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# NATIONAL AIRSPACE SYSTEM

## DOT and FAA Actions Will Likely Have a Limited Effect on Reducing Delays during Summer 2008 Travel Season

Statement of Susan Fleming, Director  
Physical Infrastructure Issues





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# Highlights

Highlights of [GAO-08-934T](#), a testimony to the Subcommittee on Aviation Operations, Safety, and Security, Committee on Commerce, Science, and Transportation, U.S. Senate

## Why GAO Did This Study

Flight delays and cancellations have plagued the U.S. aviation system. According to the Department of Transportation (DOT), more than one in four flights either arrived late or was canceled in 2007—making it one of the worst years for delays in the last decade. Delays and cancellations were particularly evident at certain airports, especially the three New York metropolitan commercial passenger airports—Newark Liberty International (Newark), John F. Kennedy International (JFK), and LaGuardia. To avoid a repeat of last summer's problems, DOT and the Federal Aviation Administration (FAA) have worked with the aviation industry over the past several months to develop and implement several actions to reduce congestion and delays for the summer 2008 travel season.

This testimony addresses (1) the trends in the extent and principal sources of flight delays and cancellations over the last 10 years, (2) the status of federal government actions to reduce flight delays and cancellations, and (3) the extent to which these actions may reduce delays and cancellations for the summer 2008 travel season. This statement is based on an analysis of DOT data on airline on-time performance, a review of relevant documents and reports, and interviews with officials from DOT, FAA, airport operators, and airlines, as well as aviation industry experts and associations. DOT and FAA provided technical comments which were incorporated as appropriate.

To view the full product, including the scope and methodology, click on [GAO-08-934T](#). For more information, contact Susan Fleming at (202) 512-2834, or [flemings@gao.gov](mailto:flemings@gao.gov).

## NATIONAL AIRSPACE SYSTEM

### DOT and FAA Actions Will Likely Have a Limited Effect on Reducing Delays during Summer 2008 Travel Season

#### What GAO Found

DOT data show that flight delays and cancellations have increased nationwide and especially in the New York region; however, the data provide an incomplete picture of the source of delay. Since 1998, the total number of flight delays and cancellations nationwide has increased 62 percent, while the number of scheduled operations has increased about 38 percent. Flight delays and cancellations in the New York region are even more pronounced. Specifically, since 1998, the number of flight delays and cancellations in the New York region has increased about 111 percent, while the number of operations has increased about 57 percent. DOT data on the sources of delays provide an incomplete picture. For example, in 2007, late arriving aircraft accounted for 38 percent of delays nationwide, but this category indicates little about what caused the aircraft to arrive late, such as severe weather.

To reduce delays and congestion beginning in summer 2008, DOT and FAA are implementing several actions that for the purposes of this review GAO is characterizing as capacity-enhancing initiatives and demand management policies (see table). Some of these actions are already in effect, such as 11 of the 17 short-term initiatives designed to improve capacity at the airport or system level and the hourly schedule caps on operations at the New York area airports. The other actions are being developed but are unlikely to be in effect by this summer. For example, DOT and FAA are soliciting comments on the proposed rule to establish slot auctions at JFK and Newark until July 21, 2008.

DOT's and FAA's capacity-enhancing initiatives and demand management policies may help reduce delay, but the collective impact of these actions on reducing delay in 2008 is limited. For example, the benefit of the 17 initiatives—which range from efforts to reduce excessive spacing on final approach before landing to new procedures for handling air traffic during severe weather conditions—is generally expected to come from the initiatives' combined incremental improvements over time and in certain situations. The demand management policies may have a more immediate but limited effect on delays since the caps at Newark and LaGuardia were set at a level that was generally designed to avoid an increase in delay over 2007 levels. For example, the caps at Newark are set at a level that is not expected to bring a delay reduction as compared to delays in 2007.

#### Status of DOT's and FAA's Actions to Reduce Delays and Congestion

Action—capacity enhancing initiative	Status
17 short-term operational and procedural initiatives	11 of 17 completed
Coordination for use of military airspace	In progress
New York/New Jersey/Philadelphia airspace redesign	Initiated, estimated completion 2012
New York Airspace Czar	Appointed
Action—demand management policy	
Orders limiting scheduled operations at New York airports	In effect
Proposed rules on slot auctions at New York airports	DOT & FAA are seeking and reviewing comments
Amendment to Airport Rates and Charges policy	Final policy issued July 8, 2008

Source: GAO analysis of DOT and FAA actions.

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Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to testify before you today on the federal government's efforts to reduce aviation congestion and delays for this summer's travel season. In recent years, flight delays and cancellations have plagued the U.S. aviation system. According to the Department of Transportation (DOT), more than one in four flights either arrived late or were canceled in 2007, affecting approximately 163 million passengers and making it one of the worst years for delays in the last decade. A recent report by the Senate Joint Economic Committee found that collectively, passengers were delayed 320 million hours in 2007 and estimated that domestic flight delays last year cost as much as \$41 billion to the U.S. economy.<sup>1</sup> Delays were particularly evident at certain airports, especially those in the New York region. For the past 10 years, the three principal New York metropolitan commercial passenger airports—Newark Liberty International (Newark), John F. Kennedy International (JFK), and LaGuardia—have often ranked at or near the bottom of DOT's lists of airport on-time arrivals and departures. Since one-third of aircraft in the national airspace system move through the New York area at some point during a typical day, delays in this region can have a disproportionate impact on delays experienced throughout the rest of the system.

Consumer complaints and media coverage of airline service problems, combined with congressional hearings on these issues, have recently put flight delays in the spotlight. Most aviation industry experts believe that substantial gains in reducing aviation congestion and delays can be achieved in the long term through investment in airport infrastructure, Next Generation Air Transportation System (NextGen) technologies,<sup>2</sup> and/or more efficient pricing of the nation's aviation infrastructure. However, to avoid a repeat of last summer's delays, DOT and its operating agency, the Federal Aviation Administration (FAA), have worked with the aviation industry since the fall of 2007 in an effort to develop and implement several near-term actions to reduce delays for the summer 2008 travel season.

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<sup>1</sup>Senate Joint Economic Committee, *Your Flight Has Been Delayed Again: Flight Delays Cost Passengers, Airlines and the U.S. Economy Billions*. (Washington, D.C.: May 2008).

<sup>2</sup>NextGen represents a transformation to a new air traffic control system that will use satellite-based technologies and new procedures to handle the increasing volume of air traffic while further improving safety and security.

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My testimony today addresses (1) the trends in the extent and principal sources of flight delays and cancellations over the last 10 years, (2) the status of federal government actions to reduce flight delays and cancellations by the summer of 2008, and (3) the extent to which these actions may reduce delays and cancellations for the summer 2008 travel season. To determine trends in the extent and sources of delays, we analyzed DOT data on airline on-time performance, including sources of delays, by airport and for the entire airspace system, for 1998 to 2007.<sup>3</sup> To assess the reliability of the data, we interviewed agency officials about data quality control procedures, reviewed relevant documentation, and electronically tested the data to identify obvious problems with completeness or accuracy. We determined that the data were sufficiently reliable for the purposes of this report. We also reviewed relevant documents and reports and interviewed DOT and FAA officials, airport operators in Boston, New York, and Chicago, major commercial airlines, and aviation industry experts and associations on the status and potential impact of the federal government's actions to reduce delays. Although its scope covers the national airspace system as a whole, our work especially focuses on the New York region because of the New York area airports' persistent problems with flight delays and cancellations and the federal government's actions focused on reducing delays in this region. We conducted our work from December 2007 to July 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the study to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our study objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Summary

DOT data show that flight delays and cancellations have generally increased over the last decade, but the data provide an incomplete picture of the full extent and sources of delays. Since 1998, the number of airline flight delays and cancellations has increased about 62 percent nationwide, while the number of scheduled operations has increased about 38 percent,

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<sup>3</sup>14 C.F.R. § 234.4, "Reporting on on-time performance," requires domestic air carriers that account for at least 1 percent of domestic scheduled passenger revenues to submit scheduled domestic flight performance data to DOT. See 14 C.F.R. §§ 234.2, 234.3. The number of reporting carriers has varied from 10 in 1998 to 20 in 2007. According to DOT, the data represent about 70 percent of all scheduled departures while servicing about 90 percent of all domestic passengers.

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according to DOT data.<sup>4</sup> While flight delays occur throughout the entire national airspace system, the flight delay trends in New York area are even more pronounced. For example, since 1998, the number of flight delays and cancellations in the New York region has increased about 111 percent, while the number of operations has increased about 57 percent. Although DOT data provide information on trends in flight delays and cancellations, they do not show the full extent of delays and cancellations. For example, DOT data do not reflect passengers' experiences with missed connections resulting from delayed or oversold flights, because DOT tracks flight delays, not passenger delays. Additionally, DOT data provide some information on the source of delays, but they do not provide a complete picture. For example, according to DOT data, 38 percent of delays in 2007 were assigned to the late arriving aircraft category, which means that the previous flight using the same aircraft arrived late, and caused the subsequent flight to depart late. However, this category does not provide the original source of delay for the late arriving aircraft, such as a severe weather condition. In the New York region, the data for 2007 show that national aviation system delays—a category that encompasses a broad set of circumstances, which are all attributed to FAA's ability to manage traffic at the airport or airspace level—accounted for nearly 58 percent of all New York delays, as compared to approximately 28 percent systemwide. This disparity reflects the New York area's greater level of congestion as compared to the rest of the country.

To address delay and cancellation problems beginning in summer 2008, DOT and FAA are implementing several actions intended to reduce delays that we have categorized as capacity-enhancing initiatives and demand management policies. Capacity-enhancing initiatives are intended to increase the efficiency of existing capacity by reducing delays and maximizing the number of takeoffs and landings at an airport, while demand management policies influence demand through administrative measures or economic incentives. Under capacity-enhancing initiatives, FAA has implemented 11 of its 17 short-term initiatives designed to better use existing capacity at the airport or system level; begun working to improve coordination with the Department of Defense (DOD) for the use of military airspace; initiated the first phase of the New York, New Jersey, and Philadelphia metropolitan area airspace redesign (New York-New

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<sup>4</sup>DOT defines a delay as any flight that departs from or arrives at a gate 15 minutes or more after its scheduled gate departure or arrival time as shown in the airline's reservation system.

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Jersey-Philadelphia Airspace Redesign); and appointed a New York Airspace “Czar” to coordinate regional airspace issues and projects. DOT and FAA have also initiated several demand management policies—most notably, imposing new hourly schedule caps on operations at Newark and JFK, which join already existing caps at LaGuardia. Other demand management policies are either still in draft form or have just been issued, and therefore, are unlikely to be in effect by this summer. These policies include an amendment to the 1996 Policy Regarding the Establishment of Airport Rates and Charges (Rates and Charges policy)—which, among other things, clarifies the ability of airport operators to establish a two-part landing fee structure based on operations and aircraft weight—and proposed rules on “slot auctions” that would lease the majority of New York area airport operations (slots) to incumbent airlines and then would help to develop a market for those slots by annually auctioning a limited number of slot leases.<sup>5</sup>

Collectively, DOT’s and FAA’s capacity-enhancing initiatives and demand management policies will likely have a limited effect on reducing delays this summer compared to last year. DOT’s and FAA’s capacity-enhancing initiatives have the potential to reduce delays by improving the efficiency of existing capacity, but the effect will likely be fairly small. For example, the benefit of the 17 operational and procedural initiatives—which range from efforts to reduce excessive spacing on final approach before landing to new procedures for handling air traffic during severe weather conditions—is generally anticipated to come from the initiatives’ combined incremental improvements over time and in certain situations. DOT and FAA have not analyzed the potential near-term delay reduction benefit of the other capacity-enhancing initiatives, but airlines, airport operators, and aviation associations and experts that we spoke with expect these initiatives to have a fairly small impact on reducing delays for this summer. DOT’s demand management policies—specifically, the hourly schedule caps at LaGuardia, JFK, and Newark—may have a more immediate, but still a limited, effect on reducing delays because the caps at Newark and LaGuardia were set at a level that was generally intended to avoid any worsening of delays over 2007 levels and the caps at JFK were set to get a 15 percent reduction in average departure delays over 2007 levels. For example, Newark’s cap of 81 hourly operations was set at a level to avoid delays beyond those experienced in 2007 but is not estimated to reduce delays from 2007 levels. Finally, other interrelated

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<sup>5</sup>A slot equates to one takeoff or landing at the airport.

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factors besides government actions, such as the financial state of the aviation industry, increasing jet fuel prices, and the downturn in the economy, could lead to fewer delays in 2008, but the effects of these factors on aviation congestion and delays are uncertain. DOT and FAA provided technical comments on the statement which were incorporated as appropriate.

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## Background

The national airspace system is a complex, interconnected, and interdependent network of systems, procedures, facilities, aircraft, and people that must work together to ensure safe and efficient operations. DOT, FAA, airlines, and airports all affect the efficiency of national airspace system operations. DOT works with FAA to set policy and operating standards for all aircrafts and airports. As the agency responsible for managing the air traffic control system, FAA has the lead role in developing technological and other solutions to airspace issues. FAA also provides funding to airports. The funding that major airports receive from FAA to make improvements at the airports is conditioned on open and nondiscriminatory access to the airlines and other users,<sup>6</sup> and the airlines are free to schedule operations at any time throughout the day, except at airports that are subject to limits on scheduled operations. The airlines can also affect the efficiency of the airspace system by the number and types of aircraft that they choose to operate.

As we have previously reported, measuring the capacity of the airspace system and achieving its most efficient use are both difficult challenges because they depend on a number of interrelated factors.<sup>7</sup> The capacity of the aviation system is not a simple measurable element—in addition to being related to airports' infrastructure, capacity is affected at any given time by such factors as weather conditions and airline flight schedules. For example, because some airports have parallel runways that are too close together for simultaneous operations in bad weather, the number of aircraft that can take off and land is reduced when weather conditions worsen. Achieving the most efficient use of the national airspace system is

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<sup>6</sup>According to 49 U.S.C. § 47107, an airport that has received federal funding is required to be available for public use on reasonable conditions and without unjust discrimination.

<sup>7</sup>GAO, *Air Traffic Control: Role of FAA's Modernization Program in Reducing Delays and Congestion*, [GAO-01-725T](#) (Washington, D.C.: May 10, 2001), and *National Airspace System: Long-Term Capacity Planning Needed Despite Recent Reduction in Flight Delays*, [GAO-02-185](#) (Washington, D.C.: Dec. 14, 2001).

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contingent on a number of factors, among them the procedures that FAA uses to manage traffic, how well FAA's air traffic control equipment performs, the proficiency of the controllers to efficiently use these procedures and equipment to manage traffic, and how much users are charged for the use of the airspace and airports.

FAA has had a long history of attempting to address congestion by managing demand through administrative controls. FAA began establishing limits on the number of takeoffs and landings at five airports—Chicago O'Hare International, Newark, JFK, LaGuardia, and Washington Reagan National—in 1968. The High Density Rule, as it was known, instituted limits, or caps, on the number of takeoff and landings of the incumbent airlines serving each of these airports.<sup>8</sup> DOT lifted the restrictions at Newark in 1970, and in 2000, with the passage of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), caps on operations were to be eliminated at Chicago O'Hare by July 2002, and at LaGuardia and JFK by January 2007.<sup>9</sup> AIR-21 also immediately exempted certain types of aircraft from the caps, a change that resulted in unanticipated increases in demand, especially at LaGuardia. In 2000, airlines took advantage of AIR-21's small regional jet exemptions and rapidly initiated a large number of new flights to and from LaGuardia. FAA chose to impose a moratorium on additional flights at LaGuardia in November 2000 to limit delays and reduced flights at LaGuardia to a level consistent with the airport's capacity under optimal weather conditions. On the basis of this experience and FAA's inability to adopt a final congestion management rule for LaGuardia,<sup>10</sup> FAA issued a December 2006 order to maintain the cap of 75 hourly scheduled operations at LaGuardia until a final rule can be adopted. Chicago O'Hare also experienced increased operations after its caps were eliminated, prompting FAA to again limit operations at the airport beginning in spring 2004 through a series of voluntary agreements and ending with a new rule in late summer 2006. These caps on Chicago O'Hare's operations are

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<sup>8</sup>33 Fed. Reg. 17896 (Dec. 3, 1968), 14 C.F.R. part 93, subpart K.

<sup>9</sup>The Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), Pub. L. No. 106-181, Section 231, 114 Stat. 108, Apr. 5, 2000.

<sup>10</sup>Since the High Density Rule at LaGuardia was set to expire on January 1, 2007, in August 2006, FAA published a notice of proposed rulemaking proposing the continuation of the cap on hourly operations at the airport as well as a new method for allocating capacity. See 71 Fed. Reg. 51360 (August 29, 2006). The industry's response to the proposed new allocation method was universally negative, and FAA was unable to complete its rulemaking in time for the expiration of the High Density Rule.

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effective through October 2008, which coincides with the scheduled opening of the airport's new runway in November 2008.

In response to the near-record delays in summer 2007, which followed the expiration of the High Density Rule for the New York airports and increasing volumes of domestic air traffic, DOT convened a special aviation rulemaking committee (New York ARC) in the fall of 2007 specifically to address delays and other airline service issues in the New York metropolitan area. The New York ARC, which consisted of stakeholders representing government, airlines, airports, general aviation users, and aviation consumers, was tasked with identifying available options for changing current policy and assessing the potential impacts of those changes on airlines, airports, and the traveling public. The New York ARC had three specific objectives: (1) to reduce congestion, (2) to allocate efficiently the scarce capacity of New York area airports, and (3) to minimize the disruption associated with implementing any of the suggested improvements. The New York ARC issued its findings and options for reducing congestion to the Secretary of Transportation in December 2007.<sup>11</sup> One of the committee's working groups assessed 77 operational improvement initiatives for the New York area and identified key items to focus on within the list of 77, such as reducing excess spacing on final approach when landing.

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<sup>11</sup>Aviation Rulemaking Committee, "New York Aviation Committee Report," December 2007, available at <http://www.dot.gov/affairs/FinalARCReport.pdf>.

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## Data Show That Delays and Cancellations are Increasing, but Provide an Incomplete Picture of the Extent and Sources of Delays

Nationwide, according to DOT data the annual number of domestic airline flight delays and cancellations has increased about 62 percent (from 1.2 million to 2.0 million), while the annual number of scheduled flights has increased about 38 percent (from 5.4 million to 7.5 million) since 1998. In the New York area, the trend is even more pronounced, as the number of domestic flight delays and cancellations at the three main commercial airports has increased about 111 percent, while the number of domestic operations has increased about 57 percent since 1998.

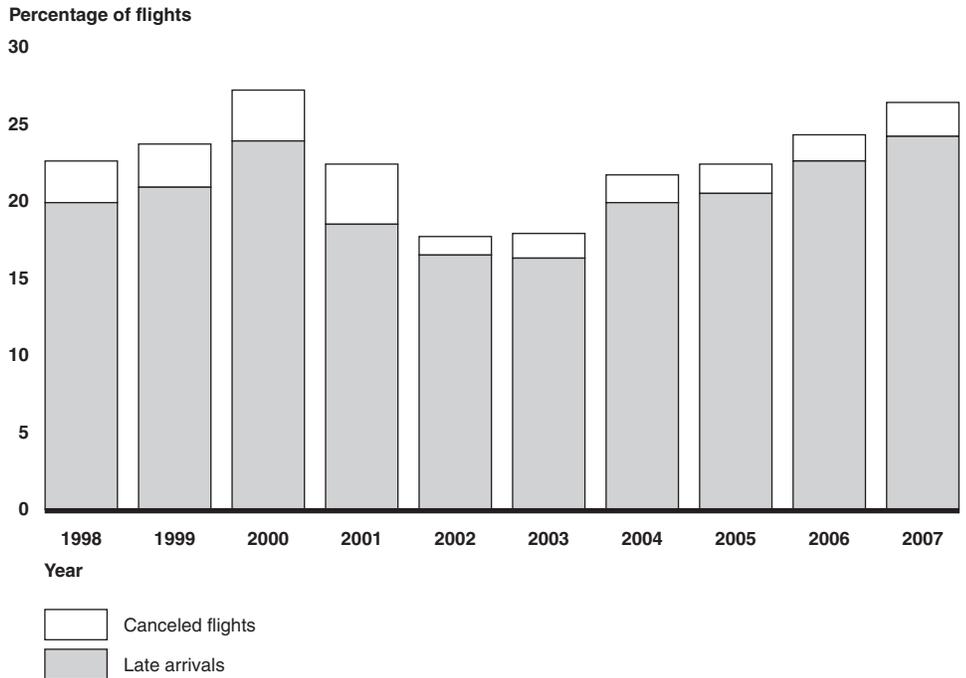
DOT statistics indicate that 2007 was the second worst year on record for U.S. airlines' on-time performance, and the trends in the percentage of flight delays and cancellations appear to be worsening.<sup>12</sup> As shown in figure 1, about 20 percent of flights in the system were delayed and nearly 3 percent were canceled in 1998, compared to about 24 and 2 percent in 2007, respectively.<sup>13</sup> The data also show that flight delays and cancellations have been steadily increasing since 2002, although the percentage of cancellations in 2007 is still lower than it was from 1998 through 2001. However, cancellations have become more problematic in recent years as the airline industry is now operating with fewer empty seats on flights. As a result, passengers on canceled flights must wait longer to be rebooked, and in some cases may be forced to spend the night before resuming travel the next day.

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<sup>12</sup>As of December 2007, 18 U.S. airlines with at least 1 percent of total domestic scheduled service passenger revenues reported on-time performance data each month to DOT's Bureau of Transportation Statistics; two additional airlines voluntarily reported this information. A flight is counted as on time if it departed or arrived within 15 minutes of its scheduled gate departure or arrival times as shown in the airlines reservation system. All canceled and diverted flights count against the airlines' on-time performance. According to DOT, the on-time performance rate of 72.6 percent in 2000 was the worst rate for any year since 1995, when DOT began collecting comparable data.

<sup>13</sup>In addition, a small percentage of domestic flights are diverted and land somewhere other than the scheduled destination. Diversions accounted for 0.23 percent of all flights in 2007, according to DOT data.

**Figure 1: Trends in Percentage of Late Arriving and Canceled Flights—Systemwide (1998-2007)**



Source: DOT.

Flights delays are also becoming longer. According to DOT data, the average length of a flight delay increased from more than 49 minutes in 1998 to almost 56 minutes in 2007, an increase of nearly 14 percent throughout the system. Despite this relatively small increase in average flight delay length, far more flights were affected by long delays in 2007 than in 1998. For example, the number of flights delayed by 180 minutes or more increased from 25,726 flights in 1998 to 64,040 flights in 2007, or about 150 percent. In addition, DOT's data indicate that the number of flights in which an aircraft has departed the gate, but remained for an hour

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or more on the ground awaiting departure, has increased over 151 percent since 1998.<sup>14</sup>

Because the entire airspace system is highly interdependent, delays at one airport may lead to delays rippling across the system and throughout the day. This delay propagation appears to be increasing and leading to more delays in the system overall. For example, researchers at George Mason University's Center for Air Transportation Systems have found that 46 percent of delays in the system in 2007 were caused by flight delays occurring earlier in the day. Flight delays in the New York metropolitan region also appear to have a disproportionate impact on delays experienced throughout the rest of the airspace system. During a typical day, approximately one-third of the aircrafts in the national airspace system move through the New York airspace. According to preliminary research conducted by the MITRE Corporation for FAA, an average of 40 percent of the flight delays in the system are from delays that originate in the New York metropolitan area.<sup>15</sup>

Compared to the rest of the country, where flight delays and cancellations have been steadily increasing, the magnitude and upward trend of the problem in the New York region is greater than the rest of the airspace system. For example, over a third of all flights in the New York metropolitan region in 2007 were delayed or canceled, according to DOT statistics.<sup>16</sup> Figure 2 shows that the percentage of late arriving and canceled flights at each of the three major New York area airports was considerably higher than the systemwide averages. Since 2003, the

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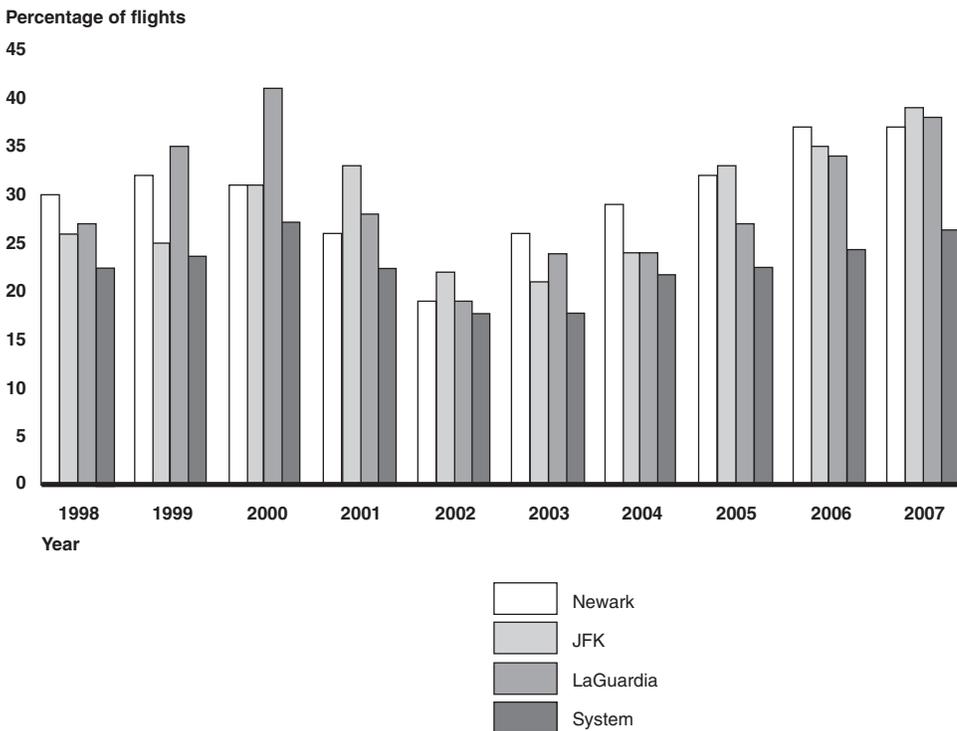
<sup>14</sup>Effective October 1, 2008, DOT will require airlines to report additional data elements to provide consumers with a more accurate portrayal of arrival and tarmac delays. Currently, airlines report only the scheduled departure and arrival times and no actual times for canceled flights, which do not provide a complete picture of tarmac delays for flights that are canceled, diverted, or experience gate returns. Under the new rule, airlines will be required to report actual gate departure, total time away from the gate, and the longest single period away from the gate to close gaps in DOT's data. See 73 Fed. Reg. 29426 (May 21, 2008) for the final rule.

<sup>15</sup>According to the MITRE Corporation, the 40 percent figure was calculated using DOT data from January and July 2007 and FAA data from July 2007.

<sup>16</sup>Additionally, flight delays and cancellations have been problematic at other major airports, including Chicago O'Hare International Airport and Boston Logan International Airport, among others. For example, according to DOT data, in 2007, 36 percent of flights were either delayed or canceled at Chicago O'Hare, while 31 percent of flights were either delayed or canceled at Boston Logan.

percentage of late arriving and canceled flights has been increasing faster in the New York area than in the rest of the system.

**Figure 2: Annual Percentage of Late Arrivals and Cancellations at New York Airports compared to the Entire Airspace System (1998-2007)**



Source: GAO analysis of DOT data.

Note: In this figure, the percentage of delays and cancellations has been combined. The system data include the three New York area airports.

Since 1998, the New York area’s three major airports have often been among the airports with the lowest on-time performance records. In 2007, DOT reported that LaGuardia, Newark, and JFK had the lowest on-time performance rates among major domestic airports, followed by Chicago O’Hare International Airport, Philadelphia International Airport, and Boston Logan International Airport. Table 1 shows the ranking of major airports by the lowest on-time arrival performance in 2007.

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**Table 1: Ranking of Major Airports by Lowest On-Time Arrival Performance (2007)**

Ranking	Airport	Percentage on time
1	LaGuardia	58.48
2	Newark	59.45
3	JFK	62.84
4	Chicago O'Hare International	65.88
5	Philadelphia International	66.54
6	Boston Logan International	69.68
7	San Francisco International	69.75
8	Miami International	70.99
9	Charlotte Douglas International	71.30
10	Seattle-Tacoma International	71.43
	<b>All major airports average</b>	<b>73.03</b>

Source: DOT.

Note: "Major airports," as defined by DOT, consists of the 32 airports serving 1 percent or more of the airline industry's domestic scheduled service passengers.

While DOT data show that the trends in delays and cancellations are getting worse, current on-time performance data do not capture the full extent of delays and cancellations or the extent to which passengers' average travel times have increased in recent years. For example, airlines have, in many cases, opted to lengthen scheduled flight times to enhance on-time results, particularly along heavily congested and frequently delayed routes. DOT data do not account for the increased average flight times that are masked by these schedule changes. Also, available DOT data may not necessarily reflect passengers' experience of delay because DOT tracks flights, not passengers. Passengers can experience delays to their trips because of missed connections resulting from delayed or oversold flights or lengthy delays due to flight cancellations—elements that are not measured in current statistics. According to a recent study by George Mason University, roughly one in four passengers experienced a passenger trip delay in 2007 and the average duration of delay experienced by these passengers was 1 hour 54 minutes, an increase of 24 minutes over 2006.<sup>17</sup> In addition, the study found that the average delay for passengers

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<sup>17</sup>George Mason University's passenger trip statistics are estimates based on DOT data and other sources, and represent the average amount of trip delay expected by passengers on a large sample of flights. See Lance Sherry and George Donahue, "U.S. Passenger Trip Delay Report," Center for Air Transportation Systems Research, George Mason University, April 2008, available at <http://catsr.ite.gmu.edu>.

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on canceled flights was 11 hours in 2007. Passenger delays are affected by record-level airline load factors (percentage of seats occupied on aircraft), which result in fewer available empty seats on subsequent flights for those passengers who experience canceled flights. According to DOT's Air Consumer Report, flight problems involving cancellations, delays, or missed connections were the number one consumer complaint in 2007.

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### DOT Data Provide an Incomplete Picture of the Sources of Delays

The data collected by DOT on the sources of delays provide information about where delays occur and what causes them, but the data are incomplete. The primary purposes for collecting these causal data are to inform the traveling public and categorize delays and cancellations so that the parties most capable of addressing the causes of delays and cancellations can take corrective action. Since 2003, airlines have reported the cause of delay to DOT in one of five broad categories: late arriving aircraft, airline, national aviation system, extreme weather, and security.

- *Late arriving aircraft* means a previous flight using the same aircraft arrived late, causing the subsequent flight to depart late. In 2007, approximately 38 percent of delays were assigned to this category.
- *Airline* delays include any delay or cancellation that was within the control of the airlines, such as aircraft cleaning, baggage loading, crew issues, or maintenance. Roughly 29 percent of the delays in 2007 were attributed to airline delays.
- *National aviation system* delays and cancellations refer to a broad set of circumstances affecting airport operations, heavy traffic volume, and air traffic control. This category also includes any nonextreme weather condition that slows the operation of the system, such as wind or fog, but does not prevent flying. The national aviation system accounted for about 28 percent of delays in 2007.
- *Extreme weather* includes serious weather conditions that prevent the operation of a flight. Examples of this kind of weather include tornadoes,

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snow storms, and hurricanes. In 2007, nearly 6 percent of delays were assigned to extreme weather.<sup>18</sup>

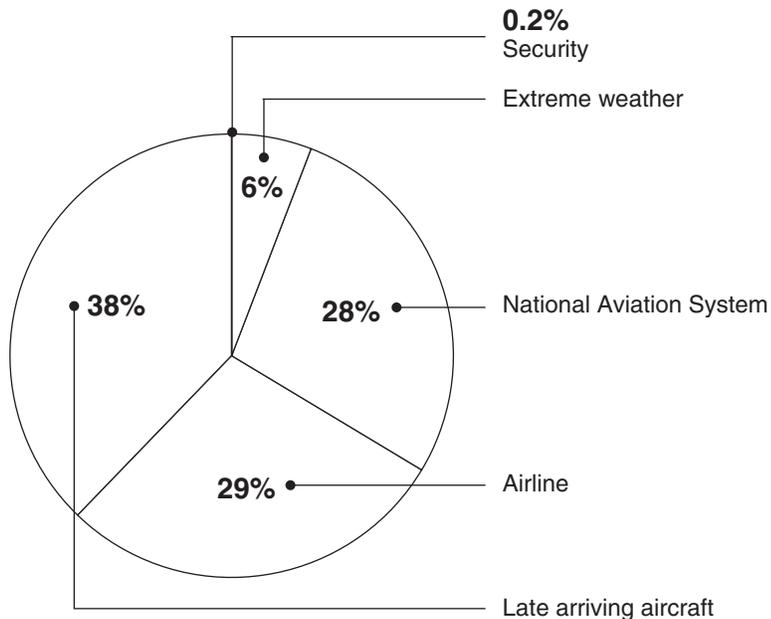
- *Security* accounted for less than 1 percent of delays in 2007. Examples of security delays include evacuation of an airport, reboarding due to a security breach, and long lines at the passenger screening areas.

Since 2003, despite the increasing number of delays, there have been no significant changes in the trends of these sources of delay. Figure 3 shows the DOT-reported sources of delay in 2007.

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<sup>18</sup>Weather delays are captured in several categories, and according to DOT, a true picture of total weather-related delays requires several steps. First, DOT combines the extreme weather delays with weather delays from the aviation system category. Second, DOT performs a calculation to determine the weather-related delays included in the late arriving aircraft category. Airlines do not report the causes of the late arriving aircraft, but DOT makes an allocation using the proportion of weather-related delays and total flights in the other categories. Adding the weather-related delays to the extreme weather and aviation system weather categories results in weather's share of all flight delays. DOT estimates that about 44 percent of flights were delayed by weather in 2007.

**Figure 3: DOT-Reported Sources of Delay—System, 2007**



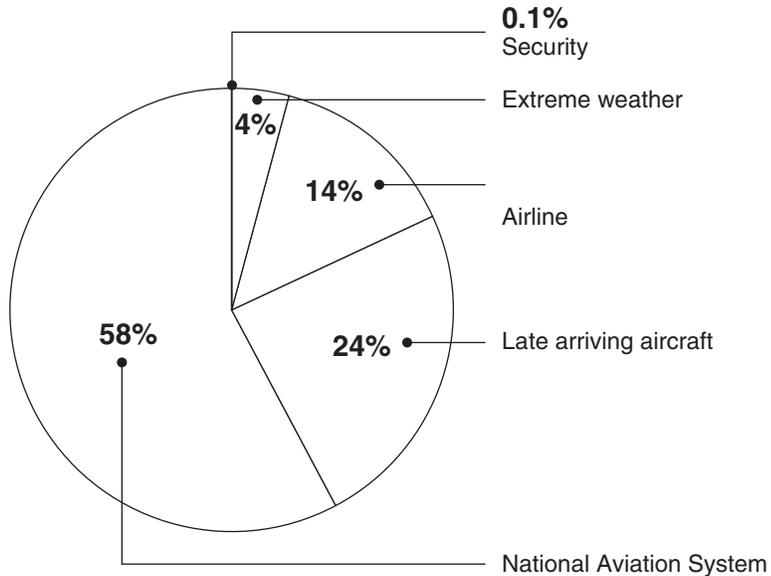
Source: DOT.

Note: Total may not add up to 100 percent due to rounding.

The distribution of delay by source is very different in New York than for the country as a whole and reflects the New York area's greater level of congestion. For example, national aviation system delays account for nearly 58 percent of all delays in New York as compared to approximately 28 percent for the country as a whole in 2007 (see fig. 4). As noted earlier, the three major New York area airports have experienced more than a 50 percent increase in traffic levels since 1998, while runway capacity at these airports has not changed. As a result, FAA must resort to a complement of traffic management initiatives, such as ground delay or flow control programs, which are used to restrict the flow of traffic and, accordingly, lead to delays.<sup>19</sup>

<sup>19</sup>FAA has traditionally used ground delay programs to control air traffic volume to airports where the projected traffic demand is expected to exceed the airport's capacity for a lengthy period of time. Under a ground delay program, FAA decreases the rate of incoming flights into an airport by holding a set of flights destined for that airport on the ground. According to FAA, the most common reason for the implementation of a ground stop or ground delay program is adverse weather.

**Figure 4: DOT-Reported Sources of Delay—Average of the Three New York Area Airports, 2007**



Source: DOT.

Note: Total may not add up to 100 percent due to rounding

For several reasons, the data provide an incomplete picture of the underlying causes of delays. First, the DOT-reported categories are too broad to provide meaningful information on the root causes of delays. For example, delays attributed to the airlines could consist of causes such as a late crew, aircraft maintenance, or baggage loading, but these more specific causes are not captured in DOT data.<sup>20</sup> Second, the largest source of systemwide delay—late arriving aircraft, which represents 38 percent of the total delay sources (as fig. 3 shows)—masks the original source of delay. For example, the original source of delay for a late arriving aircraft may be the result of other sources—such as a severe weather condition, the airline, security, or the national airspace system—or a combination of one or more of these sources. Finally, the data do not capture what many economists believe is the fundamental cause of much of the flight delays—a mismatch between the demand for and capacity to provide aviation

<sup>20</sup>GAO is currently conducting an analysis of crew scheduling problems and the extent to which they may lead to delayed or canceled flights.

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services. While the data provide airlines' view of the reason that particular flight segments were delayed, DOT does not report data on the extent to which flights are simply overscheduled in particular places at particular times relative to the capacity of the airports and air traffic control system to provide aviation services. The DOT Inspector General analyzed airline schedules at 15 airports and found that 6 of the airports had flights scheduled either at or over maximum airport capacity at peak hours of the day during the summer of 2007.<sup>21</sup> When this is the case, assigning the cause of delay to one of the five DOT categories masks that the fundamental cause is this mismatch of demand for and supply of these services.

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## DOT and FAA Are Implementing Actions Intended to Reduce Delays

DOT and FAA are implementing several actions intended to reduce flight delays beginning in summer 2008.<sup>22</sup> Due to the high proportion of delays at the three major New York area airports and their effect on the rest of the airspace system, many of these actions are specifically designed to address congestion in the New York area. For purposes of our discussion, we grouped the various actions into one of two categories—capacity-enhancing initiatives and demand management policies—both of which are intended to reduce flight delays. Capacity-enhancing initiatives are intended to increase the efficiency of existing capacity by reducing delay and maximizing the number of takeoffs and landings at an airport. By contrast, demand management policies influence demand through administrative measures or economic incentives. Some of these capacity-enhancing initiatives and demand management policies will be fully or partially implemented by summer 2008, but others will not be completed or even initiated until later this year or beyond.

DOT and FAA have announced multiple capacity-enhancing initiatives designed to reduce delays in the New York region for this summer and beyond. In general, adding substantial new airspace system capacity is

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<sup>21</sup>DOT Inspector General. *Status Report on Actions Underway to Address Flight Delays and Improve Airline Customer Service*. CC-2008-058. (Washington, D.C.: Apr. 9, 2008).

<sup>22</sup>Other efforts are currently under way to improve the air travel experience for customers. For example, airlines and airport operators are working to develop plans to better coordinate procedures for responding to extended tarmac delays, and DOT formed a task force to explore these issues. Also, a new bumping rule was announced in April 2008. See 73 Fed. Reg. 21026 (April 18, 2008). The rule is not designed to reduce cancellations or delays, but rather, requires airlines to double the maximum compensation to those who are involuntarily bumped from their flight.

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costly and time consuming.<sup>23</sup> Thus, in March 2007, DOT and FAA convened a workgroup that identified 17 short-term initiatives that better utilize existing capacity at the airport or system level through procedural and other changes in airport and airspace operations and could be completed by summer 2008. Eleven of the 17 short-term initiatives have been completed, and FAA plans to implement the remaining initiatives, which require more planning and coordination, by September 2008.<sup>24</sup> See appendix I for a list of the 17 short-term initiatives and their status. The initiatives range from new procedures and reroutes for handling air traffic during severe weather conditions to efforts to reduce excessive spacing on final approach before landing, and to an airspace flow program that allows New York departures to move more freely while delays are redistributed to airports within the region. In addition to the 17 short-term initiatives, other capacity-enhancing initiatives are under way. These include improving coordination with DOD for airlines' use of military airspace and redesigning the airspace around the New York, New Jersey and Philadelphia metropolitan area.<sup>25</sup> FAA is in the process of drafting letters of agreement that would help establish more formal processes for communicating with DOD for the release of specific portions of military airspace on an as-needed basis. In December 2007, FAA initiated the first phase of the planned 5-year implementation of the airspace redesign, with new departure headings at Newark and Philadelphia airports.<sup>26</sup> In April

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<sup>23</sup>For example, NextGen improvements to the air traffic control system are estimated to cost \$25 billion and will not be completed until 2025. Adding runway capacity at airports is also expensive and time consuming—for example, the third runway at Seattle-Tacoma International Airport is estimated to cost \$1.1 billion - \$1.2 billion dollars and is scheduled to take at least 16 years to complete.

<sup>24</sup>In addition to the short-term initiatives, FAA is working to implement the list of 77 initiatives adopted by the New York ARC. This list includes most of the 17 short-term initiatives. FAA reported that to date, 17 of the 77 initiatives have been completed, 30 are expected to be completed by the end of fiscal year 2008, and 40 should be completed by the end of fiscal year 2009. FAA noted that the remaining initiatives are longer term or are being analyzed for feasibility and establishing priorities.

<sup>25</sup>GAO is currently conducting a review of the New York/New Jersey/Philadelphia Metropolitan area airspace redesign and plans to issue a report in July 2008. According to FAA, the purpose of the airspace redesign is to increase the efficiency and reliability of the airspace structure and air traffic control system, thereby accommodating growth while enhancing safety and reducing delays in air travel. Thus, the airspace redesign is intended to increase the efficiency and reliability of the air traffic system, and is included as a capacity-enhancing initiative for the purpose of this discussion.

<sup>26</sup>FAA will increase the number of departure headings air traffic controllers can assign to aircraft during takeoffs, and adjust the routes air traffic controllers can assign aircraft during their final approach to an airport.

2008, FAA appointed a New York Airspace “Czar”—whose official title is Director for the New York Area Program Integration Office—to coordinate regional airspace issues and projects. Table 2 lists the capacity-enhancing initiatives and their status. More detailed information on the actions—including descriptions, geographic focus, and status—can be found in appendix II.

**Table 2: Capacity-Enhancing Initiatives and Their Status**

Capacity-enhancing initiatives	
Action	Status
17 short-term initiatives	11 of 17 initiatives completed
Coordination for use of military airspace	In progress
New York/New Jersey/Philadelphia airspace redesign	Initiated, estimated completion 2012
New York Airspace Czar	Appointed

Source: GAO analysis of DOT and FAA actions.

DOT and FAA have also introduced demand management policies—most notably, hourly schedule caps on takeoffs and landings at the three major New York area airports—to its pool of delay reduction efforts. DOT and FAA believe that caps on scheduled operations are necessary at some airports where available capacity cannot meet demand. The caps are currently in place to limit scheduled operations at all three major New York area airports, with hourly scheduled operations capped at 81 at both JFK and Newark, and at 75 at LaGuardia. The most recent caps at JFK and Newark are scheduled to be in place until October 2009.<sup>27</sup> At LaGuardia, a December 2006 order maintained caps that had been in place since November 2000.<sup>28</sup> The institution of caps, however, does not necessarily mean that total operations at each of the three airports will decrease. For example, at JFK, the total number of daily scheduled operations will increase by 50 flights per day over summer 2007 levels, when no caps were in place, but scheduled operations will be spaced more evenly throughout the day in an attempt to minimize peak period congestion.

<sup>27</sup>See 73 Fed. Reg. 3510 (January 18, 2008) for the final order on the caps at JFK and 73 Fed. Reg. 8737 (February 14, 2008) for an amendment correcting technical errors in this order. See 73 Fed. Reg. 29550 (May 21, 2008) for the final order on the Newark caps.

<sup>28</sup>65 Fed. Reg. 69126 (Nov.15, 2000). This was extended through December 31, 2006. 70 Fed. Reg. 36998 (June 27, 2005). 71 Fed. Reg. 248 (Dec. 27, 2006).

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Two other demand management policies under way include an amendment to the Rates and Charges policy and proposed rules to establish slot auctions at all three New York area airports. The amendment to the Rates and Charges policy clarifies that airport operators may establish a two-part landing fee structure, consisting of both an operation charge and an aircraft weight-based charge, and include rule changes that would expand the costs congested airports could recoup through airfield charges.<sup>29</sup> The proposed slot auctions for the three New York area airports would lease the majority of operations (takeoffs and landings, or slots) to incumbent operators and help develop a market by annually auctioning off leases for a limited number of slots during the first 5 years of the rule.<sup>30</sup>

These two demand management policies are being developed, but it is unlikely that they will be in effect by this summer. DOT and FAA just recently announced the final Rates and Charges policy amendment, so it is unlikely the policy will have an impact this summer. Furthermore, existing use and lease agreements between airlines and airport operators could prevent any changes to rates and charges for many years, until existing lease agreements expire. DOT and FAA are currently reviewing comments for the proposed rule to establish slot auctions at LaGuardia and will be collecting comments on the proposed rule to establish slot auctions at JFK and Newark until July 21, 2008; thus it is unlikely the final rules will be issued during the summer. Table 3 lists the demand management policies and their status. More detailed information on the actions—including descriptions, geographic focus, and status—can be found in appendix II.

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<sup>29</sup>A final amendment to the Rates and Charges policy was issued on July 8, 2008, but as of July 11, 2008, it has not been published in the Federal Register. The proposed amendment can be found at 73 Fed. Reg. 3310 (January 17, 2008). The amendment to the Rates and Charges policy adopts a definition for a congested airport that contains two categories of congested airports, one relating to existing congestion and the other to future congestion. In the amendment, DOT defines a congested airport first as an airport that accounted for at least 1 percent of all delayed aircraft operations in the United States and at an airport listed in table 1 of the FAA's Airport Capacity Benchmark Report 2004, in accordance with 49 U.S.C. § 47175. Second, DOT will consider an airport congested in the future if it is forecasted to meet a defined threshold level of congestion in the Future Airport Capacity Task 2 study, with the exception of those airports congested for the first time in 2025. DOT and FAA assert that airports already have the authority to adopt a two-part landing fee and the Rates and Charges policy clarifies this authority.

<sup>30</sup>See 73 Fed. Reg. 20846 (April 17, 2008) for the supplemental rulemaking on slot auctions at LaGuardia. See 73 Fed. Reg. 29625 (May 21, 2008) for the notice for proposed rulemaking on slot auctions at JFK and Newark.

**Table 3: Demand Management Policies and Their Status**

Demand management policies	
Action	Status
Order limiting scheduled operations at JFK	Caps in effect since March 30, 2008
Order limiting scheduled operations at Newark	Caps in effect since June 20, 2008
Orders limiting scheduled operations at LaGuardia	Caps in effect since December 2006
Rulemaking on slot auctions—LaGuardia	DOT and FAA are reviewing comments
Rulemaking on slot auctions—Newark, JFK	DOT and FAA are seeking comments
Amendment to Rates and Charges policy	Final policy issued July 8, 2008

Source: GAO analysis of DOT and FAA actions.

## DOT's and FAA's Actions May Help Reduce Delays, but the Extent of Delay Reduction in Summer 2008 Will Likely Be Limited

DOT's and FAA's capacity-enhancing initiatives have the potential to reduce congestion and thereby avoid delays, according to FAA and stakeholders we consulted, but the effect will likely be limited for the summer 2008 traveling season. DOT's and FAA's demand management policies—in particular, caps on scheduled operations at all three New York area airports—are expected to have some delay avoidance impact in the near term. DOT and FAA set the caps at Newark and LaGuardia at a level intended to avoid an increase in delays above that experienced in 2007 and set the caps at JFK to generate a 15 percent reduction in average departure delays over 2007 levels. The projected impact of the various actions undertaken by DOT and FAA is also expected to be muted because several will not be in place until next year or beyond. Finally, other mitigating economic factors could lead to fewer operations in 2008, which might also lead to fewer delays.

Although DOT and FAA have not analyzed the potential near-term benefit of the capacity-enhancing initiatives, FAA officials and stakeholders that we spoke with anticipate that the capacity-enhancing initiatives will generally have a positive, but fairly small, impact on reducing delays in the near term. For example, while FAA has not analyzed the estimated impact of the 17 short-term initiatives, aviation stakeholders, including airport operators, airlines, and aviation industry associations, believe that these initiatives will have a positive impact in summer of 2008. However, most think the initiatives—when taken together—will result only in incremental improvements and in certain situations and alone will not provide sufficient near-term gains to accommodate the peak hour schedules at the New York area airports' current or forecast levels of demand. Furthermore, given that the final plan for coordinating the use of military

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airspace is still under development, the potential impact of this effort remains unknown. However, airlines agree that increasing use of military airspace through advanced coordination holds promise, and the release of military airspace over recent holiday weekends has been beneficial.<sup>31</sup> Finally, although the impact of the newly appointed aviation czar is also unknown, some airlines and New York airport operators have supported the appointment of a czar, but also expressed concern that the czar, who is currently lacking a dedicated budget or staff, will not have sufficient authority to direct and coordinate delay reduction efforts across FAA and DOT offices.

Of the capacity-enhancing initiatives, FAA has estimated the potential future delay reduction benefits of one—the New York-New Jersey-Philadelphia Airspace Redesign. FAA estimates that the airspace redesign will result in a 20 percent reduction in national airspace system delays for the New York/New Jersey/Philadelphia study area airports as compared to taking no action. According to FAA, estimated delay reduction will vary by airport and will be achieved only once the redesign has been fully implemented. The airspace redesign, scheduled to be completed in 2012, is highly controversial because residents living in affected areas have raised concerns about potential increases in aircraft noise and other environmental effects.

Demand management policies, which do not require long-term investments, will likely have a more immediate but similarly limited effect on relieving congestion and reducing delays. Because of increasing congestion at JFK and Newark, in the fall of 2007, FAA used models to analyze the airlines' proposed 2008 summer schedules and determine potential future delays at these airports and the effect of caps.<sup>32</sup> The proposed summer schedules submitted by the airlines for these airports

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<sup>31</sup>FAA can currently use sections of military airspace on an as-needed basis and has had advanced coordination with DOD for use of military airspace over the Christmas and Thanksgiving travel season in 2007 and again over the Memorial Day and Fourth of July weekends in 2008. The current efforts under way are to further establish processes and procedures for advance coordination on a more regular basis.

<sup>32</sup>FAA worked with the MITRE Corporation to develop models and capacity analyses to set capacity limits at each of the three major New York area airports. Since the expected delay reduction impact of a cap is dependent upon the level at which a cap is set, when setting a cap, policymakers face a tradeoff between how much delay they are willing to accept and the number of operations the airlines are allowed. For example, higher constraint levels allow more operations during good weather, but may significantly increase delays during inclement weather.

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would have constituted substantial scheduling increases over summer 2007. On the basis of these proposed schedules, DOT and FAA set the caps at JFK at a level that is projected to decrease average departure delays by 15 percent over 2007 levels. However, the caps at LaGuardia and Newark are set at a level to avoid an increase in delays over 2007 levels. For example, at Newark, FAA estimates about a 23 percent reduction in the average delay per operation relative to a situation with no cap. Newark's caps were designed to ensure that delays did not get significantly worse in 2008 based on the airlines' proposed summer schedules and the potential for increased operations diverted from JFK. Thus, the caps at Newark are not expected to bring a delay reduction benefit as compared to delays experienced in 2007. At LaGuardia, which already had caps in 2007, FAA estimated that the long-term implementation of caps would reduce delays by 32 percent as compared to no cap.

Caps at the New York area airports will help the region avoid additional delays in the near term, but there are also policy trade-offs to consider. In general, FAA, airlines, and aviation experts have stated that when available capacity cannot meet demand, managing operations at the airport level is necessary to reduce congestion and limit delays in the short run. FAA noted that imposing caps is an effective, but not efficient, way to reduce delays. Airlines generally support caps as a short-term solution for addressing congestion at the New York airports because of the worsening delays at these airports. FAA stated that some airlines may support caps at airports they already serve because caps generally protect incumbent airlines and limit competition from airlines that are interested in beginning service at these airports (or new entrants). However, some airport operators strongly oppose flight caps because they state that caps could constrain the economic growth of the surrounding region. In addition, some airport operators and aviation experts are concerned that using caps as a long-term solution can mask the need for capacity enhancements and shift the focus away from important long-term solutions that may provide a more lasting solution to the delay problem.

The proposed slot auction rules for the three major New York area airports are currently out for comment and will not be implemented by this summer, but even if they were in place, they would not directly reduce delays. DOT and FAA intend the slot auctions to help create a market for slots in the New York area that allows new entrants better access to the airports and encourage airlines currently holding slots to place a greater value on the use of their slots. By itself, a slot auction will not reduce delays. But DOT and FAA believe that by helping to reveal the economic value of slots, the policy may help to develop a more robust secondary

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market for slots, which will, in turn, lead to greater efficiency in their allocation and use. DOT and FAA believe that doing so may increase the size of aircraft used at the airports and thereby increase the number of passengers served. The proposed rules for the three New York area airports include different slot auction options. Only one of the two options for LaGuardia would have a direct delay reduction impact. Specifically, this option would require approximately 18 slots to be retired over 5 years, and would result in an estimated 1 minute of delay reduction for each takeoff and landing at the airport.<sup>33</sup> One slot auction proposal for Newark and JFK would reallocate 10 percent of eligible capacity via annual auctions over 5 years, and FAA would retain the net auction proceeds for use on unspecified capacity improvements in the New York area. The second slot auction option at JFK would reallocate 20 percent of eligible slots over 5 years, and the net auction proceeds would be granted to the carrier whose previously held slots were auctioned. Under this option, carriers whose slots are returned for auction would not be allowed to bid on their own slots. Some airline officials and airport operators stated that airlines have made substantial investments at these airports that would be diminished if they lose operating rights. Airlines and New York airport operators strongly oppose the proposed slot auctions because they do not think that FAA has the legal authority to implement these auctions.

The potential impact of the Rates and Charges policy— a policy that is unlikely to be implemented by this summer because the final notice was only announced on July 8, 2008— was not analyzed by DOT and FAA. However, DOT and FAA assert that, if implemented, the amendment to the Rates and Charges policy may help to reduce congestion, and thus delay, by encouraging airlines to use larger aircraft and schedule fewer operations during peak usage hours. Some airport operators support this policy because it provides them with more flexibility in setting landing fees and another option for addressing delays, but the extent to which airports can or will implement the policy is unknown. Some airlines, airport operators, and aviation experts assert that an airport's implementation of a two-part landing fee under the Rates and Charges policy may not reduce delays because the policy requires these fees to

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<sup>33</sup>The second option for the LaGuardia slot auction does not retire any slots. As a result, this option does not result in a direct delay improvement.

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remain revenue neutral.<sup>34</sup> In other words, for congested airports, the policy will not enable the differential between peak and off-peak prices to be large enough to change airline behavior while adhering to revenue neutrality. Some airlines and airport operators opposed the amendment because they think that it could discriminate against airlines whose fleets include mostly small aircraft because the amendment creates a fee differential for small to medium-sized aircraft while having a negligible effect on larger aircraft. Airlines and certain airport operators also expressed concern that under such a policy, service to small cities would be dropped because carriers would favor using larger aircraft to serve larger cities. Several airlines stated that the Rates and Charges policy does not address the bigger problem of lack of capacity in the airspace system.

Finally, other interrelated factors beyond government initiatives, such as the financial state of the aviation industry, increasing jet fuel prices, and the downturn in the economy, may also result in fewer delays during 2008, but their impact is uncertain. The Air Transport Association expects a 1 percent reduction in the number of passengers for the summer 2008 travel season as compared to the 2007 summer travel season, and many airlines are planning more substantial reductions in capacity and schedules for the fall and winter 2008 seasons. Economic conditions, rising fuel costs, and airline initiated capacity cuts could affect demand for air travel or available capacity in the coming months. These factors also reduce congestion and, accordingly, delays and could make it difficult to determine how much of the delay reductions, if any, might be attributed to the capacity-enhancing initiatives or demand management policies planned for summer 2008.

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In closing, DOT and FAA should be commended for taking steps to reduce mounting flight delays and cancellations for the 2008 summer travel season. However, delays and cancellations this summer could still be significant given the likely limited impact of DOT's and FAA's actions. Capacity-enhancing initiatives can provide some limited benefit in the near term, but they do not fundamentally expand capacity. Demand

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<sup>34</sup>The amendment to the Rates and Charges policy states that the revenue generated from the two-part landing fee structure is not to exceed the allowable costs of the airfield. In other words, any airport that implements the two-part landing fee would be required to structure the fees such that the total revenue raised is no more than the level of revenue that would have been raised under a simple weight-based landing fee. That is, the landing fee structure must be "revenue neutral."

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management policies, especially those that artificially restrict demand—like schedule caps—may limit increases in delays, but should not be viewed as a meaningful or enduring solution to addressing the fundamental imbalances between the underlying demand for and supply of airspace capacity. The growing air traffic congestion and delay problem that we face in this country is the result of many factors, including airline practices, inadequate investment in airport and air traffic control infrastructure, and how aviation infrastructure is priced. Addressing this problem involves difficult choices, which affect the interests of passengers, airlines, airports, and local economies. If not addressed, congestion problems will intensify as the growth in demand is expected to increase over the next 10 years.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or other members of the subcommittee may have.

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## GAO Contact and Staff Acknowledgments

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# Appendix I: New York Short-Term Initiatives

17 Short-Term Initiatives to Enhance Capacity in the New York Area		
Action	Description	Status
1. John F. Kennedy International Airport (JFK)—Port Authority of New York and New Jersey (PANYNJ) Daily Planning Teleconferences	Daily planning teleconferences to provide a common situational awareness for customers—such as airlines, airport operators, the military, and general aviation—on the planned daily operations at JFK.	Completed
2. Simultaneous Approaches to Runways 31L/R at JFK	Simultaneous runway approaches to 31L/R will allow approximately 4 to 6 more aircraft to land on this runway configuration when weather conditions are classified as instrument meteorological conditions (IMC).	Completed
3. Accessing J134/J149 from Eliot Intersection (for use during Severe Weather Avoidance Programs)	When thunderstorms affect the west departure routes, aircraft will be rerouted using the Eliot departure fix. Benefits have not been identified, but are available for use as weather events dictate.	Completed
4. Pass Back Departure Restrictions—700 mile restriction	Pass back restrictions were removed on October 11, 2007, beyond 700 miles for traffic destined for the New York airports. Departure restrictions to airports often lead to delays as controllers have to wait to release aircraft. Eliminating this airport restriction and allowing en route controllers to build in the spacing improves airport efficiency.	Completed
5. Excessive Spacing on Final Approach	Briefings and trainings at major facilities are planned to speed implementation of changes associated with the “proximity event” category. Intent is to help educate controllers that reducing excessive spacing between aircraft on final approach can help reduce delay and should not be considered an error, because it does not pose a safety risk.	In progress
6. Conditional Holding Patterns	Under certain conditions, control of the holding pattern airspace will transfer from the New York Air Route Traffic Control Center (ZNY) to the New York TRACON (N90). This allows aircraft to transition out of the holding pattern using terminal separation standards (3 miles) as opposed to the en route separation standards (5 miles). <sup>a</sup>	In progress
7. NY Area Severe Weather Avoidance Procedure Action Team Items—Route Availability Planning Tool (RAPT)	When affected by thunderstorms, controllers and traffic flow managers will use a weather forecasting technology to identify the availability of departure routes, and provide traffic management specialists with the ability to more quickly open and close routes and to reroute aircraft.	In progress
8. Second J80 Airway	Creating another westbound departure route parallel to J80 has the potential to mitigate westbound delays from JFK.	Completed

<sup>a</sup>Terminal Radar Approach Control (TRACON) is an FAA air traffic control facility which uses radar and two way radio communication to provide separation of air traffic within a specific geographic area in the vicinity of one or more large airports.

9. Resectorizing of New York ARTCC (ZNY) Sector 73	A reallocation of the lower part of sector 73 at the New York Air Route Traffic Control Center will allow the remaining sector to focus on aircraft departing Philadelphia and New York.	Completed
10. Moving J79 Boston (Logan Airport [BOS] Arrivals to the East)	Move current BOS arrivals via J79 to the east and reduce congestion at the MERIT departure fix.	In progress
11. Moving Overflights in ZNY34	Moving crossing traffic, or overflights, out of the way of New York departures, allowing for unrestricted climbs to requested altitude, and reducing delay by decreasing miles in trail for New York departures.	In progress
12. Airspace Flow Program (AFP) for New York Departures	Apply AFP technology to manage departures from the NY airports, such that NY airport departures would be allowed to freely flow and delayed flights would be redistributed to other peripheral airports.	In progress
13. Severe Weather Avoidance Procedure (SWAP) Escape Routes	SWAP escape routes in Canadian airspace are used and coordinated daily with Canada's civil air navigation services provider (NAV CANADA). Used mostly during the summer because of thunderstorms and winds in the United States.	Completed
14. Deconflict Newark Airport (EWR) Arrivals Over SHAFF Intersection	Allows for more efficient arrivals from the north into Newark by moving or eliminating crossing traffic. No added capacity benefits are expected. Do expect to get some added operational efficiency for aircraft while in the en route portion of flight.	Completed
15. Simultaneous Visual Approaches to Runway 4L at EWR	A procedure that allows for simultaneous arrivals on runways 4L and 4R, when weather permits.	Completed
16. Caribbean Tactical Reroutes to EWR	Traffic management procedure to allow EWR arrival aircraft to fly at higher altitudes and in a less circuitous route. No added capacity benefits are expected.	Completed
17. EWR Runways 4R/29 Waiver	Procedures currently allow for these runway configurations to be used in Visual Meteorological Conditions (VMC). Waiver has been signed to allow arrivals to land on Runway 29 while landing on Runway 4R.	Completed

Source: GAO analysis based on DOT and FAA actions.

# Appendix II: Status and Reported Benefits of Capacity-Enhancing Initiatives and Demand Management Policies

Capacity-Enhancing Initiatives				
Action	Description	Focus	Status	Reported delay reduction benefit <sup>a</sup>
17 short-term initiatives	The New York Aviation Rulemaking Committee (ARC) recommended a list of 77 items for consideration and implementation in the New York area. From these, FAA identified 17 short-term initiatives for immediate action.	NY region	Eleven of the 17 short-term initiatives are currently complete. The others are planned for completion by the end of fiscal year 2008.	Not analyzed but likely to be small.
Coordination with the Department of Defense (DOD) for use of military airspace	FAA is working with DOD to explore the current use of special use airspace, develop proposals for increased civil use of military airspace, and evaluate letters of agreement that provide operational direction for the shared uses of special use airspace.	East Coast	FAA's efforts to standardize use of military airspace with DOD are ongoing and the outcome is uncertain.	Final plan unknown, therefore benefit unknown.
New York/New Jersey/Philadelphia (NY/NJ/PHL) Airspace Redesign	The Airspace Redesign of the NY/NJ/PHL metropolitan area involves changes to airspace configurations and air traffic management procedures. The selected alternative (Integrated Airspace Alternative with Integrated Control Complex) integrates the entire airspace with a common automation platform. Air traffic controllers can reduce aircraft separation rules from 5 to 3 nautical miles over a larger geographical area than the current airspace structure allows.	NY region	Implementation began on December 19, 2007, with the introduction of additional departure headings at Philadelphia International and Newark International airports. FAA has stated that it does not believe there will be additional changes implemented until fall 2008. Final implementation by 2012.	When the redesign is fully implemented in 2012, FAA estimated a 20 percent reduction in national airspace system delay in the study area as compared to taking no action. Estimated arrival and departure delay reduction varies between airports.
New York Airspace Czar	ARC participants agreed that appointing a New York aviation czar to coordinate regional airspace issues and all projects and initiatives addressing problems of congestion and delays in New York would be beneficial. As a result, the Director of the New York Integration Office position was created.	NY region	Marie Kennington-Gardiner has been appointed Director of the New York Integration Office.	Unknown

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**Demand Management Policies**


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Action	Description	Focus	Status	Reported Delay Reduction Benefit
Order limiting scheduled operations at John F. Kennedy International airport	In January 2008, FAA issued an order setting a cap on the number of hourly operations at JFK. The order took effect March 30, 2008, and will expire October 24, 2009.	NY region	Operations are capped at 81 per hour.	FAA estimates that caps would reduce average departure delays by 5.5 minutes, or 15 percent. The number of departure delays of 60 minutes or more would decrease 31 percent. Based on proposed summer 2008 schedules, estimated delays could have increased by up to 150 percent.
Order limiting scheduled operations at Newark International airport	In March 2008, FAA proposed an order to cap flights at Newark. The final order was issued on May 21, 2008, and takes effect on June 20, 2008, and expires October 24, 2009.	NY region	Scheduled operations capped at 81 per hour by summer 2008.	Slight reduction in arrival delays offset by slight increase in departure delays with no estimated net change in average delay between 2007 and 2008. The purpose is to keep delays from worsening at Newark in 2008 because of caps at JFK. Based on proposed summer 2008 schedules, estimated arrival delays would increase by as much 50 percent in 2008 without the limits.
Orders limiting scheduled operations at LaGuardia (LGA)	In December 2006, FAA published a temporary order maintaining the same caps and exemptions in place since November 2000. In April 2008, FAA also published an order limiting unscheduled operations to 3 per hour.	NY region	Scheduled operations will be capped at 75 per hour during summer 2008.	FAA estimates 32 percent reduction in average delay as compared to no cap. As the caps were already in place, no new benefit is expected in summer 2008.
Supplemental rulemaking on slot auctions at LGA	In April 2008, FAA issued a supplemental rulemaking to lease the majority of slots at the airport to the incumbent operators and to develop a market by annually auctioning off leases for a limited number of slots during the first 5 years of the rule. Two options to annually auction these slots were proposed.	NY region	Comment period ended June 16, 2008. DOT is reviewing comments.	Will depend on the option selected. Option 1 (slot retirement of 1.5 slots per year) estimated to result in 1 minute of average delay reduction. Option 2 does not retire slots. DOT believes the proposal will help reveal the economic value of slots, and may increase the size of aircraft used at the airports, and thereby increase the number of passengers served.

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**Demand Management Policies**

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<b>Action</b>	<b>Description</b>	<b>Focus</b>	<b>Status</b>	<b>Reported Delay Reduction Benefit</b>
Proposed rulemaking on slot auctions at JFK and Newark	In May 2008, FAA issued a notice of proposed rulemaking to assign to existing operators the majority of slots at Newark and JFK, and create a market by annually auctioning off a limited number of slots in each of the first 5 years.	NY region	In comment period until July 21, 2008.	FAA states that the immediate impact will be to prevent a return to, or worsening of, the conditions and delay experienced during summer 2007. By itself, a slot auction will not reduce delays. However, DOT believes the proposal will help reveal the economic value of slots, and may increase the size of aircraft used at the airports, and thereby increase the number of passengers served.
Amendment to the Airport Rates and Charges policy	Announced in July 2008, the policy clarifies the ability of airport operators to establish a two-part landing fee structure consisting of both an operation charge and a weight-based charge, giving airports the flexibility to vary charges based on the time of day and the volume of traffic. It also permits the operator of a congested airport to charge users a portion of the cost of airfield projects under construction and expands the authority of an operator of a congested airport to include in the airfield fees of congested airports a portion of the airfield fees of other underutilized airports owned and operated by the same proprietor.	U.S.	Final policy issued July 8, 2008.	Not assessed, it is unknown to what extent airports can or will implement this policy or the airlines' response if it is implemented.

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Source: GAO analysis based on DOT and FAA actions.

<sup>a</sup>For some actions, DOT has stated additional benefits unrelated to delay reduction.

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