

Complete Trip Deployment in Buffalo, NY

Buffalo, NY

Phase 1 Team Members:
ICF, University of Buffalo,
Open Doors Organization,
RSG, ETCH, BNMC



Introductions

Leads

Summary

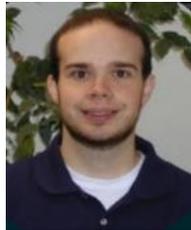
Phase 1 Team and Organization

Agency Partners

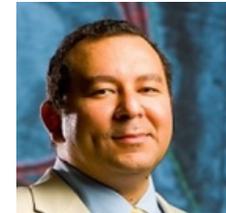
Project Team Leads



Deepak Gopalakrishna, ICF
Project Management Lead



Robert Jones, NFTA
Concept Development Lead



Adel Sadek, University of Buffalo
Systems Development Lead



Elizabeth Greene, RSG
Performance Measurement Lead

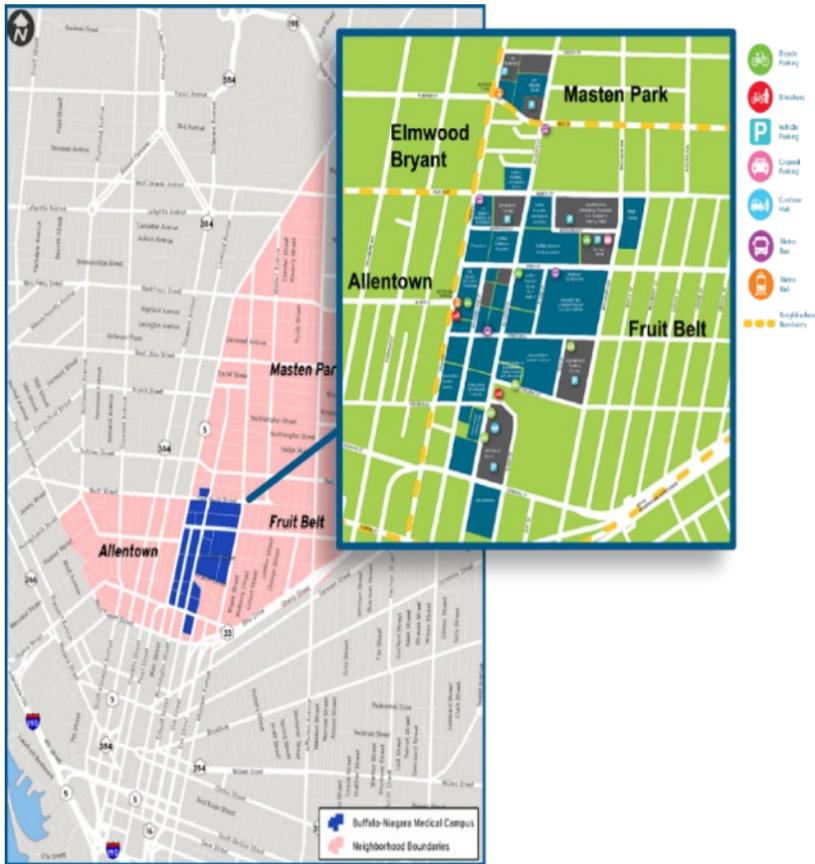


Jamie Hamann-Burney, BNMC
Community Engagement and
Partnerships Lead



Kate Brangaccio, ICF
Communications and
Outreach Lead

Complete Trip Deployment in Buffalo, NY



Overview of The Complete Trip deployment:

- Location is targeted around the downtown Buffalo area with a focus on travel to and from the Buffalo Niagara Medical Campus (BNMC).
- Includes the 120-acre Medical Campus and surrounding neighborhoods with underserved populations.
- Focuses on two primary trip purposes: employee-related travel and patient/visitor travel to the campus from the three neighborhoods.

Phase 1 Team



Program Management,
Transit Planning,
Multimodal Accessible
Transportation
Standards Expertise



Systems Integration,
CAV Testing,
Self-Driving Shuttle
Operations, Inclusive
Design



Inclusive design, ADA
compliance, universal
design, Disability
market research



Performance
measurement,
evaluations, travel
surveys and travel
behavior lead

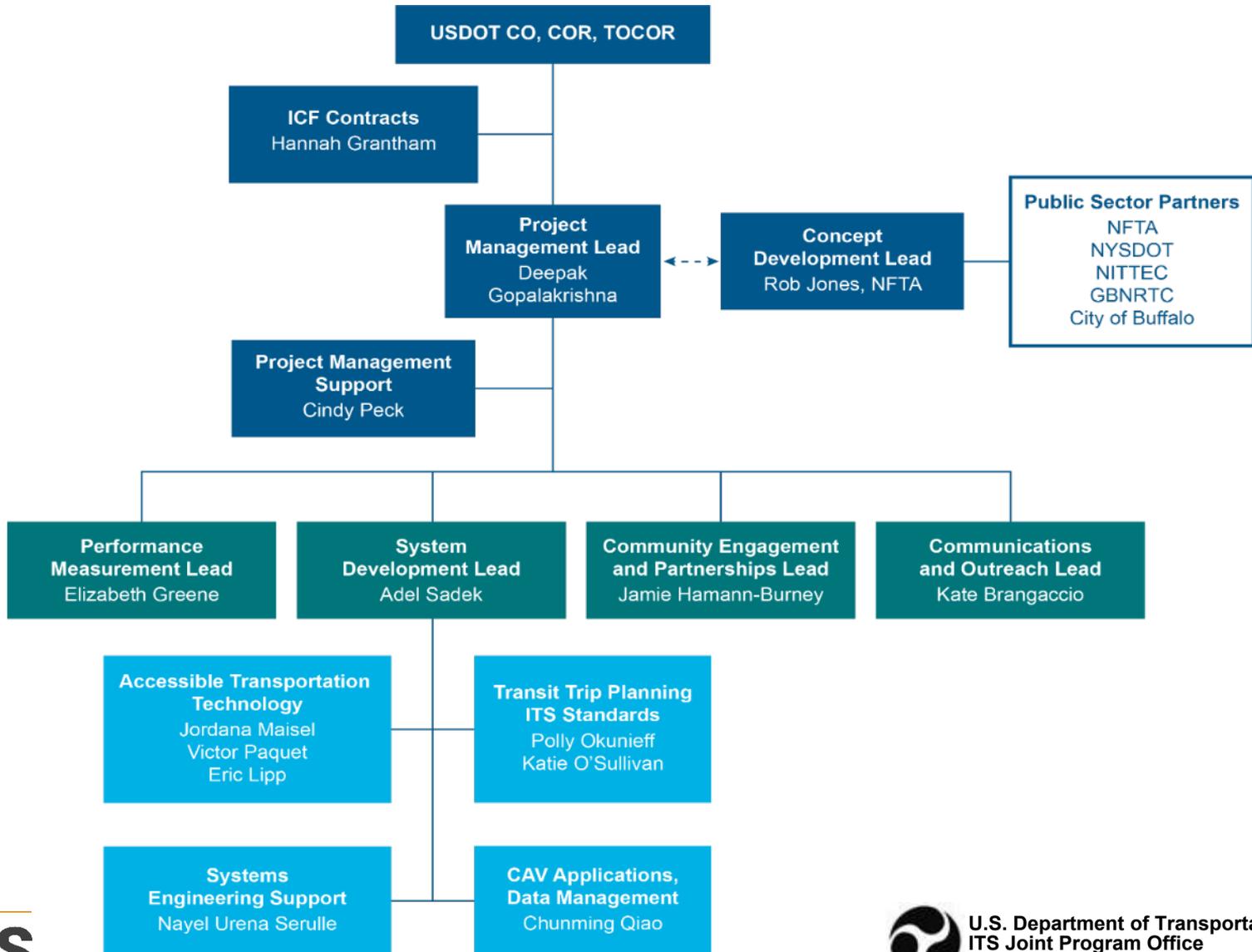


Transit trip planning
requirements, Open
Trip Planner



Community and
partnership engagement.
Transportation access,
neighborhoods and
housing planning

Team Organization



Agency Partners/Stakeholders in Phase 1



The team will also reach out to **critical stakeholders**, which already have strong relationships with BNMC:

- **Neighborhood associations** (The Fruit Belt Coalition, The Masten Block Club Coalition, The Allentown Association).
- The **BNMC Transportation Operations Council**.
- **Medical and Health Care Partners** (Buffalo Hearing and Speech Center, VIA)
- **Community and Human Service Organizations** (Western New York Independent Living, Age Friendly Erie County, People Inc., Aspire of WNY).

Conceptualizing the Complete Trip

Location

Challenges

Target / Underserved Populations

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



Enabling access to jobs, health care services at these partner agencies that directly address populations of interest for complete made BNMC a compelling location

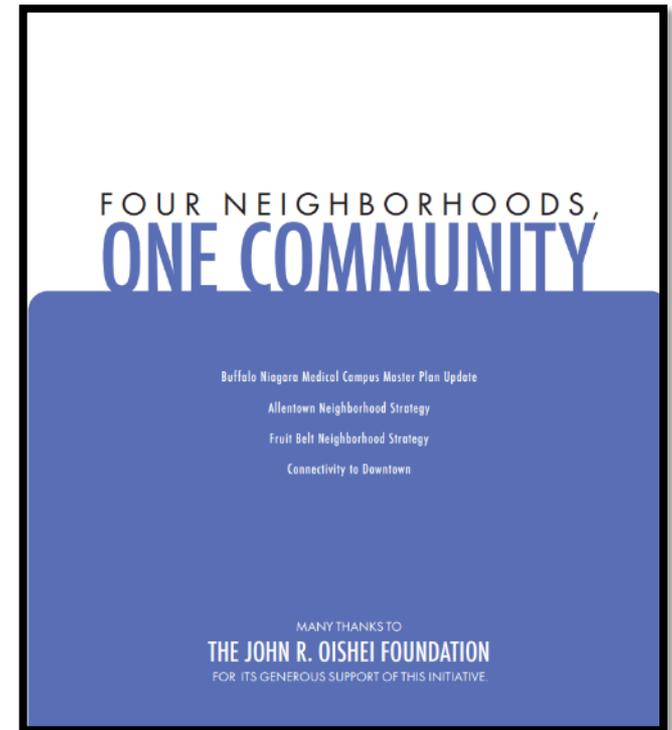
The Challenge

Improve door to door trip making to populations with mobility challenges seeking to access jobs and health care services

Connect communities, downtown, Main Street and BNMC seamlessly through transportation services

Improve local circulation within BNMC

Create a model for accessible transportation services for Buffalo Niagara region, New York and nationally



Target Populations

Population of Interest	Details
Travelers to BNMC member agencies with mobility challenges	Patients, Visitors and Workers at <ul style="list-style-type: none">• <u>Buffalo Hearing & Speech Center</u>• <u>Buffalo Medical Group, PC</u>• <u>ConnectLife</u>• <u>Hauptman-Woodward Medical Research Institute</u>• <u>Kaleida Health</u>• <u>Roswell Park Comprehensive Cancer Center</u>• <u>University at Buffalo</u>• <u>VIA</u> (formerly Olmsted Center for Sight)/ <u>Ross Eye Institute</u>

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.

Target Populations (Cont.)

Population of Interest	Details
Residents of Fruit Belt, Masten Park communities	<ul style="list-style-type: none">• Fruit Belt neighborhood: poverty rate of 25%, and 47% zero-car households.• Percentage of zero vehicle households and population that over the age of 65, with a disability, a veteran, and incomes of less than \$25,000 is above the average for th MSA

BNMC seeks to be a national model for how an urban campus and economic development engine can effectively develop and grow in conjunction with surrounding neighborhoods for the benefit of the greater community.

Solution-ing the Complete Trip

Elements
Integration

Existing Assets and Initiatives

Transit Services

- Fixed route buses
- Paratransit
- Bike share
- Light Rail

Planning Studies

- Four Neighborhoods, 1 Community
- Main Street Smart Corridor Plan
- GBNRTC & NFTA Transit Oriented Development (TOD) Study

Mobility Management

- Go BNMC TMA
- Statewide 511NY Rideshare Program
- NFTA Fare System Upgrade
- NYS Open Trip Planner

R&D

- Automated Electric Vehicle Campus Demonstration,
- IDEA Center's RERC – APT & RERC on Universal Design (RERC-UD)

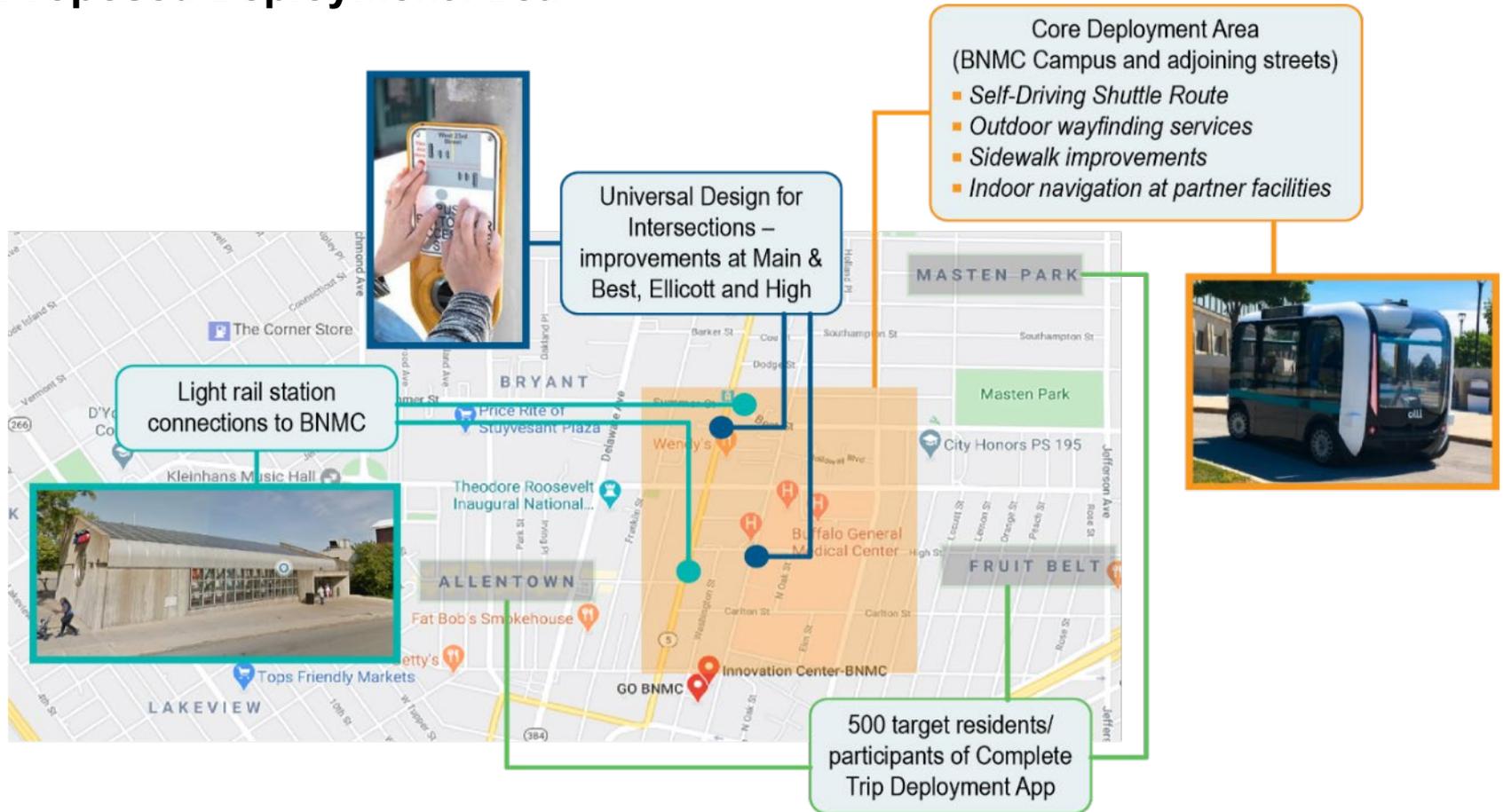
Proposed Solutions

Mobility Needs Addressed by the Deployment:

- Improving the ability to make efficient and accessible transit trips, especially for employees and visitors to BNMC.
- Improve ability of employees and travelers with disabilities to make multimodal connections.
- Create new ways of supporting first and last mile services, focusing on trips within the BNMC campus (e.g., between various hospital and medical facilities).
- Improve pedestrian movement and safety around key intersections with significant use by travelers with disabilities

Proposed Solutions (Cont.)

Proposed Deployment Area



Proposed Solutions (Cont.)

Proposed Technologies

Device-based applications

- Trip planning app provides turn-by-turn direction based on accessible preferences

AV/ADS

- Self-driving shuttles on the campus provide flex-route services for travelers and integrated with the app

Infrastructure devices

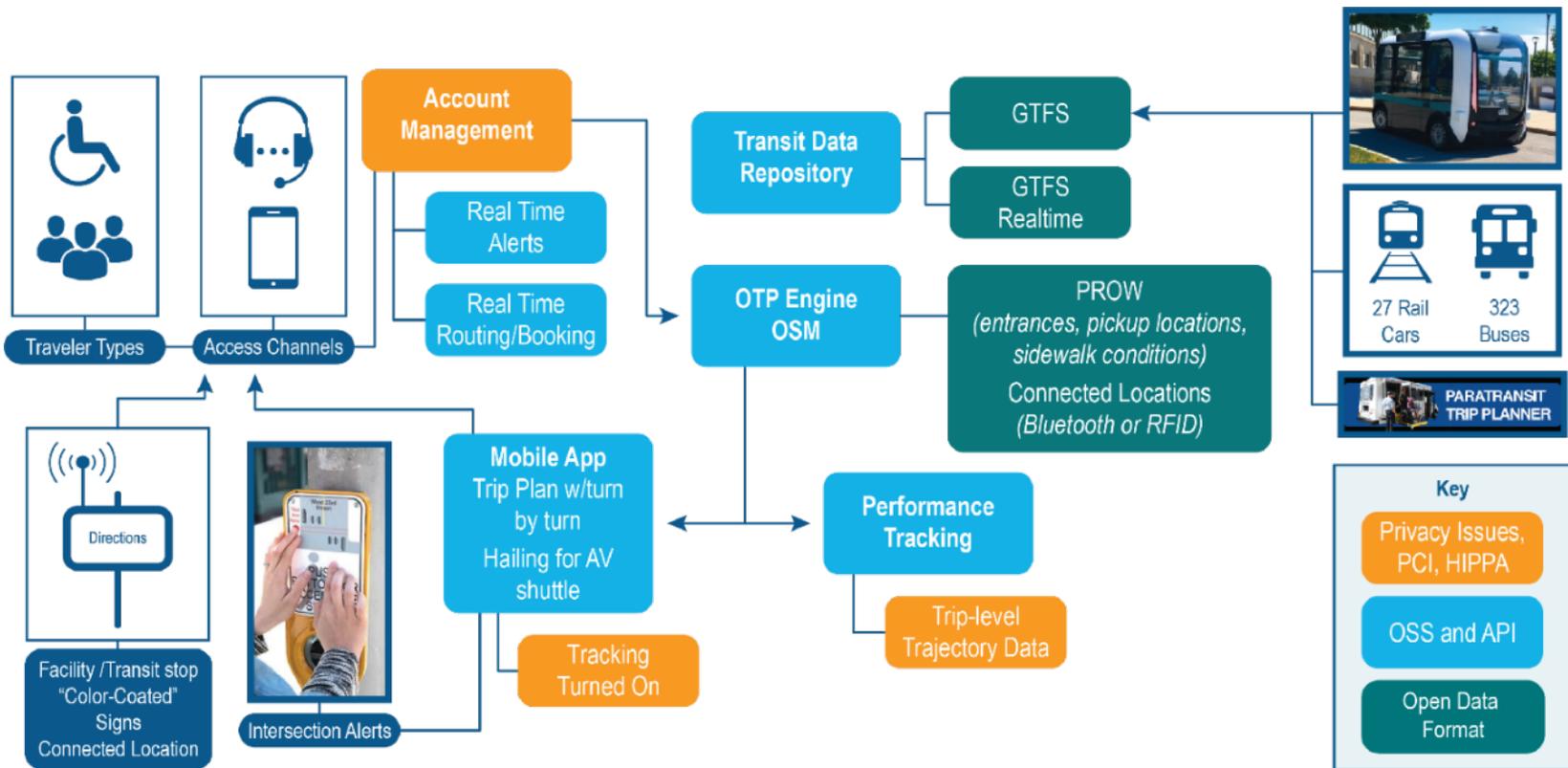
- Universally designed intersections will include physical roadside units as well mobile communications connectivity

Multi-channel communications

- LTE, Wifi, Bluetooth, C-V2X technologies will be integrated with mobile app

Proposed Solutions (Cont.)

Complete Trip Planning App



Proposed Solutions (Cont.)

First and Last-Mile Self-Driving Electric Shuttle with accessibility features on/around BNMC Campus



Proposed Solutions (Cont.)

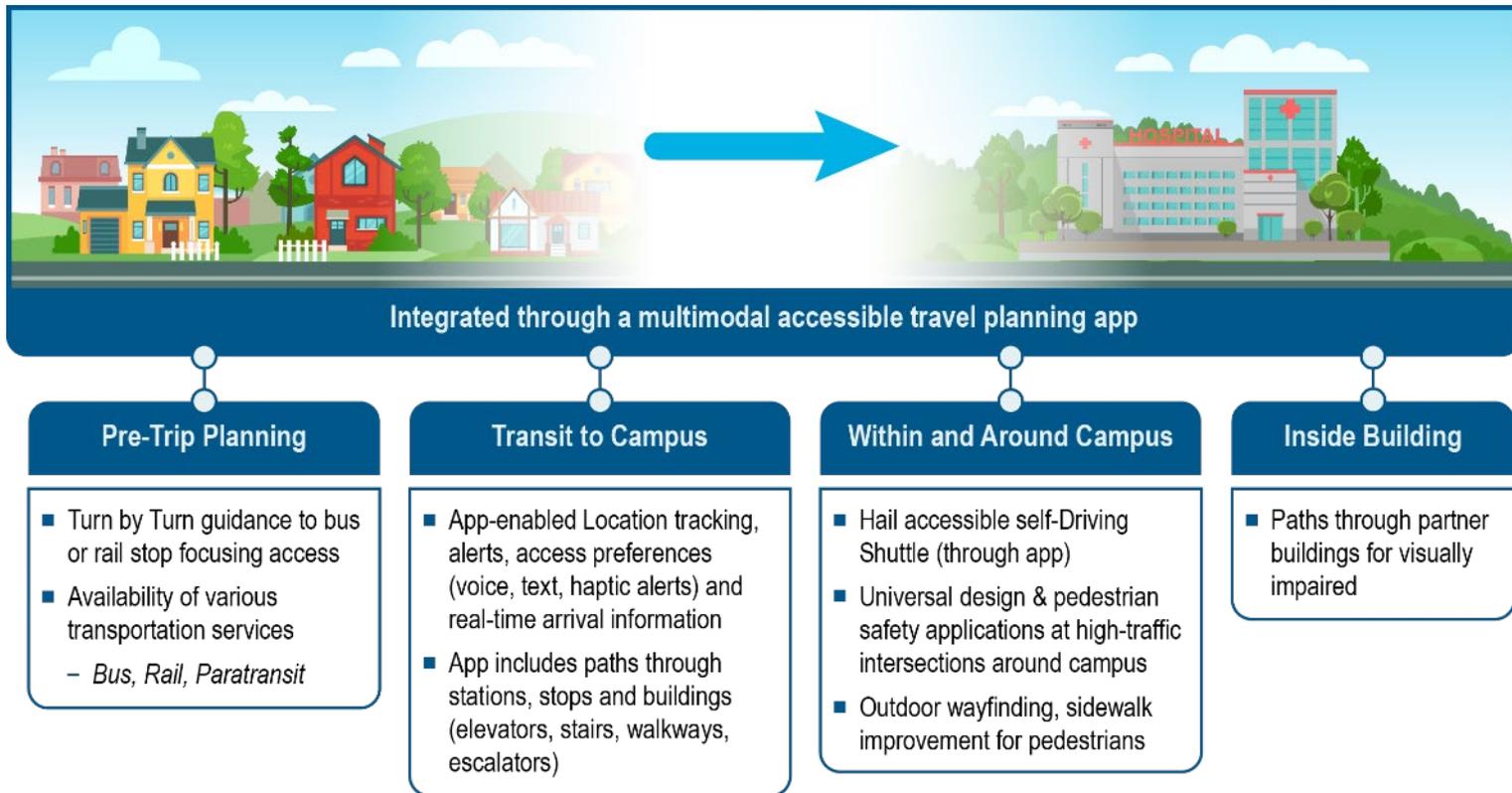
Outdoor/Indoor Navigation Services

- Target BNMC campus and partner Buildings
- Strategies include
 - identified sidewalk treatments
 - indoor navigation maps,
 - RFID beacons
 - Bluetooth readers that are necessary to complete the last leg of the journey

Universally Designed Intersections

- In cooperation with Main St project
- Intended to help visually impaired pedestrians to locate the crosswalk, align themselves and safely navigate to their desired destinations
- May also integrate with mobile app
- Primary target location - Main St and Summer/Best intersection

Integrated Deployment



Delivering the Deployment

User engagement

Target performance measures

Risks

User Engagement Approach by Phase

1

Phase 1 – Planning

- Identify 50-60 early users of the complete trip deployment through IDEA Center, ODO and BNMC Partner connections during ConOps development. (Concept Development Pool).
- Conduct preliminary travel behavior data collection and needs assessment with early users.
- Incentivize engagement of early users through regular interactions through BNMC.

2

Phase 2 – Design and Deployment

- Expand user pool by collaborating with the medical institutions to about 100 while maintaining early users (Pre-Deployment Pool).
- Pre-deployment users will try and provide data/feedback on beta versions and early releases of app, test out self-driving operations, wayfinding and intersections.

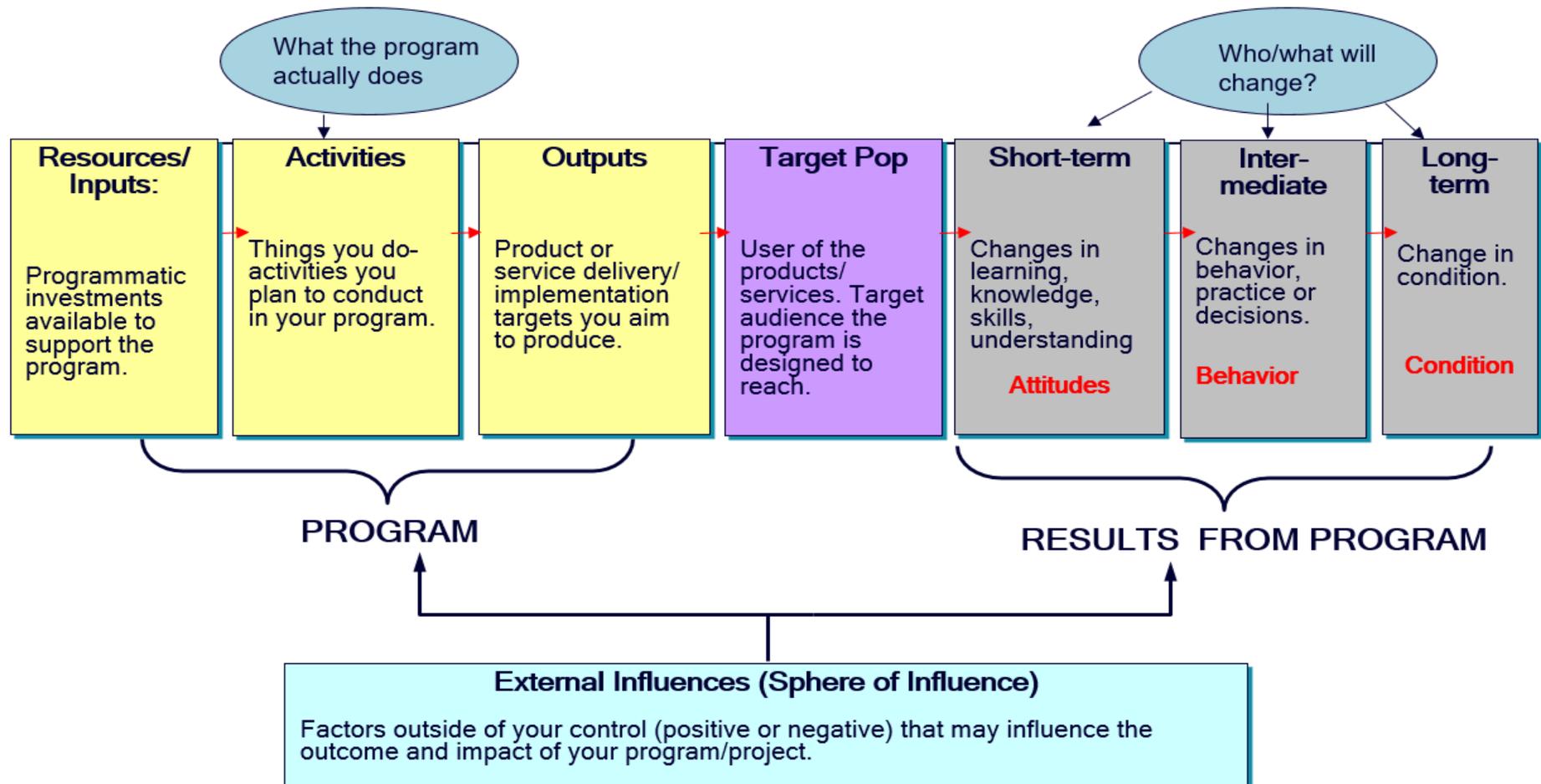
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Phase 3 – Demonstration

- Leverage IDEA center and BNMC to identify a population sample for Phase 3. Minimum of 500 participants of the app gathered through address-based sampling or social media sampling.
- Incentivize participation in Phase 3.
- Maintain pre-deployment pool for continued engagement during Phase 3 allowing for longitudinal behavior change assessment.

Target Performance Measures

- Phase 1 will establish the foundation of performance measurement for the deployment by defining the logic model that associates our deployment initiatives to outcomes.



Target Performance Areas

BAA Goals	Performance Areas
Spur high impact integrated complete trip deployments nationwide	<ul style="list-style-type: none"> • Proven business models for accessible use of self-driving shuttles • Improved ability to integrate accessibility related information on transit planning apps
Identify needs and challenges by populations	<ul style="list-style-type: none"> • Improved access to healthcare for older travelers and travelers with disabilities at BMNC • Improved access to jobs using transit for underserved populations near BNMC
Develop and deploy mobility solutions that meet user needs	<ul style="list-style-type: none"> • Successful deployment of accessible complete trip planning app to a minimum of 500 users • Successful operations of 5 self-driving shuttles that support access by travelers with disabilities on BNMC campus
Measure the impact of integrated deployments	<ul style="list-style-type: none"> • Measurable improvements in trip making behavior (use of transit, trip duration, connections, completed trips) in target population (at least 500 users of the app) • Improved awareness and satisfaction sentiment by individual population groups part of the deployment.
Identify replicable solutions and disseminate lessons learned	<ul style="list-style-type: none"> • Successful integrated system to harness intelligent feedback loops for continual system improvements • Expansion of complete trip deployment concepts to other locations in Buffalo and within New York State

Challenges & Risks

- Phase 1 Challenges and Risks
 - Gathering end-user input and feedback during pandemic
 - Connecting timelines of various ongoing initiatives and deployments in and around BNMC campus
 - Standards for Multimodal Accessible Transportation are still in flux and product development is still in infancy both for mobile app as well as AV shuttles planned in the deployment
 - Management of several overlapping activities and deliverables in Phase 1
 - Setting up for successful and seamless transition to Phase 2 lead for our region
 - Unknowns in data needs may impact data collection/management plan development
 - Harmonizing on transit trip specifications between grantees especially around complete trip elements that are being defined in this project
 - **A real opportunity as well!**