practices you have engaged in since the training
11. The training helped me further appreciate the importance of data equity in mobility data.

12. The training helped me better understand disadvantages and barriers confronted by diverse populations in transportation and mobility.

Part II: for Staff and Project Participants- post engagement survey

13. I appreciated the training overall content
14. The trainers clearly explained the goals and objectives of the training.
15. The trainers clearly conveyed the material to the audience.
16. The trainer’s knowledge of the subject matter was satisfactory.
17. The trainer’s pace of presenting the material was appropriate.
18. The trainer satisfactorily answered participants' questions.
19. The trainer satisfactorily used training aids and made them accessible (e.g., PowerPoint slides, activities, etc.) to help facilitate a clearer understanding of the topic.

Appendix E. Acronyms

This appendix includes a list of acronyms used in the document.

Table 5. Acronyms

Acronym	Definition
ADA	Americans with Disabilities Act
API	Application program interface
ConOps	Concept of Operations
DOT	Department of transportation
FHWA	Federal Highway Administration
GTFS	General Transit Feed Specification
GTFS-Flex	The Flex route extension to the General Transit Feed Specification, designed to describe demand-responsive or paratransit service
GTFS-Pathways	The Pathways extension to the General Transit Feed Specification which defines pathways linking together locations within stations
IRB	Institutional Review Board
IT	Information technology
ITS	Intelligent transportation system
ITS JPO	Intelligent Transportation Systems Joint Programs Office
ITS4US	The name of a USDOT program to enable communities to showcase innovative business partnerships, technologies, and practices that promote independent mobility for all that is led by the ITS JPO with support from the Office of the Secretary of Transportation, Federal Transit Administration, and Federal Highway Administration.
MDOT	Maryland Department of Transportation
ODOT	Oregon Department of Transportation
OSW	OpenSidewalks
PBOT	Portland Bureau of Transportation
PROWAG	The Proposed Public Rights of Way Access Board
Taskar Center or TCAT	Taskar Center for Accessible Technology at the University of Washington
TDEI	Transportation Data Equity Initiative
TRAC	Washington State Transportation Center at the University of Washington
U.S.	United States
USDOT	United State Department of Transportation
UW	University of Washington
WSDOT	Washington State Department of Transportation

Appendix F. References

This section includes a list of documents referenced in the main body of this report.

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