



Babcock Ranch and Our Journey to Autonomy

Dick Alexander

Executive Vice President of Development and Innovation

Who is Transdev



Bus



Tramway & Tram-Train



Passenger Rail



BRT



Coach



Parking



Car-Sharing



Ferry



Taxi & Mini-cab



Mobility Centers



Bikesharing



Metro



Digital Services & Mobility Companions



Shuttle Services



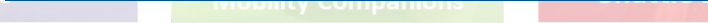
Paratransit & Ambulance Services

Our most profitable business line ?



TAXI & MINI-CAB

- USA, United-Kingdom, Netherlands & France



Disruption!

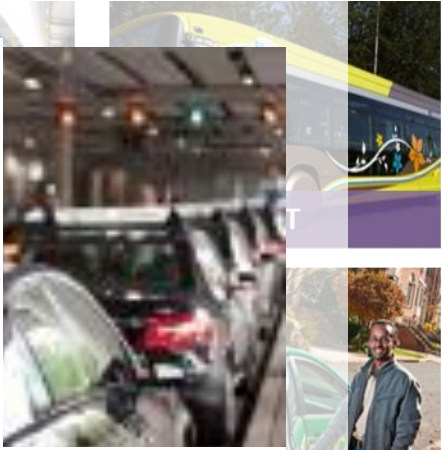


Disruption Again!



Parking

Car-Sharing



Mini-cab



Mobility Centers



Metro



Mobility Components



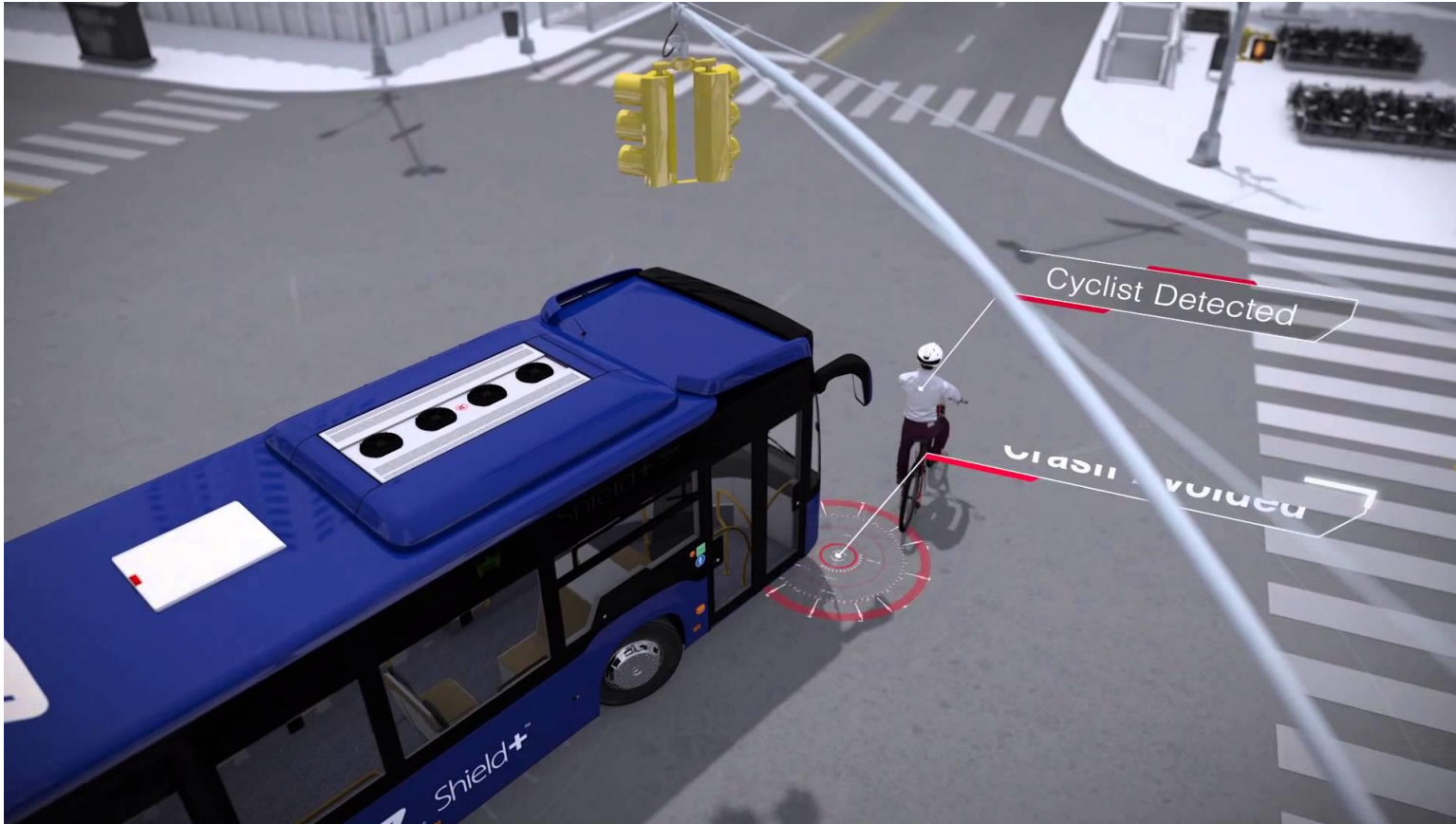
Services





PERSONALIZED AUTONOMOUS CONNECTED ELECTRIC

Safety at Level 1



nice[™]
NASSAU
INTER-COUNTY
EXPRESS



Lane Assist

- Optical guidance system
- Driving with a Metro experience
- Introduced in Rouen BRT in 2001



Autonomous Buses



Civaux

Contract to operate
6 veh Naveya for EDF since
Apr.2016



Rouen

6 weeks pilot Dec.2016-
Jan2017
1 veh. Easymile



Rotterdam

10-years contract to
operate 6 veh.
2GetThere



La Rochelle

Dec. 2014 / Apr.2015



Rungis

2 months pilot Sept.2017-
Dec.2017
2 veh. Easymile
First demo on open road



Montreal

Parc Olympique June 2017

Issy les M.

6 weeks pilot
March.2017-Apr. 2017
1 veh. Easymile



Darwin

Darwin Marina – since Jan.
2017

Early Transdev AV Operations

EDF Shuttle - Civaux France

- Since April 2016, Transdev has operated a fleet of six Navya AVs at EDF's nuclear plant in Civaux.
 - Ridership: 2,000 employees transported daily, 69,300 travelers since April 2016
- First non-guidewire autonomous vehicles in regular commercial operation



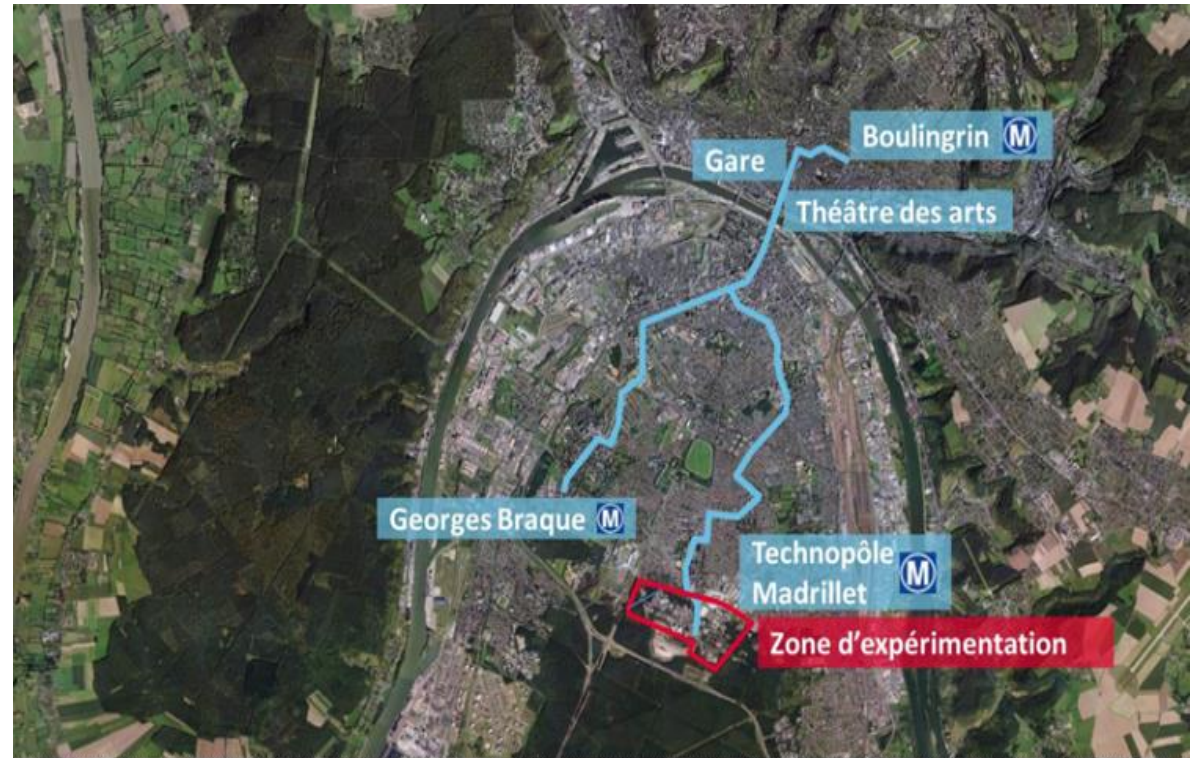
ParkShuttle - Rotterdam

- Contract: 6 year terms, extended 3x
- Shuttle OEM & Model: 2getthere
- Headway: 3-5 minutes during rush-hour, 6 minutes during off-peak.
- Ridership: 700 - 1,100 riders every day, 270,000 riders annually
- Mileage: 185,000 miles since 2005
- Longest operating commercial autonomous vehicle system



Rouen-Normandy Autonomous Lab

- 3 loops totaling 6 miles of open roads with 17 stops.
- Mixed fleet of Nissan/Renault and Transdev/Lohr Vehicles



Babcock Ranch: A Transit Automation Living Lab



Managing the Mobility Ecosystem

- Goal: Reduce car ownership to one per household
- Create a network of mobility services for the 50,000 residents
- Introduce an all-electric autonomous network of shuttles and pods
- Expand into package and grocery delivery
- Mix between conventional and autonomous forms of transportation
- Combined through a MaaS solution



Babcock Ranch Operations

Phase 1 (Ongoing)

- Joint-Venture with Kitson & Partners
- 2 EasyMile vehicles
- Scheduled Service, static route

Phase 2 (2H 2018)

- On-Demand Service with integrated App + dispatch
- Demonstration Service in communities 2-4
- Multi-OEM Demonstration
- Permanent onsite presence
- Increased EasyMile fleet (3-4 veh)



E-hailing & Mobile App

V1: Metro Mode

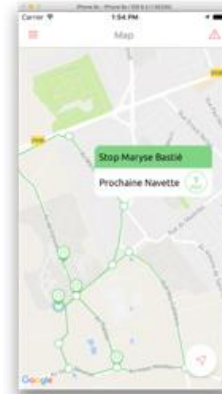
Fixed route shuttle along pre-programmed route, stopping at each bus stop

V2: “Elevator / Bus Mode”

Transitioning operations to “elevator mode” allows the vehicles to move through stops where no passengers are getting off

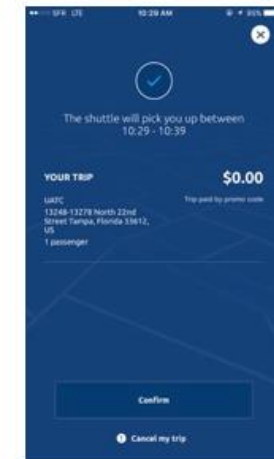
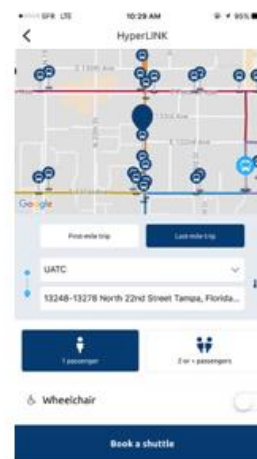
V3: On-Demand Service

Transitioning operations to On-Demand service allows for increased service optimization, improved UX



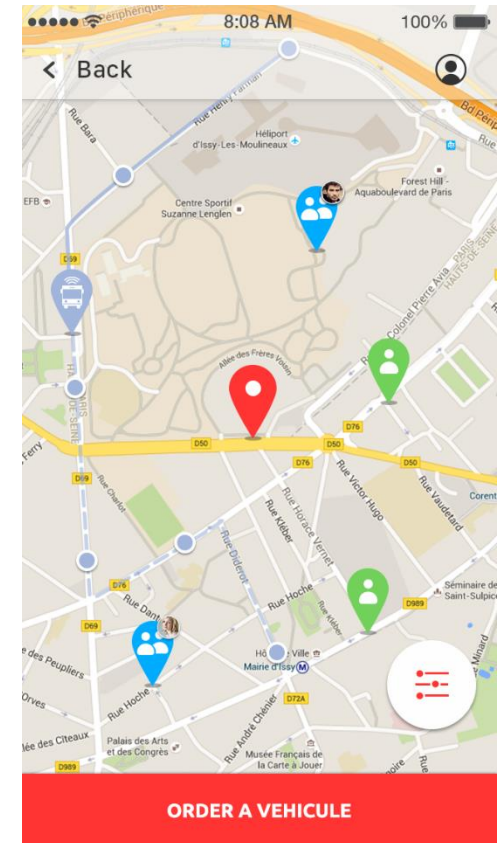
Above: Existing consumer AV application being tested in France pilot projects

Below: Existing HART Link App and Ticketing



Customer Interface

- The Only Purpose Built AV Smartphone Application
- Provides Single Interface Between Multiple Modes
 - > Campus Shuttle
 - > First/Last Mile
 - > Future RoboTaxi
- Allows For On-Demand Pickup and Drop-off
- Includes Full Payment and Ticketing Backend for Paid Solutions
- IOS and Android



MaaS + Babcock Ranch

The Key: Structure, Touchpoints & Experiences

Key Touchpoints

- ▶ Mobile App
- ▶ Website Portal
- ▶ Amazon Echo
- ▶ Apple & Android Smart Watch
- ▶ Alexa, Siri, Cortana

Key Experiences

- ▶ Prospective Home Buyer
- ▶ New Resident/HOA Onboarding
- ▶ Reservations & Transportation
- ▶ Smart Utilities Monitoring
- ▶ Community News & Alerts
- ▶ Smart Home Management



Autonomous Mobility Solution

Vehicles:

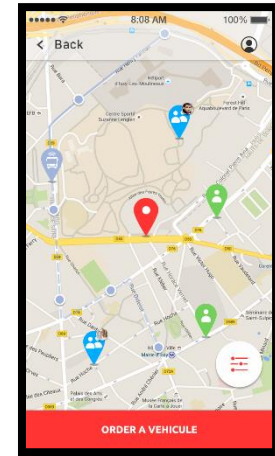
- Work with all autonomous shuttle manufacturers

Customer Interface:

- Customer application for on-demand shuttle service
- Fare payment and safety alerts built into the interface

Fleet Management System:

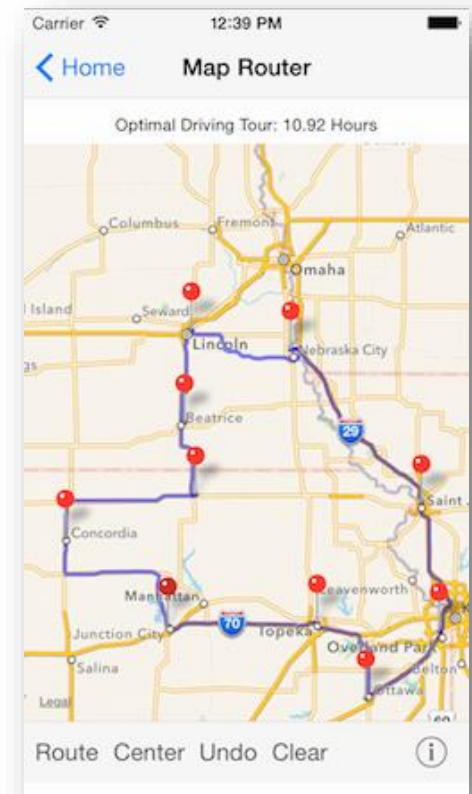
- Monitor all vehicles
- Ensure safe, efficient operations
- Manage vehicle health
- Improved network safety



Fleet Management

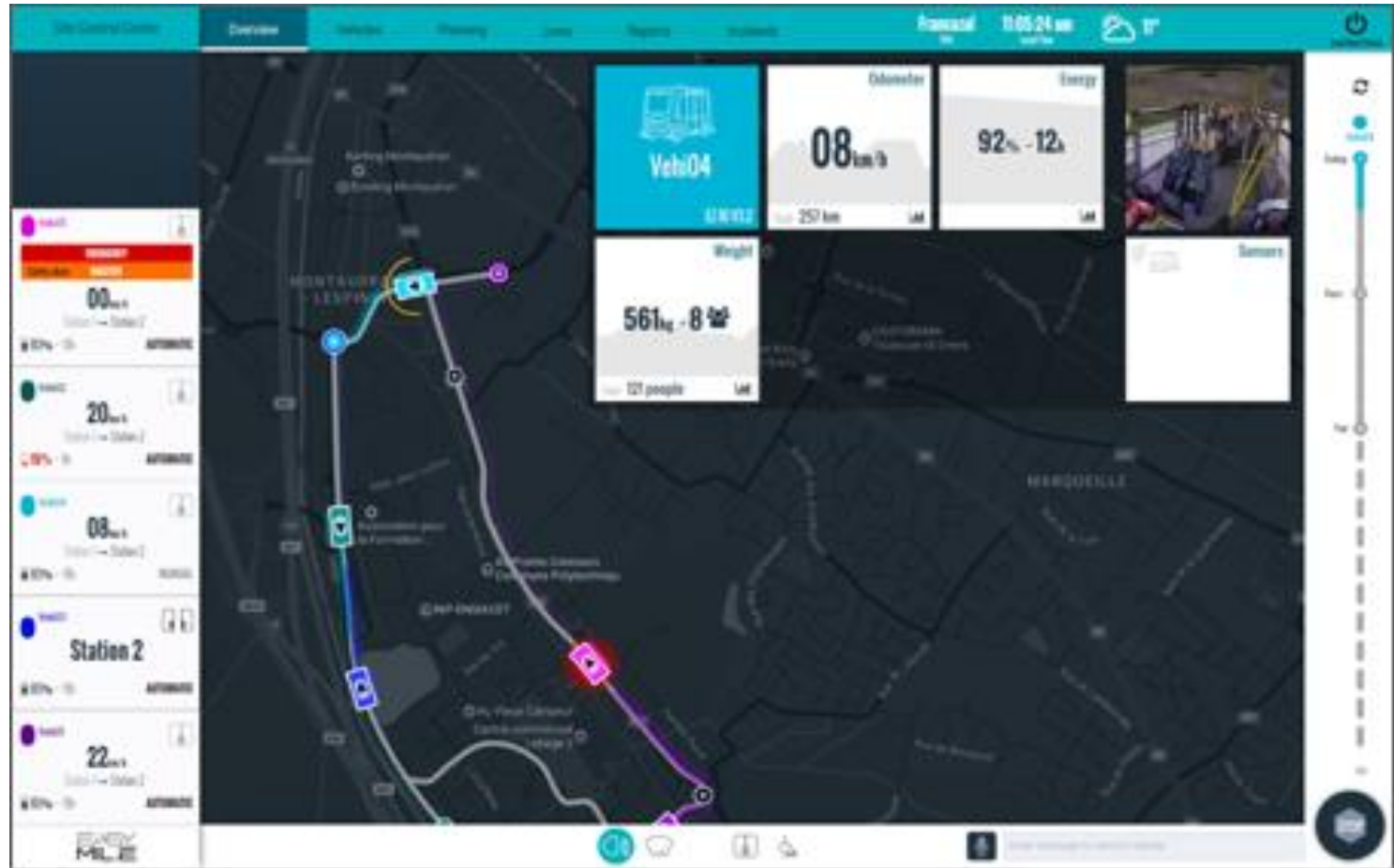


- Reduces operation costs: optimizes vehicle utilization, routing, waiting time
- **Multimodal**: manage information from all integrated transport systems
- **Dynamic routing**: Real time re-routing depending on traffic and other situations
- **Data analysis**: Automatic update to expected demand or traffic problems and weather
- **Vehicle Health**: Real-Time Vehicle Management for Maintenance and Safety



AV Dispatch – EasyMile

- Live video feeds
- Vehicle headway
- Operating metrics
- Basic system parameter configuration
- Battery/Charging Management



Safety: Regulatory Compliance

- Obtaining and maintaining compliance for AV operations in multiple states
- Deep experience creating and maintaining Safety Process Plan (SSP) for publicly funded transit
- NHTSA Approval and DOT - Object and Event Detection and Response Plans
 - Assessment
 - Testing
 - Validation



Planning and Deployment



Transdev's **AdVantage**



Manufacturer expertise

Knowledge of strengths and weaknesses of vehicle manufacturers



Maintenance

Digital and traditional maintenance for optimal fleet performance



Routing

Sophisticated routing algorithms and dispatch technology to optimize fleet management



App enabled

Mobile apps to deliver a seamless passenger experience with AVs and between modes



Control center

Digital control centers to monitor vehicle condition (tire pressure, temperature, battery status) and to interact with passengers



Safety

Best practices for safety and security



Compliance expertise

Extensive knowledge on regulations, legal issues, risk management and insurance options



Special care

Expertise adapting AVs for passengers with special needs

B2G AV: JTA U2C Test Track

Exhibit B

RFP No. P-17-014

Phase 1

- 6-month pilot engagement
- 1 Gen-1 EasyMile Shuttle
- 1 Gen-2 EasyMile Shuttle

Phase 2 (2-3Q 2018)

- V2X Demonstration
- Event Service (crossing roads)
- Establishing “Community Circulators”

Test Track Overview

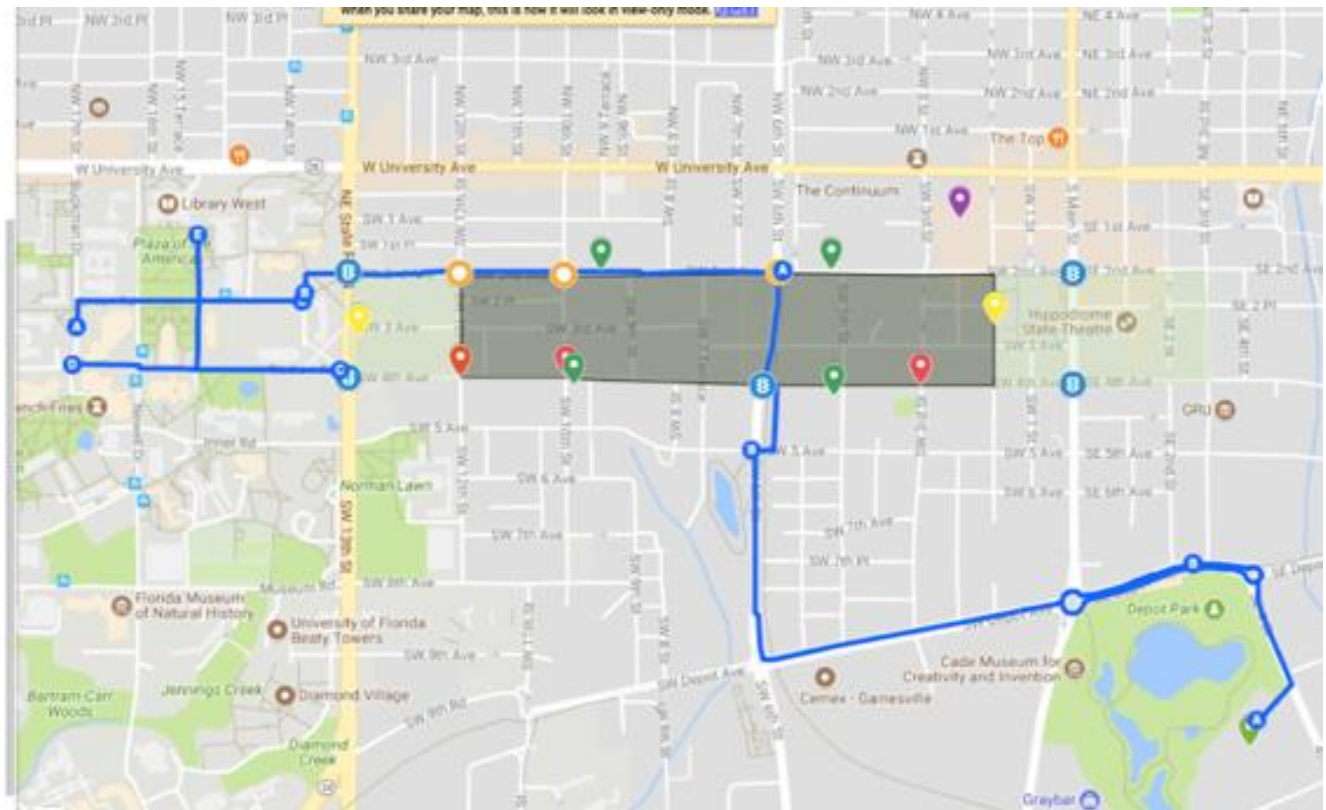
Phase 1 and 2 Overview



Gainesville

- 3 year FDOT project, with possibility to expand into permanent on-demand service
- Potential for “add on” projects in EV charging, data sharing, workforce redevelopment etc.

- ✓ **Phase 1 + 1a**
 - Buckman Dr, Gainesville, FL 32603, USA
 - 1404 Union Rd, Gainesville, FL 32601, USA
 - Stadium Rd, Gainesville, FL 32601, USA
 - 1765 Stadium Rd, Gainesville, FL 32608, ...
 - 1545 W University Ave, Gainesville, FL 32...
- ✓ **Phase 2**
 - 200 SE Depot Ave, Gainesville, FL 32601,...
 - 600-618 SW 5th Ave, Gainesville, FL 326...
 - Roundabout
- ✓ **Points of Interest**
 - RTS Garage for AV Storage
 - RTS Facility
 - 105 SW 3rd St Garage
- ✓ **Phase 3 Connector**
 - Roundabout
 - 1478 Union Rd, Gainesville, FL 32611, USA





PERSONALIZED AUTONOMOUS CONNECTED ELECTRIC