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AVIATION SAFETY: THE HUDSON RIVER MIDAIR COLLISION AND THE SAFETY OF AIR OPERATIONS IN CONGESTED SPACE

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SEPTEMBER 15, 2009

Printed for the use of the Committee on Commerce, Science, and Transportation

U.S. GOVERNMENT PRINTING OFFICE

54–284 PDF WASHINGTON : 2010

For sale by the Superintendent of Documents, U.S. Government Printing Office
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ONE HUNDRED ELEVENTH CONGRESS

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AVIATION SAFETY: THE HUDSON RIVER MIDAIR COLLISION AND THE SAFETY OF AIR OPERATIONS IN CONGESTED SPACE

TUESDAY, SEPTEMBER 15, 2009

U.S. SENATE,
SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND SECURITY,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:34 p.m. in room SR–253, Russell Senate Office Building, Hon. Byron L. Dorgan, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. BYRON L. DORGAN, U.S. SENATOR FROM NORTH DAKOTA

Senator DORGAN. I am going to call the hearing to order. I want to thank everyone for joining us today.

Senator Lautenberg, who had requested the hearing, is on the floor of the Senate. He will be with us momentarily. And at some point, Senator Lautenberg will also continue chairing the hearing.

But I want to thank everyone for joining us.

The purpose of this hearing is to review the midair collision of a plane and a helicopter over the Hudson River, but more generally, as a result of that tragedy, to review the issue of the safety of airspace where there is significant aircraft activity which includes on-demand traffic. We do not wish to diminish the value and the importance of on-demand traffic. That is not the purpose of this.

But Senator Lautenberg had originally requested this hearing. Obviously, the safety of the Hudson River airspace is important to him and his constituents and it is important to all of us as well.

On August 8, 2009, a helicopter and a private airplane collided over the Hudson River killing both pilots, five passengers on the helicopter and two passengers aboard the airplane. That tragic accident should cause the FAA to review the safety of what is known as the Hudson River Class B Exclusion Area, as well as the more general safety of on-demand aircraft. On-demand operators are subject to less oversight and regulation than are scheduled commercial air carriers and they tend often to operate in higher risk environments such as flying at lower altitudes, departing and arriving at unfamiliar airports, and conducting more takeoffs and landings. And as a result, on-demand operators are more likely, much more likely based on the data to have a fatal accident than

commercial air carriers, according to Government statistics that we have.

Many safety regulations applicable to on-demand operators have not been updated since 1978. Since this time, the on-demand industry has changed significantly, especially in light of modern aircraft, new technologies, and new operating environments.

While the NTSB has not finished its investigation into this accident, they have, in fact, issued several safety recommendations for the Hudson River Exclusion Area. In addition, the FAA established a special panel following the midair collision and also recently announced topics of new rules it plans to implement for the Exclusion Area by November 19 of this year.

Generally, I am troubled that there has been very little action over the years updating the rules for what is called Part 135 operators like the helicopter involved in this accident. In 2003, the FAA formed an Aviation Rulemaking Committee to review Part 135 regulations and to make recommendations. After 2 years of analysis, the ARC made 124 recommendations to improve the safety of on-demand operators. To my knowledge none of the recommendations have been adopted by the FAA.

I know that Administrator Babbitt plans to have the FAA either adopt or issue responses addressing all of the many outstanding NTSB recommendations, but 16 of the recommendations of the NTSB for on-demand operators currently remain open.

Finally, I want to mention that we will significantly improve aviation safety in the future by modernizing our air traffic control system. It is unbelievable to me that we continue to use ground-based radar. We need to pass the FAA reauthorization bill through the Congress. It is out of this Committee and we are working to try to get it to the floor and to get a conference so that we can move up the date of the transition to the next generation. And this will help us with areas like the Hudson River where tall buildings in that area prevent a reliable guidance of aircraft by radar.

Now, let me just point out I think most Members of Congress very likely will have traveled in the area we are talking about today. The Hudson River airspace is a very busy airspace. There are special rules that apply to that airspace, and most of us, including myself, have flown in that airspace.

I, too, have flown by myself and also with others in charter planes in a different kind of airspace in North Dakota. In the North Dakota airspace, using VFR flight rules, we do not see a lot of traffic, and when we know of traffic that is around us, it is pretty easy to spot it. So it is a very different environment.

The Hudson River exclusion, the Class B Exclusion Area, is an acknowledgement that that is a different environment too, vastly different from what I just described as someone piloting an airplane in North Dakota. So that exclusion is designed to try to promote safety, and to recognize that there are limitations with respect to radar coverage. And as I have read and studied what happened on that day in that airspace, it occurs to me that a number of mistakes occurred. We know, of course, of an air traffic controller on the telephone at a critical time. I should not begin to start even, but a number of mistakes occurred. But in addition to the mistakes, we also now understand, having worked through it some,

that there are just significant limitations in that area with respect to ground-based radar capability.

So having said all of that, Senator Lautenberg had asked whether we would convene a hearing, and I said I thought it was valuable to do so. As I indicated, he will be with us shortly.

And we will be hearing testimony today from four witnesses: Mr. Rick Day, the Senior Vice President of Operations at the FAA; Mr. Christopher Hart, who is the Vice Chairman of the NTSB; Mr. James Coyne, the President of the National Air Transportation Association; and Mr. Edward Kragh, the Certified Professional Controller, Newark Tower, National Air Traffic Controllers Association. I appreciate all four of you being here, and I will begin asking for testimony from Mr. Day.

Again, let me say that Senator Lautenberg will be here in a while, and when he is here, I will have to leave and he will chair the hearing at an appropriate point.

But I thank all four of you for taking the time to share with us some of your thoughts and observations and provide information about what I have just described.

Mr. Day, you and all of the witnesses should know that all of your full statements will be a part of the permanent record, and we would ask all four of you to summarize. And you may proceed.

Senator Lautenberg has just come. What I would like to do, before we hear from you, Mr. Day, I have Senator Lautenberg giving an opening statement. I talked about your interest in having us call this hearing and the value, I think, of having an opportunity to discuss what happened with respect to this tragedy and more generally the issues surrounding on-demand flights. So let me call on you.

I did indicate further, as I call on you, that we are going to have four witnesses and then at some moment I will have to depart, and I have asked if you would be willing to chair the panel as well.

So, Senator Lautenberg, thank you.

STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM NEW JERSEY

Senator LAUTENBERG. And I thank you very much, Mr. Chairman. I am sorry that this subject, with all of its importance, had to be delayed because we had something on the floor going about transportation. So again, I will just take a few minutes so we can move things along.

Last month, in the middle of the travel and tourism season, in the middle of the business day, there was a terrible tragedy that took place over the Hudson River. It is an area, by the way, that I live in right essentially alongside the Hudson River in New Jersey.

A small, private airplane that took off from Teterboro Airport in New Jersey—and also I used to be a Commissioner of the Port Authority, so we had jurisdiction over that airport—collided with a tourist helicopter that took off from New York City. Nine people on the plane and the helicopter lost their lives. Clearly, our first thoughts are with the victims' families. What began as a day of anticipated fun and pleasure and business also ended as a day of disaster and mourning.

But now our thoughts are also needed to look at the future, preventing a tragedy like this from happening again. That is the reason I wrote to Chairman Dorgan and asked that we convene this hearing, and I thank him for agreeing and holding it here today.

We both agree this deadly crash highlights major safety concerns with largely unregulated and densely congested airspace below 1,100 feet over the Hudson River known as the "Exclusion Area." More than 200 aircraft fly through this area every day and pilots must navigate the busy skies through a tactic known as "see and avoid."

In this congested airspace, it is not enough for pilots to simply look both ways. Everyone knows that the employment of TCAS, or collision avoidance equipment, is now common throughout the country in small planes, as well as commercial. I sometimes sit in a second seat in an airplane, a single-engine, and we have got TCAS. It really is a wonderful system. Its mission is: avoid this kind of a thing from happening.

So, I applaud the Administrator, Randy Babbitt, for convening the New York Airspace Task Force immediately after this accident. The FAA Task Force and the NTSB have made preliminary recommendations to better manage this airspace and improve pilot and controller training. It is a good start, but we need to do more.

We need to fully staff the overburdened air traffic control towers in the New Jersey-New York region, the most congested airspace in the country. We need technology to track all aircraft operating in this airspace.

So, today, I am calling on the FAA to expedite the implementation of NextGen air traffic control technology in the New York-New Jersey airspace and work closely with air traffic controllers throughout this transition.

We also have to address the general concern about on-demand aircraft. On-demand aircraft receive less oversight from the FAA and have more fatalities for flight movement than commercial aircraft, according to a report issued by the Department of Transportation's Inspector General last month. In fact, on-demand aircraft are 50 times more likely to have a fatal accident than commercial carriers, and unfortunately, the FAA rules for on-demand aircraft have not been updated since 1978.

So, I look forward to learning what FAA intends to do to address the safety of these planes and their passengers.

Mr. Chairman, the New York-New Jersey region is one of the busiest in the country for travel tourism and economic activity. We cannot stand by and permit people's lives or our economy to be threatened by gaps in the safety of our aviation system.

Thanks, Mr. Chairman.

Senator DORGAN. Senator Lautenberg, thank you very much for your leadership on this issue.

Mr. Day, you may proceed.

STATEMENT OF RICHARD L. DAY, SENIOR VICE PRESIDENT FOR OPERATIONS, AIR TRAFFIC ORGANIZATION, FEDERAL AVIATION ADMINISTRATION

Mr. DAY. Chairman Dorgan, Senator Lautenberg, and Members of the Subcommittee, thank you for inviting me here today to dis-

cuss the very sad events of August 8, 2009 and what FAA is doing to create a safer operating environment over the Hudson River.

Mr. Krakowski and Ms. Gilligan send their regrets that they cannot appear before you today. They do want me to express that everyone at FAA grieves with the families over the loss of life that occurred that day. When such events do occur, we redouble our efforts to make the skies safer. My colleagues at FAA and throughout the aviation industry approach this work with seriousness and urgency.

Since the investigation of the accident remains under the formal processes of the NTSB, I will not be commenting on the specifics of the accident. I will, however, share with you the immediate actions we have taken, as well as discuss some of our longer-range plans to improve safety.

It is important to note that following the accident on August 14, the FAA formed the New York Airspace Task Force, made up of both internal and external stakeholders, to review the current procedures for Hudson River operations with regard to safety of flight, operations, and regulatory compliance and to make recommendations to Administrator Babbitt no later than August 28, just 2 weeks later. These recommendations are available to the public and will be published in the *Federal Register* tomorrow and we expect to be able to implement these, following the public comment period, by November 19, 2009.

I will make use of some prepared slides to provide an overview of these recommendations to the Committee. The first two slides outlining the eight recommendations are contained in your package, and we will, in the interest of time, pass over those. They will be articulated as part of the presentation.

If we go to chart 1, chart 1 is a top-down view of the accident location. It gives an orientation of the New Jersey and New York airports, the Hudson River, as well as the Statue of Liberty, and gives an overview of the area of the accident.

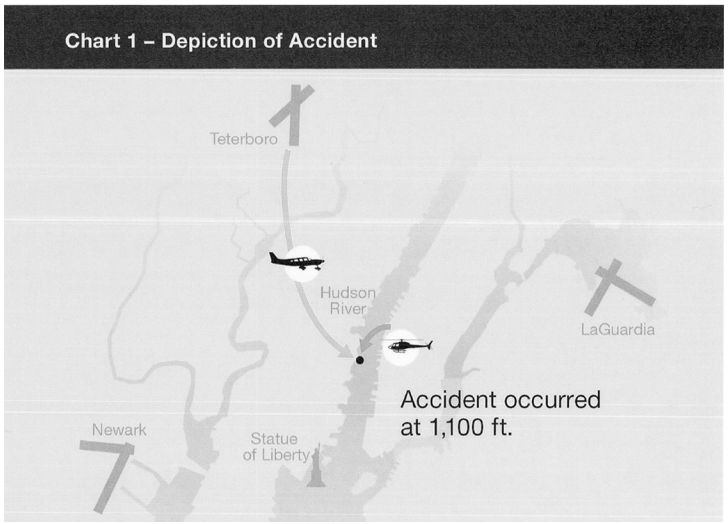
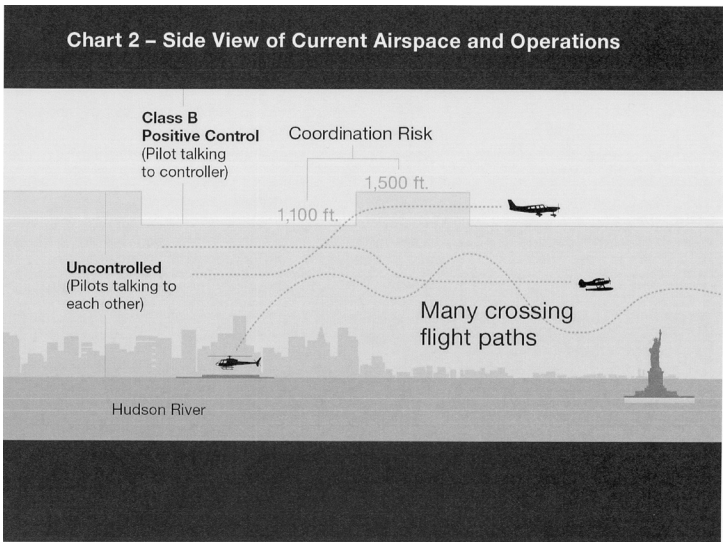


Chart 2 is a side view of the current airspace and operations. I would like to draw your attention to the Class Bravo airspace at the top of the slide. Class Bravo airspace is airspace designed and regulated by rulemaking. Its purpose is to contain air transport category-type operations in the vicinity of air transport-type airports to protect the safety of those flights and to assure that everyone in that airspace is talking to a controller and is equipped with equipment to make sure we have positive identification of that aircraft.



In this case, an examination of the Class Bravo airspace shows the floor of that airspace fluctuates between 1,100 and 1,500 feet. This has an opportunity for coordination risks or, in some cases, because of the different floor levels, a risk of being on one frequency when you should be on a radio frequency talking to another controller.

Below that airspace is uncontrolled airspace where pilots operate under the "see and be seen" visual flight rules. This contains a mix of both transit aircraft, over 200 per day, that are flying up and down the Hudson River, as well as float planes and helicopter aircraft maneuvering for their mission in the vicinity of the Hudson River and along the sides of the river.

Chart 3. This is a top view of the current airspace and operations. I would like to draw your attention to the area of the accident. Local and overflight traffic merge in this area and because of the various missions, we have a high concentration of aircraft frequently at 1,100 feet. I will speak more to that in a moment.

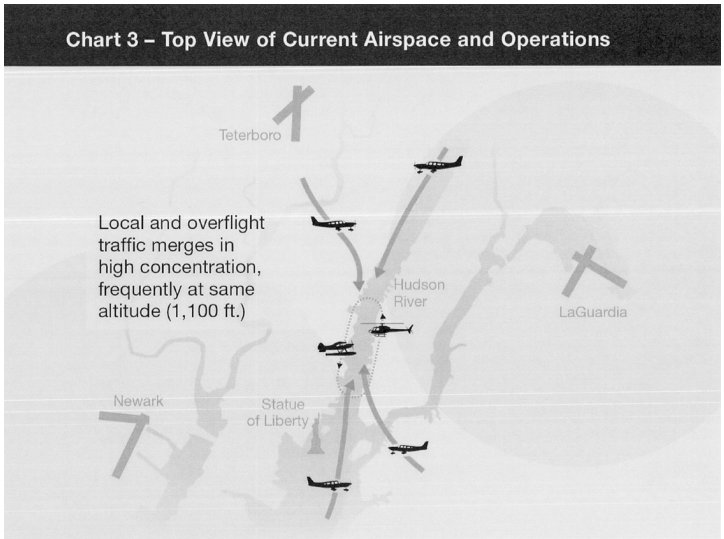
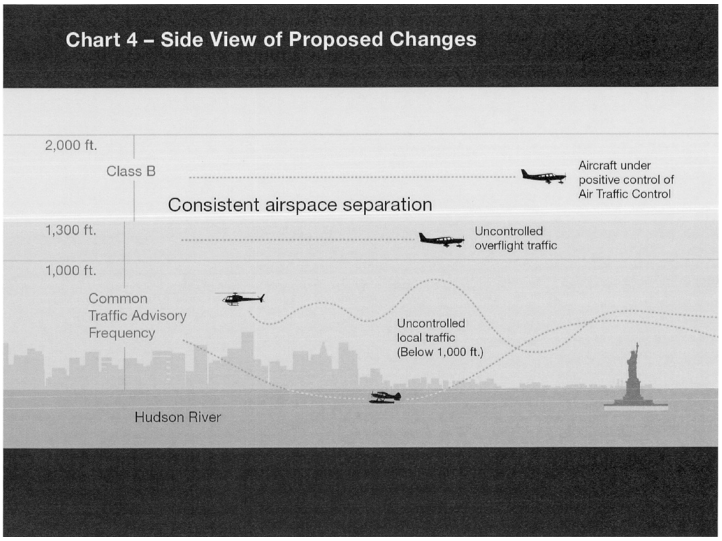
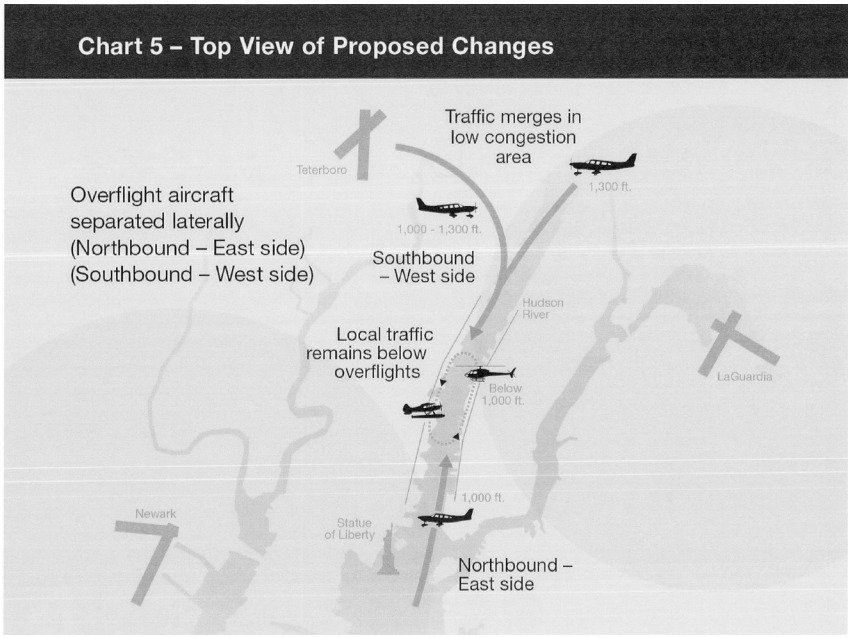


Chart 4 is a side view looking from the New Jersey coast toward Manhattan. Our recommendations from the Task Force include the Class Bravo airspace floor which will be configured at a consistent altitude of 1,300 feet. For those VFR aircraft that wish to receive Class Bravo VFR advisories, they will operate between 1,300 and 2,000 feet under the control of air traffic controllers. Between 1,000 and 1,300 feet, the aircraft transiting the area or on a VFR flyway will be contained at those altitudes and on a common traffic advisory frequency. And for that local traffic of float planes, law enforcement, Coast Guard, et cetera, they will operate below 1,000 feet, and, again, be on a common traffic advisory frequency.



If we could turn to chart 5, which continues with the proposed recommendations: for those aircraft that are departing under visual flight rules from Teterboro, rather than merging in that high area of concentration I spoke to, they will be instructed to depart east and join the corridor over the George Washington Bridge. This is a much less congested area, and this will give them an opportunity to exercise due caution operating in that airspace. Likewise, for those aircraft northbound, they will hug the east side of the Hudson River, and those southbound, the west side, much like we do on the Nation's highways.



In addition, those procedures that we have recommended to date, which have been effective in assuring safety will be mandated now to assure a higher level of safety and to be responsive to the Board's recommendations. This required aircraft to identify their aircraft type, color, and direction. They will also have to have their collision lights on, as well as their landing lights, and they will operate at a speed no greater than 140 knots. They will also be required to carry a set of new charts with them in addition to their sectional VFR charts, and also those charts containing the operations of the helicopter-type operations below, as well as the VFR transition routes. Likewise, the helicopter and float plane operations will have similar charts.

These proposed rules will be published in the *Federal Register* with a 30-day comment period, and we expect to have these ready for publication and implementation by November 19.

That ends my oral presentation. I look forward to your questions.

[The prepared statement of Mr. Day follows:]

PREPARED STATEMENT OF RICHARD L. DAY, SENIOR VICE PRESIDENT FOR OPERATIONS, AIR TRAFFIC ORGANIZATION, FEDERAL AVIATION ADMINISTRATION

Chairman Dorgan, Senator DeMint, and Members of the Subcommittee:

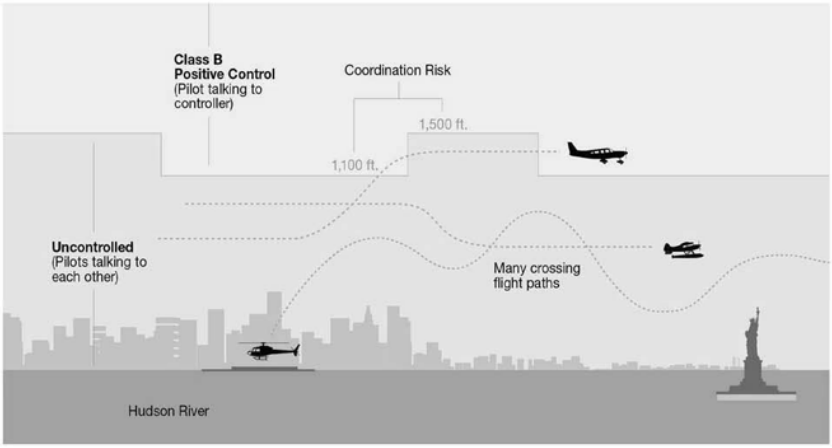
Thank you for inviting me here today to discuss the very sad events of August 8, 2009, and what FAA is doing to create a safer operating environment over the Hudson River. Everyone at FAA grieves with the families over the loss of life that occurred that day. When such events do occur, we redouble our efforts to make the skies safer. My colleagues at FAA and throughout the aviation industry approach this work with seriousness and urgency.

Since the investigation of the accident remains under the formal processes of the National Transportation Safety Board (NTSB), I will not be commenting on the specifics of the accident. I will, however, share with you the immediate actions we have taken, as well as discuss some of our longer-range plans to improve safety.

The FAA's first action was taken on August 11. We issued a Notice to Airmen (NOTAM) that reiterated our recommended best practices for conduct of flight in the airspace of the Hudson River corridor. New York airspace is very restricted by a large volume of "Class B" airspace, which is designed to provide positive protection of airliners using LaGuardia, John F. Kennedy International, and Newark Liberty International Airports. All aircraft within Class B airspace must be under positive control by air traffic controllers.

There are areas known as "VFR flyways," where we permit aircraft operating under Visual Flight Rules (VFR) to fly within a defined corridor and below certain altitudes without being under positive air traffic control. These VFR flyways use "see and be seen rules," where pilots are responsible for maintaining safe distance from other aircraft. In New York, this VFR flyway is commonly called the "exclusion area," which has existed in some form since 1971, and is bounded by the Hudson River and has a ceiling of either 1,100 feet or 1,500 feet. (See Figure 1.)

Figure 1 – Side View of Current Airspace and Operations



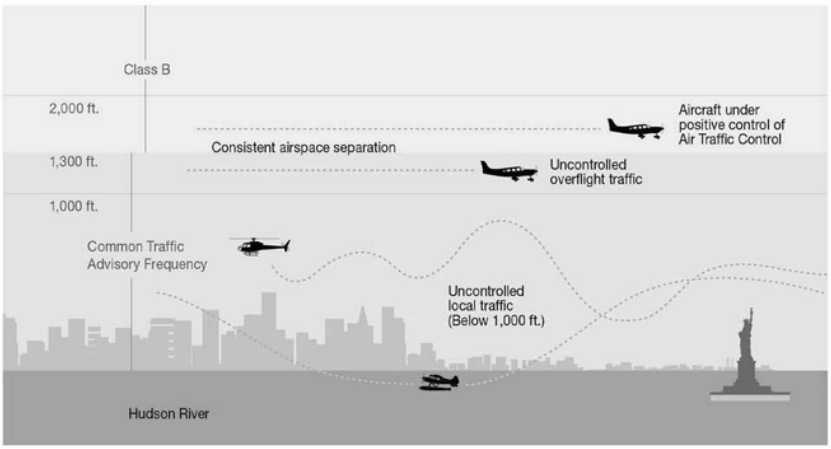
The August 11 NOTAM reiterated long-recommended practices for this VFR flyway, including speed limitations (not exceeding 140 knots) and taking precautionary measures (turning on anti-collision, position/navigation, and/or landing lights and self-announcing their position on the Hudson River frequency for all other aircraft to hear).

We recognized this was only the first step to assess and enhance the safety of Visual Flight in this area. On August 14, 2009, we chartered a New York Airspace Task Force to review the current procedures for Hudson River operations, specifically with regard to safety of flight, operations, and regulatory compliance and make recommendations to Administrator Babbitt no later than August 28—just 2 weeks later. The Task Force consisted of FAA air traffic and aviation safety experts, as well as air traffic controllers representing the National Air Traffic Controllers Association (NATCA) who work in this area. We also had input from key stakeholders—such as Helicopter Association International, the Aircraft Owners and Pilots Association, and the Port Authority of New York/New Jersey. The group delivered these

recommendations to Administrator Babbitt on time on August 28. We thank the Task Force members for their efforts, particularly given the short timeline. Because we believe that their recommendations will enhance the safety of this airspace, we intend to implement their recommendations via expedited rulemaking and revised letters of agreement with the area airports and operators.

The Task Force recommended eight specific safety and operational enhancements that would restructure the airspace, mandate pilot operating rules, create a new entry point into the Hudson River airspace from Teterboro, and standardize New York area charts and maps. They also recommended developing new training for pilots, air traffic controllers, and helicopter operators so they will be fully trained and ready for implementation of the new rules. One of the most significant changes would divide the airspace into altitude corridors that separate aircraft flying over the river from those operating to and from local heliports or seaplane bases. (See Figure 2.)

Figure 2 – Side View of Proposed Changes



This new exclusionary zone would be comprised of three components:

- It would establish a uniform "floor" for the Class B airspace over the Hudson River at 1,300 feet, which would also serve as the "ceiling" for the exclusionary zone. This removes some confusing complexity that currently exists.
- Between 1,300–2,000 feet, aircraft will operate in the Class B airspace under visual flight rules but under positive air traffic control and communicate with controllers on the appropriate air traffic frequency.
- Below 1,300 feet, aircraft must use a single common radio frequency. Mandatory routes for aircraft flying up and down the river will require them to favor the "right side" of the river (*i.e.,* the east side for northbound traffic and the west side for southbound traffic) to provide horizontal separation as well.
- Coordination of traffic and handoffs between Air Traffic Controllers at the Teterboro tower, Newark tower, and radar control will be improved.

The new rules will mandate that pilots use two specific radio frequencies—one for the Hudson River and the other for the East River. It mandates speeds of 140 knots or less and the use of anti-collision lights and landing lights in the VFR routes. The rules would also require pilots to announce their position when they reach various points up and down the river. Pilots would also be required to have charts available in the aircraft and to be familiar with and comply with the airspace rules.

The FAA also intends to propose standardized procedures for fixed-wing aircraft leaving Teterboro to enter either the Class B airspace or the exclusionary zone. The proposal would require that before an aircraft planning to enter the Class B airspace takes off, Teterboro controllers would request approval from the Newark tower for the aircraft to climb to 1,500 feet. Aircraft from Teterboro that want to enter the VFR flyway would be directed by air traffic control to fly a special route over the George Washington Bridge, which would allow them to enter the Hudson River airspace in a much less congested area.

The FAA expects the expedited rulemaking covering these issues to be completed, and have all pilot and controller training completed in time for publication of new charts and new rules by November 19.

The effort with New York airspace has wider implications for the national airspace system. As we implement these changes in the New York airspace and have an opportunity to analyze their effectiveness, the FAA intends to examine the other major metropolitan areas and congested corridors for similar airspace and operational risks to see if such procedures would be appropriate elsewhere. We expect this larger effort to carry well into next year.

Mr. Chairman, Senator DeMint, and members of the Subcommittee, this concludes my prepared remarks. I look forward to answering any questions that you may have.

Senator LAUTENBERG [presiding]. Thank you very much.

Mr. Hart, I think you are next, please.

STATEMENT OF HON. CHRISTOPHER A. HART, VICE CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Mr. HART. Good afternoon, Senator Lautenberg. Thank you very much for the invitation to speak before the Subcommittee.

With your concurrence, I would like to begin my testimony with a short summary of the NTSB's investigative actions to date regarding the investigation of this accident involving the midair collision over the Hudson River.

I want to emphasize that this is still an ongoing investigation and that there is significant work left for our investigative staff.

My testimony today will be limited to those facts that we have identified to date, but I will not provide any analysis or make any conclusions regarding what we have found so far. Although we have identified some areas of concern that have prompted us to issue safety recommendations, we have not determined the cause of this accident or the role that any individual mechanism or organization may have played in the accident.

The Piper aircraft involved in this accident departed Teterboro Airport and was going to Ocean City, New Jersey. The aircraft was operated by a private pilot who requested a clearance to an altitude of 3,500 feet and requested VFR radar traffic advisory service. He elected to use the Hudson River Class B Exclusion Area as part of the route, which necessitated eventual coordination with controllers at Newark for authorization to climb into the Class B airspace.

The helicopter involved in the accident departed the West 30th Street heliport, which is within the Class B Exclusion Area, for a 12-minute sightseeing flight and was operated under CFR Parts 135 and 136. The initial part of the tour was to be flown below the Class B airspace so the pilot was not required to contact air traffic control.

The Piper received a takeoff clearance from the Teterboro controller at 11:48:30. At 11:50:31, the Teterboro controller began a personal telephone call and continued to handle other traffic. The Teterboro controller performed a verbal handoff to Newark, which occurred at 11:52:20. The Newark controller attempted to contact the Teterboro controller at about the same time as the verbal handoff.

This map shows a radar ground track of the Piper up to the point of the handoff to Newark. Teterboro Airport is noted at the top of the slide, and the direction of travel is denoted by the white

arrow. Also the area shaded in red indicates where the floor of the Class B airspace extends below the Piper's current altitude.

The helicopter appeared on air traffic control radar at 11:52:27, after the Piper had been verbally handed off to Newark. The Teterboro controller attempted to contact the Piper at 11:52:48, and his personal phone call ended at 11:53:13, which was 1 second before the collision. The Teterboro controller then contacted Newark to ask about the airplane and was told that the pilot had not yet called.

This plot shows the path of the Piper in yellow and the helicopter in blue up to the point of collision, which occurred at 1,100 feet. The departure heliport of the helicopter is shown in the green circle, and the directions of travel are indicated by the white arrows. Radar data shows that the airplane was at a constant altitude and the helicopter was climbing, at the time of the collision.

The collision was photographed by several witnesses, as shown on this and the next few slides. This evidence is being examined by Safety Board staff.

Next slide, please.

Senator Lautenberg, this concludes my presentation, and I would be pleased to answer any questions you may have.

[The prepared statement of Mr. Hart follows:]

PREPARED STATEMENT OF THE HON. CHRISTOPHER A. HART, VICE CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Good afternoon. With your concurrence, Mr. Chairman, I would like to begin my testimony with a short summary of the National Transportation Safety Board's (NTSB) actions to date regarding the investigation of the recent mid-air collision over the Hudson River. I want to emphasize that this is still an ongoing investigation and that there is significant work left for our staff. My testimony today will be limited to those facts that we have identified to date, but I will not provide any analysis or make any conclusions about what we have found so far. Although we have identified some areas of concern that have prompted us to issue safety recommendations, we have not determined the cause of this accident or the role any individual, mechanism or organization may have played in the accident.

On August 8, 2009, about 11:53 eastern daylight time,[1] a Eurocopter AS350 BA helicopter, N401LH , operated by Liberty Helicopters, and a Piper PA–32R–300 airplane, N71MC, operated by a private pilot, collided over the Hudson River near Hoboken, New Jersey. The certificated commercial pilot and five passengers aboard the helicopter and the certificated private pilot and two passengers aboard the airplane were killed. The helicopter flight was a local sightseeing flight conducted under the provisions of 14 *Code of Federal Regulations* (CFR) Parts 135 and 136. The airplane flight was a personal flight conducted under the provisions of 14 CFR Part 91. The airplane departed Teterboro Airport (TEB), Teterboro, New Jersey, about 11:49, destined for Ocean City, New Jersey, and the helicopter lifted off from the West 30th Street Heliport about 3 minutes later, at 11:52. Visual meteorological conditions prevailed and no flight plans were required or filed for either flight. However, the pilot of the airplane requested flight-following services from TEB air traffic control (ATC).[2] Neither aircraft was equipped with a cockpit voice recorder or a flight data recorder, nor were they required to be installed. The accident occurred in a relatively complex airspace where Class B airspace meets the Hudson River Class B exclusion area.

New York Terminal Airspace

The Federal Aviation Administration (FAA) has designated the area surrounding John F. Kennedy International Airport (JFK), Newark Liberty International Airport (EWR), and LaGuardia Airport (LGA) as Class B airspace. Class B airspace is in-

[1] All times in this testimony are eastern daylight time and based on a 24-hour clock.

[2] The preliminary reports for this accident, ERA09MA447A and B, are available online at *<http://www.ntsb.gov/ntsb/query.asp>*.

tended to provide positive control of flight operations near the Nation's busiest airports and to separate aircraft operating under visual flight rules (VFR) from aircraft operating in the airport terminal area. According to 14 CFR 91.131, all aircraft operating within Class B airspace are required to obtain ATC clearance before entry and to comply with ATC instructions while operating within the airspace. Pilots who do not have ATC clearance to enter must remain outside the Class B boundaries. Part of the New York Class B airspace extends from the surface to 7,000 feet above mean sea level in 4- to 8-mile radiuses around JFK, EWR, and LGA. Some other parts of the Class B airspace begin at higher altitudes. This allows aircraft to arrive and depart from satellite airports, such as TEB, without obtaining Class B clearance. For example, the floor of the Class B airspace overlying TEB is 1,800 feet. Thus, separation between traffic at TEB and aircraft operating within the Class B airspace is maintained by requiring aircraft without Class B clearance to remain below 1,800 feet.

The accident occurred in the Hudson River Class B exclusion area, which is a combination of Class E and Class G airspace[3] that provides a passageway through the New York Class B airspace. The Hudson River Class B exclusion area permits aircraft to fly north and south along the Hudson River between, approximately, the George Washington Bridge to the north and the Verrazano Narrows Bridge to the south without authorization from air traffic controllers. The Hudson River Class B exclusion area extends from the surface of the Hudson River up to and including 1,100 feet above mean sea level.

Prior to the accident, the FAA had established voluntary procedures for operating within the Hudson River Class B exclusion area that were designed to minimize the risk of collision. These procedures are described on the New York VFR Terminal Area Chart and the New York Helicopter Route Chart. They state that pilots operating within the Hudson River Class B exclusion area should fly at 140 knots or less; turn on position lights, anticollision lights, and landing lights; and self-announce their position on the common traffic advisory frequency (CTAF),[4] 123.05 MHz. Another accepted procedure for helicopter operations, published in the New York Helicopter Route Chart, is for northbound helicopter flights to follow along the Manhattan shoreline, and for southbound flights to follow the New Jersey shoreline, providing lateral separation between opposite-direction traffic flows.

Recent FAA traffic estimates indicate that over 200 aircraft a day pass through the Hudson River Class B exclusion area. The Hudson River Class B exclusion area and associated transition procedures have been in use for more than 30 years, and until the accident, the safety record for operations in the area had been good. The NTSB has no record of previous collisions between aircraft operating in the Hudson River Class B exclusion area. A review of the FAA Near-Midair Collision (NMAC) database and the National Aeronautics and Space Administration Aviation Safety Reporting System (ASRS) database revealed 11 reports of NMACs between aircraft in the area since 1990. Only one report was filed in the past 10 years. Although ASRS reporting is voluntary, the number of reports received is very low relative to the number of flight operations through the Hudson River Class B exclusion area.

Previous Recommendation Addressing New York Terminal Airspace

The NTSB previously addressed the conduct of VFR flights in the New York Terminal Airspace following the investigation of the 2006 crash of a Cirrus Design SR20 into an apartment building in Manhattan. The aircraft, with two pilots onboard (one of whom was New York Yankees pitcher Cory Lidle), had departed TEB at about 14:29 on October 11, 2006, operating under Part 91 with no flight plan filed. The pilots had acknowledged to ATC that the aircraft would stay out of the New York Class B airspace. After takeoff, the aircraft turned southeast and climbed to an altitude of about 600 to 800 feet mean sea level. When the flight reached the western shore of the Hudson River, it turned south, remaining over the river, then descended to 500 feet. The flight continued southbound over the Hudson River until abeam of the southern tip of Manhattan, at which point, the flight turned southwest. The aircraft flew around the Statue of Liberty, then headed northeast to fly over the East River. About a mile north of the Queensboro Bridge, the aircraft made a left turn to reverse its course. The aircraft impacted a 520-foot tall apartment

[3] Class E and Class G airspace each allow pilots to operate under VFR without mandatory service from air traffic controllers. The main practical difference between Class E and Class G airspace is the minimum ceiling and visibility requirements for flight under VFR. The Hudson River Class B exclusion area is Class E airspace from 700 feet to 1,100 feet above mean sea level and Class G airspace below 700 feet.

[4] CTAFs allow pilots to exchange traffic information while operating near airports without operating control towers. CTAF procedures may also be established in other circumstances where direct pilot-to-pilot communications will contribute to safety.

building 333 feet above street level. The NTSB determined that the probable cause of the accident was the pilots' inadequate planning, judgment, and airmanship in the performance of a 180-degree turn maneuver inside the limited turning space over the East River.

Two days following the accident, the FAA published Notice to Airmen (NOTAM) 6/3495 prohibiting fixed-wing operations (except amphibious fixed-wing aircraft landing or departing New York Skyports Inc. Seaplane Base) in the East River Class B exclusion area from the southwestern tip of Governors Island to the north tip of Roosevelt Island unless authorized and controlled by ATC. The NTSB strongly supported the FAA's quick response and issued a recommendation (A–07–38) that FAA make the NOTAM permanent. In an update to the NTSB in early 2008, the FAA indicated that it was developing a rulemaking project for a redesign for the New York and New Jersey airspace, a rulemaking project it expected to take at least 2 years. Recommendation A–07–38 is classified "Open—Acceptable Response."

The Flights in the Hudson River Accident

The pilot of the accident airplane contacted the clearance delivery controller in the ATC tower at TEB about 11:40:01, requesting departure clearance and VFR radar traffic advisory service en route to Ocean City, New Jersey, at 3,500 feet. The pilot's requested route and altitude required that the flight enter the Class B airspace overlying TEB. The clearance delivery controller issued the pilot a discrete transponder code. While the airplane was taxiing to the runway, the TEB ground/local controller offered the pilot the option of departing TEB over the river. The pilot elected to fly down the Hudson River, which necessitated eventual coordination with controllers at EWR for authorization to climb into the Class B airspace. Existing procedures did not require TEB controllers to coordinate for Class B clearance for the pilot, and the local controller did not do so.

The accident airplane departed TEB about 11:49 and was issued a traffic advisory for a helicopter arriving at the airport. The pilot acknowledged the traffic call. The local controller instructed the pilot to remain at or below 1,100 feet, which is the "top" of the exclusion airspace in that area. The airplane flew southbound until the local controller instructed the pilot to turn left (southeast) and join the Hudson River. About 11:52:20, the pilot acknowledged an instruction from the TEB local controller to change frequencies and contact controllers at EWR. The pilot read back to the controller an incorrect frequency; ATC recordings do not indicate that the incorrect read-back was heard or corrected by any air traffic controller. A preliminary review of recorded ATC communications showed that the pilot did not contact EWR before the accident. We are reviewing ATC tapes for other frequencies to see if the pilot was attempting to contact EWR on the incorrect frequency. In any case, about 11:53:17, approximately the time of the accident, the TEB local controller contacted the EWR controller to ask about the airplane and was told that the pilot had not called. There are no known additional ATC contacts with the airplane.

The accident helicopter departed from the West 30th Street Heliport, which is in the Hudson River Class B exclusion area, about 11:52, for a 12-minute tour. The initial part of the tour was to be flown below Class B airspace, so the pilot was not required to contact ATC. Although the nature of any transmissions made by aircraft on the CTAF is not known because the CTAF is not recorded, a Liberty Helicopters pilot waiting to depart from the West 30th Street Heliport reported that the pilot of the accident helicopter made a position report on the CTAF just before the collision. The first radar target for the accident helicopter was detected by the FAA's EWR radar about 11:52:27, when the helicopter was west of the heliport, approximately mid-river, and climbing through 400 feet. According to recorded radar data, the helicopter flew to the west side of the river and then turned south to follow the Hudson River. The accident helicopter continued climbing southbound until about 11:53:14, when the collision occurred at about 1,100 feet.

ATC Procedures

After the accident airplane departed from TEB, the local controller instructed the pilot to remain at or below 1,100 feet and to turn east toward the Hudson River (to avoid the final approach course for runway 22 at EWR). A review of radar data shows that the accident airplane was level at about 1,100 feet for about 2 minutes before the accident, and that, at the time the airplane turned toward the Hudson River, there were no apparent traffic conflicts that would have precluded the airplane from climbing into the Class B airspace. Because there was no coordination between TEB and EWR controllers regarding the pilot's request to climb to 3,500 feet, the airplane could not expeditiously enter the Class B airspace. Instead, the airplane continued toward the Hudson River Class B exclusion area at about 1,100 feet. About 11:52:19, almost 4 minutes after departure, when the TEB local con-

troller instructed the pilot to contact EWR ATC, the airplane was about 2 miles away from the point of collision with the helicopter.

Aircraft operating in the Hudson River Class B exclusion area depend on CTAF reports to maintain traffic awareness. However, because the pilot of the accident airplane was in contact with TEB ATC awaiting further instructions and was then instructed to contact EWR, the pilot may not have been making and monitoring the CTAF position reports. Instead, the pilot likely expected to continue to receive flight-following services from ATC. Making and monitoring CTAF reports while remaining in contact with ATC would have required the pilot to be actively transmitting and receiving on two different radios at the same time, which is especially difficult in a busy ATC environment such as the New York area. Even if the pilot had attempted it, his monitoring of CTAF would likely have been hindered by his simultaneous monitoring of ATC communications. Consequently, it is likely that the pilot did not hear any transmissions from the accident helicopter, including the helicopter pilot's self-announcement that the other Liberty Helicopters pilot reported hearing. In addition, the pilot was not advised to use the CTAF as he entered the Hudson River Class B exclusion area, nor were such advisories required.

Before departure, the pilot of the airplane had requested radar traffic advisories and was advised of "radar contact" by TEB after departure, indicating that, workload permitting, the service was being provided. According to FAA Order 7110.65, *Air Traffic Control,* providing traffic advisories to VFR aircraft is an additional service that, as the FAA order states, "is required when the work situation permits." After the initial post-departure traffic call, ATC did not advise the accident airplane pilot of potential conflicts with other aircraft ahead in the vicinity of the Hudson River Class B exclusion area. Because the first radar target for the accident helicopter was detected about 11:52:27, the helicopter was not yet visible on radar when the TEB local controller issued the frequency change to the airplane's pilot. Therefore, before the frequency change, the TEB local controller could not have detected the impending conflict between the accident airplane and the accident helicopter or issued a warning to the airplane pilot about the accident helicopter. However, radar had detected other aircraft in the vicinity of the Hudson River Class B exclusion area that were potential conflicts at that time. The TEB local controller did not advise the airplane pilot of the other traffic ahead. The EWR tower controller observed the existing traffic in the vicinity of the Hudson River Class B exclusion area and called the TEB local controller to ask that he instruct the airplane pilot to turn toward the southwest to resolve the situation. The call may have overlapped the pilot's acknowledgment of the radio frequency change instruction from the TEB local controller. The TEB controller did not hear the EWR controller's instruction clearly and requested that it be repeated. The TEB controller then attempted to contact the airplane, but the pilot did not respond. The collision occurred about 1 minute after the frequency change instruction and 26 seconds after the TEB local controller's last attempt to contact the pilot.

Prior to the accident, there were no procedures or instructions directing controllers to prevent, where possible, aircraft from entering the Hudson River Class B exclusion area while remaining in communication with ATC or to ensure, traffic permitting, that aircraft requesting Class B clearances receive approval to climb before entering the Hudson River Class B exclusion area. Effective communication on the CTAF is a fundamental component of the safety procedures established for VFR operations in the Hudson River Class B exclusion area. The NTSB believes that New York area ATC facilities must account for the importance of CTAF communications and ensure that aircraft operating near the Hudson River Class B exclusion area are either cleared into Class B airspace before reaching the Hudson River Class B exclusion area or are directed to switch to the CTAF in time to engage in effective communications with other pilots operating in the Hudson River Class B exclusion area. Further, if circumstances require that an aircraft in communication with ATC enters the Hudson River Class B exclusion area, controllers should place a high priority on providing the pilot with timely traffic advisories and safety alerts, as required by FAA Order 7110.65, *Air Traffic Control,* because the pilot is less likely to be communicating on CTAF and receiving traffic information directly from other pilots.

On the day of the accident, the TEB tower was staffed with five controllers. At the time of the accident, there were two controllers in the tower cab: one controller was working the ground control, local control, and arrival radar positions and also acting as the controller in charge of the facility; a second controller was working the flight data and clearance delivery position. The two other controllers were on a break, and the frontline manager had left the facility temporarily on a personal errand about 11:45. The local controller initiated a telephone conversation unrelated

to his work about 11:50:31, about 2 minutes after he cleared the accident airplane for takeoff. The conversation continued until 11:53:13.

NTSB Recommendations

Based on the data collected thus far in the investigation, on August 27, 2009, the Safety Board issued five safety recommendations to the Federal Aviation Administration:

> Revise standard operating procedures for all air traffic control (ATC) facilities, including those at Teterboro airport, LaGuardia airport, and Newark Liberty International airport, adjoining the Hudson River Class B exclusion area in the following ways:
>
> > a. establish procedures for coordination among ATC facilities so that aircraft operating under visual flight rules and requesting a route that would require entry into Class B airspace receive ATC clearance to enter the airspace as soon as traffic permits,
> >
> > b. require controllers to instruct pilots with whom they are communicating and whose flight will operate in the Hudson River Class B exclusion area to switch from ATC communications to the common traffic advisory frequency (CTAF) and to self-announce before entering the area,
> >
> > c. add an advisory to the Automatic Terminal Information Service broadcast, reminding pilots of the need to use the CTAF while operating in the Hudson River Class B exclusion area and to self-announce before entering the area, and
> >
> > d. in any situation where, despite the above procedures, controllers are in contact with an aircraft operating within or approaching the Hudson River Class B exclusion area, ensure that the pilot is provided with traffic advisories and safety alerts at least until exiting the area. (A–09–82)
>
> Brief all air traffic controllers and supervisors on the air traffic control (ATC) performance deficiencies evident in the circumstances of this accident and emphasize the requirement to be attentive and conscientious when performing ATC duties. (A–09–83)
>
> Amend 14 *Code of Federal Regulations* Part 93 to establish a special flight rules area (SFRA) including the Hudson River Class B exclusion area, the East River Class B exclusion area, and the area surrounding Ellis Island and the Statue of Liberty; define operational procedures for use within the SFRA; and require that pilots complete specific training on the SFRA requirements before flight within the area. (A–09–84)
>
> As part of the special flight rules area procedures requested in Safety Recommendation A–09–84, require vertical separation between helicopters and airplanes by requiring that helicopters operate at a lower altitude than airplanes do, thus minimizing the effect of performance differences between helicopters and airplanes on the ability of pilots to see and avoid other traffic. (A–09–85)
>
> Conduct a review of all Class B airspace to identify any other airspace configurations where specific pilot training and familiarization would improve safety, and, as appropriate, develop special flight rules areas and associated training for pilots operating within those areas. (A–09–86).

On September 2, 2009, the FAA announced plans to modify the airspace over the Hudson River. The NTSB will review the changes, once they are completed and published, and determine if they meet the intent of our recommendations.

Mr. Chairman, this concludes my presentation, and I would be pleased to answer any questions.

Senator LAUTENBERG. Now to Mr. Coyne.

STATEMENT OF JAMES K. COYNE, PRESIDENT, NATIONAL AIR TRANSPORTATION ASSOCIATION

Mr. COYNE. Thank you very much, Mr. Chairman. I am James Coyne, the President of the National Air Transportation Association. NATA is a public policy group representing the interests of aviation businesses before Congress and Federal agencies and State governments. We represent over 2,000 member companies

that own and operate and service aircraft and provide for the needs of the traveling public by offering services and products to aircraft operators and others such as fuel sales, aircraft maintenance, sales of aircraft parts, storage, rental, airline servicing, flight training, Part 135 on-demand air charter, fractional aircraft program management, and scheduled commuter operations in smaller aircraft. NATA member companies are a vital link in the aviation industry providing services to the general public, to airlines and the general aviation community.

I am also a member of the Flight Safety Foundation's Board of Governors. The Flight Safety Foundation was founded 60 years ago to address the problem of how to solve safety issues. The founding members believed that the industry needed a neutral ground where competitors could work together to share information, ideas, and best practices. Today the Safety Foundation's membership is over 1,100 and crosses into all segments of the aviation industry.

In addition, I am President of the Air Charter Safety Foundation, an initiative that was begun by NATA about 4 years ago, and I will discuss that in a little bit more detail.

I am an active pilot, instrument-rated, ATP pilot, multi-engine ratings with more than 35 years of flying experience and over 6,000 hours of flight time.

While the tragic collision of two small aircraft over the Hudson River was devastating to all of us—and I should point out that the fixed-wing airplane departed from one of our member companies where it had just been fueled in Teterboro only a few minutes before the accident. So we were literally the last people to see that pilot and his passengers. It is especially painful for us whenever our customers and our colleagues in aviation suffer a tragedy like this. NATA remains concerned that the intense scrutiny, however, being placed on airspace in which general aviation operate in the New York area could lead to misrepresentation of the causes for this accident.

The Hudson River corridor per se and Class B airspace in general is an area, as you point out, of significant congestion, but from what we can see of this particular accident, both of the pilots were essentially doing that which they had been instructed to do. They were following the regulations both for the Part 135 regulations and flight regulations that the helicopter pilot was expected to follow, and the Part 91 pilot was following the regulations and directions that had been given to him.

Of course, airspace is complicated, but the information about this airspace is well known to pilots and the information about these two aircraft was well known to the air traffic controllers at the time.

The sad thing was, of course, that the information about the impending accident was not available in the cockpit when the pilots needed it most sincerely.

You have a technical background I know, Mr. Chairman. You understand the importance of NextGen and upgrading our modern air traffic control system, and there is no doubt that if NextGen had been in place at the time of this accident, that the information—and this is what is really most important—the information about where the planes were would be in the hands of the people who

needed it most, the two pilots controlling those airplanes. But unfortunately, that information could not get into the cockpits at that time.

I fly in and out of Teterboro regularly, I think as you do. In fact, we have met in your office and talked.

Senator LAUTENBERG. In my civilian days, it was often.

Mr. COYNE. Well, an occasional flight to Martha's Vineyard hopefully or something like that.

But it is a wonderful airport that provides wonderful service to the greater New Jersey and—as you notice, I said "greater New Jersey" metropolitan area, which is perhaps the appropriate way to say it.

Several years ago, of course, there was a serious accident at Teterboro, and it involved an aircraft that did not adequately take off and went across the runway and collided with a building. Several people were seriously injured and killed.

After that, we decided to create something called the "Teterboro Safety Initiative," which we launched with the cooperation of the FAA, with the Teterboro Airport Management, with the unions, with the controllers, with the Port Authority of New York, working very closely with the late Bill Dakota, who I am sure you knew well. And we came up with an initiative for Teterboro to train pilots to a much higher level of understanding of the complexities of that airspace.

The most terrifying thing for a pilot is to go to an airspace or an airport that he has never been to before and deal with an awful lot of new things for the first time. This corridor along the Hudson River is one of those places. It is complex. For a pilot who is used to it, it is not complex. It is easy. For the helicopter pilot who was flying out day-in and day-out on the tours, it is a routine place to fly. But for many pilots coming there for the first time, it is complex. And we think that there is a need in addition to the recommendations coming from NTSB and the FAA, for enhanced training for the pilots, especially those that are coming to that environment, whether they are just flying to Teterboro or to Newark or to the river approach, for the first time.

So that is why we have come up with a product. We are now providing free to any aviator in this country, specific training for Teterboro Airport online for anybody who wants to go onto the Web and get the wisdom of experienced pilots, experienced controllers and others who know the types of mistakes that pilots and others can do in an unfamiliar area.

We have just begun this past week this same service for Newark Airport, and we will be producing by the end of the year, a brand new Newark Airport online pilot briefing program, so that any aircraft owner or operator coming into that airport for the first time will get far more advanced training than they could get just by looking at approach plates and things like that.

So, we think that this is the right way to go and we would hope that this same kind of training could be made available for pilots flying into the river corridor for the first time, so that before they go there, they can go online and learn everything that they can about this very special, important piece of airspace.

Now, of course, in your comments, you raised the question of Part 135 safety, and there is literally nobody you will ever meet, Mr. Chairman, who is more interested in advancing Part 135 on-demand safety than I, and hopefully you, as well. We have created the Air Charter Safety Foundation. We have launched a program of auditing charter operators across the country, something that has never been done before until this past year. We are doing much more advanced training for pilots, and we are working closely with the FAA to get the ARC recommendations, which you alluded to, which we want to see put into place as soon as possible and acted upon.

At the same time, we have met very closely with NTSB and their Chairman and hope to implement these air charter safety recommendations. But in this particular case, I think it is clear that safety has been good.

[The prepared statement of Mr. Coyne follows:]

PREPARED STATEMENT OF JAMES K. COYNE, PRESIDENT, NATIONAL AIR TRANSPORTATION ASSOCIATION

Chairman Dorgan, Ranking Member DeMint and members of the Subcommittee:

Thank you for this opportunity to appear before you today to discuss the Hudson River midair collision and safety of air operations in congested airspace.

My name is James K. Coyne, and I am President of the National Air Transportation Association (NATA). NATA, the voice of aviation business, is the public policy group representing the interests of aviation businesses before the Congress, Federal agencies and state governments. NATA's over 2,000 member companies own, operate and service aircraft and provide for the needs of the traveling public by offering services and products to aircraft operators and others such as fuel sales, aircraft maintenance, parts sales, storage, rental, airline servicing, flight training, Part 135 on-demand air charter, fractional aircraft program management and scheduled commuter operations in smaller aircraft. NATA members are a vital link in the aviation industry providing services to the general public, airlines, general aviation and the military.

I am also a member of the Flight Safety Foundation's Board of Governors. The Flight Safety Foundation was founded 60 years ago to address the problem of how to solve safety issues. The founding members believed that the industry needed a neutral ground where competitors could work together to share information, ideas, and best practices for safety. Today, the Flight Safety Foundation's membership is over 1,100 and crosses into all segments of the aviation industry. The Flight Safety Foundation brings unions and management, regulators and operators, and rival manufacturers to the table to work together to find solutions. The foundation occupies a unique position among the many organizations that strive to improve flight safety standards and practices throughout the world. Effectiveness in bridging cultural and political differences in the common cause of safety has earned the foundation worldwide respect.

In addition, I am the President of the Air Charter Safety Foundation, an initiative that I will discuss in more detail later.

I also appear today as an active pilot with instrument and multi-engine ratings and more than 30 years of experience flying who is acutely aware of many of the ongoing issues with uncontrolled airspace corridors.

While the tragic collision of two small aircraft over the Hudson River was devastating, it is important to note that these occurrences are extremely rare. NATA remains concerned with the intense scrutiny being placed on the airspace in which general aviation aircraft operate in the New York City area. NATA would like to make the following points regarding the Hudson River accident and Class B airspace.

Hudson River "Corridor" and Class B Airspace

John F. Kennedy International Airport (JFK), Newark Liberty International Airport (EWR), and LaGuardia Airport (LGA) are designated as Class B airspace by the Federal Aviation Administration (FAA). Class B airspace is intended to provide positive control of flight operations near the Nation's busiest airports and to separate aircraft operating under visual flight rules (VFR) from aircraft operating in the

airport terminal area. Seventy-eight percent of all general aviation flights operate under VFR, without radar control, which makes pilots ultimately responsible for seeing and avoiding other aircraft. Flight under VFR is only permissible when there is sufficient visibility and clearance from clouds.

Pilots may not enter Class B airspace without explicit permission from air traffic control (ATC). Although general aviation VFR flights may request entry to the Class B airspace, such requests are often denied by ATC for various reasons, forcing most VFR traffic in the New York area into the same compact airspace known as the "Class B exclusion airspace."

The FAA estimated that 200 aircraft fly through the Hudson River Class B exclusion area each day. In addition, the Hudson River Class B exclusion area and associated transition procedures have been in use for more than 30 years, and the safety record for operations in the area has been good, according to the National Transportation Safety Board (NTSB). The NTSB has no record of previous collisions between aircraft operating in the Hudson River Class B exclusion area.

NTSB and FAA Recommendations on Hudson River Corridor

The National Transportation Safety Board has already issued recommendations to the FAA for modifications to how aircraft are operated and managed by ATC in the areas. NATA agrees with the recommendations of the NTSB to revise ATC procedures and the manner in which general aviation traffic is managed in the Hudson River Class B exclusion area.

In addition, the FAA has announced preliminary information on regulatory changes to the airspace that generally coincide with the NTSB recommendations. After reviewing the information made public by the FAA, NATA supports the agency's plan to enhance safety for the NY/NJ airspace in so much as the plan will include restructuring the airspace, establishing pilot operating rules, creating new entry points into the Hudson River airspace from Teterboro, standardizing New York area charts and developing new training for pilots, air traffic controllers and businesses that operate helicopters and aircraft in the area. One of the most significant changes would be dividing the airspace into altitude corridors that separate aircraft flying over the river from those operating to and from local helicopter or seaplane bases.

Modernization

As previously stated, the Hudson River Class B exclusion area and associated transition procedures have been in use for more than 30 years, and according to the NTSB, the safety record for operations in the area have been good. However, with air traffic reaching record levels in both the commercial airline and general aviation sector, NATA believes that modernizing the Nation's air traffic control system is essential to keeping this vital transportation sector of our economy strong. In doing so, it is important to accelerate the implementation of technologies such as Automatic Dependent Surveillance-Broadcast (ADS–B) and ensure those technologies availability to general aviation operators during the upgrade to the Next Generation Air Traffic Control system.

ADS–B is the advanced surveillance technology that combines a satellite positioning service, aircraft avionics, and ground infrastructure to enable more accurate transmission of information between aircraft and Air Traffic Control (ATC). ADS–B uses information from a position service, *e.g.,* Global Positioning System (GPS), to broadcast the aircraft's location, thereby making this information more timely and accurate than the information provided by the conventional radar system. ADS–B can also provide the platform for aircraft to receive various types of information, including ADS–B transmissions from other similarly equipped aircraft or vehicles. ADS–B is automatic because no external interrogation is required, but is "dependent" because it relies on onboard position sources and onboard broadcast transmission systems to provide surveillance information to ATC and ultimately to other users.

While the FAA claims that VFR is the best approach for such airspace as the Hudson River Corridor, every general aviation operator should have the ability to purchase and receive radar positioning via satellite. 21st century technology that is available in the U.S. should be made readily available for general aviation aircraft.

Although the FAA supports modernizing its aging ground-based radar infrastructure with satellite-based navigation onboard aircraft, the agency isn't leading the charge to move forward with electronic mediums that general aviation aircraft can access before a complete overhaul of the National Airspace System (NAS) is complete.

Congress should also work with the FAA to make Teterboro Airport (TEB) a priority in several technological improvements the agency is implementing at airports

throughout the country. For example, the implementation of a new type of approach system, known as RNAV, would allow aircraft a more direct approach into the airport, avoiding lengthy circling above the highly populated surrounding.

Teterboro Airport Flight Crew Briefing

Because one of the aircraft involved in this accident departed from TEB, the safety of the airport has come under investigation. NTSB records show that over the last several years nearly every event investigated was related to incursions.

Recognizing this concerning trend, in 2008 TEB became the first in the Nation to implement a new airport-specific flight crew training program, produced by NATA's Safety 1st program. Funded by a grant from the FAA, the NATA Safety 1st Teterboro Airport Flight Crew Briefing is a customized online training tool that gives pilots and other flight crew members flying into and out of TEB access to critical safety information about the airport, including its location, layout, operations, regulations, and safety and security procedures. With superb clarity and graphics, the Safety 1st briefing presents pilots views of specific hot spots, scenarios for common pilot errors, aircraft lighting configurations, take-off procedures, and other information that is critical to safe aircraft operations at the airport.

Since its implementation in June 2008, the Teterboro Airport Flight Crew Briefing website has had more than 220,000 visitors. More importantly, there have been no runway incursions at TEB in 2009, which we believe can be partially attributed to the briefing. As a result of the success of the Teterboro Briefing, NATA is developing a similar tool for Newark Liberty International Airport that will be available by the end of this year. This project is being funded by the Port Authority of New York and New Jersey.

Air Charter Safety Foundation

I also have the privilege of serving as President of the Air Charter Safety Foundation. The Air Charter Safety Foundation (ACSF) is a non-profit organization dedicated to enhancing the safety and security of air charter and shared aircraft ownership programs in the United States and worldwide. Through research, collaboration and education, the ACSF advances charter industry standards and best practices, promulgates safety, security and service benchmarks, and promotes the universal acceptance of safety management systems. The ACSF also provides accurate and objective information about air charter providers as one of the most important and versatile public transportation resources. Membership in the ACSF primarily includes Part 135 certificate holders, with the balance to include OEMs, brokers, insurers, customers, airports, and safety professionals. Since inception of the organization in June 2007, the ACSF has already made great strides in improving the safety of operations.

Industry Audit Standard

Earlier this year, the ACSF launched an audit program, the ACSF Industry Audit Standard. The Industry Audit Standard is a revolutionary program built from the ground up by the ACSF to set the standard for the independent evaluation of an air charter operator's and/or shared ownership company's safety and regulatory compliance. The ACSF Industry Audit Standard has been developed with the input and guidance of leading safety auditors, charter operators, shared aircraft ownership companies and charter consumers.

The ACSF Industry Audit Standard is the only audit program that comprehensively evaluates both an operator's Safety Management System (SMS) and its Part 135 regulatory compliance. With the deployment of the ACSF Industry Audit Standard, the charter consumer can be assured that audited and registered operators are compliant with the highest standards of safety and compliance. The ACSF agrees with the NTSB that the adoption of SMS is a key goal to improving safety. It is why the Industry Audit Standard requires operators to adopt, implement and show continuous safety management improvement. Operators and charter consumers are enthusiastic about this independent evaluation. By the end of the year, we will have completed 25 audits, including some of the largest and most active air charter operators in the country.

AVSIS

The ACSF has also released a revolutionary safety event reporting and tracking system known as AVSIS or Aviation Safety Information System. AVSIS is targeted specifically to the on-demand air charter and shared aircraft ownership program industries. This powerful software program collects detailed safety event data for analysis, response deployment and success measurement, and provides a tool for accounting for the cost savings realized by interventions.

To encourage the wide-spread use of this safety-enhancing tool, the ACSF has made the program available to all Part 135 on-demand operators and Part 91K fractional program managers at no cost. Using AVSIS, or similar tools, to collect safety event information is critical to safety management system development and can also serve as the foundation for an FAA Aviation Safety Action Program (ASAP).

Safety Symposium

The ACSF also hosts an annual Air Charter Safety Symposium. The symposium focuses on academic and scientific research pertaining to aviation safety. The event brings together the leaders of on-demand and fractional ownership operators to learn about new safety programs and emerging safety concerns.

Air Charter Data

The ACSF has initiated a new effort to improve the activity and accident data available in order to analyze Part 135 safety more accurately. A program is being established to more closely collect, analyze and report on Part 135 on-demand accidents and incidents. Today, the industry's safety record is summed up by a single, all encompassing analysis. But, the air charter industry comprises a wide-variety of aircraft, with mission profiles that are almost too numerous to name, including helicopter EMS and off-shore work, single-engine piston-powered tour operations, just-in-time cargo carriers, and long-range international passenger-carrying turbojets, just to list a few mission profiles.

This variation presents a unique challenge when attempting to draw safety conclusions. It is incredibly difficult to identify safety issues, provide targeted recommendations and then measure the success of mitigations if you can't determine the safety record for each of the distinct aircraft types or operational categories.

The ACSF is committed to improving data collection and safety analysis for the Part 135 on-demand air charter industry. The ACSF believes that industry and government must work together to develop enhanced data collection tools that will permit the NTSB to develop a far clearer picture of the industry than is available today.

Conclusion

NATA appreciates the efforts of both the NTSB and the FAA to produce thoughtful and targeted airspace, ATC and operational reforms to enhance the safety margin for operations within the Hudson River Class B exclusion.

Further, we believe that the adoption of new technologies for airspace management will significantly impact safety and efficiency in the national airspace system.

Finally, the efforts of NATA and the Air Charter Safety Foundation to improve upon safety and offer unique training, tracking and system safety programs are possible only because of the significant efforts and commitment to safety of the operating community. We are proud to recognize their work, and our industry looks forward to additional government-industry collaborative programs that can have meaningful impacts on safety.

Thank you for the opportunity to testify, and I will be happy to answer any questions you may have.

Senator DORGAN. Thank you very much. Are you finished? Thank you.

Mr. Kragh?

STATEMENT OF EDWARD KRAGH, CERTIFIED PROFESSIONAL CONTROLLER, ADJUNCT TO FAA NY VFR AIRSPACE TASK FORCE, NATCA

Mr. KRAGH. Senator Lautenberg, good afternoon. Thanks for allowing me to appear before you today. My name is Edward Kragh. I have been an Air Traffic Controller for 22 years, and I have been assigned to Newark Airport for 16 years.

I would like to, on behalf of the National Air Traffic Controllers Association, NATCA, offer my condolences to the family members of those who perished in this accident on August 8. It is a matter of personal anguish, having sought out so many loopholes in safety procedures, that myself and the colleagues I have been working

closely with were not able to see some of the flawed procedures that might have contributed to this on that day.

But I am here today as NATCA's representative on the FAA's New York VFR Airspace Task Force. We were charged with examining the procedures in airspace surrounding Manhattan in order to recommend changes that would help make the airspace safer. My role in that task force was to serve as a subject-matter expert on air traffic control procedures and airspace. The FAA invited NATCA to be a part of the Task Force and worked collaboratively with the union throughout, and it is our hope that the agency will continue to follow through with its commitment to include us in the completion of this project and any future changes.

The August 8 incident occurred under visual flight rules outside of Class Bravo airspace in the Class B Exclusion Corridor, what we call the exclusion, during a handoff between air traffic control facilities. Aircraft in Class Bravo airspace are permitted to use VFR in clear weather but separation in Class Bravo airspace remains the controller's responsibility. No aircraft is permitted to enter Class B without first receiving a clearance from ATC, and once inside, pilots are required to then closely follow air traffic control procedures.

In the exclusion, VFR aircraft are permitted to fly without being required to communicate with air traffic control. The exclusion is Class G, or uncontrolled airspace. As such, air traffic controllers do not have jurisdiction over aircraft in that airspace, and the burden of separation there is entirely on pilots. Pilots flying Class G airspace are urged to monitor and broadcast their positions over the common frequency and they are expected to do so in order to effectively coordinate the use of the airspace and uncontrolled runways.

Clearance from air traffic control is required to enter and operate within Class B. Under the current procedures, Teterboro controllers do not have the authority to climb VFR aircraft into Class B airspace, and therefore, that transition into Class B requires a handoff of control from Teterboro to Newark, and when the Newark controller accepts that handoff, he climbs the VFR aircraft into Class B. If he is unable to accept the handoff, the aircraft must remain outside Class B airspace until receiving air traffic control clearance.

On August 8, the Teterboro controller initiated a timely handoff, which the Newark controller accepted. The Newark controller was expecting radio contact from the Piper, which unfortunately never came. Although controllers at both Teterboro and Newark attempted to reestablish radio communication with the pilot, they were unable to contact him. At the time of the collision, the pilot was not in communication with air traffic control at either Teterboro or Newark.

Unfortunately, there has been a great rush to judgment regarding the underlying causes of the August 8 tragedy. I would note that, Chairman Dorgan, and also Mr. Hart, stated that the NTSB has not yet completed its investigation into the matter. However, the controllers on duty did utilize the procedures that they had been trained to use which were required by FAA orders to adhere to. The first day that the VFR Task Force met, it was unanimously agreed upon that those procedures, the current procedures, were

flawed and that under those flawed procedures, the August 8 accident could not have been prevented.

Since the accident, a number of elected officials have advocated for full control of the airspace around Manhattan, in other words, eliminate the Class Bravo exclusion and require that all aircraft flying in this region be under the direction of air traffic control. NATCA and the Task Force recognize that this drastic change would require significant resources because present infrastructure is insufficient to handle these changes and there are not enough controllers to handle the increased workload that would result. The geography of the area with densely packed skyscrapers prevents effective radar and radio coverage. You may recall that when my colleague, Patrick Hartin, testified before Congress earlier this year, he described losing radio contact and radar coverage with U.S. Air flight 1549 as that aircraft lost altitude and eventually landed safely in the Hudson. Additional radar and radio sights would be a necessity to safely provide ATC services in the exclusion.

The FAA's Task Force recommended several changes to training, procedures, and airspace structure. The union supports these recommendations, and we agree that their implementation will make this historically safe corridor even safer. However, like the Task Force, we recognize that further analysis is required before the recommendations can be implemented. For instance, we agree with the recommendation that encourages pilots to transition the Hudson using the Class B airspace above the exclusion so they are under ATC control, but an influx of VFR aircraft into Class B airspace may significantly increase controller workload and generate a need for increased staffing to meet the increased demands on these positions.

Last, the FAA and air traffic controllers work best when we work together. I would like to divert here and just say that I find the Task Force was the model, for me in my career, of cooperation between the union and the agency, and I implore the agency to continue to use this approach on behalf of the safety of the flying public.

That concludes my testimony. I look forward to answering any questions you may have.

[The prepared statement of Mr. Kragh follows:]

PREPARED STATEMENT OF EDWARD KRAGH, CERTIFIED PROFESSIONAL CONTROLLER, ADJUNCT TO FAA NY VFR AIRSPACE TASK FORCE, NATCA

The National Air Traffic Controllers Association (NATCA) is the exclusive representative of more than 15,000 air traffic controllers serving the Federal Aviation Administration (FAA), the Department of Defense and the private sector. In addition, NATCA represents approximately 1,200 FAA engineers, 600 traffic management coordinators, 500 aircraft certification professionals, agency operational support staff, regional personnel from FAA logistics, budget, finance and computer specialist divisions, and agency occupational health specialists, nurses and medical program specialists. NATCA's mission is to preserve, promote and improve the safety of air travel within the United States, and to serve as an advocate for air traffic controllers and other aviation safety professionals. NATCA has a long history of working together with the NTSB, other government agencies and aviation industry experts to make the National Airspace System (NAS) the safest in the world.

August 8, 2009: Aftermath

On August 8, 2009, a Eurocopter AS350 helicopter collided with a Piper PA–32R over the Hudson River. Nine people died in the collision. This accident and loss of

life has caused many aviation safety experts, including NATCA, to examine the circumstances surrounding the incident and search for ways to prevent the situation from repeating itself in the future. To this end, NATCA was an active participant in the New York Airspace Task Force which was chartered by the FAA in response to this incident in order to recommend safety enhancements for the affected airspace.

The incident occurred under a particular set of aviation rules and procedures; both aircraft were operating under Visual Flight Rules (VFR) in the Class B Exclusion Corridor, and the incident occurred in the midst of a handoff between air traffic control facilities. Although we believe that procedures were properly adhered to, the incident forces us to examine the procedures themselves so that we may prevent future incidents of this type. As an organization that prides itself on its air traffic control expertise, NATCA has examined and will testify about several aspects of aviation operations and procedures in effect at the time of the incident.

Visual Flight Rules: See and Avoid

Both the aircraft involved in the August 8 incident were operating under Visual Flight Rules (VFR). VFR rules are a set of specifications governing the operation of aircraft under clear meteorological conditions. The basic premise of VFR is that pilots maintain a safe distance from terrain and other aircraft using a simple "see-and-avoid" standard.

> Conduct of VFR Flight: In the conduct of VFR flight, the prevention of collisions (safe separation from other aircraft) is solely the responsibility of the pilot-in-command (PIC) to see and avoid.[1]

A pilot choosing to operate under VFR has a variety of tools at his disposal to assist him in maintaining situational awareness. Perhaps the most important of those tools is the Common Traffic Advisory Frequency (CTAF). Using CTAF, pilots communicate via two-way radio to announce their position and intentions to other pilots in order avoid conflict.

Air Traffic Control flight following can be another tool for VFR pilots. While the onus of separation remains on the pilot, an Air Traffic Controller can help the pilot to see and avoid (See section on flight following for more information). In congested VFR airspace like the Hudson River corridor, communication over CTAF is considered preferable to communication with air traffic control. The high volume of VFR traffic combined with the unreliability of Radar coverage in the area makes CTAF the more effective option.

Seeing and Avoiding: August 8, 2009

The incident on August 8 was an example of one of the most common types of VFR incidents: a high-wing, low-wing collision. A Piper 32A has a low-wing design; the wings are positioned low relative to the fuselage, making it difficult for the pilot to see aircraft flying at a lower altitude. Conversely, helicopter rotors are positioned above the fuselage, making it more difficult for the pilot to see aircraft flying above. Therefore, if a helicopter flies below a Piper and ascends, each aircraft may be in the other's blind spot.

This situation was a tragic illustration of the limitations of see-and-avoid separation. Simply put, if pilots are unable to see approaching aircraft it is extremely difficult to avoid them. Tools like CTAF can save lives in these cases; they can make a pilot aware of hazards outside of his immediate ability to see. In congested corridors like the one in which the incident occurred pilots should be particularly cognizant of the availability of CTAF and be required to monitor that frequency and broadcast their position and intentions.

Airspace Classes

As previously stated, both of the aircraft involved were operating under VFR, but the specific procedures governing proper utilization of VFR are not fixed. They vary depending on the class of airspace in which the aircraft is operating. The FAA breaks the National Airspace System (NAS) into different classes of airspace; Classes A, B, C, D, and E are all designations of controlled airspace, and Class G is uncontrolled (Class F does not exist in domestic airspace). These classes of airspace differ in the rules that govern them, the obligations of air traffic controllers, the responsibility of pilots, and the flexibility of aircraft operation.

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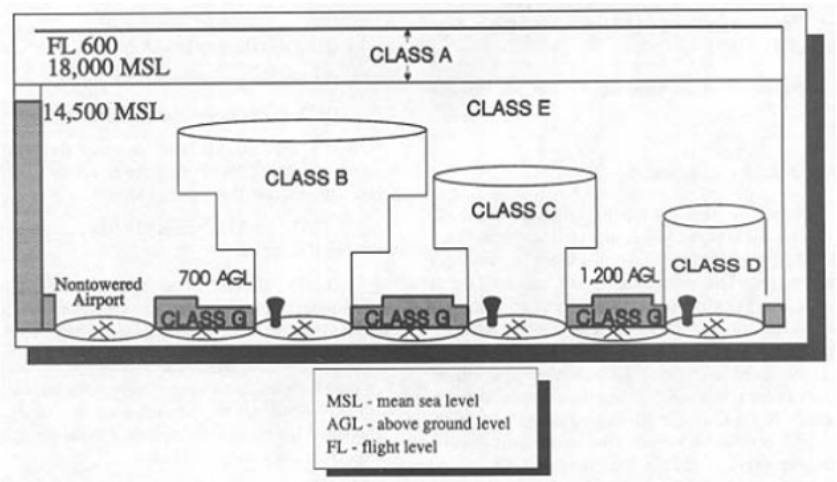
[1] FAA Order 8900.1 Flight Standards Information Management System Volume IV: Aircraft Equipment on Operational Authorization, Chapter 1 Air Navigation Communication and Surveillance.

Figure i[2]



The most stringent rules apply to Class A, the airspace typically designated from 18,000 ft above Mean Sea Level (MSL) to Flight Level 600. All aircraft operating in Class A airspace must utilize Instrument Flight Rules (IFR); pilots must be equipped and trained to rely on their instruments for navigational purposes. It is the responsibility of air traffic controllers to maintain separation between aircraft in Class A airspace.

The next most stringent class is Class B, which typically surrounds the Nation's largest airports. The main purpose of Class B airspace is to protect the area around a major airport so that larger passenger aircraft can operate safely. As such, aircraft in Class B airspace are permitted to use VFR in clear meteorological conditions, but it remains the controller's responsibility to ensure separation according to FAA regulations. No aircraft is permitted to enter Class B airspace without first receiving a clearance from air traffic control. Once inside, pilots are required to closely follow air traffic control instructions.

In airspace Classes C, D and E, air traffic controllers are responsible for maintaining separation between IFR aircraft, but VFR aircraft are allowed to freely travel through the airspace without receiving clearances from air traffic control. In these cases, it is the VFR pilots' responsibility to maintain separation by utilizing the see-and-avoid method that is standard for VFR.

Class G, or uncontrolled airspace, operates entirely according to VFR standards. Air traffic controllers do not have jurisdiction over aircraft operating in Class G airspace, and the burden of separation is entirely on the pilots. Pilots flying in Class G airspace are urged to monitor and broadcast their position over CTAF in order to effectively coordinate use of airspace and uncontrolled runways.

Class B Exclusion Areas

Class B airspace is designed to protect large passenger aircraft in the areas surrounding major airports by providing positive air traffic control separation. However, many of these areas also have a high volume of VFR traffic. As a result, VFR aircraft would have had to fly all the way around this Class B airspace, as it would be difficult for an air traffic controller to safely handle such a high volume of VFR traffic in addition to the IFR traffic that is their first-duty priority without imposing restrictions on the flow of traffic.

Rather than require these VFR users to travel all the way around the Class B airspace, the FAA implemented an alternative in several metropolitan areas including New York, Los Angeles and San Diego. In these areas there is a small corridor carved out of the Class B airspace where VFR aircraft are permitted to fly without communicating with Air Traffic Control. These corridors are considered Class G or uncontrolled airspace. VFR pilots who wish to coordinate with air traffic control may

[2] Federal Aviation Administration *Aeronautical Information Manual: Official Guide to Basic Flight Information and ATC Procedures 2008* (with changes for 2009). Figure 3–2–1.

uncontrolled airspace. VFR pilots who wish to coordinate with air traffic control may still request permission to enter Class B airspace.

The Aeronautical Information Manual (AIM) advises pilots in these corridors as follows: "Pilots operating in VFR corridors are urged to use [the CTAF frequency] for the exchange of aircraft position information." Pilots are therefore expected to communicate and coordinate with other pilots in order to maintain self-separation. Pilots monitoring that frequency are not in contact with air traffic control and therefore do not receive flight following services.

Flight Following

VFR pilots who are operating in controlled airspace may request flight following service. According to the Air Traffic Control Order JO 7110.65S, the manual for all air traffic control operations and procedures, Radar Flight Following is defined as follows:

> *Radar Flight Following*—The observation of the progress of radar identified aircraft, whose primary navigation is being provided by the pilot, wherein the controller retains and correlates the aircraft identity with the appropriate target or target symbol displayed on the radar scope.

An aircraft operating under Visual Flight Rules (VFR) appears on a controller's radar scope with minimal information. Essentially, the controller knows only that there is a VFR aircraft present and its altitude (if the aircraft is properly equipped). He does not know aircraft type, call sign, or flight plan. When a pilot requests flight following, the pilot provides that additional information to the controller, who then enters the flight data. The controller has his computer automatically generate an identifier, which he instructs the pilot to enter into his transponder—enabling a data block to appear on the scope with all of the relevant information. This simple tracking assists in the event that search and rescue services are needed.

If a pilot operating in Airspace Classes C, D or E requests flight following, the controller will provide basic radar service to the VFR pilot, workload permitting. According to the JO 7110.65S:

> Basic radar services for VFR aircraft shall include:
>
> 1. Safety Alerts
> 2. Traffic Advisories
> 3. Limited radar vectoring when requested by the pilot.
> 4. Sequencing at locations where procedures have been established for this purpose and/or when covered by a LOA [letter of agreement].

These services can only be performed if the pilot continues to monitor the appropriate air traffic control frequency. Under these circumstances, the controller does not assume responsibility for ensuring separation, nor does he give instructions to the pilot. He simply acts as an "eye in the sky" providing surveillance and advisories, workload permitting. It remains the pilot's responsibility to maintain separation under VFR. A controller's first-duty priority is to the aircraft receiving full radar service. A controller must only provide flight following service to VFR pilots if his workload permits

Flight following in Class B is markedly different from that in other airspace classes. An air traffic control clearance is required to enter and operate within Class B airspace. Therefore, when a pilot requests flight following from a controller responsible for Class B airspace, it is understood that they are requesting permission to enter the airspace, and that, if granted, they will be provided with full radar service until they leave that airspace. The controller will only grant the clearance to enter the Class B airspace if his workload permits.

ATC Service for VFR Aircraft: Teterboro (TEB)

An aircraft departing TEB flies through Class D airspace. The AIM describes the procedural requirements for aircraft departing an airport with an operating control tower in Class D airspace as follows:

> Two-way radio communications must be established and maintained with the control tower, and thereafter as instructed by ATC while operating in the Class D airspace.

The AIM goes on to say that "No separation services are provided to VFR aircraft," although a pilot may request flight following services.

Because TEB is located in such close proximity to the larger New York Area Airports that service passenger airlines, the Class D airspace is located immediately adjacent to Class B airspace controlled by Newark (EWR) and the Class B Exclusion

Corridor along the Hudson River. An aircraft departing from TEB and heading in the direction of the Hudson River therefore has the option of entering uncontrolled airspace or requesting to enter Class B. Controllers at TEB do not have the authority to climb VFR aircraft into the EWR Class B airspace; only EWR controllers can give them such permission. Therefore, the transition into Class B airspace requires a handoff of control from TEB to EWR.

ATC Service for VFR Aircraft: Newark (EWR)

If a pilot leaving TEB airspace wishes to remain in communication with air traffic control as he continues southwest along the Hudson River, control must be transferred to EWR. If the EWR controller accepts the handoff, he will climb the VFR aircraft into Class B; if he does not accept the handoff, the aircraft must remain outside Class B airspace and utilize the Exclusion Corridor.

In EWR there are several different air traffic control positions responsible for different aspects of the aviation operation around the airport. These positions include a ground controller responsible for taxiing to the runways, a local controller responsible for take-off and landing, and a Class B Airspace (also known as Terminal Control Area) Controller.

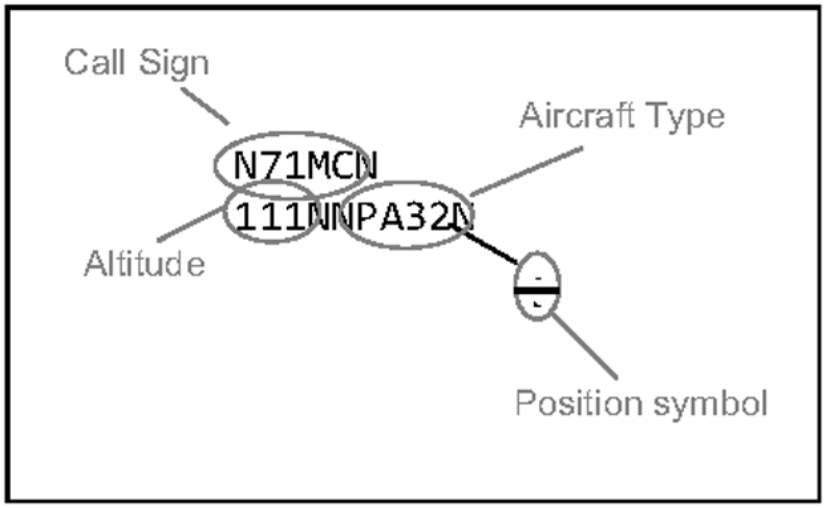
The Class B Airspace controller is responsible for the VFR aircraft traversing Newark's Airspace, including those flying in the Class B airspace above the exclusion zone. Unlike the local controller who works mostly with large passenger aircraft, the Class B Airspace controller is responsible mainly for helicopters, small fixed-wing planes, and occasional military aircraft. Part of his job is to coordinate airspace usage with the local controller in order to maintain safe separation as he guides VFR aircraft through designated VFR routes in the Class B airspace.

Handoff Procedure

A handoff occurs prior to an aircraft crossing an airspace boundary when control of that aircraft must be transferred from one air traffic controller to another. It consists of a radar transfer and a communications transfer. In most cases, the radar transfer occurs via Automated Information Transfer (AIT). For the purpose of this description, Controller 1 will refer to the controller in control at the beginning of the handoff and Controller 2 will refer to the controller responsible at the end of the handoff.

Each air traffic control position has a position symbol, a letter that appears superimposed on the radar target to indicate which controller is responsible. The TEB position symbol is J and the EWR position symbol is B (See Figure ii).

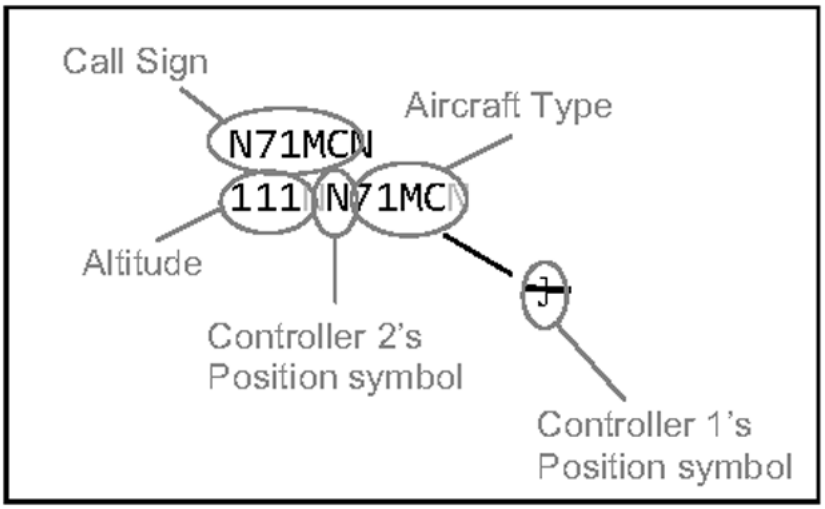
Figure ii



When an aircraft is approaching an airspace boundary, Controller 1 initiates a radar handoff by pressing a button on his console. By pressing that button, Controller 1 causes a data block to flash on the scope of Controller 2. Because of this, initiating a radar handoff is colloquially referred to as "flashing" by controllers.

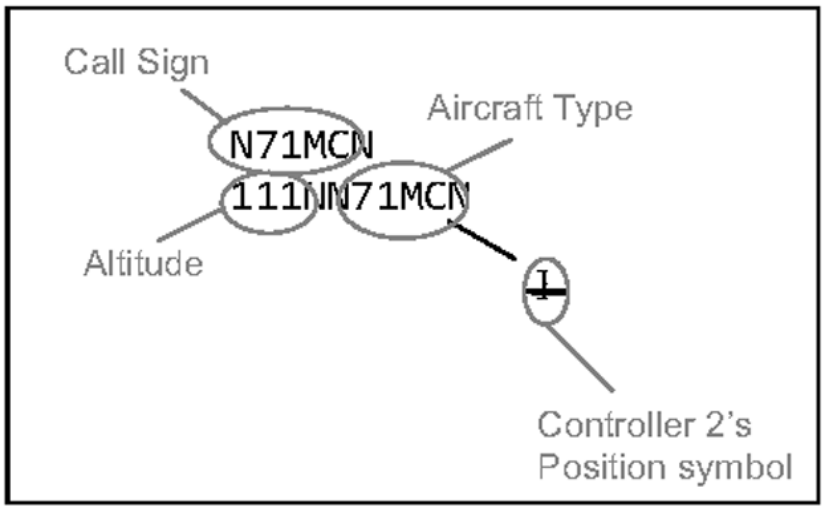
As Controller 1 "flashes" the aircraft to Controller 2, Controller 2's position symbol appears in the second line of the data block. Controller 1 remains responsible for the aircraft, but the presence of this symbol means that the handoff has been initiated.

Figure iii



Controller 2 sees the flashing data block and hits "Enter" on his keypad to accept the transfer, effectively completing the radar handoff. Controller 2 has acknowledged that he sees the aircraft, its identifier, altitude, and other relevant data and accepts responsibility. By hitting enter, Controller 2 causes the corresponding data block to flash on Controller 1's console, attracting Controller 1's attention. At this point, Controller 2's position symbol appears above the target, confirming completion of the handoff.

Figure iv



Controller 1 then contacts the pilot and instructs him to contact Controller 2 and provides him with the appropriate frequency. Once the pilot has accurately read

back the new frequency, the handoff is fully complete, and Controller 2 assumes primary responsibility for the aircraft.

Handoff: TEB to EWR

The Current air traffic control procedure *does not* require TEB controllers to precoordinate a transition for VFR aircraft wishing to travel through the EWR Class B airspace. The TEB controller simply flashes the aircraft to EWR, where the controller can choose either to accept him or request that the TEB controller instruct him to enter the exclusion corridor.

In some instances, a pilot would have to change his plans if controller workload did not permit him to enter Class B Airspace. The pilot must therefore be ready to enter the exclusion zone, and should be prepared to switch to CTAF and announce himself, should it be necessary.

However, we do not believe that this occurred on August 8. It is our understanding that the TEB controller initiated a timely handoff, which the EWR controller accepted. The EWR controller was expecting radio contact from the N71MC, which never came. Although controllers at both TEB and EWR attempted to re-establish radio communication with the pilot, they were unable to contact him. At the time of the collision, the pilot was not in communication with air traffic control at TEB or EWR, nor was he transmitting over CTAF.

Had the pilot contacted EWR as instructed, the EWR controller would have issued climb instructions that would have taken N71MC above the exclusion zone and into the Class B airspace. Because N71MC did not successfully establish radio communication with EWR, he was unable to receive that clearance; instead N71MC continued eastbound, where it collided with the helicopter in the exclusion area.

This incident caused us to examine the procedures governing this airspace, including handoff procedures. NATCA believes that coordination between TEB and EWR prior to take-off would reduce confusion at the airspace boundaries and make it less likely that a pilot would unknowingly enter the exclusion zone and therefore fail to switch to CTAF frequency. This will also allow EWR to notify TEB in advance that the workload is too great to allow Class B entry so the TEB controller may provide alternate routing options to the aircraft prior to the departure.

Is Controlled Airspace A Viable Option?

In recent weeks there has been some discussion about eliminating the Hudson River exclusion area and converting the airspace entirely into Class B. Current infrastructure is unable to support the conversion of this type. Before any such change can be implemented, the following infrastructure improvements would need to be made.

1. *Comprehensive Surveillance*—With the current radar infrastructure, radar coverage over the Hudson River is unreliable. In much of that corridor, the height and density of the New York City skyline prevents radar from reaching the low altitude airspace, and information on aircraft flying in this area often does not appear on a controller's scope. For example, when Flight 1549 lost the use of its engines, the aircraft disappeared off controller Patrick Harten's scope after it lost enough altitude to be obscured by the buildings. If the airspace were to be converted into Class B airspace, this spotty radar coverage would not be sufficient enough to ensure the safety of the users. Additional radar sites would need to be placed in such a way so as to ensure continuous comprehensive coverage of the area.

2. *Comprehensive Radio Coverage*—Just as the radar coverage is obscured by the terrain of New York City, radio coverage is similarly unreliable. The skyline often blocks radio signals, and communication between controller and pilot might be compromised. This would represent a significant safety risk if pilots were relying on air traffic control for separation.

3. *Air Traffic Control*—The Air Traffic Control facilities that would have jurisdiction over this airspace would need to be restructured to accommodate control of new airspace. A new control position would have to be added to each of the affected facilities: EWR, John F. Kennedy International Airport Tower (JFK), LaGuardia Airport Tower (LGA), and New York Terminal Approach Control (N90).

4. *Air Traffic Controller Staffing*—Additional controllers would need to be hired at each of the affected facilities so as to ensure proper staffing for each of the new positions.

5. *Effect on General Aviation*—The elimination of the exclusion corridor would severely restrict access to this area by general aviation. An air traffic controller is naturally constrained in the number of aircraft he can safely monitor and

communicate with, and even a properly-staffed position would restrict the number of aircraft that could utilize the Class B airspace. General aviation pilots who do not wish to coordinate with air traffic control would be required to go around the Class B airspace, without an option to cut through.

Is the Hudson River Class B Exclusion Zone Safe?

Following an incident of this severity, it is natural to question the safety of the airspace. The fact that such an incident occurred appears to be proof that the airspace is unsafe and needs to be fixed. But one must also retain the appropriate perspective and regard this incident in context.

According to the NTSB, the incident on August 8 was the first midair collision in the Hudson River Class B Exclusion Area. The NTSB further noted that "a review of the FAA's Near Midair Collision (NMAC) database and the National Aeronautics and Space Administration (NASA) Aviation Safety Reporting System (ASRS) database revealed 11 reports of NMACs between aircraft in the area since 1990. Only one report was filed in the past 10 years." This safety record is considered very good; there are far fewer NMAC reports than one may have predicted given that over 200 aircraft utilize this airspace per day.

Yet this incident did occur, and it has served to highlight the weak points in the system. The incident has caused the aviation safety community to scrutinize the procedures in place at that time and devise ways of improving safety.

The New York Airspace Task Force

On August 14, the FAA charted a task force and charged it with making recommendations to enhance the safety of the Hudson River airspace area. NATCA was very pleased to be included as active participants in this taskforce as we believe that our subject matter expertise on air traffic control contributed substantially to the task force.

The Task Force is recommending several changes to operations, procedures, training and airspace structure. In general, NATCA supports these recommendations, but we believe that the FAA must fully consider the impact that these changes will have on other aspects of operation.

For example, we agree with the task force that encouraging VFR use of Class B positively- controlled airspace would improve safety. But the large influx of VFR aircraft into Class B airspace would significantly increase controller workload and generate a need for increased staffing to meet the increased demands on the Class B Area position.

The task force made the following recommendations:

1. *Modify Class B airspace to allow aircraft stratification in the exclusion by mission profile for overflight versus local operations*—This recommends the creation of a uniform floor to the Class B airspace at 1,300 ft to allow aircraft operating in the exclusion to stratify by altitude. Transient traffic would operate above 1,000 ft and local operators would remain below 1,000 ft. Under the current airspace structure the floor of the Class B airspace is 1,100 ft in some places. NATCA is concerned that raising the floor in these areas will cause VFR aircraft receiving Class B services above the exclusion zone to interfere with passenger jets landing at LaGuardia (LGA). In some runway configurations, aircraft landing at LGA Runway 13 pass through this airspace at 1,500 ft. NATCA recommends that the FAA examine this and other unintended consequences of this recommendation carefully prior to implementation.

2. *Review airspace delegated by New York TRACON (N90) to local air traffic control towers adjacent to the Hudson River*—In its current state, there is some confusion about which tower has jurisdiction over which airspace. The FAA has admitted that there are overlapping airspace boundaries and airspace that, though controlled by a tower, has not been officially delegated. This recommendation would rectify this problem and clarify the roles and delegated responsibility of air traffic controllers in each facility. NATCA fully supports this recommendation.

3. *Revise procedures at TEB for VFR fixed-wing departures*—This recommendation would require air traffic controllers at TEB to coordinate with controllers at EWR for aircraft wishing to utilize Class B services. If workload at EWR is such that he can extend Class B services to the aircraft, TEB would be authorized to climb the aircraft to 1,500 ft and into Class B airspace. This recommendation also would establish a standardized route for aircraft departing from TEB and intending to enter the exclusion that would limit the mergers at the current point of entry. NATCA supports this recommendation.

4. *Develop a Class B VFR transition route over the Hudson River*—This would publicize and promote the use of Class B services among VFR pilots traveling in the area. While NATCA agrees that positively-controlled airspace is safer than uncontrolled airspace, we have concerns about the effects of this change. If this measure is successful in increasing the use of Class B services among VFR pilots, it will represent a significant increase in controller workload. At present, the Class B Airspace controller position described earlier is often combined with the local control position, particularly during weekends. If this change is to be implemented, NATCA requires a commitment from the FAA to provide the additional air traffic control staffing necessary to fully staff this position at all times, as this position should not be combined with other positions while we determine the effects of the changes on VFR traffic patterns.

5. *Mandate pilot operating practices while operating in the Exclusion*—This would codify the voluntary procedures currently recommended for pilots in the exclusion. This includes maximum airspeed restrictions, announcing altitude and intentions on CTAF, and flying along the west shoreline of the Hudson River when southbound along the eastern shoreline when heading northbound. NATCA fully supports this recommendation.

6. *Enhance pilot communication and capability and reduce frequency congestion on Hudson River CTAF*—This would create defined areas which would utilize different frequencies and decrease frequency congestion. It would also standardize phraseology to reduce confusion. NATCA fully supports this recommendation.

7. *Standardize and enhance multiple NY Area Aeronautical Charts to assist pilot navigation*—Currently there are several charts covering the area, each of which contain different information on the airspace. This would create a single chart with standardized information. This recommendation also supports recommendation four in that it would publicize the Class B services available to VFR pilots. As previously stated, NATCA requires full staffing of the Class B position, as changing or clarifying the charts is intended to increase the usage of Class B air traffic control services for VFR pilots.

8. *Develop FAA and industry standardized training and education plans for pilots, fixed-base operators, and air traffic controllers*—NATCA believes that comprehensive and effective training of pilots, controllers and other aviation safety professionals is integral to maintaining the safety of the airspace. In the case of air traffic controllers giving clearances to pilots in this airspace, we believe that training can be improved. It is important for controllers to fully understand the intentions of the pilot so that they can issue clearances that do not need to be altered later. Again, training requires proper staffing levels at the facilities. We must be able to fully cover operations during the training itself.

Air Traffic Controller Staffing at NY Area Facilities

Several of the recommendations offered by the taskforce and other changes that have been considered will represent an increase in controller workload at the facilities in the New York Area. Currently the controller work forces at the facilities in this area are understaffed, inexperienced, and operating with a potentially-dangerous ratio of trainees to fully certified controllers. TEB is operating with a number of certified controllers 42-percent below the staffing rate jointly agreed to by NATCA and the FAA in 1998; N90, JFK, LGA and EWR are 42-percent, 35-percent, 36-percent, and 32-percent below respectively. Additionally N90, JFK and TEB have a trainee ratio of over 35-percent, which had been considered the safe upper-limit by the FAA. LGA is not far behind, with a trainee ratio of 34-percent.[3] If the safety of this area is to improve, and particularly if more VFR pilots are to be encouraged to utilize Class B services, it will require that the Class B Airspace control position be opened at all times. In order to do so, the facilities must be properly staffed.

NATCA Recommendations

1. *The FAA Must Thoroughly Examine* the recommendations offered by the task force to determine their effect on the broader operation and air traffic controller workload. This must be done in full collaboration with NATCA. Only after this examination is completed and any risks mitigated should these recommendations be implemented.

2. *The FAA Must Collaborate With NATCA* to continue investigating ways to improve operations, airspace and procedures. The FAA must formally and thoroughly

[3] Staffing statistics are based on payroll data provided to NATCA by the FAA. They are current as of March 31, 2009.

include NATCA in all stages of reforming the New York area airspace, from development through implementation. NATCA's members are subject matter experts who deal with the realities of this airspace on the front line and in real time each day. As such, our Union should be regarded as a subject matter expert and be fully engaged in developing and implementing any and all changes.

3. *Proper Staffing to Cover Additional ATC Duties*—Any change in operations, procedure, or airspace structure must be evaluated as to its effect on air traffic controller workload. Even small changes may have a significant effect and must be evaluated cumulatively and multiplied by the large volume of aircraft controllers handle at a given time. It is imperative that all affected air traffic control facilities and positions be properly staffed, including the radar associate position, when appropriate.

Senator LAUTENBERG. Thank you, each one of you, for your testimony.

Questions arise as a result of some of the things that were offered. We are looking, Mr. Kragh, at having better equipment available, better supervision available, and I ask you this. And any one of you who might have a view on these questions, please feel free to indicate that.

Do we have in the equipment larder right now enough technology that that space could be covered with what is presently being used throughout the aviation system?

Mr. KRAGH. Senator, I am not familiar with all the equipment that is in the future pipeline. However, I know that the present infrastructure, because radar is a line-of-sight system and radio signals are also basically line-of-sight, they can be interfered with easily by tall buildings. So we presently do not have the equipment infrastructure or the human infrastructure, if you will, to control the Class Bravo Exclusion Area at the level of service that is used right now.

I mean, the local helicopter operators run hundreds of tours each day. Sometimes several of them are airborne at the same time. We would certainly affect their business in some way, shape, or form should we be able to eventually have the infrastructure in place. I do not know if we could provide the level of service that they provide for themselves on that common traffic frequency.

Senator LAUTENBERG. Well, Mr. Coyne, would you volunteer a view on it?

Mr. COYNE. Well, I think you really have two principal technical resources to analyze with regard to the current system, and that is radar and communications. As you know, living along the Hudson River, both the New York side and the New Jersey side of that river have very high palisades or buildings. So to get coverage down below 500 feet or so with radar becomes a very, very difficult technical challenge for that area of space. You would have to put some very expensive radar installations right down along the river base there.

Senator LAUTENBERG. Unless they were attached to the George Washington Bridge.

Mr. COYNE. Well, that could certainly deal with the northern part——

Senator LAUTENBERG. Because then you get the altitude——

Mr. COYNE. But I think the better solution may be to look at the NextGen technology, which we are all moving forward to, as you know. I do not think anyone is more of an advocate of it than the people here in this room. And to have that kind of non-radar-based

position information would be far more effective, far more costly, and far more consistent where the rest of the country is moving because right now—I do not think I can speak for the FAA, but clearly they are making plans to, in the next 10 years, reduce the number of radar installations in the country over the next 10 or 15 years. So at this point, to make a commitment to radar would be not as opportunistic as making a commitment to ADS–B or one of the other satellite-based technologies.

Senator LAUTENBERG. Mr. Day, how do you see this? Do we have enough equipment now—now—within a fairly reasonable period of time, to be able to construct a safety parameter around this zone? You know, I talk about the Washington Bridge only because when the U.S. Air flight landed on the river, literally, if I was home at the time, I would have seen that airplane pass my window. When you see the kind of traffic demand there is for that corridor, is there not equipment available that could at least guarantee some communication?

I wrote legislation a long time ago that demanded the transponder C requirement on all airplanes that flew in active airspace. It has been in place for a number of years.

What is there that might be, if anything, right now, that would be able to give better surveillance there and maintain a larger measure of safety?

Mr. DAY. Yes, Senator. A good part of the air transportation system is dependent on shared accountability around the issue of safety. So, first of all, we have a NextGen implementation plan which includes those transformational programs that will modernize the system, ADS–B being one of the transformational programs and the one that is in deployment. Mr. Krakowski and Ms. Gilligan are actually at a meeting right now to disclose the recommendations from the RTCA Task Force 5, which is a group of over 200 industry and agency leaders who have prioritized and identified those operational improvements that will help us transform the national airspace system.

We are also in the process, which began in April, of doing a design review for ADS–B placement around the airports in the New York-New Jersey area. We expect to have that final design completed at the end of this month, then installation during next year, with the commissioning of that equipment with the automation at the end of the next calendar year. So we are on track to put down that infrastructure which will be completed nationwide by 2013.

In addition to ADS–B which not only provides surveillance for the aircraft, looking to the future, there is a capability which is called ADS–B IN, which you may be familiar with from the Capstone Project up in Alaska. With ADS–B IN, we can put displays in the cockpit which can provide to the crew, information as to the terrain and traffic and weather so they can have better situational awareness of traffic around them.

I think capabilities like the NextGen capabilities—ADS–B would be one of the premier ones at this point—can make a difference in the future to provide a higher level of safety and situational awareness.

Senator LAUTENBERG. But I am looking for if it can be. I recognize that there is a whole technology involved. There are all kinds

of not just systems and personnel. But to get something in there that says with the present use of that corridor, is there anything that can be done even on an interim basis that would say, OK—and I do not know whether there should be some stricter demands to pilots in the area about radio contact. It was suggested that maybe the pilot of the single-engine was not as attentive, might I say, to the radio signals as might have been. Is there anything that we see?

Mr. Hart, do you have anything that you would want to add to this?

Mr. HART. Yes, Senator. I do not have an answer for your question today, but I would note that one of the issues we are looking at in relation to this accident is traffic avoidance technologies, in addition to the regulations regarding the use of those technologies in this airspace. We will be looking at those issues in our investigation of this accident.

Senator LAUTENBERG. I think it is quite apparent that FAA—and I want to tell you something—I doubt that FAA has any more enthusiastic supporters than I. To me they are like a fifth branch of our military, and their calls to duty are as rigid as one might ask. They are being taxed in many ways by understaffing. If we look at the condition that exists in Newark, for instance, where 40 controllers are called for and we have 26 there now, plus 7 trainees or 7 less-than-full-performance people, is it possible that more sets of eyes and ears might have made a difference there?

Mr. DAY. Senator Lautenberg, we cannot say what the causality of the accident is. That is up to the Board, but we do take this seriously and we are approaching several of the things that you pointed out. So, for example, we are simplifying the airspace. We are going to common traffic advisory frequencies. Mr. Kragh was part of that task force. They made eight recommendations to the FAA on which they were very firm that we needed to encompass all eight recommendations to really get the enhanced level of safety that we all expect. This included working with the radar facility, that is the New York TRACON, to iron out and make sure we thoroughly stress-tested the letters of agreement and the procedures among controllers so we had that positive communications with the flight crews and were trained and aware of everything that is necessary to make sure every flight was successful.

Senator LAUTENBERG. Mr. Kragh, do you have any further commentary about the population in the towers? If we look at Newark, as I mentioned, it has an objective of 40 controllers and we have 34, 7 of whom are trainees. If we look at Teterboro, it is supposed to have 26. There are 23 but 8 of them are trainees. LaGuardia has 36 required to fill all the billets, and it has 35, just one difference. But the difference comes in the fact that 12 of them are trainees.

I must tell you this. When I look at where we have been—and I have been involved with FAA and aviation since I have been in the Senate—no matter how many pleas we made for filling the population, for having people trained—we face enormous retirement possibilities, and we do not have the population available to go into these slots and maintain the kind of presence that we would like to see. You are aware of that.

Mr. KRAGH. Yes, Senator. Interestingly enough, Newark, even though it is understaffed, as you just presented those numbers, is the best of the four New York metro towers, and our ratio of trainees to fully-certified controllers is the best of the four towers. My professional opinion on the matter is that you cannot have such a ratio of trainees to fully-certified controllers. It just makes it very difficult to have an efficient, safe operation when you are training that many people at one time.

The other issue regarding trainees is that New York, Kennedy, and LaGuardia are, for lack of a better term, the major leagues of air traffic control towers. It is the busiest airspace in the world. I would use a simple analogy of, let us say, a med student. I would not want a med student performing my heart surgery. In the same situation, we often see controllers who have absolutely no background in air traffic control coming to these towers to work as developmentals.

I think the agency was caught short-staffed when they did not heed the union's warnings about the massive wave of retirements. I believe it was 2004 when only 13 controllers were hired nationwide. I might be wrong about that year, but there was one year in recent history where only 13 controllers were hired nationwide while the union was shouting from the top of the mountain about the pending wave of retirements. And we now have five senior controllers at Newark who can walk out the door any day, and within the next 2 years, we will have three or four more.

Senator LAUTENBERG. I think it must be made clear here that our air traffic control system is the finest in the world. When you look at the performance that goes on each and every day, you marvel at the quality of the service, but it is at a strain. There is a price that is paid for it. There is lots of overtime. There is lots of stress on the individuals who are doing it despite the fact that they do it so well.

Mr. Day, would Next Generation air traffic control technology allow all aircraft in this airspace to be tracked?

Mr. DAY. It is feasible with technology that, we can do a lot of surveillance. It all depends on siting. As you know, it is a complex environment from the skyline and the structures, as well as the radio frequency interference, and that is an engineering design challenge—but hypothetically we can surveil quite a bit.

Senator LAUTENBERG. So we are not at a stage where we can say, OK, we have got everything designed. We are ready for manufacture or installation and so forth. We are not at that point in our development.

Mr. DAY. Again, sir, it is hypothetical without the engineering work. The technology is there, but certainly from an engineering standpoint, it would need additional study. We are conducting site surveys up there right now for ADS–B coverage. That is around the Kennedy-LaGuardia-Newark area, and we will know later this month what we feel we can see in that region.

Senator LAUTENBERG. How oversimplified am I being when I say that perhaps the George Washington Bridge could include some what would be onsite radar to be looking down that river and giving us a lot of information?

Mr. DAY. I do not think you are being oversimplified at all but putting the 50-year-old radar technology in may limit the possibilities for dealing with complex, high-density operations in the future. We really need to move to high-update type of surveillance systems like ADS–B, and capabilities like Data Link. This is because with high traffic saturation, the physical ability for the controller to talk individually by voice with each aircraft may be a limiter in the level of safety and efficiency that they can provide to the public in that area. So it is not a simple solution.

We have got the task force together. NATCA has been part of that. We are looking at, in the near term over the next 5 years, those types of capabilities that we can put into the system.

In addition, I would like to mention that performance-based navigation, RNAV and RNP, if you are familiar with that, is another solution where we can segregate aircraft by mission profile or destination to keep them separated from one another. What has great possibility is redesigning the airspace, as well as putting in the performance-based RNAV/RNP capabilities and adding the surveillance and in the future the Data Link type of communications that will make up our NextGen system.

Senator LAUTENBERG. Mr. Day, the New York Airspace Task Force highlighted the benefits of good collaboration between the traffic controllers and the FAA, something that seems to not have been done in the past. So now, is FAA committed to including the air traffic controllers in FAA projects, including implementation of Next Gen and airspace redesign, to make sure that we have the knowledge and the benefit of their experience on the front line?

Mr. DAY. Senator, we have had great experience in the Task Force 5, as well as this recent task force that Mr. Kragh participated in. Also, the New York-New Jersey-Philadelphia airspace redesign went well over a decade, and had many subject-matter experts, including controllers involved in that. The Administrator recognizes and we believe that controller participation and technician participation is a valuable asset in deploying capabilities into the future. So, yes, sir, we do believe in their participation.

Senator LAUTENBERG. That is your army and you have got to know what the soldiers say, what the soldiers see when you are designing a tactic or a strategy. Certainly I would recommend that that be an integral part of any planning actions that are taking place.

The Hudson River crash was, again, with an on-demand aircraft. In 2005, an FAA special committee made 124 recommendations to the FAA to improve the safety of on-demand operators. And the NTSB, Mr. Hart, has issued 16 recommendations to the FAA on this subject. Yet, none of these recommendations have been adopted by FAA. When should we expect FAA to finally act on these recommendations?

Mr. HART. Thank you, Senator. Of course, we are always pushing for implementation of all of our recommendations as soon as possible, but I will have to get back to you with more specific answers to your question. I am not conversant on those recommendations as we speak.

[The information referred to follows:]

The NTSB does not know how quickly the FAA will implement our recommendations, but we will continue to use every means at our disposal to get them implemented as quickly as possible.

Our investigation into the Hudson River accident is ongoing, and the NTSB has yet to determine if any of the outstanding recommendations to the FAA regarding on-demand operations are applicable to this accident.

Senator LAUTENBERG. Mr. Day, do you have any comments?

Mr. DAY. Senator, unfortunately, Ms. Gilligan could not be here, and she is the arm of the FAA that regulates those on-demand types of operations. That is different than my discipline. So I will have to take an IOU.

Senator LAUTENBERG. Will you see that I get a response to that?

Mr. DAY. We will. We will get that back, sir.

[The information referred to follows:]

Federal Aviation Administration Report AV–2009–066, dated July 13, 2009, stated that 16 National Transportation Safety Board recommendations resulting from on-demand operator accident investigations remained open. Those recommendations are listed below with a brief synopsis of current activity, and categorized by the bolded print. We continue to make an assertive effort to respond to all the pending safety recommendations.

Flight Duty and Rest

A–06–12: Require all emergency medical services operators to comply with 14 Code of Federal Regulations Part 135 operations specifications during the conduct of all flights with medical personnel onboard.

NTSB Status: Open-unacceptable

FAA Status: The FAA has drafted an NPRM for air ambulance and commercial helicopter operations that will have language addressing Part 135 flight and duty time. We anticipate completion of the NPRM in January 2010 with publication following clearance from the Department and the Office of Management and Budget.

We have submitted this status to the NTSB and are currently waiting on the Board's response.

Icing Conditions

A–06–42: Develop visual and tactile training aids to accurately depict small amounts of upper wing surface contamination and require all commercial airplane operators to incorporate these training aids into their initial and recurrent training.

NTSB Status: Open-unacceptable

FAA Status: The FAA has tried to impress upon the NTSB how difficult it is to provide visual and tactile training aids that can represent the wide variety of aircraft and aircraft surfaces, as well as types of contaminants that exist in various environments. The FAA believes the best approach is for pilots to know what their specific aircraft surfaces look and feel like in wet and dry conditions. The FAA believes that pilots should be trained that any difference in appearance or feel is unacceptable and the contaminant must be removed prior to flight. The best training device to accomplish this is the actual aircraft with visual and hands-on training on recognition of contamination. The FAA has made several changes to various documents which specifically recommend certificate holder's training curricula include aircraft type-specific techniques for use by the flight crew and other personnel for recognizing contamination on aircraft surfaces. They also state that the flight crew and other personnel should use these type-specific techniques while conducting preflight aircraft icing checks, pre-takeoff checks, and pre-takeoff contamination checks. It is recommended to all pilots to ensure that the aircraft's lift-generating surfaces are completely free of contamination before flight through a tactile check of the critical surfaces when feasible.

Since our last response to the NTSB, the FAA has developed InFO 09016 to again inform operators of the necessity of removing all contamination from critical aircraft surfaces, no matter how thin, patchy or where it is located. The InFO also provides guidance to operators and pilots on how to conduct a visual and tactile inspection and how to train a pilot to accurately conduct these checks. The InFO is scheduled for publication in November 2009.

Crew Resource Management (CRM)

A–03–52: Require that 14 Code of Federal Regulations (CFR) Part 135 on-demand charter operators that conduct dual-pilot operations establish and implement a Fed-

eral Aviation Administration-approved crew resource management training program for their flight crews in accordance with 14 CFR Part 121, subparts N and O.

NTSB Status: Open-unacceptable

FAA Status: On May 1, 2009, the FAA issued the Notice of Proposed Rulemaking (NPRM), Crew Resource Management Training for Crewmembers in Part 135 Operations (74 FR 20263). The NPRM proposes a requirement for all Part 135 certificate holders, both single-pilot and dual-pilot operations, to implement FAA-approved crew resource management training for crewmembers. We expect the final rule to be published in 2010.

We have submitted this status to the NTSB and are currently waiting on the Board's response.

Cabin Safety

A–06–68: Require all 14 Code of Federal Regulations Part 135 certificate holders to ensure that seatbelts at all seat positions are visible and accessible to passengers before each flight.

NTSB Status: Open-acceptable alternative

FAA Status: The FAA agrees that a seatbelt must be visible and accessible to support compliance with the regulations. Accordingly, we issued SAFO 08004 to remind operators of this. We also revised inspector guidance for surveillance of cabin interiors to include a check of passenger seatbelts to verify they are visible and accessible to passengers. This effort resulted in revisions to three sections of FAA Order 8900.1.

We have submitted this status to the NTSB and are currently waiting on the Board's response.

A–06–69: Require that any cabin personnel on board 14 Code of Federal Regulations Part 135 flights who could be perceived by passengers as equivalent to a qualified flight attendant receive basic FAA-approved safety training in at least the following areas: preflight briefing and safety checks; emergency exit operation; and emergency equipment usage. This training should be documented and recorded by the Part 135 certificate holder.

NTSB Status: Open-acceptable

FAA Status: FAA issued SAFO 08010, Accomplishing safety-related Functions in Part 135 Operations, on March 20, 2008. This SAFO stresses to pilots in 14 CFR Part 135 Operations the importance of: (1) clearly identifying to passengers those crew members who are safety-qualified and those who are not, and (2) accomplishing all functions relating to passenger safety when no safety-qualified flight attendant is on board.

We have submitted this status to the NTSB and are currently waiting on the Board's response.

Personal Flotation Devices

A–07–27: Require that all helicopters used in commercial air tour operations over water, regardless of the amount of time over water, be amphibious or equipped with fixed or inflatable floats.

NTSB Status: Open-unacceptable

FAA Status: The FAA issued Part 136, *Commercial Air Tours and National Parks Air Tour Management,* which includes requirements for additional emergency equipment for over water operations, including life preservers and helicopter floats for all single-engine helicopters and certain multi-engine helicopters. The FAA also published Operations Specifications to address this issue. We consider that our actions address the intent of this safety recommendation.

A–07–28: Evaluate the design, maintenance, and in-service handling of personal flotation devices (PFDs) manufactured in compliance with Technical Standard Order C13f to determine the reason that some chambers fail to inflate when the inflation handles are pulled before the PFDs have reached the manufacturer's recommended inspection interval.

A–07–29: On the basis of the results of the evaluation requested by Safety Recommendation A–07–28, ensure that personal flotation devices manufactured in compliance with Technical Standard Order C13f remain usable throughout the manufacturer's inspection interval.

NTSB Status: Open-acceptable

FAA Status: FAA agrees with the intent of these safety recommendations and has stated that a program is being initiated to identify the specific life preserver model having in-service inflation failures and to determine the design, maintenance, and handling causes leading to the failures.

Oversight and Training

A–06–52: Require records reviews, aging airplane inspections, and supplemental inspections for all airplanes operated under 14 Code of Federal Regulations (CFR) Part 121, all U.S. registered airplanes operated under 14 CFR Part 129, and all airplanes used in scheduled operations under 14 CFR Part 135. This would include those airplanes operated under Part 135 that carry nine or fewer passengers and those that are operated in scheduled cargo service.

NTSB Status: Closed-unacceptable

FAA Status: In its letter of June 2009, the Board stated the 2006 Advisory Circular (AC) on Fatigue Management Programs for Airplanes with a Demonstrated Risk of Catastrophic Failure Due to Fatigue, is reactive. The AC however, provides guidance to address an unsafe condition when there is a demonstrated risk of catastrophic failure, rather than establishing an inspection program to discover serious structural problems that threaten an aircraft's safety *before* a failure occurs.

A–05–9: Develop specific criteria regarding the number of accidents and/or incidents that would cause an increase in oversight of an operator.

NTSB Status: Open-acceptable

FAA Status: The focus of the FAA's oversight program is to verify that air carrier systems comply with regulatory standards and to validate that those programs perform as intended. The FAA amended FAA Order 1800.56, National Program Guidelines, which now requires principal inspectors to consider accident/incident trends, patterns and causal factors, as well as other types of safety data that may signal a need for additional surveillance.

A–05–8: Review the procedures used during its oversight of Air Sunshine, including those for the Surveillance and Evaluation Program and Regional Aviation Safety Inspection Program, to determine why the inspections failed to ensure that operational and maintenance issues that existed at the company were corrected. On the basis of the findings of this review, modify Part 135 inspection procedures to ensure that such issues, including maintenance record keeping and practices, are identified and corrected before accidents occur.

NTSB Status: Closed-acceptable

FAA Status: In August 2009, the Board classified this recommendation as closed acceptable stating that Southern Region Evaluation Services Office review and report and the resulting revisions to Order 8900.1 complete the recommended action.

A–03–51: Conduct en route inspections and observe ground training, flight training, and proficiency checks at all 14 Code of Federal Regulations Part 135 on-demand charter operations as is done at Part 121 operations and Part 135 commuter operations to ensure the adequacy, quality, and standardization of pilot training and flight operations.

NTSB Status: Open-acceptable alternative

FAA Status: The FAA has accomplished a number of actions to address the safety intent of this recommendation. The FAA published Notice 8900.49, Work Program Development for Part 135 Helicopter Emergency Medical Services (HEMS) Operators or Commercial Air Tour Operators on September 10, 2008, which instructed assigned inspectors to use Surveillance Priority Index (SPI) when planning their work programs, and to document a specific national use code in the Program Tracking and Reporting Subsystem (PTRS) when recording the results of en route inspections. The FAA met with the NTSB staff in August 2009 to demonstrate the use of the SPI to prioritize oversight activities.

Since the FAA issued Notice 8900.49, the FAA has also issued Order 1800.56J, National Flight Standards Work Program Guidelines for FY2010. The work programs are risk-based and are created and adjusted based on recurring safety assessments. Order 1800.56J requires inspectors to use the Safety Performance Analysis System (SPAS) for safety assessment, surveillance planning, decision-making, certification, and investigation, as appropriate.

General Aviation and Air Taxi Activity (GAATA) Survey

A–05–11: Develop, validate, and document an unbiased method for generating and revising activity estimates based on nonscheduled 14 Code of Federal Regulations Part 135 and Part 91, Subpart K, operator surveys or reporting.

NTSB Status: Open-acceptable

FAA Status: The Board's response of January 2006, commended the FAA for its efforts in improving the credibility of data obtained by the General Aviation survey. They also noted that the recommendations asked that the FAA: (1) validate the newly obtained data with other industry activity measures and (2) document the accuracy and degree to which the new survey process captures industry activity. The Board classified this recommendation as open acceptable. The FAA has taken several measures to improve the accuracy of the reporting for nonscheduled Parts 135

and 91. The sampling size for the survey has tripled and we are now sampling 100 percent of all Part 135 operators. Results from the revised 2004–2006 surveys show consistently improved data, which has built a higher confidence among both government and industry users. Once the preliminary survey data is received every September, the data is sent to NTSB, GAMA and AOPA and several offices within the FAA for validation. All parties have until October to concur with the validity of the data and that becomes the official data for that year.

A–03–37: Require nonscheduled Part 135 operators to report activity data on an annual basis to include total hours flown, revenue flight hours, revenue miles flown, and number of departures by category/class of aircraft; to identify for each aircraft the proportion of flight time operations that are involved in sightseeing, air medical transport, passenger transportation, and cargo only transportation; to report for cargo operations freight ton miles available and freight ton miles flown; and to report for passenger service operations seat miles available and passenger miles flown.

NTSB Status: Open-acceptable

FAA Status: In an effort to get all operators to report their activity data, the FAA looked for a way to reach out to all operators. The FAA developed an independent data collection track for high-end, high-use operators, as well as the acquisition and use of secondary data sources for locating knowledgeable respondents. As a result, all Part 135 operators receive a survey, and currently each Part 135 operator receives a single specially designed summary questionnaire to allow reporting of their entire fleet of aircraft. The FAA also worked closely with Part 135 associations, such as NBAA and NATA with outreach activities to encourage their members to respond. Because of the changes and the active assistance from industry and trade organizations, the statistical validity of the nonscheduled Part 135 activity has significantly improved and at this time the FAA is not pursuing mandatory reporting.

Cockpit Voice Recorder

A–03–63: Amend the current regulations for 14 Code of Federal Regulations Parts 91, 135, and 121 operations to require all turbine powered, nonexperimental, nonrestricted category aircraft that have the capability of seating six or more passengers to be equipped with an approved 2 hour cockpit voice recorder that is operated continuously from the start of the use of the checklist (before starting engines for the purpose of flight), to completion of the final checklist at the termination of the flight.

NTSB Status: Open-unacceptable

FAA Status: On March 7, 2008, FAA published Final Rule, Revisions to Cockpit Voice Recorder and Digital Flight Data Recorder (DFDR) Regulations. The final rule includes a retrofit requirement for existing turbine-engine powered airplanes operated under Parts 121 and 125. By April 7, 2012, these airplanes are required to have an approved CVR that can record at least the last 2 hours of information and operate continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight. These same requirements apply to newly manufactured airplanes operated under Parts 121 and 125 after April 6, 2010.

For Part 91 aircraft required to carry a CVR, the requirement for the CVR to be operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight has been effective since October 11, 1991. The final rule has mandated this same requirement for Part 135 newly manufactured aircraft that are required to carry a CVR after April 6, 2010.

The final rule also has a requirement for the CVR to record at least the last 2 hours of information for aircraft that are required to have a CVR and operated under Parts 91 and 135. This requirement will affect newly manufactured aircraft after April 6, 2010.

We have decided not to mandate the CVR retrofit requirements of recording at least the last 2 hours of information and operating continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight for aircraft required to carry a CVR operating under Parts 91 and 135. In responding to comments received to the NPRM, we were not able to quantify or justify the potential burden of the CVR retrofit requirements on these operators and the requirement for retrofit was removed from the final version of the rule.

We have submitted this status to the NTSB and are currently waiting on the Board's response.

Senator LAUTENBERG. The recommendations from the New York Airspace Task Force are supposed to take effect November 19 of this year. Is the FAA going to meet that deadline?

Mr. DAY. Yes, sir, we intend to. I think it is a credit to the diverse task force that we put together. We built buy-in for those recommendations by using the operators, as well as the employees and the employees' labor representatives, in fashioning these recommendations. So we believe that given the public comment period, we will have buy-in and support and good feedback on those recommendations. We will be able to implement them on November 19. We will be ready.

Senator LAUTENBERG. Mr. Hart, I would ask you this. The NTSB has repeatedly recommended to the FAA the importance of pilots having sufficient rest prior to flights. Given the lack of safety oversight on on-demand operators, how can the FAA be assured that pilots are not fatigued and not getting the appropriate time away before flying these aircraft?

Mr. HART. That is a very good question, Senator, and certainly we are looking at the question in relation to the Colgan accident. We have not identified fatigue as an issue in this accident, and we are doing quite a bit in that regard on the Colgan accident which will come out in that report.

Senator LAUTENBERG. We are looking forward to your answer there, because the very shape of the structure invites some fatigue because a home base may be in one place and people have to include that flying time to get to their operating station, and also the fact is that so much time is consumed away from direct pilot responsibilities but getting to and from work.

I thank each one of you for your testimony. We are going to take the liberty of calling on you. We will keep the record open for 2 weeks, and we will see if any of our other members, who could not be here, have any questions.

We salute your efforts toward safety, but we have to make sure that everybody who gets into an airplane has the feeling that it is being supervised by the FAA or some other agency that has responsibility for their safety and convenience.

Thank you all very much.

[Whereupon, at 3:37 p.m., the hearing was adjourned.]

A P P E N D I X

U.S. SENATE,
Washington, DC, August 10, 2009

Hon. BYRON L. DORGAN,
Chairman,
Subcommittee on Aviation Operations, Safety, and Security,
Senate Committee on Commerce, Science, and Transportation.

Dear Chairman Dorgan:

I am writing to request that the Subcommittee on Aviation Operations, Safety, and Security move expeditiously to hold a hearing on the safety of "on-demand" aircraft—small, privately chartered aircraft, including helicopters.

This past weekend. a small private airplane taking off from Teterboro Airport in New Jersey and carrying three people and a New York City tourist helicopter carrying six people collided over the Hudson River, killing all nine people. This deadly crash highlights concerns not only with the specific airspace above the Hudson River, where pilots must navigate the busy skies through a tactic known as "see and avoid," but also with on-demand aircraft safety more generally.

According to a report issued by the U.S. Department of Transportation's Inspector General (IG) last month, on-demand aircraft receive far less oversight from the Federal Aviation Administration (FAA) and have far more fatalities than commercial aircraft. Moreover, although the National Transportation Safety Board (NTSB) has identified a number of safety improvements related to small, privately chartered aircraft, the FAA has failed to implement these improvements. For example, following a 2005 accident in Teterboro, New Jersey, the NTSB made recommendations regarding flight attendant training improvements that could have mitigated the injuries during that crash; to date, the FAA has not proposed any regulatory changes to address these recommendations. In fact, the FAA's rules for small, privately chartered aircraft have not been updated since 1978.

In light of Saturday's final crash and overdue safety improvements for on-demand aircraft, I respectfully request a hearing to examine this critical aviation safety issue. Thank you for your consideration and please let me know if I can be of assistance.

Sincerely,

FRANK R. LAUTENBERG,
U.S. Senator.

PREPARED STATEMENT OF CRAIG L. FULLER, PRESIDENT,
AIRCRAFT OWNERS AND PILOTS ASSOCIATION

My name is Craig Fuller, and I am President and Chief Executive Officer of the Aircraft Owners and Pilots Association (AOPA), a not-for-profit individual membership organization representing more than 415,000 members, nearly three-quarters of the Nation's pilots. AOPA's mission is to effectively represent the interests of its members as aircraft owners and pilots concerning the economy, safety, utility, and popularity of flight in general aviation (GA) aircraft.

Although GA is typically characterized by recreational flying, it encompasses much more. In addition to providing personal, business, and freight transportation, general aviation supports such diverse activities as law enforcement, fire fighting, air ambulance, logging, fish and wildlife management, news gathering, and other vital services.

Each year, 170 million passengers fly using personal aviation, the equivalent of one of the Nation's major airlines, contributing more than $150 billion to U.S. economic output, directly or indirectly, and employing nearly 1.3 million people whose collective annual earnings exceed $53 billion. General aviation serves 5,200 public-use airports as well as more than 13,000 privately-owned landing facilities. In a poll

conducted on election night last November, more than 60 percent of American voters said they understood that general aviation (all flying other than military or commercial airlines) is a vital part of America's transportation system.

Controlled and Uncontrolled Airspace

The notion that we have uncontrolled airspace in the United States may, at first blush, seem unusual. Despite official use of the term "uncontrolled", the reality is that all airspace in the United States exists under some degree of control. Those of us who fly in the airspace do so within a complex set of rules and regulations that control where we fly and under what conditions. What is referred to as "uncontrolled airspace" is actually carefully depicted on charts and is available to pilots only when very specific weather and visibility conditions exist.

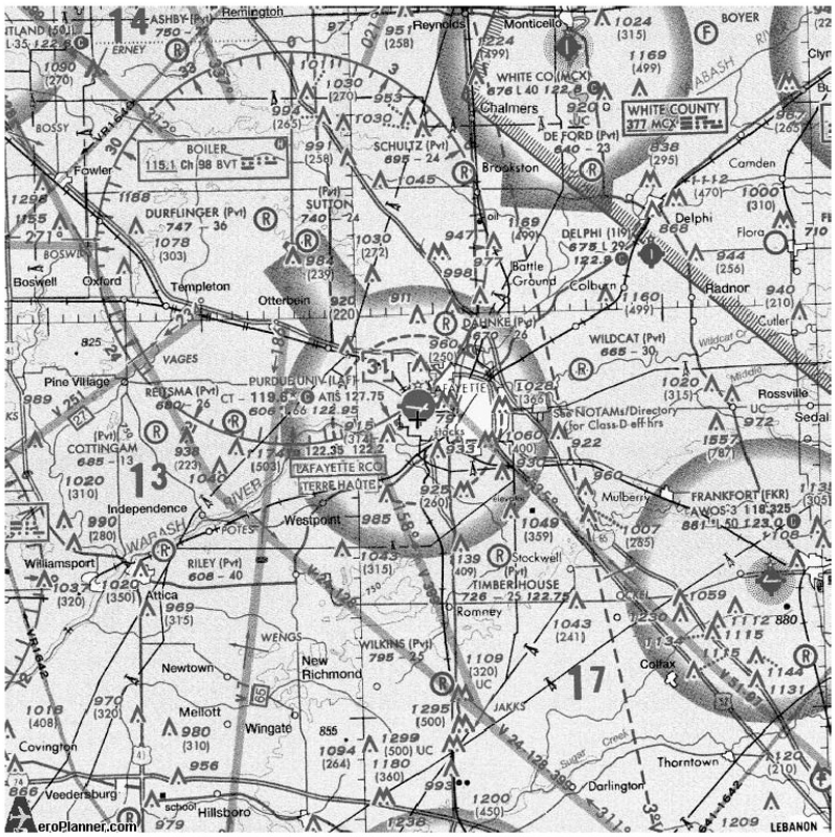


Figure 1: Uncontrolled airspace from the surface to 700′ is charted within the shaded magenta areas. Outside these areas uncontrolled airspace exists from the surface to 1,200′.

In practice, different groups tend to refer to different types of airspace as "uncontrolled." Air traffic control (ATC) typically considers airspace outside of the areas where controllers provide positive control of all aircraft to be "uncontrolled." This would generally include any airspace that is not designated as Class A, B, C, or D airspace.

The official FAA definition of "uncontrolled" airspace is different, however. According to the FAA, uncontrolled airspace is simply airspace with lower visibility and cloud clearance requirements. It typically exists below 700 feet above the ground in the vicinity of most airports and below 1,200 feet above the ground in most other areas. In the Hudson River corridor, controlled airspace begins at 700 feet, meaning most traffic, including most all fixed-wing traffic, is flying within controlled airspace. Most VFR flyways or "corridors," including the Hudson River corridor, are actually within controlled airspace.

Even though the airspace is technically "controlled", aircraft choosing to operate under IFR are steered clear of such corridors, even when weather is good. This ensures that instrument flights, whether commercial or private, are kept separate from VFR flights operating in designated corridors, flyways, and transition routes.

VFR Flying Is Controlled by Definition

Although they often are characterized as "uncontrolled," flights made under visual flight rules, or VFR, adhere to strict procedures designed to ensure the safety of those in the air and on the ground.

VFR flight is governed by a defined set of FAA regulations and "rules of the road" covering operation of aircraft primarily by visual reference to the horizon for aircraft control and see-and-avoid procedures for traffic separation. VFR is used by more than 70 percent of all flights; it is not, by definition, uncontrolled or out of control.

All pilots, including those who fly exclusively under visual flight rules, are required to undergo extensive training, be tested to established FAA standards, and maintain proficiency at levels determined by the FAA. Pilot qualifications must be reevaluated at least every 2 years. In addition, pilots must adhere to regulatory requirements for flight planning and follow regulations governing factors including airspeed, direction of flight, altitude, weather minimums, and communication.

The rules that govern visual flight, instrument flight, and operations through airspace corridors are established precisely to maximize operational safety. The rules are taught to all pilots, tested over time, and refined as necessary, as we have recently seen from the process of reviewing and revising the rules for flying in the airspace over the Hudson River in New York.

Hundreds of thousands of safe operations have been conducted year after year in corridors around the Nation. They represent consistent, long-term evidence that VFR traffic can be safely and efficiently accommodated even in the busiest airspace.

See and Avoid

Under FAA regulations, all pilots are ultimately responsible for maintaining separation from other aircraft whenever visual conditions permit, as they do at any time aircraft are operating under VFR. Even flights that are being guided by air traffic controllers, either under instrument flight rules (IFR) or VFR, are responsible for visually scanning to see and avoid potential traffic conflicts. The see-and-avoid principle is codified in Federal Aviation Regulation 14 CFR Part 91.113(b) as follows:

> "When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear."

With the onus on all pilots to be vigilant for other traffic, midair collisions are rare. For example, in 2007, there were 624,007 pilots in the United States along with 221,943 general aviation aircraft. All told, pilots flew 21.4 million flight hours that year. That same year, general aviation aircraft were involved in 10 midair collisions, four of which were fatal. The accidents included a collision between competitors rounding a pylon in an air race, and a collision between two aircraft conducting a formation landing. Of the remaining accidents, two occurred during flight instruction; three occurred in the traffic pattern, including one at a towered airport; two occurred during formation flight; and one occurred in low-altitude cruising flight.

Corridors, Flyways and Transition Routes

The aviation community utilizes many terms, often in the wrong context, to describe methods of transitioning either through or around the Nation's busiest airspace, designated as Class B. Class B airspace surrounds the largest airports in cities like Boston, Chicago, Los Angeles, and New York, among others.

Class B airspace is designed to help manage the flow of high volumes of airline traffic as these aircraft transition from the high-altitude flight levels into the lower altitudes and eventually to the airport itself and in reverse for departing aircraft. The airspace is shaped like an upside-down wedding cake with concentric expanding circles stacked on top of each other. The airspace and corresponding shape funnels aircraft in and out of the main airport.

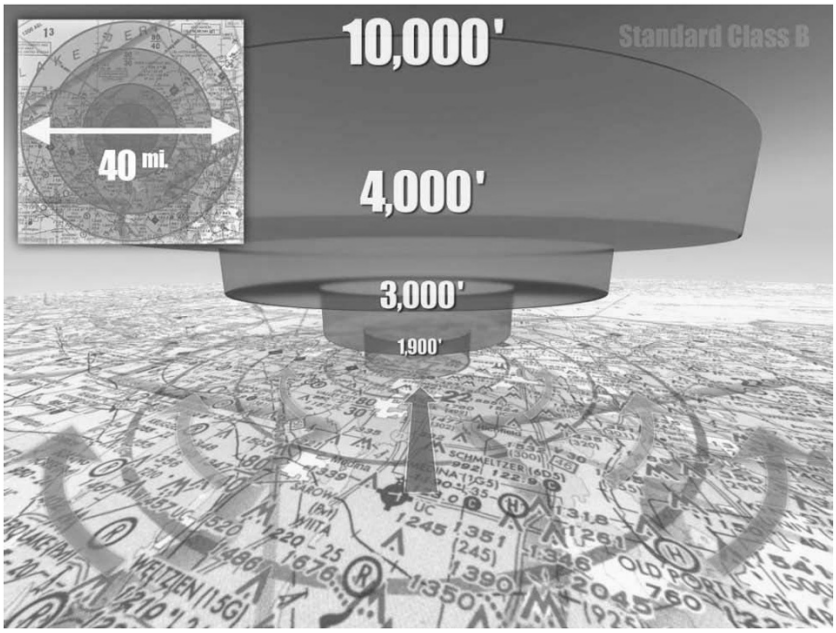


Figure 2: Class B airspace takes the form of an upside down wedding cake, with the largest rings at the highest altitudes.

Most, but not all, Class B airspace extends from the surface to 10,000 feet mean sea level (msl) with the diameter of the largest and highest sections often exceeding 40 nautical miles. Pilots must obtain a clearance from air traffic control before entering Class B airspace and then maintain radio contact with ATC. Aircraft must be equipped with an altitude-encoding transponder.

Published VFR routes for transitioning around, under, and through complex airspace such as Class B airspace were developed through a number of FAA and industry initiatives. The terms "VFR flyway", "VFR corridor", and "Class B airspace VFR transition route" all have been used when referring to such routes or airspace.

Each type of transition airspace is slightly different, although all share the goal of guiding VFR traffic safely in the vicinity of busy, complex airspace.

VFR flyways are general flight paths, not defined as a specific course, for use by pilots in planning flights into, out of, through, or near complex terminal airspace to avoid Class B airspace. An ATC clearance is not required to fly these routes. These routes are not intended to discourage requests for VFR operations within Class B airspace but are designed to assist pilots in planning flights that do not actually enter Class B airspace.

VFR flyways are generally charted on VFR Flyway Charts found on the reverse side of many Terminal Area Charts, but not all flyways are charted. The route commonly referred to as the "Hudson River Corridor" by pilots and the "Hudson River Exclusion" by air traffic controllers is actually an example of an uncharted VFR flyway. (Although it should be noted that the FAA plans to chart this route in the future as part of the revisions planned following the recent Hudson River midair collision.)

It is important to remember that these suggested routes are not sterile of other traffic. The entire Class B airspace, and the airspace underneath it, may be heavily congested with many different types of aircraft. Pilots using flyways must strictly adhere to VFR rules.

VFR corridors are designed into some Class B airspace areas to provide a designated space for the passage of VFR traffic. A VFR corridor is defined as airspace through Class B airspace, with defined vertical and lateral boundaries, in which aircraft may operate without an ATC clearance or communication with air traffic control. A corridor is, in effect, a "hole" through Class B airspace. A corridor is surrounded on all sides by Class B airspace and does not extend down to the surface

like a VFR flyway. One example of a corridor can be found in the San Diego Class B airspace just east of the airport between 3,300 feet and 4,700 feet.

Because of the heavy traffic volume and the procedures necessary to efficiently manage the flow of traffic, it has not been possible to incorporate VFR corridors in the development or modification of Class B airspace in recent years.

To accommodate VFR traffic through certain Class B airspace, such as Seattle, Phoenix and Los Angeles, *Class B airspace VFR transition routes* were developed. A Class B airspace VFR transition route is defined as a specific flight course depicted on a Terminal Area Chart for transiting specific Class B airspace. These routes include ATC-assigned altitudes, and pilots must obtain an ATC clearance prior to entering Class B airspace on the route.

"Corridors" Are Necessary and Enhance Safety

Since becoming president of AOPA 8 months ago, I have flown numerous times into busy airspace around New York, Boston, Houston, Dallas, and Los Angeles. In all cases, I flew using an instrument flight plan. My approaches and departures were handled by air traffic control, keeping me clear of the areas where aircraft could operate under visual flight rules without contacting air traffic control.

Without the VFR corridors, flyways, and transition routes, air traffic controllers would be forced to handle thousands of additional operations in and around some of the busiest airspace in the country. Delays would be inevitable and some aircraft would skirt the areas requiring contact with air traffic control, making their precise locations unpredictable. Corridors, flyways, and transition routes create designated spaces for these VFR flights, easing controller workload, and making it easier for aircraft to avoid one another in crowded skies.

In the days since the Hudson River midair collision, I have heard from many AOPA members who have safely used the Hudson River flyway and similar routes nationwide for many years. Their comments consistently note that such routes are efficient means of safely navigating through busy airspace, adding that if these routes were lost, pilots would be forced to fly many miles out of their way, significantly increasing costs and imposing new safety risks associated with fuel usage and weather considerations.

The Hudson River Corridor Working Group Recommendations

It is understandable that a tragedy like the one we recently witnessed in New York brings calls for major airspace realignments. While these calls are based on the best of intentions, it is important to base action on careful calculations of risks and airspace utilization. Even well-intentioned efforts to realign airspace are likely to come with unintended consequences that could increase, rather than reduce, hazards in and around busy airspace.

FAA Administrator Randy Babbitt on Sept. 2 announced steps the agency will take to enhance safety in the Hudson River flyway—steps AOPA believes are sensible and likely to have a favorable effect.

The plan is the direct result of a working group convened by Babbitt just 2 weeks ago that was made up primarily of FAA staff from diverse departments, including the air traffic organization, air traffic controllers, airspace designers, and flight standards. The panel also included AOPA and representatives of two other industry groups to reflect the needs of airspace users. I believe this cooperative effort is an excellent example of how to effectively address safety concerns by considering the needs of all stakeholders.

The FAA is expected to implement the working group's eight recommendations, which align closely with those developed independently by the National Transportation Safety Board (NTSB).

The working group report suggests making current best practices mandatory. These practices including flying with lights on and using two-way air-to-air communication. The recommendations also include developing flight rules and training for operations in the exclusion zone. As noted previously, the FAA plan also goes beyond the NTSB recommendations by adding improved charting to include VFR flyways, which will give pilots more and better information.

Training and Education

Pilots are accustomed to making recurring training part of their flying regimen. Pilots engage in both mandatory and voluntary training programs aimed at improving safety. AOPA is actively assisting in making additional training materials and programs available to pilots through the AOPA Air Safety Foundation.

Earlier this week, AOPA Air Safety Foundation President Bruce Landsberg went to New Jersey to host a training seminar focusing on best practices for flying in and around New York. The seminar was available both in person and via Web cast to maximize participation.

In addition, numerous mechanisms already exist to ensure that training on the use of flyways, corridors, and transition routes is integrated into ongoing pilot training. Options include making it an area of emphasis for flight reviews, which are required of all active pilots every 2 years, and practical tests, which are taken by all new pilots as well as those who are upgrading or adding new certificates or ratings. Information on using corridors can also be added to Flight instructor renewal courses, which many flight instructors use to renew their certificates every 2 years. Finally, the aviation industry can be enlisted to communicate key training information through print and electronic media such as magazines and newspapers delivered to pilots. The FAA's FAAST Team provides another possible mechanism for disseminating important safety and training information.

Conclusion and Summary

Safety is a top priority for everyone within the aviation community, and history has shown that VFR flyways, corridors, and transition routes are a safe and efficient way of moving traffic through some of the Nation's busiest airspace.

Despite the use of the term "uncontrolled", virtually all airspace is controlled to some degree, and pilots who fly in it must strictly adhere to regulations and requirements governing everything from their qualifications and the airworthiness of their aircraft to weather and altitude.

By providing well-known routes through complex and busy airspace, these "corridors" reduce the workload on air traffic controllers and help controllers and other pilots predict the location of VFR traffic. Eliminating such routes could have dangerous unintended consequences.

At the same time, as the recent Hudson River Corridor Working Group demonstrated, there are opportunities to enhance safety while keeping the airspace open by codifying best practices, improving charting, and making additional training materials available to pilots. Identifying such opportunities can be done most effectively when the FAA partners with the aviation industry to identify the needs of stakeholders early in the process.

PREPARED STATEMENT OF ED BOLEN, PRESIDENT AND CEO,
NATIONAL BUSINESS AVIATION ASSOCIATION

The National Business Aviation Association (NBAA) represents the interests of over 8,000 member companies who rely on the use of general aviation aircraft for a business purpose. General Aviation includes diverse operations, with business uses that range from agriculture, law enforcement, fire and medevac services, to varied government, educational, nonprofit and business organizations. NBAA's members operate in every type of airspace and airport across the Nation. We appreciate the opportunity to provide the Subcommittee with our views for the hearing today on the Hudson River Airspace.

Aviation remains the safest mode of transportation, bar none. The number of safely completed operations continues to rise each year. This impressive record is in large part due to the continued partnership between the aviation community and the government to pursue new technologies, enhanced procedures and implement new safety-based requirements that further improve aviation's already impressive safety record.

As we all know—tragically—aviation accidents do happen. When they occur, the entire aviation community feels a sense of loss and pain. Every accident investigation provides insight and lessons as to how we can improve aviation safety. However, it is important to note that each incident involves a unique set of situations, causal elements and factors. In this area, the National Transportation Safety Board is tasked with analyzing accidents and determining the cause.

Long History of Safety Partnership

NBAA and its member companies have a long, demonstrated history of partnering with the FAA to address safety issues and mitigate risks. It has been shown repeatedly, and again following the recent tragic midair collision over the New York City-Hudson River, that engaging affected parties to assist with the development of safety solutions produces better results. We commend FAA Administrator Randy Babbitt for reaching out to the aviation community in the days immediately following this accident to identify cooperative steps that could be taken to enhance air safety in this busy and vital air corridor.

Specifically, the airspace and radio frequency changes proposed by the FAA will standardize existing procedures, provide greater knowledge of those local procedures to transient aircraft, and increase communication between FAA controllers overseeing those operations.

While we do not yet know all the facts relating to the causes of the August 8, 2009, accident, NBAA believes that the actions proposed by the FAA will further enhance aviation safety in the New York City-Hudson River airspace. These announced steps take advantage of established industry practices already in place and well known to pilots that regularly operate within that busy airspace. The new safety procedures in the low-level airspace over the Hudson River are reasonable and workable and our members are committed to these efforts.

In addition to the important analysis work done on aviation accidents and incidents, it is also vital that we continue to maximize the vast operational data collected by the FAA, NTSB, aviation manufacturers and operators to drive future safety enhancements and improve accident prevention. This analytical data often contains trends which are important in identifying risks and capturing behaviors which can contribute to aviation accidents. This knowledge is vital in assisting industry and government efforts to improve aviation safety.

Action Key to Improved Safety

The FAA will soon issue a detailed rulemaking proposal to incorporate these airspace safety proposals into regulation. We look forward to reviewing the proposed rulemaking and being an active and constructive stakeholder in the regulatory process.

NBAA would also like to take this opportunity to urge FAA to implement several pending proposals that we believe would further enhance aviation safety.

Nearly 5 years ago, an industry working group (The Part 135 and 125 Aviation Rulemaking Committee) chartered by the FAA—and which I chaired—submitted extensive recommendations for regulatory changes that would update and strengthen safety for FAR Part 135/125 industry. These recommendations covered a multitude of subjects including basic requirements for flying commercially, updates to pilot duty and rest requirements, enhanced training for commercial pilots, revised aircraft maintenance requirements and role of very light jets (VLJs) in on-demand charter operations—all of which that would significantly improve safety. Unfortunately, the Agency has not acted on those recommendations to date. A copy of those recommendations and the transmittal letter are attached to my testimony.

Over the years, NBAA has consistently welcomed the opportunity to support FAA efforts that seek to improve aviation safety. We have committed significant time, energy and resources to these projects only to have the products of our effort languish with no improvements in safety. While we understand that the FAA faces resource limitations like the rest of us, it is frustrating to continue to support these FAA projects without any clear understanding whether the agency will implement the final recommendations.

In the interest of continued improvement in aviation safety, NBAA and our members will always strive to lead, not follow. We look forward to working with this Subcommittee, and the other government and industry stakeholders to keep safety as our number one priority. NBAA appreciates the opportunity to provide our comments to the Subcommittee today. Thank you.

ATTACHMENT ONE

Part 135 and 125 Aviation Rulemaking Committee,
c/o J. Hennig (GAMA),
Washington, DC.

September 7, 2005

Hon. MARION C. BLAKEY,
Office of the Administrator,
Federal Aviation Administration,
Washington, DC.

Dear Administrator Blakey:

I am writing you as the Chair of the Part 135/125 Aviation Rulemaking Committee (ARC) and as the representative of the diverse group of close to 200 participants from the operator community, unions, trade associations, government, and manufacturers who supported the ARC. With this letter and the accompanying electronic material, the ARC submits its recommendations to you.

During the 27 months which the ARC worked we came to recognize the breadth of operations that are included in Parts 135 and 125 ranging from traditional passenger charter flights, to operators that support rural Alaska with fuel, those who transport professional sports teams, all-cargo carriers, aeromedical flights, and more. Each of these operations represents an important segment of the air transportation industry, but also unique needs and requirements from a safety and regu-

latory perspective. When reviewing the ARC's recommendations you will see that we have accommodated all communities and provided targeted safety improvements tailored to their operating structure, aircraft, size and environment.

We also looked at the possible future operating environments. For Part 135 this includes the entry into service of very light jets (VLJ), use of advanced cockpit equipment to improve safety and enhance aircraft utility, and the use of airships for transportation of cargo. Our recommendations address the operation and certification requirements to support the scenarios that are envisioned.

The ARC was also tasked with streamlining regulations. Our biggest initiative in this area focused on training regulations. Our recommendations provide an opportunity for the FAA to propose a new process for timely updates of training standards to make them applicable to current and future operations.

The ARC additionally provides a complete rewrite of subpart F, which covers crewmember flight time and duty periods as well as rest requirements. Unlike the scheduled environment, Parts 135 and 125 include dynamic operations with unique requirements to ensure the safety of crews and passengers. We believe that our majority-endorsed recommendation will accomplish our goal of improving the safety of on-demand operations while providing both the operator and crew opportunity to proactively manage fatigue.

Included with this letter you will find a CD which contains over 140 recommendation documents addressing Parts 1, 23, 25, 61, 91, 119, 125, and 135. These documents capture group discussion and decisions on key issues affecting this industry. Additionally, the CD contains draft NPRM documents which include preamble and proposed rule language to support the recommendations.

I would also like to recognize the hard work and leadership of the workgroup chairs. The groups and workgroup chairs are:

- Aero Medical Workgroup, Ken Javorski of CJ Systems Aviation
- Airships Workgroup, Ron Hochstetler
- Airworthiness Workgroup, Walter Desrosier of GAMA, and Brian Finnegan of PAMA
- Equipment and Technology, Dick Solar of Honeywell
- Flight Duty and Rest Subgroup to Operation, Doug Carr of NBAA
- Operations Workgroup, Dave Hewitt of NetJets, Inc.
- Rotorcraft Workgroup, Mike Hurst of Petroleum Helicopters
- Training Workgroup, Bill Campbell of CAE SimuFlite

Finally, I want to communicate that the members of the ARC are available to assist you and your staff as you consider the material. I would also like to thank you for again showing leadership in creating this Aviation Rulemaking Committee to conduct a regulatory review of Parts 135 and 125.

Sincerely,

ED BOLEN,
President and CEO, NBAA.

Enclosures (provided electronically): Executive Summary
Recommendation Documents
Draft NPRM Documents
Cc: Nicholas A. Sabatini, Associate Administrator for Aviation Safety, AVS–1
James J. Ballough, Director, Flight Standards Service, AFS–1
Anthony F. Fazio, Director, Office of Rulemaking, ARM–1
Katherine Perfetti, National Resource Specialist Part 135
Jens C. Hennig, ARC Coordinator/Manger of Operations, GAMA

ATTACHMENT TWO

PART 135/125 AVIATION RULEMAKING COMMITTEE

Overview of ARC Process and Activities

The Part 135/125 Aviation Rulemaking Committee (ARC) was chartered by the Federal Aviation Administration (FAA) on February 3, 2003, when the agency issued a Notice of Regulatory Review. The notice solicited membership and also requested comments to be submitted to the docket by June 3, 2003. In response to the first request for comments and requests for membership 97 issue documents were submitted by the public. On July 17, 2003, the FAA reissued the request for comment with a deadline of November 18, 2003, for submission of comments to be considered by the Aviation Rulemaking Committee.

The issues submitted to the docket were divided up among eight workgroups organized around aeromedical operations (AER), airworthiness and maintenance (AWG), applicability (APP), airships (AIR), equipment and technology (EQU), operations (OPS), rotorcraft operations (ROT), and training (TRA).

The ARC met as a full committee three times in 2003 and four times in 2004. Each meeting lasted 3 days and took place in the Washington, DC area. In addition to the full ARC meetings, a number of the workgroups also held separate meetings. These meetings included multiple meetings of the operations committee's subgroup on flight, duty and rest; meetings by the airworthiness group addressing certification standards for high-performance Part 23 airplanes; and extra meetings by the applicability group to look at large airplane operations in Parts 135 and 125.

The aviation rulemaking committee's work was facilitated by using an online Knowledge Sharing Network (KSN) that enabled all ARC participants to review and comment work performed by the ARC both within its own group and in other group.

In addition to holding meetings in concurrence with each full ARC meeting, the Steering Committee held a three-day meeting in February 2005. Following the final Steering Committee meeting, the workgroup Chairs coordinated the final document during the spring and early summer 2005 using E-mail and the KSN. The final documents were circulated to the full ARC using the KSN and then submitted to the FAA on September 7, 2005. The final recommendation included a letter of submission from the ARC Chair and accompanying CD–ROM with the ARC Recommendations and draft NPRM material.

ARC Tasking and Decisions

The tasking from the FAA to the ARC was to:

a. Resolve current issues affecting this part of the industry.

b. Enable new aircraft types, size and design and new technologies in air transportation operations.

c. Provide safety and applicability standards that reflect the current industry, industry trends and emerging technologies and operations.

d. Address international harmonization and ICAO standards.

e. Potentially rescind Part 125 from 14 Code of Federal Regulations.

Each workgroup submitted recommendations to the FAA which were coordinated through the Steering Committee, which had final approval on each document. Each recommendation received a vote which resulted in one of the following recommendations:

1. full consensus recommendation: All committee members approved of the recommendation;

2. a general consensus: All committee members approved or could live with the recommendation;

3. no consensus: One or several committee members disagreed with the recommendations and these committee members were given an opportunity to provide a dissenting opinion to the recommendation. All dissenting opinions were the responsibility of the individual dissenting committee member to draft and provide for inclusion in the final recommendation to the FAA.

Prior to the final submission to the FAA, the complete recommendation package was distributed to the full Part 135/125 Aviation Rulemaking Committee for comment to ensure that all issues had been properly captured and that all dissenting opinions had been submitted.

A summary of each workgroups set of recommendations follows. *However, all decisions and discussions should be referenced to the Recommendation Documents which hold the final and complete recommendation.* In this Executive Summary, the workgroups are listed in order: Applicability, Aeromedical, Airships, Airworthiness, Equipment and Technology, Operations, Rotorcraft, and Training.

Applicability Workgroup

The applicability workgroup was made up of over 60 active participants. The Committee's main focus was the proposal to rescind Part 125 and respond to issues concerning the type of operation permitted in Parts 135 and 91.

One of the main tasks given to the ARC by the FAA was to determine whether to rescind Part 125. The Committee started by familiarizing itself with the type of operators that currently reside within Part 125. These include private operations of large airplanes (which often operate under an exemption under 91), corporations flying large airplanes for sports teams, companies that transport parts for automotive manufacturers, fuel haulers in Alaska, and several other unique communities. The

applicability group determined that this diverse group of operators does not fit into any other operating part, which is similar to statements made in the preamble to the original Part 125 rulemaking in 1978. Therefore, the applicability group recommended, and the steering committee agreed, that it would not be appropriate to rescind Part 125, but instead the applicability group should define the applicability of 125 and improve the safety regulations that apply. The resulting recommendation defines applicability of Part 125 by providing set economic and scope limits to *private carriage for hire operations* and provides changes to 91 subpart F to accommodate completely private operation of large airplanes and also provides targeted safety improvements for both sections.

The group also considered a proposal for increasing the payload capacity of Part 135 *cargo-only* operations from the current 7,500 pounds to 18,000 pounds, which would enable moving certain current operators from Part 125 into 135. A recommendation was developed for increased payload capacity and is being submitted to the FAA *without* full consensus.

The applicability group also considered the expected emergence of very light jets (VLJs) as an important segment within the Part 135 on-demand community and possibly even the Part 135 scheduled operator community. Based on these two possible market entries, the applicability group felt it important that it follow FAA's guidance to the ARC and "[e]nable new aircraft types, size and design and new technologies in air transportation operations." The applicability group provided a consensus proposal for the introduction of scheduled turbojet operations by aircraft with less than 9 seats under Part 135. However, there was no consensus on whether scheduled operations under Part 135 in turbojet airplanes should by with a single or dual crew, but a majority proposal was provided. The group did provide extensive recommendations on how on-demand operations in very light jets should be conducted single pilot, which is currently permitted under 135.105 regulations. Additional recommendations were provided by the Airworthiness group on certification standards for Part 23 jets and high performance airplanes.

The applicability group also worked to address the issue of brokers acting as charter operators and define scheduled operations. The group worked closely with the Department of Transportation (DOT) and based on early recommendations by the ARC, the DOT issued broker guidance titled "Notice on the Role of Air Charter Brokers in Arranging Air Transportation" on October 18, 2004.

Aero-medical Workgroup

The aero-medical workgroup defined the status of medical crew during operations. The proper definition of medical crew is critical, since one of the most common scenarios in aero-medical operations is the transportation of patients from outlying hospitals to higher care facilities for which helipads the industry has developed several hundred private GPS approaches. With the exception of two of these pads, none are served by an approved weather source. The generally accepted method of accessing these facilities is for an air-ambulance to depart the metropolitan area under Part 91 and conduct the GPS approach to the hospital pad. (Part 91 does not require weather reporting at the destination.) The air-ambulance then departs the helipad with a patient under Part 135 utilizing exemption 6175 (permitting the departure to be made under IFR provided the pilot's observations indicate the prevailing weather is above VFR minima). The approach to the metropolitan area may be conducted to an airport with approved weather reporting or more likely to a hospital helipad within the Class D airspace of an airport with weather reporting and for which the operation is approved by operations specification.

There are several current interpretations that require the outbound leg to be conducted under Part 135 and thereby preclude the inherently safer IFR operation. The aero-medical group's proposal would modify 119.4 to exclude from Part 135 air-ambulance operations without a patient on board by changing the status of medical crew.

The group also expanded the applicability of *eligible on-demand,* making it applicable to more air-ambulance operations, since most do not support two-pilot crews. By the current definition, a single pilot crew may not be considered as "eligible". For the same reasons as stated above, the workgroup proposed to allow, under certain circumstances, a single-pilot air-ambulance crew to be included in the 135.4 definition of eligible on-demand crew.

The Committee also believes that increased use Night Vision Goggles (NVGs) in aero-medical operations will provide a significant benefit to safety. Part 61 does not recognize "aided" as a condition of flight nor does it impose any currency requirements on these operations. The aero-medical group's proposal incorporates in Part 61 currency requirements for the use of NVGs and defines in Part 135 the condi-

tions under which they may be used to meet the requirements of 135.207 (helicopter lighted surface reference) and 135.229 (lighted helipad requirement).

Finally, the aero-medical group proposed a clarification to 135.128 for approved child restraint systems specifically applicable to air-ambulance patients under the age of two.

Airships Workgroup

The airship working group provided a proposal for how airships can better be integrated into the NAS and how those types of operations, especially those by possible future large cargo airships should be regulated by the FAA. The airship workgroup provided a complete set of recommendations to Parts 1, 61, 91, 135 to enable these types of operations.

Airworthiness and Maintenance Workgroup

The Airworthiness and Maintenance workgroup (AWG) was tasked to review the maintenance regulations and airworthiness certification requirements as related to Parts 125 and 135 for currency, applicability, safety, and adequacy for "large" airplane operations such as intercontinental business jets and airplanes with modified payload capacity. It was also tasked to look at new airplane operations proposed by the ARC such as all-cargo airplanes with payload in excess of 7,500lbs and turbine-powered airplanes in commuter scheduled service.

When reviewing current maintenance requirements, the AWG determined that Part 125 and Part 135.411(a)(2) continuous airworthiness maintenance program (CAMP) requirements for large aircraft are appropriate and adequate based on their technical merit and the overall safety record. However, the group determined that airplane passenger seating configuration is no longer an appropriate method of differentiating between complex and less complex airplanes. Current business airplanes are *not* configured with the maximum passenger seating potential and the correlation between aircraft size and aircraft complexity is *not* likely to hold true as new technologies and performance capabilities are introduced into a broader range of general aviation airplanes. In addition, 135 accident data raises questions regarding the adequacy of maintenance requirements for piston and turboprop airplanes which are nearly all small "less-complex" airplanes. From a strategic perspective and considering the entire Part 135 regulation and scope of current and future operations, the AWG recommends that a single flexible maintenance program standard for Part 135 be established which could address the multiple of levels and factors that comprise aircraft complexity as well as operational complexity. Since the membership of the 135ARC and AWG did not include operators of small piston and turboprop airplanes, the AWG recommends that FAA form a 135 Maintenance Aviation Rulemaking Committee (135MARC) with the appropriate membership required to develop a new 135 maintenance program standard.

From a tactical perspective and to address the specific tasking to consider maintenance and inspection program requirements appropriate for "large" airplanes as well as new airplane operations proposed by the ARC, the AWG recommends that all aircraft with a maximum take-off weight (MTOW) of 50,000lbs or more be maintained in accordance with a CAMP. The AWG also recommends that the two new types of operations that the ARC proposes to introduce into Part 135; all-cargo airplanes with a payload in excess of 7,500lbs and turbine-powered airplanes in commuter scheduled service; be maintained in accordance with a 135.411(a)(2) CAMP which is consistent with the requirements of equivalent operations currently conducted under Part 121.

Regarding Maintenance Training Requirements—Part 135 operators with a CAMP currently "have a training program" for persons performing maintenance functions. However, current regulations and guidance do not adequately establish the minimum standards for maintenance training programs which have resulted in significant variations in the level of training provided among operators. The NTSB has repeatedly recommended that air carrier maintenance training programs be approved by FAA to ensure that they are appropriate for the type of aircraft and type of operation. The AWG recommends that all Part 135 air carriers have a maintenance training program and that operators with a CAMP must have an FAA approved training program. This would be consistent with the recent re-write of Part 145 which requires all repair stations to have an employee training program approved by the FAA. In fact, a recent report supporting the new Part 145 training requirement which discusses changes in the quality and background of mechanics, changes in industry, changing technology and inconsistency in FAA oversight would be equally applicable to Part 135 operations.

Finally, the group recognized that existing Part 23 regulations do not contain adequate or appropriate safety standards for turbojet airplanes which, up until now,

have been addressed through special conditions, exemptions, and equivalent levels of safety. The AWG therefore recommends changes to Part 23 airworthiness standards appropriate for turbojet airplanes with consideration of operation in Part 135 commuter service and Very Light Jets.

Equipment and Technology Workgroup

The Equipment and Technology workgroup was tasked with making recommendations regarding Part 135 and 125 equipment issues. The group made recommendations in the following areas:

Regarding Mode S—The workgroup reviewed whether Mode S requirement was still needed for efficient air traffic management. The workgroup agreed that the FAA continues to make slow, but nonetheless, steady progress regarding the use of Mode S in the future Air Traffic Network. The workgroup initially considered eliminating the requirement for Mode S in aircraft not required to be equipped with TCAS II, however, it felt this position ignored the fact that the FAA is continuing to make progress integrating Mode S into the ATN. The workgroup reached a consensus that the current rules pertaining to Mode S should remain as written. The FAA should continue to provide exemptions to operators of aircraft not required to be equipped with TCAS II until such time that Mode S/ADS–B is integrated into the ATN and can offer safety and operational benefits to operators and the FAA.

The Equipment and Technology also group worked closely with the Rotorcraft and Aero-medical groups to mature a recommendation on Night Vision Goggles resulting in the consensus recommendation submitted by the Aero-medical working group.

The Committee was also asked to review a request for use of combination recorders CVR–FDR in rotorcraft instead of the current requirement for dedicated (individual) CVR and FDR units. The workgroup provided a proposal for permitting the use of combi-recorders on rotorcraft.

The workgroup also conducted a thorough review of terminology. This review showed that some of the terminology needed to be updated to reflect current technology and operations. The Equipment and Technology workgroup reviewed Parts 23, 25, 27, 29, 91, 121, 125, and 135 and recommended changes as described in the recommendation document.

Finally, the Equipment and Technology workgroup was asked by the Airworthiness workgroup to look into the feasibility of permitting datalink weather information in place of traditional weather radar and thunderstorm detection systems. Datalink weather is a rapidly growing technology and in the future may offer the same level and quality of weather information to the pilot as traditional weather radar and thunderstorm detection systems. The workgroup proposed enabling language in a recommendation item that would permit the use of datalink weather systems in place of traditional weather radar and thunderstorm detection systems.

Operations Workgroup

The Operations workgroup (OPS) was comprised of approximately 70 members at the beginning of the process and was well represented from all facets of industry and also included several FAA personnel. The workgroup considered 80 issue papers during its meetings and all but one were resolved in some manner.

Regarding Flight, Duty, and Rest Requirements—This subject required the development of a subgroup which held four meetings and reaching majority approval of draft language to replace Subpart F of Part 135. The proposed language permits three options to ensure that crewmembers are provided adequate opportunity for sleep.

Option one is a prescriptive set of rules similar to those currently in force. However, significant effort was made to modify those rules, generally to be more restrictive in nature, and to recognize the latest fatigue science and to close "loopholes" in the current rules.

Option two is a rule set that permits the certificate holder to vary when a duty assignment may be made but ensures that crewmembers are given an opportunity for sleep at the same time every day. The subgroup believes this is a significant breakthrough in how to treat fatigue in a business that is by definition "on-demand."

Option three is an allowance for a certificate holder to develop and implement an "Alertness Management Program" in lieu of the requirements of Subpart F. The subgroup recognizes that no guidance material exists to describe the requirements of this type of program and recommends that a separate ARC be convened specifically for that issue as it applies to Part 135 operations.

A minority opinion was provided to the flight duty and rest proposal. The minority believes the proposal would unacceptably increase the hours of availability and the hours of work assignable to pilots employed by on-demand operators resulting

in a degradation of safety compared to the existing rule. The minority position is that additional training on fatigue dangers provided to flight crews through mechanisms such as "Alertness Management Initiatives" has the potential to increase safety, provided that information and any such procedures are used only as a supplement to prescriptive limits and not as a replacement or means to extend or circumvent quantitative maximum regulatory limits. The minority offered an alternative proposal for Subpart F.

Regarding Part 135 Flight Attendants—The operations workgroup recognized that the current Part 135 rules do not address current practice by industry of the use of flight attendants (nomenclature varies) in aircraft that are not required to have a flight attendant per the rule. This has created a significant void on how to treat these individuals from a regulatory perspective and has lead to diverse interpretation by the FAA at the field level. To address this issue, and to recognize the unique nature of the Part 135 industry and the individuals involved, the operations workgroup proposes to create two categories of crewmembers that are assigned duties in the cabin. The first is a Cabin Safety Crewmember (CSC), a position that is analogous to a flight attendant but specifically recognizes that individual's safety contribution to a flight. The CSC must be trained and tested per an approved training program. The second is a Passenger Service Specialist (PSS). This individual would not be permitted to perform safety related functions and training would be specific to the duties assigned. The passenger briefing requirements of Part 135 would be modified to require that the briefing include the status of a CSC or PSS.

Regarding the Use of Child Restraints—With dissenting opinions, the operations workgroup provided a recommendation that, for infants under 24 months of age not provided a passenger seat, the parent or guardian may utilize any kind of restraint (except the use of the same seat belt) to assist in protecting the child. A great deal of quality research was done regarding this issue and it is seen as an incremental increase in safety with minimal cost. In short, some protection, while not perfect, is far better than no protection at all. The workgroup reviewed previous FAA positions on this issue, specifically the "diversion principle" and finds that this is not applicable to Part 135 operations. The necessity to restrain an infant will not result in the child being transported by a less safe means (automobile) due to the nature and expense of typical Part 135 operations.

The operations workgroup was asked to review an NTSB recommendation regarding Part 135 activity reporting and provide a recommendation to the FAA for its implementation. The primary barrier to resolution was the detail required to be reported. Industry was quite concerned that the requirements to report would become overly burdensome and result in "guesstimates" rather than useful data. Others felt that very detailed data was required to produce a meaningful picture of Part 135 activity. All did agree on one thing—the level of detail proposed by NTSB was overly onerous and reflected limited knowledge of the Part 135 industry. Therefore, the Committee recommended, with one dissenting opinion, that the FAA require that operators provide total hours flown to the FAA at a frequency of one time per year with some additional fidelity of the type of operation.

Regarding the requirements for the "*exclusive use*" of an aircraft currently prescribed in the regulations, the operations workgroup recommended that this requirement be modified to allow an aircraft management or lease agreement to meet the requirements of "exclusive use" of an aircraft. The current rule was designed to inhibit new certificateholders and is based on the business model of the 1970s wherein certificateholders typically owned or exclusively leased their aircraft. That is the exception to the rule in the current business environment where most aircraft are owned by other companies and leased to a Part 135 certificate holder for Part 135 flights.

Finally, regarding pilot oxygen requirements the workgroup recommended that this rule be modified to bring it into harmony with Part 91 and Part 121 requirements.

Rotorcraft Workgroup

The rotorcraft workgroup focused on all weather operations and limitations specifically applicable to operations in helicopters. This includes landing visibility minima, performance requirements for large helicopters, and specific requirements for over water operations by rotorcraft.

Training Workgroup

The training workgroup provided a set of recommendations regarding key areas of how training and checking is currently conducted in the Part 135 community and also introduced the concept of Qualification Performance Standards (QPS).

The line check received the most comments from the public. Full consensus was achieved on recommendations that would allow for greater flexibility in the scheduling of the line check, less dependence on FAA resources and more importantly, to encourage the conduct of line checks as part of line operations. The final recommendations include: extending the line check interval from 12 to 24 months; provided for an alternative means of compliance for the initial line check in the form of IOE; extended the authority for line check airmen to similar aircraft for which they may not be qualified and providing for an alternative means of compliance for recurrent line checks by using a Line Observation Program.

Unlike Part 121, the tasks that must be trained and checked are not currently defined in the Part 135 regulation. Reference must be made to several areas of the 8400.10 handbook and the PTS. The workgroup was in full agreement that the revised Part 135 rule should precisely define the training and checking requirements, the frequency for the training, the standards of crewmember performance and the minimum level of aircraft simulation that used to accomplish training and checking. This was accomplished by creation of a series of appendices to the rules in the form of tables. These tables are titles Quality Performance Standards (QPS). These tables are unique to the areas of operations specific to Multiengine Airplanes, Single Engine Airplanes and Helicopters. The tasks and standards proposed have been aligned, as much as possible, with Part 121 tasks and standards though the participation of three Part 135 training workgroup members who also serve on the Part 121 N&O ARC. This coordination between Parts 135 and 121 will serve to create one single standard of training and checking for commercial operators and thus continue to promote one level of safety. Ground training requirements for pilots and cabin safety crewmembers were also expanded and further defined by the creation of Qualification Performance Standards (QPS) appendices. Details of ground training currently residing in the rule would be moved to the appendices. Ground training has been adjusted to include Crew Resource Management.

The training workgroup also provided a proposal for changing the rulemaking process with respect to training. The proposal would endorse the rulemaking process presented in Part 60 with respect to QPS appendices. The workgroup believes that the only assurance of a "level playing field" is the existence of a regulation that sets out the specific requirements for training, testing and checking and clearly describes the level of training equipment in which these activities may be accomplished. However, it was recognized that being able to revise and/or update these regulatory requirements is essential to maintaining the ability to be able to respond to analysis of incident/accident data, as well as future aircraft and technology developments. The proposal states that that incorporating input from representatives of those whose interests are most directly affected by these regulatory requirements is not only an appropriate way to proceed, it is an essential component of maintaining effective regulatory requirements. In the proposal, an outline of the process that provides the flexibility, essential to achieve clarity and standards in regulating training of the widely varied population of aircraft types, operations, crewmember qualifications, and crewmember complements of Part 135 operations. However, the Steering Committee *strongly encourages the FAA to define and present in complete detail the process that would be used to make changes to training and testing standards for Part 135* in order to ensure transparency and recognition of safety and financial realities of the operator community.

The Committee also introduced recommendations for expanded use of advance simulation. This would encourage operators to most effectively utilize simulator training time, the proposed rule would allow for the use of training in lieu of checking every other cycle. This provision is based on the prerequisite that approved simulators are utilized as the basis for the training program. Additionally, due to the increased crew qualification and experience requirements for eligible on demand operators, the proposed rule would allow for the use of an extended currency period for when utilizing simulators.

File Structure

The Part 135/125 Aviation Rulemaking Committee Requirements are located in eight directories representing each workgroup. The additional four directories contains: (1) draft NPRM Material, (2) [this] Executive Summary and Letter, (3) WG Participants, and (4) Additional Rulemaking material including the 1978 preamble language and the Part 135 Air Taxi Operator Study.

Any questions should be addressed to:

Jens C. Hennig
Manager of Operations
General Aviation Manufacturers Association (GAMA)
Washington, DC

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BYRON L. DORGAN TO HON. CHRISTOPHER A. HART

Question 1. I understand that one reason that air traffic control service cannot be provided to aircraft in the Hudson River Class B Exclusion Area is that our current ground-based radar cannot reliably detect aircraft under 1,000 feet due to the surrounding buildings. Would NextGen air traffic control technology change this?

Answer. The NTSB understands that the implementation of automatic dependent surveillance-broadcast (ADS–B), which is a key feature of NextGen air traffic control (ATC), will greatly improve coverage throughout the U.S., including within the Hudson River corridor.

Question 2. What are the capabilities of this technology and in what ways could it improve air traffic coverage in the air space surrounding New York City?

Answer. Because ADS–B is a satellite-based system, it does not have certain limitations of radar-based systems, such as line-of-sight and obstruction constraints. Additionally, through the use of ADS–B IN and OUT, pilots will have greater situational awareness of other aircraft operating in the same airspace. The adoption of this technology has the potential to make better use of the airspace while increasing the safety of aircraft operations. The use of ADS–B OUT provides capability for aircraft to report their location to ATC. ADS–B IN provides a method of sending information to pilots, such as clearances and runway status, and the location of surrounding aircraft and ground vehicles, generally providing greatly improved situational awareness for pilots.

I understand that on August 30, 2007, the FAA awarded the ITT Corporation a $207 million initial contract to lead a team to develop and deploy the ADS–B system.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BYRON L. DORGAN TO JAMES K. COYNE

Question 1. I understand that one reason that air traffic control service cannot be provided to aircraft in the Hudson River Class B Exclusion Area is that our current ground based radar cannot reliably detect aircraft under 1,000 feet due to the surrounding buildings. Would NextGen air traffic control technology change this?

Answer. As you know, NextGen is the modernization of ground-based radar infrastructure to satellite-based navigation for aircraft. The ADS–B system is an advanced surveillance technology that combines a satellite positioning service, aircraft avionics, and ground infrastructure to enable more accurate transmission of information between aircraft and air traffic control (ATC). The system enables equipped aircraft to broadcast information, such as identification, current position, altitude, and velocity, continually. ADS–B uses information from a position service, *e.g.,* Global Positioning System (GPS), to broadcast the aircraft's location, thereby making this information more timely and accurate than the information provided by the conventional radar system. ADS–B also can provide the platform for aircraft to receive various types of information, including ADS–B transmissions from other equipped aircraft or vehicles. ADS–B is automatic because no external interrogation is required, but is "dependent" because it relies on onboard position sources and onboard broadcast transmission systems to provide surveillance information to ATC and ultimately to other users. Concerns continue to remain that legislation to reauthorize the Federal Aviation Administration (FAA) will continue to be delayed, further postponing the necessary funds for NextGen.

Question 1a. What are the capabilities of this technology and in what ways could it improve air traffic coverage in the air space surrounding New York City?

Answer. NextGen is essential to ensure that all aircraft throughout the country have a reliable system in which to operate in. Currently, ground-based radar varies from airport to airport, including the Hudson River Class B Exclusion Area, and it is dependent on numerous factors. In the case of the Hudson River Class B Exclusion Area, satellite radar would not be impeded by surrounding infrastructure making it safer to fly more air traffic through the corridor.

Question 2. In your written testimony you state that the FAA is not "leading the charge to move forward with electronic mediums that general aviation aircraft can assess." Will you explain in what ways you believe that FAA is not leading the charge when it comes to the implementation of NextGen Air Traffic Control technologies for general aviation.

Answer. NATA believes that general aviation aircraft should have the ability, if an aircraft owner so chooses, to equip their aircraft with technology that will allow a satellite feed of radar to view any aircraft activity surrounding their aircraft. We

have GPS in our cars, why not have them in our aircraft? Currently, aircraft have the ability to receive current weather information via satellite through a device that reads weather related information from the National Oceanic and Atmospheric Administration (NOAA). The FAA is the reason for not being able to access radar information.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. BYRON L. DORGAN TO RICHARD L. DAY

Question. I understand that one reason that air traffic control service cannot be provided to aircraft in the Hudson River Class B Exclusion Area is that our current ground based radar cannot reliably detect aircraft under 1,000 feet due to the surrounding buildings. Would NextGen air traffic control technology, change this? What are the capabilities of this technology and in what ways could it improve air traffic coverage in the air space surrounding New York City?

Answer. ADS–B, a NextGen air traffic control technology, can provide expanded and improved surveillance coverage for air traffic controllers in the New York area. In order for the controllers to provide enhanced ATC services, all aircraft operating in the airspace will need to be equipped with ADS–B Out.

Additionally, in areas without radar coverage or in low altitude uncontrolled airspace, ADS–B can also enhance the pilot's knowledge of the weather, the national airspace system (NAS) status, and the surrounding traffic, both in the air and on the airport surface. ADS–B provides improved situational awareness by providing information about nearby aircraft such as their heading, altitude, speed, etc. Aircraft will need to be equipped with a cockpit display (ADS–B In) in order to have the capability to display this information in the cockpit.

The FAA plans to deploy ADS–B in the New York terminal areas and on the surface at LaGuardia, Kennedy, and Newark airports. ITT began the design of these service volumes in April 2009 and completed initial site selection activities in September 2009. Service Acceptance Test (SAT)[1] at these sites will be completed in the summer of 2010. These sites will achieve Initial Operating Capability (IOC) for terminal airspace and the airport surface by the end of calendar year 2010.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. FRANK R. LAUTENBERG TO RICHARD L. DAY

Question. The airspace around Newark is one of the most complex and congested in the world. In 2006, the former FAA Administrator stated on the record that the Newark Liberty Air Traffic Control tower needed at least 35 controllers to move traffic safely, but right now there are only 27 certified controllers and 7 trainees manning the tower. When will the FAA fully staff the Newark control tower with certified controllers?

Answer. With 34 employees at the Newark (EWR) airport tower, the FAA considers the existing staff level fully capable of safely, and efficiently, managing the airspace in and around the New York area. Currently, the facility has 26 fully certified controllers and 8 additional controllers in training. With 34 controllers on board, and 1 new hire at the Academy, EWR is at the midpoint of its 31–37 staffing range.

The FAA will hire four additional controllers in FY2010. This will offset projected attrition and increase staffing at the facility. By the end of FY2010, the FAA projects EWR will have 37 employees, bringing it to the top of the staffing range.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. BYRON L. DORGAN TO EDWARD KRAGH

Question. I understand that one reason that air traffic control service cannot be provided to aircraft in the Hudson River Class B Exclusion Area is that our current ground based radar cannot reliably detect aircraft under 1,000 feet due to the surrounding buildings. Would NextGen air traffic control technology, change this? What are the capabilities of this technology and in what ways could it improve air traffic coverage in the air space surrounding New York City?

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[1] During Service Acceptance Test (SAT), the team will validate that the installed ground stations meet key requirements outlined in the contract with ITT. This will support the provision of surveillance services for ATC separation.

Answer. In my everyday role as a working controller at Newark Airport, I am not yet aware of the NextGen technology that you are referring to. The FAA has not involved NATCA in the development of such technology for the last several years. Assuming that such technology is forthcoming though, one would then have to question whether the other necessary infrastructure is in place for the FAA to fully control the Hudson exclusion, *i.e.,* new equipment and positions at the NY/NJ control towers and expanded controller staffing and training to man those positions.

The bigger question however, when one considers the overall safety record of flights in this airspace over the past several decades vs. the reduction in capacity of flights that would certainly occur if controllers had to talk to every single VFR flight, is whether total ATC control is even the safest and most expeditious option for this airspace. Assuming that future technology would allow me to see and talk to every aircraft down to the surface, I would certainly not be able to talk fast enough to meet the existing separation requirements for all the flights that currently use this airspace. Since pilots in the Hudson exclusion currently operate using see-and-avoid (VFR) rules while self-reporting their positions to one another, the capacity is much less restricted than it would be in a fully controlled environment. So ultimately once the technology will allow for total control, the decision must be made whether to severely curtail the use of this airspace by establishing total ATC control, or to allow for continued unfettered access to the airspace by maintaining the status quo as an uncontrolled VFR exclusion.

For the record, NATCA controllers have no particular preference at this time for either option since enhanced surveillance is still a theoretical prospect, and since the safety record of this airspace is remarkable, given the sheer number of flights that have operated safely there for decades using VFR rules.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. FRANK R. LAUTENBERG TO EDWARD KRAGH

Question. The New York Airspace Task Force demonstrated the benefits of true collaboration between air traffic controllers and the FAA, something the FAA has often failed to do in the past. How can the FAA continue this collaboration with air traffic controllers on current and future projects affecting the New Jersey/New York Airspace?

Answer. NATCA stands ready to participate in the current and future projects of the New Jersey/New York Airspace redesign. The FAA can continue and improve collaboration with air traffic controllers by ensuring NATCA receives timely notification of the meetings. The Agency should also assist with scheduling the participants with enough notice so their facility is not forced to work with fewer controllers than normal while attending the meetings.

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