Florida Department of Transportation

Technology, Partnerships and Challenging Business-as-Usual

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Advances in Transportation Technologies

From Horseback to Hyperloop

Pre-1800's	Boats, Horses, and Wagons
	First Toll Road Opens in the U.S. (1794)
1800's	Steamboats Set Sail (1807)
	First U.S. Railroad Charter Granted (1815)
	First Bicycle Invented (1817)
	First U.S. Mass Transportation - Omnibus (1827)
	First Streetcars Emerged in NYC (1832)
	First Steam Engine Two-Wheeled Vehicle (Motorcycle) Invented (1867)
	First Automobile Invented (1885)
1900's	First Powered Aircraft in Flight (1903)
2000's	Autonomous and Connected Vehicles
	Hyperloop??

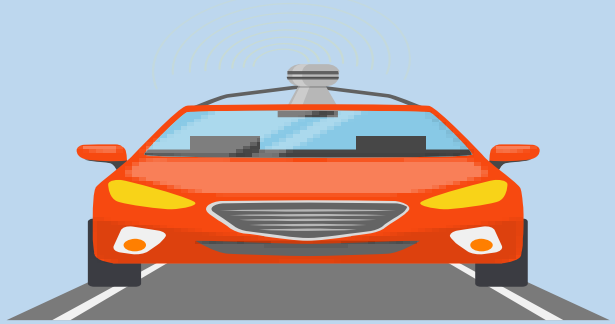
What is on the horizon?

Automated, Connected, Electric, and Shared (ACES)

The Future is NOW!

The Future is . . .

- Automated
- Connected
- Electric
- Shared



Benefits of ACES . . .

Improves Safety

Enhances Mobility

Reduces Congestion

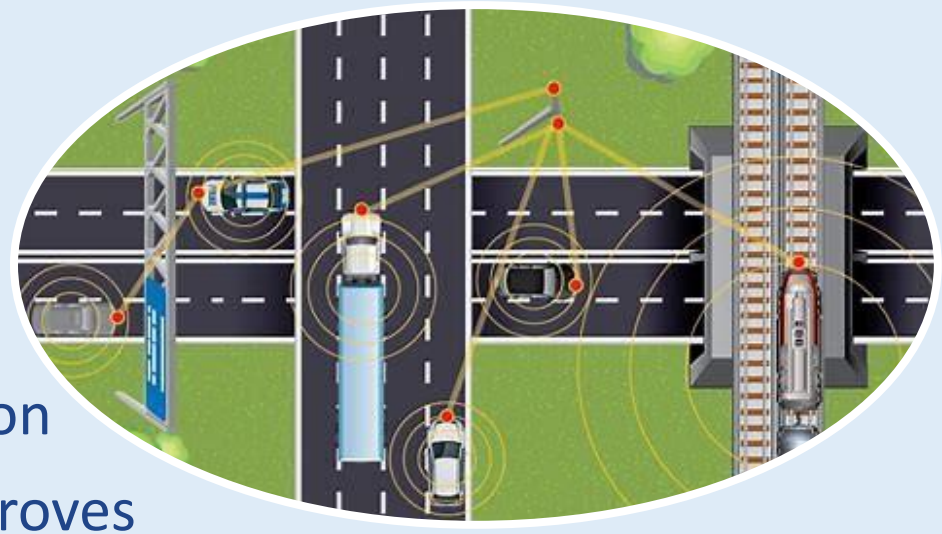
Reduces Environmental Impacts

Automated – Vehicles capable of guiding themselves with little or no human input.
Connected – Vehicles linked to other devices to improve safety or efficiency.
Electric - Vehicles using one or more electric motors for propulsion.
Shared – Vehicles used (not necessarily owned) by more than one person or organization.

FDOT

ACES Opportunities in Transit

- First/Last Mile Solution to Augment Public Transit Networks
- Transit Bus Advanced Driver Assistance Systems
- Mobility-on-demand Service
- Automated Bus Rapid Transit (BRT)
- Transit Signal Priority and Queue Jumps
- Safety Applications for Transit
- Transit Buses are Ideal Candidates for Electrification
- Electrification Costs Go Down as Battery Tech Improves
- Cost Savings Through Public-private Partnerships On Late Night, Call-and-ride, and Paratransit Services
- Possible Alternatives to Unproductive Routes



Challenges and Issues

- Funding
- Infrastructure Upgrade Requirements and Cost
- Changes to Labor
- Regulatory Issues
- Lack of Operational Examples and Guidance
- Liability
- Equity
- Mobility Assistance to Passengers with Disabilities

Role of FDOT

- Facilitator for Implementation
- Funding
- Interagency Coordination
- Policy and Regulation Guidance
- Research
- Safety Oversight
- Technical Support

FDOT is not a developer of technologies! FDOT wants to learn about the impacts and costs of technology and prepare strategies for the future.

Recent Project Partnerships:

- Marion Transitway Automated Vehicles - Hillsborough Area Regional Transit (HART)
- Downtowner - HART
- Uptowner - HART & Tampa Innovation Place (!p)
- Regional Transit Feasibility Plan – HART
- St. Petersburg Autonomous Demonstration - PSTA & City of St. Petersburg
- Hyperlink - HART

Marion Transitway Automated Vehicles

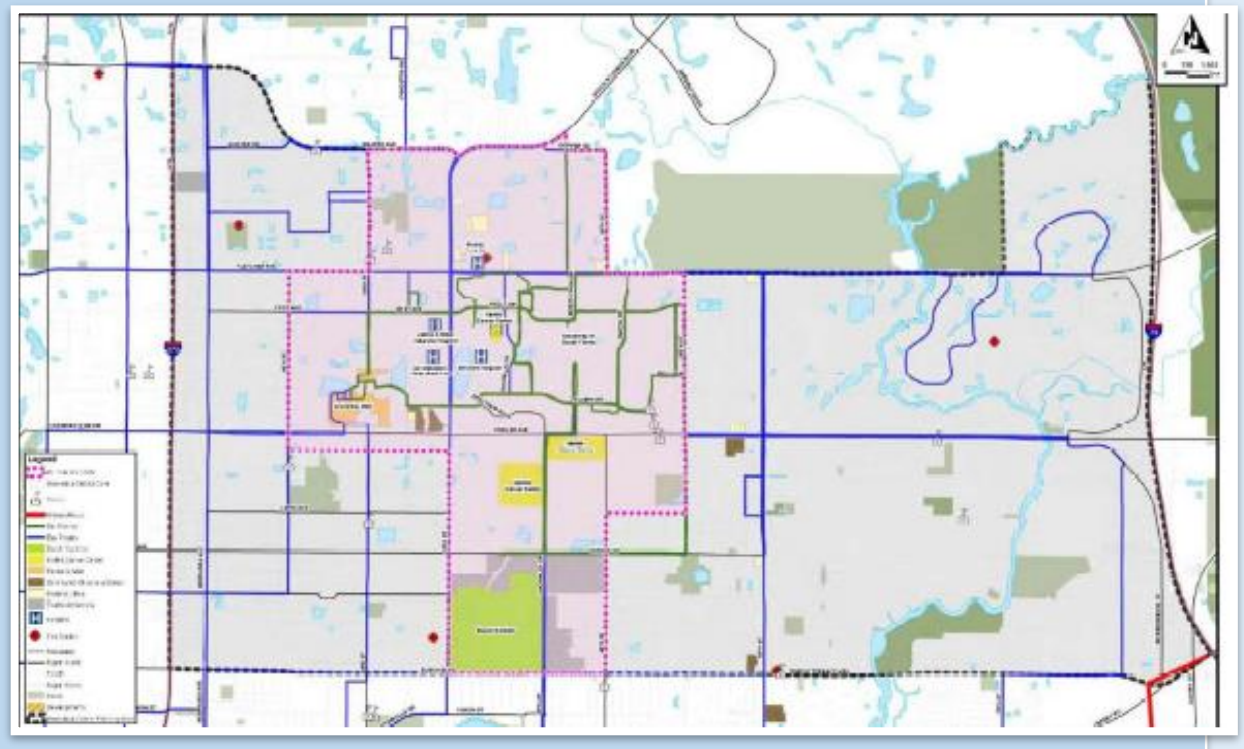
- Partnership Between
  - FDOT
  - City of Tampa
  - HART
- To Operate on the Marion Transitway (0.6 mile)
  - 15 MPH Speed Limit
  - 10 Minute Frequency with Two Vehicles
  - 10 Signalized Intersections
  - Coordinated with THEA CV Project
  - One CSX Track Crossing

Downtowner

- Partnership Between
  - FDOT
  - Tampa Downtown Partnership
  - City of Tampa
- Provides On-Demand Point-to-Point Rideshare Service in Downtown Tampa
- All Electric Vehicles
- Provides First/Last Mile Connections
- Ridership 250,000 in its First Year (2017)
- Free Fare

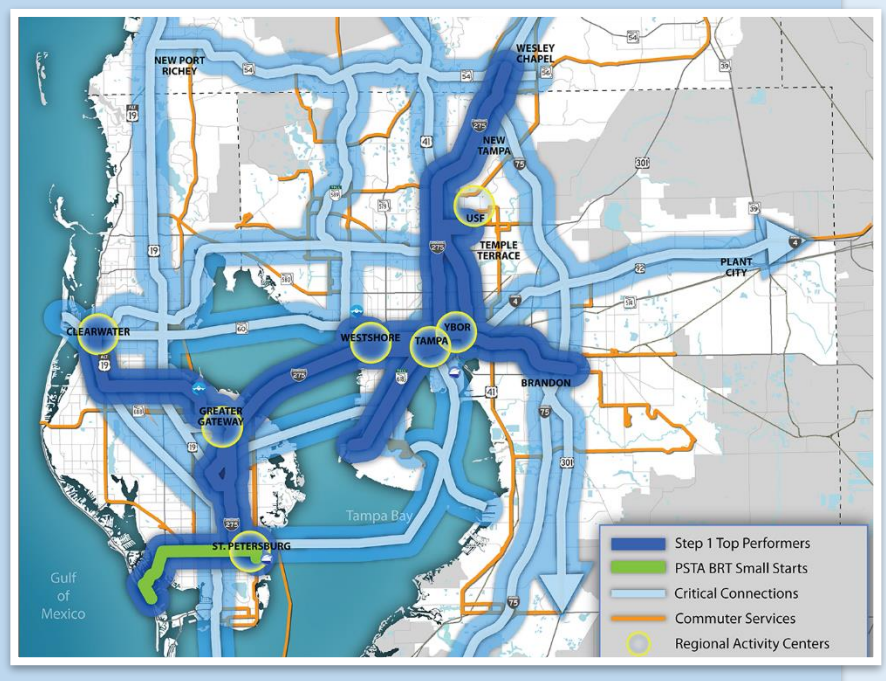
Uptowner

- Partnership Between
  - FDOT
  - !p
  - HART
  - Business Partners
- Will Provide Connectivity Between the University of South Florida, University Mall, Busch Gardens, Area Hospitals, Restaurants, Residential Areas, Businesses
- Free Fare



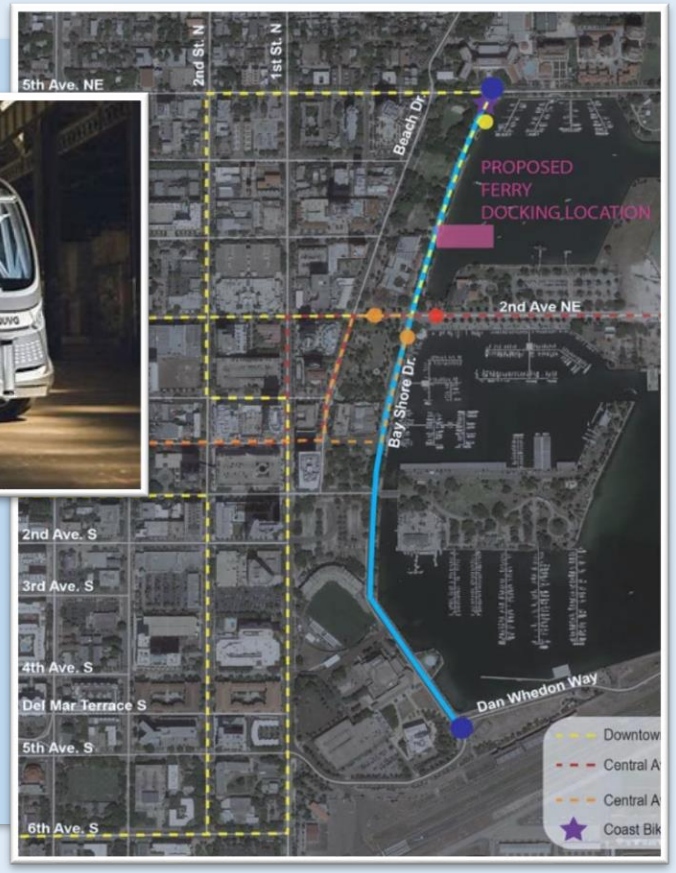
Regional Transit Feasibility Plan

- Partnership Between
  - FDOT
  - HART/PSTA/PCPT
  - TBARTA
  - MPOs and Municipalities
- Regional Study for Regional Connectivity
- Technology and Project Selection in Development
- Consider Opportunity for AV Implantation in the Future



St. Petersburg AV Project

- Partnership Between
  - FDOT
  - City of St. Petersburg
  - PSTA
- Two Autonomous Shuttles – Navya
- Three Month Demonstration Period
  (November 2018 to January 2019)
- Serves First/Last Mile Connections on Bayshore Drive
- Connection to Cross Bay Ferry Service
- Service Provided Seven Days/Week (9 a.m. to 9 p.m.)



Hyperlink

- Partnership Between
  - FDOT
  - HART
  - City of Tampa
  - Tesla
  - University Area Stakeholders
- Pilot Program with Driverless Potential
- $3 Fare
- First/Last Mile Connectivity (3-mile radius of bus station)
- Service Ended July 31, 2018

FDOT collaborates with a variety of partners to prepare for advances in transportation technology!

QUESTIONS?