

COOPERATIVE TRANSPORTATION SYSTEMS POOLED FUND STUDY AASHTO

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Rick McDonough
Office of Safety and Security
New York State Department of
Transportation



Year Two Projects

- Aftermarket On-Board Equipment for Cooperative Transportation Systems
 - **Prime Contractor – Visteon**
- Certification Program for Cooperative Transportation Systems/Connected Vehicles
 - **Prime Contractor – OmniAir**



Project #1 – Aftermarket On-Board Equipment for Cooperative Transportation Systems

- **Background**

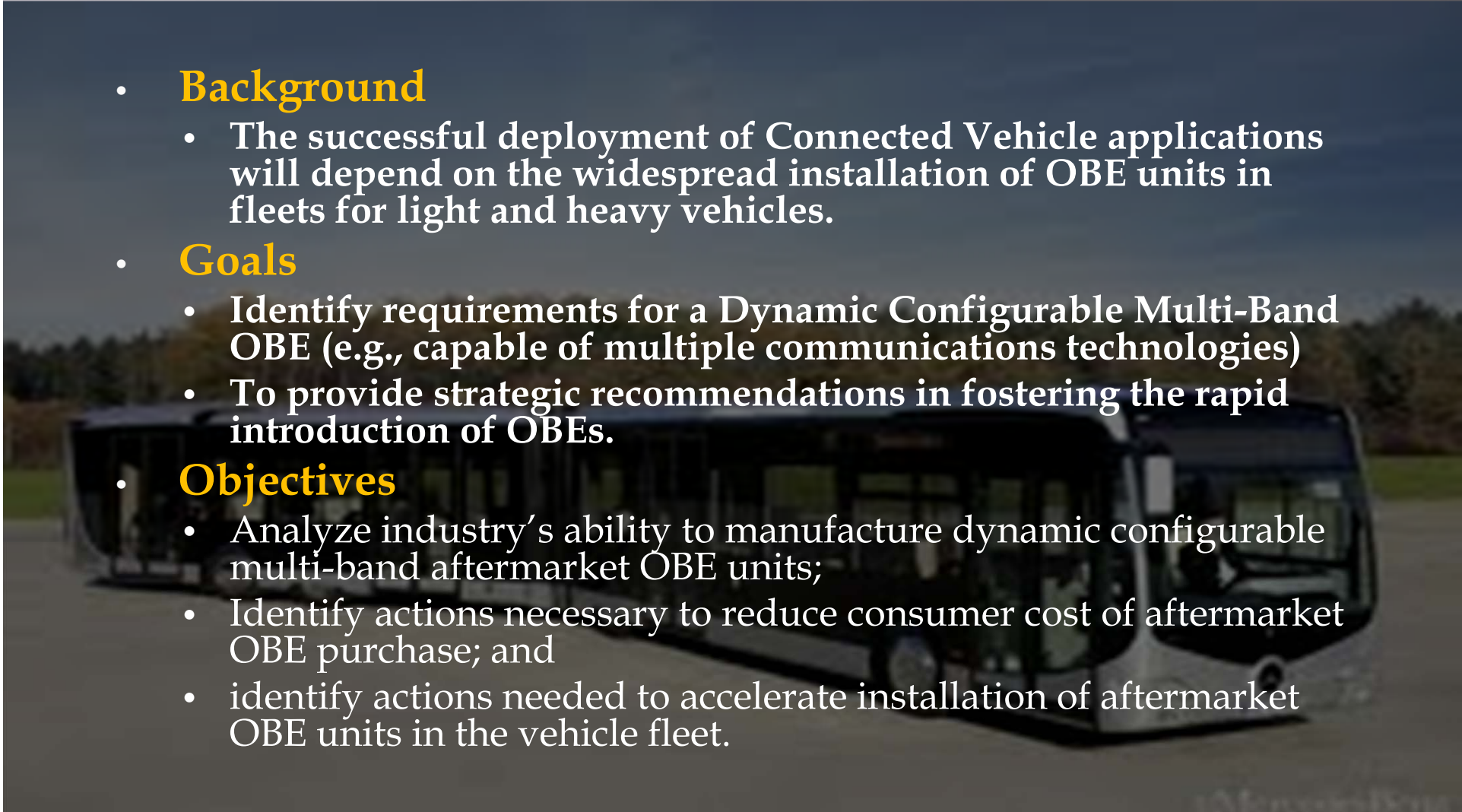
- The successful deployment of Connected Vehicle applications will depend on the widespread installation of OBE units in fleets for light and heavy vehicles.

- **Goals**

- Identify requirements for a Dynamic Configurable Multi-Band OBE (e.g., capable of multiple communications technologies)
- To provide strategic recommendations in fostering the rapid introduction of OBEs.

- **Objectives**

- Analyze industry's ability to manufacture dynamic configurable multi-band aftermarket OBE units;
- Identify actions necessary to reduce consumer cost of aftermarket OBE purchase; and
- identify actions needed to accelerate installation of aftermarket OBE units in the vehicle fleet.



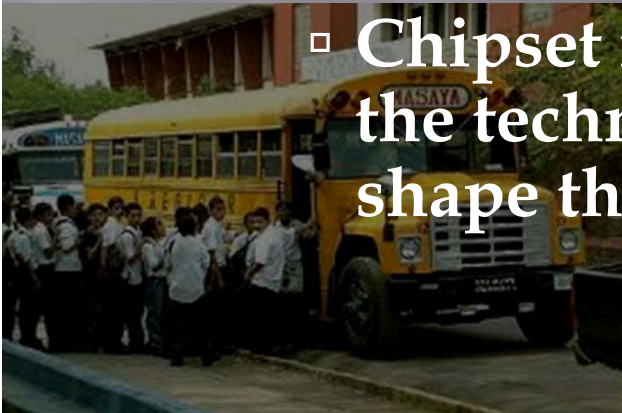
Task 1: Identify Requirements of a Dynamic Configurable Multi-Band OBE

- Review current materials related to the Connected Vehicle OBE unit; summarize the requirements & specifications of an OBE unit for the Connected Vehicle program
- This task will be the foundation for all subsequent tasks
- It is not intended that a whole new set of requirements be developed but rather combine existing requirements of various communications technologies for a multi-band OBE
- Various communications technologies under the Connected Vehicle program will be identified, including, but not limited to, 5.9 GHz DSRC, cellular, satellite, and Wi-Fi for all vehicle types



Task 2: Analysis of Current Market Readiness

- Analyze (1) devices currently available, and (2) the industry's capability to produce dynamic configurable multi-band OBE units at affordable prices.
 - **Task 2.1: Interview Suppliers**
 - DSRC, cellular, satellite and Wi-Fi manufacturers/service providers to assess the current market readiness
 - Chipset manufacturers to gain insight into the technology roadmaps that will ultimately shape the market readiness



Task 2: Analysis of Current Market Readiness (Con't.)

- **Task 2.2: Investigate Available OBE Hardware**
 - Assess any devices (including factory installed OBE unit, retrofit device, aftermarket carry-in device, etc.) that may be modified and/or used as aftermarket OBE units
- **Task 2.3: Market Research**
 - Focus group interviews from metropolitan areas that have heavy traffic conditions such as Los Angeles, San Francisco, Boston, Detroit, Washington, D.C., and New York City



Task 3: Preparation of a Guidance Document to Help Develop a Procurement Document

- This task is based on the results from Task 1 and Task 2
- Develop a procurement document for the actual development of a dynamic configurable multi-band aftermarket OBE
 - **Task 3.1: Literature Review**
 - Review existing documentation to develop best in class procurement procedures
 - **Task 3.2: Generate Document**
 - A Procurement Guidance Document will be developed



Task 4: Develop Strategy

- An in-depth strategy will be developed that fosters a rapid introduction of aftermarket OBE units to the vehicle fleet.
- It will also address how to garner consumer interest to purchase aftermarket OBE units for their vehicles.
- **Task 4.1 Integration Assessment**
 - A crucial OBE aspect is how it will interface with the vehicle, if at all.
 - The features and attributes of the OBE will be critical to ensuring that a significant number of people and/or companies will purchase the units for their vehicles.
 - Outside market forces will be examined that may persuade drivers to purchase the OBE units.



Task 4: Develop Strategy (Con't.)

- **Task 4.2 Literature Review**

- Examine outside market forces that may affect driver adoption of Connected Vehicle capabilities and technologies.

- **Task 4.3 Generate Report**

- A Strategy Report will be generated, reviewed, and finalized which addresses the optimal methods for interfacing with the vehicle and what features will attract consumers.



Project #2 – Certification Program for Cooperative Transportation Systems/Connected Vehicles

- **Goal**

- Develop foundational knowledge to inform PFS members on the certification issues to support the future development of a certification program for hardware and software standards compliance and interoperability

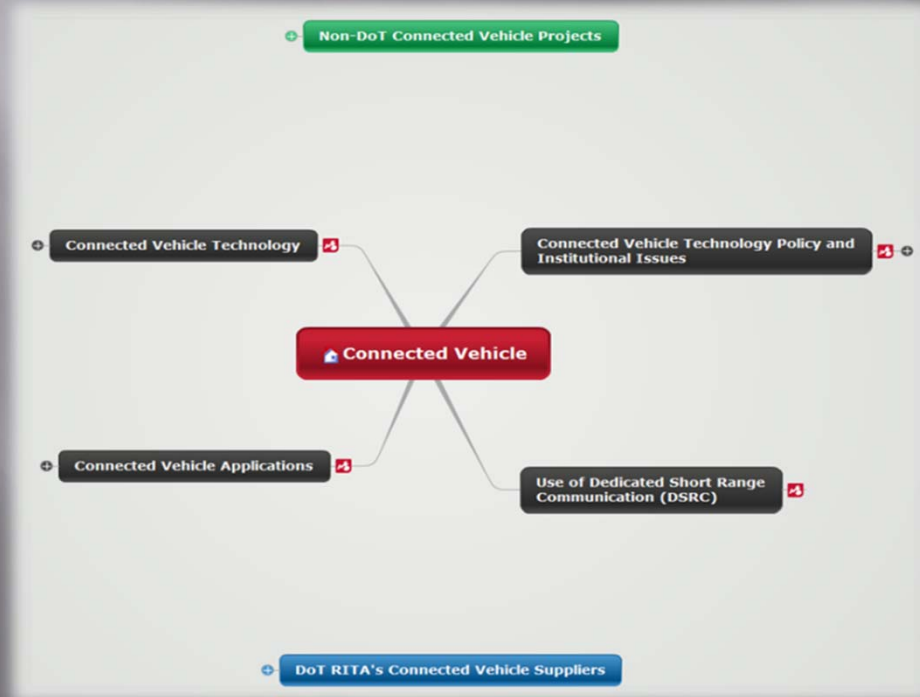
- **Objectives**

- Review general certification practices
- Review current activities associated with Connected Vehicle certification
- Prepare recommended next steps and action items necessary to create a certification procedure



Task 1 – Mapping the Connected Vehicle Certification Landscape

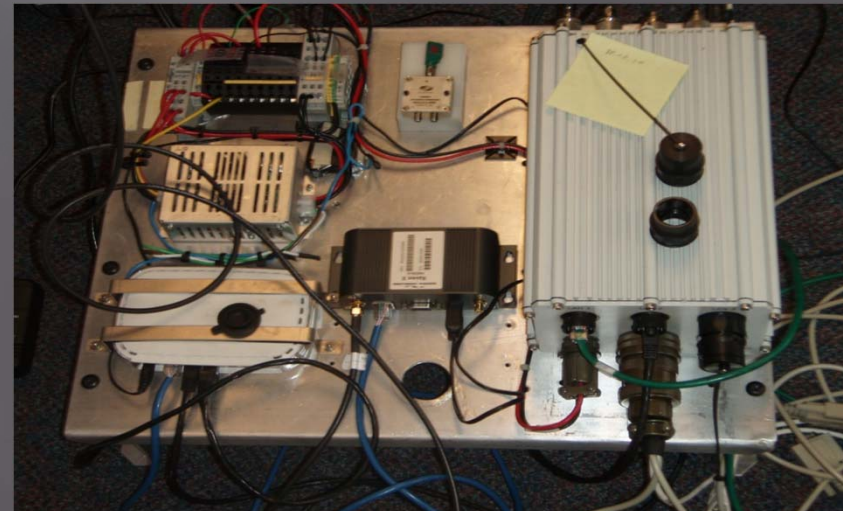
- **Objective:**
 - To provide a summary view of the interconnected initiatives that comprise the Connected Vehicle Community
- **Deliverable:** Interactive Mindomo map



- Organizational Connections
- Subject Matter Connections
- Embedded Content

Task 2 – Overview of the Connected Vehicle Certification System

- **Objective:**
 - Summary view of work efforts and outcomes specific to certification process for the Connected Vehicle program
- **Deliverable:**
 - Summary of foundational elements of relevant certification programs as models for CVCS
 - Overview of CVCS
 - Organizational Design
 - Certification Structure
 - Process



Task 3 – State and Local Needs Assessment

- **Review Federal and State Initiatives**
 - Federal Initiatives
 - Consult OmniAir Members
 - Discussions with US DOT staff
 - Review Existing Documentation
 - State Initiatives
 - Conduct Interviews with Pooled Fund States
 - Conduct Interviews with other Active States
- **Identify State Needs**
 - Develop a Comparison Matrix
 - Identify Gaps and Needs
 - Tag Most Important Gaps
 - Create and Administer the Survey
 - Analyze Survey Results
 - Document Survey Results and Recommendations



Task 4 – Gap Analysis and Recommendations

- Identify Gaps between States
- Identify Gaps between Federal and State
- Create a Survey to Gather State Feedback on Gaps



Affiliated Interoperable Test Beds



"In the street - running"

PFS Dynamic Mobility Applications Program

- **Background**

- US DOT has recently identified ten high-priority mobility applications under the Dynamic Mobility Applications (DMA) program for the connected vehicle environment
- Among the ten identified high-priority applications, three (Intelligent Traffic Signal System, Transit Signal Priority, and Mobile Accessible Pedestrian Signal System) are related to transformative traffic signal operations



PFS DMA Program

- **Background (con't.)**

- The AASHTO PFS and USDOT entered into an MOU for USDOT to provide funding to the PFS to advance projects that will support the Dynamic Mobility Applications Program
- The PFS will be advertising within the next month a project entitled “**Multi-Modal Intelligent Traffic Signal System**” in support of the US DOT’s Dynamic Mobility Applications Program



PFS Multi-Modal Intelligent Traffic Signal System

- **Goal**

- To conduct foundational analysis and design necessary to fully prepare for a field test/ demonstration of a Multi-Modal Intelligent Traffic Signal System

- **Objectives**

- To develop a concept of operations, systems requirements and system design that services multiple modes of transportation including general vehicles, transit, emergency vehicles, freight fleets and pedestrians; and
- To prepare for field testing/ demonstration of the developed Multi-Modal Intelligent Traffic Signal System.



Cooperative Transportation Systems Pooled Fund Study AASHTO

✓ **Benefits to New York State**

- 👍 AASHTO is a recognized transportation forum that has national credibility and standing
- 👍 Provides a useful liaison/coordination role between states and USDOT
- 👍 Gives the states a voice/seat at the national Connected Vehicle table
- 👍 Exchange ideas and keep abreast of the state and local level Connected Vehicle activities
- 👍 Provides/receives USDOT funding for efforts of mutual interest to states and locals
- 👍 Some travel is funded, and great folks!



Thank You!



Rick McDonough, NYSDOT
Planning and Development Bureau
Office of Modal Safety & Security
New York State Department of Transportation
Albany, New York
(518) 457-5871

rmcdonough@dot.state.ny.us

