



Tampa Regional Planning Council Presentation

CONNECTED VEHICLE PILOT DEPLOYMENT PROGRAM

FLORIDA! A Bold Vision

THEA – Who Are We?



Strategic Blueprint Overview

Mission

Our mission is to provide safe, reliable, and financially-sustainable transportation services to the Tampa Bay region while reinvesting customer-based revenues back into the community.

Vision

Our vision is to lead, partner, and implement safe, economically-sound, and innovative multi-modal transportation solutions for our Tampa Bay community.

Goals

1. Build upon Operational and Financial Excellence

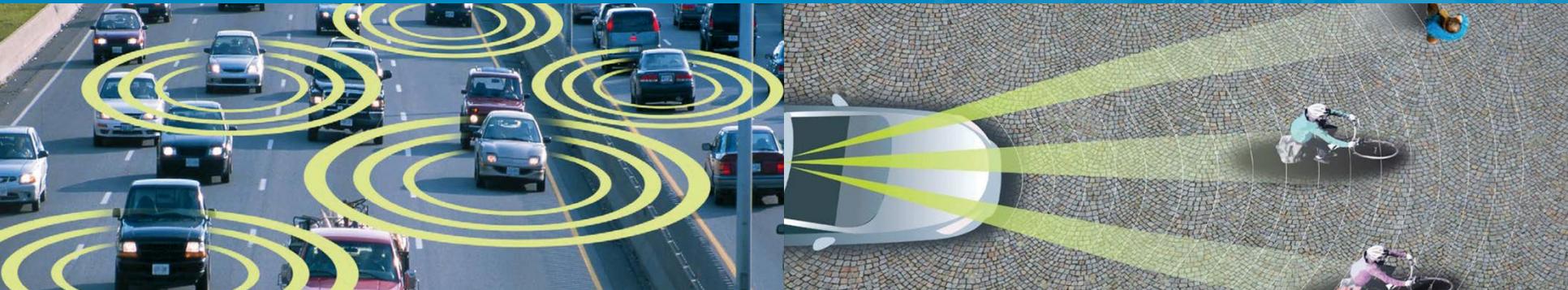
2. Position THEA as a Leader in Regional Transportation

3. Strengthen Customer, Community, & Stakeholder Relations

4. Prepare THEA's Staff & Board for Future Expansion

CONNECTED VEHICLE TECHNOLOGIES

*Advances that will Transform
Life, Business and Global Economy*



CV Proposal Lessons Learned

COLLABORATION

INNOVATION

OBJECTIVITY

OPPORTUNITY

Collaboration

Test Bed for Connected Vehicle (CV), Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) Systems



CITY OF TAMPA – TRAFFIC MANAGEMENT CENTER

Innovation

Test Bed for Connected Vehicle (CV), Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) Systems



SELMON EXPRESSWAY

Objectivity

Partnerships with CUTR - USF and Booz Allen Hamilton provide framework for meaningful evaluation...

MOBILITY

Travel Time and Reliability,
Transit Ridership,
Congestion Impact

SAFETY

Wrong Way Incidents, Transit/
Auto/Pedestrian Conflicts,
Application Acceptance

EMISSIONS

Impact on Criteria and Non-Criteria
Pollutants

EFFICIENCY

City TMC Operation Enhancements,
Transit Agency Scheduling and
Routing, REL Operation

EXAMPLES OF CONTEMPLATED METRICS

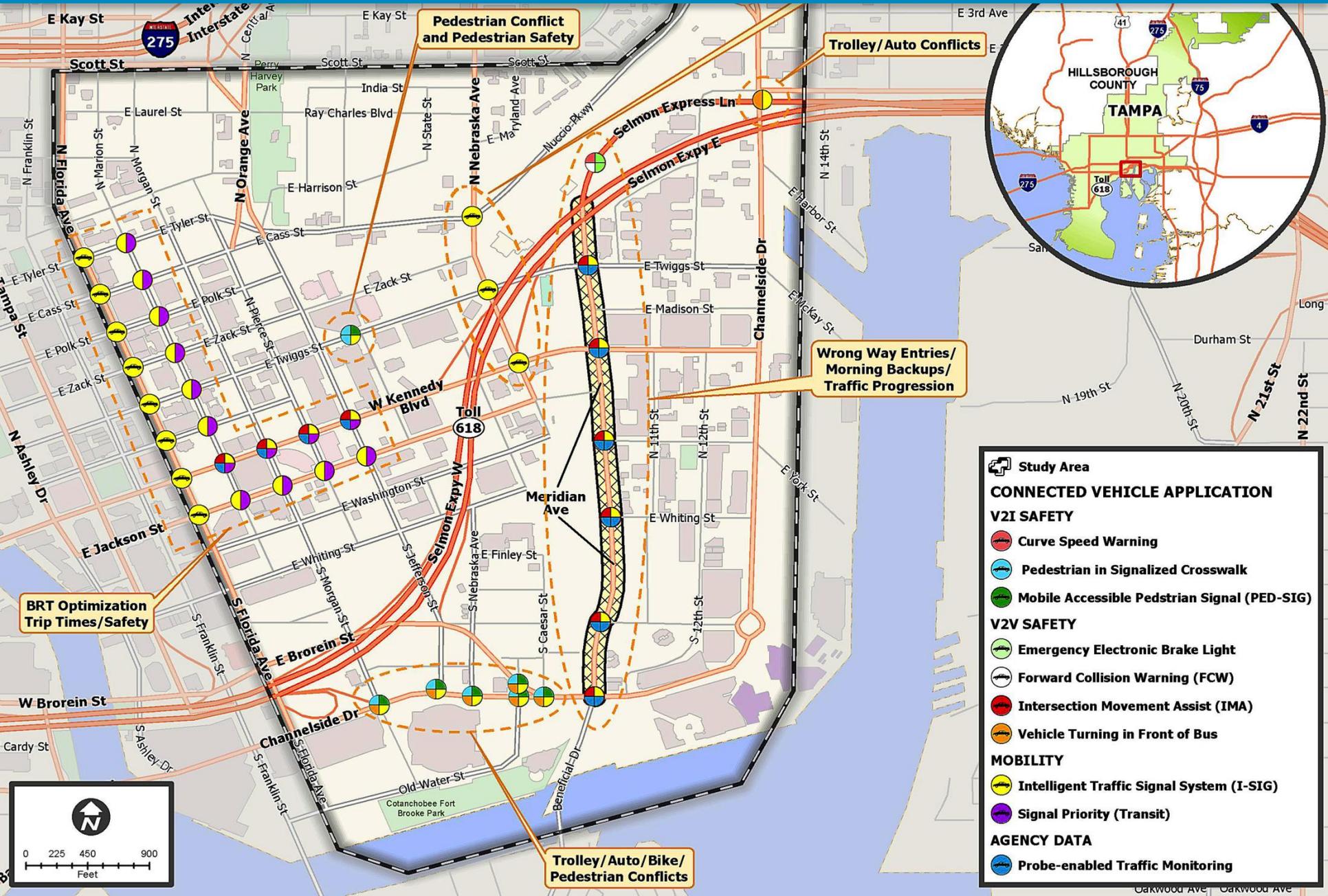
Opportunities

Test Bed for Connected Vehicle (CV), Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) Systems



MERIDIAN AVENUE AND BRANDON PARKWAY

CONNECTED VEHICLE PILOT DEPLOYMENT – DOWNTOWN TAMPA



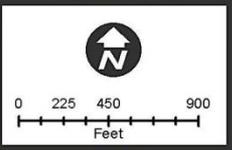
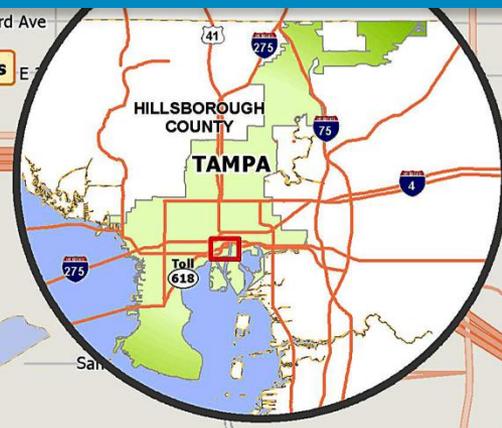
BRT Optimization Trip Times/Safety

Pedestrian Conflict and Pedestrian Safety

Trolley/Auto Conflicts

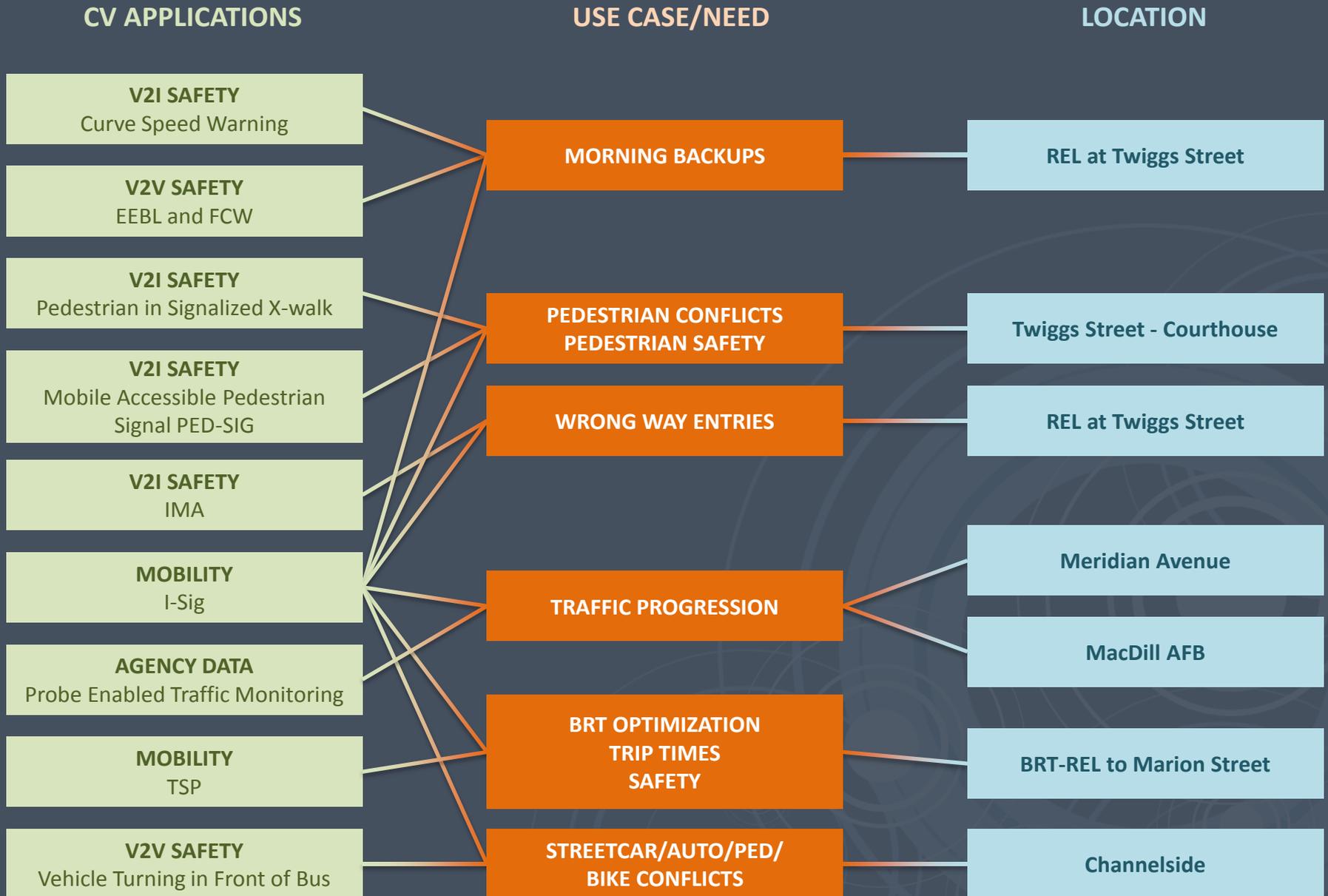
Wrong Way Entries/Morning Backups/Traffic Progression

Trolley/Auto/Bike/Pedestrian Conflicts



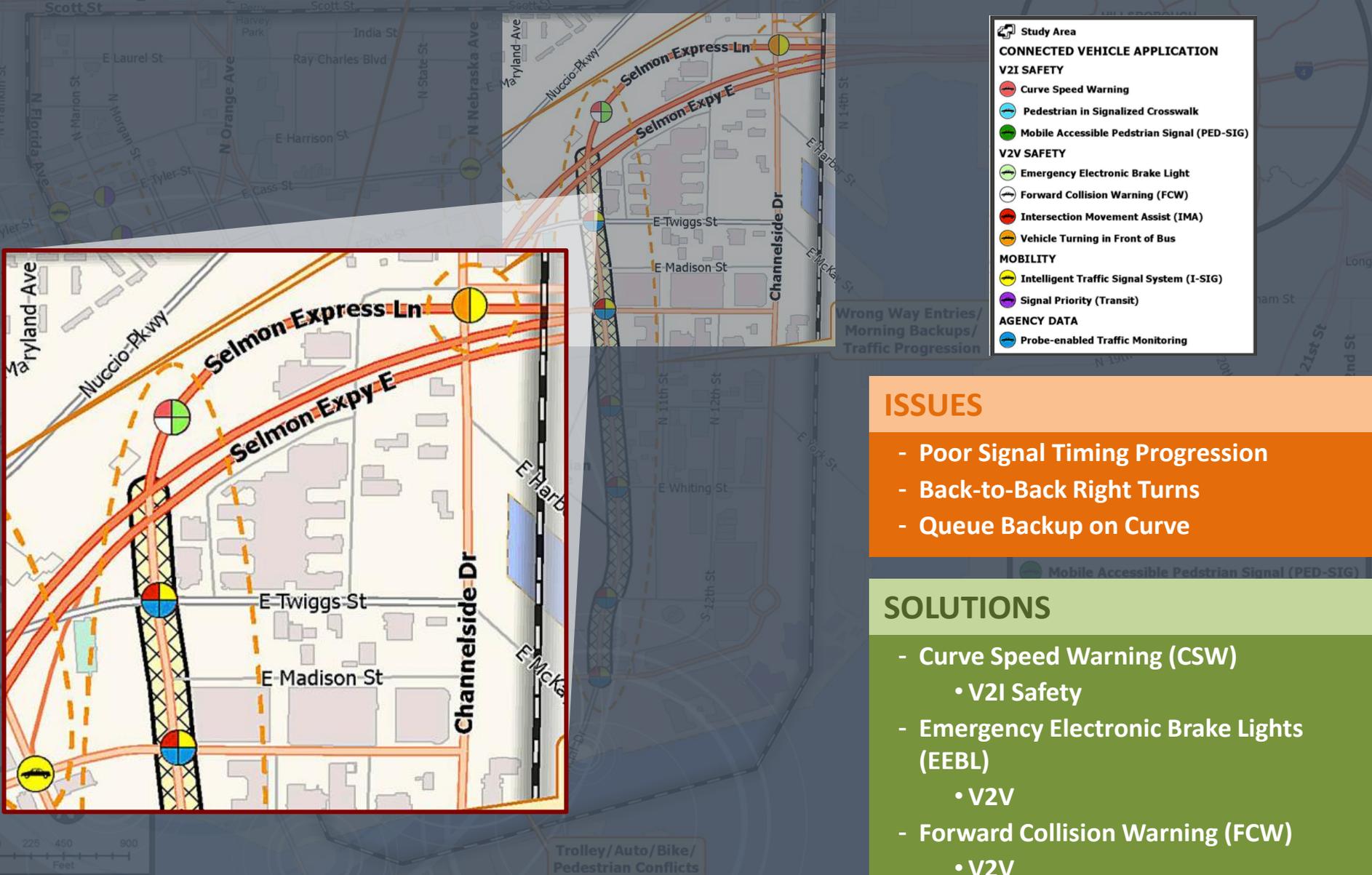
Oakwood Ave Oakwood Ave

PILOT DEPLOYMENT ISSUES AND APPLICATIONS RELATIONSHIP



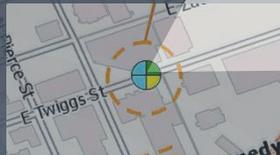
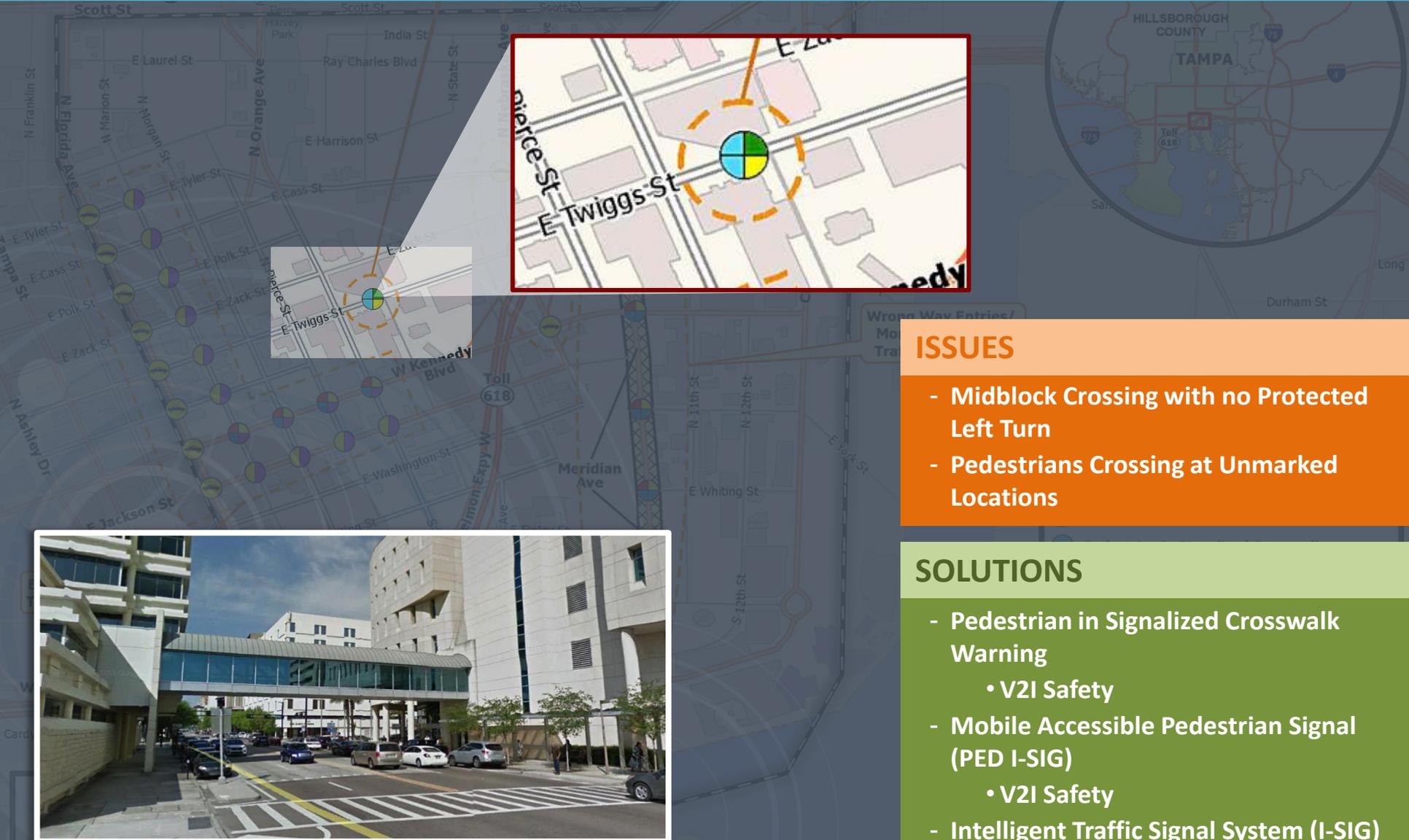
MORNING PEAK HOUR QUEUES

Intersection of Twiggs Street and Meridian Avenue at Reversible Express Lanes Entrance/Exit



PEDESTRIAN SAFETY

Midblock of Twiggs Street at Hillsborough County Courthouse



ISSUES

- Midblock Crossing with no Protected Left Turn
- Pedestrians Crossing at Unmarked Locations

SOLUTIONS

- Pedestrian in Signalized Crosswalk Warning
 - V2I Safety
- Mobile Accessible Pedestrian Signal (PED I-SIG)
 - V2I Safety
- Intelligent Traffic Signal System (I-SIG)
 - Mobility

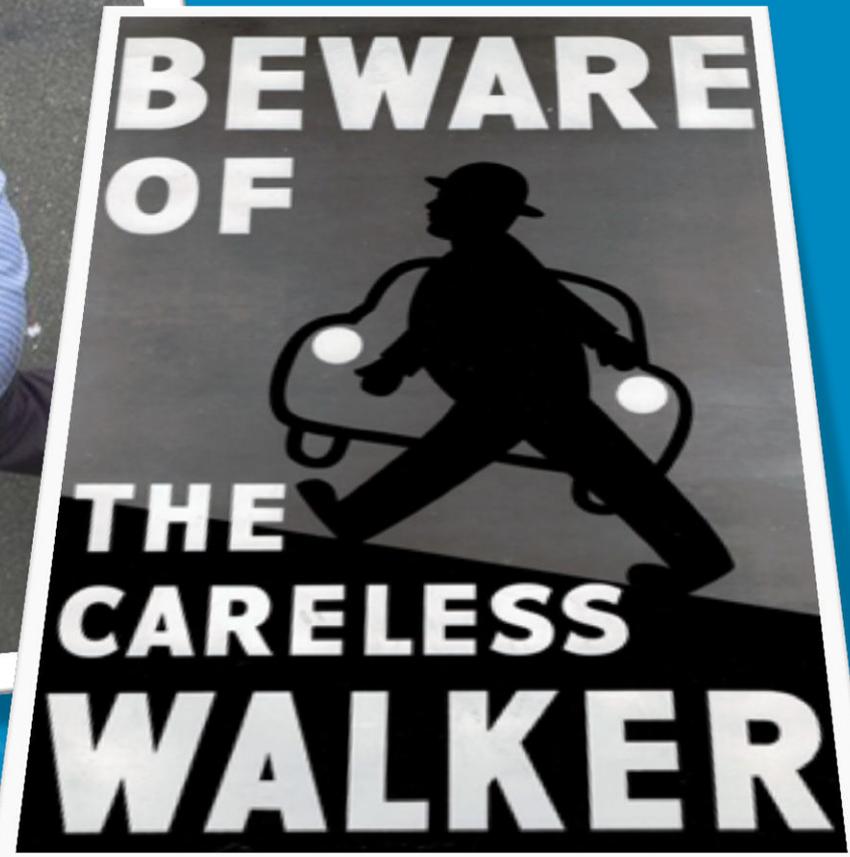


Trolley/Auto/Bike/
Pedestrian Conflicts

SAFER & SMARTER



**TEXTING
WHILE
WALKING**



**BEWARE
OF
THE
CARELESS
WALKER**

No Service



WARNING!



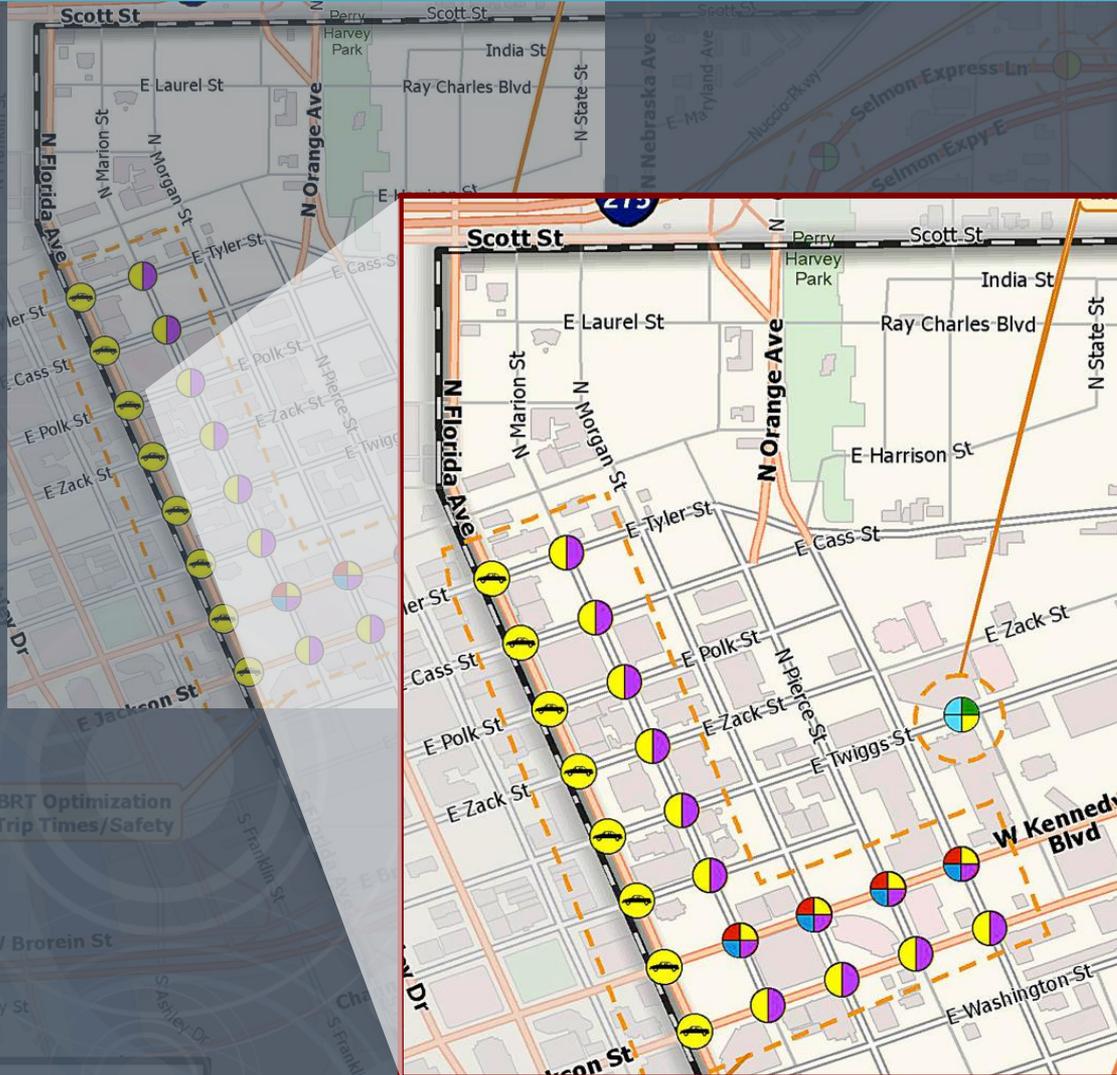
Car Approaching



slide for emergency

BRT/TRANSIT SIGNAL PRIORITY, OPTIMIZATION AND SAFETY

Express Route through Downtown City Streets to Marion Street Transit Station



Study Area

CONNECTED VEHICLE APPLICATION

V2I SAFETY

- Curve Speed Warning
- Pedestrian in Signalized Crosswalk
- Mobile Accessible Pedestrian Signal (PED-SIG)

V2V SAFETY

- Emergency Electronic Brake Light
- Forward Collision Warning (FCW)
- Intersection Movement Assist (IMA)
- Vehicle Turning in Front of Bus

MOBILITY

- Intelligent Traffic Signal System (I-SIG)
- Signal Priority (Transit)

AGENCY DATA

- Probe-enabled Traffic Monitoring

ISSUES

- Poor Signal Timing Progression
- Passenger Vehicles Blocking Access to Stops

SOLUTIONS

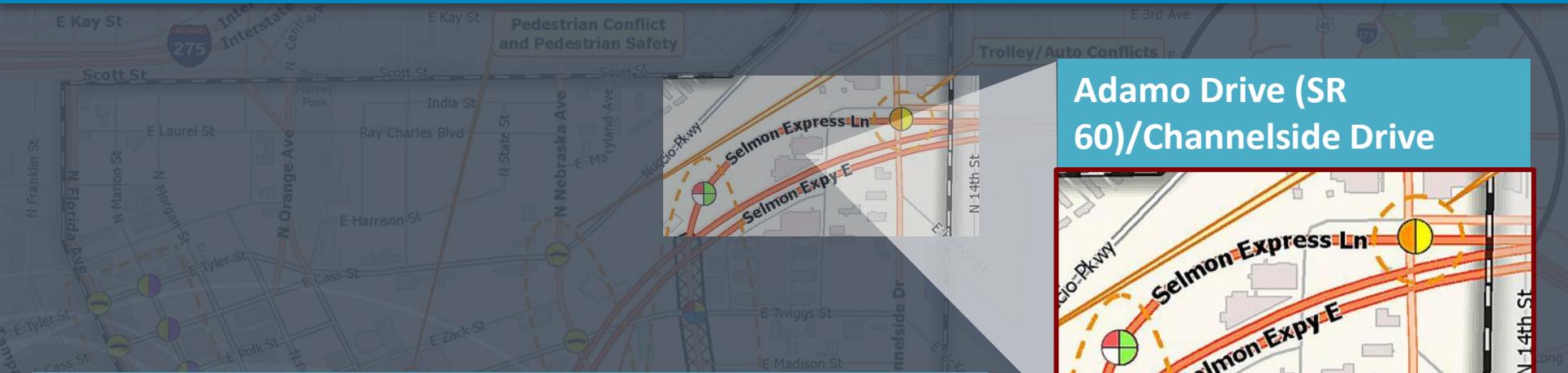
- Intelligent Traffic Signal System (I-SIG)
 - Mobility
- Transit Signal Priority (TSP)
 - Mobility

BRT Optimization
Trip Times/Safety

Trolley/Auto/Bike/
Pedestrian Conflicts



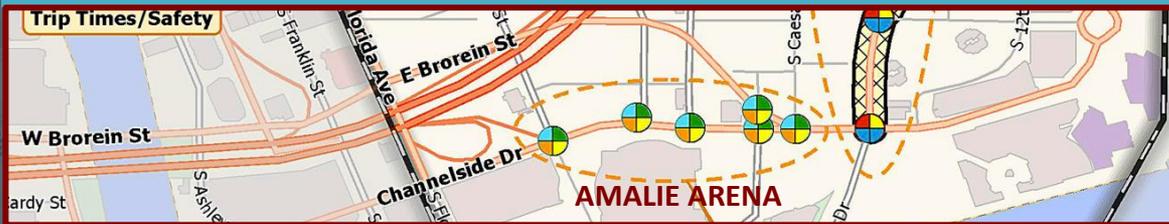
TECO LINE STREETCAR CONFLICTS



Adamo Drive (SR 60)/Channelside Drive



Amalie Arena/Channelside Drive Area

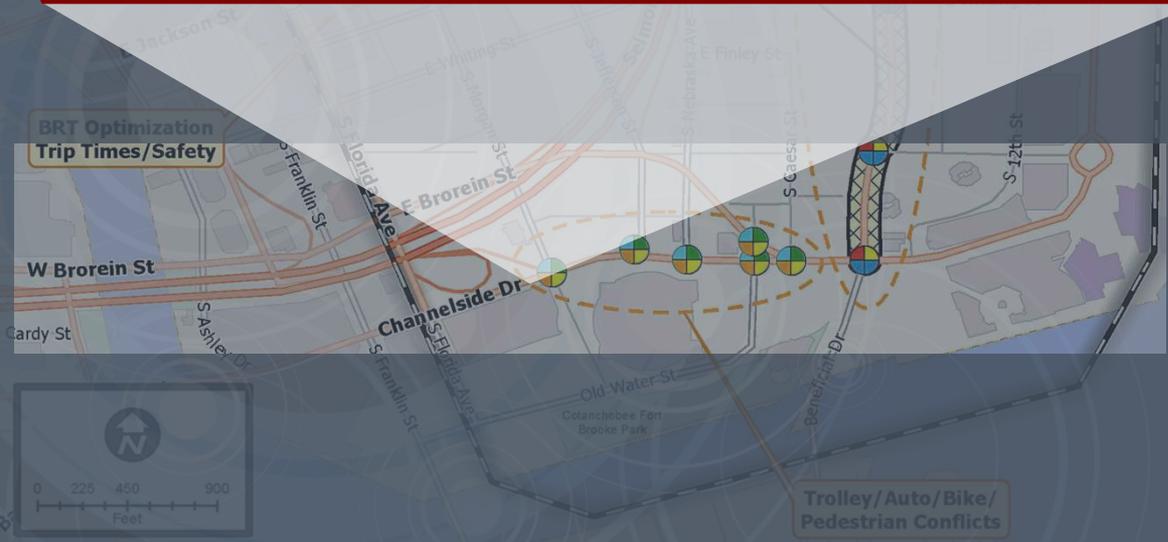


ISSUES

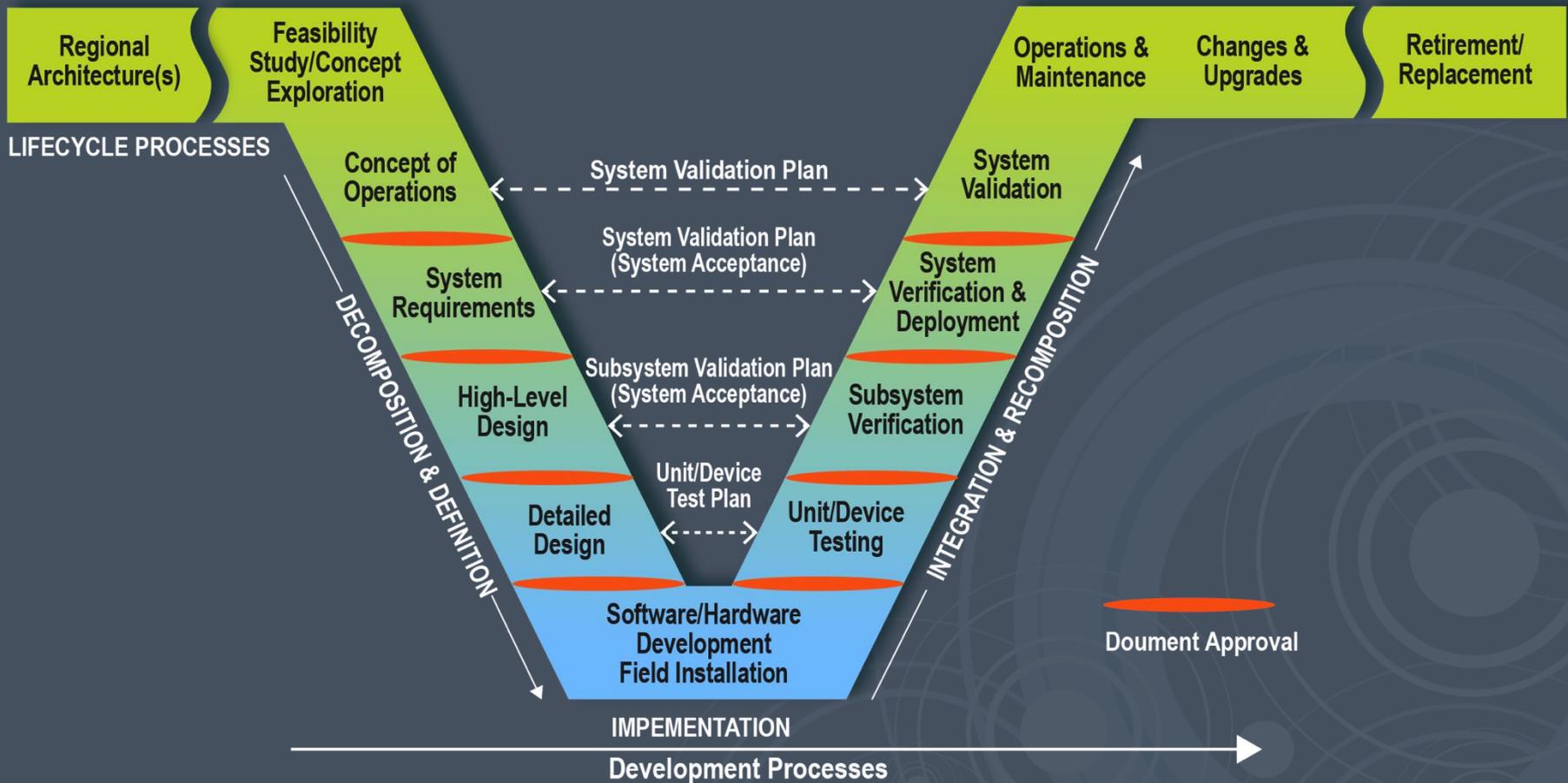
- Streetcar/Ped/Vehicle/Cyclist Conflicts/Safety
- Afternoon Peak Alternate Routes
- Special Events

SOLUTIONS

- Vehicle Turning Right in Front of Bus Warning
 - V2I Safety
- Intelligent Traffic Signal System (I-SIG)
 - Mobility



THEA THREE PHASE WORK FLOW DIAGRAM APPLIED TO THE SYSTEMS ENGINEERING FRAMEWORK





What's Next?

How Can CV move from
Potential to Acceptance?

TAMPA! What is Next...

Quantifiable Benefits

- SAFETY: Connected vehicle technology could affect **more than 80% of vehicular crash scenarios** involving unimpaired drivers
- Improved mobility
- Reduce environmental impact
- Assist with toll interoperability
- Economic Impacts
 - Reduction in insurance rates
 - Realize fuel & maintenance savings – Inflation Fighter
 - Recoup productivity currently lost to long or erratic commutes



Convincing Users CV Improves the Driving Experience



Connected Vehicles as Transportation Solutions: Example: Speed Harmonization



Connected Vehicles: Moving CV Solutions into the Planning Process

Selmon East Capacity Improvements (Sample Project)

- Additional lane in each direction for 16 miles - \$200 million
- Selmon East Lane Harmonization
 - Bridge Improvements (3 Bridges) – \$75 million
 - Speed Harmonization - \$50 million

Potential Savings - \$75 million or 6-7 years delay of capacity improvements

If nothing else, it is worth investigating...





Questions?

Bob Frey, Planning Director

Bobf@tampa-xway.com

813-394-1472

FLORIDA! A Bold Vision

TAMPA-HILLSBOROUGH
EXPRESSWAY
AUTHORITY