



**NATIONAL TRANSPORTATION SAFETY BOARD**

**An independent federal agency**

**The Honorable Christopher A. Hart  
Acting Chairman  
On Behalf of the  
National Transportation Safety Board**

**Before the**

**Subcommittee on Transportation and Public Assets and  
Subcommittee on Government Operations  
Committee on Oversight and Government Reform  
United States House of Representatives**

**Hearing on**

**D.C. Metro: Is There a Safety Gap?**

**Washington, DC  
February 13, 2015**

Chairman Mica, Chairman Meadows, Ranking Member Connolly, Ranking Member Duckworth, and Members of the Subcommittees, thank you for inviting the National Transportation Safety Board (NTSB) to testify before you today.

The NTSB is an independent Federal agency charged by Congress with investigating every civil aviation accident and significant incidents in the United States and significant accidents and incidents in other modes of transportation – railroad, highway, marine and pipeline. The NTSB determines the probable cause of accidents and other transportation events and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal Government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.

Last month, the NTSB released its Most Wanted List of Transportation Safety Improvements for 2015. Each year, we develop our Most Wanted List based on safety issues we identify as a result of our accident investigations. One of the Most Wanted areas included this year is to “Make Mass Transit Safer.” As we pointed out:

Every day, millions of people take some form of mass transit to get to or from shopping, work, classes, or other destinations. According to the American Public Transportation Association (APTA) the role of mass transit is growing – faster than population growth and faster than highway travel. Mass-transit systems must constantly be monitored and improved to maintain and enhance safety, to catch small problems before they become big ones, and to provide extra layers of protection against disasters. There are just too many opportunities for the worst to happen.

Mass-transit agencies should work to identify, define, prioritize, and mitigate the safety risks that threaten their operations and, therefore, threaten public safety. It is important to ensure efficient and effective communications and coordination among all stakeholders (for example, top and middle management, line supervisors, workers, unions, and support contractors) who are responsible for the design, maintenance, operation, and safety of the system.

Moreover, it is important to ensure that system safety trends are identified accurately and that improvements are implemented rapidly with appropriate consideration given to the affected system elements (training, maintenance/inspection schedules).<sup>1</sup>

---

<sup>1</sup> <http://www.nts.gov/safety/mwl>

## **L'Enfant Plaza Metrorail Accident, January 12, 2015**

### **Background**

On January 12, 2015, at 3:15 p.m., Eastern Standard Time, southbound Washington Metropolitan Area Transit Authority (WMATA) Metrorail train 302 stopped after encountering heavy smoke due to an electrical arcing event in the yellow line subway tunnel between the L'Enfant Plaza station and the Potomac River bridge. The arcing event occurred about 1,100 feet in front of train 302. After stopping, the rear car of the train was about 386 feet from the south end of the L'Enfant Plaza station platform. The train operator contacted the WMATA Carmen Turner Operation Control Center (OCC) in Landover, Maryland, to announce the train was stopped due to heavy smoke.

A following train (train 510), which stopped at the L'Enfant Plaza station at 3:25 p.m., also was affected by the heavy smoke. This train stopped about 100 feet short of the south end of the platform, but its cars were entirely within the station. Train 510's passengers were evacuated. Both Metrorail trains had six passenger cars, and the length of each train was about 450 feet.

WMATA Police officers provided assistance in guiding passengers from the underground platform to the surface, and some of the passengers aboard train 302 self-evacuated. Emergency responders were dispatched to the scene and assisted evacuating passengers from both trains, as well as the station. As a result of the smoke, 86 passengers were transported to local medical facilities for treatment. One passenger fatality occurred. Initial damages were estimated by WMATA to be \$120,000.

NTSB investigators have inspected the area of the accident. We have collected evidence from that area to evaluate in our laboratory, including electrical cables to the third rail, protective covering of the third rail, and water samples from water intrusion and filtration into the tunnel liner. We are also collecting evidence to verify the timeline of events from that day, which will be a critical component of the review of the response effort.

Times we know concerning the accident thus far in our investigation are as follows:

- 2:54 p.m. – Train 301 departs L'Enfant Plaza station
- 3:06 p.m. – Electrical breaker at one end of a section of third rail trips or opens
- 3:14 p.m. – Train 302 departs L'Enfant Plaza station
- 3:16 p.m. – Train 302 stops in the tunnel
- 3:16 p.m. – WMATA OCC begins activating ventilation fans to exhaust smoke from the L'Enfant Plaza platform area (under platform fans at station)
- 3:23 p.m. – Train 510 arrives at L'Enfant Plaza station
- 3:24 p.m. – WMATA OCC activates fans near arcing location in exhaust mode
- 3:50 p.m. – WMATA OCC remotely sends a command to open the electrical breaker at the other end of the third rail that had remained closed (disconnecting electrical power to the third rail).

A copy of the NTSB's preliminary factual report concerning the accident, issued on January 16, 2015, is included as an attachment to this Statement.

## Parties to the Investigation

As is the case with every event the NTSB investigates, the agency grants party status to those entities that can provide technical expertise. Parties and party participants may not withhold any information pertaining to either an accident or an incident from the NTSB. Additional information regarding the NTSB requirements and protocols for entities serving as parties to NTSB investigations is provided below. For the January 12, 2015, incident, the NTSB has designated the following organizations as parties to this investigation:

- Federal Transit Administration, U.S. Department of Transportation
- Tri-State Oversight Committee (State safety oversight agency for WMATA)
- WMATA
- Metropolitan Police Department of the District of Columbia
- Fire and Emergency Medical Services Department of the District of Columbia
- Amalgamated Transit Union Local 689
- Bureau of Alcohol, Tobacco, Firearms and Explosives, U.S. Department of Justice
- DC Firefighters Association Local No. 36, International Association of Firefighters

## NTSB Public Investigative Hearing, June 23-24, 2015

The NTSB announced last week that it will hold a two-day investigative hearing on June 23-24, 2015, to gather further information for the investigation. The hearing will be open to the public. The purpose of the investigative hearing is two-fold; first, to gather testimony from witnesses on issues identified by the NTSB during the course of the investigation, and, second, to allow the public to observe the progress of the investigation and learn more about the events of that day. The information and testimony obtained during the investigative hearing will assist the NTSB in determining the probable cause of this event and recommending actions to prevent similar events from occurring.

Issues under review by the NTSB to be addressed at the public investigative hearing include:

- Conditions leading to the electrical arcing
- Emergency response efforts
- Emergency communications—interoperability
- WMATA's efforts to improve its overall safety and safety culture (since its Fort Totten Metrorail accident in June 2009)
- The state of WMATA's infrastructure and state of good repair
- The Federal Transit Administration's rulemaking on public transportation safety
- The Tri-State Oversight Committee's oversight responsibilities

## Urgent Safety Recommendations

Although the NTSB investigation is still in the early stages, we do not have to wait until the end of the investigation to issue safety recommendations. In fact, we have identified safety issues that require immediate attention and on February 11, 2015, we issued three urgent safety recommendations to WMATA, one urgent safety recommendation to the FTA, and two urgent safety recommendations to the American Public Transportation Association.

The safety issues the NTSB identified in its urgent recommendations to WMATA relate to the following:

- WMATA does not have a written procedure addressing ventilation for smoke and fire events in a tunnel,
- The ventilation strategy implemented during this accident was not consistent with best practices, and
- The state of good repair of the WMATA tunnel ventilation system.

The three urgent recommendations to WMATA request that it assess the subway tunnel ventilation system to verify the state of good repair and compliance with industry best practices and standards, such as those outlined in National Fire Protection Association's NFPA<sup>®</sup> 130, *Standard for Fixed Guideway Transit and Passenger Rail Systems*; develop and implement detailed written tunnel ventilation procedures for operations control center staff that take into account the probable source location of smoke and fire, the location of the train, the best evacuation route, and unique infrastructure features; base these procedures on the most effective strategy for fan direction and activation to limit passengers' exposure to smoke; and incorporate these procedures once developed into its ongoing training and exercise programs and ensure that operations control center staff and emergency responders have ample opportunities to learn and practice activating ventilation fans.

The urgent safety recommendation to the FTA requests that it audit all rail transit agencies that have subway tunnel environments to assess the state of good repair of tunnel ventilation systems; written emergency procedures for fire and smoke events; training programs to ensure compliance with these emergency procedures; and verify that rail transit agencies are applying industry best practices and standards, such as the NFPA 130<sup>®</sup>, *Standard for Fixed Guideway Transit and Passenger Rail Systems*, in maintenance procedures and emergency procedures.

The two urgent safety recommendations to APTA request that it urge its members to: assess their procedures for verifying consistency with industry best practices, such as the NFPA 130<sup>®</sup>, *Standard for Fixed Guideway Transit and Passenger Rail Systems*; and conduct regular training exercises that use written ventilation procedures to provide opportunities for employees and emergency responders to practice those procedures.

The NTSB requests that WMATA, FTA, and APTA respond to the urgent safety recommendations and to detail the actions each has taken or intends to take to implement the urgent safety recommendations within 30 days.

## **NTSB Investigations of WMATA Metrorail Accidents and Incidents, 1982 to the Present**

Prior to this smoke and arcing accident, the NTSB has investigated ten accidents and three incidents involving WMATA's Metrorail in the past three decades, with six of these accidents occurring since 2006. Overall, since 1982 the NTSB has issued a total of 86 safety recommendations to WMATA concerning these accidents and incidents. Of this total, three recommendations were classified as urgent recommendations. To its credit, WMATA has favorably responded to many of the NTSB's safety recommendations and we have been able to close them as "Acceptable Action" or "Acceptable Alternate Action." A chart identifying each of the Metrorail accidents and incidents the NTSB has investigated is provided as an attachment to this statement.

Prior to last month's accident, the five most significant Metrorail accidents the NTSB has investigated are:

- Collision of two Metrorail trains near the Fort Totten Station, Washington, DC, June 22, 2009, resulting in nine fatalities, 52 injured passengers needing hospital treatment, and \$12 million in estimated damage to train equipment.
- Derailment of a Metrorail train at Smithsonian Interlocking, Washington, DC, January 13, 1982, resulting in three fatalities, 25 individuals needing hospital treatment, and an estimated \$1.3 million in property damage.
- Derailment of a Metrorail train near the Mt. Vernon Square Station, Washington, DC, January 7, 2007, resulting in 23 passengers being transported to hospitals, and an estimated cost of \$3.8 million for WMATA to replace the damaged railcars.
- Collision of two Metrorail trains at the Woodley Park Zoo-Adams Morgan Station, Washington, DC, November 3, 2004, resulting in about 20 persons being transported to hospitals for treatment, and \$3.5 million in estimated property damage.
- Rear end collision of two Metrorail trains at the West Falls Church, VA, rail yard, November 29, 2009, resulting in injuries to three Metrorail employees requiring hospital treatment, and \$9 million in estimated damage to train equipment.

### **Fort Totten Accident, 2009**

About 4:58 p.m., eastern daylight time on June 22, 2009, inbound Metrorail train 112 struck the rear of stopped inbound Metrorail train 214. The accident occurred on aboveground track on the Metrorail Red Line near the Fort Totten station in Washington, D.C. The lead car of train 112 struck the rear car of train 214, causing the rear car of train 214 to telescope into the lead car of train 112, resulting in a loss of occupant survival space in the lead car of about 63 feet (about 84 percent of its total length).

On July 27, 2010, the NTSB determined that the probable cause of the collision was (1) a failure of the track circuit modules, causing the automatic train control system to lose detection of the struck train and thus transmit inappropriate speed commands to the striking train up to the point of impact, and (2) WMATA's failure to ensure that the enhanced track circuit verification

test was institutionalized and used systemwide, which would have identified the faulty track circuit before the accident.

Contributing to the accident were (1) WMATA's lack of a safety culture, (2) WMATA's failure to effectively maintain and monitor the performance of its automatic train control system, (3) GRS/Alstom Signaling Inc.'s failure to provide a maintenance plan to detect spurious signals that could cause its track circuit modules to malfunction, (4) ineffective safety oversight by the WMATA Board of Directors, (5) the Tri-State Oversight Committee's ineffective oversight and lack of safety oversight authority, and (6) the FTA's lack of statutory authority to provide federal safety oversight. Contributing to the severity of passenger injuries and the number of fatalities was WMATA's failure to replace or retrofit the 1000-series railcars after these cars were shown in a previous accident to exhibit poor crashworthiness.

As a result of this investigation, we issued 34 recommendations to WMATA, FTA, the Federal Railroad Administration, U.S. Department of Transportation, Alstom Signaling, and several transit agencies that utilize the same circuit system as WMATA. All of these recommendations are being implemented by the recipients. Particularly noteworthy is the legislative action taken by the Administration and Congress in response to our safety recommendation R-10-3 issued in response to another transit authority) to the U.S. Department of Transportation to:

Continue to seek the authority to provide safety oversight of rail fixed guideway transportation systems, including the ability to promulgate and enforce safety regulations and minimum requirements governing operations, track and equipment, and signal and train control systems.

The NTSB is pleased that the enactment of the Federal Public Transportation Act of 2012 as part of the Moving Ahead for Progress in the 21st Century Act (MAP-21) authorizes the FTA to oversee the safety of public transportation throughout the United States as it pertains to heavy rail, light rail, buses, ferries, and streetcars. We have submitted comments to the FTA as it develops its rules for this oversight and hope that we will see quick action to enact these provisions.

### **Closing**

Thank you for inviting me to testify today. I am happy to answer your questions.



# **Preliminary Report Railroad DCA15FR004**

*The information in this report is preliminary and will be supplemented or corrected during the course of the investigation.*

On January 12, 2015, about 3:15 p.m. eastern standard time, Washington Metropolitan Area Transit Authority (WMATA) Metrorail train 302 stopped after encountering an accumulation of heavy smoke while traveling southbound in a tunnel between the L'Enfant Plaza Station and the Potomac River Bridge. After stopping, the rear car of the train was about 386 feet from the south end of the L'Enfant Plaza Station platform.

A following train, stopped at the L'Enfant Plaza Station at about 3:25 p.m., and was also affected by the heavy smoke. This train stopped about 100 feet short of the south end of the platform. Passengers of both trains, as well as passengers on the station platforms, were exposed to the heavy smoke.

Both Metrorail trains involved in this incident consisted of six passenger cars and were about 450 feet in length. As a result of the smoke, 86 passengers were transported to local medical facilities for treatment. There was one passenger fatality and two passengers were hospitalized in critical condition.



**Figure 1.** Damage from the arcing incident in the tunnel near L'Enfant Plaza Station.

NTSB investigators have inspected the area of the incident, where they observed severe electrical arcing damage to the third rail and electrical cables about 1,100 feet ahead of train 302. Recorded data shows that at about 3:06 p.m., an electrical breaker at one end of a section of third rail tripped (opened). At about 3:16 p.m. the WMATA Operations Control Center (OCC) began activating ventilation fans in an effort to exhaust smoke from the area. The electrical breaker at the other end of the third rail section remained closed; supplying power until the WMATA OCC remotely sent a command to open the breaker at about 3:50 p.m.



**Figure 2.** Damage from the arcing incident in the tunnel near L'Enfant Plaza Station.

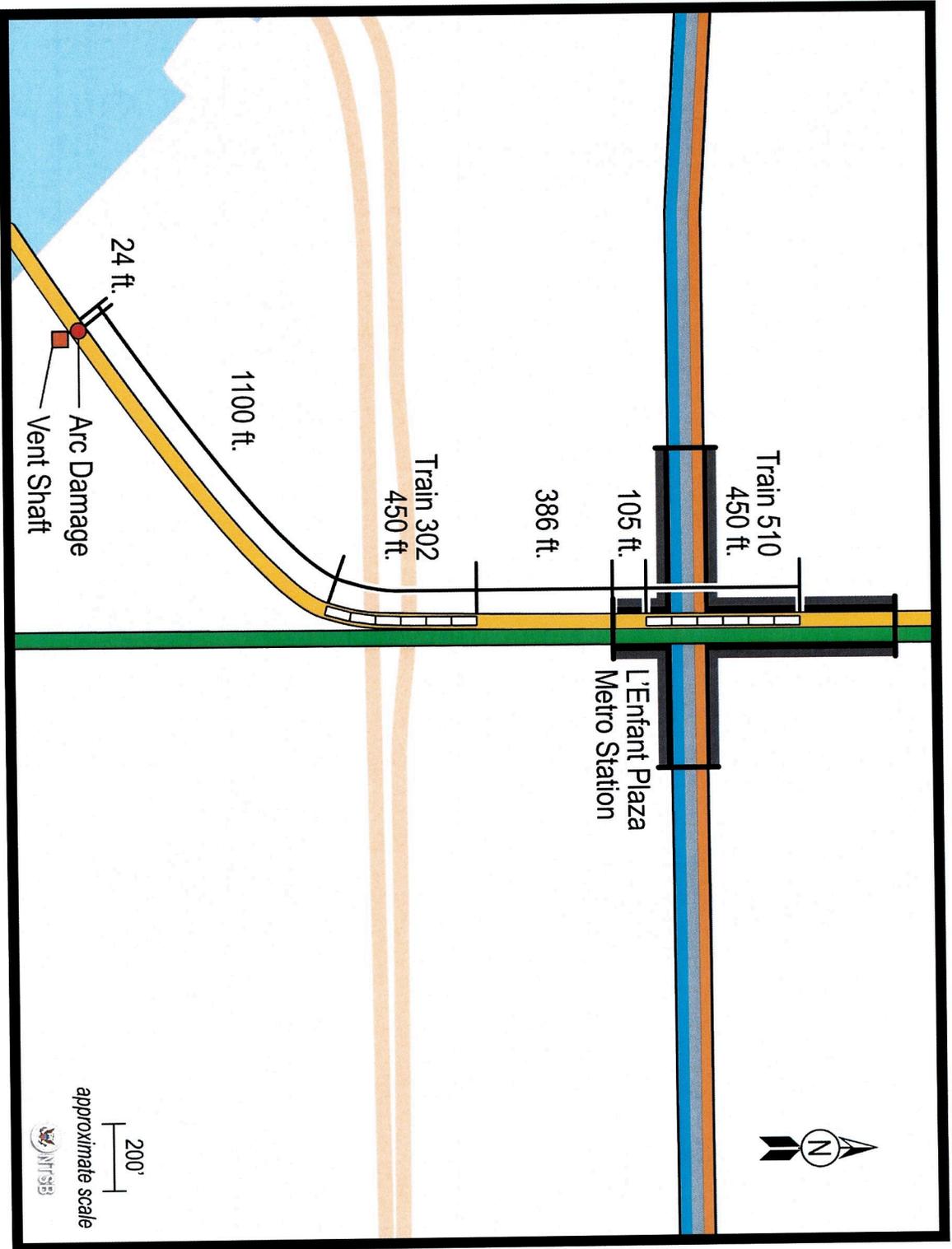
NTSB investigators are reviewing maintenance records of track, signal and power inspections, and railcar vehicles; documentation on previous events with smoke generation; maintenance and repair records of the tunnel exhaust fan/ventilation operations; WMATA emergency response and evacuation plans; and employee training records. Investigators have also collected material samples from the incident site and are examining the samples at the NTSB Materials Lab. In addition, NTSB investigators are currently conducting interviews with personnel involved, and have begun the collection and review of all available surveillance video.

The NTSB has formed the following technical investigative working groups:

- Operations
- Survival Factors
- Fire Science
- Signal and Power
- Track
- Civil Engineering/Infrastructure
- Mechanical/Equipment
- Recorders

The NTSB Transportation Disaster Assistance Division is providing support to the WMATA victim assistance team.

Parties to the investigation include: the Federal Transit Administration, Tri-State Oversight Committee, Washington Metropolitan Area Transit Authority, Amalgamated Transit Union Local 689, and the Bureau of Alcohol, Tobacco, Firearms and Explosives.



**NTSB INVESTIGATIONS INVOLVING WMATA METRORAIL 1982 – 2015**

<b>ACCIDENT DATE</b>	<b>DESCRIPTION</b>	<b>FATALITIES</b>	<b>INJURIES</b>	<b>EST. PROPERTY DAMAGE</b>	<b>NUMBER OF SAFETY RECOMMENDATIONS TO WMATA</b>
1/13/1982	Derailment of Train 410 at Smithsonian Interlocking, Washington, DC	3	25	\$1.3 M	33
6/19/1987	Derailment of CSX Corporation freight railcars fouling Metrorail Red Line track near Takoma Park, MD station (incident)	0	0	Not reported	2
9/5/1987	Derailment of CSX Corporation freight railcars fouling Metrorail Red Line track near Fort Totten Station, Washington, DC (incident)	0	0	Not reported	
9/17/1987	Fouling of Metrorail Red Line track near Silver Spring, MD Station due to debris from a CSX Corporation train striking heavy construction equipment on CSX track (incident)	0	0	Not reported	
1/9/1996	Collision of Train T-111 with Standing Train at Shady Grove Station, Gaithersburg, MD	1	0	Between \$2.1M and \$2.6M	20
11/3/2004	Collision Between Train 703 and Train 105 at the Woodley Park-Zoo/Adams Morgan Station, Washington, DC	0	20	\$3.5M	3 (One Urgent)
5/14/2006	Red Line Train Striking WMATA Wayside Worker near Dupont Circle Station, Washington, DC	1	0	Not reported	4
11/30/2006	Yellow Line Train Striking WMATA Wayside Workers near Eisenhower Avenue Station, Alexandria, VA	2	0	Not reported	4 (identical to the 4 Recs. issued after the 5/14/2006 accident)

**NTSB INVESTIGATIONS INVOLVING WMATA METRORAIL 1982 – 2015**

<b>ACCIDENT DATE</b>	<b>DESCRIPTION</b>	<b>FATALITIES</b>	<b>INJURIES</b>	<b>EST. PROPERTY DAMAGE</b>	<b>NUMBER OF SAFETY RECOMMENDATIONS TO WMATA</b>
1/7/2007	Derailment of Train 504 near the Mount Vernon Square Station, Washington, DC	0	0	\$3.8M	6
6/22/2009	Collision of Train 112 and Train 214 near the Fort Totten Station, Washington, DC	9	52	\$12M	16 2 Urgent 1 to WMATA Board
11/29/2009	Collision of Train 902 with standing train at West Falls Church Station, Falls Church, VA	0	2	\$9M	0
1/26/2010	WMATA Hi-Rail Maintenance Vehicle Striking WMATA Wayside Workers near Rockville Station, Rockville, MD	2	0	Not reported	0
2/12/2010	Derailment of Train 156 near the Farragut North Station, Washington, DC	0	3	\$174,000	0
1/12/2015	Smoke and Electrical Arcing Accident between the L'Enfant Plaza Station and Potomac River Bridge, Washington, DC	1	86	Under investigation	Under investigation

Search this site...

Advanced Search

Home > NEWS & EVENTS > Speeches & Testimony > Christopher A. Hart > Biography

SHARE    ...

## Biography



### Honorable Christopher A. Hart

Member Christopher A. Hart was sworn in as a Member of the National Transportation Safety Board on August 12, 2009, and designated by the President for a 2-year term as Vice Chairman of the Board on August 18, 2009. In August 2013, President Obama nominated him for a second term as Board Member and after Senate confirmation of his nomination, the President, in October 2013, designated him for a third term as Vice Chairman. He has served as Acting NTSB Chairman since April 26, 2014 and in July 2014 was nominated by the President to serve as Chairman of the NTSB.

Hart joined the Board after a long career in transportation safety, including a previous term as a Member of the NTSB. Immediately before returning to the Board in 2009, Member Hart was Deputy Director for Air Traffic Safety Oversight at the Federal Aviation Administration (FAA). He was previously the FAA Assistant Administrator for System Safety.

He served as a Member of the NTSB from 1990 to 1993. After leaving the Board, he served as Deputy Administrator of the National Highway Traffic Safety Administration, before moving to the FAA in 1995.

From 1973 until joining the Board in 1990, Member Hart held a series of legal positions, mostly in the private sector. He holds a law degree from Harvard University and Master's and Bachelor's degrees in Aerospace Engineering from Princeton University. He is a member of the District of Columbia Bar and the Lawyer-Pilots Bar Association.

Hart is a licensed pilot with commercial, multi-engine, and instrument ratings.

Hart's family has a tradition of accomplishment in the field of transportation. His great uncle, James Herman Banning, was the first African-American to receive a pilot's license issued by the U.S. Government in 1926.

His 2 year appointment as Vice Chairman will end 10/20/15.

His 5 year term as a Member will end 12/31/17.

### Speeches and Testimony

[Read Vice Chairman Hart's remarks concerning transportation safety>](#)

#### Resources

- Press Releases
- Speeches/Testimony
- Databases
- Accident Dockets
- Training Center
- Safety Recommendations
- Strategic Plan, Performance & Accountability Reports & More
- Media Resources

#### About Us

- Organization
- Office Locations
- Investigative Process
- Directions to Conference Center
- Board Members
- Contact Us
- Employment
- Web Policies & Notices

#### NTSB.gov

- Site Map
- Org Chart
- FOIA
- No Fear
- Privacy Statement
- Open.gov

#### Publications

- Accident Reports
- Annual Review of Aircraft
- Accident Data

