CONNECTED VEHICLE PILOT
Deployment Program

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TODAY’S AGENDA

- Cory Krause
  
  *Pathways Civil Engineer, FHWA Office of Operations Research & Development*
  
  ▪ Connected Vehicle Pilot Deployment Program Overview
    - Program Goals
    - Release of CV Pilots Synopsis

- Denise Masi
  
  *Fellow, Noblis, Inc.*
  
  ▪ CO-PILOT Cost Estimator
    - Overview and Features
    - Tool Demonstration

- Stakeholder Q&A
Connected Vehicle Pilot Deployment Program Overview
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
GENERAL PROGRAM INFORMATION

- **Needs-Driven Focus**
  - Related to system performance – mobility, safety, public agency efficiency and reduced environmental impacts
  - Needs identified by relevant stakeholders
  - Needs represented in performance measures and performance targets
  - Identify applications addressing these needs
  - The ability to capture and analyze observed data to monitor performance over time
  - Support data needs associated with an independent evaluation effort

- **Phases of the Pilot Deployment Effort**
  - **Phase 1: Concept Development** – up to 12 months
  - **Phase 2: Design/Build/Test** – up to 20 months
  - **Phase 3: Maintain and Operate** – 18 months
PHASE 1 CONTRACT SCOPE

Objective
- To fully develop an innovative and synergistic connected vehicle pilot deployment concept, to build partnerships among stakeholders, and to prepare a comprehensive pilot deployment plan that reduces technical, institutional and financial risk

Delineation of Work

Solicitation
- Will be issued on or before January 30, 2015
- Synopsis: https://www.fbo.gov/
- Solicitation Number: DTFH6115R00003
Based on our research, pilot deployments (Phases 1-3), varied in range and effort as follows:

- Smaller focused deployments: $2-$5 million in federal funds
- Medium-sized deployments: $5-$12 million in federal funds
- Larger deployments: $12-$20 million in federal funds

USDOT developed a cost estimation tool to facilitate the development of cost estimates based on the pilot deployment effort ranging from $2 million to $20 million in federal funds.
FURTHER INFORMATION

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

- Program Contact
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  CV Pilots Program Manager
  ITS Joint Program Office
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- Solicitation Contact
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CO-PILOT Cost Estimator
**CO-PILOT COST ESTIMATOR OVERVIEW**

- High-level Cost Estimation Planning Tool
  - To facilitate the development of cost estimates for the Connected Vehicle Pilot Deployments.
  - Allows users to generate deployment cost estimates for 56 applications

### Connected Vehicle Applications

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<th>Environment</th>
<th>Mobility</th>
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<td>Red Light Violation Warning</td>
<td>Eco-Approach and Departure at Signalized Intersections</td>
<td>Advanced Traveler Information System</td>
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<td>Curve Speed Warning</td>
<td>Eco-Traffic Signal Timing</td>
<td>Intelligent Traffic Signal System (I-SIG)</td>
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<td>Stop Sign Gap Assist</td>
<td>Eco-Traffic Signal Priority</td>
<td>Signal Priority (transit, freight)</td>
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<tr>
<td>Spot Weather Impact Warning</td>
<td>Connected Eco-Driving</td>
<td>Mobile Accessible Pedestrian Signal System (PED-SIG)</td>
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<td>Reduced Speed/Work Zone Warning</td>
<td>Wireless Inductive/Resonance Charging</td>
<td>Emergency Vehicle Preemption (PREEMPT)</td>
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<td>Pedestrian in Signalized Crosswalk Warning (Transit)</td>
<td>Eco-Lanes Management</td>
<td>Dynamic Speed Harmonization (SPD-HARM)</td>
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<tr>
<td>V2V Safety</td>
<td>Eco-Speed Harmonization</td>
<td>Queue Warning (Q-WARN)</td>
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<td>Emergency Electronic Brake Lights (EEBL)</td>
<td>Eco-Cooperative Adaptive Cruise Control</td>
<td>Cooperative Adaptive Cruise Control (CACC)</td>
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<td>Forward Collision Warning (FCW)</td>
<td>Eco-Traveler Information</td>
<td>Incident Scene Pre-Arrival Staging</td>
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<td>Intersection Movement Assist (IMA)</td>
<td>Eco-Ramp Metering</td>
<td>Guidance for Emergency Responders (RESP-STG)</td>
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<td>Left Turn Assist (LTA)</td>
<td>Low Emissions Zone Management</td>
<td>Incident Scene Work Zone Alerts for Drivers and Workers (INC-ZONE)</td>
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<td>Blind Spot/Lane Change Warning (BSW/LCW)</td>
<td>AFV Charging / Fueling Information</td>
<td>Emergency Communications and Evacuation (EVAC)</td>
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<td>Do Not Pass Warning (DNPW)</td>
<td>Eco-Smart Parking</td>
<td>Connection Protection (T-CONNECT)</td>
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<td>Vehicle Turning Right in Front of Bus Warning (Transit)</td>
<td>Dynamic Eco-Routing (light vehicle, transit, freight)</td>
<td>Dynamic Transit Operations (T-DISP)</td>
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<td>Agency Data</td>
<td>Eco-ICM Decision Support System</td>
<td>Dynamic Ridesharing (D-RIDE)</td>
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<td>Probe-based Pavement Maintenance</td>
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<td>Freight-Specific Dynamic Travel Planning and Performance</td>
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<td>Probe-enabled Traffic Monitoring</td>
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<td>Vehicle Classification-based Traffic Studies</td>
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<td>CV-enabled Turning Movement &amp; Intersection Analysis</td>
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<td>CV-enabled Origin-Destination Studies</td>
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<td>Road Weather</td>
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<td>Motivist Advisories and Warnings (MAW)</td>
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<td>Enhanced MDSS</td>
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<td>Vehicle Data Translator (VDT)</td>
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<td>Weather Response Traffic Information (WxTINFO)</td>
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<td>Smart Roadside</td>
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FEATURES OF CO-PILOT COST ESTIMATOR

- CO-PILOT breaks down each CV application into associated Building Blocks and Cost Components
  - Building Blocks: locations or entities requiring components for an application, e.g., Intersections
- CO-PILOT includes default costs and required quantities for each component
  - Average costs and quantities for each component can be modified
  - Quantities take into account the overlap between application components at a Building Block, depending on user selections
- CO-PILOT uses a simulation approach to account for uncertainty in both unit and overall costs
- CO-PILOT output includes graphical depictions of cost distributions and detailed spreadsheet output
Tool Demonstration
Stakeholder Q&A