The fleet size in 2005 as a result of the forecasted deliveries and retirements is:

World Jet Passenger Fleet*	8,961
Estimated Average Deliveries	8,821
Estimated Average Retirements	4,052
Estimated Total in Year 2005	13,730

* In December 1990

This represents a 53 percent growth in fleet size over the next 15 years that is consistent with the traffic growth and load factor forecasts previously presented.

FORECAST ISSUES

Two sets of forecast issues were identified by the panel. One set consists of issues that have historically been considered in the preparation of aviation forecasts:

- Airport congestion,
- Yield management,
- Aging/high cycle aircraft,
- Oil/fuel price trend,
- Globalization of airlines.

A second set of forecasting issues arise because of the current state of the airline industry:

- Rescheduling of aircraft deliveries,
- Ability of leasing companies to place aircraft,
- Buying new vs. used aircraft,
- Availability and affordability of capital,
- Airline overcapacity,
- Restructuring and consolidation of airlines,
- Economic growth.

AIRPORTS

Panel Moderator
Richard R. Mudge
Apogee Research, Inc.

Michael Bell
Kemper Securities Group, Inc.

Bruce Carter
Springfield Airport Authority

Blair Conrad
Huntsville-Madison County Airport Authority

Ron Erdmann
U.S. Department of Commerce

Richard L. Harris
Dean Witter Public Finance

George Howard
Association of Airport Councils International

John Kari
Metropolitan Council, Minneapolis-St Paul

Lloyd McCoomb
Toronto Lester B. Pearson National Airport

Richard de Neufville
Massachusetts Institute of Technology

Ken Scott
Norfolk International Airport

John J. Smith
Federal Aviation Administration

Tim Ward
The Perot Group

Robert T. Williams
Boeing Defense & Space Group, Helicopters Division

AIRPORTS

The airport panel began with five presentations by panel members. The authors and topics were:

- Michael Bell[1] from Kemper Securities speaking about airport finance with particular emphasis on the problems faced by airports in implementing passenger facility charges (PFCs).

- John Kari, Senior Transportation Analyst with the Metropolitan Council of the Twin Cities, who discussed an innovative approach to strategic airport planning that depends, in part, on active public involvement in the early stages of analysis.

- Tim Ward of the Perot Group who described recent developments at Alliance Airport, the Nation's most ambitious private airport. His major message

[1] Mr. Bell has since been appointed Chief Financial Officer for the City of Atlanta.

was that airport-related economic development does not happen automatically but depends on the right location, good facilities, and effective marketing.

· Bruce Carter, Manager of the Springfield, Illinois, Airport, talked about the special market development problems faced by many small commercial airports in a world dominated by megacarriers.

· Robert Williams from Boeing Helicopters provided a brief presentation on the market potential for tiltrotor aircraft.

The panel's wide ranging debate identified nine current or emerging trends that will affect the ability of the Nation's airports to help meet long-term demand for air service. These nine trends are interrelated.

LONG-TERM SHORTFALL IN AIRPORT CAPACITY

The panel spent limited time discussing airport capacity problems, in part because this is talked about at virtually every airport meeting. Also, the topic appears to have less urgency today given the weakness of the airline industry. Indeed, a few airports suddenly find themselves with excess capacity. Witness Atlanta's Hartsfield, which has 40 empty gates since the failure of Eastern Airlines.

Even so, a fair number of airports do have capacity problems in the near term. Given the practical problems in making a significant increase of physical capacity, the growing interest in non-capital alternatives was highlighted, including what some call "de-marketing." In other words, higher prices are a natural result of any capacity-constrained system. In the case of aviation, these prices can be imposed either by the airlines or by the airports themselves. Until recently U.S. airports have not had the legal authority or ability to implement true market pricing. A recent ruling by the U.S. Department of Transportation appears to permit this possibility.

CONTINUED WEAK AIRLINE INDUSTRY

The airline industry is currently exhibiting financial and operational weakness, and perhaps reduced competition. As a result, many airports face new financial uncertainty. In particular, fares are likely to increase (at least relative to the trends of recent years) while the extent and quality of service in many markets is likely to decline somewhat. Both effects could generate additional complaints from the travelling public. These problems, in turn, create difficulties in developing long-term airport plans in general and financial plans in particular.

As a possible remedy for reduced competition, some advocate encouraging foreign entry, either through increased joint ownership of U.S. airlines or through an "open skies" policy that would allow foreign carriers to provide some domestic service. In general, however, the panel did not see as much doom and gloom in the future of the domestic airline industry as expressed by some of the other panels. The feeling seemed to be that, while the competitive situation was unlikely to improve in the near future, it was also unlikely to become significantly worse.

LACK OF COMPETITIVE BALANCE BETWEEN AIRPORTS AND AIRLINES

A closely related problem concerns the balance of power between airports and airlines. In other words, how can innocent public servants negotiate with 800-pound gorillas? Negotiations between airports and airlines have become much more strained than in the past and may worsen. Implementing PFCs provides a recent example of the kind of power struggle that must be resolved.

There was some discussion of radical ideas to increase the power or influence of the airports, perhaps through regional associations. Favorable comments were expressed about the Port Authority of New York and New Jersey. Mention was made of the Australian National Airport Board which negotiates with the airlines on behalf of all commercial airports. Such multi-airport associations were held out as one possible way to help restore "balance" to the airport's lost negotiating power.

GROWTH IN INTERNATIONAL TRAFFIC

International traffic is the fastest growing part of the airline business -- despite somewhat limited promotion by most communities and airports. Gateway airports face serious operational problems, including peak arrival congestion on runways, baggage screening, and delays in customs, immigration, and related inspections. These problems divert management attention from other issues and cost money. Now that more and more airlines overfly traditional ports of entry, these problems are no longer restricted to only a handful or airports.

LACK OF EFFECTIVE LONG-RANGE PLANNING

There was a strong sense that the traditional approach to airport master planning is not all that fruitful, in that many communities spend time deferring to public opposition rather than implementing programs. Early public involvement is important, even though it creates the risk of losing some control over the planning progress. A number of panelists suggested that for certain types of planning -- strategic additions to present capacity or building new airports -- the airport authority may be the wrong public-sector agency to take the lead. Other agencies with broader regional constituencies may be more productive in developing positive public involvement.

The need for strategic thinking was discussed intensively. It was felt that a willingness to think more flexibly and to consider the uncertainty involved in long-term planning would help provide a framework for master planning as well as helping to develop a public consensus for action.

There was a belief that larger airports should think regionally. Concern was expressed about the tendency for the airports within a region to see themselves as direct competitors -- Chicago being a good example.

There is also a need for multimodal planning, particularly for ground access. The absence of workshop attendees with a background in highways or transit was pointed out as symptomatic of this lack of attention. Access is an increasingly severe problem, and it needs to be given more serious attention.

Concern was expressed that many cities planned by syllogism -- almost exactly the opposite of master planning. Often local boosters say look at what Hartsfield did for Atlanta or how wonderful DFW has been for Dallas-Fort Worth and seek to build a major airport in a place that is still developing its local economic base. Concern was expressed that some of these projects are overly ambitious and might fail.

LACK OF PUBLIC UNDERSTANDING OF AVIATION

The public does not appear to appreciate the economic and social value of aviation. This is a standard complaint, and one likely to increase in importance as we become a part of the larger global economy. There also continues to be skepticism in a broad segment of the public about airports and whether or not they speak the truth when they go out and talk to the public.

CONTINUED SENSITIVITY TO NOISE AND RELATED ENVIRONMENTAL IMPACTS

Public misperception about the role of airports is clearly evident in the continued concern about environmental matters. The need for environmental impact statements and related processes slow down planning and implementation. The negative noise impact of aircraft overflights will always be there, and the move toward Stage 3 aircraft will not eliminate the noise problem. For example, airlines are likely to take advantage of the extra power of many Stage 3 aircraft by having them fan out across the city. This will not decrease complaints, and the aviation industry runs the risk of telling the public that Stage 3 aircraft will take care of the problem, just don't mind those heavy objects flying over your head. The noise problem will continue to hinder the ability of airports to expand and therefore limit the growth potential for the aviation industry in general.

NEW AIRPORT FINANCE BURDENS

Financial pressures on airports have increased, in part due to the airlines' economic situation and in part because regulatory constraints also increase the financial burden on airports. The corollary of increasing airline financial risk is that airports and communities must now share these financial risks. The state of Minnesota, for example, recently invested some $700 million in Northwest Airlines. Denver, is building a new airport based in part on a guarantee from an airline in bankruptcy and a financial package that puts the City of Denver only 10 years away from the need to find $230 million a year to pay off their airport financing bonds.

Some communities are confronted with a shift in financial risk that could mean placing greater reliance on general obligation bonds to finance airport investments instead of relying solely on revenue bonds issued by the airport authority.

INCREASING REGULATORY BURDEN

A growing list of regulatory problems face airports. Federal airport security regulations are an example. The goals are unquestionable, but the cost of the measures required to attain them appear to many airport operators to be out of line with the benefits gained. The same can be said of the growing number of new environmental regulations: air quality, storm water drainage, and leaking underground storage tanks.

Some federal airport regulations may be a bit out of date. For example, many FAA grant assurances restrict the ability or airports to organize regional alliances or to develop industrial activities as part of the airport complex. These restrictions have built up over a number of years, and perhaps now is a good time to look at them anew. One participant suggested a need to reexamine the Airport Improvement Program because it may no longer provide the incentives that encourage good planning or good investment.