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DOMESTIC AVIATION

Changes in Airfares, Service,  
and Safety Since Airline  
Deregulation

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Resources, Community, and Economic  
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Mr. Chairman and Members of the Committee:

We appreciate the opportunity to testify on the changes that have occurred in domestic aviation since the deregulation of the airline industry. The Airline Deregulation Act of 1978 phased out the federal government's control over airfares and service, relying instead on competitive market forces to decide the price, quantity, and quality of domestic air service. Our testimony today discusses the findings of our report, prepared at the request of this Committee and being released today, in which we compared the changes in airline (1) fares, (2) service quantity and quality, and (3) safety since deregulation for airports serving small, medium-sized, and large communities.<sup>1</sup> In summary, we found the following:

- Fares per passenger mile, adjusted for inflation, have fallen since deregulation about as much at airports serving small and medium-sized communities as they have at airports serving large communities. A key factor contributing to the overall trend toward lower airfares has been the increased competition spurred by the entry of new low-cost, low-fare airlines, especially at airports in the West and Southwest. Nevertheless, some airports—particularly those serving small and medium-sized communities in the Southeast and in the Appalachian region—have experienced substantial increases in fares since deregulation. At these airports, one or two airlines account for the vast majority of flights and passengers, and there is relatively little competition.
- In general, the quantity of the air service available, as measured by the number of both departures and available seats, has increased since deregulation for airports serving small, medium-sized, and large communities. Large-community airports in particular have experienced a substantial increase in the amount of air service. Not all of the airports that we reviewed, however, shared in this general trend toward more air service. Some airports—particularly those serving small and medium-sized communities in the Upper Midwest—have less air service today than they did under regulation. However, while changes in air service quantity can be easily measured, assessing changes in the overall quality of this service is difficult because there are many dimensions of quality and not everyone agrees on the relative importance of each. The factors that are usually considered to be primary in service quality, such as the number of destinations served by nonstop flights, generally suggest that for large

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<sup>1</sup>Airline Deregulation: Changes in Airfares, Service, and Safety at Small, Medium-Sized, and Large Communities (GAO/RCED-96-79, Apr. 19, 1996). We analyzed data for 112 airports: 49 serving small communities, 38 serving medium-sized communities, and 25 serving large communities. In 1994, these airports accounted for about two-thirds of the 7.1 million domestic airline departures and 481.7 million passenger enplanements in the United States.

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communities, quality has improved substantially. For small and medium-sized communities, on the other hand, the results are mixed.

- In general, the safety of air travel has improved at all three groups of airports we sampled. The accident rates at the airports in each group were lower in 1994 than in 1978. Indeed, there are so few accidents each year that a change of just one or two accidents from year to year can cause significant fluctuation in an accident rate. As a result, we did not find any statistically significant differences between the trends in air safety for small-, medium-sized-, and large-community airports.

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## Background

Before 1978, the U.S. airline industry was tightly regulated. The federal government controlled what fares airlines could charge and what cities they could serve. Legislatively mandated to promote the air transport system, the Civil Aeronautics Board believed that passengers traveling shorter distances—more typical of travel from small and medium-sized communities—would not choose air travel if they had to pay the full cost of service. Thus, the Board set fares relatively lower in short-haul markets and higher in long-haul markets than would be warranted by costs. In effect, long-distance travel subsidized short-distance markets. In addition, the Board did not allow new airlines to form and compete against the established carriers.

Concerned that government regulation had caused fares to be too high in many heavily traveled markets, made the airline industry inefficient, and inhibited its growth, the Congress deregulated the industry. The Airline Deregulation Act of 1978 phased out the government's control over fares and service but did not change the government's role in regulating and overseeing air safety. Deregulation was expected to result in (1) lower fares at large-community airports, from which many trips are long-distance, and somewhat higher fares at small- and medium-sized-community airports; (2) increased competition from new airlines entering the market; and (3) greater use of turboprop (propeller) aircraft by airlines in place of jets in smaller markets that could not economically support jet service.

In 1990, at the request of this Committee, we reported on the trends in airfares since deregulation for airports serving small, medium-sized, and large communities.<sup>2</sup> For the 112 airports we reviewed, we found that overall fares had fallen not only at airports serving large communities, as

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<sup>2</sup>Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990).

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was expected, but at airports serving small and medium-sized communities as well. We noted, however, that despite the overall trend toward lower airfares, some small- and medium-sized-community airports had experienced substantial increases in fares following deregulation, especially in the Southeast. Our current report on changes in airfares, service, and safety since airline deregulation updated this analysis for the same 112 airports.<sup>3</sup> We have also reported on several other issues concerning airfares since deregulation, including the effects of market concentration and the industry's operating and marketing practices on fares. These reports are listed at the end of this statement.

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## Airfares Have Fallen Overall but Have Risen Sharply at Some Airports

As of the first 6 months of 1995, airfares overall continued to be below what they were in 1979 for airports serving small, medium-sized, and large communities. Comparing full-year data for 1979 and 1994, the fares per passenger mile, adjusted for inflation, were about 9 percent lower for small-community airports, 11 percent lower for medium-sized-community airports, and 8 percent lower for large-community airports.<sup>4</sup> Despite the general trend toward lower fares, however, fares at small- and medium-sized-community airports have remained consistently higher than fares at airports serving large communities, largely because of the economics associated with traffic volume and trip distance. As the volume of traffic and average length of haul increase, the average cost per passenger mile decreases, allowing for lower fares. Airports serving small and medium-sized communities tend to have fewer heavily traveled routes and shorter average distances, resulting in higher fares per passenger mile compared with those of large-community airports.

Nevertheless, fares have fallen since deregulation for most of the airports in our sample. Of the 112 airports that we reviewed, 73 have lower fares, while 33 have higher fares.<sup>5</sup> Specifically, fares have declined at 36 of the 49 airports serving small communities, 19 of the 38 airports serving

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<sup>3</sup>Airline Deregulation: Changes in Airfares, Service, and Safety at Small, Medium-Sized, and Large Communities (GAO/RCED-96-79).

<sup>4</sup>When the increase in fares that occurred between 1994 and the first half of 1995 is factored in, the fares since deregulation are about 6 percent lower for small-community airports, 9 percent lower for medium-sized-community airports, and 6 percent lower for large-community airports. Because the data for 1995 cover only 6 months, however, we used primarily the latest available full-year data (for 1994) in analyzing the trends since deregulation.

<sup>5</sup>For six airports in our sample, the fare changes were not statistically significant. Because the data on fares is developed from a statistical sample of tickets, they have a sampling error. For these airports, it was not possible to determine the direction of the changes in fares between 1979 and 1994 due to sampling error.

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medium-sized communities, and 18 of the 25 airports serving large communities.

The overall trend toward lower fares since deregulation has resulted in large part from increased competition, spurred in many cases by the entry of new airlines. The average number of large airlines serving the medium-sized-community airports in our sample, for example, increased by over 50 percent between 1978 and 1994, while the average number of commuter carriers serving these airports increased by about 40 percent. Low-cost airlines, such as America West and Southwest Airlines, have accounted for much of this new entry, resulting in substantially lower fares at airports in the West and Southwest, regardless of the size of the community served.

In addition, the established airlines' transition to hub-and-spoke systems following deregulation has increased competition at many airports serving small and medium-sized communities. By bringing passengers from multiple origins (the spokes) to a common point (the hub) and placing them on new flights to their ultimate destinations, these systems provide for more frequent flights and more travel options than did the direct "point-to-point" systems that predominated before deregulation. Thus, instead of having a choice of a few direct flights between their community and a final destination, travelers departing from a small community might now choose from among many flights by several airlines through different hubs to that destination.

Nevertheless, while fares have fallen at the majority of airports in our sample, they have risen substantially for travel out of several airports. As appendix I shows, those airports that have experienced the largest fare increases—over 20 percent—mostly serve small and medium-sized communities in the Southeast and Appalachia.<sup>6</sup> In contrast to those airports in the West and Southwest that have experienced substantial declines in fares, these airports tend to be dominated by one or two higher-cost airlines. For example, Delta accounted for nearly 90 percent of the passenger enplanements in 1994 at the airport serving Jackson,

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<sup>6</sup>In appendix I, we only included those airports whose change in fares between 1979 and 1994 was greater than 20 percent regardless of the sampling error (i.e., the lower bound estimate of percent change was greater than plus or minus 20 percent).

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Mississippi, where fares have risen by over 25 percent since deregulation.<sup>7</sup> By contrast, three low-cost, new entrant airlines—America West, Reno Air, and Southwest—accounted for about 65 percent of the enplanements in 1994 at the airport serving Reno, Nevada, where fares have fallen by about 21 percent since deregulation.

The more widespread entry of low-cost airlines at airports in the West and Southwest in the nearly two decades since deregulation—and the resulting geographic differences in fare trends—stems primarily from stronger economic growth, less airport congestion, and more favorable weather conditions in those regions, compared to the East and Southeast. For example, the average annual increase in employment between 1979 and 1993 for Reno, Nevada, was 2.6 percent, which compares with an average annual increase of 0.9 percent for the communities in the Southeast and Appalachia whose airports have experienced an increase in fares of over 20 percent since deregulation.

Nevertheless, over the past 2 years, a few new entrant airlines have attempted to initiate low-cost, low-fare service in the East. The results have been mixed. In early 1994, for example, Continental Airlines created a separate, low-cost service in the East, commonly referred to as “Calite.” Largely because it grew too rapidly and was unable to compete successfully against USAir and Delta, Calite failed and was terminated in early 1995. As a result of the loss of competition brought by Calite, the largest fare increases during the first 6 months of 1995 occurred at airports in the East, primarily at small- and medium-sized communities in North Carolina and South Carolina.

More recently, other low-cost carriers have emerged in the East. The most successful of these to date has been Valujet. However, Valujet has begun to experience some of the problems of operating in the East, such as difficulties in obtaining scarce take-off and landing slots at congested airports. Even so, Valujet’s success has sparked competitive responses from the dominant airlines in the East. Delta, for example, plans to initiate a separate, low-cost operation of its own in the East later this year. However, because most of Valujet’s growth occurred in the second half of 1995 and the competitive responses of other airlines are only beginning to unfold, data are not yet available to determine the extent to which Valujet

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<sup>7</sup>While nearly all of the airports in our sample that have experienced an increase in fares since deregulation of over 20 percent serve small and medium-sized communities, one large-community airport—Pittsburgh—experienced an increase of 21 percent. In 1994, USAir accounted for over 90 percent of the enplanements at Pittsburgh. Like Pittsburgh, the six other large-community airports that have experienced increases in fares, although less than 20 percent, are large hub airports dominated by one or two airlines.

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has affected fares in the East, particularly at airports serving small and medium-sized communities that have yet to benefit from the overall trend toward lower airfares since deregulation.

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## Large Communities Have More and Better Air Service, but the Trends for Small and Medium-Sized Communities Are Mixed

Most communities served by the airports in our sample have more air service today than they did under regulation. Seventy-eight percent of the small and medium-sized-community airports have had an increase in the number of departures, and every large-community airport has more departures. Overall, the number of departures has increased by 50 percent for small-community airports; 57 percent for medium-sized-community airports; and 68 percent for large-community airports.

In addition, the overall number of available seats has increased for all three airport groups. However, because of the substitution of turboprops for jets in many markets serving small and medium-sized communities following deregulation, the increase in the number of available seats has been less dramatic for those communities than the increase in departures. For example, although the number of departures has increased by 50 percent for small-community airports, the number of seats has increased by only 15 percent—an increase that barely exceeds the overall increase in population over the past two decades at the communities served by these airports. Because of the greater use of turboprops, some airports serving small and medium-sized communities have actually had a decrease in the number of available seats even though the number of departures has increased. The airport serving Bismarck, North Dakota, for example, has had a 23-percent decrease in the number of seats even though the number of departures has increased by 54 percent. By comparison, every large-community airport has had an increase in the number of seats, and in some cases—like Phoenix’s Sky Harbor Airport and Houston’s Hobby Airport—that increase exceeds 300 percent.

In addition, several other airports serving small and medium-sized communities have experienced a decline in the number of both departures and seats. The communities that these airports serve—including Duluth, Minnesota; Green Bay, Wisconsin; Moline, Illinois; and Rapid City, South Dakota—are located primarily in the Upper Midwest, where economic growth has been relatively slow. In some cases, the communities served by these airports have contracted. For example, the average annual change in population for Moline, Illinois, between 1979 and 1993 was –0.5 percent. For the three communities in our sample whose airports have experienced the sharpest decline in departures and seats—Lincoln, Nebraska;



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Rochester, Minnesota, and Sioux Falls, South Dakota—the average annual growth rate during this period was only 0.4 percent in population, 1.3 percent in personal income, and 1.4 percent in employment. By comparison, for Phoenix, Arizona, the average annual growth rate was 3.0 percent in population, 3.7 percent in personal income, and 3.7 percent in employment.

Measuring the overall changes in air service quality since deregulation is more difficult than measuring the changes in quantity. Such an assessment requires, among other things, a subjective weighting of the relative importance of several variables that are generally considered dimensions of quality. These variables are the number of (1) departures and available seats, (2) destinations served by nonstop flights, (3) destinations served by one-stop flights and the efficiency of the connecting service, and (4) jet departures compared with the number of turboprop departures.

We found that large-community airports, largely because of their central role in hub-and-spoke networks, have not only had an increase in the number of departures but have also experienced a nearly 25-percent increase in the number of cities served by nonstop flights. In addition, while the share of departures involving jets at large-community airports has decreased slightly with the greater use of turboprops, the actual number of jet departures has increased by 47 percent for airports serving large communities.

For airports serving small and medium-sized communities, the picture is much less clear. For these airports, hub-and-spoke networks have resulted in more departures and more and better one-stop service. However, because much of this service is to hubs via turboprops, small and medium-sized communities have few destinations served by nonstop flights and relatively less jet service. For the small-community airports in our sample, for example, the number of cities accessible via nonstop service has declined by 7 percent since deregulation while the percentage of departures involving jets fell from 66 percent in 1978 to 39 percent in 1995. On the other hand, the number of cities accessible via one-stop service has increased by about 10 percent and the efficiency of that service has improved substantially as a result of the greater number of departures.

Weighting the value placed on these changes depends on a subjective determination that will vary by individual. As a result, it is difficult to judge whether smaller communities such as Fayetteville, North Carolina, have better air service today. Even though the number of destinations served

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from Fayetteville’s airport has declined from nine in 1978—including daily service to Washington, D.C.—to two in 1995, those two cities (Atlanta, Georgia, and Charlotte, North Carolina) are major hubs. When service to these hubs is combined with more frequent turboprop service to and from Fayetteville, the result is a substantial increase in one-stop connections and a corresponding decrease in layover times between flights for residents of Fayetteville.

An assessment of service quality for small and medium-sized communities is further complicated because it is not possible to convert each dimension of quality into a common measure, such as total travel time. Although most of the dimensions can be measured in terms of travel time, one cannot: the perceived levels of amenities and comfort that travelers associate with the different types of turboprops and jets. As a result, developing a formula that combines the various factors to produce a single, objective “quality score” is problematic.

Nevertheless, as appendix II shows, when we considered the airports in our sample that had either a positive or negative change in every quality dimension, we found not only that large-community airports have better air service today than they did under regulation but that geographical differences exist as well.<sup>8</sup> Fast-growing communities of all sizes in the West, Southwest, Upper New England, and Florida have better service, while some small and medium-sized communities in the Upper Midwest and Southeast—areas of the country that have experienced relatively slow economic growth over the last two decades—are worse off today.

In a recent study of the nation’s smallest airports, which account for approximately 3 percent of the total passenger enplanements in the United States, the Department of Transportation has found trends in fares and service similar to those that we observed, and the study’s conclusions are consistent with our findings. Because we were interested in fare trends at individual airports, we limited the airports we examined to those that had sufficient numbers of tickets to ensure that the results were statistically meaningful. As a result, we excluded the airports serving the nation’s smallest communities. We believe that the Department of Transportation’s study could therefore serve as a valuable complement to our analysis.

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<sup>8</sup>In identifying those airports in our sample that had a positive change in each quality dimension, we included large-community airports that experienced a decline in one-stop service if that decline was accompanied by a substantial increase in the number of destinations served by nonstop flights.

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## Safety Has Improved Since Deregulation for Communities of All Sizes, but Comparisons Between Airport Groups Are Inconclusive

Since the 1940s, the rate of airline accidents in the United States has been declining. Following the introduction of jet aircraft in the late 1950s (e.g., the Boeing 707) and second-generation jets in the 1960s (e.g., the Boeing 737), this long-term decline in the accident rate accelerated. By the late 1980s there were only a small number of airline accidents occurred each year, and as a result, the rate of decline has slowed in recent years. In addition, the overall accident rate for commuter carriers has declined by 90 percent over the last two decades, largely due to more advanced aircraft technology and better pilot training.

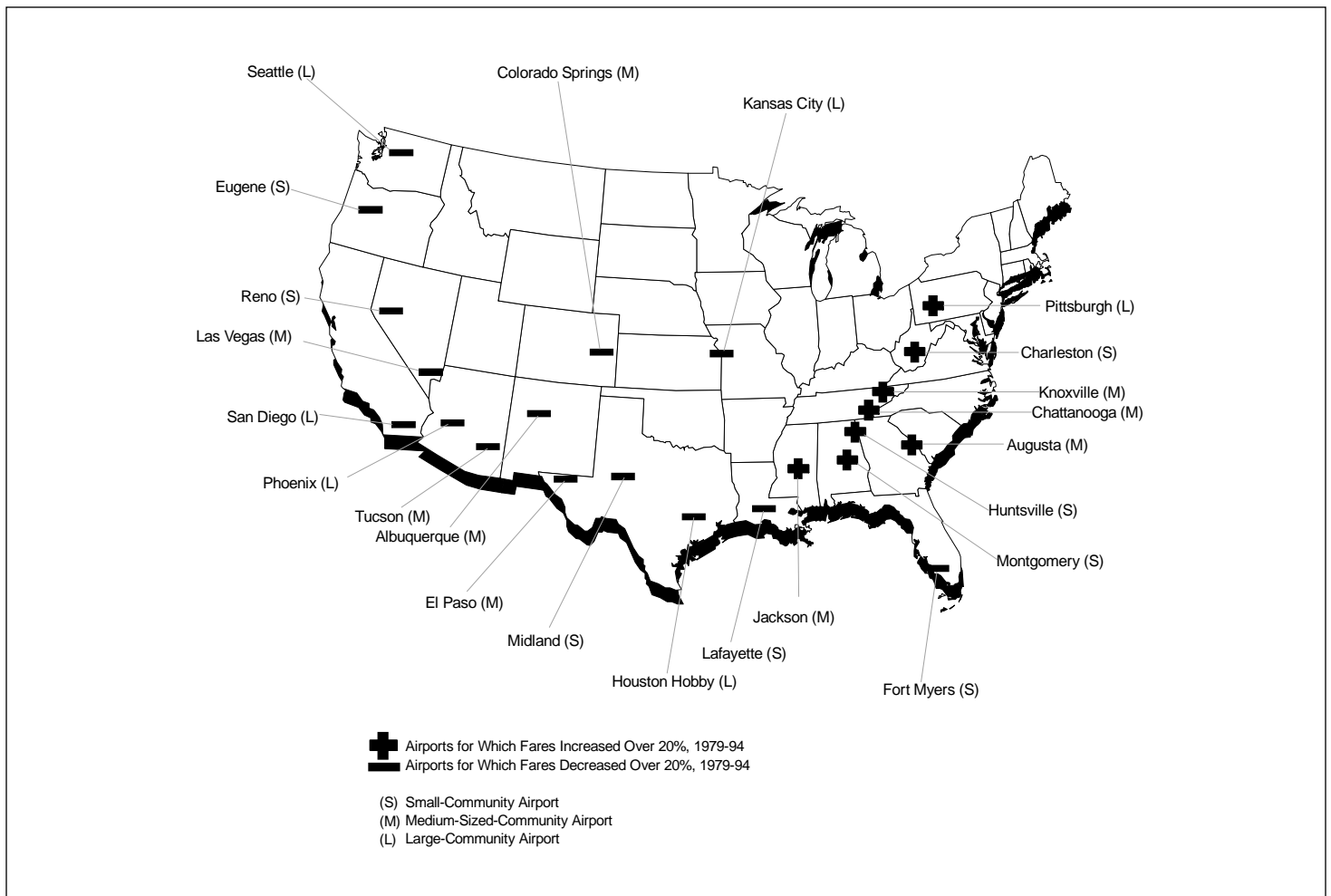
As appendix III shows, this general trend toward improved safety is evident for all three airport groups that we reviewed, especially for airports serving medium-sized communities. Specifically, the rate of accidents at airports serving small communities fell from 0.47 accidents per 100,000 departures in 1978 to 0.14 accidents per 100,000 departures in 1994. At medium-sized-community airports, the rate fell from 1.29 accidents per 100,000 departures to 0.00 in 1994 because no accidents were recorded at those airports in 1994. Finally, at airports serving large communities, the rate fell from 0.41 accidents per 100,000 departures to 0.14 in 1994.

However, as appendix III also shows, an increase of just one or two accidents in a given year can cause a significant fluctuation in accident rates. Thus, while it is true that turboprops do not have as good a safety record as the larger jets they replaced in many markets serving small and medium-sized communities, this fluctuation in accident rates makes it difficult to discern any impact of the increasing use of turboprops on relative safety between the airport groups. Our attempts to discern trends between airport groups by smoothing the data—employing, for example, such common practices as calculating a 3-year moving average—did not help identify any trends. Our analysis of accidents on routes to and from the airports in our sample was similarly inconclusive in terms of identifying any differences in the trends between airport groups.

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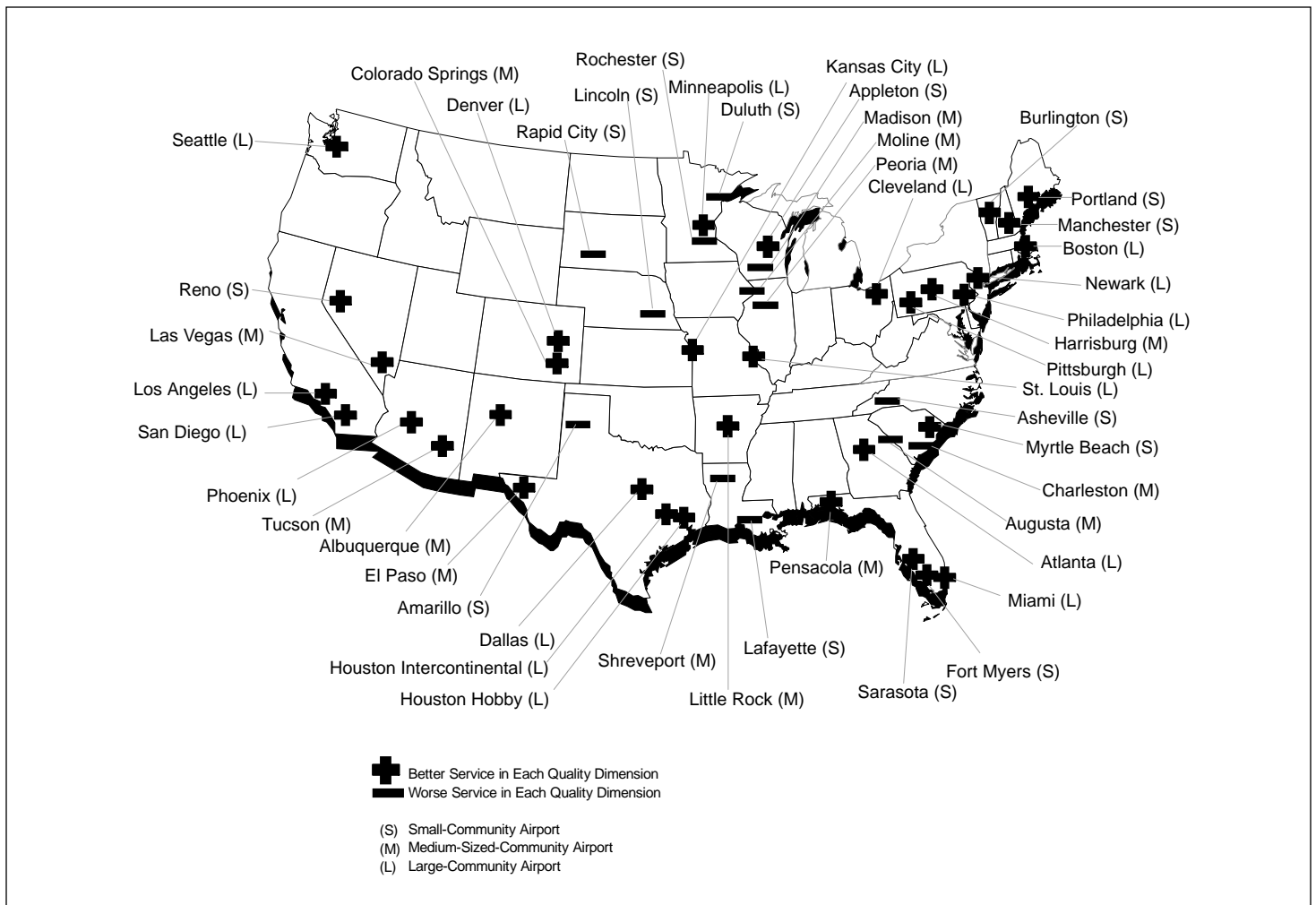
Mr. Chairman, this concludes our prepared statement. We would be glad to respond to any questions that you or any member of the Committee may have.

# Airports in Our Sample for Which Fares Increased or Decreased by More Than 20 Percent, 1979-94



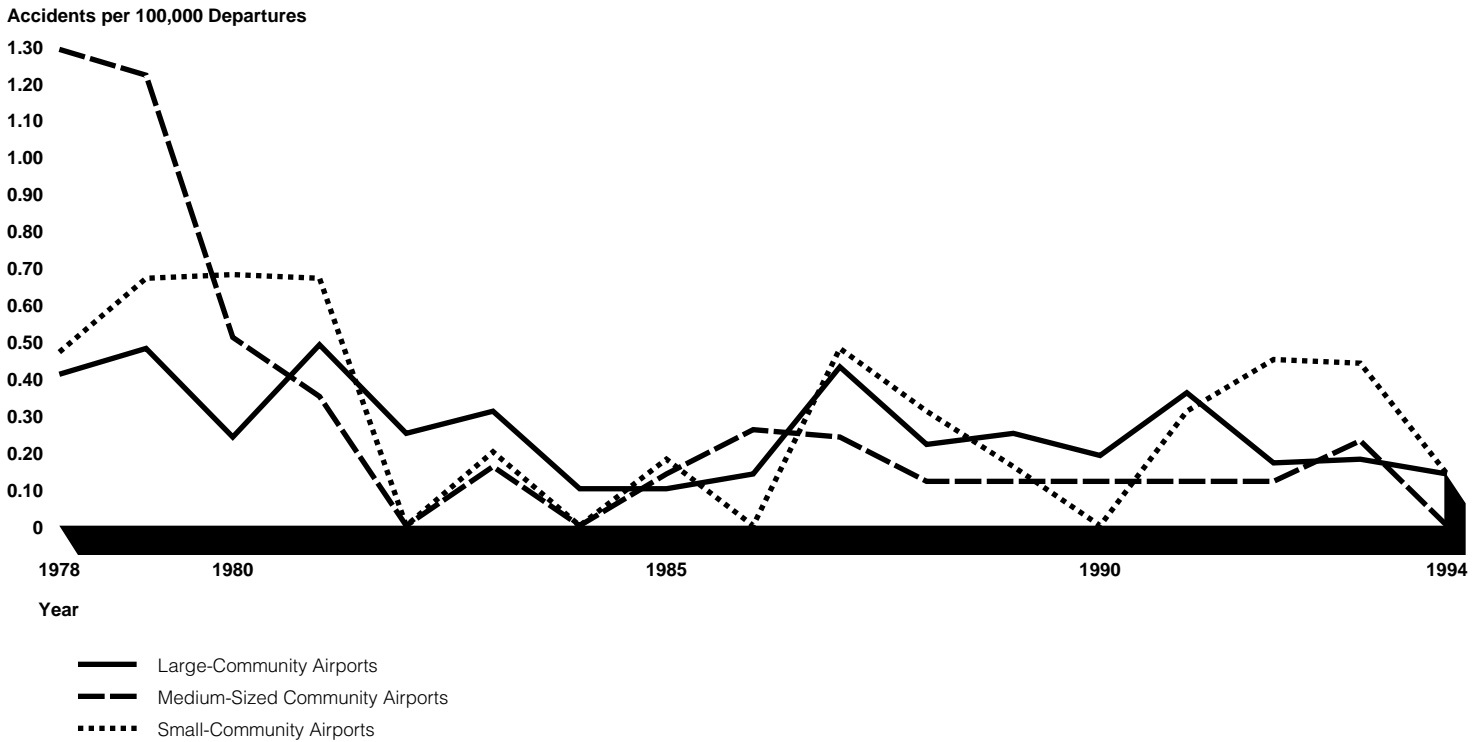
Source: GAO's analysis of DOT's O&D Survey.

# Airports in Our Sample for Which the Quality of Air Service Has Improved or Worsened in Every Quality Dimension



Source: GAO's analysis of data from DOT and OAG.

# Accident Rates at Airports Serving Small, Medium-Sized, and Large Communities, 1978-94



Note: Data for 1978 are fiscal-year data.

Source: GAO's analysis of data from the Federal Aviation Administration and National Transportation Safety Board.

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# Related GAO Reports

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Airport Competition: Essential Air Service Slots at O'Hare International Airport (GAO/RCED-94-118FS, Mar. 4, 1994).

Airline Competition: Higher Fares and Less Competition Continue at Concentrated Airports (GAO/RCED-93-171, July 15, 1993).

Computer Reservation Systems: Action Needed to Better Monitor the CRS Industry and Eliminate CRS Biases (GAO/RCED-92-130, Mar. 20, 1992).

Airline Competition: Effects of Airline Market Concentration and Barriers to Entry on Airfares (GAO/RCED-91-101, Apr. 26, 1991).

Airline Competition: Weak Financial Structure Threatens Competition (GAO/RCED-91-110, Apr. 15, 1991).

Airline Competition: Fares and Concentration at Small-City Airports (GAO/RCED-91-51, Jan. 18, 1991).

Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990).

Airline Competition: Industry Operating and Marketing Practices Limit Market Entry (GAO/RCED-90-147, Aug. 29, 1990).

Airline Competition: Higher Fares and Reduced Competition at Concentrated Airports (GAO/RCED-90-102, July 11, 1990).

Airline Competition: DOT's Implementation of Airline Regulatory Authority (GAO/RCED-89-93, June 28, 1989).

Airline Service: Changes at Major Montana Airports Since Deregulation (GAO/RCED-89-141FS, May 24, 1989).

Airline Competition: Fare and Service Changes at St. Louis Since the TWA-Ozark Merger (GAO/RCED-88-217BR, Sept. 21, 1988).

Competition in the Airline Computerized Reservation Systems (GAO/T-RCED-88-62, Sept. 14, 1988).

Airline Competition: Impact of Computerized Reservation Systems (GAO/RCED-86-74, May 9, 1986).

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