CONNECTED VEHICLE PILOT
Deployment Program

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

CONNECTED VEHICLE APPLICATIONS

- The USDOT has made a significant investment in foundational research and initial development of connected vehicle applications
  - Concepts of Operations
  - System Requirements
  - Prototype Design and Testing
  - Prototype Impacts Assessment
  - Analytics, Modeling and Simulation to Assess Potential Long-Term Impacts

- Not all CV Application efforts are in the same state of maturity, few are complete
  - But a large number of application development efforts across multiple programs will be substantively complete in late 2014

CONNECTED VEHICLE APPLICATIONS

V2I Safety

Red Light Violation Warning
Curve Speed Warning
Stop Sign Gap Assist
Spot Weather Impact Warning
Reduced Speed/Work Zone Warning
Pedestrian in Signalized Crosswalk
Warning (Transit)

V2V Safety

Emergency Electronic Brake Lights
(EEBL)
Forward Collision Warning (FCW)
Intersection Movement Assist (IMA)
Left Turn Assist (LTA)
Blind Spot/Lane Change Warning
(BSW/LCW)
Do Not Pass Warning (DNPW)
Vehicle Turning Right in Front of Bus
Warning (Transit)

Agency Data

Probe-based Pavement Maintenance
Probe-enabled Traffic Monitoring
Vehicle Classification-based Traffic
Studies
CV-enabled Turning Movement &
Intersection Analysis
CV-enabled Origin-Destination Studies
Work Zone Traveler Information

Environment

Eco-Approach and Departure at
Signalized Intersections
Eco-Traffic Signal Timing
Eco-Traffic Signal Priority
Connected Eco-Driving
Wireless Inductive/Resonance
Charging
Eco-Lanes Management
Eco-Speed Harmonization
Eco-Cooperative Adaptive Cruise
Control
Eco-Traveler Information
Eco-Ramp Metering
Low Emissions Zone Management
AFV Charging / Fueling
Information
Eco-Smart Parking
Dynamic Eco-Routing (light
vehicle, transit, freight)
Eco-ICM Decision Support System

Road Weather

Motorist Advisories and Warnings
(MAW)
Enhanced MDSS
Vehicle Data Translator (VDT)
Weather Response Traffic
Information (WxTINFO)

Mobility

Advanced Traveler Information System
Intelligent Traffic Signal System
(I-SIG)
Signal Priority (transit, freight)
Mobile Accessible Pedestrian Signal
System (PED-SIG)
Emergency Vehicle Preemption (PREEMPT)
Dynamic Speed Harmonization (SPD-
HARM)
Queue Warning (Q-WARN)
Cooperative Adaptive Cruise Control
(CACC)
Incident Scene Pre-Arrival Staging
Guidance for Emergency Responders
(RESP-STG)
Incident Scene Work Zone Alerts for Drivers
and Workers (INC-ZONE)
Emergency Communications and
Evacuation (EVAC)
Connection Protection (T-CONNECT)
Dynamic Transit Operations (T-DISP)
Dynamic Ridesharing (D-RIDE)
Freight-Specific Dynamic Travel Planning
and Performance
Drayage Optimization

Smart Roadside

Wireless Inspection
Smart Truck Parking

PILOT DEPLOYMENT PROCESS

- **Pilot Deployment Concept Development Process**
  - Identify Local Needs
  - Set Performance Goals
  - Select CV Applications That Work Together Meet Those Goals

- **USDOT Sample Pilot Concepts from Hypothetical Locations**
  - Hypothetical, but realistic examples of localities applying the pilot deployment concept development process

SAMPLE DEPLOYMENT CONCEPT – Downtown Sunnyside
~ Improving Congestion in an Urban Arterial Network ~

Improve Transit Reliability
- Connection Protection
- Transit Signal Priority

Improve Pedestrian Safety
- Mobile Accessible Pedestrian Signal System
- Pedestrian in Signalized Crosswalk Warning
- Intersection Movement Assist

Improve Air Quality
- Eco-Approach and Departure at Signalized Intersections
- Eco-Traffic Signal Timing

Synergies among applications increase benefits and reduce costs

SAMPLE DEPLOYMENT CONCEPT – Halleck Expressway
~ Improving Travel Time Reliability on an Urban Expressway~

Reduce Incident Delay
- Incident Scene Pre-Arrival Staging Guidance for Emergency Responders
- Incident Scene Work Zone Alerts for Drivers and Workers

Improve Bottleneck Throughput
- Speed Harmonization and Queue Warning
- Emergency Electronic Brake Lights and Forward Collision Warning

Manage Diversions Better
- EnableATIS
- Intelligent Signal Control

Synergies among applications increase benefits and reduce costs

SAMPLE DEPLOYMENT CONCEPT – Greypool County
~ Improving Safety and Mobility in a Rural Area ~

Increase Accessibility

- Dynamic Transit Operations

Improve Safety

- Red Light Violation Warning
- Stop Sign Gap Assist
- Left Turn Assist

Informing Drivers During Bad Weather

- Weather Response Traffic Information

Synergies among applications increase benefits and reduce costs

SAMPLE DEPLOYMENT CONCEPT – District 13 Operations
~ Improving the Efficiency of Road Maintenance ~

Improve Snow Removal
- Enhanced Maintenance Decision Support System

Improve Management of Work Zones
- Work Zone Traveler Information

Improve Situational Awareness
- Probe-based Pavement Maintenance

Synergies among applications increase benefits and reduce costs

SAMPLE DEPLOYMENT CONCEPT – I-876 Corridor
~ Improving Freight Movement in an Inter-State Corridor ~

Improve Freight Productivity

- Freight Advanced Traveler Information System
- Drayage Optimization
- Freight Signal Priority

Improve Truck Safety

- Curve Speed Warning
- Do Not Pass Warning/Lane Change Warning

Synergies among applications increase benefits and reduce costs

CV PILOTS DEPLOYMENT SCHEDULE AND RESOURCES

- Proposed CV Pilots Deployment Schedule

Schedule Item	Date
Regional Pre-Deployment Workshop/Webinar Series	**Summer-Fall 2014**
Solicitation for Wave 1 Pilot Deployment Concepts	**Early 2015**
Wave 1 Pilot Deployments Award(s) Concept Development Phase (6-9 months) Design/Build/Test Phase (10-14 months) Operate and Maintain Phase (18 months)	**September 2015**
Solicitation for Wave 2 Pilot Deployment Concepts	**Early 2017**
Wave 2 Pilot Deployments Award(s) Concept Development Phase (6-9 months) Design/Build/Test Phase (10-14 months) Operate and Maintain Phase (18 months)	**September 2017**
Pilot Deployments Complete	**September 2020**

- Resources
  - ITS JPO Website: http://www.its.dot.gov/
  - CV Pilots Program Website: http://www.its.dot.gov/pilots

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CV PILOTS WEBSITE

http://www.its.dot.gov/pilots