

PRESENTATIONS

FAA PROGRAMS FOR IMPROVING AVIATION

The Honorable Albert W. Blackburn, Associate Administrator for Policy and International Aviation, Federal Aviation Administration

I appreciate the opportunity to join this discussion of the future of aviation. FAA Forecasts rely upon a large data base, but many changes are reshaping modern aviation. To provide accurate forecasts for the future of aviation, we need the best possible understanding of the many variables that will change, often unpredictably, in the coming months. Beyond the unpredictable variables that deserve our attention, I'd like to focus part of my discussion today on programs that the FAA will emphasize to promote changes during the next sixteen months.

Forecasting in Perspective

I'd like to start by urging a word of caution in approaching all forecasts -- and forecasters. It is often tempting to blame the messenger for the message. Even children understand this principle at an early age. I'm reminded of a second grader who was asked to report on Socrates. She got all of the essential details in three sentences, which I quote:

"Socrates was a philosopher. He went around giving advice. They killed him."

Aviation forecasters have not been subjected to that punishment, yet; but our industry has changed rapidly during the past year. Many observers believe that the industry could plan better if it had more precise information about Air Traffic Operations, the size of air carriers' fleets, the price of aviation fuels, the growth rate of the economy, or a host of other variables that just might, in someone's mind's eye, provide a critical edge on the competition.

I think that the beginning of maturity in analyzing forecasts is recognizing that they are highly dependent upon the responses they evoke from people. Where one manager might look at a forecast of 4% growth in air traffic control tower operations and say, "We'd better get more than our share of that, or we won't make money," another manager will say, "Well, if it's only going to be 4% growth, we'd better not buy another airplane."

In either case, the response affects whether forecast growth rates are matched, exceeded, or underachieved. Of course, I'd encourage everyone using forecasts to plan rationally, and never let personal hopes overtake good judgment, as much as that is tempting at times.

That thought was reinforced last week when the head of the Postal Service reported that this year's \$200 million deficit was, and I quote, "due to inaccurate mail volume projections, unexpected expenses, and budget overruns."

Now, it's relatively easy to summarize those factors as "forecasting error," but, really, even the Postal Service forecast that it would lose money this year, the only question was whether it would be \$1 million, the prediction, or \$200 million. For good decisions, we have to get the magnitude of the prediction right, as well as its direction. In general, FAA's forecasters have gotten the directions right, and the magnitude of our errors have not been on the order of 200 to 1.

Forecasts always depend upon the best available data, and we have been doing our best to improve the data we have, while seeking the data that we don't have in usable form. Our data files on the major air carriers -- operations, passenger enplanements, rates, routes, and other matters -- are good. We need better information about some of the other forms of aviation activities, especially helicopter operations, even in busy places like the New York Metropolitan area.

Outside of the United States, the International Civil Aviation Organization predicts an average annual growth rate for passenger enplanements of 7% over the next 10 years. In the Pacific Rim, their forecast is 12%, with air cargo operations in the region increasing 22%. During a recent trip to the People's Republic of China, I learned that their passenger enplanements this year are up 34% over last year.

Since deregulation of rates and routes in 1978, industry observers have devoted great attention to growth and consolidation among U.S. air carriers. We've seen many changes in the industry, including hub-and-spoke route systems, the internationalization of both manufacturing and maintenance, the air traffic controllers' strike and rebuilding of the system, and equipment changes affecting airports and aircraft.

The changes aren't going to stop. In fact, the long-term health of aviation depends upon entrepreneurs reshaping their operations to take advantage of changes in market conditions initiated by others. Perhaps even more, industry success depends upon inventing new goods and services to reshape market forces--naturally to the benefit of the consumers who ultimately bear all the price tags.

Market Forces Changes

What do I mean by changes in market forces? Let me offer a few examples.

Following the oil price shocks of 1974 and 1979, nearly all economic forecasts built upon an assumption of a steady increase in fuel prices. When President Reagan deregulated oil prices in January, 1981, most forecasters sustained those assumptions.

In fact, if it weren't for the reductions in fuel prices, the savings consumers have realized under deregulation would be considerably less. In other words, the reduction in fuel prices provided an unanticipated cushion enabling aviation to reduce costs--and prices--with smaller cuts in other budget items than might have been necessary otherwise. In the FAA's Third Quarter Industry Review, we estimate fuel savings during the current fiscal year at \$3.3 billion.

It now appears that fuel prices are rising again, in part because of uncertainties in the Persian Gulf, and in part because of the increased demand reflected as people respond to lower prices. Overall, air carrier jet fuel consumption increased 6.4% during the first three quarters of fiscal 1987, compared to the same period a year ago. We should expect that continued rising price trends would slow rates of increase in fuel consumption, but that might be offset by a variety of factors.

One leading factor that will affect the trend is the tendency toward consolidation among air carriers. The mergers combining Continental, Eastern, Texas Air, New York Air, and People Express are completed, as are the unifications of Northwest and Republic, TWA and Ozark, and Delta and Western. The Department of Transportation is considering rejection of a proposed merger of US Air and Piedmont--on Anti-Trust Grounds. It appears safe to predict a limit to further consolidation, just as it seems safe to forecast that there are no major new entrants on the horizon.

Just as the expansion of air carriers to compete in new markets had consequences for air traffic operations, the consolidation of rates and routes (an economist might call this "rationalization of systems and equipment") is having its own air traffic control consequences.

At an aggregate level, air carrier operations at FAA air traffic control towers grew 7% during the first three quarters of Fiscal 1987. That growth rate exceeds our previous expectations, and was a factor in the Department of Transportation's decision to seek additional increases in the air traffic control workforce earlier this year.

That aggregate hides several interesting particulars, however. For example, as more carriers shifted operations from Washington National Airport to Dulles, air traffic operations at DCA declined by 1.8%, while Dulles became the fastest growing airport in the country, with a 128.5% increase in activity over a year ago.

The consolidation of People Express substantially influenced the 8% reduction in operations at Newark, leading to an overall 1.3% decrease in air traffic operations in the New York area during the first three quarters of Fiscal 1987. Similarly, the combination of TWA and Ozark was a major factor in reducing air traffic operations at St. Louis by 5.7% compared to the previous year. The combination of Northwest and Republic contributed to the 1.8% decrease in air carrier operations at Minneapolis-St. Paul.

Not surprisingly, with operations at these major hubs reduced in the face of overall system growth, we experienced fewer delays than anticipated. Changes in air traffic operations at these facilities undoubtedly contributed to the major reductions in air traffic control system delays during the summer of 1987 -- another point where predictions of excessive congestion, even our own, were wrong.

Naturally, reducing congestion in the national airspace system in the face of a 7% increase in tower operations required changes in air carrier operations as well as FAA procedures. Earlier this year, the FAA implemented its Enhanced East Coast Plan, increasing routes into, and out of the New York area to move air traffic more efficiently. The FAA also enhanced its central flow control

facility with improved aircraft situation display technology, and strengthened central flow's hand monitoring movements in the national airspace.

In addition to these changes in air traffic control technology and procedures, the Department of Transportation conducted scheduling negotiations with major air carriers regarding operations at particularly congested hubs. As is always the case, efficient national airspace system operations required close cooperation among all system users. Once again, when it was needed, the spirit of cooperation was there.

I'd like to take full credit for the improvement in system performance, but I must also acknowledge that good weather during August and September had something to do with the 40% reduction in delays achieved during those months compared to a year ago. Of course, I'm not aware that there's anyone in this room I should thank for good weather--but if any of you have closer connections than I do, pass along my appreciation.

Air Traffic Control Procedures

Let me emphasize that changes in air traffic control procedures to improve safety and efficiency in the system are constantly under consideration at the FAA. These will take several forms in the foreseeable future.

As part of the National Airspace System Plan, the FAA is beginning operations with the new host computer. Installments are coming on line at the rate of two new centers per month. This equipment has five times the storage capacity and ten times the processing speed of the computers being replaced. It will enable En Route Centers to monitor more air traffic, while providing the capacity to install programs such as the Mode C Intruder Alert, which will reduce the chances of mid-air collisions.

We are also analyzing airspace procedures to strengthen FAA's services. Within his first month in office, Administrator Allan McArtor issued a special Federal Air Regulation revising Terminal Control Area procedures in the Los Angeles basin, and proposed new regulations to establish 9 additional terminal control areas, bringing nearly all hubs under stricter air traffic control procedures.

The agency is also reviewing West Coast air traffic operations, with the intention of developing a West Coast plan to replicate the success achieved on the East Coast.

These air traffic control procedural changes are not adequate to resolve the nation's continuing concerns about delays in the national airspace system. The delay issues will remain as long as there are airport capacity limits, and our forecasts indicate that we have serious, long-term concerns in this area.

Need For New Airports

We need new airports. The United States has not opened a new major airport since Dallas-Fort Worth, in 1973. Denver is now considering another airport, and major expansion plans are being developed at DFW. A look at some of our forecasts of future delays, however, demonstrates that further expansion

planning is absolutely essential. Given the planning time required for major airports, it is already very late in the process to get the construction done before significant additional delays confront the system.

Last year, 1986, of the 50 major airports whose operations are closely monitored by the FAA, 11 reported an average delay of greater than eight minutes per operation. These include the three New York airports, Boston, Atlanta, Chicago, DFW, Denver, San Francisco, and Los Angeles. (See Figure 1.) We have found that when average delays (and here we are talking only of weather and airtraffic delays, not including air carrier maintenance and equipment delays) exceed eight minutes per operation, the travelling public gets very unhappy.

By 1991, we forecast that an additional eight airports will reach this category--giving the nation a total of 19 airports where the average delay per operation is more than eight minutes. (See Figure 2.) The concerns will continue along the East Coast, increase in a midwestern cluster which includes St. Louis, Detroit, and Nashville, and intensify considerably along the West Coast, with San Jose, Ontario, and Phoenix joining the current congested airports.

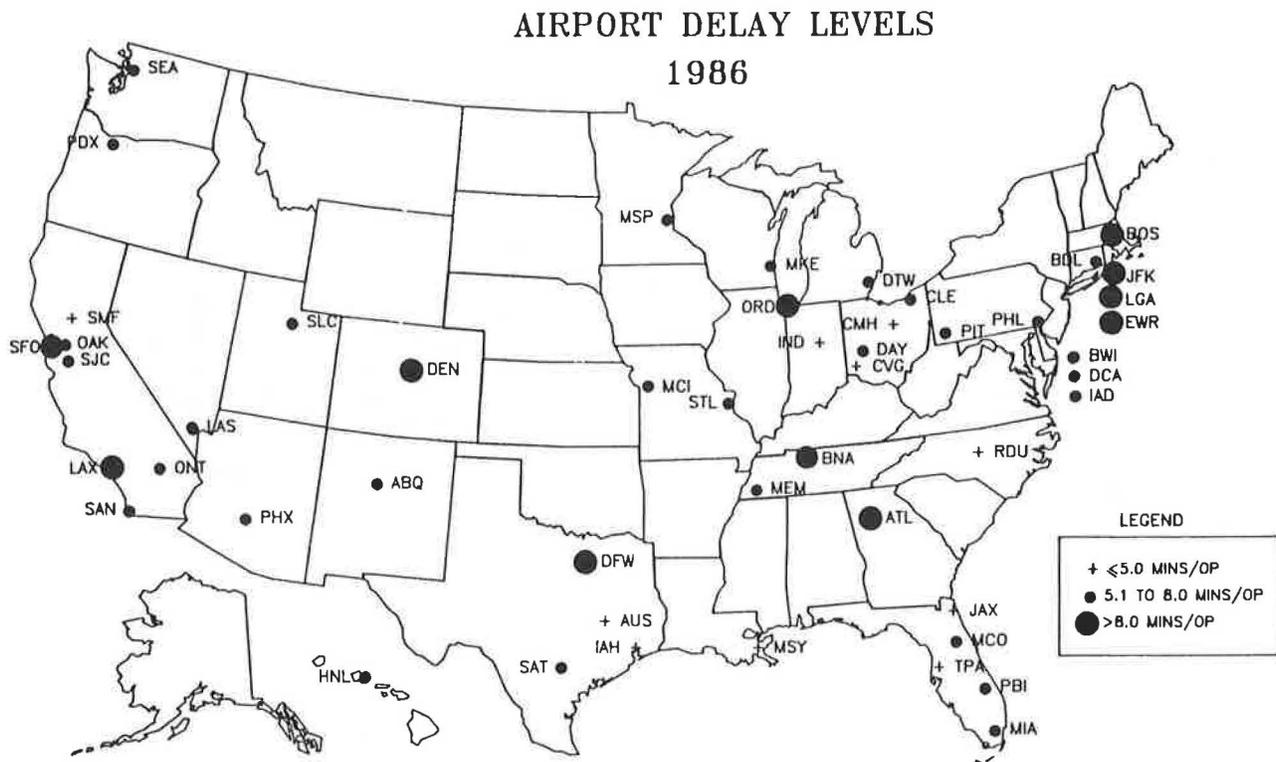


Figure 1. 1986 Average Delay at 50 U.S. Airports
Source: Federal Aviation Administration

AIRPORT DELAY LEVELS 1991

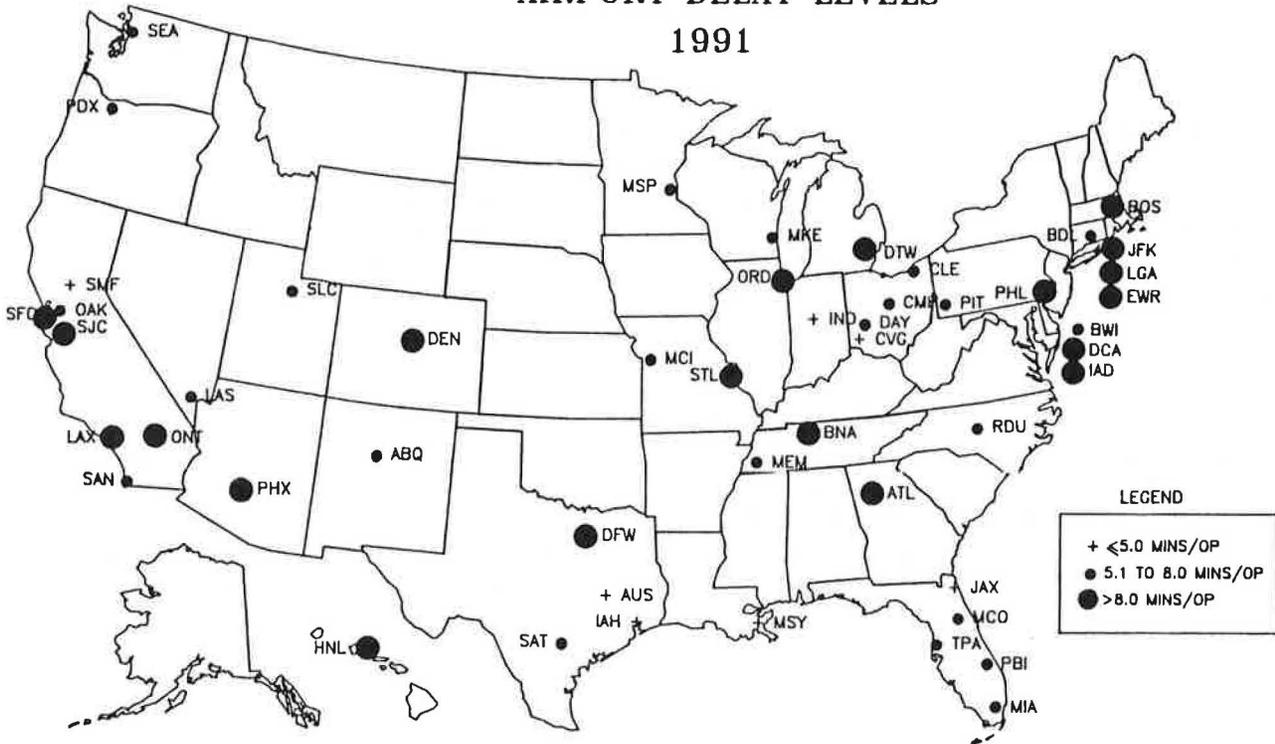


Figure 2. 1991 Estimated Average Delay at 50 U.S Airports
Source: Federal Aviation Administration

AIRPORT DELAY LEVELS 1996

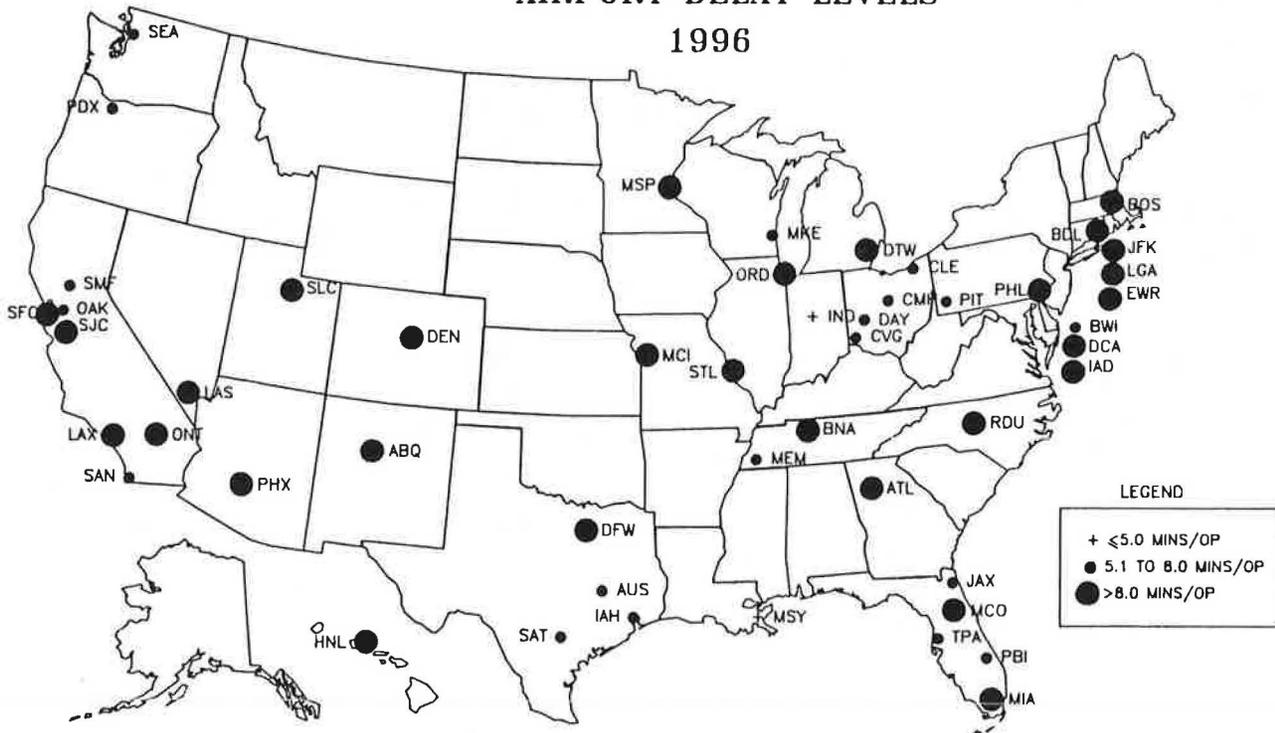


Figure 3. 1996 Estimated Average Delay at 50 U.S Airports
Source: Federal Aviation Administration

By 1996, we forecast that 29 airports will be experiencing average delays of eight minutes or more per operation. (See Figure 3.) What appears as relatively localized concerns for today's short term becomes a national concern in less than ten years, with significant needs for new capacity essential to provide adequate service for the 650 million passengers who will rely upon air carriers by then.

Improvements in equipment and procedures are not restricted to large elements of the system. The FAA has long recognized the importance of developing additional airport capacity, and Administrator McArtor has emphasized the need for community involvement to make the cast for additional runways. However, until additional runways and airports move from the talking stages to concrete, we have to examine opportunities to improve efficiency at all existing facilities.

Accordingly, we are accelerating experiments with simultaneous approach procedures on closely-spaced parallel runways. These appear to afford opportunities for additional operations at Raleigh-Durham, which experienced a 24% increase in operations during the first nine months of Fiscal 1987. We'll examine additional opportunities wherever they present themselves.

Benefits to Air Carriers

With the increase in operations and reduction in delays, the increase in passenger enplanements had to be reflected somewhere--and that appears most notably in the load factor of the commercial air carriers. Last week, Aviation Daily's monthly compilation of statistics showed 19 air carriers with load factors exceeding 60% for the first eight months of the Calendar Year.

Accordingly, the FAA's review of the first nine months of the Fiscal Year reflects strong performance among the air carriers. The 33 carriers included in our reports made an aggregate profit of \$1.5 billion. Their 6.5% increase in operating expenses was more than offset by a 13.1% gain in operating revenues.

Again, the aggregate data varied widely among particular air carriers. Although major carriers showed substantial gains in profits, the ten regional carriers in our statistics lost \$9.9 million. Their 8.1% gain in revenues did not offset a 12.2% cost increase.

The increase in load factor is undoubtedly among the forces encouraging air carriers to keep aircraft in operation where they might have been phased out more quickly. In February, FAA forecasters projected an increase of 1.7 million aircraft operations by 1998. This forecast anticipated the retirement of 437 Stage 2 aircraft by 1991.

Given the load factors achieved in 1987, and anticipated to drop off only slightly in the near future, air carriers are not retiring equipment that is flying full--and there is no reason to expect that they will do so. Thus, we now project that those aircraft might fly those additional 1.7 million operations per year by 1991, moving our air traffic operations measures ahead seven years.

Incidentally, this anticipated activity will compound our noise problems, because implicit in this rate of growth is a delay in retirement of Stage 2 Aircraft. Designs for converting these noisier models to comply with Stage 3 standards might well become more attractive.

Changes Anticipated

I believe that this is the point to stress the traditional economic assumption, "other things being equal." Since other things rarely respect our predictions, let me alert you to some of the changes we anticipate.

First, we expect recent increases in air fares to remain relatively stable. In the past few months, air carriers have raised fares, on average, 15% to 20%. We have already seen some flexibility on these increases on competitive routes, but high load factors and rising fuel prices will keep fares up to cover increased expenses.

Second, increased expenditures will be prompted from a variety of sources. This summer, the Department of Transportation issued consumer protection regulations that require increased reporting. These costs will be added to administrative expenditures. Several carriers have added staff to respond to well-publicized consumer complaints.

Nearly all air carriers are devoting increased resources to marketing their services--those with good performances telling the public how good they are, and those that appear to need improvement telling the public how good they're going to be. It's nice to keep the message upbeat in either version. Whatever the message, it costs money to deliver, and increasing public confidence is vital to the continued success of the industry.

Finally, the FAA will require additional expenditures to keep pace with advances in equipment. Administrator McArtor has announced his commitment to certification of TCAS-II, and accelerated development of TCAS-III, during this fiscal year. Let me urge every air carrier to send observers to the flight tests of TCAS-III that the FAA will conduct at the Technical Center near Atlantic City. It will convince you beyond a doubt that responsible executives will require that equipment on their aircraft as soon as it is available.

As the National Airspace Plan moves along, aircraft will require new equipment for Mode S Data-Link communications, for microwave landing systems, and other equipment advances that will be developed in the coming years. Better equipment will improve safety along with service, but it will also be expensive.

The expenditures are predictable, many of them even enhance training and operations -- such as expenditures on more simulators that enable greater use of aircraft in revenue, rather than training, flights. Training, of course, will also be a heavy portion of continuing expenditures for flight crews as older pilots retire, for airport security as it is upgraded to address more sophisticated threats, and for aircraft maintenance which is becoming as advanced as the technology supporting manufacturing.

Summary

In summary, the aviation industry today is healthy, and well-positioned for future advances. Nonetheless, it faces substantial challenges to modernize equipment at all stages of operations, to improve service to retain public confidence, and to sustain the foundations for future development that are essential to long-term health.

The FAA recognizes the need to improve, because changes are needed to enhance public confidence. As Administrator McArtor frequently observes, aviation is a complex blend of people, equipment, and procedures, and the parts must advance together to make the best use of achievements in each of them.

Change in aviation, therefore, requires coordination throughout the system -- the cooperation of manufacturing and maintenance, air carrier operations and air traffic operations -- with administrative support across the board.

For its part, the FAA will do its best to strengthen its own services, and to implement advances throughout the industry in a reasonable fashion. We'll continue to forecast on the best information available, and revise our forecasts as improvements in the industry -- and changes in the economy -- provide the data essential for more accurate forecasts.

Discussion:

Frank Spencer (Northwestern University): How are the delays on your chart determined?

Mr. Blackburn: These are system-induced delays that are measured from the time you call for pushback until the time you get back to the gate. If you have a maintenance problem, that is not in these figures. The things that really most irritate the customers, equipment failure or cancellation, are not in those numbers. We are trying to get a better handle, on those delays that are the creatures of the airlines. That is a little more difficult to come by.

Mr. Powell (Bell Helicopter): Do you see anything taking place to respond to the need for better helicopter industry data?

Mr. Blackburn: Yes, we have a proposal from the Helicopter Association International, HAI, which has a foundation, and they have proposed to put this data together for us. Under government procurement procedures we must go competitive on it and it may take a year to get it through the system. We are very anxious to get that information and would be happy if Bell Helicopter wanted to fund that study.

Frank Spencer (Northwestern University): Regarding the possibility of either the tilt-rotor or a high-speed rail as a method of relief of these delays, have any studies been made to evaluate whether the costs would be more than the benefits; whether by the time you got off the airplane and got on a tilt-rotor or a high-speed rail to get to your destination you would be there any sooner than you would if you took the delay in the air?

Mr. Blackburn: FAA has initiated a study that is now in progress under our Office of Policy and Plans to do exactly that. It includes the kinds of heliports, vertiports you would need, where they should be located, what kind of facilities they should have and how it fits into the overall air traffic control system so that it relieves the system and doesn't add further congestion. The tilt-rotor isn't going to happen until people perceive that there is a system there ready to accept it and utilize it.

Mr. Wayne (International Aeroengines): A couple of years ago, the FAA was holding hearings of citizens groups and local aviation people with respect to noise regulation at airports. The implications were that there might be some increased regulations on noise coming out of these discussions. Today you indicated that noise regulations might be delayed or probably will be delayed. Obviously in the forecasting world this kind of thing is very important to us. Could you expand upon that a bit?

Mr. Blackburn: I think most of you are aware that we have just received the report of the Industry Task Force which brought together the airlines and the airports, leaders in both, including the Air Transport Association and AOCI. Don Riley of AOCI was chairman of that group, and did a very effective job. We have received the report, and the question being asked is when should all Stage 2 aircraft be eliminated from the system. That group has agreed that this should unequivocally occur by the year 2009.

The group, also, agrees that with certain incentives (undefined) it could happen by the end of 1999. We believe that with the right kinds of incentives, this can effectively happen by the start of 2000. At least 80 percent of my mail has to do with noise. We work very hard at trying to keep people from moving into and around and surrounding airports, and we have programs for compatible land use and so forth. It is a very, very serious problem. It will not go away, and the manufacturers are being challenged to build quieter airplanes.

In fact, there is a premium on it. As you may be aware, there is a certain aircraft built by our British cousins that is getting a very nice market mainly because it is much quieter than Stage 3 standards. It is beating other Stage 3 airplanes because the communities like it, and so, the challenge is up to the industry. The problem is going to get us better than Stage 3, but I don't anticipate Stage 4.