

Phase 1 Institutional, Partnership, and Financial Plan

Buffalo NY ITS4US Deployment Project

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16. Abstract The Buffalo NY ITS4US Deployment Project seeks to improve mobility to, from, and within the Buffalo Niagara Medical Campus by deploying new and advanced technologies with a focus on addressing existing mobility and accessibility challenges. Examples of the technologies to be deployed are electric and self-driving shuttles, a trip planning app that is customized for accessible travel, intersections that use tactile and mobile technologies to enable travelers with disabilities to navigate intersections, and Smart Infrastructure to support outdoor and indoor wayfinding. The deployment geography includes the 120-acre Medical Campus and surrounding neighborhoods with a focus on three nearby neighborhoods (Fruit Belt, Masten Park and Allentown) with underserved populations (low income, vision impaired, deaf or hard of hearing, wheeled mobility device users and older adults). This document is the Institutional, Partnership and Financial Plan which documents all stakeholder or partnership agreements on concept, objectives, institutional and financial arrangements necessary for the successful deployment and operation of the deployment.					
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ICF	28 January, 2022	0.1	Initial Draft.
ICF	7 March, 2022	0.2	Revised version based on comments from USDOT.
ICF	May 13, 2022	0.3	Final version, updated based on second round of comments from USDOT.

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1 Introduction

Buffalo, New York (NY) is one of five sites selected for United States (U.S.) Department of Transportation (USDOT) Complete Trip - Intelligent Transportation Systems for Underserved Communities (ITS4US) Deployment Program, which seeks to integrate innovative technologies to improve mobility and accessibility. The Buffalo, NY project plans to deploy an integrated set of travel support services and systems within neighborhoods surrounding the Buffalo Niagara Medical Campus (BNMC).

This document, the Phase 1 Institutional, Partnership, and Financial Plan (IPFP), details the stakeholder or partnership agreements on concept, objectives, institutional and financial arrangements necessary for the successful deployment and operation of the deployment project.

1.1 Project Background

Buffalo is striving toward a sustainable future at all levels of society, incorporating actions in the community, government, and private entities in the area. Enabling community mobility and access to jobs, healthcare, and services to traditionally underserved populations is the primary motivation for all the regional partners involved in this deployment.

The Complete Trip - ITS4US Deployment Program is an effort led by the Intelligent Transportation Systems Joint Program Office (ITS JPO) and supported by Office of the Secretary, Federal Highway Administration (FHWA), and Federal Transit Administration to identify ways to provide more efficient, affordable, and accessible transportation options for underserved communities that often face greater challenges in accessing essential services. The program aims to solve mobility challenges for all travelers with a specific focus on underserved communities, including people with disabilities, older adults, low-income individuals, rural residents, veterans, and limited English proficiency (LEP) travelers. This program will enable communities to build local partnerships, develop and deploy integrated and replicable mobility solutions to achieve complete trips for all travelers.

As one of the selected sites, the Buffalo, NY ITS4US deployment concept addresses:

1. **Providing transit access to healthcare and jobs** to underserved residents including persons with disabilities and allowing them to share in the economic development in downtown Buffalo.
2. **Leveraging technology to work in support for accessible transportation**, integrating accessible transportation technology, transit, and connected automation to solve a transportation need.
3. **Developing a scalable model** for considering accessibility and universal design in transportation technology projects.

The Buffalo, NY ITS4US project will be completed in three phases: Phase 1- Concept Development, Phase 2- Design and Test and Phase 3- Operation and Evaluation.

1.2 Project Overview

The Greater Buffalo-Niagara Regional Transportation Council (GBNRTC) established its vision of the region for 2050 in its “Moving Forward 2050 – A Regional Transportation Plan for Buffalo Niagara” (GBNRTC; University at Buffalo Regional Institute, The SUNY at Buffalo School of Architecture and Planning; Cambridge Systematics; TyLin International, 2018). The plan seeks to guide transportation investments to:

1. Raise the region’s standard of living.
2. Support efficient freight movement.
3. Maximize infrastructure resiliency.
4. Support focused growth in communities (urban, suburban, and rural).
5. Ensure access to opportunities and services.
6. Support healthy and safe communities through targeted transportation investment.
7. Strengthen the fiscal health of local governments.
8. Preserve and protect a healthy environment and accessible open spaces and waterways.
9. Create a fully integrated and seamless transportation environment.

The Buffalo ITS4US project goals directly align with GBNRTC’s goals 1, 4, 5, 6, and 9 by providing innovative tools and services to better enable travelers to make complete trips in and around the BNMC. Furthermore, the proposed system focuses on providing transit access to healthcare and jobs to underserved citizens and allow them to share in the economic development in downtown Buffalo.

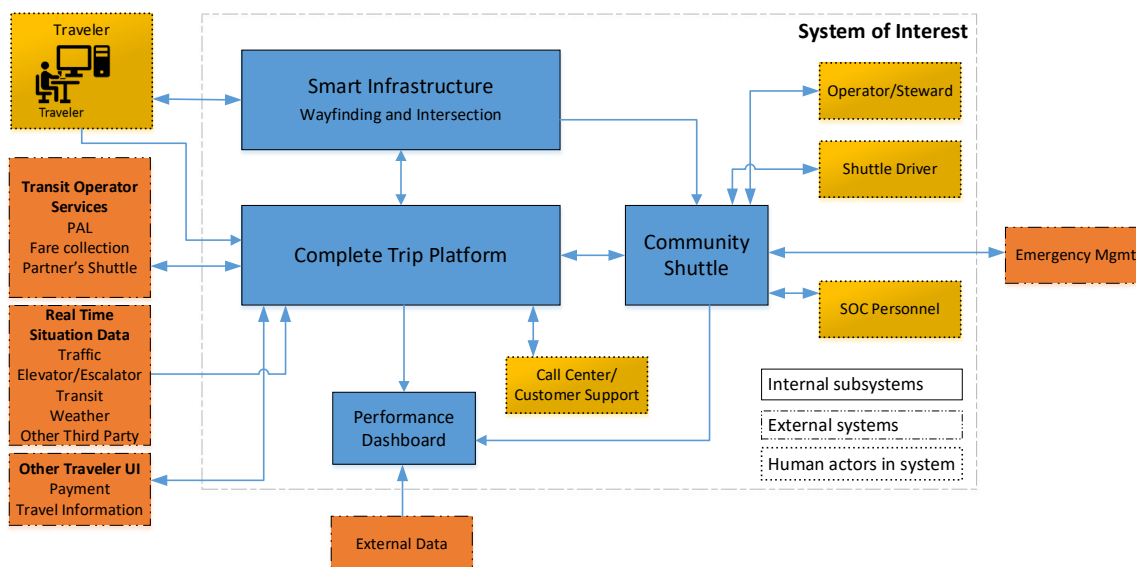
To achieve these goals, the proposed system of interest is made of four major subsystems and a variety of data interfaces between them. The four major subsystems include:

- **Complete Trip Platform** – The complete trip platform (CTP) is the integrated trip planning function for travelers. It includes various modules that allow users to personalize their trip planning, execution, and navigation experience. Specific modules in this subsystem include:

User Profiles	Real-time situation monitoring
Trip Booking	Performance metrics
Trip Planning	Trip history/ledger
Trip Monitoring and Notifications	User Interface (UI): Mobile application
Geolocation and Mapping	UI: Web and Interactive voice response
Navigation	

- **Community Shuttle Subsystem** – The Community Shuttle subsystem provides demand-responsive transit services within a specified zone of operations, using a mix of vehicles, including both human-driven (HDS) and self-driving shuttles (SDS). The SDS will operate on a predefined route(s), consisting of a set of streets within the zone and pick-up and drop-off locations, but will be responsive to travelers' demand (e.g., it can skip certain pick-up/drop-off locations if there is no demand). The HDS vehicles will provide door-to-door on demand service within the zone of operation. Modules within this subsystem include both types of vehicles, as well as a Shuttle Operations Center (SOC).
- **Smart Infrastructure Subsystem** – The smart infrastructure subsystem includes wayfinding and orientation for indoor and outdoor, provision of navigation and destination finding through information kiosks (Transportation Information Hub, TIH), augmented communications technologies (Smart Signs that serves as aiding sensor for wayfinding and navigation), and intersection treatment (PED-X) for hands-free, pedestrian signal requests.
- **Performance Dashboard Subsystem** – This subsystem measures and presents the performance of the system to the agency operating the system.

Figure 1 provides a high-level context diagram for the system. The reader is referred to the Phase 1 Concept of Operations (FHWA-JPO-21-860) for more details on the system's components and functions.



Source: Buffalo, NY ITS4US

Figure 1. High level context diagram for the Buffalo, NY ITS4US System.

1.3 Intended Audience

The intended audience for this document includes the Phase 2-3 Project Team, all partners of the project (both the ones identified to date and expected to join in the future), the United States Department of Transportation (USDOT).

1.4 Relevant Sources

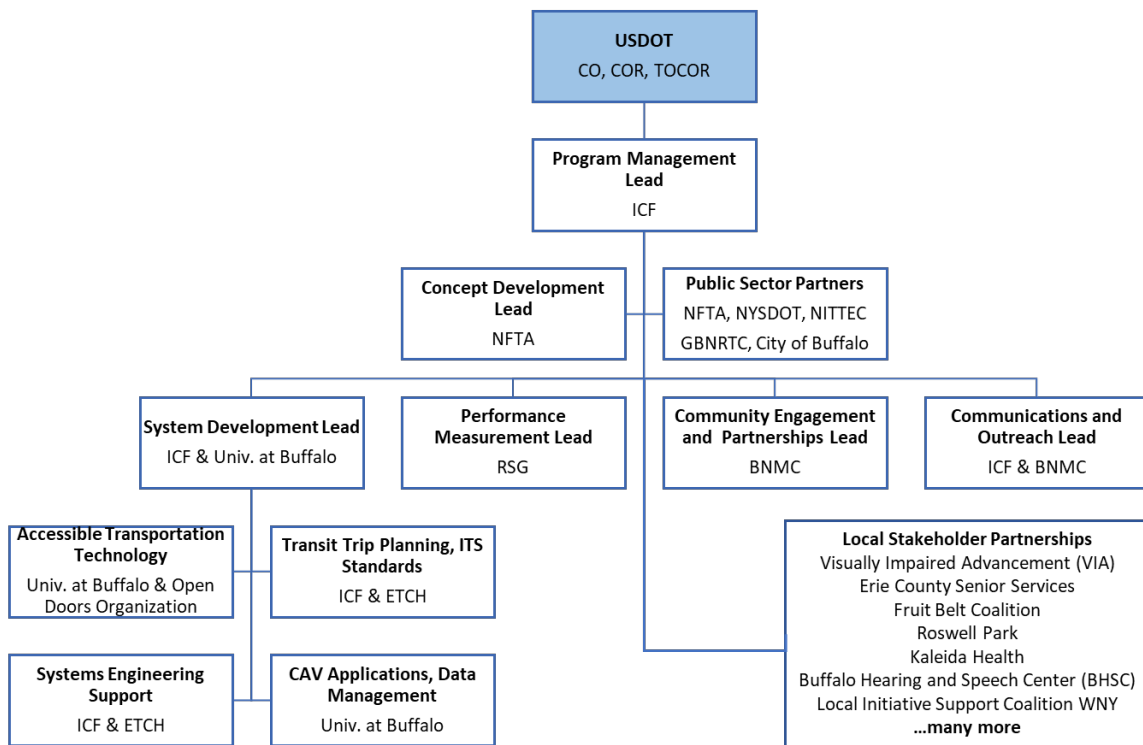
The following are the sources of information cited in this document.

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- Gopalakrishna, D., et al. (2021). *Phase 1 Outreach Plan – Buffalo, NY ITS4US Deployment Project (FHWA-JPO-21-913)*. Federal Highway Administration

The more recent list of publication for the Buffalo ITS4US Deployment can be found [HERE](https://rosap.ntl.bts.gov/gsearch?terms=ITS4US+buffalo&collection=dot%3A239) (<https://rosap.ntl.bts.gov/gsearch?terms=ITS4US+buffalo&collection=dot%3A239>)

2 Project Team

Phase 1 of the deployment project focused heavily on engaging stakeholders and institutions early in the planning process. The key purpose of this was to establish the necessary relationships that would yield information for the concept development (e.g., user needs) and rally support for the deployment of the proposed system. Figure 2 summarizes the governance structure of the project team throughout Phase 1. The contracted staff identified in this figure performed portions of the technical scope as assigned by the Project Management Lead (ICF). The technical personnel in this category include staff from ICF, Niagara Frontier Transportation Authority (NFTA), University at Buffalo, Buffalo Niagara Medical Campus (BNMC), Resource Systems Group (RSG), Open Doors Organization (ODO) and ETCH. This figure also highlights the institutional and stakeholder relationships materialized throughout pre-planning (i.e., proposal) and planning stage of the deployment project—including New York State Department of Transportation (NYSDOT), Greater Buffalo Niagara Regional Transportation Council (GBNRTC), Niagara International Transportation Technology Coalition (NITTEC), the City of Buffalo and NFTA. The project team secured letters of support from public sector partners and obtain verbal support from many local stakeholder agencies, such as medical and health care (Buffalo Hearing and Speech Center and Visually Impaired Advancement) and community service organizations (Western New York Independent Living and Fruit Belt Coalition). The reader is referred to the Phase 1 – Outreach plan for more details on local stakeholders.

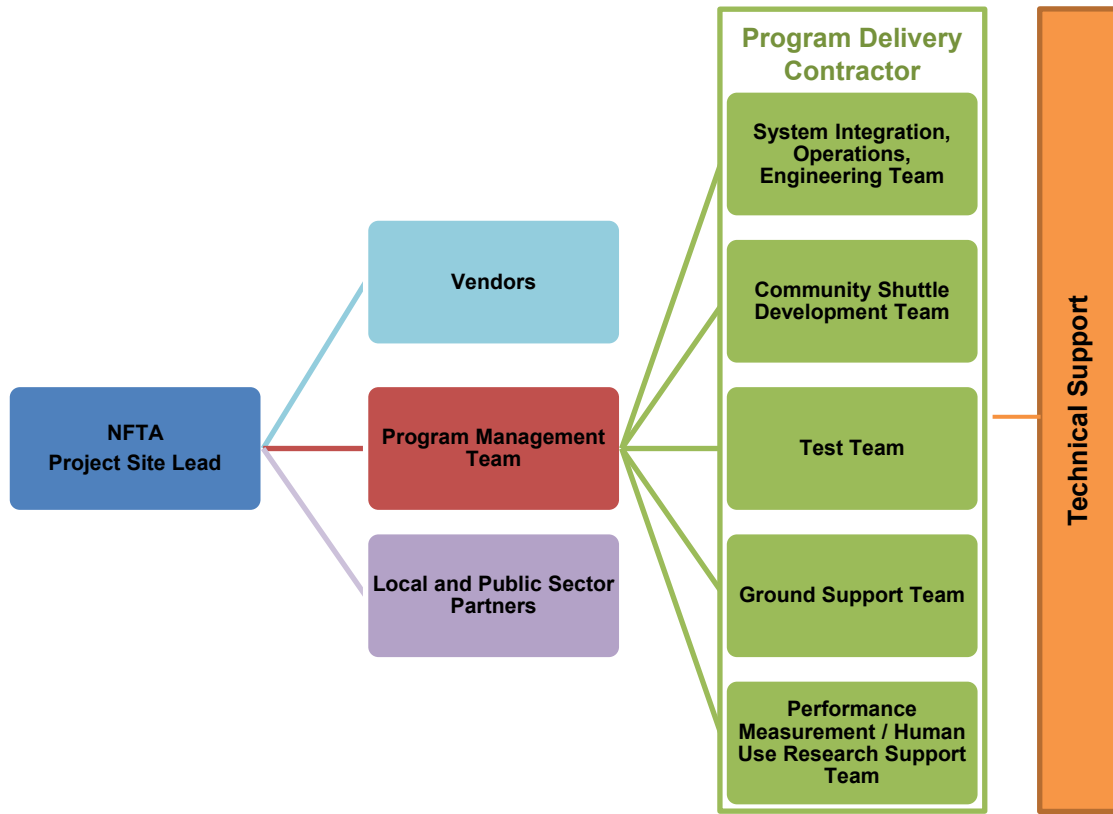


Source: Buffalo, NY ITS4US.

Figure 2. Phase 1 Governance Structure and Institutional Relationships.

As the project transitions to Phases 2 and 3, the NFTA will be the grant recipient for the deployment project. NFTA will be supported by a contractor team and partners to deliver the scope of work identified in the grant award—see Figure 3 for a high-level governance structure of the Phase 2-3 project team.

NFTA will use their approved contracting and procurement methods to acquire equipment, software and technical and management support from vendors and experts in the different fields needed for a successful deployment. The following subsections describe these partners and their role.



Source: Buffalo, NY ITS4US.

Figure 3. Team Governance Structure for Phases 2-3.

2.1 Partnership Status Summary

Partnerships of this project can be grouped into the following four types:

- Public Agency partnerships are between two or more public entities, such as funding sources, government agencies and partner offices/departments.
- Business partnerships are formal relationships with public, private, or non-profit entities to provide services, expertise, or products to the procuring agency. Business partnerships are split into two sections: technical and management services and vendor partnerships.

- Local partnerships are a critical type of stakeholder partnerships for the program that can provide in-depth information on the local challenges and promote the pilot to targeted stakeholders. This includes local advocacy groups and community organizations. For this project, local partnerships are divided into two categories:
 - Internal Stakeholders – key community organizations and leaders which will provide technical support to the project team. These may be contracted with funds from the grant (or local cost share) and, therefore, become business partners as well.
 - External Stakeholders – include local organizations and leaders which the project team will keep informed of advancements in the project, but no major action is required from them (e.g., relay outreach materials shared with them to their constituents).
- Other supporting partners account for additional relationships that are important for the deployment project, but do not fit the previous three groups.

Following this structure, the partnerships and their status for Phases 2-3 are listed in Table 1. Currently, these Phase 2-3 partnerships are either in negotiation or have yet to be established and are expected to be completed throughout the remaining time in Phase 1 and Phase 2. Section 3 describes the roles of each partner and the details of the expected agreements.

Table 1. Phases 2-3 Partnerships

Partnership Type	Partner	Status
Public Agency Partnerships	<ul style="list-style-type: none"> • NFTA – USDOT • NFTA (Internal Departments, envisioned as part of Project Team) • BNMC • City of Buffalo • Niagara International Transportation Technology Coalition (NITTEC) • GBNRTC 	<ul style="list-style-type: none"> • Waiting on Phase 2 for official agreements with USDOT and within NFTA departments. • Local public agencies were engaged in Phase 1. • MOUs will be signed, if needed, in Phase 2.
Business Partnership	<ul style="list-style-type: none"> • Vendors (see Section 3.2.2 for more details) <ul style="list-style-type: none"> ○ SDS ○ HDS ○ TIH Equipment ○ Indoor Navigation (Smart Signs and Touch Models) ○ PED-X Equipment • Technical and Management Team Partnership (see Table 2) 	<ul style="list-style-type: none"> • Initial research was conducted to identify vendors. • Waiting on Phase 2 to begin proper request of demonstrations from vendors and select vendors for procurement. • NFTA has a RFQ process in place to select technical and management team(s).

Partnership Type	Partner	Status
Local Partnerships	<ul style="list-style-type: none"> • Internal Stakeholders. These include, but may not be limited to: <ul style="list-style-type: none"> ○ VIA (outreach and training of users who are blind or with limited visibility) ○ BHSC (outreach and training of users who are deaf or with limited hearing and low-to-mild cognitive difficulty) ○ Kaleida Health (infrastructure operator) • External Stakeholders, including additional local organizations and leaders (see Figure 2) that will be kept informed, but no action is required from them beyond supporting communication efforts with their constituents. 	<ul style="list-style-type: none"> • Ongoing from Phase 1, with no official agreement signed in Phase 1. Community organizations and leaders will be engaged throughout Phases 2-3 to obtain support in system design and testing, as well as recruitment and training. • MOUs and contracts will be signed, if needed, in Phase 2 to account for services provided by internal stakeholders.
Other Supporting Partnerships	<ul style="list-style-type: none"> • Other Deployment Sites • Independent Evaluator (IE) • Institutional Review Board (IRB) 	<ul style="list-style-type: none"> • Ongoing conversations with other deployment sites. No formal agreement is necessary. • Waiting on Phases 2-3 to engage with the IE, as requested by USDOT. • IRB was already engaged in Phase 1, and we received initial approval (modification will be requested early in Phase 2)

Table 2 lists the key technical and management team that will be partnering with NFTA to form the Phase 2-3 development and deployment team. The names and firms associated with the program delivery contractor team will be identified through a competitive Request for Qualification (RFQ) process conducted by NFTA—currently set to end on March 30, 2022.

Table 2. Technical and Management Team Partnership Summary

Team	Personnel
Program Management Team	<ul style="list-style-type: none"> • NFTA Project Mgmt. Lead • NFTA Concept Development Lead • Program Delivery Manager • Program Delivery Support • QA Engineer

Team	Personnel
	<ul style="list-style-type: none"> • Procurement Lead
System Integration, Operations, Engineering Team	<ul style="list-style-type: none"> • System Engineering Lead (SEL) • Deputy SEL • Configuration Manager • Master Scrum Master • CTP Scrum Master • CTP Developer Team (database /application /user experience / test manager) • PMD Developer Team • Ped-X Integrator • Indoor Navigation and TIH Integrator
Community Shuttle Development Team	<ul style="list-style-type: none"> • CS Integration Lead • HDS Pax Onboard • SDS Pax Onboard • SDS Veh/SOC COTS Lead • SDS Testing
Test Team	<ul style="list-style-type: none"> • Test Lead
Ground Support Team	<ul style="list-style-type: none"> • Outreach Lead • Outreach Team • Recruitment Lead • Field Support • Training Lead
Performance Measurement / Human Use Research Support Team	<ul style="list-style-type: none"> • Human Use Research and Approval Lead • Performance Measurement Lead • Performance Measurement Team

2.2 Deployment Partnership Coordination Activities

The following sections provide a quick summary on the broad agreement of the deployment elements between the various partnering organizations.

2.2.1 Concept of Operations

The local stakeholders and public sector partners identified and engaged with throughout Phase 1 played a key role in the development of the ConOps. Critical local partners include, but are not limited to, BNMC, VIA, BHSC, and Erie County Senior Services. The project team engaged them early on to identify the user needs, which served as the foundation for the development of the system concept, use cases and requirements. Examples of this stakeholder engagement are interviews, virtual group interaction (walkthrough) and a webinar to present the proposed concept for the system.

As part of the Phase 2 and Phase 3, NFTA will bring together a technical team that ensures the development of system in accordance with the concept and vision established in the ConOps.

Beyond the stakeholder engagement that went into the development of the ConOps during Phase 1, NFTA's vision and the concept for the system have been and will continue to be shared with potential partners when soliciting their letters of support for the deployment in Phases 2 and 3. Similarly, the ConOps was shared, and will continue to be shared, with vendors to ensure their ability to provide equipment that would meet the needs of the deployment project.

2.2.2 Performance Measures

A clear set of performance measures and targets have been documented in the Phase 1 Performance Measurement and Evaluation Support Plan (PMESP). These measures, along with the data needed and proposed approach for assessments, were presented to stakeholders through a public webinar.

These measures will be revised in Phase 2-3 as needed. Methods to collect the data are incorporated in our system requirements. The performance metrics highlighted in the PMESP will be appropriately addressed in any future agreements with partners and stakeholders to ensure they will support data collection requirements. Staff and stakeholder training will include a performance measurement topic to ensure all project participants will understand the need for various data collection activities and their roles and responsibilities in such activities.

2.2.3 Data Sharing Agreements

Through discussions with local stakeholders, the project team identified potential privacy and security concerns (needs) associated with the collection and management of private information. The data related risks and mitigation strategies were summarized in the Phase 1 Data Management Plan. The DMP details the data and data types to be collected as part of this deployment project, how it will be managed and the data governance structure to guide data storage, analysis and sharing. Subsets of cleaned data (without private identifiable information, PII) will be shared with USDOT and the Independent Evaluator for performance measurement purpose, of both the deployment project and the ITS4US program.

The project team will build from the Phase 1 DMP and will update the data collection and management structure as needed in Phase 2 once more details of the design and operations of the system are known. The project team will also leverage the training and education efforts, detailed in the Phase 1 Participant Training and Stakeholder Education Plan, to highlight the project's protocols for data sharing and management.

2.2.4 Operational Changes

The new and optimized services to be integrated with NFTA's operations will have back-office operational changes. These changes have been factored into our Phase 1 system requirements and training documents. The details in operations will be better defined in Phase 2 during the design stage of the deployment project.

NFTA's PAL Fleet will continue operations somewhat normally but dispatch and drivers of these vehicles will be trained, as detailed in the Phase 1 Participant Training and Stakeholder Education Plan, to effectively understand the notifications and travel requests provided by the CTP.

It is important to note that some aspects of the system are still to be determined. For instance, how the HDS and SDS will be managed and operated (e.g., contracted out or within NFTA), including the vehicle and dispatch staff. As such, the impact on operations will need to be reassessed in Phase 2 once a procurement decision is made.

From a partner perspective, they will be expected to operate their infrastructures and services normally during the deployment project. Participating operations and maintenance staff will be trained on the deployment system as defined in the training plan. Clearer guidance on any operations and maintenance changes will be provided in Phase 2 once vendors are selected for all the system's components.

2.2.5 Governance Framework and Financial Agreements

A high-level governance framework is provided at the beginning of this section, see Figure 3. NFTA, as the grant recipient for the Phases 2-3 of this deployment project, will be the overall lead and responsible for the governance of the deployment project during the next phases. As such, NFTA will have the final say in all documents being developed and submitted to USDOT as part of Phases 2 and 3. Similarly, NFTA will make all final decisions as part of the project, including vendor selection and procurement, based on guidance and support from its technical and management team.

Information on the financial agreements for the various agreement types are provided in Section 3. The project team will follow the contract management, staff oversight and communication protocols established in the Phase 1 Project Management Plan (PMP), which will be revised in Phase 2 to account for any changes in team and management approaches. Updates to the PMP, including cadence and flow of meetings, will be discussed during the Phase 2 kickoff meeting (yet to be scheduled).

3 Phases 2 and 3 Partnerships and Agreements Details

The following subsections build on the Partnership Status Summary provided in Section 2 (Table 1 and Table 2) and provides details on supporting documentation and financial agreements for each type of agreement. The specifics of some of these partnerships will be determined in the Integrated Complete Trip Deployment Plan (ICTDP) and in the formal agreements between parties (e.g., MOUs and purchase agreements) to be signed in Phases 2 and 3. As the project transitions from planning (Phase 1) to design and deployment (Phases 2-3), the pilot has received letters of support from several key stakeholders—see Appendix B. It is important to note that as the concept develops, new partners might be necessary and requirements of partners may change.

3.1 Public Agency Partnerships

3.1.1 USDOT Phases 2-3 Contract

3.1.1.1 *Documentation*

The Cooperative Agreement to be signed between NFTA and USDOT will govern the deliverables and the schedule for Phase 2 and Phase 3. The grant agreement specifies the key activities in Phase 2 and 3 as follows:

- Phase 2: Design/Build/Test – up to 24 months. In this phase, the deployment concept is designed in detail, built, and tested prior to operation. Key Phase 2 activities include:
 - System Architecture and System Design development
 - Application development and integration
 - Deployment System planning and installation
 - Operational readiness test planning and development
 - Operational readiness testing and test reporting
- Phase 3: Operate and maintain – at least 18 months. In this phase, the tested system is placed into operational practice and maintained in good working order for the minimum required time. The impact of the deployment on a set of key performance measures will be monitored and reported periodically. This phase also serves to plan for a smooth transition from deployment project to NFTA's continuous operations of the system.

3.1.1.2 *Financial Agreements*

Table 3 summarizes the financial arrangements specified in the Cooperative Agreement, detailing the Federal and NFTA Cost Share.

Table 3. Summary of Phases 2-3 Budget.

Phase	Cost Share	Federal Funding	Total
Phase 2	\$1,059,161	\$3,951,680	\$5,010,841
Phase 3	\$817,546	\$2,715,301	\$3,532,847
Total	\$1,876,707	\$6,666,981	\$8,543,688

3.1.2 NFTA Internal Departments

As the grant recipient for Phase 2 and Phase 3, NFTA will provide staff as needed, funding and in-kind materials to support the project. Internal departments within NFTA will:

- Support the integration of existing NFTA services with the project (e.g., PAL, PAL dispatch, trip planning tool/data).
- Provide support for back-office administration of the ITS4US Complete Trip system, including hardware, software, and technology support.
- Support information-sharing efforts to the public, including posting information on existing social media pages and helping to organize press conferences.

3.1.2.1 Documentation

Most intra-agency support will be done as part of the department's normal operating functions. As such, no formal arrangements will need to be made between NFTA's departments. The integration of PAL services is also envisioned to be managed within NFTA with support of contractors.

The Project Management Lead partnership may be fulfilled by an individual/department within NFTA. If the Project Management Lead is outside of NFTA, a formal agreement will be needed to clarify the requirements and responsibilities of this role. Note that this could be fulfilled by a local/regional entity or through a professional service—this will be determined in the ICTDP.

3.1.2.2 Financial Agreements

Funding for Phases 2 and 3 of the deployment project will primarily be used to obtain and install equipment, develop the necessary software, fund work by contractors, and pay for travel. It is expected that much of the NFTA-related work involved in the project will be completed by department staff as part of their regular duties.

3.1.3 Local Public Sector

Table 4 lists the different public section agencies expected to support the deployment project throughout Phases 2-3. NFTA has had conversation with all these agencies throughout Phase 1 and has ongoing conversations to stablish potential role(s) and support needed for Phase 2-3.

Table 4. Public Sector Partners.

Partner	Nature of Support	Status
BNMC	Support outreach and deployment efforts within the BNMC campus. If deemed appropriate, provide post-deployment support.	<ul style="list-style-type: none"> Project member in Phase 1. Formal partnership is expected to take place early in Phase 2.
City of Buffalo	Provide support and guidance with the integration of the deployment project and the Middle Main project. If deemed appropriate, provide post-deployment support.	<ul style="list-style-type: none"> Ongoing conversations. Formal partnership is expected to take place early in Phase 2.
NITTEC	Support performance measurement efforts by providing data. If deemed appropriate, provide post-deployment support.	<ul style="list-style-type: none"> Ongoing conversations. If needed, formal partnership is expected to take place early in Phase 2.
GBNRTC	Support performance measurement efforts by providing data. If deemed appropriate, provide post-deployment support.	<ul style="list-style-type: none"> Ongoing conversations. If needed, formal partnership is expected to take place early in Phase 2.

3.1.3.1 Documentation

No formal agreement from Phase 1 is in place with these local public agencies. If needed, the partnership will be cemented through MOUs detailing the level of support and expected level of effort from each partner.

3.1.3.2 Financial Agreements

Any financial agreement with local partners will be specified in the MOU.

3.2 Business Partnerships

3.2.1 Technical and Management Team Partnerships

Table 5 lists the technical and management professional services agreements needed to be in place in Phase 2 for the development of the proposed project. It is expected that all these services will be contracted by the grant recipient (NFTA) and that would expand throughout Phases 2 and 3. Depending on their role, additional post-deployment services may be needed, but this is outside of the scope of this project.

Table 5. List of Professional Services

Personnel	Role / Nature of Support
Program Management Team	
NFTA Project Mgmt. Lead	<ul style="list-style-type: none"> Manages the project and lead the management team, including the Systems Engineering Lead

Personnel	Role / Nature of Support
	(SEL), Solution Architect, and procurement processes. <ul style="list-style-type: none"> • Manages budget and schedule.
NFTA Concept Development Lead	<ul style="list-style-type: none"> • Ensures that the system is built in accordance with the approved concept and that provides a smooth transition from deployment project to continuous operations through NFTA.
Program Delivery Manager	<ul style="list-style-type: none"> • Oversees the day-to-day activities of the project.
Program Delivery Support	<ul style="list-style-type: none"> • Supports the Program Delivery Manager.
QA Engineer	<ul style="list-style-type: none"> • Reviews technical materials for accuracy, consistency, and clarity. • Reviews deliverables for clarity, editorial quality, completeness, and conformance to deliverable templates
Procurement Lead	<ul style="list-style-type: none"> • Manages procurement process for externally acquired services. These may include SDS vehicle and system operations center, application programming interface (API) and integration activities with third party vendors, and component installation.
System Integration, Operations, Engineering Team	
System Engineering Lead (SEL)	<ul style="list-style-type: none"> • Manages systems engineering processes including traceability from needs to system verification/validation. • Oversees verification and validation support to development teams through the Configuration Manager and Lead Test Manager. • Oversees system development approach including procurement and agile schedule and coordination. • Attends, represents, and participates in project management meetings. • Coordinates, develops, and reviews all technical solutions to ensure they are developed to meet scalability, reliability, and quality provisions. • Leads technology team including Scrum masters and procured systems technical lead to ensure seamless integration and deployment.
Deputy SEL	<ul style="list-style-type: none"> • Support the SEL and co-manage the system engineering process.
Configuration Manager	<ul style="list-style-type: none"> • Verifies new systems engineering documents are consistent with existing systems engineering needs and requirements. • Ensures traceability to previous systems engineering documents. This person also manages updates and changes to systems engineering documents to

Personnel	Role / Nature of Support
	<p>ensure consistency and integrity of needs and requirements traceability throughout process.</p> <ul style="list-style-type: none"> • Reports on impacts to needs and requirements to the Configuration Control Board (CCB).
Master Scrum Master	<ul style="list-style-type: none"> • Coordinates efforts with each team scrum masters who are using an Agile Development Method, as well as with external systems (e.g., signal systems) and community shuttle system integration activities. • Manages overall and integration processes, product backlog, sprint roadmap (schedule), stakeholder input. • Coordinates software development lifecycle efforts among agile and non-agile development teams including internal reviews, software merges, testing and defect management, change management, and alpha and beta testing participants. • Establishes liaison between stakeholders and developers. • Schedules integration teams based on user and product backlog dependencies. • Works with SEL and team scrum masters to manage implementation and deployment. • Works with System Engineering staff to ensure traceability to needs and requirements through integration and acceptance testing.
CTP Scrum Master	<ul style="list-style-type: none"> • Leads the Agile development process for the CTP. • Coordinates efforts with the Master Scrum Master. • Leads CTP sprint planning, review, and demonstrations. • Measures and reports on sprint statistics. • Interacts and solicit inputs from stakeholders to identify updates to the sprint outcomes. • Assigns backlog and determines with the Product Owner, when Sprints are Ready and when development is Done.
CTP Developer Team (database /application /user experience / test manager)	<ul style="list-style-type: none"> • CTP developers who work together to design, code, integrate and test the CTP platform. • Attend CTP sprint planning, review and demonstration meetings. • Participate in Agile integration teams as needed.
PMD Developer Team	<ul style="list-style-type: none"> • PMD developers who work together to design, code, integrate and test the PMD subsystem. • Attend PMD sprint planning, review, and demonstration meetings • Participate in Agile integration teams as needed including developing public portal, supporting

Personnel	Role / Nature of Support
	performance metrics and supporting metadata management.
Ped-X Integrator	<ul style="list-style-type: none"> • Serves as the lead engineer / solution architect for the Ped-X equipment and services. • Coordinates with third parties to incorporate Ped-X equipment and services into the ITS4US services.
Indoor Navigation and TIH Integrator	<ul style="list-style-type: none"> • Serves as the lead engineer / solution architect for the indoor navigation and TIH / touch model equipment and services. • Coordinates with third parties to incorporate indoor navigation and TIH/ touch model equipment and services into the ITS4US services.
Community Shuttle Development Team	
CS Integration Lead	<ul style="list-style-type: none"> • Coordinates integration of NFTA's Paratransit Access Line (PAL) services, including the dispatch, into the Community Shuttle (as the HDS). This person will also facilitate the integration of the SDS into the CS. • Coordinates integration of the different types of vehicles/services making up the CS Subsystem. • Coordinates integration of the SDS passenger onboard services with the SDS vehicle. • Coordinates integration of the commercial-off-the-shelf (COTS) within the SDS SOC. • Designs testing procedures for the CS Subsystem. • Supports CS-related Operational Readiness Test Plan criteria, verification, and validation.
HDS Pax Onboard	<ul style="list-style-type: none"> • Oversees the procurement of the hardware (HW) and software (SW) (HW/SW) for the HDS passenger onboard services. • Oversees and manages the integration of the different COTS procured for the HDS passenger onboard services. • Designs testing procedures for the HDS passenger onboard services to ensure the satisfaction of the requirements. • Supports the HDS passenger onboard services Operational Readiness Test Plan criteria, verification, and validation.
SDS Pax Onboard	<ul style="list-style-type: none"> • Leads the integration of the SDS passenger onboard services with the SDS vehicle.
SDS Veh/SOC COTS Lead	<ul style="list-style-type: none"> • Leads the integration of the commercial-off-the-shelf (COTS) within the SDS SOC.
SDS Testing	<ul style="list-style-type: none"> • Supports the testing of all SDS components and services. • Supports CS-related Operational Readiness Test Plan criteria, verification, and validation

Personnel	Role / Nature of Support
Test Team	
Test Lead	<ul style="list-style-type: none"> Establishes a consistent approach for performing integration testing for both the Agile developed subsystems and procured systems. Establishes testing and integration schedule with technical teams. Reviews test case, scenarios, and pass/fail criteria to ensure that they address requirements and user needs. Reviews test for pass and ranks test failure severity and debug schedules. Supports Operational Readiness briefing checklist Supports ORP testing criteria, verification, and validation. Coordinates with the SEL, deputy SEL, and configuration manager, verifies / validates that the ORP testing meets end-to-end user needs.
Ground Support Team	
Outreach Lead	<ul style="list-style-type: none"> Coordinates and oversees all stakeholder outreach activities for the deployment project.
Outreach Team	<ul style="list-style-type: none"> Supports stakeholder outreach activities.
Recruitment Lead	<ul style="list-style-type: none"> Coordinates and oversees all stakeholder engagement activities for the deployment project.
Field Support	<ul style="list-style-type: none"> Supports all stakeholder engagement and field data collection for the activities for the deployment project.
Training Lead	<ul style="list-style-type: none"> Coordinates and oversees all participant training activities for the deployment project.
Performance Measurement / Human Use Research Support Team	
Human Use Research and Approval Lead	<ul style="list-style-type: none"> Coordinates and oversees all efforts needed to maintain IRB compliance for the duration of the deployment project.
Performance Measurement Lead	<ul style="list-style-type: none"> Coordinates and oversees all performance measurement and evaluation activity for the deployment project.
Performance Measurement Team	<ul style="list-style-type: none"> Support the performance measurement and evaluation activities for the deployment project.

3.2.1.1 Documentation

NFTA currently has an RFQ, which closed in March 30. NFTA will select team(s) shortly after completing the RFQ process and reviewing the responses—a team is expected to be selected before the start of Phase 2. NFTA will create individual scopes of work that provide clear deliverables and milestones for each professional services contracted, following NFTA's contract regulations. These scopes of work will be consistent and closely aligned with the USDOT cooperation agreement for Phases 2 and 3.

3.2.1.2 Financial Agreements

The scope of work of each contractor will include a level of effort estimate and not to exceed the limit for the contracts that will be awarded.

3.2.2 Vendor

Table 6 lists the vendor partnerships needed to be in place for the development of the proposed project. It is expected that all these services will be contracted by the grant recipient (NFTA) with grant funds and that services would expand throughout Phases 2 and 3. Additional post-deployment services may be needed, but this is outside of the scope of this project.

All vendors have the same nature (role) of support, listed below:

- Provide the hardware and software for the project, including any needed customizations.
- Support installation, training, and maintenance for all their products.
- Operations support during and/or post deployment may also be needed depending on the procurement process.

Table 6. Status of Vendor Partnerships

Vendor Partner	Status
SDS	<ul style="list-style-type: none"> • An initial set of vendors have been contacted throughout Phase 1. • Further communication and procurement efforts will take place in Phase 2. • SDS procurement costs may also include operations support, maintenance, and back-office integration. The SDS may be procured from one vendor or more vendors, depending on the availability of products that comply with the requirements for this project (e.g., accessibility and in-vehicle communications).
HDS	<ul style="list-style-type: none"> • Human driven shuttle will leverage the same vendors used by NFTA to provide their vehicles for their PAL service. • Additional PAL shuttles may be needed to serve as HDS—this will be determined in Phase 2.
TIH Equipment	<ul style="list-style-type: none"> • The TIH is a hardened, secure, and web-based version of the CTP web application that is expected to be deployed at strategic locations throughout the project’s study area. • TIH hardware will be acquired through procurement in Phase 2, vendors still to be determined. The procurement will include specifications that the device shall be ADA compliant, secure (physical, communications and data), and compatible with WCAG 2.1. Configuration of the TIH will be conducted during the installation process.
Indoor Navigation	<p>Smart Signs:</p> <ul style="list-style-type: none"> • The project team has investigated low-cost technologies currently available. • UB (a potential partner) developed a working prototype for a Smart Sign to be piloted at Visually Impaired Advancement (VIA) throughout 2022. • The different alternatives will be assessed in Phase 2. <p>Touch Models:</p>

Vendor Partner	Status
	<ul style="list-style-type: none"> • These touch models are currently being tested and deployed around the BNMC campus. <p>The same vendor could be used for Phases 2 and 3 of the deployment, but this will be determined after all alternatives are evaluated.</p>
PED-X Equipment	<ul style="list-style-type: none"> • The implementation of this technology requires a modification to the mobile app (CTP app) code and traffic signal controller code to implement the logic. • Two intersections are expected to be equipped with this technology. • The project team has initiated introductory meetings with vendors. • Vendors will be selected in Phase 2 after the completion of a more thorough assessment.

Note that the CTP is expected to be built in house, as part of the system development process and, therefore, are not included in the expected list of vendors. However, vendors may be contacted to better assessed readiness and compatibility of readily available software.

3.2.2.1 Documentation

Vendors will be engaged early in Phase 2 with the intention to procure all the equipment and software necessary for the successful deployment throughout Phase 2. A formal Request for Proposals (RFP) will be published early in Phase 2 as procurement of products and services could take several months. Note that no official cost estimate has been provided by vendors at this time.

The procurement of all hardware and software will be made based on the technical specification documents developed throughout Phase 1 of this project. In particular, the vendors would need to comply with:

- Phase 1 Concept of Concept (ConOps) – Buffalo NY ITS4US Deployment Project (FHWA-JPO-21-860)
- Phase 1 System Requirements Specification (SyRS) – Buffalo, NY ITS4US Deployment Project (FHWA-JPO-21-883).

3.2.2.2 Financial Agreements

NFTA will procure all equipment for the deployment project using State of New York and NFTA's procurement standards and in compliance with the USDOT oversight and requirements based on the Phase 2/Phase 3 contract.

3.3 Local Partnerships

Local partnerships are critical for the program. Table 7 provides a summary of local partnerships and the nature of their support for the deployment.

Table 7. List of Local Partnerships

Partner	Nature of Support	Status
Internal Stakeholders	<p>Local entities with deep roots within the community and vast technical expertise. This partner is expected to support the development of training materials and, potentially, lead the training itself. These partners could also support the recruitment of participants and testing the different components of the ITS4US system. These include, but may not be limited to:</p> <ul style="list-style-type: none"> • VIA (outreach and training of users who are blind or with limited visibility) • BHSC (outreach and training of users who are deaf or with limited hearing and low-to-mild cognitive difficulty) • Kaleida Health (infrastructure operator) <p>Appendix B provides support letters from these three internal stakeholders.</p>	<ul style="list-style-type: none"> • No MOUs or agreements are in place from Phase 1. • Some local partners were engaged in Phase 1 as part of the process to identify user needs, validate the concept, and define the measures of performance. • Local partners have expressed their support and willingness to help in the future. This will be determined in Phase 2.
External Stakeholders	<p>Local entities with deep roots within the community. As informal partners to NFTA, these will support stakeholder engagement and outreach efforts by relaying information to their constituents.</p>	<ul style="list-style-type: none"> • No MOUs or agreements are in place from Phase 1. • Some local partners were engaged in Phase 1 as part of the process to identify user needs, validate the concept, and define the measures of performance. • Local partners have expressed their support and willingness to help in the future. This will be determined in Phase 2.

3.3.1 Documentation

If needed, local partnerships will be cemented during Phase 2 through MOUs detailing the level of support and expected level of effort from each partner. Otherwise, informal agreements would likely take place between NFTA and any potential local partners.

3.3.2 Financial Agreements

Any financial agreement with local partners will be specified in the MOU.

3.4 Other Supporting Partnerships

Table 8 lists the additional supporting partnerships included as part of this project. No financial arrangements are required for these partnership and contractual scope for NFTA will include support for appropriate coordination activities.

Table 8. List of Other Supporting Partnerships.

Business Partner	Nature of Support	Status
Other Deployment Sites	NFTA will continue to work closely with the other deployment sites. Most of these activities will be coordinated through the USDOT as part of Phase 2 and Phase 3 activities, such as technical roundtables and discussions around standard development.	<ul style="list-style-type: none"> • Ongoing interaction.
Independent Evaluator	NFTA will support the independent evaluation effort. As part of the contracts, NFTA expects to hire support for performance management and evaluation, which will be leading the interaction with the independent evaluators.	<ul style="list-style-type: none"> • USDOT to determine the appropriate time of engagement.
UB's IRB	Serve as the IRB of record for the deployment project. IRB approval has been obtained (12/8/2021) with no expiration date to this approval. NFTA will need to enter into the required IRB agreements with UB to allow it to act as the IRB of record for Phases 2 and 3.	<ul style="list-style-type: none"> • Ongoing From Phase 1.

4 Risk Assessment

Table 9 lists potential institutional-, financial-, and partnership-related risks and describes the mitigation strategies for each. The risks were identified through internal discussions and review of procurement process, current regulations, and external factors that may impact each partnership. The risks identified here will be factored into our risk register and risk management process in Phase 2.

Table 9. Risk Assessment and Mitigation Matrix.

Risk Title	Description	Mitigation
Pandemic Impact on Institutional Support	Gathering institutional partner's support and feedback during pandemic may take longer than expected. Health care partners priorities are currently focused on pandemic response.	Continue to leverage BNMC transportation committees to access partners. Conduct small group interviews rather than big group meetings with the partners.
User Engagement and Feedback	Engaging potential users and gathering their feedback may be challenging in a virtual format.	Use existing accessibility forums and advocacy councils and leverage UB and Open Doors organization's capability to reach these audiences. Execute the strategies highlighted in the outreach and performance measurement plan to capture potential users and their feedback.
Onboarding/Training	Training efforts for institutional partners and users may be impacted by the pandemic.	Have flexible training tools and modules that can work online and independently (without trainers).
Project Timelines	There could be conflicts with the timeline of this project and of various ongoing initiatives and deployments in and around BNMC campus.	Gather timeline and project information as part of Existing Conditions review and engage early with public sector on timelines
Automated Vehicle (AV) Regulations	Regulatory barriers for self-driving shuttles are still to be determined and impact on ability to operate on BNMC campus is unknown. Vendors may be discouraged to enter a partnership if this is not addressed.	Work with NYSDOT Department of Motor Vehicles to ascertain requirements for demo. Start planning out demonstration routes and services early to allow the team plenty of time for approval

Risk Title	Description	Mitigation
Staff and Partnership Retention	Retention of participants and the necessary staff to deploy, operate and maintain the proposed system could be a risk, especially in a changing environment.	NFTA will provide several rounds of incentives for participants to retain them for the duration of the deployment project. NFTA will also examine and leverage the contractor's retention policies to ensure the minimum number of staff are always available.
Cost Increase	Cost of procurement becomes larger than expected due external factors, such as limited supply, chip shortages and inflation.	NFTA will work with vendors and service provider early in Phase 2 to identify and select proper alternatives that fit the proposed budget and schedule.

5 Operations and Management Concept

5.1 Post-Deployment Operations & Management

NFTA fully expects the Complete Trip system and services to continue beyond Phase 3 for at least 5 years. As part of the Phase 1 team and active contributor in the development of the system ConOps and other planning documents, NFTA has carefully considered the financial and partnership requirements beyond the deployment demonstration. As Phase 2 and Phase 3 progress, the topic of transition will be revisited before the conclusion of the deployment.

Sustained operations beyond Phase 3 are expected to be based on the successes and lessons learned demonstrated in Phase 2 and Phase 3 but will vary based on each component. Table 10 provides our early thinking on the transition.

Table 10. Components on the Transition Plan.

Project Component	Post-Pilot Transition Need	Financial and Technical Sustainability	Scalability
CTP App and related traveler interfaces	By Phase 3, the CTP app will largely be in O&M mode. However, a limited continued investment in this app is necessary to keep the system up to date and relevant and grow the user base. This may include adding new features, supporting users, training, recruiting the user based.	The long-term vision for the app is that this becomes part of the larger traveler management program for New York and aspects of the app be adopted by the mobility management programs in the City and State who continue to operate, fund the app and advocate for its use.	By making it part of the larger mobility management program, the CTP app functionality can be extended to other regions and partners similar to how 511NY Rideshare services have been created.
Shuttle Services	Transition of this aspect of our system is contingent on a few factors: 1) the prevailing business model and capability of SDS in 42 months; and 2) the demand and reaction	The financial sustainability of the shuttle is dependent on the success of the pilot. If successful, there are several options for continuing the program Seeking grants from other private and public sources	There are several ongoing discussions to scalability of shuttle and shuttle-related system elements. At a system-level, one benefit of the pilot is that it improves same-

Project Component	Post-Pilot Transition Need	Financial and Technical Sustainability	Scalability
	<p>from the users to the shuttle.</p> <p>By Phase 3, we anticipate the area of the study needing about 3-4 vehicles (a combination of SDS and HDS) operating at least 10 hours a day.</p>	<p>for shuttle operations (like NYSERDA, Wilson Foundation) for operating support.</p> <p>Making aspects of the SDS and HDS part of existing shuttle operations (for NFTA or UB)</p>	<p>day travel. Lessons learned and aspects of trip reservation and dispatch can directly improve the existing PAL program.</p> <p>From a location perspective, stakeholders and partners have already noted that the shuttle area needs to grow to really become a vital transportation resource and expanding, connecting to downtown, to specific points of interest like shopping, work.</p>
Indoor and Outdoor Navigation	<p>There are ongoing but small costs for maintenance and installation of the physical elements (like beacons, touch screens) to continue support for navigation and wayfinding elements in the CTP. The transition needs to include a simplified approach for getting new facilities integrated into the system.</p>	<p>If the indoor and outdoor navigation features of the app prove popular, the support for these systems will be gathered from the BNMC partners and facilities who are the primary beneficiaries of this aspect of the system.</p>	<p>Currently two buildings/facilities are being proposed but indoor navigation can be enabled for additional buildings within the BNMC campus. More importantly, other large facilities that see significant volumes of travelers with disabilities can also be integrated with the system.</p>
Ped-X Crossing	<p>Post transition, the maintenance of these systems needs to be handed over to the infrastructure owner operator, in this case the City of Buffalo.</p>	<p>The anticipated costs for maintenance for the two intersections are expected to be minimal and largely accommodated in the service contracts that they may have in place already.</p>	<p>There is great promise based on the discussion with City of Buffalo and MioVision that the Ped-X crossing feature, if popular may be included at other intersections around Buffalo and New York as appropriate.</p>

NFTA will continue to maintain and operate the ITS4US Complete Trip systems and equipment, including the necessary back-office systems and expanding as appropriate to other areas within and outside the BNMC. Overall expansion of coverage and services will be assessed once Phase 3 measures of performance and independent evaluation provide a better understanding of the return of investment and benefits from the services provided as part of the deployment project, particularly the use of self-driving shuttles as a complement to existing PAL services.

Individual participants (i.e., users) will be encouraged to continue their support and use of the system and services.

5.2 Post-Deployment Governance Structure

NFTA expects to continue operations of its ITS4US Complete Trip platform and services after the deployment project is completed. NFTA will procure contractor, vendor support services as required to update elements of the system that will continue to be of NFTA's responsibility.

Throughout Phases 2-3, NFTA will actively work to identify additional sources of funds to distribute the financial load and, if deems appropriate, expand its services to other areas post deployment. This will be better defined throughout Phases 2-3 and explained in detail in the Task 3E Post-Deployment Transition Planning document.

5.3 Post-Deployment Partnerships

NFTA expects the following partnerships to be continued or pursued beyond Phase 3. Note that this document will continue to be revised in future phases of the project and this section may be updated as needed.

- **Stakeholder Engagement** – NFTA will continue to work with identified partners, and new ones, to maintain the stakeholder engagement during the project and grow its participants post Phase 3.
- **Information/Data Providers** – NFTA will maintain data sharing agreements with information/data providers post Phase 3. NFTA will explore the possibility to add new data sets as they become available, such as additional infrastructure status probe data. NFTA will also assess opportunities to share NFTA- and system-owned data during and post Phase 3 of the project.
- **Maintenance and Support** – NFTA will assess the need for maintenance and support contracts to ensure the proper operations of the Complete Trip systems, services, and back office.
- **AV Community** – NFTA will work with the AV community (e.g., American Association of State Highway and Transportation Officials, Transportation Research Board, and private sector) to continue to foster collaboration on AV deployment throughout Buffalo and the state of NY. As part of this deployment project, NFTA will also play an active role in standards development for AV technology—a role NFTA seeks to continue post deployment.

6 Americans with Disabilities Act (ADA) Transition Plans

Table 11 lists the partners for this deployment project and details the status of their ADA Transition Plan (TP) and Self-Evaluations. It is important to note that NFTA is not required to have an ADA Transition Plan. However, as a NY agency, NFTA will follow guidelines provided in NYSDOT's ADA Transition Plan, last updated in 2016. This table will be revisited in Phase 2 to account for the missing partner information.

Table 11. Summary of Partner's ADA Transition Plans.

Organization	Subject to ADA Title II Regulations (Yes/No)	Self-Evaluation Conducted (Yes/No)	ADA TP or Other Plan Developed (ADA TP, Other Plan, No Plan)	Date of Current Plan or Most Recent Update (with link)
NYSDOT	Yes	Yes	ADA TP ADA Mgmt. Plan	ADA TP (updated in 2016) ADA Mgmt. Plan (11/15/18)
NFTA	No	-		NFTA follows NYSDOT's ADA Transition Plan, but as a Transit Agencies is not required to have a plan.
Vendors	These are expected to be private, for-profit companies. Should not be subject to ADA Title II.	-		
Tech. & Mgmt. Team	TBD in Phase 2	TBD in Phase 2		
University of Buffalo	Yes	Yes	ADA Survey and Priority List	2005-2014 Priority List and Plan
City of Buffalo	Yes	Yes	ADA TP	Developed in 2012. Adopted in 2014. (No online version, document available upon request)
NITTEC	No			

6. Americans with Disabilities Act (ADA) Transition Plans

Organization	Subject to ADA Title II Regulations (Yes/No)	Self-Evaluation Conducted (Yes/No)	ADA TP or Other Plan Developed (ADA TP, Other Plan, No Plan)	Date of Current Plan or Most Recent Update (with link)
GBNRTC	Yes	TBD in Phase 2	Public Participation Plan	Public Participation Plan (2017) Work is underway to develop a separate ADA Transition Plan targeted for completion in late spring, 2022.
BNMC	No	-		
Community Organizations and Leaders	No	-		

Appendix A. Acronyms

Table 12 list the acronyms used in this document.

Table 12. Acronyms

Acronym	Meaning
ADA	Americans with Disabilities Act
AV	Automated Vehicle
BNMC	Buffalo Niagara Medical Campus
ConOps	Concept of Operations
CTP	Complete Trips Platform
FHWA	Federal Highway Administration
GBNRTC	Greater Buffalo-Niagara Regional Transportation Council
HDS	Human-Driven Shuttles
ICTDP	Integrated Complete Trip Deployment Plan
IPFP	Institutional, Partnership, and Financial Plan
IRB	Institutional Review Board
ITS4US	Intelligent Transportation Systems for Underserved Communities
ITS	Intelligent Transportation Systems
JPO	Joint Program Office
LEP	Limited English Proficiency
MoU	Memorandum of Understanding
NFTA	Niagara Frontier Transportation Authority
NITTEC	Niagara International Transportation Technology Coalition
NY	New York
PAL	Paratransit Access Line
PMESP	Performance Measurement and Evaluation Support Plan
SDS	Self-Driving Shuttles
SOC	Shuttle Operations Center

Acronym	Meaning
SyRS	System Requirements Specification
TIH	Transportation Information Hub
UB	University of Buffalo
U.S.	United States
UI	User Interface
USDOT	U.S Department of Transportation

Appendix B. Support Letters

This appendix presents support letters from key partners and stakeholders.

Buffalo Hearing and Speech Center (BHSC)



4/26/22

Robert Jones
Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, NY 14203

Dear Mr. Jones,

I am writing to express support for the NFTA's proposal for Phase 2 & 3 of the US DOT's ITS4US Complete Trip Deployment Project in Buffalo, NY. The Project seeks to improve mobility to, from, and within the Buffalo Niagara Medical Campus by deploying new and advanced technologies with a focus on addressing existing mobility and accessibility challenges. Examples of the technologies to be deployed are human driven and self-driving shuttles, a trip planning app that is customized for accessible travel, intersections that use tactile and mobile technologies to enable travelers with disabilities to navigate intersections, and Smart Infrastructure to support outdoor and indoor wayfinding. The deployment geography includes the 120-acre Medical Campus and surrounding neighborhoods with a focus on three nearby neighborhoods (Fruit Belt, Masten Park and Allentown) with underserved populations (low income, vision impaired, deaf or hard of hearing, wheeled mobility device users and older adults).

Buffalo Hearing & Speech Center (BHSC) provides comprehensive hearing, speech, therapeutic and educational services to the Western New York Community. We enrich lives through our caring collaborations, innovative programs and dynamic approaches that meet the needs of children, adults and families. Our primary location is on the Buffalo Niagara Medical Campus.

If Phase 2 & 3 funding is awarded, BHSC will continue to offer our support throughout the development and implementation of the project, including assisting with participant recruitment & engagement.

Thank you for your time.

Sincerely,

Joseph P. Sonnenberg
Vice President

50 E. North Street | Buffalo, New York 14203
P 716.885.8318 | F 716.885.4229 | askbhsc.org

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P 716.885.8318
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Williamsville
5225 Sheridan Drive
Williamsville, NY 14221
P 716.204.8680
F 716.204.8693

Niagara Falls
6941 Elaine Drive, Suite 4
Niagara Falls, NY 14304
P 716.236.7897
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West Seneca
1026 Union Road
West Seneca, NY 14224
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U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology
Intelligent Transportation System Joint Program Office

Kaleida Health



Kaleida Health

May 12, 2022

Executive Offices

100 High Street
11 South
Buffalo, NY 14203
(716) 859-8821

Robert Jones
Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, NY 14203

Dear Mr. Jones:

I am writing to express support for the NFTA's proposal for Phase 2 & 3 of the US DOT's ITS4US Complete Trip Deployment Project in Buffalo, NY. The Project seeks to improve mobility to, from, and within the Buffalo Niagara Medical Campus by deploying new and advanced technologies with a focus on addressing existing mobility and accessibility challenges. Examples of the technologies to be deployed are human driven and self-driving shuttles, a trip-planning app that is customized for accessible travel, intersections that use tactile and mobile technologies to enable travelers with disabilities to navigate intersections, and Smart Infrastructure to support outdoor and indoor wayfinding. The deployment geography includes the 120-acre Medical Campus and surrounding neighborhoods with a focus on three nearby neighborhoods (Fruit Belt, Masten Park and Allentown) with underserved populations (low income, vision impaired, deaf or hard of hearing, wheeled mobility device users and older adults).

Kaleida Health is the largest health care provider in Western New York. We serve the area's eight counties with state-of-the-art technology and comprehensive health care services by expert, compassionate health care professionals to bring our patients the best care. We operate several facilities on the Buffalo Niagara Medical Campus, including Buffalo General Medical Center and Oishei Children's Hospital.

If Phase 2 & 3 funding is awarded, Kaleida Health will continue to offer our support throughout the development and implementation of the project, including assisting with participant recruitment & engagement and working with the team to implement smart infrastructure wayfinding that improves inclusive access to Kaleida facilities on the campus.

Thank you for your time.

Sincerely,



Michael P. Hughes
SVP Chief Administrative Officer

Visually Impaired Advancement (VIA)



May 3, 2022

Robert Jones
Niagara Frontier Transportation Authority
181 Ellicott Street
Buffalo, NY 14203

Dear Mr. Jones,

I am writing to express support for the NFTA’s proposal for Phase 2 & 3 of the US DOT’s ITS4US Complete Trip Deployment Project in Buffalo, NY. The Project seeks to improve mobility to, from, and within the Buffalo Niagara Medical Campus by deploying new and advanced technologies with a focus on addressing existing mobility and accessibility challenges. Examples of the technologies to be deployed are human driven and self-driving shuttles, a trip planning app that is customized for accessible travel, intersections that use tactile and mobile technologies to enable travelers with disabilities to navigate intersections, and Smart Infrastructure to support outdoor and indoor wayfinding. The deployment geography includes the 120-acre Medical Campus and surrounding neighborhoods with a focus on three nearby neighborhoods (Fruit Belt, Masten Park and Allentown) with underserved populations (low income, vision impaired, deaf or hard of hearing, wheeled mobility device users and older adults).

Visually Impaired Advancement (VIA) is a nonprofit rehabilitation and social services agency committed to people who are experiencing vision loss. Our mission is to assist people who are visually impaired to achieve their highest level of independence. We provide tools, education, rehabilitation, job training, job placement, and support for people of all ages. VIA is located on the Buffalo Niagara Medical Campus.

If Phase 2 & 3 funding is awarded, VIA will continue to offer our support throughout the development and implementation of the project, including assisting with participant recruitment & engagement.

Thank you for your time,

A handwritten signature in blue ink that reads 'Tamara Owen'. The signature is fluid and cursive, with the first name 'Tamara' and last name 'Owen' clearly distinguishable.

Tamara Owen, President & CEO

New York State Department of Transportation (NYSDOT)



KATHY HOCHUL
Governor

MARIE THERESE DOMINGUEZ
Commissioner

May 4, 2022

Ms. Kimberley Minkel
Executive Director
Niagara Frontier Transportation Authority (NFTA)
181 Ellicott Street
Buffalo, NY 14203

Dear Ms. Minkel:

This letter is to express the New York State Department of Transportation's (NYSDOT) support for the Niagara Frontier Transportation Authority's (NFTA) proposal for the USDOT's Complete Trip -ITS4US Deployment Program Phases 2 & 3 funding opportunity. NYSDOT is looking forward to continuing our collaboration with NFTA, building on our 51 INY Rideshare and statewide mobility initiatives to support mobility alternatives that meet the needs of the traveling public, and individuals of all ages and abilities. This includes a focus on disadvantaged and underserved communities across the range of rural, suburban and urban travel markets in New York.

NYSDOT's Mobility Program provides access to data, resources and tools that help commuters make informed decisions about their transportation options to meet their unique transportation needs. The wayfinding support and other features of the Complete Trip Platform (CTP) can meaningfully improve the convenience and equitable availability of transportation options to improve to expand access to opportunities and services and improve quality of life.

NYSDOT has collaborated with NFTA and Greater Buffalo Niagara Regional Transportation Council on numerous infrastructure and mobility efforts. These include the NYSDOT/New York State Energy Research Development Authority (NYSERDA) funded *Go Buffalo Niagara: Scaling Up Transportation Demand Management to the Regional Level Report*; the TBEST Transit Analysis Tool Testing Pilot; and NYSDOT's Statewide Active Transportation Demand Management (ATDM) as well as Phase 1 of the ITS4US Buffalo project.

Building on our collaboration and involvement in Phase 1, NYSDOT looks forward to the CTP implementation efforts planned for the Phases 2 & 3. NYSDOT is committed to working with NFTA and the project team with outreach and traveler information to assist participation efforts for a successful transition from concept to deployment and post-deployment.

NYSDOT strongly supports NFTA's proposal and appreciates the NFTA's work on the ITS4US Buffalo initiative.

Sincerely,

A handwritten signature in black ink that reads "Lynn Weiskopf". The signature is written in a cursive, flowing style.

Lynn Weiskopf
Director, Office of Policy, Planning and Performance

50 Wolf Road, Albany, NY 12232 | www.dot.ny.gov

U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology
Intelligent Transportation System Joint Program Office

City of Buffalo



BYRON W. BROWN
Mayor of Buffalo

MICHAEL J. FINN, P.E.
Commissioner

DEPARTMENT OF PUBLIC WORKS, PARKS & STREETS

May 9, 2022

Ms. Kimberley Minkel
Executive Director
Niagara Frontier Transportation Authority (NFTA)
181 Ellicott Street
Buffalo, NY 14203

Dear Ms. Minkel:

It is my pleasure to offer this letter of support for the Niagara Frontier Transportation Authority's (NFTA) proposal in collaboration with the City of Buffalo for the USDOT's Complete Trip -ITS4US Deployment Program Phases 2 & 3 funding opportunity. The City of Buffalo is looking forward to the success of this project to build on our Future of Mobility Initiative authored with the Congress of New Urbanism (CNU). In the face of changing technology and transportation we want to ensure our investments accommodate future mobility solutions, while at the same time providing a safe and inclusive public realm for Buffalonians of all ages and abilities.

In our capacity as a Greater Buffalo Niagara Regional Transportation Council Board Member and as a longstanding member of BNMC Transportation Council since its inception, the City of Buffalo has worked alongside our NFTA, GBNRTC and BNMC on numerous infrastructure and mobility efforts. From the NYSERDA funded *Advancing Smart Card and NFC Technologies at the BNMC to the Buffalo Main Street: Smart Corridor Plan* and now through the *ITS4US* initiative, careful planning and coordination among our partners and numerous stakeholders has enabled Buffalo to begin to build a technology-enabled, more sustainable and equitable city.

Building on our collaboration and involvement in Phase 1 to build and design the Complete Trip Platform (CTP) concept, we look to implementation efforts planned for Phases 2 & 3. For a successful transition from concept to deployment and post-deployment, and as part of the City's \$20 million Main Street makeover underway, we are committed to the necessary inclusive infrastructure improvements at the key PED-X intersections of Main & Summer Streets, as well as Ellicott and High Streets, including the installation and on-going maintenance of signal controllers and Miovision systems.

65 NIAGARA SQUARE, ROOM 502 • BUFFALO, NY 14202 • 716 851 5636 • BUFFALONY.GOV

U.S. Department of Transportation
Office of the Assistant Secretary for Research and Technology
Intelligent Transportation System Joint Program Office

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