



Volpe, The National Transportation Systems Center

# Air Traffic Systems and Operations

Our 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 operational communication, navigation, and surveillance (CNS) and decision support systems operating in the National Airspace System (NAS) today.



U.S. Department of Transportation  
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## What We Do

### Air Navigation and Surveillance

Volpe's Air Navigation and Surveillance Division conceptualizes, evaluates, and supports the deployment 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

Volpe's 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

Volpe's Air Traffic Management Systems Division applies information technology and operations research disciplines to enhance the capacity, safety, and security of the NAS. Our 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 resources necessary to continuously support these applications are housed within Volpe.

### Aviation Facilities and Business Services

Volpe's Aviation Facilities and Business Services Division provides program management support, including schedule, cost, and risk management, for major FAA facility replacement projects. We perform system engineering to ensure that FAA facility requirements are fully defined and met, and provide information technology support for the performance analysis of the NAS. Our team 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

Volpe's 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. We design and conduct measurements of wake behavior and atmospheric conditions at major airports, and analyze the data in terms of potential new or improved operational procedures for Air Traffic Control. Our team develops and tests new wake, weather, and visibility sensors, and operates the Otis Weather Test Facility to support these activities.

### NextGen System Development

Volpe's 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 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
- 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 systems
- Planning, development, and implementation of support for aviation infrastructure

## Our Sponsors

- Federal Aviation Administration
- National Aeronautics and Space Administration
- Department of Defense
- Transportation Security Administration
- Boeing Commercial Airplanes

## Contact Us

Steven R. Lang, Director  
Air Traffic Systems and Operations  
Volpe, The National Transportation Systems Center  
55 Broadway  
Cambridge, MA 02142

[steven.lang@dot.gov](mailto:steven.lang@dot.gov)  
617-494-2357  
[www.volpe.dot.gov](http://www.volpe.dot.gov)