

## Vehicle Infrastructure Integration (VII) Initiative Network Design and System Integration

How can the United States Department of Transportation (DOT) evaluate the viability of a nationwide communications network? Read how Booz Allen Hamilton is providing design and implementation support for the DOT Research and Innovative Technology Administration's VII Program.

### The DOT's Challenge

To evaluate the technical and economic viability of deploying a nationwide communications network aimed at improving surface transportation safety and mobility, the DOT established a cooperative initiative between federal and state departments of transportation and the automotive industry—the VII Program. The objective of the program is to determine whether the investment necessary to equip new vehicles and the roadway infrastructure with communications is warranted and can be synchronized. The VII system will support safety, mobility, and commercial applications by providing real-time vehicle-to-vehicle and vehicle-to-roadside wireless communication capability.

### What Booz Allen Did

Booz Allen Hamilton, a leading strategy and technology consulting firm, is the lead integrator for development of the national architecture and design and implementation of the development test environments in Detroit, Michigan, and San Francisco, California. Proof-of-concept (POC) testing and application development are possible in these locations. In addition, Booz Allen is working with the DOT to support the program's overall management and technical performance. We lead program management activities, including consolidated schedule development and monitoring, integrated status reporting, quality assurance, and risk management. As systems integrator, Booz Allen uses a comprehensive life-cycle development methodology to support all aspects of VII system engineering. Our role as VII systems integrator requires coordination across multiple development teams and diverse organizations, including original equipment manufacturers, telematics vendors, and communications equipment providers.



#### About Booz Allen

Booz Allen Hamilton has been at the forefront of strategy and technology consulting for more than 90 years. Providing a broad range of services in strategy, operations, organization and change, information technology, systems engineering, and program management, Booz Allen is committed to delivering results that endure.

#### For more information contact

**Craig Pickering**  
Senior Associate  
703/917-2654  
pickering\_craig@bah.com

**Robert Kreeb**  
Senior Associate  
703/917-2225  
kreeb\_bob@bah.com

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As the infrastructure developer, Booz Allen brought together innovative intelligent transportation systems technologies with an intelligent roadside communications infrastructure. Over-the-air communication between vehicles and this infrastructure uses 5.9 GHz dedicated short-range communication radios based on the Wireless Access for Vehicular Environment and IEEE 802.11p standards. The infrastructure design integrates roadside intelligent wireless access points with a nationwide backbone network. The infrastructure contains network-based telematics services, including anonymous sensor data upload and distribution, location-specific advisory and safety messages, high-accuracy positioning, localized map distribution, and dynamic map validation. Booz Allen provided an integrated information security solution, including defense-in-depth security controls, security event monitoring, encrypted communications, integrated certificate-based identity and access management, and web services security to support the program's stated information security, privacy, and anonymity policy objectives. For the POC testing, Booz Allen is developing a set of public sector applications that leverage VII probe data to enable traveler information services, ramp metering analysis, corridor management planning, weather information dissemination, and data provisioning for signal timing optimization.