

AN INTRODUCTION TO THE

# John A. Volpe National Transportation Systems Center

## The History of the Volpe Center

SERVING THE NATION AS A LEADER IN GLOBAL  
TRANSPORTATION INNOVATION SINCE 1970



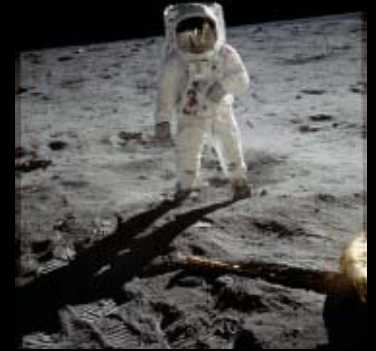
Photos: [Pedbikeimages.org](https://pedbikeimages.org/)/RyanSnyder; DOT; Corei; Photodisc; Photodisc; Photodisc; Coristock

**John A. Volpe National Transportation Systems Center**



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

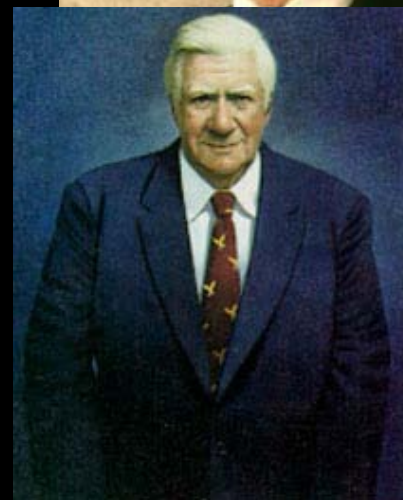




NASA's Electronic Research Center (ERC) became DOT's Transportation Systems Center (TSC) in 1970 shortly after NASA announced it was closing

*(Apollo 17 night launch 1972 and Buzz Aldrin on the Moon, courtesy nasaimages.org)*





Then Secretary of Transportation John Volpe and the Massachusetts Congressional delegation including Ted Kennedy, Tip O'Neill and Ed Boland were instrumental in transitioning NASA's ERC into DOT's TSC





The Center was a charter tenant at what became the nationally-renowned Kendall Square high technology complex next to MIT in east Cambridge MA

*(ERC in the late 1960s)*





The Volpe Center pioneered the use of alcohol breath analysis as a transportation safety feature [DOT, FTA]





Wake Vortex research has been a major Volpe Center activity [FAA]





Among the transit technologies the Volpe Center assessed was the Morgantown WV "People Mover" at West Virginia University [UMTA/FTA]





The Volpe Center remains a leader in highway-rail grade crossing safety [FRA]





One of the earliest Volpe Center environmental projects was measuring noise levels from aircraft and motor vehicles [FAA, FHWA]



The Volpe Center assists in vehicle crashworthiness and crash avoidance research and analysis [NHTSA]

*(Pictured are media stars Vince and Larry, the Crash Test Dummies)*





**GREEN FLAG**  
*EVERYONE WELCOME*

**YELLOW FLAG**  
*COMMERCIAL*

- **TRUCKS** BURDEN OF PROOF
- **CARS** ON CUSTOMER


**RED FLAG**  
**CLOSED** **NO GAS**

[www.fueleconomy.gov](http://www.fueleconomy.gov)

model year **2010**

**Fuel Economy Guide**

fuel economy (mpg) for your vehicle



**U.S. DEPARTMENT OF ENERGY**  
**EPA**

U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
U.S. Environmental Protection Agency

Volpe Center research led to the development of the first Corporate Average Fuel Economy (CAFE) standards in the 1970s. We continue to be an active participant in the CAFE program to the present day [NHTSA]



The Volpe Center developed several anti-hijacking airport security screening systems [FAA]



The Volpe Center developed the rail flaw detection car and deployed it to such locations as the Alaska Railroad [FRA]



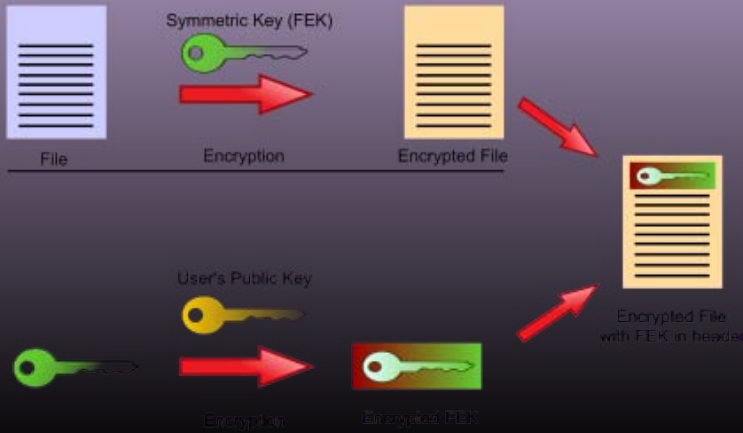


After several major safety incidents, the Volpe Center began non-destructive testing of automotive and aircraft tires and deepwater hoses [FAA, NHTSA]

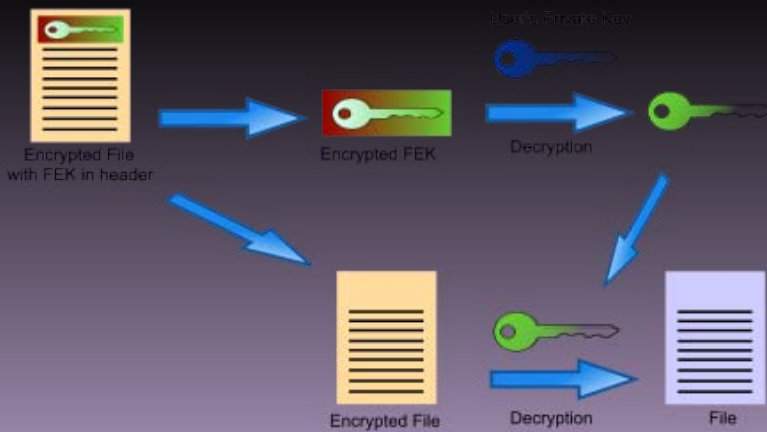


Railcar crashworthiness research support DOT, Amtrak, railroads and local transit authorities [FRA,FTA]

## FILE ENCRYPTION



## FILE DECRYPTION



The Volpe Center was an early contributor to enhanced computer and information systems security for its sponsors [DOD, DOD, etc.]

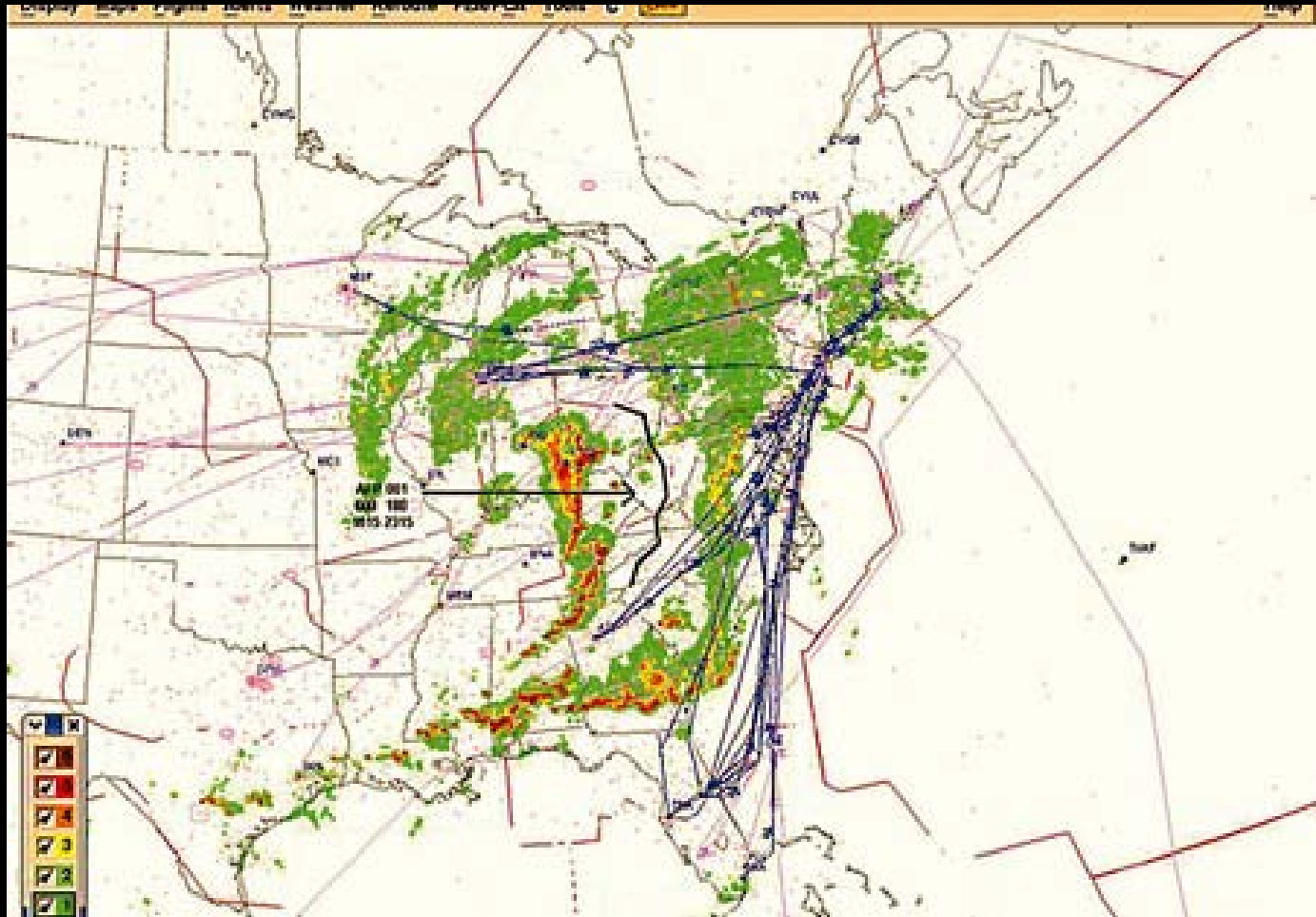




Volpe Center supports motor carrier safety programs such as Compass and CSA 2010 [FMCSA]



The Volpe Center was a major contributor to such air traffic control concepts as the Advanced Automation System and Air Traffic Management System (ATMS) [FAA]



The Volpe Center developed the Enhanced Traffic Management System (ETMS) for the FAA and has continued to refine and manage this key air traffic control tool [FAA]





The Volpe Center became a major support for both enhanced port security activities and the Defense Department's logistics modernization effort [DOD]

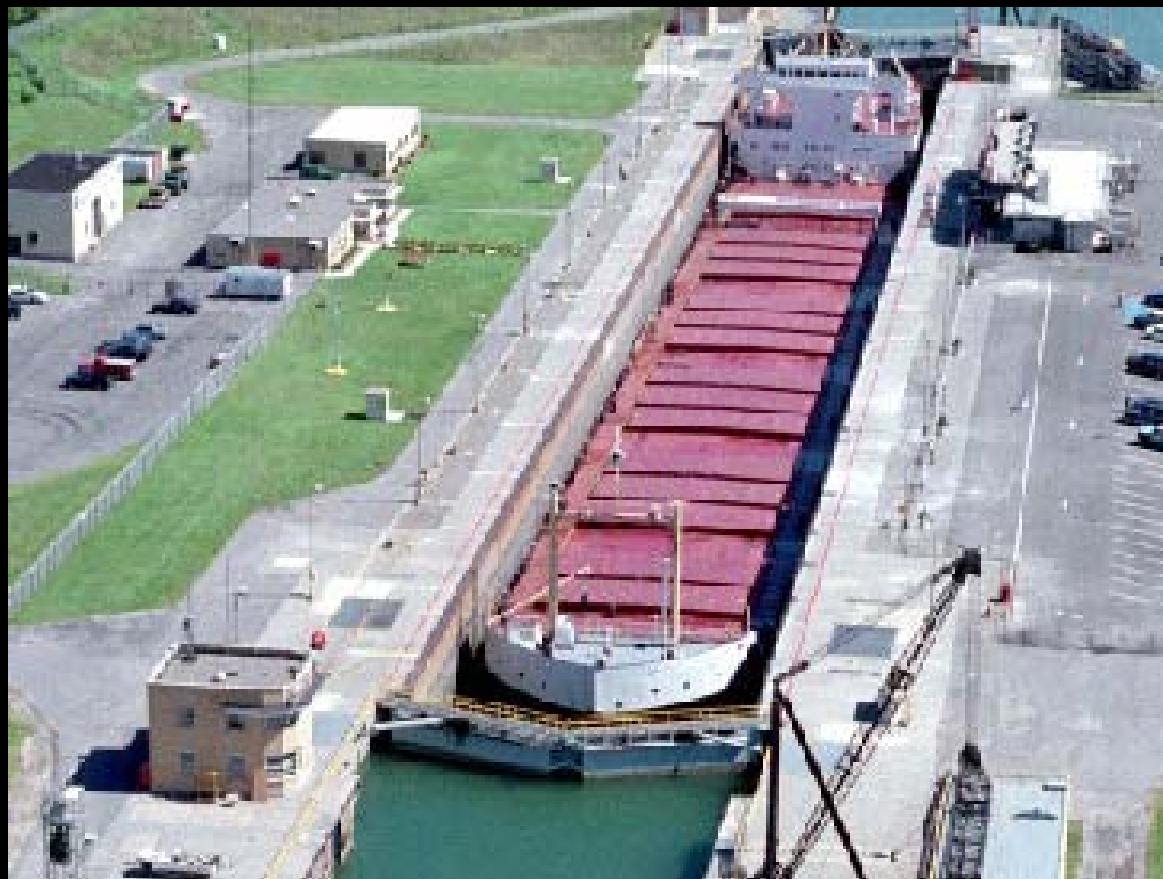
*(Pictured is Port of Long Beach CA)*





The Volpe Center responded to terrorist attacks against USMC barracks and US Embassy in Lebanon with a major effort to enhance physical security at USG facilities *[State Dept.]*

*(Pictured is US Embassy Amman, Jordan, after enhancements)*

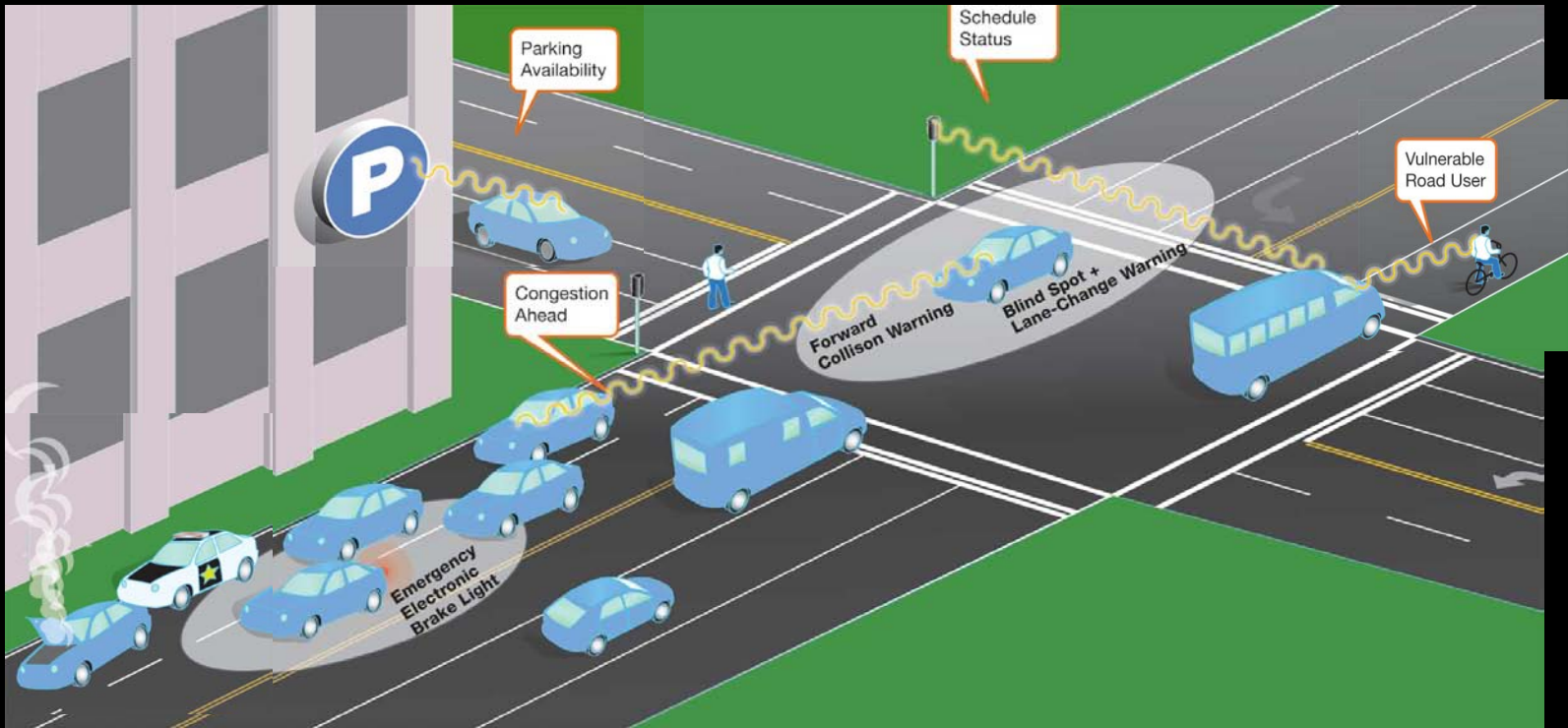


Volpe Center developed and deployed navigation aids (NavAids) along the St. Lawrence Seaway [SLSDC]

*(Pictured is the Eisenhower Locks at the St. Lawrence Seaway)*







The Volpe Center was among the originators of the IVHS/ITS program starting in the late 1980s



988 After 89,090 flight cycles on a 737-200, metal fatigue lets the top go in

The Aloha Airlines mid-air disaster in 1988 led to studies of Aging Aircraft and metal fatigue [FAA]





Environmental remediation became a major project cluster with cleanups of DOT sites and assistance to other agencies [FAA, USCG, FRA, EPA, etc.]





The Volpe Center has investigated alternative transportation fuels— including hydrogen, electric, ethanol, biofuel and hybrids – for every major mode [FHWA, FTA, OST, RITA, etc.]



The Volpe Center also studies advanced transportation technologies in other nations [FRA,FTA.OST]

*(Pictured is the Shanghai Airport Maglev Service, Volpe Center photo)*





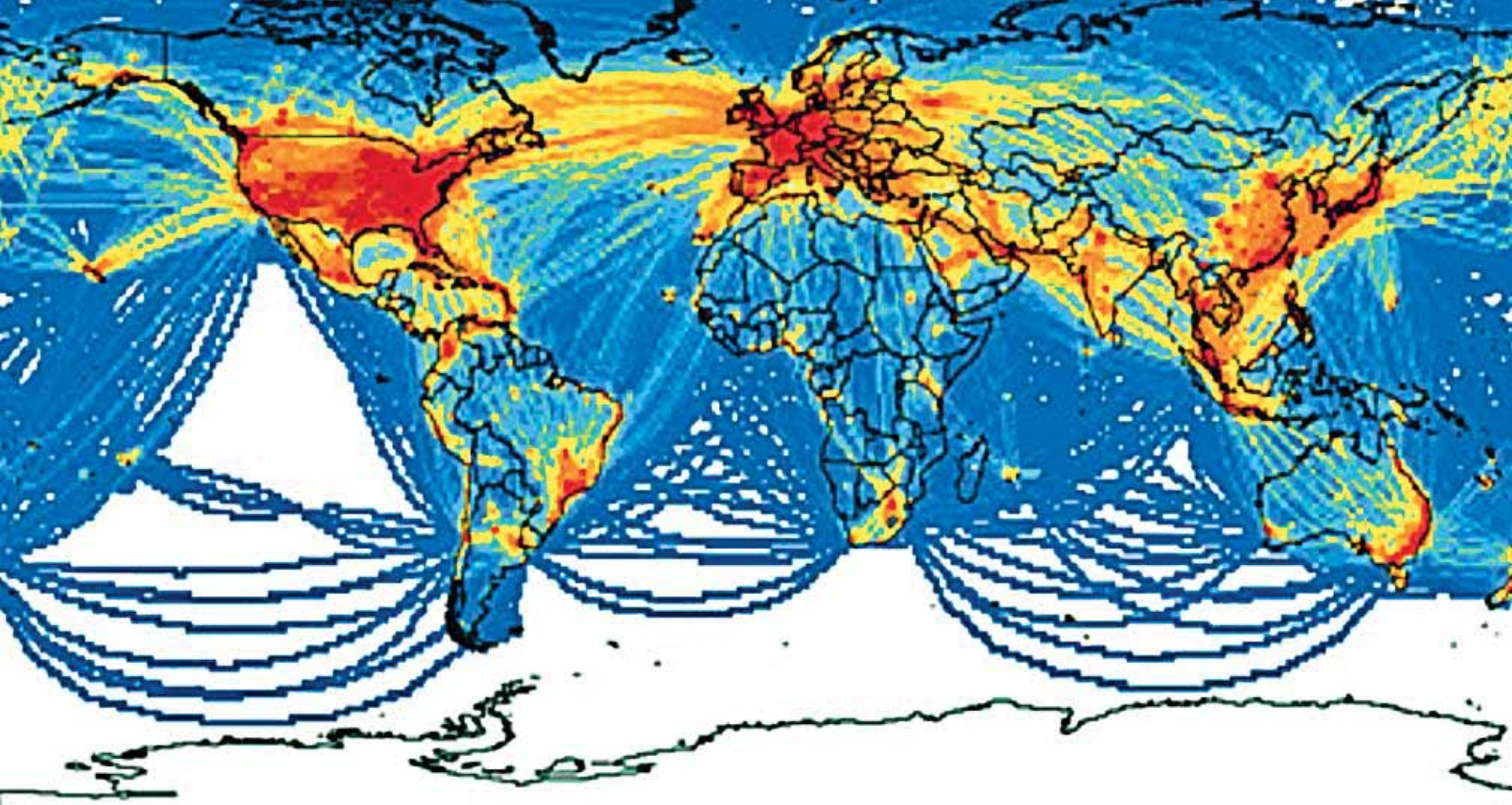
Volpe Center staff have supported military deployments to the Middle East over the past three decades [DOD]





Volpe Center experts participated on two Investigation boards of space shuttle accidents in the 1980s and again in the 2000s [NASA]

*(Space shuttle launch photo courtesy of NASA)*



The Volpe Center developed the System for assessing Aviation's Global Emissions (SAGE) and Aviation Environment Design Tool (AEDT) to calculate aviation's contribution to climate change [FAA]







The Volpe Center's 1994 *Boston-New York Rail Improvement Study* laid the foundation for Amtrak's all-electric Acela high-speed service in the North East Corrido [FRA, FTA]





The Volpe Center has developed information systems and performed safety and risk analyses for hazmat transportation in several modes (PHMSA, RITA)





Volpe Center technical teams improved navigation and vessel traffic management in the Panama Canal, and later applied that system to the St. Lawrence Seaway, and numerous U.S. ports [PCC, SLSDC, etc.]

*(Pictured is the Panama Canal)*



# Some things were never meant to be mailed

It is illegal and extremely dangerous to mail restricted or prohibited hazardous materials



Many common items may be classified as hazardous materials and may present unanticipated dangers when placed in the mail. These items include:

- *Cosmetics*
- *Cleaning supplies*
- *Explosives (fireworks)*
- *Many flammable liquids, and solids, combustible liquids (gasoline)*
- *Items under pressure (aerosols)*

*Ask first!*



**HAZMAT**

- *Paints, varnishes and thinners*
- *Pesticides and herbicides*
- *Liquor*
- *Oxidizers, organic peroxides*
- *Radioactive materials*
- *Toxic substances (poisons)*

## Keep the Mail Safe

"Are you shipping something liquid, fragile, perishable or potentially hazardous?"



1

Ask before attempting to mail any prohibited or restricted items

**Explosives:**  
fireworks, ammunition

**Corrosives:**  
chlorine bleach, ammonia, drain cleaners, acid, wet cell batteries, items containing mercury

**Poisonous materials:**  
pesticides, tear gas, pepper spray

**Flammable liquids and solids:**  
gasoline, some paints and inks, alcohol, some cosmetics, matches, signal flares, tool/equipment containing fuel or vapors

**Compressed gasses:**  
aerosols, air bag inflators, butane, CO<sub>2</sub> cartridges

**Radioactive materials:**  
products with a radioactive warning, pacemakers

**Oxidizers:**  
fertilizers, photo finishing supplies, peroxides, swimming pool chemicals

**Infectious substances:**  
blood and urine specimens, used medical equipment

**Other materials:**  
magnetized materials, dry ice

For more information, ask a retail associate for a Hazardous Materials brochure (Notice 107).

2

Check restrictions for your shipping box

Reused packaging and boxes are only acceptable for shipping when ALL markings and labels are removed or completely marked out.



YES



NO

In response to the ValueJet airline crash in 1996, the Volpe Center assisted the U.S. Postal Service to develop a publicity campaign about hazardous materials and the mail system [USPS]





The Volpe Center has issued numerous analyses of the potential vulnerabilities of the nation's transportation system to both natural disasters and man-made threats [OST, PCCIP, etc.]





1990s: The Volpe Center is a nationally-recognized center of expertise on the Global Positioning System (GPS), its uses in transportation and its vulnerabilities [FAA, RITA]

*(Pictured is GPS Block IIR-M satellite)*





The Volpe Center is managing environmental remediation activities at Libby MT, site of a former asbestos mine [EPA]





Safe Trip 21 is among the many important ITS projects the Volpe Center has supported. The Volpe Center was among the originators of the IVHS/ITS program [FHWA, FTA, ITS/JPO, RITA, etc.]





The Volpe Center investigates the application of 'smart card' technologies to transportation services, especially transit [FTA]

(Pictured are BART fare card machines in CA)



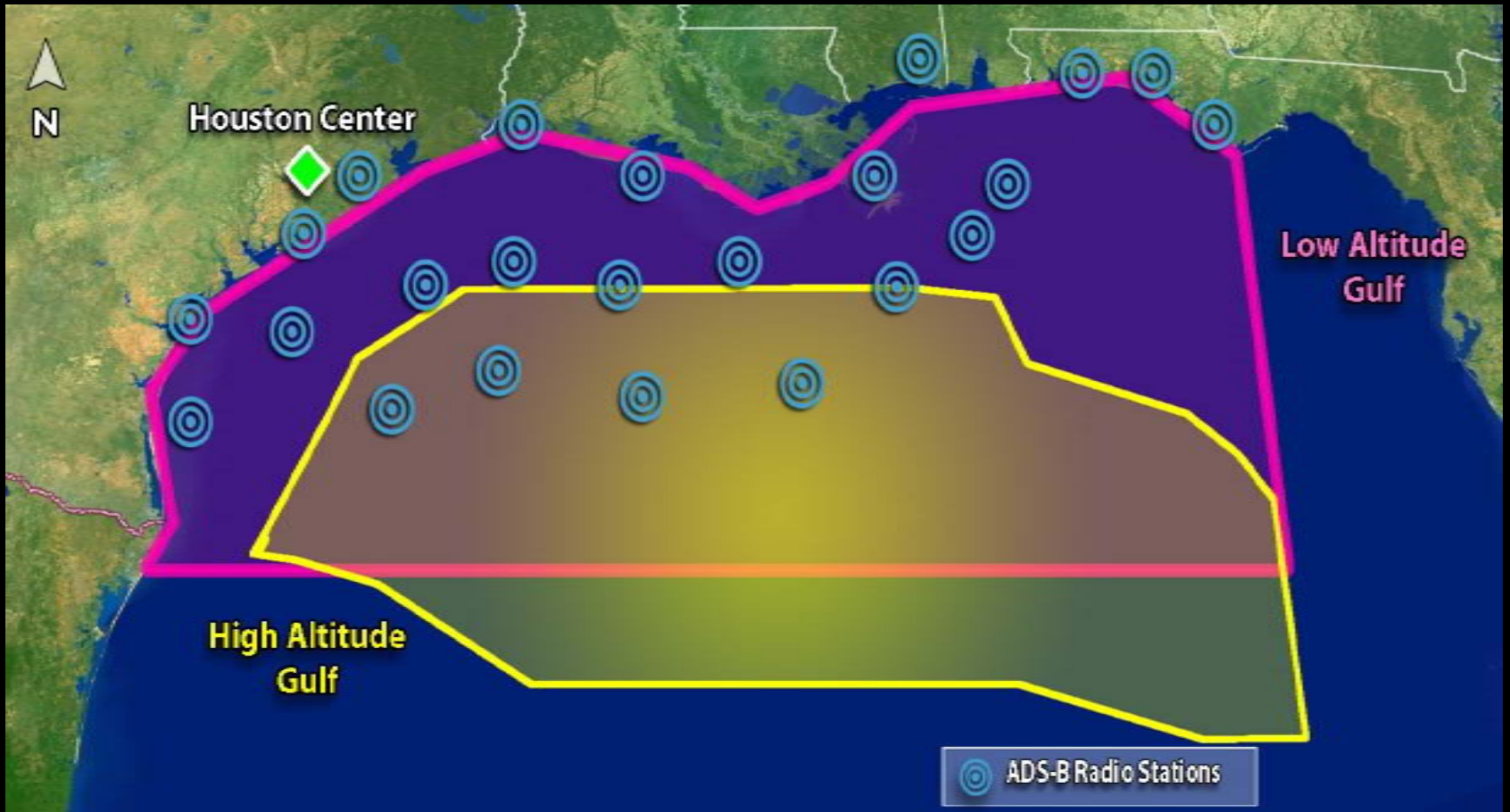


The Volpe Center is a major contributor to the Next Generation Air Traffic System (NextGen) program to modernize air traffic control [FAA, JPDO]

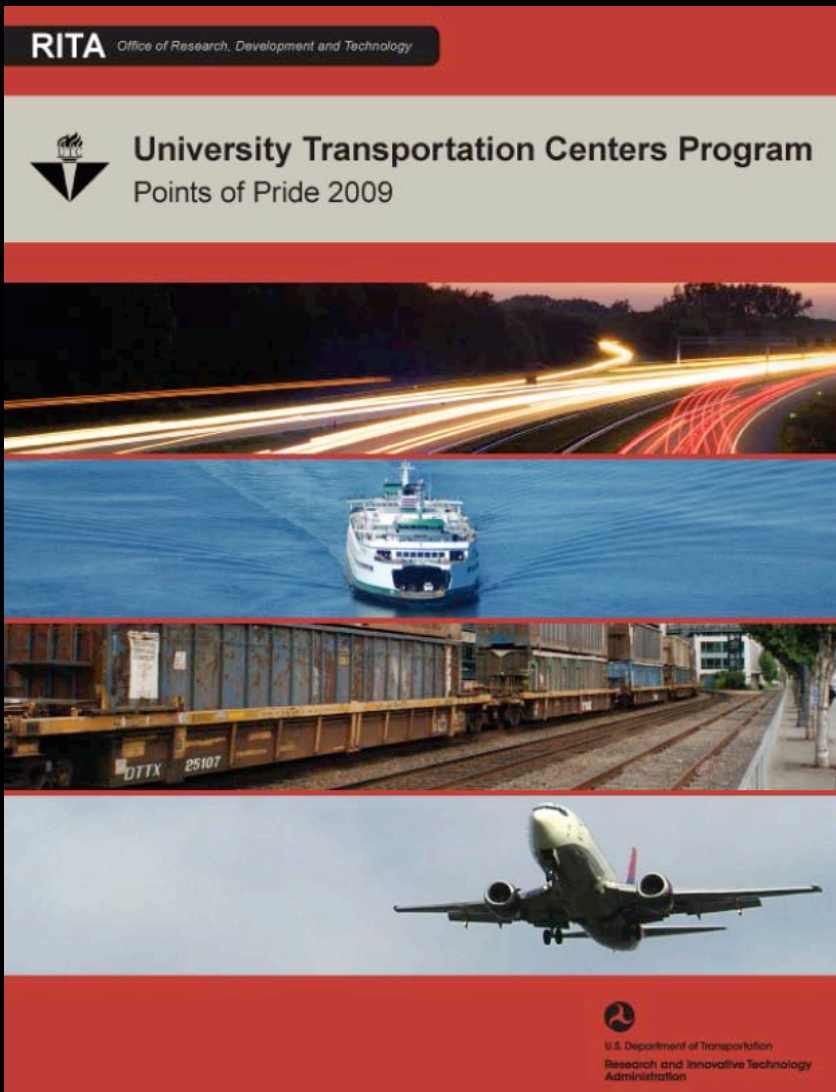




The UN asked the Volpe Center to assist in enforcing the economic blockade of Serbia during the Balkan crisis of the 1990s by monitoring the movement of vehicles and Danube-bound vessels crossing the border

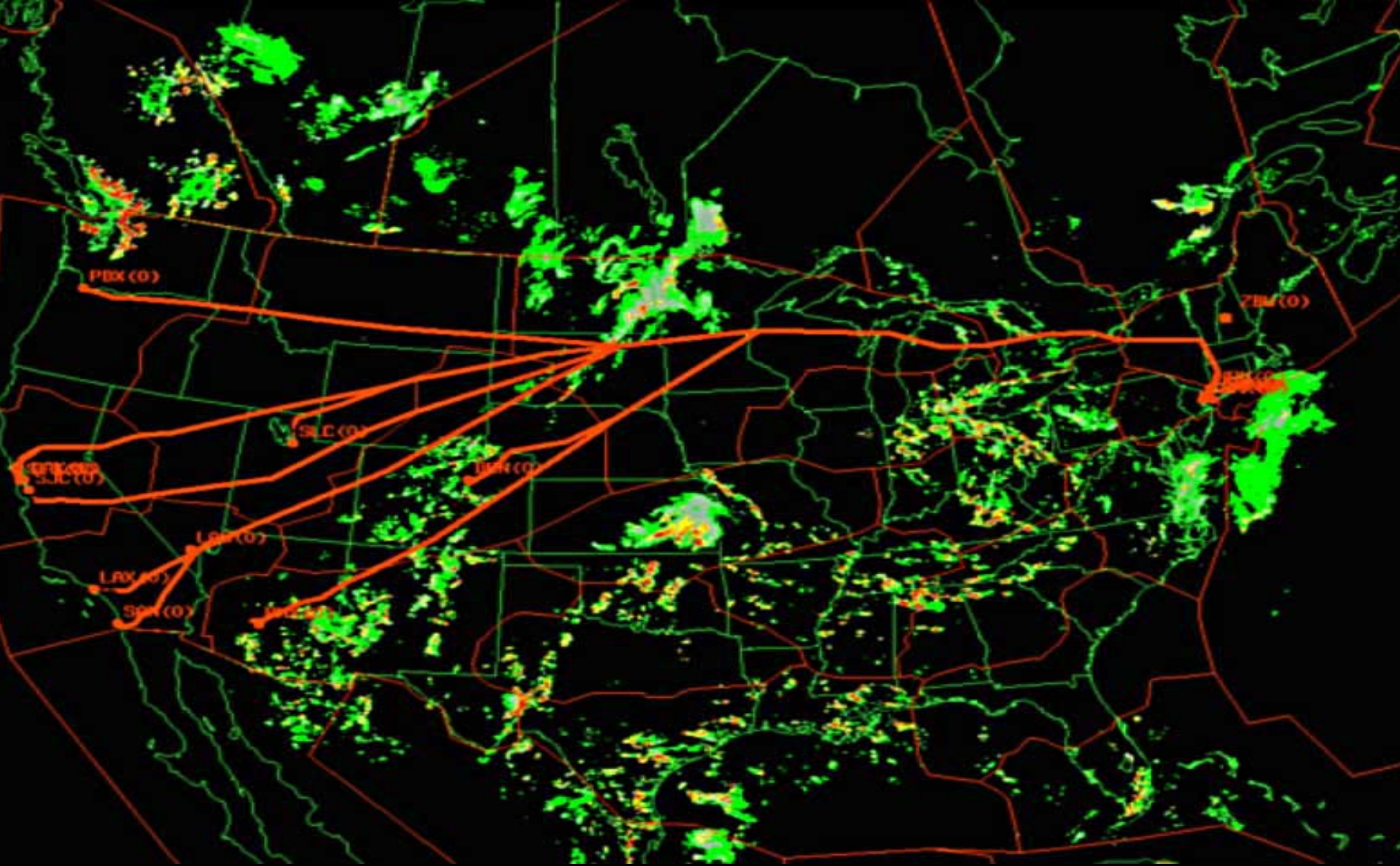


The Volpe Center provides critical support to the implementation of Automatic Dependent Surveillance-Broadcast (ADS-B), a real-time data flow system which significantly increases airspace capacity [FAA]



The Volpe Center manages the Department's SBIR (Small Business Innovative Research) and provides support to the University Transportation Centers (UTC) programs





The Volpe Center also supports developing and implementing other FAA NextGen-related tools such as System Wide Information Management (SWIM), Terminal Data Distribution System (TDDS), Integrated Terminal Weather System (ITWS) and Re-Route Impact Assessment (RRIA)



The Volpe Center has assisted DOT in responding to the need for accessible public transportation in the U.S., including the provisions of the Americans with Disabilities Act (ADA) of 1990 [FTA]





The Maritime Safety and Security Information System (MSSIS) won the prestigious “Excellence in Government” award from Harvard’s Kennedy School of Government in 2009  
*[U.S. Navy]*





Volpe Center staff have been helping to improve the United States Coast Guard's administrative, logistics, operational and training functions for the past forty years [USCG]





Volpe Center staff are key respondents to natural disasters through the DOT and FEMA emergency action programs [FEMA, OST, etc.]





The Volpe Center helped establish the “Cash for Clunkers” dealer payment processing system in a “Cloud Computing” environment [NHTSA]





The Volpe Center assisted in preparing Secretary LaHood's Distracted Driving Summit in 2009 and coordinates the DOT Safety Council that was established soon after [OST]

*(Photo courtesy wikipedia commons)*







The Center has a distinguished heritage of supporting activities that promote “livable communities”





The Volpe Center assists Federal land owners to expand their use of alternate fueled vehicles and mitigate transportation's externalities, especially emissions and noise [FHWA, FTA, NPS, FWS, etc.]





The Volpe Center is helping to review requests for High Speed Rail (HSR) grants and develop a National HSR Plan under the 2009 American Recovery and Reinvestment Act (ARRA) [FRA]



The Volpe Center is an integral part of the local Cambridge MA host community, a major employer in the city, and an active supporter of local educational, environmental and charitable activities

*(Pictured is Cambridge MA City Hall)*





The Volpe Center has won numerous commendations for the staff's outstanding contributions to the Combined Federal Campaign [CFC]





The Volpe Center is an active recruiter from the Federal Career Intern Program (FCIP) as shown in this recent photo.



Secretary Ray LaHood at the Volpe Center's Airport Runway Driving Simulator

