



# Autonomous Shuttle Demonstration - Dunedin

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Jacob Labutka

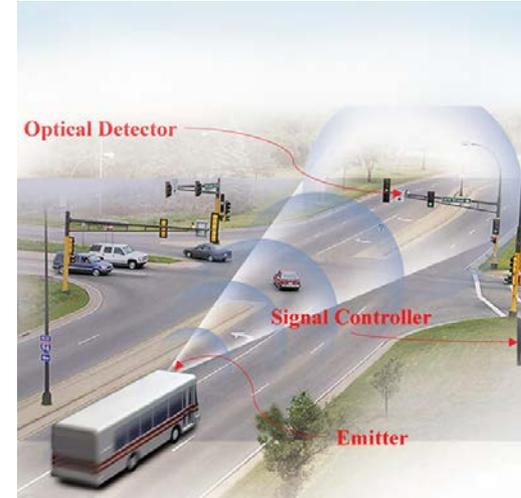
Project Planner

Pinellas Suncoast Transit Authority (PSTA)  
St. Petersburg, Florida



# PSTA Transportation Innovation

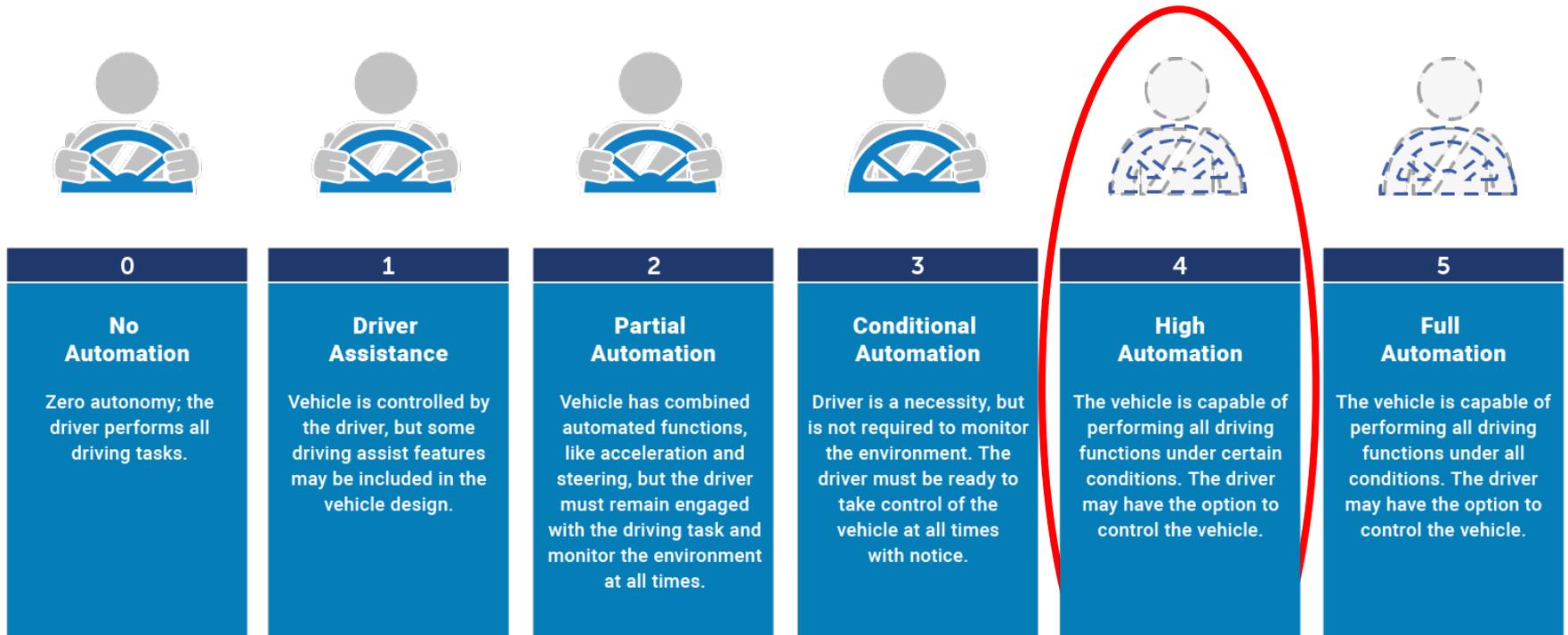
- PSTA is incorporating transportation technologies that are:
  - Autonomous ✓
  - Conected ✓
  - Electric ✓
  - Shared ✓
- PSTA is a nationally recognized leader in innovation



# Levels of Automation

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation



# About Beep & NAVYA shuttle

Beep, an autonomous shuttle service provider based out Orlando, will operate two NAVYA shuttles at the direction of PSTA.

## Drive System

- Motor: Electric
- Operating speed: up to 15 mph

## Energy

- Operating time: up to 7 hours
- Charge duration up to 90%: 3-4 hours

## Sensors

- Light Detection & Ranging (LiDAR): 8
- Cameras: 2
- Dedicated GPS Base
- Safety sensors designed to avoid collision



[Shuttle Ride](#)

[Full Virtual Tour](#)



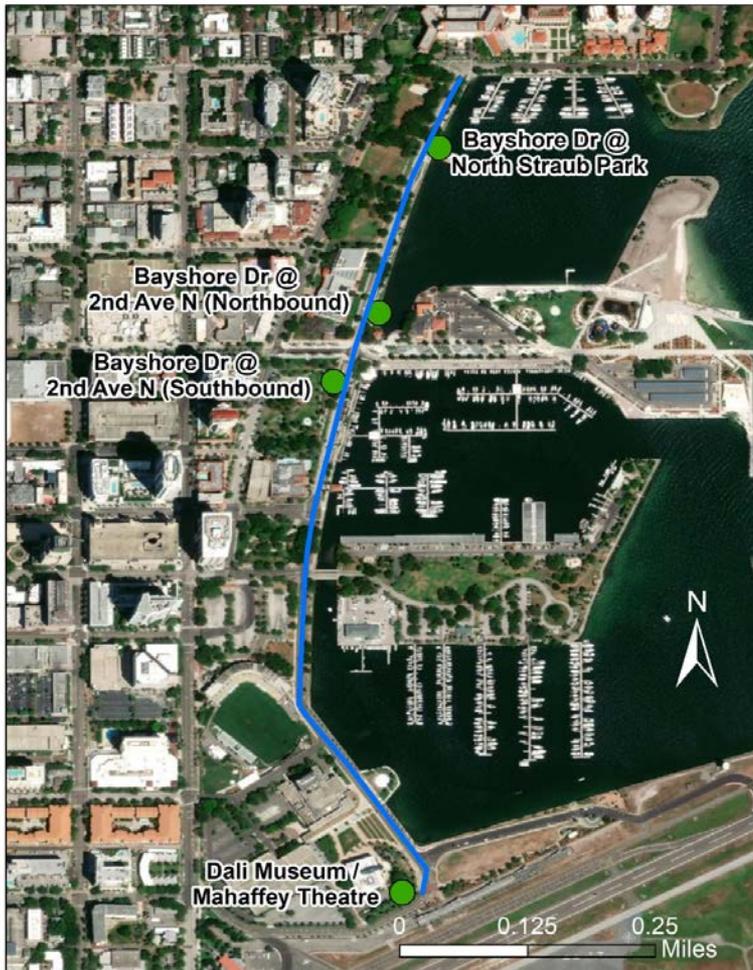
# Key Initial Questions

- What is the experience of the operator with this technology?
  - Beep has operated demonstrations in several other areas: Lake Nona (Orlando), Tampa, Peoria, AZ (Phoenix). These demonstrations also operate in mixed-traffic on public streets.
- What is the operating speed?
  - The shuttle will initially operate up to 15MPH.
- Can you operate the shuttle on Skinner Blvd?
  - No. The speed limit on Skinner Blvd is 35 mph. The maximum speed limit allowed for these shuttles is typically 25 mph.
- What is the safety record of the operator?
  - Beep has a perfect safety record operating the Navya shuttles.
- Are the shuttles accessible to people in wheelchairs?
  - Yes, the shuttle is equipped with manual ramps deployed by the attendants on board.
- Who will monitor the driverless shuttle?
  - There will be an attendant on board for educational and safety reasons.

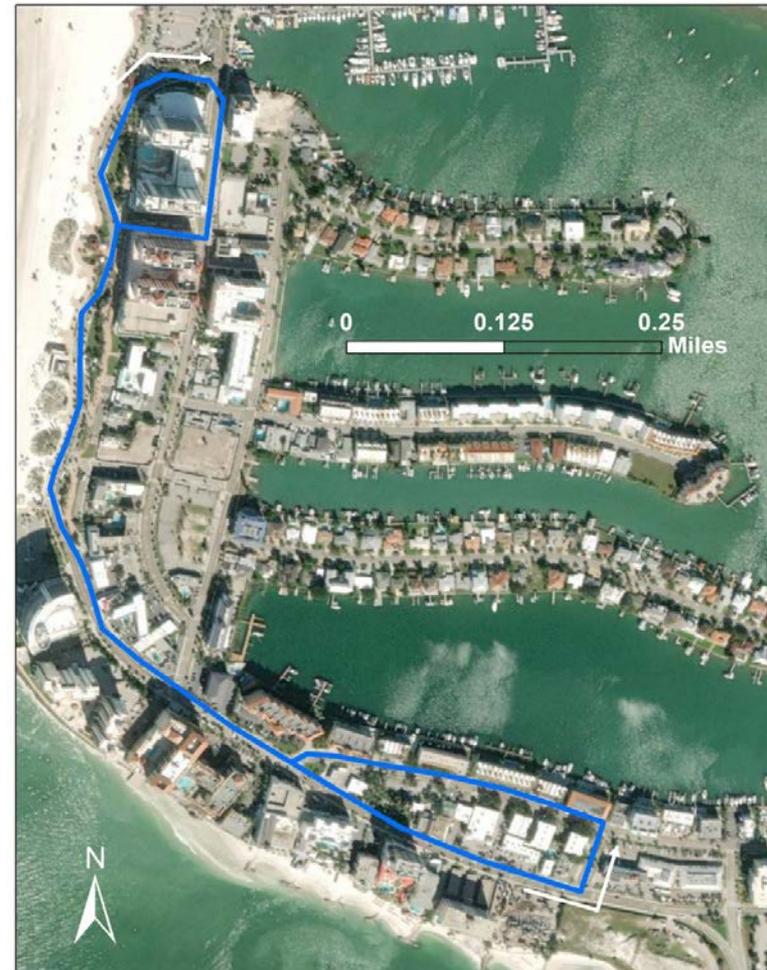


# Other Demonstration Routes

*St. Petersburg – Currently Funded  
Starting in Nov 2020*



*Clearwater – Seeking Funding  
Proposed to follow Dunedin*



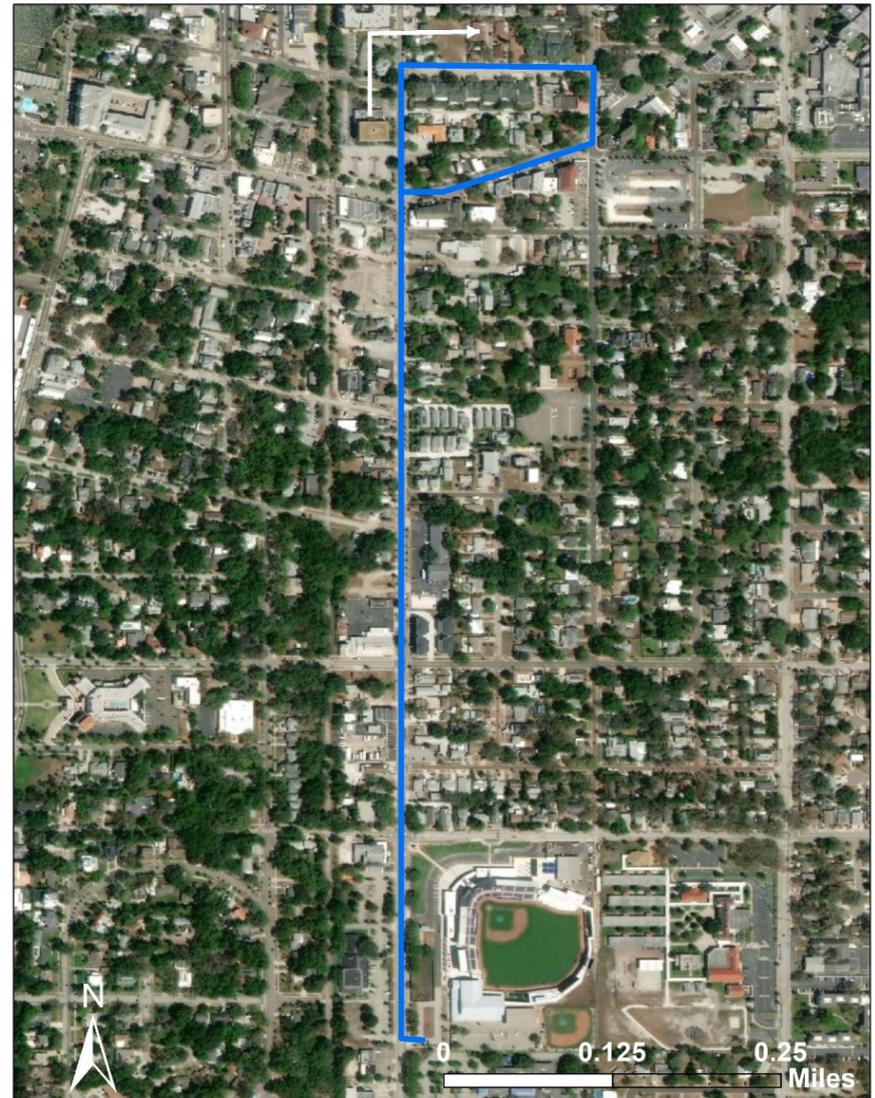
# Proposed Route

- Only operating on Main St presents operational challenges:
  - Edgewater Dr intersection
  - Navigation through Mease Hospital lot
  - On-street parking
  - Main St festivals
- Douglas Ave route has ideal operating conditions that is likely to be approved by NHTSA (National Highway Traffic Safety Administration)
  - Low traffic speed
  - Existing bus stops
  - Connects Main St area to Dunedin Stadium



# Proposed Route – cont.

- 2 shuttles will be used with 1 attendant for customer safety and feedback per shuttle
- Shuttle will operate on a continuous 1-mile loop primarily along Douglas Ave
- Fare-free service
- Hours of operation will be based on ridership demand and vehicle charge capability
- Project is currently unfunded – PSTA is seeking a FDOT Commuter Assistance Program (CAP) grant with a match provided by PSTA & City of Dunedin
- Proposed operation March - May 2021



# Two Key Discussions

- Turnaround options to be included in NHTSA application
- In-kind match commitment from the City



CUSTOMER



GOVERNANCE

FINANCIALLY  
SUSTAINABLE

CAPITAL



SERVICE



EXPANSION



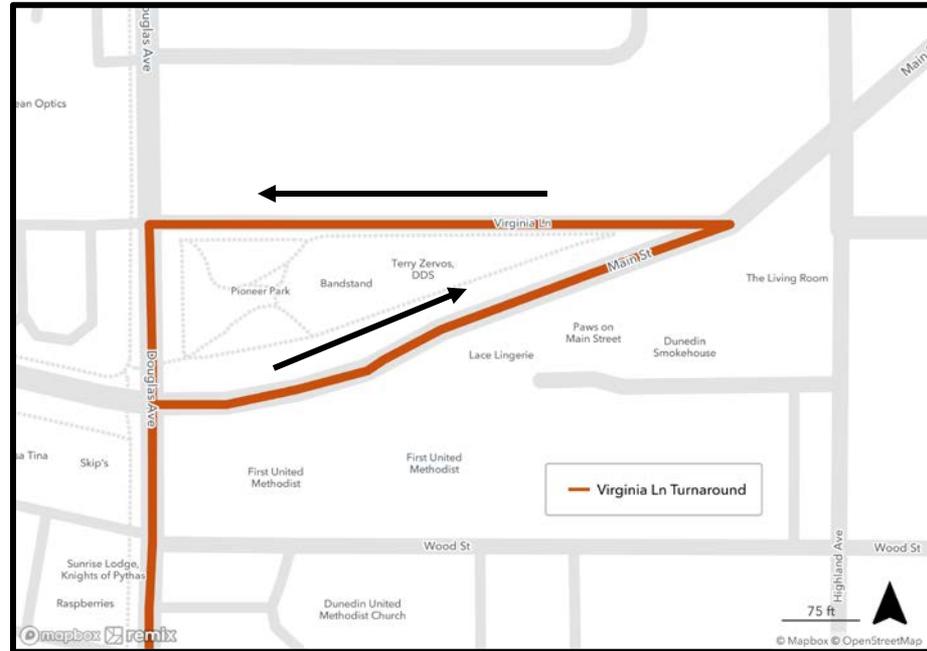
VISIONARY





# Turnaround Option #3 – Virginia Ln

- Serves Main St stop across from Downtown Market
- Least preferred option by operator
- Requires two open left turns

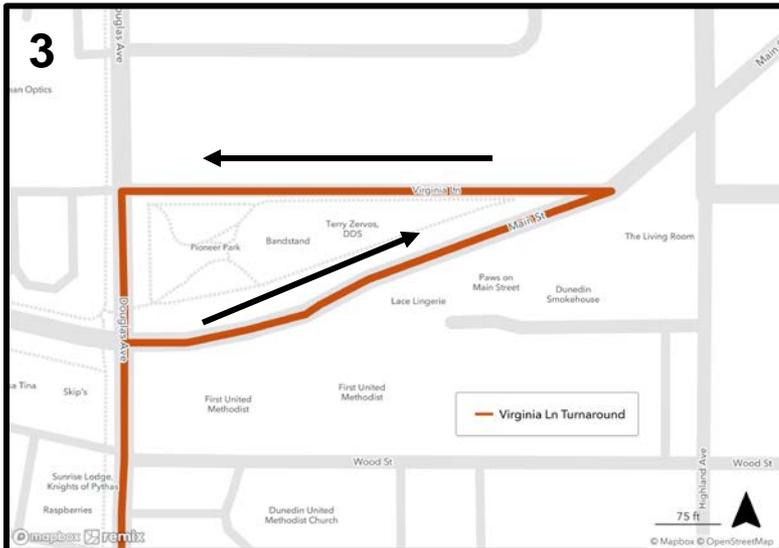
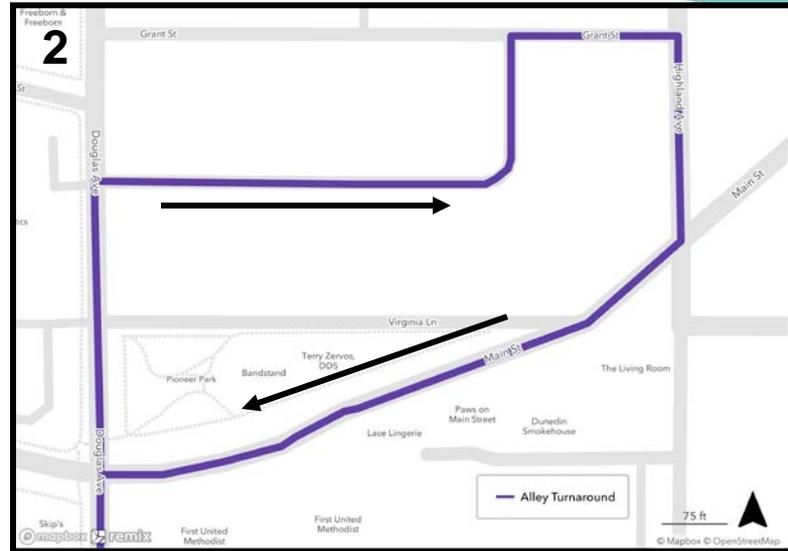
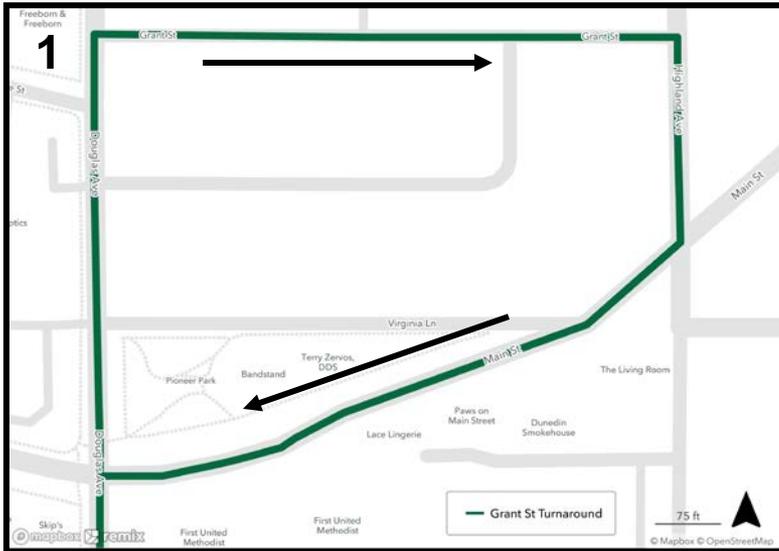


# Turnaround Option #4 – Parking Lot

- Option also recommended by operator
- Shortest turnaround option
- Option would require agreement with parking lot owner



# All Turnaround Options



# Proposed Interlocal Agreement

## City Responsibilities

- Route Infrastructure
  - Trimming trees, patching potholes
  - Secure rooftop for satellite communication equipment
- Stop Infrastructure
  - Ensuring ADA compliance
- Vehicle Storage Location
  - Secure facility with electric for charging vehicles and water for cleaning vehicles
- In-Kind Match (value of above)

## PSTA Responsibilities

- Deploying, maintaining and operating the AV project
- Developing and installing all signage
- Providing emergency response training for the Fire Rescue and Police Departments on the AV vehicles

### Proposed Funding Package:

*FDOT Request: \$200,000*

*Match: Minimum \$40,000 in value*



# COVID-19 Precautions

- Increased cleaning and sanitizing of vehicles
- Maximum vehicle capacity reduced from 10 to 6 and designated seating arrangements
- Requiring face masks for attendants and riders
- In compliance with CDC guidelines and City requirements

