



Volpe, The National Transportation Systems Center

# Center for Air Traffic Systems and Operations

The Center for Air Traffic Systems and Operations supports the development of aviation systems that alleviate air traffic congestion, improve safety, and mitigate environmental impacts. We specialize in planning, research, testing, and evaluation activities in support of the development of the Next-Generation Air Transportation System (NextGen). Our work also supports real-time, operational communication, navigation and surveillance (CNS) and decision support systems operating in the National Airspace System today.

## What We Do

### Air Navigation and Surveillance

The Air Navigation and Surveillance Division conceptualizes, evaluates, and supports the deployment



U.S. Department of Transportation  
**Research and Innovative Technology Administration**

John A. Volpe National Transportation Systems Center

of navigation- and surveillance-related systems, enhancing the capacity, safety, security, and efficiency of traffic operations and management. We support the Federal Aviation Administration (FAA) as well as other federal agencies and international entities.

### Aviation Systems Engineering

The Aviation Systems Engineering Division develops and tests prototypes and models for airport terminal and surface systems and procedures; conducts safety analyses for all air transportation domains; develops and tests prototypes and models for airport surface traffic management; and provides NextGen system engineering expertise.

### Air Traffic Management Systems

The Air Traffic Management Systems Division applies information technology and operations research disciplines to enhance the capacity, safety, and security of the National Airspace System. The team develops concepts and designs automated decision-support tools that provide solutions to existing and anticipated traffic flow issues. A key component of this work is developing and maintaining technologies that enhance the operational capabilities of existing air traffic management systems and procedures. Many of the system connectivity

*(continued on page 2)*

resources necessary to continuously support these applications are housed within the Volpe Center.

### **Aviation Facilities and Business Services**

The Aviation Facilities and Business Services Division provides program management support, including schedule, cost, and risk management, for major FAA facility replacement projects. The division performs system engineering to ensure that FAA facility requirements are fully defined and met, and provides information technology support for the performance analysis of the National Airspace System. It provides technical and financial review of FAA telecommunications services requests, and provides business and financial management oversight support for major FAA programs.

### **Aircraft Wakes and Weather**

The Aircraft Wakes and Weather Division assists the FAA in safely reducing the impacts of aircraft wake separation on the capacity of the nation's airports and airways. The division designs and conducts measurements of wake behavior and atmospheric conditions at major airport, and then analyzes the data in terms of potential new or improved operational procedures for Air Traffic Control. It develops and tests new wake, weather and visibility sensors, and operates the Otis Weather Test Facility to support these activities.

### **NextGen System Development Program Office**

The NextGen System Development Program Office serves as a focal point for Volpe's support to major NextGen implementation programs. It is responsible for support to the Air-Ground Digital Data Communications program (Data Comm) and manages the Traffic Management Infrastructure System (TMIS) contract that provides support to several other major programs.

## **Our Capabilities**

- Systems engineering
- Risk-reduction of wake encounters at major airports
- Positioning, Navigation and Timing (PNT) architecture planning
- NextGen surface management systems prototype implementation
- Surveillance system development and implementation support
- Automated decision-support tools development for U.S. and international air traffic management providers
- Planning, development, and implementation of support for aviation infrastructure

## **Our Sponsors**

- Federal Aviation Administration
- National Aeronautics and Space Administration
- U.S. Air Force
- U.S. Department of Homeland Security – Transportation Security Administration
- Boeing Commercial Airplanes

## **Technical Centers at Volpe**

- Transportation Policy and Planning
- Safety Management Systems
- Environmental and Energy Systems
- Transportation Logistics and Security
- Infrastructure Systems and Engineering
- Air Traffic Systems and Operations
- Human Factors Research and System Applications
- Advanced Transportation Technologies

## **Contact Us**

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