City of Tampa
Florida

Tampa's ACES Initiatives

Vik Bhide
Smart Mobility Division

Tampa Bay - Transportation Challenges

Growing Traffic Congestion

Urban Sprawl

Few Public Transit Options
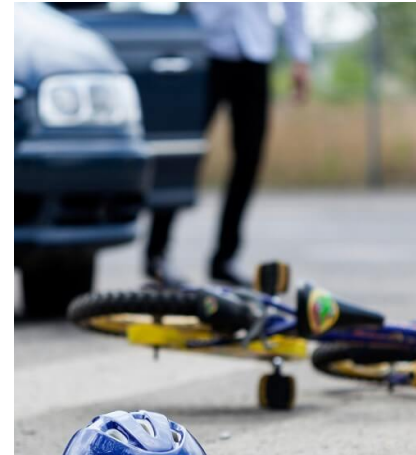
Bike & Pedestrian Safety

Environmental Quality

12th Worst in US

Long Commutes

Lack of Funding

#7 least safe City

A City on the Bay

Smart City Tampa : ACES

- Context
- Current Projects
- Future Concepts

Smart City : ACES Context

- Urbanization
- Demographics
- Climate Change
- Safety
- Technology

CONTEXT

Key Technologies Enabling ACES

- IoT Sensors
- 5G Communications
- Faster Processors
- Artificial Intelligence
- Shared Mobility Services
- Battery & Solar Tech

CONTEXT

Mobility as a Service (MaaS)

- Significant Investment in Mobility Services

- **Cost/mile - $0.35 AV vs $0.7 personal cars**

- User-focused mobility packages – more choices

- Safer, more efficient, greener roads
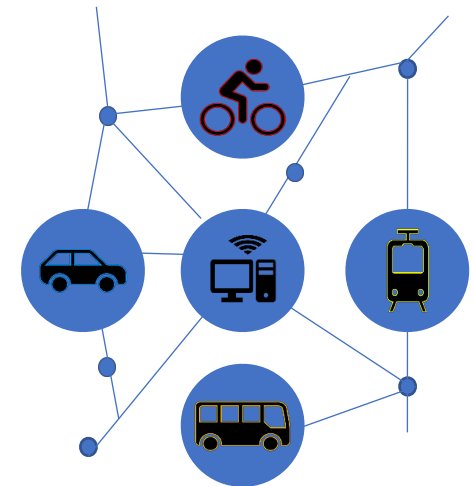
Goals

- Competitive Advantage
- Quality of Life
- Pedestrian & Bicycle Safety
- User-Focused Services
- Congestion Mitigation
- Vulnerable Communities
- Resiliency
- Port & Airport Operations & Security

FRAMEWORK
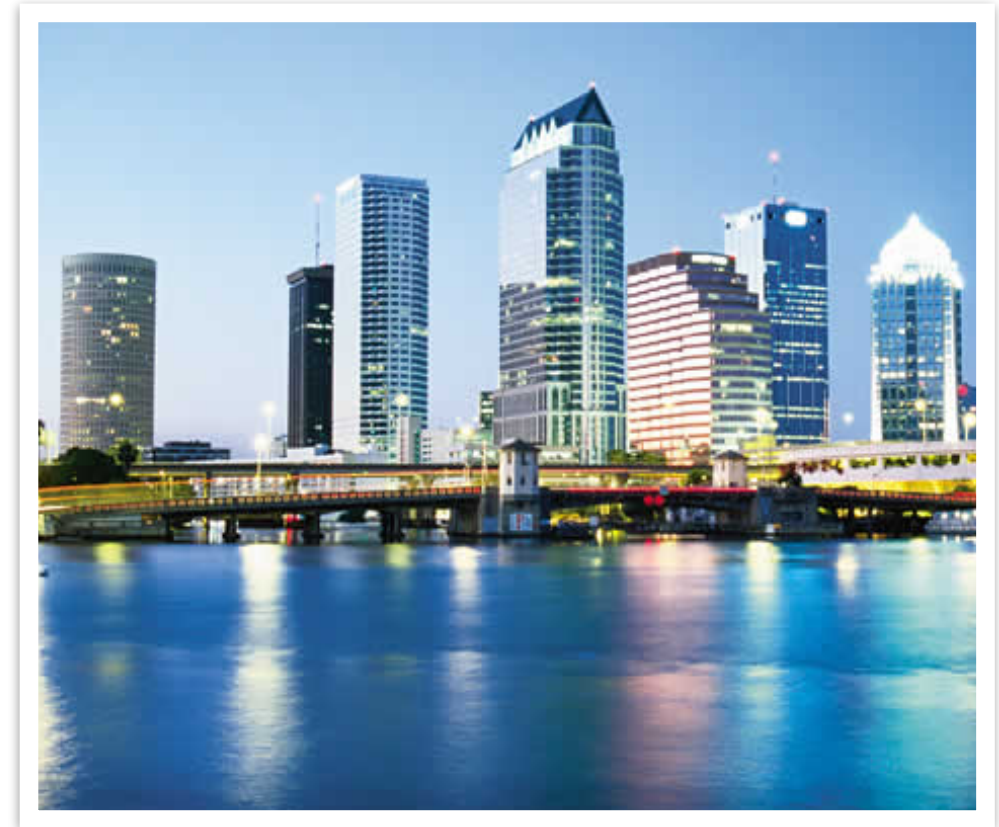
Tampa Bay Smart Cities Alliance

- Public, Private, Academic Alliance
- Focus Areas
  - *Mobility as a Service*
  - *Regional Data Platform*
  - *Reimagining Infrastructure*
- USF - Tampa MOU
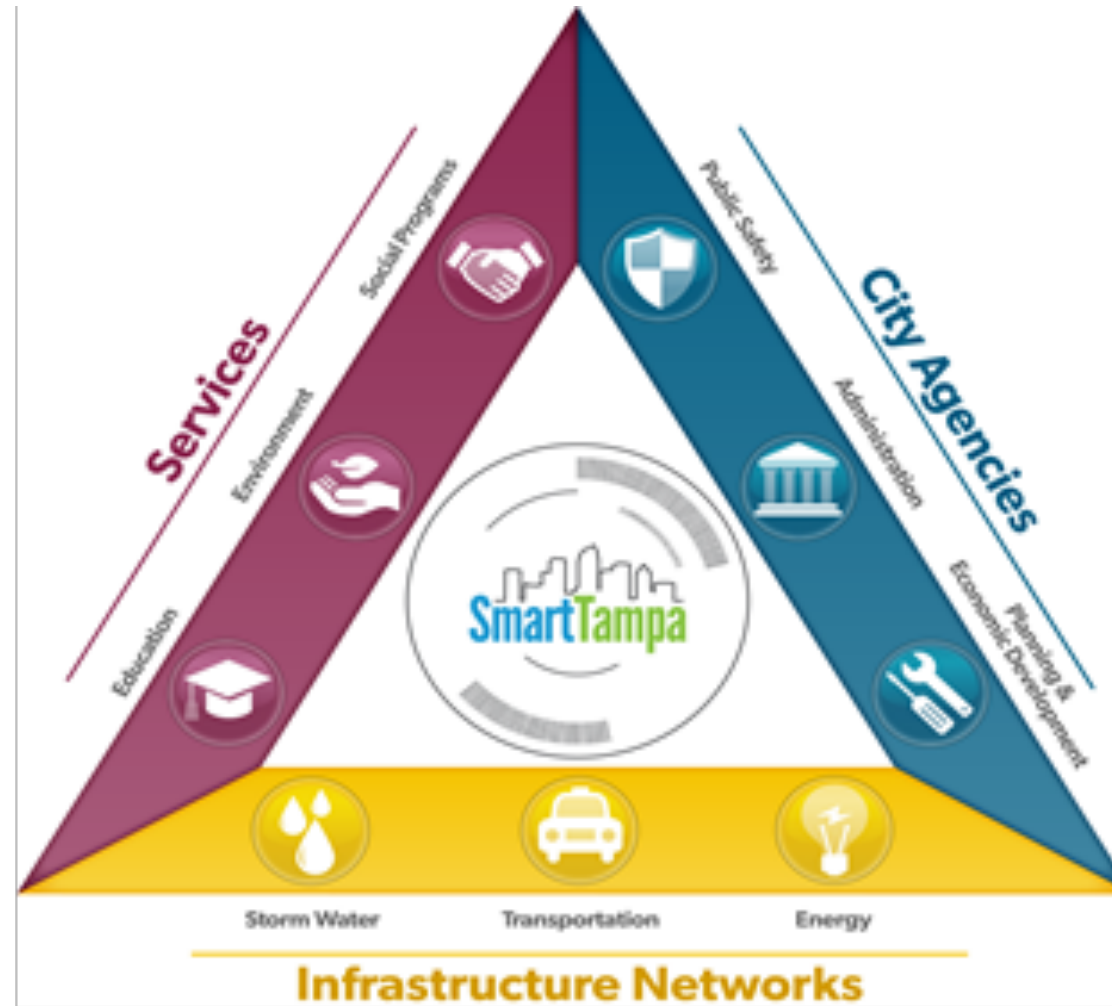- CUTR - Smart Mobility Lab
- MetroLab Network

Partners

PUBLIC

City
FDOT
Hillsborough
Pinellas
Pasco
HART
PSTA
MPOs
Port Tampa
TBARTA
THEA
TIA
USF/CUTR

PRIVATE

SPP, TECO, Tech Data, Waze, Verizon, Cisco, Waycare, Microsoft, Uber, Lyft, CycleHop, Econolite, Miovision, TDP, Westshore Alliance, Traffic Cast, TTS, AARP, ZipCar, …. and many more
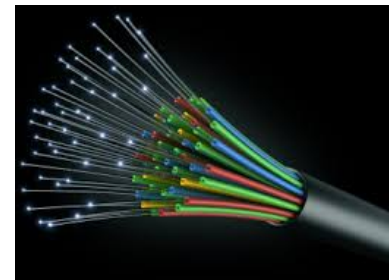

FRAMEWORK

Advanced Traffic Management System (ATMS)

- Traffic management system upgrade

- Three phases total

- Over 400 traffic signals
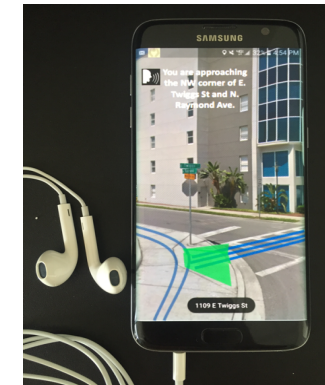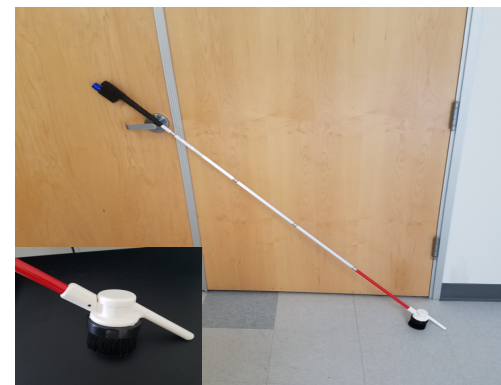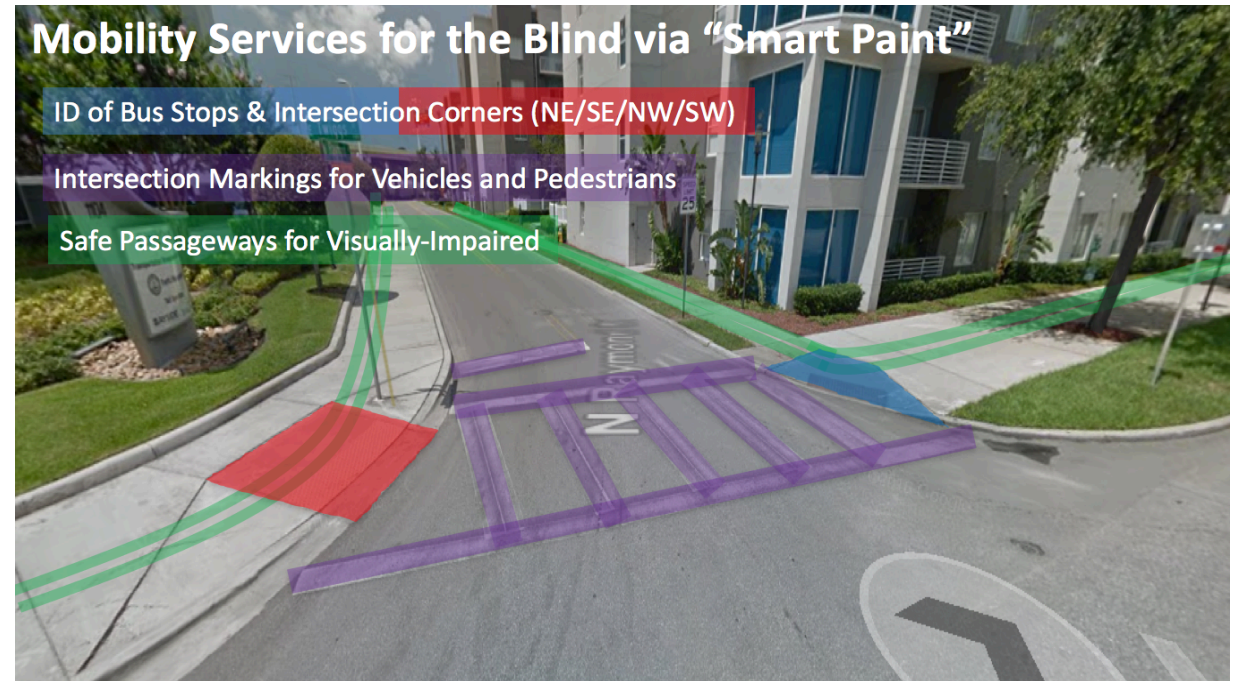
- $40 million funding

Tampa Smart Paint Project

- PPA Effort

- Enhances Pedestrian Safety

- Paint w/ Embedded Messaging

- Downtown, USF Campus, South Tampa

- Future Applications
  - *Place Call on Traffic Signal*
  - *CV Notifications*
  - *Indoor Ped Navigation*
  - *AV Guidance*
  - *Work Zone Safety*

Mobility Services for the Blind via "Smart Paint"

ID of Bus Stops & Intersection Corners (NE/SE/NW/SW)

Intersection Markings for Vehicles and Pedestrians

Safe Passageways for Visually-Impaired

PROJECTS

Crowd Sourced Data
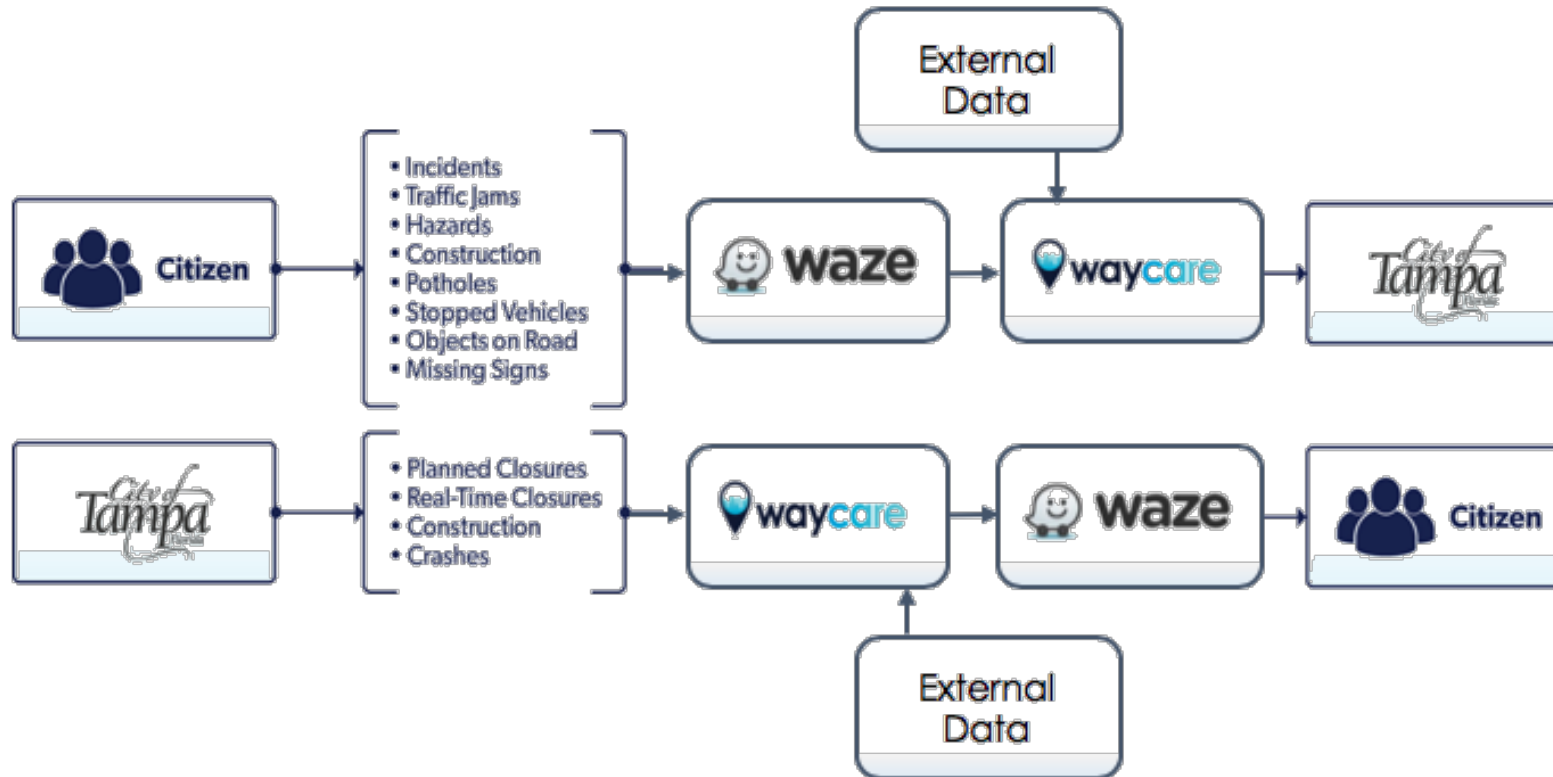
100+ cities in Waze Connected Communities Program…Tampa was 1st City in Florida

CV Demo - TTS

- Cellular-V2X
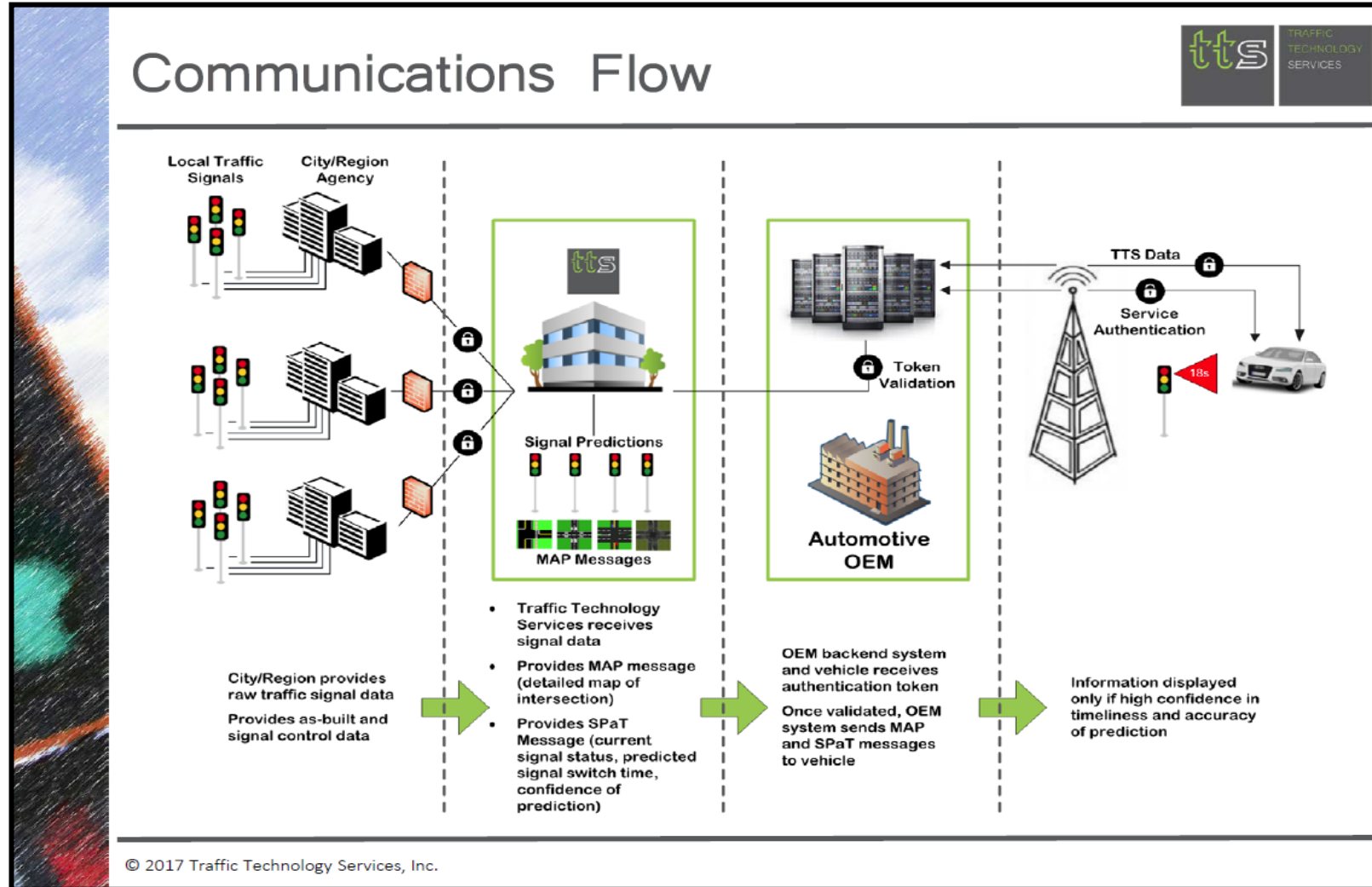- In-vehicle Traffic Signal Data
- Safety Warnings
- Signal Change Alerts

Communications Flow

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Tampa CV Pilot

- 40 DSRC Roadside Units
- 1600 Vehicles
- 10 Streetcars
- 10 Buses
- 500 Personal Devices
- 12 V2V, V2I and V2P apps
- Detection Equipment
- Management Platform
- Agency Data

PROJECTS

Focused Deployment Area

Traffic Flow Optimization/ Bus Priority

Traffic Flow Optimization

Pedestrian Safety

Traffic Flow Optimization

Rush Hour Collision Avoidance

Wrong-Way Entry Prevention

Traffic Management

Traffic Flow Optimization

Pedestrian Safety

Streetcar Safety
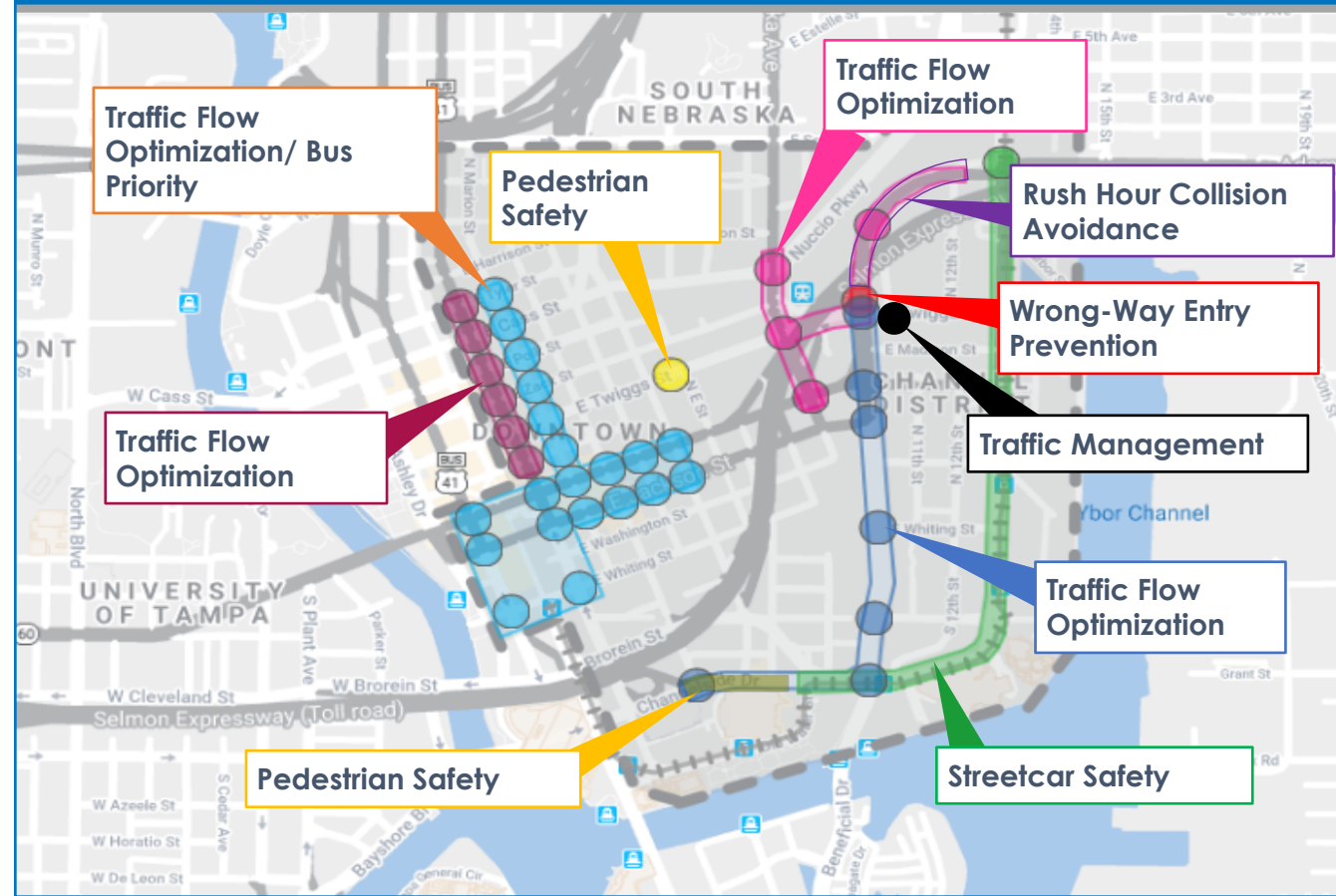
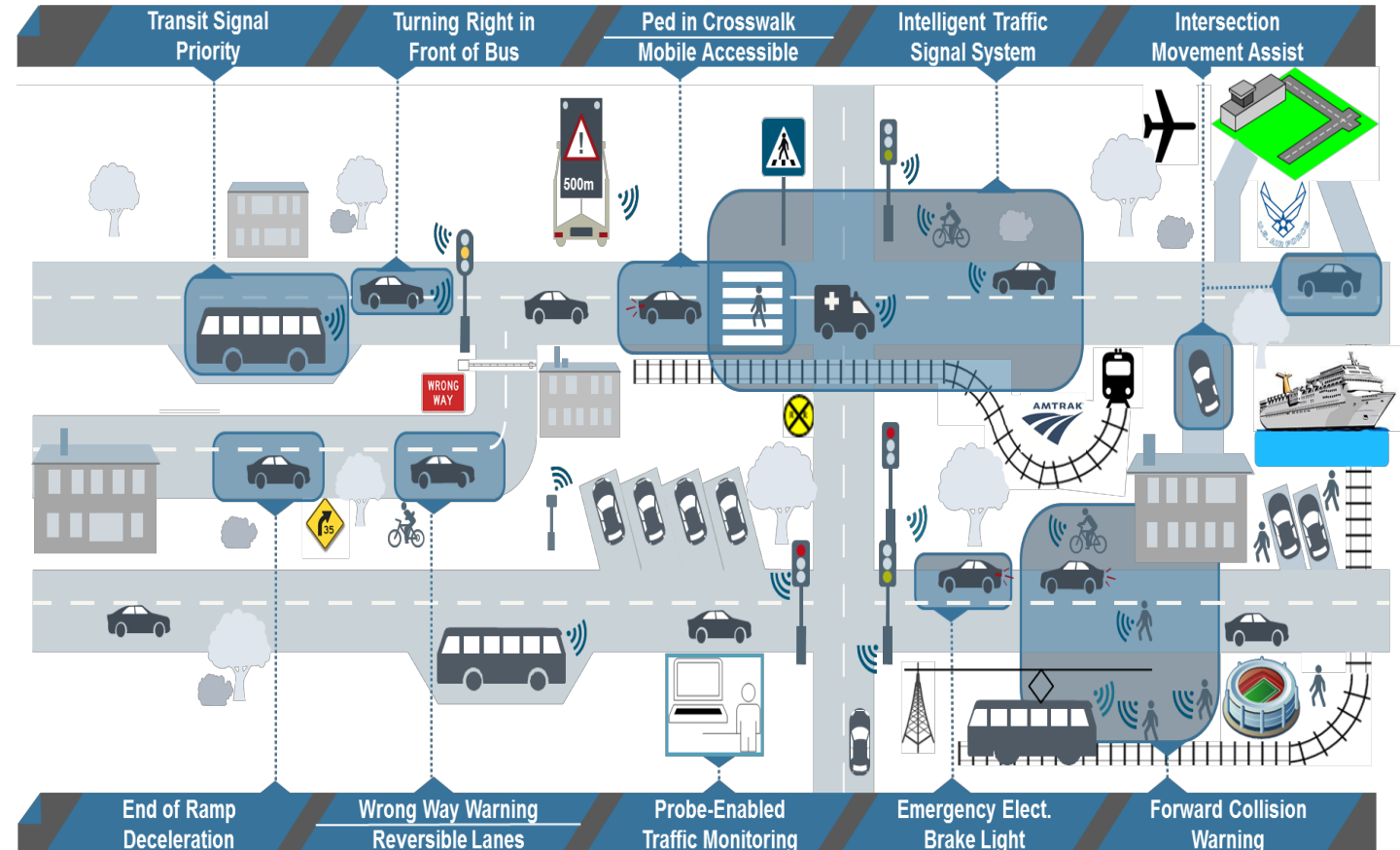# CV Pilot Overview

- Pedestrian Safety
- Traffic Management
- Transit Efficiency
- Collision Avoidance
- Wrong-Way Driver Alerts

Autonomous Vehicle Service (AV)

- HART AV shuttle service along Marion Street Transit Way

- One of 1st planned AV shuttle services in US

- Safety technology built into shuttle will reduce accidents to riders, pedestrians and bicyclists
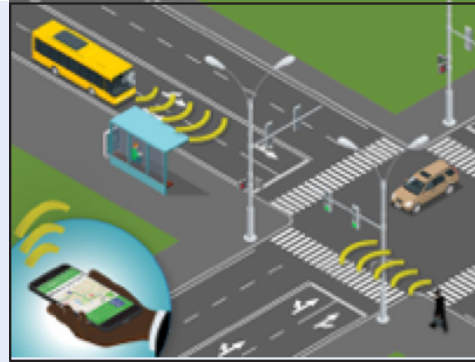
- Sustainable introduction of AVs to Tampa

PROJECTS

Mobility as a Service (MaaS) Platform

EXPAND OBA
(OneBusAway) TO MULTIPLE
TRAVEL MODES

TRIP PLANNING TOOL

KIOSKS AND MOBILITY HUBS

"We're interested in having OneBusAway be as useful for as many people as possible…. We are looking at how we make it more user-friendly for blind and low vision riders."
– *Alan Borning, Computer Science and Engineering Professor involved in creating original OneBusAway App*

WHY DOES TAMPA NEED IT?

- Diversify Mode Options
- Reduce Single-Occupant Vehicle Trips
- Manage Traffic Congestion

WHAT ARE THE BENEFITS?

- Lower Software Costs
- Benefits Vulnerable Populations
- Enhanced Mobility Services & Trip Planning

CONCEPTS

"OneBusAway has had a real-world impact and will definitely make people's lives easier in terms of accessing transit." – *Sean Barbeau, University of South Florida Center for Urban Transportation Research*

Integrated Corridor Management (ICM)

CV INFRASTRUCTURE

EMERGENCY VEHICLE PRE-EMPTION & TRANSIT SIGNAL PRIORITY

INCIDENT MANAGEMENT

CONGESTION REDUCTION & ROUTE GUIDANCE

TRAVELER INFORMATION

PREDICTIVE ANALYTICS

WHY DOES TAMPA NEED IT?

- 12th Worst Congestion in US
- High Crash Rates
- Fosters Economic Development & Enhances Mobility

WHAT ARE THE BENEFITS?

- Anticipated B:C = 9.7:1
- Reduce Emissions
- Real Time Demand and Network Optimization

CONCEPTS

Key Achievements

Project	Achievement	Partners
CV Pilot	1st Suburban Pilot in the US	THEA, City, USF, HART, FDOT, FHWA
Smart District	1st WELL Certified Area in FL	SPP, City
Smart Paint	1st Deployment in US	City, HART, Lighthouse, USF, OSU
Waze	1st City in Florida on CCP	City

Tampa Informs the State-of-the-Practice

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