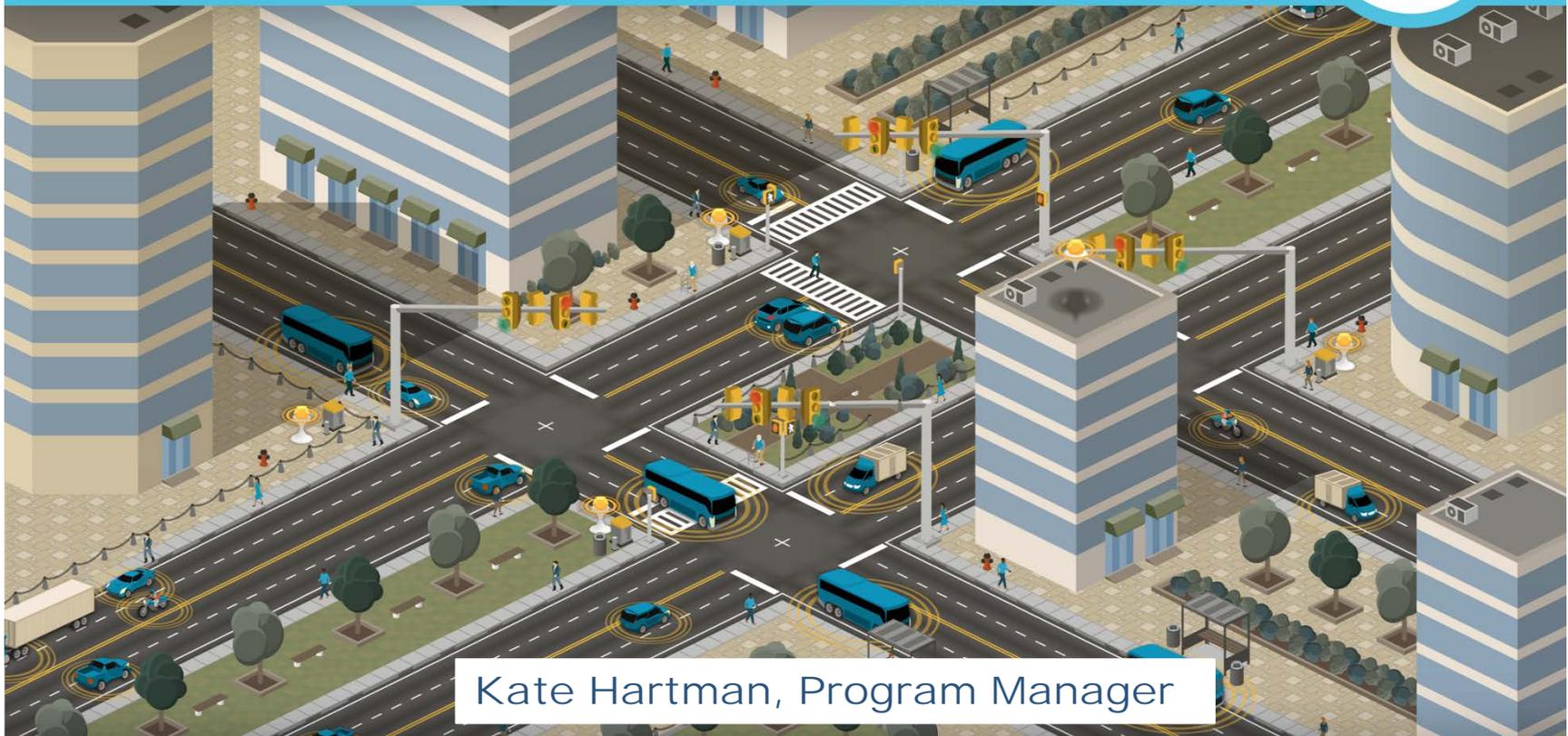




CONNECTED VEHICLE PILOT Deployment Program



Kate Hartman, Program Manager

ITS Joint Program Office



OVERVIEW



- Connected Vehicles Pilot Deployment Program Overview

- Overview of 2015 CV Pilot Program Award Sites
 - ICF/Wyoming CV Pilot Deployment
 - New York City CV Pilot Deployment
 - Tampa (THEA) CV Pilot Deployment

- How to Stay Connected



CV PILOT DEPLOYMENT PROGRAM GOALS



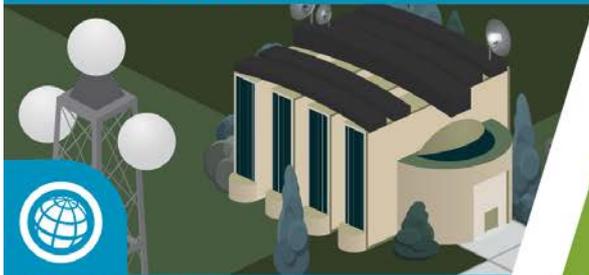
Spur Early CV Tech Deployment



Wirelessly Connected Vehicles



Mobile Devices



Infrastructure

Measure Deployment Benefits



Safety



Mobility



Environment

Resolve Deployment Issues



Technical



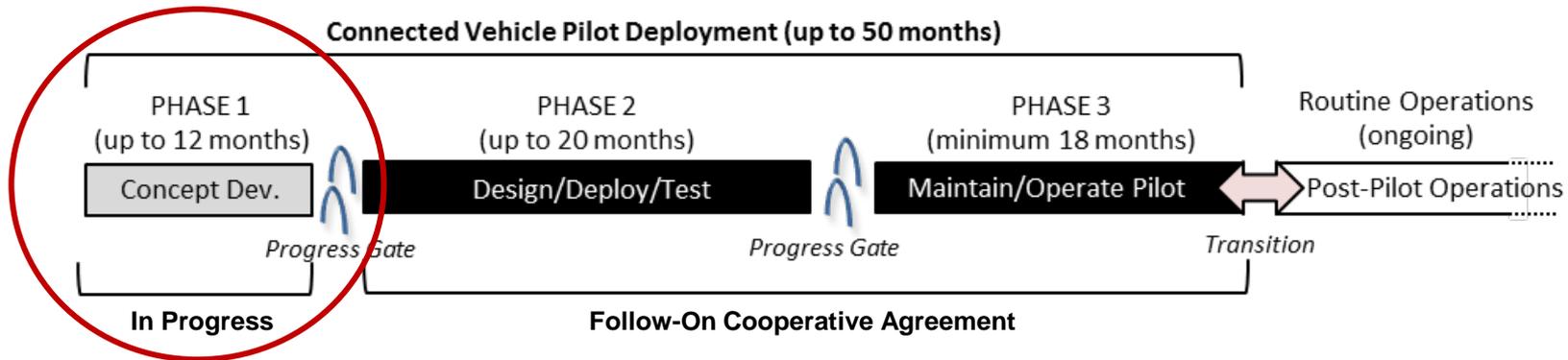
Institutional



Financial



CV PILOT DEPLOYMENT SCHEDULE



- Phase 1: Concept Development (*Current Phase*)
 - Creates the foundational plan to enable further design and deployment
 - **Progress Gate: Is the concept ready for deployment?**
- Phase 2: Design/Deploy/Test
 - Detailed design and deployment followed by testing to ensure deployment functions as intended (both technically and institutionally)
 - Progress Gate: Does the system function as planned?
- Phase 3: Maintain/Operate
 - Focus is on assessing the performance of the deployed system
- Post Pilot Operations (CV tech integrated into operational practice)



SITES SELECTED – 2015 AWARDS



ICF/Wyoming



- Reduce the number and severity of adverse weather-related incidents in the I-80 Corridor in order to improve safety and reduce incident-related delays.
- Focused on the needs of commercial vehicle operators in the State of Wyoming.

New York City



- Improve safety and mobility of travelers in New York City through connected vehicle technologies.
- Vehicle to vehicle (V2V) technology installed in up to 10,000 vehicles in Midtown Manhattan, and vehicle to infrastructure (V2I) technology installed along high-accident rate arterials in Manhattan and Central Brooklyn.

Tampa (THEA) Tampa-Hillsborough Expressway Authority



- Alleviate congestion and improve safety during morning commuting hours.
- Deploy a variety of connected vehicle technologies on and in the vicinity of reversible express lanes and three major arterials in downtown Tampa to solve the transportation challenges.



ICF/WYOMING PILOT DEPLOYMENT OVERVIEW



Objective:

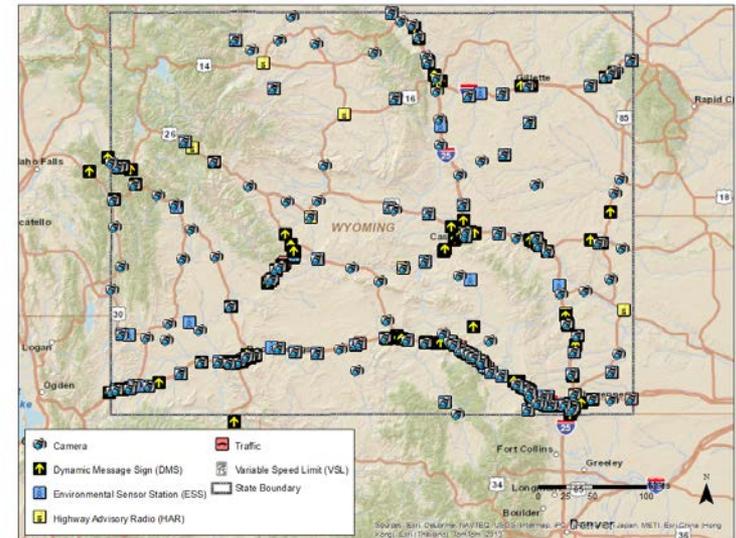
- Reduce the number and severity of adverse weather-related incidents (including secondary incidents) in the I-80 Corridor in order to improve safety and reduce incident-related delays.
 - Focused on the needs of the commercial vehicle operator in the State of Wyoming

Approach:

- Equip fleet vehicles (combination of snow plows, maintenance fleet vehicles, emergency vehicles, and private trucks) that frequently travel the I-80 corridor to transmit basic safety messages (BSMs), collect vehicle and road condition data and provide it remotely to the WYDOT TMCs
- Deploy DSRC roadside equipment (RSE) to supplement existing assets and initiatives
- Road weather data shared with freight carriers who will transmit to their trucks using exiting in-vehicle systems

Deployment Team:

- Prime Consultant: ICF International; Partner State: Wyoming DOT
- Sub Consultants: Trihydro Corporation, National Center for Atmospheric Research, University of Wyoming, Catt Laboratory and McFarland Management



Source: Wyoming DOT



ICF/Wyoming Pilot Deployment Vision

Traffic Management Center



NEW YORK CITY (NYC) PILOT DEPLOYMENT OVERVIEW



Objective:

- Improve safety and mobility of travelers in New York City through connected vehicle technologies
 - Aligned with the NYC's Vision Zero initiative, which seeks to reduce crashes and pedestrian fatalities, and increase safety of travelers in all modes of transportation

Approach:

- Equip up to 10,000 vehicles (taxis, buses, commercial fleet delivery trucks, and City-owned vehicles) that frequently travel in Midtown Manhattan and Central Brooklyn to transmit and receive connected vehicle data
- Install V2I technology at high-accident rate arterials:
 - Upgrade 239 traffic signals along 1st, 2nd, 5th, and 6th Avenues in Manhattan and Flatbush Avenue in Central Brooklyn (emergency evacuation route)
 - Deploy Roadside equipment (RSE) along FDR Drive

Deployment Team:

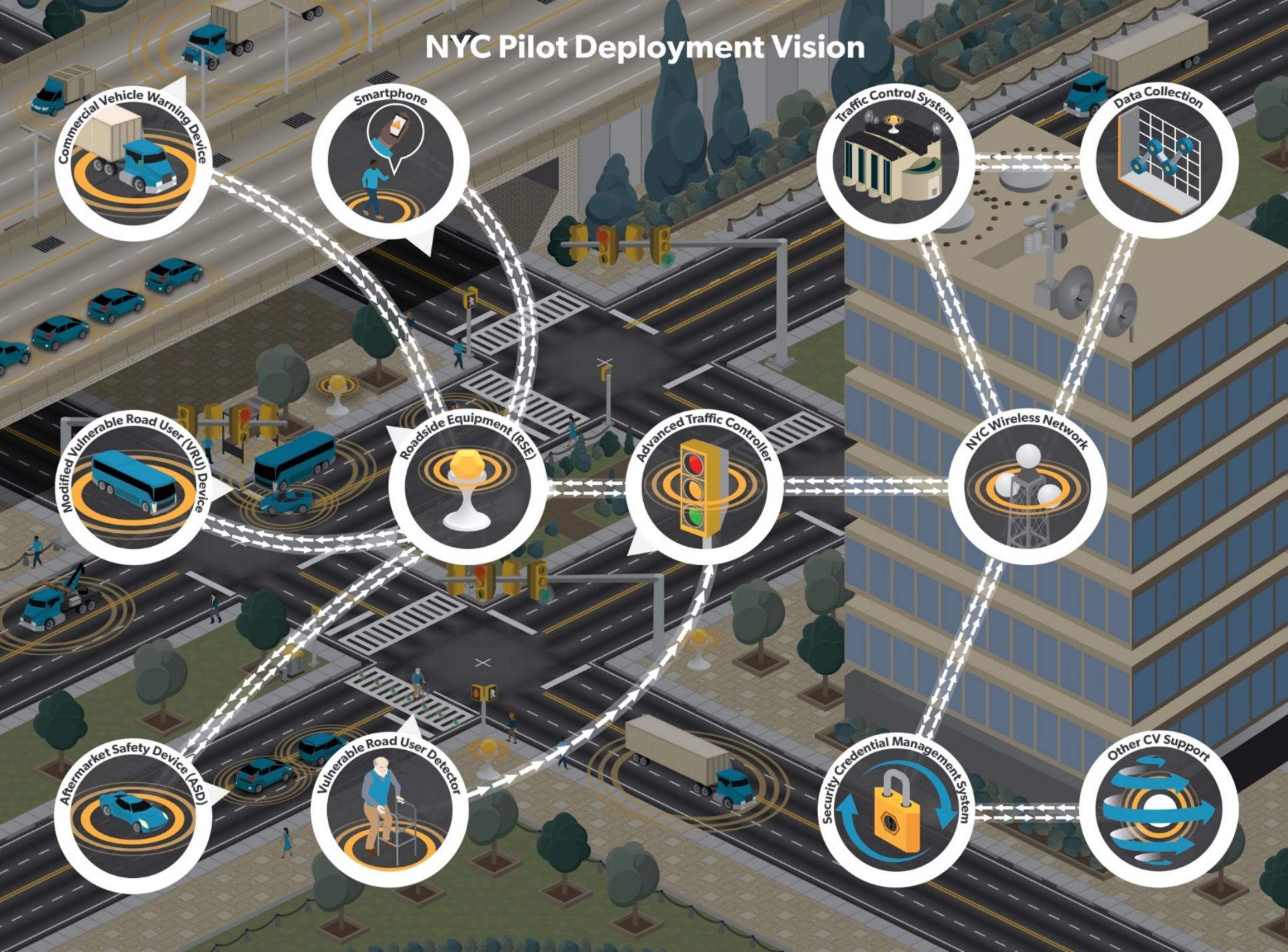
- Prime Consultant: NYC DOT
- Sub Consultants: JHK Engineering, Battelle, Cambridge Systematics, KLD Engineering, Security Innovation and Region 2 University Transportation Research Center



Source: NYC DOT



NYC Pilot Deployment Vision



TAMPA (THEA) PILOT DEPLOYMENT OVERVIEW



Objective:

- The primary objective of this deployment is to alleviate congestion and improve safety during morning commuting hours.
 - Deploy a variety of vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) safety, mobility, and agency data applications to create reinforcing benefits for motorists, pedestrians, and transit operation.

Approach:

- Deploy a variety of connected vehicle technologies on and in the vicinity of reversible express lanes and three major arterials in downtown Tampa to solve the following transportation challenges:
- Morning peak hour queues, wrong-way entries, pedestrian safety, bus rapid transit (BRT) signal priority optimization, trip time and safety, streetcar trolley conflicts, and enhanced signal coordination and traffic progression.

Deployment Team:

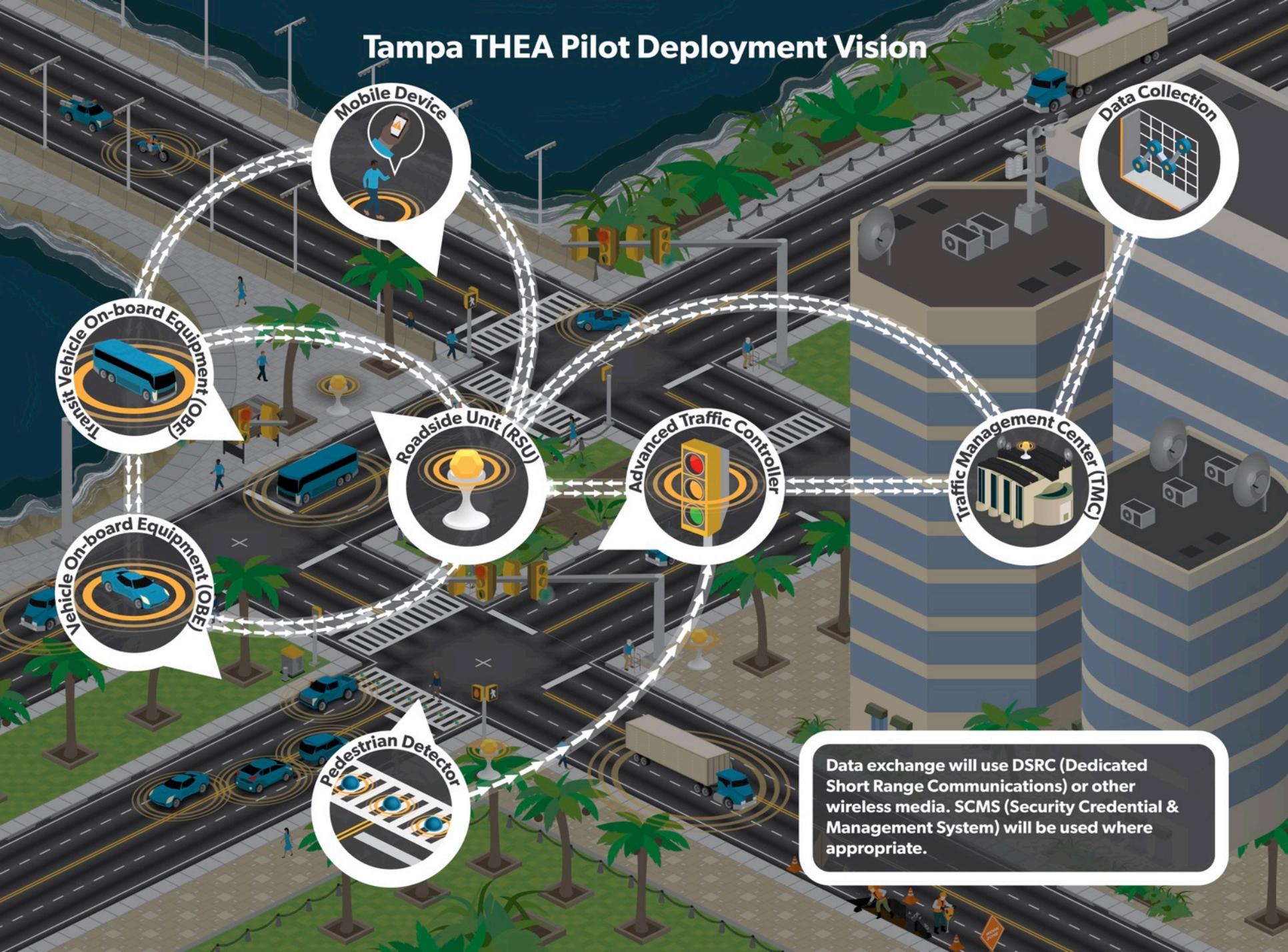
- Prime Consultant: Tampa Hillsborough Expressway Authority (THEA)
- Sub Consultants: HNTB Corporation, Siemens Industry, Inc., Booz Allen Hamilton, Center for Urban Transportation Research at University of South Florida and Global-5 Communications



Source: THEA



Tampa THEA Pilot Deployment Vision



Mobile Device



Data Collection



Transit Vehicle On-board Equipment (TOBE)



Roadside Unit (RSU)



Advanced Traffic Controller



Traffic Management Center (TMC)



Vehicle On-board Equipment (OBE)



Pedestrian Detector



Data exchange will use DSRC (Dedicated Short Range Communications) or other wireless media. SCMS (Security Credential & Management System) will be used where appropriate.

OVERVIEW OF PILOT DEPLOYMENT PROPOSED CV APPLICATIONS



ICF/Wyoming

Work Zone Warnings
Spot Weather Impact Warning
Situational Awareness
Freight-Specific Dynamic Travel Planning
Automatic Alerts for Emergency Responders
CV-enabled Weather-Responsive Variable Speed Limits
Road Weather Advisories for Trucks and Vehicles
Truck Parking Availability for Freight Carriers

Tampa (THEA)

Curve Speed Warning
Pedestrian in Signalized Crosswalk Warning (Transit)
Emergency Electronic Brake Lights (EEBL)
Forward Collision Warning (FCW)
Intersection Movement Assist (IMA)
Vehicle Turning Right in Front of Bus Warning (Transit)
Intelligent Traffic Signal System (I-SIG)
Mobile Accessible Pedestrian Signal System (PED-SIG)
Transit Signal Priority (TSP)
Probe-enabled Traffic Monitoring

New York City (NYC)

Curve Speed Warning
Pedestrian in Signalized Crosswalk Warning (Transit)
Red Light Violation Warning
Reduced Speed/Work Zone Warning
Blind Spot Warning (BSW) *
Emergency Electronic Brake Lights (EEBL) *
Forward Collision Warning (FCW) *
Intersection Movement Assist (IMA) *
Lane Change Assist (LCA) *
Stationary Vehicle Ahead (SVA) *
Vehicle Turning Right in Front of Bus Warning (Transit)
Advanced Traveler Information System
Emergency Communications and Evacuation (EVAC)
Freight-Specific Dynamic Travel Planning and Performance Measurement (F-ATIS)
Intelligent Traffic Signal System (I-SIG)
Mobile Accessible Pedestrian Signal System (PED-SIG)
Eco-Speed Harmonization

**Deployment of applications is dependent upon Final ConOps and funding*



CONCEPT DEVELOPMENT ACTIVITIES AND PUBLIC EVENTS



Task	Sep 2015	Oct 2015	Nov 2015	Dec 2015	Jan 2016	Feb 2016	Mar 2016	Apr 2016	May 2016	Jun 2016	Jul 2016	Aug 2016	Sep 2016
Task 1 – Program Mgt.													
Task 2 – Concept of Oerations						◆◆	◆						
Task 3 – Security Concept													
Task 4 – Safety Plan													
Task 5 – Performance Measurement										◆◆◆			
Task 6 – System Requirements													
Task 7 – App Planning													
Task 8 – Human Use Approval													
Task 9 – Training Plan													
Task 10 – Partnership													
Task 11 – Outreach Plan													
Task 12 – Deployment Plan												◆◆◆	
Task 13 – Readiness Summary													

◆ Public webinars to share the concept development activities from the three sites (see website for exact dates and times)

STAY CONNECTED



Join us for the *Getting Ready for Deployment Series*

- Discover more about the 2015 CV Pilot Sites
- Learn the Essential Steps to CV Deployment
- Engage in Technical Discussion



[Website: http://www.its.dot.gov/pilots](http://www.its.dot.gov/pilots)

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<https://www.facebook.com/DOTRITA>

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