



Policy Study

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THE PUBLIC BENEFITS OF PRIVATIZING LOGAN AIRPORT

by

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EXECUTIVE SUMMARY

Boston's Logan Airport is an underutilized asset of the Commonwealth of Massachusetts. The airport has an estimated market value of \$786 million, if it were to be offered to investors to operate on a for-profit basis. The sale proceeds could be split between the airport's current owner, Massport, and the Commonwealth. Massport would receive the airport's \$400 million book value, which would be sufficient to pay off its airport bonds, settle up with the federal government, and endow Massport's money-losing port operations. The balance of \$386 million could be used by the Commonwealth for other pressing needs.

Under private ownership, Logan could be profitable without federal aid and without increasing landing fees, due to savings on operating costs, increased retail sales, and a \$3 per-passenger fee. This would generate sufficient revenue to permit investment of \$50 million/year in airport improvements, possibly including a long-needed commuter runway to reduce airport delays (now costing users \$26 million per year).

Logan Airport, Inc. would be a better neighbor, paying \$25 million/year in property taxes to Boston and host-community fees of \$1 million/year each to Chelsea and Winthrop. In addition, residents of East Boston, Chelsea, and Winthrop could become co-owners of the airport if the company gave \$500 in stock to every registered voter. Over the next five years, the airport company would also pay \$29 million in federal corporate taxes and \$10 million in state corporate taxes.

Privatizing Logan Airport would produce a more user-friendly airport for air travelers, better relations with neighboring communities, and a large financial windfall for the Commonwealth of Massachusetts.

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1. LOGAN AIRPORT BACKGROUND

A. History and Description

Boston's Logan Airport is the ninth busiest airport in the country. Like Washington, DC's National Airport, Chicago's Midway, and Dallas's Love Field, Logan is located close to the city's downtown--just three miles northeast of downtown Boston. Its close-in location is convenient for air travelers, but its close proximity to East Boston, Chelsea, and Winthrop homes and schools has made for troubled relationships with its neighbors. The airport's 2,400 acres make it one of the smaller big-city airports.

The airport opened in 1923 as Boston Airport, owned by the Commonwealth of Massachusetts. For its first five years it was leased to the U.S. government for joint military and civilian use. Between 1928 and 1939 the airport was operated by the City of Boston, but 1939 legislation returned it to the Commonwealth. The Department of Public Works expanded the airport's land area by filling land, and constructed a new terminal and hangars.

New legislation in 1948 created a five-member State Airport Management Board to operate the airport. Though the Board further expanded the airport, by 1959 it had accumulated \$31 million in operating deficits, and there was dissatisfaction that the airport was not being managed well enough to keep up with the growth in air traffic. The legislature created Massport in 1956, and renamed the airport after Lt. Gen. Edward Lawrence Logan. Massport took over operation of Logan Airport in 1959 and began a major expansion program. New terminals and a new control tower were built, and 90 more acres of the harbor were filled in the area known as Bird Island Flats.

Logan is served by 44 airlines: 14 major U.S. airlines, 14 commuter airlines, and 16 foreign flag carriers. The five largest airlines--Delta, USAir, Northwest, American, and United--handled some 60% of the passengers at the airport in 1990. Logan is known as an O&D (Origin & Destination) airport, rather than a hub. More than 90% of total passengers begin or end their trip in Boston, rather

than using Logan as a transfer point from another origin to another destination. However, the airport does serve as a hub for regional and commuter airline service in New England. In FY 1990, such flights represented 34% of airline aircraft operations, compared with 58% domestic and 8% international.

General aviation--privately owned aircraft used by individuals and businesses--represents another component of Logan users. In FY 1990, general aviation represented 6.4% of flight activity at the airport. Over the past decade, it has been declining at an average of 2.8% per year. By contrast, the other segments of aircraft activity have all grown steadily: domestic airline flights by 4.3% per year, international flights by 9.8% per year, and commuter/regional flights by 11.9% per year (see Figures 1 and 2).

Passenger activity also shows quite different growth rates over the past decade (see Figures 3 and 4). Domestic airline passengers increased from 12.8 million in 1982 to some 17.2 million in 1991, about 3.5% per year. International passengers grew faster, from 1.9 million up to 3.1 million, nearly 6% per year. But regional and commuter passengers nearly tripled, growing from around a half million in 1982 to 1.3 million in 1991--growth of more than 14% per year.

In 1989 Logan ranked 10th in the nation in total air cargo volume. It is served by nine all-cargo and package/express airlines, which handle 38% of the cargo, with the balance being carried in the cargo holds of passenger flights.

In contrast to its pre-Massport years, Logan Airport consistently operates in the black, producing a large annual surplus which Massport is able to use to subsidize its other principal enterprises: Hanscom Field, the Tobin Bridge, and the Maritime (port) operations. Over the past decade, according to the Massport figures shown in Table 1, Logan's net revenue (operating revenues less operating expenses) has averaged \$56 million per year, while the maritime properties have averaged a \$3.1 million annual loss. (Note: these figures exclude debt service costs, capital expenditures, and depreciation.)

FIGURE 1
10 Year Summary of Logan Airport Activity
Flights per Year

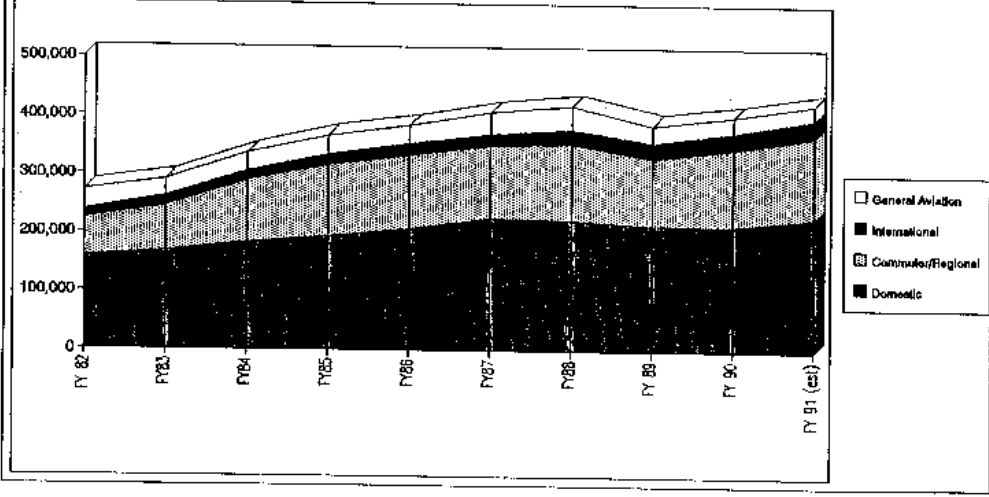


FIGURE 2
10 Year Change In Logan Airport Activity
Flights per Year

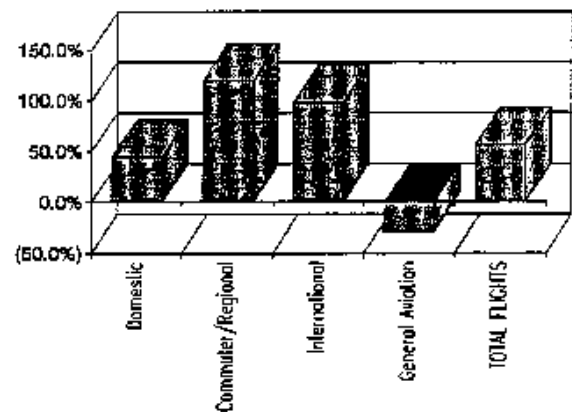
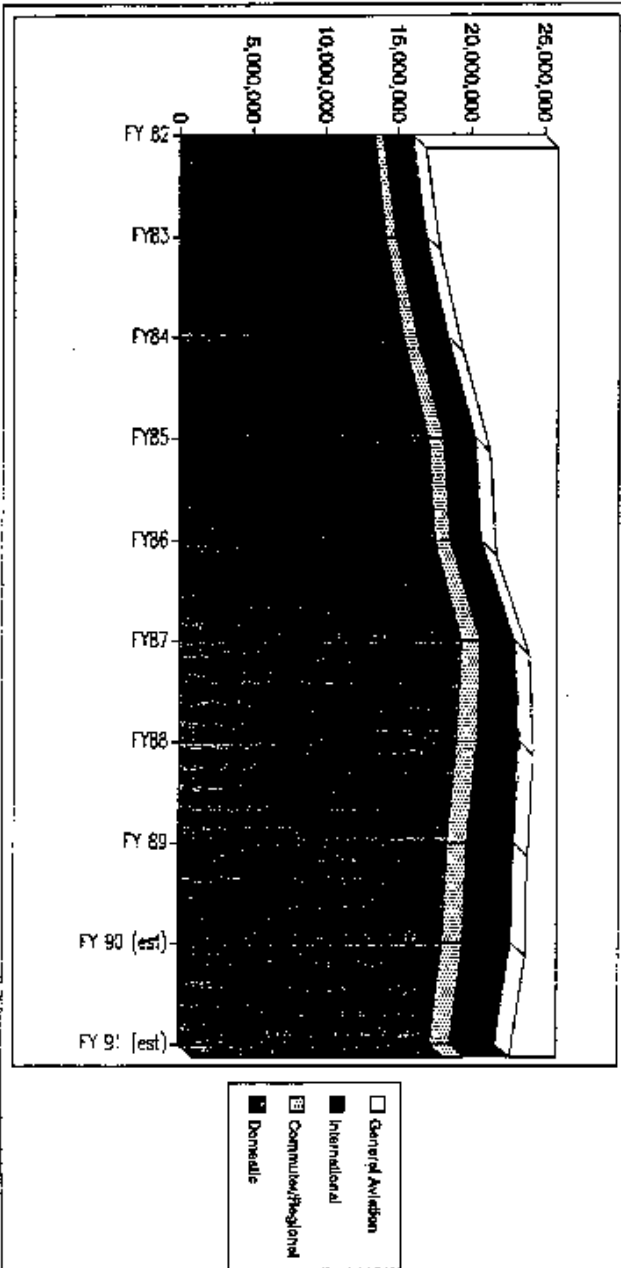


FIGURE 3
10 Year Summary of Logan Airport Activity
Passengers per Year



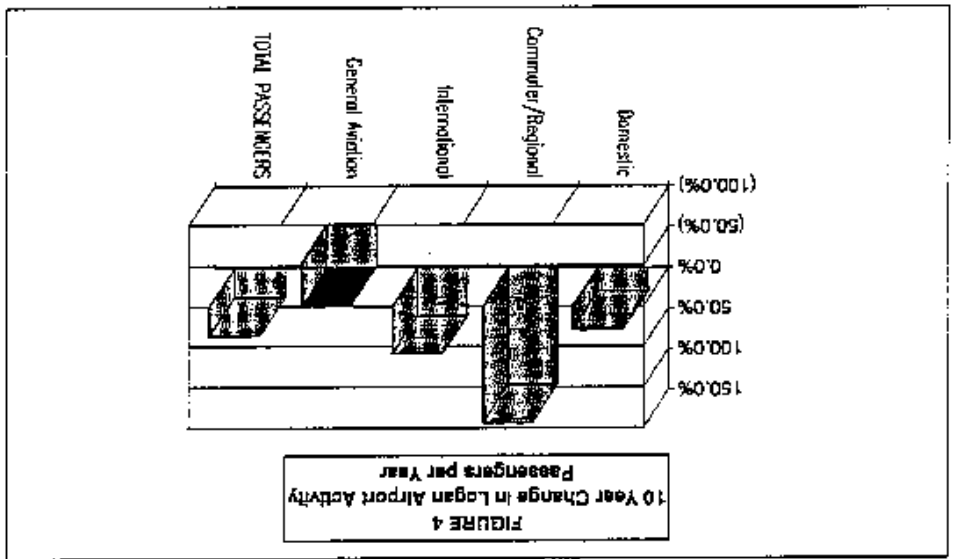


TABLE 1
 MASSACHUSETTS PORT AUTHORITY
 10 YEAR FINANCIAL SUMMARY FOR FACILITIES
 NET OPERATING SURPLUS or (DEFICIT)
 excluding debt service, capital expenses and allowance for depreciation

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91 (est)	10 yr Avg
Tobin Bridge	2,630,806	2,909,265	2,727,306	2,903,218	2,878,389	2,734,470	2,835,653	1,313,888	387,761	(186,171)	2,096,487
Logan Airport	40,247,556	45,842,807	46,260,334	52,693,116	52,261,068	66,184,371	53,144,282	57,604,084	64,828,727	59,087,500	55,875,363
Hancock Field	(185,380)	49,840	56,186	90,384	(50)	(181,649)	90,484	14,560	(260,000)	(330,286)	(66,784)
Marlborough	(3,635,903)	(3,118,925)	(3,452,921)	(1,125,624)	(4,043,872)	(2,786,107)	(4,798,444)	(2,671,671)	(3,068,845)	(2,623,821)	(3,122,813)
Development	(1,768,216)	(1,388,063)	(1,037,511)	(826,659)	(917,358)	(1,064,852)	191,526	258,479	146,199	(34,882)	(266,238)
State Trans. Bldg	0	0	96,684	(18,831)	44,187	(9,577)	6,863	(10,550)	(9,748)	59,167	14,880
Interest Income	14,341,142	14,056,271	16,280,354	12,360,000	12,370,000	10,070,129	9,693,580	14,338,362	17,071,662	17,668,727	13,819,925
TOTAL	\$51,739,895	\$56,480,416	\$62,810,444	\$85,881,712	\$62,592,362	\$74,927,789	\$70,983,714	\$60,845,162	\$78,708,716	\$73,756,988	\$69,089,721

Logan has four major runways capable of being used by jet airline aircraft, and a short (2,500 ft.) runway usable by general aviation. One runway approach has a Category II instrument landing system (ILS) and four other approaches are equipped with the less-capable Cat. I ILS; none are equipped with the more modern Cat. III system. There is a 250-foot high control tower, operated by the Federal Aviation Administration (FAA).

The airport has five airline passenger terminals designated A, B, C, D, and E plus a general aviation terminal. The commuter airlines operate in terminals A, B, C, and E; terminal D is used for charter operations. In addition, there are 12 cargo buildings containing over 650,000 sq. ft. There are commercial parking facilities for 10,215 cars, a ground roadway system, eight rental car facilities, a Hilton hotel, five aircraft maintenance hangars, and a variety of utility installations.

Massport has adopted a 10-year plan for modernizing the land-side of the airport--i.e., the terminals and ground access. Known as Logan Airport Modernization Program (LAMP), it calls for reworking the roadway and ground-transport system in connection with the Third Harbor Tunnel project. Projected improvements include a revised main access roadway loop, expansion of terminals A and E, and developing a new airport transportation center. No expansion of the airside (runways) is planned.

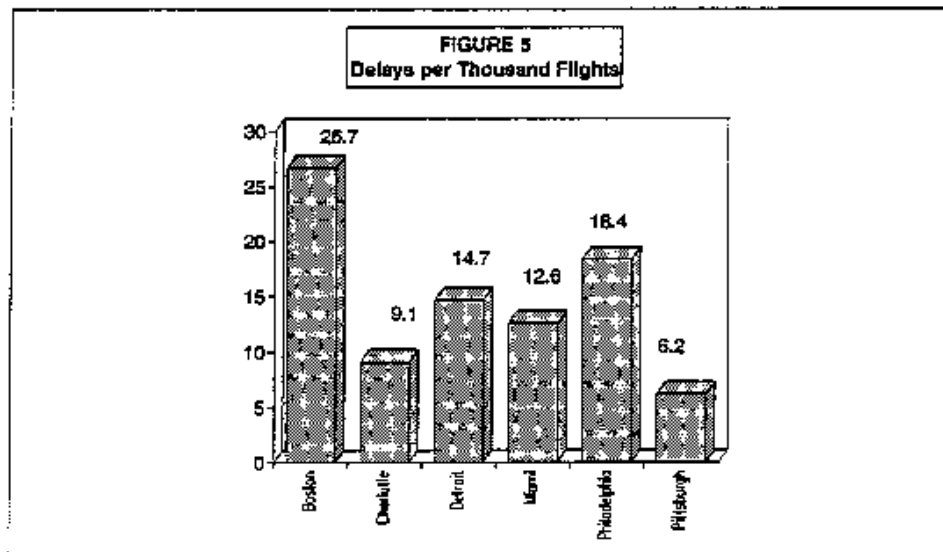
B. Current Logan Airport Problems

Like most large airports, Logan has its share of problems. Those problems affect both its users and its neighbors. The airport has a serious problem of flight delays, and it has the ongoing problem of opposition to its noise (and therefore to its growth) from its neighbors.

The U.S. Department of Transportation issues a monthly "Air Travel Consumer Report," which provides figures on airline and airport performance. Of the 31 major airports tracked in this report, Logan ranks 21st in its percentage of on-time arrivals. As of May 1991 (the most recent month reported), 82.1% of arriving flights were within 15 minutes of their scheduled arrival time. Twenty

other large airports—including the huge Dallas/Ft. Worth, New York's JFK, and Washington National—had better on-time arrival performance. Logan scored better on on-time departure, ranking 13th out of 31, with 89.0% of departures occurring within 15 minutes of schedule.

The FAA reports delays in a different way, counting the number of flights delayed at an airport (with delays, again, defined as a deviation of more than 15 minutes from scheduled arrival or departure). Of the 55 large airports monitored by the FAA, Logan ranked eighth in the total number of delays for the first five months of 1991. Overall, 4,550 flights were delayed in this time period, giving a rate of 26.7 delays per 1,000 flight operations. While that rate is lower than that of several larger airports such as Newark (70.5 delays/1000 operations) and LaGuardia (53.7 per 1,000 operations), is much higher than the rate at other airports of comparable size in the eastern half of the United States. Figure 5 compares Logan's delays with those of six other eastern airports with activity levels in the same 30-40,000 operations per month as Logan's. As can be seen, delays are significantly greater at Logan than at airports with comparable levels of flight operations.



Part of the problem is that airlines tend to schedule flights more heavily at certain times of day--akin to rush-hours on expressways. DOT data for May 1991 reveal that on-time arrivals decline significantly between 5:00 and 10:00 PM (averaging only 72% during those hours); similarly, on-time departures reach their daily low point between 6:00 and 9:00 PM. Logan's pricing structure for landings does not distinguish between busy and less-busy times of day, and therefore provides no incentive for users to shift marginal flights out of those times.

Another factor in delays is the mismatch between turboprop-driven commuter planes and jet airliners. The take-off and landing speed of the commuters is much lower than that of jets. In addition, wide-body jets (DC-10s, L-1011s, 747s, etc.) create turbulent air as they move down the runway, requiring additional waiting time before a small plane can follow them. The mixing of commuter and large jet airliners on the same runways reduces the capacity of those runways--i.e., the number of flights that can be handled in a given time period. But Logan lacks a separate runway that could handle the commuter aircraft away from large jet airliners.

Delays represent a real cost, to both passengers and airlines. Economists measure the cost of lost time as an "opportunity cost," i.e., as the value of what a person could have done with the time that was otherwise wasted. In individual cases (e.g., missing a critical business meeting), the cost may be much higher than in the average case. A baseline estimate of the cost to passengers of Logan's delays can be obtained by making several "ballpark" assumptions. If we take the average value of an air traveller's time as \$17.50/hour (\$35,000 per year), and assume that the average aircraft delay is 20 minutes (which is probably conservative, since DOT and FAA define "delay" as a schedule deviation of at least 15 minutes), then the calculation in Figure 6 shows that the extent of reported delays at Logan Airport costs air travellers in the vicinity of \$5 million per year.

Added to this cost is the cost to airlines: salaries of flight crews, wasted fuel burned while taxiing in line (or holding in the air), extra wear and tear on the aircraft, etc. The Air Transport Association has calculated the average cost to an airline of delays on taxiing out to the runway (the most prevalent kind) at \$19.64

**FIGURE 6
COST OF DELAYS AT LOGAN AIRPORT**

Number of flights delayed 15 minutes or more *

(1) January - May 1990	7,202
(2) January - May 1991	4,550
(3) Average of two years	5,876
(4) Average delays per month	1,175
(5) Delays per year	14,102

Type	1990 Operations			
	% of Flights	Flights/year Delayed *	Avg # Passengers	Passengers Delayed per year
(6) Domestic	57%	8,038	84.10	675,996
(7) Commuter	35%	4,936	10.50	51,828
(8) International	8%	1,128	108.40	123,403
(9) Total	100%	14,102		851,227

* only delays over 15 minutes are reported to the FAA

Assume average delay = 20 minutes (.33 hour)

Assume value of passenger time = \$17.50/hour (\$35,000/year)

Assume airline cost = \$19.64/minute (per ATA)

Passenger delay cost

(10) Passengers delayed per year (line 9)	851,227
(11) Passenger hours wasted in delays (line 10 * .33 hours)	280,905
(12) Annual cost to passengers @ \$17.50/hour	\$4,915,838

Airline delay cost

(13) Flights delayed per year (line 9)	14,102
(14) Minutes of delays (line 13 * 20 minutes)	282,040
(15) Annual cost to airlines @ \$19.64 per minute	\$5,539,268

ANNUAL COST TO PASSENGERS AND AIRLINES FOR DELAYS EXCEEDING 15 MINUTES	\$10,455,103
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ATA data indicate that delays of more than 15 minutes account for only 40% of hours lost to delays. These delays are not reported to the FAA or DOT.

ANNUAL COST FOR ALL DELAYS	\$26,137,758
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per minute. Using the same data in Figure 6, we see that Logan's reported delays cost the airlines some \$5.5 million per year. Adding passenger and airline costs, the total cost is some \$10.5 million per year.

But that is only the cost of delays reported to the FAA--by definition, only delays of greater than 15 minutes. But the ATA has collected detailed delay information since 1985 tracking all delays. Their data show that delays over 15 minutes account for only 40% of total delay time; in other words, shorter delays constitute 60% of the total time lost in delays. Therefore, the \$10.5 million cost of reported delays represents only 40% of the total cost of delays. The full cost of all delays at Logan (including the other 60% of delay time) is some \$26 million per year.

Another long-standing problem is noise. Logan Airport for decades has had a difficult relationship with its neighbors--the residents of East Boston, Chelsea, and Winthrop--because the airport is so close to them and the noise from landings and takeoffs is a tangible annoyance. Opposition from neighborhood groups has translated into the political demand to limit the growth of Logan Airport.

In 1974 Massport was in the process of lengthening runways 9 and 4L and adding a new commuter runway designated 14/32. The December 1972 Environmental Impact Statement for this project (prepared by Landrum & Brown) notes that the seaward extension of Runway End 9 "will result in a reduction of noise levels in existing residential areas under its departure path by allowing departing aircraft to be at higher altitude when passing over the area. The lateral noise effects of landing aircraft will also be reduced since longer runways reduce the need for full thrust reversal." The EIS estimated that the runway additions overall would reduce the population within the "40 NEF" area (a measure of the number of acres exposed to a given noise intensity) by 8%, after taking into account improvements that would occur in any event due to the phase-in of less-noisy aircraft over the decade.

However, after construction was in process, the City of Boston and some East Boston residents obtained an injunction, contending that the project had not properly complied with the new state environmental protection act. The new governor and transportation secretary negotiated a settlement, set forth in a 1976

consent decree, that permitted completion of the two runway extensions but forbade their use for landings and takeoffs, and prevented completion of the commuter runway. Since that time, Massport policy has been to not make any further expansions of the airside (runways) of the airport. Hence, further noise reduction can only come about via continued improvements in the aircraft fleet, rather than from moving the runways further away from the affected land uses.

The Federal Aviation Administration, various business organizations, and aviation user organizations have all expressed concern over Massport's no-airside-growth policies over the past decade. These groups contend that present delays at Logan will get worse in the future, as air travel continues to grow but the airport's runway capacity does not. They consider the prospect of a second Boston-area airport--currently the subject of ongoing site-selection efforts--to be sufficiently far in the future that Logan's capacity may become a constraint on the economic viability of the Boston metro area over the next two decades.

Another problem to the aviation community is Logan Airport's unusual financial situation. All air-carrier airports in the United States receive grants from the FAA, under terms of the 1982 Airport and Airway Improvement Act. Section 511 of this law requires that for airports receiving such grants, "all revenues generated by the airport, if it is a public airport, and any local taxes on aviation fuel . . . will be expended for the capital and operating cost of the airport . . ." Logan Airport is one of a handful of airports which is exempt from this regulation, since its enabling act was passed before 1982 and permitted revenues to be sent off the airport to subsidize Massport's other operations.

As noted above, Massport uses Logan revenues extensively to subsidize its other operations, most notably the port, but also Hanscom field and recently even the Tobin Bridge (whose tolls remain far below normal levels). The FAA is strongly opposed to the use of airport revenues to subsidize other municipal operations, as is the aviation community. While Massport has invested considerable capital in Logan Airport, the aviation community has legitimate concerns about the kind of cross-subsidization that Massport carries out.

2. AIRPORT PRIVATIZATION: A NEW PARADIGM

Airports traditionally have been operated by municipalities as nonprofit enterprises. Generally, much of the airside capital cost is provided in the form of grants from the FAA, and the FAA pays for and maintains the high-tech landing aids, and equips and operates the control tower, using FAA employees. The airlines—the airport's largest customers—make contractual agreements with the airport operator to provide for a revenue stream to make payments on tax-exempt revenue bonds issued to pay for the terminal facilities. Many airports (but not Logan) use so-called "residual cost agreements," under which airline payments are recalculated each year so as to bring in just enough revenue to cover the difference (the residual) between operating costs (including debt service) and all other revenues. Thus, if revenues from concessionaires (such as parking and newsstands) go up significantly, landing fees may actually go down to compensate. Although the airport may build up some financial reserves, the basic principle is to operate on a break-even basis.

A quite different paradigm is that airports can and should operate as for-profit businesses. This paradigm is being implemented in the United Kingdom. In 1987, the Thatcher government sold the former British Airports Authority to private investors for \$2.2 billion, via a public stock offering. BAA plc owns and operates Heathrow, Gatwick, and Stansted airports serving the greater London area and the four main Scottish airports. Since its privatization, it has purchased the Southampton airport and obtained management contracts to operate the Biggin Hill and Southend airports.

The British government is encouraging the shift of municipal airports into the private sector, and Liverpool in 1990 sold a 76% interest in its airport to British Aerospace Corp. Several other private firms have developed or plan to develop new or expanded airports as private enterprises. They include the London City Airport (in operation), Budge Mining Corporation's planned airport in Sheffield, and European Land's proposed major expansion of the Newcastle airport.

Other governments have also moved in the direction of privatizing airports. New Zealand has corporatized its three international airports and has announced that

they will subsequently be privatized. Denmark in 1990 announced plans to hold a public stock offering for the Copenhagen airport. Other countries studying or planning airport privatization include Germany, Greece, Jamaica, Malaysia, Mexico, Singapore, South Africa, Spain, and Venezuela.

The Reason Foundation conducted a preliminary study in 1990 of the impact of privatization on the British airports. Among its conclusions were the following:

- Capital investment per year has doubled since the airports were privatized. BAA has expanded its terminals at Heathrow and Gatwick, built a major new terminal at Stansted, and has begun work on a high-speed rail line linking Heathrow with central London.
- Privatization has led to lower operating costs and increased productivity. BAA output per worker has increased significantly since it has become a business enterprise. And continued traffic growth has led to a net increase in employees, indicating that the productivity gains have not come at the expense of the work force.
- BAA's pricing policies are dramatically different from those of US airports. BAA charges for landings primarily on the value of the service (rather than charging based on aircraft weight, as done in the United States). In addition, BAA's rates are higher at peak times of day and seasons of the year. In economic terms, BAA is the world's first airport operator to charge market prices.
- Progress on noise reduction has continued as the BAA airports have become commercial enterprises. Britain's stringent noise regulations apply equally to publicly owned and privately owned airports. And BAA imposes a surcharge on noisier (Stage 2) aircraft and offers a discount for quieter (Stage 3) aircraft, to encourage users to phase out the former and phase in the latter.

- Customer satisfaction is at high levels, as measured by monthly surveys, and has increased since BAA's privatization. BAA has moved aggressively to increase the retail opportunities for customers.
- Contrary to airline expectations, the composition of airport revenue has changed dramatically over the past decade. In 1983 airside revenues (charges to airlines) constituted 54% of total revenue; by 1990, this proportion had dropped to 42%, as landside revenues have soared.

Private airport operators, such as BAA and Lockheed Air Terminal (developer of Toronto's new Terminal 3) have realized that airports represent largely untapped business opportunities. Air travelers are an affluent group, compared with the general population. There is no good public policy reason why they should pay less than market prices for making use of airports, as reflected ultimately in ticket prices. And there are important efficiency/capacity gains to be had if airports price landings and takeoffs at market value (rather than on the basis of weight).

Affluent passengers represent a highly attractive audience for goods and services, which airport operators historically have failed to fully tap. Under private ownership and operation, both Heathrow and Toronto's Terminal 3 include Harrod's department stores. The design of Terminal 3 incorporates maximum opportunities for advertisers to purchase space for messages and displays aimed at affluent travelers. Airports generally have not seriously pursued potential markets for meeting facilities, short-term hotel stays, and recreational services.

In addition, airport real estate is often under-utilized. Land value maximization is an entrepreneurial function, in which the profit motive directs decisions toward the "highest and best use" of each parcel, consistent with the overall use of the property (whether it be a shopping mall, industrial park, or mixed-use development). Because airports are traditionally run as non-profit enterprises, there is little entrepreneurial incentive to seek the highest-value land uses. And

because cities do not derive normal property tax revenues from airports, they do not have strong incentives to promote value-maximizing airport land use, either.

Because Massport operates Logan Airport as a "cash cow" for its other properties, its incentives are different from those of the typical municipal airport operator. Massport points out that in some respects it already operates Logan as a business. Specifically:

- 1) Massport does not use the residual cost method of recovering costs from airlines; rather, it uses the more businesslike compensatory method, subject to FAA constraints embodied in the grant assurances.
- 2) Massport has generally not entered into long-term use agreements or terminal leases (with the exception of Terminal A, whose lease with now-liquidating Eastern Airlines expires in 1994) and two-thirds of the gates in Terminal B (leased through 2001 to the South Terminal Corporation). All other gates are operated under annual rental and fee agreements. Also, Massport has retained greater control over expansion, by avoiding majority-in-interest clauses in its leases.
- 3) Massport has sought to price landings based to some degree on the value of the service, rather than simply by the weight of the aircraft, in its PACE program. This pricing policy was, however, rejected by DOT and a federal court, on grounds that it was inconsistent with the FAA grant assurances.
- 4) Massport operates Logan with a lean staff of only some 500 direct employees; private contractors provide a great many services.

Massport is to be commended for the sensible business practices noted above. (And it should be noted that the absence of many long-term agreements with airlines would make the transition to private ownership less difficult.) But the agency is significantly constrained in its ability to operate Logan as a business

enterprise. Massport is a government entity serving a variety of public goals. In serving the multiple goals of operating and subsidizing its other enterprises, Massport cannot make serving its airport customers its highest or only priority. Massport is also constrained in its pricing and other policies by its grant agreements with the FAA (as discussed below in Section 3).

More fundamentally, Massport is different from a business in terms of the basic incentives affecting its policy and management decision-making. Private ownership of an enterprise makes a fundamental difference, as many countries are discovering these days. A private firm faces the risk of going bankrupt, unless it satisfies its customers. It also faces the risk of being taken over, via the market for corporate control, if it fails to operate in the best interest of its shareholders. These powerful incentive forces do not operate in the public sector.

3. PRIVATELY OWNED LOGAN AIRPORT: WHAT WOULD CHANGE?

What difference would it make if Logan Airport were privatized? For purposes of this section's discussion, we will put aside potential legal and financial difficulties and assume that a majority of Massport's board decides to sell the airport, which will subsequently be operated according to the for-profit paradigm described in the previous section. How might the airport operate differently under this model? How would Massport's operations differ, and what would be the impact on city governments and the Commonwealth of Massachusetts?

A. Corporate Culture

One probable change would be in the corporate culture of Logan Airport, Inc. A recent front-page article in the *Wall Street Journal* outlined the dramatic changes which took place at Detroit Diesel Corp. after it was sold by General Motors to Roger Penske. The company, which had been losing money and market share, "has pulled a high-speed turnaround," with sales up 23% in the first half of 1991. Note especially the following comment from the *Journal* article:

Most striking: Detroit Diesel is doing this with the same senior management and hourly work force that floundered under General Motors. All that has changed is the ownership--and with it Detroit Diesel's entire operating philosophy and style. The company provides a textbook example of how an outfit can succeed once out of the smothering grasp of a corporate giant.

Just such a transformation has taken place at BAA, formerly the British Airport Authority, thanks to its privatization. Freed from British civil service rules, BAA is now able to pay its senior people market-based salaries (which are significantly higher than public-sector levels). Some 90% of BAA employees own stock in the company, and 45% are enrolled in a payroll-savings plan to purchase more. They also are eligible for bonuses based on company profits and service levels. Corporatization and privatization have led to sustained increases in productivity, as noted earlier. The corporate culture of BAA has changed from that of a public-sector department to that of an entrepreneurial company.

Thus, the first change we would expect from privatizing Logan Airport would be a change of the corporate culture, with subsequent improvements in efficiency and productivity. Workers and managers would be able to benefit directly, as shareholders, from improved performance, and there is every reason to expect that private-sector management would bring about that result.

B. Pricing Freedom

The second major change would be the elimination of economic regulation of the airport by the Federal Aviation Administration. (Note: FAA safety regulation would remain in force.) As part of the privatization decision, Massport would terminate its existing grant relationship with the FAA (as discussed in section 5, below). That would mean Logan would no longer be governed by the economic regulatory provisions of the grant assurances currently in force. Although Massport has a "grandfathered" exemption from one of the standard provisions in these assurances (the provision which requires that all revenues generated by the airport must be spent on the capital or operating costs of the airport or airport system), all of the other provisions still apply. Those provisions seriously restrict the airport's freedom to determine its pricing structure. Becoming free of

the grant assurances would permit Logan to do the following things that it cannot do today, under Massport ownership:

- 1) Charge per-passenger fees and spend the revenues on any airport project that management deems prudent. Airports governed by FAA grant assurances must apply for FAA permission to levy a passenger facility charge (PFC), which permission is granted only if the airport complies with specific FAA noise-control regulations (which are less-stringent than many airports prefer). The FAA limits PFCs to a maximum of \$3 per passenger. In addition, those PFC revenues can be spent only on certain specific FAA-approved projects. In part because of these restrictions, many public airports, including Logan, have not yet decided to implement a PFC. A privatized airport would have no such hesitation. Since Logan currently enplanes over 11 million passengers per year, each \$1 of PFC would bring in \$11 million annually; thus, a \$3 PFC would yield some \$33 million.

- 2) Charge market-based landing fees, with peak- and off-peak differentials to spread out traffic and ease congestion. Massport sought in its PACE program to modify its landing-fee structure to charge each aircraft a per-landing fee in addition to a traditional weight-based charge. Commuter and general-aviation user groups filed suit, on grounds that this pricing policy violated Logan's grant assurance provision which requires that charges be "nondiscriminatory." As noted above, DOT and a federal appeals court agreed with this interpretation. But an airport not covered by FAA grant assurances would be able to adopt a pricing structure that (a) charged each aircraft a basic charge for using scarce runway space (thereby precluding another aircraft from doing so) and (b) charged higher prices at congested times and gave discounts at uncongested times. A privatized airport could also charge a lower price to commuter and general-aviation aircraft that used a separate commuter runway (if such a runway existed), taking

them out of the main landing/takeoff paths . This would greatly reduce the opposition to such a pricing structure by those users.

- 3) Charge noise-related fees, including surcharges on the noisier Stage 2 jet aircraft, and use the proceeds to mitigate noise impacts--e.g., further soundproofing of homes and schools in the airport's neighboring communities. Such noise surcharges would also encourage airlines using Logan to accelerate their phase-out of Stage 2 aircraft.

C. Airside Improvements

The third major change if Logan were privatized would very likely be a revision of Massport's policy of not making any improvements to the airside, i.e., the runways. Both the FAA and the aviation user community (which is, after all, the airport's primary customer base) are unanimous in supporting the addition of a separate commuter runway at Logan. Section 1 documented that the growth rate of commuter and regional airline service is three times that of domestic airline service. This means that Logan's already-severe delay problems will get considerably worse in the coming decade, due to the basic incompatibility of large jetliners and small commuter aircraft on the same runways. These delays already cost Logan users \$26 million per year.

Many studies have concluded that the controversial commuter runway designated 14/32 would be a cost-effective addition to the airport. For example, the October 1982 report for Massport by Flight Transportation Associates (known as the Odoni report) concluded that

The single most beneficial improvement that can be made at Logan Airport today is the provision of a second instrument approach for [instrument flight] conditions.... The second instrument approach capability could be provided by the bi-directional 14/32 runway, and to a lesser extent by the unidirectional 14/32 runway.

The Odoni study reported the results of computer simulations indicating that "very significant reductions in delay can be achieved at Logan" by this means.

During the past several years, the FAA has continued to urge Massport to preserve the option for adding this runway. It has organized a Boston Task Force to study possible enhancements to Logan's capacity. Members include FAA staff people, airline representatives, air traffic control experts, and Massport. More than two dozen possible improvements were studied: airfield changes, facility and equipment changes, and operational improvements. Each was evaluated using the FAA's Runway Delay Simulation Model, and for each one, projected annual savings--in hours of delay and millions of delay-related dollars--were calculated. Only two improvements showed dramatic impacts: building runway 14/32 and extending runway 15L/33R to 3500 ft. in length. Either of these additions would make a major improvement in the delay problem.

Massport has made the political decision not to build any runway capacity, and has recently approved a new hotel/conference center near the flight path of the 14 end of the proposed 14/32 runway. Construction of a 15-story hotel on this site, should it be completed, would definitely affect the degree to which 14/32 could be used bi-directionally under instrument conditions. Massport cites a 1976 consent decree under which the Commonwealth and Massport agreed to cease work on 14/32. This decree remains in effect, but it provides that the court "may modify or amend further" the terms of the agreement "upon the motion of any party." Hence, the issue need not remain closed forever.

Whether a new private owner would seek to build runway 14/32 or to make some other runway improvements cannot be predicted with any certainty. What can be predicted is that the new owner would seek to solve the delay problem and improve the level of service to its customers. It would be strongly motivated to seek a fresh approach to doing so, in part by developing a more positive relationship with neighboring communities (as discussed below).

D. Passenger Services

There are many ways in which a private airport owner would seek to increase its revenues from airport passengers, not by gouging them but by increasing their opportunities to purchase goods and services. As noted in Section 2, since privatization, BAA has dramatically increased the fraction of total revenues coming from landside sources, from 46% in 1983 to 58% in 1990. One comparison will illustrate the magnitude of the changes. BAA's total revenue (from both airside and landside) per passenger is \$19.59, whereas Logan Airport's current figure is only \$6.50. In other words, BAA derives three times as much total revenue from each passenger as does Logan under Massport.

A more instructive comparison is to focus only on landside revenues--money received by the airport for such services as car rentals, parking, restaurants, shops, etc. Here the comparison is even more dramatic. BAA derives \$9.80 in such revenues from each passenger, compared with \$2.58 for Logan airport--some four times as much. This clearly suggests there are untapped potentials to offer goods and services to Logan's users.

To be sure, Heathrow and Gatwick are major international transfer points, and duty-free shops are one important component of their revenue, far more so than at Logan. However, Heathrow and Gatwick also offer a far greater variety of retail opportunities than Logan or other U.S. airports. As noted above, there is now a Harrod's department store at Heathrow, as well as the world's largest-volume Burger King.

Numerous other possibilities suggest themselves as offering air travelers worthwhile opportunities to spend money. Recreational services--such as Denver and Pittsburgh's new Tee-Off and Take-Off golf-playing shops and family fitness centers--are a virtually untapped market. Fully-equipped business centers, meeting rooms, conference facilities, and short-term hotel facilities are sorely lacking at most airports. While Logan has been fairly progressive in adding brand-name retailers, there is still large scope for profit-oriented entrepreneurship in developing additional land-side services for air travelers.

E. Relations with Neighbors

How would a privately owned Logan Airport relate to its neighbors? To many residents of East Boston, Chelsea, and Winthrop, the airport is a very unwelcome neighbor, the source of noise and air pollution. Massport has responded to this adversary relationship by making non-expansion of the airside an absolute, even when certain expansions could have positive environmental benefits. For example, the Environmental Impact Report on the runway projects which were curtailed by the 1976 consent decree found that those additions (the commuter runway and extensions of runways 4L and 9) "will result in a facility producing significant environmental benefits to the community for years to come." Specifically, compared with the "no-build" alternative, it forecast a 20% reduction in total pollutants and an 8% reduction in noise exposure.

A fresh management approach to the airport might seek to offer the neighboring communities positive economic benefits in exchange for environmentally sensitive airside improvements. One immediate difference between a privately owned Logan and Massport ownership is property taxes. Currently, Massport as a whole pays in-lieu of property taxes approximately \$6 million per year to the City of Boston; since the airport constitutes about two-thirds of Massport's book value, the airport in effect is paying \$4 million per year. As private property with a market value of nearly \$800 million (see Section 4), Logan would pay something like \$25 million per year to Boston—more than six times Logan's current payment.

Massport also makes small in-lieu payments to Chelsea and Winthrop: \$307,036 and \$203,573, respectively, in FY 1991. While a privately owned Logan would have no legal obligation to make such payments, it would probably decide that significant goodwill would result from paying each community perhaps \$1 million per year.

Increased payments to the City of Boston would not preferentially aid East Boston. And payments to city governments do not necessarily benefit the individual residents of those communities. Logan Airport, Inc. would have an additional way of being a good neighbor which Massport lacks: it could offer the residents of these three communities stock in the company. There are 13,872

registered voters in East Boston, 9,830 in Chelsea, and 12,045 in Winthrop. A gift of stock worth \$500 per person would cost the company \$18 million; additional shares could be offered at a discount. As co-owners of the company, the airport's neighbors would share directly in its profitability, via dividends and stock appreciation. They would also have a voice in its governance (assuming the shares carried voting rights).

Offering economic gain-sharing to Logan's affected neighbors is a strategy which has not been tried before, but precedents of this sort exist. It is becoming common practice in privatization around the world to reserve a portion of the shares of stock for employees, in order to give them a stake in the company's future success. In utility privatization in Britain and elsewhere, shares are made available on preferential terms for the utility customers. And in siting new "locally-undesirable land-uses" (otherwise known as LULUs), a successful technique is host-community benefit fees, in which the potential host community is offered various community benefits (e.g. road improvements, new community centers, and sometimes cash payments) in exchange for agreeing to be the site of the facility.

F. Impact on Massport

Since Logan Airport is currently Massport's cash cow, the decision to sell the airport could only be taken if provisions were made to safeguard the future of Massport's other enterprises: the port properties, the Tobin Bridge, and Hanscom Field.

The port properties are the most significant cash drain. As was shown in Table 1, the port properties have averaged over \$3 million a year in operating losses. During the 1980s, Massport admits to having spent half its capital investment "on projects that did not generate debt coverage," i.e., which produced no net revenues. Many of these investments were one-time improvements made for policy reasons rather than economic reasons. In the more stringent fiscal climate of the 1990s, fewer such investments will be possible.

One way of directing future port investment in economically sound directions would be to use some of the proceeds from selling Logan Airport to set up a

limited endowment to cover socially desirable port operations which cannot pay for themselves. Investing a fund of \$37.5 million in Treasury instruments at 8% would yield \$3 million a year, sufficient to cover current port operating losses. With only limited funds available to cover such losses, further port investments would have to pass a more stringent test in terms of generating debt coverage.

Massport owns a large amount of potentially very lucrative real estate in its port properties (though in today's depressed market it is easy to lose sight of this fact). Once commercial real estate markets recover later in the decade, Massport will be in a good position to redevelop more of these properties, in partnership with the private sector.

The Tobin Bridge was Massport's original cash cow, though it has been showing a modest operating loss the past few years. That loss is due to the failure to raise bridge tolls to keep pace with today's cost of maintenance and operation. A 50-cent round-trip toll is indefensibly low in 1991. No other major urban toll bridge has such extremely low rates. Moreover, from an environmental standpoint, tolls are becoming recognized as an important tool of traffic demand management. Particularly with the advent of the Central Artery project, controlling expressway traffic congestion should be a major policy objective in the Boston area. Doing so suggests significantly higher tolls for the Tobin Bridge during rush hours, which could easily make the bridge self-supporting once again. There would be no need to invest airport sales proceeds in the bridge, when it can and should be a self-supporting enterprise--and possibly a contributor of net revenues to Massport's other remaining enterprises.

Hanscom Field is an important reliever airport for Logan. With the implementation of market pricing for general aviation at Logan under private ownership, Hanscom's importance as an alternate to Logan will be even greater. Currently, Massport collects virtually no landing fees from Hanscom users and maintains that the costs of effective billing would be too high. Yet other popular general-aviation airports, such as New Jersey's Morristown and Teterboro, have effective billing systems. Moreover, those airports have become self-supporting since they were turned over to private management, under long-term lease agreements. Massport should investigate the possibility of doing likewise.

G. Impact on Massachusetts

The primary decision to sell Logan Airport would have to be made by the Commonwealth of Massachusetts, specifically, by the Legislature. What would the state have to gain from this transaction?

In effect, the state would be making the decision to recover its previous investment of land and start-up capital in the airport. Massachusetts has many critical needs, and relatively limited state fiscal resources. Other cities and states, and numerous foreign countries, have begun reassessing their various assets to determine if they might be able to make better use of their idle capital by reinvesting it in more urgent needs.

If the Legislature decided that private ownership and operation of Logan would offer advantages over public ownership, and that a restructured Massport could meet its other obligations without using the airport as a major source of revenue, then the state could in good conscience share in the sales proceeds from the airport. One possible division of the proceeds would be for Massport to receive sufficient funds to redeem or defease all outstanding Logan bonds and pay other settlement costs (e.g., of FAA grant repayment obligations), and to set up an endowment for its port operations. That would leave the balance available for investment in high-priority state needs. A preliminary estimate is that this windfall to the state could be as much as \$386 million (see Section 4).

It would be presumptuous for an outsider to attempt to spell out what those high priority investments might be. That would best be decided by the Legislature and the Governor, with considerable public input. Possibilities include start-up capital for a second Boston-area airport, other major infrastructure investment, an endowment for other public purposes (e.g., education, health care, criminal justice, etc.) The point is simply that if these estimates are in the right ballpark, Massport and Massachusetts are sitting on a sizeable asset that could be put to other uses.

4. FINANCIAL DETAILS

A. Valuation

What might Logan Airport be worth to private investors? A modest amount of information can be used to arrive at a preliminary estimate. One large-scale airport sale has taken place—that of BAA in 1987. Three others have been seriously proposed. In 1988 Merrill Lynch Capital Markets developed a proposal to sell Atlanta's Hartsfield International Airport, but after some initial interest, it was not pursued. In 1989 the Danish government announced that the Copenhagen's Kastrup airport would be sold via a public stock offering, beginning with 25% of the shares. And in 1990 the New Zealand government announced that Auckland International Airport (and two other airports) would be sold. In all three cases, valuation studies were carried out, giving us benchmarks to use in estimating the possible value of other airports.

Airports vary considerably in size, characteristics, number of operations and passengers handled, etc. From a commercial standpoint, a business is typically valued based on the future stream of revenues it is capable of producing. One of the most basic indicators of revenue potential is the number of customers a business is capable of attracting. Several types of utility firms are valued based on the number of potential customers they can serve. For example, cellular telephone and cable television firms are bought and sold on the basis of a certain number of dollars per person in the population area served by the firm. One way of estimating airport value, by analogy, is in terms of the annual enplanements handled by the airport.

Table 2 shows the annual enplanements at each of the airports discussed above, along with the valuation or price of each, and the year in which that value or price was established. From these numbers, the dollar value per annual enplaned passenger has been computed. These figures are then adjusted for inflation to 1991 dollars. The average of these figures is \$69.57 per annual enplaned passenger. This can be used as a benchmark to estimate the value of Logan Airport. With annual enplanements of 11.3 million (not far from Copenhagen's 12.2 million), Logan Airport can be valued at \$786 million.

**TABLE 2
AIRPORT VALUATION**

Airport	Annual Enplanements (millions)	Valuation (\$ millions)	Year of Valuation	\$ per Enplanement	1991 \$ per Enplanement
Heathrow & Gatwick	27.6	\$1,870	1987	\$67.75	\$79.28
Atlanta	24.0	\$1,500	1988	\$62.50	\$73.12
Copenhagen	12.2	\$ 900	1989	\$73.70	\$79.71
Auckland	4.5	\$ 200	1990	\$44.40	\$48.18
Average					\$69.57

Obviously, this number is only a first approximation. What investors would actually pay for Logan would depend on a number of factors. Among them would be what restrictions might be included in any deed of sale (presumably, one such provision would require that the property continue to be used as an airport), what degree of regulation of airport prices was to be imposed and by whom, and other factors that would influence investors' judgement of the potential riskiness versus the potential rewards of this investment. But this number is definitely in the ballpark, in terms of other actual and potential sales of large commercial airports.

B. Massport's Outstanding Bonds

As of July 1, 1990 Massport had \$465.695 million in revenue bonds outstanding. These bonds are secured by a pledge of all tolls, rates, fees, rentals and other charges from Massport's projects, including Logan Airport, Hanscom Field, the Tobin Bridge, and certain facilities of the Port of Boston. Because the improvements at Logan have been financed jointly with other Massport projects, and because the bond trust agreement restricts the disposition of Massport property (see below), the sale of Logan Airport may require a refinancing of all of Massport's outstanding revenue bonds.

Approximately 62% of the outstanding bonds have been to finance improvements at Logan Airport, amounting to \$288.73 million. Proceeds from the sale of Logan could be used to defease or redeem this portion of the total. Monies in the

Reserve Account for the bonds (\$17.323 million) would also be available. Assuming the changes in Massport operations discussed in Section 3, the 38% of bonds allocable to non-Logan facilities (approximately \$159.642 million) could be separately refinanced, at least in part, by a tax-exempt current refunding of certain outstanding bonds. Some taxable refinancing may also be required.

Massport's outstanding bonds comprise four separate issues, pursuant to the Trust Agreement between Massport and State Street Bank & Trust Company:

- \$202.93 million was issued in 1978
- \$71.865 million was issued in 1985
- \$99.965 million was issued in 1988
- \$90.935 million was issued in 1990.

These bonds are secured solely by a pledge of Massport's revenues, allocated in two ways. Revenues from airport landing and parking fees, bridge tolls, and certain investment income must first be used for debt service on the 1978 bonds. Revenues not pledged to debt service on those bonds, such as airport rentals and concessions, are applied first to payment of Massport's operating expenses. If those revenues are not sufficient to pay operating expenses, then Massport can dip into the revenues devoted to the 1978 bonds. Remaining amounts from both sources of revenue are then applied to debt service on the 1985, 1988, and 1990 bonds. About 75% of these non-pledged revenues are generated by Logan Airport.

The Trust Agreement contains various restrictions on disposition of property by Massport which may prohibit a sale of Logan without bondholder consent. In Section 714 of the Trust Agreement, Massport covenants that it generally will not dispose of or encumber any properties financed or refinanced by the proceeds of the bonds (the "Projects"), including Logan Airport. However, Section 714 also provides for exceptions. Subject to the Enabling Act, as amended from time to time, Massport may sell any lands or rights or interests in lands or property of a Project as Massport shall determine to be not needed or no longer useful in connection with the operation or maintenance of such Project. In addition,

Massport may exchange any such property if it determines that such exchange is advantageous and in the best interests of Massport.

Hence, if the Enabling Act were amended to remove the operation of Logan from Massport's mandate, then a sale of all of Logan arguably would fit within this exception. Alternatively, if the privatization of Logan included an exchange for other property to construct a new airport, this exception also could be applicable.

However, Section 714 also provides that "Notwithstanding the [other provisions of Section 714], the Authority may, if permitted by law, sell or exchange all or any part of a Project other than any property necessary for the efficient operation of Logan Airport [upon the fulfillment of certain financial conditions]." (Emphasis added.) This language suggests that no sale of Logan Airport is contemplated by the Trust Agreement without bondholder approval.

Although it may be possible to obtain the consent of all bondholders, this may prove to be difficult. It might therefore be necessary to refinance all of Massport's outstanding bonds, including that portion allocable to non-Logan projects. The basic approach would be to redeem the Logan-related bonds from proceeds of the sale of the airport. Funds for refinancing of the non-Logan projects could come primarily from a tax-exempt refinancing of the Series 1978 bonds, as discussed below.

The Series 1985, 1988, and 1990 bonds are currently not subject to optional redemption. (Massport's revenue bonds are generally not subject to a call for 10 years after issuance.) Such bonds may, however, be "defeased"--i.e., provision for payment may be made by depositing with the Trustee government obligations (e.g. Treasury notes) whose principal and interest are sufficient to pay or redeem the bonds. Upon such deposit, the pledge of the revenues under the Trust Agreement and other obligations to the bondholders are terminated and discharged. Defeasance of all outstanding bonds not otherwise subject to redemption will free Massport from the restrictions on disposition of property noted above.

Of the proceeds from these non-callable bonds, some \$136.093 million (52%) were used for Logan Airport improvements. Funds necessary for the defeasance of these bonds would be provided from proceeds of the sale of Logan (for the 52% portion) and from a taxable refinancing of the remaining 48%. (Current federal income tax laws would prohibit a tax-exempt "advance refunding" of the non-callable bonds.)

The Series 1978 bonds are currently subject to redemption at a premium of 2% until July 1, 1992 (declining 1/2% biannually to July 1, 1998). These bonds could therefore be "called" and refunded on new terms. Such a refinancing may provide a vehicle for maintaining some tax-exempt financing with respect to Massport's non-Logan facilities. Although the bonds are redeemable only at a premium, the interest rates on refunding bonds (given current interest rates on revenue bonds of like maturities) may be less than the rates on the Series 1978 bonds (7-1/8% to 6-1/2%).

C. Distribution of Sale Proceeds

The decision to sell Logan Airport would have to be made jointly by the legislature and Massport's board, after both concluded that such a transaction would be in the best interest of the citizens and taxpayers of the Commonwealth. The presumption would be that those citizens and taxpayers would benefit from moving the airport into the private sector and reinvesting the Commonwealth's previous investment in the airport into other, more pressing needs in the 1990s. How much, then, would be available for such reinvestment?

Any such transaction would have to leave Massport well-equipped to carry out its ongoing obligations to operate its other Projects, and to fulfill its obligations to its bondholders (as discussed above). In quantitative terms, what would be necessary to do this? The discussion in Section 3 indicated that Massport should be able to make the Tobin Bridge self-supporting, as it used to be, by restoring bridge tolls to realistic levels. Likewise, Hanscom Field, which would have more general-aviation business after Logan's privatization, has strong potential for being self-supporting (and in any event, has a current operating loss which is tiny in comparison to Massport's resources).

Massport's major challenge in a post-Logan era would be to manage its Maritime operations cost-effectively. Section 3 suggested that a portion of the sales proceeds from Logan could be retained by Massport as an endowment to subsidize these operations. A fund of \$37.5 million would generate \$3 million per year, approximately the average annual operating loss on these operations (see Table 1). Massport would retain the ability to issue bonds for port and maritime projects which could generate a return on the investment of bond proceeds. A fixed endowment for money-losing ventures would limit the extent to which such ventures could continue to be undertaken.

Besides endowing the Maritime operations and redeeming \$288.73 million of Logan-related bonds, Massport may need another portion of the sales proceeds. Under Massport ownership, Logan airport receives federal airport grants. As discussed below in Section 5, Massport is exempted from the usual restriction placed on such grantees which requires all revenues generated by the airport to be spent on the capital or operating costs of the airport. Such an exemption is highly unlikely to be transferred to Logan's new private owner. Moreover, it is uncertain whether a private owner would wish to be governed by the economic-regulatory provisions of the grant agreements with the FAA.

Thus, it appears likely that the sale of Logan Airport would involve the termination of the grant agreement between Massport and the FAA. This would require a financial settlement between the parties, whose worst-case outcome would require the repayment of outstanding grants. FAA airport grants have a 20-year life, so the relevant amount is the total grants received during the 20 years preceding the year of Logan's sale. Assuming (per Massport's estimate) that Logan receives \$5 million in such grants in 1992, the 20-year total would be \$73,170,199. How much of that sum would have to be repaid would be the subject of negotiations between Massport and the Justice Department. Many of the facilities paid for by those grants are partially or fully depreciated by now, so it is not clear that the full dollar amount would have to be repaid. But a worst-case assessment must make provisions for up to this total amount.

Altogether, then, Massport might need the following amounts from the sales proceeds:

• To redeem outstanding Logan Airport bonds:	\$288.7 million
• To endow its Maritime operations:	37.5 million
• To settle outstanding grant obligations:	<u>73.2 million</u>
TOTAL:	\$399.4 million

Interestingly, this sum is very close to an estimate of the book value of Logan Airport. Massport's Official Statement for its 1990 bond issue (p. A-2) lists \$610.928 million of investment in Airport facilities, which is 66% of its total facility investment. This gross-investment figure must be adjusted by accounting for depreciation, amortization, and work in progress. Although this balance sheet does not allocate "accumulated depreciation and amortization" or "construction in progress" to the individual facilities, an estimate can be made by assuming that the same 66% applies to these categories. Applying 66% of the depreciation, amortization, and construction in progress to Logan, we arrive at an estimated net asset value of \$401.4 million.

The valuation estimate derived previously gave a potential sale price of \$786 million for Logan Airport. If Massport were to receive approximately \$400 million of these proceeds, based on the considerations discussed above, that would leave some \$386 million as net proceeds to the Commonwealth of Massachusetts.

D. Five-Year Financial Projection

How viable would a privately owned Logan Airport be? Could it survive without federal grants? Would it make sufficient profits to attract investors? Could such a transaction be financed? While a detailed financial assessment is beyond the scope of this study, this preliminary overview is sufficient to establish the basic case for financial feasibility.

Table 3 provides a summary of Massport's expected Logan Airport revenues and expenses over the next five years (FY 1992 through 1996). The expense figures are taken from Massport's *Capital Budget, FY91-FY00*, issued in May 1991. A cover memo explains that the budget reviewed several spending options and selected the middle one, summarized on p. 11 of that document. In September

1991, Massport revised its revenue projections for Logan Airport, and these revised (somewhat lower) revenue figures are the ones used in Table 3.

	FY 92	FY 93	FY 94	FY 95	FY 96
REVENUES *					
Landing Fees	38,288	44,583	48,386	48,811	51,362
Parking Fees	37,650	37,710	38,533	47,014	48,069
Rentals	40,186	43,582	50,303	53,474	56,755
Concessions	21,092	21,934	22,810	23,719	24,739
Other	20,871	22,034	23,147	24,315	25,540
TOTAL REVENUES	158,086	169,843	181,179	197,333	206,485
EXPENSES **					
Operating & Maintenance	91,731	94,704	101,779	109,653	118,772
Debt Service	42,583	43,197	46,444	61,907	81,844
Payments-in-lieu	6,864	7,139	7,234	7,330	7,428
Self-insurance fund	150	150	150	150	150
Deposit to MR fund	1,400	1,498	1,603	1,715	1,835
Bond reserve deposits	1,650	1,650	774	774	0
(Less funds from cap. int.)	(2,700)	(775)	-	-	-
TOTAL EXPENSES	141,658	147,563	157,884	181,529	209,829
NET AVAILABLE (FROM OPERATIONS)					
FOR INVESTMENT	16,428	22,280	23,195	15,804	(3,344)
Non-Logan Investment	26,000	34,000	38,000	16,000	15,500
Logan Major Maintenance	11,025	11,576	12,155	12,763	13,401
SURPLUS (DEFICIT)	(20,597)	(23,286)	(26,960)	(12,959)	(32,245)

* Massport 9-6-91 revised figures
 ** Massport 91-00 Capital Budget (Table 4)

In its capital budget document, Logan was shown as generating sufficient revenue each year to fund the planned level of non-Logan capital investment, with major maintenance and new-facility investments at Logan to come from previously accumulated funds and new bond issues. Massport expects to invest a minimum of \$50 million per year in new facilities at Logan.

To prepare a similar five-year income statement for a privatized Logan, certain assumptions are necessary. Table 4 presents this income statement, whose starting point is Massport's own figures. The revenue line items in Table 4 are derived as follows:

- **Landing fees:** Total revenue from landing fees is assumed to be the same as Massport projects. While the structure of landing fees would probably be altered, to incorporate market-pricing principles for congestion-management and noise reduction, this projection assumes no change in the total amount being paid by aviation users for landings and takeoffs.
- **Parking fees:** This source of revenue is also assumed to be the same as Massport projects.
- **Rentals:** This category, which is payments by aviation users for terminals, hangars, and other properties, is also the same as Massport projects.
- **Concessions:** As discussed in Section 3, a private airport owner would seek to offer increased and higher-value retail goods and service opportunities to Logan's users. Accordingly, revenues in this category have been increased by five percentage points each year above Massport's projections (i.e., by the fifth year they are 25% higher).
- **Passenger Facility Charges:** This revenue source does not appear in Massport's projections. It has been assumed to be \$3 per enplaned passenger (the FAA limit), even though a private airport

TABLE 4
LOGAN AIRPORT, INC.
PROJECTED INCOME STATEMENT
\$000

	FY 92	FY 93	FY 94	FY 95	FY 96
REVENUES					
Landing Fees	38,288	44,583	46,388	48,811	51,362
Parking Fees	37,650	37,710	38,533	47,014	48,089
Rentals	40,185	43,582	50,303	53,474	56,755
Concessions	22,147	24,127	26,232	28,463	30,924
Passenger Facility Charges	34,800	35,700	36,600	37,500	38,700
Other	20,871	22,034	23,147	24,315	25,540
TOTAL REVENUES	193,941	207,736	221,201	239,577	251,370
EXPENSES					
Operating & Maintenance	87,144	89,969	94,654	101,977	106,895
Property Taxes	25,152	25,152	25,152	25,152	25,152
Host Community Payments	2,000	2,000	2,000	2,000	2,000
TOTAL OPERATING EXPENSES	114,296	117,121	121,806	129,129	134,047
NET OPERATING INCOME	79,645	90,615	99,395	110,448	117,323
Debt Service - acquisition	37,335	37,335	37,335	37,335	37,335
new capital investment	4,750	4,750	11,875	11,875	11,875
NET INCOME BEFORE DEPRECIATION & AMORTIZATION	37,560	48,530	50,185	61,238	68,113
Depreciation & Amortization	25,000	28,051	31,130	34,238	37,376
PRE-TAX INCOME	12,560	20,479	19,055	27,000	30,737
Federal Tax @ 26%	3,266	5,325	4,954	7,020	7,992
State Tax @ 9.5%	1,193	1,948	1,810	2,565	2,920
AFTER-TAX INCOME	8,101	13,209	12,290	17,415	19,825
After-tax Income as a % of					
Total Revenue	4.2%	6.4%	5.6%	7.3%	7.9%

operator would not be limited to this amount. Massport's projection of future passenger volume has been used in this calculation.

- Other: Massport's projection has been used for this category.

On the expense side, the categories are somewhat different, given the different nature of a public agency and a private business. The specific line items are as follows:

- **Operations & Maintenance:** Because of the incentives for efficiency and productivity discussed in Section 3 (and for which we have evidence from the case of BAA), Massport's projected O&M expenses were adjusted downward by 5% for the first two years, 7% for the second two years, and 10% for the fifth year.
- **Property tax:** At 3.2%, the current effective rate, Logan's new market value of \$786 million results in a property tax level of \$25.152 million.
- **Host-community payments:** This is \$1 million per year paid to Chelsea and Winthrop discussed in Section 3.
- **Debt service:** For purposes of this financial statement, the purchase of Logan Airport has been assumed to be financed by a 50-50 mix of debt and equity. Hence, one-half of the \$786 million purchase price is assumed to be borrowed, at an effective interest rate of 9.5%. This results in initial debt service costs of \$37.335 million per year. In addition, new debt is assumed to be issued, in the first and third years, to finance \$50 million per year in facility additions.
- **Depreciation and amortization:** This non-cash item has been estimated to begin at \$25 million per year, increasing each year to reflect the investment in new facilities.

Corporate income taxes: An effective federal corporate tax rate of 26% and a state corporate rate of 9.5% have been used to calculate the annual tax payments to these two levels of government.

As Table 4 reveals, Logan Airport, Inc. would be profitable under these assumptions. By the fifth year, the after-tax income of nearly \$20 million is equal to 7.9% of gross revenues, a respectable margin of profit.

In terms of investment in the airport, Table 3 showed that Massport planned to invest \$60.9 million in major maintenance at Logan over the five-year period, none of which would be financed from Logan's own revenues (which would, instead, be diverted to non-Logan properties). By contrast, Logan Airport, Inc. could generate this investment internally. New debt issuance would be limited to the sums necessary to finance \$50 million per year in new facilities. This would make it feasible to proceed with selected runway improvements, subject, of course, to proper environmental review. It could also mean implementation of such projected improvements as consolidation of rental car locations in a central area and addition of a people-mover, both of which would greatly reduce vehicular traffic and emissions at the airport.

It is also important to focus briefly on the tax payments which Logan Airport, Inc. would make. As one of Boston's largest single land uses, the airport now makes only token in-lieu payments rather than normal property taxes. It pays nothing to Massachusetts or to the federal government. As a private commercial business, Logan would pay over \$25 million a year to Boston and \$1 million each to Chelsea and Winthrop each year. Over the five-year period 1992-96 it would pay \$10.4 million in Massachusetts state corporate income taxes. And over that same five-year period, it would pay over \$28.6 million in federal corporate income taxes; in addition, if the privatized Logan Airport did not take federal airport grants, it would save the federal government some \$5 million per year or \$25 million over the five-year period.

5. LEGAL ISSUES

A number of legal issues arise in connection with the possible privatization of Logan Airport. Some of these have been alluded to in previous sections, but the purpose of this section is to review these issues systematically.

A. Federal Laws

Under the Airport and Airway Improvement Act of 1982, Logan Airport currently receives grants for "acquiring, establishing, and improving air navigation facilities." As a publicly owned airport, Logan receives a basic amount each year as an entitlement grant (based on enplanements) and may also receive discretionary grants for specific improvement projects (in competition with other airports). Between 1968 and 1991, Logan received over \$76 million in federal airport grants.

Section 511 of the Act sets forth certain grant obligations. One of the most important, Sec. 511(a)(12), is that:

all revenues generated by the airport, if it is a public airport, and any local taxes on aviation fuel . . . will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities which are owned or operated by the owner or operator of the airport and directly and substantially related to the actual air transportation of passengers or property

Because Massport's Enabling Act was passed before 1982 and allowed for revenue to be sent off the airport to subsidize Massport's other operations, the Act also grants Logan a "grandfather" exemption from this requirement. Therefore, it would appear that Massport can divert the proceeds from the sale of Logan to whatever purpose it wishes, without running afoul of the revenue restriction.

However, the grandfather exemption belongs to Massport, because of the Enabling Act, not to Logan. With Massport's exemption inapplicable, there would be some question of the application of Section 511(a)(12) to a privatized Logan

Airport. It is possible that Massport's grant agreements provide only for the transfer of those restrictions which Massport possesses, in which case a private purchaser of the airport might also be exempt from the restriction. On the other hand, if Section 511(a)(12) does apply to a privatized Logan Airport, the private owner would not be able to use airport revenues to pay off debt or provide a return to investors, unless an exemption from the restriction were made. Alternatively, the FAA could interpret the words "capital ... costs" in Section 511(a)(12) as including such costs of a private airport owner. To date, the FAA has not given any indication of its position on this issue, although a recent legal opinion from the Justice Department appears to suggest that the FAA would have the authority under Section 511(a)(12) to allow a private party to recover its capital costs from airport revenue.

There would be a great advantage for a private airport owner to be released from all the FAA grant obligations, not just the revenue restriction discussed above. It is possible this could be done by a settlement of Massport's outstanding federal grants with the U.S. government and a complete termination of the federal grant agreements.

The costs of terminating the existing grant agreements are not certain. Massport might be required to repay grants it has received for unfinished projects or even to repay all grants still outstanding. Each FAA grant carries with it a 20-year agreement. Thus, only grants made within the 20 years prior to privatization would be subject to possible repayment. Conceivably, instead of repayment the federal government might want a pro-rata share of the sale proceeds equal to its share of the investment; on the other hand, the federal government might waive its claims to the repayment of federal subsidies entirely as it did in the case of the Conrail privatization. The amounts, if any, which would have to be repaid, need to be determined by negotiations between Massport and the U.S. government.

Of course, once privatized, Logan Airport would want to forego federal grants in order to avoid their attendant restrictions. The loss of federal grants, while eliminating one possible source of revenue, would open the door to increased economic flexibility, by bringing relief from grant restrictions. Under Section 511(a)(1), airports receiving federal grants "must be available for public use on

fair and reasonable terms and without unjust discrimination." The federal Department of Transportation has interpreted these words (and courts have agreed) in a narrowly restrictive way. For example, Massport's new 1989 landing fee structure, which charged all aircraft a basic charge for landing in addition to a weight-based component (rather than in the traditional charge based solely on weight) would have significantly increased the landing costs of smaller aircraft and decreased the costs for larger aircraft. The First Circuit upheld DOT's finding that this fee structure was invalid for unreasonably discriminating against general aviation flights. Release from Section 511(a)(1) would allow Logan's new owner to use market-based pricing, perhaps along the lines of BAA's pricing, as discussed in Section 3.

Apart from grant agreements, there are certain other restrictions on airports imposed by federal statutes. For the most part, these would be inapplicable to a private airport owner. Private ownership would release Logan from compliance with federal statutes that forbid it from directly charging passengers (the Anti-Head Tax Act, which applies only to states and their political subdivisions). A 1990 law modified that act, to permit publicly owned airports to levy a passenger facility charge (PFC) of up to \$3 per head, but subject to detailed regulation by the FAA of the rate charged, the uses to which the revenues may be put, and compliance with a specific federal program for phasing out noisy aircraft.

In addition, private ownership would release Logan from complying with a federal law that pre-empts state regulation of airports and airspace, since that act applies only to airports owned by states or their political subdivisions. It could also free Logan from claims that any new fees represented an unconstitutional burden on interstate commerce, since the Commerce Clause applies only to state and local governments and not to private entities.

On the other hand, private ownership would remove Logan's current exemption from the federal antitrust laws. A private airport owner would be subject to the federal antitrust laws. Such liability could arise under Sections 1 and 2 of the Sherman Act for restraint of trade, should Logan refuse to grant carriers terminal space or landing rights. Air carriers could also argue under the "essential facilities" doctrine that Logan's owners have a duty to make available to it a facility it needs

to compete. Government-owned airports, including Logan, have consistently been held to be exempt from these normal antitrust provisions, under the state action doctrine.

Privately owned airports remain fully subject to all applicable FAA safety regulations. There would be no change in Logan's status in this regard.

Federal environmental law would also apply to a privately owned Logan Airport, as it applies today. Two specific issues deserve mention here. In an attempt to reduce air pollution in compliance with EPA guidelines, a federal court order has frozen the number of parking spaces in the City of Boston. Under federal regulations implementing this ban, Logan has received its own regulated area separate from the City of Boston. This has given Logan greater freedom to allocate its parking spaces among commercial and employee needs. A proposed change in federal regulations would even allow Logan to boost the number of commercial parking spaces. It is unclear whether Logan would retain its special status under these federal regulations if it had private owners.

Second, under private ownership, Logan would have to comply with the same federal noise pollution regulations that it does today under Massport ownership. These regulations require airports to control noise pollution that affects nearby communities and individuals.

B. State Laws

Massport is a "public instrumentality" analogous to a municipal corporation. It is managed by a board of seven members, appointed by the Governor with the advice and consent of the Legislature. Board members hold staggered terms of seven years and can be removed by the Governor and the Legislature only upon a finding of malfeasance or willful neglect of duty. A vote of four members is needed to approve any Massport action.

The Enabling Act gives Massport powers similar to those of a corporation, including the power to enter into contracts, buy or sell land, and construct or acquire facilities. It also has the power to charge tolls, rates, and fees, set legal

penalties and fines on its properties, and exercise the power of eminent domain. Massport can issue revenue bonds payable only from Massport revenues. However, Massport can have no equity shareholders.

Pursuant to the Enabling Act, Massport was given legal title to Logan Airport by the Commonwealth. However, the Enabling Act contains a number of provisions restricting Massport's ability to transfer airport property. Because of these restrictions, selling Logan would require legislative action, probably amending or replacing the Enabling Act.

Massport cannot sell any of its airport property it received from the Commonwealth in 1956 "without the prior approval of the governor and council [the state Legislature]." Thus, any sale of Logan would require the Legislature to pass a statute. In addition, the Enabling Act provides that if Massport pays off its bonds at any point and fulfills its other financial obligations, all properties and facilities revert back to the Commonwealth. Thus, if provision were made for such a payment of bonds, the Legislature would have to pass legislation to convey Logan from the Commonwealth to the new owners.

The key restriction on the Legislature's powers are the trust and bond agreements, which require that Massport must first use its revenues to satisfy the payments on its bonds. Because of the constitutional right to contract, the Legislature cannot substantially impair this arrangement or interfere with existing lease agreements. Thus, any deal to privatize Logan would have to provide for payment of the bonds, as discussed in Section 4.

The Enabling Act grants Massport an exemption from all state and local taxes. A change in ownership would deprive Logan of this exemption because it applies only to Massport in general. Massport and Logan currently pay a type of tax in the form of in lieu payments. Under amendments to the Enabling Act, Massport must make in lieu payments to Boston, the city of Chelsea, and the town of Winthrop, which all border on Logan. Presumably, after privatization when Logan began paying regular property taxes, there would be no need for in lieu payments.

Massachusetts state courts have held that Massport must obey many of the same state environmental regulations that apply to private businesses. These laws include the requirement to file environmental impact statements for new building or expansion projects at Logan. The same requirement would apply to a new private owner.

State environmental laws have been used to block expansion of Logan's runways, as discussed in Section 1. The 1975 state court injunction and 1976 consent decree prohibiting expansion of Logan's runways would probably carry over to the new owner. But as noted in Section 3, the state, as one of the parties to the consent decree, could move to reopen the case.

In addition, a private owner would be required to comply with state laws regulating tidal areas that could prevent the owners from developing currently unused lands on Logan property. Massport is exempt from laws regulating tidal areas because of its Enabling Act and its status as a public instrumentality.

The courts have also used Massport's character as a state instrumentality to immunize it from civil suits of an environmental nature based upon common law nuisance doctrine. Since Massport is a state body, the Supreme Judicial Court has held, it is not liable for damages caused by increased aircraft noise levels created by airport expansion. The court suggested that if Logan were privately owned, however, it could become subject to such common law suits for damage. It should be noted, however, that municipal airport operators in many other states already face such liability for noise exposure.

C. Local Regulation

Massport's exemption from state and local taxes shields Logan from compliance with local zoning and property tax requirements. Under private ownership, Logan would pay property taxes at the normal commercial rate, which will be 3.2% (\$32.00 per \$1,000 of assessed value) next year. Assuming that the legislation authorizing the sale of Logan provided for a deed restriction to ensure that the land remains in use as an airport, local zoning laws should not be a barrier to the airport's continued functioning. Moreover, the increased property tax revenues

flowing to the City of Boston after privatization may promote a more positive relationship between Logan and the City than has been the case historically.

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