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Aviation Gridlock
Understanding the Options and Seeking Solutions

Phase 1: Airport Capacity and Demand Management

February 16, 2001
Washington, D.C.

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Understanding the Options and Seeking Solutions

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Preface

As pressure increases on the national airspace system, including airports and supporting facilities and services, it is important that all elements of the system—commercial airlines; passengers; local, state, and federal governments; business and industry—understand and work together to maintain the world’s safest and most efficient aviation system. To address this need, the Federal Aviation Administration and the Transportation Research Board have launched a series of three 1-day seminars on **Aviation Gridlock: Understanding the Options and Seeking Solutions**, with sessions in February, April, and May 2001 in the Lecture Room of the National Academy of Sciences, Washington, D.C.

The seminars aim to enhance public understanding of the issues, organizations, and possible solutions to air transportation problems as the nation enters a period of increased demand, limited capacity, and inclement weather patterns traditionally associated with summer. Following are the topics and schedule for the seminars on Aviation Gridlock: Understanding the Options and Seeking Solutions:

- **Phase I: Airport Capacity and Demand Management**, February 16, 2001;
- **Phase II: Airport Capacity and Infrastructure**, April 11, 2001; and
- **Phase III: Weather and Technology**, May 16, 2001.

Phase I of the seminar series—the proceedings published in this Circular—focuses on demand management by examining three areas. The first is airport delay and congestion, addressed by looking at the anatomy of a delay, airline scheduling, and finally the customer’s perspective. The second set of presentations reviews administrative and market demand management options. The third and final group of presentations covers the operational, legal, and political challenges in adopting new demand management strategies.

Phase II of the series examines airport capacity through improvements in infrastructure; and **Phase III** focuses on weather as an impediment to air travel and on the technologies to ameliorate the negative effects of weather.

Each seminar features presenters from selected elements of the aviation industry and engages an audience of individuals representing the industry, the federal government, the business community, the general public, and the media.

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Introduction and Framing

JEFFREY N. SHANE

Hogan and Hartson

JANE F. GARVEY

Federal Aviation Administration

Jeffrey Shane: Good morning everybody. Welcome to the National Academy of Sciences building. We're delighted to welcome you all to this very important day on consideration of the problem of aviation gridlock. The program is sponsored by the Federal Aviation Administration and the Transportation Research Board, which is an arm of the National Academy of Sciences.

We're here to discuss probably the most important and the most pressing transportation issue of our time—the issue of capacity in our aviation system. I think it is fair to say that everyone is familiar with the problem in one way or another. It is easy to view the problem at a variety of different levels. It is certainly a problem at the personal level. Each of us has experienced delay and congestion in our own travel, both business and leisure, and it is a very annoying prospect when you encounter it. But, when you multiply that annoyance times the millions of travelers that are experiencing delays and gridlock in the skies today, it is easy to understand the extent to which it represents a very serious hit on the nation's economic productivity. So, to that extent, it is not just an annoyance—it's a very serious economic issue.

To the extent that access to the system is limited, it is a larger issue than that. It is widely understood today that the air transportation system represents huge economic opportunities to communities throughout the country. A community's connection to the air transportation system represents jobs, business, tourism, economic growth, and development. If you don't have optimal access to the system, you are being denied those very important benefits. So, gridlock has an even larger economic consequence for the country.

Finally, the biggest worry of all, I think, is that when there is a perception that the system is broken—whether it is in Congress or the public at-large—there is an almost irresistible temptation to try to fix it. When I say “fix it,” I mean fix it in ways that are inconsistent with the genius of our deregulated air transportation system. We have an open market for air transportation today, and it has produced enormous economic dividends for the American people. It is a policy that is widely embraced around the world. Everybody understands the importance of applying the most liberal policies applied to aviation. But, when there is a perception of difficulty in the system—when the capacity doesn't seem to be there, there is a temptation to tinker. We're beginning to see that already. I worry about that because it is very easy, when trying to address a systemic issue in the short term—looking for a quick fix—to make a very serious mistake in the long term.

My name is Jeff Shane. As some of you know, I am a recovering federal policymaker. I left government about 8 years ago after a long career at the Department of Transportation in the transportation policymaking business. I can tell you that 8 years after departing the federal government, I still wake up every morning with a shudder of

delight that I can go to my office fully confident that nobody will ask me to make any transportation policy.

Transportation policy is a hard job. Aviation policy is the hardest form of transportation policy because when you make aviation policy, particularly at the federal level, you do so in the full view of something like 250 million experts on the subject. I'm delighted to report I don't have to make that policy anymore. I'm also delighted to introduce to you somebody who does.

We are going to be very ruthless in running this program today. We're going to ask you to look at the professional biographies that you have in your materials. We are not going to spend a lot of time reading them to you. There is too much ground to cover and we don't have very much time today. So, I'm going to start that process by not reading to you Jane Garvey's biography out loud. But, I don't think she needs any introduction to this group.

It is my great personal pleasure, therefore, to introduce the Administrator of the Federal Aviation Administration, the honorable Jane F. Garvey.

Jane Garvey: Thank you very much. Public policy—it's a dirty job, but somebody's got to do it, so I'm delighted to be here. I'm going to be very brief this morning because I have the pleasure, on behalf of both the Department of Transportation, my colleagues there, and for everyone at the FAA, to be able to welcome all of you here this morning. I'm particularly pleased to see so many members of the press who have written about this subject, and in some cases very well, and some others ... So we hope you learn something today. Our colleagues from the Hill who are very much in this discussion with us, we are delighted that so many of you are here as well. Again, I want to thank Jeff. For those of you who joined us in October at a roundtable discussion that we had, he was marvelous in moderating that for us, and he was the unanimous choice to help us again today. And, to the Transportation Research Board, to Joe Breen in particular, thank you for pulling together the experts. I think we all feel smarter and brighter already just being in this wonderful facility.

This is going to be the first in a series of three seminars that we will be having over the next several months on the issue of congestion and delays. So, we look forward to this one and look forward to the other discussions to follow.

Secretary Mineta, at his recent confirmation hearing, spoke about the central challenge facing the Department of Transportation. He said it is to close the gap between demand for transportation and the capacity of our infrastructure. When the Secretary was speaking, he was speaking of all modes of transportation. But, for those of us in aviation, the numbers are absolutely compelling. More than 670 million people flew last year on United States airlines. That is, as he said, a 50 percent increase in less than a decade. It will grow to a billion by the year 2010. The question, as he posed it at the hearing, is given the surging demand, what do we do about congestion and delay?

Like all complex problems, there is no single solution, no easy solution. We can never look for just one-dimensional solutions. Certainly, part of the answer lies in technology. A number of you have written about it, and you know we need to be as aggressive as we can be to deploy the technology that is out there. Again, that is only part of the solution. Some have even suggested that is a very small part of that solution.

We know that the debate most recently has shifted a little bit more to airports. A great deal has been written about the airport capacity and a great deal written about

concrete. Jim Goodwin and other CEOs have talked extensively about insufficient airport capacity. As some of our airport friends here know, adding that capacity in some ways raises even tougher questions than the technology: how does a community balance environmental concerns with growth? What is the responsibility of an individual community to the national system? What is our responsibility to the local community as well? These are tough issues and they have tough choices, and they will be the focus of our next seminar on April 11.

But, we also know that as we push to add capacity, whether it is in the air or on the ground, there are cases, and certainly LaGuardia comes to mind, where demand has simply outpaced supply. It becomes even more compelling again in the case of LaGuardia where the implications are national in scope. That is where we have to imagine a new set of precepts and a new framework, and, in a sense, to change our focus. We hope that is what today's session is all about. We are not losing sight of technology. We are not losing sight of concrete. But, as Bob Crandall said at a recent U.S. Chamber summit, scarce resources must be rationed. There is nothing easy about these issues. They are not for the faint of heart, as someone said. They involve issues of equity, access, and competition.

Today, we will be challenging some long-held assumptions, I'm sure. But, the stakes are high. Ultimately, what we're talking about is serving people, families, the individuals, and the businesses that rely on transportation.

The New York Times in writing about LaGuardia said it was time to put aside and set aside our misgivings. That is what today is all about. We're stepping out, and we're addressing those problems.

Jeff talked about the excitement of public policy. Certainly, I think one of the reasons that so many people like Jeff played a role in government is because you do have a chance to shape the agenda and to shape public policy. We know that policy will be richer. It will be more robust, and it will be far more effective with the participation of the experts and the people who are gathered in this room.

Closing the gap and how we do it will have widespread implications for our nation. It will have widespread implications for our economy. For us, today is an opportunity to listen, to learn, and to explore. It is also an opportunity to define even more clearly the role that each of us plays in fashioning the solutions. We look forward to the discussion and also to the debate, and again, I want to thank each and every one of you for joining us today and participating in this dialogue. Thank you.

Shane: Thanks very much, Jane. I just want to underscore one thing that the Administrator said. We are here this morning to talk about one aspect of the aviation gridlock issue, and that is what economists refer to as demand management. There will be another program in April that will look at what you might think of as the public works dimension, the pouring-concrete dimension—how to build more runways; how to build more taxiways and more airports themselves. Then, in May, there will be a third program, also sponsored by the same two organizations, looking at weather and technology. So, the idea is that through these programs, we will get a broad, ranging grasp of what the possibilities are for addressing the capacity issue through all of these different dimensions. That is why these programs are so important.

Today, however, we are looking at demand management, the use of economic tools to address the capacity shortfall. You might think of it as assuming a static infrastructure,

and trying to figure out how to rationalize most effectively the scarce resources that we have in our aviation system.

We are not going to waste any time. We are already 15 minutes ahead of schedule, so that bodes well not only for this conference but for the aviation system generally. Therefore, it gives me great pleasure to introduce the first moderator for the morning: Mr. Jim Wilding, the President and Chief Executive Officer of the Metropolitan Washington Airports Authority.

Jim, please join me at the podium, and we'll launch our first panel.

PANEL 1

Understanding Airport Delay and Congestion

Introduction

JAMES A. WILDING

Metropolitan Washington Airports Authority

Thank you, Jeff, and good morning all. My job is to launch this first panel, which is understanding airport capacity and delay. I think all of us entered this room this morning with some understanding of that subject—certainly the common understanding is that we don't like it and are anxious to do something about it. But, before launching deeper into the subject, later in the day and at the following two seminars, the thought was it might be helpful if we reach a common definition in our understanding almost on a technical level of what this thing called "capacity" is, and what this thing called "delay" is and some of its causal factors.

We have three hardy volunteers who are going to help us do that—the first two of whom are here. The third is Kevin Mitchell, who I suspect when he gets here is going to have something to say about the subject of this panel of delay and congestion. But, that is just speculation on my part. They will appear before you in this order. As Jeff said, their detailed bios are in your material, but let me just quickly introduce them and ask them to come in this order.

The first speaker this morning is Dr. Agam Sinha of the MITRE Corporation. Agam has a very distinguished background with MITRE in aviation matters in general and FAA programs in particular. He is going to try to focus us in on this thing we call airport capacity and then the flip side of it—this thing called delay and how it propagates in the system.

Next, we are going to turn to an airline guy—Joel Antolini—who just a couple of weeks ago left USAirways after a 12-year stint there, most recently as its director of marketing, and is now with the Airline Planning Group in Arlington, Virginia. He is going to give us an airline perspective on how the airlines go about conducting this business, particularly in a hub formulation and in aircraft size decisions.

Then hopefully when Kevin gets here, he is probably going to talk to us from the perspective of the consumer and, in particular, the business consumer: what it is the business consumer needs and how they are making out in the current system.

So, with that said, let me turn to Agam. Will you start us off?

PANEL 1

Anatomy of a Delay

AGAM N. SINHA
MITRE Corporation

It is a pleasure for me to be here, and I want to thank the TRB and the FAA for inviting me to start off with the problem definition. I'm going to talk a little bit about the parts of the problems that you don't see when you fly, but that you need to know before you can start talking about solutions. So, the title of my presentation is "Anatomy of a Delay." But, you should think about it as complexity and interconnectivity of the mass traffic flow.

What I hope to do is show you and give you a little bit of the background of the structure, and then walk you through three scenarios from the summer of 2000—actually in June 2000. We'll show you the complexity, the interconnectivity, and it will give you a better feel for the problem, and hence come up with more appropriate solutions for all of the issues.

This is a map of the United States (Figure 1). What we have here is all of the en route centers that control the traffic at the higher levels once you are out of the airport and the terminal airspace. I'm going to concentrate on this part, where you have New York, Washington, Indianapolis, Chicago, Cleveland, and Minneapolis. So, think about that part of our country. That is really where a lot of the demand is. That is the reason for concentrating on that.

Just to give you a static view of what we are dealing with—these are arrival routes to Newark (Figure 2). Newark is over there—arrival routes only from the west. Then add

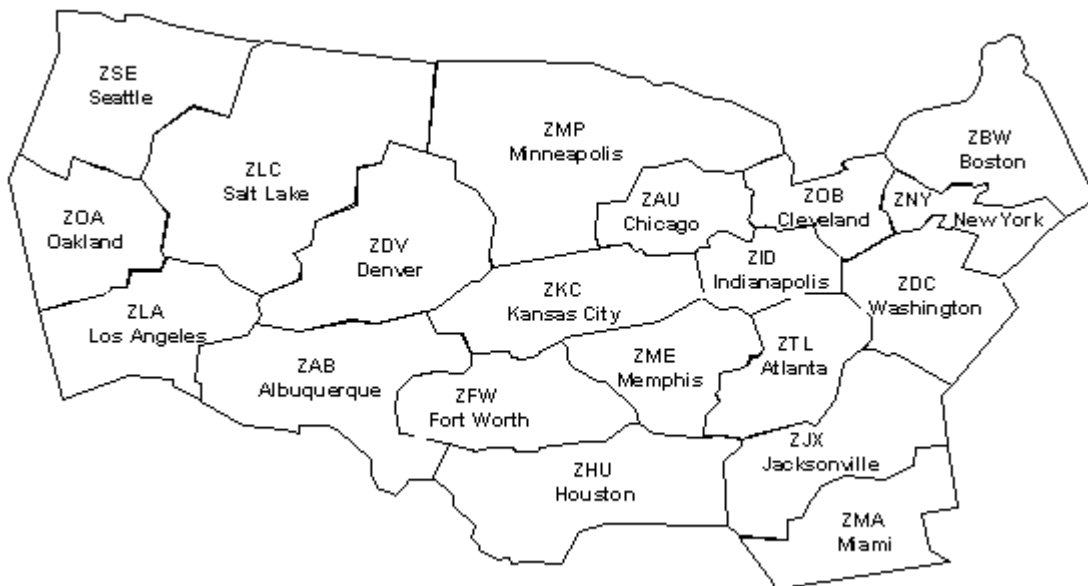


FIGURE 1 En route centers of contiguous USA (CONUS).

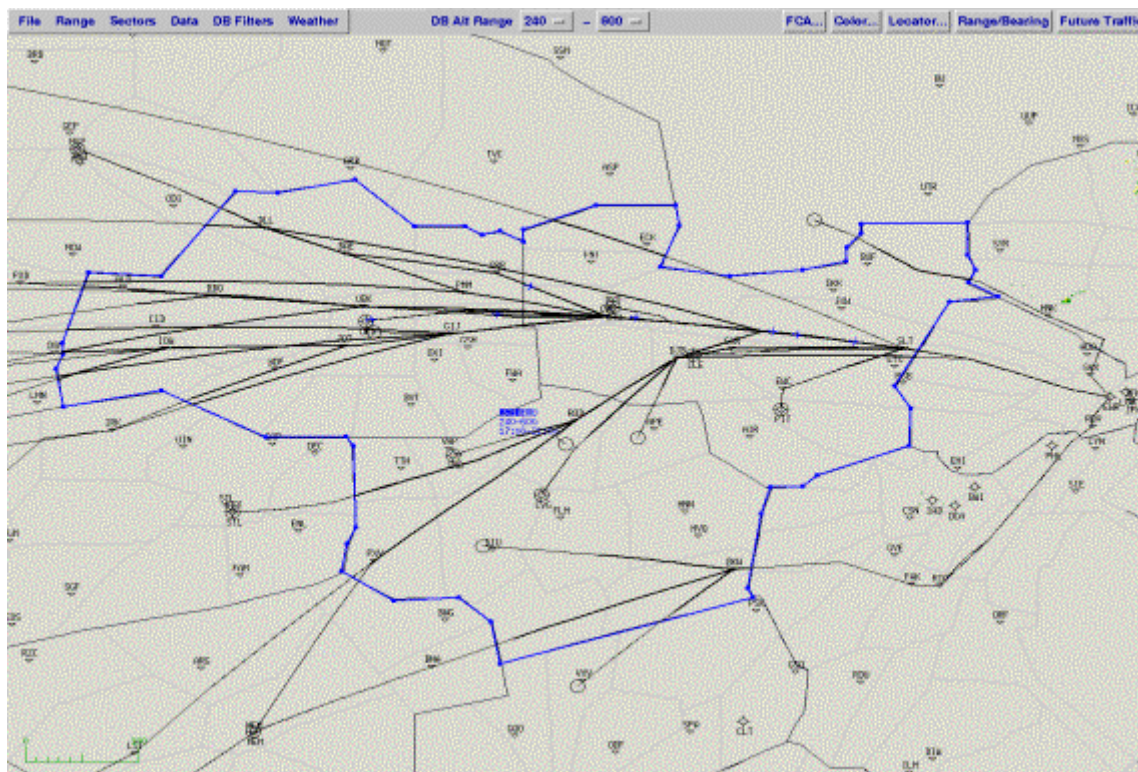


FIGURE 2 Newark (EWR) arrival routes from the West.

the Kennedy routes, add the LaGuardia routes, add the Philadelphia routes, add the D.C. metro routes (Figures 3, 4, 5, and 6). That is the picture that the controllers are putting our planes through and that the pilots are flying every day. These are only routes from the west, only for New York and D.C. There are Boston and other places on the East Coast, as well. To that, if you add other arrival routes, departure routes, and crossing flows, you can imagine what that picture looks like. So, that is the environment in which we are operating today.

Go to the first example (Figure 7). We titled it “widespread delays resulting from local problems.” Again, we picked the New York area with Newark Airport on June 8, 2000. What happened on that day is that Newark can normally handle, in good weather, 45 arrivals per hour. On this day, in a certain hour, 50 aircraft showed up. So, five more aircraft showed up. I’m not talking about schedules, and I’m not talking about simulations—this is real-life traffic. Five more aircraft showed up within that hour. So, what happened is because of the complexity that you saw, it is not possible to hold a lot of the aircraft in the New York air space. So, New York Center, which was the en route center that controls the high altitude traffic, notified Cleveland Center that it is not able to hold any more Newark arrivals (Figure 8). This was very specific—we are only talking about Newark arrivals. So, it started out as an arrival/departure throughput problem. Pretty soon, Cleveland Center then informs Indianapolis and Chicago Centers to start holding aircraft for Newark because Newark is not ready to accept them yet (Figure 9).

What happens, then, is the aircraft hold (and the holding pattern looks like a race track) they block off that altitude wherever they are holding because they are going around in an oval track and you don’t want to shoot other aircraft through it. So, they

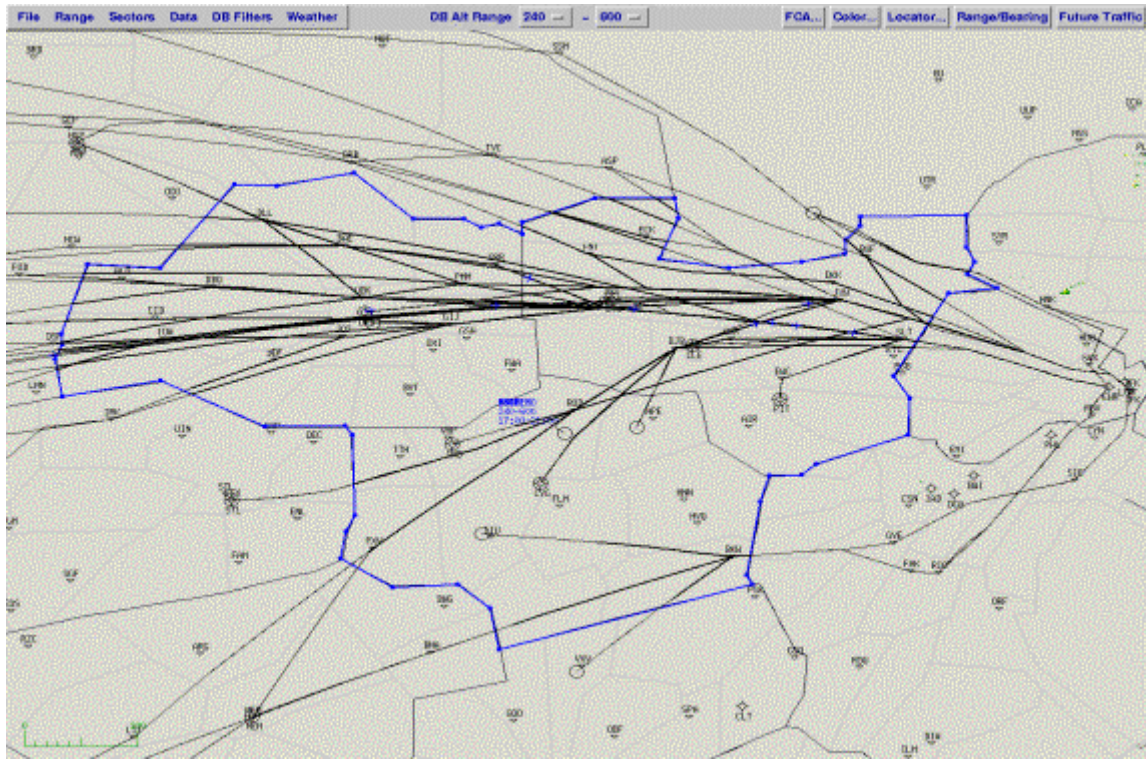


FIGURE 3 EWR and Kennedy (JFK) arrival routes from the West.

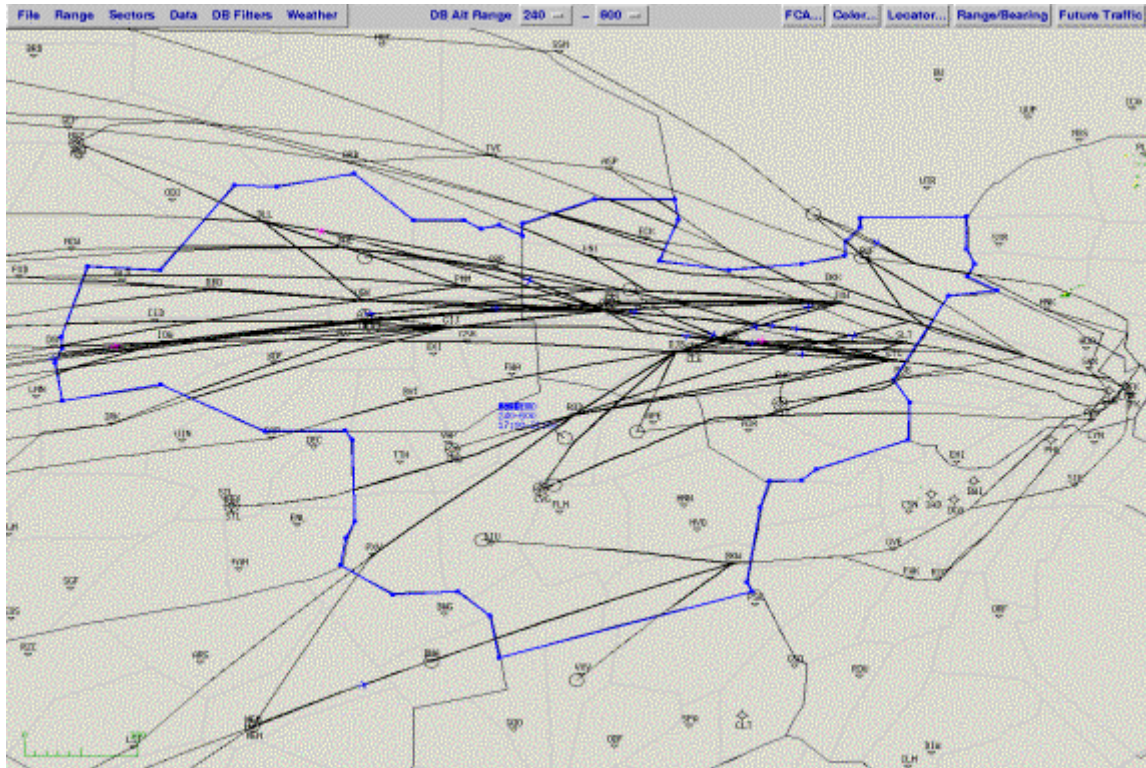


FIGURE 4 EWR, JFK, and LaGuardia (LGA) arrival routes from the West.

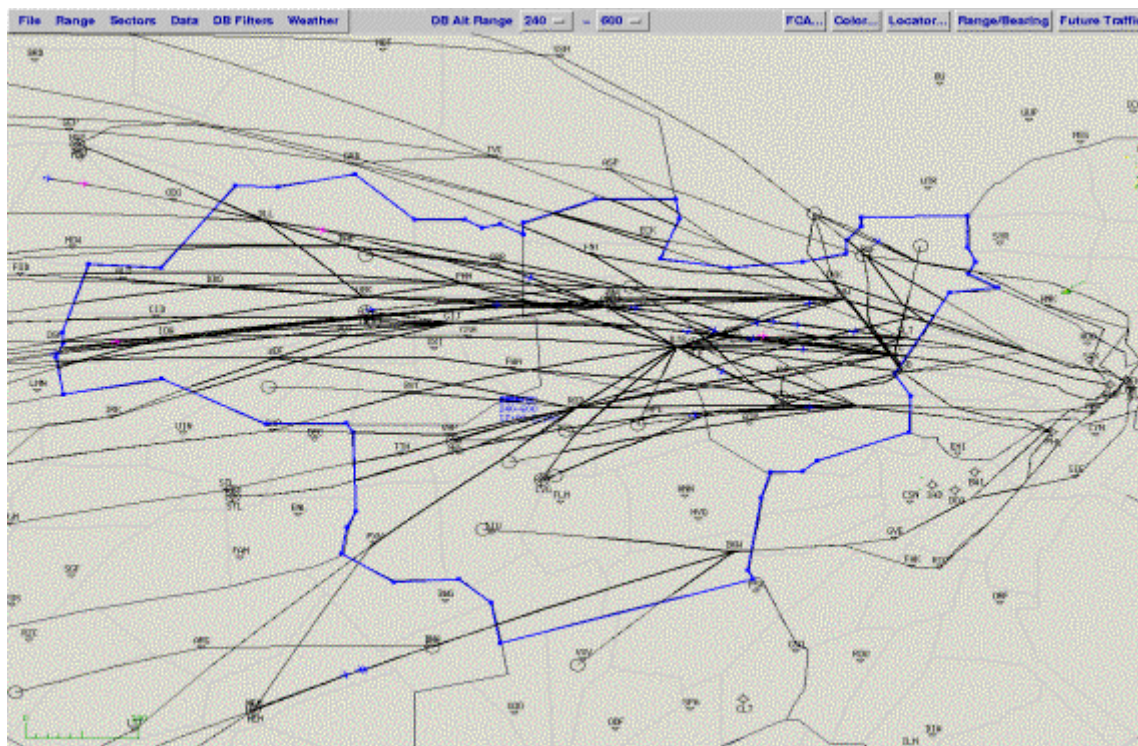


FIGURE 5 EWR, JFK, LGA, and Philadelphia (PHL) arrival routes from the West.

block off the traffic for all other aircraft at that altitude. You lose a lot of air space once you go into holding. I'll walk you through quickly to the extent where all of these en route centers get affected, and the net impact if it goes even beyond that. What this graph shows is that now you have traffic coming in over the ocean and by the time you have traveled across the Atlantic, you don't have a whole lot of fuel left, so you have to be worked into the system to get you down to the ground. You have traffic coming from the south, going into O'Hare. O'Hare wants the launch traffic to the east, but it can't. What started out as a Newark problem has translated into an en route problem and has translated into an O'Hare problem—and remember, there is no weather problem. This is just a traffic problem.

What happens then is as a combination of all this, this is the bottom line: 5 to 10 minutes of unplanned holding for 15 Newark arrivals (Figures 10 and 11). It affects an estimated 250 aircraft in 20 minutes across the system, as far east as Minneapolis, as far south as Indianapolis, and maybe even farther south than that. That is the magnitude of the problem we are dealing with, and that is the speed of the problem that we are dealing with. So, you have to keep both of those factors in mind when we start talking about solutions. That is one example.

The second example is congestion due to en route severe weather (Figure 12). We know we deal with weather all the time, and that is something we haven't learned how to control yet, so we have to learn to live with it. What you see over here is not a real bad severe weather day that cuts the country in half, and you can go from east to west. This is

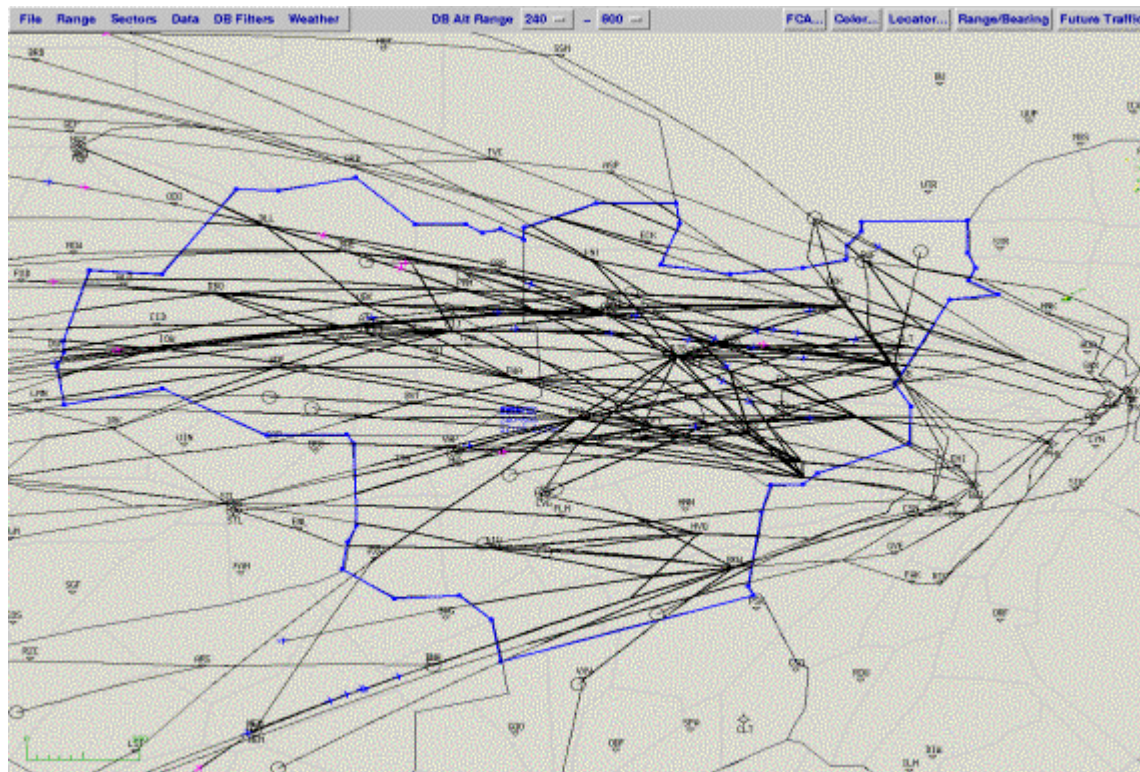


FIGURE 6 New York area and D.C. Metro arrival routes from the West.

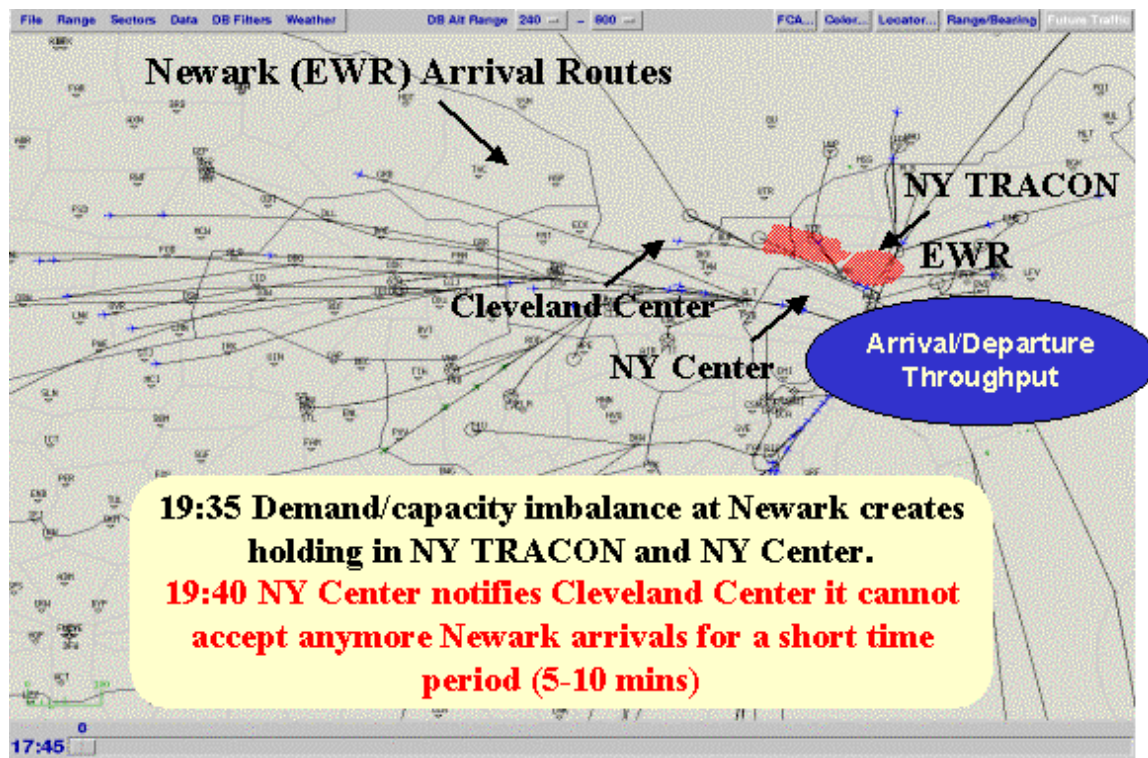


FIGURE 7 Widespread delays resulting from local problems.



FIGURE 8 Widespread delays resulting from local problems.

a relatively minor, and I use the term cautiously, a relatively minor thunderstorm line on the East Coast, and we are going to concentrate on what happens to the New York area traffic flows going into this set of New York airports (Figure 13). The good news on this day is that this was not a totally complete line of thunderstorms, so you had lots of places where you could safely send aircraft through and help them reach their destinations sooner.

One of the things that we always hear is that these are little airplanes—and big sky. What is the problem? Move them. Move them a little bit this way and a little bit that way, and you should be able to get through. So, that is what the controllers in the system did. They found areas where they could safely guide the traffic and they put them through to get them to New York airports (Figure 14). But, there is also D.C. metro traffic flows that have to come in. Now, they are starting to interact with each other, interfering with each other, depending on which plane you are in. There are a lot of interactions if you take account of all of the traffic and find a way to handle them (Figure 15). There is still the question that there is still plenty of sky left over here and no weather—why don't we move the D.C. traffic, which we did. We moved the D.C. traffic south to reduce the interaction between the New York traffic that had to be rerouted because of weather. But, now look where we are headed. Now we have problems in the Dallas/Fort Worth, Houston, and Atlanta airports (Figure 16). Atlanta airport can't launch aircraft going toward D.C., New York, and Boston because the airways are filled up. Once the airways are filled up, just imagine the public relations problem of the passenger sitting in Atlanta and the airline agent telling him: "I'm sorry we have an hour and a half of delay because of weather." They have the CNN channel in front of them, and they can look at the

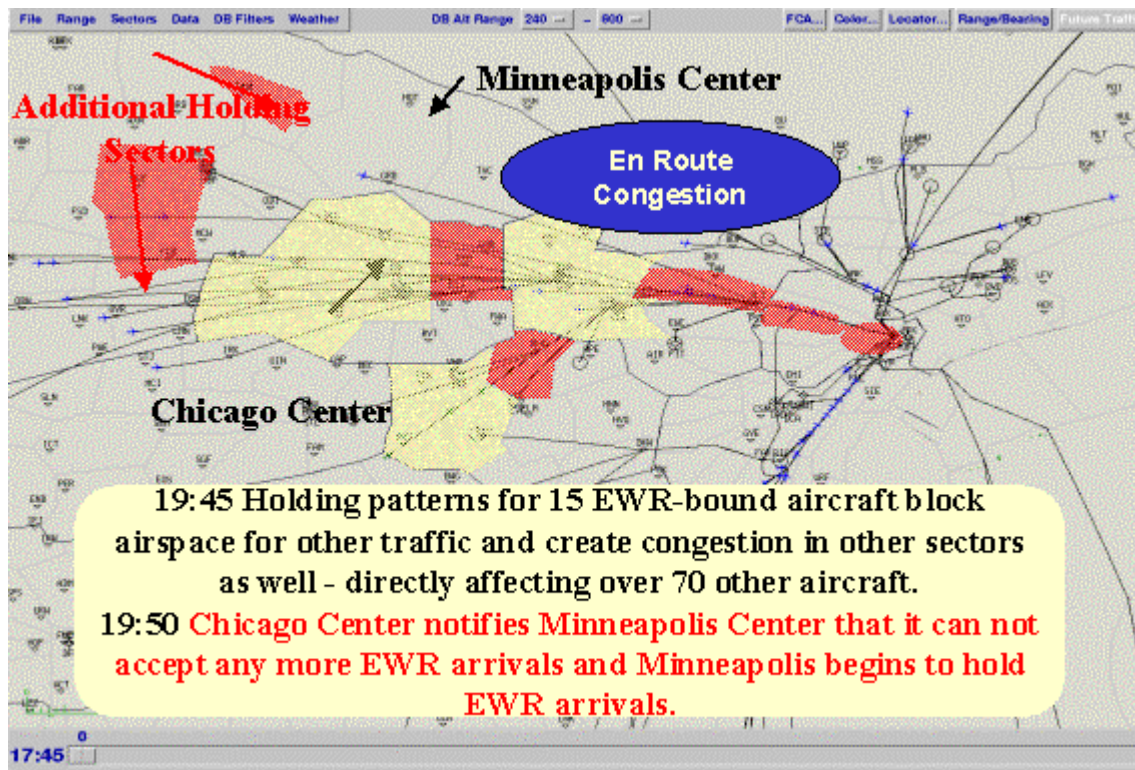


FIGURE 9 Widespread delays resulting from local problems.

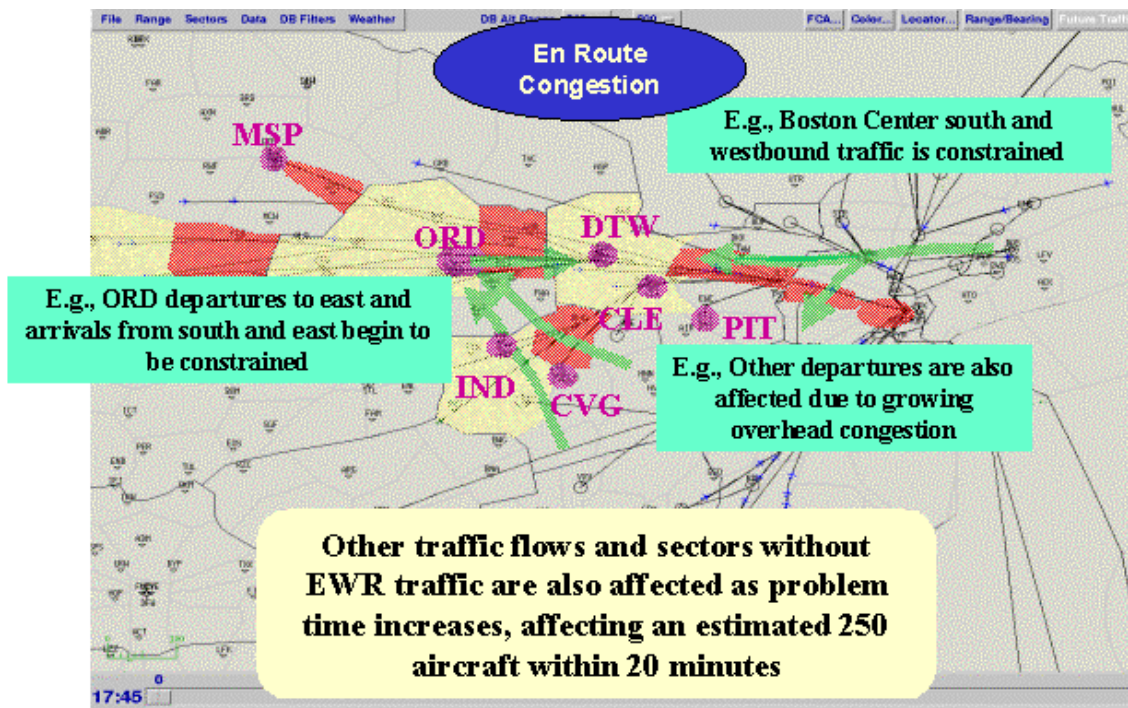


FIGURE 10 Widespread delays resulting from local problems.

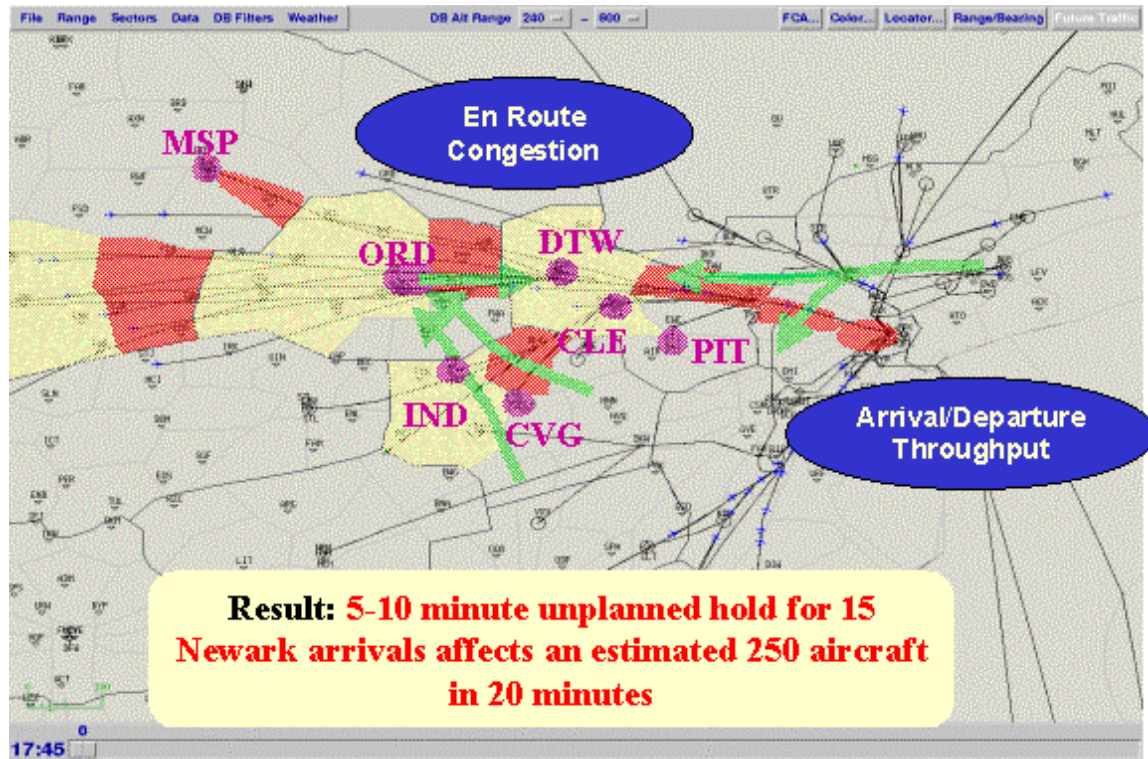


FIGURE 11 Widespread delays resulting from local problems.

weather. They say, “What weather? What are you talking about? There is a weather problem?” Not at Atlanta, but it is a weather problem.

These are the complexities that sometimes we don’t see when we fly and in fact, we tend not to believe. As I said, you look around Atlanta and you won’t see any weather.

There is another part of this equation which is in a problem like this: You can increase the capacity of Atlanta, but that alone won’t solve the problem because here the plane is waiting at Atlanta, the runway is available for them to take off, but you can’t fit them into the overflow of traffic. So, you have to balance all parts of the equation—the gates, the taxiways, the runways, the departure air space, the en route air space, and all those factors have to solve the problem together for you to be able to really get a handle on the total solution. This is the second example.

I will very quickly use a third example about San Francisco (Figure 17). In San Francisco, the arrival capacity gets cut in half, almost routinely, whenever the morning fog comes in. This is a known fact. Everybody knows this. The airlines know it; the passengers know it, the FAA knows it, and everybody knows it. The thing we don’t know is when is the fog going to lift off? When are you going to have the capacity available to you to start using it again? Slight misjudgments, lack of knowledge, lack of predictive capability—you can call it whatever you want—but whenever we don’t know precisely when to resume operations to the full extent of the visual capacity, it can result in two things. One, is that if we are too conservative and you don’t bring the aircraft in when you can use it, you may end up losing some available slots and available capacity because you haven’t got the demand. If you bring too much demand in, then you have a problem of managing the demand and the airport has not opened up, so you are circling them in

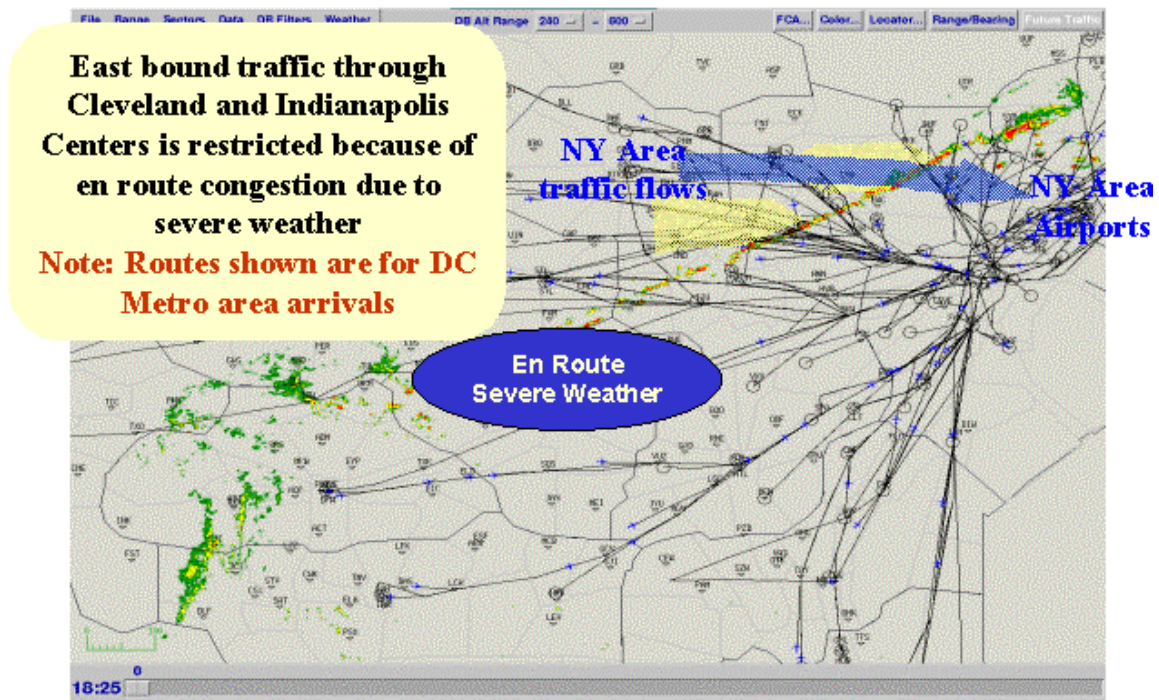


FIGURE 12 Congestion due to en route severe weather.

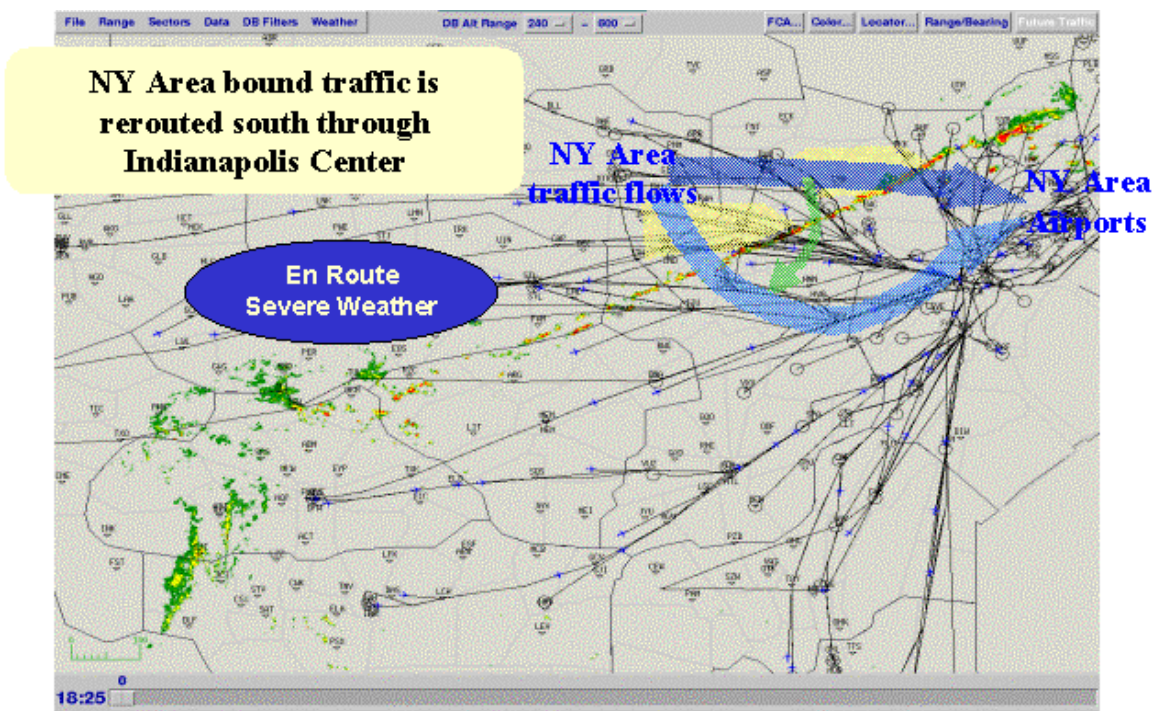


FIGURE 13 Congestion due to en route severe weather.

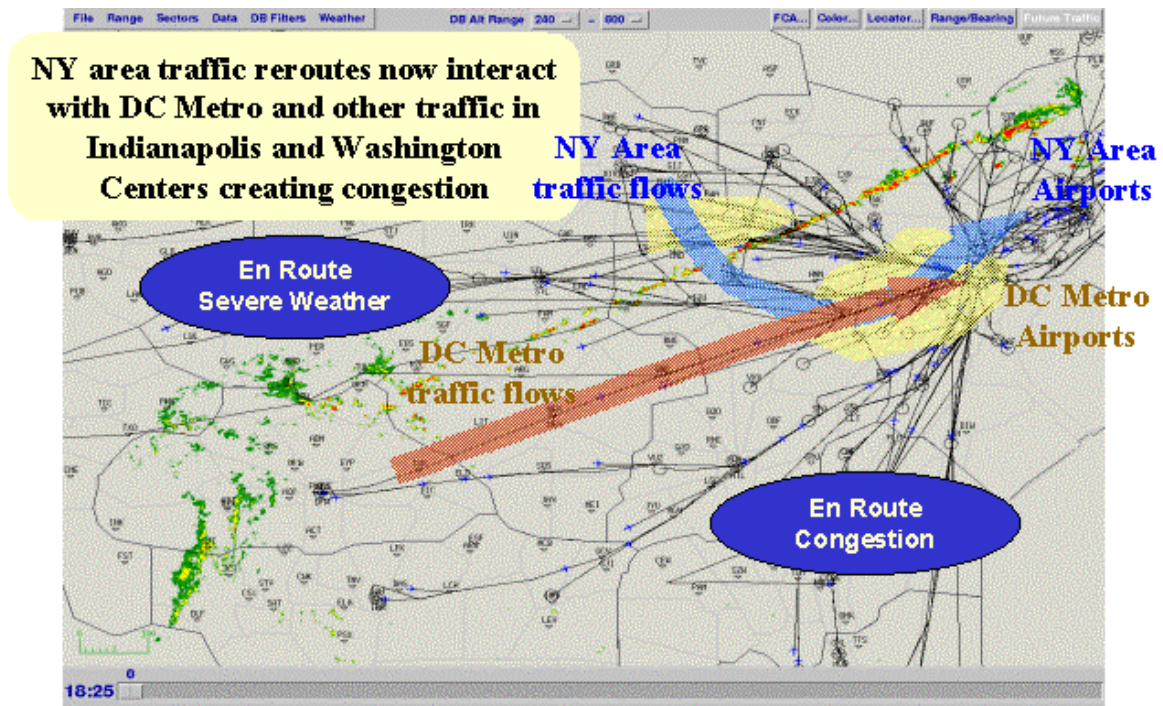


FIGURE 14 Congestion due to en route severe weather.

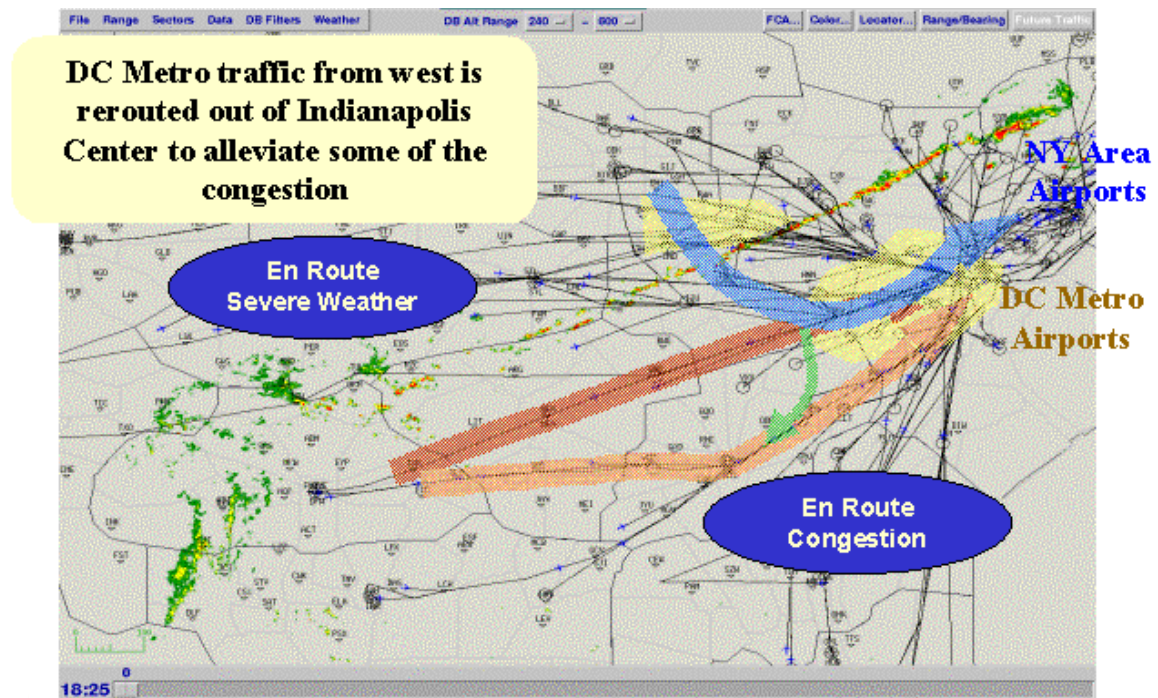


FIGURE 15 Congestion due to en route severe weather.

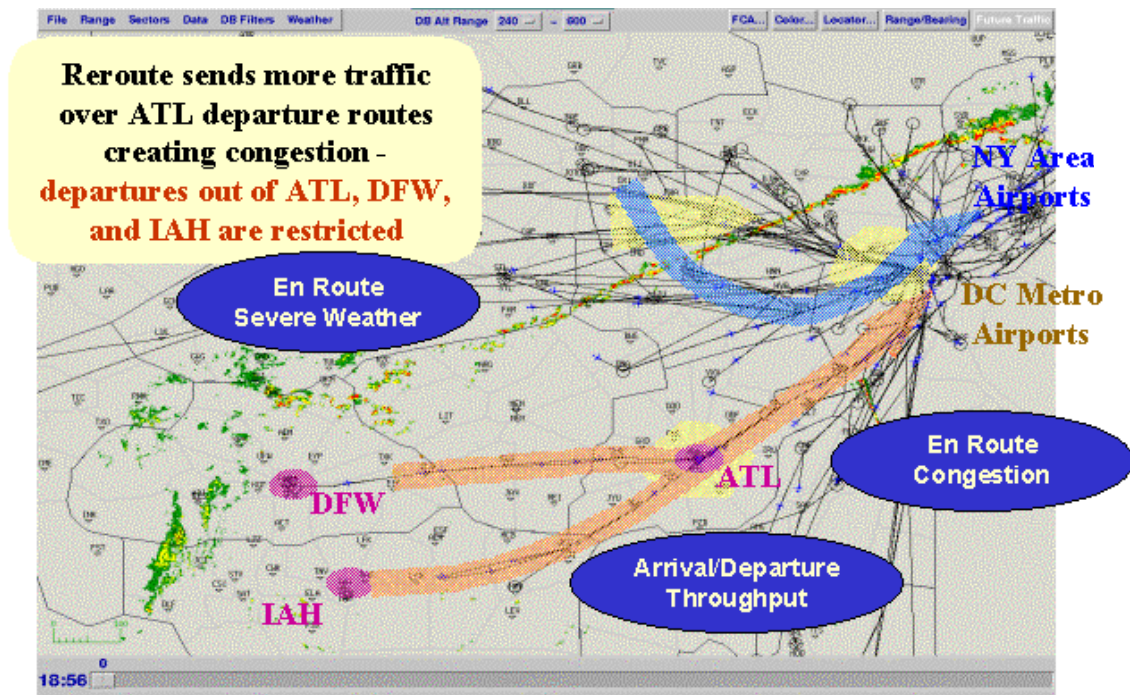


FIGURE 16 Congestion due to en route severe weather.

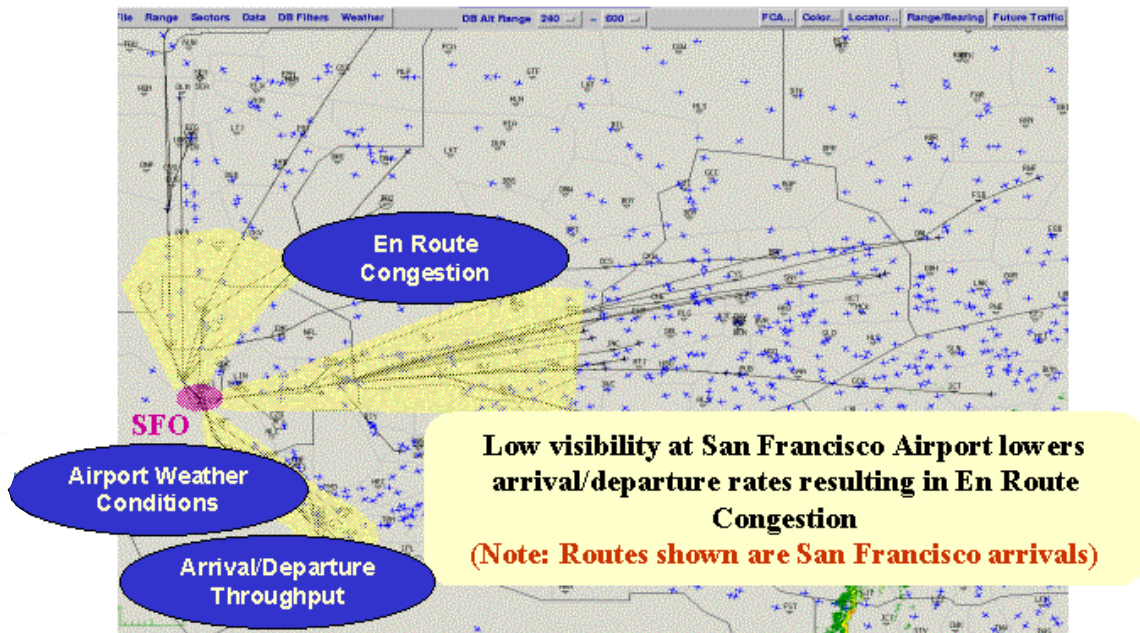


FIGURE 17 Capacity reduction due to airport weather conditions.

the air. Again, just like we talked about earlier, this starts backing things up through different parts of the system.

So, these are three examples—real-life examples to illustrate the problems that we talked about: airport weather conditions, arrival/departure throughput, en route congestion, or en route weather. They are all interlinked. You can't just address one piece of it and hope to solve the whole problem.

What is happening as a result of these examples is FAA is currently working with the users to create an industry FAA NAS Operational Evolution plan for 10 years. We are in the midst of working with the various lines of business within the FAA, as well as with the industry, to come together and agree to a doable plan for the next 10 years to address the types of problems that you saw here today. Thank you very much.

Jeffrey Shane: You have noticed by looking around the room that there is as much expertise in the audience than on any one of the panels. This event was carefully orchestrated to bring together people who have the most to contribute on the subject. Please be thinking proactively and creatively about questions because we really do want give and take after the panel presentations. We're purposely trying to keep panel presentations compressed, even at the risk of some unfairness to the presenters, and we apologize for that. But, the idea is to maximize the exploitation, if you will, of all of the talent that is in the room.

We have switched the order, and Kevin is going to speak now while these folks fix the LCD projector.

[Click here to see Sinha's slide presentation.](#)

PANEL 1

Customers' View

KEVIN P. MITCHELL

Business Travel Coalition

Thank you for having me here. I was asked to present the customers' perspective here today. I was a little troubled how I would go about doing that because there are so many experts here in the room—economists and so on. Everyone is presumably a seasoned traveler. So, I thought, how could I add value today? What I thought would be useful would be to give you a snapshot of what customers perceive to be the problems with aviation gridlock as we head into the second quarter of 2001.

Whether or not you agree with what the customer has to say about this, I think it is important to at least have an appreciation for their views. So, I surveyed 65 major corporations. The corporations involved ranged from Procter & Gamble to Ford Motor Company, General Motors, Black & Decker Corporation, and so on. Sixty-five filled out a survey that I had distributed about 2 weeks ago. Between then and now, I interviewed by phone about half of those folks. These folks that I interviewed have the title of travel manager or purchasing manager. But, what has transpired in the past 5 or so years in the world of corporate business travelers is that there has been a large influx of what I would call nontraditional travel managers—people that came in from finance, mergers and acquisitions, purchasing; a wide range of disciplines. So, the group members were very diverse in their business backgrounds.

What I asked them to do was to outline for me what their sense of the problem of gridlock is, how far-reaching is it, the impact, their needs as business travelers and organizations that sponsor business travel, and what their sense of solutions might be.

With respect to the problems, I asked it this way: What does a corporate buyer understand to be the nature and extent of the aviation gridlock problem? In terms of impact, what are the major impacts of gridlock on business travelers and the organizations that fund this activity? As for needs, what are the needs and expectations of business travelers in terms of flight frequencies and reliability? What are the potential solutions to gridlock that corporate buyers could support—limited flight paths for certain markets, etc?

Now, let me just give you a quick summary of observations before I go into the detail on each of those areas. First, customers are tired of all the finger-pointing that they are seeing in the press on this issue. It came through loud and clear. Fortunately or unfortunately, they are very cynical with regard to the airlines' motivations here—not just with congestion and how that may be supportive of some of their financial goals but also some of the proposed solutions.

Next, there appears to be a sea change in terms of what is needed. Five or 10 years ago, you would hear frequency, frequency, frequency. What came through in these surveys and interviews was, "We want schedule reliability." We want to know we are going to get to our destination on time or at all.

Next, there's the flat, pretty much overall rejection of the concept of peak pricing. Sounds like that came up when I wasn't here earlier.

Finally, the use of secondary airports appears to the customer as the most common-sense approach for the short and mid-term.

Let me go into a little more detail. What I'll do is give you the highlights in each of these areas, and then let you hear in the customers' own words what they have had to say in each of these areas.

With regard to the problem, the common themes were FAA management and procurement issues, particularly with technology; airline overscheduling at the hub airports; weather; high load factors not necessarily impacting directly on the issue of congestion, but magnifying the issues as there is less wiggle room in airports as flights are delayed or cancelled; runway capacity; and the idea that expectations in any customer service industry should be met, but there is a problem in managing those expectations. For example, if you are told you're going to leave at 5 p.m.—5 or 5:15 p.m. works; 5:30 or 6 p.m.—barring weather or mechanical problems—is an issue for these folks.

Let me give you a couple of quotes in travel managers' own words: "Reported incidents from our travelers are increasing every month—missed connections, cancelled flights, missed appointments, etc. As a result, we have temporarily altered our policies and are actually encouraging our travelers to avoid connecting flights through certain hubs. We have decided to pay the higher nonstop fares to ensure that our business is not severely interrupted. Good news for the carriers, but bad news for us."

A second travel manager writes: "The hub and spoke system seems to be out of control. Currently, our travelers shudder at connections through such major bottlenecks as Dallas, Chicago, Denver, etc. Add the seasonal weather into the equation and you have chaos evidenced by current performance statistics."

A third travel manager says: "I travel constantly and I know very well that uncontrollable things happen to disrupt travel. But, even though these may be uncontrollable, many of them are not unpredictable. For instance, does it surprise them [the airlines] every year that it snows in Denver? I don't know which airline that would be. They continue to try to maintain the same number of flights, and without fail, the system breaks down and everyone seems confused and unprepared."

In terms of the impact this issue has on corporations, which are again common themes, they are: lost productivity, higher cost tickets through more use of nonstop flights, and travelers who need to be at meetings early. Some who need to be at meetings early in the morning are going in the night before, so they are incurring hotel and food costs. Also, some report lost revenue from missed sales meetings, and so on.

Then there is the whole category that is increasingly coming up, and that is how stress and all of this segues right into work/family issues. For instance, people could be stuck in Detroit on a Friday night like I was recently—which caused me to miss my son's performance.

Here are two quotes in terms of impact: "It's costing us both in hard and soft dollars: hard dollars with higher, nonstop fares, and generally increasing fares, and soft dollars that we cannot even fully calculate at this time—lost productivity, missed meetings, and appointments."

The second travel manager writes, and this is a particularly good quote: "Business travel, or the actual trip, is nothing more than a commute requiring us to get from A to B and back to A. Generally speaking, we're gaining nothing or very little during the actual commute. The travelers are productive until they leave A, when they reach B, and again when they are back at A. The longer and more disruptive the commute, the more we lose

in productivity. Add into this the fact that we are experiencing more and more situations where the traveler has not reached B as scheduled, or at all, and we have lost the total investment of the trip.” So, this is where this is inching toward in terms of impact.

With needs, a common theme is safety, convenience, affordability, and again very pronounced, this issue of reliability over frequency. A quote in this area: “Our expectations should be that, except in the case of unforeseen circumstances, we can be assured that we will reach B as anticipated. We can deal with fewer choices if the performance is actually reliable.”

In terms of solutions, as you might expect, these people don’t focus on this issue every day, so there are not a lot of great ideas here. One that came up a lot, and I think it is because it has been in the press: target pinch-point airports for fast-track solutions and the use of secondary airports.

This is an interesting perspective. Why not remove or further restrict the discounted pricing from the existing fares (meaning at the really highly congested hubs)? I looked at Detroit/Ronald Reagan National Airport tariffs and counted 46 discounted fares, ranging from \$148 to \$579 round trip. Of 46 out of the 79 total fares in that market with 7- to 14-day advance purchases, most require a Saturday night stay. I confirmed two separate reservations—one Detroit to Reagan National Airport and one Reagan to Detroit with a Friday depart at 5 to 6 p.m., and a Sunday or Monday return at 5 to 6 p.m. for about \$250. To my mind, those discounted fares suggest vacationers and business travelers with more schedule flexibility. Get those people off-peak-time flights by limiting their options.”

Then one final tilt at the windmill here: “In our upcoming contract negotiations with airlines, we are planning to address some new things with our preferred carriers. Just as they require a predetermined level of share performance on our part to earn discounts, we are going to request that their performance is also built in, measured, and reported. Good luck! If their on-time performance drops below a certain level, we will ask for a penalty compensation accordingly to alleviate what we may be losing in the long run. If we meet their expectations, they meet ours. Businesses must find hard-hitting ways to force improved service and be less of a captive customer. I, of course, support that, but also recognize that is definitely longer term, once we have more competition in the industry and consumers have more choice at these hubs.”

In conclusion, I hope you agree that some of those comments were interesting, and you get a sense of what is out there—at least at the larger companies.

It seems to me that the issues that are in front of the industry today—passenger service issues, competition issues, and aviation gridlock—converge. Solving one without understanding the interrelations among all three may not be the best course of action. For example, what impact on consolidation of the airline industry from 10 major carriers down to two or three megacarriers, what impact would that have on the gridlock issue? I think we should know that answer.

I wrote yesterday to President Bush and encouraged the White House to support growing support in Congress for a moratorium on these proposed mergers. I supplied some documented rationale to support it. That can be found at globalbtc.com. I thank you very much for having me.

PANEL 1

Airline Scheduling

JOEL ANTOLINI

Airline Planning Group

Thank you for having me here. As I said, I really believe that this follows nicely after Kevin's presentation. Basically, what I'm going to talk about is route economics and airline scheduling. And, I suppose another appropriate name for this might be: "why airlines hub as they do." As Kevin pointed out, a lot of people feel that big hubs have a lot to do with the delays in the system, and what I'm here to do is to talk about—to educate you folks on why airlines hub the way they do, why this phenomenon has taken place over the last 20 or so years, and why the ramifications of hubbing are better than a lot of the alternatives.

As we digest this topic, one of the first things we need to do is to understand some general route economics, and I would like to try to do that with this example here. Let's assume that we're flying from city A to city B, and the distance between those two cities is 300 miles (Figure 1). Let's also assume that the average fare is \$101, which is actually the average fare for a route of this length in this country. Let's also assume that the seats per aircraft are somewhere around 145 or 150. Basically, what this means is that just to make money—or just to break even—you can see that an airline needs to carry about 85 passengers per trip assuming costs of \$8,500, which are pretty reasonable in this industry. Put another way, 56 percent of all the seats on that 145- or 150-seat plane need to be filled for this flight just to break even. I want you to keep those numbers in mind as we go through this: 85 passengers per trip and 56 percent of all seats filled.

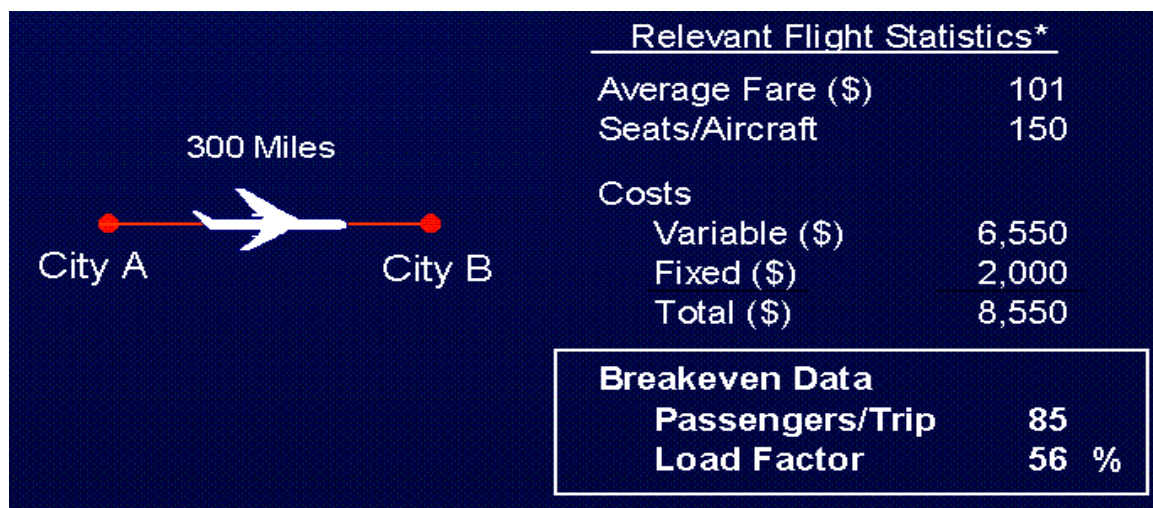


FIGURE 1 Sample airline economics—"major" carriers, one way. (Fare data from DB1A for U.S. markets 275-350 miles; cost data from APG cost model.)

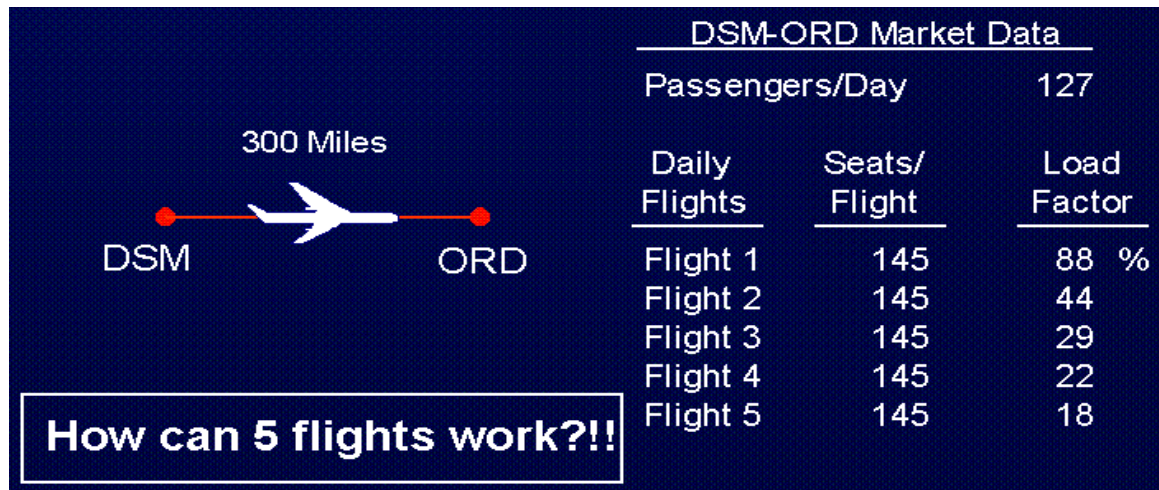


FIGURE 2 Anatomy of a market: Des Moines-Chicago O'Hare.

Let's dig down a little deeper into this example (Figure 2). Let's look at the Des Moines, Iowa, to the Chicago O'Hare market, which incidentally is also 300 miles. Industry data tell us that the traffic in this market is 127 passengers per day—that means people are getting on the plane in Des Moines and getting off in Chicago as their final

So how does this happen? In the reality, United has five flights a day going to Chicago (Figure 3). On top of that, American has six of their own flights. Now American's using a 56-seat regional jet and United has 145-seat average aircraft size on destination. Let's assume Carrier 1, the only carrier in the market, has one flight. Those 127 passengers would be distributed over the 145 seats, for an 88 percent load factor—which, as we open the first slide, is well above what we need to make even. However, if the carrier added a second flight, the load factor becomes just 44 percent because those 127 passengers are distributed over two flights now. With a third, fourth, and fifth flight,

American		United	
Departure Time	Aircraft Type	Departure Time	Aircraft Type
06:08	ERJ	06:00	B-727
07:37	ERJ	08:05	B-757
10:35	ERJ	11:04	A-319
13:05	ERJ	14:45	B-727
16:00	ERJ	18:56	B-727
18:10	ERJ		

FIGURE 3 In reality, DSM-ORD actually has 11 round trips (March 2001).

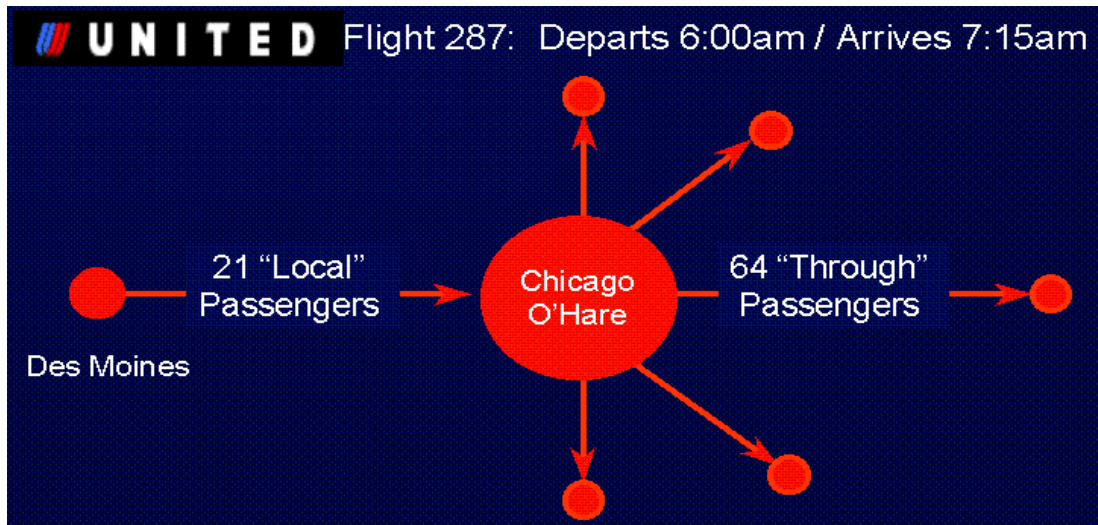


FIGURE 4 Des Moines-Chicago service is heavily dependent on connecting traffic.

you can see that the economics just don't even come close to working. their trip. But how can they make all this work. Dig down a little deeper in the example, United's flight 287 departs Des Moines at 6 a.m. and gets to Chicago at 7:15 a.m. (Figure 4). You see that the traffic makeup on that flight consists of 21 local passengers—those passengers that are going to get off the plane and in which Chicago is their final destination—and it's going to carry somewhere around 50, 70, 80 connecting passengers that want to use

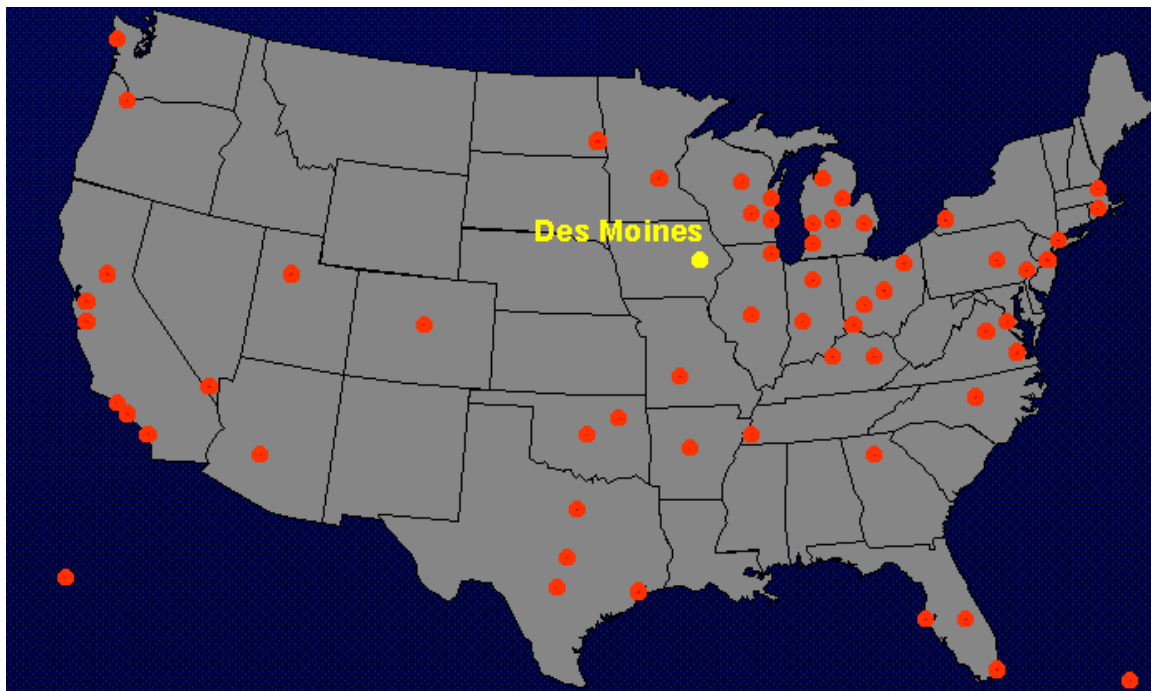


FIGURE 5 Via ORD, United's Flight 287 connects to 59 cities (domestic-only connections).

O'Hare as a way to get to other destinations. Once connecting passengers from flight 287 get to O'Hare, they can connect to 59 different cities across the country.

It's a very powerful dynamic (Figure 5). A lot of these markets would be much, much, much too small to ever have any type of Des Moines nonstop service. Actually, the hard truth is that the cities out of Des Moines that could sustain any type of nonstop service are very limited. If you look at the traffic per day out of Des Moines with more

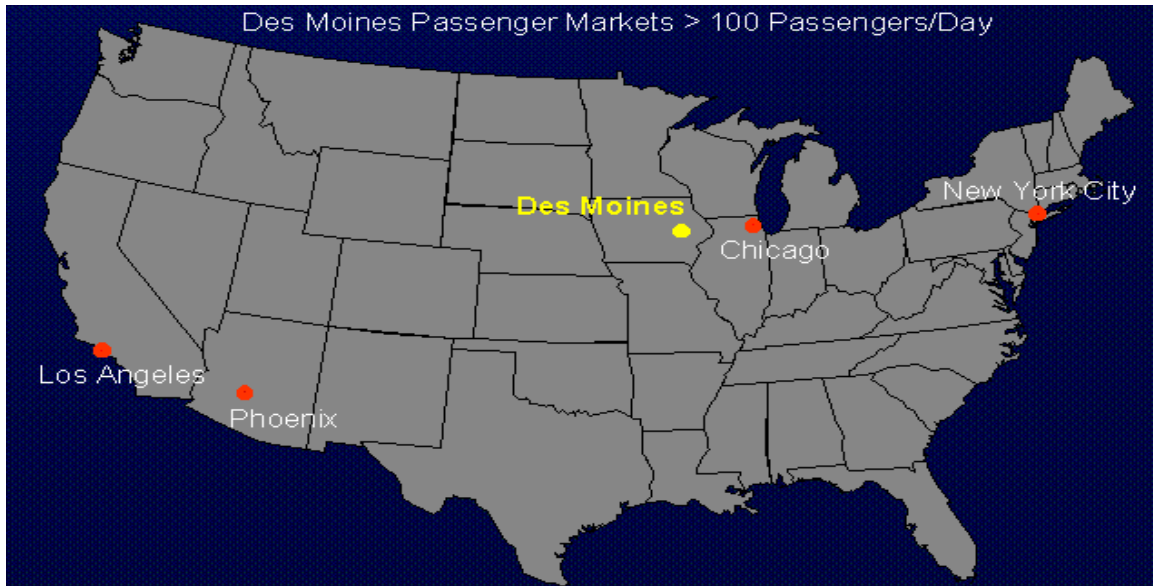


FIGURE 6 Without hub service, viable Des Moines nonstop service is very limited.



FIGURE 7 Without hub service, viable Des Moines nonstop service is very limited.

than 60 passengers a day—and again 60 passengers is not a lot of passengers based on the some of the economics that we see—we end up with a handful of cities (Figure 6). If you get more conservative and look for a 100 passengers a day—which might give a carrier a chance to make some money—you’re left with these four cities (Figure 7). This is not exactly a multitude of service for the good burghers of Des Moines. So basically, hubbing allows the City of Des Moines to have more service than it otherwise might have had. Nine carriers serve Des Moines to 12 cities nonstop [with] 65 flights a day. And those 65 flights are connecting to places all over the world (Figure 8).

Air service benefits, as far as I’m concerned, actually get better when you get into a hub, because if you look at a city like Pittsburgh, which I’m fairly familiar with, U.S. Airways alone operates 478 flights per day to 106 cities (Figure 9). But, the reality is Pittsburgh, like Des Moines, doesn’t have a traffic basis to sustain a ton of nonstop service. You can see the cities here with greater than a 100 passengers a day from Pittsburgh (Figure 10).

Contrary to popular belief, even Southwest connects high volumes of traffic, as you can see from this quote here (Figure 11). They understand the economics of how...they just do it in a very different fashion. As you can see from this slide, they use connecting traffic to substantially bolster their system in ways that the general consumer probably doesn’t think about. Many people call Southwest a point-to-point carrier, but they just end up creating connections in a substantially different way than major airlines. But they do rely on them to make the economics work.

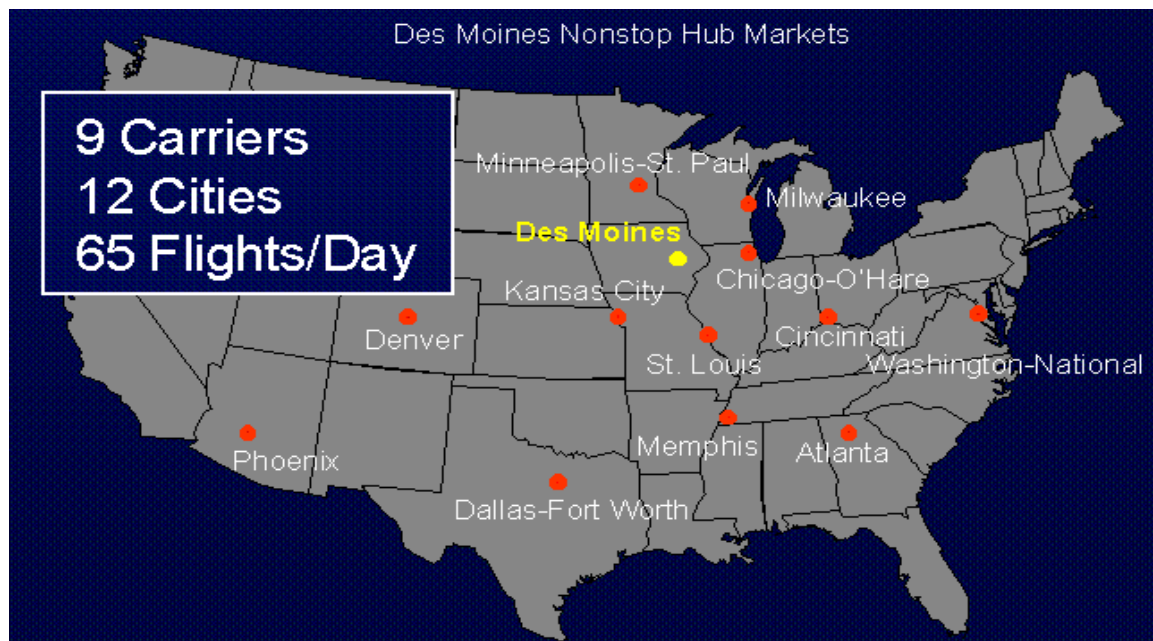


FIGURE 8 Hubbing provides Des Moines with much more service than it might otherwise have.



FIGURE 9 Air service benefits to residents of hub cities are even greater than those in “spokes.”

Not only does connecting allow consumers the ability to get all over the world, it also creates intense competition. This is going back to our Des Moines example. Before 7 a.m., there are eight different ways to get to Los Angeles (Figure 12). What this competition does is it forces the carriers to be sharp in terms of pricing and amenities that are offered. It’s a very, very competitive market. But this is Des Moines alone—eight trips that you can get to L.A.—eight different ways before seven in the morning.



FIGURE 10 Like Des Moines, Pittsburgh has few markets that could stand on their own as nonstops.

Estimated Southwest Connect Traffic at Some Large Stations		
<u>Airport</u>	<u>Daily WN Departures</u>	<u>% Connection Traffic</u>
Chicago-Midway	114	31 %
Phoenix	171	38
St. Louis	79	49
Baltimore	120	36
Las Vegas	161	27

FIGURE 11 Even Southwest connects substantial volumes of passengers through its systems.

Des Moines-Los Angeles Connecting Service Before 7:00am			
<u>Carrier</u>	<u>Via Hub</u>	<u>Departure Time-DSM</u>	<u>Arrival Time-LAX</u>
United	DEN	06:20	09:22
American	DFW	06:28	10:45
Northwest	MEM	06:10	11:19
Northwest	MSP	05:10	09:17
American	ORD	06:08	10:55
United	ORD	06:00	10:30
America West	PHX	06:00	09:13
TWA	STL	06:00	10:36

FIGURE 12 In most markets, hubbing also creates intense competition due to relative schedule parity.

Finally, I'd like to say before I conclude, airlines don't create hubs just to make people's lives miserable. As you can see here, there are 1,412 markets in the country that have more than 100 passengers in less than a 1,000 miles (Figure 13). By saying that, that means that they are of a substantial size. Of them, 97 percent are served nonstop. So basically, if a market is large enough, airlines want to serve it—they want to grow, they want the ability to use their resources. And, hubbing is just a way of expanding the service capabilities to smaller communities. So, in conclusion, hubbing benefits both the consumer and the airline (Figure 14).

Markets with >100 Passengers per Day Each Way and Less than 1000 Miles	
Total Markets	1,412
Total Served with Nonstops	1,364
% Served	97 %
<i>DSM-ORD's Rank</i>	<i>1,164</i>

FIGURE 13 Hubbing is not a conspiracy by the airlines created to make people's lives miserable...if a nonstop market is viable, they'll fly it.

- **Consumer**
 - Dramatically Increases Amount of Service a City Would Have Without Hub Trips
 - Creates Fare Competition Among Carriers by Keeping Supply High and Market Share Battles Intense
 - Keeps City's Service Relatively Consistent by Making it Economically Viable for Carrier
- **Airline**
 - Allows Carrier to Create Mass, Remain Viable

FIGURE 14 In conclusion, hubbing benefits both the consumer and the airline.

As I said in the Des Moines example, it allows a lot more service than a community otherwise probably should have. It creates fair competition by basically creating scheduled parity in many markets, and it keeps service consistent in a market—fares don't come in and out—by allowing it to be viable for a carrier. From an airline perspective, yes they do hub because it allows them to create a mass market and ultimately to be viable. Thank you very much.

[Click here to see Antolini's complete slide presentation.](#)

PANEL 1

Question-and-Answer Session

Jeffrey Shane: Thanks very much, Joel. That was a presentation worth waiting for.

Joel Antolini: I appreciate that.

Shane: We now have about half an hour scheduled for questions and answers. What you heard are three presentations that essentially laid down some descriptive material. I think there should be enough fodder in those presentations to stimulate some questions, so let's just see if there are hands out there. Who would like to be the first? And by the way, panelists are not forbidden from asking questions of each other.

Randall Malin: My name is Randy Malin and I am an FAP—that's a former airline person. I am actually the father of the DFW hub and thus somewhat biased. The only point I want to make here is that the FAA in its wisdom many years ago defined the word "hub" as being a city that originated X number of passengers per day. The airline industry—and Joel in his presentation—use the term "hub" to mean a connecting hub. As we continue with this discussion, we need to come up with a different term for those spokes—like LaGuardia, Washington National, Los Angeles, San Francisco—which are not really major connecting hubs but are classified as hubs by the FAA. We ought to try to be precise in how we use the word hub.

Shane: Thanks, Randy. Anyone else?

Harry Wolfe: My name is Harry Wolfe and I'm with the regional planning agency in the Phoenix area. It seems like the subject today has to do with making better use of existing infrastructure. One of the subjects—and maybe it will be addressed later—that is of concern to me is the environmental issues that are associated with trying to ration demand, because there are many people concerned about both the noise impacts—and to a lesser extent, the air quality impacts associated with the dispersal of demands. So, that's something that I think is in my mind as far as being able to make this work. And, any comments would be appreciated.

Shane: Let me offer a preliminary comment and then ask panelists to comment further, including the [FAA] administrator, if you'd like. We are trying to concentrate on the demand management dimension of the capacity management problem today. There's no question that the environmental issue is looming very large—has an enormous impact on the pace at which we can expand infrastructure consistent with the requirements of our citizens. I think that subject is likely to be better considered at the next of these seminars. So, I would encourage you to stay tuned, come back, and keep that question in mind.

Jane Garvey: Just to add one or two comments to that. That is exactly the topic for the April 11 seminar, but just to add to that, we are at [Transportation] Secretary Mineta's request looking very hard at ways that we can streamline the environmental process. We

have to be very clear that we're not talking about circumventing NEPA or the processes that are in place. We are looking at ways that we could streamline the existing process and have perhaps better coordination, particularly among the federal agencies. And, in fact, some of us are meeting this weekend to talk just about that issue. We are submitting to Congress in April a report from the FAA that will address some of those issues: what can we do administratively, what might involve some more regulatory or legislative changes. We are hard at work on that.

I will though underscore something that I've probably said to some of you before and that is that streamlining is important—figuring out ways that we can do it more efficiently is important. But you simply cannot really overstate how important it is for local communities as well to create the kind of critical mass to support a project. I have not seen—and I've been involved in a number of them—any public work projects succeed in this country in this last decade without strong local support. Those are elective leaders, as well. I think there's a great deal the federal government can do. I think the importance of the local communities and local government is critical, as well. If we look at those projects that have succeeded—we just finished an environmental process in Houston in a very, very short period of time. That was due largely to the fact that one, there were very few environmental issues, but there was tremendous support. If you look at the number of places, you'll see that as the case.

David Stempler [of the Air Travelers Association; the session audiotape did not record the first part of Stempler's comments]: So, a lot of these questions come up, for example, around LaGuardia where a plane may be waiting on the taxiways or runways for an extensive period of time, but the plane arrives at its destination on time because that time has been built into the schedule. So, that is not really a delay in that sense—it's sort of a congestion problem. I think we need to understand in terms of definitions what things are.

I sat on Secretary Slater's task force panel on delays and cancellations and getting better reporting, and there were different definitions of delays that run around the system. The FAA has different definitions. That delay has to do with congestion problems about planes getting to the runway within a certain amount of time. It takes more than 15 minutes beyond what has been scheduled for getting from gate E-4 out to runway 22 left. It goes beyond that. It goes to a delay situation. The passengers get the misconception perhaps that maybe they can either get to the airport late or their flight is going to arrive late, and that's not the case. So, one of the things we pushed for is consistency in this concept of what a delay is.

Shane: You're after transparency in scheduling in other words? Is that a fair way to characterize what you're saying, or is it something more than that?

Stempler: Transparency? What do you mean?

Shane: Well, there has been criticism of the system in that because we're looking for honest scheduling from airlines, we now insist that they report their on-time statistics, and those are published by the Department of Transportation. The net result of that is the actual times and schedules are a lot longer than the air time between two points. It's an hour and a half to get to New York on the shuttle, despite the fact that the air time is 32 minutes. That is an effort to build in delay to the scheduling process. Is that a way to

solve the problem—just stretch out the schedule to incorporate the delay? Is that going to satisfy?

Stempler: As Kevin talked about, what people are looking for is reliability and really understanding that the 8 a.m. shuttle is not going to get there at 9 a.m. It is going to get there at 9:45 p.m. or whatever the time is. I think that is the most critical piece the passengers are looking for. What we found with passengers is that once they know what the situation and the facts are, they can deal with it. They can work around it. It is sort of the tension of not knowing what those facts are and what those circumstances are. So, I think it is important to report that.

One of the other factors I found out in having this discussion—and Jane, we talked about this at one of our meetings—is that sometimes if you get away from aviation and talk about the kinds of problems, let's say with automobile traffic, we talked about in terms of that there is a big effort now at the FAA to try to figure out what the throughput rates are, let's say, at Newark Airport. We're probably going to find out that there are more airplanes scheduled at a given hour than that airport can take. That sounds pretty bad, and people get somewhat offended. But, just think about the 14th Street Bridge out here at 8 a.m. in the morning. There are more cars scheduled on that 14th Street Bridge than that bridge can handle, and what do we do about it? We really don't blame the bus companies because we think of them as the solution in that area, but here in aviation, we think of the airlines as the problem in that area. So, sometimes if we move away and think about other areas, which are not so charged, we can sometimes make some more progress.

Kevin P. Mitchell: I think one of the values of what David just said is trying to further define where exactly the problems are. I don't know if this is a statement or a comment or question, but as I understand it, the relationship between successful economics at a hub and congestion are symbiotic. If you were to wipe away 20 percent of some hub's traffic before the hub-dominant carrier, wouldn't that put them into a precarious situation? So, you need some of this. So, the question is: where are the parts of this that are really causing problems elsewhere?

Shane: Are you saying, Kevin, that you think it is necessary to overschedule a hub to make it work from an economic proposition?

Mitchell: I'm saying there is a measure of congestion that is implicit in a hub operation. Otherwise, the economics, I don't think, work. I'm not an expert in that, but that has been my understanding.

Shane: Can somebody comment on that before we go into the next question?

Malin: Let's not use the word congestion if we are talking about delay. They are two different things. You can have an airport that is congested and yet everything runs on time. One of the reasons I want to differentiate the term hub versus spoke is because with the exception of Chicago, every hub is a single-carrier hub today. At those hubs, the delay and congestion is really under the control of the carrier that dominates the hub. I think you would agree that if USAir is running a terrible operation at Pittsburgh, it's

within its power to fix that operation by lengthening schedule times. It also can work with the FAA, as I know USAir does, to work out the best way of operating that hub. But, it's the spokes where you don't have a dominant carrier—the LaGuardia situation, the Los Angeles situation—where it is not within the power of a single carrier to fix the problem. But, you're right: The airlines in building a hub accept congestion because if you're going to bring 62 airplanes to the ground at one time, obviously you have to lengthen the time they are on the ground in order to get all the passengers back and forth. But, that is an economic price that the airlines accept, in exchange for the revenue benefit that Joel put together, which airlines believe is both good for them and good for the consumer.

Ping Chang: Good morning. My name is Ping Chang with the South Florida Regional Planning Council. Aviation issues in our region are becoming a very challenging situation, including our tourism, as well as international trade-based regional economy. As many of you know, the Miami International Airport is land-locked into trying to squeeze into a fourth runway. But, even with that, we'll only be able to sustain for maybe another 10 years. My question is related to Mr. Mitchell. I think in terms of your survey and interviews, the results are quite illuminating. You mention the theme in terms of searching for reliability and probably less in terms of frequency, as well as the experience of higher hard costs as well as soft costs for the business customers particularly. But, you also indicated that they kind of almost reject the congestion pricing upfront. So, I'm curious—is that because people do not have a good idea in terms of what congestion pricing might result in solving some of their problems? If you could comment a little bit on that?

Mitchell: I think there are a couple things worth mentioning. First is that business travelers feel that their tickets are already priced that way. There is already a premium built into these tickets, and that on its face value is not doing anything to level out the spread of this demand. The second issue is a question—and that is, if you pick any airport and hypothetically say that in a given hour that airport has the opportunity to do 100 operations, but it is currently doing 140 operations. So, what we want to do is take a \$300 ticket at 5 p.m. and make it a \$400 ticket and spread this out. Let's say that we do that and three months later we go back and we see sure enough that the 140 operations came down to 100 operations and it worked. Then the question becomes: What's next? What will be at play in the competitive environment? What will the airlines do to the pricing at 3:30 or 4 p.m.? What will they do to the operations at 5 p.m.? Will they start to creep them back in, and therefore, will this peak pricing premium be baked into the ticket forever? What are the control mechanisms? There are a lot of questions around that.

Finally, there is concern about what this would do, and how high you would have to go to make this viable and what that would do to low fare carriers who are dependent upon those people who only travel because those prices on low-fare carriers are where they are. They may lose a whole segment of support for their business model.

Charles Spence: The military has 15,000 to 18,000 airplanes flying. General aviation transports something around 90 million people a year. Have you figured those delays and how they impact, or would any of the other panel members like to discuss how those other flights impact on the delays and operations at the airports?

Agam Sinha: I think I can start the answer to that question, but I'm not sure I can answer the whole question. But, what we have seen in doing the analysis around the country is it is very much situation-dependent. Even when you talk about general aviation, general aviation is a broad category. It is not very meaningful to have that discussion because some of the general aviation aircraft are more sophisticated and have better performance characteristics than air carrier aircraft. So, we have to look at the characteristics of the aircraft and the characteristics of the demand. At some places, they do add to the situation of the congestion. But, I think the part of the presentation where we talked about the en route air space—the high altitude air space—it is hard to distinguish between general aviation and even the military—general aviation and air carriers—because they all have the same characteristics.

Antolini: I don't want to reduce this to one topic today, but I would like to flush this issue that Kevin is talking about—this peak pricing. Basically, are you asking for controls of pricing at certain times of day?

Mitchell: No. There is just skepticism about the efficacy of peak pricing—whether it will really solve the root cause of the problems, whether it will have an effect, whether it will result in a permanent fare hike for business travelers.

Antolini: If there is a flight at 5 p.m. and it is priced at \$400 and the price at 11 a.m. is \$200, where is the issue we're trying to address? I'm not asking this rhetorically. I'm just trying to understand this a little bit.

Mitchell: The issue is if you have a \$300 fare at 5 p.m., and it is deemed that if you put that fare to \$400, you'll move that business traveler to 3 p.m. or 3:30 p.m.. First of all, the companies don't believe you're really going to move a significant number of business travelers because with all of what is demanded by companies on these business travelers, the last thing they are going to do is say on a Friday night, you're going to have to take the 7 p.m. flight and get home at midnight. So, they don't believe it is going to work to a meaningful level. Secondly, they are just concerned about what are the long-term implications here. If you reduce operations, what is to say they are not just going to creep right back up?

Will Ris: I'm Will Ris with American Airlines. To follow-up on that, Kevin, I just want you to know that I will be hereinafter liberally quoting you as an advocate of getting those pesky discount passengers off airplanes. Thank you very much! In support of what you just said and what David said is really consistent with all of the presentations, we have de facto demand pricing today in this sense. The first presentation showed you an example, and it said this is what the break-even load factor is going to be because this is what the costs are. We just talked about the delays that have to be built into the schedule at the peak hours of the day. Well, if you build in another half hour into the schedule because you are operating at the peak hour of the day, the costs are going to go up on that. So, your break-even load factor at that particular price is going to go up, or else the price has to go up in order to make that plane profitable.

So, inevitably what we have today—as you look down the schedule and you see what was accurately pointed out—a shuttle flight that departs LaGuardia at 10 a.m., it is

probably going to make it to Washington by 11 a.m. But, the one that departs at 5 p.m. is not going to make it until later. So, that later one has additional fuel costs. It has additional employee costs. It is a much more expensive flight already. Now, if you add on top of that a government-imposed pricing scheme that adds yet another layer of cost on, it is simply going to be passed on as it is today. [It will be passed on] to the consumer and your customers, as you correctly point out, who are very price insensitive at 5 p.m. and are just going to end up handing out more money. The airlines aren't going to make any more money on it. Your clients are going to lose money on it, and it doesn't help the scheme.

The last thing, just from an airline point of view: We don't like to provide bad service. We are not out there trying to discomfort our customers and, in fact, some of the things we do are a difficult equation. At American Airlines, we have in some ways helped our customers and in others exacerbated our problem by taking rows out of our coach section, which gives people more legroom. But, what does that do? It creates, as you pointed out, fewer seats on the plane so that if the plane is delayed or you want to try to get on another flight, we have fewer seats to accommodate our passengers who are inconvenienced if they are late. Now, the people who actually get on the plane are a lot happier because they have more legroom. But meanwhile, we have reduced our capacity. I don't know what the answer on that is. If customers want to vote one way or the other, some of them are voting by coming for the comfort. Others are going to be inconvenienced. That is a real dilemma we face all the time in making these decisions.

John Worth: I'm John Worth from the Treasury Department. I just wanted to make a point in defense of the efficacy of the people with pricing and to get your response. It is not necessarily the business travelers who are going to be the ones you have to move off the flight, but rather it is these pesky discount travelers who you alluded to earlier. [They] will be affected by peak load increases and will move off of those flights, and we will see some real reductions in congestion.

Jim Crites: I'm Jim Crites with the Dallas/Fort Worth International Airport. Just a general comment from today's discussion: I'm really looking forward to the next two because I really want to get into the problem-solving mode of how we add more capacity, because I think what we have heard today is that the hub and spoke system has been an overwhelming success. Its objective function was to provide access to air service to the broader marketplace. It is interesting to me because the system that Jane has to manage and operate, along with her folks, deals not in passengers but in aircraft. So, while airlines are looking at the load factor of aircraft, in one sense the ATC has to look at the load factor of the system. Over the past few years, we have seen that load factor go up: In other words, percentage of capacity that is consumed, to the point at which we are at capacity as we see it today. It is interesting to note that when Jane flew across the country during the Y2K event, the press was unable to meet her at DFW Airport on-time because she arrived 40 minutes early. That is how much slack was built into the normal block time that we had referenced earlier that gives that false schedule reliability to the consumer.

But, to that end, I would hate to be looking at constraints to the consumer. That is what this session is. So, this is not an enjoyable session. This is one where we are trying to say "no" to a consumer that we wanted to say "yes" to when we started the hub and

spoke system. But, to that end, it is a question more to Joel in that what you pointed out in your one observation, there were nine flights departing almost at the same time to one city out of Des Moines.

Antolini: I just want to clarify. You were able to connect to LA...

Jim Crites: ...nine different ways.

Antolini: ...actually it was eight from but before 7 a.m. in the morning.

Crites: But isn't that wide variety of choice from that small city that you pointed out does not have the traffic demand on its own merits to warrant that many aircraft trips, posed a demand on the system of those eight or nine aircraft during that peak period? It is kind of interesting because I think it is one of the challenges we face. How do you say, I would love to provide you access, but I can't. That is why I'm looking forward to the next two sessions because I want to help you solve the problem of how we provide that capacity. But, it is intriguing—this peak period pricing—who you shut out of the marketplace and things of this nature. This is a session about saying “no” in a world where we are trying to say “yes.”

The other point I would make is that we are only about 20 years into this. We have many more years of growth in the United States to deal with. If we are saying we are out of capacity today, I want to be on the side of trying to find that capacity for tomorrow.

Shane: We only have a couple more minutes for this session.

Dick Marchi: I'm Dick Marchi with the Airports Council International. This is for Joel. Your presentation showed very clearly what the benefits of the hub and spoke system bring to us in terms of high frequency that you couldn't otherwise support. But, what about very high frequencies? I'm thinking of one particular carrier last summer was scheduling a 33-trip San Francisco/Los Angeles schedule, with two aircraft departing within 11 minutes and two other aircraft departing within 14 minutes. There are a number of places where that happens, where the carriers seem compelled to compete on frequency for a bunch of reasons that may be very useful to them—downstream equipment utilization, CRS positioning, and a whole bunch of things. But, my sense is they contribute to part of the problem we are trying to wrestle with. So, I would like to know what you say about that—what some people might call an excessive or very high level of frequency?

Antolini: My response to that would be it is very much supply and demand. Airlines are not going to put service in a market that they don't feel consumers want or that they can't make viable, and they can't make it viable if consumers aren't buying it. So, the bottom line is that I actually marvel at that myself—the L.A./San Francisco market. It doesn't cost a lot of money to fly between the two and passengers just eat it up. So, they feel there is a demand to fly that frequency of routes. Yes, it may be contributing to the problem, but I think this just gets back into the question that we ask. We can solve the problem by maybe pulling some of those flights out, but on the other hand, we are limiting the choices of the passengers that are flying that route. I guess you could go one

step further and say if you're limiting the capacity on that route because there are some other carriers in that market. With less flights the prices go up. The more the service and the more the competition, the better the prices are for the general consumer. So, it is very, very cyclical. I think you can solve one problem, but you're going to create another problem.

Mitchell: I just want to, in the spirit of problem solving, to state that most, if not all, of the companies I represent understand the benefits of the hub and spoke system. It is not an issue. However, there is this issue of over-scheduling at hubs wherein the major airline says, the customer is making them do this. Obviously, they are there getting on the planes. But, take Flint, Michigan for example. Oakland County, Michigan, has grown dramatically: it is the eighth richest county in the country, with lots of businesses demanding service from that airport. Now, putting aside the fact that moving traffic off of Detroit may not be consistent with good economics for the airline there, that is not to say that the customer is not demanding alternatives and that the airline is slow to meet those demands. So, I'm just saying that looking at the secondary airports, apart and aside from the economics of the hubs, looking for greater solutions to those economics might be a way to get some better use of the infrastructure that we have.

Dan Kasper: I'm Dan Kasper with the Law and Economics Consulting Group. In the spirit of problem solving, I'm going to disagree with my good friend, Will Ris, a bit. I think there is a problem we're discussing, and I assume this is going to be discussed in more detail in the next session that is a non-problem in my view. That is the airlines today price the scarcity out of the system. You're on a 5 p.m. flight, and you're paying as much as you're going to pay. If peak pricing were to come in, it would come out of the airlines' pocket—not the passengers' pockets.

The problem is airlines are, for competitive reasons as Randy said, at the spoke cities, where there is not a dominant carrier to internalize the cost of delay and adjust the schedules as these carriers can at their hubs—into places like LaGuardia where you have 150 requests for slots when there are only 75 slots. Competitively, airlines that are going for the same traffic are compelled to offer service even if they full well understand that it is going to add to the delays because American doesn't want United to get a leg up, USAir doesn't want American to get a leg up, and so forth. But, airlines recognize that already, and the prices at peak times are the prices that passengers would pay. This is not cost-based pricing we're talking about here. It is demand-based pricing. It is yield management. So, the prices aren't going to go up for passengers at the peak. The cost for airlines would go up at the peak. That is what would force the change.

Let me add a caveat: Imposing peak pricing is an incredibly complex issue. I'm not here to endorse it until it is worked out carefully. I assume that is going to be discussed in the next session. All I'm here to say right now is the problem about passenger fares is a non-problem. Passengers are already paying peak fares and peak times.

Shane: Thanks, Dan. That is an excellent segue into the next session in which we will begin to get into the substance of demand management options that are available. A lot of the questions you heard during the last half-hour have really been about that. So, we are anxious to move on.

Before we do, let's give a warm round of applause to our panelists.

The role of the first panel was really to impart an understanding of the anatomy of a delay, a better understanding of congestion, and a better understanding of the incentives airlines have to employ a hub and spoke system. We also heard a sophisticated view of how customers, including business travelers, view the current situation.

Now, we are going to move into a session called “Demand Management Options.” For that purpose, I am pleased to give to you the moderator of the panel, Frank Berardino, the President of GRA, the aviation consulting firm.

Demand Management Options

Background

FRANK BERARDINO

GRA

Thanks, Jeff, and thank you for inviting me here today. My job today is to play a point guard. I'm going to set up Steve Morrison, who most of you know. He has done a lot of empirical economic research on the effects of deregulation. He has also written some papers on airport capacity and pricing. So, he'll have a great deal to say on those topics.

Then Bill DeCota, who is kind of sitting at ground zero because he manages the airports in New York, including LaGuardia. Bill, working with the FAA, was instrumental in coming up with the "temporary" lottery program that was implemented to save LaGuardia. Now, we understand, he is looking for other solutions. So, in the interest of that, I'm just going to show three slides very quickly to set these guys up and get out of their way.

This is how we used to manage capacity at airports before AIR-21 (Figure 1). This is O'Hare Airport. The vertical bars are the demand, the arrivals, and the departures by airlines, and the top orange part is everybody else. So, that is demand over the course of a day. The horizontal line across the top, the blue and the orange, is VFR capacity. So, essentially O'Hare Airport was managed at or a little bit below VFR capacity and it still is, for the most part. The slot rule is still in place with some notable exceptions.

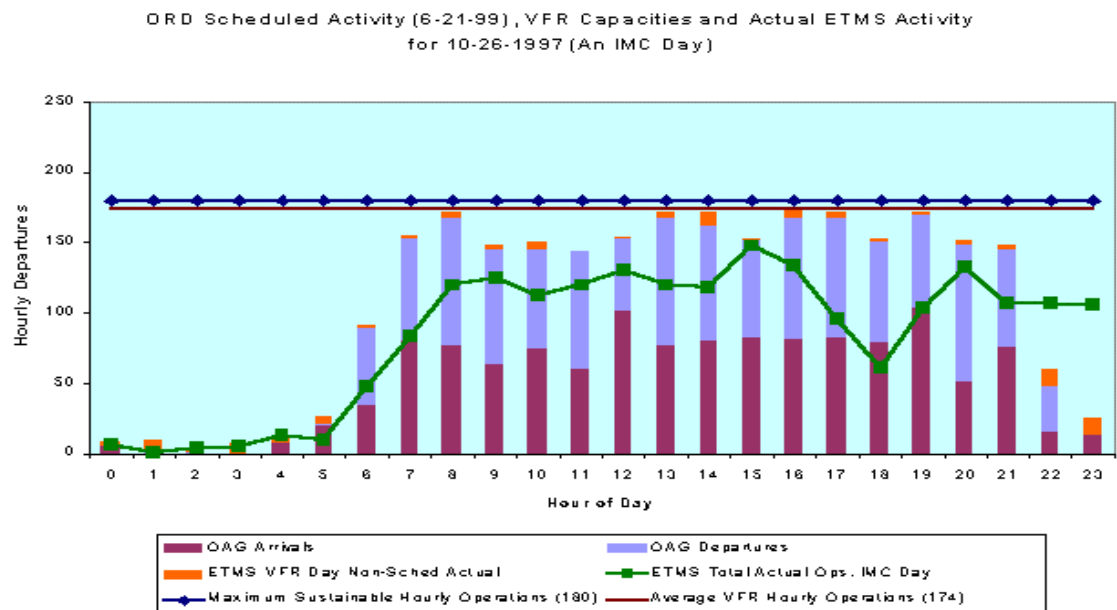


FIGURE 1 Hub carrier scheduling and airport capacity (ORD = slots).

The squiggly green line is the number of operations that O'Hare was able to process in an hour on a pretty bad weather day. So, there is an obvious drop-off between the VFR capacity and the IFR capacity, and that is a fundamental issue that has to be taken into account in any demand management system. In the slot program we regulated the number of flights and we regulated who flew them and the slots became quasi-property rights for the airlines and that worked out pretty well for about 30 years.

Not to pick on Bill, but this is another one of his airports. This is Newark Airport (Figure 2). Again, everything works the same way: the vertical bars are the demand; the horizontal lines across the top are VFR capacity, and the squiggly line is what happens on a bad day. Now, what is interesting about this chart is that if you count across the number of times the demand is at or above the ability of the airport to process traffic on a good day, you'll find it is 12. That means that 12 hours of the day more capacity is scheduled into Newark than it can handle on a good day. Now, Newark is a hub for Continental Airlines. It is also a spoke on every network carrier's system and it is kind of a quasi-O-D airport for everybody else because New York is such an important place and Newark is actually a place you can get in and out of. And, Bill does a good job of accommodating new demand by new carriers. So, this thing has a little bit of everything in it—this particular airport.

Now, I think Joel did a good job of talking about why the airlines end up in this “over-scheduling” mode. Basically, they can make money. Network carriers, in particular, offer frequency in markets because that is how they get share, they maintain shares, and how this air hub when they fly into Continental's hub. Everyone wants to go to New York anyway so it is a big market and there is a lot of activity that is going to

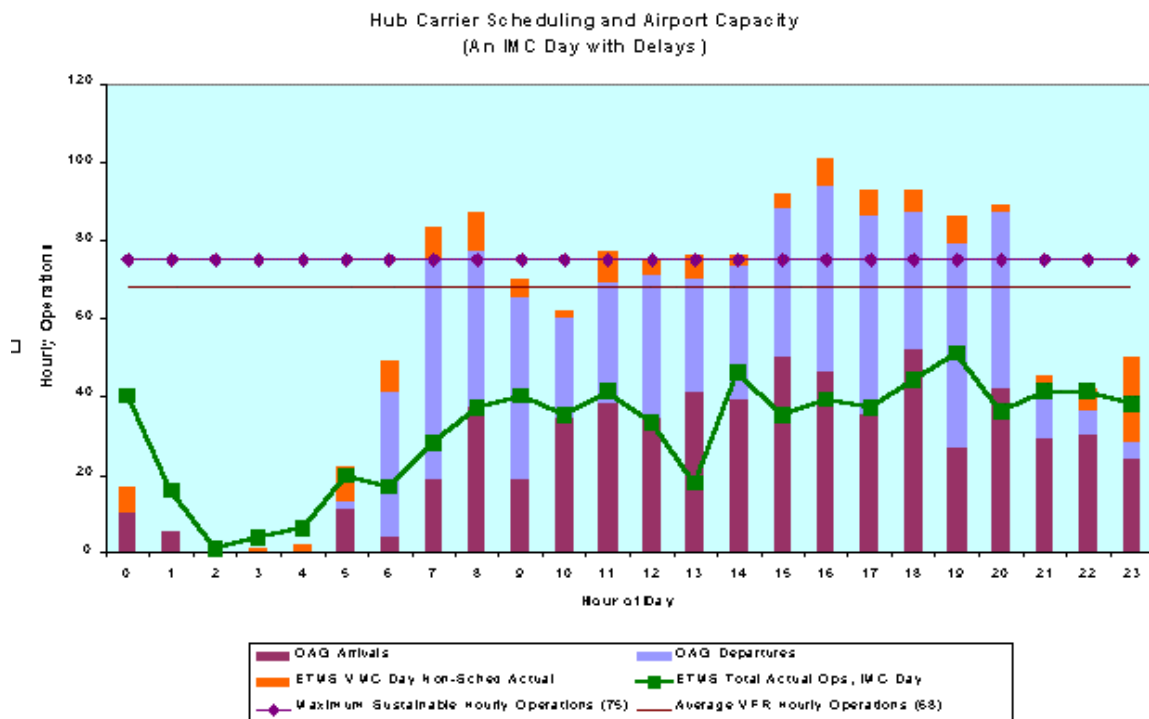


FIGURE 2 Hub carrier scheduling and airport capacity (EWR = no slots).

happen at New York anyway. By the way, this is the only airport that wasn't subject to the slot rule in New York. So, it was the only free piece of real estate in the New York region.

The thing I think we should note about this is that the airlines are reacting to the incentives we give them. The incentives that we give to them are the following: There are no direct charges for air traffic control, even though obviously air traffic control in New York is very complicated, probably more costly to produce than it is in Des Moines. The costs are basically the same and they are indirectly taxed. The landing fees at Newark probably don't have a lot to do with the scarcity of runway capacity at 5:00 in the afternoon. So, essentially access to this airport is free. Anytime something is free in our system, of course, or less expensive than maybe it ought to be, it gets overused. That is the fundamental issue we have.

The other thing we should point out is that doesn't mean that because it is free to one party it isn't costly to another. The airlines are able to internalize the costs. They may not like it and, as Will Ris pointed out, it is more expensive for them to operate here. They have longer schedule times. Their most expensive assets are tied up for longer periods of time than elsewhere. Airplane pilots are a very expensive asset. So, those costs are internalized. The costs to the passengers are not internalized. I'll give you an example of how it gets recognized somewhere else in the country. It is not that they are not recognized. They are there and they are probably pretty big.

We have a client, a multi-national company with tens of thousands of employees, many of whom travel. They are very interested in the dependability of air service for their people who travel. They are using data that they are giving to us, and we are matching up with some other databases to essentially make decisions on two things: Where are they going to have people in the future and where are their locations going to be—what cities; and how many people do they need given the fact that a lot of these people have to fly?

Those are direct costs that they are recognizing across their corporation and they are adjusting to the costs that are hidden in aviation. So, costs that are hidden in the aviation system pop up somewhere else. It is not like the free lunch is free to everybody. It is only free here.

The last slide I have is LaGuardia (Figure 3). Now, again the slide works the same way. This is the demand at LaGuardia in October—actual OAG operations. Some of the new flights that were permitted under AIR-21 are included here. But, there were about 400 scheduled that didn't get included on this chart. So, that is when the FAA and the Port Authority got together and they implemented the lottery program and they kind of capped out the demand. If you count across this chart, you will find also that there are 12 to 13 hours of the day where demand is at or above VFR capacity. You will notice that essentially demand is flat. But really there is only one peak at 8:00 in the morning that really sticks out, and there is one later in the day. So, you don't need to talk just about peak load pricing in a place like LaGuardia. You might be talking about a flat fee.

So, with that in mind, I'll turn it over to an economist who can actually talk about these things in greater detail—Steve Morrison.

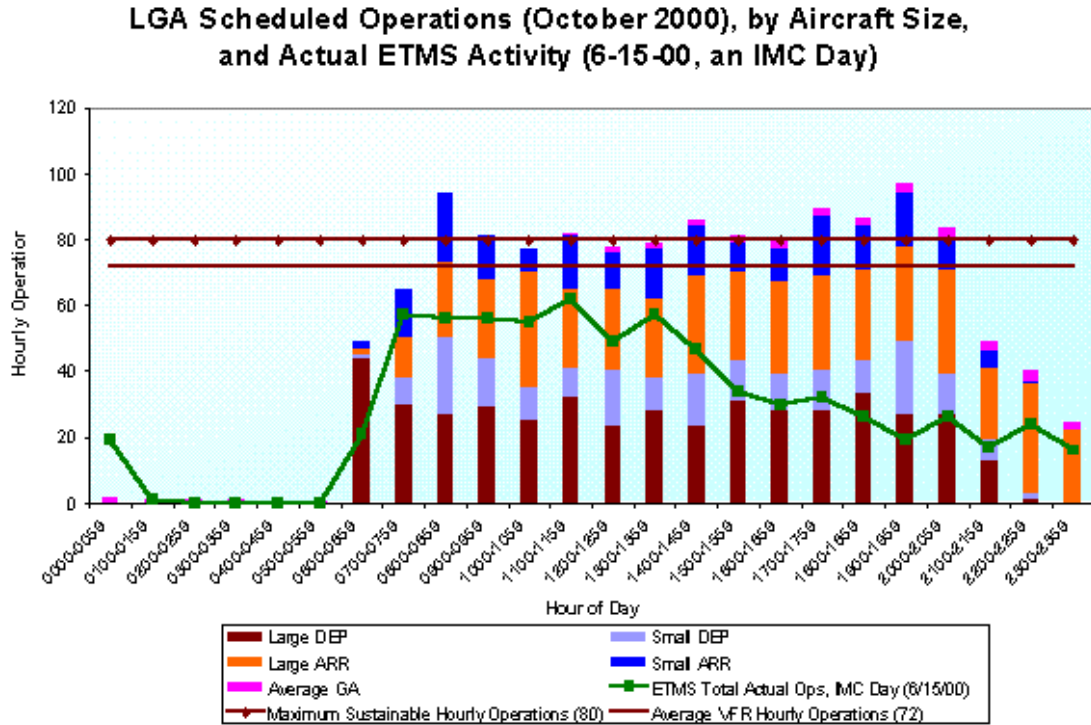


FIGURE 3 October demand data at LGA (no-hub airline).

[Click here to see Berardino's slide presentation.](#)

PANEL 2

Market-Based Solutions

STEVEN A. MORRISON

Northeastern University

Thank you, Frank. It is my pleasure to be here today. I'm going to direct my remarks to the airport situation, but I want to say at the outset that most of what I'm about to say applies equally well to air traffic control. Frank mentioned how we have essentially an unpriced or indirectly priced air traffic control. So, whenever I say airports, you can also fill in air traffic control.

I've been studying the problem of airport delay for 25 years. This indicates two things: (1) I'm incredibly foresightful—although I don't think that is it. Really, it is that the problem has been around a long time. This is not a new problem. Slots were introduced in the late 1960s to deal with delay problems; and (2) it indicates how bad the problem has gotten now that economists are looked to for solutions. But, I'm here to talk about economics.

Right now, demand and supply are not in balance at some airports especially during peak times. More aircraft want to take off and land than the capacity of the runway allows. When demand and supply are out of balance, something has to give. If we are talking about electricity, it is called a blackout. If we are talking about airlines or aviation, it is called delay. There are two ways to correct the imbalance between demand and supply—you either reduce demand or you increase supply. Because this seminar is on demand management, I'm going to confine my remarks to demand. But, I will have a little bit of something to say at the end about the supply side.

I don't want to tread on the turf of our next speaker, Bill DeCota, who will speak about administrative mechanisms to reduce demand, but let me mention some possible ways that could be used to limit demand.

Use of an airport, a close-in airport like LaGuardia or Washington National, could be restricted to flights arriving from short-haul markets. These are the so-called perimeter rules that LaGuardia, National, and Dallas Love Field have. We could impose minimum aircraft size limitations to make better use of the scarce capacity that we have. Or, drawing an analogy from the days of gasoline rationing in the late 1970s, we could have people with last names beginning with A through M fly on even-numbered days, and people with last names from N to Z flying on odd-numbered days. But, these schemes, the last one being the most obvious one, impose arbitrary restrictions on airport use and thus do not ensure that the airport is put to its best use.

Currently at most airports, aircraft are assessed a small ante fee that is uniform throughout the day and is based on the weight of the aircraft. Of course, this means that small planes pay less than large planes. These fees work out to be about an average of \$5 per passenger at some of our busier airports. Each airport sets its own fees, so they vary. But, about \$5 per passenger—not enough to have much of an effect on travelers' behavior. The historical justification for the fees of this type was the ability-to-pay principle—charge the big guys with more passengers more than the little guy. When landing fees were first introduced, airports were uncongested but nonetheless had to raise revenue to cover their costs. By charging based on ability to pay, the needed revenue was

collected but fees remained small relative to the cost of the flight, so use of the airport was not deterred. That was the whole point—raise revenue but keep planes and people flowing through the airport.

This was a good system when air travel was in its infancy. It is still a good system today in uncongested airports. But, its continued use at congested airports is counterproductive. A better approach goes under the heading of market-based solutions, which is a polite way of saying that price should be used to bring supply and demand into balance. In the case of airports, such prices are called congestion or peak hour fees. Fees that vary based on demand are not unusual in the travel industry. Airlines do it. The D.C. Metro does it, and they have a hub called Metro Center. Hotels do it. Ski resorts do it. It is widespread in travel and the economy in general.

Of course, prices are used throughout the economy to bring supply and demand into balance. Anybody who bought or tried to buy roses a couple days ago found that out. I was struck by the comment that Kevin Mitchell made earlier about how his members, or at least those people who were surveyed, were against peak hour fees to be used as a rationing mechanism. After all, he represents companies who rationed their products based on price system, and what I'm talking about—and I dare say advocating—is the same thing.

I will add that there is a distinction. The firms that he mentioned—I think all of them are manufacturing firms that have a luxury that service firms like airports or telecommunications or electric utilities don't have—can buffer the imbalances of supply and demand by something called inventory. Whereas, airports don't have that luxury and have to produce or provide capacity that can match supply and demand at a given instant.

I think it is generally accepted and reasonable that prices should cover costs. What makes the airport case appear special is that most of the costs of using an airport are not borne by the airport authority but are borne by users themselves in the form of congestion costs. An extra plane landing or taking off delays all planes behind it. These costs can be significant.

A back-of-the-envelope calculation for a Boeing 757-200 with an industry average load factor of 70 percent shows the delay costs are more than \$100 per minute. That is taking into account passengers' time costs as well. Since these delay costs vary with the amount of congestion, unless as we saw in Frank's chart the airports are congested all day, the fees should vary, too, and thus the concept of peak hour fees.

How would such congestion fees compare with the weight-based fees we have in effect today? Congestion fees would equal the costs that take-off or landing imposes on the airport, plus the costs that operation imposes on other users in the form of increased delays. To a first approximation, the delay component of such charges is independent of aircraft size. So, at any given time of day, small planes would be assessed the same fees as large ones. Second, these fees would vary throughout the day to the extent that congestion varies throughout the day, being low—even zero—when there was no congestion and rising to high levels—perhaps very high levels—during the most congested periods.

On average, however, they would be higher than current fees. Some work I did some years ago with my colleague, Cliff Winston, estimates that on average these fees would be about 10 times higher than current landing fees. Although this, of course, depends on the airport we're talking about and the time of day.

How would airlines and travelers respond to such fees? That has come up in questions and discussions earlier today. First, I'm going to differ with a previous speaker. I think the airlines would pass them on, but either way they are going to have an effect. Airlines would pass them on to travelers. Most travelers, business travelers in particular, would pay them and continue to do what they used to do. They have a relatively insensitive or inelastic demand. But, congestion fees would provide an incentive to airlines to use higher load factors—to the extent that these flights aren't already full—to use larger aircraft. Passengers have an incentive to travel at less congested times of the day or to less congested airports. Some travelers would switch to another mode. Some would cease traveling. That, after all, is the whole point. There are too many planes/people using the airport. Somebody has to go to a different time, different place, different mode, different destination.

Several years ago my colleague, Cliff Winston, and I estimated what the benefits of imposing/adopting congestion pricing would be throughout the country at those airports where congestion is significant. That study was done a few years ago. If we update it to reflect inflation and the increased congestion, you get a number of about \$7 billion annually. I think that meets many people's, including Senator Dirksen's, definition of real money.

But, this seems like an amorphous concept—\$7 billion of benefits. What form do the benefits take? Well, they take the benefit of saved time—by passengers, time and fuel, and pilot and flight attendants' time of airlines. It adds up to \$7 billion.

There are pricing policies other than full-blown congestion fees. One is the imposition of a flat or minimum landing fee that may be totally appropriate in the case where congestion is constant throughout the day, or it may simply be an easier way or a more palatable way to take a first step towards the direction of congestion-based fees. But, it is only a step. To the extent that delays vary by time of day, fees should also.

Another possibility is to auction the available capacity to the highest bidder. This is more or less like the slot system that we have for four airports. In principle, this could have the same benefits as congestion pricing, but would create a property right or a quasi-property right. I think airlines think it is a property right. The DOT thinks it has a quasi-property right to the slots. This can lead to actual trouble or potential trouble. Clearly there are critics of slots—I'm one. There are critics who say airlines use slots to reduce competition. I'm not in a position to say whether that is true or not, but that is the kind of allegation you get when you have carriers owning the property rights to use a scarce airport facility with peak hour charges, a pay-as-you-go basis, and anybody who is able to pay the freight can go.

Getting back to congestion fees, the higher fees paid by airlines and their passengers would translate into higher revenue for airports. Make no mistake about it, some airports would have an embarrassment of riches. What should they do with this extra money? Fix the subway system? No, I guess I shouldn't say that. Here is where the supply aspect comes into the picture. One approach, of course, would be to use the extra money to increase capacity either by building new runways or by other technological means to increase capacity. This could be done at the local airport level or, as Mike Levine has suggested, funds from such congestion fees could be pooled into a nationwide fund into which airports that charge such fees could apply for funding for their capacity-enhancing projects.

But, I need to point out that even with new investment, the benefits of pricing remain. Pricing is used to make the best use of whatever capacity there is. Investment is used to make capacity be at the right level. But, we need to remember that because more runways are expensive, some amount of delay is appropriate. We need to balance the benefits of reducing delay with the cost of reducing delay. So, unless we really go on an unwise building spree, we should have delay and that delay should be reflected in peak hour congestion tolls.

Finally, critics of congestion pricing argue that some travelers won't be able to afford higher ticket prices that result from higher landing fees. That is the whole point. We have a serious congestion problem because too many people/planes want to use crowded airports today. Given capacity limitations, short of enduring the status quo, fewer people or at least fewer planes should be using crowded airports. The question is: How do we decide who gets to use this scarce capacity—via administrative mechanisms or via price? The beauty of the price system is that scarce runway capacity is allocated to those users who value it the most. If the prices are set correctly, only those users who value the take-off or landing more than the costs it imposes on the airport authority or on other users, will be accommodated. Billions of dollars are being wasted annually because weight-based landing fees have out-lived their usefulness at congested airports. Pricing is a solution whose time has come.

Thank you.

PANEL 2

Administrative Solutions

WILLIAM R. DeCOTA

Port Authority of New York and New Jersey

Well, Jeff described himself as a recovering federal policymaker. I describe myself as the still-suffering airport operator and I think you have heard some of that here today. I've learned an awful lot about economists over the last several months, in all deference to Steve and others. I found out that economists say things not because they know anything, but merely because they are asked. I also found out that they may be absolutely wrong, but they are never uncertain about what they tell you.

So, there are a lot of administrative solutions that have been proposed, and some have actually been used in the past. Some of them we have used at LaGuardia Airport. They all have some promise of trying to address the airfield capacity demand mismatch situation that exists at some airports. I'm not going to go into a lot of detail on every single one of them and talk about the effect of delay reduction or the ability to reach optimal activity levels very quickly. Nor will I talk very extensively about how efficient they might actually make those airports or how productive the airfield is. But, I would like to just outline some options that are out there. Each airport really has to take a look at its own situation that is very unique, in order to try to identify ways to address it.

Let me also say that some of these administrative measures may be appropriate in limited situations. They may have some effectiveness. But, in my own personal view, they are just an intermediate step. They are really the next step toward an ultimate goal that I think has to be a market-based solution. I think the greater desirability of market-based solutions to deal with the situation is a widely held belief. Jane Garvey mentioned the October FAA roundtable of airlines and airports and people from academia, who were the best people out there with knowledge about airline operations, airport operations, and business economics. The widely held view of almost everybody in that room—when the question was asked of what is the solution to congestion, delay, gridlock, and the capacity imbalance—was that market mechanisms were the most appropriate. There were some people who had hybrid approaches to that, and there has been some discussion about what do you do with the proceeds or how do you set the rates. But, the fact was that “market-based solutions” were the words that echoed throughout the entire room. It was very difficult to even get people back to discuss administrative remedies.

With that as a context, I'll whiz through a lot of what the administrative remedies are that are out there. One is imposition of slots. That is certainly one way to control the level of demand and to reduce delays. Slots were first imposed back in 1968 under the high density slot rule at LaGuardia, O'Hare, and Kennedy airports, and at Washington National. At one time, Newark did have slots for a very brief period of time, and they were removed a number of years later. They have been effective. They did address what was at that time rampant over-scheduling by airlines and extensive delays.

Now, LaGuardia is interesting because it is one of the most valuable airport resources anywhere in the entire world, yet it is one of the most scarce resources in the entire world. It is scarce because if you have ever been there, it is on 600 acres of land, it has two 7,000-foot intersecting runways, and it is constrained in terms of its growth by

water, by neighborhoods, and by highways. There is no way to build more of LaGuardia Airport in any way that would be very efficient or that would really even get through the environmental tests. It is valuable because it is 9 miles from Manhattan, and it exists in one of the largest point-of-sale origin/destination markets in the entire world. It is highly coveted by business travelers and others because of its location. But, it is also unfortunately priced, with landing fees based upon the historic costs to build, operate, and maintain the airfield facilities allocated over aircraft weights. So, you have this very valuable, scarce resource that is being provided to the users for something much less than what it's worth.

Noted economist Alfred Kahn, former head of the Civil Aeronautics Board and father of deregulation, has said that if you took every economist in the world and you laid them end-to-end, they would only reach a conclusion about one thing—and that is the desirability of market pricing. So, definitely, slots were one way to control demand, but unfortunately they had a lot of problems. They don't easily provide for new entrants and new service, they restrict competition, and things like the buy/sell rule really didn't work very well. And, they lead to very inefficient utilization: Use-it-or-lose-it provisions didn't work. In fact, airlines decided to park small aircraft in large aircraft slots in order not to lose slots. As a result, LaGuardia has 5 percent of the passengers traveling on 25 percent of the planes—not a good situation. Slots have led to very inefficient use of a very valuable commodity.

Meanwhile, every airport in the country and every air carrier wants to have access to an airport like LaGuardia, and the situation was, of course, we see AIR-21 signed by the President back in April (2000). Unfortunately, that one provision that allowed carriers to start service to LaGuardia, if they met certain criteria like new entrants, underserved cities, under 71-seat aircraft, led to what we know as a very dubious result: Far more planes than the airport could possibly handle—608 new flights announced versus 1,064 flights a day before the slot restrictions had those limited removals.

Now, we tried another administrative solution to try to deal with that, and that was air carrier cooperation and collaborative decisionmaking. Faced with this potential 60 percent increase in flights, the first 200 of which had already totally congested the airport, we started dialogue with the airlines. We asked the airlines to give us information about their schedules. We asked them to consider voluntarily rescheduling their flights. We asked them to think about Kennedy Airport as an option because there was more capacity there. We also suggested that they try to collaborate with each other with regard to their own scheduling of passengers and flights amongst themselves. Unfortunately, they largely ignored these requests. There was a lot of protest that if we give you information about our schedules, we are doing it basically under protest only because we want to. You have no right to request that. Airlines complained that if they tried to do the things we were asking, it would disrupt their flight schedules. They were concerned, of course, about anti-trust implications in talking to each other. They were talking about competitive disadvantages of one airport versus the other. So, that didn't work. So, given the lack of success with that, we decided to issue a moratorium on additional flights.

On September 19, we sent the airlines a letter, and we said effective October 1, we asked them that they not add any additional flights during certain hours of the morning, certain hours of the afternoon, where the problem was particularly acute. But, the fact was the airport was so congested that most of the other hours of the day there was not a great deal of capacity. We believe we had the power, if only because we have the

responsibility to prevent the situation from getting worse and to protect the safety of the airport.

The legality of the moratorium is probably less significant than the fact that I honestly don't know what an airport operator would do to try to enforce a moratorium or even police the moratorium. It is not like you're out on the runway and you're watching the planes coming in and you're saying stop—that one can't come in here today. So, monitoring, controlling, and enforcing was a significant issue. However, the most important effect of the moratorium was that it was an action-provoking event, and those are not my words. Those are DOT's Inspector General Ken Mead's words. It really provoked a showdown between us, as the airport operator, and all of that rampant illogical kind of growth that was occurring and the resulting gridlock that had occurred.

We are very deeply gratified with the federal agencies that worked with us and the FAA Administrator Jane Garvey. She was a tremendous leader through this. She had to pilot through difficult waters with the airport operator insisting she do one thing and of course she had the FAA and the DOT and everyone else who we had to bring on board and through that process they have all been so supportive. That led us to this notion of a lottery—another administrative matter that airports have used.

FAA has used lotteries in the past in other ways, and it was well within the FAA's legal authority to do that. It is very consistent with the notion of capacity benchmarks that are now being discussed as a way of trying to control demand at the top 30 airports.

In the lottery that the FAA conducted in December, as a lot of you know went into effect January 31st, the number of increased flights at LaGuardia Airport was limited. They were limited to 75 movements per hour. That is above the 68 movements per hour that we had in the slot control situation, so we still have more flights. But, the total increase of 608 new flights that have been announced by the airlines was reduced to 159 new flights. That fortunately became a really reasonable short-term solution that seems to have worked. From January 31 through February 11, there were only 132 departure delays of greater than 15 minutes. That is very significant. There were a few situations where we had weather problems. Most of the time it was very good weather, so we are going to have to see what happens on days like this in LaGuardia. We had one snow event, and the airlines cancelled half of the flights. But, it did work as a very good interim solution.

Unfortunately, lotteries don't really work over the long term in my view, and that is because they are just an arbitrary solution. They don't address the inefficiency of the utilization of the airport. They don't assure appropriate access by new entrants or air service to under-served cities. They just fall like an axe and it is a democratic process certainly because it is like, whoever gets it, gets it, and whoever doesn't, doesn't. But, the reality is it is not the best administrative solution.

Another administrative solution that we have not tried is one used at San Francisco—utilization standards. This calls for implementing minimum aircraft flight standards and implementing caps on flights. A lot of you are familiar with the San Francisco Airport Commission decision in April (2000) to seek a rulemaking under the Federal Aviation Administration Part 161—the intent of which was to try to provide reasonable assurances of the size of aircraft. For instance, on the Los Angeles to San Francisco route (the size was) no smaller than 170 seats. It also required commuter aircraft that are in the commuter destinations like San Francisco to Sacramento, Monterrey, and some others that they be no smaller than 50 seats. The airlines, of course, launched an all-out effort to

try to defeat the measure, saying it violated federal law and saying it would drastically reduce air service to smaller cities. The fact is, up gauging is an absolutely critical issue at airports.

I mentioned LaGuardia statistics: 5 percent of the passengers and 25 percent of the flights. Even at Newark, where it really feeds into the graph that Frank showed, we have 11 percent of the passengers being carried on 34 percent of the flights. So, it is another inefficient utilization. I think it works out LaGuardia planes carry an average of 60 passengers, and Newark planes carry an average of about 75 passengers. That is very small when you have very small airports like we do. Even Newark, which is one of our bigger airports, 1,800 acres is not really big.

We also have a lot of flights to some destinations that you might ask the question: Why do you need all those flights? For instance, when AIR-21 was announced, the four major carriers announced identical service to virtually the same cities that resulted in announced new service of something like 16 flights a day to Richmond. I think we have 16 flights a day on average, and 60-seat flights to Cleveland out of LaGuardia. So, those are situations that need to be addressed.

San Francisco had one very other unique idea which was their weather-related delay situation. As was mentioned previously, the fact is that San Francisco can only handle all of its scheduled flights about half of the time during the year. Bad weather is not a rare event. They either have bad weather in the morning, they have it in the afternoon, or they have it all day. So, they have been looking at a deliberative administrative strategy to try to figure out a way to do flight cancellations and to manage them and to give consumers excellent information about how that will work. Certainly, the most important administrative strategy where it can be done would be to build new airports and build more capacity. There is nothing more effective in providing that where it is feasible. LaGuardia, as I mentioned, is not feasible to build new airports. They are being built in some places, others are being expanded, and billions of dollars are being spent. At our own airports, we are spending \$14 billion, and that is really to do the most we can to build-out the horizontal geographies that we have. We have to be able to grow from 90 million passengers today to at least 120 million passengers in the next 10 years, based upon our forecasts.

There are certainly physical and environmental considerations that we are overcoming. We also have to look at the limits of the air traffic control system, called air space redesign which started in New York first. This will help us. We also have to seriously consider, however, whether price might be a very legitimate substitute for capacity expansion.

Let me just close by saying that implementing any solution is going to be difficult, in light of the vagaries of an airport operator's proprietary rights. Scott Lewis will later talk about the legal issues that are out there. I will just tell you that airport operator's proprietary powers have been left in somewhat of a vague state ever since the Airline Deregulation Act of 1978. There was very little attention placed on the airport operator's role in what was an absolutely major restructuring of the airline industry. The act contains only two sentences that really would give any recognition of deregulation, depending upon and impacting airports. One basically says that airports should not discriminate among users, which is an application you have under federal grant assurances. The other one states that deregulation shouldn't limit exercise of airport operator's proprietary powers.

So, while airlines were deregulated 25 years ago, airports still operate under a plethora of outdated rules and regulations that no longer reflect the operational realities. It is like trying to navigate in the dark with two conflicting maps and yet finding out that the lay of the land and the landscape is even different than what the maps show. So, there has been a lot of conflicts.

Having said that, let me just close by saying the solution is very multifaceted. It is likely that no single solution could address all of the concerns that airports are going to have, as access to small communities and new entrants and things like that—it has to involve a collective solution by everybody. It has to involve the FAA, the airlines, the travelers, the airports, Congress—all of us have to be part of that solution. You hear there is always that natural dynamic where everybody likes to say, well the airlines did this and to say that the airports aren't doing this and everybody sort of pointing fingers at each other. Leo Mullin of Delta told a story about these parents who had these little children who were fighting and they were trying to figure out what the fighting was about, who started it, and who did what. The melee got so bad that eventually you didn't care who started the problem—you just wanted it fixed. That is exactly where we are. I think we are all in the same place. We all just want the problem fixed.

Thank you.

PANEL 2

Question-and-Answer Session

Jeffrey Shane: You've just heard two absolutely wonderful presentations—one on market-based solutions to the demand management problem, and the second on a variety of administrative solutions. Bill, thanks very much for describing solutions that have actually been tried. It is extremely helpful information. So, now the floor is open for 15 minutes before we go to lunch. The first question?

Jim Crites: Jim Crites from DFW Airport. Just a couple comments. One on the peak period pricing. I go back to what I mentioned earlier. ATC is based upon the load factor of aircraft operating in a combined system. So, when you go to peak period pricing, the incentive is to dissuade consumers from flying. But, it has to get to the point if you're going to do that—where you are going to decrease in a positive way and with high expectations that you're going to succeed in decreasing aircraft operations. If you don't set the pricing correctly, you will merely reduce the load factors in the aircraft and keep the operations at the same level.

A cautionary note on slots: If that is the way that people want to go to demand management—what was mentioned in an earlier pattern and what Bill mentioned as well—the differential at airports between VFR and IFR capacity can be quite significant. [There is] up to 50 percent reduction in capacity at some airports when you slip from VFR to IFR. So, if you are going to set slot rules at an airport, currently they were set at VFR capacity. I would dare say that when there was a lot of slack in the existing system, the result of delays when you slip from VFR to IFR could be absorbed by the air carriers and the consumer. I dare say that is not the case today.

What we suggested earlier is that given there is little to no slack in the system, and given that IFR delays are changing at LaGuardia from VFR to IFR, impacts DFW trips and other trips around the system. Or, slipping from VFR to IFR at San Francisco impacts the entire system. But, you look at seasonal capacity that can be forecast. It is not perfect. In terms of what is the overall weighted average during that time period that we normally would accept, we heard the word “weather, weather, weather.” Last night, I experienced a 4-hour delay leaving DFW to try to get up here because of the weather here, and the reality was they slipped down from VFR to IFR under a schedule of VFR. It is very significant science. So, I urge you when you go the way of slots, consider the overall ability of that airport to handle that number of slots—at least on a seasonal basis.

I do look forward to the next two sessions because I would reluctantly want to see any kind of restriction on demand. It is not where the consumer wants to be and I look forward to working with the FAA and all of us to find more capacity in the system.

Shane: Does any panel member have a response to Jim's comment?

Steven Morrison: I fully agree that, of course, the point is to reduce the number of planes. But, the vehicle that we have in the market-based approach is price. You charge the planes. They charge the passengers. The passengers are reduced, and some flights are reduced. Clearly a load factor can go from 100 percent to 95 percent, and that flight is

going to operate. But, some load factor is going to go from 55 percent to 50 percent, and that flight is going to be cancelled.

Shane: It is also fair to note that there is perhaps less of a distinction than might be supposed between a managed system and an unmanaged system in terms of the number of passengers who don't make it onto airplanes. It is just that the ones who aren't making it onto airplanes in a managed system choose not to make it onto airplanes for price reasons. The ones who don't get on airplanes are really annoyed in an unmanaged system.

Debbie McElroy: Debbie McElroy with the Regional Airlines Association. Many of us have been talking about the public policy concerns and the need to do something, and certainly there would be public policy concerns when you put into place a system that has a disproportionate impact on smaller communities. In fact, there are approximately 250 communities throughout the United States that depend exclusively for access to the system on regional carriers. They don't have the larger aircraft serving them. I think it is one thing to talk about those markets—Bill mentioned some of them—where you have 16 frequencies. But, in some communities, you have a limited number of frequencies with 30- or 50-seat aircraft. I guess, Mr. Morrison, you jokingly talked about the fact that some just wouldn't be able to travel—they would be priced out of the market. But, clearly we shouldn't joke about that because that is a significant economic consequence for the businesses in those communities, and also recognizing the fact that we do have, as Jeff mentioned, Congress as a partner in this. I think they might react very strongly to losing service. So, my questions for you are twofold: How would you respond that you in effect may eliminate some portion of this country's economic service for soft communities? And, in the event you do have to accept a hybrid system (i.e., because of Congressional intervention you have some set-asides for small communities), how does that affect the efficacy of congestion pricing?

Morrison: My purpose in my presentation was to present a congestion pricing scheme in its purest form that would allocate the scarce capacity to the highest bidder. So, my first reaction to that in its purest form is to say, as I said before, that clearly the problem is too many passengers/planes using airports. So, somebody has to change their behavior, either by time of day or by airport or by not traveling. The pricing solution is a solution as Jeff said, where you post the price and people choose—not to say they are happy about it—but they choose versus a system where somebody [such as] Congress says who gets to use it. So, I tend to favor the decentralized market-based approach to the more directed approach. But clearly, fewer people have to use it, and the question is what mechanism.

As to a hybrid, it certainly wouldn't surprise me if what we ended up with was something that differed than from what I have advocated—differed in ways that you have suggested. But, my bottom line is that clearly somebody somewhere has to change their behavior and fly to a different place or at a different time.

Shane: [I'm] Just following up on Debbie's question. First of all, it is fair to note that in moving to a market-based system in 1978, of course, a huge exception was carved out for small communities which would not support service in a deregulated market without a subsidy. The subsidy indeed was provided and still is provided under the Essential Air

Services Program. So, we have a precedent, if you like, for making exceptions to the market-based approach. Frank Berardino put some charts up on the screen which interested me in that I saw layers in the bars showing small airplanes and big airplanes. What the chart didn't show—and I have always wondered whether or not an analysis along these lines would be very interesting—is whether those small airplanes were flying in dense markets or in thin markets? Whether they were going to small communities, for example, or that they were just feeder aircraft supplying large aircraft or heading to Europe, for example? In other words, there might well be some basis for drawing a distinction in an otherwise market-based approach, between small airplanes that are flying for the purpose of serving the small communities that desperately need service and small airplanes that could easily be taken out in return for larger airplanes and less frequent frequencies.

Morrison: I think my role here was to argue for purity, so let me argue for purity. Kevin Mitchell said earlier, if I recall, that he was concerned that if these fees were imposed, that it might solve a problem and then things would creep back in. My concern is that if you move away from a pure pricing system and say that we are going to exempt this group because they are good, then some other group is going to say that you have to exempt us because we need to let new entrants in and not pay full fares because they're important. Then we have to let somebody else in. Then, the first exception you make sets the stage for more and more exceptions, and then we end up with a system that is back to where we started.

William DeCota: May I just say, too, the issue is going back to Debbie, and we certainly have a lot of sensitivity about regional airline service. That is a very important aspect of our market, and every community deserves access to major markets in which they do business. It is very important to us, and it is important for those other cities. We don't want less passengers. As I said, we want to grow from 90 million to 120 million passengers in the next 10 years. The issue is how do we get them in very efficiently? In some markets, small planes may be legitimate because of the density of the market and the type of air service. Some of the concerns we have had is in a market like New York to Washington where you have more than 150 flights every day, why would you need to have any of them be a small regional jet of 35 seats or 50 seats when you have so many large planes who are already offering in that market and you already have so many different service destinations.

So, I think a lot of this comes down to the fact that we have to be sensitive to the fact that price can't be used as an absolute market-clearing device to the exclusion of consideration of other policy objectives because those policy objectives have to be considered. There are a lot of reasons why people need to have access to airports, and price may not be the best, sole rationing device. And, I think that is why I think over the next several months as we look to solutions at LaGuardia, we have to look at everything that has been put on the table. I think we have to look at the peak pricing issue. We have to look at the auctions. We have to look at lotteries. We have to go back to all of these things that I described and figure out what the best solution is to accommodate the most number of people for public good.

Shane: Dan, I detected a little note of difference in Steve Morrison's presentation in your last remark.

Dan Kasper: Yes, I was about to pick that up with Steve and with Bill. I think we are buying problems here that we really don't need to buy. I think Steve, you're buying a problem you don't need to buy. Bill's right. The problem is too many airplanes for the runway space. We don't really have a problem with too many passengers for the terminal space in general. There are some exceptions to that, but terminals are a lot easier to add than runway capacity.

I don't think you should be too worried about increasing consumer prices as a result of increasing user charges for peak periods or throughout the day if there is no fee. The reason is as follows: If I'm operating a 120-seat airplane and my landing fee or my access fee goes from \$100 to \$1,000, I have an incentive to add a bigger airplane. I may eliminate a flight and go to a bigger airplane. I may well add capacity to the market so that what drives passenger prices is capacity. Charging an access price for airlines to use the runways could give them an incentive over time—it is not going to be an instantaneous adjustment—to increase the seat capacity that they are offering in that market. That will have a mitigating effect and quite possibly a wash on prices. Remember, we are not driving out passengers. What we want to drive out, if you're going to drive it out, is excess demand for runway space. In that context, a 747 takes up approximately at least much runway space and time as a 727.

David Stempler: David Stempler from the Air Travelers Association. One point that I know you're quite familiar with is airlines don't pay any of these costs. All of these costs are passed on to us as passengers. So, when we talk about airlines paying these things, it is really us as passengers.

I agree with you that one of the problems we have here is that the unit of measure the FAA always uses is aircraft. But, it has nothing to do with people. We really need to rethink that. But, I'm going to talk about pricing and this issue at LaGuardia. But, on pricing, the distinction you're making at a pricing model like this is between big and small. I'm not sure that is really what the distinction is that we need to make here. We certainly don't want service by Debbie's members to be excluded from LaGuardia or any other airport. They need to get it at the National Air Transportation System—that is what the whole Deregulation Act is about.

One of the things we may need to consider, and this is probably a political non-starter, but maybe it is getting private aviation out of commercial airports. There are lots of alternatives for private aviation to go to, but they aren't alternatives for commercial aviation, and there aren't alternatives for people coming from private communities. This is a political non-starter. It is a hand grenade that goes off whenever I bring it up. But, it is an issue. If we are really running out of capacity, this is the fastest and quickest thing. I don't think Donald Trump, with his airplane or General Motors, is going to care what the landing fees are at LaGuardia or Newark or Boston Logan. It is just irrelevant to them. It is not going to push them away. They do have alternatives at the satellite airports. They can have the limos pick them up wherever they are and take them to their meetings. But, if we are trying to solve the capacity situation, that would be one quick way to do it.

The other issue, in talking about LaGuardia, I'm still trying to understand precisely what the problem is at LaGuardia that we are trying to solve. Is this a congestion problem

or a safety problem? What is the exact problem we're trying to solve here? Is it that planes are waiting too long to take off? I know cars at the Triborough Bridge wait a long time, and there is congestion around LaGuardia Airport. Why do we assume that there will not be congestion at the airports?

Frank Berardino: The issue is absolutely wasted capacity. I think that is the way the economists have described it—that delay is one thing. Delay is a perfectly appropriate concept if it increases the degree of throughput that you can put through the airport. At LaGuardia, you got to a situation where we're past the situation of delay and you are just wasting capacity because you got into a gridlock situation where people were just waiting on the ground for hours and hours and couldn't get off the air. We had some situations where passengers were on the planes for 3 hours and couldn't move anyplace. So, it is an issue of you can't have an airport that has the ability to handle 75 flights an hour with a reasonable degree of delay, and then try to handle 150 flights an hour because you will end up basically with your classic gridlock situation like at any highway intersection—nobody can move anyplace. So, our approach was to try to arrest the gridlock situation and put some efficiency back into the system, but also recognize that we did increase the capacity of the airport by going from the slot limited level of 68 movements per hour to 75 movements per hour and accept additional delay as a result of that.

Kasper: But isn't that the thing that drives people to Newark, to Islip, to Kennedy? I know that Kennedy is underutilized. If everyone knows they are going to have these kinds of delays—just like the 14th Street Bridge out here [in Washington]—people find other ways to go. It is the congestion situation. They don't use the pricing mechanism to do this because what happens at those airports—and we don't like any restrictions on the marketplace because what you do is you turn people away which, I know, Steve, you probably want—[is] you drive fares up. That is a reasonable policy position if that is what the discussion is. If you told people you have to wait at LaGuardia on the runway for 35 minutes to take off, how do you feel about that? Obviously, our members hate that. They don't want to do that. But, if the alternative is you can't go today, you have to go tomorrow, or if the alternative is you have to pay \$250 more for that roundtrip, most of them will say, “No, I'll wait on the runway or taxiway for 25 minutes.” But, part of these discussions go on. There are things that occur as a result of this which often times we really don't know the consequences and which we often times don't discuss.

Morrison: A couple things. I mentioned that we have weight-based landing fees. What they have turned into is “wait-based” landing fees. But, to respond to the question, I think, yes, airlines will pass on higher fees, but that is their job. They are the intermediary, in a sense, in this. We want travel and they provide it. They will pass it on, and that is what they should do. My view of that is much the same as my view as to their scheduling. I don't blame airlines for scheduling planes when people want to fly—that is their job to do that. So, if we don't like the implication of them doing their job—scheduling planes when people want to fly—we need to do something, for example, with the price system to get people and airlines to change their behavior.

Private aviation—I guess I never mentioned them—but rather than say you can't land here, an administrative solution that I would rather just set the fees. Those who can afford it can land, and those who can't will go elsewhere.

Kasper: Let me say one other thing, Jeff, just to chime in. The reason why passengers don't go to JFK is that there is no service at JFK. The reason there is no service at JFK is that it is just as inexpensive for the airlines to fly to LaGuardia. You can go out to Kennedy in the morning and you can fire off cannons and you won't hit anybody. But, until there is an economic incentive other than Jet Blue, to provide service at Kennedy or Stewart or Allentown, you won't get the business response that you're looking for. So, it is a vicious circle and unless you get it into the costs that are recognized in the aviation market, you won't get the benefits that the market would normally provide, which would be new service.

Shane: I have about 15 questions that I would like to ask these panelists but unfortunately we are running up against the clock. Joe, do you have any administrative announcements you would like to make?

PANEL 3

Challenges in Adopting New Demand Management Strategies

Introduction

JEFFREY N. SHANE

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Shane: I can tell that the morning's discussions generated a lot of interesting lunchtime discussion, and so I want to thank you for being so punctual in coming back. We will now move into our panel discussion for the afternoon, following which we will have questions, answers, and further discussion.

Now that we have understood airport delays, now that we have heard about what demand management options might be available, our next panel will examine some of the challenges that confront us in considering and possibly adopting the demand management options that were discussed earlier.

I am delighted to introduce my colleague and good friend Pat Murphy, a Principal with Gerchick-Murphy Associates, who will act as moderator for this afternoon's panel.

Murphy: Thank you, Jeff. First of all, I would like to congratulate the FAA for putting on this conference. As we heard earlier today, for more than 30 years, some of our airports in this country have been slot-controlled, a system which many have recognized for most of those 30 years had many problems, many difficulties—not the least of which is that they tended to drive up airfares and drive down competition. So, I think it is delightful that we are discussing other alternatives today, and I would encourage, as we go forward, to think in terms of not one solution at one airport, but a series of experiments or tests at different airports around the country. I think we can find airports that are willing to participate in such a test, and we ought to try several approaches. The first to discuss how to move these strategies forward is Randy Malin. I would just say that Randy has had a long career working with the airlines and as an aviation consultant.

PANEL 3

Operational Challenges

RANDALL MALIN

Malin and Associates

Whatever remaining ego strength I had coming up here today has been totally destroyed by the C-SPAN cameras all leaving just before I spoke. For more than half of my career, I was responsible for scheduling a major airline. In the 1973 fuel crisis, I had to cut back American's fuel consumption by 25 percent in 2 weeks, and I ended up parking 16 747s in the desert. During the 1981 PATCO strike, I had to rip apart USAir's schedule again and again as slot controls were imposed upon 22 major airports. I have lived with the FAA's High Density Rule since implementation in 1969, as well as all the many modifications that have been made since. And, while I am not at all proud to say it, I learned how to take advantage of the various loopholes in those regulations and how to play the games that airlines use to violate the spirit—if not the letter—of the FAA slot rules. Finally, during my career, I met with scores of cities seeking better air service, and all of them, without exception, put nonstop flights to LaGuardia and Washington National at or near the top of their priority list.

Now, I bore you with this personal history not to try to tell you who I used to be, but rather to provide a context for my remarks that follow. The alternative was to take off my shirt and show you the scars on my back, and this is a family event, I didn't want to do that.

When Congress passed AIR-21, I was highly critical of it for exempting RJs from slot control and for adding a handful of long-haul slots at Washington National. Despite my initial criticism, however, I am now grateful for these AIR-21 provisions for three reasons. First, the political pressure on the DOT to award the new Washington National long-haul slots to favorite airlines in favorite cities should remind all of us of the worst excesses of the CAB route cases.

Second, the scheduling frenzy at LaGuardia clearly answered the often-posed question of what might happen if slot control were removed? Now we know.

Third, the wide publicity given to the resulting gridlock at LaGuardia forced the FAA to promise—and don't forget the promise—that it will come up with a new and better solution for that airport by September. Now, fulfilling that promise is an enormous challenge, but like every challenge, it is also an opportunity—an opportunity to throw out the baggage of the last 30 years and really start anew with the proverbial clean piece of paper. It is also an opportunity for the FAA to establish a new template for how demand will be constrained at other airports when and if it is needed. This meeting is, I trust, part of the FAA's effort to embrace those opportunities and find that promised solution.

Let me be honest. I bring four biases to today's session. First, freedom of entry was one of the two key promises of airline deregulation. It was a false promise when deregulation was being debated during the mid-1970s, and it remains a false promise today. There has not been freedom of entry at LaGuardia and Washington National since 1969, and there is no prospect for there being so in our lifetimes. Thus, my first bias is that we must stop pretending that access to these two popular close-in airports will ever be unconstrained. Instead, we must ensure that whatever constraint program is

implemented is consistent with the objective of maximizing the benefit to the traveling public. By maximizing public benefit, I mean that no one has a pre-ordained right to serve these congested airports: No major airline, no regional, no EAS carrier, no low-fare new entrant, no small city, no general aviation—not even the shuttle.

Second, any public transportation company—be it bus, train, or plane—must provide both safety and reliability. An air transportation system that cannot operate reliably in normal weather is simply unacceptable. Thus, my second bias is that given a choice between more flights and an unreliable operation, and fewer flights with reliability, I choose the latter. Do I like slot control? Definitely not. Do I think we need it at certain airports? Decidedly yes—but, only as a last resort when other solutions, less intrusive to scheduling freedom, no longer work.

Third, as has been noted earlier today, there are only two ways to constrain demand at congested airports: Administrative allocation (i.e., regulation) and what the economists lovingly call “market-based solutions.” The problem with regulation is that it is subject to political pressure. Political pressure is a guarantee that the objective of maximizing public benefit will not be achieved. Who among us has the Solomon-like wisdom to decide whether Austin, Texas, or Phoenix, Arizona, is more worthy of receiving the next available slots at LaGuardia? Thus, my third bias is that we have had over 30 years of politically influenced slot regulation, and it is time to try the market-based approach.

Fourth, runways at certain airports are very scarce resources. It makes no sense to price access in a way that encourages airlines to use smaller aircraft to provide greater frequencies. We support HOV lanes on our congested roadways. Why would we not use a similar approach for congested runways? Thus, my fourth bias is that whatever system we choose to constrain demand, it must provide economic incentives that encourage, not discourage, the use of larger airplanes.

Any sort of restriction on scheduling freedom is problematic for airline schedulers. But, and I want to emphasize this, airline schedulers are very used to constraints. There are external constraints such as slot controls, curfews, runway limitations, and local noise regulations. But, there are also a lot of internal constraints, and these include the number, range, and payload of the various aircraft in a fleet; the number and type of gates at the airports it serves; the number and types of maintenance overnights that are required; and providing adequate rest for crews that are away from base. In short, airline schedulers deal with constraints every day, and slot control is just one more constraint.

Airlines face slot controls at virtually every major city in Europe and Asia. The lack of an available slot time at a European airport that meshes with an established connecting bank in the U.S. has prevented a number of transatlantic flights from ever being attempted.

Accommodating all the external and internal constraints is a challenge for every airline scheduling department. However, that is a minor problem compared to the damage that is done to an airline and its customers when it cannot reliably fly its published schedule in good weather. The biggest problem is, of course, at the connecting hubs. Whether you love or hate the hub-and-spoke phenomenon, it is a vital and necessary part of our nation’s air transportation system. An unreliable operation rips a hub apart as airplanes, crews, passengers, and their baggage do not arrive in time to make connections. A 2-hour back-up at LaGuardia will result in thousands of passengers missing their connecting flights. This is bad enough, but the ripple effect can be even worse. Most aircraft that serve hubs fly from 4 to 10 segments every day. A late inbound

flight to a hub can result in outbound cancellations because crews are now illegal in terms of flight time or would be unable to get enough rest at their overnighing city. Planes may have to be pulled off the line because they are now too late to get the scheduled overnight maintenance checks at their planned destinations. Other flight disruptions may follow as Systems Operation Control starts canceling trips in an effort to get the airlines back to normal for tomorrow morning's originating flights. This is the drill the airlines go through when bad weather hits, but we should not and must not allow it to be an everyday occurrence.

An unreliable air transportation system is not just an operating problem for the airlines and a huge frustration for their customers. It also has a direct impact on the fares that airlines charge. Let me give you a couple of examples. In an effort to improve on-time performance, every airline has lengthened and continues to lengthen its flying times. As some of you may not know, airlines pay their crews based on schedule or actual flight time, whichever is longer. I would guess that over the past 15 years, thousands of hours have been added to the schedule every day. Needless to say, the fuel burn and the crew cost associated with this totally nonproductive time has been added to the fares that the passenger has to pay.

An airplane's productivity is measured in how many miles it flies each day. Obviously, productivity is reduced as flight times are increased. Productivity is also impacted as airlines increase the number of spare aircraft, lengthen the minimum connecting times at their hubs, or even as in the case of American recently, fence off aircraft serving certain unreliable airports to minimize the effect on the rest of their system. All of this loss of aircraft productivity means that it takes more airplanes to fly the same schedule. More airplanes cost money, and their capital costs have to be added to the price of the ticket. And, don't forget the direct costs associated with unreliability: delivering missing bags, meal and hotel costs, overtime for station personnel, etc. Again, this is cash that airlines spend and it must be recovered through higher ticket prices.

I'm not happy to be advocating constraints on our nation's airlines to solve the reliability problem. Furthermore, I worry that if such an approach is successful, it will reduce the pressure on Congress and the Administration to find long-term solutions to the problem of insufficient runway capacity at key airports. Interim solutions in Washington have a habit of becoming permanent, as was the case with the 1969 interim high-density rule. However, we must accept that certain high-demand airports have no ability to add new runways, even if the real world of environmental opposition and regulatory red tape were magically to disappear. In these cases, we must constrain demand or watch our air transportation system be mired in gridlock. We can continue to regulate, but that will only continue the misuse and underuse of these scarce runway resources and will guarantee that we do not provide the maximum public benefit.

Thank you.

Patrick V. Murphy: Thank you, Randy. Our next speaker is Scott Lewis. Scott is a partner of the Boston law firm of Palmer and Dodge, where he specializes in representing airport owners.

PANEL 3

Legal Challenges

SCOTT P. LEWIS

Palmer and Dodge

I'm going to speak briefly about the legal challenges that these programs of demand management present. It is useful to remember what we're talking about—we're talking about the use of administrative or market-oriented tools to alter airline behavior. In an era of airline deregulation, the use of any of these kinds of tools inevitably raises novel and challenging legal issues.

I want to talk about four sets of issues that get raised. The first is whether the FAA or local airport owners have the power to implement effective demand management programs under existing law. Second, if there is uncertainty about the reach of existing law, how should it be resolved? Third, must competing policy goals be accommodated, and, if so, how? Last, if the use of market-based methods produces new revenue streams for airport owners, what rules should govern how that additional revenue is used?

These issues are complex and subtle. We get very little guidance from past experience. Delay has been around for a long time, and some administrative tools of demand management have been tested in the field. Market-oriented methods have not. So, there is very little guidance to be gained from past precedent.

All I can do today is to touch on some essential themes, and I do so from the admitted perspective of airport owners, because they are my clients. But, I hope to provoke discussion from all segments of the industry.

The first question has to do with power. It is a very complicated question, but at its root, we start with a couple of very fundamental facts. The FAA controls the navigable air space. Local airport owners own and operate the airfield and the terminals. They do that subject to federal requirements. Some of those federal requirements are these: The first is that local airport owners are not permitted to establish local regulations that regulate the prices, routes, or services of airlines; at the same time, the Deregulation Act preserves the ability of local airport owners to exercise their proprietary powers.

Second, local airport owners must provide reasonable access to their airfields without unjust discrimination.

Third, they can only impose reasonable charges on the airline operators who use their facilities.

Fourth, they can be subject to restrictions that exist in international agreements.

Last, some airport owners are restrained in their ability to implement demand management programs by long-term leases that they have entered into with some of the airlines that serve their airports.

Now, when we talk about administrative solutions—and I'm going to focus mostly on market-based solutions, as most of the other speakers have today—we should recognize that administrative solutions like the AIR-21 slot exemption lottery or providing priorities for certain kinds of aircraft in the queue approaching the airfield, lie largely, if not entirely, within the province of the FAA. On the other hand, market-based solutions, particularly the use of airport rates and charges to achieve demand

management objectives, lie solely within the province of the local airport operators. It is the local airport operator that sets the landing fee and the terminal rent. The FAA does not have the power to set airport rates and charges.

The legal standards that govern airports when they exercise their proprietary right to set landing fees and terminal charges are very elastic. As I have indicated, they sound in terms like reasonableness, avoidance of unjust discrimination, and terms of that kind. These standards are extremely elastic, and the federal rules that restrain what local airport owners can do, do not explicitly authorize or prohibit demand management programs.

This brings me to the second set of questions, which deals with how should the uncertainty about the extent of local airport proprietors' powers to implement demand management program be resolved? There are at least three ways that are often talked about to resolve this uncertainty. The first would be to get new legislation from Congress that would clarify the situation. I would suggest to you that looking to new legislation to solve this problem of uncertainty is unnecessary. It is unnecessary because the elastic existing standards give ample room to local airport proprietors and to the FAA and U.S. DOT to implement and approve appropriate demand management programs. Waiting for new legislation would also be untimely. We need to be able to implement demand management programs today, and the process of achieving new legislation in this area would inevitably take a very long time.

I would also suggest to you that it may be illusory. I say that because it is often said, "Let's get new legislation." That is easy to say. The hard part is to articulate what that new legislation would actually provide. It is very difficult to do any better than what Congress and the Department have already done when they said it needs to be reasonable, it shouldn't be unjustly discriminatory, and in the rates and charges policy—which does make provision for peak hour pricing—the Department has said that the demand management program should be properly structured. That is about as good as the Congress or the Department is going to be able to do.

A second method of resolving this uncertainty would be for the Department to issue a general policy of nationwide applications establishing rules governing demand management programs. I would suggest to you that this is likely to fail for the same reasons that the legislative solution will. It is very difficult to do. It will take a very long time, and it may lead to a result that is similar to what we have today—very general standards that need to be applied to the particular facts and circumstances of individual airports.

As Mr. Sinha said in the first presentation this morning, this problem is very much situation dependent. Determining what is reasonable, not unjustly discriminatory, and properly structured today at LaGuardia Airport is a very different question than determining what a properly structured, reasonable, not unjustly discriminatory program would be at San Francisco or Boston today—to say nothing of other airports in later years in other parts of the country.

The third method for resolving this uncertainty would be for the Department to make determinations of compliance in individual cases in the exercise of policymaking discretion. I would suggest to you that this method has a couple of very important advantages. First, it allows for the consideration of concrete facts and for the policymaking judgment to be applied to the particular facts and circumstances of airports as they operate today. Second, it is timely, it can be done quickly. Having said that, it is

uncomfortable because the time to deliberate may be short, and the implications of decisions in particular cases for other airports may not be fully understood.

The third issue that I want to touch on briefly has to do with accommodating competing policy objectives with the essential policy objective of demand management. Demand management, I think, is often described as a program that is designed both to bring demand into alignment with capacity and to lead to the most efficient use of scarce resources. Maximizing the efficiency of the use of scarce airfield resources is likely—one might say inevitably—going to conflict with two major goals of Congress and the Department. The first is to increase airline competitiveness by reducing barriers to entry. The second is to encourage service to underserved markets. The tension between demand management and these two objectives was vividly illustrated last year by the passage of AIR-21. The AIR-21 slot exemptions for LaGuardia Airport flew in the face of the need of that airport to control the demand for its scarce airfield resources. AIR-21 said if you are a new entrant, you can come in even if you don't have a slot. And, if you are serving underserved destinations in small aircraft, you can come in without a slot. In fact, in my view, there has been too little discussion today about the need to up-gauge aircraft—where you have finite airfield capacity [but] the only way to increase the effective capacity of the airport to serve the traveling public is to use larger aircraft. One of the goals of many demand management programs is to incentivize the use of larger aircraft. AIR-21 gets passed and shows how that kind of objective can crash into the objective to provide service to underserved communities in small aircraft.

Balancing these competing objectives is a very delicate task. Unlike the ordinary establishment of landing fees and terminal rents, it will inevitably implicate the FAA's policymaking powers and responsibilities to help create either exemptions or set-asides or some provision that allows for recognition of these competing objectives when demand management programs are put in place in various airports throughout the country.

The last topic I want to talk about is the use of revenue. There hasn't been much explicit discussion today about the possibility. Some would say in many airports, the likelihood, that a market-based method of managing demand would very significantly increase the flow of revenue to the local airport proprietor that sets the congestion price or runs the auction or uses some other method of relying on price signals to bring demand for the use of its scarce airfield resources into alignment with the capacity. This presents very complex legal questions about whether an airport has the power to create new revenue streams of that kind, and if it does have the power, what rules will govern what gets done with the additional revenue that is generated by the demand management program.

There is in place another federal constraint on local airport operators that requires that they use airport revenue only for airport purposes. This is the subject of airport "revenue diversion." And often in the discussion of demand management programs, the initial reflex is that the additional money could be used for capacity enhancements [or] it could be used for environmental mitigation. Both of those are consistent with the federal constraints on the use of airport revenue for airport purposes. More complicated and interesting questions arise when one begins to think about the possibility of using that additional revenue to create incentives through rebates or other structures—incentives to use other airports, to fly off-peak, to up-gauge aircraft, or possibly to subsidize service to communities that would otherwise be underserved from the airport in question.

All of these legal issues are very serious. They are intertwined with issues of policy, with issues of operations, and with issues of politics. But, I want to leave you with the fundamental theme that the existing framework is elastic. There is room in the existing legal system for innovation at the local level, and in my view that innovation ought to be encouraged and it ought to be encouraged now through the process of experimentation at airports such as LaGuardia, San Francisco, and Boston's Logan Airport. The industry and the regulators will gain substantial knowledge about how these programs work, what effects they can cause, what kinds of issues and unforeseen consequences they may create. But, I am confident that significant improvements in the efficiency of the air system can and will be realized if local experimentation is permitted consistent with existing federal law.

Thank you.

Patrick V. Murphy: The final scheduled speaker for today is Claire Barrett. Claire is also a consultant. I think this is a full panel of consultants. Claire works with airports all over the country primarily on planning and environmental issues.

PANEL 3

Political Challenges

CLAIRE BARRETT

Claire Barrett and Associates

The politics of demand management in 10 minutes or less. I'm trying not to take it as a symbol that it is the last item on the program, meaning that politics is always an afterthought, which in some ways would not be surprising. I think most of us policy wonks—and even people like Jeff who are recovering policy wonks—would like to believe that important issues like congestion-pricing are determined because of capacity analysis, economic analysis, or substantive legal analysis. But, although it may be odd for somebody from outside the beltway to say this to a D.C. audience, politics is as real and omnipresent as gravity, but it is just a little bit harder to predict. So, it doesn't really pay to ignore politics—the question is, how do you deal with it?

One of the good things about the issues of congestion-pricing and airfield capacity is that in the past few weeks there have been so many people talking about it—and so many comments in the press and elsewhere—that it is possible to put everybody's position out on the table, in their own words. Some people have thrown down the gauntlet in a more colorful way than others. Senator John McCain has spoken on this topic and he is saying that everybody has to take on the special interests—go to it and take them on. Everything that we're talking about is going to hurt somebody, so we might as well figure out who it is and what to do about it.

Before we move too quickly into the taking-people-on mode of tackling this issue—I think it might be worthwhile to step back for just a minute and define the problem and in that way define who the powerful forces are and what is motivating them.

This is a really simple-minded chart (Figure 1). I specialize in simple-minded charts. The basic problem is that there is too much delay and too little capacity. We have heard plenty about that. The reason for this problem is there is a lot of political opposition to airport expansion. This is the fundamental political problem. The cause of that political problem is noise and, to a lesser extent, environmental issues. If we don't deal with that—if we don't accept that—we don't understand what the real motivation for congestion management is (Figure 2). And, that is, of course, the efficient use of existing physical capacity that is there. Congestion management is applicable either until new physical capacity can be put online, which can take 8 to 10 years and in some cases 15 years, or as we have heard today in places like LaGuardia and Washington National, where physical capacity cannot be sufficiently increased, as a permanent solution. But naturally, congestion management has its own opponents.

One of the primary facts, facts of politics, is that you can be sure that anybody who might be harmed—or who has any reason to feel that for any reason they might at any time be harmed by anything—will oppose it. The people who might be harmed by congestion management are those who stand to lose flexibility, access, market share, and money—especially money.

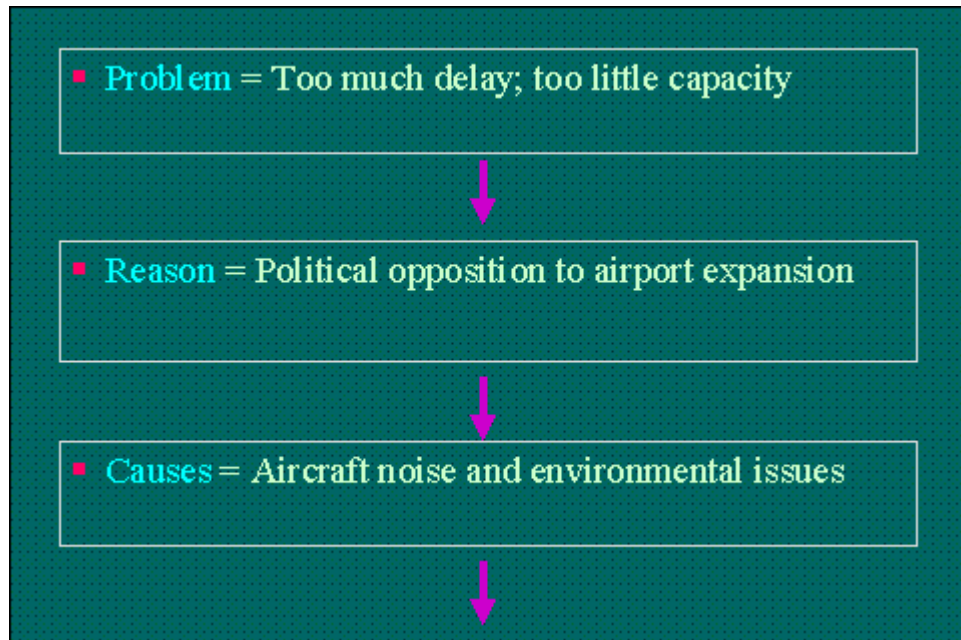


FIGURE 1

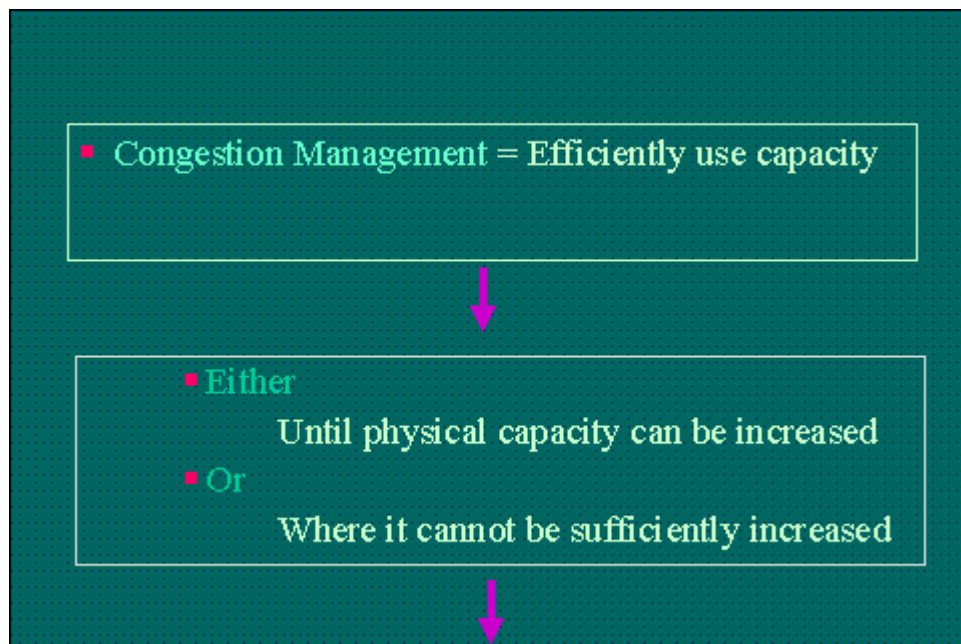
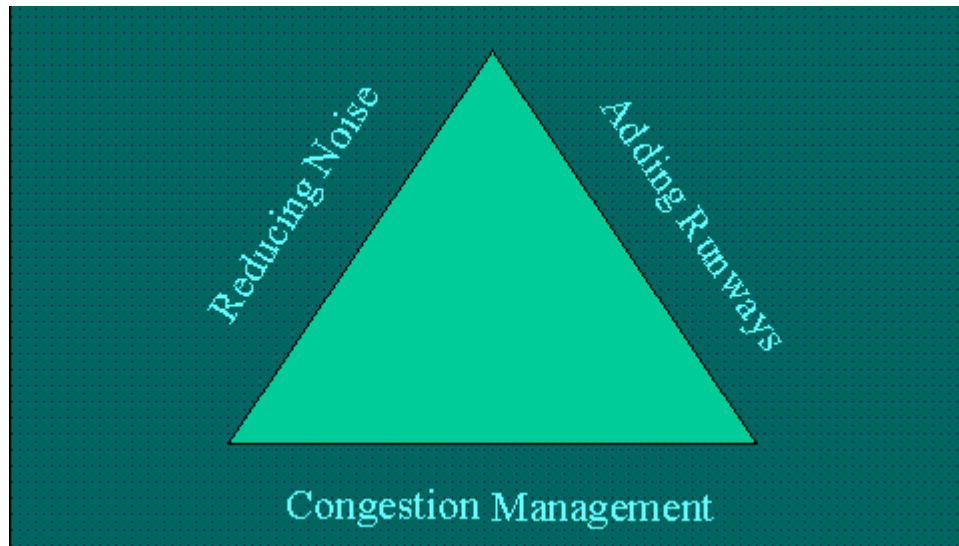


FIGURE 2

So, in my mind, as the visualization of this problem we have a triangle (Figure 3). We have a problem with three aspects: reducing noise, adding runways, and congestion management. Although this particular image is an equilateral triangle, showing that these three issues are equal in nature, we all know that in fact, they are not equal. In every

**FIGURE 3**

airport the size of that triangle will be different according to the particular nature of the situation. At some airports, adding runways might be relatively straightforward, while at others, it won't be very straightforward at all. In some cases, noise is a big issue, and in some cases, it isn't. So, the shape of these triangles will vary. But, what we can be sure is that all three of these issues have to be treated in some way to define the nature of the problem and to find an applicable solution.

If all three components are not treated in some way and if the problem is not looked at holistically, so to speak, what will happen is that one of these three interests will, or possibly more than one, will cry discrimination. They will say: "I am being singled out, my interest is being singled out, and those other interests don't have to pay a price. They are not being inconvenienced in any way." All of these people will speak, and some will speak out more colorfully than others.

I picked this out of the press last week and it struck me as being a particularly colorful sort of comment and comes, needless to say, from the interest that says that we need to add runways.

This comes from a citizen here in D.C. who feels that we need to reduce noise, and who cites specifically the need to put new Stage 4 noise requirements and to phase out older Stage 3 aircraft as a noise issue (Figure 4).

Here we have someone who is actually in the room today, who has said much the same thing here—protect access to small communities who have the same rights as others, and we should be expanding physical capacity (Figure 5).

This is Jane Garvey—she is in the middle here representing all public officials (Figure 6). Those are all the arrows that everybody is always pointing at you, of looking for something from you. Every single one of these interests has actually said something like this today. They all want these things all at the same time. Of course, public officials, whether Jane or Congress or an airport operator like Bill DeCota—whoever it is, is always trying to please all these constituencies all at the same time, which is hard to do.

If that wasn't hard enough for these poor public officials, there is always somebody out there saying that they should be doing more—taking a leadership role. Public officials

“ He [Secretary Mineta] could help himself considerably if he implemented a process to rid our skies of the old hushkitted Stage 2 aircraft within five years as the Airports Council International-North America has recommended. These planes make the most noise and are the worst air polluters in the sky.”

FIGURE 4 Don MacGlashan, Citizens for the Abatement of Aircraft Noise, responding to streamlining NEPA debate.

“Passengers in medium and small communities have the same rights to access at airports as those people living in large cities. We should be looking at expanding capacity rather than closing off the system for small community passengers.”

FIGURE 5 Deborah McElroy, President, Regional Airline Association, responding to AirTran CEO Joe Leonard’s attributing delay to an increase in regional jets.



FIGURE 6

are often criticized for being too passive and for not taking the bull by the horns and doing something more innovative than they are doing (Figure 7).

This graphic is another one of my silly, little equations. It is sort of an analogy (Figure 8). It is, basically, how do you build a runway? You build a runway by defining the need, by doing the analysis, by going through the environmental process, finding the money, and then multiplying that whole package by political will squared. I think that is what Jane was saying this morning—without the political will, there is no runway. The same is true for congestion management. I think that some similar equation has to happen for this, only we don't have the real world analogy to show. What we do have, however, is the situation in LaGuardia which shows that when it really gets bad enough, then the political will is there to do something.

So, how do you get to the political will short of trying to institute gridlock? I think you have to go back to that triangle. You have to figure out how you're going to offer something to everybody and not simply point to one group or another and say here is the

"Both the administration and Congress face a decision whether FAA should move from a passive role (essentially distributing grant funds) to a more active one of proposing a strategic view of the national airspace and airport system, leveraging grant funds to capacity-constrained locations, and helping to resolve local opposition."

FIGURE 7 Kenneth Mead, DOT's Office of Inspector General, annual report.

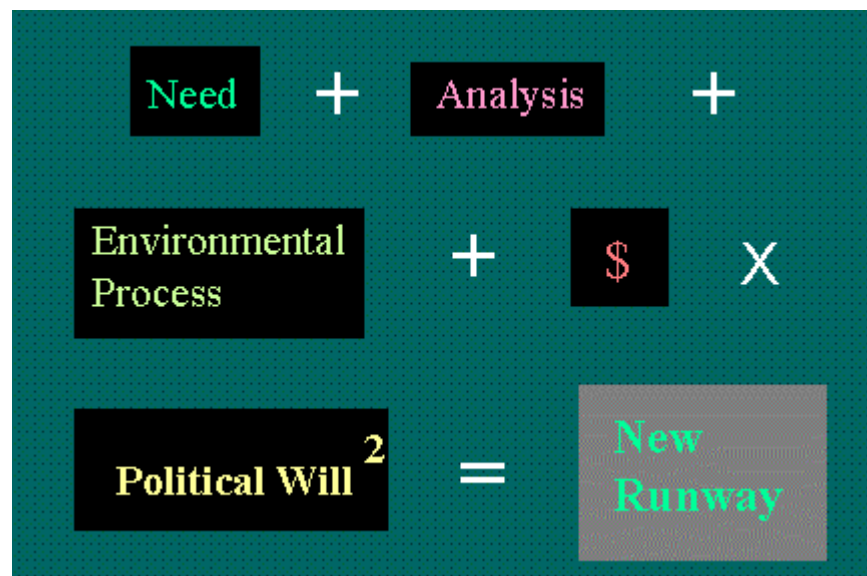


FIGURE 8 Expanding airport capacity through economic or regulatory programs is similar to creating physical capacity in the sense that making it happen requires a collective and determined political will.

problem. The solution is not to impose something on one side or another side. I think that in order to get to congestion management, as in runways, you also need to look at the environmental side of things. You need to really focus on the new Stage 4 regulations. You need to offer people in the neighborhoods around airports the phase-out of older retrofitted aircraft. You need to promise people that the size of aircraft is going to go up and that you're going to use the existing runway more efficiently, and that all of these needs are going to be somehow balanced and simultaneously addressed. That seems to be what our new Secretary is saying (Figure 9). He is talking about the sun and the moon and the stars being out of alignment and I think it is our job, based on whatever our local environment is, to put them back into alignment in some way and to try to figure out what the solutions are that we can generate the real political will to do.

Thank you.

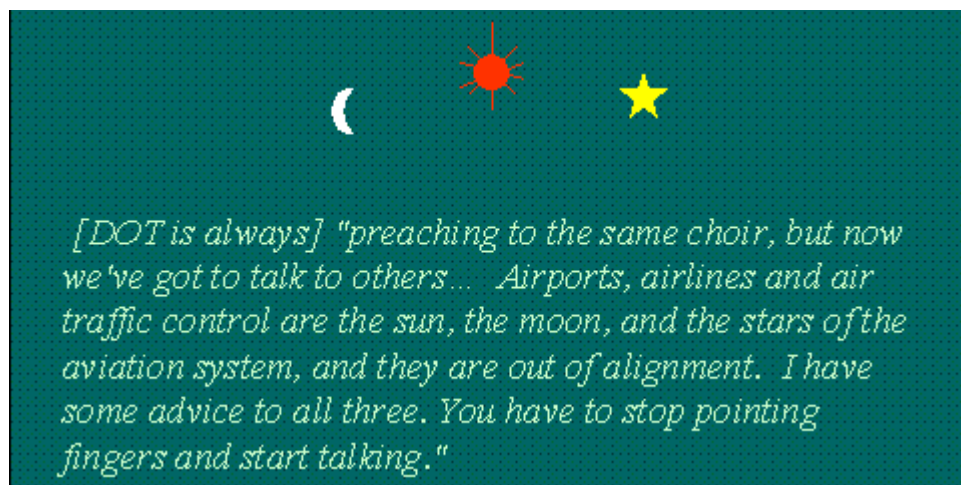


FIGURE 9 Secretary of Transportation Norman Mineta at the U.S. Chamber of Commerce Aviation Summit.

[Click here to see Barrett's entire slide presentation.](#)

PANEL 3

Question-and-Answer Session

Jeffrey Shane: Thank you, Claire, and thanks to each of the other panelists. You have heard a series of presentations in the course of today which, I think, have been second to none. Really, they have been absolutely on-point and absolutely superb.

Just before we start the questions and answers, and what I hope will be a discussion involving as many people as possible, I just wanted to say one thing that has occurred to me as I listened to the presentations—a kind of contextual comment. We have some unique opportunities before us right now. We have a Federal Aviation Administrator who didn't just come to the job at the change of government. She's been in the job for about 3 years—our first tenured FAA Administrator. We know that Jane is going to be there for at least another couple of years. That is a huge advantage—somebody who is not just now learning the ropes. Second, we have a Secretary of Transportation who, by common acknowledgment, is the most qualified person ever come to the job.

With regard to aviation congestion, we have finally hit the wall. We no longer have the luxury of being able to talk about this stuff, send little trial balloons up here and there, and hope that something good will happen. Real action is required. We cannot tolerate another summer like the last one.

It speaks volumes about her interest in this problem that Jane Garvey has been here with us all day long and that her entire brain trust has been here all day long. What I'm saying is that with an experienced FAA Administrator and a highly knowledgeable Secretary of Transportation at the helm—and a national consensus that something must be done now to address aviation gridlock—we have an unprecedented opportunity. I think everybody should understand that this is not just another meeting.

Today, we have been talking about real opportunities for applying demand management solutions. We know it is going to take a lot longer to get capacity increased in the way we would all like—by expanding infrastructure and improving technology—so we have to pursue opportunities that are short of that in the near term in order to avoid the crisis that we're staring at. That is what we've been talking about all day long.

Let's have a discussion, not just of this panel, but of everything you've heard today—a discussion that will take us to the next step, that will take us to a program of action. I'm sure that is what the Federal Aviation Administration and the Department of Transportation are looking for.

The floor is open.

Jim McKenna: I'm Jim McKenna with the Aviation Safety Alliance and a former aviation reporter. It strikes me that while all the presentations have been outstanding—some of the best I've seen in covering this issue for a long time—we are still left with fundamental disagreements on basic terms of the debate on air system capacity. Not to single Ms. Barrett out, but hers was one of the most recent citations of it in talking about the need to reduce noise. I'm sure if I'm wrong about this, somebody will correct me instantly. But, I believe the data would indicate that over the last 15 years the aviation industry has significantly reduced the noise emissions of aircraft at and around airports. Yet, we are left with the public perception that noise is increasing and, in fact, for people around airports, if they are under a section of sky that is targeted for realignment of

routes, certainly the aircraft noise is increasing around them, even though it is a quieter aircraft on absolute scales. But, my question is do you agree that we still are confronted with this basic disagreement on terms—and the basic aspects of the debate—and what do we do to reach a consensus on what the basic elements and the basic terms of the debate are? It seems to me like you can't move on toward a solution while you still have people arguing different terms in the debate.

Claire Barrett: I guess I would say two things about that. In a total sense, noise has gone down, and there is no doubt about that as a scientific matter. But, since we are talking about politics, the perception is that it isn't good enough yet, and that is real. The perception of people around airports that they are not happy about the situation is as real now as it perhaps has ever been. The second thing to say is that even though individual aircraft have gotten quieter, the frequency of flights has really gone up. So, what you have is people who are hearing noise are hearing a lot of it, and they are hearing it more frequently than ever. They are aware, now that the year 2000 has passed and all aircraft are Stage 3, noise can only go up now. The benefit to be achieved has been achieved unless there is something else to be put on the table for the neighbors. If you put that in the context of this other discussion that has been going on about streamlining the environmental process to allow runways to go on faster, then you've terrified the people. You have a situation where airport neighbors can only see noise going up and runways being streamlined down their throats.

Scott Lewis: Jim, the reason why we are talking about demand management today is because of the very phenomenon you identified. I think we are taking a very realistic view of the prospects for increasing the hardware side of the aviation system any time soon.

Frank Berardino: I wonder if Scott could talk theoretically about whether he sees a market-based system that can be implemented through an airport proprietor proposing something and the FAA and the DOT approving it without legislation?

Lewis: The process that we envision is a process of an airport proprietor adopting a congestion pricing model that is thoroughly documented, that is shown to be based on sound economic principle, with input from the FAA and the airlines, which would then be put in place with some advance notice. The legal process here is not one in which an airport proprietor is required to get prior approval from the FAA before implementing a landing fee. The process is one in which the right to implement the new landing fee is subject to later complaint by a party that is aggrieved by the new landing fee. Back in 1994, in response to concerns that litigation of that kind might be very time consuming, Congress passed an expedited dispute resolution procedure that calls for a complaint alleging that a new rate and charge is unreasonable or unjustly discriminatory to be heard and resolved by the Department in 120 days. So, if one follows the path of an airport proprietor implementing a fee of this kind, after consultation with the airlines and after consultation with the Department, the process for actually getting the Department's legally binding opinion on reasonableness would be ordinarily an airline complaint that precipitated in an adjudicatory proceeding at the Department that led to a decision 120 days later. That same statute does permit an airport owner to seek a determination of

reasonableness from the Department, which would be another possible alternative. It has only been used once in the Miami dispute some years ago.

Patrick V. Murphy: Since that was such an excellent answer, you get another question. Scott, you had mentioned a very important point in your presentation about revenue and what to do with the revenue that is generated by a demand management system. You mentioned incentivizing certain behavior—service to small communities, upgrading aircraft, off-peak operations, and others. Do you think that kind of incentive—using the surplus that is generated— could fit under the present law today?

Lewis: The more creative the incentives get, the more legal risks they present. There has been no precedent like that, and indeed there is no precedent for the establishment of landing fees of that kind. But, good arguments could be made under the existing law that rebates of that kind would not be unjustly discriminatory. So, again that would be something that in the end would be adjudicated by the Department if there was a complaint. Certainly, an airport proprietor that was contemplating a scheme of that kind would be well-advised to spend a lot of time with the Department before implementation to try to get some comfort that it was reasonable.

Murphy: What about an auction?

Lewis: Again auctions are somewhat more complicated, and it may be useful just to state a fairly simple proposition that sometimes gets lost in the shuffle. Congestion pricing is a method of dealing with demand management in which the airport proprietor sets the price for landing at the airport, and the market determines how many people decide to show up. An auction is a method in which the airport proprietor determines how many people will be allowed to show up, and the market determines how much they will pay for that opportunity. So, theoretically, in a perfect world, they would lead to exactly the same result. The world isn't that perfect. The legal issues that surround an auction are similar to those that surround congestion pricing, but are somewhat different. Particularly, the determination of what the total amount of permitted activity would be—the number of landing or take-off opportunities that would be auctioned—is something that might fall within the FAA's responsibility rather than solely within the responsibility of an airport proprietor.

Shane: Scott, do you happen to have a petition in your pocket by any chance, and if not, why not? Let me ask the same question of every other airport operator who is in the room. How many people are actually thinking creatively about some of the ideas we've heard today or, having been here and there exposed to all this creativity, will go home and start thinking creatively about them and then file something? It doesn't have to come from the federal government. It can come from the provinces.

Daniel Kasper: I have an observation and a question for Scott. Whether or not those charges might be unjustly discriminatory or the rebates might be considered unjustly discriminatory, it seems to me the use of incentives by an airport operator to affect the service provided to that airport would raise fundamental questions about impinging on the whole aim of the Deregulation Act—and the authority reserved to federal government

(the authority that the federal government presumably tried to leave to the marketplace). That is the observation. My question is have you considered the alternative possibility getting to the same place—tagging on to Randy Malin’s question—that we already have a precedent for the federal government to establish slots. It has done so. Granted, there is some question as to the extent of property rights, if any, that the airlines have in those slots, but assuming for purposes of argument that the federal government either by hook or by crook, which is to say by taking it back and paying for them or just taking them back, suddenly ended up owning all of the slots say at LaGuardia, and then auctioning those. Is that something that you have considered and that would require, in your view, changes in legislation or could that be accomplished under existing law?

Lewis: If the FAA were to auction the slots and to receive the proceeds of the slots, in my judgment, it would require statutory change.

Harry Wolfe: Harry Wolfe of Maricopa Association of Governments. To any of the panelists, where has congestion pricing—as applied to airports—worked, and, if so, what was done to overcome political hostility toward that? People who have suggested higher fees in the Phoenix area no longer work in the Phoenix area. So, I am curious as to how you get the politicians to embrace that.

Lewis: The simple answer to your question is that congestion pricing for airfield access in the United States has not been implemented. It is used in other countries, and the model, as some of the other speakers mentioned earlier today, of using price to deal with situations like this is well understood in the public utility business. Of course, it is also very well understood by the airline industry, which prices its tickets according to the same principle.

Barrett: My only answer is let’s watch Bill DeCota. He is where it is at on this. It is happening in some form—whether it is slot auctions or whether it evolves into something else next year. But, we’ll have to see. Where the problem is big enough and where the solution is inevitable. my sense is that politics will follow the need.

Chris Fotos: Chris Fotos from the newsletter *Airports* here in Washington. Two quick ones. I want to amplify on something that Jim McKenna said about the environmental side of the equation. As probably everybody in this room knows, it isn’t just that there is environmental opposition. It is intense, bitter and deep opposition to airport expansion. I wrote a story a few months ago about the FAA noise abatement policy, and I riffled through a document maybe 7 to 8 inches thick, and it wasn’t hard to find comments like these. I didn’t have to go looking for these. Just randomly turning pages, I got things like this: “I ask you to ban nighttime flights,” [says] somebody living in the Greensboro, NC area. “If night-time operating air cargo hubs must exist, and I do not believe they do, they should be built on barren land with a 25-mile radius separating them from any population centers.” Of course, the funny thing is that has been done and communities have grown out to airports like right here in the Washington area. I’ll just read you one more: “It is time that the commercial aircraft noise levels be subject to municipal ordinance. A local law should control airport traffic,” this commentator wrote, “so that those of us who live in major, metropolitan areas can formulate policies that take everyone’s interests into

consideration.” The reason that I read that one is that needless to say, the people who live around airports think they don’t have nearly enough influence over runway policy, which of course is the exact opposite of what we heard at the aviation seminar a couple of weeks ago. So, my long-winded question is: What are the chances and what are the realistic opportunities for working with the environmentalists and the anti-runway activists to tone down that opposition—and maybe trade that into some kind of deal to allow some kind of demand management in the short term? Or, is that just a pipe dream?

Barrett: I don’t think it is a pipe dream. We’ve seen places where airports do succeed in building runways. Minneapolis is just doing a runway. There is no community that is more outspoken against noise than Minneapolis/St. Paul. Yet, the airport has managed to get through the environmental and political process because they put enough on the table. I think that is the key. If you look at what is now being considered in the international forum for noise rules, I think it is fair to say that the 10 decibel reduction in Stage 4 is not as much as can be done. We know we can do better. We know the technology is here now to do better than that. All those community people know that. If we don’t put on the table as much as we know we can do, then they’ll never stop objecting—why should they?

Fotos: And you’ll just have to convince the Air Transport Association and everybody else about that—as we all know. The last question I wanted to ask, is it generally the consensus and has it been the consensus today (because I wasn’t here this morning) that demand management techniques, whatever their form, are inevitably going to pop up at other airports in the next few years?

Randall Malin: I’ll take a shot at that, and I want to go back to your first question, too. Jane, you have promised that the FAA is studying 31 airports and that you are going to set benchmarks for them. I assume that report is going to say is here are a couple of airports that are beyond capacity today, and here are some that will be in trouble in the next 5 years, and here are some that will never be in trouble. We’ll see when it comes out. One of the problems—and this gets back to your first question—that many of us have here is that there are long-term solutions, there are medium-term solutions, there are short-term solutions, and there are today solutions. We run the risk of pulling a Bill and Hillary Clinton with their health care plan of trying to do everything at once and then failing and doing nothing. I’m a little bit of a sheep in wolf’s clothing in that I would be very happy if we would just run the slot program in a fair way and cleaned up some of the rules like use-or-lose it so that carriers couldn’t hide slots, couldn’t hoard them, and couldn’t baby-sit them, and were really forced to use the slots or give them up.

I would be happy to get rid of the buy/sell rule. I would be happy to prevent any two carriers from meeting privately to exchange slots. My problem with saying what I would be happy with is that someone would say, “okay we’ll give you that, Randy,” and then we have taken care of the whole problem. I think that would be a shame. As a nation, we have to address the issue that in certain airports, and I hope there will only be a handful, there simply is not enough space on the runways. In those airports, we have to do as many things as we can, and with all apologies to Debbie, I’m sorry, but not every city can have access to LaGuardia and Washington National. They can’t—they just can’t. So, somebody’s ox has got to be gored. We’ve got to gore the bigger airlines’ oxes by saying, “United—you can’t fly 40 flights a day with 737-300s and 200s between LA and San

Francisco.” But, everybody has to share the pain. Unfortunately for Jane and her staff, they have got to figure out how to make sure that pain is spread around.

At the Chamber of Commerce meeting that has been referred to 2 weeks ago, Congressman Oberstar got up and said, “I totally reject demand pricing.” Then he went on to say, “I want small city access; I want low fare new entrants—I want, I want.” It was a Christmas tree. He is the acknowledged leader of Congress on aviation matters. He just asked for 10 pounds in the 5-pound bag. He can’t have it. But, he is a politician so he can say it. We’re not. We’ve got to figure out how to make it work. So, I hope what we will do is address many issues, both the short term and the long ones.

One of the reasons that new entrants have screamed so much about the slot program over the past 30 years and small cities scream so much is because their perception is that the program has been skewed in favor of American and United. That is what they see. Right or wrong, that is how they feel about it. So, there are lots of pieces of this that have been to be addressed at the same time.

I personally think noise is not important. I moved to Old Town, Alexandria in 1980. I lived there for 16 years, directly under the flight path. When I moved here, some guy named Malin was in charge of scheduling for USAir and we had BAC-111s, which frankly made the Concorde sound quiet. In those days you had BAC-111s and Eastern’s old 727 fully loaded shuttle airplanes going over your house 15 years later when they were all 757s and MD-80s and 737-300s—it was terrific. I guess Jim Wilding has left [the room], but I think he would tell you that noise complaints have gone up—not down—and there hasn’t been any increase in frequency over those 15 years. So, to me, until you have zero noise, you’re never going to solve that one.

Jim Crites: I would have appreciated if we could have arranged for an airline to be on the panel today. I know that might have been a challenge, but there is a strategy out there that we call the hub and spoke that right now, given the competing markets, frequency is king, service to all is king. We’ve heard about that. It has driven a situation, in particular, for Bill DeCota at LaGuardia, where the issue, as we pointed out earlier, people aren’t the issue yet. The number of passengers aren’t the issue. It is the number of planes they are trying to get into LaGuardia.

We have heard about gauge changes and things of this nature. What we are proposing is that we do pricing to change behavior. Wherein today, even with all of the hue and the cry from the public about delays and that, the airlines are saying, “I really am not in a position to change the paradigm on how we do business, how we offer our product to the public.” The reason why I’m saying this is when you get into pricing, in my mind—I would love to have the economists give a guess at this—but I would love to get a glimpse at what that pricing is going to have to be to get to the point where you’ve done something to change behavior, to change the number of operations. I think that is going to be an enormous fee—I really do. I think it is going to have an adverse effect on the business economy because now you have to pass it on to the consumer and things of that nature. I’m very concerned about that. But, when you look at the amount of money I think it is going to take to decrease operations to radically change a behavior of the air carrier industry, that is a lot of money we’re talking about. And, I think we have to get a glimpse of that, and then go to what Scott indicated earlier. What are we going to do with that money? Where I see that as a plus up is that there are capacity issues that we need to be able to fund. We are going to get into that in the next two sessions. This could be a

source of that, because I think if you say we are at capacity today in the year 2001, we have a lot more growth that I think is going to occur in the United States that we have to find some solutions. It may be we're changing a paradigm of how the product is offered to the public, but in pricing, that is a lot of money we're talking about. We're talking about an enormous pool of cash here that is going to be generated in order to motivate the right behavior.

Lewis: Let me just respond to that very briefly with a point that I wanted to emphasize throughout today which is that it all depends on local circumstances. In some airports, it might be quite significant. You heard one reference today that under some circumstances the landing fee might go up 10 times. At other airports, it might simply be restructuring the existing landing fee to move from a weight-based fee to an operations-based fee without changing the total amount paid for landing fees at all. If you're trying to alter the behavior of airlines providing redundant service in small aircraft with marginal load factors, the price signal may not need to be very large. But, if you are trying to alter airline behavior in flying large aircraft loaded at 80 percent with expense account executives, then the landing fee might need to be very large. It is going to be very different from one airport to another. In fact, there have been many studies of airports that have shown that some airports could address this without creating any new revenue whatsoever. So, you shouldn't be assuming that at all airports you're talking about an enormous infusion of new revenue because that is not justified by the economic facts.

Murphy: Can I add to that also that we may not be talking about having to shift an enormous amount of service. We may only have to move some service on the margin to have a significant impact on delay. But, if we can move two or three flights out of a 5 p.m. slot time, it can have an enormous impact. I just want to agree with Scott.

Lewis: I should underscore that point. A number of people have done studies of the relationship between capacity and demand and delay. I'm not the right one to speak. Professor Odoni is here, and Mr. Sinha and others are the real experts on this. But, all of those studies show that it is very sensitive to marginal changes in the number of operations at an airport. So, you're not trying to reduce the total number of flights by 50 percent. You may be trying to reduce it by 5 or 10 percent.

Malin: One other thing if I may, Jeff. In my prepared remarks, I talked about what I consider the desirability of the FAA establishing a template for what is going to happen in the future. Let me just explain what I mean. Airlines are airlines, and they're going to continue to do whatever they can get away with. They're going to try to squeeze in as many flights as they possibly can. But, they also have long-range planning requirements that deal with fleet planning—what airplanes you're going to buy for the future. It seems to me that is very important and only fair to the airlines that we establish what kind of policy is going to govern congested airports in this country. As has been mentioned here many times today, if up-gauging is an admirable objective, then we need to send that message to the airlines. They're all out buying RJs, and what we really want them to do is buy bigger and bigger airplanes.

At USAir, I had a fleet of both 737-300s and 737-400s. There was only 18 seats difference. It doesn't sound like a lot, but if you have 40 flights a day at LaGuardia, 18

seats on every flight, 365 days a year, you're talking about lots of capacity. That is how you handle passenger growth without handling airplane growth. But, we need to tell people how it's going to work in the future because this is a two-step process. We don't just implement demand pricing at every airport in America. It comes out of the FAA determining where we're going to have trouble. We have to have congestion or gridlock first, and then you implement a market-based solution.

Deborah McElroy: I appreciate the dose of reality that Claire and some of you have brought to this, and, Randy, I'm proud to say that Congressman Oberstar gave that response in response to my question. But, I guess, Scott, going to your point, clearly the airlines, as Will Ris said, are not happy with the state of affairs we are in. We don't like inconveniencing our passengers, and that is why we have attempted to add en route time so we have better schedule integrity, even though it is really a sham. I worry that you're asking us in a way to buy a pig in a poke. Randy mentioned the fact that the slot rules were interim. The idea that demand management through a pricing mechanism might ultimately lead us to more capacity. In your discussions with the airports, have you thought about a way to broker that, a quid pro quo if you will, that if you were to do this, there would be a definable benefit to the airlines so that perhaps they might agree to that knowing that it was truly a short-term position rather than the 20-some years we have had slots?

Lewis: Let me respond to that a couple of different ways. The first is that I don't think it is our assumption that it is a short-term solution. It is a short-term solution only to the extent that you believe that new capacity can be constructed. If you're envisioning an airport like LaGuardia, some form of demand management is not a short-term solution. The demand for that airport can only be assumed to grow forever essentially. If the capacity of the airport doesn't grow, some form of demand management is inevitably going to have to remain in place. So, I don't think this is being offered as a short-term solution.

When you talk about quid pro quo, it is kind of complicated. But, one of the things that certainly we have looked at hard—and will be looking at various airports now—is the cost to the airlines of the delay that they encounter and the benefits that airlines themselves achieve when airports are run more efficiently. That won't satisfy the communities that no longer get served. But, the reality is that there are a lot of costs associated with congestion and delay that airlines bear. You know that, and your clients know that. Airports that run more efficiently—that avoid extreme conditions of congestion and delay—actually save the airlines a lot of money.

McElroy: So, it is fair to say that the increased capacity is not, in most of those cases you're talking about, at all linked with the demand management...

Lewis: It can be. Again, this is yet another illustration of the importance of thinking about local circumstances. There are some airports where demand management is seen as bridging a situation of unacceptable congestion now, until a time that new capacity can be brought online—a new runway, new technologies. Other airports, and LaGuardia may be a good example of this, are where—while there may be some marginal improvements in technology that increase the airfield capacity—there isn't going to be a new runway

built there. So, congestion, pricing, or some other method of demand management at an airport like LaGuardia (and there are others like LaGuardia where new runways are unrealistic) shouldn't be seen as a bridge to something else. They are seen as a way of allocating—over perhaps a long term—scarce resources efficiently.

Barrett: I think in theory that might be true. But, my sense from knowing airports is that at any airport where it is possible physically to expand the capacity, that would be their inclination. I can't imagine many airports who would take on demand management as a permanent solution if they could, in fact, built a runway. There may be such an airport, but I certainly haven't encountered it.

Belinda Hargrove: I'm Belinda Hargrove from TransSolutions. I want to take this in a little bit different direction. First of all, I want to say that I like competition. As a member of the paying, flying public, and the owner of a small business, I know the effects of that on my pocketbook. But, if you look going back to the connection hub situation, between Phoenix and Boston—I didn't look this up—but I venture to say there are probably 10 ways to get there. You can connect through Denver, Minneapolis, O'Hare, St. Louis, Detroit, Pittsburgh, Cincinnati, Atlanta, DFW, or Houston. Now, not every connection pair is going to have that same option, because you don't have the same geography. But, going back to the Des Moines example, from Des Moines to Boston you probably have six connecting hubs, six airlines you can choose from. If we go back to this whole airline merger thing that is being talked about, couldn't that potentially reduce—they could change their whole way of scheduling their whole flight operations. This isn't going to be a fix for this summer. We know that. But, instead of having six options between Des Moines and Boston, you may be down to two or three options. I don't know what American Airlines might do if they merge with TWA, but would they keep both Chicago and St. Louis open? Would they have the same sort of operations between both of them? That might be a way of most of the airlines doing some of their own demand management and some of the up-gauging. That may be a "pie in the sky" idea that would never happen, but it may be something we need to think about as an offshoot of airline mergers and consolidations— instead of just looking at the negatives of it.

Shane: You think that mergers and consolidation could produce some relief in terms of capacity?

Hargrove: I think they will change their way of scheduling. Right now, one of the reasons why there are eight options to get from Des Moines to Los Angeles before 7 a.m. is because those airlines are trying to get their aircraft back to their main hub operations for their early morning things. That is why there are so many options before 7 a.m. It is not that there is a demand for that many people to get there before 7 a.m.

Shane: Well, we probably ought to tell the Justice Department.

Malin: I actually don't think that is a worry. I was saying to Pat earlier today, it is conceivable that the consolidation of airlines might help the delay situation. It is conceivable—not necessarily probable. The idea that the airlines are going to reduce scheduling options as a result of the consolidation, unless they are in the same nonstop

city pair, is not, in my opinion, going to happen. Airlines worship the shrine of something called the S-curve, which says the more frequency you have, the more market share you get. American will now have three hubs to route people from a point in the east to a point in the west. They are going to cover more times of day and offer more options for the traveling public than they did when they could only route them over Dallas/Ft. Worth and Chicago. So, I don't see this is going to be cutting back frequency. I think the only thing that is going to cut back frequency is if somehow market conditions or congestion pricing force them to use bigger airplanes.

Shane: Let me put it in the context of competition policy—at least what we know about competition policy likely to be applied to these proposed mergers. Randy is right—where you're likely to see some cutting back of schedules is where the two merged carriers have overlapping operations. But, it is precisely in those situations that the Department of Justice will insist that there be replacement service—that there be a competitor—which is why you would expect American to come in on top of the combined United/USAirways in a lot of their overlapping markets. So, you're not going to get, I think, any plus from the mergers in terms of the capacity issue.

Malin: To put a real-world answer on it, and again I apologize for using personal history here, but when USAir acquired Piedmont, the first thing we did was expand the number of frequencies to Piedmont's Charlotte hub—flying from USAir's strength into the Charlotte hub. That is what we did.

David Stempler: David Stempler again from Air Travelers Association. This is mostly just a point of information and it goes to Jim McKenna's point having to do on the environmental issue that you were talking about, and relating it just to noise. What I learned about 15 years go, which was a surprise to me, is that it is not just noise, but people have an anxiety about airplanes going over their heads. The larger the airplane, the more anxiety they have. So, even if you do reduce noise, it is still a problem. They still see those things. Imagine a 747 coming up the Potomac River if you're taking off from National Airport. They don't really describe this much, but they think it is going to fall out of the air, and it really is of concern to them. So, we could solve all of these noise things and do a lot, but you're still going to have the same environmental difficulties. So, it is broader than just noise is the point I'm trying to make.

Shane: Maybe I'm talking about a different breed of cat, but if you go down to the end of the runway at National, on the bike trail right on the other side of the river, you will find bikers and joggers just about any day of the year just watching those airplanes skim the tops of their heads. The noisier the better. This is not a response to any question in particular. It has always fascinated me how many people are out there.

McKenna: Jim McKenna again. Mr. Sinha did an excellent job this morning of dissecting delays. Since then, we seem to have focused largely on the concrete side—the airport side—in demand management. Maybe I've missed this, but how does demand management on the airports address the fact that the air space system is saturated to the point where five airplanes over the expected limit in the Newark sector affects 250 aircraft throughout the country inside of 20 minutes. So, the question is what does

demand management do to solve the air space saturation problem, and if it doesn't address that, then what do we do to address the air space saturation problem?

Malin: From my point of view, there are two separate but related issues. Today's session was primarily focused on concrete. But, if we could magically do away with all the ATC problems, we would still have the problem of congested LaGuardia and Washington National. Conversely, if we could magically create four more runways at LaGuardia, we would still have the ATC problem getting planes into the New York air space. So, they are both part of the problem, and very often our politicians and the public don't distinguish between the two. What many people have said here today is that solving the concrete problem inevitably comes down to the local political will. Jane, you said that, and, Claire, you said that. You cannot solve the concrete problem from the federal level. You've got to have local support. But, Jane has to deal with both the federal and local levels. That is why I said a few minutes ago that there are several issues that have to be worked on simultaneously, and if we try for the homerun that will encompass everything, including consumer protection, we're never going to get anything.

Crites: [inaudible] point out in talking about demand management today. The FAA, a number of years ago implemented demand management in that they decided to take the delays on the ground and not in the air. So, a case in point, when I was in Dallas last night trying to fly up here, there is a fixed amount of capacity available during IFR conditions into Washington Dulles. So, we sat on the ground for 3 hours so we could obtain a slot to land at Washington Dulles. The issue, I think, is that through pricing runways at the destination, you're still going to sell the trip. The point is we have already—as Jane landed 40 minutes early at midnight in DFW during Y2K because nobody else was in the sky—all that blocked time wasn't there anymore. I sat 3 hours on the ground because we already have a demand management system in effect. We have limited arrival and departure capacity at the airports. The ATC runs that. They do a very good job, at least in my opinion, in terms of landing and taking off airplanes. But, when you go into pricing, I know that American Airlines paid for everybody to get cab fares back to Reagan Airport because Reagan was closed and we had to land at Dulles. But, there was enormous costs for displaced passengers and all that. There are a lot of costs there. I think as you go forward for pricing, realize we already have a demand management system in place. You're asking for another demand management system in the hope that it is going to change behavior. I'm just going to beat the dead horse and say I think it is going to be a high price threshold that you're going to have to get to to really truly change behavior.

Murphy: Jeff, can I just set the record straight. Jane always arrives 40 minutes early, whether it is Y2K or not.

Shane: I want to just react to that point, which is to say that flow control is a fact of life and thank heaven it is or we would all be in jeopardy up there. We are not in jeopardy because of flow control. The issue I think that we're really trying to address today is how can we keep flow control from having to keep you on the ground for 3 hours? That is going to take demand management. So, it is fair to say that it is a kind of demand management because you know that you're going to be on the ground for 3 hours, and so

maybe you'll decide that you don't demand the flight as much as you might otherwise demand it. But, I don't think that is what we have in mind. I think we are talking about an economic rationalization of the use of this scarce capacity such that flow control, which is always going to be there, does not have to produce the kinds of results which were experienced last night.

Malin: I'm not sure I agree with you. Flow control came out of the PATCO strike. Before the strike, we used to just circle in the air. Then, when we didn't have enough controllers, that is when we issued flow control. I have a question for Jane. About 2 years ago, we started calling ground holds "ground stops." My question is, where else would you stop an airplane?

Shane: Well, I think we have had a great day. I want to congratulate the organizers, both the TRB and FAA who pulled together a superb group of presenters. Every one of them has added enormous value, as you know. Never has the moderator's job been easier than today.

I want to thank the FAA for inviting me to be the moderator. I also want particularly to thank Jane Garvey for being here throughout the day because it gives us all hope that, in fact, this was not just another meeting. Jane, would you like to say a few words in closing the conference?

Shane: This is the close. Thank you, everybody.

APPENDIX

AGENDA

Aviation Gridlock: Understanding the Options and Seeking Solutions Phase 1: Airport Capacity and Demand Management

10 a.m.–3 p.m.

Lecture Room, The National Academies

2101 Constitution Avenue, NW

Washington, D.C.

1. Introduction and Framing 10–10:30 a.m.

Jeffrey N. Shane, Hogan and Hartson

Jane F. Garvey, Federal Aviation Administration

2. Understanding Airport Delay and Congestion

Moderator: *James A. Wilding*, MWAA

Panel Presentations 10:30–11 a.m.

- **Anatomy of a Delay:** *Agam N. Sinha*, Mitre Corporation
 - **Airline Scheduling:** *Joel Antolini*, Airline Planning Group
 - **Customers' View:** *Kevin P. Mitchell*, Business Travel Coalition
- [Editor's note: The order of the panel presentations was changed during the conference so that Customers' View was presented before Airline Scheduling.]

Question and Answers 11–11:30 a.m.

Moderator: *Jeffrey N. Shane*

3. Demand Management Options

Moderator: *Frank Berardino*, GRA

Panel Presentations 11:30a.m.–Noon

- **Background:** *Frank Berardino*, GRA
- **Market-Based Solutions:** *Steven A. Morrison*, Northeastern University
- **Administrative Solutions:** *William R. DeCota*, Port Authority of New York and New Jersey

Questions and Answers Noon–12:30 p.m.

Moderator: *Jeffrey N. Shane*

Lunch 12:30–1:30 p.m.

**4. Challenges in Adopting New Demand
Management Strategies**

1:30–2:30 p.m.

Moderator: *Patrick V. Murphy*

Panel Presentations

1:30–2 p.m.

- **Operational Challenges:** *Randall Malin*, Malin and Associates
- **Legal Challenges:** *Scott P. Lewis*, Palmer and Dodge
- **Political Challenges:** *Claire Barrett*, CBA and Associates

Question and Answers

2–2:30 p.m.

Moderator: *Jeffrey N. Shane*

5. Final Discussion and Summary

2:30–3 p.m.

Jeffrey N. Shane

APPENDIX

Biographical Summaries

JOEL ANTOLINI

Airline Planning Group

Mr. Antolini is a Vice President with the Airline Planning Group (APG). He has 12 years of airline experience, and has directed both strategic planning and marketing departments.

Before joining APG, Mr. Antolini led USAirways' domestic planning department, where some of his major projects included the overhaul of the carrier's MetroJet network, a major Caribbean expansion, and the rationalization of the airline's 400+ departures at Washington–National, Washington–Dulles, and Baltimore International airports.

Most recently, Mr. Antolini was USAirways' Director of Marketing, where he focused on the maximization of passenger revenue through tactical strategies. Most notably his work involved the creation of a department to optimize USAirways' direct marketing efforts and the restructuring of the airline's tactical marketing process to better incorporate the advertising, sales, frequent traveler, and pricing departments.

While at USAirways Mr. Antolini also led numerous multi-departmental task forces on a wide variety of topics.

Mr. Antolini holds a Masters in Business Administration degree in Marketing from the University of Maryland's Robert H. Smith's School of Business. He received a Bachelor of Arts degree in Philosophy from Hamilton College.

CLAIRE BARRETT*Claire Barrett and Associates*

Claire Barrett is Principal of Claire Barrett and Associates in Cambridge, Massachusetts, specializing in communications, community and public affairs, marketing, and strategic planning for transportation companies and projects.

Claire Barrett and Associates works for airports all over the country primarily on planning and environmental issues. Clients include Sea-Tac and Boeing Field in Seattle; San Francisco; Portland, Oregon; Albuquerque, New Mexico; Hartford, New Hampshire; Milwaukee, Wisconsin; Northwest Arkansas; Palm Beach, California; and New Orleans, Louisiana. A brochure for the Airports Council International–North America on their international noise abatement policy has been distributed to airports internationally.

In addition to airport work, Claire Barrett and Associates is involved with transit and ITS projects for the Massachusetts Bay Transportation Authority (MBTA) in Boston and the U.S. DOT Joint Development Office. Having previously worked in noise abatement, marketing, and strategic planning at Boston Logan International Airport, as Director of Public Affairs for the Central Artery/Tunnel, and as the first woman board member at MBTA, Claire represents a truly “intermodal” perspective on transportation.

Claire served two terms as President of the Women’s Transportation Seminar (WTS) Boston Chapter, one term each as Public Relations Chair, editor of the national newsletter, and Membership Chair for WTS National. In 1997, Claire was named WTS National Member of the Year. She is also President of Move Massachusetts, a regional transportation and infrastructure advocacy group.

Claire holds a Master’s Degree in Art History from New York University Institute of Fine Arts where she was the recipient of a Woodrow Wilson Fellowship for graduate study and a Bachelor’s Degree from Vassar College. She has two sons, one artist and one writer.

FRANK BERARDINO*GRA*

Frank Berardino is the President of GRA, with 25 years of professional consulting experience. He has expertise in strategic and market planning for airlines, airports, air traffic control systems, and railroads. Many of Mr. Berardino's assignments relate to financial transactions or reorganizations; he has worked in every major region of the world including the Americas, Asia, and Europe

Mr. Berardino has directed several airline acquisition or divestiture engagements for major airlines in the United States and overseas, including the privatization of Philippine Airlines and the reorganization of Hawaiian Airlines, Air Lanka, and Air Asia. These engagements involved developing financial, operational, and marketing plans and valuation for the purpose of recapitalization.

Mr. Berardino has participated in code share negotiations with over 20 airlines in all regions of the world. He has expertise in the valuation of alliances and mergers utilizing GRA-proprietary network planning models. He also has pioneered the application of option pricing methods to the valuation of alliance contracts.

His recent airline clients include TWA, British Airways, Federal Express, Air Lanka, Air Asia, Olympic Airlines, Aeroflot Russian International Airlines, and LOT. He has also worked for several financial intermediaries (including the World Bank and International Finance Corporation) and investor groups.

Other recent projects managed by Mr. Berardino include analysis of the pricing of airport service, advising the FAA, DOT, and other government agencies on alternative policies to allocate airport slots, privatizing airports, improving airport financial performance, and examining the implications for U.S. manufacturers of trends in the airline and aircraft manufacturing industries. He has also helped the FAA modernize its approach to capital budgeting and benefit-cost analysis.

Mr. Berardino has testified as an expert witness in several legal cases and regulatory proceedings, including cases involving the establishment of landing fees, maximum allowable rates for traffic dominated by a single railroad, the damages incurred by a firm foreclosed from transportation markets, and the rights of airlines to purchase repair services overseas. He has also authored several papers on the pricing of services produced by regulated industries and government enterprises, on governing multi-carrier alliances and on the use of option pricing in valuation.

Mr. Berardino is a member of the American Economic Association, the Transportation Research Forum, and the Transportation Public Utilities Group. He has a Bachelor of Arts degree in economics from Kenyon College and a Master of Arts in economics from the University of Pittsburgh.

WILLIAM R. DECOTA*Port Authority of New York and New Jersey*

William DeCota was appointed Director of Aviation in December 1999 for the Port Authority of New York and New Jersey. He leads a career staff of nearly 1,000 employees for the management of Kennedy International, Newark International, and LaGuardia Airports, which together comprise the world's largest aviation system, as well as Teterboro and the Downtown Manhattan Heliport. Previously, he served as Deputy Director of Aviation, Assistant Director for Business and Properties, as well as Manager of Business and Financial Services for the Aviation Department.

Mr. DeCota joined the Port Authority of New York and New Jersey as a Junior Financial Analyst in the Financial Planning and Analysis Division of the Comptroller's Department in 1982. He has a varied educational background, including studies in architecture at the University of Virginia, and pursued a Doctorate in Finance and Accounting at the University of North Carolina, Chapel Hill. He holds a Bachelor's Degree in Finance from the University of Mississippi, and an MBA with a concentration in corporate financial management from the University of Georgia.

Prior to joining the Port Authority, Mr. DeCota was a business analyst for Dun and Bradstreet, responsible for analyzing the financial position of small businesses located in the New York metropolitan region. He also had some experience teaching both finance and accounting at the graduate level.

Bill has been invited to speak at such forums as international planning and airport finance conferences, and is the author of several speeches and papers on these topics. He is a former Chair of the Finance and Administration Subcommittee of Airports Council International.

Mr. DeCota resides in Old Bridge, New Jersey.

JANE F. GARVEY
Federal Aviation Administration

Jane F. Garvey, the 14th Administrator of the Federal Aviation Administration (FAA) was sworn in August 4, 1997. She is the first Administrator confirmed by the Senate to a 5-year term. With an outstanding career in public service and extensive administrative experience, Garvey brings to the FAA a strong commitment to ensure the world's safest skies become even safer.

As Administrator, Garvey manages a 49,000-person agency with worldwide impact and presence in promoting aviation safety and security. The FAA regulates and oversees aviation safety and security, conducts cutting edge research and development, and operates the world's largest air traffic control system.

Administrator Garvey initiated *Safer Skies*, the U.S. aviation community's safety agenda, which focuses the agency's resources on taking the actions that safety data and analysis indicate can make the biggest difference in lowering the accident rate. She led the successful transition of the FAA's air traffic control system to January 1, 2000, with no disruptions to service. In addition, the FAA provided world leadership on Y2K transition. Under Administrator Garvey's leadership the FAA is moving forward on its phased plan to modernize the air traffic control system and has, for the first time, achieved government and industry consensus on how to proceed. To bring immediate modernization benefits, she initiated the Free Flight Phase 1 program under which the FAA reached consensus with the aviation community to deploy five specific technologies by the end of 2002.

Prior to being named FAA Administrator, Garvey was Acting Administrator of the Federal Highway Administration (FHWA). She served as Deputy Administrator of FHWA from April 1993 until February 1997. FHWA, also an agency of the U.S. Department of Transportation, has an annual budget of \$20 billion and works in partnership with the states to maintain the safety and efficiency of the nation's roads and bridges. A creative leader at FHWA, Garvey chaired FHWA's Innovative Financing Initiative, which resulted in more than \$4 billion in transportation investment in more than 30 states—projects that in many cases would not have otherwise been built.

Before joining FHWA, Garvey served as director of Logan International Airport, one of the nation's busiest aviation facilities. From 1988 to 1991, she was Commissioner of the Massachusetts Department of Public Works. Before that, Garvey was Associate Commissioner in the Massachusetts Department of Public Works, where she directed construction activities and developed environmental initiatives.

Garvey holds degrees from Mount Saint Mary College and Mount Holyoke College. She has participated in the Fellowship Program for Public Leaders at Harvard University.

SCOTT P. LEWIS*Palmer and Dodge*

Scott Lewis is a partner in the Boston law firm of Palmer and Dodge, where he specializes in the representation of airport owners. He was trained as an economist at Yale College and as a lawyer at Harvard Law School. Scott is the Chair of the Palmer and Dodge Airport Group and a member of the firm's Executive Committee.

Scott represents airport owners throughout the country on a wide variety of rates and charges issues, revenue diversion questions, airport–airline agreements, environmental matters, and airport financing. Scott has been involved in many important lawsuits raising issues about the scope of airport proprietors' rights, and he has been working on issues of airport congestion pricing and demand management for more than 15 years. Scott is currently serving as special outside counsel to the Port Authority of New York and New Jersey in connection with demand management initiatives at LaGuardia Airport.

RANDALL MALIN*Malin and Associates*

Randall Malin's 31-year career in the airline industry encompassed 20 years at American Airlines (1961–1980) and 11 years at USAir (1980–1992). From 1992 to 1996 he was an independent air transportation consultant. In 1996 he was elected president and CEO of TravelNet, Inc., a Silicon Valley, venture capital-funded company that developed and marketed software for corporate travel management. He subsequently sold the company to Reed Travel Group for whom he worked as general manager of the TravelNet division until 1998. He then returned to air transportation consulting as principal of Malin and Associates. During 1999 he was a member of the National Research Council committee that studied U.S. airline competition at the request of Congress and the Department of Transportation.

Malin graduated magna cum laude from Dartmouth College in 1959 and earned his Masters of Business Administration from Dartmouth's Tuck School of Business Administration in 1960. Malin's early years at American were spent in the finance and planning departments. During 1967–1968, he served as assistant to the president. He moved into the marketing department in 1968 and in 1970 became vice president of resource planning responsible for schedules, pricing, and traffic analysis. From 1975 to 1980 he was vice president of sales and advertising, which included the responsibility for American's relationship with the travel agency and corporate travel communities. This period coincided with the introduction of computer reservations systems (CRS), and Malin had overall direction of American's Sabre CRS marketing effort during the first 5 years of the program.

Malin joined USAir in 1980 as senior vice president of marketing. He was named executive vice president of marketing in 1983 and vice chairman of the board of directors in 1989. At USAir Malin was responsible for scheduling, pricing, consumer affairs, frequent traveler programs, reservations, yield management, ground and inflight services, sales and advertising, management information systems, and the USAir Express division. As the chief marketing and planning officer, he was a key participant in USAir's fleet planning and merger activities, and was intimately involved in USAir's acquisition and integration of PSA and Piedmont. During Malin's years at USAir, the company grew from a regional airline with 90 airplanes and \$850 million in revenues to a major carrier with 450 airplanes and \$6.5 billion in revenues. After USAir became a part owner of the Covia (Apollo) CRS, Malin was USAir's representative on the Covia Board of Directors.

While at American and USAir, Malin was involved in a wide variety of regulatory matters and testified frequently at Civil Aeronautics Board, Department of Transportation, and Congressional hearings. During 1974–1975 he was American's spokesman on airline deregulation and testified several times before committees of Congress. Malin is well known in the travel community having appeared often before travel agent and corporate travel audiences. He served on the Board of Trustees of the Institute of Certified Travel Agents from 1979 to 1989, and in 1988 he received the Allied Member Award from the American Society of Travel Agents. Malin was chairman of the Board of Directors of the Airline Tariff Publishing Company from 1981 to 1989.

KEVIN P. MITCHELL
Business Travel Coalition

Kevin P. Mitchell is a graduate of Saint Joseph's University in Philadelphia, where he received a Bachelor's Degree in International Relations. Mitchell worked for CIGNA Corporation for 12 years where as Vice President, Human Resources and Services, his responsibilities included:

- Corporate Travel
- Corporate Aviation
- Meetings and Incentives
- Event Marketing
- Corporate Safety
- The Eagle Lodge Conference Resort

With support from CIGNA and 16 other major corporations, Mitchell formed the Business Travel Contractors Corporation (BTCC) in 1994, a corporate buying group, to advance fundamental reforms to the airline industry distribution system. The broad industry shift to net airfares and travel agency fee-based pricing is due in large part to BTCC's efforts.

In 1996, Mitchell formed the Business Travel Coalition (BTC), an advocacy group whose mission is to reduce the long-term cost structure of business travel through increased airline industry competition levels. BTC participants include Black & Decker, DaimlerChrysler, General Motors, Lockheed Martin, Procter and Gamble, and Zeneca.

As Chairman of BTC, Mitchell writes and speaks on airline competition and industry issues, and frequently testifies before the U.S. Congress regarding airline deregulation issues. A major priority for BTC has been to support the U.S. DOT's proposed Competition Guidelines.

Mitchell was recognized by Business Travel News as one of the 25 most influential travel industry executives for 1994, 1996, and 1997, and was designated Man of the Year in 1998 by the Commercial Travelers Association and designated Person of the Year for 1998 and 1999 by *Travel Agent* magazine.

STEVEN A. MORRISON*Northeastern University*

Steven A. Morrison is Professor and Chair in the Department of Economics at Northeastern University. He is also the Managing Editor of the *Journal of Transport Economics and Policy*, published by the London School of Economics and the University of Bath. During 1998–1999 he was a member of the Congressionally mandated National Academy of Sciences’ Transportation Research Board Committee for a Study of Competition in the U.S. Airline Industry. Before coming to Northeastern in 1982, he was an Assistant Professor at the University of British Columbia. He has also held visiting positions at Harvard, MIT, the London School of Economics, and the Brookings Institution. Morrison is the author of numerous articles on transportation economics and air transportation and he is co-author (with Clifford Winston) of *The Economic Effects of Airline Deregulation* (1986) and *The Evolution of the Airline Industry* (1995), both published by the Brookings Institution. He has written many op-ed pieces for newspapers and has testified before Congress on airline competition matters on numerous occasions. Morrison received a Bachelor of Arts degree in Economics from the University of Florida and a Ph.D. in Economics from the University of California at Berkeley.

PATRICK V. MURPHY, JR.
Gerchick-Murphy Associates

Patrick V. Murphy, Jr., is a partner in the consulting firm of Gerchick-Murphy Associates of Washington, D.C., where he provides consulting services on domestic and international aviation and transportation matters. Clients include passenger and cargo airlines as well as airports and municipalities.

Prior to joining Gerchick-Murphy Associates in September of 1999, Mr. Murphy served for 12 years as the U.S. Deputy Assistant Secretary of Transportation for Aviation and International Affairs. He also served as Acting Assistant Secretary for 2 years. At Department of Transportation, Mr. Murphy was responsible for a wide range of transportation issues with primary emphasis on commercial aviation. Mr. Murphy supervised the airline regulatory decisions of the Department and served as the decision-maker in selecting U.S. carriers to serve new international routes. He also directed U.S. negotiations of international aviation agreements. Mr. Murphy also supervised matters involving domestic air service. He testified before Congress on numerous occasions on domestic aviation issues ranging from airline competition to service to small communities.

Murphy joined the DOT in January of 1985, after serving at the Civil Aeronautics Board (CAB) since 1971. At the CAB, Mr. Murphy held several key positions, including that of Associate Director of Bureau of Domestic Aviation and Chief of Essential Air Services Division.

While in government service Mr. Murphy received numerous awards including, the 1998 Meritorious Executive Award and the 1993 Distinguished Executive Award from President Clinton. In 1990, he was awarded the Meritorious Executive Award by President Bush and he has received the Secretary of Transportation's Silver Medal Award. The Department of State and the Department of Justice Antitrust Division have also made special awards to Mr. Murphy.

Mr. Murphy was twice named by *Business Travel News* as one of the 25 most influential executives in the travel industry.

Mr. Murphy graduated cum laude from Syracuse University with a B.S. in Business Administration, and from American University cum laude with an M.B.A. in Business Administration.

Mr. Murphy is a Vietnam veteran. He received a medical discharge for combat injuries in 1969 with the rank of captain. He was awarded both the Bronze Star for Valor and the Purple Heart while serving with the 101st Airborne Division as an infantry platoon leader in 1968. Mr. Murphy was born and raised in New York City. He is married and has three children.

JEFFREY N. SHANE*Hogan and Hartson*

Jeffrey Shane is a Partner in the Washington, D.C., office of Hogan and Hartson and a member of the firm's Aviation Group. Mr. Shane has a domestic and international transportation practice, with an emphasis on regulatory, legislative, and transactional issues in aviation and aerospace.

Prior to entering private practice, Mr. Shane enjoyed a long public service career. Among other posts, he was Assistant Secretary of Transportation for Policy and International Affairs (1989–1993) and Deputy Assistant Secretary of State for Transportation Affairs (1985–1989).

AGAM N. SINHA
MITRE Corporation

Dr. Sinha is the Director of Air Transportation Systems (U.S. FAA Projects) and Regional Director of The Americas (International Projects) at the Center for Advanced Aviation System Development (CAASD). On the FAA projects, his responsibilities include Free Flight, National Airspace System (NAS) performance and Spring/Summer 2000–2001 projects, as well as providing strategic guidance on research, engineering, and operational aspects of all projects. As the Regional Director, he is responsible for all international projects in the Americas. Current international projects include Canada, Brazil, Argentina, Mexico, and Panama.

Since joining MITRE Corporation in the early 1970s, Agam has worked extensively on several FAA projects dealing with engineering the evolution of the NAS, en route and terminal area operations related to airport and airspace capacity, wake vortex, Air Traffic Control (ATC) automation, and weather systems. He has participated in many industry task forces dealing with the problems of the major U.S. airports. He has also been involved internationally in supporting other governments on airport, terminal area operations, and ATC system design and acquisition. In addition, he has managed several projects in support of the National Oceanic and Atmospheric Administration in weather and satellite systems.

Agam holds a Ph.D. (1974) and a M.S. (1970) in Operations Research from the University of Minnesota. He also has a M.S. degree in Management of Technology from The American University (1985). His bachelor's degree (1968) is in Mechanical Engineering from the Indian Institute of Technology, Bombay, India.

JAMES A. WILDING
Metropolitan Washington Airports Authority

James A. Wilding is the President and Chief Executive Officer of the Metropolitan Washington Airports Authority, the independent authority that operates Ronald Reagan Washington National and Washington Dulles International Airports.

Mr. Wilding was born on December 22, 1937. He is a graduate Civil Engineer and he joined the Federal Aviation Administration (FAA) in 1959 to participate in the original planning and development of Washington Dulles International Airport.

Following the opening of Dulles in 1962, he held progressively responsible positions in all phases of engineering for the two federally owned airports, eventually becoming the organization's Chief Engineer. He served as Chief Engineer until becoming the Airport's Deputy Director in 1975, and then the Director 4 years later.

Mr. Wilding served as the Director of the FAA's Metropolitan Washington Airports organization from December 1979 until the June 1987 transfer to the new Airports Authority when he assumed the President's position that he now holds.

While serving in the FAA's Senior Executive Service, Mr. Wilding won several Presidential and Department of Transportation Awards, including the Secretary of Transportation's Gold Medal, the highest award in the Transportation Department.

Mr. Wilding has served as the Chairman of the Airports Council International–North America, on the board of directors of the regional organization and continues to serve on the board of its worldwide parent based in Geneva, Switzerland. He has served as the President of the Aero Club of Washington and continues to serve on its Board of Governors.

Mr. Wilding serves on the Board of Directors of the Travelers Aid Society of Washington and has chaired the United Way Campaign of Arlington County Virginia. He is a member of the Economic Development Commission of Arlington County and has served on the Board of Directors, as well as the Executive Committee of the Arlington County Chamber of Commerce. He has served on the Advisory Board of the Eno Transportation Foundation, and currently serves on the Board of the D.C. Committee to promote Washington, on both the Board of Directors and Executive Committee of the Dulles Area Transportation Association, and on the Executive Committee of the Transportation Research Board.

APPENDIX

List of Attendees

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APPENDIX

Background Information for the TRB/FAA Seminar

POTENTIAL DEMAND MANAGEMENT OPTIONS FOR CONSIDERATION

There is excess demand for airport services in comparison to the available capacity in some markets. This results in intermittent congestion and delay, most frequently in bad weather conditions. To solve the demand-capacity mismatch, both fee and non-fee mechanisms might be used to bring the system into equilibrium. With regard to the fee-based mechanisms to manage airport capacity, several variants of congestion pricing have been offered as possible solutions. Non-fee-based solutions include but are not necessarily limited to slot controls and air carrier collaborative decision-making.

The options cited below are meant to be representative and do not represent an exhaustive list of potential options.

Fee-Based Options

Congestion pricing has often been cited as a possible means to ease airport congestion. Congestion pricing is an established economic means to improve the allocation of scarce resources and is used in a number of industries (including electric power generation, distribution, and telecommunications). In the transportation sector, congestion pricing is used to manage the capacity of certain roadways and mass transit systems. Congestion pricing might be used to more effectively manage airport capacity by

1. Encouraging the use of excess runway capacity during the off-peak times,
2. Encouraging air carriers to increase the size and load factors of aircraft landing at the airport during peak times,
3. Reducing the overall amount of traffic at the airport, and
4. Provide the financing necessary to expand airport capacity. While congestion pricing could, in theory, be adopted on an airport-by-airport basis, because of the hub and spoke nature of the U.S. airport system it could also be applied on a regional or national basis.

Under the rubric of congestion pricing, there are at least two variants. Each of these variants is briefly discussed.

Peak Period Pricing

This form of congestion pricing allows the airport operator to establish a pricing schedule that takes into account the cost differences between peak and non-peak usage. Users who place a lower value on airport access would have added incentives to shift their usage to either non-peak periods or to less congested airports.

Uniform or Minimum Airport Access Fee

At the most congested airports, airport congestion is such that there are no significant peak and non-peak periods of operation. In these cases, the airport experiences some level of congestion throughout the day. By adopting either a level or minimum access fee, airport operators could seek to maximize the throughput of passengers by limiting the type of aircraft and users that could use the airport. Air carriers would be encouraged to reduce the frequency of service and increase the use of larger aircraft. Similarly, general aviation and smaller commercial operators would also reduce their frequency of airport use and also be encouraged to use secondary airports.

Non-Fee Based Options

Managing airport capacity can also be accomplished through non-fee-based methods. These methods generally are regulatory in nature or allow for airport users to coordinate their scheduling so as to minimize airport congestion and delay. Like congestion pricing these options, properly structured, could be used to more effectively manage airport capacity by

1. Encouraging the use of excess runway capacity during the off-peak times,
2. Encouraging air carriers to increase the size and load factors of aircraft landing at the airport during peak times, and
3. Reducing the overall amount of traffic at the airport.

Slot Controls

Slot control is non-fee-based strategy to limit the number of takeoffs and landings (“slots”) during high-demand periods. Because the relationship between airport demand and delay is exponential, a carefully chosen limit on operations at a severely congested airport could reduce delays disproportionately. Under this approach, carriers are awarded either permanent or temporary use of particular time slots. These awards could entail ownership of the slot and owners may be entitled to sell, lease, and/or trade them to other users. There are a variety of options for allocating slots either administratively (first-come-first-served, lottery, scheduling committee, or priority formula) or using a market mechanism (auctions or continuous market trading).

Slot controls have been employed at both the local and federal levels. Locally imposed slot rules currently exist at Westchester and Orange County, in both cases shaped and limited by court rulings. Under the High Density Rule (HDR), the FAA in 1969 temporarily designated five airports—Newark, O’Hare, Washington National, Kennedy, and LaGuardia—as high-density airports. For each airport, the rule imposed quotas on the number of slots per unit of time to govern the volume of aircraft operations. Slot quotas at Newark were suspended indefinitely in 1970 and were made permanent at the other four airports in 1973. The Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (FAIR-21) will eliminate the HDR at O’Hare in July 2002 and at LaGuardia and JFK airports in January 2007. It provides 24 additional slots per day at Reagan National Airport. It is interesting to note that while the use of slot control appears to have fallen out of favor within the United States, internationally it continues to gain in popularity as a means to effectively manage

airport capacity. Between 1990 and 1999, airports with slot controls coordinated through the International Air Transport Association grew significantly. The rate of growth over this period for fully coordinated airports grew by approximately 18 percent.

Air Carrier Collaborative Decision Making

This option would allow air carriers at congested airports to collaborate with regard to scheduling and moving passengers. Much of the delay occurring in the current aviation system is related to weather and to the sharp reduction in service capacity that occurs at key airports during periods of inclement weather. Because air carriers independently schedule their operations up to the levels of capacity that are possible even in good weather, a period of bad weather can drastically disrupt air carriers' scheduled service. A possible solution to this problem would be to allow air carriers to coordinate their departures and arrivals as well as aircraft type during periods of inclement weather so as to maximize airport throughput. Such coordination during these periods could substantially reduce passenger and shipper delay.

QUESTIONS TO CONSIDER WHEN EVALUATING VARIOUS DEMAND MANAGEMENT OPTIONS

Any policy adopted to reduce airport congestion must achieve an appropriate balance between reduced airport congestion, the promotion of airline competition, and assurance of service to small communities. Airline service is perceived as a public good—necessitating some mechanisms to ensure a basic level of service to small communities. New entry is extremely important in ensuring a competitive airline industry and the public benefits resulting from airline deregulation. The following questions are intended to help evaluate the public policy characteristics of various demand management options.

Would the option significantly reduce or resolve the congestion at a particular airport and/or the system as a whole? Is the option airport specific or is it applicable on a regional or national basis? Would the option expand supply?

- Would the option encourage the use of larger aircraft?
 - Would the option enhance airline competition in this market or in other markets?
 - What would be the effect of the option on the ability of new entrant airlines to establish a presence at an airport?
 - Would the option unjustly discriminate among users (are the impacts on capacity, congestion, and the environment sufficient justification)?
 - Is the option consistent with current regulatory/statutory requirements? If not, what changes would need to be made?
 - Would the option adversely effect aviation safety?
 - Would the option maintain adequate air transportation for small communities at the subject airport or within the metropolitan airport system?
 - Would the option create or reduce adverse environmental impact (noise or emissions)?
 - Has the option been used in other similar industries (telecommunication and utilities)?
- What has been the general outcome?

APPENDIX

General Background

CHARACTERISTICS OF THE AIRPORT SYSTEM

- The United States has more than 18,000 airports. About 3,300 of these airports are included in the FAA's National Plan of Integrated Airport Systems. Over 500 airports host commercial service operations, which are supplemented by over 300 general aviation reliever airports.
- Almost all commercial service airports are owned and operated by local, regional, or state governmental entities and operated generally independently from each other on a non-profit basis with antitrust exemption.
- While on a national basis there appears to be sufficient capacity to accommodate the aggregate demand for air transportation, there are a handful of critical airports that experience significant delays. Of the 29 large hub airports, 12 airports experiences average delays per operation in excess of 6 minutes. Such delays are primarily the result of the number of aircraft operations, passenger demand, individual airport capacities, and dynamic factors such as weather conditions and equipment reliability.
- Airports like LaGuardia and Newark had over 7.5 percent of their operations delayed 15 or more minutes in 1999. Chicago's O'Hare and San Francisco's International Airport experienced similar delays—5.48 and 4.81 percent, respectively. Of the 25 airports with the most delays, delays averaged over 40 minutes in duration. While significant delays are generally limited to a handful of airports, the resulting delays can propagate throughout the entire airport and airway system.
- Growth in the number of aircraft operations and the growth in passenger demand will likely continue to put pressure on the nation's airport and airway system. The demand for air commerce grows approximately as the rate of the gross domestic product, reflecting an increase in the demand for passenger and cargo traffic as a result of population growth and the general expansion of the U.S. economy. Air carrier operations are expected to grow at an annual rate of 2.8 percent over the next 12 years. Similarly, passenger enplanements are expected to grow at an annual rate of 3.8 percent over the same time period.

STRUCTURAL AND COMPETITIVE CHARACTERISTICS OF THE AIRLINE INDUSTRY

- The FAA typically defines aircraft operators into several different user groups: air carriers, air-taxi/commuter carriers, cargo, general aviation (GA), and military. Domestic jets, charter, cargo, international, commuter, and air taxi are generally viewed as commercial operations, while GA piston airplane, GA turbine airplane, and rotorcraft operations are generally noncommercial. Public use operations are typically defined as military or other.
- On a national basis, the four largest U.S. domestic air carriers comprise 56 percent of the domestic market. While air carrier competition is particularly strong in medium-to-long-haul markets, some believe that the short-haul markets are generally less

competitive. For certain origin-destination markets, the hubbing carrier often accounts for more than 50 percent of the market.

- The industry is characterized by significant economies of scale and scope which have increased over time.
- Historically, air carrier operating profits have been relatively modest; however, in recent years they have reached record levels, totaling roughly \$20 billion over the last 3 years.
- New airline entry has been an effective means by which to inject competition into the industry. However, for a variety of reasons, including economies of scale, new entry is costly.
- The General Accounting Office and other observers have suggested that there exist certain barriers to entry. These barriers include long-term, exclusive-use, gate-lease agreements with tenant airlines; majority-in-interest (MII) clauses, which give signatory airlines special rights to approve airport capital improvement plans; domestic/international code sharing agreements; airline marketing and distribution practices, such as frequently flyer awards and commission overrides; and slot controls to name a few.
- The air passenger industry is characterized by a mix of different operating structures, e.g., hub-and-spoke versus point-to-point carriers.
- The elasticity of demand for access to an airport at particular times of day is thought to be significantly less elastic for hub-and-spoke carriers than for point-to-point carriers.
- Given the prominence of the hub-and-spoke nature of airline service, a local delay event can quickly propagate into a system-wide problem.
- Demand for air transportation varies by destination, across the day, the week, and, importantly, across seasons. Demand for short-haul services will be highest in periods which roughly correspond to the beginning and end of business hours on weekdays; demand for international services will depend on differences in time zones and the length of flights.
- In the airline industry, enhancing a key product feature, the frequency of service offered, increases both product quality (consumer choices) and the amount of product an airline has to sell (seats or seat-miles). The importance of schedule frequency constitutes a powerful incentive for carriers to add flights.
- Dominance by a hub airline of a particular airport facility is in the commercial interest of that carrier. Dominated hubs typically have higher fares, which economic theory would suggest should attract new entrants, but only if new entrants can obtain access at reasonable rates.
- Competition in the airline industry depends on new entry and new entrant carriers have fewer resources to expend on infrastructure access.

CURRENT STATUTORY AND REGULATORY REQUIREMENTS

Certain statutory and regulatory requirements limit or restrict federal and local airport actions that might otherwise be potential tools for managing airport congestion.

“Artificial limits on airport capacity:

- Are not in the flying public’s interest;

- Should [only] be imposed to alleviate air traffic delays only after other reasonable and less burdensome alternatives have been considered, and
- Should not discriminate unjustly between categories and classes of aircraft [users],” 49 U.S.C. 47101(a)(9).

While legal requirements and policy are based on seemingly fair principles, they don’t necessarily result in efficient capacity management outcomes.

- *Section 1113 of the Federal Aviation Act of 1958* limits political subdivisions that own or operate airports to collecting “reasonable rental charges, landing fees, and other service charges from aircraft operators for the use of (public) airport facilities.” 49 U.S.C. 40116(e)(2), *the Anti-Head Tax Act*.

- *Section 511 of the Airport and Airway Improvement Act of 1982* requires public airports receiving federal funds to assure DOT that “all revenues generated by the airport, if it is a public airport ... will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities which are owned or operated by the owner or operator of the airport and directly and substantially related to... air transportation.” 49 U.S.C. 47107(b); 47133. It also requires any airport seeking a federal grant to provide an assurance that the airport will be “available for public use on fair and reasonable terms and without unjust discrimination.” 49 U.S.C. 47107(a)(1).

- *The Airline Deregulation Act of 1978* generally relinquished governmental economic regulation of airline operations. Airline managements are free to decide which airports to serve. Governments cannot regulate rates, routes, and services of carriers. 49 U.S.C. 41713(b)(1). Other than limited provisions relating to slots and essential air services to small communities, there is no statutory provision for federally imposed use restrictions at commercial service airports. The Act provides limited proprietary powers to airports to alleviate airport noise, [and to] restrict airline operations for the safe and efficient operation of the airport and, in certain circumstances, to establish rules to alleviate demonstrated airport congestion. 49 U.S.C. 41713(b)(3). Exercise of proprietary rights must be reasonable, nonarbitrary, nondiscriminatory, not unduly burdensome to interstate commerce, not used as a proxy for unjustifiably prohibiting new entry, not unreasonably protective of incumbent operators, and not inconsistent with air carrier routing rights. The Act also established the Essential Air Service (EAS) program to guarantee eligible communities a minimum level of service. 49 U.S.C. 41731, *et seq.* Under this program, air carriers are subsidized to provide scheduled air service if no other carrier is willing to provide the service subsidy free. While the provision of air carrier services to small communities is an equitable ideal, it does come at the expense of inefficiencies at busy hub airports. For example, EAS flights occupy valuable airport slots just like other flights, but they generally involve markedly lower passenger loads.

- *The Airport Noise and Capacity Act of 1990* governs restrictions on airport access due to aircraft noise. 49 U.S.C. chapter 475. Airports can exercise their proprietary powers including access and noise restrictions, but are subject to federal law and regulations that require strict adherence to specific procedures. Restrictions must be reasonable, nonarbitrary, nondiscriminatory, not unreasonably burdensome on interstate commerce, foreign commerce, and the national aviation system, and must be subjected to opportunity for public comment.

- The *DOT/FAA Policy and Procedures Concerning the Use of Airport Revenue* requires that all airport revenue be used for the capital and operating costs of the airport, the local airport system, other local facilities owned or operated by the airport owner or operator, and directly and substantially related to the air transportation of passengers or property. *64 Federal Register 7696 (February 16, 1999)*.

- The *DOT/FAA Policy Regarding Airport Rates and Charges*, *61 Federal Register 31994 (June 21, 1996)* requires that airline fees be reasonable and applied without unjust discrimination. The Policy also states the Department's reliance on local negotiation and resolution of airport-airline fee practices. Additionally, the Policy states that a "properly structured peak pricing system that allocates limited resources using price during periods of congestion will not be considered to be unjustly discriminatory." (The DOT/FAA has issued an advance notice of proposed policy regarding airport rates and charges to replace those portions of the 1996 Policy vacated by a 1997 D.C. Circuit Court of Appeals decision. *63 Federal Register 43228 (August 12, 1998)*. (The court did not vacate the principles described above).

- In the recent *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century* (AIR-21), *Pub. L. 106-181, April 5, 2000*, Congress determined that major airports must be available on a reasonable basis to all carriers wishing to serve those airports.