



U.S. Department of Transportation



**Buffalo All Access Project**  
**ITS-NY Annual Meeting & Technology Exhibition**

**Saratoga Springs, NY**  
**June 14, 2023**



## Kelly Dixon

Buffalo All Access

Project Management Lead

GBNRTC

# ITS4US Program Overview

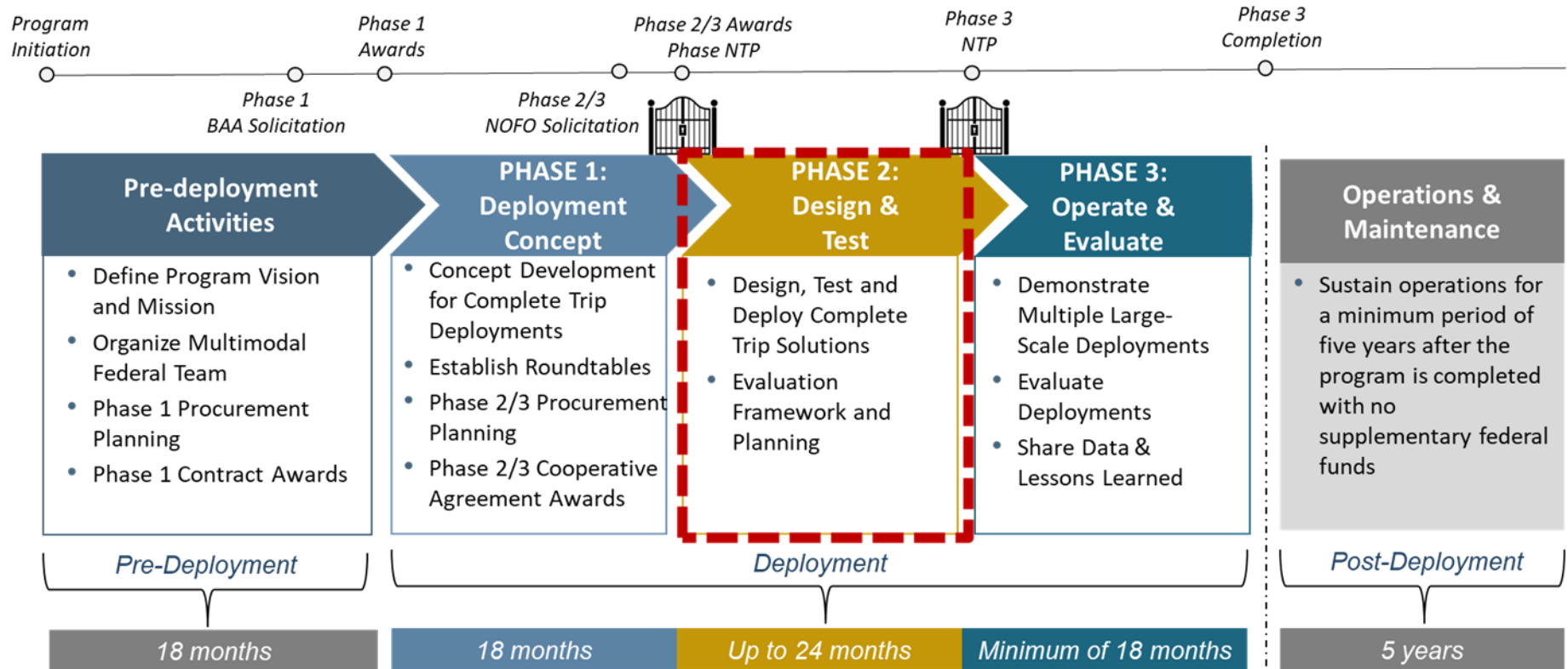
---

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

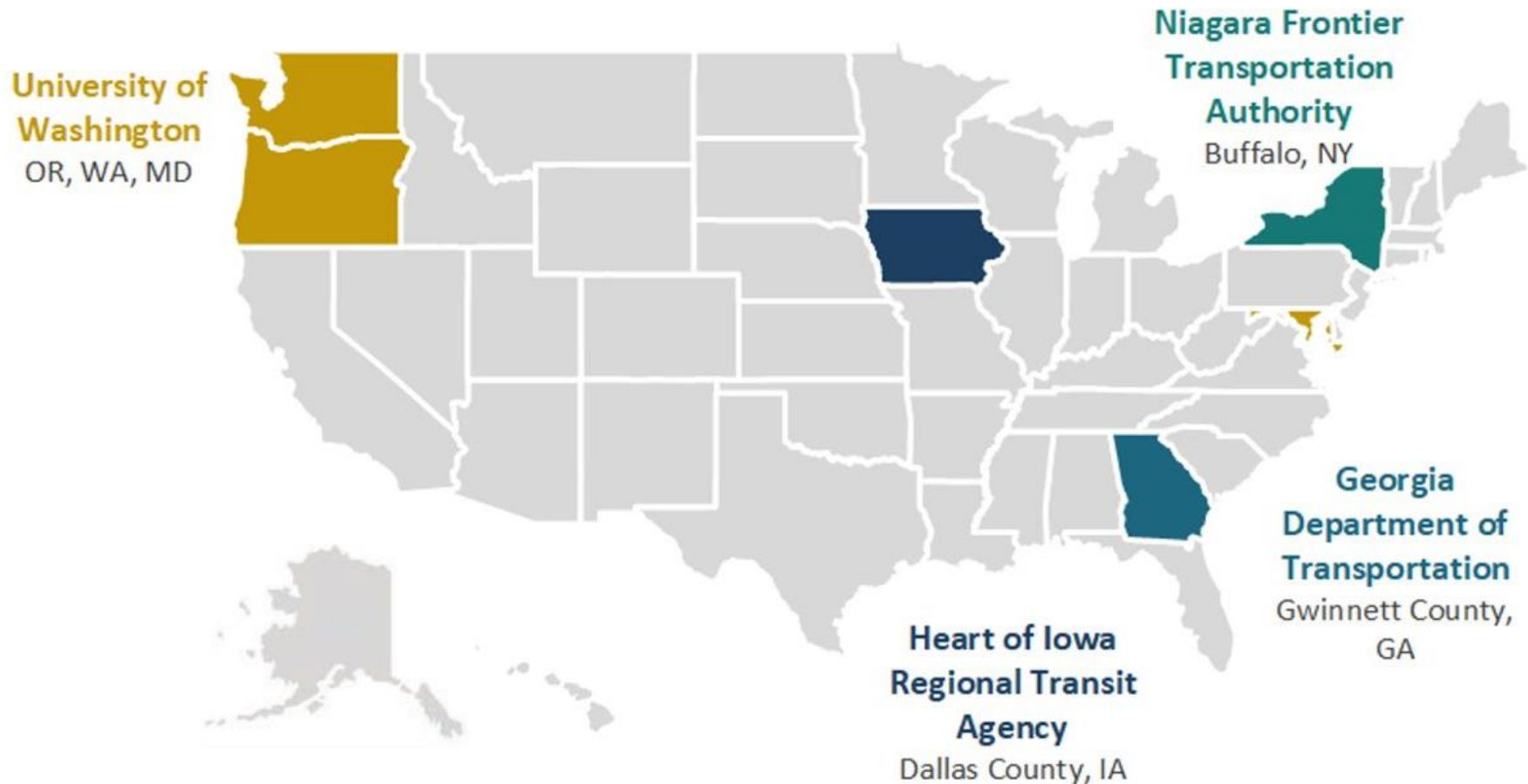


**Vision:** Innovative and integrated complete trip deployments to support seamless travel for all users across all modes, regardless of location, income, or disability

# Deployment Phases



# ITS4US Deployment Sites



Source: USDOT



# ITS4US Team Photo Collage



# BuffALLO All Access

Complete Trip Deployment

Project Overview



# Buffalo All Access

- Deployment area: Buffalo Niagara Medical Campus
- Deploys new and advanced technologies to address existing mobility and accessibility challenges
- Integrates accessible trip planning tool with
  - Current transit services
  - Indoor/outdoor wayfinding
  - On-demand shuttle service
  - Intersection pedestrian safety technologies
- Factors in travelers' preferences and accessibility-related needs for comprehensive trip planning

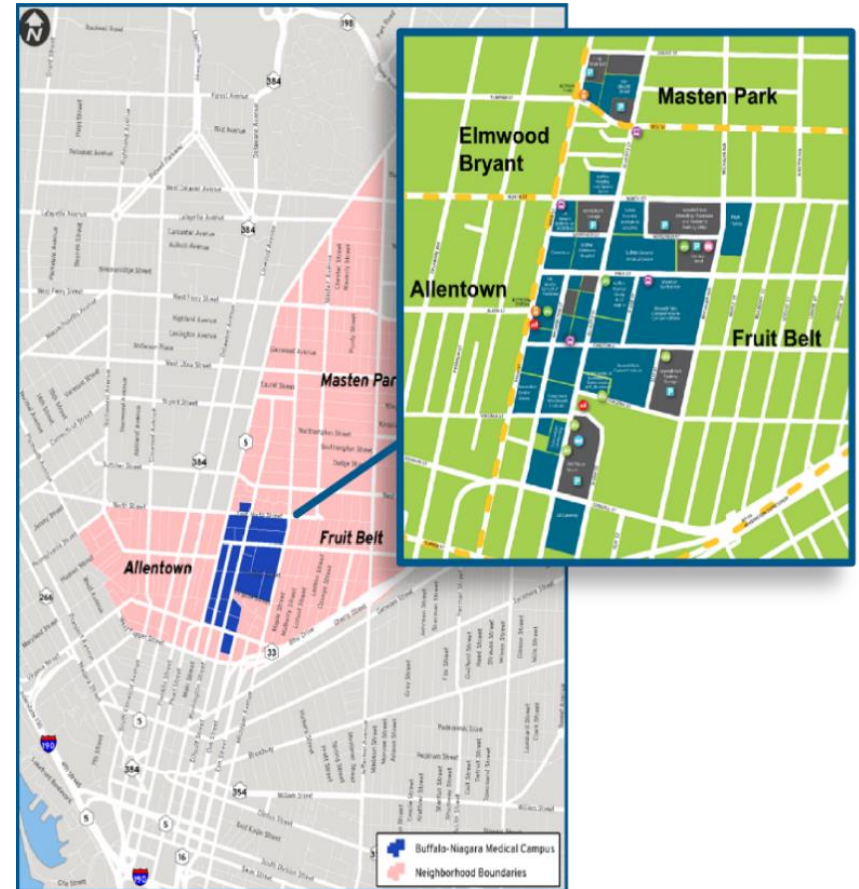




# The Location

- Buffalo Niagara Medical Campus
- 120-acre campus
- Adjacent to downtown and Main St.
- 9 million sq. ft.
- 8 member institutions
- 150+ private companies
- Social, technology incubator
- Transportation innovation lab

**More than 16,000 people work or study at the BNMC and more than 1.5 million visit each year for health care and other services, generating significant transportation demand for the area, its visitors, and its employees.**



# Deployment Objectives

**Consistent, continuous trips** to, from, and within the BNMC area.

**Online and offline** ways to receive real time information on services, and infrastructure usability and accessibility.

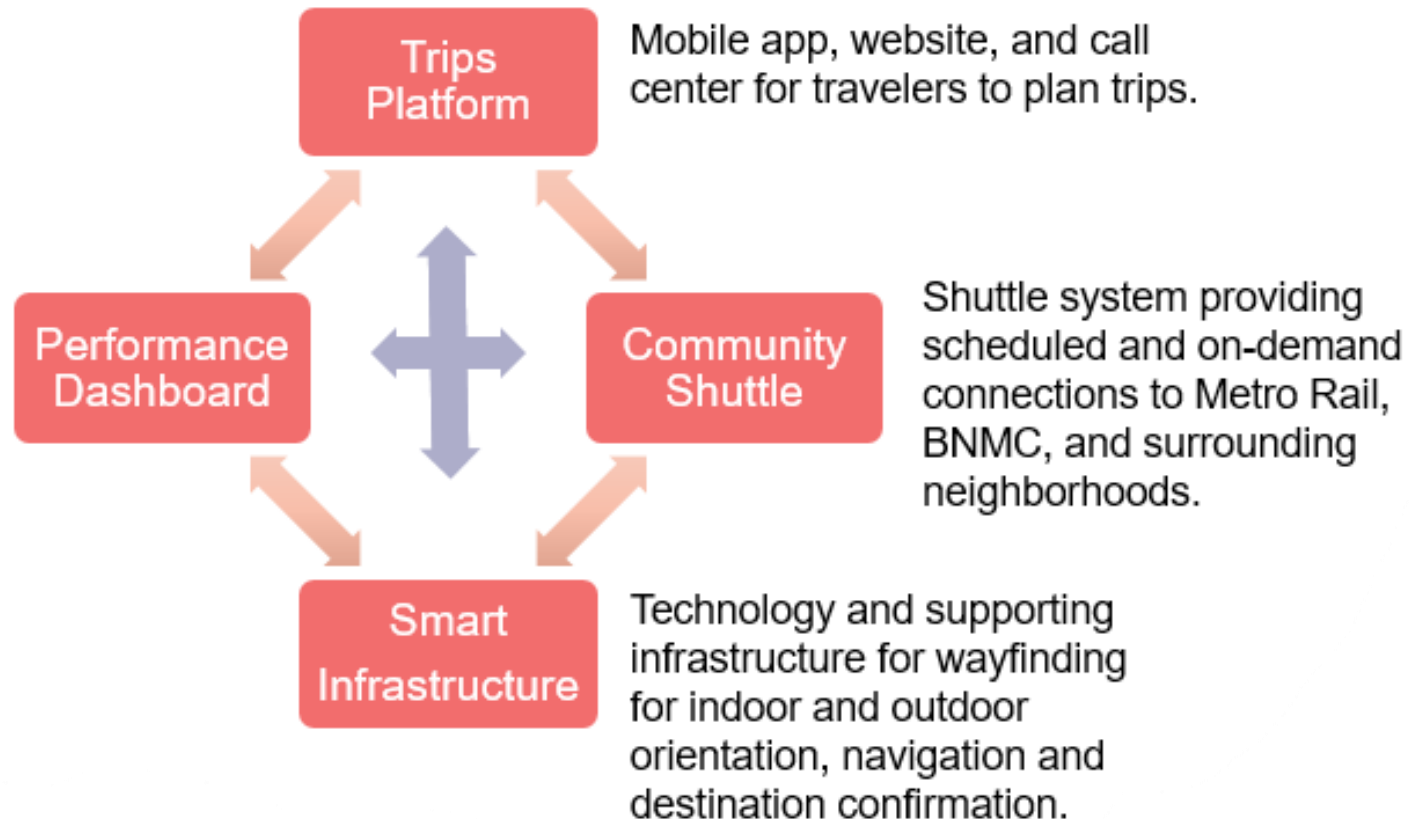
Trip paths that are **safe, accessible, and compatible** with user-defined preferences and capabilities.

**Integrated, flexible, demand-responsive, end-to-end** transit options for the community.



# System Overview

Measures and presents the performance of the system.



# Deployment Summary Concept



## Pre-Trip Planning

- Turn by turn guidance to and from bus and rail stops
- Availability of various transportation services
  - Bus, Rail, Paratransit

## Transit to Campus

- App-enabled location tracking, alerts, access preferences (voice, text, haptic alerts) and real-time arrival information
- App includes paths through stations, stops and buildings (elevators, stairs, walkways, escalators)

## Within and Around Campus

- Hail accessible human or self-driving shuttle (through app)
- Universal design & pedestrian safety applications at high-traffic intersections around campus
- Outdoor wayfinding, sidewalk improvement for pedestrians with and without disabilities

## Inside Building

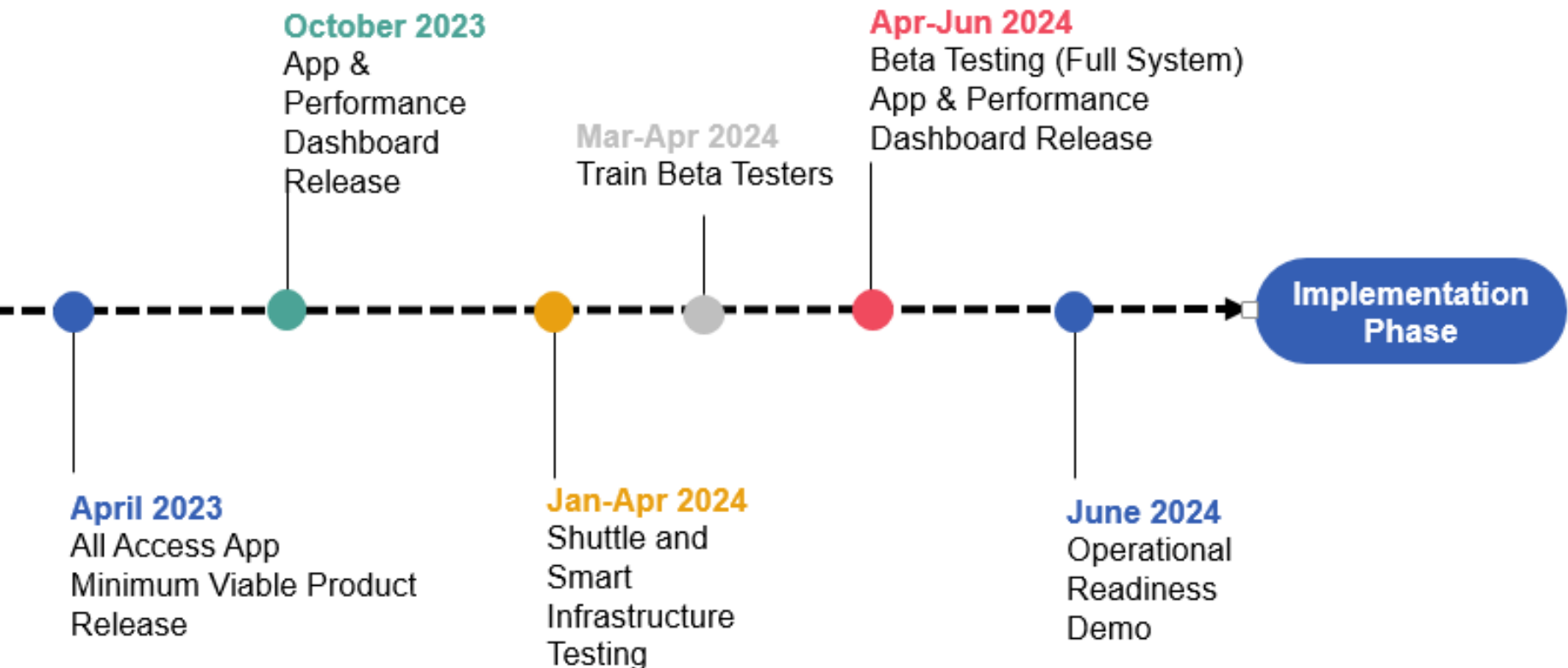
- Paths through partner buildings for all



# At-Scale Deployment Summary

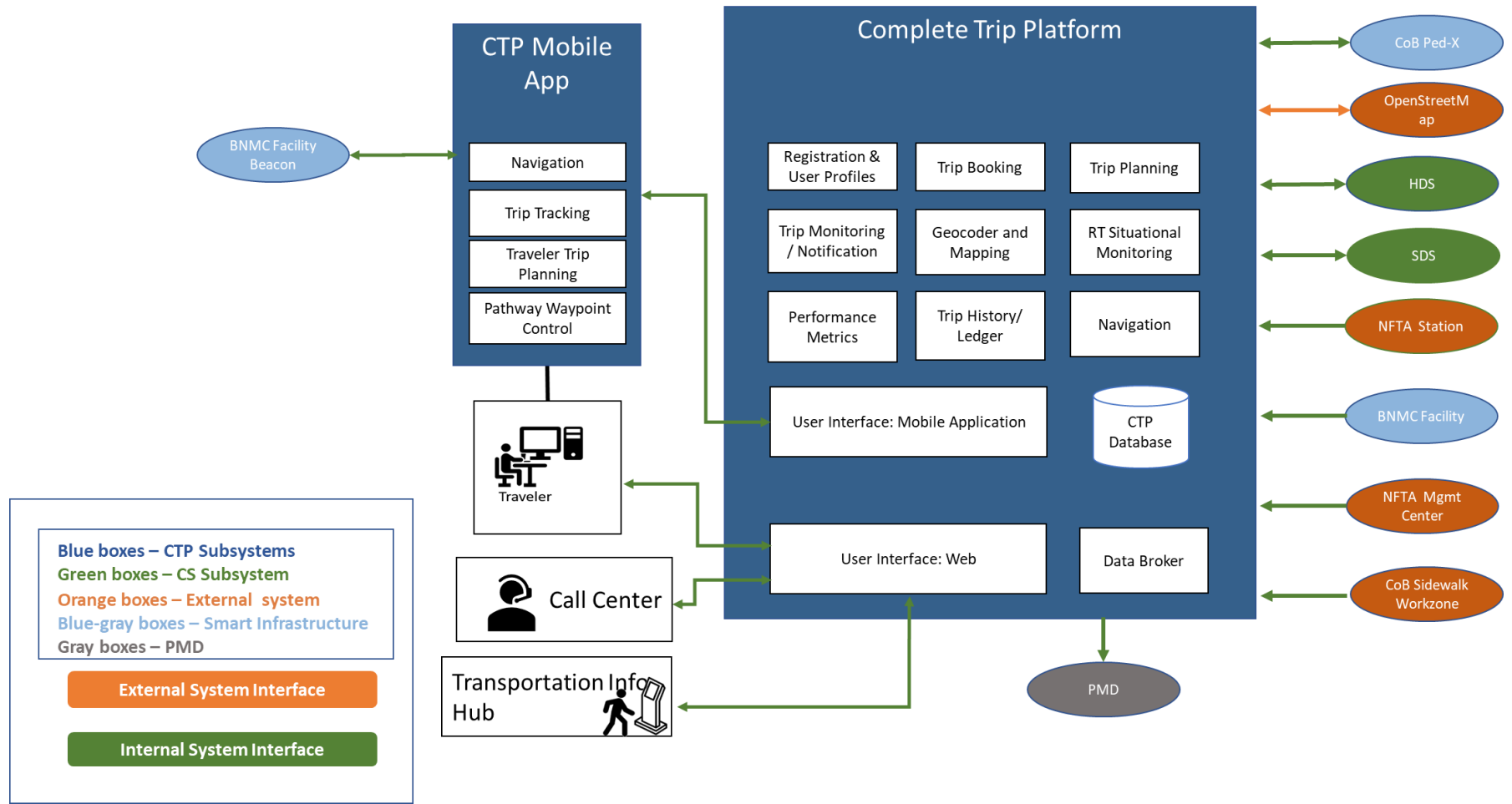
Deployment Element	Estimated Number
<b>Participants</b>	<p>100 participants during Phase 2 to support development and testing of system and its components.</p> <p>300-500 participants total in Phase 3 (include Phase 2 participants). Outreach and recruitment efforts will focus on obtaining highest and more diverse number of participants possible.</p>
<b>Beacons/Smart Signs</b>	Under 100 devices. The final number is unknown at the time and will be determined once facilities are measured.
<b>Touch Models</b>	1 model as part of this pilot (location tbd in Phase 2). Note that pilot will leverage efforts of an external study that is placing another model at the BNMC Innovation Center.
<b>Transportation Information Hub (TIH)</b>	2 hubs with locations determined in Phase 2.
<b>PED-X Intersections</b>	<p>2 intersections, Main &amp; Best Streets and Ellicott &amp; High Streets.</p> <p>2 National Transportation Communications for Intelligent Transportation System Protocol (NTCIP). Supported Miovision platform to serve as a communications border/gateway (one per intersection, total number: 2).</p>
<b>Vehicles</b>	<p>A max of 4 in terms of a combination of Human Driven Shuttles (HDS) and Self-Driving Shuttles (SDS). Phase 2 will start with 2 shuttles for testing and integration efforts and additional shuttle(s) will be added in Phase 3.</p> <p>SDS Vehicles: 1-2 (note: the number will depend on the procurement)</p> <p>HDS Vehicles – 1-2 depending on the service plan and demand.</p>
<b>Online/Offline Platforms</b>	<p>1 Complete Trip Platform (CTP) website and 1 mobile application.</p> <p>1 Performance Measurement Dashboard (PMD)</p>

# Buffalo All Access Phase 2 Timeline





# All Access App (aka Complete Trip Platform)



# Smart Infrastructure

## Transportation Info Hub



**Buffalo General Medical Center  
and  
NFTA Main St. & Best St.  
MetroRail Station**

## Pedestrian Signal Actuation (PED-X)



**Main & Best Streets  
and  
Ellicott & High Streets**

*Source: Miovision*

## Indoor Navigation



**Real-time Location  
System**

**Indoor Mapping Platform**

**Buffalo General Medical Center and  
Visually Impaired Association (VIA)**

*Source: CXApp*

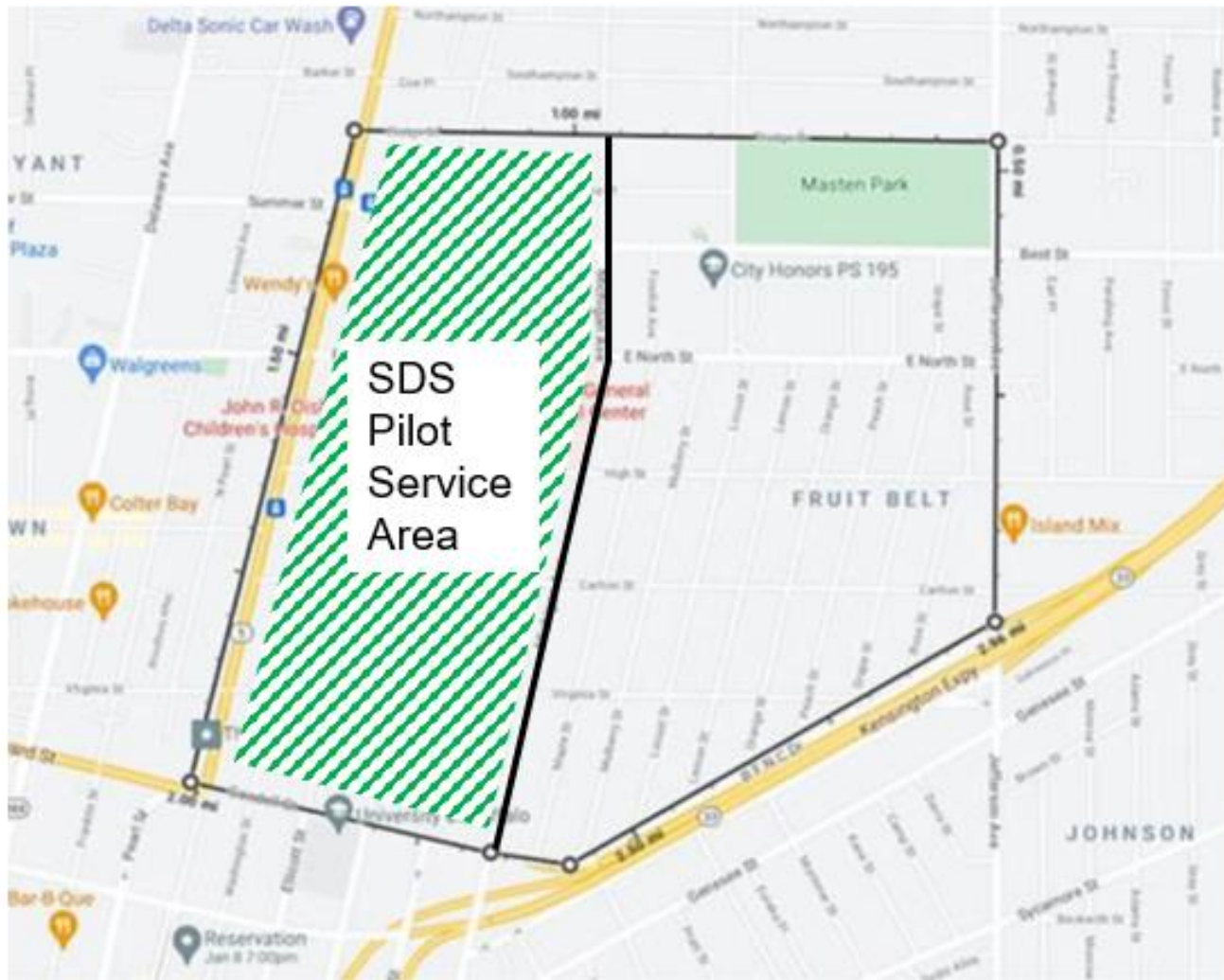


# Community Shuttle Sub-System

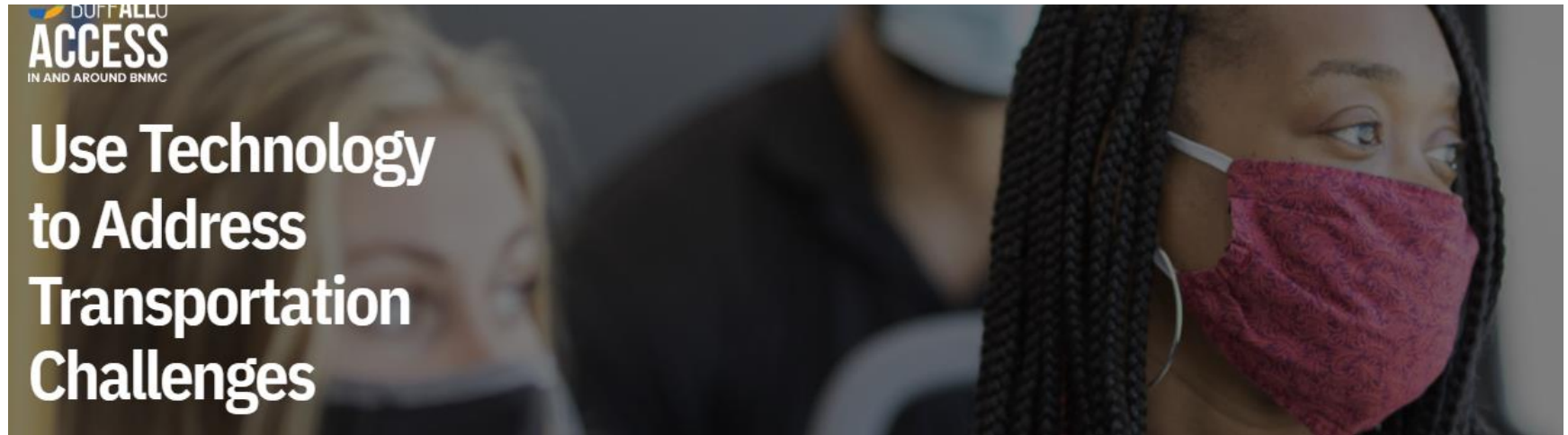
- Operate mixed demand-responsive and micro-transit fleet consisting of:
  - Human-driven Shuttles (HDS)
  - Self-Driving Shuttles (SDS)
- Why a mixed fleet of HDS and SDS?
  - HDS provide alternate mode when conditions go beyond SDS operating environment, to travelers who cannot get to SDS pick-up & drop-off locations
  - Contrast the pros and cons of AVs vis-à-vis human-driven vehicles.
  - Insight into the business case for using Avs
  - Offer an educational opportunity for the community to learn about AVs
  - Lower the risk of this subcomponent of our project



# Community Shuttle Service Area



# Partnership Program



## Partners

The BuffALLO All Access project is led by the **Niagara Frontier Transportation Authority (NFTA)** in partnership with the **BNMC** and **University at Buffalo (UB)**, with funding from the **U.S. Department of Transportation (USDOT)**.

### Get Involved

Interested in becoming a partner?

[CONTACT US →](#)





# Addressing Sustainability & Equity Goals of Buffalo All Access Project



- Integrated, flexible, demand-responsive and end-to-end Transit
- Addressing the First- and Last- mile challenge & Transit Service Gaps
- Preference to Electric Shuttles
- Accessibility Requirements
- Support Independent Travel
- Serving under-served Neighborhoods





# Stay Connected

**For more information please contact:**

Elina Zlotchenko, ITS JPO  
ITS4US Program Manager &  
BuffALLO All Access AOR  
[Elina.Zlotchenko@dot.gov](mailto:Elina.Zlotchenko@dot.gov)

Kelly Dixon, BuffALLO All Access  
Project Management Lead  
[kdixon@gbnrtc.org](mailto:kdixon@gbnrtc.org)

Visit the ITS4US Deployment  
Program Website:  
<https://its.dot.gov/its4us/>

ITS4US Deployment Program  
Video  
<https://youtube/pztl1IRyXAc>

# THANK YOU

Visit [bnmc.org/allaccess](https://bnmc.org/allaccess) to learn more!

