Aviation Infrastructure

Section 1

What a difference a year makes! Years of rising passenger volumes; the shift to smaller, regional jets; and the modest expansion in airport capacity produced a perfect storm in 2007. It was the worst for airline delays since the Bureau of Transportation Statistics started keeping comprehensive data 13 years earlier.

Enter 2008. Buffeted by soaring oil prices, a weak economy, and excess capacity, U.S. airlines are cutting flights to levels not seen since 2002, when travel fell sharply after the 9/11 attacks. U.S. airports of every size—from LaGuardia to Oakland—will be affected as airlines cut flights. By year's end, approximately 100 U.S. communities will lose regular commercial air service altogether, a number that may double next year, according to the Air Transport Association.[1]

Overall the cuts will reduce flights by U.S. carriers from 11 percent to 12 percent, industry analysts estimate. U.S. airlines are selling off hundreds of older, less efficient planes, so the airline traffic is unlikely to grow sharply again even if oil prices stay down and the economy rebounds.

Fewer flights will not necessarily alleviate the pressure on airport infrastructure. Most of the discontinued flights are among small market airports where capacity was already too high. The large hub airports may see more connecting flights as direct service is terminated. Just seven such locations—Hartsfield-Jackson Atlanta International Airport, Chicago's O'Hare International Airport, Philadelphia International Airport, Newark Liberty International Airport, Houston's George Bush Intercontinental Airport, and New York City's LaGuardia and John F. Kennedy airports—accounted for 72 percent of delays last year. The delays will undoubtedly rise in 2008.

Airport capacity is not the only aviation infrastructure issue requiring attention. The nation's air traffic control system, NextGen, which currently relies on ground-based radar, needs upgrading. A satellite-based navigation, surveillance, and networking system is scheduled for adoption between now and 2025. NextGen would use global positioning technology to determine where a particular aircraft is at any moment, enabling aircraft to take off and land in closer proximity to one another and thereby boost the number of flights per hour.

Protecting airports from terrorist attack and screening incoming international passengers are infrastructure issues we discuss on the following pages.

Aviation by the Numbers

19,990 total airports (2006)
604 airports certified for planes carrying more than 9 passengers (2006)
8,225 commercial passenger and cargo planes (2005)
224,352 private and business planes (2005)
9.7 million total aircraft take-offs (2004)
655.1 million paying air passengers (2004)
58.5 million air passengers leaving the U.S. (excludes Canada)
0.605 fatalities per 100 million aircraft miles (2006)

Aviation Infrastructure Spending (a)
2005 estimate: $29.9 billion ($101.11 per capita)

2050 Spending Projections (b)
$44.3 billion: at current population trends
$38.4 billion: at 50-percent reduction in immigration
$29.9 billion: at zero population growth

Notes:
a. Capital, operation, and maintenance spending by all levels of government. b. Assumes per-capita spending remains at 2005 levels.

Sources:
American Society for Civil Engineers, Bureau of Transportation Statistics, Congressional Budget Office, Pew Research.

Overarching everything is money. Capital spending on aviation infrastructure currently runs about $14.4 billion per year. According to the Federal Aviation Administration (FAA) and other sources, annual investment of $18 billion—about $4 billion above the current level for airports and air traffic control—is needed to maintain performance, given the expected growth in demand.

Stranded passengers as a result of flight delays or cancellations overcrowd our nation's airports.

Airport infrastructure projects are generally funded by two sources. First is the federal government through the Airport and Airway Trust Fund—a dedicated funding source based on fuel taxes and other user fees. Second is by the airports through the passenger facility charges that are collected on every passenger at commercial airports controlled by public agencies, along with landing fees, parking fees, and other charges for the use of airport facilities.

The flat per-passenger fee presents a problem at a time when airlines are shifting to smaller regional jets that seat 50 to 90 passengers. Smaller jets are more likely to be filled, and thus more profitable for the airlines, than large airliners. But two such jets impose roughly twice the infrastructure costs—and yet the same amount of revenue—as a large jet carrying the same number of passengers.

The FAA has proposed switching from the current flat fee per passenger structure to a cost-based mechanism that would contain provisions for congestion pricing. General aviation, which includes scheduled cargo flights, charter flights, sightseeing flights, and recreational flights, has also been singled out by federal air agency. It is responsible for at least 11 percent of air traffic costs yet pays only about 3 percent of the taxes that go into the federal aviation trust fund.

Illegal Immigration by Air

They cross the southern border secretively at remote places. They sail in jury-rigged boats from Cuba. They fly in under the radar and land in the desert. At least that is how most Americans believe illegal aliens enter the U.S.

In fact, a sizable number may arrive on regularly scheduled flights from their home countries. Evidence for this view was assembled by University of Pennsylvania demographer Daniel R. Vining in the early 1980s. Vining focused on one component of the net inflow of persons to the United States: commercial airline passengers.[2]

The official U.S. government tally of arriving and departing air passengers consistently shows that more people fly in each year than fly out. When Vining looked at the data in the late 1970s, he found the excess to be about 1 million. In the 1990s, the annual excess averaged 3.7 million. From 2000 to 2006, the latest available year of data, it was 3.9 million.

Interestingly, while the number of international passengers rose more than 4-fold since then, the percentage difference between arriving and departing international passengers, which Vining called the "retention rate," has hardly changed: it was 7.8 percent in the 1970s, 7.7 percent in the 1990s, and 6.7 percent from 2000 to 2006. The constancy implies that the impact of commercial air travel on U.S. immigration has risen in lock step with the number of airline passengers coming into the country.

In 2006, the gap was 3.5 million, with 63.0 million arrivals and 59.5 million departures. The gap exceeds even the largest estimates of net immigration into the United States.

What gives?

Vining found a systematic undercount of de-

parting air passengers:

> The source of the implausibly large difference between arrivals and departures in USIATS [U.S. International Air Travel Statistics] appears to be an undercount of departures on charter flights.

He attributed the undercount to the relative laxity of the Immigration and Naturalization Service (INS) in collecting paperwork from departing passengers:

> While INS assures that the I-92 forms are filed out properly on all flights arriving in the United States, both chartered and scheduled, because all arriving passengers must proceed through immigration and customs and because INS is careful that their own counts tally with those turned in on the I-92 form by the air carrier, it is only a passive receptor of the forms on departing flights…. Thus the… general lack of vigilance on the part of INS… could cause a significant number of departing passengers …. to go unrecorded in USIATS.

The paperwork problem still exists, only now it is a major security issue:

> Unresolved weaknesses in DHS's long-standing system for tracking visitors' arrivals and departures (based on Form I-94) include, among others, noncollection of many departure forms and an inability to match departure forms to arrivals. As a result, there is no accurate list of overstays.[3]

> Weaknesses in the overstay tracking system may hamper efforts to monitor potentially suspicious aliens who enter the country legally. Although the vast majority of visitors come only for business or pleasure, the few who are potential terrorists or terrorist supporters could present a threat to domestic security….

> … Overstays who settle here in large numbers can affect domestic security because they (like other illegal immigrants) are able to obtain jobs and security badges with fraudulent identity documents, thus gaining access to critical infrastructure locations, such as airports, or special events, like the Super Bowl—making efforts to secure these venues more difficult.

Regarding airport security, the Government Accounting Office (GAO) chillingly notes:

> …overstays with fraudulently obtained badges were found at 25 of 26 airports examined.

The U.S. Department of Homeland Security (DHS) estimates that one-third of all illegal aliens are overstays, that is, individuals who entered legally but stayed past the time allowed on their visa. It is not clear whether the overstay figure includes citizens of so-called "visa waiver" countries, who are allowed to enter the U.S. without visas.

Overstays come in as tourists, or businessmen, or students. Many arrive on commercial airlines. They may not look or sound like the quintessential illegal border crosser. That could make them all the more dangerous.

General Aviation Airports

In the U.S., there are more than 19,000 total airports, including publicly and privately owned facilities. Only about 450 serve regularly scheduled commercial passenger flights. The remainder consists of general aviation (GA) facilities: airports, heliports, and seaplane bases.

GA airports differ widely with respect to their traffic levels and infrastructure. Those near major metropolitan areas house hundreds of planes and have control towers that can orchestrate more than 1,000 flights per day. Rural GA airports are often "uncontrolled" because they have no operating control tower. They may see less than 50 flights per day, mostly from planes housed at the airport.

Because GA facilities are relatively open compared to commercial airports, they pose different

security risks. The threat is not so much to GA infrastructure itself, but from terrorists seeking to steal or hijack planes housed at these airports to attack critical infrastructure or other high-profile targets. GA facilities could themselves be at risk if, for example, a plane carrying business leaders, such as corporate CEOs, is targeted.

The New York Times

U.S. ATTACKED

HIJACKED JETS DESTROY TWIN TOWERS AND HIT PENTAGON IN DAY OF TERROR

A CREEPING HORROR

Buildings Burn and Fall as Onlookers Search for Elusive Safety

President Vows to Exact Punishment for 'Evil'

A Somber Bush Says Terrorism Cannot Prevail

Awaiting the Aftershocks

Washington and Nation Plunge Into Fight With Enemy Hard to Identify and Punish

It is widely known that some of the 9/11 hijackers trained in small airplanes housed in GA airports. Subsequent legislation requires the Transportation Security Administration to conduct background checks of all foreign aliens applying for flight training on aircraft weighing more than 12,500 pounds and to provide security training for flight school employees.

Since 9/11, regulatory actions have focused mainly on airspace restrictions around the nation's capital, vetting GA pilots, and more recently, charter and lease customers. Physical security of GA airports and planes has been left to aircraft owners and pilots, airport operators, and local authorities. While this less-than-rigorous approach is welcomed by the GA industry, it is a concern to many security experts.

The Weakest Link

Since 9/11, airline security infrastructure has increased dramatically. Bag scanning systems, metal detectors, and elaborate machines to detect explosive substances are mandated by federal law. Enormous sums have been spent screening passengers and their bags. We all feel safer, albeit more inconvenienced.

Are we was a safe as we think? Approximately 60 percent of all U.S. air cargo flies on passenger planes, but only about 5 percent is required to undergo screening for dangerous items. While the cargo screening gap is a dangerous security oversight in passenger aviation, it reflects an even larger threat in the cargo industry itself.

In reality, cargo aircraft could be more destructive than passenger airliners due to their size and fuel capacity. Cargo planes also carry packages that are subject to minimal screening, and they are operated in a less intensely screened area of the airport. Yet cargo security infrastructure is routinely excluded from anti-terrorism legislation. ■

Endnotes

1. American Society of Civil Engineers, 2008.
2. Daniel R. Vining, Jr., "Net Migration by Commercial Air: A Lower Bound on Total Net Migration to the United States," *Research in Population Economics* 4: 333-50, 1982.
3. Government Accounting Office, "Overstay Tracking A Key Component of Homeland Security and a Layered Defense," May 2004. http://www.gao.gov/new.items/d0482.pdf.