

AIR TRAFFIC CONTROL DELAYS

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

SEPTEMBER 14, 2000

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ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

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THURSDAY, SEPTEMBER 14, 2000

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 9:35 a.m. in room 253, Russell Senate Office Building, Hon. John McCain, Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. JOHN MCCAIN, U.S. SENATOR FROM ARIZONA

The CHAIRMAN. Good morning. This hearing will come to order.

At one time, our nation had what was considered the largest, most efficient aviation system in the world. Today, our aviation system has reached the almost untenable position of gridlock predicted by the National Civil Aviation Review Commission in 1997. As a recent Washington Post editorial pointed out, people are no longer scared of flying—they're scared of not being able to fly.

According to the FAA, there has been a 58 percent increase in flight delays over the last 5 years. Last year, flight delays were up 22 percent over the prior year. And unfortunately, the FAA has reported a 12 percent increase in flight delays over the first 6 months of this year compared to the first 6 months of 1999.

We don't really even need these numbers. You only need to go to an airport or pick up the newspaper and read the horror stories of middle-America stranded in various airports around the country. As *USA TODAY* noted in one of its headlines, "Frustrated Flyers Now Expect Delays."

While flyers may come to expect these delays, no one seems to want to bear responsibility for them. It's clear that each segment of the aviation community, including the Congress, bears some responsibility for these problems.

The fact is the airlines tend to schedule their flights at the same time during peak periods, and often at levels that they know are greater than an airport can handle. A recent Department of Transportation Inspector General audit on flight delays pointed out that for one day in January, Newark Airport's scheduled arrivals exceeded the airport's capacity to handle them during four peak hours.

This year, more than ever, airline employees have caused enormous delays. Recently, the pilots at United have undertaken work stoppages to satisfy their personal greed. Last year, pilots at American engaged in similar tactics. And who bears the brunt of the stoppages? Middle-America. Average Americans plan for months to

take a vacation, only to be greeted at the airport by canceled flights and lost vacations due sometimes to pilot greed. These are people who can't afford to change their plans at the last minute and don't take flights that can be billed to a client.

In 1998, per capita income in the U.S. was \$20,120. *USA TODAY* reported that the top pilots at United will make almost \$342,000 per year in 2004 if the latest contract is ratified, or \$355.84 per hour.

And you know what saddens me the most? A large number of these pilots are former military whose code is supposed to be "duty, honor, country." Now they take actions without a thought for the Americans that rely upon them to ferry their families across the country for a family vacation, attend a wedding, or be at the side of a sick relative.

I also recognize that one of the most significant problems is the explosion in air travel. The airlines now carry nearly three times as many passengers as they did when the industry was deregulated in 1978, and air fares are 40 percent lower when adjusted for inflation. Air traffic control has not kept up with this exponential rise in passenger traffic.

But this has not been an unexpected development. In 1993 the Baliles Commission Report stated that "for too long, too many people . . . have been spending too much of their time sitting on the ground in airplanes and not enough time flying in them."

The Commission called for further development of the Global Positioning System (GPS) and its expedient application to the air traffic control system. In 1997, the White House Commission also advocated the utilization of GPS and the advent of modernization as early as possible.

The FAA's modernization program was originally intended to be finished, completed, in 1993 at a cost of \$12.6 billion. Modernization is currently not scheduled to be finished until 2012 at a cost of more than double that. The FAA's GPS-based system, the Wide Area Augmentation System (WAAS), has been significantly scaled back, is over budget, and is not scheduled for implementation until the end of 2002 at the earliest. These delays must be rectified and we must give much greater focus to modernization of the air traffic control system.

It is also clear to me that we need to pour new concrete and expand our capacity on the ground in order to handle the increasing number of flights. We are predicted to reach 1 billion air travelers in less than 10 years. According to the Department of Transportation Inspector General, in the last 5 years, only three new runways were put into service at our 28 largest airports. Unfortunately, some of the very passengers that are complaining about delays are going to have to get rid of the "not in my backyard" mentality and allow new or expanded airports to be built.

As I have outlined here, I don't believe that there is one particular solution to this problem. However, I do believe that we must keep the pressure on and remain vigilant in our efforts to meet this ever increasing demand and make our aviation system more efficient for the American people.

One additional comment I made. I think there's been some legitimate criticism. And I will look forward to some comment from Mr.

Mead on this as to how the Congress has authorized and appropriated funding. In other words, has money gone to smaller and less necessary projects in the name of pork barreling rather than to the places where they are most in need?

I know that is a difficult question for Secretary Slater and Ms. Garvey to address, but I think Mr. Mead might also do that in his testimony.

So if we in Congress bear responsibility for not using the proper priorities in wasting American taxpayer dollars and pork barrel spending, I think the American people need to know that as well. I thank the witnesses for coming.

Senator ROCKEFELLER. I'm sorry, were you here first, Senator Bryan? I apologize.

Senator BRYAN. You go right ahead.

The CHAIRMAN. Senator Rockefeller, the ranking member of the aviation subcommittee.

[The prepared statement of Senator McCain follows:]

PREPARED STATEMENT OF HON. JOHN MCCAIN,
U.S. SENATOR FROM ARIZONA

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This year, more than ever, airline employees have caused enormous delays. Recently, the pilots at United have undertaken work stoppages to satisfy their personal greed. Last year, pilots at American engaged in similar tactics. And who bears the brunt of the stoppages? Middle-America. Average Americans plan for months to take a vacation, only to be greeted at the airport by cancelled flights and lost vacations due to pilot greed. These are people who can't afford to change their plans at the last minute and don't take flights that can be billed to a client.

In 1998, per capita income in the U.S. was \$20,120. *USA TODAY* reported that the top pilots at United will make almost \$342,000 per year in 2004 if the latest contract is ratified, or \$355.84 per hour.

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But this has not been an unexpected development. In 1993, the Baliles Commission Report stated that “[f]or too long, too many people . . . have been spending too much of their time sitting on the ground in airplanes and not enough time flying in them.” The Commission called for further development of the Global Positioning System (GPS) and its expedient application to the air traffic control system. In 1997, the White House Commission also advocated the utilization of GPS and the advent of modernization as early as possible.

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As I have outlined here, I don’t believe that there is one particular solution to this problem. However, I do believe that we must keep the pressure on and remain vigilant in our efforts to meet this ever increasing demand and make our aviation system more efficient for the American people.

I look forward to hearing from our witnesses.

**STATEMENT OF HON. JOHN D. ROCKEFELLER, IV,
U.S. SENATOR FROM WEST VIRGINIA**

Senator ROCKEFELLER. Thank you, Mr. Chairman. I want to do something I do not usually do. We have on our side a fellow named Sam Whitehorn. He has been here for a long time. And he wrote a briefing memo for our side and it was just an absolutely excellent memo. And I just want to say that.

Second, this is a complicated subject. And I think, Mr. Chairman, as I heard you at the end indicate, I think we can finger point or we can solve. And I think our instinct is to try to solve. And I agree with you. I think that in meetings I just did with Secretary Slater and others, there is a lot of blame that goes to us in Congress, that we have tended to ignore this subject and infrastructure and the rest of it just because it for some reason has not caught on in terms of acting policy. So we try to solve problems. And AIR-21 was part of trying to solve those problems.

But on the other hand, Secretary Slater, Administrator Garvey, Ken Mead, Don Carty, Leo Mullin, ALPA, controllers, all of the other airlines, they are the ones who really deal with this issue day-to-day. We like to criticize them. But, I mean, we generally have shared responsibility for this problem because it is incredibly important.

Of course, it is true the passenger complaints are at an all time high. There are a lot of reasons for that, having to do with weather and having to do with overscheduling, which we need to talk about, and our system capacity. You know, we have not done anything about our system until very recently. And the question is, is that in time? We really do not have time to spend 10 years, Mr. Chairman, building a runway, which is what it takes now, or to take years to replace some of the controller workstations. It should not take new laws and regulations for passenger satisfaction to im-

prove, and I hope it does not. But on the other hand, airlines are going to have to really respond very, very well and treat passengers better.

So I would hope that we would not make this into a finger pointing session, but a problem solving session. And one of the things that I would love to see, and this could not come from me, it would have to come from DOT, FAA, et cetera, is a chance to get all of the parties together and to sit down and figure out how to do this, how to make this work. What is the problem with overscheduling, weather, construction taking five and ten years for these things that should not take that long, particularly now that we have allocated some of the money for. But how much money? Is it enough? And what are the problems? How can we all react to them in a constructive way?

Having said that, I need to apologize because I am not leaving now, but I will be leaving before we get to Dr. Sue Bailey, David Plavin and Althena Joyner. All of them I strongly support, Mr. Chairman. I want to go on record saying that for confirmation. And I thank you for your courtesy.

The CHAIRMAN. Thank you, Senator Rockefeller. Senator Hutchison.

**STATEMENT OF HON. KAY BAILEY HUTCHISON,
U.S. SENATOR FROM TEXAS**

Senator HUTCHISON. Well, thank you, Mr. Chairman. You have had quite a week and I appreciate the tenacity that you are showing and the hearings that have come under the purview of the Commerce Committee.

I am especially pleased that we are talking about the airline delays of this summer. I am looking forward to hearing from representatives of both government and industry who will be able to talk about this because obviously there is no single cause to these delays. Air traffic control and airport problems have been part of it, but they certainly do not tell the whole story.

I want to commend the Secretary for calling a meeting when things got really bad to start talking about the problem and seeing what solutions could be done. I thought that did bring home to the industry that this is very serious.

And I want to say that in the second panel we will hear from the industry and talk about some of the productive things that are being done on a voluntary basis. I understand that American Airlines is going to be rewarding managers and pilots for on time performance, giving them incentive bonuses. That is good. Also, American I am told is taking steps to ensure that delays at central hubs do not cause consequent delays throughout the system.

I was also pleased to see that United Airlines announced that they were going to cut back on their number of flights during peak hours to make sure that the flights they have will give the service to their passengers that they deserve. I think that is a step in the right direction because clearly it seems to me they are trying to schedule too many flights with too little equipment. And that squeeze will cause part of the problems with canceled flights.

I think part of the answer to this problem is better information to the passengers. Sometimes when I have been caught in this situ-

ation—and I certainly have many times this summer had the same delays that other passengers have felt and have missed events where I am the speaker which is very frustrating. Sometimes the airline will work with a passenger to tell them if another flight is taking off on another airline to the same destination. Sometimes they do not.

And I think it is very important that the airline inform the passengers when they know there is going to be a delay to give them a reasonable timeframe for the delay and to give them the information for alternative flights. Because I can tell you as a traveling passenger that I feel much better about the airline I am flying if they help me get on another airline to get to my destination. I am going to be a loyal customer to the first airline that went to that trouble.

So I hope that as we are looking at solutions here that information to the passenger is a big part of the answer.

So, Mr. Chairman, I thank you for calling this hearing.

The CHAIRMAN. Senator Bryan.

**STATEMENT OF HON. RICHARD BRYAN,
U.S. SENATOR FROM NEVADA**

Senator BRYAN. Well, thank you, Mr. Chairman. Let me preface my comments by following up on Senator Hutchisons observations. I could not agree with her more. I think all of us understand that there are circumstances beyond the control of a carrier in which cancellations occur, such as weather related and mechanical problems. That is part of travel.

But nothing is more aggravating and frustrating than when as a passenger you are not provided any information. You are not given alternatives or information continues to not be posted on time. And when you race to the desk, you find out that the plane has not even left the city of its origin. Those are the kinds of things that are just totally inexcusable and frustrating. You have ignited a hot button with me, Senator, when you talked about that. Because that really is very frustrating.

Mr. Chairman, let me thank you for holding this hearing. This is a hearing following a summer of frustrating flight delays, weather conflicts and a staggering amount of cancellations. Since becoming a member of the Senate, like most of my colleagues, I have made frequent trips between Washington and Nevada, virtually every weekend. I have traveled extensively, and have experienced as well as witnessed some of the frustrations that are increasingly a part of air travel and our overcrowded skies. And let me just say parenthetically that most of us would agree. This has been the most difficult and frustrating time in the 35 years that I have been a regular airline passenger. It is not just an incremental increase. It has been an exponential increase, at least in the number of flights canceled, delays, frustrations that I have experienced. And I think most Americans would share that perspective.

While serving on this Committee, I have had the opportunity to address and take part in the enormous task of modernizing the airline industry. Recently, we were able to pass AIR-21, enabling a significant amount of funding to facilitate the growth of our airports and the air traffic control system. This was a major piece of

legislation that I believe will help in correcting many deficiencies that were evident this summer. But there are still a number of issues to address and much to be done.

Air travel has grown at a considerable pace and we now find ourselves when the amount of air space is becoming more and more restrictive. Passenger projections in the FAA have been a target for this growth. So we can only assume that future projections estimating the growth from the current 607 million passengers to an estimated one billion by 2010 will prove to be accurate.

This growth is coming at a time when the on time arrival rate is declining, dropping to 66.3 percent in June of this year to 70.9 percent from June a year ago. Undoubtedly, these numbers have been affected by the cancellation of the nations largest carrier, United, with an on time performance record during this time period of 48.3 percent and an astounding 4,800 cancellations this summer.

Mr. Chairman, this is simply not acceptable. Congress must move faster and more aggressively to solve these problems to stem the tide of problems that the airline industry is facing in the wake of ever increasing passenger counts and the frustrations that accompany them. It is clear to me that weather has been more severe this summer and was considered as a major contributing factor to recent delays. However, the FAA has estimated that 75 percent of the delays is a result of weather this summer. But this is only slightly higher than 1999 when the weather was much less severe in many parts of the country.

Taking this into account, it is apparent that other factors including overscheduling, significant travel growth and disputes over contracts with United and ALPA and both airport and flight path congestion were possible contributing factors. The largest problem we face is current capacity. Our current ATC system desperately needs to be modernized. And we seem to be headed in that direction as funding becomes more available.

Mr. Chairman, I once again want to thank you for your perseverance and your efforts for providing leadership on this issue. And let me just conclude, this is not just a question of convenience and frustration. The airline infrastructure in America is part of the vital arteries of commerce which make for our country's economic prosperity. Some of us are in states in which that airline travel is an absolute indispensable part. Thirty-five million Americans visit my hometown each year in Las Vegas. More than 50 percent do so by air.

So it is not just a question of frustration. That is certainly a major part of it. But this is an important part of our economy. We must do a better job. And I look forward to working with you, Mr. Chairman, and others on this Committee in trying to seek solutions to this situation.

The CHAIRMAN. Thank you, Senator Bryan. Senator Cleland.

**STATEMENT OF HON. MAX CLELAND,
U.S. SENATOR FROM GEORGIA**

Senator CLELAND. Mr. Chairman, I would just like to echo Senator Hutchison's thought that this has been an incredible week for you and this Committee tackling the Firestone tires, Ford subur-

ban vehicle question. You have tackled violence in the media targeted at children. And now you are tackling airline delays. And it is not even Friday yet. So we admire your tenacity and being part of this panel.

The CHAIRMAN. Thank you.

Senator CLELAND. Mr. Chairman, let me just say that strong storms in the midwest this week grounded almost 500 flights just at Chicago O'Hare alone and stranded thousands of passengers. This is just the latest incident in maybe our historic long, hot summer which the FAA has called the worst travel season in U.S. airline history. In a sense, the problems we will discuss today are an offshoot of our aviation success.

Deregulation in 1978 transformed air travel actually from a specialty thing that occurs in your life into mass transportation. And we know with mass transportation of other forms, after a while you get gridlock and choke points. Pure and simple, America can afford an airline ticket. As a result, since deregulation, we have seen the number of Americans choosing to fly increase by some 300 percent. And the real cost of fares has actually dropped some 40 percent.

So 650 million people boarded planes last year. Wow. By 2009 though, the FAA has figured that that number will skyrocket to one billion passengers. That is incredible. Most of that increase is expected to occur at the country's 28 largest airports. Welcome to choke point.

Unfortunately, our capacity has not kept up with this surge in air travel. The alarm was sounded some three years ago by the National Civil Aviation Review Commission's landmark report. It says, "Given the delay and congestion problems that already exist, anticipated growth without needed expansion of capacity in the air and on the ground will simply reach a point at which it cannot be accommodated."

Mr. Chairman, I think we are fast reaching that point. Some may attest that that choke point is already here, especially in the northeastern corridor. Air space is approaching gridlock. My latest flight on a great airline, Delta, left on time, sat on the runway, took off in bad weather, circled Hartsfield, attempted to land. But there was a plane on the runway and we had to make another turn around.

That, unfortunately, is becoming more and more the norm in terms of transportation in this country. On the ground, we have built only one major airport in the last 25 years. And from 1995 to 1999, only three new runways have been put into service at the 28 biggest airports in the country.

In my home state of Georgia, we have the world's busiest airport, 78 million passengers annually. Hartsfield is the country's most delay impacted airport. It both creates delays nationwide and reacts and is impacted by delays nationwide more than any other airport in the world.

The bottom line is that Hartsfield desperately, for one thing, needs a fifth runway, more air traffic controllers certainly, but definitely a new runway. We have to expand capacity or we will be that nationwide choke point.

In 2005, with 100 million passengers projected to go through Hartsfield, and with just four runways, it is estimated each flight

at Hartsfield will average 14 minutes of delay. That is programmed. That is planned. Double the average today. Most Americans are getting used to circling around Hartsfield and taking the tour of Atlanta from about 12,000 feet.

Now, with the construction of the fifth runway, it is estimated that Hartsfield will be down to 5 minutes of delay. But that is planned delay. That is not zero delay. It is a savings of 9 minutes per flight. It is going in the right direction. And it will save hundreds of billions of dollars and it will benefit passengers not only in Georgia but around the country. So we need that.

The problem is much bigger than this. We should not be getting into this blame game. I just appreciate Secretary Slater's initiative to bring parties to the table as we discuss this and met with the traveling public, the airlines, in Atlanta at Hartsfield. I appreciate that very much. That meeting occurred recently.

Today, Mr. Chairman, we will hear some of these suggestions from our witnesses as how to move beyond gridlock, how to avoid choke points, terms that we normally apply to interstate highways. But now in the interstate highway of the air, these terms are more and more applicable. Let me say that I am extremely pleased that my dear friend Leo Mullin, the great head of Delta Airlines, is an extremely perceptive policy person and a consummate businessman. Under his leadership, Delta's now the world's most flown airline, working out of the busiest airport in the world.

Last year, Delta flew a record 106 million passengers safely and with its customers in mind. I have been a Delta passenger all my life. My interest in air safety is that I would like to extend my life.

So, Mr. Chairman, I thank you for holding this important hearing. And we look forward to our witnesses.

The CHAIRMAN. Thank you very much, Senator Cleland. Thank you for your kind words. Welcome to the witnesses. Secretary Slater, thank you for being here today.

**STATEMENT OF RODNEY E. SLATER,
SECRETARY OF TRANSPORTATION**

Secretary SLATER. Thank you, Mr. Chairman, Senator Rockefeller, Senator Hutchison, Senator Bryan, Senator Cleland and the other Members of the Committee that I am sure will join us over the course of today's hearing.

Mr. Chairman, Members of the Committee, I and my colleagues appreciate the opportunity that you have afforded us to come and join other leaders of this magnificent industry as we discuss the importance of the service that we provide to the traveling public. And as we deal with the critical issue of unacceptable airline delays and cancellations and customer service problems that are now of the matter at hand accompanying me today are FAA Administrator Jane Garvey and also our Inspector General Ken Mead. And again, we look forward to the discussion that I am sure we will have over the course of today's session. Let me also, Mr. Chairman, commend you for the work of the week and the work of the Committee. I have been here on one occasion over the course of the week.

The CHAIRMAN. We are sorry we missed you yesterday.

Secretary SLATER. Well, I had to rest up for today after the day that I was here just prior to yesterday. So I am back today. And again, I am pleased to be here with my colleagues.

Mr. Chairman, last evening I was at the National Air Space Museum, there for a special dinner, but just above me was the Wright Brothers flyer and to the left as I recall the Spirit of St. Louis. And overhead, some hundreds of miles, Lieutenant Colonel Dan Burbank who is a member of the flight team of the space shuttle Atlantis as they now work on the international space station and prepare for permanent presence on that space station in but a few years to come.

Really, that is the context in which then we have the opportunity to deal with the challenge at hand, recognizing that over the span of less than a century, man took to the wings of flight and now we construct an international space station in outer space.

At the dawn then of this new century and new millennium, we together—government and industry, management and labor—just as we together in years past can build on the tremendous economic success that we have brought into being and also implement our flight plan for aviation's second century. With a focus on passengers first, their safety and security to be sure, but also the quality of service they receive.

Many of you have made reference to the fact that a few weeks ago leaders of the industry responded to my request to meet here in Washington to discuss this issue. And I want to just underscore the fact that all who were invited came. All sat at the table of discussion and debate, aired our concerns and left with a commitment to put passengers first, to deal with matters pertaining to their safety and security, but also to deal with this issue of the quality of service they receive.

As we face then this second century of aviation, three broad areas really challenge us, and one I am going to deal with specifically over the course of my remarks.

But first the challenge of continuing to open markets and access to new destinations around the world. We are working to do just that. The challenge of enhancing access and competition in the aviation marketplace. This Committee has worked with us and with the industry to do just that. And also, the challenge of improving system efficiency and capacity. This Committee has also worked with us to deal with this important issue. And it is the subject of our discussion for today as we will continue to deal with the challenges we face in that regard.

But clearly, this industry is in a different position than it was in, not only at the time of deregulation in 1978, but also at the time that we had our opportunity to begin our work together.

When President Clinton and Vice President Gore took office in 1993, the U.S. airlines were collectively losing literally billions of dollars, some \$10 billion over the previous three years, the first three years of the 1990's. The aviation industry was on the verge of slipping into an economic abyss.

President Clinton traveled to Washington State to meet with airline industry and labor leaders almost immediately upon taking office. The President and the Vice President advocated the creation of and the purposes espoused by the Baliles Commission that has

been mentioned to ensure strong competitive airline industry. That was in 1993. Soon thereafter, the White House Commission on Aviation Safety and Security in 1996, and then the Mineta "National Civil Aviation Review Commission" in 1997.

And you are correct, Mr. Chairman, that all of those commission reports started to deal with the challenge that we come today to really grapple with first hand, that of gridlock.

We know then where we stand and the distance over which we have come. Eight years ago, we focused almost solely on the health of the industry, and, of course, on continued safety and security.

Today the industry is back on its feet with six consecutive years of growth, safety records that continue to improve, carriers are experiencing record level passenger demand and revenue growth. We have focused on opening new markets abroad and opening new access at home to more and more travelers across our nation.

We met the Y2K challenge. We got modernization back on track. We implemented our Spring/Summer plan and we have learned a lot from that experience. And we also successfully worked with this Congress, and especially the leadership of this Committee to successfully enact one of the most comprehensive and significant aviation bills in recent history a bill that will provide record level infrastructure investment and that also provides management reforms and also other reforms that will be important to our endeavors.

Here let me take the opportunity, Mr. Chairman, to especially thank you and ranking member Hollings and also the Subcommittee Chairs, Chairman Gordon and ranking member Senator Rockefeller and all the Members of the Committee for the wonderful leadership that you offered in helping us move forward, again, AIR-21, and to now have the opportunity to use the tools that it provides.

Let me acknowledge also that, as has been stated, there is responsibility for all, shared responsibility, by government, the airlines, the airports, and others as we gather to deal with the challenge at hand. And we want to clearly step to the table, step to the front line in underscoring the important role that the Department of Transportation has to play in this regard and especially the FAA in addressing the institutional and operational aspects of our air traffic control system.

And here I want to commend Administrator Garvey and her team working with the industry and really getting our modernization efforts back on track after a very significant decision frankly made early in this administration to change course. And we commend the leadership at that time as well.

In summary, Mr. Chairman, let me just say that the FAA and the departments strategy has been to focus on strategic issues, modernization of the air traffic control system in incremental fashion and on infrastructure growth. We have also focused on more efficient operations such as Free Flight Phase I and II. Hopefully, we can get into a fuller discussion of these issues as we go forward.

Administrator Garvey has also implemented an approach, an approach supported by industry and labor that has been successful as well, to build a little, test a little and deploy a little as relates to the awesome challenge of modernizing our air traffic control system.

And here if I may, let me just say that in our in route centers, the equipment that we are using today is no more than two or three years old. This is equipment that was installed in 1997, most of it no later than 1996, any remaining portion of it.

Also, earlier this year, we announced the Spring/Summer plan. And again, I think that that has worked very, very well. The FAA has worked with NATCA and the airline industry in identifying "choke points", most of those east of the Mississippi. We have talked about some of those over the course of the morning and I am sure we will get into that a bit more as well.

And then, Mr. Chairman, closing with this, as a result of the meeting that was held here in Washington some weeks ago that has been referred to, I have asked our Associate Deputy Secretary Stephen Van Beek to head up a task force on airline service quality performance that will draw on many areas of the Department to produce an action plan over the next few months. This deals with really bringing a sense of community and understanding around how we measure the performance of the aviation system. And we hope to be successful in that regard.

I have also asked Assistant Secretary Francisco Sanchez to put together a report dealing with best practices. Many of you have made reference to the leadership provided by many companies, some here today, in dealing with the passenger service needs. We want to lift those up as well so that they will become commonplace practices by the entire industry.

Also, Administrator Garvey will continue to work with the industry to finalize our vision for modernization as we go into a new century and a new millennium and we look forward to those efforts as well.

Later today, I will be meeting with members of the Air Transport Association Board of Directors. We will continue our work.

But, Mr. Chairman, let me just conclude by saying we have brought the industry a long way, working together with the leaders of the industry. There are challenges that we face. But these challenges in many respects are the result of the success that has been brought about by a strong industry that now enjoys record level resources, record level demand that it must respond to.

Clearly, if the Wright Brothers could put man into flight, and clearly as our team now makes provisions for putting individuals into the far reaches of space on a permanent basis, we can deal with the ground level. And even the air level challenges that we face to ensure improved service to the American people.

And again, we thank you and the members of the committee for affording us this opportunity to come and discuss this very important issue.

I will be pleased to respond to any questions that you may have after we hear from other members of the panel and over the course of our work in the future together.

The CHAIRMAN. Thank you, Mr. Secretary.

[The prepared statement of Secretary Rodney Slater follows:]

PREPARED STATEMENT OF RODNEY E. SLATER, SECRETARY OF TRANSPORTATION

Thank you, Mr. Chairman and Members of the Committee. I appreciate the opportunity to address an issue of critical importance to American travelers, the airline

industry, Congress, and the Administration—unacceptable airline delays and cancellations and the customer service problems they cause. Accompanying me today is FAA Administrator Jane Garvey.

At the Department of Transportation, our effort to improve customer service ranks second only to safety, which is President Clinton and Vice President Gore's highest transportation priority. Dealing with the mounting airline delays and cancellations we have experienced over the past few years, and especially during the heavy travel months this summer, is an issue of paramount importance for the Department. We are charged with consumer protection in the airline industry, and the FAA is charged with operation of the air traffic control system nationwide—24 hours a day every day of the year.

At the dawn of this new millennium—we together—industry and government—must build on the tremendous economic success that we have created together as we implement our flight plan for aviation's second century. We face three broad challenges—the challenge of globalization beyond Open Skies; the challenge of enhancing access and competition in the aviation marketplace; and the challenge of improving system efficiency and capacity.

When President Clinton and Vice President Gore took office in 1993, U.S. airlines had collectively lost \$10 billion dollars over the prior three years. Eastern and Pan Am were already out of business and others were close to bankruptcy. The aviation industry was on the verge of slipping into an economic abyss.

This Administration took immediate action. From Day One we understood the critical role aviation plays in a healthy economy. That is why President Clinton traveled to Washington State to meet with airline industry and labor leaders almost immediately after taking office. And that is why the President and Vice President Gore advocated the creation and purposes of the Baliles "Commission to Ensure a Strong Competitive Airline Industry" in 1993, the White House Commission on Aviation Safety and Security in 1996, and the Mineta "National Civil Aviation Review Commission" in 1997.

The 1993 plan launched by labor and the industry with the President at Everett, Washington worked, and the successes are many. The safety record steadily improves. Carriers are experiencing record-level passenger demand and revenue growth. We have focused on opening new markets abroad and on opening access to more and more travelers across this nation. Aviation is back on its feet, with six consecutive years of growth.

In fact, the issues we face today are the result of growth and success, rather than economic failure. And I believe that this Administration and the Congress already have the basic elements in place to successfully deal with the strains growth has produced. The paramount task now is to ensure better service along with safety, and to continue the long-term viability and growth of this vital sector of the economy.

On our part, the FAA and the Department's strategy has been to focus on strategic issues—modernization of the air traffic control system in incremental fashion and on infrastructure growth, especially new runways at the largest airports. We have also focused on more efficient operations—"Free Flight" Phases One and Two, for example—implementing new procedures and decision-support tools that produce measurable benefits, such as reduced fuel consumption and increased aircraft operations at some airports. We met the Y2K challenge, we have implemented our Spring/Summer 2000 Plan, and we worked in concert with Congress to enact the most comprehensive and significant aviation bill in recent memory. Let me take this opportunity to thank you, Mr. Chairman, Ranking Member Hollings, Subcommittee Chairman Gorton, and Ranking Member Rockefeller, along with the Committee membership and the entire Congress for the new tools you provided us in AIR-21. Together we have forged a remarkable bipartisan consensus in the Congress to support the necessary costs of upgrading the air traffic control system. However, our FY 2001 Operations levels needs your support. When the President signed AIR-21, he stressed the need to work to correct the imbalance between capital and operations levels, and I seek your support in the imminent conference on DOT appropriations to support funding FAA Operations at the President's requested level.

Modernization has enhanced reliability and has provided the platform on which to "grow the system." Administrator Garvey's approach, an approach supported by the industry and labor, has been a success—"build a little, test a little, deploy a little."

We continue to be focused on better treatment of passengers when delays or cancellations do interfere with flight plans. We sent a comprehensive bill to Congress in March 1999 that was crafted to collect and deliver accurate information about flight delays to the passenger, relying on a "market driven" approach to allow the consumer a knowledgeable choice. The Inspector General and my staff are now en-

gaged in evaluating the success of the Voluntary Plans the airlines have undertaken to address the problems themselves. I would emphasize here that it was your leadership, Mr. Chairman, that forged this concerted effort and commitment by the airlines on behalf of airline travelers.

Information is available to assist consumers in choosing flights that are more likely to operate on time. Each airline reservation agent and travel agent uses computer reservations systems that contain on-time performance information on a flight-by-flight basis. Upon request, this information must be provided to consumers. Our challenge is to make the availability of that information better known, because it really can help, yet few travelers currently request it.

Working together, I believe, remains the key to solving the issue of excessive delays and flight cancellations we are here to discuss today. Our experience to date convinces me it is the best approach. But it is incumbent on the industry, airlines and airports, to take up the challenge as well. This means putting the passenger first. We have seen evidence of airlines realigning their schedules at airports with heavy delays, and cutting back their overall scheduling to ensure the availability of adequate numbers of backup aircraft and crews. These are good first steps, and I am confident others will be taken as well. In this context, I commend American Airlines' CEO Donald Carty for his straightforward acknowledgment Tuesday that "The accusation that airlines overschedule is absolutely true."

The factors that cause delays and cancellations are many and complex. They include "predictable unpredictables"—the unsettled weather we have experienced this summer, inoperable runways, and aircraft equipment problems, for example—as well as the knottier issues of handling massed arrivals and departures at major hub airports.

Let us acknowledge first that the responsibility for action is shared by the government, the airlines, and the airports, and that we at DOT have a large role to play in addressing the institutional and operational aspects of air traffic control. As we have met at airports across this nation on these problems, we have not been finger-pointing but have worked collaboratively. At DOT, we must focus on and deal with the many air traffic management issues we and others have identified as central to a solution, and we must address the infrastructure of the system—most significantly airport capacity and air navigation equipment.

President Clinton announced on March 10 the creation of our Spring/Summer 2000 plan. At the heart of this initiative is a collaborative plan developed by the industry, labor, and Government to better manage air traffic during severe weather. It maximizes the use of available air space, improves communications between FAA and aviation system users, and expands the use of new technology to help reduce delays. Our view is that this summer's experience would have been noticeably worse without benefit of this high-level collaboration effort.

Each day at 5:00 a.m. Eastern Time a conference call is conducted to discuss potential weather problems in the air traffic control system. The FAA facilitates the discussion, which is joined by airline meteorologists and National Weather Service meteorologists. An FAA planning specialist monitors the conference call and begins to outline the areas of concern for the Strategic Plan of Operation.

At 7:15, the first Strategic Planning Team conference call is conducted. The Team is made up of FAA specialists, individual airline representatives, and air traffic control facilities. The Team collaboratively develops a plan designed to respond to identified constraints in the air traffic control system. These constraints could be created by weather, airport construction, equipment problems, or other causes. Our objective is to reach a consensus on traffic management actions needed to ensure a safe and efficient operation. If there is not a clear agreement, FAA will make a decision. This conference call is convened every two hours throughout the day until 10:15 p.m. Eastern time. During each call, the Strategic Plan of Operation is updated, modified or, as conditions change, new items are added.

In addition to the Spring/Summer 2000 plan, the FAA, working with NATCA and the airline industry, identified the seven top "choke points" in the airspace system. These points all affect the highly traveled airspace east of the Mississippi River. The FAA has developed specific routes, approaches and procedures designed to reduce the congestion in these areas. In addition, we are working with NavCanada to increase the number of flights through Canadian airspace to improve schedule reliability.

FAA has stepped up to the plate, we have acknowledged the areas for improvement, and are working in a productive and collaborative way to deal with them, air traffic control faces significant challenges in both the short and long term. The advent of regional jets offers more services and competition opportunities to airlines and communities. Some regional jets, however, are using the same runways and flying at the same altitudes as some of the larger aircraft and put more demand on

the system than turboprops. These factors have the effect of reducing controller options, especially during peak periods. Also in the enroute environment, regional jets, which operate more slowly than the new fleet of commercial aircraft, create a mix of speeds at altitude that will get more complex as the number of regional jets increase.

A further factor that complicates air traffic control, is that of airline scheduling and airport capacity. At the risk of stating the obvious, air traffic is a dynamic situation. Every procedural enhancement, every step forward in modernization, every improvement in efficiency, cannot be measured in a static environment, but must be evaluated in light of daily changes in weather, runway availability, and airline schedules. Consequently, the installation of an Instrument Landing System (ILS), enhanced radar, or a reduction of miles in trail requirements may not necessarily translate into a reduction of airline delays, even if efficiencies are achieved. The FAA clearly has an important role to play in the reduction of airline delays, but this responsibility is shared with airlines and airports. True progress can only be realized when all three players accept their roles and work in cooperation with each other.

As the Members of this Committee know, the issue of airport capacity is very sensitive. Whether local communities are discussing new runways, new terminals, or new airports, the debate is always heartfelt and emotional. While FAA will continue to make those improvements in the NAS that are within our control, improving how aircraft are controlled in the air does not necessarily ensure them a speedy descent to the runway. Hard choices will have to be made at all levels of government across the country to ensure that we have the infrastructure in place to accommodate anticipated demand, such as the recent initiative to encourage lower altitude flying.

Notwithstanding the airport capacity issue, FAA's longer-term role, and one in which we are currently engaged, is enhancing the system for a new era. The FAA is working with Mitre and a broad cross section of the aviation industry to develop a viable, comprehensive plan for system operation into the future. The plan will represent both a technical and operational approach to the future of air traffic control and will incorporate many of FAA's ongoing initiatives such as Free Flight Phases 1 and 2, and airspace redesign. Our goal is to establish comprehensive processes and procedures to ensure adaptable and flexible airspace that meet the demands of the future NAS. Equally important are the procedural changes we are making on a continual basis as the opportunities arise, such as the choke point initiatives.

Another important aspect in our effort to improve the management of the air traffic control system is modernization. As the Members of this Committee know, we are well into a successful modernization plan. Taken as a whole, modernization will improve the controllers' ability to manage increasing levels of traffic. Decision support tools are being developed to facilitate more efficient routings and shorten airborne time. The reliability of the system is also being increased, thereby increasing confidence in the system. We continue to develop technologies and equipment that will result in safe reductions in aircraft separation.

Major efforts are also underway in my office to address the problems systematically. I have asked Associate Deputy Secretary Stephen Van Beek to head up a task force on airline service quality performance that will draw on many areas of the Department to produce an action plan over the next few months. This was prompted in part by the recent report to Congress of U.S. DOT Inspector General Ken Mead, who is also testifying today, setting forth the extent of the problem and the need to act. Additionally, section 227 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), signed April 5, 2000, called for a task force to improve reporting of delays. The task force will coordinate action by the FAA, the Bureau of Transportation Statistics, our aviation office, and the consumer protection office, with participation by the Air Transport Association, consumer organizations, and others with a stake in our air transportation system. The task force will focus on two areas—determining the nature and causes of delays, and how to best report delay/cancellation information to the public.

Our Inspector General also provided a valuable interim report in June on the airlines' success in implementing their "Voluntary Plans" for improved customer service across a range of issues—including timely and accurate consumer notification of delays and cancellations. While we await the final report, I would stress that the IG recommends increased enforcement resources in our airline consumer protection office, a request that we have pending in our appropriations bill as we speak. I respectfully request your support for a favorable conference outcome that is consistent with our budget request and the increased funding authorized for these activities in AIR-21.

I have also asked Assistant Secretary Francisco Sanchez, to put together a report on the current "best practices" of the airlines and airports in providing high-quality

customer service and providing information to air travelers. Those “best practices” are being compiled now. The report will be released in early October for the benefit of the industry and the consumers they serve.

We have taken other actions as well to address the causes of delays and cancellations. During August, I encouraged the pilots and management of United Airlines to press for agreement at the bargaining table over pending contract issues, to put United, the largest airline in the world, back on the path to providing the quality of service both United and the American people expect. As this agreement is implemented, it should go a long way to relieving the frustrations experienced at airports served by the United network and workforce.

I have also recently met with the major stakeholders in the aviation industry—including representatives of airlines, consumer organizations, labor unions, airports, trade associations, travel agencies, consultants, and state and local governments, to discuss the current challenges facing the industry. Two of these meetings took place in Washington, but I also traveled to Newark, Atlanta, Detroit, Cleveland, Chicago, New York, and Miami to obtain grassroots feedback. In the spirit of President Clinton and Vice President Gore’s challenge to “put people first,” our meetings focused on putting the consumer first, and through customer service and information flow. The meetings were spirited, insightful, and productive, and featured many excellent ideas for improving customer service. While a variety of ideas were discussed, most of them addressed the following needs:

- To be more responsive to customer needs.
- To provide better information flow—to make sure consumers receive better and more timely information about flight delays and cancellations, and also to create better feedback mechanisms for consumers to communicate their concerns to the industry and government.
- To listen to and empower front-line employees of the airlines, who are often the most knowledgeable about the needs of customers.
- To expand the capacity of airports and to continue to expand and modernize the air traffic control system.
- To enhance airline competition in order to provide the consumer with more choices, and spur the airlines to improve service and reduce fares.

Just last week, I completed trips to the seven major hub airports I mentioned earlier, to assess personally the factors that contribute most directly to delays in the field. These meetings took us out of Washington to meet with frontline employees around the country who have direct experience with the aviation industry’s difficulties. We are seeing “best practices,” airport-by-airport, that we can advocate broadly throughout the system—such as regular, joint meetings at certain airports among the airline tenants and the operator to expedite action, and innovative techniques individual airlines are introducing to directly assist travelers who need to rebook flights or find overnight accommodations.

Later today, I am meeting with members of the Air Transport Association Board of Directors to continue pursuing our efforts on many fronts, including those under our “Spring/Summer 2000” initiative to improve management of the air traffic control system.

In closing, we are pursuing numerous initiatives to address the problem of airline delays and cancellations, and our experience to date has been that our partners are equally committed to achieving real gains on several fronts. With the continued support of Congress, I am confident that we can find solutions and implement them to reduce the delays and cancellations that burden the industry and the air traveler.

Mr. Chairman, that completes my statement, and I would be pleased to respond to questions from you and the Committee.

The CHAIRMAN. Ms. Garvey, welcome back before the Committee.

Ms. GARVEY. Thank you. Actually, the Secretary has given the statement. I think I will defer to Mr. Mead.

The CHAIRMAN. OK. So you have no opening statement?

Ms. GARVEY. No, I will be glad to answer any questions.

The CHAIRMAN. Thank you. Mr. Mead.

Mr. MEAD. I would be happy though to answer questions.

The CHAIRMAN. I do not think we will let you go scot free. Mr. Mead, welcome back before the Committee. How many years have

you been appearing before this Committee, Mr. Mead, out of curiosity?

**STATEMENT OF KENNETH M. MEAD, INSPECTOR GENERAL,
U.S. DEPARTMENT OF TRANSPORTATION**

Mr. MEAD. It is always an honor to appear before this Committee. And it is also an honor to be here at the table with my colleagues, Secretary Slater and Administrator Garvey. And not just because of their positions, but because of their openness to oversight and willingness to discuss and air the problems.

The topic of the hearing today, Mr. Chairman, is a matter we have discussed many, many times. And I am sure we will discuss it many more times.

The first 7 months of 2000 experienced record levels of delays and cancellations. I think we all know that. On the front page of my testimony, I have included a chart. It shows by month delays and cancellations in 1999. That is not why I included the chart though. I included it because it shows that we have a small window of opportunity before the cycle begins again late this fall or early this winter. So we have about three months. September comparatively speaking is supposed to be a good month for delays and cancellations.

The Secretary highlighted a number of important initiatives. I think the common thread in all those initiatives is people coming to work together. We testified several weeks ago about some of these issues—it was almost a blame game going on. And I think the Secretary forcefully took that in hand. And that is an important common thread.

An overarching point I would like to leave with the Committee today is that the potential for the initiatives that the Secretary has announced and the efforts of the airline industry will be greatly constrained until a key question is answered.

That question is what traffic load can the system reasonably be expected to handle in the immediate term (now, going out about 2 years), the intermediate term (next 4 or 5 years), and the longer term (8 to 10 years)?

Specifically, what I mean is what is the departure and arrival rate by time of day at our top 30 airports that can be accommodated under good weather conditions without experiencing major delays or compromising safety? I am not suggesting in any way that there should be scheduling controls. But for the benefit of everybody concerned and after the experience of the last several years, we need a set of capacity benchmarks to understand the impact of airline scheduling and what relief can realistically be provided by the ATC modernization effort, new controller procedures, and new ground infrastructure in the near and longer term.

FAA can speak to this today. I think they are within a couple of months of being in a good position to announce such benchmarks publicly. But we need this information to get at the core issues and to work through solutions.

The CHAIRMAN. They are going to announce what?

Mr. MEAD. Capacity benchmarks, by airport, by time of day, for the Nation's top 30 or so airports. And I am saying I think FAA,

from my discussions with Administrator Garvey and others, will be in a position to do that within the next couple of months.

The CHAIRMAN. Is that true, Ms. Garvey?

Ms. GARVEY. Yes, it is, Mr. Chairman. And we agree fully with Mr. Mead and are working very hard toward that. It is very important information to have.

Mr. MEAD. Now, the relevance of this in the timeframes I mentioned, immediate, intermediate and long-term, is this. New runways or technology that may be in place in 5 or 10 years holds promise for the future, but it offers little bottom line relief now. I also believe that FAA needs to clearly explain the extent to which the ATC modernization effort can realistically be expected to provide material relief.

We all recognize that the answer lies in a cumulative mix of interdependent solutions. The role of the ground infrastructure—new airports and runways—cannot be understated.

I would like to offer, Mr. Chairman, several data-based observations to illustrate just how serious the situation has become.

We reported in July that one in five flights arrived late last year. Each delay averaged about 50 minutes. When cancellations are added to that, nearly one in four flights either arrived late or were canceled.

The number of flights with taxi-out times of 1 hour or more has increased 130 percent over the past five years—from 17,000 to nearly 40,000 flights.

To compensate for growing delays, the airlines have expanded flight schedules on nearly 80 percent of their domestic routes over the past decade, ranging from 1 to 27 minutes. The reason I mention that is that these expanded schedules also reflect system inefficiencies that do not show up in the delay and cancellation statistics.

And as you know, for the first 7 months of 2000, the trends have gotten worse. The top chart here shows that for the first 7 months of 2000, there were 11 percent more delays than in the same period in 1999. The average delay is now about 53 minutes. So there was a three minute increase in just one year.

And between January and July, over 870,000 domestic flights either arrived late or were canceled, affecting about 90 million passengers. This does not count August.

Now, Mr. Chairman, the increasing number of delays and cancellations is occurring against the backdrop of a remarkably safe system, but it is one that is showing signs of strain.

I think the Committee should know that FAA is reporting very significant increases between 1995 and 1999 in both runway incursions and operational errors. These trends continued this year. They are disturbing trends. FAA has actions underway to deal with them, but the trend lines still are disturbing.

Runway incursions, as you know, are incidents on the runway that create a collision hazard. They have increased 34 percent (from 240 to 321) between 1995 and 1999. In the first 8 months of 2000, there were 288 runway incursions. If this trend continues, the year 2000 will be a record year for runway incursions.

Operational errors occur when a controller does not ensure that separation standards are maintained between aircraft. Operational

errors have increased 23 percent (from 764 to 939) between Fiscal Years 1996 and 1999. In the first 11 months of Fiscal Year 2000, there were slightly over 1,000.

The CHAIRMAN. Does that correlate with increased traffic?

Mr. MEAD. To a degree it certainly does, Mr. Chairman. I have a list with me of the different facilities in our system. And you would recognize their names. There are in the enroute center and terminal environments.

I would like to talk about the ATC modernization effort for a moment. I think there is a great deal of confusion over the extent of relief that the modernization effort can be expected to provide.

Congress, industry and the traveling public need to know what can be realistically expected from these investments. Many of the modernization efforts are geared to safety or replacing aging equipment with modern equipment that is easier to operate, is easier to maintain, and is more reliable. But they do not in and of themselves provide capacity enhancements.

There has been a number of important successes with those efforts. For example, at the Nation's enroute centers, Mr. Chairman, much of the equipment there is new. It is not antiquated. It is two, three, or perhaps four years old. There is a lot of good going on, particularly in the last 4 or 5 years after we got past the Advanced Automations System and, the Microwave Landing System.

The Free Flight Phase 1 program, which is about \$700 million in cost, is now the agency's key effort for enhancing capacity through 2004. This is an important initiative, but it will provide incremental capacity improvements once fully deployed. Free Flight Phase 1 deployment will extend through 2002. It would be a mistake to view Free Flight Phase 1 related efforts as panaceas.

And I think the extent of the impact of the capacity initiatives at FAA need to be quantified so we all know what can be expected. This is very important because of the projections of what lies ahead. There are two big caveats.

One is that as we make a dent in the capacity or delay problem, the demand fills it up. It is like filling up a glass. As soon as you empty out some of the water, you pour more back in. And it is almost as though we are treading water. Another is you have to have a place to put all these planes in the air. And you cannot underestimate the importance of the ground infrastructure—new runways.

I have a chart at the back of my testimony that shows 13 of 15 runways under construction or planned at major airports. You cannot count on those within the next three years. It is going to be between three and seven years before we have those.

And finally, as illustrated by Mid-America Airport, which is intended to be a reliever to Lambert Field. Lambert Field, by the way, has had a record number of runway incursions. The airport and FAA are trying to deal with the problem. But it was number one in the country for a while. Mid-America cost in the neighborhood of \$300 million. It is a new commercial airport. I guess next to Denver, it is the second new commercial airport. But just establishing an airport out there does not guarantee its use.

So I think with that, I will conclude my statement. Thank you, Mr. Chairman.

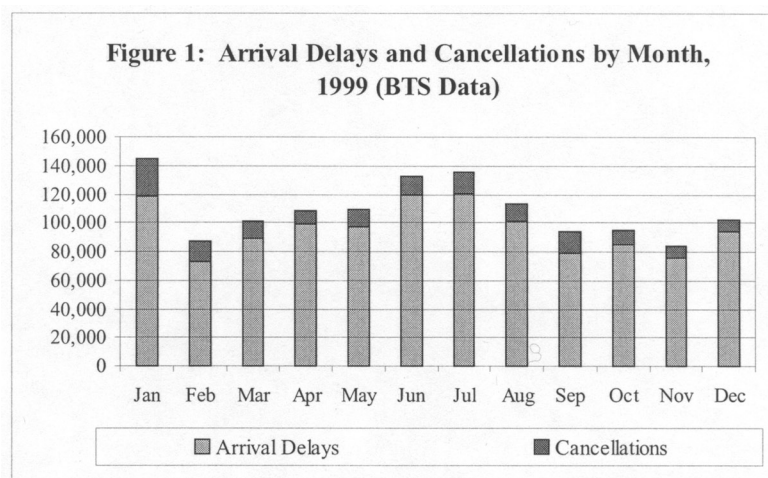
[The prepared statement of Mr. Mead follows:]

PREPARED STATEMENT OF KENNETH M. MEAD, INSPECTOR GENERAL,
U.S. DEPARTMENT OF TRANSPORTATION

Mr. Chairman and Members of the Committee:

We appreciate the opportunity to discuss flight delays and cancellations and the implications of airline scheduling, Air Traffic Control (ATC) modernization, airport infrastructure, and safety.

By all accounts, the first 7 months of 2000 experienced the highest number of delays and cancellations of any similar period since 1995. Over the next few months, we have a small window of opportunity to identify needed solutions and to begin acting on them. Historically, air travelers have experienced the most problems during the winter and summer months, as illustrated in Figure 1.



Over the past year, the Secretary and the Federal Aviation Administrator have announced a number of actions to address the growth in flight delays and cancellations, including the Spring/Summer 2000 initiative for managing air traffic. Most recently, the Secretary formed three task forces with mandates to determine the causes of delays and cancellations, to identify “best practices” in providing better service and information to air travelers, and to expedite investment in technology and infrastructure. These initiatives have the potential to make inroads in addressing the growing problem of flight delays and cancellations.

Mr. Chairman, the potential contribution that can be made by these initiatives will be greatly constrained until a key question is answered and that question lies at the heart of the debate about delays and cancellations and what can be done about them. That question is what traffic load can the ATC and airport systems reasonably be expected to accommodate—in the immediate term (over the next 1 or 2 years), the intermediate term (4 or 5 years), and the long term (8 to 10 years)?

More specifically, what is the traffic departure and arrival rate by time of day at the top 30 airports that can be accommodated without experiencing major delays or compromising safety? A set of capacity benchmarks is essential in helping understand the true impact of airline scheduling practices and what relief can realistically be provided by new technology, revised ATC procedures, and runway and airport infrastructure enhancements—using the funding provided by AIR-21.¹ We are not suggesting in any way that there should be scheduling controls, but the Federal Aviation Administration (FAA), the airlines, and the public need benchmarks to de-

¹The Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181, April 5, 2000).

termine what can reasonably be expected of the system, in the near and long term, including what level of inconvenience.

Yet, in what may be a surprise to many, we currently do not have clarity on what traffic load the ATC and airport systems can reasonably be expected to safely and efficiently process or whether the ATC modernization effort should be expected to provide major relief. The Secretary, the task forces recently commissioned by him, FAA, the Congress, and the airlines must have this information to get at the core issues. Without it, our ability to understand the impact of flight volume on flight delays and cancellations, and, in turn, to make informed decisions is severely constrained.

The relevance of these points, in the time frames I mentioned—immediate, intermediate, and long term, is this—new runways or airports or ATC technology that may be in place 5 or 10 years from now hold promise for the future, but they offer limited or no bottom line relief over the next few years. Also, as our detailed testimony indicates, we think FAA needs to explain in clear terms the extent to which the ATC modernization effort can be expected to provide material relief to the current problem of delays and cancellations. This is because much of the modernization effort is not geared to making quantum leaps in increasing capacity. The answer lies in a cumulative mix of solutions—scheduling and technology are among them. However, the role played by ground infrastructure—runways and airports (and the airlines that use them) is of enormous importance; mainly because of the large impact that ground infrastructure has to play and the decisionmaking associated with building and locating either a new runway or airport requires clearance by local communities.

Flight Delays and Cancellations

Flight delays and cancellations are key indicators for measuring the health of the National Airspace System. These indicators highlight growing problems that require immediate attention. The following provides some key findings from our recent report² on flight delays and cancellations.

- FAA reported a 58 percent increase (from 236,802 to 374,116) in flight delays between 1995 and 1999. The Bureau of Transportation Statistics (BTS) reported an 11 percent increase (from 1,863,265 to 2,076,443) in delays during this same period.
- Cancellations grew at an even faster pace, increasing 68 percent (from 91,905 to 154,311) between 1995 and 1999.
- Overall, 1 in 5 flights (1,152,725 of 5,527,884) arrived late in 1999, with each delay averaging about 50 minutes. When cancellations are added, nearly 1 in 4 flights (1,307,036 of 5,527,884) either arrived late or were canceled in 1999.
- Most delays take place on the ground during gate departure, taxi-out, and taxi-in.
- The number of taxi-out times of 1 hour or greater increased 130 percent (from 17,164 to 39,523) between 1995 and 1999. Flights with taxi-out times of 2, 3, and 4 hours increased at an even faster pace (that is 186; 216; and 251 percent, respectively).
- Airlines have expanded flight schedules on 82 percent of their domestic routes (1,660 of 2,036) between 1988 and 1999, ranging from 1 to 27 minutes, to compensate for growing ground and air delays.

For the first 7 months of 2000, these trends have only gotten worse. For example:

- FAA reported an additional 11 percent increase (from 227,719 to 251,874) in delays over the same period in 1999.
- Cancellations were also up an additional 10 percent (from 101,814 to 112,253) when comparing the first 7 months of 1999 with 2000.
- The average arrival delay is almost 54 minutes.
- Overall, 877,661 domestic flights either arrived late or were canceled between January and July 2000, affecting over 90 million passengers.
- Consumer complaints to the Department have risen dramatically, more than doubling (from 7,980 to 17,381) between 1998 and 1999, with an additional 47 percent increase (from 8,697 to 12,772) during the first 7 months of 2000.

²Audit Report No. CR-2000-112, *Air Carrier Flight Delays and Cancellations*, July 25, 2000.

It is important to note that FAA and BTS use very different methodologies for determining flight delays.³ These differences can lead to somewhat confusing results. For example, FAA collects data on flight delays via the Operations Network (OPSNET). OPSNET data come from FAA personnel who manually record aircraft that were delayed by 15 minutes or more after coming under FAA's control, i.e., the pilot's request to taxi-out. As such, an aircraft could wait an hour or more at the gate or ramp area before requesting clearance to taxi. So long as the flight, once under FAA's control, took off within 15 minutes of the airport's standard taxi-out time, the flight would be considered an on-time departure.

Conversely, the major airlines submit monthly flight data to BTS. According to BTS, a flight is counted as "on time" if it departed or arrived within 15 minutes of scheduled gate departure or arrival times shown in the airline's reservation system. Using this definition, an aircraft could wait an hour or more on the airport taxiway for takeoff and be reported by BTS as having departed on time if it left the gate within 15 minutes of its scheduled departure.

Flight Volume and Aviation Safety

One of the driving forces behind flight delays and cancellations has been the growth in flight volume. Such growth must be considered in arriving at workable solutions—a point discussed at the Secretary's August Summit with the Nation's airline executives. Between 1995 and 1999, the total number of operations at the Nation's airports increased over 8 percent, from approximately 115.6 million to 125.3 million.⁴ Similarly, since 1995, the number of passenger enplanements rose nearly 16 percent, from approximately 582 million to 674 million.⁵ These trends have continued into the first 6 months of 2000, with the 10 major airlines reporting a 3.7 percent increase in scheduled flights and a 5.8 percent increase in the number of passengers over the same period in 1999.

Against the backdrop of increases in flight delays, cancellations, and flight volume is the growth in runway incursions and operational errors. Runway incursions are incidents on the runway that create a collision hazard. Operational errors occur when an air traffic controller does not ensure that FAA separation standards are maintained between aircraft. As data show:

- Runway incursions increased 34 percent (from 240 to 321) between 1995 and 1999. In the first 8 months of 2000, there were 288 runway incursions, a 39 percent increase from the same period in 1999. If this trend continues, runway incursions may surpass 400 by the end of 2000, a new high.
- Operational errors increased 23 percent (from 764 to 939) between Fiscal Years 1996 and 1999. In the first 11 months of Fiscal Year 2000, there were 1,053 operational errors, surpassing the 939 operational errors that occurred in all of Fiscal Year 1999.

To counter trends in runway incursions, FAA held a Runway Safety National Summit in June and has developed new initiatives that focus on reducing runway incursions in the near-term. FAA must now follow through on initiatives at the national and local levels to reverse the upward trend of runway incursions. FAA must also identify and evaluate emerging technologies that can be advanced quickly for use by pilots and air traffic controllers at airports that are a high-risk for incursions. Likewise, FAA should determine actions needed to reduce operational errors at its air traffic facilities that continue to show increases in the number and rates of operational errors.

Airline Scheduling

There has been much debate in recent months as to the role played by airline scheduling in causing delays. Fundamental to understanding the relationship between delays and scheduling is gaining an appreciation of how the "Hub and Spoke" system works. Following deregulation in 1978, most of the major airlines began using the hub and Spoke system. A Hub airport is analogous to a switching center. In its simplest form, passengers arrive on inbound routes, or "spokes," join other

³A key reason for differing data maintained by FAA and BTS is in how each uses the information it collects. For FAA, delay information serves to measure system-wide ATC performance as well as to identify areas for improvement. For BTS, measuring delays (and subsequent ranking of the major airlines by on-time arrival performance) serves as a source of air travel information to consumers and helps to ensure more accurate reporting of flight schedules by the airlines.

⁴Flight operations, as reported by FAA, include takeoffs and landings by all types of aircraft (e.g., commercial, general aviation, and military) at approximately 3,400 domestic airports.

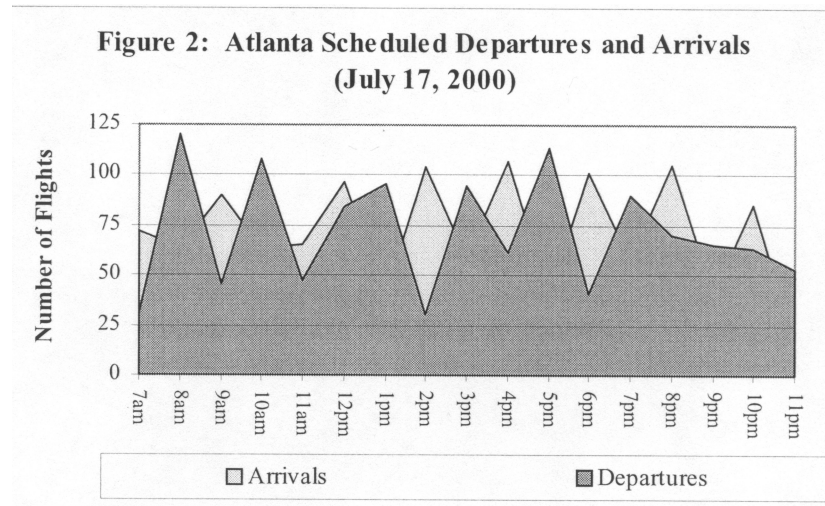
⁵Operations and enplanement data for 1999 were based on FAA projections.

passengers arriving on different flights, and transfer to aircraft departing on out-bound spokes.

A key aspect of this system is the concentration of flights and passengers into the various hub airports. For example, just five airports (Atlanta, O'Hare, Dallas/Ft. Worth, Los Angeles, and Phoenix) comprised nearly a third of the passengers handled by the 10 major airlines in 1999. While the concentration of passengers and flights at these airports is seen by the airlines as providing significant operational efficiencies, the Hub and Spoke system also presents some operational inefficiencies, especially when one or more of the hubs break down.

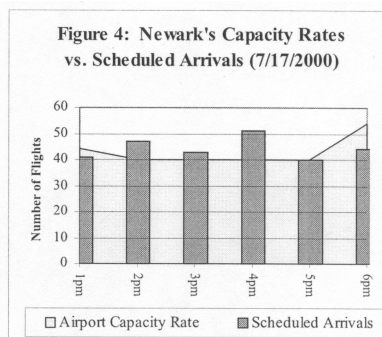
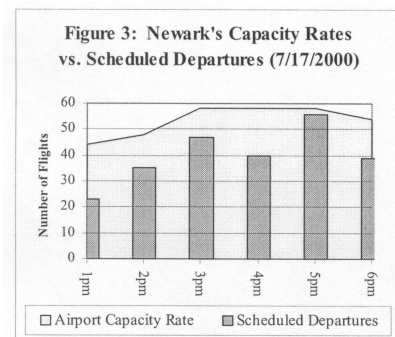
For example, on April 3, 2000, poor weather caused a significant reduction in flights to and from Atlanta. Because of the interconnectivity of Atlanta (the hub) to various other airports (the spokes), the number of delays "rippled" throughout the system, affecting over 50 airports. Overall, FAA reported 1,317 delays system-wide, of which 405 (31 percent) were due to weather conditions at Atlanta.

Beyond the concentration of flights at the largest airports, we found that one outcome from the Hub and Spoke system is the banking of flights into sizeable departure and arrival "pushes" at most of the major airports. Such pushes, as illustrated by Figure 2, place enormous demands on the ATC system's ability to efficiently manage the flow of traffic, both on the ground and in the air.

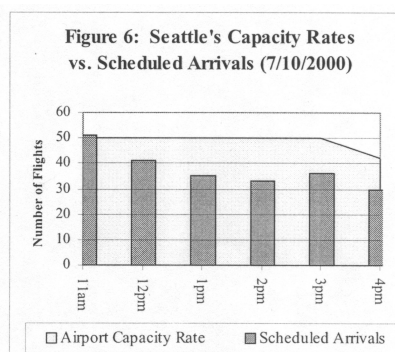
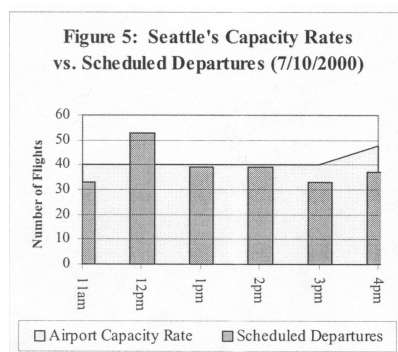


The extent to which these departure or arrival pushes exceed capacity, however, is difficult to quantify due to the lack of a firm benchmark for measuring capacity. FAA uses fluid departure and arrival acceptance rates. These rates exist for most of the major airports, but are used primarily to manage the flow of air traffic, not as a benchmark or gauge for measuring the relationship between capacity and scheduling.

Specifically, on July 17, 2000, Newark's departure and arrival acceptance rates were adjusted to accommodate an increase in scheduled departures from 2 p.m. to 5 p.m. (see Figures 3 and 4). By adjusting the rates, however, Newark's ATC effectively shifted the airport's capacity from the arrival to the departure side, resulting in an excess number of scheduled arrivals. Overall, Newark experienced 75 arrival delays on July 17, 2000, of which 20 occurred between 2 p.m. and 5 p.m. It is also important to note that FAA reported good visibility at the airport during these three hours.



In comparison, Seattle's departure and arrival rates were held constant between 11 a.m. and 3 p.m. on July 10, 2000, even though there was an increase in scheduled departures during the early afternoon (see Figures 5 and 6). Overall, Seattle experienced 96 departure delays on July 10, 2000, of which 23 occurred between 12 p.m. and 3 p.m. Weather may have played a role in some of these delays, since visibility was a problem at Seattle from 12 p.m. to 1 p.m.



Flexible rates are important as a traffic management tool, since both FAA and the airlines need to work within existing and changing operating conditions; but they do little in helping measure the extent of excess demand. FAA (in consultation with the aviation industry) needs to establish a set of capacity benchmarks or gauges for the top airports that measure what the system can reasonably be expected to handle given normal operating conditions by time of day. Such benchmarks would go far in helping all stakeholders understand the impact of volume on flight delays, as well as devising the necessary solutions.

Over the last 6 months, FAA has been working closely with the major airlines in developing the Aviation System Performance Metrics (ASPM). This system, which became operational in April 2000, measures the extent to which departure and arrival demand exceeds airport capacity based on fluctuating rates. With some minor modifications, ASPM could serve as the platform for measuring excess volume—once reasonable benchmarks are developed for the major airports. The information obtained from this effort will be critical in ensuring the success of the Secretary's recently announced task forces.

Air Traffic Control Equipment

The Congress, industry, and the traveling public need to know what can be realistically expected from FAA's investments in new technology in the immediate, intermediate, and long term, exclusive of airport improvements. There is a good deal of confusion on this point. FAA spends about \$2 billion annually on various ATC modernization efforts. Given the framework established by AIR-21, FAA will invest

about \$8.6 billion on modernization initiatives between Fiscal Years 2001 and 2003. With this in mind, there are several factors to consider.

- First, much of FAA's modernization efforts are not geared toward enhancing capacity and reducing delays. The main objective of some projects was to replace aging equipment with modern technology that is easier to operate and maintain. For example, the Standard Terminal Automation Replacement System (\$1.4 billion) and the Display System Replacement (\$1.1 billion) efforts provide controllers with new computers and workstations. While these systems provide the platforms for future initiatives, they do not, in and of themselves, provide capacity enhancements.
- Second, FAA's Free Flight Phase 1 (FFP1) initiative with an estimated cost of over \$700 million (Fiscal Years 1998 to 2004) is now the agency's key effort for enhancing capacity in the immediate and intermediate term. FFP1 is an *initial step toward* Free Flight and is a limited deployment of new information sharing technologies and automated controller tools at selected locations. Expectations for FFP1 are high.

FFP1 will help in the sense that it will provide incremental improvements but it should not be viewed as a panacea. For example, the passive Final Approach Spacing Tool⁶ is helping controllers land about 1.4 to 2 additional aircraft at Dallas/Fort Worth Airport during peak periods. Also, new collaborative information sharing systems are helping FAA and airlines manage the impacts of adverse weather.

Considerable work remains with FFP1's automated controller tools, and FAA is not scheduled to have a firm handle on bottom line impacts on reducing delays and enhancing capacity from these technologies until 2002 when FFP1 systems are fully deployed. FAA is preparing a plan for the geographic expansion of FFP1 technologies. It is not a question of whether or not to expand FFP1 initiatives to other locations but rather one of deciding at what pace and where to provide the most benefits in terms of enhancing capacity and reducing delays.

- Finally, new communication, navigation, and surveillance technologies for enhancing capacity and moving toward Free Flight are longer-term efforts. These efforts include, among others, satellite navigation (\$3.7 billion) and Controller Pilot Data Link Communications (\$166 million for initial steps). FAA analyses show that a sizable portion of benefits from satellite navigation is the time passengers are expected to save once the system is in place. However, these savings include small increments of time—a minute or less per trip—which passengers may not value and the benefits accrue over many years. FAA recognizes that the true benefits of some of these new systems have not been conclusively quantified.

Obtaining benefits from these cutting-edge technologies in terms of reduced flight times, closer spacing of aircraft, and more flexible routes depends on several complex issues, including synchronized investments by FAA (new ground systems) and industry (new avionics).⁷ For example, realizing the benefits of satellite-based navigation is contingent upon large numbers of airspace users equipping with new avionics and resolving complex performance and safety issues that recently emerged.⁸ Moreover, the full benefits from new communication, navigation, and surveillance technologies will not be realized until new ATC procedures and airspace redesign efforts are implemented.

Airport Enhancements

Aside from FAA's modernization efforts, capacity can also be increased through new runways and airport facilities. Although FAA will provide, through AIR-21, about \$9.9 billion in airport improvement funds between Fiscal Years 2001 and 2003, many of the runway projects being funded will not be completed for many years.

⁶The passive Final Approach Spacing Tool, or "pFAST" for short, was pioneered by the National Aeronautics and Space Administration and helps controllers sequence aircraft for landing. It provides a sequencing number and runway assignment for each arriving aircraft.

⁷For additional details about the benefits of new communication, navigation, and surveillance technologies, see OIG Report no. AV-1999-057, *FAA's Progress and Plans for Implementing Data Link for Controllers and Pilots*, February 24, 1999.

⁸For additional information on progress and problems with FAA's satellite navigation efforts and anticipated benefits, see OIG Report no. AV-2000-113, *Observations on FAA's Satellite Navigation Efforts*, July 26, 2000.

As noted in the following table, between 1991 and 1999, a total of 5 new runways were added at the 29 largest airports,⁹ with another 15 either under construction or proposed.¹⁰ With the exception of two of these new runways, most will not be opened for another 3 to 7 years.

New Runways at Large Hub Airports, 1991 through 2007

City, State	Year Work Begun	Opening Date	Status
Las Vegas, NV		1991	Completed
Detroit, MI		1993	Completed
Salt Lake City		1995	Completed
Dallas/Ft. Worth, TX		1996	Completed
Philadelphia, PA		1999	Completed
Phoenix, AZ	1997	2000	Under Construction
Detroit, MI	1999	2001	Under Construction
Minneapolis, MN	1999	2003	Under Construction
Orlando, FL	2000	2003	Under Construction
Denver, CO		2003	
Houston, TX		2003	
Miami, FL		2003	
Charlotte, NC		2004	
Atlanta, GA		2005	
Boston, MA		2005	
Cincinnati, OH		2005	
Washington Dulles, VA		2006	
Seattle, WA	1999	2006	Under Construction
St. Louis, MO		2006	
Dallas-Ft. Worth, TX		2007	

FAA estimates that any increase in capacity as a result of adding a new runway will vary widely from airport to airport. For example, Phoenix airport officials estimate that its new runway, which will become operational on October 5, 2000, will increase capacity by 20 to 25 percent. In comparison, airport officials in Seattle noted that their new runway, which is scheduled to open in 2006, will provide added capacity during low visibility, which occurs a significant percentage of time.

Whereas AIR-21 provides substantial resources for funding these as well as future airport improvements, the extent to which such improvements will come in the form of new airports (that the airlines will use) and new runways remains to be seen. Moreover, unlike technology enhancements and revised ATC procedures, construction of new runways, longer runways, and new airports clearly requires approval by local communities. They simply cannot be accomplished independent of the needs and desires of the surrounding communities and airlines. As illustrated by the Mid-America Airport, establishing a new commercial airport does not necessarily guarantee its use by the airlines.

Mr. Chairman, this concludes my statement. I would be happy to answer any questions you might have.

The CHAIRMAN. So it is not a field of dreams?

Mr. MEAD. No, sir.

The CHAIRMAN. I thank you very much, Mr. Mead. I thank the witnesses. Ms. Garvey, Mr. Mead makes the point that we as

⁹In addition to these runways, the Denver International airport was opened in 1995.

¹⁰The 15 runways will cost approximately \$4.5 billion, according to FAA estimates.

Americans have a right to expect to know what to expect. In other words, tragically, the modernization program was originally intended, as I mentioned in my opening statement, to be finished in 1993 at a cost of \$12.6 billion. Now its about double and we are still some time away. Perhaps you could give us briefly your projections. And second of all, maybe you could provide in writing for the Committee some very much more specific detail at your convenience. Please.

Ms. GARVEY. Mr. Chairman, thank you very much. I would be happy to do that. First of all, the Secretary mentioned the decision in 1994 to scale back AAS. That was a very difficult decision for my predecessors, David Hinson and Linda Daschle. But it was the right decision. And I think it did lay the groundwork for the approach we are taking today which is the incremental approach.

Ken Mead mentioned that in 20 of our centers we have the most up-to-date hardware and tools for the controllers. That is right. Those are the platforms that we can use to add the capacity, as Mr. Mead suggested.

The CHAIRMAN. He suggests actually that these do not necessarily mean an increase in capacity.

Ms. GARVEY. He is absolutely right. I want to be very clear. This equipment is the platform. You have to have the foundation or the platform in place before capacity enhancement can be achieved. That is what HOST is. That is what DSR is. It is the platform.

So as we move forward with Free Flight Phase I and Free Flight Phase II, we can begin to add the capacity. We have the platform in place at the enroute centers. We are focusing on the terminals now. We are going at it step-by-step, building block-by-building block.

Mr. Mead also suggested that we need to measure what the capacity benefits are to the technologies of Free Flight Phase I. I am in full agreement.

The CHAIRMAN. When can we expect Free Flight Phase I?

Ms. GARVEY. Free Flight Phase I is underway now. It is being deployed now. It will be in place by 2002. I am pleased to say we have met all of the benchmarks. But again, just to—

The CHAIRMAN. Right now, what percentage of flights in America are free flight—commercial aviation flights?

Ms. GARVEY. Very few, Mr. Chairman. That again ties in with what Mr. Mead said. The implementation is incremental. The fuller deployment nationwide is part of Free Flight Phase II. As he suggested, that is 2002 and beyond.

The CHAIRMAN. What can I expect by this time next year, what percentage?

Ms. GARVEY. I would like to get back to you with an actual percentage. I can tell you that we are doing what Mr. Mead suggested in measuring the benefits of the technologies with the airlines. We have got a pretty straight forward agreement with the airlines which is that we will deploy it. They help us measure it. Tell us where it is working. Tell us where it is not.

One quick example. In Dallas/Fort Worth where we have PFAST, which is a conflict probe, we have been able to increase the arrival rates by about 5 per hour.

But Mr. Mead is absolutely right. These are incremental steps. We agree that laying out very clearly what those capacity enhancements are is important.

The CHAIRMAN. We have people like FedEx that are installing their own equipment.

Ms. GARVEY. That is right, Mr. Chairman.

The CHAIRMAN. Is that one way that we can?

Ms. GARVEY. I think that is a wonderful way. We have got a lot of work underway with the cargo industry right now, with some technologies that they are putting in place. Our challenge is to make sure our procedures are ready. The airlines are right to push us on this.

The CHAIRMAN. Do you believe that we should consider—and I emphasize the word consider—the privatization of the air traffic control system?

Ms. GARVEY. Well, certainly, Mr. Chairman, from our perspective we have put two proposals forward. One was the government corporation. The other was a performance based organization.

I think it is the right debate to have. I know there are a number of questions associated with any of those proposals, but I believe they are the right proposals with which to begin the debate. Another proposal that was included in AIR-21 that I think is going to be very helpful is the provision that allows us to enter into a public/private partnership with airports. I think that holds a lot of promise.

That proposal could permit some airlines to do some public/private capital investments. We are excited about that. We have got a notice in the Federal Register and getting some comments on our guidance in that notice. We hope to get some applications by the end of this year.

I think all of these proposals hold some potential. Certainly, the issue about how best to handle air traffic control is the right debate. I thought the government corporation and the PBO certainly had a lot of promise. But we certainly appreciate, the statutory authority we got in AIR-21. In addition, the CEO provision and the oversight board have been a tremendous help to us.

The CHAIRMAN. Mr. Secretary, some argue that we have not been using the funds as efficiently as we could. For example, there is no limit on the amounts of money that can go to a smaller airport, but on the major airports there is a limit as to how much of the Federal dollars can go. I do not want to put you on the spot here, but do you not think we could do a better job or could have done and should in the future do a better job of allocating existing funds?

Secretary SLATER. I would say we can do a better job. I think we've been given some tools in AIR-21 to actually do that, Mr. Chairman.

Not only did the administration work with the Congress to get record-level dollars for the AIP program, the Airport Improvement Program, but we are also able to work with you to give local aviation authorities, airports, and the like to raise the passenger tax as well. And that, I think, I increased from possibly three dollars up to four-fifty.

The CHAIRMAN. And, yet, do we not charge every passenger, is it \$6 per trip? I've forgotten. We just increased it. And, yet, corporate aircraft fly around this country for free.

Secretary SLATER. You and I have talked about that. That's right.

The CHAIRMAN. Do you agree that that's really obscene?

[Laughter.]

The CHAIRMAN. It's really remarkable. The wealthiest people in America and the wealthiest corporations fly around this country for free, yet the average taxpaying citizen that gets on an airliner has to pay a tax on it. Another argument for Campaign Finance Reform.

[Laughter.]

Mr. Mead, I have one brief thing. I think Senator Rockefeller is right. We don't need to point fingers. We don't need to go back and put blame on people, et cetera. But I remember being startled when Governor Baliles sat in your seat and said, you know, unless something is done, by the Year 2000, every day in an airport—or 2001—everyday in an airport in America is going to be like the day before Thanksgiving. And all of us were shocked. All of us, oh, my God, this could be terrible.

And, yet, almost inexorably, like watching a train wreck, if I might use that, we've seen this problem compound and compound and compound, to where people are—we now have a new phrase, air rage. What happened here?

Mr. MEAD. Well, I think we spent an awful lot of time talking about things like antiquated aircraft or other issues. We spent a lot of time pointing fingers at structural issues. You know, should we privatize, should we leave FAA alone, should we do something in between? I think it took us a long time, frankly, because what was predicted some time ago has certainly come true. I think we have to make some very hard decisions.

You asked in your opening remarks about funding. AIR-21 has done an enormous job in terms of making financial resources available. In a sense, Congress has done its part. AIR-21, alone, will provide over \$9 billion in airport improvement funds.

I think time will tell whether the bulk of that money will go to your big priority, big capacity—enhancing projects. I think that the Department of Transportation could do a better job in being more forceful in doing that.

The Department will need the support of the Congress in doing that, because sometimes it is going to require leveraging local communities. And you don't do ground infrastructure projects without the clearance of a local community. That's one issue.

I also believe that, as I mentioned in the testimony, Mr. Chairman, we need to face the facts about what the capacity limits are.

It's like out here on Shirley Highway in the morning. There are only so many cars that can go across it. We're dealing with the Wilson Bridge right now, as the Secretary knows, and you have to decide how much traffic can the Wilson Bridge handle. And that's what we're suggesting here.

The CHAIRMAN. You may end up with a limitation on the number of flights that people can take.

Mr. MEAD. In addition, my answer is not complete without saying that there were some very difficult decisions made in the 2094–'95 timeframe that essentially pulled back on a direction that the FAA was going in. They had to go back to the drawing board, so to speak, to set a new direction.

Now that happened just a couple of years before the Baliles Commission report came out.

Secretary SLATER. Mr. Chairman, if I may offer one or two comments?

The CHAIRMAN. Sure.

Secretary SLATER. Also during this period, we were really dealing with some broader issues of importance to the nation, putting our economic house in order, strategically investing in those things that would strengthen us.

Fortunately, transportation was a part of that and, again, we just passed a major bill earlier this year with the leadership of this Committee, to put us on the right track.

So we have made some progress, but we are at the magical moment now. Our house is in order. Economic surpluses. There is the opportunity to really invest, to do so strategically. The parties have come to the table. Hearings like this continue to put the pressure on those of us who have a responsibility here. I think this is a unique moment.

And on the point that Mr. Mead made about strategically investing in critical airports around the country, the Department of Transportation is ready to play a stronger role in that regard, but we do have to work with local and state authorities because, for the most part, those investments are made at that level, and the decisions about when to go forward, how to go forward, dealing with balancing the environmental concerns and the like, community concerns, are made at that level. But we can provide stronger leadership and are prepared to do so.

The CHAIRMAN. There is a very amusing and entertaining article by Evelyn Brody, called "Three Perfect Days in O'Hare Airport," which unfortunately is true. It seems to me that one of the reasons why we remain in gridlock in Chicago is because of poor political forces, and unless somebody starts holding these politicians accountable, then things are going to get a lot worse at O'Hare Airport. Would you agree, Mr. Mead?

Mr. MEAD. Yes, I would.

The CHAIRMAN. We either expand O'Hare Airport, or we build another airport, or both. Do you agree with that?

Mr. MEAD. Yes. Either that or change the usage profile of Chicago O'Hare in a fairly dramatic fashion.

The CHAIRMAN. How do you mean?

Mr. MEAD. Well, Chicago O'Hare is obviously a major domestic and international hub, and it seems when things go wrong at O'Hare, they go wrong nationally. If a significant part of the traffic load at Chicago O'Hare were moved someplace else, that would have some effects. I'm not suggesting that, but that's one plausible outcome.

I think you'll hear from Mr. Carty of American later today on an interesting proposal he has about the use of the airplane asset. Whereas a single aircraft currently goes from Chicago O'Hare to

New York to some third or fourth location during the day, I think part of his proposal is that he limit the number of destinations. I think that's fairly intriguing.

The CHAIRMAN. Senator Hutchinson. Excuse me. I'm sorry. Senator Bryan. I apologize, sir.

Senator BRYAN. Mr. Mead, let me just compliment you. I'm not sure how many more times I'll have the opportunity to hear you, but your testimony is always clear and it's concise and it's very helpful, so let me preface my comment by saying that.

Let me try to explore for a moment with you. I take it that implicit in these capacity benchmarks, when we ascertain what those are, that they will tell us that's the limit at which flights can continue to fly in a safe manner? Is that what we're talking about when we're talking about capacity benchmarks?

Mr. MEAD. That's right. It doesn't help you on weather. You'll notice I said, let's do it for good weather conditions.

Senator BRYAN. No, I understand.

Mr. MEAD. Yes, that's it exactly.

Senator BRYAN. So that's what it will tell us. So when Ms. Garvey gets this information to us in a couple of months, it'll tell us that in these 30 airports, this is the capacity; beyond that, under the current usage, you can't add more flights to that airport? Is that essentially what we're saying?

Mr. MEAD. I didn't go that far.

Senator BRYAN. Maybe you can explain that for me, then. I don't want to misconstrue your comments.

Where I'm coming from is once these capacities are reached, and they're going to be reached at the rate air travel is, what are the options for us to expand the number of flights into these critical areas of commerce?

This isn't just a question of passenger convenience as you and I have talked. This is a matter that's indispensable to the growth of the economy, air travel, air service. Whether we're talking about visitor destination or cargo, it is essential to the expansion of our country's economic base.

Mr. MEAD. I would stop quite short of saying that they should be mandatory.

Senator BRYAN. No, and I'm not asking that question.

Mr. MEAD. But I think you need them at least for the next two or three years, and the reason is because you are not going to get material relief from other sources.

Senator BRYAN. Very briefly, Mr. Mead, what are our options? Assume in the airport, Las Vegas is one of the largest airports in the country, as you know; assume, that Ms. Garvey indicates the capacity benchmarks, and let's assume hypothetically they're reached. What does that tell us? That no more flights can be added during particular times during the day? What is the significance of that question?

Mr. MEAD. The significance is that if you continue to add flights beyond that, you're going to increase the pain threshold for the traveling public. You're going to be stressing the air traffic control system beyond what is reasonable. Hopefully, people won't do that.

Senator BRYAN. What are the options; in other words, if there are two or three things that we can think of that would enable us to

expand that capacity benchmark, what are some of the things that we ought to be looking at?

Mr. MEAD. Well, the Free Flight Phase 1 program, certainly, at FAA is one that will help to a degree. If you're speaking of that particular airport, I'm not that familiar with the Las Vegas Airport.

Senator BRYAN. But just in general. Las Vegas is obviously of particular concern to me.

Mr. MEAD. I think with the AIP money leveraging technology or other capacity enhancements, that will be truly meaningful.

Senator BRYAN. Okay.

Mr. MEAD. That's two areas.

Senator BRYAN. Those are a couple of things. OK, fine.

Mr. MEAD. I would also look to the time of day that planes are arriving and departing. I can point to Newark's profile. Everybody thinks Newark's profile is terrible. Well, actually, there are points in the day where Newark has some valleys, and I don't believe we use those valleys enough.

Senator BRYAN. You've given us three options here, and I appreciate that. That's very helpful.

Now let me ask you. I don't want to use "benchmarks," but what kind of indicators are there? You're talking about looking at our short-term, our intermediate and long-range situation here. What are the things that we may need to look at in terms of how well we're doing in addressing those problems, short-term, intermediate and long-term? What should we focus on? Let's take the short-term first.

Mr. MEAD. Right. If you were to set those capacity benchmarks, you'd want to come in, I would say, every 6 months to see what the delay and cancellation factors were, to see that they were working.

I don't mean 1 or 2-minute delays. I don't get upset until I'm delayed by about a half an hour now. So you want to have an increment of time that's meaningful. But you come back and you benchmark the situation.

And I also think that the load that the controllers are handling is important, I would want to see not only the delay and cancellation figures, and the load the controllers are handling, but how do the runway incursion and operational error rates look for that particular facility?

Senator BRYAN. And would you use the same criteria with respect to the intermediate and long-term or would you—

Mr. MEAD. Yes. I think you need some goals. Anytime you set a limit or a benchmark, I'm not sure that that's futuristic enough. I'm hopeful that with free flight and satellite navigation, we have something to look toward, and we can set some benchmarks for what our goals would be, say for Las Vegas.

And we could use those very same indicators, sir, to track progress toward reaching them.

Senator BRYAN. In your judgment, Mr. Mead, have we provided the sufficient legislative framework or authority for the Department of Transportation, Ms. Garvey's agency, in particular, to do the job? I'm talking about the legislative framework not the level of appropriation.

Mr. MEAD. Yes, I believe you have.

Senator BRYAN. So essentially the framework is there, the authority is there, as you view it?

Mr. MEAD. Yes, sir.

Senator BRYAN. Okay. How about the level of appropriations?

Mr. MEAD. The Secretary can speak to this. My own view is that within the Office of the Secretary—I think the Office of the General Counsel and the Office of Aviation and Policy, both of which oversee the enforcement of consumer rights, are inadequately staffed.

I don't know exact numbers, sir, but you have fewer staff there than you did in 1995, and you've got more than a doubling of complaints. These people, can't get to the complaints, and that sends the wrong signal about enforcement. And, frankly, we need more resources in enforcement.

Senator BRYAN. In enforcement. Any other areas that you would suggest that would need more resources?

Mr. MEAD. No, sir.

Senator BRYAN. And my last question, Mr. Mead, in terms of procurement for the 12 years that I have been on this Committee, we talked about some of the procurement delays and how long it takes to acquire and update, and you can buy things off the shelf in a shorter period of time, and you can go through the procurement, and by the time the procurement criteria are established, the equipment is obsolete, and there's three new generations of new equipment.

Give us your assessment, generally, where are we on procurement in terms of both the policy and the actual implementation?

Mr. MEAD. As you know, Congress enacted procurement and personnel reform for FAA.

Senator BRYAN. Yes.

Mr. MEAD. Clearly, under procurement reform, they're awarding contracts quicker.

Senator BRYAN. OK.

Mr. MEAD. Clearly, for the technologies like the HOST computer, contracts that were let for Y2K, they got the job done. Another one was the display system replacement for en route centers. But these were not software intensive projects. The software intensive projects continue to plague FAA, although FAA is much more open about the problems, and seeking to tackle problems much earlier in the process.

The satellite navigation system, is an example of one where software problems continue. I don't think it's a function so much that the government has the contract. I mean, a private sector firm, is running the contract. The FAA and contractor are trying to get to a 99.9 percent reliability rate. This is important because you can't afford to have a satellite signal falling off on a final approach.

So FAA's software intensive procurements are still having more than their share of problems.

Senator BRYAN. Are we making perfection the enemy of the possible in terms of setting the standard 99 percent too high? Is that something that's not attainable as a practical matter?

Mr. MEAD. In some programs, that's so. Some years ago, there was terminal weather Doppler radar which detected windshear. That was intended to replace a system that wasn't very good. It

was good about 50 percent of the time, and I think that we probably lost a few years in that procurement because we were striving for a 99 percent reliability.

Satellite technology, though, is another matter. You're going to have these airplanes relying on the signal that says exactly where you are, and there's not much room for error.

Senator BRYAN. No.

The CHAIRMAN. Senator Hutchinson.

Senator BRYAN. Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator HUTCHISON. Thank you, Mr. Chairman.

I think the capacity issue and the infrastructure needs have been well questioned. There's one other point I'd just like to ask about on that issue. That is, does the FAA have a system that you feel comfortable with, Ms. Garvey, that gives air traffic controllers a big enough picture. For example, if there are weather problems in Detroit and they are going to either keep flights from going in there or reroute, can controllers look at the rest of the country and avoid delays by either rerouting more flights to the same airport?

Ms. GARVEY. That really gets to the heart of I think a number of the issues that we have. At the command center in Herndon we have some terrific weather technology. It's a wonderful place to visit if you have an opportunity. I know some of the members have had a chance to see that. As you've suggested, you really do get a comprehensive, big picture look when you are at the command center.

This year, for the first time both the FAA and the airlines, are using common weather information, and that's a significant step forward.

However, your question asking whether there is more information that we can give to the controller, even more precise information, that's really the next iteration of technology.

Senator HUTCHISON. This is not just seeing the weather everywhere, it's knowing what the other controllers are facing and having the instant information so that they can make other judgments? Is that it?

Ms. GARVEY. That's true. I think in the area of weather, there is still another wave of technology that's going to be very critical.

But you know it's interesting. We were up in New York last week talking both with the controllers and with the managers, and there's a balance to strike. One of the controllers said when he was really busy and things were really hopping, he knows he just has to take care of his sector. He's just got to take care of what he's doing.

When it slows down a little bit, it's good for him to step back and look at the big picture. In a number of the facilities, we are putting some of those bigger screens, very similar to what we have at Herndon. So we're getting there.

We're not fully there yet, but the common weather information has been extraordinarily helpful this year, and still strikes that balance between focusing on what you need to get done, and having time when it's a little bit slower to take a look at the bigger picture.

Senator HUTCHISON. Mr. Slater—

Secretary SLATER. Yes.

Senator HUTCHISON.—Part of air rage is this disclosure of information to passengers' issue, and I think if people know what to expect and are given the information either before they come to the airport or when they get there, if there is something unavoidable, I think the rage factor could be sharply reduced.

Also, I think that people believe that sometimes flights are canceled because they're not full, because there's another flight that leaves 45 minutes or an hour later. I know the practice of canceling a flight because it's not full is against the rules, but what do you do to make sure that this doesn't happen?

And, I would like to know if you look at the disclosure factor and try to see if airlines are giving the information that they have to passengers, or is that even something that you have the ability to do?

Secretary SLATER. Well, first of all, let me say that it's our desire to avoid the need for additional regulation as well, and that's why the collaborative process is so essential, where we work with the industry. And we've had some considerable success in that regard.

Second, when it comes to information, clearly, we found that the biggest issue with passengers is, more often than not, the question of information. They know that there will be delays for any number of reasons, most of them involving weather, and they just want timely, accurate information that they can rely on.

And, clearly, they would like to know when they're delayed whether there are options with out airlines as you have noted in your earlier comments.

We actually have, I think, two of the best companies in that regard here today, and you'll have an opportunity to hear from Leo Mullin with Delta and Don Carty with American.

During our roundtable discussions, we've gotten into that issue. That's with the task force that Mr. Sanchez will head dealing with best practices is all about, to collect the best information out there that deals with programs employed by individual companies, and then to share that across the aviation enterprise. That's exactly what we're trying to do.

I know that Delta has invested significant dollars to streamline their technology and to make sure that all of the players on the front line are getting the same information at roughly the same time.

Again, Mr. Mullin can get into that to an even greater extent.

Mr. Mead talked about some of the decisions that Mr. Carty is going to make as it relates to the scheduling.

Well, they've relied on their information flow to make those kinds of judgments, and those are the kinds of things that have to happen as we manage better the process and the capacity of the system, and clearly the benchmarks that will help us know what the high point is will help us then deal within that frame of capacity that is reasonable.

So I think all of these things are actually helping us to enhance the efficiency of the system we have.

Now, the last point—

Senator HUTCHISON. What about cancellation?

Secretary SLATER. Yes. There is a provision that's—I think it's 49 U.S. Code, 41.712, which gets into the question of accuracy and truth in advertising and in scheduling and all of those questions. And, clearly, those powers that are at our disposal.

But we, also, in our consumer reporting activities, stay on top of the information, really monitoring flights that are, you know, sometimes they have a 100 percent delay record over a period of time. In the most recent consumer report, we actually identified some of those flights.

We do monitor the situation. You know, we have tried to use a collaboration process. We will continue to do so. But in a situation where we find that we cannot resolve matters in that way, we do have authority for dealing with those questions.

Now I'd like to close with a comment that Mr. Mead made earlier when responding to Senator Bryan. He said, are there other powers or resources that would really be helpful.

I can tell you that when it comes to our consumer protection functions, we do not have the resources to do what needs to be done. Now we do have the authorization. And here, Mr. Chairman, we had a discussion the other day on the same matter as it relates to NHTSA, and we got into a discussion about resources.

And at the time, I was not as clear as I wished to be now, and that is, when it comes to authorizations, this Committee has been very helpful to us in providing the resources through the authorization process.

But when it gets to appropriations, sometimes we just don't, at the end of the day, get the resources we need to give us the ability to follow through on some of the authority that we have.

Senator HUTCHISON. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Rockefeller.

Senator ROCKEFELLER. Thank you, Mr. Chairman.

I want to reemphasize what has been said. I think this kind of a hearing is very, very useful because I'm not talking about particular problems associated with West Virginia. We're not discussing noise in Arlington.

I think this is sort of the whole blame type of thing, and what we're trying to do is rise above that. I think one of the reasons we haven't been able to rise above that is because when we come to markups and things of that sort we tend to, on our side, become to look after those particular things which constituents are talking to us about and which we feel we need for our states, which takes us away from the national aspect of all of this.

On the Administration side, I would have to say—others on this Committee would disagree with me, but I'm very much of an off-budget person. The Administration was not in favor of an off budget for the Airport and Airways Trust Fund, but they were for the amount of money that we wanted to spend. And so there's that factor.

The airlines—and we'll get into this also—scheduling 50 or 60 flights where only 30 are possible, and yet they feel they have to do it because if they don't do it somebody else will do it, and so that's part of the competition. So, again, a blame all around.

In a sense what we're talking about is, in fact, a national system, which is in some ways coordinated as in the case of runways and

airports by state and local decisionmaking, which predominates, and you have a terrific conflicts in those areas. And we don't address those problems because we're dealing in smaller things and ignoring the larger problem.

So having said that, let me ask any of you, of the three distinguished witnesses. Yes, we put some money into infrastructure and runways and air traffic control. It was also, I thought, just as interesting that in view of what was said about the appropriations process that we put the infrastructure and the air traffic control equipment in as mandatory spending, so to speak. We then said, all right, if you don't want to pay for FAA and air traffic control people, then you go ahead and do that, thus, calling the hand of the appropriators.

The appropriators, all through the AIR-21 conference period, were reluctant as were the Budget Committee people, reluctant to give us any money to do any of these kinds of things. So, in a sense, we had to manipulate our own process in order to get the money that we need.

But the money that we need, Mr. Mead, is that in fact enough? I notice that you said 5 to 7 years to build a runway. I'm sort of more schooled in the 8 to 10 years thought.

So the first question I want to ask is: How much in the way of new runways? You know, I know when you focus on California and you talk about building a new runway in the San Francisco Airport, everybody goes crazy because you can't do anything offshore without addressing enormous environmental issues.

But on the other hand, are we going to have to bypass San Francisco? Are they going to have inadequate service because of local decision-making or local objections?

LaGuardia, obviously, is going to have to build out in the water. I don't know how their environmentalists or local people feel about that, but there aren't going to be more runways unless they do that.

So my question is twofold: One: How many runways can be built? There's an enormous cost differential depending on many factors including the types of aircraft using a new runway, hundreds of millions of dollars in what these runways cost.

How many do you see being built or what percentage of what needs to be built as a result of AIR-21? In other words, how far have we fallen short in AIR-21 in terms of what we need to do when, really, all of these things have to be done tomorrow and obviously can't be?

Second, would you address this question of, when we build interstates, highways, the Feds provide the money; the states, more or less, determine the route. The Feds have something, but not a whole lot, to say with that.

And I'm very concerned about your views about whether we need to start looking and dealing more forthrightly with states and local authorities about how this is a national problem, that when something goes wrong in Newark and O'Hare or any of those big airports, I need to tell my people, as I do, in West Virginia, that the first people to suffer will be Charleston, West Virginia, Huntington, West Virginia, because they always take the end of the food chain and chop that off.

So the national dimension of this calls for some new thinking, I think, on our part.

And I would be interested in your response to the question of runways and the question of local versus national input.

Chairman McCain won't remember this, but I remember, I was a Governor for 8 years, and I tried for 8 years to raise the drinking age in West Virginia from 18 to 21, and I succeeded brilliantly by getting it in 8 years from 18 to 19, and then I came up here, and in my very first year there was national legislation that said, OK, you want your Federal highway funds, you put it at 21, and it was done like that.

Now these are things that states may or may not like, but it sure helped a lot.

So I'd appreciate some responses on those things.

Secretary SLATER. Senator, I think you afford all of us an opportunity to comment on the question. Let me just offer a few and then turn to my colleagues.

First of all, I do think that it's very important for us to communicate to the Nation the importance of this industry. We've talked about passengers increasing, you know, threefold over the last 30 years or so. I mean, we're moving now 670 million passengers this year, 650 million last year, about 200 million more annually now than when this administration came into office.

It is a critical industry to the long-term viability of our economy and to an improvement in the quality of life of our citizens.

Senator Cleland, earlier you talked about extending life. Well, when you can move faster and more efficiently by adding to the quality of life, you actually extend it. You extend it.

In the closing years of the last—or in the middle of the last century, the vision of the interstate to lock all of our communities and cities together, really unleashed the economic power of this nation.

In the coming century, aviation can do that as we play on an international stage, giving us access to communities and cities around the world.

Right now, beyond the movement of passengers, aviation accounts for only about three percent of the tonnage, the freight that we move, but it accounts for about 45 percent of the value of the freight that we moved.

We mentioned Federal Express and UPS and some of those companies a little earlier, along with the freight that's moved by the passenger carriers, very important to the overall health and well being of the economy of the nation.

Senator ROCKEFELLER. Mr. Secretary, I have time limits. I need to get my two questions answered.

Secretary SLATER. I understand. But I think as we make that case, we can then, as a Federal Government, better work with state and local governments when it comes to meeting the infrastructure challenges because they do have a role.

I don't think that we'll have a time when the Federal Government will be dictating a new runway at O'Hare or at Hartsfield. We have to do those things together. So the vision, the case, I think will help us in that regard.

As relates to the runways—

Senator ROCKEFELLER. But then what do you do with San Francisco? I mean, I don't know San Francisco well enough to say that they would absolutely refuse to have another runway built out into what turns out to be a rather large body of ocean, called the Pacific Ocean, but I think they would fight it.

It might be a small group, it might be an environmental group, or whatever. But they would fight it. And at some point you have to have the proper number of runways in San Francisco.

Secretary SLATER. That's right. But Mr. Mead touched on that particular question a second ago when he said that character of the runway, and it's important in the overall national scheme of things, may have to change.

Once those issues, again, are considered by those at the state and local level, there may be then the political will to really deal with some of the challenges that have to be balanced and met to make those kinds of investments.

San Francisco, a gateway to Asia, has to consider its role in that regard as it relates to L.A. or Seattle. And now with the planes that can move greater distances, other gateways becoming major U.S. gateways to those important markets.

Those are the kinds of things that would come into play.

Senator ROCKEFELLER. So you're suggesting, in that we all recognize we don't have 10 years for local decisionmaking to rise to the level of Confucius in its wisdom, you're suggesting that there might have to be a reconfiguration in the traffic allowed into or routed into San Francisco, so that they have to deal with the possibility of fewer flights, less traffic, in return for keeping that local control?

Secretary SLATER. I'm glad, first of all, that we made it more general. We've been talking about San Francisco.

But I think that what you have to do is have the big picture understand what the competing demands are, and in a collaborative way, if you can, try to address these needs. But where you have powers to do other things, you have to put those issues on the table as well, and we're just getting to the point again where we're beginning to talk it through.

Up to this point, it was maintaining the health and viability of the industry. We have met that challenge. We have opened access and markets and liberalized aviation agreements with international partners, and now we have the service issue that is the challenge at hand.

Also, on the issue of the runways, with the 9 or so billion dollars in AIR-21, we really have the resources to deal with most of the runway issues that are on the table. Many of them will be different costs based on the local challenges, but generally around 300 or so million for an average size runway.

A lot of those runways can be paid for with the \$9 billion in AIR-21.

And we've also talked about how we might be able to use some incentives from our level to actually encourage communities as they seek our participation in those kinds of investments.

Mr. MEAD. And I don't think money is the problem, particularly when you throw in the PFC revenue. When you combine that with the \$9 billion, that's a very good piece of change.

There is another question, Why should the entire national air-space system have to put up with an endless number of flights being scheduled out of an airport that can't accommodate the capacity?

As you can see there are some hard decisions ahead. If we're not going to improve the infrastructure in a particular location, some corresponding adjustments need to be made about what the air traffic control systems must be prepared to handle.

The CHAIRMAN. Good solution.

Senator Gorton.

Senator GORTON. Thank you, Mr. Chairman.

I'd like to have you put an opening statement in the record.

The CHAIRMAN. Without objection.

[The prepared statement of Senator Gorton follows:]

PREPARED STATEMENT OF HON. SLADE GORTON, U.S. SENATOR FROM WASHINGTON

In the last few years, airline delays have been increasing at a dramatic rate. Between 1997 and 1999, delays of 15 minutes or more were up 75 percent during the months of April through August. Although final statistics for August are not yet available, every indication is that delays this past spring and summer were worse than last year, especially at the nation's largest airports. Everyone believes that delays will get worse as the demand for air travel continues to grow in the years to come.

It is evident that these delays have played a significant part in the rise in consumer dissatisfaction with air travel. When airline schedules become unreliable, the frustration of passengers is bound to rise. That frustration exacerbates any existing flaws in an airline's customer service program. As a result, Congress gets called upon to address the matter. But more than consumer frustration is at stake.

The costs of these delays are dramatic. The major airlines estimate that delays cost them and their passengers billions of dollars each year. The delays of the past two years portend greater problems in the future. As many have pointed out, the National Civil Aviation Review Commission concluded nearly three years ago that gridlock in the system was fast approaching. To avoid a system continually plagued by gridlock, those of us who have a role in the oversight and upkeep of the national air transportation system must seek out potential solutions for the medium and long terms.

The reasons underlying these delays seem to be as complex as the air traffic control (ATC) system itself. The strong economy has led to an increased demand for air travel, which in turn generates more flights. Although bad weather certainly plays a significant role, the manner in which the FAA responds to potential weather disruptions is also an important factor. I am pleased that the FAA and airlines have been working more closely to manage air traffic when disruptive weather systems are predicted. Government and industry will need to work closely on many levels if the problem of delays is ever to be solved. Also, airport development cannot be forgotten in the effort to accommodate growth in the system.

In an attempt to address some of the concerns associated with ATC management and modernization, Senator Rockefeller and I sponsored legislative provisions that were enacted as part of the recent FAA reauthorization act. Although our ATC management reform proposal is not a panacea, and will not have an immediate impact on delays, we believe that it was a step in the right direction for the long run. Much more needs to be done, however.

Unfortunately, there is no time left in this legislative session for substantial legislation. We must begin a dialogue now that will put us on track to address the deeper problems during the next Congress. An industry consensus will be a prerequisite to any meaningful action. If the aviation community remains divided with respect to solutions, Congress will probably not be able to act in a constructive way. I want to explore with our witnesses what else can be done to address these matters. I appreciate their participation today and look forward to hearing what they have to say.

Senator GORTON. But just to say, to a certain extent, it seems to me the discussion has involved perhaps 2 million subjects with some sub-subjects.

One of those subjects is the capacity of our airports. With the two subsets, perhaps one of which we solved, at least according to the people here, the money necessary for the concrete, the other the issue that Senator Rockefeller brought up; and that is, local opposition to that kind of increase in capacity.

The other is the technology. Using what we have now, you know, more efficiently with a better air traffic control system; the latter right now is a purely Federal responsibility.

Secretary SLATER. That's right.

Senator GORTON. One of the things we're talking about is very clearly not.

With that in mind, I'd like to start with one other thing, Mr. Chairman. I'm not a great fan of this administration by any stretch of the imagination, but I do want to say that the three people who are in front of us, Mr. Chairman, I think have done a magnificent job with the complex challenges that they have faced, and this may well be the last hearing with this three-group in this Congress.

Each one of these people has been extremely constructive, I think, in dealing with each one of these very, very many challenges.

Now with that, if I may, I'm going to share an experience with you. I had a rare occasion yesterday of coming back from Seattle to Dulles in the middle of the week, and by United flight, and in a delightful exception to its recent history, pulled right out of the gate on time and then pulled right back in.

United Express flight from Eugene had landed and distributed passengers two of them to our flight. And its baggage was being unloaded, one of the suitcases, almost knocked out a baggage attendant with its fumes. It turned out that this particular passenger seemed to be carrying an entire meth lab or chemical laboratories in his checked baggage.

And they had to pull both of the passengers who transferred to our flight out. They pulled passengers out of perhaps half a dozen other flights. We left and arrived here 2½ hours late, and when we left there was a police line around this poor little prop commuter plane and a yellow band.

But that will appear on this chart, you know, the next time around. There was no rage among the passengers on our plane. You know, this whole thing was very clearly done, you know, for our safety.

And that leads to the principal question I have for you all know that is mentioned in passing; and that is, how soon are we going to be able to understand not just the gross figures that appear on this chart, but how soon are we going to have a single definition of what "late" is and what "on time" is and a reasonable breakdown of weather, the kind of problems that afflicted United, labor problems, overscheduling at a particular time because the airport, even at best, can't do it, and pure safety, obviously, necessary things like what took place with me yesterday.

When will we have a chart, in other words, that's more meaningful than this was that can tell us the whys? Because it's only, it

seems to me, that when we know the whys that we can really focus in on controlling those we can control, and not forgetting the one we can't control, like what happened to me yesterday, but at least to isolate them?

Secretary SLATER. Mr. Chairman, a little earlier we talked about capacity benchmarks that Ms. Garvey and her team will have for us pretty soon. I think we were talking about, what?

Ms. GARVEY. Just about a month or so.

Secretary SLATER. At about a month or so.

And then we also have a task force that has us following through on a measure, a provision in Air-21, that deals with the issue of having the same factors of measurement, and our Associate Deputy Secretary Steven Van Beek is heading up the effort, and it's supposed to be done with that work in about, oh, 90 days, and we're into that, so it'll be less than that. But by the end of the year.

Ms. GARVEY. Senator, also just to add that we've made a lot of progress in the last 6 months, and just arriving at the definitions, because you're right. Our common language has not been the same.

Senator GORTON. When will it be?

Ms. GARVEY. Well, with regard to the common definitions, we're very close to having them completed. This will be part of the work that the Secretary referred to that Steven Van Beek is heading. So by the end of this year, we'll have the common definitions.

The challenging part, and Mr. Mead and I have talked a lot about this, is then putting in place the right methodology so that we're tracking delays correctly. Even the definitions have been difficult, I will tell you. We're working on this with the airlines, with our colleagues at BTS, and with the Inspector General.

Mr. MEAD. Yes. There is one pet peeve that I have on the statistics. I try to always mention it, and I would like to see it changed by the end of the year.

I do not think anybody in the traveling public believes they are leaving on time when they pull out of the gate at 14.5 minutes and then sit on the runway for 2 hours. It seems to me to be a self-evident change that ought to be made.

I understand that it's useful to have an internal measure for an airline about how quickly you pull away from the gate, and that's good to know. But we shouldn't be telling the American public they're leaving on time. They must wonder what's going on sometimes when we suggest that.

But that's something that could be changed, and without a lot of controversy.

Senator GORTON. Well, I hope it is and I hope it is promptly.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Cleland, sir.

Senator CLELAND. Mr. Mead, I just want to commend you for that. The last hearing we had here a few weeks ago, I mentioned the idea to an airlines president who shall go nameless. I said, aren't we gaming the system here, when if you pull out from the gate, about less than 15 minutes, and you sit on the runway for an hour and a half, and we've, in effect, I guess, all been there, done that, got that T-shirt.

You know, why is that “on time departure” and “on time arrival”? You know, duh. I don’t get it. And I thank you for that. I think that’s one positive change that I think could be part of the information that we’re talking about that consumers want.

For me, I guess it’s my time in the military, I guess being in a helicopter so much or whatever, in Vietnam. But if you can walk away from it, it’s a good flight, you know?

[Laughter.]

My standards are pretty low, and the airlines here exceed my standards every day.

[Laughter.]

But I do think if the traveling public, which expects delays, problems, lots of planes in the air, weather, I mean, the American public is not dumb. If they just have a realistic appraisal of the situation and some real facts in real time, I think that’s going to help this situation, in terms of perception, a whole lot.

When I say, Mr. Secretary, you have been before this Committee twice this week, and may I say you’ve jumped from the Firestone into the fire here.

[Laughter.]

I’ll tell you, in Atlanta, we need your help. If we don’t get that fifth runway at Hartsfield, the space station will be the second Atlanta airport. We are running out of time, and we are not reluctant guests. You’re not having to drag the Atlanta City Council at Atlanta business community up into this concept that they need another runway. We’re out there pulling the rope not pushing it, and we need all of the help that you and your department can give us.

I might say, Ms. Garvey, I have just a couple of pet peeves. I guess my question to you is that we have world class carriers, no question. We have a world class number of passengers, and it does seem to me that we need a world class nerve center; in this case, an air traffic control system, a world class air traffic control system.

By that I mean the most up to date equipment known to the mind of man. If you can get out on a little boat and have a little bitty thing like that, a GPS, and know exactly where you are in the world, it seems to me we ought to have a world class system of knowing where every aircraft is at every moment, and a communication system in which everybody talks to one another.

And then we ought to have air traffic controllers that are happy. I want a happy air traffic controller. I don’t want them sad, I don’t want them on bad equipment, I don’t want them to have a bad day.

[Laughter.]

It’s all part of the nerve center around which whatever capacity we have works effectively and safely.

When do you think we can get or say that we have a world class air traffic control system?

Ms. GARVEY. Well, if the question is, when is modernization going to be finished, it’s always evolving. I think we’re always going to be looking at new technologies.

But I’ll tell you something. I think we do have a world class system. I think we’ve got the best controllers in the world, and I agree with you. You want them feeling good about their job, and I think

you're going to have a chance later to hear from the president of NATCA and HIA. They're terrific. I think they are the best.

The challenge for us in government is to make sure we get them the best technology that we can.

The chairman said earlier we've got to be vigilant about that. I think we are. We're putting in place as many building blocks as we can as aggressively as we can.

If you look at a place like Memphis where we've got some of the free flight tools in place, the controllers called it "the most modern facility in the world," in the *New York Times* and it is. That's what we're doing, incrementally, benchmark by benchmark, step by step.

I think the airlines are right to keep the pressure on us. I think Congress is right to keep the pressure on, and we're right to keep the pressure on ourselves. But I'll tell you, we've got a terrific work force out there. We've got great technology in the centers. We've got a lot more to do to keep up with this growth, but I think we're really staying the course.

Senator CLELAND. I would hate for the FAA to get caught up in bureaucratic inertia or budgetary hassles where you can't move forward and get what you need. I mean, I think everybody in America wants you to have what you need.

Now, I understand that the FAA does not have the authority to borrow funds to purchase equipment, although a program to do so passed the Senate, with my support, I might say, as part of the FAA reauthorization legislation, but it was dropped in conference because of rejections from OMB.

Would you be better off, would you be able to move faster, quicker, better, more assuredly toward the top of the line world class equipment that you really know you want, if you had the authority to borrow funds to purchase equipment?

Ms. GARVEY. Senator, I think some of those suggestions for financing were made by the Mineta Commission. It may have even been made by the Baliles Commission. OMB raised some objections to them. I think others in the administration had raised some objections as well. There were even some objections on the Hill.

So we're proceeding with what we've got. We've got some great possibilities, I think, with the program included in AIR-21, the public/private partnership that I suggested earlier.

We're willing to try that out and see whether that offers us some good examples of how to move forward. So I think we're moving forward. We're going to be more vigilant.

Senator CLELAND. Mr. Chairman, may I just call that to the attention of our staff. It's something that we might want to look at in terms of additional authority to let these good people go as fast as they can to where they want to go.

Mr. Mead.

The CHAIRMAN. We've got to press on here pretty quick.

Senator CLELAND. Yes, sir.

Thank you for allowing us to have your insight. Thank you for the concept of capacity, benchmarks. I do think that that will help us all not stack up these airports unrealistically in terms of flights and therefore create multiple problems.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you very much, Senator Cleland.

Ms. Garvey, I hope you'll pay attention to the story in the *Wall Street Journal*. "Efforts to ease delays in summer air travel also produced snarls. FAA centralized controls and radar screens are cited for lost efficiency." I hope you'll keep us informed in that area.

Ms. GARVEY. We will, Mr. Chairman.

The CHAIRMAN. I want to thank the witnesses. And I apologize to you for such a long period of time of questioning, but these are very important issues, and I appreciate your input. I thank the panel.

Secretary SLATER. Thank you, Mr. Chairman, members of the panel.

The CHAIRMAN. Thank you.

And I appreciate the patience of the next panel, which is Mr. Leo F. Mullin, President, Chief Executive Officer, Delta Airlines; Mr. Donald Carty, the Chairman and President and Chief Executive Officer of American Airlines; Captain Duane E. Woerth, President of Air Line Pilots Association; Mr. Robert Poole of Reason Public Policy Institute; Mr. John Carr, President of National Air Traffic Controllers Association.

Thank you for your patience.

We'd like to begin with Mr. Mullin, who can acknowledge the compliments of Senator Cleland.

**STATEMENT OF LEO F. MULLIN, PRESIDENT AND CHIEF
EXECUTIVE OFFICER, DELTA AIR LINES**

Mr. MULLIN. Thank you very much. I do acknowledge the compliments of Senator Cleland.

Thank you, Senator.

And thank you very much for inviting all of us, but particularly me, here.

Mr. Chairman, much of what I would have said——

The CHAIRMAN. I agree with his statement.

[Laughter.]

Mr. MULLIN. Thank you, sir. This is off to a good start.

I would like to just make succinctly, hopefully, just a couple of comments that have not been made previously.

But, first, I just want to emphasize how important it is that capacity increases be made in every single segment of the system, the airplanes, the airports, and the air traffic control.

And I think as we think about as we're moving ahead, into the future, it's very important to keep in mind one crucial governing aspect of why we're here; and that is, that we should put the customer first in terms of providing air transportation.

We exhaust every single component of this system to provide service to customers, and so as we go through and we consider any kind of limitations on the system, any kind of constraints, anything that involves the metering of slots, et cetera, we have to recognize that we are, in fact, constraining the fundamental ability of Americans to travel and that that is very, very important.

I would also add that I think that each of the components of the system have got to take responsibility for what they do, and I would like to acknowledge, Mr. Chairman, that the airlines still have a lot of work to do ourselves.

We've worked hard in the past 6 months relative to the customer service plan to really put the focus back on to customer service where it belongs.

In the case of Delta Air Lines, when I came three years ago, we were dead last in almost all of the customer service indexes, most notably, on-time performance, 10th out of 10. And we're proud right now that Delta is in the top three with respect to on-time performance, complaints to the DOT, and baggage handling statistics, consistently.

So we've made a lot of progress in that. And relative to the report Mr. Mead will be giving on implementation of our customer service plan, we are looking forward to getting good marks on that later this year.

I'd like to point out, however, three points that I don't think anybody mentioned as we went through.

To make a quick comment, regional jets, the requirements for better management and labor relations and industry consolidation.

On the regional jets, frequently regional jets are pointed out as a burden on the system, wherein, they will increase the necessity for capacity in the air space and on the ground.

Regional jets are one of the most fundamental, wonderful technological developments of our industry. In particular, they provide the opportunity for service to small and midsize cities to a degree that they have not had before. These cities have frequently been referred to as "pockets of pain" as a result of the deregulation that took place in 1978.

Now they are getting back and tied to the major cities of America, and we have to build a system that accommodates them, not limits them in the future.

My second point is that we've had, this past summer, difficulties in management labor relations. The United situation, of course, was the biggest example of that.

Let me say that I think both management and labor need to operate according to the Hippocratic Oath that all medical students take, and that is, with respect to the customer, first, "Do no harm." It is a crucial ingredient of moving forward. I appreciated your earlier—Mr. Chairman, your comments on duty, and I thought those were particularly appropriate.

The last point is on industry consolidation. United and U.S. Airways are proceeding with a merger. I think certainly mergers should be of business technique that is available to airlines as to everybody in all industries.

I do think that it is going to raise questions of customer service moving forward, and that this Committee should take a clear examination of that as we move ahead, because all of us, who will become competitively affected, will need to take steps.

In response to that, I do think it is a prelude to further industry consolidation as that merger moves ahead.

So I appreciate very much the fact that we've had the opportunity to talk here today. It is crucial we take the steps now to save our wonderful system now, and it does require saving.

And if a number of these steps that have been outlined today are carried out, I think we will look back 5 to 7 years from now and feel good about what we've done.

Thank you, Mr. Chairman.
 The CHAIRMAN. Thank you.
 [The prepared statement of Mr. Mullin follows:]

PREPARED STATEMENT OF LEO F. MULLIN, PRESIDENT AND CHIEF EXECUTIVE
 OFFICER, DELTA AIR LINES

Mr. Chairman and Members of the Commerce Committee, it is a real pleasure for me to be here today to present Delta's testimony on the causes of airline delays and cancellations that are seriously plaguing our industry and eroding the public's confidence in our air transportation system. We are grateful to have the opportunity to address this critical topic. It is vitally important that we properly diagnose the reasons for delays so that appropriate measures can be taken to reduce and eliminate the problem.

Virtually everyone taking part in these hearings today agrees that the American aviation system is in crisis, poised on the cusp between breakdown and renewal. At heart, the system exists to provide safe, reliable, convenient and comfortable air service to our customers. While air service remains safe, it is no longer consistently reliable, convenient or comfortable.

This is not news, and the situation did not occur overnight. Various blue ribbon Committees, including the National Civil Aviation Review Commission report of 1997 (commonly referred to as the Mineta report), warned of coming air space gridlock. Those predictions have proven to be distressingly accurate as flight delays have increased an estimated 50 percent over the past five years.

While our current situation is not news, what *is* new is the urgency of the situation, due in large part to escalating frustration on the part of the flying public, which is a fast-growing segment of the population. In fact, the rapid growth in passengers—and hence, the accompanying growth in airline operations—is at the center of the air travel crisis.

Each year, more people travel more often: around 250 million in 1978; 650 million in 1999; and an anticipated one billion by 2009. This growth is straining each of the three key components of the aviation system, including airlines, airports and air traffic control. All three are groaning under increasingly heavy passenger crowds—and for all three, increased capacity is the only solution if we are to meet consumer demand and at the same time return reliability, convenience and comfort to air travel.

If we fail to increase capacity, two equally unacceptable options remain. The first would be to meet increasing demand by scheduling more flights without adding capacity, causing the aviation system to fall even further behind in its ability to deliver acceptable levels of convenient and reliable customer service. The second option would be to ration air travel services, which is a disturbing prospect for business travelers who want to fly to New York-LaGuardia or Washington-Reagan National on Monday mornings or for passengers who hope to make it home for the holidays.

The rationing of services also presents a dilemma because it would most likely limit air service to new markets in particular, which would impact the growth of regional jets (RJs). RJs are the compact, efficient new planes that are changing the aviation landscape by bringing much-needed, much-sought-after jet service to citizens throughout the heartland of America. These small and medium-sized communities, frequently referred to as "pockets of pain," have been undeserved by airlines as a result of the market dynamics of deregulation.

Today, RJs permit profitable nonstop jet service between these communities and larger cities that previously could be reached only with flight connections, often on-board less-popular propeller aircraft. Within the last several months, Delta has launched RJ service between Portland, Maine and New York-LaGuardia; Columbia, South Carolina and Dallas/Ft. Worth; and Worcester, Massachusetts and Atlanta, to name just a few new markets.

But despite the increased service levels RJs bring to these communities, RJs are not the cause of the escalation in delays and cancellations witnessed in June and July. In fact, the majority of new RJ service actually replaces less-desirable propeller aircraft flights. It is a disservice to citizens in smaller cities who want more jet service to suggest that the introduction of these aircraft is having a disproportionate impact on delays, and it is nearly unthinkable that we suggest to them a return to the days of propeller aircraft and inconvenient connections.

So, if we reject these options and agree that the aviation system must aim to provide the service customers want, then it is clear that we need adequate infrastruc-

ture to meet growing demand. How have each of the three aviation system component been responding to this challenge, and with what success?

For airlines, meeting capacity requirements requires that we provide aircraft, supporting technical structure, and a motivated and skilled workforce. During the last 5 years at Delta we have made new aircraft investments of \$9 billion and technology investments of over \$3 billion, and our workforce has increased, through acquisition and real growth, by 30 percent to 81,000 people. As part of those investments, we've pioneered new levels of service with our growing RJ fleet.

Nonetheless, customer demand has outpaced our growth. This is best demonstrated by looking at the ever higher load factors. In the summer of 1985, Delta's average system load factor (percentage of occupied seats on each flight) was 62 percent; this past summer our load factor averaged more than 81 percent.

The second aviation system component—airports—provide the infrastructure to service airline flights. Airports have spent \$30- to \$35-billion in the last 5 years for a broad range of improvements. Yet, from terminals to taxiways, capacity has not kept up with passenger growth. Most major airports are seriously overcrowded, creating further customer discomfort when delays and cancellations concentrate the crowds. But the most significant contributor to delay problems by airports is the lack of runway capacity.

As the September 12 cover story in USA Today indicates, U.S. airport infrastructure expansion plans on the drawing board today total as much as \$80 billion. However, airport expansion plans almost everywhere are delayed by community and other objections so that completion time for runway and other projects often runs into the decades. Even as passenger traffic has grown rapidly, only 18 new runways were added during the 1990s, and only 5 of those were at large hub airports.

More troubling still is the realization that there is no relief on the immediate horizon. While 15 new runways are planned in the next 6 years at the top 25 airports, including Atlanta Hartsfield, San Francisco Bay, and Cleveland-Hopkins, the FAA reports that only five runways are under construction today: Phoenix, Detroit, Minneapolis/St. Paul, Orlando, and Seattle.

But the aviation system component whose capacity is of most significant concern to us all today is the third on our list: air traffic control. Airlines are a unique industry in that we do not control the air space which is essentially our production line. Instead, air space is controlled by the air traffic control system, or ATC. The ATC system has not kept pace with passenger demand and, while the current management team has taken steps to rectify this situation, it is too little, too late.

The picture, then, is one wherein much effort has been expended and much money spent. Yet the situation—measured (as it must be) by our ability to serve customers—is worse. The aviation system capacity issues experienced by airlines, airports and ATC will not be resolved by the passing of time or the end of summer thunderstorms. In addition, the climate surrounding the current situation is fraught with tension. Customer frustration is high; travel has become an ordeal. And lately, the conflict between airline management and airline labor has overflowed into the customer service arena, as was the case with United Airlines last month.

To further complicate the situation, these elements are playing out with the industry "wildcard" of potential mergers and consolidations looming in the background. This implies the threat of a new "mega" airline that would have a significant destabilizing effect on the industry. Such an imbalance would almost certainly lead to full industry consolidation, bringing with it broad implications for the competitive landscape and thereby the flying public.

However, as difficult as the situation facing us today is, it is not too late to take the necessary action. There are solutions available to us if each of the three aviation system components—airlines, airports, and air traffic control—commit fully to stop placing blame, begin taking responsibility and make sure that every decision we make going forward is a function of *putting the customer first*.

The airlines are on the front lines of this dilemma and we must take responsibility for the elements in this situation that are within our jurisdiction. The first and most important of those elements is customer service, especially during the delays and cancellations we are discussing today. The standards for how we can best assist passengers, especially during irregular operations, has been outlined in the plan we developed last year, the Airline Customer Commitment.

The Commitment outlines a broad-scaled program to provide effective customer service solutions, with most of the initiatives focused on improved communications, more consistent application of policies and better handling of irregular operations. Our immediate job must be to fully implement that program across the industry, with special emphasis on minimizing the passenger frustration and inconvenience when flights don't run as scheduled. At Delta, we put significant effort into this program, as has most of the industry. Many of those programs and procedures are out-

lined in the attached letter from myself to The Honorable Francisco J. Sanchez, Assistant Secretary for Aviation and International Affairs at the U.S. Department of Transportation. Now, all airlines must maintain an unwavering focus on meeting and exceeding the Commitment guidelines.

Another responsibility that the airlines and airline labor must shoulder is to find ways to keep management/labor issues out of the customer service arena. Both sides must bargain constructively and there must be better adherence to provisions of the Railway Labor Act, including abstinence from any unauthorized work action. Relative to the customer, the Hippocratic oath should prevail in all parts of the bargaining process: First, do no harm.

And while customer service requires that we offer passengers the flights they want, when they want them, the airlines must also work to balance this imperative with another customer service mandate: the operation of timely, reliable schedules. The current situation of inadequate airport and airspace capacity makes the attainment of that goal nearly impossible and, as a result, airlines must assume some responsibility for finding appropriate compromises.

Delta has worked to avoid over scheduling flights through several proactive steps. At Atlanta Hartsfield, for example, we have extended the morning and evening hours between which we schedule flights. And we have increased the number of "connecting banks", or groups of closely timed flights which are simultaneously at the gate, to allow faster, easier flight connections, reducing pockets of concentrated activity.

In the longer term, airlines must continue to work closely with the Federal Aviation Administration to find additional ways to maximize airspace and better utilize existing ATC systems. We also need to create a common, system-wide performance measurement system that allows factual, accurate assessments of our progress.

For airports, the task requires continued investment in runways, taxiways and gates in order to manage increasing customer traffic, supported by new methods of expediting the implementation of expansion plans. Congress has already provided crucial assistance by passing AIR-21, which guarantees funding both for essential airport capacity programs and for ATC improvements.

Finally, and perhaps most importantly, we must take a short but very focused look at the third aviation system component, the air traffic control system. To begin this process, the short-term fixes identified as part of the Spring 2000 Initiative must be implemented immediately and aggressively. But beyond that, the time has come to pursue fundamental ATC reforms if we are to ensure that we maintain our nation's excellent aviation safety record while at the same time increasing the efficiency and capacity of the system.

To do this effectively, ATC should be separated from the FAA, creating a new, government-sponsored entity that may continue to operate under federal ownership but with financing based upon the cost of producing the service, paid by the user. The new entity should be governed by a board of private/public representatives and operated in ways similar to the private sector in terms of management structure, personnel policies and compensation.

These are not new ideas—but they are no longer just interesting options. They are urgent and necessary responses to ensure our nation continues to have the safest, most effective, most affordable, most comprehensive air system in the world. Our aviation network has paid immeasurable societal and economic benefits. We owe it to the American public to *save* that system now—and then, make that system even better for tomorrow.

[The information referred to follows:]

September 11, 2000

Hon. FRANCISCO J. SANCHEZ,
Assistant Secretary for Aviation and International Affairs,
U.S. Department of Transportation,
Washington, DC.

Dear Assistant Secretary:

Thank you for offering me the opportunity to participate in the recent conference to discuss challenges facing the airline industry. Once again, I commend Secretary Slater and the Department of Transportation for their efforts to establish a public/private partnership to identify and address these issues. In response to your request regarding customer service best practices, the following is a list of innovative programs and processes that Delta has found most effective in taking care of customers during delays and cancellations in order to minimize the frustration and inconvenience caused by these occurrences. Our priorities lie in making early decisions about

flight irregularities; disseminating accurate, consistent information across all points throughout the travel experience; and delivering that information to the customer in the most timely manner possible.

Behind the Scenes

The **Operations Control Center (OCC)**, the central coordination point for our airline, allows proactive management of Delta's worldwide operation as we strive to get all of our customers where they want to go, when they want to arrive. This customer-focused, process-driven, technology-enabled center allows Delta to focus on the customer while keeping safety as the number one priority.

Systemwide conference calls occur in the OCC three times every day, linking all operational areas together with airports throughout the system. These customer-centric calls focus on the state of the airline with an emphasis on what we can do to better meet the needs of our customers.

Early decisions regarding flight cancellations provide the OCC with maximum time to reaccommodate customers when forecast weather and ATC appear likely to impact customers in a specific region. By making early decisions, we have access to the maximum number of options for reaccommodating customers on Delta or another airline. Our goal is to protect passengers in a manner that allows them to arrive at their destination within two hours of their originally booked itinerary.

The **Inconvenienced Passenger Rebooking System (IPRS)** is an automated program that is launched whenever a flight is canceled. This system automatically rebooks impacted customers on the next available Delta flight. One of the special characteristics of this system is that it treats special-need customers, such as disabled passengers or unaccompanied minors, as well as groups and cruise travelers as customers with high priority for reaccommodation.

Before Customers Fly

Proactive telephone calls from our Reservations Operation Center to the customers advise them of a flight disruption when flights are canceled more than two hours prior to departure. In addition, the proactive telephone call advises customers of new itineraries, rebooked through the IPRS system, and confirms that the changes are acceptable.

Up-to-date flight information is provided for customers on the delta.com Web site, on the toll-free voice response unit (VRU), or through our toll-free telephone reservations line.

The **Operations Support System (OSS)** is the common technology backbone that distributes flight information to systems at all points in the customers' linear travel experience or "travel ribbon." This common backbone ensures that customers receive the same real time information about their flight from every source, e.g., VRU, reservations telephone line, delta.com Web site, airport gate or flight control.

Media advisories are released to local press outlets on days when we are experiencing severe weather. These advisories relate to customers the likelihood that flight delays exist and suggest they call the airline before leaving for the airport.

In the Airport

Airport Coordination Centers (ACC) serve as coordination points between the OCC and the gates and ticket counters in our hub airports. The ACCs provide local expertise in managing the operation at their specific station through experience and myriad decision support tools at their disposal. They perform many duties from coordinating gate changes that lessen the customer impact to participating in the decision making process during irregular operations and advising the OCC as to which flights offer the greatest potential protection for passengers.

Standardized Flight Advisory Messages (FAM) are the messages used to drive real time information regarding flight cancellations from the Operation Control Center to the airport gate agents. Last fall, these messages were standardized into verbiage easily interpreted by the frontline agents, providing them with a necessary tool for clear, accurate customer communication.

Frequent announcements are made in the gate area, providing customers with the most timely, accurate flight status information we have available. During cases of mechanical or weather delay, the captain of the affected flight frequently makes the announcements, adding his/her voice of expertise and experience to the situation.

The **cross-functional huddle** is the process through which the captain, gate agent, flight attendant, and mechanic gather together to share information regarding a flight delay. During this huddle, extraordinary circumstances are identified, such as passengers with special needs who require extra assistance, crew members whose duty time is expiring, or the need to board extra provisions on the aircraft.

Gate Information Displays (GIDs) are currently being tested in Jacksonville and Atlanta with plans to install them in other major cities beginning this fall. These plasma screens provide up-to-date information regarding flight status, as well as answers to the most frequently asked questions from customers in the boarding area. These screens, designed with assistance from the hearing impaired community, eliminate the need for customers to stand in line with questions. Response to the screens has been extremely favorable.

Passenger Amenities such as hotel vouchers, meal vouchers, telephone cards and ground transportation arrangements are provided to passengers who are away from home and inconvenienced overnight by a delay or cancellation within Delta's control.

During a Flight

Processes are in place to **board extra provisions** such as water and food when we know a flight will be delayed after push back from the gate but prior to take-off. In addition, within safety and federal guidelines, the captain has the authority to allow customers to use cell phones and laptops and move about the cabin when the aircraft is not on an active taxiway. Should the situation on-board the aircraft become unacceptable, the captain has full authority to return to the gate and allow customers to deplane.

Revised Flight Operations Manuals reinforce the need for the flight crew to keep customers informed during extended on-board delays. Pilots are also provided with suggested phraseology for delay announcements.

Contingency plans are in place at each airport for handling flights which have landed but are unable to get to an airport gate. These plans include processes for utilizing gate space operated by other airlines, as well as identifying remote parking space for airplanes to park and allow customers to deplane. In the unlikely event that an aircraft is on the ground for more than two hours without the ability to be assigned a gate, processes are in place to **notify senior management**, up to and including the Chairman and CEO, pooling all possible resources in order to accelerate resolution.

Ongoing Reinforcement

The **Irregular Operations Management Advisory Council (IMAC)** meets semi-monthly to discuss the latest trends in customer feedback, share best practices, and make continuous improvements to processes and programs. Delegates from every operational area are represented on the council.

The **Irregular Operations (IROP) Home Page** on the intranet provides front-line agents with the latest information on processes and procedures for handling delays and cancellations. Links to internal manuals, suggested phraseology to be used during flight delays, current operational statistics and the FAA's National Airspace System status Web page are available from the IROPs home page.

The **Rewards and Recognition program** recently announced reinforces our corporate priority for keeping customers informed during flight disruptions. Additionally, a lapel pin attached to a letter from Vicki Escarra, Executive Vice President—Customer Service, was provided to the frontline workforce as a daily reminder of our Customer Commitment.

In this document, we have listed just a sample of the initiatives which we have found particularly successful in handling delays and cancellations. These programs and processes enable us to meet and even exceed the requirements set forth in the Airline Customer Service Commitment. Beyond that, however, there is much more work in progress designed to enhance the total customer travel experience. We continue to focus on our performance in the monthly DOT statistics; we are striving to find ways to use technology as a tool to reduce lines in the airport and communicate with customers; we continue to search for innovative ways to put customers back in control of their travel experience; and we are committed to continuous development of our greatest competitive advantage, the Delta people, a team committed to serving our customers.

I hope that you will find this document helpful in your search for industry best practices. Please feel free to let me know if you would like further information about any of the initiatives I have mentioned.

Sincerely,

LEO F. MULLIN
Chairman and CEO.

Regional Jets and The Delta Network

A Special Report

January 2000

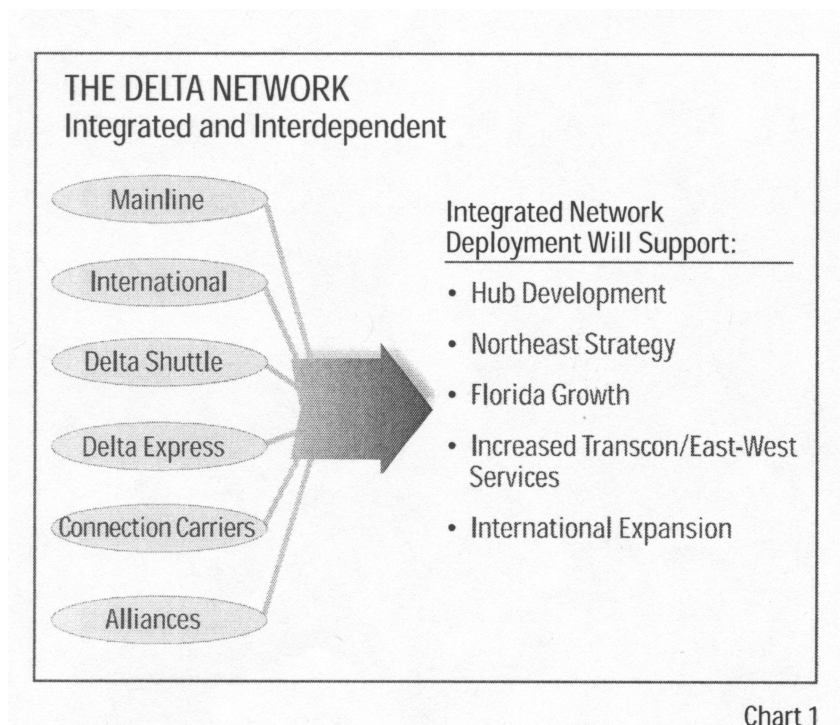
Like any major brand in a competitive market, Delta Air Lines has many different product lines that help distinguish our brand from our competition. In addition to Mainline domestic and international service, Delta products include Delta Shuttle, Delta Express, Delta Connection carriers, and international alliances with Air France, AeroMexico and other codeshare partners.

These products are complementary, mutually dependent, and together comprise the Delta Network.

Today's air travelers demand a variety of choices. We meet this demand only by providing the level of diversity we have with the Delta Network. Maintaining our competitive position and financial strength depends on every product in the Network working together to reinforce the total Delta brand.

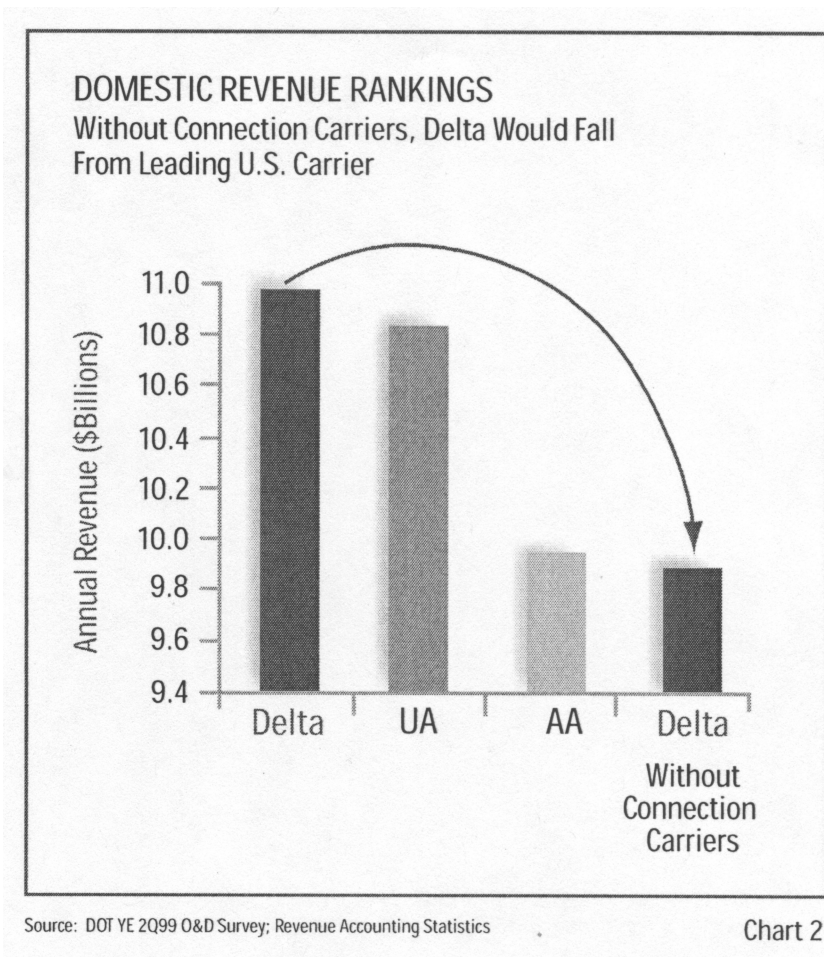
No other airline in the industry has the depth and scope of services that Delta Air Lines offers our customers. Our integrated Network supports:

- Hub development;
- Growth in the highly competitive Northeast;
- Growth in the low-fare Florida market;
- Development of transcontinental East-West flow;
- International expansion.



Through its diversity, Delta's Network is designed to hit every market of opportunity in our industry. And because every market is different—in terms of customer demand—Delta applies a “Best Use” philosophy in deploying our product lines. Decisions are made on which product is best used in each market based on strategic and revenue goals and the operational costs of deployment.

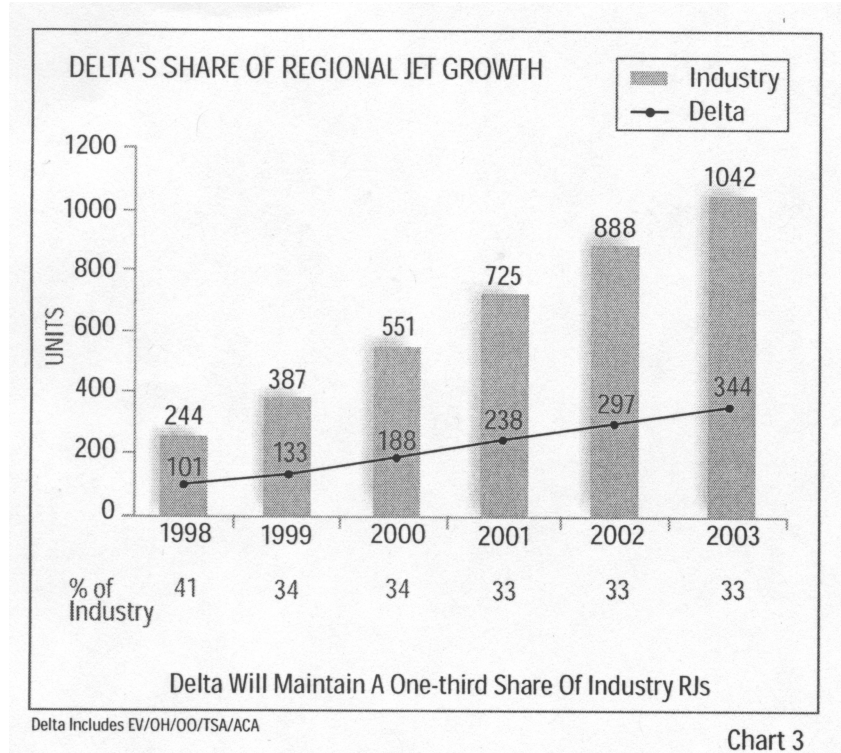
Consistent with Delta's Best Use philosophy, Regional Jets (RJs) “fuel” the Mainline by providing more than \$1 billion in revenue annually. Also, RJs “feed” the Mainline through increased passenger loads. As shown in Chart 2, Delta Connection Carriers contribute significantly to Delta's industry ranking. Without them, Delta would move from first to third in annual revenue compared to other airlines.



Strategic Overview

In 1996, three Delta Connection Carriers with 48 Regional Jets provided the only RJ service available in the United States. In 1997, other carriers entered the RJ market, and today more than 380 RJs are flown by 14 carriers.

This phenomenal growth in RJs has fundamentally changed our industry. Why? Because Regional Jets are proving to be increasingly popular with the traveling public. And, as Chart 3 indicates, steady growth in the RJ segment will continue.



The Delta Network holds a one-third share of the domestic RJ market. Swift and decisive deployment of RJs helps maintain our competitive advantage and supports Delta's profitable growth. Indeed, much of our Mainline service could not be supported without the connecting passenger feed provided by RJs.

For Delta, Regional Jets meet the needs of our diverse customer base by offering direct service in markets that cannot economically sustain Mainline aircraft, while also providing improved access to our hubs. Delta Connection Partners—ASA, Comair, Skywest, ACA, and Trans States—bring these passengers to our hubs where they connect to our Mainline aircraft.

Delta RJ service is complementary to, and not competitive with, Mainline jet service. These smaller jets primarily serve smaller markets of fewer than 100 passengers per day each way. In fact, 82% of markets served by Delta Connection partners flying RJs produce fewer than 100 passengers per day each way.

Also, Delta Connection RJs are deployed in more small markets than those of our competition. Sixty-three percent of these RJs operate in markets with fewer than 50 passengers per day each way, compared with 44% for other carriers. As these figures indicate, Delta is more focused than our competitors in deploying RJs in small markets.

RJ deployment supports the Delta Network in five essential ways:

1. Grows the Mainline through increased hub feed;
2. Preserves market presence when Mainline aircraft are redeployed to maximize profits;
3. Builds and protects market share;
4. Acts as a low-risk research and development tool for market penetration;
5. Satisfies customer preference by upgrading from turbo-props.

Growing The Mainline

Today, 8% of Delta's hub traffic (representing five load factor points) is generated by Delta Connection carriers. This feed of more than 23,000 passengers per day is instrumental to Mainline frequency and growth.

Cincinnati (CVG) provides a strong example of the strategic importance of RJs. Nearly 20% of Delta's passengers in Cincinnati come from Delta's Connection Partner, Comair. This traffic accounts for 14 points of our load factor (Chart 4). Without this critical connecting feed from Comair's RJ service, Delta's Cincinnati load factor would decline from 70.7% to 56.7%. This would reduce profits so dramatically that Cincinnati would become an unprofitable hub (Chart 5). As a result, Mainline growth there would be unfeasible.

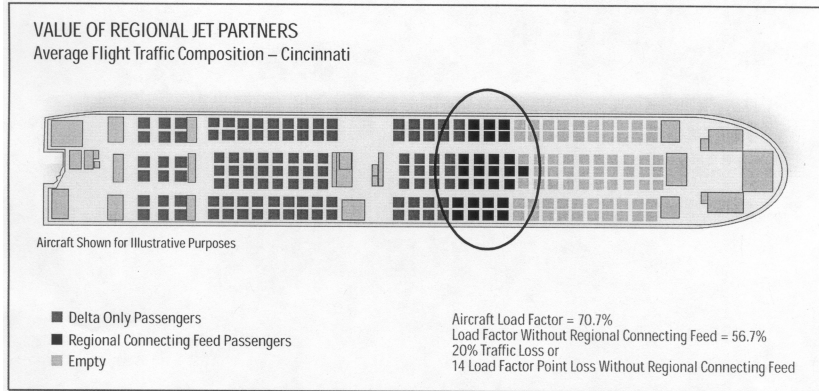
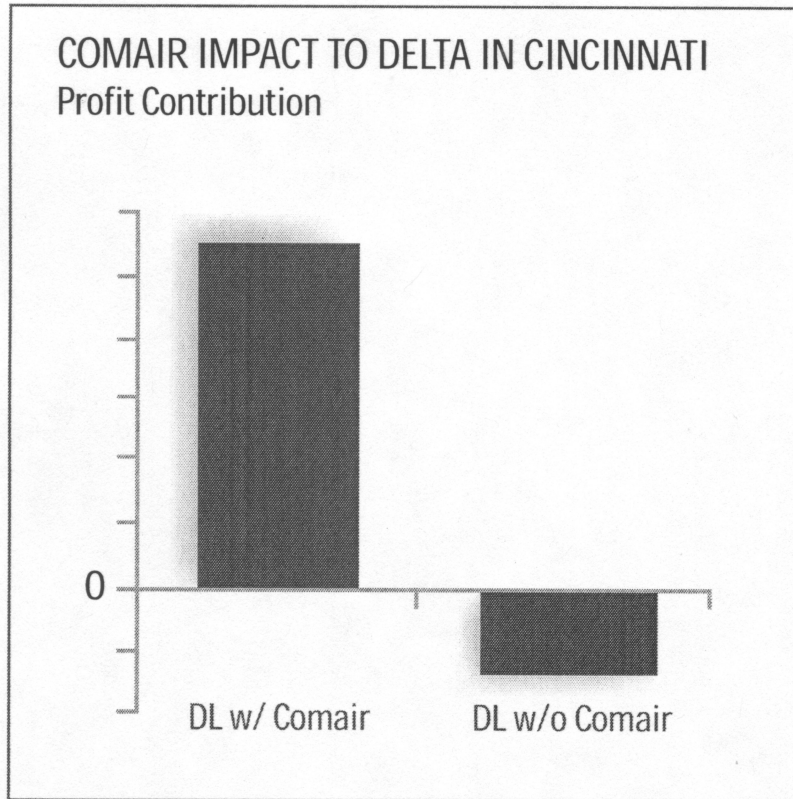


Chart 4



Source: Internal Profitability Data – 12 Months Ended September 1999

Chart 5

Mainline Redeployment

Delta continuously evaluates opportunities to redeploy Mainline aircraft to meet customer demand and improve aircraft productivity and financial returns.

Regional Jets are an important component of this process. Our replacement of two short-haul Mainline aircraft in Atlanta with ASA RJ service demonstrates this point. Chart 6 shows the projected annual impact related to the redeployment of these two aircraft:

- \$43 million additional revenue;
- 26% increase in Available Seat Miles (ASMs);
- 77% increase in block hours and aircraft utilization.

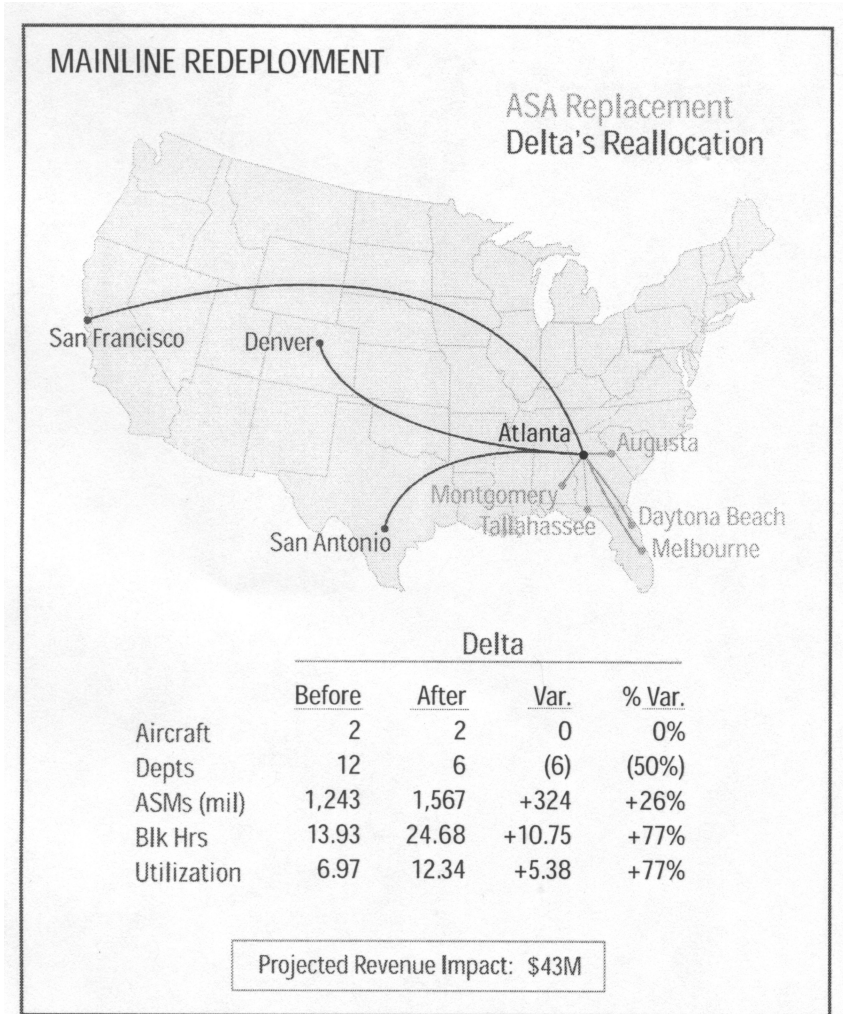


Chart 6

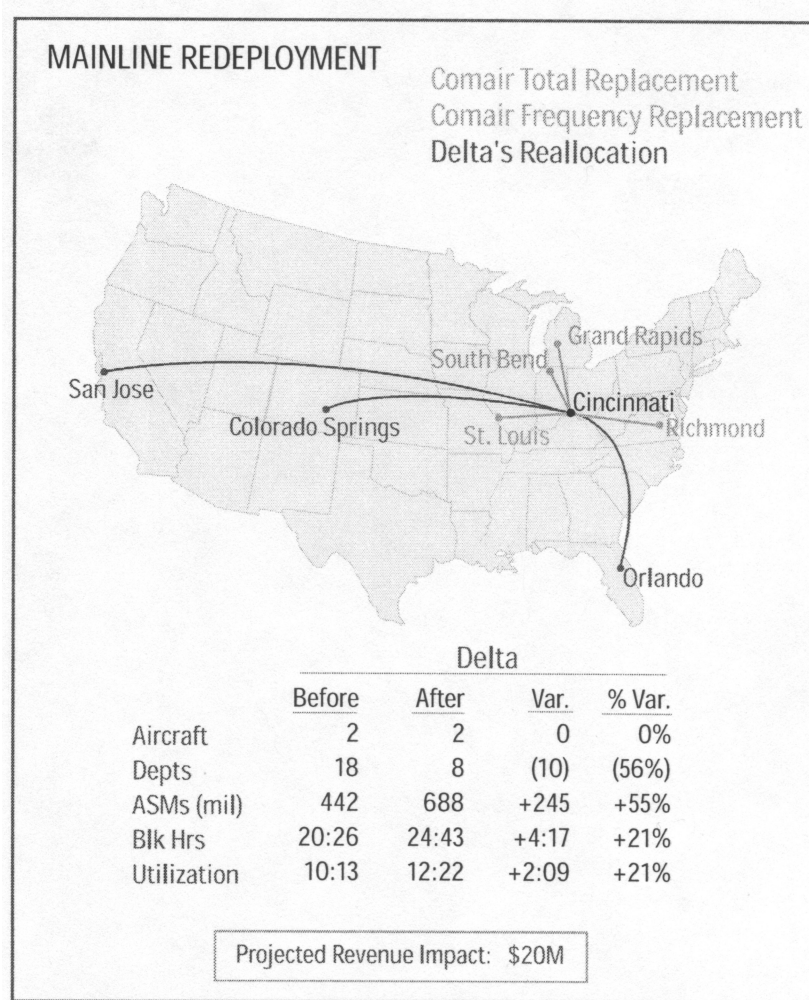


Chart 7

Another recent example of Mainline redeployment involves Comair RJs at Cincinnati. Two Mainline jets were redeployed at CVG to:

- Introduce the first-ever daily nonstop flights to San Jose, California;
- Replace RJ flights to Colorado Springs;
- Add an additional roundtrip to Orlando.

New RJ service then covered the redeployed jets' former routes from Cincinnati to South Bend and to Grand Rapids. RJs also replaced single frequencies to Richmond and St. Louis.

This shift preserved Delta's market presence in those cities while creating better Mainline utilization. The projected annual impact related to the redeployment of these two aircraft is:

- \$20 million additional revenue;
- 55% increase in ASMs;
- 21% increase in block hours and aircraft utilization.

Since 1995, a total of 22 aircraft have been redeployed through Regional Jet replacement. As Chart 8 indicates, annual block hours have increased by 24% for these redeployed Mainline aircraft. Most importantly, these redeployments resulted in the profitable deployment of these aircraft and have significantly contributed to Delta's overall profit improvement.

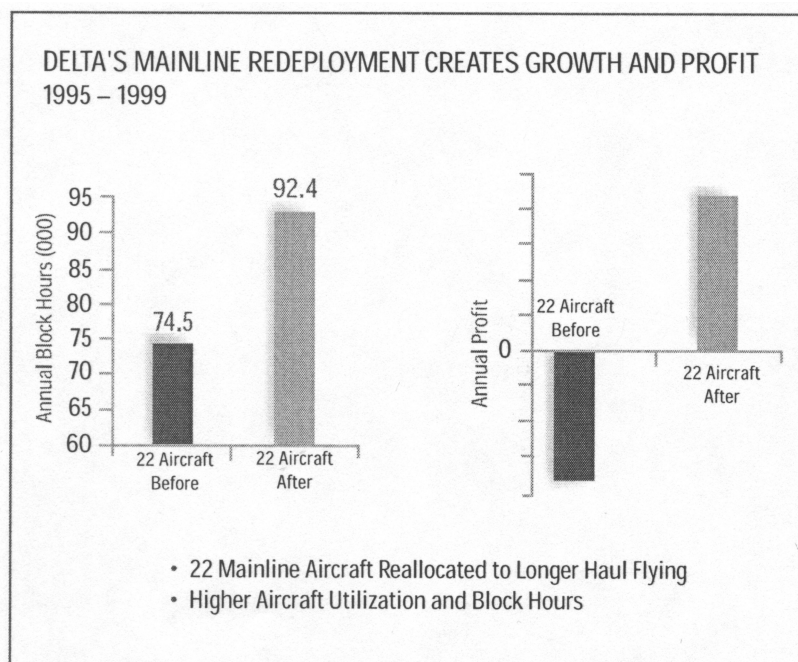


Chart 8

Building and Protecting Market Share

Regional Jets are a key competitive tool in building and protecting Delta's market share. RJs point-to-point service (between two non-hub cities) in the lucrative Northeast market reflects a key strategic decision that supports Mainline expansion. RJ point-to-point deployment also helps protect market share in critically important Mid-Atlantic and Southeast cities where competitors are increasing their RJ service. Also, RJs help protect the Delta Network from competitors' over-flying our hubs and diverting passengers away from our Network.

Northeast Point-to-Point

For airlines, the Northeast represents the largest revenue opportunity in the U.S., with more than \$30 billion in revenue at stake. No single carrier maintains a leadership position in terms of market share.

Together, the New York and Boston markets generate more than \$17 billion in revenue. Much of Delta's newly announced RJ service will be concentrated in these strong business markets to enhance our overall competitive position by:

- Feeding Mainline at Boston and New York;
- Providing new nonstop service for Southeast and Mid-Atlantic customers;
- Strengthening feed for our Air France partnership (Boston and New York-JFK).

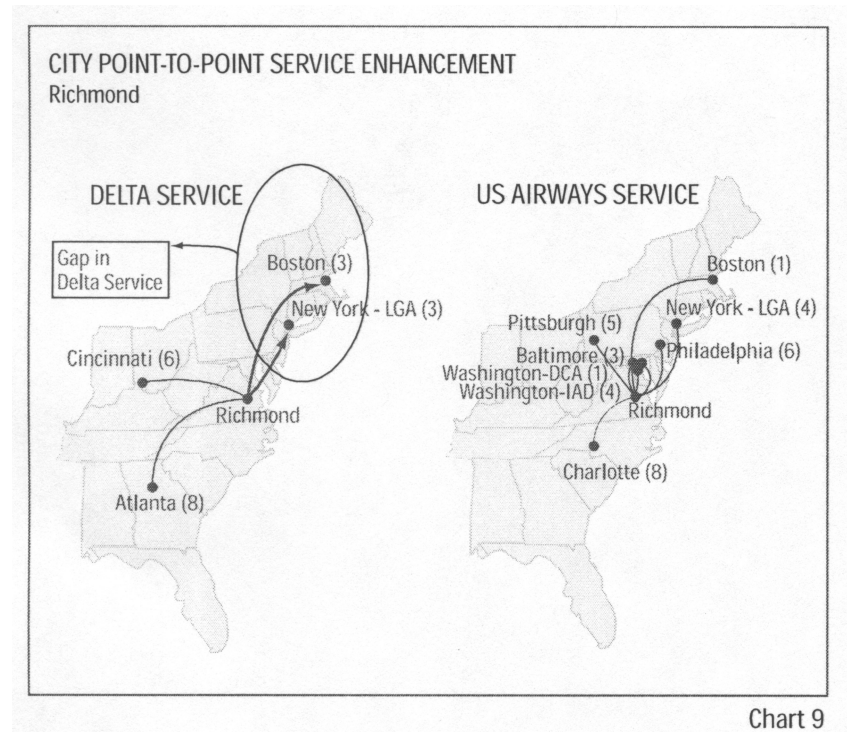
Delta has a strong position from most East Coast markets to the Southeast and West through our hub connections. However, one major gap remains in our service from cities North and East of Atlanta. By offering nonstop convenience to New York and Boston, we increase the likelihood that travelers will choose Delta as their preferred carrier for all their destinations.

Mid-Atlantic and Southeast Point-to-Point

Our Northeast strategy is coupled with our need to provide more choice to our customers in important Mid-Atlantic and Southeast markets. Thirteen cities in these two regions provide one-third of Atlanta's connecting revenue. These cities have been targeted by other carriers who bring Delta passengers to their hubs and directly to Northeast business destinations.

To counter this action, Delta is initiating nonstop New York-LaGuardia (LGA) service from six of these 13 cities: Richmond, Greensboro, Charleston, Columbia, Savannah, and Jacksonville.

For example, Delta's new service between Richmond and New York-LGA provides business travelers a key route to the Northeast. It counters the concentration of RJ service by US Airways out of Richmond to their hubs and the Northeast. Chart 9 illustrates how our new service will compete with US Airways in Richmond. By offering nonstop service to New York, and eventually Boston, Delta is more likely to retain the loyalty of Richmond passengers for travel elsewhere.



Over-flying Hubs

Increasingly, airlines are initiating RJ service in thin markets to intentionally bypass a competitor's hub. This practice is known as "over-flying."

Delta's Atlanta hub is not immune to this threat. Atlanta serves a valuable traffic pool that other carriers can divert to their hubs by using Regional Jets. We have begun to experience a negative impact on our revenue flows at Atlanta as a consequence of this over-flying.

A specific example of the impact of over-flying is in the Greenville/Spartanburg market, where Delta traditionally held a favorable position. Last year, Continental (CO) entered the market, offering nonstop RJ service to its Houston hub. As a result of passengers' preference for Continental's direct service, we lost 18 passengers per day who previously connected through Atlanta to Houston. We lost an additional 18 passengers per day who previously connected through Houston to the West Coast. The impact of CO's Greenville/Spartanburg expansion is shown in Chart 10.

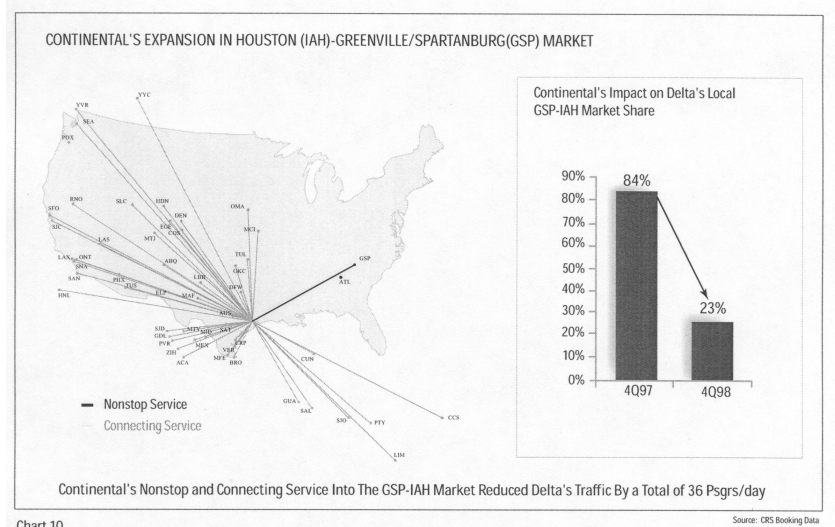


Chart 10

Delta's service from Atlanta to Corpus Christi is one example of how RJs can help us gain market share. Our entry into this market, as shown in Chart 11 added 22 passengers per day onto Delta flights.

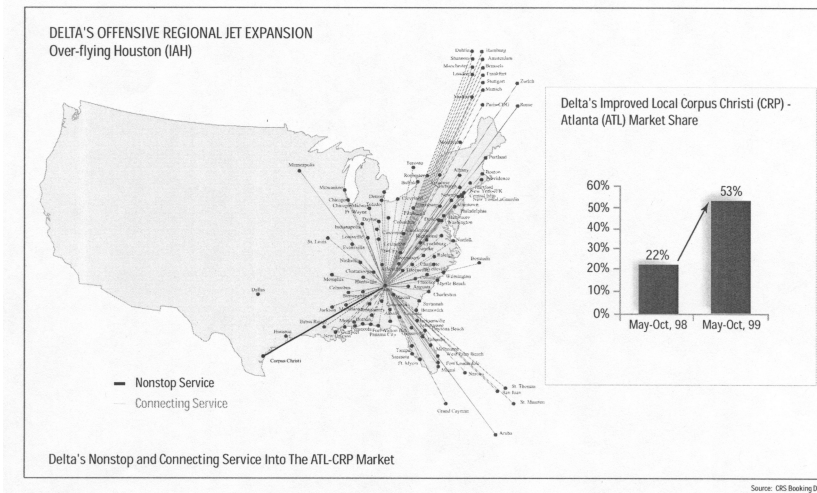


Chart 11

Low-Risk Research and Development

One of the fundamental principles in product development is test marketing. Prior to a national roll-out of a new product or service, thorough research and development (R&D) is completed in a variety of test markets. This same principle is applied when considering RJ deployment. In markets where demand does not warrant a Mainline jet, Delta will test the market potential by using the more cost-effective RJ service. This R&D process can reveal which markets demonstrate enough demand to justify Mainline service.

Delta's new service from Atlanta to Manchester, New Hampshire is a case in point. Manchester is one of the fastest growing airports in the country. Despite its

potential, current demand cannot support Mainline jet service to Atlanta. In the meantime, RJs allow us to cost-effectively serve this market.

Upgrading Turbo-Props

Providing distinctive customer service is one of Delta's hallmarks. Despite the valuable role turbo-props play in extending access to our hubs from smaller markets, our customers overwhelmingly prefer the convenience and comfort of jet service. Replacing turbo-props with Regional Jets responds to what our customers want.

Today, turbo-prop replacement accounts for 36% of the Delta Connection RJ deployment. While decreasing over time, turbo-prop replacement will continue to be part of the Delta Network strategy. In fact, the Delta Network plans to deploy an all-jet fleet at Cincinnati by the end of 2000, improving our competitive position against other carriers' Midwest hubs.

Summary

Delta Air Lines is committed to developing the most successful and diverse group of product lines in the industry so that we are viewed as #1 in the eyes of our customers. Our growth strategy depends on the complementary benefits realized from each of our inter-dependent and integrated product lines.

Regional Jets help grow the Mainline through increased hub feed, allow redeployment of Mainline air-craft to more productive, longer-haul routes, build and protect market share, explore new markets, and upgrade turbo-prop service to satisfy customer preference.

As this report demonstrates, Delta's Connection Carrier RJs help build a stronger Delta Network and contribute to Mainline growth.

Glossary of Terms

ASMs: Available seat miles. A unit of measure of air-line capacity representing one seat flown one mile.

Block Hours: The time in hours that an aircraft leaves the gate at its origin and arrives at the gate at its destination.

Code Share: An arrangement between two carriers whereby the first carrier operates the aircraft and sells seats under its code, and the second carrier sells seats on the same flight under its code. For example, Delta and AeroMexico code share on a Delta-operated Atlanta-Mexico City flight for which AeroMexico and Delta each sell seats under their own codes.

Feed: The inbound passengers who connect to the outbound flights at the hub.

Load Factor: Amount of aircraft capacity utilized, calculated by dividing revenue passenger miles by available seat miles.

Mainline: Delta jet operations—excludes Delta Express, Delta Shuttle, Delta Connection Carriers' operations, and Delta alliance/partners' carrier operations.

Overflying: Flights that bypass an existing hub and have the effect of diverting traffic from traditional connections over that hub. For example, Continental's Greenville/Spartanburg-Houston International flight diverts some passengers who otherwise would make connections at the Atlanta hub.

Point-to-point Service: A nonstop flight between two non-hub cities, for example, New York-LaGuardia to West Palm Beach.

Redeployment: To move an aircraft from one market to another. (It usually implies that an aircraft is moved from a less profitable route to a more profitable route.)

RPMS: Revenue passenger miles representing one passenger flown one mile.

Turbo-prop: An aircraft powered by a turbine engine utilizing a propeller.

Utilization: The hours per day that an aircraft is scheduled for revenue operations.

The CHAIRMAN. Mr. Carty, welcome.

**STATEMENT OF DONALD J. CARTY, CHAIRMAN, PRESIDENT
AND CHIEF EXECUTIVE OFFICER, AMERICAN AIRLINES**

Mr. CARTY. Thank you, Mr. Chairman, and good morning and good morning to all members of the Committee.

I, too, appreciate the opportunity to talk about the single most critical issue that faces our industry today, and that, of course, is

the need to expand our nation's capability to safely meet the extraordinary growth and demand of air transportation.

Now, rather than rehashing the problems in the current system, some of which are described in my written statement, I want to spend my allotted time, I think, laying out some specific recommendations for actions that would address the problems of delays and cancellations which do result from inadequate air space and ground infrastructure capacity.

In order to meet the demand for safe, reliable, commercial air service, we have to address three areas simultaneously, and they've been all mentioned, all of them this morning; end route air space capacity and traffic management, terminal arrival and departure, air traffic control capacity, and of course ground infrastructure that a number of people have alluded to already this morning, including runways and taxi ways.

Fixing any one of those things, even two of them, is going to leave us, if we do not have simultaneous and comparable improvements in the other areas, it's simply not going to solve the ATC problems in the long run.

The total system capacity is always to be defined by whatever choke point, to use Senator Cleland's reference. Going to leave us with that choke point still existing.

Beyond getting into the specific solutions, I do want to elaborate on one part of my written statement regarding charges by some, and they were again alluded to this morning, that the only problem we have is overscheduling by airlines.

Now in it I wrote that from a market demand point of view, and Leo Mullin just touched on this, we certainly do not over figure. In fact, we have record high load factors and we're turning more passengers away on our peak hour flights than we can handle.

So from a market, from a customer perspective, of course, we're not overscheduling.

But with that said, at any given airport, the total schedules of all the airlines when added up, can and increasingly do exceed the capacity of that airport to handle the volume.

I think that's one of the important reasons that we need to understand pretty precisely what the capacity of an airport is defined to be.

Now at hub airports, we do have some tools to deal with capacity problems since an individual airline has a large percentage of the flights operating at that airport.

Indeed, I think as all of you know and it was alluded to this morning, American announced a number of major schedule readjustments around and about Chicago O'Hare and at Dallas-Fort Worth, which are our big domestic hubs, which we think will significantly improve our reliability.

But we're only one of many operators, and to cite some examples—LaGuardia, Boston, Los Angeles—a reduction of capacity by one airline is just as likely to result in an increase by another. Therefore, no one can disarm unilaterally, and obviously we can't discuss scheduling with each other to reach an industry-wide solution in these circumstances. Hence, this scheduling problem really is a real issue, just like weather and just like air traffic control

modernization. But it is only one piece of what is increasingly a very complex puzzle.

The airlines, I think, have to work together, they have to reach consensus on a multifaceted plan of action with all the users of the system and with government. Now this includes our own employee groups, general and military aviation, the many professionals that are involved in air traffic control and of course the airport operators.

Of course, it also includes the many levels of government that are involved in aviation, and there are many levels of government involved, from state and local officials that control the local airports, the FAA, and other administrative agencies, and of course the Members of Congress and, in particular, this Committee.

So let me turn to some very specific recommendations, which I'll group into near-term, medium term, and long-term objectives.

In the near term, the next two to three years, we simply must do a better job for our customers, with the tools and the infrastructure that we already have.

We, the airline industry I'm talking about now, needs to better understand the perspective of the air traffic controllers and the causes of the capacity restrictions that exist. Now that's going to allow us to better predict the impact of weather or scheduling, on routing decisions that we make in the system as a whole.

With better tools and communications is going to come an ability to mitigate the impact on our customers by a combination of operational measures, such as rerouting connecting passengers over alternate hubs and on alternate airlines if necessary, and certainly better and more timely customer information.

Between the industry and the FAA, the development of common metrics to define goals and then to assess progress, is a prerequisite to improve predictability, efficiency, and communication about ATC system capacity.

There's an old saying that you can't fix what you can't measure. Ken Mead alluded to this morning, and he's absolutely right, and it certainly, most definitely, applies to the air traffic control system.

In addition, a number of procedural change could be made to better utilize capacity. For example, with the full cooperation of the FAA and Jane and her people, the airlines have already begun to use some lower altitude, alternative routings instead of operating all jet aircraft in the same altitude lanes.

Similarly, through a partnership with the FAA, the military, and the industry, we are working toward making restricted air space temporary available for commercial operations to navigate around adverse weather conditions more often.

We're also collaborating with FAA and the air traffic controllers on the use of existing traffic management tools and the implementation of available technology for aircraft routing alternatives when weather restricts the normal flow of traffic.

Now although I list these suggestions as near-term, we should be clear that each of them requires the cooperation of all the parties that I referenced here.

In most cases, new procedures, in particular, if they are to be implemented safely, require careful planning, new training, and of

course a culture that's going to accept some change. And we must never let the desire to eliminate delay and disruption impact that commitment to safety.

Now in the midterm from 2003 to 2005, I've placed those efforts aimed at the implementation of new tools and certainly implementation of new technologies that make more efficient use of the existing capacity. Thus, in this category, we have to take steps to develop more efficient ways to use when route terminal and airport ground capacity.

En route capacity utilization can obviously be increased safely by beginning to redesign the current air space (and a number of the programs that Jane alluded to earlier will result potentially to accomplish this), reducing vertical separation minimums and using technology to redistribute the controllers' workload.

In the terminal environment, we need to deploy new technology such as GPS, coupled with wide area and local area augmentation systems to allow more precise tracking and reduce separation.

Another example, today, together with NASA, we're testing new technology that detects wake vortex. That is, the turbulences caused by another aircraft. If that's successful, that system will ultimately allow us to safely decrease aircraft spacing when landing and make better use of the concrete that's already poured.

Now at the airports, we need to implement new tools for controlling traffic on the ground. We need to improve communications to allow airlines to predict precise gate arrival and departure times and respond in a far more dynamic way than we've been able to heretofore.

You can easily imagine a day when you no longer arrive early only to have to wait on board if there's no gate available at your destination.

And finally long-term solutions, in my estimation, that inevitably can only occur in 2005 and beyond, are characterized by the need, and there have been several references to it this morning, for construction of new airport capacity.

We need to continue to enhance the performance of the en route terminal area air space, particularly for airports in congested areas, with the development and implementation of new and even more precise technologies.

Nevertheless, there is and there will continue to be a critical need for increased infrastructure—runways, taxi ways, and terminal space—and they have to be planned today if we're even going to have a chance of having them post-2005.

As I said at the outset, the air traffic control problem has to be addressed, I think, in all areas simultaneously. There is simply no golden key to this.

Until the last piece is in place, we will achieve only the incremental improvements that have been referred to. But most importantly, all participants in that system must first recognize there's a need do work collaboratively toward the common goal of increasing the movement of aircraft through the system without compromising safety.

And I agree with the Secretary, the Administrator, that we are making very good progress on that front.

Speaking now on behalf of all the carriers that make up the Air Transport Association, you do have our pledge to continue the efforts that have already begun to work with Administrator Garvey and the air traffic controllers and general aviation interest to achieve this goal.

Again, I'd like to thank you for the opportunity to come before you today, and in turn, I'll be delighted to answer any questions.

The CHAIRMAN. Thank you, Mr. Carty.

[The prepared statement of Mr. Carty follows:]

PREPARED STATEMENT OF DONALD J. CARTY, CHAIRMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN AIRLINES

Mr. Chairman and Members of the Committee, I very much appreciate the opportunity to testify today on the issue of air traffic delays. I am here to testify in my capacity as Chairman of American Airlines. But I am also here to listen to you in my role as Chairman of the Executive Committee of the Air Transport Association, which represents carriers providing more than 85 percent of the air transportation in the United States today. I will convey to my colleagues the concerns and suggestions that you and others offer today.

There is certainly no more appropriate forum in which to have this discussion than the Senate Commerce Committee, since it was here—over four years ago—that a bill was written creating the National Civil Aviation Review Commission, chaired by the current Secretary of Commerce, Norm Mineta. The very first sentence of the Commission's report reads as follows:

“Without prompt action, the United States' aviation system is headed toward gridlock shortly after the turn of the century. If this gridlock is allowed to happen, it will result in a deterioration of aviation safety, harm the efficiency and growth of our domestic economy, and hurt our position in the global marketplace.”

Mr. Chairman, the future is now. As we have turned the corner into the 21st Century, the predicted air traffic control crisis is clearly upon us. To the great credit of this Committee, you were among the first to identify the problem. But permanent solutions still elude all of us.

For a variety of reasons, this summer has been particularly hard on airline passengers. A combination of extraordinary load factors, unusual weather, and a particularly difficult situation at one large carrier has contributed to the problem. But the crisis extends well beyond the unusual circumstances of this summer. It will not go away by itself.

Some people have argued that the airline industry is oblivious to the problem. Nothing could be further from the truth. This is a problem of which we are acutely aware and on which we are working every single day. We have numerous short-term initiatives underway, many in full cooperation with the Federal Aviation Administration. I will discuss some of these today. But as you demonstrated four years ago, long-term, permanent solutions require much bolder action.

Schedule delays and cancellations cause numerous downstream problems including missed connections, lost baggage, crews running out of time to fly, and people stranded in airports. Most important, they cause unhappy customers. And unhappy customers don't return.

That's why we at American recently changed our incentive compensation program for officers and senior management to include schedule dependability as a major factor. By aligning our own economic fortunes directly with the needs of our customers, we are more focused than ever on making the system work. As a result, we have devoted countless hours to the many industry-wide working groups that are tackling various parts of the problem.

While we are diligently working in partnership with the Federal Aviation Administration to find short-term fixes, we need to also focus more clearly on the long-range solutions. You have begun that process by designating the appointment of a Chief Operating Officer for Air Traffic Control and a management board to oversee the operations. That is an excellent start. But I would urge you as you go into the next Congress to dust off the Mineta report and see if the proposed long-term solutions don't still work. I think they do.

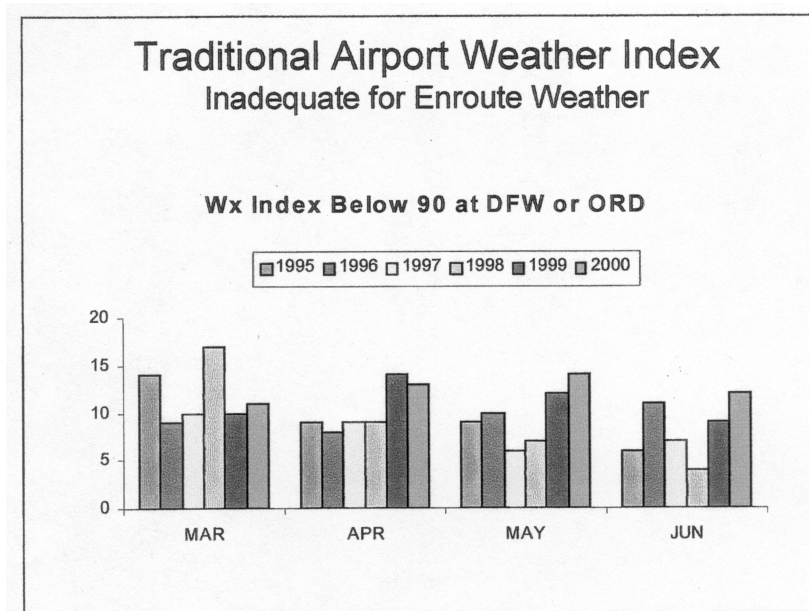
There is actually one very positive aspect of the current crisis. It is driven, in large part, by an extraordinarily robust economy that, in turn, is driving unprecedented demand for air travel. Compared to where we were in the depth of the eco-

conomic crisis of the early 90's, this is a very fine problem to deal with. Yet it is still a problem.

Before talking about solutions, let me address one particularly troublesome issue for many of us. Some have said we "overschedule" our fleet. If, in fact, we were flying empty planes in crowded skies, we would be guilty as charged. But most airlines clearly are not doing so. Let me assure you, that I have never had a single complaint from a customer telling me that we have too many flights going in their direction. This summer our system-wide load factor ran in excess of 80 percent. One day this summer we at American had a system-wide load factor in excess of 90 percent. That is unprecedented, and it means that we are turning away people who want to travel in our busiest markets because we have run out of seats. Moreover, we schedule the flights to match our customers' preferred departure and arrival times. Meeting our customers' needs necessarily means operating more flights in the early morning and evening than across the middle of the day.

Today, there are simply more people who want to fly than the system can handle. The question, in my view, should not be how can we reduce capacity, which would inevitably push up prices. Rather, it should be how can we safely expand capacity to meet demand and continue to keep prices down.

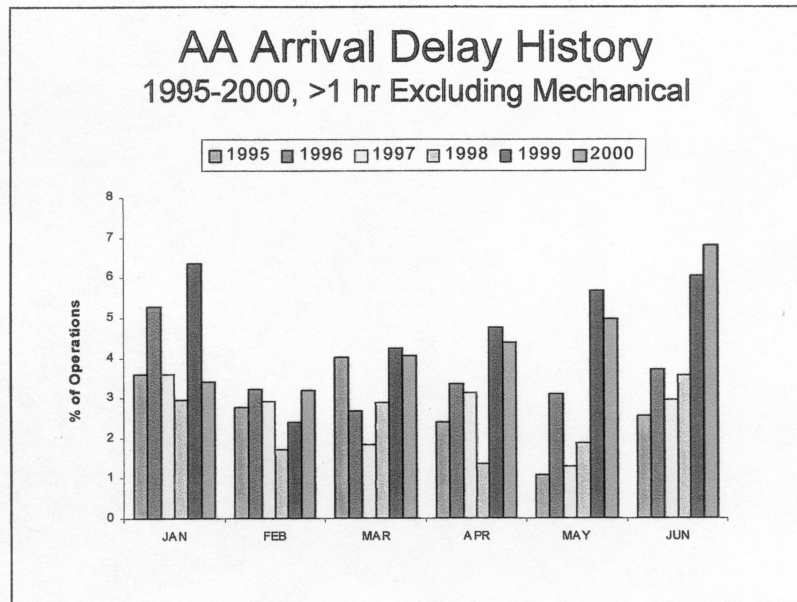
Of course, there will always be some things which neither the airlines nor the FAA will be able to do much about. One of the biggest is weather. As we review this summer, it is certainly worth looking at some weather data to put the current situation in perspective. The chart below compares the spring weather at Dallas-Ft. Worth and Chicago year-over-year for the past six years. You will immediately see that the last two years have, indeed, been more weather-impacted than average.



Therefore, the data shows that this summer's problems have clearly been made worse by unusually bad weather. Weather is a problem we cannot effect directly, but we can work together to manage the disruptions caused by weather better than we did this summer. And weather alone is certainly not the total story.

The next chart looks at the past six years at American measuring extraordinary delays that are not related to aircraft mechanical problems.¹ By extraordinary, I mean delays of one hour or more.

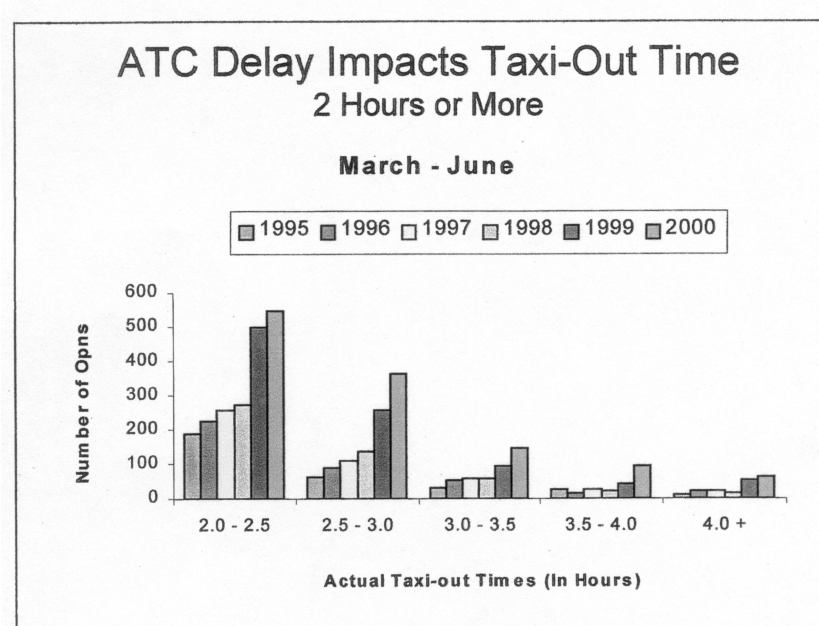
¹ This chart offers a simplified snapshot that understates the congestion problem. American, like many other airlines will unilaterally cancel some of its flights in advance when we can forecast congestion due to weather or other causes. By canceling flights in advance, we are reducing demand on the ATC system, reducing the ripple effect caused by delays and we can get a head start on re-accommodating our passengers on flights that are more likely to operate on schedule.



There are two items of note here. Clearly the years 1999 and 2000 are much worse than previous years. But there is a sliver of good news as well. In most months we have actually done better this year than last. This, I believe, is a reflection of the initiative jointly undertaken by the FAA and the industry to reduce delays in the spring and summer seasons. These are modest gains, but at least they are moving in the right direction.

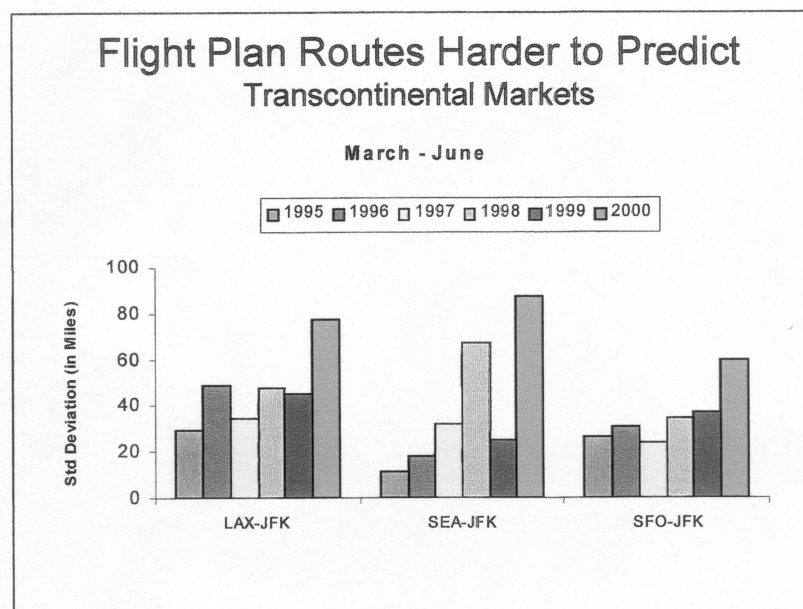
Unfortunately, the next two charts are more troubling. The first chart shows the number of operations experiencing absolutely unacceptable taxi-out delays due to ATC problems. This means the number of hours the plane sits on the runway after it pulls back from the gate but before it is allowed to take off.

Thus, the delay statistics may improve at the expense of flight cancellations. To get a truer picture, both statistics need to be considered together.



This is very disturbing, because it shows that each year we are experiencing an increasing number of flights that suffer extraordinary delays. And here we see no year-over-year improvement.

The second chart is also quite interesting. This is an analysis of our trans-continental flights over the past six years. What we are measuring here is the deviation from mean of the distance actually flown on the routes. A lot of deviation from the average shows that we rarely are permitted by ATC to fly the optimum routes. Instead, ATC procedures involve a wide range of routings and substantial circuitry. This chart shows that year after year we are, on average, being required to fly more miles due to ATC routing decisions than the previous year. There is any number of possible explanations for why this is happening. But the result is longer time in the air, more fuel burned, flight delays, more missed connections and passenger inconvenience as well as greater costs all round.



We need to fix this system. And, as I suggested, we are making some progress already on short-term solutions. In particular, Administrator Jane Garvey has been as responsive as any person could possibly be under the circumstances. We really are working closely with the FAA and other carriers to address the problem.

The following are a few of the short and long term solutions that we propose. I should quickly note that many of the solutions we propose are not so much new initiatives as things the airlines are already doing—either on our own or collaboratively with the FAA.

To begin with, the magnitude of American's commitment to improved dependability can be seen in a bevy of changes we have made—or are about to make—to our own flying schedule. Over the years we—like every other carrier—have frequently had to add a cushion of extra time to our schedules to overcome air traffic control problems, and ensure that we were able to deliver what we promise our customers. But what we are embarking on this fall is much more comprehensive.

At American, while our network is far-flung to say the least, our major connecting hubs at Chicago O'Hare and Dallas / Fort Worth—which between the two account for close to 40% of our total departures—really drive the performance of our system. If either one of those hubs—for whatever reason—falls behind, it's difficult if not impossible for the rest of our operation to pick up the slack. This fall, at both O'Hare and DFW, we're increasing the time our planes are scheduled to be on the ground, and we're increasing the amount of time connecting passengers have to get to their next flight. This step is driven entirely by our desire to better serve our customers. We would naturally prefer to use our aircraft—which represent billions of dollars worth of investment—as intensively as possible, but we are nonetheless injecting significantly more breathing room into our schedule in order to better match our actual operations with our customers' expectations.

At O'Hare, which as you know suffers from both congestion and frequent bad weather, we're taking things even farther. Effective November 1st, we will be isolating our Chicago system from the rest of the network—in effect, putting up a firewall to prevent, as much as possible, weather, Air Traffic Control, or any other Chicago-related problem from impacting the rest of our system.

There are thousands of factors that have combined to create the operational quandary in which we find ourselves today, and it will take thousands of initiatives—some big, some small—to get us out.

Another near term solution, which involves working cooperatively with the FAA, involves alternative routings. The airlines have begun flying many routes at lower altitudes. This practice, like less intensive aircraft utilization, is costly since flying

at lower altitude burns more fuel—but it is helping to increase airspace capacity. We've also gotten more creative about using alternative routes in the event of severe weather. For example, we are working with the FAA to explore access to airspace previously restricted for military use, much of which can be made available to commercial operations on a short-term basis during severe weather without any adverse impact on military training or other use. Several airlines have also signed an agreement with NavCanada to operate in Canadian airspace—for a fee—when weather restricts U.S. routes.

Obviously, delays in and of themselves are bad. But I think everyone here would agree that one of the most frustrating aspects of delays occurs when communication breaks down—either between air traffic control and the airlines, or between various departments within the airline, or most of all, between the airline and our customers. In a fast-changing situation, communication will always be a challenge.

But we're working the problem in two ways. First, we're collaborating with the FAA to improve the accuracy and timeliness of information from air traffic control to the airlines. And second, we have begun a program to better inform our customers about the status of their flight. This probably sounds easier than it is, since it involves getting accurate up-to-the-minute information from the FAA to our people on the airplane, inside the airports, and at our reservations systems—to ensure that in the event of a delay, customers get consistent, accurate and timely information about what's going on.

In so many cases, communication can mean the difference between a problem and a crisis. As you know, the airlines are very restricted by competition laws in the kinds of communicating they are allowed to do with each other. I think it would be very helpful to give the FAA the authority, on a case by case basis, to grant temporary anti-trust immunity to airlines in the midst of an air traffic control crisis. This would allow the airlines involved to talk about how best to arrange their schedules, and help prevent a bad day from becoming a customer service catastrophe.

Another way we can improve things in the short term is to build a better set of metrics against which to judge the performance of our air traffic control system. Today, while airline performance is measured in a variety of ways, there are no comparable measures for the ATC system. We need to establish reasonable standards of performance, and then hold ATC accountable for meeting those standards.

The good news is that we have been working with the FAA to design appropriate metrics, and soon there will be a daily report that measures system performance. And our hope, naturally, is that the report will be a useful tool for measuring the progress we expect in the years to come.

As we try to use our current capacity more efficiently, we also need to acknowledge that in the long term, we are going to need more fundamental changes to produce the capacity to match the increased customer demand we know is coming.

In the medium term we need to explore the redesign of airspace and route structure especially where growth in demand is expected. We need to design and build the aviation equivalent of an eight-lane highway today where we can predict the traffic will be tomorrow. Airspace redesign will be dependent on new technologies such as digital voice and data transmission that will partially overcome the limits on radio spectrum we suffer today.

One technical innovation that we think is critical to enhancing system capacity in the years to come is global positioning system technology, or GPS. In our view, GPS and its augmentation systems should be endorsed as the navigation system of our industry's future. GPS has the potential to help solve our airspace capacity crunch. But that won't mean much if we don't also find a way to increase airport capacity. One promising technology—AVOSS—which measures the wake turbulence of aircraft and allows closer spacing, is one way to increase arrival and departure rates on existing runways. But ultimately we will have to meet the growing demand by building more runways as well.

All of these are sensible steps that we think can create important incremental improvements. But it's clear that in the long term, we need fundamental reform of the air traffic control system. We need to find ways to bring private sector disciplines to bear on the delivery of air traffic control. What I would suggest is that all of us spend a lot of time, between now and the beginning of the next session of Congress, thinking and talking about the best ways to do that. Obviously, this is an issue that the Commerce Committee has had in its sights for some time. The aforementioned Mineta Commission provided us with an outline on how effective FAA reform might take place, and I think we need to revisit the recommendations contained in that outline.

I want to thank the Committee for the opportunity to be here today. It's crystal clear that many of the goals articulated by policy makers for our industry—including dependable service, low fares, robust competition—are dependent on our ability

to solve our capacity problem. We all have a vested interest in finding the right solutions, and doing so will require nothing less than a complete collaborative effort between all the parties involved. Rest assured, we are extremely focused on doing our part, and we look forward to moving forward with that effort.

The CHAIRMAN. Captain Woerth.

**STATEMENT OF CAPTAIN DUANE E. WOERTH, PRESIDENT,
AIR LINE PILOTS ASSOCIATION, INTERNATIONAL**

Mr. WOERTH. Good morning, Mr. Chairman.

As you know, ALPA represents the professional interest of 58,000 pilots who fly for 50 airlines in the United States and Canada, and I do appreciate the opportunity to appear before you today to discuss the very complex issues of flight delays and proposed solutions to the problem.

Let me say at the outset that all the members of ALPA are grateful to you, as well as your colleagues in the House, for the enactment of AIR-21. Your actions go a very long way to providing a stable and adequate funding to modernize our air transportation system.

Although the benefits provided by AIR-21 will not be fully realized in the near term, we are hopeful that the moneys called for during the life of AIR-21 and future authorizations and appropriations will lead to the completion of the core, NAS, modernization projects contained in the NAS architecture.

Now at the end of the summer of 1999, the collective thought of the aviation community was that the air traffic control delays could not have been worse and that positive steps needed to be taken to avoid a repeat performance. ALPA believes that FAA and the industry took a positive step with the spring 2000 initiative.

Spring 2000 is a daily collaborative planning process designed to allow significantly better response to weather and other system constraints.

Its goal is to employ the tools and processes that will provide predictability, accountability and the reliability to the national air space system. It's a tactical approach to managing the national air space system on a real time basis, and we urge that the FAA's operating budget be increased to fund the spring 2000 process on a continuing basis.

Air traffic control delays and their relationship to system safety is an issue at which ALPA has a considerable interest. Delays are symptoms or manifestations of larger problems or uncontrollable situations in the national air space system.

The causes of delays are primarily weather, scheduling that is based on optimum weather scenarios, usable runways and gate availability, among other things.

It is important to note that the Eastern third of the Nation experienced approximately three times the average number of days of severe weather this summer. It's also true to note that there are also locations throughout the system that sometimes are at absolute maximum capacity even without the influence of other factors, such as weather.

When these other external elements are added, the system simply collapses. We have possibly created a false expectation for the

flying public by promising that people can fly where they want to, when they want to, 365 days a year, 24 hours a day.

To satisfy this demand, we have created a scheduling system that allows more aircraft into the same environment at the same time than the system can efficiently handle even on its very best days.

Environmental concerns have a great impact on the aviation industry—noise restrictions, constraints, on arrival and departure routes—thereby, exasperating the delay problem. Manufacturers and airlines have developed and spent billions of dollars designing and purchasing newer quieter aircraft. Pilots are compelled to fly highly complex procedures at less than operational performance standards to comply with ground-based constituent concerns.

This industry has done all it can to alleviate these complaints. There must be a paradigm shift in the public to understand that part of the cost of reducing delays may be more efficient use of terminal air space and aircraft performance capabilities, and this may result in an aircraft overflying somebody's house.

This wholesale acquiescence to environmental concerns may have to be amended if we are to thoroughly address the entire scope of the delay problem.

Additionally, resectorization of the en route air space can eventually produce some efficiency gains. In fact, RTCA has a special Committee looking into this concept, among others, to better utilize our national air space. However, any recommendations that will result in better management of our scarce air space resources will not be possible without allowing the FAA to consolidate facilities, and that will require some tough political decisions.

ALPA's motto is and will always be, "Schedule with Safety." We will continue to champion that standard and we will work with the FAA and the members of the aviation industry to develop initiatives that will improve efficiency as well as maintain and hopefully improve the safety of air operations.

We will oppose innovative capacity-enhancing procedures that do not maintain and improve safety standards. This is our bottom line, and it always will be.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Captain Woerth.

[The prepared statement of Captain Woerth follows:]

PREPARED STATEMENT OF CAPTAIN DUANE E. WOERTH, PRESIDENT, AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

Good day Mr. Chairman, I am Captain Duane Woerth, President of The Air Line Pilots Association, International (ALPA). ALPA represents the professional interests of 58,000 pilots who fly for 50 airlines in the United States and Canada. We appreciate the opportunity to appear before you today to discuss the very complex issues of flight delays and proposed solutions to the problem.

Let me say at the outset, that all the line pilots of ALPA are grateful to all of you as well to your colleagues in the House for the enactment of AIR-21. Your actions go a long way in providing stable and adequate funding to modernize our air transportation system. As we all know, the air transportation system is dynamic and evolutionary, and so the process of modernizing is also an evolutionary process. The planning, developing and testing of new technologies and equipment, as well as the refining of existing procedures and equipment, has to become a "way of doing business" if the US is to remain the world leader in air traffic control.

The funds provided by AIR-21 are an excellent beginning, but since the funding will not be fully realized in the near term, the NAS modernization work will con-

tinue to fall further behind. For example, the insufficient appropriation for R&D for FY 2001 and the lead time needed to realize the benefits from the NAS Architecture programs means that parts of NAS Modernization will be in its current holding pattern for some time. Nonetheless, we hope the funding called for during the life of AIR-21 and the funding that will be authorized in the future leads to the completion of the core NAS modernization projects contained in the NAS Architecture.

At the end of the summer of 1999, the collective thought of the aviation community was that the air traffic control delays could not have been worse and that positive steps needed to be taken to prevent a repeat performance. ALPA believes the FAA took a very positive step with the Spring 2000 Initiative. Without it, things could well have been worse.

Spring 2000 set up a daily collaborative planning process that is designed to allow significantly better response to severe weather situations and other system constraints. Its goal is to deploy the tools and processes that will provide consumers with the predictability, accountability, and reliability they expect from the national air transportation system. The list of technologies and tools in use include Flight Schedule Monitoring, the Collaborative Convective Forecast Product, Departure Spacing Program, Coded Departure Routes, the National Playbook (deals with severe weather reroutes), Military Special Use Airspace Access, and Post Event Tools, to name a few. Many more innovative technologies are under development and their testing and deployment needs to be accelerated.

Spring 2000 is a much-needed tactical approach to managing the National Airspace System on a real-time basis and it is clear that this initiative must be continued indefinitely. We urge that the FAA's Operating budget be increased to fund this new process for managing the daily operation of the system. We expect that the FAA will shortly change the name of this initiative to properly reflect that it is an integral part of the NAS.

The issue of Air Traffic Service delays, and their relationship to system safety, is an issue in which ALPA has a deep and lengthy history of interest. The air traffic control system has become a convenient target and a scapegoat for much deeper systemic problems. Air traffic control is often blamed for delays it is compelled to implement to maintain the safety of the National Airspace System, but are actually caused by problems outside the control of air traffic.

Keep in mind that delays are merely symptoms or manifestations of larger problems or uncontrollable situations in the National Airspace system. Delays can come from a number of sources, the two most prominent are airspace and airports—although it is in the interfacing of these two elements that seems to produce most delays. The causes of delays are primarily weather, scheduling that is based on optimum weather scenarios, the hub & spoke system, usable runways, and gate availability, among others. With that background I need to point out that there are locations throughout the system that sometimes are at absolute maximum capacity even without the influence of other factors such as weather. When these other external elements are added, the system just collapses.

Was this summer worse than 1999? The eastern third of the nation experienced more severe convective weather (approximately three times the average number of days) this summer, and that was the primary cause of the delays. In addition, the airlines scheduled a record number of flights, which increased the potential for greater delays and cancellations. Our understanding is that while more flights took place, and more passengers were moved, there were a greater number of delays.

It is clear that at certain times on certain days scheduled traffic at the hubs is at absolute capacity. Most of the time Visual Meteorological Conditions (VMC) prevail and airline schedules are based on VMC airport arrival rates. When the weather drops below visual minimums, especially at airports with limited instrument landing capability, the impact begins to ripple through the system. When an airport must restrict use of its runways because spacing or configuration precludes their use under Instrument Meteorological Conditions (IMC), then the airport acceptance rate falls and departure rates are cut. This results in ground delays at departure airports, inbound airborne aircraft holding, and then ground delays for departures at the arrival airport where planes are waiting to take off—it's like dominos. In the summer thunderstorm season, when severe convective weather activity develops, it often results in airports being closed to all traffic for an extended time. Thus, creating havoc in the system. The Spring 2000 initiative has shown that tactical management can relieve some of the problems, but there is no total solution to mitigating the impact of severe weather, except to not fly into or near it. Maintaining the safety of the system is the guiding principle for all decisions.

We have possibly created a false level of expectation for the flying public by promising that people can fly where they want to, when they want to. To satisfy this demand we have created a scheduling system that allows more aircraft into the

same environment at the same time than the system can efficiently handle, even on the best of days. The schedule unrealistically projects everyone into an airport in a one hour time period; everyone tries to get there as early as possible, so the real crunch occurs in a thirty-minute block. Therefore, whenever uncontrollable events like weather occur the system collapses from its own weight.

However, the pressure continues to be put on the ATC system. Recently, it was mandated that the four slot controlled airports permit more flights. Allowing more slots at these airports will aggravate the situation, unless arrival and departures are mandated to the slack periods. However, these times may be less desirable by the travelling public.

Our pilots are every bit as concerned about these delays as are you, and the flying public. We too hear the stories of excessive delays for no apparent reason. These experiences, combined with some of the less than well thought out capacity initiatives the FAA has tried, have only served to reinforce our suspicions that capacity is being emphasized to the detriment of safety. We still have the safest system in the world, but our confidence in it is challenged by what we experience on a daily basis.

Several of the FAA's innovative capacity enhancements have been aimed directly at this aspect of the equation—how can we get more airplanes on the concrete at the same time? Air traffic control has very specific, safety based, restrictions on runway utilization. These separation standards are designed to ensure the safety of an aircraft and its passengers from other aircraft, and we cannot afford to lessen these standards without full and open testing and evaluation. Capacity critical initiatives must be backed with data that proves that the minimum level of safety is maintained and hopefully enhanced. The FAA clearly has the burden of proof.

Sometimes forgotten, or underestimated and overlooked, is the real impact our punishment based ATC system has on delay potential. With the emphasis by the FAA on disciplinary programs designed to assess blame/fault, rather than educational based programs designed to determine cause and solution to the problem, the FAA has created a built-in delay-producer. The FAA grades itself on the number of controller and pilot mistakes it detects—Operational Errors and Pilot Deviations. The pilot or controller involved is subject to administrative disciplinary action if it is determined they are at fault. Error detection in the enroute portion of the program is automated (Quality Assurance Program, AKA “snitch patch”) and there is no discretion available for “no harm, no foul” situations. Because of this, controllers add miles in buffers to existing separation standards to ensure they won't have a “deal.” Pilots are equally paranoid and mistrusting of anything the FAA suggests because most of their interface with the FAA is when Flight Standards is pursuing an enforcement case which could result in a suspension of a pilot's license and loss of income. This does not contribute to a healthy environment on either side of the microphone, and results in additional questioning, readbacks and pilot rejection of controller clearances that only serve to further clog the system.

Another significant element of any program truly designed to enhance safety and efficiency is an ability to collect accurate data concerning incidents that occur within the system. The only realistic way to do this is to establish a “no-fault” reporting system for both pilots and controllers. This program must have the objective of investigating for safety purposes—investigate incidents to determine why they happened, and what can be done to ensure they don't happen again. The individuals involved must be able to participate freely, without fear of repercussions, in order for a system like this to work. Several programs that could be used as models already exist—the American Airlines ASAP program, the NASA Aviation Safety Reporting System, and the US Airways Altitude Deviation Reporting program. A number of airlines are also currently in the process of setting up Flight Operations Quality Assurance (FOQA) programs that are designed to use automated aircraft performance data to improve operational safety and aircraft operating procedures. A program must have integrity and credibility with both the pilots and controllers to be effective. To be able to work on the root causes of deeply imbedded systemic problems it is essential that the program have accurate, safety oriented data to work with. Only through such a program, with guaranteed immunity (from all but intentional rule violations) will we ever be able to identify and correct potentially catastrophic problems.

Environmental concerns have a great impact on the aviation industry. Noise restrictions constrain arrival and departure routes thereby exacerbating the delay problem. The airlines and manufacturers have spent millions of dollars designing newer, quieter aircraft. Pilots are compelled to fly highly complex procedures at less than optimal operational performance standards to comply with ground based constituent concerns. The industry has done all it can do to alleviate these complaints. There must be a paradigm shift in the public to understand that part of the cost

of reducing system delays may be the more efficient use of terminal airspace and aircraft performance capabilities—and that may result in an aircraft overflying someone's house. This wholesale acquiescence to environmental concerns may have to be amended if we are to thoroughly address the entire scope of the delay problem.

For example, Phoenix International Airport is the busiest two runway operation in the U.S. but is confined to a single departure stream because the departures on both runways 8 R and L must fly up the dry river bed that is roughly between the two straight-out departure paths. Pilots are required to establish visual separation from the previous departure in order for the departure rate to be maintained at an acceptable level. In normal operations, when there is no weather or other factors causing departure delays, the airport is forced to operate in a very inefficient manner. When weather is a factor, the delays are compounded and the controllers have no way to expeditiously get the backlog of departures airborne. The delays continue beyond what they should. In reality, the environmental delay is part of the airport's normal operation.

Resectorization of enroute airspace can lead to some efficiency gains. Initial evaluation of en route airspace resectorization proposals being touted by a number of potential contractors seems feasible—and they may well be, but not quickly. As with potential fixes to other problems, the technology is available to accomplish resectorization now. In fact, RTCA has Special Committee 192 looking into this concept, among others, to better utilize our national airspace. The recommendations that will be forthcoming from this Committee will result in better management of our scarce airspace resource but will not be possible without allowing the FAA to consolidate facilities and that will require some tough political decisions.

ALPA's motto is Schedule With Safety. We will continue to champion that standard and will work with the FAA and members of the aviation industry to develop initiatives that will improve efficiency, as well as maintain and hopefully improve the safety of air operations. All capacity initiatives must be proven to maintain or increase the safety of air operations and good test and evaluation data is needed to support the implementation of new technologies and procedures. We can accept nothing less.

ALPA's view is that construction of new runways, taxiways, terminals and other infrastructure is equally important, if not more so, than the development of additional ATC capacity initiatives. And, in fact, many of the top 100 airports are planning for new and extended runways and other facilities to create more capacity.

In closing, I want to thank you for giving me this opportunity to address this most complex of topics. This is one of, if not the top priority for ALPA, and you will be hearing much more from us in the future about the need to modernize our National Airspace System. I would be most happy to answer any question that you and the Members of the Subcommittee might have.

The CHAIRMAN. Mr. Poole.

**STATEMENT OF ROBERT W. POOLE, JR., DIRECTOR OF
TRANSPORTATION STUDIES, REASON PUBLIC POLICY
INSTITUTE**

Mr. POOLE. Thank you, Mr. Chairman.

As director of transportation studies at the Reason Public Policy Institute in Los Angeles, I've been involved with air traffic control reform studies since 1981, and I've seen the debate change greatly over the years.

Today, I would maintain it's pretty widely agreed that, first of all, air traffic control is essentially a commercial service while air safety regulation is inherently governmental.

Second: That FAA's corporate culture is poorly suited to running and modernizing a high-tech service business, which is what air traffic control is.

Third: That air traffic control funding should be driven by the growth of aviation activity and not by the ups and downs of a Federal budget process.

Now who agrees with these points? If you look carefully at them, the Baliles Commission Report in 1993, the Vice President's Na-

tional Performance Review ever since 1994, the DOT's Executive Oversight Committee in 1995, and the National Civil Aviation Review Commission in 1997.

We're all here today because of record air traffic delays caused by air traffic finally having bumped up against the limits of an obsolete air traffic control system, costing airlines and passengers literally billions of dollars.

That's why we've heard a number of airline CEOs start to talk about air traffic control possibly being spun off from FAA into some kind of a corporation.

The good news is we now have 13 years of actual experience with corporatized air traffic control in 17 countries, including Australia, Canada, Germany, Switzerland, the U.K.

What can we learn from that experience? First, these governments have all spun off the air traffic control service provider, but they properly kept safety regulation in government. Putting safety regulation at arm's length from service delivery actually increases air safety.

Second: The air traffic control companies are all operated on a nonprofit basis. Since air traffic control is a monopoly, it should be nonprofit with the excess revenues either reinvested in the business or used to reduce fees and charges in future years.

Third: These companies are all funded directly by their users by means of fees and charges. That makes the company accountable to its customers, and as they say in Canada, "User pay means user say."

Fourth: These companies all fund modernization by issuing long-term revenue bonds based on their predictable stream of revenue from fees and charges.

I think we have enough evidence now to see that air traffic control commercialization works. And by that I mean it solves the problems that have plagued ATC in country after country. After commercialization, we see costs go down, modernization speed up, and flight delays get reduced. In no country has there been any reduction in air safety.

So how can we apply this experience to the United States? My organization has been working for the past year on a detailed proposal for a U.S. air traffic control corporation. We're getting input from the entire aviation community. We're not done yet, although we hope to have the report out by the end of the year, but I can give you some general outlines of what we've concluded.

First: We think the stakeholder controlled, nonprofit corporation as they've implemented in Canada, is really the best model. It's working very well in Canada and has been for nearly 4 years now.

The proposed corporation would hire all the civilian air traffic control employees currently with the FAA, and would provide civilian ATC in the United States and oceanic regions. It would keep its books like a normal business, using generally accepted accounting principles, would pay market based compensation to all its employees, and it would be free to define and purchase the best technology, like any other high-tech business does.

The most important element of this reform, in our view, is to develop a corporate culture driven by user needs, and the best way

to do that is to make the company depend on direct payments by the users for the services it provides.

Now, obviously, developing fair and simple ATC fees and charges is, in fact, the most difficult part of this project, and we haven't quite finished with that. But the general principle is that the users should pay for the services they receive and that all users and other stakeholders should be represented with seats on the Board of Directors. That's the way they do it in Canada and it's working.

Overseas experience shows that this kind of an air traffic control corporation can easily be self-supporting from fees and charges. And just like any other infrastructure business, electricity or telecommunications, they can use that predictable revenue stream from fees and charges to issue long-term revenue bonds for modernization.

And I'll note that most of these companies, their bonds are rated investment grade by the rating agencies because this is such a good business.

Of course, the company should be regulated for safety. It should be regulated at arm's length by the FAA just as the airlines are, just as pilots, mechanics, airports, and manufacturers are. And DOT should have oversight to make sure that the fees and charges are, in fact, fair and reasonable, and Congress of course will continue to have oversight responsibilities over FAA and DOT as it exercises those supervisory functions.

Finally, let me just stress the urgency of this kind of structural reform. We've had all these commissions dating back to 1993 that have said, this is what we need to do, and yet we haven't done it.

The current system has failed again and again to truly modernize this vital infrastructure, yet the shift to free flight technology, which you heard about this morning, is essential if we're going to avoid gridlock in the next decade.

A user-focussed air traffic control corporation will be up to the task of making this major change and then keeping up with the continually changing state-of-the-art. This is not a one-time change, it's an ongoing process.

Most important of all, because it would be paid for directly by the users, it will be accountable for results to those users.

Thank you very much, and I'll be happy to do questions later.

The CHAIRMAN. Thank you, Mr. Poole. A very stimulating proposal.

[The prepared statement of Mr. Poole follows:]

PREPARED STATEMENT OF ROBERT W. POOLE, JR., DIRECTOR OF TRANSPORTATION
STUDIES, REASON PUBLIC POLICY INSTITUTE

My name is Robert W. Poole, Jr. I am the director of transportation studies at the Reason Public Policy Institute in Los Angeles. As a former aerospace engineer, I have been studying transportation issues for more than 20 years and have advised the U.S. Department of Transportation and various congressional committees on a number of occasions. In 1993-94 we advised the National Performance Review office on what became their proposal for a government corporation to take over air traffic control. And in 1997 we advised the National Civil Aviation Review Commission, as it assessed the problems of the nation's air traffic control system.

Having been involved with ATC reform since the days of the PATCO strike in 1981, I'm impressed by how much the debate has changed since then. There is a broad consensus within aviation policy circles on many issues that used to be very contentious. It is now widely accepted that ATC is an essentially commercial serv-

ice, and that it is separate from air-safety regulation, which is inherently governmental. It is also increasingly accepted that the FAA's management and corporate culture are poorly suited to operating and modernizing a high-tech service business—and have not been significantly improved by the modest 1996 reforms of procurement and personnel systems. And it is also widely accepted that ATC funding should be driven by the growth of aviation activity—and not by the ups and downs of the federal budget process.

These conclusions are reflected in the work of the National Partnership for Reinventing Government. The same conclusions inspired the DOT's U.S. Air Traffic Services Corporation proposal in 1994–95. They underlie the strongly worded findings of the National Civil Aviation Review Commission in 1997. And they are backed up by nearly two decades of GAO reports and think tank studies.

We are here today because last summer and again this summer—just as NCARC warned—growing air traffic bumped up against the limits of our creaking, obsolete ATC system, resulting in record levels of airline delays, costing airlines and their passengers billions of dollars in extra costs and wasted time. That experience has led to a growing chorus from airline CEOs calling for removing the ATC system from the FAA and setting it up as a user-funded business. The bible of the industry, *Aviation Week*, has editorially endorsed this approach for several years.

One factor that has helped to shape this growing consensus is the actual experience of commercializing air traffic control around the world. Twenty years ago, when I first began working on this concept, there were no commercial ATC corporations to be found. The few that had been started—as nonprofit airline cooperative efforts, in the United States in the 1930s by ARINC, and in Cuba and Mexico—had all been taken over by their respective governments.

But beginning in the late 1980s, the same problems that plague our ATC system—inadequate or uncertain financial resources, poor cost-accounting, crippling bureaucratic rules on personnel and procurement, etc.—led to a growing wave of reform. One after another, starting with New Zealand, ATC operations were restructured as commercial corporations, either wholly owned by government or as nonprofits controlled by the various aviation stakeholders. Among those taking this path are Australia, Canada, Germany, South Africa, Switzerland, and the U.K. ATC restructuring has been brought about by governments of both left and right, including Labor governments in New Zealand and the U.K. and a center-right government in Germany.

Four common elements emerge from these various ATC reforms:

- First, in virtually every case, governments have spun off the ATC service provider but have kept safety regulation as part of the government's transportation agency. Putting safety regulation at arms-length from service delivery is seen, correctly, as a way to improve air safety.
- Second, in every case but one, these ATC corporations are operated on a not-for-profit basis. (That one exception is the UK Labor government's current proposal to sell 51% of the National Air Traffic Service to private investors.) Because ATC is one of those rare cases of natural monopoly, it makes sense to operate it in this way, with any excess revenues either re-invested back in the corporation or used to reduce the following year's fees and charges.
- Third, nearly every one of these ATC corporations is funded directly and completely by its users. Fees and charges are the prices of the company's services; they do not get sent to the government, to be appropriated (or held in a trust fund). They are paid directly by the customers to the service provider (as with electricity charges by TVA and postal charges by USPS). And that makes the company accountable directly to its customers. As they say in Canada, "user pay means user say."
- Fourth, these ATC companies are able to fund modernization by issuing long-term revenue bonds, based on their predictable stream of revenue from fees and charges. Indeed, NavCanada's bonds had no trouble receiving investment-grade ratings. The financial community loves this kind of investment.

In addition to these common features of commercialized ATC corporations, we also find a common pattern in their experience. To put it simply, ATC commercialization works. By that I mean: it solves the problems that have plagued government-run air traffic control in country after country. Following commercialization, we typically find that the unit cost of providing ATC services comes down, modernization proceeds more quickly and smoothly, and flight delays are therefore reduced. (In Canada, the commercialized ATC provider is implementing NASA-developed ATC software called CTAS—the Center-TRACON Automation System—in three years, com-

pared with an estimated 10 years it will take the FAA to do likewise here.) In no country has there been any reduction in air safety, and most observers believe safety levels have increased.

In short, compared to 20 years ago when ATC commercialization was mostly theory, today we can draw on a wealth of experience from around the world. All of it points to the conclusion that moving ATC out of a government bureaucracy, converting it into a commercial corporate form, charging users directly for services and making it directly accountable to those users for its performance, and regulating it at arms-length for safety—this kind of fundamental reform works.

The logical next question is: How can we apply this experience to the United States? That is the question that my organization has been addressing since last winter. Our three-member project team is developing a detailed proposal for an Airways Corporation that could take over ATC functions from the FAA and operate in a commercialized manner. We are seeking input as we go along from the entire aviation community—major airlines, low-fare airlines, cargo carriers, air-taxi operators, business aircraft owners, recreational flyers, air traffic controllers, and others. Since this is still a work in progress, I cannot give you the final results today. As you can imagine, this is a very complex project, and different stakeholders have somewhat different interests that must be taken into account in coming up with a workable plan. But I can give you some broad outlines of where we are heading.

First, having reviewed the global ATC reform experience, we believe that the stakeholder-controlled not-for-profit corporation is the best model for the United States. It is working very well in Canada, with which we share a major border and have extensive air commerce. And it harkens back to the origins of U.S. air traffic control, which was begun on exactly this basis by Aeronautical Radio, Inc. (ARINC) in the 1930s. So we have defined a nonprofit ATC corporation with a stakeholder-controlled board of directors.

The Airways Corporation would provide all civilian ATC services in the United States and in the oceanic regions for which this country is responsible. It would hire a top management team to run the company, but would take over essentially all of the current FAA staff in Air Traffic Services and Research and Acquisitions, and all current FAA ATC facilities. It would keep its books using generally accepted accounting principles (GAAP) like a normal company. And it would be free to pay market-based compensation to all its employees—both management and nonmanagement—so as to ensure the best possible talent for each position. It would be free to define and purchase new technology in the same way as any private business.

The most crucial element of this reform is to develop a corporate culture that is driven by and responsive to customer needs. That will only happen if the company must derive its revenues by meeting their needs—in other words, if it derives its revenue directly from its customers, via fees and charges. This process is what drives the remarkable productivity of the entire U.S. economy. And we can now see that it works in air traffic control, as well. To repeat the *leitmotif* of Canadian ATC reform, “user pay means user say.”

We fully appreciate that developing the specifics of ATC fees and charges is no easy task. We are devoting considerable effort to coming up with a pricing proposal that is both simple and fair to all aviation users. Until we complete our stakeholder review process, I don’t want to go into more specifics on this issue. But because we all know that private pilot groups have great concerns about this issue, let me say just a few words on that score.

Our plan will propose that current federal aviation user taxes be abolished, as part of the transition to the new, commercialized system. The underlying principle is that the new ATC fees and charges will apply only where users make actual use of ATC services. A private plane shooting touch-and-go landings at a non-towered airport is not using the system and should not be charged by the system—or by the federal government. But those who do use ATC services should pay for the use of those services—again, in as fair and simple a manner as possible. And as stakeholders in the system, they should be represented on its board. This includes military and civilian government users, whose budgets should include the cost of using ATC services, just as it includes buying fuel for their aircraft.

The overseas experience clearly demonstrates that an Airways Corporation can easily be self-funding. Like any other utility business providing a vital public service (e.g., electricity or water) by investing in long-lived infrastructure, the most appropriate way to pay for that infrastructure is via long-term revenue bonds. With a robust stream of revenue from fees and charges, such bonds could easily earn investment-grade ratings. Wall Street will be only too happy to arrange these bond issues. Hence, we strongly recommend that the corporation not be allowed to borrow from the Treasury. Since one of the key objectives of this reform is to develop a user-responsive corporate culture—i.e., one that will choose wise and cost-effective invest-

ments, rather than white elephants such as the now abandoned Microwave Landing System—is important that all such investment plans be required to pass the market-testing of the financial markets.

Finally, let me address the question of regulation. There are two potential types of regulation involved: safety and economic. In terms of safety regulation, the FAA will become the arms-length regulator of the new corporation. That will put air traffic control on the same basis as all the other participants in the aviation system: airlines, private plane owner/operators, airframe and engine producers, airports, pilots, and mechanics. All are regulated at arms-length by the aviation safety regulator. It will be no different in the case of the ATC service provider. Most countries that have commercialized ATC consider this separation of regulation from operations to be a significant strengthening of air safety.

When it comes to economic regulation, I noted previously that the Airways Corporation will be a natural monopoly. The corporate structure we propose is a not-for-profit corporation with a stakeholder board—essentially, a *user cooperative*. In theory, such a structure should represent the interests of its customers and not require the usual kind of public utility regulation (whose purpose it to look out for the interests of its customers). However, we all know that the interests of business-jet operators and those of cargo carriers and those of major airlines are not identical. We believe there will still be a need for external review and appeal of the corporation's decisions on such things as fees and charges and of changes in levels of service. At this point, we think such review and appeal is best carried out by the DOT, just as appeals from rail shippers can be taken to the DOT's Surface Transportation Board.

Congress will, of course, continue to have the responsibility to fund the FAA and DOT, and to exercise the needed oversight of all of their operations, including their regulatory responsibilities with respect to air traffic control.

In closing, I would like to stress the urgency of this kind of fundamental, structural reform of the way we provide and pay for air traffic control in this country. The current system has failed to bring about modernization of the ATC system—modernization that is essential if we are not to succumb to gridlock and far worse delays than were experienced last spring and summer. The shift from ground-based to space-based ATC, based on GPS and data link, promises a major increase in both en-route and runway capacity. But the FAA has been institutionally incapable of delivering this modernization, wasting billions on such fiascos as the Advanced Automation System and the Microwave Landing System.

There are several reasons for this structural failure. One is the FAA's cumbersome procurement process. When a new generation of computer electronics comes along every 18 months and it takes the FAA five to eight years to procure a new system, you have a recipe for getting further and further behind the state of the art. This is due in part to the FAA's proclivity for defining everything to death in-house, rather than making creative use of off-the-shelf systems where feasible. A commercial ATC corporation will be able to upgrade its technology as quickly and efficiently as other high-tech businesses.

Another structural problem is uncertain funding. The vitally needed controller-to-pilot data link is a key element in free flight, but is being delayed by stop-and-go FAA funding. Implementing data link requires synchronized schedules involving airlines, avionics makers, and ATC facilities on the ground—but FAA budget problems play havoc with this synchronization. An ATC corporation would have assured funding for such modernization programs via its revenue bonds.

But the most important structural failing is this: the FAA is not customer-driven. Regarding free flight, WAAS, data link, and other key technologies, there is no urgency or sense of commitment to meeting users' needs as soon as possible. This is a basic problem of corporate culture. And it will only be solved when the ATC organization is paid directly by its customers and held accountable for results by those customers.

This concludes my presentation today. As I said previously, my comments are based on our work-in-progress on defining a plan for ATC commercialization that can gain widespread support within the aviation community. We are getting close to a finished product, which we hope to publish late this fall. I'll be sure you all receive copies.

The CHAIRMAN. Mr. Carr, welcome. And thank you for the great job that you and your people do.

**STATEMENT OF JOHN CARR, PRESIDENT,
NATIONAL AIR TRAFFIC CONTROLLERS ASSOCIATION**

Mr. CARR. Thank you, Mr. Chairman, and members of the Committee.

My name is John Carr. I am the newly elected president of the National Air Traffic Controllers Association, and I represent over 15,000 air traffic controllers, serving the FAA, the Department of Defense, and the private sector.

I'd like to thank you for this opportunity to appear before the Committee to discuss the problems and solutions related to aviation delays.

I may be new to my position as president of the union, but not to the problem of aviation delays. I have over 20 years of experience as an air traffic controller, including 10 years at Chicago O'Hare.

I want you to know that the men and women I represent want to be part of the solution to this complex and very critical problem.

Continued dissatisfaction with the progress of national air space system modernization and the mounting problem of aviation gridlock has led some industry and government officials to calling for privatization or restructuring of the FAA.

I'm here today to tell you that privatization of air traffic control operations is not the answer. Privatization will not increase airport capacity. It will not speed up construction of more runways or airports.

Safe, reliable equipment will not be developed or installed any faster.

Privatization would, instead, chart a course toward undoing many of the benefits found in AIR-21 and would fracture the delicate balance of a work force that holds this system together.

Privatization is a business oriented solution being offered by the airlines and others who might stand to profit from it. Proponents argue that competition in the private sector allows companies to provide services more efficiently while reducing costs. Yet, these same private companies will constantly balance their bottom line against an air traffic controller's bottom line, the safety of the flying public.

While on the surface, the solution may seem to save a dollar, in reality it makes no sense. As a matter of fact, we believe the safety of the flying public and the commercial efficiency of our air traffic control system are so intimately related to the exercise of the public interest as to mandate performance by Federal employees which, as I'm sure you all know, is the very definition of inherently governmental in OMB Circular A-76.

In today's environment, controllers are under extreme pressure to squeeze more aircraft into already congested air space. We go to enormous lengths to ensure the safety of millions of flyers each year. We have no incentive to delay or hinder air traffic. Our motivation is simply to move aircraft as safely and efficiently as possible. The longer I work you the more difficult my job becomes.

However, the primary function of an air traffic control is to ensure the safety of the flying public, and we do not believe that we should be put in the position of compromising that safety to accommodate more passengers, more flights, or more profits.

Aviation delays are a multifaceted problem, and no single element is responsible. A number of contributing factors, including growth in the number of travelers, scheduling decisions by airlines, bad weather, new air traffic equipment, underutilization of airports and policy changes have led to this record number of aviation delays.

One simple yet controversial solution to this complex problem, as others have discussed, would be to construct new airports or to expand existing airports by adding runways to accommodate larger numbers of aircraft.

Another solution involves a close examination of the use of our nation's existing airports. We believe certain city airports are more uniquely suited for increased flights than their associated hubs. Most hub airports throughout the country have underused secondary airports nearby.

NATCA believes that increased usage of these airports by passengers and airlines alike will help alleviate system congestion and delays. All you have to do is look at the success that is enjoyed by Southwest Airlines to see that there is unused capacity waiting at secondary airports.

System users must understand that they cannot continue to intentionally overload the system. As long as the airlines overbook runways during peak hours, delays will continue and passengers will wait. Even if controllers have the most up to date equipment and technology, delays will not be eliminated.

There is nothing on the shelf now that will eliminate the delays we have now.

We would simply be better able to keep track of your delayed aircraft.

Another solution of the problem of delays——

The CHAIRMAN. The free flight proposal would not——

Mr. CARR. It will not eliminate the delays you currently face. It will incrementally improve the performance of the system, but during peak hours it will not eliminate the delays.

The CHAIRMAN. Thank you.

Mr. CARR. Another solution to the problem of delays which we currently work on involves national air space redesign initiatives, which Captain Woerth alluded to.

Together with the agency, we have created numerous teams and redesigned groups each manned by specialist tasks with alleviating choke points and built in systemic congestion.

Critical sectors and routes have been identified, and we are working closely with the FAA and the users to rapidly change the dynamics of these traffic patterns while carefully examining each and every one of them from a safety perspective.

You see safety as foremost concern of FAA controllers. Private companies, however, have accountability to their stockholders, and profits are achieved at the expense of not only the employees but the system.

For example, the current Federal Contract Tower Program is characterized by inadequate training, inadequate staffing, communication lapses, and poor working conditions.

Proponents of privatization will often point to restructured aviation departments by governments abroad, such as NavCanada.

We feel this is akin to comparing our Cadillac with their Yugo. Countries that have partially or totally privatized air traffic control systems have air space which is very confined, relatively compact, fewer employees, fewer airplanes, and fewer facilities. The largest of which has been privatized is smaller than one-tenth of our system.

The United States, on the other hand, maintains the largest and most complex air traffic control system in the world. Together, we're responsible for moving half of the world's passengers and cargo.

Under the leadership of Jane Garvey, the FAA has turned the corner on its modernization efforts with the help of the people I represent, the air traffic controllers, engineers, and other employees.

A single organization with one mission, one head, and no ambiguities about the priority of human life is in this nation's best interest. Safety is our bottom line, and air traffic controllers are this Committee's partners in fulfilling that single, very fundamental mission.

I thank you for your time, and I'll answer any questions that you might have.

The CHAIRMAN. Thank you, Mr. Carr.

[The prepared statement of Mr. Carr follows:]

PREPARED STATEMENT OF JOHN CARR, PRESIDENT, NATIONAL AIR TRAFFIC
CONTROLLERS ASSOCIATION

Good morning Chairman McCain, Senator Hollings, and Members of the Committee. I want to thank you for this opportunity to appear before the Committee to discuss air traffic control. I am John Carr, President of the National Air Traffic Controllers Association (NATCA), the exclusive representative of over 15,000 air traffic controllers serving the FAA, Department of Defense and private sector. In addition, NATCA represents approximately 1,200 FAA engineers, over 600 traffic management coordinators, agency operational support staff, regional personnel from FAA's 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 traffic within the United States, serve as an advocate for air traffic controllers and other safety-related employees, and promote competence and pride within our profession. We are also responsible for promoting technological advances, providing reliable and accurate information for our members, and serving as a credible source of information for this Committee, the traveling public, and the news media.

Continued dissatisfaction with the progress of national air system (NAS) modernization and the mounting problem of aviation gridlock has led to many industry and government officials calling for privatization/restructuring of the FAA. Proponents argue that alternative organizational structures for air traffic control operations and/or the entire agency would improve modernization efforts and solve the problem of delays. I am here today to tell you that privatization of air traffic control operations is not the answer.

Privatization will not speed up the process of building new runways and airports. Safe, reliable, user accepted equipment will not be developed and installed any faster. Privatization would, instead, fracture the delicate balance of a workforce that holds the system together.

Aviation Delays

Delays, as defined by the FAA, refer to any problem that causes any segment of flight to be more than 15 minutes late. Last year, there were 306,234 commercial and general aviation delays in the United States. Airline delays, as we all know, are at an all time high. Passenger frustration is over the top. And, predictably, when something goes wrong, the finger pointing and blame game begins. To that end, airlines have embarked on a well-financed campaign of misinformation blaming air traffic control for their delays. It is unproductive and unfair for one segment of

the aviation industry to place responsibility entirely on another. It is simply untrue to say that air traffic control is primarily at fault for the hundreds of thousands of delays each year.

Aviation delays are a multi-faceted problem. No single element is responsible. Rather, a number of contributing factors including growth in the number of travelers, scheduling decisions by airlines, bad weather, implementation of new air traffic controller equipment, under utilization of airports, and policy and procedural changes have led to the record number of aviation delays. And, just as there is not one cause, there is also no blanket solution or quick fix to the problem.

One simple, yet controversial, solution to the delays issue would be to construct new airports and/or expand existing airports by adding or extending runways to accommodate larger planes. However, any airport construction or expansion plan faces a number of obstacles including political hurdles, space limitations, community opposition, noise restrictions and environmental concerns. It can take years for a project to be approved. Meanwhile, we are fast approaching a crisis situation with respect to aviation gridlock.

NATCA has identified the following factors as the leading causes of aviation delays.

I. Crowded Skies

The United States air traffic control system is the not only the largest, most complex and most demanding in the world, but it is also the safest. This is, no doubt, due primarily to the dedication and professionalism of the nearly 15,000 FAA air traffic controllers. Air traffic control is a 7 days a week, 24-hour operation. Today, controllers are under extreme pressure to squeeze more aircraft into an already congested airspace. Controllers have no incentive to delay or hinder air traffic. Our motivation is to move aircraft as safely, efficiently and quickly as possible. The longer a delayed aircraft is in our airspace or occupies concrete on the ground, the more difficult our jobs become. However, the primary function of air traffic controllers is to ensure the safety of the flying public, and this should not be compromised to accommodate more passengers, more flights, or more profits for the airlines.

In the past 5 years, air traffic has increased by 27 percent to 655 million commercial passengers annually. If the economy remains strong and fuel prices remain low, we can expect more passengers and more delays. In fact, the number of passengers is expected to exceed 1 billion annually by 2010.

An airport's capacity to handle air traffic is a function of its size, the layout of its runways, the air traffic patterns, both arriving and departing, and the time frame in which a surge of traffic must be dealt with due to airline scheduling.

II. Unrealistic Hub Scheduling

The inefficient hub and spoke system used by airlines to schedule flights is a major source of delays. Flight departure and arrival scheduling is at the sole discretion and control of the individual airline *not* Congress, *not* the FAA, *not* the air traffic controllers, *not* the airports, and *not* the public. It is time for the airlines to acknowledge their responsibilities in creating delays.

To maximize profits, airlines are intentionally overloading the system. Delays from airline scheduling occur every day at every major U.S. airport. Schedules are blindly made to reduce operating costs and maximize revenue without regard for other airlines, terminal airspace or airport capacity. At "peak" times, dozens of planes are simultaneously taxiing for take-off or queuing above the airport in a finite amount of terminal airspace. This is where the laws of physics kick in. Given runway capacity, only certain number of flights can depart and arrive within a specified time period. Therefore, airline over scheduling during peak hours guarantees delays at busy airports even in good weather. It is like trying to cram 10 pounds of sand into a 5 pound bag. All scheduled flights will not be able to depart or arrive on time.

Examples of airline induced delays:

- At Dallas/Fort Worth airport, the approximate airport acceptance rate during a 15-minute period is 32 aircraft under perfect (VFR) weather conditions and 24 aircraft in IFR weather. However, day after day airlines repeatedly schedule more arrivals than DFW can handle—often as many as 58 arrivals during a 15-minute period. In fact, during one 15-minute period, 57 aircraft were scheduled to arrive. Fifty-two of these were from American Airlines which use DFW as one of its hubs. Even if the weather is perfect, 25 arrivals will be delayed.
- At Dallas/Fort Worth airport, the approximately airport departure rate is 11 aircraft in a 5-minute period and 32 aircraft in a 15-minute period. Again, day after day airlines repeatedly schedule more departures than DFW can handle—

often as many as 16 departures at the exact same minute. It is physically impossible to depart that many aircraft in one minute. In fact, during one 15-minute period, 59 aircraft were scheduled to depart. Fifty-five of these were from American Airlines which use DFW as one of its hubs. Even if the weather is perfect, 27 departures will be delayed.

- At Cleveland airport, the acceptance rate during a 15-minute period is 10 aircraft. Due to airline scheduling, 18 of the 56 15-minute segments in a 14-hour period are over capacity.

In acknowledging that delays are inevitable from over scheduling at peak times, airlines pad their schedules so as not to negatively affect their on-time percentages. For example, a flight from Washington, D.C. to Atlanta takes a little over an hour in actual flight time. But, the airlines' schedule the flight to last two hours because they know the runways will be overbooked on departure and/or arrival.

Regardless, the airlines would rather have passengers sit on the tarmac with no space to take off than lose money. Competition among airlines exacerbates this situation. For example, one airline claimed a loss in excess of \$1 million by scheduling a flight at 12:05 rather than exactly matching the time of a competitor's noon flight. Therefore, if airline A offers a noon flight from Washington, D.C. to New York, then airline B will offer the same flight.

As long as the airlines continue to overbook runways, especially during peak hours, air traffic delays will continue and passengers will wait. Cramming extra flights into an already over-taxed system only creates congestion in the terminal space, on the runways and at the gates. Even if controllers had the most up-to-date equipment, air traffic delays will not be eliminated. Controllers would simply be able to keep better track of the planes.

III. Weather

Inclement weather has, and will continue, to play a significant role in air traffic delays—accounting for approximately 75 percent. Unfortunately, nobody but Mother Nature has any control here.

Planes fly on a complex set of invisible “highways in the sky” with intersections, speed limits, separation requirements, etc. After takeoff, the controllers in the airport tower hand the plane over to controllers at terminal radar approach controls (TRACON) and thereafter, to controllers at one of the 21 regional centers. Depending on where the plane is going, it may be passed on to another regional center and another until it nears its destination. Storms or inclement weather cause blockage or closing of one or many of these unseen highways. When this occurs, air traffic bottlenecks just like it does on the interstate at rush hour. Controllers must then reroute all air traffic. In addition to air traffic, ground holds may be placed on planes if their destination airport is unable to accept traffic. It can take hours to recover from a brief shut down of one air route.

Most often large storms are predicted early enough to ensure flight safety. However, sudden weather shifts require controllers and pilots to alter flight operations to ensure safety. Controllers need timely, accurate information to reroute traffic to avoid turbulence and delays. The following four technologies dominate aviation weather information: the Automated Surface Observing System (ASOS); the Digital Automated Information Service (D-ATIS); the Next Generation Weather Radar (NEXRAD); and Terminal Doppler Weather Radar (TDWR). However, funding levels limit deployment of these technologies to large hubs and primary “bad” weather facilities.

In addition to funding, adequate training is needed to provide controllers with a better understanding of weather activity. Most controllers receive weather training early in their careers at the Oklahoma City academy and biannual briefings on thunderstorms and ice. Only those controllers with ASOS observation duties receive complete weather observer training, and little to no training is provided for using weather radar systems.

IV. Under Utilization of Airports

A close examination of the use of our nation's existing airports is needed. NATCA believes that certain city airports are better suited for originating and/or terminating flights than associated hub airports. Most hub airports throughout the country have associate airports nearby. These associate airports are underused. NATCA believes that increased usage of these airports by passengers and airlines will alleviate congestion and delays at the hubs. In fact, some of these associate airports are not being used at all.

- Consider Chicago's Midway and O'Hare Airports. Midway may be better suited for passengers destined for Chicago than O'Hare Airport. If passengers destined

for the city of Chicago use Midway, this may alleviate some of the delays at O'Hare.

- Consider St. Louis Lambert Airport. The runways at Mid America Airport (approximately 25 miles east of St. Louis) are 7,000 feet apart making it suitable for parallel approaches. Yet, St. Louis/Lambert Field, with runways too close together for parallel approaches, is the hub airport. Why is Lambert Field so congested while Mid America Airport is ignored?

V. Policies Changes Affecting Delays

Increasing Number of Commuter Flights

In order to achieve a competitive advantage and reduce costs, airlines have increased the number of small jet planes with frequently scheduled flights. This has resulted in crowded airports and increased en route congestion. These planes use the same airspace as larger jets but fly at a slower pace.

ATC Modernization

The FAA modernization effort consists of over 100 projects. Admittedly, there have been a number of problems and obstacles but the FAA has turned the corner. And, we would like to commend Administrator Jane Garvey on her efforts in getting many of the ATC modernization projects, specifically DSR and STARS, back on track. We are firm supporters of Administrator Garvey's "build a little, test a little, deploy a little" strategy, and NATCA will remain an advocate of this throughout the modernization effort.

We would also like to commend the Committee on passage of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century. This three-year, \$40 billion Act will provide necessary funding for modernization and airport construction projects. NATCA has long believed that stable and guaranteed funding is essential to the modernization of the national air system (NAS).

Many are quick to point the finger at the "outdated and antiquated" air traffic control system as a major cause of delays. However, I am here to tell you that not only is this not true, but to refer to the air traffic control system as "outdated and antiquated" is no longer an accurate characterization.

- Installation of Display System Replacement (DSR) at 20 air route traffic control centers (ARTCCs) is complete. DSR modernizes the computer equipment and provides the platform for future air traffic control system upgrades. With DSR in place, controllers have the necessary tools to more efficiently handle today's traffic volume and to accommodate the projected increases in air traffic. While DSR installation was not without difficulty, only three percent of delays last year were attributable to these equipment failures and upgrades. Controllers needed to adjust to the new platform where the computer human interface is completely changed from the old system. DSR installation was like trying to change a tire while traveling at 60 miles per hour.
- With respect to the Standard Terminal Automated Replacement System (STARS), the FAA has revamped the budget and deployment schedule. STARS will replace aging computer and radar scopes at 172 terminal air traffic control (TRACON) facilities and 362 airport control towers. Installation of STARS is already complete in Syracuse, NY and El Paso, TX.

Yes, the current system can be improved, but improvements take time to develop, test and implement. Privatization will not speed up this process. If anything, fracturing the system will slow progress in evaluation, testing and deployment of needed systems. And, while continuing upgrades and new technological advances are necessary to ensure safe, efficient travel in the future, they will not solve the problem airline-created delays. Newer equipment will not increase airport capacity or change the number of aircraft that can land or depart at any given time.

Privatization

Privatization is not the solution to aviation delays, NAS modernization, or the other problems plaguing the air traffic control system. Privatization will not increase airport capacity, or build more runways or airports. It is simply a business-oriented solution being offered by—surprise—the airlines and others who stand to make a profit. Proponents argue that competition in the private sector allows companies to provide services more efficiently while reducing costs. Yet, private companies will constantly balance the bottom line against safety. Some things should not be reduced to dollars and cents.

Given the nature of the air traffic control system, privatization is foolish and unfounded. The safety of the flying public should never be in competition with corporate profits. The most sophisticated, top-of-the-line computer system can not guar-

antee a safe and efficient air traffic control system. Only a highly trained and adequately staffed workforce can do this. With or without working technology, the human element is the last line of defense in maintaining the safety (separation of aircraft). For FAA controllers, safety is the number one priority. Private companies, however, have little accountability to the public—only to their stockholders. Moreover, profits are achieved at the expense of the employee. All one has to do is look at the current Federal Contract Tower (FCT) Program which is characterized by inadequate training and staffing, lower salaries and fewer benefits, communication lapses and poor working conditions.

Privatization of air traffic control operations would further erode the homogenous management structure and the seamless nature of our air traffic control system. The air traffic control system operates through teams of highly skilled and well-trained controllers linked together with highly sophisticated communication and radar systems. A smooth, safe and efficient system depends on the seamless transition of aircraft from control towers to Terminal Radar Approach Controls (TRACON) to Air Route Traffic Control Centers (ARTCC). A breakdown in communication between controllers at these facilities reduces safety, capacity and overall system performance. When one link in the chain is broken, communication breaks down and safety is compromised. FAA controllers share common language, background and management. Piecemeal privatization of air traffic control operations eliminates standard phraseology and procedures. Contract controllers do not receive the same training as FAA controllers and are not required to follow the same work rules and agreements.

Level II and III Towers

NATCA strongly opposes expansion of the Federal Contract Tower (FCT) Program to include Level II and III visual flight rule (VFR) air traffic control towers. To do so would not only be unwise, but it would be a radical departure from the confines of the existing program. Currently, the FCT program consists of low traffic volume towers with an hourly traffic density of less than 35 operations (arrivals and departures) per hour. The number and complexity of operations increases significantly from Level I facilities to Level II (approximately 50 to 60 aircraft per hour) and Level III (over 100 per hour) towers. In fact, eleven of these higher density are among the busiest airports in the country. For this reason, the FAA is also opposed to contracting out Level II and III towers.

Proponents of the FCT program point to the cost savings associated with the current program. However, any reported savings are questionable. And, everyone agrees that these reported savings are at the expense of employee salaries, benefits, training, working conditions and equipment. The FAA estimates cost savings from contracting out Level I towers to be \$250,000 per facility annually. However, these figures fail to account for a number of indirect and hidden costs such as contract oversight, increased insurance premiums, controller relocations, and promotions (salaries increase as a result of moving controllers to higher level facilities). In addition, these figures only show short-term savings, ignoring the long-term costs of potential lawsuits and contract cost growth.

Other Countries

Proponents of privatization often point to restructured aviation departments by governments abroad. NATCA believes, however, that any comparison is illogical. In countries that have partially or totally privatized air traffic control systems, the airspace is relatively confined and compact, with fewer number of employees, planes, air traffic control facilities, and smaller budget requirements. The United States, on the other hand, maintains the largest, most complex and most demanding air traffic control system in the world. Most of the FAA's nine regions handle airspace and operations that far exceed that of any single country that has privatized. Together, all nine FAA regions are responsible for moving at least half of the world's aviation passengers and cargo.

While the same type of air traffic control problems may arise in many countries, it would be foolish to assume that a blanket solution would effectively correct the problem(s) and operate the same in each country. This is because the magnitude of airspace and the number of flights daily differ drastically from country to country. The U.S. air traffic control system is funded through a combination of general and aviation specific taxes, where most nations have a user fee system. In the U.S., commercial passengers pay a large portion of the air traffic control system, and general and business aviation (the U.S. has the largest general aviation community in the world) receive substantial benefits at little cost. Yet, each entity is treated as an equal with services conducted on a first-come, first-serve basis.

Conclusion

I would like to again thank the Members of the Committee for allowing NATCA to testify on the problems facing air traffic control. Without expanding domestic airspace and airport capacity, and addressing the issue of airline scheduling, delays will not only continue to increase but they will reach the point of gridlock in the foreseeable future. As an industry, we must stop pointing fingers and placing blame. Teamwork and collaboration are needed to develop and implement long-term solutions and procedural changes to alleviate air traffic delays.

The CHAIRMAN. Did you hear Ken Mead's comments that there has been an increase with incursions, and other—

Mr. CARR. Yes, sir, I did.

The CHAIRMAN. What needs to be done about that? Because there's a certain inevitability, the law of averages, obviously, is going to prevail here at some point. What needs to be done?

Mr. CARR. Runway incursions and operational errors are up, and I believe that there are symptoms of problems that are associated with the increased demand we've discussed. They're also related, in small measure, to the installation of new equipment.

It should be remembered that while we're using 1970's radar and 1980's radios on 1990 scopes, as controllers and pilots, we are using 1950's separation standards.

Collectively, as a group, we need to examine whether or not it's safe and reasonable to change separation standards, and I believe that a wholesale decriminalization of the operational error and runway incursion problem would leave both pilots and controllers to knowing that not every minor error that they make jeopardizes their career in the field, and I believe that you would use those opportunities more for training and learning than for punitive discipline; and I believe that you would free up, to be perfectly honest with you, more capacity in the system if it was less punitive to both the pilots and the controllers.

The CHAIRMAN. You have additional information, will you provide it to the Committee?

Mr. CARR. Absolutely. I would be happy to.

The CHAIRMAN. I think one of the most disturbing things I've heard in a while is Mr. Mead's comments that these clear safety warning signs are on the increase.

Mr. CARR. It's—

The CHAIRMAN. Mr. Poole—go ahead, Mr. Carr.

Mr. CARR. Well, it's just very interesting the linkage between operational errors and delays because we have separation standard minimums. For instance, five miles comes immediately to mind. We don't have a published maximum, and with the FAA recently implementing more punitive measures toward controllers and pilots alike, similar to a three strikes and you're out policy.

After my first strike, I'm not going to be inclined to run them five miles apart, sir. I'm going to put a little extra room in for my family and my future, and that decreases capacity. It's only human nature.

The CHAIRMAN. Mr. Poole, at least on this issue, he agrees.

Mr. POOLE. I do, indeed. I think that makes a lot of sense.

Mr. CARR. Mr. Poole, how do you respond to Mr. Carr's comments that a privatization of the ATC would then cause aviation safety to be relegated to a less than paramount importance?

Mr. POOLE. I'd like to speak to that directly.

First of all, I very carefully avoided the term "privatization" because what I am recommending is not shifting air traffic control to a for-profit entity. I agree completely that there should be no question in anybody's mind about a conflict between profit and safety. This should be run in the public interest as a nonprofit organization with all the stakeholders represented.

But I think there are three reasons why safety would be improved by this kind of structural reform.

First of all, ICAO itself, the International Civil Aviation Organization, recommends, and this is a direct quote from their director, the separation of these two functions, and they're pushing hard for this to be done in Europe, as well as around the world. You want to have independent third party oversight, not the FAA regulating itself in its role as service provider. It should be at arm's length, like it is at arm's length from the airlines.

Second, this kind of a corporate restructuring will indeed make it easier to modernize efficiently and faster by freeing up the financial resources through revenue bonds and completely private sector type of procurement process, that you'll get newer technology in place faster. That will inherently improve the safety level of the system.

Third: All of these corporate entities that have been created abroad are required to obtain private liability insurance in addition to having the safety oversight from their government agencies, so that provides yet another layer of safety oversight because they have to satisfy the liability industry that they are, in fact, using safe procedures and state-of-the-art techniques and so forth.

So you add that additional layer of oversight to make this an even more safe system.

So I think on safety grounds there's no question this will be a winning proposition.

The CHAIRMAN. Captain Woerth, I understand that you represent a union and you have the right to go on strike after you go through a certain process, and that is a threat that I not only respect but do everything in my power to make sure you keep.

I'm disturbed at the sick-out of the American Airline Pilots, I'm disturbed at what United Airline Pilots did, because it didn't resort to the traditional right to strike. They basically inflicted punishment on traveling Americans.

Now, how do you justify that kind of behavior, specifically American Airlines, although I recognize they are not a member of your union, but what the United Pilots just did in order to exercise leverage, rather than take the traditional path, which is available to you, and then say, we are going on strike because our demands in the interest of our pilots are not satisfied?

Mr. WOERTH. Well, Mr. Chairman, as you already pointed out, ALPA does not represent the pilots of American Airlines, and perhaps the person sitting next to me can better answer that question.

The CHAIRMAN. I don't think so.

[Laughter.]

Mr. WOERTH. I don't think so either. Maybe not. Nice try.

But, sir, as to United Airlines, specifically, I think it is in the record that the pilots of United Airlines did about a year and a half ago try to work with management, actually warned their system,

which was, let's face it, we're in a very successful economy, everybody wants to add as much capacity as they can. They've got some ferocious competitor sitting at this table that are more willing to take their passengers.

And they said, you know, we're not sure that you can continue to rely on all this extraordinary overtime the pilots have been flying year after year, so please cut your schedule back so not to inconvenience the customer.

They're on record as saying that. They've said that on television, and as to that matter, the airline did not really downsize its system, and did not until this month, really match up what the airline can provide.

So the pilots did not fly as much overtime as they had previously. They told them they were not going to, and actually, now I think compared to what they were doing for the rest of the summer, the airline's running very well.

It should also be noted, sir, as I mentioned, United was especially affected, I believe, with the location of the convective activity this summer. It appeared in June and July, the line of thunderstorms was just unbelievable. When you have two hubs—and I know Mr. Carty is trying to address his issues with Chicago—in between Chicago and our other massive hub in Washington Dulles, the system really did become overloaded.

The CHAIRMAN. Well, I don't want to belabor the point, and I won't. I've made my point, and there's no point in continuing to bash these people.

But what I would just finally add as a footnote. Many of these people are friends of mine who used to be in the military, and they should appreciate what this does not to rich Americans, but particularly in the summertime when people literally have saved for a year to take a vacation and find themselves out of any capability of doing that. It has really inflicted a lot of harm on innocent Americans with this kind of work stoppage.

I do take your point, that United Airlines warned management that they would not fly that much overtime, but they should also, I think, take into consideration a lot of people's lives were significantly disrupted by this action.

Again, I won't belabor the fact. In fact, I don't intend to speak further on it unless I'm asked for an opinion because I think it would be rather gratuitous, but I hope you'll communicate with the members of your union that one of the important assets they have is the goodwill of the flying public and that's put at risk.

Mr. WOERTH. Thank you, sir. If I could respond in this regard. I have done that. I actually pulled it out, and I can give you a copy of it, what I put in our Airline Pilot magazine, which is distributed to about 72,000 people, with a message from the president on the importance of following to the letter the Railroad Labor Act. I'll make that available to you, sir.

The CHAIRMAN. Thank you very much, Captain Woerth.

Mr. MULLIN AND Mr. Carty, I just have a comment. I think you have been diligently pursuing better conditions for the flying public. I also think you have a long way to go. Mr. Carty, do you share Mr. Mullin's concern about the U.S. Air-United merger?

Mr. CARTY. I do agree with Mr. Mullin that because of the importance of networks to our business, a step by a major competitor to dramatically strengthen, broaden the network of that carrier, and in this case, United-US Air, has got to cause carriers like Delta and American to think in turn about what they must do as a counterbalance to get their network as broad and as strong as their competitor. But I think it could lead to subsequent mergers.

The CHAIRMAN. i.e. it would lead to subsequent mergers?

Mr. CARTY. Yes, sir.

The CHAIRMAN. Thank you very much.

Senator Cleland.

Senator CLELAND. Thank you very much, Mr. Chairman.

I just want to applaud all of you for being in this tough and exciting world. It's got to be one of the most difficult jobs in the world to try to manage or lead an airline today, and Captain, you and your colleagues have my undying admiration and support for literally the risk you take on behalf of us, the flying public, everyday.

Mr. Poole, thank you for trying to analyze these challenges; and, Mr. Carr, thank you very much for your wonderful group of air traffic controllers who day in and day out, 24 hours a day, try to do the best they possibly, humanly possibly, can do.

Mr. Mullin, let me just say everybody knows this has been a tough season the last 6 months in terms of on-time performance for the whole airline industry, and yet Delta went from 10th to 3rd. You improved your on-time performance.

To what do you attribute that, other than great leadership at the top?

[Laughter.]

Mr. MULLIN. You took away my line.

Actually, it's a system that has no silver bullet to it. When we were 10th in 1997, we actually put together a task force that identified 70 separate initiatives to be taken across the system at every single one of our airports and hubs, and thinking through how it was that we could better schedule the airline.

I would also add that we have periodically taken steps, particularly in Atlanta, to de-peak the system, to get a better flow. Several references have been made to schedule, and how you run your schedule is crucially important. It is also very important that you have your team and your employees with you throughout this kind of a process.

We've worked very hard on that, but it is a system where you have to take it every single location, one by one, and put an improvement program in and then hopefully put the pieces of the puzzle together and away it works.

Senator CLELAND. Thank you very much. We appreciate your leadership.

Any reaction to the phrase, "capacity benchmarks," owing to the fact that given the, in effect, free for all economically out there and the competition between airlines under deregulation to go after markets, and you want to expand your markets and go after every customer, just like we want to go after every voter in an open market environment, you want to expand that market and go after customers.

But it seems to me that we are really, to use an air pilot phrase, “we are pushing the envelope now,” and under that free for all some airlines at some airports have, in effect, scheduled more aircraft, more tin on the air and on the ground than the capacity of the airport or the air traffic controllers can handle on their best day.

Therefore, the FAA comes up with “concept capacity benchmarks” as a suggestion for remodel action.

Any reaction?

Mr. MULLIN. I think the fact that we have to consider capacity benchmarks is just a truly unfortunate aspect of what has occurred here.

Go back to the fundamental point that we do exist to serve customers, and those customers want to fly where they want to fly, when they want to fly.

We are an industry that drives our mission from service to those customers. Capacity benchmarks is nothing other than metering the service or constraining the service and cutting down the options that the traveling public has.

I think that given the situation that we have here and to echo some of the things that Don Carty stated, in the next two to three years, I think we’ve got a really unique challenge at a number of these airports so that these capacity benchmarks maybe, in fact, be necessary, in order to just deal with the situation which has gotten somewhat out of control.

But to allow ourselves to create a situation which has capacity benchmarks throughout it, is to sub-optimize this system. This system is big enough. I mean, this problem of reaching a billion passengers by the year 2010 is not going to go away in 2010. And in 2020, nobody’s run those extrapolations, but I’d guess it’s going to be 2 billion passengers. This is America. There’s enough room out there for us to run an aviation system that serves the traveling public.

Our job is to create capacity in the airports, in the air traffic control system, and in the airlines that can serve the traveling public. Anything that has constraint built into it, is not doing their job, and we’ve got to get the system built in a way that just allows us to have enough capacity to provide the traveling public with the services they need and they deserve.

The CHAIRMAN. Mr. Carty.

Mr. CARTY. If I could just elaborate a little bit on what Leo said. I agree with what he said. Somebody made the reference earlier, if you go back to the FAA forecast for the Year 2000, which was developed in 1993, it was for 700 million passengers. That’s what we’ve got. So, in a sense, we shouldn’t be surprised.

Now we have a forecast for a billion passengers. That’s like adding United, Delta, and American to the system again. Now that’s a lot of growth and demand on the system, and we certainly don’t want to be here 5 years or 7 years from now saying, gee, we knew it was going to happen, but it happened anyway, and we weren’t ready for it.

In the case of the capacity benchmarks, to come back to your specific question, I think the benchmarks will be very helpful in giving us a far more realistic picture of what the current capacity is.

I think they will also allow us to set targets for improving that capacity by, as Jane alluded to earlier, looking for the choke points and taking them out of there, and ramping up that capacity.

And it will also help the airlines, as I think they're helping American today, to look at the hubs or the predominate schedule and make the schedule more workable. But I'm sitting here looking at a chart of LaGuardia's taxi-out comparison on only good weather days in September. Only good weather days.

And they look—I'm just looking across the hours of the day. It looks like we're running up to the 50-minute level, and a year ago we were below 20 minutes. So we're almost tripling the taxi-out delays at LaGuardia. There are three or four airports around the country where that clearly is also happening.

I'm not sure, aside from, as Leo said, just keeping to work to push that capacity capability up at LaGuardia, what a benchmark is going to tell us. Because, much as I love Leo, I'm not going to retrench in my competitive efforts to take all the passengers in LaGuardia and nor is he. That's an airport where we actually had to find capacity limits, i.e., slots, and now we've, in effect, liberalized those.

So it's going to be a public policy debate for the next two or three years. I think it's a tough problem.

Senator CLELAND. I wasn't going to get into this until the end of the—until I had asked some other questions. I might say now that since I'm the lone individual here—

[Laughter.]

Senator CLELAND.—the future of American Airline travel is now in doubt.

[Laughter.]

Let me just get to a philosophical point here. And I don't really have an answer for it. I don't really expect you to have an answer for it. Just whatever reaction you have is okay. There's no right or wrong answer to this.

In 1938, the Civil Aeronautics Board was formed, in effect, to promote domestic or commercial aviation, it seems to me, in both aspects. to look after the, quote, "commercial side," so that we had viable commerce in airlines, and that was a good thing for America, and we grew our airlines.

Second, though, that the public interest was served, and under that sense, basically, every flight, every ticket basically, every move that an airline made was, quote, "regulated," and it had to kind of check off with this Airline Aeronautics Board.

There was control, there was coordination. There was a certain sense of a national system being worked. You take that off, in effect, you take off the gloves, and it's American versus Delta, it's grab it and growl. It's go after the market, and if you don't do that then you don't survive. Survival of the fittest.

However, the problem is, we didn't deregulate safety. We didn't automatically build in capacity when you increased by 300 percent your customers.

So we deregulated, in effect, the economics of air travel, but we didn't deregulate the capacity that actually determines your market and your ability to serve your market.

It seems to me that we're kind of sown to the wind, we're reaping the whirlwind now that we've kind of skimmed off the best aspects of deregulation. Lower ticket prices by 40 percent. Mr. and Mrs. America, you can fly. And you can have more choices of where you go and how you get there. Good for the consumer, looked like deregulation, quote, "great idea."

The problem is now everybody goes to DFW at the same time. Over 50 airlines scheduled 50 landings at the same runway in a five-minute period of time—the runway only handles 34 or 37 on a great day, 24 on a bad day—and we've got this gridlock choke points and deteriorating service, deteriorating perception of airline service and so forth.

We are, I think beginning to reap the whirlwind of deregulation. I'm not sure where we go next. I realize your emphasis in the private sector now is not so much airline as a service but airline as a business. You've got to make a profit, and you've got to move forward, and you've got to expand your customer base.

The problem is, over here, we have a limited amount of air traffic controllers, we have a limited amount of runways, and we have a limited amount of air space, and I'm not sure what we should do. I think if we just increase a little bit of that, we're just dealing with the problem of the edges. You're still going to be pressured to expand your markets forever.

I think we're somewhat in a Catch-22 here. I realize the demand that you have, but I also realize the realistic point that so much of what you need is really out of your control, and that somehow we have to begin thinking again of this whole thing as a system, to plug in some of the public interest aspects of it as well as the private profit aspects of it and see if we can't come up with some innovations here, not throwback to maybe total deregulation but at least some consideration for benchmarks that four runways can only handle so many aircraft.

There's only so much tin you can put in the air and so much tin you can put on the ground safely. And then if you go beyond that, I think that's what the benchmark is all about. If you go beyond that, you're now in a risk zone, and the more you go beyond that, you're incurring additional risk, additional delays, and additional problems.

I think that's what the benchmark is all about, and it gives us part of what I think we're after, and that is, some basic definitions that we can all agree on, that here's this standard, and if we go here, we've got a problem. If we meet the standard, we should be OK. That kind of thing.

Also, a realistic assessment that the public out there can evaluate the rest of us on.

Captain Woerth, let me just say that some cargo airlines are experimenting with a satellite and cockpit bay system, in which planes signal their locations to each other. I'm told that it could allow pilots to fly closer together at their discretion, thereby increasing the capacity of air lanes. Do you have any reaction to that?

Mr. WOERTH. Well, our public policy statement as to traffic separation still believes the absolute safest way to do that is with the help of air traffic controllers having third parties separate us all.

I have no trouble having more knowledge in the cockpit, having that information to us, like we have in TCAS and other things. We'll accept any amount of information we can get to help it be safe, but the primary responsibility that I think will ensure the safest air traffic between the cargo planes and passenger planes will be with our brothers at the Air Traffic Control Association.

Senator CLELAND. Mr. Carr, ultimately, you and your people are the traffic cop on the block.

Mr. CARR. Yes.

Senator CLELAND. The traffic cop is not running for mayor. He doesn't want to get the most votes, but he's the guy that enforces the neighborhood and makes sure it's safe.

So you're the man. I mentioned earlier, a little bit joshing but not really, about air traffic controllers being happy in their work. What do we need to do keep our air traffic controllers, our traffic cops out there, that want to be on the beat? They volunteer for this duty? It's a tough duty and tough responsibility, and it isn't like airline flying itself. It is an unforgiving before. And what do we need to do to keep your folks happy and to move forward in this business?

Mr. CARR. In my person opinion and in the opinion of the people that I represent, if the will of the Congress and the American people is to create open-ended capacity with unlimited growth potential at the top, we need to start pouring some concrete. There just simply are not enough runways, taxiways, terminals or gates to accommodate the projected growth in passenger volume between now and 2010.

We are happy, by the way, and we appreciate your comments, and sincerely appreciate your support of our organization, Senator.

We like to be involved in the solutions on the front end so that we don't have to mitigate the impact of bad decisions on the back end. I believe—

Senator CLELAND. Can we talk about that for just a second.

Mr. CARR. Absolutely.

Senator CLELAND. Do you think you'll have some input in defining some of these capacity benchmarks since your people live with every takeoff and every landing and probably have a good feel as to what capacity on a good day should be, what that benchmark would be?

Mr. CARR. I would expect that we would. Actually, our organization has built a very collaborative relationship with Administrator Garvey and with the FAA and as opposed to a traditionally perhaps adversarial labor management relationship, we very much find ourselves in the same lifeboat, and we're both going to have to row to get where we're going.

They have welcomed us on with open arms on the front end of many of their projects, and we look forward to a continuing good relationship with the FAA. We believe it is a real partnership that has potential to grow the system, to increase capacity, to improve relationships, not only with the users but with the stakeholders and with the pilots.

As I spoke to the chairman earlier, we are concerned that there is a need to decriminalize errors within the system.

Five miles of separation is the legal minimum. 4.9 is an error. It is not necessarily unsafe, it's just one of three errors I get to make in my career before I go hungry. So we're very much concerned about that.

Senator CLELAND. It was a fascinating litany there that you mentioned about 1950's separation standards. 1960's something, and 1970's radar, and then 1980 something or other.

We've been told, you know, that the FAA has got this advanced system out there, and it's only three or 4 years old and all this kind of stuff. But run that litany by us again one more time.

Mr. CARR. Well, the radar system, the actual radar which reflects off an aircraft and comes back and tells us the position altitude, that technology has been around soon World War II, and radar is what radar is. It reflects of a target, it comes back, and there you are.

It isn't substantially different now than it was then, except that the information it provides is much greater.

Our radios have been improved, however, the technology, I would say, is still in the improvement stage. We're beginning new systems on line. And then the radar displays, the consoles and displays, thanks to Jane and the folks at FAA, are all new in every center in the country. Those are less than 36 months old at every air traffic control center in the country, and we're in the process of bringing a similar system to every terminal, but it's going to take time. There's over 170 of them that we have to install.

And, again, we take the safety of the flying public as our first and primary goal, so we're not going to throw a bunch of scopes in, plug them in, sign off on the warranty, send in the card and be happy with it. It takes some time.

But we're very happy with the progress of modernization. But the separation standards that we use are archaic, they're ancient. Three miles and a thousand feet has been around since the advent of aviation. And to be perfectly honest with you, on behalf of my friends, the pilots, "see and be seen," is still the bottom line separation standard to which they are held, even when they operate in clouds.

I think that's old and it could use some review.

Senator CLELAND. Thank you very much, our distinguished panelists. Mr. Mullin and Mr. Carty, thank you for being here. You can count on me to help expand capacity. Captain, we'll continue to follow our wonderful pilots into the air. And, Mr. Carr, thank you for helping us all stay safe.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Cleland.

Senator ROCKEFELLER. One observation. Every time—I keep coming back to this point just simply to make it—every time now I walk through a large airport, in my mind, in my eye, I am able to, with amazing accuracy, double everything that I am looking at. Double the passengers, double the gateways that aren't there, double the airplanes that will be there in 8, 10 years. So, again, this illustrates the urgency of all of this.

Let me ask a couple of questions, and I know you've been here for a while.

It is a fact and I'd put this to all, although it's obviously directed more at Mr. Mullin and Mr. Carty—that there is overscheduling.

One of you did indicate that a vacuum cannot be allowed to stand because somebody else moves into it, that you are in a classically competitive business, and therefore it's sort of a chicken and egg question. You're overscheduling and yet you can't afford not to. So what can possibly happen on that?

Well, one of the things that I suggested in my opening remarks is that you could be nervous about antitrust laws. You can't meet, you can't talk about, well, I'll do this if you'll do this, which would in fact be in the public's interest. You know, I won't schedule these operations if you won't schedule those flights, which would in fact be in the interest of delays and probably national aviation policy. It would probably be in the interest of it, but you can't do it.

Do any of you have any thoughts as to ways around that or possibilities of DOT using its existing authority—I don't know, I'm not a lawyer so I don't know how to phrase the question. But do you understand what I'm asking?

In other words, antitrust may stand in the way of sensible and safe aviation travel in that area.

Mr. CARTY. Yes. I think, Senator, that none of us want it to stand in the way of safe transportation, and I don't think it has. I think the implication is all back up on the service side, to dependability and reliability, because these guys, nor do the corporate cultures of the big airlines are going to tolerate an unsafe air system. It's not in any of our interest—

Senator ROCKEFELLER. I'm not questioning that. I'm not questioning that.

Mr. CARTY. So when an airport gets over capacity, it's a service issue. And it is true that in the past on a couple of occasions the government has sought ways to provide antitrust immunity for airlines to sort out schedule problems for various reasons, and it could be done.

I would go back, I think, to Leo's comment, is that it's not the ideal solution, because in effect what you're doing is you've got creeping re-regulation of the business going on again. Because we haven't provided the infrastructure to really let it rip, we are saying to ourselves we're going to limit the marketplace in some way, either by telling Delta and American through a slot mechanism that they can't fly or agreeing that Delta and American should get in a room and sort out the LaGuardia problem.

Either thing is probably adverse to providing the kind of capacity that the economy in the market is demanding, but, as you point out, might well be consistent in a very short term with improving service in the industry.

There is no question 2 days in a room with all the airlines that fly airplanes in LaGuardia, you'll have a LaGuardia schedule that will work. There's no question about that.

Each time the airlines have been granted antitrust immunity to sit down and talk about a scheduling problem, they've always sorted it out. There was a time a number of years ago when there was some transcon capacity issue, and the government was very worried about it. I think the meeting took 20 minutes, and flights were eliminated. So it can be done.

But I go back to Leo's opening comments. It's not really what any of us and, more importantly, our economy is looking for. We're putting constraints on the natural marketplace.

Senator ROCKEFELLER. You are by doing that. But I then go back immediately to my 10 years hence scenario. When everything today is doubled, does that change things at all? Leo?

Mr. MULLIN. Just an elaboration because I agree with what Don said. I think, Senator Rockefeller, that if we do that it is just short-term. I think while you stepped out, I just made the observation that America is about growth. And we've all talked about the 1 billion passengers, and you had your own visualization of it when you walked through the airport, and it's going to be 2 billion passengers by the year 2020.

This problem is going to be with us all the way along. What we've got to do is get the solution for the whole long-term problem. So if we get together in LaGuardia, which is desperately in need of some kind of solution, by the way; and I'd almost advocate doing this because it's kind of sick up there right now.

But I would really only want to have that privilege for a very short period of time and then get at the hard work of the long-term solution.

Mr. CARTY. If I could, I'd like to comment on a question that you asked earlier that is related, and that is this question of whether the Federal Government needs to do more to incentivize the kind of airport development that needs doing.

I really do think we've become subject to the tyranny of the minority in a number of communities. All those folks that travel in and out of O'Hare, most of whom live in Chicago and are fed up with being on the runway, are being held hostage by a very limited political interest around O'Hare airport that is blocking another runway. That runway should happen, whether we build another airport in Chicago or not. The current activity in Chicago dictates another runway in Chicago.

The city of Boston has needed another runway for a long time, and we are still waiting for that.

These are very tough issues, and I have the good fortune not to be a politician so I don't have to be buffeted by all of these influences, but from our perspective it seems so clear that the majority of people using an airport in many of these cities, many of them actually live and work in those communities, want more capacity and better service, and in most of these cases, there is a tyranny of minority that has tied them up in the courts and making runways that should take 2 or 3 years take 8 or 10.

Now the good news is we can do it faster than Europe. The bad news is we do it a lot slower than they do at Asia.

Senator ROCKEFELLER. All right. Thank you.

I think everything should be on the table again if we're to move forward on this.

This is put in an entirely constructive way, and I'll start out by giving it a predicate: Back in the late 1960's and 1970's in West Virginia, when there was a dispute, a labor management dispute, between coal companies that didn't want to do anything and unions who had problems at the face of the mine. So we were living under a regime of TROs, temporary restraining orders, and nobody was

mining coal, and West Virginia's unemployment continued to increase its lead over every other state. So that was bad for the state.

Then, it's hard to even trace the date or the conversation, but folks got together, and they said, this is hurting us, this is hurting our company, this is hurting our union, this is hurting production being on strike. And there was the culture of non-giving on both sides.

I'm not saying that this is true in your case, but it was true at that time. There was an ethic that you simply didn't give. You went to court before you gave anything at all.

Now the United situation forces us to look at this question. I think if everything is going to be on the table, in terms of labor management relations in the airline industry, in the next 10 years, as we are overwhelmed by what the Secretary indicated would be runways that would be built on time, and I'm questioning whether or not that's true.

What you can build for \$100 million in Boston may take \$850 million in St. Louis, depending upon lots of things.

For example, I have no idea what went on in all of that, and I'd say referring generally to the situation. I have no idea what the result of all of that was.

But what if the result were such that United were unable, for example, to take more of the strike and thus gave wage increases or benefit increases, that they were able to pay but that other airlines would not be able to afford.

But then if there were, generally speaking, a sort of tradition of parity within the airline industry, that then caused other airlines to fail, or something short of that word. That was a little bit too dramatic. And that, in turn, came back to hurt a number of pilots or other folks who belong to unions.

So what I'd like to get from both management and labor is how you see the current crisis, the urgency of the solution, what Mr. Carr said in terms of working together—having found a relationship with Jane Garvey, and I understand that, because I think she's not only superb but wonderfully easy to work with. And I'm not assuming that it could be any different otherwise.

But can you just give me a sense of whether anything has changed? Do either sides see a different responsibility in terms of this doubling of traffic and all the rest of it? I've double-asked the question.

Mr. WOERTH. Well, Senator, I think everybody at this table supports a collective bargaining process. There is just no substitute in a free society, and it has its rocky moments, and it has its smoother moments.

Right now, we're probably having a time where there's a lot of focus, and particularly in our industry, because we can't get out of the newspapers no matter what we do. I mean, we're on the front page of every paper, we're on the TV every day. It's because of the importance of our industry and the frustration with the delays. This is probably the fourth or fifth hearing we've held on it, so we're more under the microscope than ever before.

But I don't think the fundamentals of the give and take of collective bargaining has changed all that much, especially in our industry. I think it should be also noted that people forget—and Sec-

retary Slater mentioned it—the first half of this decade was a very terrible time financially. We thought we were going to lose the whole industry. Where was the bottom?

President Clinton formed a special commission. We were troubled, about how this industry was even going to survive.

We did start to turn around in the mid-1990's and had some good years profitability since.

I think it needs to be said and recognized in those early 1990's, there was a tremendous amount of concessions and give backs, and understandably so. if you're going to save your airline, somebody is going to have to do something.

And now there is a little bit of pent-up demand and some impatience. People are looking at a successful marketplace, and they want to regain certainly what they gave up.

We constantly refer to that. Airline passengers, there's three times more of them flying since 1978, and it is 40 percent cheaper in real terms off their tickets, and that is wonderful.

Even some of our best contracts today that we've negotiated, including the United contract, doesn't barely keep up with inflation over the last 20 years, even of the best contract we have.

So collective bargaining is going to continue. We understand that if we frustrate the public too much or upper management upsets the public too much, the last thing I think either one of us wants, and I think the Congress wants, is to get back into our business, I think I certainly am committed to resolving this in the private sector. That's through collective bargaining, and we're committed to that.

Mr. CARTY. I think to some degree, Senator, my own perspective is that, to some degree in the last several years, we've kind of lost track of something Leo said earlier, that really this needs to be all about serving the traveling public, because the success of the employee and the success of the commercial enterprise is dependent on that.

And there certainly has been some history, and Duane touched on some of it, the industry in real doldrums, and then finally digging their way out of it.

There's some other history, too. The industry is changing, continues to change very quickly. The advent of a new technology airplane, the RJ; the advent of these international alliances, which I think makes the employees of every company feel a little bit insecure, is the enterprise trying to give my job to somebody else. And all that clouded by these economic issue that Duane referred to. In a way, I think we've lost our way a little bit.

And I do think the United experience and a couple of experiences in the 18 months before that have sobered us all up a little bit.

National Railway Labor Act was designed to allow the collective bargaining process that I think all of us endorse to occur in a way where the traveling public would not be harmed, or would at least have fair warning if they were going to get harmed, 30 days notice, a cooling off period.

Unfortunately, the last 24 months that hasn't happened. The traveling public has been abused badly, and I don't think that's a unique responsibility of labor. I think it's a joint responsibility of

labor and management to get focused on what the law is, remind ourselves.

We need to insist that we all follow the law, and labor's got to also focus on the fact—I think Duane has a very good editorial he's put out in the *ALPA magazine*—on getting back to a collective bargaining process that really runs with the spirit of the law that exists and find different ways to begin thinking about negotiation.

What do we have—what interests do we have that are common, to get back to your West Virginia story. Let's quit spending all the time on the things that divide us, the difficult contention that inevitably occurs by dividing up the economic pie, and let's get back to a relationship of trust that the management of these companies aren't trying to do away with their jobs, and let's look for common overlap of interest, and let's start the bargaining process by trying to agree on all the things that we share an interest in rather than all the things that divide us.

And I think we can get back to healthier labor relations in this industry. We are certainly determined to do so at American, and I have a good sense that the leadership of our major labor unions are on the same page.

Mr. WOERTH. Could I add one thing, Senator?

Senator ROCKEFELLER. Sure.

Mr. WOERTH. I think maybe an appropriate analogy, since we're talking about ATC delays, I think we've all agreed that getting some of these contracts on time, that is adding to the frustration. I think we're all committed to getting these things.

When they're amendable or expire, the closer we can do that and start early enough, and whatever processes we have to do to get them closer to their amendable date, the longer they run without a contract, an expired contract, the frustration builds. I think we're all committed to getting the closer to where we are on time, is not that much different than this industry. People would be a lot happier on time. Not just traveling public, but employees and shareholders alike.

Senator ROCKEFELLER. I just remember the difference that it made for a period of 15—well, actually, it still pretty much continues in West Virginia. Our problem has been mechanization of the minds. But the labor and management thing, it just completely changed because they decided that they are each losing in the process. I just wanted to put that on.

I have a lot more questions I want to ask, but I can't, because I have to adjourn this hearing and open another one for some confirmation hearings.

I thank you all very, very much, and you're free.

[Whereupon the Committee was adjourned.]

APPENDIX

PREPARED STATEMENT OF HON. WAYNE ALLARD, U.S. SENATOR FROM COLORADO

Mr. Chairman, thank you for allowing me to contribute my comments as a part of the Senate Commerce Committee's hearings on air traffic in the United States. As you are aware recent issues affecting the major air carrier flying in and out of Denver International Airport have generated great interest in this issue in Colorado and the surrounding region. For several years now there has been a growing interest in consumer satisfaction with the airline industry and I am pleased that your timely hearings recognize the broad scope of this issue.

I recently hosted a series of roundtable meetings in Denver with community, business, and government leaders concerning many of the important issues confronting the State of Colorado. One of the more interesting Roundtables each year is the High Technology Roundtable. The high technology industry has been increasingly drawn to Colorado due to many factors. Colorado is fortunate to have a number of nationally recognized research universities, a high standard of living, and an educated work force. The recent completion of a new high-capacity international airport in Denver rounded out the qualities that large high technology companies look for when selecting sites for new facilities. It is no secret in state and local government that the high technology sector represents high paying jobs, a solid tax base and a clean industrial presence. I am proud of the State of Colorado for providing such an alluring draw for the industry that is playing such a vital role in America's economy.

I am deeply concerned that a consistent theme at each roundtable was the ongoing and highly publicized problems in the passenger aviation industry. The lack of confidence in passenger airline service and the increasing stakes involved were clearly illustrated when one participant stated plainly that his company's business model, which included Denver and the Silicon Valley, was being modified due to a lack of reliable air service in and out of Denver. This only echos what hundreds of thousands of travelers have experienced as they have passed through Denver International Airport and other airports in recent years. The passenger aviation industry has become consistently unreliable with tremendous personal and professional costs for the people of Colorado. I feel that discussing flight delays and cancellations, airline scheduling, the increase in weather related delays, airport and air capacity are essential. I would like to focus my comments, however, on two issues that may not be getting as much attention as those most visible to the flying public; the impact "hub" airports can have on a region and the modernization of the Air Traffic Control System (ATC).

Many people have rushed to judgement on the air traffic issue based solely on the recent problems being experienced by United Airlines. In addition to being the nation's largest carrier, United has the lion's share of gates at Denver International Airport. While it is difficult to justify many of the problems numerous passengers have experienced on board United and other airlines this summer, I must make it clear that the labor and mechanical problems experienced by United do not appear to be specific to the airline itself, nor do the problems appear to be specific to the Denver market. I would assert that the difficulties experienced in Denver this summer are indicative of potential problems for a number of hub airports if the carrier they depend on for the bulk of their air service were to stutter for one reason or another.

The current "hub" system allows a single carrier to practically monopolize the passenger traffic within a region. I have always held that increased competition would best serve the flying public. I do not believe that the current state of aviation reflects this value and consequently entire regions of the country are at the mercy of a single air carrier. This summer's problems experienced by United created enormous problems in the Denver area. Perhaps next summer similar problems will occur in Charlotte, Minneapolis, Miami or any hub airport where a single airline accounts for more than sixty percent of the market share (according to carrier filings with the Department of Transportation United maintains a 65.11 percent market

share in Denver International Airport). I am respectfully submitting a series of charts from the March 28, 2000 Aviation Daily that documents the market share of U.S. carriers at leading U.S. airports.*

According to a 1999 Consumer Reports survey hub airports where passengers lack choice tend to have higher air fares. The survey indicated that passengers buying restricted coach-fare tickets can expect to pay \$25 to \$55 more per round trip ticket for journeys covering more than 1,600 miles. For airports that serve a large region, such as Denver International, consumers are captive not only geographically but may also be at the mercy of a large provider. On a related note a hub airport that experiences delays by a large carrier must redistribute passengers to other airlines. This can dramatically lower the on-time percentage of secondary or tertiary carrier as well as the overall on-time rating of the entire airport. It is important to note that the overall costs of tickets and on-time percentage contribute to the overall perception of an airport by consumer groups and frugal business or recreational travelers. I believe the answer is more competition.

Prior to United Airlines recent delays and cancellations based on high profile labor issues, there existed what many carriers recognize as an increasing problem with delays and cancellations due to the Air Traffic Control (ATC) system. The number of weather and ATC delays for United Airlines have increased 65% since 1995. The increase in these uncontrolled delays are more stark when compared with controlled delays such as crews, maintenance and other operational irregularities. United's controlled delays, weather and ATC related delays, have decreased by 24% since 1995. Clearly there is reason to include a comprehensive study of recent changes and problems with the Air Traffic Control system maintained by the Federal Aviation Administration in any discussion relating to air traffic.

Almost one year ago the FAA began to centralize the operation of the air traffic system's collection and dissemination of weather data. In place of individual airlines' meteorologists and regional weather forecasters all weather data is now routed from regions all over the country to an FAA facility in Herndon, Virginia. From Virginia the FAA now issues directives to reroute or ground air traffic. On more than one occasion this summer there has been significant disagreement over whether decisions to close or reroute traffic have been valid, and further, whether the decisions were able to be made objectively from the centralized Virginia headquarters.

In fairness to the FAA it is important to note that the centralization of weather data was supported by the carriers following the summer of 1999 and previously unequaled congestion and delays. Based on data from the summer of 2000 the solution, however, appears to have been misdirected. I respectfully submit a September 14, 2000 *Wall Street Journal* article entitled "Efforts to Ease Delays In Summer Air Travel Also Produce Snarls" which examines the most recent problems with this centralized system.

Given the current questions surrounding the ATC system, and the estimated 600 million Americans flying each year, it is important that the ATC system be made more responsive and efficient. At the same time I believe that we would be well served to examine the recent privatization of air traffic control in Canada. I understand that this is an issue that may be beyond the scope of the current Commerce Committee hearings, but I respectfully request that "Commercializing Air Traffic Control" by Robert W. Poole, Jr. of the Cato Institute also be submitted to the record.

Thank you for your consideration and your willingness to explore these issues. I look forward to working with the Commerce Committee on the important issues affecting passengers and airlines in the months to come.

*The information referred to has been retained in the Committee files.

The Wall Street Journal

September 14, 2000

UNDER THE WEATHER

EFFORTS TO EASE DELAYS IN SUMMER AIR TRAVEL ALSO PRODUCE SNARLS
FAA'S CENTRALIZED CONTROLS, NEW RADAR SCREENS ARE CITED FOR LOST
EFFICIENCY

'THINGS REALLY GOT HAIRY'

By Scott McCartney

Staff Reporter of the Wall Street Journal

The passengers at Newark International Airport found themselves in an all-too-familiar situation: Delayed. All flights were being held for an hour because of thunderstorms.

But on this clear August afternoon, the only thunderstorms in the country were hundreds of miles away, in a corner of Oklahoma.

Another day, flights from Chicago to New York were grounded because of thunderstorms—in Florida.

How could this be?

The summer of 2000 was a painful low point for airline delays. Throughout the long months, as hundreds of thousands of passengers simmered on tarmacs and in waiting lounges, aviation officials typically blamed the season's bad storms—plus a combination of too many planes, not enough runways and a United Airlines labor dispute. But the real problem may boil down to this: a series of little-known changes at the Federal Aviation Administration.

Losing Flexibility

Those changes, ironically, were intended to ease the crippling delays that had made the *previous* summer the all-time worst for delays. At the time, President Clinton and the FAA pledged to work with the airline industry to fix gridlock in the skies. The basic idea was to centralize the agency's operation of the air-traffic system, and to improve the FAA's technology and communication with airlines.

In the end, though, the airlines and even the FAA's own air-traffic controllers complained that the centralized system stripped them of flexibility in dealing with local traffic jams. Planning sessions sometimes degenerated into expletive-filled screaming matches. Controllers also grouched that new technology gave them an incomplete picture of regional weather.

'Significant Change'

The FAA concedes that there have been difficulties, but says its new efforts reduced delays below what they might have been this year—though a thorough evaluation won't be completed until the fall. "I don't think there's any way of minimizing it. This was a difficult summer," says FAA Administrator Jane F. Garvey, who got stuck in airports herself over the summer. "This is a very significant change in the way we do business." Today, the Senate Commerce Committee begins hearings into what caused the summer's delays.

The U.S. air-traffic system basically comprises all control towers at the nation's airports, plus the 21 regional FAA control centers that direct planes most of the way between takeoff and touchdown. Overseeing all of this is the FAA's main command center in Herndon, Va. In the past, the individual towers and regional centers would each manage flights as they wanted, with little national coordination. They used their own weather forecasts, which often contradicted each other, or forecasts from airline meteorologists. The result tended to be a hodgepodge of arbitrary local decisions that could seriously bog down certain regions.

A Uniform Forecast

In attempting to fix the system, the FAA decided last winter that meteorologists from the major airlines and the National Weather Service would collaborate twice a day to produce a uniform forecast map of severe weather areas, and to give all control centers and carriers access to the map by computer. The agency's command center in Herndon also instituted a telephone conference call every two hours with most of its regional centers and any airline that wanted to join in. That way, ideally, decisions to ground or reroute planes could be made with input from everyone.

Some days this summer, participants say, the process was relatively smooth. But not always. On Aug. 17, for example, airline and FAA officials agreed during an early-morning conference call to delay operations at Chicago's O'Hare International Airport because of storms in the area. Airlines agreed to cancel some flights but continued to count on others, based on an understanding that the FAA wouldn't shut

off all traffic. Yet by 9 a.m., with no change in the weather, the FAA command center in Herndon suddenly ordered a stop to all traffic, leaving everyone stranded. Airlines were furious, and problems at O'Hare cascaded into a chaotic day across the country.

Two days earlier, arrivals at New York's LaGuardia Airport were ordered reduced to 30 an hour from the because of scattered rain showers. Such conditions normally cause delays of about an hour. But because of poor coordination and excessive slow-down orders, only 20 planes an hour landed, and delays topped three hours. At least one airline lodged a written complaint with the FAA the next day.

The FAA's Mrs. Garvey wouldn't comment on specific routing decisions, but says, "I think legitimately airlines will ask, 'Are we being too conservative when we put in a [delay] program? I don't think we have the full answer.'"

Mrs. Garvey notes that the airlines themselves asked for more centralized control after the disastrous summer of 1999. "The customers themselves said what we need is centralized decision making," she says. "Unless you have somebody really calling the shots who looks at the whole system, you have individual decisions being made that may be good locally, but can screw up the whole system."

No one in the aviation industry is seriously arguing for a return to the old, decentralized system. And two carriers, Northwest and Continental, have publicly praised the new system. It's also not an issue of safety: Neither the airlines nor the FAA's regional centers contend that planes should take risks in stormy weather. Rather, their claim is that the command center in Herndon consistently overreacts and ignores evidence from pilots and regional controllers that the weather in certain areas is better than the national map suggests.

For example, just one day after the Aug. 17 O'Hare debacle, the FAA command center in Herndon declared that two major air routes for jets running along the East Coast were impassable because of a storm in Virginia. Planes in Miami trying to get to New York and Boston were grounded. The closure forced a massive rerouting of traffic reaching as far west as Chicago and Houston.

Flying in a Storm

Yet even as the conference call blared on a speakerphone at one major airline's operations center, the flight dispatchers saw on their radar displays that planes already flying in the stormy area were experiencing no problems—and the storm actually was moving slowly offshore. As the conference call continued, a Delta Air Lines jet flew above the bad weather. Several corporate jets flew right through it. The airline dispatchers pointed to the planes on a color monitor, shaking their heads in disbelief at the orders coming over the speakerphone.

Before the new system, the FAA wouldn't have demanded the delay in Miami, dispatchers say. Regional centers would have allowed flights out of Florida to take off, zigzag around the highest storm clouds, or fly over the top of the system. If traffic got too heavy, some might have been ordered to fly holding patterns for a time. Delays would have been contained, airlines contend.

But the Miami mess was repeated across the country all summer, say airlines and air-traffic controllers. Randy Schwitz, executive vice president of the National Air Traffic Controllers Association, the union representing air-traffic controllers, says that on some days the FAA closed airways simply because of forecasts of bad weather, which often didn't materialize. Then, while those clear skies were empty, storms popped up in the very areas where the FAA had sent large numbers of planes.

"That's when things really got hairy for controllers," says Mr. Schwitz. He nonetheless supports the FAA initiatives this year, agreeing that the summer would have been far worse if not for the centralized system. NATCA says the root of the problem rests with airline scheduling at peak hours, and a lack of airport expansion.

Indeed, the nation's skies have grown more crowded everywhere. Airlines jam flights into peak business-travel hours, and create delays by flooding hub airports with dozens of flights at the same hour. Airport construction, too, hasn't kept pace with the nation's economic boom.

Transportation Secretary Rodney Slater, who plans to testify today along with several airline CEOs at the Senate hearing, attributes the problems of the past two summers to the strength of the economy, which has filled airplanes to record levels. "It's really tested the limits of capacity of the system," he says. The Transportation Department couldn't have foreseen the rapid growth, he said, and Congress in the early years of the Clinton Administration didn't allocate funds to embark on massive improvements.

But while delays have skyrocketed the past two years, the total number of flights has been growing no faster than 4% a year, the FAA says. At the 22 largest airports, the number of flights were up only 2% a year for the past two years. The

FAA says even a small increase is significant in an already-strained system, especially since the expansion has been focused on the crowded skies of the East.

Weather has been unusually harsh this summer, also mostly in the East. In June, a month when delays exceeded last year's record pace, the FAA had to take action because of thunderstorms on 24 days, compared with five in June 1999. July was calmer than last year, but the early part of August was worse than last year. (Final data for the month haven't been tabulated.)

At the same time, travelers had to contend with troubles at UAL Corp.'s United, the nation's largest airline, as pilots refused to work overtime while contract negotiations reached a climax. The unrest forced thousands of cancellations, and fewer than half of United's flights operated on time in June and July. (United reached a tentative agreement with its pilots union in August.)

Still, the airlines maintain that the FAA only made matters worse. "The problem with this summer is the inefficient manner in which severe weather avoidance is executed," says Jack Ryan, vice president of air-traffic management at the Air Transport Association, an airline trade group. "There's got to be a better way to do this."

'Let My People Go'

Mr. Ryan, a former director of air-traffic operations at the FAA, was so outraged on the day that Newark flights were delayed an hour because of thunderstorms in Oklahoma, 1,200 miles away, that he called John Kies, the head of the FAA's Herndon command center, demanding an explanation.

"I told Kies, 'Let my people go!'" says Mr. Ryan. (An FAA spokesman says Mr. Kies is traveling in Europe and isn't available to comment for this article.)

At times, participants say, the FAA's conference calls degenerated into heated battles between the Herndon command center, regional centers and airlines, with regional centers sometimes openly refusing orders from the central command.

On one hectic, stormy day in June, according to people on the phone at the time, the Herndon center ordered the regional center in Cleveland—which is responsible for a wide swath of airspace from Detroit to Buffalo, N.Y.—to keep jets spaced 20 miles apart. Seven to 10 miles is considered normal spacing; five is the minimum. Still, the Cleveland center was particularly overburdened that day, and officials there wanted extra space to lighten the load on controllers and give them more room to maneuver airplanes. With airline dispatchers and other FAA regional centers listening, the response from Cleveland was emphatic: "F—you, we're doing 60 miles!"

Steven J. Brown, the FAA's associate administrator for air-traffic services in Washington, acknowledges that the agency heard "some testy and rough dialogue" during conference calls. "To a degree, that's a measure of success. We're open, in public, with maybe some professional warts showing." In that particular case, he noted, the extra airspace was granted, and "the position Cleveland was articulating was important because they're on the front lines."

By midsummer, conference calls got so fractious that the major airlines decided to hold their own daily private conference call to prepare a unified front for the FAA. And in August, Mr. Kies began having his own separate daily briefing with airlines to discuss the problems of the previous day.

Some of the trouble this summer actually resulted from new technology. For example, radar displays the FAA installed at all its centers last year—while hailed by controllers for their reliability, added features and ease of use—have a serious drawback: The displays lack crucial data on the height of storm clouds, which is found on weather radar displays commonly used by TV news stations and pilots. Airlines complain some controllers are rerouting airplanes around storms they could easily fly over or zigzag through. The FAA monitors, with their H-shaped symbols and stark lines indicating storms, also make some weather systems appear worse than they are, airlines say.

Even a Few Clouds

Southwest Airlines, for example, says it's had to reroute flights in some areas of the country because controllers using the system perceive more clouds. Earlier this summer, even a few clouds in Phoenix caused delays that forced planes to divert to Tucson to refuel. "We can't figure out why. In St. Louis, that would be great weather. But in some places, a few clouds mess the whole thing up," says Greg Wells, director of flight dispatch at Southwest.

Mr. Brown of the FAA says the new displays were "a great step forward. But we've had a learning curve with it."

Some of the biggest jam-ups this summer occurred in airspace controlled by the Cleveland center, a nondescript building in a pastoral setting near Oberlin College

that's the busiest air-traffic-control facility in the world. Along with the Washington regional center in Leesburg, Va., it is the funnel into and out of the Northeast, and handles a heavy load of complex routing.

In Cleveland, strains developed earlier this year when the FAA beefed up staffing in its traffic-management units, the group of controllers at each regional center who coordinate the flow of airplanes by assigning takeoff times to jets. These traffic managers interact with other FAA staffers called radar controllers, who are each assigned a sector of the sky and direct the lanes to their destinations.

The radar controllers and airline dispatchers say traffic managers assigned airplanes to sectors that weren't expecting them, for example. "In some centers, the traffic-management unit is not communicating the plan to the controllers," says Jim Sinon, Continental's director of air traffic systems, and a former FAA air-traffic-control official.

Richard Stose, a veteran radar controller at the Cleveland center, says he was verbally reprimanded by traffic-management officials for giving several delayed flights a 90-mile shortcut to LaGuardia Airport. He had already cleared the move with controllers at the FAA's regional center in Ronkonkoma, N.Y., who were showing plenty of empty air space in their area. "So many decisions," he says, are coming out of [the Herndon command center] and the traffic-management unit "that they don't leave us any flexibility," he says. "It's just a travesty."

The FAA says it is still working on traffic-management coordination. To improve communications, special message boards are being installed in centers showing routing plans for the day. Sometimes, officials note, it's the controllers at the radar screens such as Mr. Stose who foil plans because they don't see the big picture, and try to fill gaps that are needed for airplanes down the line.

Not all of the summer's slowdowns could be blamed on the FAA's command center in Herndon. For example, one decision that seriously delayed traffic through Mr. Stose's sector, which covers western New York, emanated from controllers at the New York regional center. Starting in June, they said that corporate jets flying into New Jersey's small Morristown and Teterboro airports must be spaced at least 10 miles apart from airliners bound for New York's John F. Kennedy Airport at peak times. Usually, the corporate jets fly at lower altitudes on the same arrival patterns, stacked under the larger jets.

The separation requirement, which the FAA says isn't used every day, created major backups all the way into the Midwest. Delays at JFK, which typically ran better than LaGuardia or Newark in prior years, were just as bad as the other major New York airports in June and July this year.

The FAA says the change was necessary to slow down traffic to meet the capacity of the three airports, and because just one controller in the New York center handles arrivals to all three airports from Cleveland's airspace.

By the end of this month, the FAA says it will have fully evaluated its summer operation. Already, the FAA has identified seven key choke points in the system, and is rushing to fix many by next summer. A preliminary tally of delays shows this summer was about equal to last summer's record-setting travel snarl, when 163,486 flights were delayed an average of about 45 minutes each in a four-month period.

Mrs. Garvey, the FAA administrator, concedes the agency has had pains implementing its new approach. "We've had a difficult time to get all of [the regional centers] to buy into it," she says. After more study this fall, she says, "If we need to make more organizational changes, we'll do it."

ON THE RUNWAY: NEW SYSTEMS TO REDUCE DELAYS

By Scott McCartney

While travelers fumed on grounded airliners this summer, the Federal Aviation Administration was working on new procedures and new technologies to increase capacity in the sky.

Jane F. Garvey, FAA administrator, says one major change is that air-traffic controllers are actively involved in technology development. "I think we have turned a corner on modernization of the air-traffic control system," she says.

Here is a look at some of the more promising projects.

- **User Request Evaluation Tool.** Believe it or not, current air-traffic control radar displays can't predict conflicts between airplanes. The URET, which is already in use at two of the FAA's 21 regional centers, in Indianapolis and Memphis, Tenn., identifies potential problems in advance, giving controllers more flexibility and the capability to safely handle more airplanes. Requests from pilots

can be plugged into the URET to see if they create any conflicts. So far, the system is cutting an average of one mile off the route of every flight within its region, the FAA says. The FAA's goal is to install the URET in five more regional centers, including the three busiest, Cleveland, Chicago and Washington, by the end of 2002.

- **Traffic Management Adviser.** This helps controllers space planes as they approach airports to maximize runway usage. If landings are set at 80 an hour at an airport, for example, the system helps make sure that controllers deliver 80 airplanes an hour. TMA is in use at Dallas-Fort Worth International Airport, and it helped increase capacity at the airport by 5%. In June, it went online in Minneapolis.
- **Passive Final Approach Spacing Tool.** This system works with the Traffic Management Adviser to help maximize the number of planes a runway can handle. It assigns runways and lines up aircraft. At Dallas-Fort Worth, it has boosted landings by five or six airplanes during each peak rush, the FAA says. It has also increased the rate of departures at the airport. By the end of next year, the FAA hopes to have both systems installed at five other major airports.
- **Precision Runway Monitor.** This system allows parallel approaches to closely spaced runways. Currently, capacity at several key airports is hampered in low-visibility conditions because runways are spaced too close together for parallel landings. When visibility is good, parallel landings can be made because planes see each other. But in San Francisco and many other airports with parallel runways closer than 4,300 feet apart, low visibility can cut capacity in half.

Using very precise radar that makes a complete revolution every second instead of every four seconds for conventional radar, the Precision Runway Monitor lets planes make parallel approaches to closely spaced runways when they can't see each other. The system is in use in St. Louis and Minneapolis, and is slated for installation at Philadelphia and New York's Kennedy Airport.

- **National Airspace Redesign.** The grandest project of all, a complete redesign of the skies, should improve traffic flow and erase bottlenecks, proponents say.

The FAA's Mrs. Garvey says the redesign will take eight years.

Many of the changes under study in the redesign project could significantly boost capacity. For example, the FAA is considering reducing the number of regional centers, thereby eliminating artificial traffic boundaries and barriers.

The agency is also hoping to reduce vertical-separation limits to 1,000 feet from 2,000 feet, which would require all planes to be equipped with precise altitude-reporting equipment. Already, flights across the Atlantic and Pacific oceans operate with the narrower separation.

And instead of two controllers handling a chunk of airspace—one for low altitudes and one for high altitudes—the FAA hopes to increase capacity by creating a third position for jets at very high altitudes. This has already been done in—the airspace managed by the Cleveland center, but the FAA says it needs more radio frequencies and manpower to do it elsewhere.

COMMERCIALIZING AIR TRAFFIC CONTROL A NEW WINDOW OF OPPORTUNITY TO SOLVE AN OLD PROBLEM

by Robert W. Poole Jr.

Robert W. Poole Jr. is president of the Reason Foundation and a long-time transportation policy analyst. A former aerospace engineer, he holds BS and MS degrees from MIT. He has been researching air traffic control since 1977.

The U.S. Air Traffic Control (ATC) System, owned and operated by the Federal Aviation Administration, needs major restructuring. The system currently runs on obsolete and failure-prone equipment such as 1960s mainframe computers, equipment dependent on vacuum tubes, and radar between twenty and thirty years old. The FAA maintains safety margins by artificially increasing the spacing between flights, imposing ground holds, and using other techniques that reduce system capacity. The airlines alone waste \$3 billion a year in fuel and crew time due to the delays. Wasted passenger time is estimated at several billion dollars more.

Five underlying problems produced today's dysfunctional ATC system. First, the federal procurement process is costly and cumbersome. Second, the civil service personnel system is too rigid to provide the compensation and working conditions necessary to attract enough controllers for high-stress positions. Third, although the

ATC derives the majority of its revenue from aviation user taxes, its reliance on annual federal appropriations for part of its funds and its inability to borrow in capital markets makes modernization difficult. Fourth, both Congress and the executive branch micromanage and excessively supervise the system, substituting for the judgement of the agency's top management. That process wastes large amounts of the management's time. And fifth, the FAA struggles with an inherent conflict of interest. It has been charged with both regulating aviation safety and operating the ATC system.

While recent reforms have introduced some flexibility into the system, the underlying problems remain. Other countries have gotten around such problems by allowing the users, including airlines, airports, and pilots, to own and operate ATC systems. The Canadian system provides the closest and perhaps best model for American policymakers seeking to ensure greater airline safety at less cost.

Recent Reforms and Setbacks

Legislation enacted in October 1995 addressed personnel and procurement problems. Pursuant to the legislation, in March 1996, the Clinton Administration announced the creation of a new FAA personnel system that replaces a foot-high stack of civil service rules with a forty-one page document and consolidates 155,000 position descriptions into 2,000. In order to attract qualified personnel, the new system permits pay and shift differentials to reflect high-stress, high-cost locations.

The new procurement system attempts to reflect private-sector practice by exempting the FAA from a number of procurement laws. It reduces acquisition documents from 233 to less than 50 and aims to cut various procurement time periods in half. It provides for a kind of binding dispute resolution in case of a contract award protest, but still permits court appeals (which have been a major cost—and delay-inducing factor). But the potential impact of those reforms is inherently limited. Thus, the Clinton Administration in 1995 made a far more sweeping reform proposal: divesting the ATC system to a government corporation. The U.S. Air Traffic Services corporation (USATS) would have been a federally chartered, government-owned corporation, analogous to Amtrak, the Tennessee Valley Authority, and the U.S. Postal Service. It would have had a board of directors appointed by the President and confirmed by the Senate. It would have been fully supported by user fees, sans federal appropriations. Its revenue stream would have been bondable, and USATS was to have been authorized to borrow either from the Treasury or from private capital markets. The remaining FAA was to have regulated USATS at arm's length.

While airline and airport organizations and the air traffic controllers' union generally supported the USATS proposal, business aircraft and recreational aircraft organizations (referred to as general aviation or GA), along with most members of the aviation subcommittees of Congress, strongly opposed it. Several House Republicans introduced an alternative measure calling for the creation of a private, user-owned corporation. That proposal went no further than the USATS proposal had gone.

The fear of losing the huge cross subsidies built into the current user-tax method of funding ATC provided the underlying reason for the general aviation community's opposition to corporatization. While business and recreational aircraft currently pay just 3 percent of all such user taxes, they use 20 percent of all en-route ATC services and 59 percent of all control tower and approach-control (TRACON) services. Despite the Administration's proposal to permanently exempt business and recreational aircraft from user fees, those organizations steadfastly opposed the USATS plan.

COMMERCIALIZING ATC: A GLOBAL TREND

Other countries facing similar problems with ATC systems have gone even further than the Clinton administration proposed. Since 1972—and especially in the past decade—at least sixteen countries have fundamentally restructured their ATC systems (see Table 1). While several have converted their equivalent of the FAA into a free-standing corporation providing both ATC and safety regulation, the large majority have divested ATC alone, retaining safety regulation as an arm's length government function. All sixteen have shifted from tax funding to direct user fees. Those corporatizations, or "commercializations," have all been carried out to solve the same structural problems that plague the United States ATC system.

While many of the restructurings are quite recent, some major gains have been reported in several countries. For example, in its initial year of operation (1993), the corporatized German Air Navigation Services Ltd. (DFS) reduced ATC delays by 25 percent. User charges in New Zealand have gone down by 30 percent in real, inflation-adjusted terms since corporatization in 1987. The charges are 50 percent lower

than the government projected, had the system remained unchanged. Charges in Australia have gone down by 15 percent in real terms.

Substantial gains in efficiency led to lower charges. Total annual operating costs for Airways Corporation of New Zealand have declined from NZ\$120 million in 1987, the year of corporatization, to NZ\$80 million in 1993. No adverse effects on air safety have been observed in any of the reforming countries. Indeed, most observers expect that the technology upgrades facilitated by commercialization will improve aviation safety.

The U.K.'s outgoing Conservative government had proposed further privatizing their ATC, either via outright sale or via the grant of a long-term franchise. The new Labour government that took office in May 1997 has included NATS on its list of possible privatizations.

Table 1: Overseas ATC Corporations

Country	Corp. Name	Year	Functions	ATC Funding Source
Australia ¹	CCA	1988	ATC + reg.	Mostly user fees
Austria	Austria Control	1994	ATC + reg.	60% user fees
Canada	Nav Canada	1996	ATC	100% user fees
Czech Republic	ATC Admin.	1993	ATC	Mostly user fees
Germany	DFS	1993	ATC	100% user fees
Ireland	IAA	1994	ATC + reg.	100% user fees
Latvia	LGS	1993	ATC	100% user fees
New Zealand	Airways Corp.	1987	ATC	100% user fees
Portugal	ANA	1992	ATC + airports	100% user fees
Russia	Magadan Aero Control	1995	ATC	In transition
Singapore	CAA	n.a.	ATC + airports + reg.	100% user fees
South Africa	AT&MS Co.	1993	ATC	100% user fees
Switzerland ²	Swiss Control	1988	ATC	100% user fees
Thailand	AeroThai	1948	ATC	100% user fees
Ukraine	UK SATSE	1993	ATC	In transition
United Kingdom ³	NATS	1972/1996	ATC	Mostly user fees

¹ Considering spin-off of ATC as separate corporation.

² Partial user ownership.

³ Considering sale of NATS.

Nav Canada: Beyond Government Ownership

On 31 October 1996, Canada's government carried out the sale of that country's ATC system to a newly created corporation, Nav Canada. The not-for-profit, stakeholder-controlled company was incorporated in 1995 as the outgrowth of a several year process of research and consultation by the country's entire aviation community. Canada's airline ticket tax is being phased out over a two-year period, to be replaced by user fees that will provide the sole revenue source for Nav Canada.

The restructuring of ATC in Canada is a departure from previous commercializations in several ways. First, by most quantitative measures, it is the largest ATC corporatization to date (see Table 2), a system that is between one-fifth and one-eighth as large as the United States ATC system. Second, it interacts directly with the American system, meaning that commercial airlines and private aircraft from the United States will soon be paying direct user fees on the growing volume of flights to and from Canada. Third, Nav Canada is the first ATC corporation controlled by its users and operators. Fourth, it is the first case in which a government has sold, rather than merely transferred, its ATC operations to a different corporation.

How did Canada progress, relatively smoothly, to the dramatic restructuring of ATC?

Canada faced the same underlying problems with its ATC system that the United States faces: rigid personnel and procurement systems, micromanagement, budgetary constraints, and conflict of interest. Starting in 1991, various approaches to reform were considered, including a system along the lines of New Zealand's 1987 Airways Corporation, similar to the Clinton administration's failed USATS. The proposal called for a mixed enterprise, owned partly by government and partly by users and a not-for-profit corporation.

By autumn 1994, the major aviation stakeholder groups had reached consensus that the not-for-profit private corporation was the way to go. On 23 September, they delivered a position paper to the government firmly stating their opposition to a government corporation like USATS. The report identified the following drawbacks: continued political control and micromanagement; board appointments by politicians, not users/stakeholders; corporate culture more like that of government than private enterprise; and major modernization decisions subject to political influence.

By contrast, a not-for-profit private corporation would function as an entrepreneurial enterprise, avoid conflict of interest with regulatory authority, be responsive to its users, and apply "best business" practices. The paper also set forth a mission statement and suggested a board of directors made up of stakeholders. And it called for 100 percent funding by user charges, based on "fair and equitable allocation of costs to all users." The heads of the airline trade group, the airline pilots' union, the air traffic controllers' union, the business aircraft association, and the private pilots' association signed the remarkable document.

With the government's blessing, those groups drew up articles of incorporation and created Nav Canada in mid-1995. They selected an investment bank, RBC Dominion Securities, to develop the plan for financing the company's acquisition of the ATC system from Transport Canada. The legislation was enacted in mid-1996, and the sale took place, for \$1.1 billion, on 31 October 1996.

The government agreed to provide generous severance payments to all sixty-four hundred ATC employees, and Nav Canada agreed to accept the existing union contracts until they expire at the end of 1997 or 1998.

Although Nav Canada now owns the former Transport Canada ATC system assets, it is a "non-share capital corporation," i.e., there is no equity ownership. Its financing is entirely via debt. Without shareholders, it will not seek to make a profit, it will only seek to cover its costs, and—in the interests of its stakeholders—to keep those costs to a minimum. That structure is designed to avoid the need for explicit government regulation of the monopoly service of air traffic control. Without the drive to earn profits, and with users having a major say in running the organization, the classic rationale for government regulation of a monopoly (protecting consumers from monopoly exploitation) disappears.

Nav Canada's corporate charter calls for a fifteen member Board of Directors to include all relevant stakeholders. Four are appointed by the airlines, one by the business aircraft association, and three by the government—in its role as a significant user of ATC services. The unions appoint two members, and another member is the CEO who is appointed by the board. The board appoints the four remaining members as independent directors. The members serve for staggered three-year terms, to a maximum of nine years, except for the CEO. Elected officials, government employees, and employees or directors of any significant supplier, user, or client of the corporation are ineligible to serve as directors.

Despite the careful balance of stakeholder interests on the board, additional provisions protect users. Nav Canada is required to consult with appropriate parties prior to proposing any increases in fees and charges or reductions in facilities or services, and must give a sixty day notice of changes. Also, an advisory committee will consist of persons “interested in aeronautics and furthering the objects of the Corporation.”

In order to ensure commercial independence, Nav Canada will be funded entirely by fees and charges paid by users. Needless to say, with a large general aviation community in Canada, the fees and charges raised the same kinds of concerns as in the United States. While the issue is not yet settled, all parties have agreed that the benefits of shifting ATC to a stakeholder-controlled organization are worth the difficulties of devising a fair and equitable fee structure. As Transport Canada’s first discussion paper, *The Study of the Commercialization of the Air Navigation System in Canada* pointed out in 1994, “with user pay should come greater user say.”

Transport Canada’s research on ATC user fees found considerable uniformity in the charging methods of countries that have commercialized ATC. Virtually all employ two principal types of charges: “en-route charges” and “landing charges.” En-route charges are generally based on the distance flown multiplied by a factor based on the aircraft’s weight. Landing charges are generally based on some measure of the aircraft’s maximum takeoff weight.

Canada is phasing out its ticket tax and replacing it with a similar weight-related measure. The approach is a departure from strict allocation of charges according to system costs; after all, it costs the ATC system about the same amount of money to guide a small Beech Baron as it does a giant Boeing 747. The net result of pricing according to the relative value of the service, charging what the market will bear, is to keep the charges relatively low for smaller aircraft.

Another principle incorporated in most commercialized ATC charging systems is to not charge directly for preflight information services to GA users. Flight service stations (FSS) assist GA pilots with flight plan filing and weather briefings. If direct fees were charged for those services, some users might forego using them, with detrimental safety consequences. Hence, the costs of FSS operations are assumed to be covered out of the terminal and en-route charges paid by all users.

Since Nav Canada does not have equity owners, the purchase price was financed in the commercial debt market. The initial capital was raised as bank loans (bridge financing), which is being replaced, over time, with commercial paper and revenue bonds.

In contrast to a government agency like Transport Canada, which must pay for major modernization out of annual appropriations a year at a time, a commercialized ATC corporation can finance modernization by issuing debt, to be repaid out of its user-fee revenue stream.

Table 2: Comparison of U.S. and Overseas Air Traffic Control Organizations

	United States		Canada	Australia	Germany	United Kingdom	Switzerland	New Zealand
	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Independent of Government	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Starting Date	n/a	1996	1988	1988	1993	1972	1988	1987
Govt. Safety Oversight	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1994 Revenue (\$)	4,275	429	432	432	913	778	143	59
1994 Expenses (\$ millions)	6,190	572	388	388	913	697	59	52
Air Traffic Controllers	17,300	2,060	1,140	1,140	2,000	1,630	300	300
1994 Aircraft Movements (Millions)	38	7.4	3.6	3.6	2	1.5	1.5	1.2
Commercial Aircraft	18,440	5,680	260	260	680	3,120	n/a	130
Commercial Pilots	117,430	20,500	8,700	8,700	9,000	12,540	n/a	2,960
General Aviation Aircraft	184,430	21,850	7,900	7,900	20,340	4,270	n/a	3,100
General Aviation Pilots	654,090	59,990	22,500	22,500	100,000	27,530	n/a	4,190
Weekly Domestic Departures	142,930	16,950	5,500	5,500	15,000	4,840	n/a	3,670
Weekly International Departures	8,240	2,660	670	670	15,000	6,030	n/a	530

Source: General Accounting Office

Seeking Consensus on American Restructuring

Major ATC reform in the United States has been stymied by opposition from two quarters, GA and the congressional aviation subcommittees. While the subcommittees will likely remain reluctant to yield their turf, a unified call for ATC commercialization from aviation stakeholders, as occurred in Canada, might suffice to overcome the reluctance.

To airlines in the United States, such an approach offers essentially all the advantages of the corporatization proposals they have supported in the past. The controllers' union supported the Administration's USATS plan but opposed "privatization," meaning a for-profit company. Assuming that their pay and benefits are protected in a transition to a not-for-profit corporation (NFPC), as in Canada, they are likely to support that approach. Many congressional Republicans were skeptical of creating another government corporation, some terming it a "flying Amtrak." They should be more receptive to a user-controlled nongovernmental corporation. And the Administration should welcome an alternative way of achieving its aims via the NFPC approach.

The major question mark is the GA community, composed of two principal groups: commercial GA, represented by the National Business Aircraft Association (NBAA), and recreational GA, represented by the Aircraft Owners & Pilots Association (AOPA). The former group flies business jets, turboprops, and multiengine piston aircraft. The latter group flies mostly single-engine piston aircraft. Despite a provision in the USATS measure that exempted GA from user fees, those groups feared that a cost-based system of user fees would eventually be applied to them, drastically increasing their cost of flying.

Two key factors might secure GA support for a Canadian-type system. The first is a guaranteed seat on the board for both GA groups. The 1995 USATS proposal offered GA groups a single board member, chosen not by them but by the president. The second is a user fee system based more on ability to pay than on allocated costs.

But would the monopolistic nature of an ATC corporation combined with the absence of a profit motive provide insufficient incentive for the NFPC to develop a commercial corporate culture? The National Performance Review's Wayne Leiss addressed that issue at the Air Traffic Control Association Annual Meeting on 26 October 1993, "A competitive joint venture achieves the same efficiency as competition, but in a monopoly market. The fee-paying customers work through the board of directors. They have the same incentive to reduce costs as owners trying to make a profit." As Leiss notes, "The key is the election of the board of directors by the fee-paying customers. They are the only ones with incentives for efficiency, since they are the ones paying for any inefficiency. Politically appointed directors, while earnest in their intentions, do not share in these incentives." A board-membership structure might consist of the following: four seats for air carriers; one seat for airline pilots; one seat for business/commercial GA; one seat for recreational GA; one seat for air traffic controllers; one seat for airports; two seats for U.S. government.

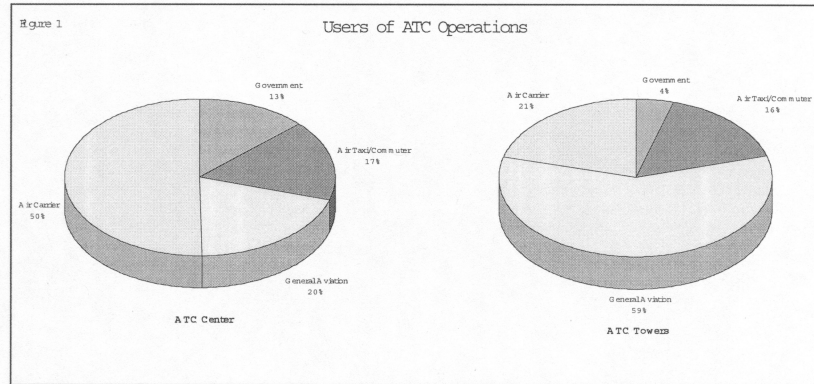
Those eleven seats would represent all the major users (commercial airlines, GA, government), the two major aviation employee groups (airline pilots and controllers), and airport operators; in other words, all the major ATC stakeholders. As in Nav Canada, airlines would not have a numerical majority and therefore could not impose their version of user fees or other policies upon the GA segment. The board would select the CEO, who would also be a director, and together, they would select three independent directors, for a total of fifteen board members. A board structured in that way is intended to foster the search for consensus on fee structures and other policies.

With policy guidance from the other board members, the CEO would hire the top management team, most likely leading to the creation of a largely new top level of management for ATC. It would draw the best available people from the private sector and compensate them accordingly. Competitive management pay scales are especially critical since the company's not-for-profit status means that no form of compensation based on stock or stock options would be available.

User Fees

In exchange for two board seats, GA users would be expected to contribute towards the cost of the corporation's operations. It is clearly in the GA community's long-term interest to be a paying member, thereby guaranteeing itself influence in the corporate board's policy decisions. The GA communities in Canada, New Zealand, and other countries where user fees have been introduced as part of ATC corporatization, have accepted that principle. Concerning the USATS proposal, Kenneth M. Mead of the General Accounting Office testified on March 9, 1995 before the House Transportation Subcommittee, "A corporation—created and charged to operate like a business—may have little incentive to provide equipment and services

to users of the system whose financial contributions to the system are proportionately less than the value they receive." Since GA operations account for over half of all control tower operations and some 20 percent of en-route center operations (see Figure 1), it is only fair that they pay some sort of fees for those considerable portions of the ATC system's workload.



The question then becomes: How can a user fee system be constructed that realistically reflects GA usage of ATC services but (1) does not unrealistically burden GA with crippling cost increases and (2) does not have perverse effects on safety, such as tempting some private pilots to forego weather briefings in order to avoid paying a fee? Other countries with corporatized ATC systems solve those problems by setting rates based on the relative value of the service rather than strictly on the underlying cost and by avoiding direct charges for safety-related information services.

The first of the above points adopts a variant of the internationally accepted practice of basing both terminal and en-route charges on the weight of the aircraft, rather than on the proportion of system costs allocated to each type of user. Basing charges on weight will lead to much lower charges for smaller, lighter aircraft than would a fee system based on cost allocation. [Such variable pricing is similar to pricing of rail services. See Cunningham and Jenkins, "Railing at 'Open Access,'" *Regulation* No. 2, 1997] The second point means not charging directly for Flight Service Station activities. Instead, the corporation's costs of providing those services will be recovered from all users, as part of the cost base to be recovered from en-route and terminal charges.

In a 1996 Reason Foundation policy study, Viggo Butler and I developed a hypothetical ATC user fee system based on those principles. Table 3 summarizes the results for a representative set of general aviation and commercial aircraft, along with assumptions about their annual flight operations. For example, the Lear 35, a business jet, would have total annual ATC charges of \$23,696, based on a typical annual level of flight activity. That represents about 2.2 percent of its total operating cost or 5.5 percent of its direct operating cost.

Table 4 compares the user fee costs with the present user tax payments for the same set of aircraft as in Table 3. As can be seen, the net impact of adding user charges and eliminating fuel taxes (for GA) and ticket taxes (for airlines) varies according to the type of plane and the assumed flight activity.

Table 3: Conceptual ATC Charges for Proposed System

Aircraft	Max. T.O. Wt. (lbs.)	Landings/Year	Average Distance (miles)	Terminal Charge (\$)	Enroute Charge (\$)	Annual Enroute Cost (\$)	Annual Terminal Cost (\$)	Total Cost
Falcon 50	38,000	300	1,050	17.73	173.76	52,126.83	5,319.48	57,446.31
Falcon 20-5	29,100	321	750	13.30	93.08	29,879.84	4,268.88	34,148.73
Lear 35	18,300	462	550	8.36	42.93	19,832.38	3,863.75	23,696.13
Lear 24	13,500	346	550	6.17	31.67	10,957.00	2,134.65	13,091.65
King Air 20	12,500	500	400	5.71	21.33	10,662.50	2,856.25	13,518.75
Baron	5,400	267	250	2.47	5.76	1,537.32	658.90	2,196.22
B747	776,000	700	2,500	354.63	8,274.10	5,791,870.00	248,242.40	6,040,112.40
B737	121,440	2,954	521	55.50	269.85	797,129.73	163,941.33	961,071.06
B757	332,000	1,400	1,500	151.72	2,123.97	2,973,558.00	212,413.60	3,185,971.60

Table 4: Current vs. Proposed User Costs

Aircraft	Current Annual User Tax (\$)	Proposed User Fees (\$)	Proposed User Tax (\$)	Difference in Annual Cost (\$)
Falcon 50	39,812	57,446	0	17,634
Falcon 20-5	29,356	34,149	0	4,793
Lear 35	22,575	23,696	0	1,121
Lear 24	18,506	13,092	0	(4,964)
King Air	6,188	13,519	0	7,331
Baron	1,500	2,196	0	696
B747	10,416,000	6,040,112	0	(4,375,888)
B737	1,189,000	961,071	0	(227,929)
B757	3,906,000	3,185,972	0	(720,028)

*Fuel tax for business aircraft, ticket tax for airlines.

Direct user charges for those GA flights filing flight plans (terminal charges) and flying IFR (en-route charges) would replace GA fuel taxes. No other types of GA operations would pay any charges or any fuel taxes. Even those types of corporate aircraft that would end up paying more would still pay only a small percentage of the total annual cost of ownership and operation. The largest of these planes, the Falcon 50, would pay only 3.2 percent of its total annual cost in user fees, compared to 2.2 percent today. Table 5 looks more closely at the impact on general aviation.

The under-\$1 billion annual cost of the remaining FAA's safety regulation activities should continue to be collected from general federal revenues, as are the costs of other safety regulatory agencies such as the FDA and OSHA. The airport grant program—if continued—could be funded either by general revenues or by reduced air cargo and passenger ticket taxes at about one quarter of previous levels—i.e., a passenger ticket tax of 2 percent. Table 6 looks more closely at the impact on airlines of ATC fees with and without a 2 percent ticket tax. With the tax, some aircraft will pay more, and others will pay less; again, depending on the actual amounts and types of flight activity. Without the 2 percent ticket tax, all types of airliners would clearly pay less than they do today.

Purchase Price

The Administration's USATS proposal assumed that the FAA's ATC assets would be transferred to the new corporation at no charge. The proposal was based on the premise that the assets had already been paid for by users via the aviation user taxes deposited into the Aviation Trust Fund and on the implicit grounds that USATS would continue to be owned by the U.S. government, which would be paying itself if the assets were to be purchased. By contrast, Nav Canada purchased the ATC assets from Transport Canada for over \$1 billion. Should a new ATC corporation purchase the ATC assets from the federal government?

First, although user taxes have paid for a majority of FAA capital and operating costs, there is still approximately \$2 billion per year of general-fund support for FAA's \$8 billion to \$9 billion budget. Hence, one could argue that its users have actually paid for only three-fourths of the cost of the system.

Second, the new corporation and its stakeholders would be gaining something of great value in the transfer of ATC to themselves: control over the future of this essential system, something they do not have today. What they have "paid for" via user taxes is a dysfunctional system which they do not control. What they would be getting, via the corporation, is a (potentially) modernized system that they control. That ought to be worth paying for.

How much are the FAA's ATC assets worth? According to the Administration's April 1995 briefing on the USATS proposal, the ATC book value (net of accumulated depreciation) as of that date was \$5.9 billion. Since a large fraction of those assets (radar, computers, landing aids, etc.) needs to be replaced within a few years, their real value is far less than the book value (as the established telephone companies have discovered concerning their assets, since the advent of competition).

A third party would have to estimate the market value of the ATC system's assets. Presumably, most of the real estate, control towers, and en-route centers would be valued at or above book value, in contrast to most of the electronic equipment. The net value probably will be in the \$3 billion–4 billion range, that is, substantially

less than a single year's ATC corporation operating revenue and a sum readily financed in the capital markets, as was done with Nav Canada.

Financing the ATC Corporation

There are two key questions to address with regard to financing of a stand-alone ATC corporation. First, can a brand new corporate entity without any operating history raise the capital to make a multibillion dollar purchase of the existing assets? And second, can such a corporation finance a multiyear modernization program? The answer to both questions is yes.

Last fall, capital markets provided nearly \$2 billion to finance Nav Canada. The initial funds were provided in the form of relatively short-term bank loans, to be replaced over time with longer-term commercial paper and revenue bonds. Although the United States' ATC system is five to ten times larger than Canada's system, its revenue stream is about ten times as large. In both cases, the new corporate entity would have either a de facto or a de jure exclusive franchise for providing essential ATC services, and the ability to set rates that ensure professional operations. Assuming it is well run, it should be what the capital markets refer to as a good credit risk.

As for financing a modernization program, the Department of Transportation commissioned a detailed financial feasibility analysis of its USATS proposal from Gellman Research Associates and Arthur Andersen & Co. The May 1995 report of the Department of Transportation's Executive Oversight Committee concluded that, "In all scenarios examined, USATS is financially viable with revenues sufficient to cover operating and investment costs." In addition, "USATS is also able to fund a portion of capital investment by using long-term debt which would be repaid when the benefits of those investments are realized by users. The accelerated investments [would] reduce USATS's ATC operating costs by \$0.9 billion. In addition, those investments would provide over \$10 billion in safety, delay reduction, and operating cost savings to users over the 1996 to 2005 time period." The financial assumptions for a non governmental, non-profit ATC corporation would be virtually the same as those used in the feasibility studies. Hence, its conclusions would apply equally to the proposed corporation.

Table 5: GA Cost Impact Comparison

Aircraft	Current Taxes		User Fees (Proposed System)	
	Percent D.O.C.	Percent T.O.C.	Percent D.O.C.	Percent T.O.C.
Falcon 50	5.83	2.19	8.42	3.16
Falcon 20-5	6.02	2.09	6.70	2.43
Lear 35	5.23	2.09	5.49	2.19
Lear 24	4.84	2.28	3.42	1.62
King Air	2.81	1.18	6.14	2.59
Baron	2.50	1.07	3.66	1.57

Window of Opportunity

Continuing squeezes on "discretionary" federal spending, and the FAA's continued inability to manage major upgrades, almost guarantee that ATC modernization will not occur without major restructuring, including restructuring of ATC's financing. In 1996, Congress authorized two major studies on that issue. Coopers & Lybrand completed the first in February 1997; the second will be released by the National Civil Aviation Review Commission (NCARC) in October 1997.

Those studies were prompted in part by the lapsing of the 10 percent airline ticket tax and GA fuel taxes at the end of 1995, due to the congressional shutdown of the federal government. With the ticket tax in abeyance for nine months of 1996, the major airlines found that more passengers were flying, so they began lobbying for elimination of the tax, to be replaced by user fees. Unfortunately for the ATC commercialization cause, seven of the largest airlines proposed a complex ATC user fee system, based on seats, passengers, and origin-destination distance, as opposed to actual miles flown, that would have greatly increased the amount paid by Southwest and other low fare airlines. That ill-conceived proposal came under harsh criticism by the General Accounting Office and many members of Congress, and died in 1996.

NCARC now is expected to develop a proposal for a new funding system able to satisfy both large and small carriers. The lessons of how Canada and other countries have dealt with user fees and with charges to GA users can help NCARC develop a workable plan.

Table 6: Airline Cost Impact of a 2 Percent Ticket Tax

Aircraft	Current 10 percent Tax	Proposed User Fee	Proposed 2 percent Tax	Difference with 2 percent	Difference without 2 percent
B747	\$10,416,000	6,040,112	2,083,200	(2,292,988)	(4,375,888)
B737	1,189,000	961,071	237,800	9,871	(227,929)
B757	3,906,000	3,185,972	787,200	67,172	(720,028)

Everyone who travels by air understands the need for a safe, effective, and efficient air traffic control system. Today's information processing technology and satellite based navigation systems offer the prospect of greatly increased safety and significantly lower costs that would dramatically reduce billions of dollars in delays suffered by travelers each year due to the ATC system's obsolete technology.

Commercializing air traffic control is achievable. It has already been done in sixteen other countries in response to the same problems that plague America's ATC system. Adapting their experience to the United States can produce a safer and more cost-effective American system.

Selected Readings

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Transport Canada, The Study of the Commercialization of the Air Navigation System in Canada. *Discussion Paper No. 2*, "Safety Regulation" *Discussion Paper No. 3*, "The Need for Economic Regulation of a Commercial Air Navigation Organization" *Discussion Paper No. 4*, "International Experience of ANS Commercialization" *Discussion Paper No. 5*, "Illustrative User Charges" [Note: all five papers were produced in 1994.]

PROFESSIONAL AIRWAYS SYSTEMS SPECIALISTS
Washington, DC, September 13, 2000

Hon. JOHN MCCAIN,
 Chairman,
 Senate Committee on Commerce, Science and Transportation,
 Washington, DC.

Dear Senator McCain:

I understand your Committee will be holding airline delay hearings on September 14. As the organization representing 11,000 Federal Aviation Administration and Department of Defense (DoD) employees who ensure aviation safety and security, I would like to submit a statement for the written record.

Aviation safety requires all users of the National Airspace System (NAS) to work together to maintain the U.S.'s stellar record. I commend you and the other Committee members for having the foresight to gather information from a variety of sources on this all-important topic.

My statement provides insight into equipment-and integration-related delays. The FAA, through a true commitment to NAS Modernization, could easily rectify these real problems with an emphasis on training and proper development of new equipment and programs. With delays increasing significantly with each passing year, every avenue must be explored to ensure the problem is eventually brought under control. While many solutions to delays are extremely costly, such as completely overhauling the NAS and building more runways, the agency could solve the current equipment-related delays within its current budget.

PASS and the FAA have already begun working together on overhauling the Airway Facilities training system and properly implementing the components of Free Flight Phase 1. These are steps in the right direction, but the FAA needs to be coaxed into realizing the importance of working together to truly revolutionize the NAS.

I hope the statement sheds light on the importance of PASS' role in helping to solve the ever increasing airline delays, as well as other NAS Modernization problems. If you need further information, please don't hesitate to contact either PASS Legislative Director Abby Bernstein or myself at 202/293-7277.

Sincerely,

MICHAEL D. FANFALONE,
PASS National President

STATEMENT OF MICHAEL D. FANFALONE, PRESIDENT, PROFESSIONAL AIRWAYS
 SYSTEMS SPECIALISTS, ON AIRLINE DELAYS

The Professional Airways Systems Specialists (PASS) provides exclusive representation for more than 11,000 of the FAA's Systems Specialists, Flight Inspection Pilots, Aviation Safety Inspectors and safety support staff. These are the people who maintain the integrity of the National Airspace System (NAS), through installing and maintaining systems and conducting aviation and flight inspections. PASS has in-depth knowledge of the NAS and understands the components that must be in place to ensure aviation productivity, safety and efficiency.

During the summer, you could not read a newspaper or turn on a television or radio without being inundated with information on "the continued increase in air traffic delays." In the midst of this period, FAA figures showed 48,448 flights were delayed in June—7.3 percent higher than the 45,162 delays during the same month in 1999. Most aviation experts, including PASS, believe delays will continue to increase because today's aviation system is already stretched to its limits. With the FAA estimating that air travel will increase to more than one billion passengers by 2010, the only logical solutions to cure the delays require "real" commitments to overhaul the nation's aviation system and how it is used. There are no quick fixes. The real fix will require significant investment in people, time and money. They are crucial because the system is overcrowded and projected increases in air travel demand only exacerbate the increase in delays.

If aviation experts take responsibility and begin solving problems under their control, delays will immediately begin to decrease until such time that capacity can be meaningfully increased. As the experts behind the NAS, PASS can provide insight into equipment failure and integration of new systems. While only a small percentage of the overall delays are attributed to equipment breakdowns, PASS believes that our members can help reduce equipment caused delays. The FAA's method of integrating new programs, such as the Display System Replacement (DSR), was

blamed for 21 percent of the increased delays last year.¹ In 1999, DSR integration with the existing systems caused problems in Seattle, Chicago, Cleveland and New York, resulting in hundreds of delays. In Chicago, 600 delays occurred after the problem knocked out the air traffic control radar for 72 minutes.²

In order for aviation specialists to begin solving their portion of the delay problems, accurate data are needed. An Inspector's General report recently called for more reliable reporting methods, finding "until complete and consistent data are available, examination of the causes of delays and identifying viable solutions will be problematic."³ While over scheduling and weather are considered the major causes of delays, the FAA's careless attitude toward NAS Modernization is causing the equipment—and integration-related delays, which tend to be among the most time-consuming. The DSR delays prove the agency is not properly testing equipment in its quest to meet deadlines. In 1999, software problems accounted for 35 percent and hardware problems were blamed for 27 percent of the equipment-related delays.⁴ The DSR integration and other equipment problems have contributed to an 18 percent increase in the length of overall delays.⁵ FAA could easily begin solving equipment—and integration-related delays by improving testing and integration of new equipment and providing on-site expertise for more immediate response as problems occur.

System Development and Implementation

The FAA continues to rush deadlines and implement equipment without proper on-site testing—a cause of delays and reduction of safety. Since each aviation site is unique, new systems cannot be properly validated using the laboratory style of development. In the past few years, an unprecedented amount of delays have been caused by the integration of the new equipment with the existing components. Major new systems, such as the aforementioned DSR, Automated Radar Tracking System (ARTS) IIIA, Airport Surveillance Radar (ASR)-9, HOST and Oceanic Computer System Replacement (HOCSR) systems have not been integrated properly in various sites, causing hours of delays. The integration of ARTS IIIA and ASR-9 caused almost 200 flights to be delayed after a 10 hour, 33 minute outage at Dulles Airport. At Los Angeles Air Route Traffic Control Center (ARTCC), an integration problem between the new HOCSR and Computer Display Channel delayed hundreds of flights at five California airports and caused problems as far away as Phoenix, a non-hub airport which traditionally fair the worst during delay situations.

PASS believes expanding the systems specialists' role can help mitigate these types of integration problems. The deployment of Free Flight Phase I tools⁶ is certainly an example. These tools are designed to shift from a centralized command-and-control environment between pilots and air traffic controllers to a distributed environment allowing pilots more capability to choose a route and flight plan that are more efficient and economical. Like many of the other modernization systems, these tools are, essentially, "off-the-shelf." However, they still need to be adapted to accommodate local site peculiarities and needs and unique integration problems at each location. Through site-level user teams composed of local management and PASS technical specialists, the full development of each tool is conducted on-site with integration problems solved as they arise. Due to this method, these tools, which benefit scheduling and capacity, are being developed on schedule, leading everybody involved to expect full deployment by the December 31, 2002, deadline. For example, the deployment of pFAST and TMA at Dallas-Fort Worth has increased the arrival rate by five percent, including an additional 36 flights and a reduction of 540 minutes of delay each day.

This method, called spiral development, needs to be utilized for other NAS Modernization systems. FAA may claim that PASS is always involved, but the reality is that too often the technical expertise of our members is overlooked or ignored.

¹Department of Transportation's Inspector General, *Air Carrier Flight Delays and Cancellations*, p. xi, July 2000 (Prepared by the Federal Aviation Administration Bureau of Transportation Statistics Office of the Secretary of Transportation).

²Ibid, p. 30

³Ibid, p. i.

⁴Federal Aviation Administration, *AF Related Delays Fiscal Year 1999 and First Quarter Fiscal Year 2000* (PowerPoint presentation).

⁵Department of Transportation's Inspector General, *Air Carrier Flight Delays and Cancellations*, p. 3, July 2000 (Prepared by the Federal Aviation Administration Bureau of Transportation Statistics Office of the Secretary of Transportation).

⁶The five Free Flight Phase 1 tools are Collective Decision-Making (CDM), Precision Final Approach Spacing Tool (pFAST), Surface Mover Advisor (SMA), Traffic Management Advisor (TMA), and User Request Evaluation Tool (URET).

Training

The strong work ethic of hundreds of systems specialists has enabled Airway Facilities (AF) to maintain and achieve the FAA's safety goals and objectives despite insufficient staffing and training. However, anemic funding in these areas is taking a toll on the readiness of the NAS.⁷ In order to address a portion of this problem, PASS and the FAA have recently agreed to an ATS Training Strategy for the AF workforce and will soon begin jointly developing the plan to "make it happen." Training is crucial because only 6,000 Airway Facilities employees are providing hands-on maintenance for more than 40,000 FAA facilities and equipment. The system needs to be reinvigorated through local and on-the-job training (OJT). An inspector general's audit report, issued August 18, 1999, touted the use of local and on-the-job training, finding the current centralized training driven by a quota system wasteful and antiquated.⁸ The ATS Training Strategy directly addresses this issue. The IG noted that the FAA could make changes to its training program within its current budget constraints, stating that the "FAA needs to use its available funds more wisely and take greater advantage of more cost-effective training methods." PASS wholeheartedly concurs.

At most locations, insufficient staffing levels make it impossible for systems specialists to travel to Oklahoma City for weeks and months on end for training. The FAA would save a tremendous amount of money and recover an untold number of hours in lost productivity by placing more emphasis on OJT and providing local and on-site training. The skills of the AF technical workforce needs to be upgraded to those of software and network specialists enabling these employees to fully participate in site-level development of new systems and the ATS Training Strategy is a step toward this goal. PASS asks this Committee to help ensure the FAA remains committed to implementing this strategy that would retrain an entire workforce within the next five years. Under the existing system, retraining of the workforce would consume 15 years.

Contractor Support

The FAA is relying more and more on contractors to support and integrate new systems. Contractor error is a common factor in equipment-related delays. In the Los Angeles outage, the FAA NAS Area Specialist, despite being inadequately trained and being on duty without an FAA NAS Operations Manager, effectively mitigated and isolated system errors while configuring two very complex computer systems. The contractor did not arrive until considerably after the systems specialist had fixed the problem. Other examples of contractor error included a 39-minute outage caused by problems with the HOCSR at the Atlanta ARTCC and a radar problem in Philadelphia that caused 11 planes to be lost off-screen for 20 minutes.

Conclusion

While weather and scheduling account for the majority of delays, the resolution of equipment problems could save the industry and government millions of dollars. With aviation experts working together with the FAA to solve the current problems and finding the best remedies to reinvigorate the overtaxed NAS, the U.S. will maintain its reputation as the leader in air travel. Some believe that privatization of the air traffic control system would help this process, but nothing could be further from the truth. Since aviation safety is at stake, private sector businesses, which make decisions based purely on profit, should not be in control of the NAS. Oversight of the NAS has always been and must remain inherently governmental. Safety should never be contracted out to the lowest bidder. Privatization proponents would have you believe that the system would function better outside of government oversight. As the IG report indicated, the government is not the main source of NAS delay problems, but airline scheduling and weather are the main culprits. The current system is not broken, but a commitment needs to be made by all involved in the NAS to solve the problems within their grasp and to work together with the agency and other organizations to determine long-term solutions.

Following is what I would have told the Commerce Committee and the Appropriations Committee if I had the opportunity to testify before them. I have been told that talking with me is like trying to take a sip from a fire hose. With that in mind I'll continue.

⁷ Federal Aviation Administration, "Airway Facilities Readiness Level of the Field Evaluation Report No: AAF-20:90-01," p. 7, May 17, 1999.

⁸ Office of Inspector General, "Audit Report: Airway Facilities Maintenance Training," p. 3, August 18, 1999.

PREPARED STATEMENT OF DANIEL B. HARTLEY, PRESIDENT OF SPEEA

Background:

I, Dan Hartley, was the president of SPEEA, the engineers union at the Boeing Company for a number of years. A major portion of my duties then and continuing after I have left office, is about American aeronautical competitiveness and its declining state. I am in my 45th year of engineering and have been an aviator for a like time having flown as a navigator, flight engineer and pilot. I have aviated for the Air Force, airlines and Boeing. Currently my wife, also a pilot, and I have a private airplane we fly for recreation.

At my age I am still employed full time as an engineer in aeronautics. During my decades I feel proud to have been a participant in development of the technologies that have reduced the cost of an airline ticket over 6 times in real dollars while increasing the level of safety dozens of times. I participated as American technology brought the Cold War to an end. A major factor in the demise was our increasing lead in aerospace prowess; parenthetically, a major factor in the present health of our American economy is the money and talent that has been diverted from the Cold War into our own industrial base.

Deregulation . . . aviation is the most regulated industry in our country. This over-control by the government has stifled aeronautics so much that we are about to be killed. In this last decade of "prosperity" I see figures that our aerospace employment has gone down from 1.4 million to under 800,000 thousand . . . hardly what I call healthy economic prosperity. It is not "politically correct" of me to say that for the last decade, both Republican and Democrat Administrations and Democrat and Republican Congresses have been parties to the declines in competitiveness that are rapidly approaching critical levels. The American air traveler is now seeing one of the symptoms of this decline. There are those who decry something called "industrial policy" and who say that we should have no policy and that the government shouldn't be picking winners and losers. I submit that we have a well-defined industrial policy toward aeronautics . . . it could be called "over-regulation" and national apathy. Even with record dollar exports in the last quarter, the main driver of this industry is the smarts of the workers, the intellectual capital . . . and our present national policy of holding down progress is lessening the desires of those with necessary wisdom to stay in the field. This misguided policy has us well down the slippery slide to aeronautical mediocrity . . . and, least we need reminded, airliner export is our largest export and alone, the source of some half a million supporting jobs.

This decline apparently interests no one inside the Beltway because the subject is not glitzy . . . viewers' eyes would glaze over if the subject were brought up on the 6 o'clock news. One or two thousand needlessly dying in airliner accidents per year is not nearly as sensational as a hundred or so who may have been killed due to tire problems. Even today's hearing would have never occurred unless we were experiencing major air traffic delays. The air travelers main ally in this hearing most surely is the first-hand experience of mid-western and western states Congressional members commuting by air to and from their home districts and states.

I will state that:

- The skies are not crowded. The problem is the way the FAA thinks.
- Safety levels can be improved.
- Costs of air travel and shipment of air cargo and mail can be reduced further, and safely.
- Trip times for the traveler can be reduced without massive cost.
- Technology available today can reduce the risk of mid-air collision.
- Technology available today and reduce the amount of fuel bought from foreign sources and burned into our atmosphere.
- Noise using today's technology can be reduced.

We are approaching 12 million flights a year that are carrying two-thirds of a billion passengers (surprisingly the average airliner is only carrying some 60 passengers). I hope traffic continues to grow. I also hope levels of safety will increase and the cost of air commerce in goods and people will decrease on a unit basis. While I do not know the statistical figures of travel by highway, my techo-nerd mind does not doubt that the number of people traveling this many miles via auto would create far more problems and cause far more injuries and deaths than occur in air commerce. I'm proud that my fellow aerospace engineers and I have had the oppor-

tunity to provide the opportunity for countless of our fellow citizens who would have been killed in car wrecks, to live long enough to burden Social Security. I will be arrogant enough to observe that society has been well served by the trust placed in us for this technology . . . who said, "It ain't braggin' if you done it"?

We have a major problem though. We are a lot better at designing solutions for these problems still than we are at explaining our engineer-friendly solutions in such a way that the average citizen and political activists can understand. Some nerd with a pocket protector babbling about Mach number and "w over delta" is not nearly as adorable as, say, a spotted owl or a young salmon. Unfortunately, though, if present rates of decline continue, we will be gone before these other endangered species.

Talk is cheap so lets go over some facts that anyone in this Committee room, or over at Transportation or the FAA should be able to understand:

Crowded Skies Aren't

Some long-retired Boeing engineers in Seattle, from the old school, were asked by a billionaire who wanted more range for his business jet if they could help him. They said they could. He believed them and provided an airplane and seed money to let them try. They came up with a "radical" idea that engineering management at Boeing said wouldn't work. These very simple looking devices they invented were put on the wings of the airplane and, lo and behold, fuel consumption was reduced 7% with a resulting several hundred mile increase in range. Patents were secured and the bolt-on devices were refined, developed and certified by the FAA. Their modification worked so well that word of mouth attested to the effectiveness . . . so much so that more than half the fleet of the billionaire's type airplane has now been modified attesting to the effectiveness.

After years of these old-man engineers being panned by the elite of current American aeronautical engineering managers, Boeing was finally forced to try the modification for inclusion on the business jet version of their newest 737. Ironically they were tried because of the distinctive, snazzy look it gave the airplane and not because of any expectation of performance improvement. After all, the cream of aeronautical engineering management was so confident they wouldn't work that one Boeing individual even boasted that he would quit if they gave any improvement at all. The old men said to expect about 7%. The most rigorous and least refutable type of testing was flown . . . and the improvement was 7%. Seven percent may not sound like much to non-technical people but I know of several cases of more than a billion dollars being sunk into the development of a wing to shoot for 4% improvement. Not only that, the airplane climbed faster (this uses less airspace), flew higher (using unusable airspace) flew faster and had the ability to carry between 5,000 and 10,000 pounds more off the same runway. Fortuitously, they didn't cost an arm and a leg either. All of these improvements would apply directly to capacity improvements for our skies and the savings in performance improvement alone would more than pay for the mod in a year. These improvements were extended to several other models of airliners and results are now beyond question.

In the course of the earlier developments the patent holder also said that wake turbulence behind the airplane would be reduced. A couple of flights were flown where a following airplane was deliberately flown at varying distance behind a couple of differently modified planes to evaluate turbulence change. The qualitative evaluation of the pilot was that there was a great reduction.

Knowing that wake turbulence has a great negative impact on air traffic capacity, representatives of Congress even came to Seattle starting in 1992 or 1993, to discuss the technology. As a result, discussions were held with the FAA about the sensibility to methodically and carefully evaluate turbulence technology to get actual numbers to confirm what the theoretical and qualitative reductions were. If they could then we would have a means to increase system capacity quickly and without a complete redesign of the "National Airspace System". To me (and the average voter no doubt) it is incredible that we have spent \$32 billion on these grandiose redesign efforts over the last decade or two without getting anything useful from it . . . except, maybe, the dubious "we've found a lot of stuff that won't work".

A couple of years ago the FAA was scrambling for funding and agreed that they would evaluate turbulence reduction technology but the Administrator didn't want her hands tied with specific legislation. Nothing happened so language was put into legislation since FY1999 but still the FAA has done nothing. First they said that they would reprogram the funds . . . and then they said they would outline the program for a supplemental appropriation. Next they said it was a NASA problem. Then they said that, since fuel consumption was lowered, they shouldn't look at it because it is a marketplace decision and it would look as if the FAA were showing favoritism to Boeing . . . ignoring the fact that the technology is starting to go on

some Boeing airplanes because of a non-exclusive use license and that the patent doesn't belong to Boeing. In panning the idea, one high FAA official even said that turbulence was of no concern to Air Traffic Control because if it were, then he would have been told and asked to see if something could be done (this even though several FAA publications to airmen clearly warn of the danger of turbulence and of the necessity for pilots to avoid it).

In a nutshell, the FAA people have resisted looking at the problem, possibly for fear that a significant reduction could complicate (or maybe simplify) redesign ground rules being programmed in their latest software design. Good Heavens, they should be aware that if there were a possibility that turbulence could be reduced in the near future, they should allow for this in any "redesign". To ignore this is just another un-addressed symptom of why the FAA track record has left something to be desired. By discounting this new technology, they are not unlike the attitude shown by McDonnell/Douglas when they were telling customers who wanted to buy these devices that they didn't work, and like the reluctant Boeing engineering managers, said they would probably wreck the planes.

Congress and the President again addressed the issue in "AIR-21". Here are the actual words in this year's authorization act HR1000/S82 conference report:

"Winglet efficiency/wake vortex—The conferees recommend that such sums as necessary be expended for research, prototyping, and flight testing winglet efficiency/wake vortex technology, which reduces fuel consumption and reduces the severity of wake vortex creation potential allowing more efficient spacing of aircraft. The Managers also direct FAA to work in consultation with NASA on this research."

Following is a simplified discussion of the major, unexplored, contributor to our traffic congestion.

Due to the lack of flexibility the FAA uses to direct airplane routing, each airplane is directed down the same 3-D path in the sky to the airport and runway. Put another way, each airplane is directed into harm's way. The pilot "sees" these paths by visual indicators when the weather is clear, by the radio beams of the Instrument Landing System when visibility is limited, and by computerized flight path equipment in the airplane. It actually takes about one minute for the airplane to cross the end of the runway, touch down, slow down and turn off the runway before the next plane arrives. Put another way, a runway can comfortably handle one airliner a minute. This can seldom be achieved because all of our passenger airliners create a very strong tornado-like tube of tightly circulating wind called the wake vortex. Near the plane it has sufficient force to flip a small plane completely over or cause a large, large unexpected bank on another airliner. Like wind it eventually blows itself out, decays. Therefore, it is not safe to allow the next airplane in line to be too close to the one ahead of it. The distance must be established by the amount of time/distance it takes for the wake to decay. As a general rule the larger the airplane the worse the wake. The largest airplanes have to be announced as "heavy" as a part of their flight plan and call sign. When the jumbo jets first came into service turbulence was so bad they even had to say "heavy, heavy". This way other airplanes and traffic controllers know that more separation is required. Separation distances are typically 5 to 7 miles. (The turbulence on one large Air Force military transport is such that parachute safety requires a separation of 40,000 feet, at some 5300 feet per mile this equates to 7.5 miles.) At typical approach speeds this equates to about three minutes.

So we have runways that can handle an airplane a minute and turbulence limits them to one every three minutes. I hear Congress and the FAA wring hands about airspace congestion. There is story after story in the media about the problem. AIR-21 is ready to throw a couple of billion more into the FAA and built a firewall around it and commit the growth in funding for the next five years. Much of the increase is going into the AIP budget to build and maintain airports. As an engineer quite familiar with the way the FAA does things, I would observe that Congress should put some qualifying words into the FAA legislation to address the capacity issue. It doesn't make sense to spend AIP money on new runways without hedging the bet by also telling the FAA to fund a study of capacity improvement of existing by turbulence reduction. Firewall or no firewall, the biggest recipient of any wake vortex reduction capacity improvement would be the runways; basic common sense would say that runway money should, therefore, be used to fund the effort. Just one year's AIP money alone could be leveraged by 150 or 200 to one. It doesn't look like a smart proposition to redesign the National Airspace System for the umpteenth time . . . what is it, \$32 billion so far, with nothing to show for it except things that have failed . . . without putting some money from the effort into finding out if real operational airplane modifications could result in a better way to reduce the capacity limitations caused by the wake vortex. Someone had better have the right numbers on turbulence, if for no more reason than to insure that the right safety

factors are put in the myriad of computer programs that will be a part of any redesign effort.

The FAA is fighting tooth and toenail trying not to look into this good opportunity, blaming the lack of funding and the firewalling provisions of Congress as the reason. There is a growing number of long-time proven engineers much better versed in the problem, who think otherwise. Time and again I hear that this is a marketplace problem but it isn't. Unless the FAA is in on the evaluations and structures them such that they are usable in solving their problems, there is no way anyone would invest a lot of money into the proof.

Safety Improvements Easily Obtained

Lets go on to the next subject and talk about safety improvements. I personally have seen operable equipment that can easily eliminate the major preventable problem with airplane safety, controlled flight into terrain (CFIT). The technology I have seen can be used by an airliner and is affordable enough that it can also be used by many Cessna-sized light planes. In simulator demonstrations I have seen a pilot seeing the technology for the first time is getting along nicely in a minute or two . . . that's how natural it is. With little modifications it could also be extended to show other airplanes in a natural environment. This would lessen the mid-air collision problem and it would be compatible with the current FAA provisions. The cost of obtaining these gains is minimal if the FAA were more open to new ideas.

Weather is still a real problem in aviation safety. Some very innovative ways to deal with this are being tried out in Alaska. They work like a charm . . . and there is no reason not to extend their use to the other 49 states. LAAS also offers some no risk improvements in safety including weather safety. Because it is a challenge to the old paradigm in aviation, its potential is not being exercised; if anything the FAA seems to be intentionally holding it back. There is no reason why the potential of the present equipment is not used to bring "first hand" information into the cockpit, thus cutting many opportunities for one human's mistakes to kill other humans. I will ask, "Why should you be able to get better and more current information about traffic conditions on the freeway when the pilots of a \$180 million airliner with 450 passengers have to rely on someone reading a 1930's technology teletype interpolation?" Even the latest "internet" technologies are being adapted more for the passengers to "entertain" them during long, boring flights than for use by the crew. The ability of certifiable equipment to bring these safety-enhancing data to the cockpit greatly exceed the likelihood of the FAA to encourage the adoption and resulting benefits.

There is another cost of safety that is easily overlooked because of the tragic human loss. This additional cost must also be factored into the price of each ticket no matter if it is in the cost of the FAA ticket, box and fuel tax or the increased insurance costs or accident investigation costs and the loss of productivity of the lost airline. In one accident Boeing alone, spent more for the accident than they did for the total engineering salary and benefit cost for the whole company for the whole year. While easily overlooked, this is not a small consideration. These tremendous costs need to be considered when evaluating the costs of safety improvements. Small improvements leverage large costs if they are not considered.

Costs of Passenger and Cargo Movement Can Be Cut

If separation can be reduced due to wake vortex reduction, and if this reduction can be afforded by winglet/spiroids with the accompanying fuel savings and increase in performance, then the customers will have the benefit of lower cost for a faster trip using a less used part of the sky due to faster climb and higher, less crowded cruise altitude. Less crowded and more efficient use of the sky also implies less of a problem with capacity. This could imply that the costs to the FAA per passenger would be less. FAA income could remain constant due to the expected increase in the number of passengers. Trip times have some economic value to the passengers even though it may be speculative as to what it is. Whatever the actual figure, some saving will result. Some could argue that the fuel tax money of the aviation trust fund would decrease if overall fuel consumption of the airline fleet were increased, cutting fuel consumption. Again, if the efficiency increased the FAA would not need more money from their tax bite on extra, wasted fuel but the income would still increase because of the growth in traffic. When taken all together the savings potential is too great for Congress to allow the FAA to continue to disregard the common sense of this.

Trip Times Can Be Reduced

Earlier, in the discussion of wake vortex reduction and the probability that safe spacing of airliners could be reduced was mentioned. To simplify the understanding of this imagine the following:

You are a good guy and you have one airliner flying into a crowded airport. You want to cut your costs so you buy blended winglets/spiroids to cut your fuel consumption and to carry a larger load in your airplane. I dominate the market to the airport and I have 11 airplanes. My airplane is on approach, yours is second and mine are in positions 3 through 12. Turbulence reduction effects of blended winglet/spiroids can allow the spacing to be reduced from 3 minutes to 2 minutes. My airplane must be three minutes behind yours. My number 3 airplane can be moved up to only 2 minutes behind yours because you have the blended winglet/spiroid. Therefore my airplane gets a 1 minute reduction in trip time plus 1 minute of fuel plus 1 minute less wear and tear on the airplane plus 1 minute less of crew pay. The gain doesn't stop there because, even though my number 4 airplane is still 3 minutes behind my number 3, number 4 is a minute closer to the runway because number 3 is; similar efficiencies accrue to number 4 also. This repeats for every following airplane. So here is the "fairness" of the situation: you paid your money and got 7% fuel reduction. I didn't pay a penny and got 10 minutes of fuel savings and 10 minutes less trip time and 10 minutes less maintenance and crew pay and am able to advertise a 1 minute reduction in trip time for 10 trips. You paid the money and I got more benefit than you did. A "free rider" got more than the responsible initiator of the benefit. Furthermore, the passengers and boxes that were on my airline got lower costs.

The FAA argument that this is a "market place" decision runs against all classic laws of economics and against common sense. In advancing this fallacious argument they seem to fail to recognize that the costs of controlling the traffic should also be decreased. Congress has recognized this for a couple of years but the FAA refuses to explore the possibilities.

Economists will tell a person that the factor that really determines the efficiency of our air system is trip speed. Since trip speed also takes times to travel to and from an airport and get on and off the plane, the portion of applicable trip time that must be addressed in the FAA side of the equation of the equation is block speed. This is the average time the door of the airplane is closed at the start of a trip until when it is opened at the end of the trip, divided into the length of the trip. This includes both ground times and flight times. Right now the so-called gridlock of the skies is most readily measured by the time from takeoff to the time the airplane taxis away from the runway and is turned over to ground control. This time is increasing alarmingly, to the detriment of everyone. Flight times can only be reduced two ways, flying the airplane at a faster speed or cutting the procedural times in the trip. If the airplane can fly a more direct route and not be delayed or rerouted due to other airplanes, the flight time will be reduced. One of the major causes of these procedural delays is the turbulence avoidance distances and times. In the earlier example where the reduction of turbulence is reduced only one minute by one airplane the compounding effect is a major reduction in overall flight times.

Now imagine that 50% of the airplanes, in the example every other airplane, could be fitted with turbulence reduction technology. With your airplane fitted and the 5 of mine modified and 5 not. Total time savings for the airplanes could vary between 10 and 25 minutes depending on the mix of trail order of the modified and unmodified airplanes. This kind of information is clearly of importance to any redesign of the NAS. The FAA would be poor stewards of our skies if they didn't take this into consideration and certainly they are the logical governmental organization to bring this kind of wisdom into play.

This whole discussion as a simplified summary of the kinds of gains available if we, as national policy, were to take advantage of even small improvements in turbulence reduction. Certainly these kinds of gains spread over the millions of flights is worth billions of dollars each year. This is a pretty fair cost leverage for the modest one-time cost of the testing necessary to take the theory and initial results into airline service.

There is one more factor that really should be considered when talking about ticket costs and trip times. The more air commerce times and costs can be reduced, the more passengers and freight will be diverted to air from surface travel. DOT economists surely have some figures that show the relationship. As mentioned earlier in discussing safety, air travel is so much safer than surface travel that any diversion to the safer mode will result in less deaths and injuries on the highway. Time reduction with no increase in safety levels creates the same effect. Again, just because no one will ever be able to point to a person by name and prove that person's life was spared does not change this logical and statistical reality. I would dare say that, in the total, many more lives would be saved by an increase in diversion of passengers from surface to air travel by ticket cost and trip time reduction than were lost due to the tire problems on some SUV's. Such is the complexity and depth

of the relationships of small improvements to large returns. Certainly the DOT should be sensitive to this but I doubt that Congress will find that they are.

Risk of Mid-Air Collision Can Be Reduced

Technology exists to lessen the risk of mid-air collisions by letting the pilots know where all the other airplanes around them are. When combined with the advanced vision technologies that can now be demonstrated on real hardware, the communicating ability of the radar transponder combined with GPS positioning provides real possibility for a big reduction in near misses and mid-air collisions. Without getting into the discussion of whether the controller or pilot should have a particular responsibility, it would help the system if the pilot had indication where all other nearby airplanes were. The ADS-B shows great promise . . . and it doesn't require the reliability reducing grandiose schemes of complications such as GPS/WAAS. In ADS-B (Automatic Dependent Surveillance Broadcast) the airplane essentially determines where it is and the 3-D direction it is going and broadcasts this to all of the other nearby airplanes. It also receives this information from the other airplanes. Airplane computers then puts this information in a pictorial format for the pilots to see where all the other airplanes are. One may get wrapped around the axle as to what the procedural changes necessary for any redesigned NAS are but common sense says that whatever they are it would help safety if the pilot could see where other airplanes are. The concentration should be on providing the pilot pseudo-visual indications of traffic whether it is at night, in clouds, under, above, behind or below the airplane as well as in the cone of concern around the nose. It is poor stewardship to continue to resist such improvements as reliable computer and communications technology now make possible and affordable. This is the perfect case of better being the enemy of good.

When I am flying, the first thing I would like to know after making sure my airplane is flying right, is where other airplanes are. Given my choice I would like to see where the other airplanes actually are. I want the traffic controllers to know also so they can direct all of the airplanes around each other. I feel that the traffic controller is short changed by the present philosophy which isn't too different from how airplanes were directed upon the advent of radar some 60 years ago during the Battle of Britain. I personally think that technology has passed our very competent traffic controllers by because they are kept from using their talent by enslavement to a dated technology and hidebound management structure. I think real attention to giving them the modern tools they need will increase their value and insure more and better employment. These folks are pretty smart and we should listen to them when they have differences of opinions with the people in charge of the FAA. It disappointed me when a high official in the FAA blamed inability to evaluate the effectiveness on these new technologies on the reduction in the funds the FAA had due to money being diverted to cover the new PASS and NATCA contracts. Apparently the person wanted to use this excuse to blame Congress. What he said was not true. Furthermore, he didn't think that I was smart enough to go to the law and the Congressional Record and find out that Congress specifically addressed this and provided more money, money that was not a part of a zero-sum funding process. Condescending things like this don't do much to encourage me to support the FAA.

Fuel Bought From Foreign Sources, Burned Into the Atmosphere Can Be Reduced

We talk about "greenhouse" effects and global warming and balance of payments and high gasoline prices and fuel cost surcharges for airline tickets. The FAA even has an energy office with several people who are charged with finding ways to cut fuel consumption . . . even being concerned about how much fuel used by baggage cart tugs on airport. Along comes a technology that has now proven beyond a shadow of doubt that fuel savings on the order of 5% for a jet liner are virtually guaranteed and that savings in the order of 10% are within reach. This would result in a savings of up to 2 billion gallons of jet fuel per year from just airlines alone (since fuel not burned means a reduction at the top margin of fuel imported, i.e., the highest priced fuel, now about \$40 a barrel these figures equate to \$8 million a day. Success of the \$20 million wake turbulence program could be paid for in just 60 hours worth of fuel savings alone). If one were to factor in the ability to use the airplanes more efficiently and the savings in trip times alone this figure could easily increase by another 50 to 100% for a total of 3 or 4 billion gallons. Our marginal fuel is all imported, putting us evermore at the mercy of OPEC, and every gallon of this fuel is burned into our atmosphere . . . and we all know that the burnt byproducts of fuel weigh many times what the fuel itself weighs. It would by my expectation that the FAA, having been clearly made aware of this would have been clamoring for Congress to give the authority to at least investigate. When I have talked to these

very FAA people all I get is a “ho hum”. Treasury, Commerce, Defense and State should also be interested because who controls fuel still controls the world. Why, in Sam Hill, would Congress think funding their FAA activity is a priority when the FAA won’t even invest in so much as a phone call in response? The present attitude of the FAA should be of real concern to Congress. While it is not politically correct to say, Congress is far too trusting of the information they get from the FAA and should start getting independent information . . . and I would add that, given the state of over-regulation and the life or death power this gives, the people whose income depends on FAA acceptability, such as airlines may not be the most independent of sources.

Noise Can Be Reduced

The biggest furor about jet airliners is the noise they make. As I recollect the popular phrase NIMBY (not in my back yard) originated because of airport noise problems. We are willing to spend more than a quarter billion dollars of aviation trust fund money to alleviate noise but aren’t willing to investigate ways to actually reduce the noise to the neighborhoods. Electronic technology combined with new developments in engines and aeronautics shows promise to cut the noise problem considerably. It is true that the improvements may be measurable only by sound meter and do not address every quirk of the human psyche but we must pursue them anyway. Indeed, if an airliner were built that made absolutely no noise, some would probably be howling like banshees because the shadow of the plane bothered them . . . or something like that. I know of several cases where modern technology could have cut the noise to a large group of people by several times except that the FAA complained like crazy and did everything within their power to put the technology down. While the FAA attitude is delaying the benefits of noise reduction technology, the worse danger may be the FAA’s clear message that they have disdain for new ideas. I would be delighted if the management advisory councils would help straighten the FAA out on such matters. Unfortunately, when I see the lack of independence of the members on the “outside” advisory councils, past and present, my hopes are not high.

One should not think that the FAA is run by bad people. They have tried to solve some of the largest system problems of all time. Their problem was not with lack of sincerity . . . they actually wanted to and tried. Activities such as traffic control and regulation and certification are very important and deserve more funding. Unfortunately, the FAA’s going-in lack of appreciation for the complexity of what they were trying to do doomed good intentions. They tried harder but all too often, just failed. They have become so sensitized to criticism that they have become very defensive. In such an environment the kinds of free spirits who do solve tough problems just won’t be attracted to work there. Giving exemptions from federal hiring and procurement practices isn’t the answer either. The result is gridlock and passenger unrest because of skies that the FAA has artificially, but unintentionally, clogged up. The old CAA went through a similar cycle of decay. Privatizing the FAA is not the answer; my gut feel is that this would be disastrous. Breaking them out of the DOT may help depoliticize them and that may help a little. Splitting off the traffic control and airport functions from the other parts of the FAA may help but the danger exists that they would become even more marginalized due to feuding between factions. I personally think that the FAA needs some sort of partnership with an organization experienced with large system integration, perhaps like the Air Force had during the trying days of getting our ICBM force developed and operational, or I fear the problem will never improve.

I would suggest that Congress consider going a new direction when looking for light at the end of this tunnel. I don’t think the FAA has any chance to heal themselves no matter what amount of money or relief from government regulations given them. There are some old codgers out there who have a pretty good track record in completing some projects that were a whole lot harder than anything the FAA has had to tackle. I have but to look at the moon shot and solid state electronics (the technology looks new because the its foundation was so solid that it allowed growth), the jet airliner, cars that are way more reliable, safer and efficient, the ballistic missile, communications systems . . . and a whole host of technologies we are now living on. A good many of the pioneers are still alive. They have had their victories and their relaxation after retirement. Their minds and innovative spirits have not atrophied. They are secure enough in their competence that they don’t have to be a slave to popularity. Just like these winglet/spiroid inventors who have punched some big holes in conventional aeronautical theory, many or most will be in their 70’s and 80’s. Most would probably jump at the chance to help Congress or the FAA out in these matters. They are no longer beholden to the government, or the airlines

or industry for their livelihood, so odds are good that they would come up with some pretty sound, unbiased advice.

European Issues

Like it or not, the EU is interested in the issues above . . . they're interested because they can use them to make money for their people at our American expense. Unlike us, they give massive support to their airliner industry. They are blatantly open about their subsidies for their manufacturers. They are under no illusions about the purpose of their equivalent of the FAA. Incredibly, they have positioned themselves into our political processes so deftly that there are 5, that's right, 5 sections in the recently passed "AIR-21" act the President has signed into law. They are also ready to apply restrictions in a way that will allow their products to remain in service while forcing American products out. One has but to look at how they have prohibited "hush kit" airplanes from their countries, knowing that the only hush kit modifications were on American planes. If they could keep them out then it would lower the utility, hence value, of the American airplanes and, thereby, increase the value of their competing products.

They have already completed a series of turbulence tests (using American technology provide by our government, in part). We can be sure that they already have a plan to discriminate against American-built airplanes based on turbulence if there is a significant amount of turbulence reduction from American technologies discussed above. We should understand that they will use this information in a secondary way as a means of restricting traffic for any airline flying into or through European airspace . . . and if we don't get with it, we won't have anything to say about their figures. In the mean time our government sleeps. It is up to Congress to give the FAA a bit more direction on addressing the types of issues I bring up if we are to slow down this sup in competitiveness that our own FAA is abetting.

Maybe this is now a way to "win friends and influence people" but in my eyes and the eyes of my compatriots, it is absolutely incredible that the Commerce Committee, Republicans and Democrats both, or at least, the Aviation sub-Committee doesn't have an investigation and hearings on these matters.

Conclusion

I have made some statements above that may challenge some conventional wisdom. To go to the FAA to find out if the assertions are valid or not will not yield an unbiased answer. Neither will going to an airline whose success depends on passing FAA inspections. But the truth is that no one ever believes it when a new paradigm shift starts. One could always point to the "cold fusions" of the past as an excuse to do nothing, but fairness would dictate that the airplane, computer, transistor radio, cel-phone and car and every other technology were once new. Just maybe there is some credence to the assertions above.

Thank You.

PREPARED STATEMENT OF HON. ERNEST F. HOLLINGS,
U.S. SENATOR FROM SOUTH CAROLINA

Good morning. I see that we are starting this hearing on time. I hope the air carriers appreciate that fact. We may need to break for a vote, but we will let you know as soon as we know. For those of you that fly, you can see that we run things a little differently here. We use real clocks, relatively real, but flexible schedules, and try to keep you informed.

Pick up any major newspaper this summer, and the headlines read "Summer's a Bummer on land or in the air"—*USA TODAY*, August 21.

"Crises for Air Traffic System: More Passengers, More Delays"—*NY Times*, September 5.

"The Airlines; Less Regulation Won't Fly"—*Business Week*, August 7.

Even the London Sunday Times did a piece on "Long Delays on US Flights".

We have graphs, charts, and numbers to demonstrate that things are bad. We don't need them, however. All you need to do is look at the letters we get, or fly through one of the mega-hubs. Air carrier on-time performance was one of the worst ever recorded for June, at 66.3%.

A few weeks ago Secretary Slater called the entire industry in to talk about solutions, and I want to hear from him today. I know that Administrator Garvey has said that there is no one silver bullet to fixing the delay situation, and she is right. It is airport capacity, it is carrier service, it is new air traffic control equipment, it is new routes being designed by the FAA and industry, and it is money. We have the managment, we have FAA reforms—a new Chief Operating Officer for air traffic, and a board to work with the COO, and so on, but change will take time.

For years, we have underfunded the needs of the aviation system, and it is finally coming to haunt us. We let the Airport and Airways Trust Fund surplus be used for everything but aviation, shortchanging our airports, travelers and the FAA. I asked the then FAA Administrator Alan McArtor for a plan to spend money for airports. To meet the needs, not the political needs, or OMB's needs, but the real needs.

I never got that plan.

A few years ago, the Committee sat down with the FAA, Mitre, GAO and others to take a hard look at the needs of the air traffic control system. Everyone knew there wasn't enough money. We had a chart that was used as part of that process that showed how much was needed, how much the FAA was going to get, and the projected funding the President's budget would provide. Unfortunately, we did not fix the funding problem until this year. We now have a set amount of money put aside solely for aviation—we will have an additional \$1.3 billion for airport grants, and about \$700 million for air traffic control equipment in FY 2001, compared to FY 2000. These monies should have been made available years ago.

But that is history. Right now, we need to take a look at how to expedite airport construction, how to facilitate industry-FAA collaboration on delays, and perhaps call on the Secretary to hold scheduling Committee hearings, similar to those held in the mid-80's, when we faced a delay problem. The carriers today cannot unilaterally disarm their schedules, and it will take a coordinated effort to sort through what can and can't be done to help alleviate delays for people.

Finally, I know that there are some advocates of, and one of our witnesses today will discuss, the concept of privatization. Air traffic controllers provide a basic safety function. They are at the heart of safety, directing planes day in and day out, carrying more than 650 million passengers per year. I know that some will argue "but other countries privatize ATC functions", but no where is the aviation system so complex. We have more operations in smaller areas than many of the countries today that have privatized systems. In addition, we keep making changes to the FAA—its time we let the changes we have instituted be put to work, rather than change the desks before the new people arrive.

