CONNECTED VEHICLE PILOT DEPLOYMENT PROGRAM

October 10, 2016
Presentation

- Concept
- Pilot Location
- Needs and Use Cases
- Application Overview
Demonstrate and measure the impact of Connected Vehicle technology’s ability to make multi-modal transportation in the Tampa Bay Community safer, smarter and greener.

- Safety
- Mobility
- Connectivity
- Partnerships/Collaboration
- Community
- Innovation
Expanded Stakeholder Impact Area
Focused Pilot Deployment Area

Corridor Treatment Areas

- Channelside Drive
- Meridian Avenue
- Twiggs Street
- Kennedy BLVD
- Marion Street
Needs and Use Cases
Use Case 1 – Morning Peak Hour Queues

- Reduce congestion/queuing on REL curve exit
- Reduce rear end and lane departure crashes
- Improve traffic movement
- Curve Speed Warning (CSW)
- Forward Collision Warning (FCW)
- Emergency Electronic Brake Light (EEBL)
- Intelligent Signal System (I-Sig)
Use Case 2 - Wrong Way Entries

- Warn wrong way driver
- Warn approaching "right way" driver(s)
- Communicate wrong way driver to law enforcement

NEEDS

- I-Sig
- Red Light Violation Warning
- Intersection Movement Assist

APPS
Use Case 3 – Pedestrian Safety

- Reduce pedestrian/vehicle collision
- Reduce pedestrian/vehicle near misses

NEEDS

APPS
Use Case 4 – Bus Rapid Transit Signal Priority Optimization, Trip Times and Safety

• Improve bus schedule performance
• I-Sig
• Transit Signal Priority

NEEDS

APPS
Use Case 5 – TECO Line Streetcar Conflicts

- Reduce trolley/vehicle collisions
- Reduce trolley/vehicle near misses

NEEDS

APPS

Vehicle Turning Right in Front of Transit (Trolley)
Use Case 6 – Enhanced Signal Coordination and Traffic Progression

- Improve drivers (commuters) travel times
- Improve pedestrian safety
- I-Sig
- PED-SIG
- PED-X
- Probe Enabled Traffic Monitoring

NEEDS

APPS
CV Apps Adaptation

- **Forward Collision Warning (FCW)**
  - Used as designed
- **Emergency Electronic Brake Light (EEBL) Warning**
  - Used as designed
- **Curve Speed Warning (CSW)**
  - Used as designed,
    - *with input scaled to safe stopping distance*
- **Intersection Movement Assist (IMA)**
  - Used as Designed
- **Red LightViolation Warning (RLVW)**
  - Used as designed to predict violation, plus added TIM warnings:
    - Before vehicle enters a closed ramp
    - To oncoming traffic when vehicle enters closed ramp
    - To Master Server when vehicle enters closed ramp for Law Enforcement
    - Warnings canceled when wrong-way vehicle exits or reverses direction
CV Apps Adaptation

- **Intelligent Traffic Signal System (I-SIG)**
  - Used as mathematically designed, plus:
    - Hard-coded site-specific test constants become configurable fields
    - Manufacture-specific constants become configurable fields
    - Generalize the hard-coded, fixed-phase sequences to configurable fields
- **Probe Enabled Data Monitoring (PeDM) or Vehicle Data for Traffic Operations (VDTO)**
  - Aggregate incremental BSM movements to travel time, incidents
- **Pedestrian in signalized crosswalk warning**
  - Translate WiFi PSM to DSRC BSM for FCW and IMA
- **Mobile Accessible Pedestrian Signal System (PED-SIG)**
  - Used as designed
CV Apps Adaptation

- Transit Signal Priority (TSP)
  - Used as designed, plus:
    - Vehicle Identification Number (VIN) authenticated by HART central
    - Priority Request selectively granted or blocked by HART central
- Vehicle Turning Right in Front of Bus (VTRFB) Definition-
  - Used as designed except Transit vehicle is a trolley
- Transit Signal Priority (TSP)
  - Used as designed, plus:
    - Vehicle Identification Number (VIN) authenticated by HART central
    - Priority Request selectively granted or blocked by HART central
- Vehicle Turning Right in Front of Bus (VTRFB) Definition-
  - Transit vehicle is a trolley
For More Information

Robert M. Frey, AICP
Planning Director
Tampa-Hillsborough County
Expressway Authority
1104 East Twiggs Street,
Suite 300
Tampa, Florida 33602
(813) 272-6740, Ext. 203
bobf@tampa-xway.com

Steve Novosad
System Engineering Lead
(210) 541-1969
snovosad@hntb.com
Questions?