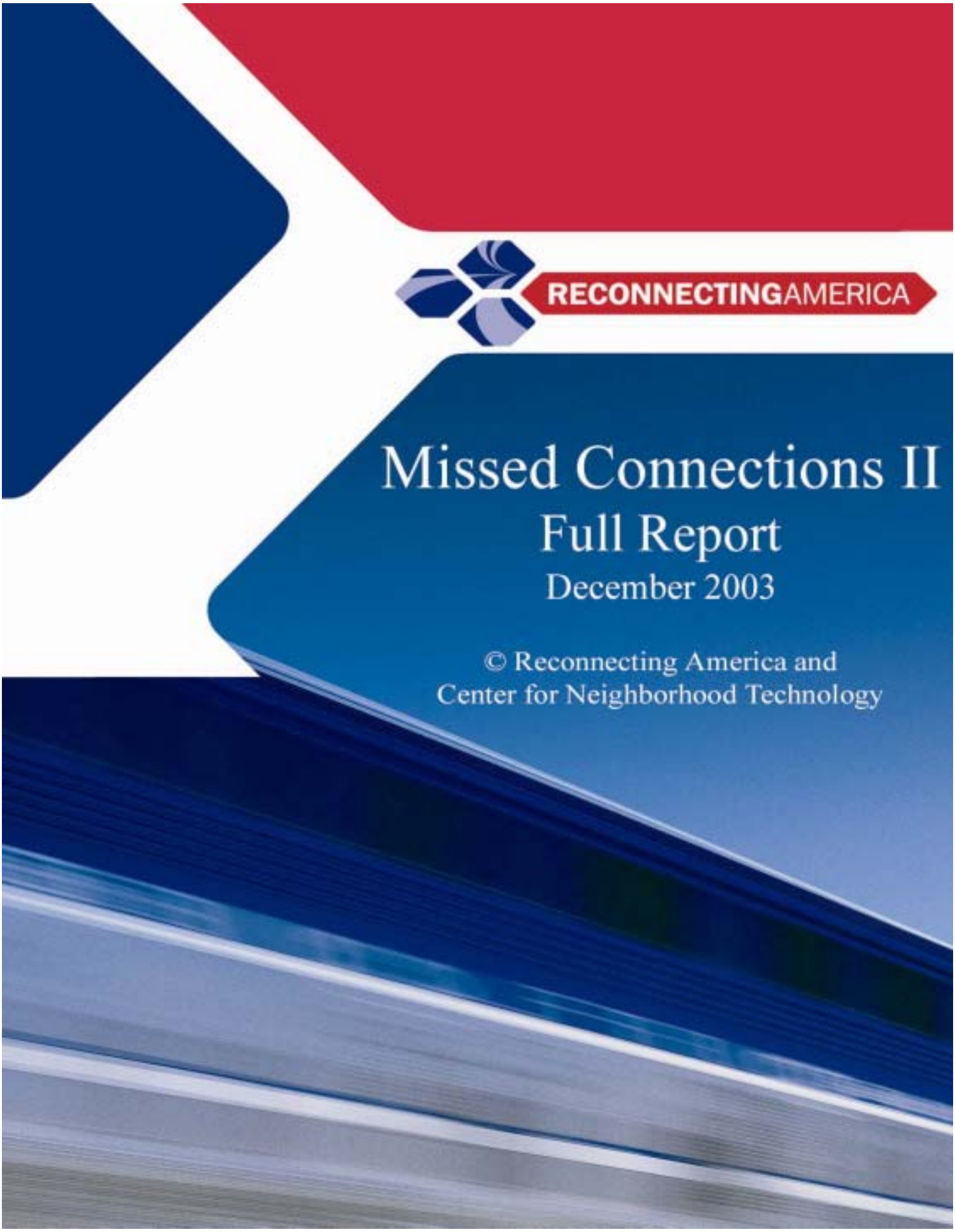


Missed Connections II

Full Report

December 2003

Missed Connections II

December 2003

Background

In 2002, we examined trends in air service in the United States in the 12 months following the September 11 attacks. We found a steep and continuing drop in air travel, and an overall reduction in the number of flights supplied. Using the industry standard data base, the Official Airline Guide (OAG), we examined air service levels at individual airports, and ranked them by both flights reduced and reduced seat availability within three airport categories: large hub, small and medium hub and non-hub commercial service airports.

We found uneven impacts, with all airports experiencing declines, but with steeper declines in both flights and seats available (a measure of capacity) in smaller airports. We also found that coastal airports were experiencing greater losses of service than those in the center of the country, and speculated that this was due to declines in international travel. Finally we found that there were generally larger reductions in seats available than in weekly flights, and speculated that this reflected the beginnings of a shift to regional jets and regional carriers for an increasing number of routes.

We further speculated that this reduction in air travel represented something more than an anomaly in an overall trend of growth in travel caused by a single tragedy. Unlike the consensus of industry analysts, that demand would soon resume its growth pattern after recovery from the setback, we speculated that this might be the beginnings of a fundamental restructuring of the industry, and that the restructuring, along with the changes in demand, would result in a continuing loss of accessibility for many medium sized and smaller cities and regions throughout the United States. We recommended that Congress take advantage of the pending reauthorizations of all the federal transportation bills (air, rail, highway and transit) to craft an access solution for smaller and medium sized regions that allowed the development of a revitalized hub and spoke system incorporating rail and bus for shorter trips or for access to hub airports.

A year has passed, and we felt it timely to review our findings from late 2002. Congress has still not completed its efforts to reauthorize the federal transport legislation, although it completed the aviation bill this fall, without, however, addressing the fundamental issues raised in this report.

Air Service Trends for the Period 2001-2003

This report examines air service levels at all commercial service airports in the period from October 2001 through September 30, 2003, and thus adds a second year of data to the previous study. Using the Official Airline Guide's data, we rank large hub airports, medium and small hub airports and non-hub commercial service airports by both the change in scheduled weekly flights, a measure of convenience and access to the national variation system, and weekly seat availability, a measure of scheduled capacity supplied by the airline industry at a particular airport. In addition to ranking individual airports within categories, we examine trend lines for each category as a whole, in order to look at service levels for different types of airports and at connectivity between different kinds of markets. And for the first time, we look at the share of flights and seats supplied by the major airlines as compared to the share supplied by their regional affiliates.

Service Cuts at United States Airports 2001-2003

In ranking United States commercial service airports in terms of service reductions, we broke the airports into three different categories: large hub airports, small and medium hub airports, and non-hub commercial service airports. We then looked at two measures of service from the Official Airline Guide (OAG): weekly scheduled flights, a good measurement of overall convenience and accessibility of the airport to the larger system, and weekly seats available, to ascertain airline capacity provided at each airport. We created a database to compare the published schedules for the week of October 1, 2001, with the weeks of September 30, 2002, and September 29, 2003. We then ranked airports within each of the three categories, with the largest reductions in service receiving the highest rank.

Large Hub Airports

We first looked at the thirty large hub airports from which more than 55% of non-stop flights and more than 65% of available seats depart each week. Through these hubs, a significant percentage of U.S. scheduled carriers can inter-connect, and many air travelers will catch their connecting flights to their ultimate destination. The large hub airports as a group lost an average of 10.3 percent of their available non-stop seat miles and lost an average of 9.5 percent of their non-stop flights from 2001 to 2002, with some large hubs experiencing significantly greater losses. In the period from 2002-2003, the large hub airports as a group lost an additional 1.7 percent of flights, and from 2001-2003 these airports experienced an average loss of flights amounting to 11.1 percent. The table below ranks large hub airports in terms of service lost.

Table 1: Large Hub Airports Ranked by Percentage Reduction in Weekly Flights (2001-2003)

Airport	Percent Flight Reduction 2001-2002	Percent Flight Reduction 2002-2003	Percent Total Flight Reduction 2001-2003
1. Dulles, D.C. region	-20.0%	-11.2%	-29.0%
2. Boston, MA	-23.3%	-7.1%	-28.7%
3. Los Angeles, CA	-20.2%	-8.9%	-27.3%
4. Pittsburgh, PA	-13.9%	-13.4%	-25.5%
5. San Francisco, CA	-18.3%	-8.6%	-25.4%
6. St. Louis. MO	-14.4%	-8.9%	-22.0%
7. Miami, FL	-18.7%	-2.6%	-20.8%
8. Honolulu, HI	-8.5%	-13.2%	-20.8%
9. Newark, NJ	-20.0%	+0.6%	-19.6%
10. NY Kennedy, NY	-12.0%	-8.7%	-19.6%

Contrasting with these ten airports that saw the largest declines in non-stop flight frequencies are the ten airports that either gained service or had the smallest service declines over the last two years. The table below identifies the large hub service winners.

Table 1a: Large Hub Airports Ranked by Percentage Change in Weekly Flights (2001-2003)

Airport	Percent Flight Change 2001-2002	Percent Flight Change 2002-2003	Percent Total Flight Change 2001-2003
1. Cincinnati, OH	+8.3%	+7.0%	+15.9%
2. Chicago Midway, IL	+8.8%	+1.7%	+10.7%
3. Salt Lake City, UT	0.0%	+1.8%	+1.8%
4. Atlanta, GA	-8.0%	+8.0%	-0.7%
5. Denver, CO	-4.8%	+1.2%	-3.6%
6. Minneapolis St. Paul, MN	-4.7%	+1.2%	-3.6%
7. Fort Lauderdale, FL	-9.9%	+6.4%	-4.2%
8. Houston, TX	-7.8%	+3.1%	-4.9%
9. Las Vegas, NV	-4.4%	-2.0%	-6.3%
10. Phoenix, AZ	-1.4%	-5.2%	-6.5%

We also looked at reductions in the number of available seats at large hub airports, in order to determine whether overall capacity supplied to the traveling public had declined. We found that for the two-year period of the study, there had been a reduction of 14.9 percent in seat availability at large hub airports. Table 2 depicts the ten large hub airports with the highest percentage reduction in overall seats.

Table 2: Large Hub Airports Ranked by Reduction in Available Seats 2001-2003

Airport	Percent Reduction in Seats 2001-2003
1. Pittsburgh, PA	-35.3%
2. San Francisco, CA	-33.5%
3. St. Louis, MO	-33.4%
4. Boston, MA	-26.6%
5. Los Angeles, CA	-26.4%
6. Dulles, D.C.	-24.9%
7. Newark, NJ	-22.8%
8. Honolulu, HI	-21.7%
9. New York LaGuardia, NY	-18.2%
10. Chicago O'Hare, IL	-17.1%

As this table shows, three large hubs now show service frequency gains over the 2001 schedule levels. But, frequency gains may not always correspond to seat gains. The following table provides a summary look at the ten large hubs that saw either gains in seats offered or showed the smallest reductions in seats available among all large hubs.

Table 2a: Large Hub Airports Ranked by Change in Available Seats 2001-2003

Airport	Percent Change in Seats 2001-2003
1. Chicago Midway, IL	+8.9%
2. Fort Lauderdale, FL	+2.4%
3. Cincinnati, OH	-3.9%
4. Baltimore, MD-Washington, D.C.	-6.7%
5. Atlanta, GA	-6.7%
6. Las Vegas, NV	-7.4%
7. Tampa, FL	-7.7%
8. Salt Lake City, UT	-8.0%
9. Minneapolis St. Paul, MN	-8.0%
10. Orlando, FL	-9.0%

These relative winners show the results of a major change in airport operations. Seat declines are often greater than declines in flights, and may occur even with gains in flight frequency. In many of these cases, airlines are replacing larger planes with smaller planes on many routes.

As an example, CVG (Cincinnati) shows a nearly 16% increase in service frequency since 2001 and a nearly 4% decline in total seats available. This indicates more frequent service with smaller planes. CVG is a good example of what happens when regional jet service replaces network carrier narrow-body jet service. The other large hub winner, MDW – Chicago Midway, illustrates the growth possible from a concentration of low-cost, point-to-point service.

Small and Medium Hub Airports

The small and medium hub airports comprise a large number of the nation's airfields. These airports have lost service to other medium sized cities, as well as experiencing reductions in their schedules to the larger hubs. As a group the small and medium hubs lost 9.4 % of their non-stop available seat miles and lost 9.6 percent of all non-stop flights from 2001 to 2002, although there were many airports that were only partially affected. From 2002-2003, this category of airports showed a very slight flight growth of .1%, but some airports continued to lose significant percentages of flights and seats. For the two-year period, small and medium hub airports lost 9.6 percent of all flights.

Table 3 ranks the ten small and medium hub airports with the largest reduction in weekly flights for the period from 2001-2003. Many of the small and medium hubs that lost service were in Hawaii and Alaska, which appear to be affected by trends unlike those affecting the core continental U.S. network. We have accordingly not included the Hawaii or Alaska airports in the small or medium hub or non-hub airport rankings.

Table 3: Small and Medium Hub Airports Ranked by Percentage Reduction in Weekly Flights 2001-2003 (Continental U.S. only)

Airport	Percent Flight Reduction 2001-2002	Percent Flight Reduction 2002-2003	Percent Total Flight Reduction 2001-2003
1. Atlantic City, NJ	-9.6%	-31.0%	-37.6%
2. Raleigh/Durham, NC	-28.8%	-2.4%	-30.5%
3. Kansas City, MO	-21.7%	-10.9%	-30.2%
4. Long Island Macarthur, NY	-23.2%	-6.9%	-28.5%
5. Providence, RI	-17.5%	-9.6%	-25.4%
6. Tallahassee, FL	-4.1%	-21.5%	-24.7%
7. Palm Springs, CA	-24.6%	1.3%	-23.6%
8. Portland, OR	-18.4%	-5.0%	-22.4%
9. Columbus, OH	-10.1%	-13.3%	-22.1%
10. Eugene, OR	-31.3%	13.6%	-22.0%
11. Westchester County, NY	-10.2%	-13.1%	-22.0%

As seen with the large hubs, the small and medium hubs also included some notable winners – airports that showed increased flight frequencies during the last two years. The top ten winners in the small and medium hub category are listed below.

Table 3a: Small and Medium Hub Airports Ranked by Percentage Change in Weekly Flights 2001-2003 (Continental U.S. Only)

Airport	Percent Flight Change 2001-2002	Percent Flight Change 2002-2003	Percent Flight Change 2001-2003
1. Orlando Sanford, FL	+21.7%	+17.9%	+43.4%
2. Huntsville, AL	+6.9%	+26.6%	+35.3%
3. Grand Canyon, AZ	+100.0%	-35.7%	+28.6%
4. Manchester, NH	+2.9%	+19.2%	+22.6%
5. Fairbanks, AK	+4.3%	+13.7%	+18.5%
6. Pensacola, FL	+3.5%	+11.3%	+15.2%
7. Wichita, KS	+20.0%	-5.6%	+13.3%
8. Akron/Canton, OH	-10.8%	+27.0%	+13.3%
9. San Antonio, TX	+5.5%	+2.4%	+8.0%
10. South Bend, IN	+0.7%	+5.5%	+6.2%

From this table it is important to note that 7 of these 10 winners have seen their service frequencies increase in both years. Some air service markets continue to grow. Excepting San Antonio, all the growth hubs were classified as small hubs.

We also ranked the ten small and medium hub airports experiencing the largest reduction in available seats from 2001-2003, a phenomenon which reflects both the overall reduction in flights and a trend toward the use of smaller aircraft operated by regional carriers flying regional jets and turboprop aircraft.

Table 4: Small and Medium Hub Airports Ranked by Percentage Reduction in Available Seats 2001-2003 (Continental U.S. Only)

Airport	Percent Seats Reduction 2001-2002	Percent Seats Reduction 2002-2003	Percent Total Seats Reduction 2001-2003
1. Allentown/Bethlehem/Easton, PA	-45.6%	-5.1%	-48.4%
2. Grand Canyon National Park, AZ	47.5%	-58.6%	-38.9%
3. Eugene, OR	-31.4%	-8.3%	-37.1%
4. Rochester, NY	-22.7%	-13.2%	-32.9%
5. Westchester County, NY	-17.0%	-18.9%	-32.7%
6. Raleigh/Durham, NC	-25.4%	-8.0%	-31.3%
7. Mobile Municipal, AL	-25.9%	-4.2%	-29.0%
8. Cedar Rapids, IA	-20.0%	-10.1%	-28.1%
9. Tucson International, AZ	-11.4%	-18.4%	-27.7%
10. Baton Rouge, LA	-6.8%	-21.6%	-27.0%

Of the 101 small and medium hub airports, 11 recorded gains in non-stop seat availability since 2001. The top ten performers are listed in the table below.

Table 4a: Small and Medium Hub Airports Ranked by Percentage Change in Available Seats 2001-2003 (Continental U.S. Only)

Airport	Percent Seats Reduction 2001-2002	Percent Seats Reduction 2002-2003	Percent Total Seats Reduction 2001-2003
1. Orlando Sanford, FL	-1.5%	40.2%	38.1%
2. Fayetteville Northwest, AR	0.7%	16.9%	17.7%
3. Akron/Canton, OH	-16.4%	39.3%	16.5%
4. Manchester, NH	3.3%	9.8%	13.4%
5. Fairbanks, AK	5.0%	4.5%	9.7%
6. Sacramento, CA	-1.2%	5.0%	3.7%
7. Atlantic City, NJ	-3.8%	7.8%	3.7%
8. Tallahassee, FL	33.2%	-22.8%	2.9%
9. Huntsville, AL	-6.7%	9.6%	2.2%
10. Oakland, CA	4.5%	-3.5%	0.8%

Only 11 airports in the small and medium hub category recorded a net increase in weekly seats available to passengers since 2001. In other words, 90 of 101 small and medium hub airports saw net decreases in weekly seats available since 2001.

Non-Hub Commercial Service Airports

On a percentage basis, some of the largest reductions in service have been felt by airports in smaller communities. This group of airports consists of the non-hub airports in the primary airport system as well as all other commercial airports that aren't part of the primary airport system. For this analysis we just looked at the performance of the 245 non-hub airports listed as participants in the primary airport system. This excludes the 317 smallest airports that are not part of the primary airspace system yet still have some level of scheduled commercial service – often little more than a few flights a day.

Table 5: Non-Hub Commercial Service Airports Ranked By Percentage Reduction in Weekly Flights 2001-2003 (Continental U.S. Only)

Airport	Percent Flight Reduction 2001-2002	Percent Flight Reduction 2002-2003	Percent Total Flight Reduction 2001-2003
1. Meridian, MS	-41.0%	-59.2%	-75.9%
2. Waterloo, IA	-46.8%	-54.2%	-75.7%
3. Reading, PA	-41.8%	-48.7%	-70.1%
4. Columbus, MO	6.0%	-68.5%	-66.7%
5. Beaumont Jefferson County, TX	-61.2%	-9.1%	-64.7%
6. Dubuque, IA	-27.8%	-46.2%	-61.1%
7. Lebanon, NH	-45.7%	-28.0%	-60.9%
8. Santa Fe, NM	-62.1%	8.3%	-58.9%
9. Brainerd, MN	0.0%	-57.1%	-57.1%
10. Imperial County, CA	-37.5%	-30.0%	-56.3%

The ten best performing non-hub airports showed some significant gains in flight frequencies – but often on a very small base of service. The ten best performers are listed in the table below.

Table 5a: Non-Hub Commercial Service Airports Ranked By Percentage Change in Weekly Flights 2001-2003 (Continental U.S Only)

Airport	Percent Flight Change 2001-2002	Percent Flight Change 2002-2003	Percent Total Flight Change 2001-2003
1. Long Beach, CA	164.4%	29.5%	242.5%
2. Seattle Boeing Field, WA	133.3%	0.0%	133.3%
3. Rhinelander, WI	67.9%	31.9%	121.4%
4. St Petersburg/Clearwater, FL	34.6%	54.3%	107.7%
5. Portsmouth, NH	194.1%	-38.0%	82.4%
6. Flint, MI	37.0%	31.4%	80.0%
7. Erie, PA	36.6%	25.0%	70.7%
8. Newport News, VA	24.2%	16.1%	44.2%
9. Wilkes-Barre Scranton, PA	2.4%	22.8%	25.8%
10. Jacksonville, NC	-17.9%	43.8%	17.9%

Among all the non-hub airports, 20% experienced some net growth in weekly flights since 2001; 80% showed either no change or a decline in service frequencies.

These smaller airports also experienced a dramatic reduction in the number of available seats, as they are not only being served by fewer flights but by smaller aircraft. Table 6 depicts the ten airports that had the largest reductions in available seats in the two-year period.

Table 6: Non-Hub Commercial Service Airports Ranked by Percentage Reduction in Available Seats 2001-2003 (Continental U.S. Only)

Airport	Percent Seats Reduction 2001-2002	Percent Seats Reduction 2002-2003	Percent Total Seats Reduction 2001-2003
1. Reading, PA	-48.0%	-55.2%	-76.7%
2. Fort Huachuca/Sierra Vista, AZ	-63.2%	-25.6%	-72.6%
3. Waterloo, IA	-51.3%	-31.8%	-66.8%
4. Escanaba, MI	-64.5%	0.0%	-64.5%
5. Meridian, MS	-44.0%	-32.0%	-61.9%
6. Lebanon, NH	-45.7%	-28.0%	-60.9%
7. Hobbs Lea County, NM	-58.5%	0.0%	-58.5%
8. Joplin, MO	14.9%	-62.8%	-57.3%
9. Brainerd, MN	0.0%	-57.1%	-57.1%
10. Poughkeepsie Stewart, NY	-34.9%	-33.3%	-56.6%

Across the entire group of airports, only 20% of them recorded advances in weekly seats available since 2001 – but not necessarily the same 20% that showed increases in service frequency. The ten highest increases were seen at the airports in the following table.

Table 6a: Non-Hub Commercial Service Airports Ranked by Percentage Change in Available Seats 2001-2003 (Continental U.S. Only)

Airport	Percent Seats Change 2001-2002	Percent Seats Change 2002-2003	Percent Total Seats Change 2001-2003
1. Long Beach, CA	183.7%	23.8%	251.1%
2. Seattle Boeing Field, WA	133.3%	0.0%	133.3%
3. St Petersburg/Clearwater, FL	-3.9%	124.0%	115.4%
4. Gunnison, CO	76.8%	15.6%	104.5%
5. Newport News, VA	63.2%	15.7%	88.8%
6. Lopez Island, WA	110.1%	-10.3%	88.5%
7. Rhinelander, WI	37.9%	25.9%	73.6%
8. Worland, WY	61.1%	6.9%	72.2%
9. Glasgow, MT	18.8%	41.7%	68.2%
10. Brunswick, GA	29.6%	28.6%	66.7%

In addition to these impacts, a number of small cities experienced the total elimination of commercial air service in the past two years, while some gained service. In the non-hub primary airport category – the larger traffic category – nine communities lost service, one community (Provincetown, MA) replaced service suspended during runway construction, while two gained service compared to the 2001 schedule. Cities losing service by 2002 included Belleville, IL; Gary, IN; Southern Pines, NC; Santa Rosa, CA; and Youngstown, OH. Cities losing service by 2003 were Naples, FL; Lancaster, PA; Worcester, MA and Stockton, CA. New service was offered in Bullhead City, AZ and at the Las Vegas, NV North Air Terminal by 2002.

Service changes in the very small airports category, the non-hub and non-primary airports, involved many more communities with mixed results. Forty different airports in this group of 317 facilities underwent status changes during the two-year period covered by this analysis. Of the 40, 14 communities lost service that has not yet been revived, 8 communities tried to revive services lost prior to 2001 but now no longer offer service; 2 communities appear to have successfully restarted service lost during 2002; and another 16 communities have successfully added air services.

This service change turmoil has resulted in communities like Gallup, NM; Utica, NY; and Oshkosh, WI losing service. Other communities such as Rockford, IL; Fort Collins, CO; and Olympia, WA now have some air service. Alaska has been greatly affected by the churning of commercial service among smaller airports. This turmoil is likely to continue; particularly as different competitors and technologies start having affects on transportation and airport costs.

Structural Changes in the Aviation Network: 2001-2003

Clearly the changes at individual airports have been profound, and each individual airport category has experienced reductions in both available flights and seats. Since airline deregulation, the nation's commercial aviation system has operated on a hub and spoke network model, with air service from many cities interconnecting at a limited set of hub airports. The drop in travel, combined with the heavy losses being experienced by almost all major airlines, have led the airlines to make the service cuts outlined above. We wanted to see if these cuts represented more than a suspension of service during difficult times, and we hypothesized that they were beginning to represent a change in business strategy for the airlines, and in fact a major industrial restructuring. To test this hypothesis, we wanted use the Official Airline Guide data base to look at two factors: the proportion of flights being operated from the large hubs to medium, small and non-hub airports in 2001 as compared to 2003; and the proportion of flights being operated by the major airlines as opposed to their regional affiliates in 2001 as compared to 2003.

Table 7: Connections Between Airport Categories 2001-2003

Flight Category	2001	2003	Percentage Change
Between Large Hubs	0.278%	0.270%	-3.1%
Between Large Hubs and Small & Medium Hubs	0.416%	0.43%	3.4%
Between Large Hubs and Non-Hub Airports	0.149%	0.139%	-6.8%
Between Small and Medium Hubs and Non-Hub Airports	0.079%	0.074%	-6.9%
Between Medium and Small Hubs	0.032%	0.031%	-1.3%
Between Non-Hub Airports	0.045%	0.056%	22.7%

These results show that changes are occurring. Large hubs are increasing reliance upon traffic from the small and medium hubs; the small and medium hubs are increasingly the point of origin for many flights, while the non-hub airports are developing new traffic patterns among themselves. Continuation of these trends, while important for intercity travel, may also have significant implications for the national air traffic control system and the investments needed to support this changing air traffic matrix.

Low Fare Point-to-Point Carriers

Another perspective on the continuing change in the airline industry is provided by examining the growth of the low-cost (or low-fare) segment. Using the current definition of 'low-cost' carriers developed by the OAG, there are presently 10 separately identifiable airlines, airline flight services or subsidiaries classified as 'low-cost' operations. The low-cost category currently includes AirTran, America West, ATA, Frontier, JetBlue, Southwest, Spirit, SunCountry, Delta Express and the Delta Song 'airline-within-an-airline' operation. These operations include carriers from both the major and national airline economic categories used by the FAA in describing the industry. Those carrier operations not part of the low-cost segment are often described as the mainline network carriers that rely upon the hub and spoke model to fill their flights.

As table 8 shows, the network carrier share of all flights has dropped from 79.48% to 74.77% between 2001 and 2003, a net share decline of 4.71%. It appears that the low-cost segment picked much of the share loss up. In 2001, the low-cost segment accounted for just 15.56% of all flights; now it accounts for 18.09% of the total, a net increase of just 2.53 share points - but a growth rate of more than 16% over the two-year period. Regional carriers also increased their share of flights by 2.18 share points – a much higher 42% growth rate for the regional and other carriers.

Table 8: Proportion of Flights by Network, Low-Cost, and Regional Carriers:
2001-2003

Airline Category	2001	2003
Major/National Network	79.48%	74.77%
Major/National Low Cost	15.56%	18.09%
Regional and Other Carriers	4.96%	7.14%

This same pattern of change can be seen in the seats offered by the network, low-cost, and regional carriers. Network carrier share of total seats dropped from 78.46% of seats to 73.01% of seats, a somewhat higher net loss of 5.45 points of seat share. Low-cost carriers picked up most of this loss, increasing by 4.98 points their 2001 seat share of 20.94% to the 2003 seat share of 25.92%.

Regional carriers grew their seat share from .61% in 2001 to 1.08% in 2003. This much smaller regional carrier seat share growth, when compared to their flight share growth, reflects the smaller airplanes that are often flown by the regional carriers, in those markets for which they may be the only carrier.

Table 8a: Proportion of Seats by Network, Low-Cost, and Regional Carriers: 2001-2003

Airline Category	2001	2003
Major/National Network	78.46%	73.01%
Major/National Low Cost	20.94%	25.92%
Regional and Other Carriers	0.61%	1.08%

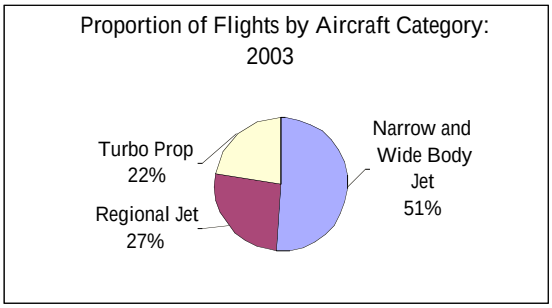
The Rise of Regional Jets

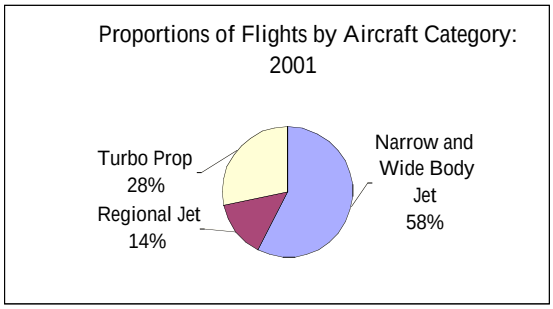
Since 2001, another important trend has emerged in airline operations. The use of regional jets has increased substantially. Regional jets are basically newer design jets, in the under 100-passenger seat range, generally outfitted with a single class of service, that require smaller cabin crews to operate. These regional jets are often used by an airline's regional partners to link to the larger narrow-body and wide-body jet service offered by the network airlines.

Since 2001, the number of flight operations supported by regional jets has expanded from just 14.3% of the total to 26.6% of the total, a growth of some 12.3 share points and a two-year growth rate of 86%. During this period, the share of flights served by traditional narrow and wide body jets dropped to 51% in 2003 from 57.5% in 2001. The share of flights served by turbo-props also dropped from 28.2% in 2001 to 22.4% in 2003.

Table 9: Proportion of Flights By Aircraft Category

Aircraft Category	2001	2003
Narrow and Wide Body Jet	57.5%	51.0%
Regional Jet	14.3%	26.6%
Turbo Prop	28.2%	22.4%





Regional jets appear to have two different roles in the current environment. Downsizing mainline network carriers are using regional jet service provided by

their partner carriers to replace some mainline services. And, regional jet service is being used as an upgrade for some turbo-prop services.

We analyzed flight schedules operated by regional jets to determine what stage lengths for which they were being used and were surprised to find that while 49.5% of regional jet stage lengths were under 500 miles in 2003, 40,6% were operated at stage lengths between 400-799 miles and 10 percent were operated for flights of 800 miles or more.

Moving forward, regional jet makers will also begin introducing even larger regional jets, and start to compete against the smaller end of the Boeing and Airbus equipment offerings. If these next generation regional jets continue to be operated by carriers with more advantageous work rules, operators of regional jets could continue to erode the share of flights being served by the traditional narrow-body and wide-body jet fleets.

The switch to regional jets has significant business impacts for air carriers. It also has significant public policy impacts. The situation experienced by the Cincinnati airport exemplifies what can happen when there is a significant shift to smaller regional jets. This situation is often raised as an example of the value of regional jets. But, CVG has been cited earlier in this report as the large hub airport that had the highest gain – about 15.9% - in weekly flights between comparable periods in 2001and 2003. And while CVG was a leader in seats retained, it still lost 3.9% of seats from 2001 to 2003. Delta CEO Leo Mullen has noted that Delta still has far too many hubs: "We are losing money in Cincinnati, as we are losing money in all our hubs,"[1]

The following table provides additional information on the 10 airports with the highest frequency of regional jet service in our 2003 schedule. This table includes eight large hubs and two medium hubs.

[1] "Delta CEO Warns Airlines Have More Hubs Than Needed," Lucy May, Pittsburgh Business Journal, October 6, 2003.

Table 10: Ten Hubs with the Highest Frequency of Regional Jet Service: 2001 and 2003

Airport	Hub Type	Regional Jet Frequency Share 2003	Regional Jet Frequency 2003	Regional Jet Frequency Share 2001	Regional Jet Frequency 2001
1. Chicago O'Hare, IL	L	40.94%	3209	25.95%	2229
2. Cincinnati, OH	L	73.08%	3089	62.13%	2266
3. Dallas/Fort Worth, TX	L	36.14%	2402	9.73%	698
4. Atlanta, GA	L	27.48%	2221	11.50%	936
5. Houston, TX	L	39.93%	1459	17.95%	690
6. Cleveland, OH	M	56.03%	1203	45.91%	1054
7. Newark, NJ	L	38.56%	1144	18.94%	699
8. Memphis, TN	M	51.13%	1065	31.21%	714
9. Detroit, MI	L	24.98%	1052	12.81%	588
10. La Guardia, NY	L	30.58%	1017	21.85%	818

This table shows that Cincinnati now has more than 73% of their departures supported by regional jets; Chicago O'Hare relies upon regional jets for more than 40% of its departures. Both Cleveland and Memphis see regional jet usage on more than half of all departures.

For most of these airports, significant growth in the use of regional jets has occurred since 2001. Collectively, these ten airports saw regional jet service increase by 67% from 2001 to 2003. They had a combined total of 10,692 regional jet non-stop departures in the 2001 weekly schedule and now show 17,861 such departures for the comparable 2003 schedule.

The increased use of regional jets doesn't come without potential problems. Rather than being upgrades for turbo-prop service, they often are introduced by major carrier's express partners and operated as replacements for larger equipment that is then retired by the major carriers. Characteristically, regional jets generally carry fewer passengers than the larger jets they replace to support the major or network carrier operations. This generally means that under this new operations model, more flights will be required to provide the same count of departure seats. And, because the passengers served by these airplanes may need to network with other scheduled flights, the regional jets may also be on the ground longer at hub airports.

As usage of regional jets increases and major carriers reduce service supported by the traditional narrow-body and wide-body equipment, more flight operations will be required to provide the same level of service. This may result in more airport congestion, and more demands upon the air traffic control system. All the

hubs listed in the table above have shown decreases in average seats per departure from 2001 to 2003. This change is summarized in the following table.

Table 10a: Average Seats per Departure, Departure Efficiency and Operations Ratios For Airports with Highest Regional Jet Use

Airport	Hub Type	Seats Per Departure 2003	Seats Per Departure 2001	2003/2001 Efficiency Ratio	2003/2001 Operations Multiplier
1. Chicago O'Hare, IL	L	99.9	110.1	0.90	1.10
2. Cincinnati, OH	L	73.7	88.9	0.83	1.21
3. Dallas/Fort Worth, TX	L	97.9	106	0.92	1.08
4. Atlanta, GA	L	119.5	127.2	0.94	1.06
5. Houston, TX	L	97.4	104.6	0.93	1.07
6. Cleveland, OH	M	69.1	79.8	0.87	1.15
7. Newark, NJ	L	104.1	108.4	0.96	1.04
8. Memphis, TN	M	76.2	86.2	0.88	1.13
9. Detroit, MI	L	101.9	106.3	0.96	1.04
10. La Guardia, NY	L	98.5	107	0.92	1.09

The efficiency ratio shown in the table above is simply the ratio of the average seats per departure in 2003 to the average seats per departure in 2001. For Chicago O'Hare, on average a 2003 departure can only provide 90.7% of the seats an average departure provided in 2001. Providing an equivalent number of departing seats – assuming the current mix of narrow-body, wide-body, regional-jet and non-jet service – would require a bit more than a 10% increase in total weekly departures.

Cincinnati, Cleveland, and Memphis airports have higher service multipliers, in part because they experience much greater reliance on and growth in the use of regional jets. As departure efficiency declines relative to earlier levels (that may have been used to support original airport facilities planning and financial analyses), greater financial burdens may be placed on both operations and passengers in order to support airport facilities and services.

Financial Status of Airline Industry

The restructuring of airline service in the aftermath of September 11 is a reflection of the financial condition of the nation's airlines, particularly the major hub and spoke oriented carriers such as United, US Airways, Delta and American. The drop-off in traveler demand after the September 11 attacks certainly hurt the airlines, although Congress' actions in providing a $15 billion taxpayer funded bailout package immediately after September 11 ameliorated the situation somewhat, as did the subsequent relief Congress provided.

The aftermath of September 11 has been called a "perfect storm" by many airline industry observers, as it came at a particularly bad time for the major carriers. Airlines had just finished a process of completely leveraging all of their capital resources through the issuance of debt or the financing of aircraft through lease-purchase arrangements. According to Goldman Sachs, the airline's combined net debt exceeded 120 percent of net revenues by October 2002. The Air Transport Association reports that interest expended alone accounted for a total of more than $850 million in expenses in the first quarter of 2003, a jump from just over $500 million in the first quarter of 2001, despite declining interest rates.[2] In fact, all the major airlines, except the low-cost carrier Southwest, are rated at junk bond status or worse.

Another factor cited by the network airlines is higher labor costs than the point-to-point carriers and the regional airlines, and indeed they have renegotiated labor agreements and laid off over 100,000 employees in the last two years. They have also, as we have seen above, shifted many flights to their regional partners, whose labor rates are much lower.

Implications for Airports and Municipalities

A related issue to the performance of the airline industry is the post 9/11 performance of America's airports. As noted, low cost carriers have absorbed a growing share of seats and flights in major travel markets while traditional network carriers have cut back capacity in these same markets, and network carriers have enthusiastically adopted regional jets, both directly and through regional carrier affiliates, as part of an operating cost reduction strategy.

A thorough analysis of how these changes, and the changes in travel demand generally, have affected the airport industry, is beyond the scope of this report, and we plan to issue such a report in the very near future. Some highlights of what can be gleaned are:

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[2] Air Transport Association, 2003. U.S. Airlines: The Road to Resuscitation, October 17, 2003, http://www.airlines.org/econ

- Airports are capital-intensive operations, with high investment and capital turnover requirements.
- Their capital is generally raised against expected revenues, through mechanisms, such General Airport Revenue Bonds (GARB's), and special facility bonds, that are secured against anticipated revenues.[3]
- Because airports have high capacity costs and low variable costs, they are run as utilities with small operating margins.[4]
- It is hard, in the face of passenger and volume drop-off, to re-scale facilities and reduce costs in the short run.
- While airlines, especially post-deregulation, have grown their landside or non-aeronautical fees to be approximately equal to aeronautical or landing fees, the drop off in business we've documented shows that it is hard to grow related revenues when passenger volume is declining. From 1999-2003, aeronautical fees as a percentage of total income grew from 51 to 59 percent, while correspondingly; non-aeronautical fees dropped from 49 to 41 percent, respectively. Additionally, for the last three years, the level of non-aeronautical fees, which includes parking, rental car concessions, and other concession, has been flat.[5]
- Airports as a group are somewhat still profitable; operating net for the largest 470 airports grew from $819 million in 1999, to $1.1 Billion in 2001, dropped back to $861 million in 2002, and grew to $991 million in 2003.[6]
- Industry projections of growth in net revenue are quite modest, with annual growth projections in the 1 to 5 percent annually.[7]
- Projections of capital investment requirements, by contrast, are aggressive. The 2002-2005 Federal Aviation Administration projection for the NPIAS is $45 Billion.[8] A survey conducted by the Chicago Department of Aviation of the capital improvement plans for the 20 largest airports reveals plans for investments there of $73-80 billion for these facilities alone.[9]
- There is a relationship between airline credit quality and airport bond vulnerability. In particular, as major airlines have become financially distressed, hub airports are exposed to greater credit risk than high origin and destination airports. As a result, bond-rating agencies have taken recent downgrading actions to reflect this additional risk. While no airport has ever missed a bond payment, service abandonment by major airlines

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[3] "Airline Bankruptcies and Airport Bonds: 2003-2006." Fitch Ratings IBCA. July 21, 2003

[4] Richard Golaszeski. "Airport Capacity and Financing: Threats, Opportunities and Solutions." 5th Annual Hamburg Conference: Airport Financial Exposure to Traffic Declines. Febuary 13, 2002.

[5] Project staff analysis. Federal Aviation Administration, Form 127 filings for the period June 30 1999-June 30 2003.

[6] *Ibid*

[7] "Airport Operations in the US." IBIS World Report 48811. October 2, 2003

[8] National Plan for Integrated Airport System: 2002-2005. FAA Report to Congress, August 28, 2002. At http://www2.faa.gov/arp/planning/npias/npias2001/npias01.htm

[9] "Summary of Capital Improvement Programs at Major U.S. Airports," City of Chicago, Department of Aviation. 2003

has occurred at Reno Canon, Nashville, Raleigh-Durham, and Kansas City International, and recently by American Airlines at St. Louis Lambert.

- In bankruptcy, if the court rules in favor of airlines over bondholders, rating agencies would view this as a material event, potentially resulting in negative rating action. This was the case with Pittsburgh International in the case of the US Airways bankruptcy.
- On April 30 2003, Fitch downgraded Allegheny County Airport Authority's outstanding $676 Million GARB's to 'BBB' from 'A-' due to US Airway's forward rejection, effective January 5 2004, of its airline agreements with the airport. On August 11, 2002, US Airways filed for Chapter 11 protection and emerged from bankruptcy on March 31, 2004. Immediately prior to emerging from bankruptcy protection, US Airways rejected its various leases at Pittsburgh Airport. The outlook for rating, for example, by Fitch Ratings was moved to negative, pending further action.[10]
- Similar concerns are being expressed with respect to future actions by United Air Lines as it moves to emerge from bankruptcy. It has $1.7 billion in airport "special facility debt" and is attempting to reclassify it as "unsecured pre-petition corporate debt." UAL has missed debt service payments for its special facilities at Chicago O'Hare, Denver, San Francisco, Los Angeles, and JFK airports, and in fact, has entered into lawsuits to assert their rights to not meet their lease obligations. While the court has rejected the claim in the case of UAL's O'Hare obligations, it remains to be seen whether "eviction" in the case of failure to pay would result in meaningful action for either UAL or for the bondholders.
- Major airlines outside of bankruptcy also face debt and capital lease maturities; the ten largest airlines will experience maturities in the amount of $21.2 million from 2003 to 2006. Given the drop-off in travel volumes, rating agencies will continue to signal their concerns with "negative outlooks" or early warnings of potential downward rating actions, or actual downgrades of bond ratings, which can substantially raise the cost of capital and further strain finances.
- There is further direct financial pressure looming from the switch in technology to regional jets. Lower weights translate to lower landing fees; fewer passengers means fewer Passenger Facility Charges; air traffic space is basically identical for RJ's and wide bond jets, leading to additional congestion; less overall fuel purchase means less *ad valorem* fuel tax; less efficiency means more emissions; fewer passengers means less non-aeronautical fees putting additional strain on bonds backed by parking and concession revenue.[11]

The US aviation system is a network. Network economies exhibit important characteristics: (1) complementary—airports, airways, and airlines are

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[10] Fitch Ratings. *Op. cit.*

[11] James DeBettencourt, Hank Dittmar and Anthony Perl. "Air Transportation Since 9/11/2001: Disruption or Transformation?" TR News, forthcoming, 2004

unequivocally interdependent; (2) compatibility—between equipment, operators, systems, places; (3) economies of scope—there are real economies achieved by increasing the number of nodes on the system; much as telephone systems and local area networks aren't useful until there are multiple users, redundant routing and some excess equipment and systems capacity are also important; (4) economies of scale—fixed costs can be flexibly spread over increased operations.[12]

It does not seem reasonable to project a rapid growth in revenues commensurate with the growth in capital development plans. And airlines, airports and their host economies are absolutely co-dependent. The prudent business options in the foreseeable future, given these conditions, are either to increase public subsidy to match airport capital needs, reduce airport capacity, or to increase the ability to capture value by including airport operations as part of travel, real estate and other value chains.

Reconnecting America has consistently recommended consideration of integrated, multi-modal travel facilities for inter-city travel. We observe that airports such as Pittsburgh would be much worse off without the success of their major retail concessions, which collectively operate like a shopping mall. In Europe, this kind of value latching has been the key to the emergence of Munich International as one of only two top-ten airports there that showed positive passenger growth in 2001-2002.[13], [14]

Shoring Up the Intercity Travel Network: Building a More Reliable System

According to the Air Transport Association (ATA), the decline in passengers has been most steeply felt on short flights, with a reduction of 26 percent in trips under 250 miles and almost 15 percent in trips from 250-500 miles between the 2nd quarter of 2001 and the 2nd quarter of 2002. Conversely, longer flight lengths are experiencing less severe declines with passengers traveling between 500-1500 miles off less than 10 percent in the same time period, and passengers traveling over 1500 miles off less than 5 percent.[15] Our analysis of OAG data confirmed the ATA's findings. We found that flights with stage lengths less than 400 miles had declined from 53% of all flights in 2001 to 49% of all flights in 2003.In many cases, travelers are forced to give up the trip altogether, or drive to distant airports or cities on overcrowded Interstates.

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[12] Oz Shy. The Economics of Network Industries. Cambridge, UK, 2001

[13] Willi Hermsen. "Financial Health of Munich Airport." January 30, 2002. At http://www.munich-airport.de/EN/Areas/Company/Medien/textarchiv/textarchiv02/30_01_2002/

[14] Sonja Sulzmaier. Consumer-Oriented Business Design: The Case of Airport Management. Physica-Verlag. Heidelberg, Germany. 2001

[5] John Heimlich, "*The Road to Resuscitation*," Air Transport Association, February 2003.

Innovations in Surface Transportation Modes

Interestingly, this distance from 100-400 miles is the most effective market for intercity bus, commuter rail and intercity rail. When airport access, waiting, security and transfer times are taken into account, bus and rail become cost and time competitive within this range. Three kinds of markets exist for rail and bus in these distances: for airport access in lieu of an auto trip, from city center to city center in substitution for an air journey, or to substitute for the spoke portion of a hub and spoke journey.

Across the country we have seen several success stories for intercity rail in these kinds of markets. They stand in marked contrast to the overall performance of intercity rail, and typically they involve partnerships between Amtrak and the state wherein the state invests in equipment, track and station improvements and provides service subsidies

Other partnerships are occurring on the West Coast. In California, increasing rail service on the Capitol Corridor rail line – to nine trips each way daily between Sacramento and Oakland, CA – increased ridership 40 percent between 2000 and 2001 and freed up both air and highway capacity. More Amtrak service improvements supported by the state of California resulted in record ridership levels on other California rail corridors. The California experience also points up the value of intercity bus links with rail, where buses are scheduled to meet trains to transport passengers to communities not reached by the rail network.

Another important step is improved equipment and service quality. Introduction of the sleek Talgo trains in the Pacific Northwest in 1999 boosted ridership between Seattle and Portland and reduced travel time by more than a half-hour. The state- railroad partnership (the states of Oregon and Washington and Amtrak and BNSF Railroad) is planning steady improvements to track and terminals to increase speed and frequency with the goal of carrying four times more passengers by 2016 than the 2001 level of 565,000 annually.

Turning Airports into *Travelports*[16]

But making the air rail connection work for the traveler involves one more step. It is a simple concept of connecting our current means of traveling region to region – the air-rail-bus networks – so that each travel mode provides the type of service that it is designed to do best. The idea is to turn airport terminals into *travel ports* where rail, bus, and urban transit would be added to the traditional mix of aviation, parking and rental cars. By making selected improvements to provide more reliable service options via other modes of travel for short and medium-distance passengers, airport capacity will be freed for the higher-value,

longer air trips. This kind of system is also more redundant, in the positive sense that travelers are presented with more options when regular service in a single mode is interrupted. A more redundant system is also an investment in economic security to ensure continued movement in the face of natural or man-made disasters. The value of this was clearly shown in the Northeast Corridor in the hours and days following the September 11 disaster; many studies also documented the ability of rail transit to provide continued service in the wake of the California Loma Prieta and Northridge earthquakes.

This solution also provides a way to address the revenue problem airlines confront as business travelers respond to declines in service by seeking low fare, no frills carriers by providing an increase in value. There is still a place for carriers that provide services that people value at a higher price. The only question is how much these services can take advantage of intermodal integration. Linking European planes with trains has been focused on business travel markets, like Frankfurt - Stuttgart or Paris - Brussels. By offering downtown access on fast train connections, airlines can charge high-yield fares for high-quality service, about the only alternative to today's focus on low fare, low yield strategies.

To see where the future could take us, one need only look to Europe, where individual countries started investing in the late 1970's in high speed rail and air-rail connections as a means to limit air and road congestion and reduce air pollution. With the regular introduction of new high-speed lines during the 1990's, Europe now has over 1950 miles of high-speed rail in service. Over the last decade, ridership has tripled. Under current policy and on the drawing board another 4,000 miles of new service are scheduled for operation by 2010. The newest high-speed service, which links Paris' Charles de Gaulle airport to Marseilles with a 3-hour train ride, illustrates the popularity of the service. Air-rail mode split has moved from 40 percent rail to 61 percent in the first year of operation. Previously, the train trip took more than 6 hours.

In addition to developing new lines individually, in the 1990's European countries began developing common policies, inter-country services and business enterprises. The benefit of these new efforts can best be seen in the Thalys service, a brand name for jointly operated trains by the Belgian, French, German, and Dutch railways. The first line began operation at the end of 1997 on a 180-mile line between Paris's Charles de Gaulle Airport and Brussels. Journey time was cut from 2 hours and 43 minutes to 1 hour 25 minutes – and was an instant success. Air France responded to the competition by working out a joint agreement in 1999 allowing the airline to offer passengers a choice: four daily train trips between Charles de Gaulle airport and center city Brussels or five daily plane trips from airport to airport. Air France ended the experiment by canceling the 10 one-way flights and now books one to two first class cars on each Thalys

train between Charles de Gaulle and the Brussels Midi rail station[17]. The result is not only happy passengers, but canceling the ten flights a day will save 6700 tons of CO2 emissions.

What we have learned from the European experience is that trains are popular across all markets when the trip is time competitive with air. The general rule of thumb for European planners is portal-to-portal rail travel in four hours or less. With average train speeds of 150 mph, the development of high-speed rail is making much of Europe comfortably accessible by rail. European Union policy encourages investing in air and rail interconnectivity to bring Europe closer together as an economic investment and as a means of reducing the impact of growth on the environment.

Can this happen in the United States? Conventional wisdom says not, because distance between cities is greater here, and because it is too difficult to make the air rail connection happen. We looked at intercity travel in the United States and found the distance between most metropolitan travel markets is within that range. For instance, the distance from Chicago to Detroit is 284 miles, from Los Angeles to San Francisco is 400 miles, Portland to Seattle is 187 miles, from Dallas to Houston is 250 miles, and from Miami to Orlando is 234 miles. The fact is that half of scheduled commercial air trips are less than 500 miles and almost that many are less than 400 miles in length.

As far as making the air rail connection, we also plotted the distance between 31 hub airports in the United States and the rail network, and found that about three-quarters of them were within two miles of the rail network. Many intersect the rail network directly, including Philadelphia, Washington's Reagan National, San Diego, San Francisco and Milwaukee.

Airport Rail Connections in the United States

In fact, innovative airport rail and bus connections are being made, and we have begun at Reconnecting America to assess the potential at key airports around the country. A few examples serve to illustrate the very real progress we are making in this country.

- Newark International Airport: the Newark Airtrain connects the airport with NJ Transit and Amtrak's Northeast Corridor at a new Newark Airport station, where ticketing and check-in facilities are available. Continental and Amtrak are now code-sharing.
- Ted Stevens International Airport, Anchorage: a new station and covered pedestrian connection has opened recently between the airport and the Alaska Railroad.

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[6] Railways and Environment Contributions to Sustainable Mobility: Examples of Good Practice, September 2001, pp 8-9.

- Portland International Airport, Oregon: Trimet recently opened a 5 plus mile light rail line connecting the Airport with the downtown, with a station in the baggage area of the airport.
- Burbank Municipal Airport: the Burbank Airport is directly served by the Metrolink Commuter Rail, with ten daily trips and the Amtrak's Pacific Surfliner with four daily trips. Amtrak's Coast Starlight passes through the station but does not stop.
- Baltimore Washington International Airport: a light rail line from Baltimore directly serves the terminal, and a bus shuttle connects with the BWI rail station, which is served by Amtrak and the MARC commuter service. This is one of the fastest growing stations in the Amtrak system.
- Key West International Airport, Florida where an intermodal terminal connects air service with Greyhound bus service and with an Amtrak thruway bus. There are some 21 air-bus connections in the country, but many airports actively discourage bus terminal facilities.

In addition to these examples, airport rail projects are in the planning and development stages at Chicago's O'Hare International Airport, with a commuter rail and possible Amtrak connection and a direct high quality transit express connection in the works; at Providence's T.F. Green airport, with a combined rail station and rental car facility, and at Miami International Airport, where an intermodal station is planned. And our discussions reveal that there is some active planning around this concept at most if not all major hubs.

As positive as it is that these projects are being accomplished, each has taken years, and each project has been unique in terms of financing, institutional arrangements, and type of service. So far, every airport rail project is an exception, and there is no systematic way of implementing these projects. All kinds of barriers exist, especially in commingling funding from the different modal programs. Without a concerted effort to remove the "stovepipes" that keep the modes separate, states and regions seeking to make these kinds of intermodal improvements will continue to be frustrated, and so will the traveling public.

Findings

- **Industry Restructuring Is Taking Place.** The U.S. airline industry has undergone a substantial restructuring in the past two years, brought about by corrections in oversupply in 2001, reductions in demand due to September 11 and to the faltering economy, crushing debt loads carried by major airlines, and the continuing impact of low-cost point to point carriers on the major hub and spoke airlines.
- **Many Cities Have Lost Substantial Amounts of Air Service.** This restructuring has been characterized by major reductions in flights at many airports. Particularly hard hit has been service to small and medium sized cities, and coastal cities.
- **Shifts to Regional Jets and Regional Carriers Are Occurring.** Another characteristic has been two shifts: a shift from narrow-body jets to regional jets with less passenger capacity, and a shift by the network carriers from their own service to service provided by their regional affiliates, both with the new regional jets and turbo-prop aircraft. This is driven in part by the lower wages paid by these regional affiliates. We believe that this trend will continue and grow over the next few years.
- **Low cost point-to-point carriers have continued to take market share.** Jet Blue has joined Southwest Airlines as a model of aviation success, and even United and Delta have created their own low cost carriers, called “Ted” and “Song”, respectively. These services are just now beginning to unfold, and their impact will be felt in the next year. It is unknown how these new point-to-point networks will affect the networks offered by their parent.
- **The restructuring trends lead to financial instability, particularly for airports.** The airlines have been aggressive in arguing that taxes and fees paid to support the airport and airway network and leases supporting airport facilities are too high. At the same time, many airports are dependent upon these leases to support their own bonded indebtedness, and many more are anticipating debt issuances backed by airport leases and fees to finance planned expansions. Similarly, any attempt by airlines to reduce payments into the Airport and Airways Trust Fund will place pressure on a burgeoning general fund deficit. All this adds up to mounting instability in airport and airline financial structures. The realignment is already presenting financial challenges to many airports, where capital budgets and infrastructure redevelopment programs were launched based on the pre 9-11 business model. Both low cost and regional carriers are unlikely to generate either the aeronautical or “land side” revenues that airports were counting on to finance their current and future infrastructure expenditures.
- **Airport and airspace congestion and the environment are affected.** Finally, the shift to smaller aircraft, whether they are regional jets or turboprops has interesting implications for both airport and airway capacity and congestion, and for airport emissions. From the standpoint of airport

and airway congestion, the reduction in flights has given overtaxed runways and corridors some breathing room, but the shift to smaller aircraft, which still use up gates, taxiways and runway slots to carry a smaller number of people, has lowered the overall efficiency of the airports. The use of these regional jets may be positive from an emissions per operations standpoint, but not from a per passenger standpoint. More study will be needed on the long-term implications of both issues.

Recommendations

1. **Congress Should Create an Essential Transportation Service Program:** As we have seen above, the ongoing airline restructuring has resulted in major service reductions to many small and medium sized airports, and shifts from narrow body aircraft to regional jets at many others. These services losses are beyond the resources of the current Essential Air Service program, which subsidizes airline service to many small communities.

   In order to create a truly national Interstate Highway Program, as well as a National Plan of Integrated Airport Systems, Congress has always subsidized transportation facilities and service in less dense corridors with funds derived from more densely populated areas. Such subsidies have been justified in terms of equity, in terms of the economic benefit to smaller communities, and in terms of national connectivity. They have also been widely criticized for economic inefficiencies, overly high per passenger subsidies, and diversion of funds from higher priorities. It is likely that as long as there is a federal system and a United States Senate, these arguments will continue.

   At the same time, though, it should be possible to reduce costs, increase accountability and provide improved service to the rural areas of the West and the Great Plains by pursuing an intermodal approach. Instead of individual programs, Congress should create an Essential Transportation Service program, distributed to the states, which would allow the subsidization of rail service, intercity bus service, or air service based upon a finding of cost-effectiveness as measured by population provided accessibility, frequency and convenience. The program would need to recognize that air service is point-to-point service, while rail and bus can serve communities along entire corridors, often on a multi-state basis. The aviation reauthorization legislation sent to Congress by the Bush Administration took a good first step in this direction, by reforming the Essential Air Service program to provide for ground transportation services at short and medium distances. Unfortunately, the aviation legislation that was ultimately signed into law did not move in this direction.

2. **Reforms Are Needed in the Financing of Transportation Facilities:** As the foregoing analysis demonstrates, the current model of financing airports and passenger aviation relies upon a set of assumptions that are proving not to be true. Airlines under fiscal pressure are proving to be unwilling to pay the lease payments, landing fees and taxes that underwrite the nation's airports and air traffic control system. Airlines have already received substantial direct general fund subsidy from the federal

government, including the $15 billion bail out following the tragic events of September 11, 2001, and the current deferral of some taxes.

Other transportation modes are facing similar long term challenges, with the highway industry beginning to be concerned about the viability of the fuel tax as a long term source, and the freight railroads facing huge capital backlogs without a revenue base to allow needed investments. In the short term, the answer seems to be to borrow, but as seen at the Pittsburgh Airport, the nation's airports are beginning to discover there are limits to debt once one becomes fully leveraged. Felix Rohatyn has been calling for structural reforms in the financing of infrastructure to create a capital budgeting process, and the long-lived nature of transportation investments like runways, terminals, roads and transit facilities makes them the ideal candidate for such reforms.

Financing an intermodal project at this time is possible; it merely requires persistent genius and clever exceptionalism. With our key freight and passenger bottlenecks now located in our major metropolitan hubs, it is now time to both create a specific funding program dedicated to making intermodal connections, as well as to make it easier to finance these connections with traditional modal sources of funding. That's why Reconnecting America has called for the creation of a "Last-Mile Intermodal Connections Fund," to make freight and passenger connections between ports and railroads and highways, between airports and passenger rail and intercity bus, and between railroad yards and trucking distribution centers. Both the House and Senate drafts of the highway-transit reauthorization now pending in Congress contain intermodal funding provisions, although in both cases funding eligibility needs to be broadened to incorporate non-highway connections. In addition, Congress needs to recognize that additional funding is needed to support the capital requirements of our entire national transportation system.

3. **Congress Should Undertake a Review of National Policies and Plans for Intercity Travel of Passengers and Freight.** The massive reshaping of air travel in this country will have implications beyond the obvious changes in accessibility for travelers. At the same time, opportunities exists to network our separate transportation systems in a way that recognized the market forces that have shaped them, and still creates market opportunities from system integration. A national plan would examine ways to eliminate barriers to the emerging intermodal markets for passengers and freight, and would identify critical investments in transportation infrastructure to enable economic productivity gains.

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For more information, go to http://www.reconnectingamerica.org or http://www.cnt.org, or call Reconnecting America at 505-426-8055.

Methodology

Data Used in the Airport Analysis Charts and Reports

The airline schedule information used to calculate nonstop flight departures and seat data was based on summaries from OAG Worldwide's MAX Market Analysis for Air Transport Specialists airline schedule database. OAG Worldwide's MAX database is widely used within the airline and air travel industry for authoritative market analysis and schedule comparisons.

The OAG Worldwide MAX Database

The OAG MAX database is structured around detailed schedule data that airlines submit to the OAG for publication. This data is the most reliable source of airline schedules, other than the most up-to-date data help by the airlines themselves. Data is provided on flight times, aircraft equipment, routings, and periods during which specific flights will be offered.

The OAG data was examined in a number of ways. A similar week was chosen for use in the year-to-year comparisons. These comparisons are based upon the analysis of weekly schedules for the full week in 2003 beginning with Monday, September 29, 2003, the full week in 2002 beginning with Monday, September 30, 2002 and the full week in 2001 beginning with Monday, October 1, 2001 based on information contained in the databases published as of September 1 of each year. In other words, the tragic events of September 11, 2001 did not affect that schedule database as it was published on September 1, 2001.

For each week for each year, a summary report was developed that detailed the number of unique non-stop departures leaving each airport, the number of seats on those departing flights, and the available seat miles for these nonstop flight legs for each domestic U.S. airport. Nonstop flights were the basis chosen in order to not double count capacity that was serving multiple destinations through stops at intermediate cities. This actual number of outbound seats to the first (or only) nonstop destination is the maximum number of possible passenger enplanements that would be possible if all flights to all domestic destinations were full.

Many of the small and medium hubs that lost service were in Hawaii and Alaska, which appear to be affected by trends unlike those affecting the core continental U.S. network We have accordingly not included the Hawaii or Alaska airports in the small or medium hub or non-hub rankings.

The OAG data has some limitations. It is a planned schedule of departures and associated aircraft for those particular flights and airlines. As situations change, there may be significant changes from such planned schedules – depending

upon weather, and ongoing changes in travel demand, for example. But, as airline schedules are worked out months in advance so flight crew staffing and aircraft maintenance needs can be met, the OAG schedules are reliable indicators of expected operations by an airline within specific markets.

U.S. Domestic Focus

Finally, for both analyses, the focus is on person trips to domestic US destinations. Many of the larger cities also generate substantial international traffic, but for the purposes of these analyses we only examine travel patterns among US cities. As with any type of data analysis, some caution is warranted in interpreting these numbers. We have attempted here to use them in both a reasonable and valid manner.

For more details on the information used in this analysis, please feel free to contact:
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