U.S. Department
of Transportation

**Federal Aviation
Administration**

Office of Aviation Policy
and Plans

Washington, D.C. 20591

FAA Cost Recovery Options

FAA-APO-87-14

December 1986

This document is available to the public from the National Technical Information Service, Springfield, Virginia 22161.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FAA-APO-87-14		

4. Title and Subtitle	5. Report Date
FAA Cost Recovery Options	December 1986
	6. Performing Organization Code: FAA (APO-220)
7. Author(s): Daniel E. Taylor, Frank J. Berardino, Richard S. Golaszewski, and Ira R. Greenstein	8. Performing Organization Report No.
9. Performing Organization Name and Address: Office of Aviation Policy and Plans, Federal Aviation Administration, Department of Transportation, Washington, D.C. 20591	10. Work Unit No. (TRAIS)
	11. Contract or Grant No.
12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered: Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

This document was prepared under the supervision of the Office of Aviation Policy and Plans of the Federal Aviation Administration (FAA). It provides technical documentation for the FAA's report, "Airport and Airway Costs: Allocation and Recovery in the 1980s," (FAA-APO-87-7).

This volume evaluates alternative taxes or fees designed to recover costs allocated to users of the Federal Airport and Airway System. Alternative taxes are evaluated in terms of safety, economic efficiency, administrative efficiency, equity, and precedent.

17. Key Words	18. Distribution Statement
Public Finance, Airport and Airway System, Cost Allocation, Cost Recovery, Aviation User Taxes	Document is available to the public through the National Technical Information Service, Springfield, Virginia

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	52	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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Section 1.0

INTRODUCTION

1.1 Purpose and Analytical Framework

The purpose of this volume is to evaluate alternative taxes or fees designed to recover costs allocated to users[1] of the FAA airport and airway system. Alternative taxes are evaluated in terms of the following criteria: safety, economic efficiency, administrative efficiency, equity, the existence of precedents, and the expected effect of the tax on the FAA.

The FAA is different from most federal government agencies in that the majority of its employees are either directly involved in the provision of a consumable service or support the provision of such a service. Air traffic controllers are examples of direct-service providers, while headquarters personnel are examples of those who provide support. The service which the FAA provides can be broadly defined as a safe, organized airspace system. It includes provision of air traffic control services and regulation of such aspects of aviation as aircraft, pilots and airports. For the purpose of analyzing its sources of revenue, the FAA will be considered as a large, multi-product "firm."

Figure 1.1 presents the conceptual framework of the tax analysis. Alternative types of taxes shown in the first column are evaluated in terms of six criteria presented along the horizontal axis.

Figure 1.1

CONCEPTUAL FRAMEWORK OF TAX ANALYSIS

CRITERIA

	Safety	Economic Efficiency	Administrative Efficiency	Equity	Precedents	Effect on FAA
Indirect Taxes						
User Group A						
User Group B						
User Group C						
∘						
∘						
∘						
∘						
Direct Taxes						
Service A						
Service B						
Service C						
∘						
∘						
∘						
∘						

Taxes are divided into two general categories: direct and indirect. Taxes which vary directly with services provided are termed direct charges. An example would be a fee charged to an aircraft owner each time he made a landing at an airport. One of the key advantages of direct charges is that they can be designed to let users pay only the costs of producing the services they actually consume; this is termed economic efficiency. However, there may be other criteria which direct charges do not meet as well. For example, charging users directly may cause some to avoid available FAA services and thereby cause safety problems. In addition, it may be administratively inefficient to collect money each time an aircraft lands at a facility.

Indirect taxes are levied on groups of services consumed by user groups, instead of per unit of service. For example, the current passenger ticket tax is levied on airline revenues and covers all airline uses of the FAA system regardless of services actually consumed by each airline individually. These taxes tend to have no effect on safety, and have been administratively efficient. However, they are less economically efficient than are direct charges.

These issues are more fully discussed in the following sections of the report.

1.2 Relationship to Other Volumes

The analysis in this volume complements the analyses in Volumes 1 and 2 by discussing alternative ways to recover the present and future costs allocated to users in those volumes.

1.3 Organization of Volume

Section 2.0 of this volume presents criteria relevant for the analysis of various user taxes. Section 3.0 presents a discussion of those taxes currently imposed on users of the FAA airport and airway system, while Section 4.0 reviews taxes which have been levied in the past, but are not currently in effect. Section 5.0 reviews an alternative set of direct user charges.

Section 2.0

SELECTION CRITERIA

There are six selection criteria that are applied to the alternative taxes reviewed in this volume:

- Safety--taxes should not provide incentives to compromise safety.
- Economic Efficiency--taxes charged should closely correspond to the cost of providing services.
- Administrative Efficiency/Feasibility--administration of the taxes should impose the lowest possible costs, i.e., taxes should be easily verifiable and enforceable, simple to pay and easy to understand.
- Equity--users should be able to pay the tax; any subsidies required should be explicitly identified.
- Precedents--taxes should be similar to other taxes that have been successful.
- Effect on FAA--taxes should not negatively affect the FAA's ability to operate its system safely, and should promote cost recovery.

Each criterion is discussed below.

2.1 Safety

Since the primary role of the FAA is to provide safe airspace, the behavioral incentives of each proposed tax should be considered carefully. For example, if the cost of using FAA

services rises for a given user group, will members of that group avoid using that service in order to save money? If they do use the service less, to what extent will this pose a safety hazard to themselves and others?

If a proposed tax appears likely to change incentives in such a way that safety is compromised, then it is necessary to consider changes which might ameliorate the problem. If successful changes cannot be found, then further study of the tradeoff between safety and economic efficiency is required.[2]

One method of minimizing the incentive for changes in behavior that might compromise safety is to place taxes on inputs, such as jet fuel, for which an aviator has few substitutes,[3] rather than on FAA services, such as weather reports, which might be avoided. Such indirect taxes are less economically efficient than direct user fees. Whether the improvement in safety outweighs the loss in efficiency is a question which is beyond the scope of this study.

2.2 Economic Efficiency

Economists generally agree that prices serve the role of signals in an economy. Prices "signal" resources to their most efficient use, providing that they are a function of costs. For example, as the price of commercial "no-frills" airline transportation has fallen relative to the prices of other modes, many passengers have switched to air transportation. The result has been that more resources are being devoted to no-frills airline transportation and fewer are being devoted to other

modes. People are being transported more efficiently, assuming that the change in relative prices reflects a change in relative costs.

Ideally, the prices of all goods and services would equal the marginal cost of producing them, thereby providing correct signals. The price (or tax per unit of service) for each FAA service would be set at the marginal cost for that service. However, in order to fully recover all costs, prices of FAA services must be set above marginal costs.[4]

Since the FAA cannot set prices equal to marginal costs, any set of prices (or taxes) which will provide sufficient revenue for the FAA will cause some distortion in the economy, in the sense that some buyers and sellers will be reacting to imperfect signals. The second-best alternative is to design a set of taxes which minimizes this distortion. Such taxes would represent the highest degree of economic efficiency possible (although they might not meet other criteria).[5]

One additional issue regarding economic efficiency should be noted. Taxes which are imposed indirectly, i.e., those which do not tie the cost of a particular service to the revenue generated to pay for it, are less efficient than direct taxes because they interfere with the role of prices as signals for efficient use of resources.

2.3 Administrative Efficiency/Feasibility

Levying any tax imposes two types of administrative costs, those borne by the agency collecting the tax and those borne by

the groups or individuals that pay the tax. An administratively efficient set of taxes will minimize both types of costs while still collecting the required revenue.

The following criteria can be applied to a set of taxes to determine its degree of efficiency:

- Taxes should be based on transactions which can be observed and verified with a minimum of effort. For example, it is easier to observe the number of operations at a TRACON or the number of gallons of gasoline sold to an aviator than it is to assess the "value" of an airplane or piece of property. The fewer the number of transactions, the easier the tax is to verify.
- Taxes should be simple to pay and minimize collection costs for both collectors and taxpayers.
- Taxpayers should be well-informed about their responsibilities in the collection process and information should be kept current. (This task is made simpler if the tax itself is simple.)
- Reasonable penalties should be set in order to deter tax evasion while at the same time minimizing antagonism toward the agency which administers the tax.

It should be noted that a number of the above criteria may conflict with the goal of economic efficiency. For example, economic efficiency might call for a set of relatively complex taxes to be levied on a large group of taxpayers. The costs of administering such taxes would have to be weighed against the benefits of the economic efficiency gained by imposing them.

2.4 Equity

Taxes should be evaluated in the light of the burden which they may place on each user group. The question of equity is often raised by asking whether a particular group has the "ability to pay" for the total costs which it is imposing on the FAA. If it is determined that some group does not have the ability to pay, should that group be subsidized through increased taxes on other users or from general revenue? If it is not subsidized, but instead charged the full tax, its use of the air system will decline (perhaps to nothing). In such cases, it is necessary to consider, from the point-of-view of the public interest, the tradeoff between subsidizing this group or causing it to reduce its use of airspace. In particular, if a group is to be subsidized, a clear rationale should be developed that answers two questions:

1) Why is the user group being subsidized?
2) Which other groups should bear the burden of the subsidy, or should it be placed on the general public?

These questions, however, cannot be answered by this study. But implications for current and projected FAA budgets are examined below.

2.5 Precedents

It may be desirable that a tax have a precedent, although this is not a necessary condition for successful implementation. The importance of a precedent for a particular tax will depend in

part on the degree of controversy which implementing that tax might provoke. Precedent may also indicate the degree to which certain taxes have met the other criteria in particular situations.

Section 3.0

CURRENT TAXES

The FAA currently receives revenues from five taxes: an eight percent tax on airline passenger tickets, a five percent tax on freight waybills, a $3 per passenger international departure fee, a 12 cent per gallon tax from general aviation gasoline, and a 14 cent per gallon tax on general aviation jet fuel. This section discusses the manner in which each of these taxes is collected and then examines them in light of the selection criteria set forth from Section 2.0.

3.1 Description of Current Taxes

3.1.1 Passenger Ticket Tax

This tax is imposed as a percentage (eight percent) of the price of each airline passenger ticket. It applies to all scheduled passenger carriers, including commuters and for-hire air taxis. Airlines collect the tax and remit it to the FAA.

In 1985, total passenger ticket taxes collected amounted to $2.5 billion, or 88 percent of the total user fees collected in that year. By 1992, official FAA projections of the passenger ticket tax will account for 87 percent of user fee collections if the current tax structure remains in place.

3.1.2 Freight Waybill Tax

Collections for this tax are based on revenue for freight transported in the U.S. net of ancillary fees such as delivery

or storage charges. The tax rate is five percent. Taxes are not collected on any freight that will travel overseas, even if part of the transportation occurred in the U.S. For example, if a manufacturer ships a product from New York to California and then to the Far East, the portion of the trip in the U.S. would not be taxed.

In 1985, freight waybill taxes amounted to $134 million, or approximately 4.7 percent of total taxes collected. FAA projects that by 1992 the freight waybill tax will account for approximately 5.7 percent of total user revenues if the current taxes remain in place.

3.1.3 International Departure Fee

Passengers traveling across U.S. borders pay a $3 fee per departure, collected by the airlines. This fee is also imposed on flights to or from Alaska and Hawaii. The tax is collected by the airlines in a manner similar to the eight percent ticket tax, and returned to the FAA. However, international flights which include a stopover in the U.S. but do not enplane or deplane passengers during that stop, are not subject to the eight percent passenger ticket tax.

In 1985, the international departure fee accounted for $108 million, or 3.8 percent of total user fees collected. This is projected to fall to approximately 3.1 percent by 1992 if the current tax structure remains in place.

3.1.4 General Aviation Fuel Taxes

Separate taxes are levied on gasoline (12 cents per gallon) and jet fuel (14 cents per gallon) consumed by general aviation. The taxes are imposed at the retail level.

The IRS allows exemptions from payment, or refunds of payments, of these taxes for certain uses which include natural resource extraction, crop dusting and other commercial purposes.

In 1985, the general aviation fuel tax accounted for $100 million in collections, or 3.5 percent of total collections. Should the current taxes remain in place, by 1992, the general aviation fuel taxes would account for 2.9 percent of total collections.

3.2 Evaluation of Current Taxes

In this section, the five current aviation taxes will be evaluated according to the criteria presented in Section 2.0. The results are summarized in the matrix found in Table 3.2.1.

3.2.1 Economic Efficiency

None of the current taxes accurately reflects the cost incurred by the FAA per unit of service provided. Specifically, on any given airline flight, revenue collected through the eight percent ticket tax depends on both the average fare and the load factor. Yet, the costs incurred by the FAA to provide services for that flight are the same whether there is a single passenger paying a low fare or a plane-load of first class passengers. A similar problem arises with the international departure tax, except that it does not vary with the average fare because it is charged on a per-passenger basis. Freight revenue is also a poor measure of the cost incurred by the FAA in providing services to a freight-carrier flight. With regard to the fuel tax, the quantity of fuel consumed by an aircraft is not a good measure of its use of FAA services or the cost of providing them. The

Table 3.2.1

SELECTION CRITERIA APPLIED TO CURRENT TAXES

	Economic Efficiency	Safety	Administrative Efficiency	Equity	Precedents	Effect on FAA
Passenger Ticket Tax (8%)	Revenues and number of passengers not directly related to FAA costs	No impact--FAA taxes cannot legally be evaded	Meets all criteria set forth in Section 2.0	May subsidize other users. Also, existence of cross-subsidies among carriers	Already exists	No marginal effect
Freight Waybill Tax (5%)	Revenues not directly related to FAA costs	No impact--FAA taxes cannot legally be evaded	Freight transportation not an easily verified transaction	May subsidize other users	Already exists	No marginal effect
International Departure Tax ($3 per flight)	Revenues and number of passengers not directly related to FAA costs	No impact--FAA taxes cannot legally be evaded	Meets all criteria set forth in Section 2.0	Receives implicit subsidies	Already exists	No marginal effect
General Aviation Gasoline Tax (12 cents per gallon)	Quantity of fuel consumed imperfect measure of use of FAA services	Users have incentive to avoid tax by using gasoline	Fails criterion for simplified record-keeping--poor accounting systems cause many problems	Receives implicit subsidies	Already exists	Tax base may be insufficient to cover allocation
General Aviation Jet Fuel Tax (14 cents per gallon)	Quantity of fuel consumed imperfect measure of use of FAA services	No impact--fuel a necessary input	Fails criterion for simplified record-keeping--poor accounting system causes many problems	Receives implicit subsidies	Already exists	Tax base may be insufficient to cover allocation

number and quantity of services used in a given flight depend on a number of factors other than fuel consumption, including origin and destination point, on-board equippage, pilot training and purpose of flight.

3.2.2. Safety

With one possible exception, current taxes encourage use of FAA safety services. This is true for the few taxes levied on commercial aviation (tickets, waybills and departure taxes) because in the absence of prices for specific safety services, airlines will consume as many services as needed.

General aviation fuel taxes are levied on a commodity which is a necessary input for any flight that takes place. However, some pilots may use auto fuel in lieu of avgas in order to avoid both the user fee, and the higher retail prices charged for aviation fuels. The FAA has granted Supplemental Type Certificates (STC) for certain aircraft allowing the legal substitution of auto fuel. In the absence of an STC, such a substitution may be unsafe.

3.2.3 Administrative Efficiency

Both the passenger ticket tax and the international departure tax meet all of the criteria set forth in Section 2.2 for administratively efficient taxes. Specifically, they are based on transactions which are easily observed; they are simple to pay and the responsibility of the airline for collecting them is clear (meaning that the airlines are well informed of their responsibility); the set of taxpaying entities is limited to the airlines, and penalties are sufficient to discourage evasion.

The FAA has perceived a number of administrative difficulties in the collection of the general aviation fuel taxes,[6] which are paid primarily at the retail level. In particular, there has been no overall accounting method to keep track of who should properly be allowed exemptions from paying taxes, or receive refunds on taxes paid on noncommercial aviation fuel. In addition, no comprehensive accounting method exists to monitor manufacturer and retail tax collections.

3.2.3 Equity

Table 3.2.2 presents the estimated cost allocations for the ten user groups for 1985, and compares them with tax revenues received. The top part of the table presents a scenario where the costs of regulation are allocated to users; the bottom represents the case where these costs are allocated to the public sector. In general, domestic and freight air carrier tax receipts are at least sufficient to cover the costs they impose on the FAA. A modest increase in the departure fee would make international operations compensatory.

Tax receipts from commuters and general aviation were insufficient to cover the costs they imposed on the FAA in 1985. The divergence between costs imposed and taxes paid by these user groups is large enough to question their ability-to-pay fully compensatory taxes. Whether the current subsidy to these users should be continued, and which entities should pay for it--the general fund or other users--are policy questions beyond the scope of this study.

Table 3.2.2 also indicates that public sector use of FAA facilities is fully compensated. The tax collections shown are

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Table 3.2.2

TAX7A
13-Aug-86
OPTIONAL F&E

CURRENT TAXES
ALL COSTS ALLOCATED TO USERS

USERS	1985 TOT OPS TRAC&TOW	1985 TOTAL ALLOCATION	1985 TAXES COLLECTED	1985 TAX MINUS ALLOCATION	1985 PERCENT RECOVERY	AVG FAA COST PER OP	AVG TAX PER OP	REVENUE GAP PER OP
DOMESTIC AIR CARRIERS	9,033,302	$2,176,018,239	$2,418,984,960	$242,966,721	111.2%	$240.89	$267.79	$26.90
INTERNAT'L AIR CARRIERS	399,589	$121,219,468	$108,300,000	($12,919,468)	89.3%	$303.36	$271.03	($32.33)
FREIGHT AIR CARRIERS	702,340	$122,870,833	$134,100,000	$11,229,167	109.1%	$174.94	$190.93	$15.99
COMMUTERS	5,727,239	$713,034,590	$89,815,040	($623,219,550)	12.6%	$124.50	$15.68	($108.82)
AIR CARRIER SUBTOTAL	15,862,470	$3,133,143,130	$2,751,200,000	($381,943,130)	87.8%	$197.52	$173.44	($24.08)
AIR TAXIS	2,956,016	$131,733,549	$12,710,839	($119,022,710)	9.6%	$44.56	$4.30	($40.26)
GA-PISTON	30,476,542	$682,954,321	$23,553,020	($659,401,300)	3.4%	$22.41	$0.77	($21.64)
GA-TURBO	4,138,061	$520,163,451	$60,921,900	($459,241,551)	11.7%	$125.70	$14.72	($110.98)
ROTOR	2,124,476	$63,826,298	$3,014,240	($60,812,057)	4.7%	$30.04	$1.42	($28.62)
GA SUBTOTAL	39,695,095	$1,398,677,618	$100,200,000	($1,298,477,618)	7.2%	$35.24	$2.52	($32.71)
GOVERNMENT	631,157	$30,723,905	$68,890,300	$38,166,395	224.2%	$48.68	$109.15	$60.47
MILITARY	2,455,653	$647,834,714	$1,465,629,200	$817,794,486	226.2%	$263.81	$596.84	$333.03
PUBLIC INTEREST	NA	$25,217,306	$56,480,500	$31,263,194	224.0%	NA	NA	NA
PUBLIC SECTOR SUBTOTAL *	3,086,810	$703,775,924	$1,591,000,000	$887,224,076	226.1%	$227.99	$515.42	$287.42
TOTALS	58,644,375	$5,235,596,672	$4,442,400,000	($793,196,672)	84.8%	$89.28	$75.75	($13.53)

* TAX RECEIPTS FOR PUBLIC SECTOR EQUAL GENERAL FUND CONTRIBUTIONS TO THE O&M BUDGET ALLOCATED IN PROPORTION TO TOTAL USER ALLOCATIONS

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Table 3.2.2 (cont.)

TAX8A

13-Aug-86

OPTIONAL F&E

CURRENT TAXES

REGULATORY COSTS ALLOCATED TO PUBLIC

USERS	1985 TOT OPS TRAC&TOW	1985 TOTAL ALLOCATION	1985 TAXES COLLECTED	1985 TAX MINUS ALLOCATION	1985 PERCENT RECOVERY	AVG FAA COST PER OP	AVG TAX PER OP	REVENUE GAP PER OP
DOMESTIC AIR CARRIERS	9,033,302	$2,064,228,667	$2,418,984,960	$354,756,293	117.2%	$228.51	$267.79	$39.27
INTERNAT'L AIR CARRIERS	399,589	$115,647,709	$108,300,000	($7,347,709)	93.6%	$289.42	$271.03	($18.39)
FREIGHT AIR CARRIERS	702,340	$114,745,075	$134,100,000	$19,354,925	116.9%	$163.38	$190.93	$27.56
COMMUTERS	5,727,239	$654,582,136	$89,815,040	($564,767,096)	13.7%	$114.29	$15.68	($98.61)
AIR CARRIER SUBTOTAL	15,862,470	$2,949,203,586	$2,751,200,000	($198,003,586)	93.3%	$185.92	$173.44	($12.48)
AIR TAXIS	2,956,016	$115,428,358	$12,710,839	($102,717,519)	11.0%	$39.05	$4.30	($34.75)
GA-PISTON	30,476,542	$644,103,045	$23,553,020	($620,550,024)	3.7%	$21.13	$0.77	($20.36)
GA-TURBO	4,138,061	$485,753,761	$60,921,900	($424,831,861)	12.5%	$117.39	$14.72	($102.66)
ROTOR	2,124,476	$57,952,889	$3,014,240	($54,938,568)	5.2%	$27.28	$1.42	($25.86)
GA SUBTOTAL	39,695,095	$1,303,237,972	$100,200,000	($1,203,037,972)	7.7%	$32.83	$2.52	($30.31)
GOVERNMENT	631,157	$28,173,263	$45,343,500	$17,170,237	160.9%	$44.64	$71.84	$27.20
MILITARY	2,455,653	$608,243,017	$988,647,400	$380,404,383	162.5%	$247.69	$402.60	$154.91
PUBLIC INTEREST	NA	$346,738,833	$557,009,100	$210,270,267	160.6%	NA	NA	NA
PUBLIC SECTOR SUBTOTAL*	3,086,810	$983,155,113	$1,591,000,000	$397,574,620	161.8%	$318.50	$515.42	$196.92
TOTALS	58,644,375	$5,235,596,672	$4,442,400,000	($1,003,466,939)	84.8%	$89.28	$75.75	($13.53)

* TAX RECEIPTS FOR PUBLIC SECTOR EQUAL GENERAL FUND CONTRIBUTIONS TO THE O&M BUDGET ALLOCATED IN PROPORTION TO TOTAL USER ALLOCATIONS

general fund contributions to the FAA's operations and maintenance budget. The collections are split among public sector users in proportion to their allocated costs.

Figures 3.1 and 3.2 illustrate the trends in recovery over time. Figure 3.1 illustrates the changes in user recovery assuming that regulatory costs are allocated to users, while Figure 3.2 illustrates the case when regulatory costs are allocated to the public sector. In both cases:

- Air carrier recovery rates begin to exceed 100 percent in the late 1980's.
- General aviation recovery rates remain stable over the time period.
- Public sector contributions are assumed to equal cost allocations beginning in 1987.

These results also indicate that the FAA budget will be approximately self-financing (assuming an appropriate contribution to cover public sector costs) by 1992.

3.2.4 Precedents and Effect on FAA

All of the current taxes already exist, and have been in place for over 15 years. Lessons learned from these taxes could serve as a precedent for other taxes.

None of the taxes levied on either air carriers or general aviation will have any marginal effect on FAA in the future. However, it should be noted that the tax base for the general aviation fuel tax is probably not large enough to permit full recovery of all costs allocated to these users. Alternative or supplementary taxes may be necessary if fully compensatory taxation is desired.

Figure 3.1

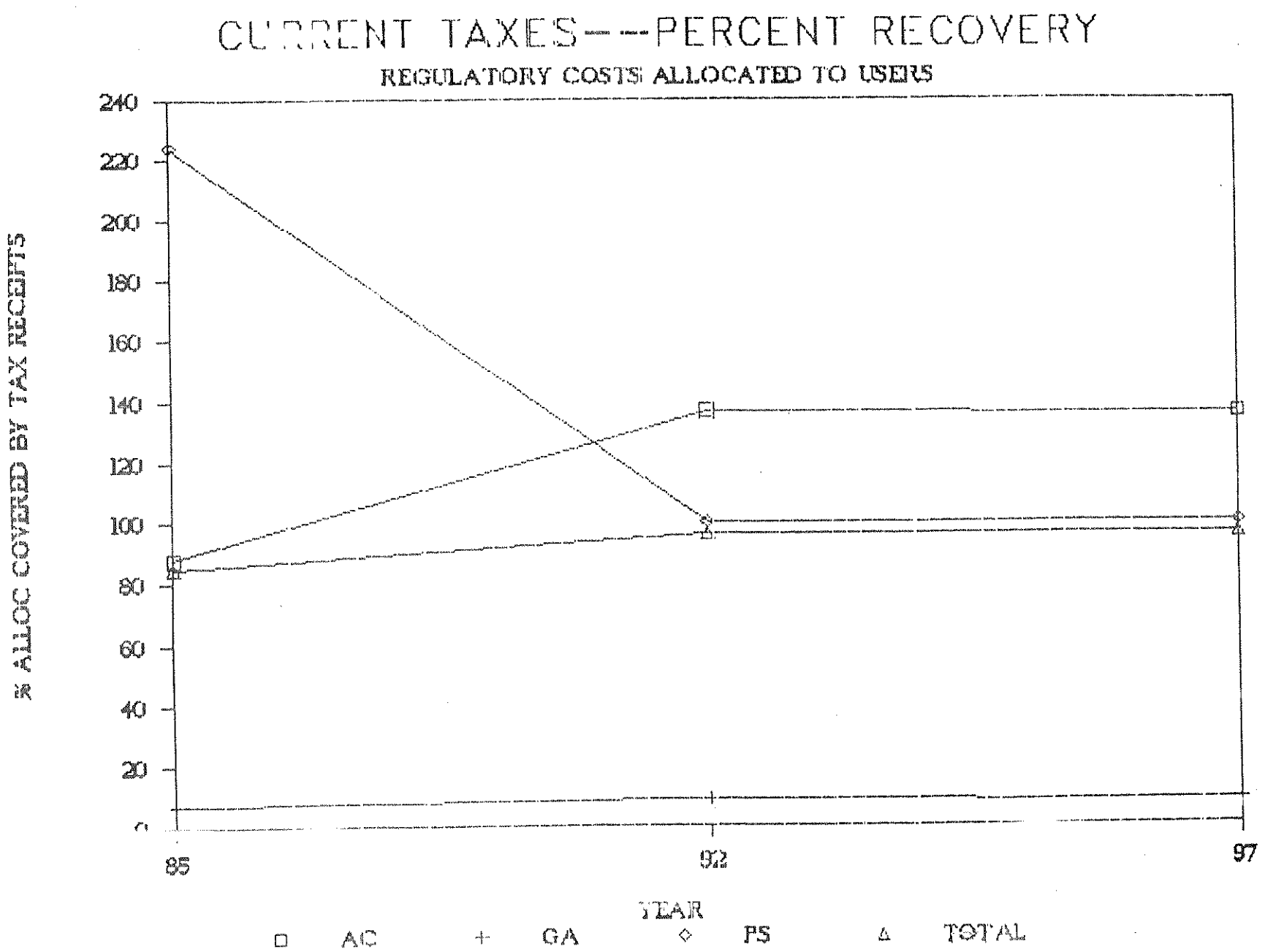
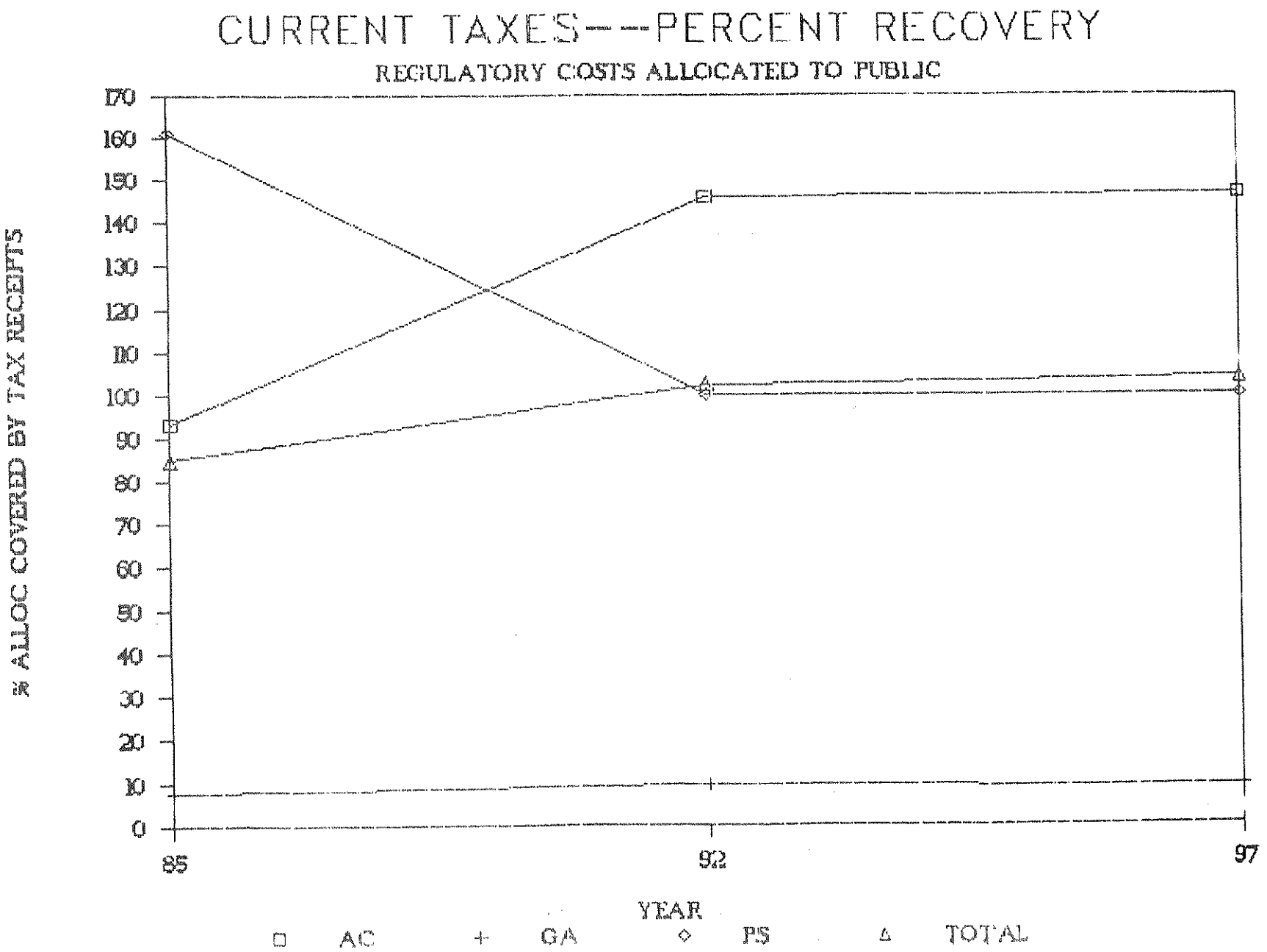

CURRENT TAXES---PERCENT RECOVERY
REGULATORY COSTS ALLOCATED TO USERS
% ALLOC COVERED BY TAX RECEIPTS
240
220
200
180
160
140
120
100
80
60
40
20
0
85
92
97
YEAR
AC
GA
FS
TOTAL

Figure 3.2


CURRENT TAXES--PERCENT RECOVERY
REGULATORY COSTS ALLOCATED TO PUBLIC
% ALLOC COVERED BY TAX RECEIPTS
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
85
92
97
YEAR
AC
GA
PS
TOTAL

Section 4.0

PREVIOUSLY LEVIED USER TAXES

This section reviews two federal taxes which were levied in the past to fund FAA operations, but which are no longer in active use. These are: a tax on tires and tubes, and an aircraft registration fee. Both taxes are evaluated based on the criteria in Section 2.0 of this volume. Based on discussions with FAA and Department of the Treasury staff, reasons why these revenue sources are no longer actively used are also included.

4.1 Description of Taxes

4.1.1 Tire and Tube Tax

Rates of 5 cents and 10 cents per pound respectively were levied on tires and tubes. The collection and enforcement of this tax did not present major problems for the FAA. It was allowed to lapse due to the small amount of revenue it raised.

In the year before it expired (1983) the tire and tube tax accounted for approximately $1 million or less than one percent of total fees collected.

4.1.2 Aircraft Registration Fee

A federal excise tax in the form of an aircraft registration fee was assessed on general aviation vehicles. It was an annual fee of $25 plus 2 cents per pound of gross take-off weight above 2,500 pounds for non-turbine powered aircraft and 3.5 cents per pound of gross take-off weight for turbine powered airplanes.

This tax was replaced by the current $5 per-year fee, which is collected directly by the FAA for the purpose of offsetting the cost of maintaining the registry, in exchange for a 2 cents per gallon increase in the general aviation fuel tax.

In 1982, the last year it was collected, aircraft registration fees amounted to $80,000 or less than one percent of the total user fees collected.

4.2 Evaluation of Previously Levied Taxes

4.2.1 Economic Efficiency

The tire and tube tax was an imperfect measure of the use of FAA services. In addition, the tax was so low relative to the price of these products that it had virtually no effect on the behavior of buyers or sellers. The aircraft registration fee, as it was previously imposed, had no relation to either the fixed or variable costs imposed on the FAA by aircraft owners.

4.2.2 Safety

The tire and tube tax may have caused a very small safety reduction by inducing users to delay their purchase of these products. However, the small size of the tax makes it doubtful that this problem was very pronounced. The aircraft registration fee, should not have had any effect on safety either. The fee was relatively small, and was designed primarily to offset the costs of maintaining the aircraft registry. However, other aviator behavior--such as use of certain air traffic facilities--may have been affected if users avoided the fee and the FAA installed enforcement procedures at operating sites. For

example, some aviators might choose to avoid using FAA towers or FSS services if that would trigger an enforcement action against them.

4.2.3 Administrative Efficiency

Both taxes met all of the administrative efficiency criteria set forth in Section 2.0. However, verification and enforcement programs were not given significant resources because of the modest amounts these taxes were capable of collecting.

4.2.4 Equity

Because of the relatively low rates established for these taxes, ability-to-pay was never an issue in the past. Neither tax was designed to offset a major portion of the costs imposed on the FAA by users.

Had the taxes been established at higher rates, they may have altered aviator behavior. For example, some aviators may have been tempted to delay tire and tube purchases or to avoid payment of registration fees which would mean reducing their use of air traffic facilities. Such behavior would have been a manifestation of inability or unwillingness to pay. How high the taxes would have had to have been established before avoidance behavior became a problem is beyond the scope of this study However, neither tax is likely to have contributed significantly to total user tax receipts without causing some avoidance problems.

4.2.5 Precedents and Effect on FAA

Both the tire and tube tax and the aircraft registration fee already have existed in the past. They are both precedents for other types of taxes as well as candidates for renewal.

Enforcement and verification mechanisms would have to be established if the taxes were reinstated. Furthermore, there is a significant question whether the tax base is substantial enough to make a significant contribution to offsetting costs allocated to users. The potential for an alternative type of aircraft registration fee is reviewed in Section 5.0.

Table 4.1.1

SELECTION CRITERIA APPLIED TO PAST TAXES

	Economic Efficiency	Safety	Administrative Efficiency	Equity	Precedents	Effect on FAA
Tire and Tube Tax	Tire and tube usage imperfect measure of use of FAA services	Might cause delay in purchase, especially at higher rates	Met all criteria set forth in Section 2.0	Not an issue at low historic rates. Some inability or unwillingness to pay at higher rates	Already existed	Mechanism for enforcement required. Tax base insufficient to cover allocations
Aircraft Registration Fee	Not related to costs imposed by aircraft usage	Little impact at historic rates; higher rates could cause change in use of some ATC facilities in order to avoid the fee	Problems in enforcement due to low revenue potential	Not an issue at low historic rates. Some inability or unwillingness to pay at higher rates	Already existed	Mechanism for enforcement required. Tax base insufficient to cover allocations

Section 5.0

POTENTIAL NEW TAXES

5.1 Introduction

This section describes a set of direct user taxes designed to meet the criterion of economic efficiency described in Section 2.0. Specifically, these taxes provide revenue sufficient to cover FAA costs attributable to users, while causing the least amount of distortion in the price signals given to buyers and sellers of aviation goods and services. They are economically efficient because users are charged only for those services they actually consume. The taxes are based on cost allocations described in greater detail in Volumes 1 and 2.

There are four types of direct user fee taxes reviewed in this section:

- Charges per FAA service rendered at each operating site. For example, a user fee charged for each operation at an FAA tower.
- F&E and maintenance surcharges at FAA operating sites. For example, an additional charge to cover the capital and maintenance services provided at an FAA tower over and above the incremental cost of providing terminal separation.
- Landing fees at NPIAS airports to cover the cost of AIP airport grants.

- Registration fees to cover the cost of aviation standards, R&D and airport safety administration.[7]

These taxes and their performance relative to the criteria set forth in Section 2.0 are reviewed below.

5.2 Definitions of Direct Unit Charges

Table 5.2.1 defines the direct user charges and the FAA cost elements included in each. Also presented in this table are possible collection methods. Each of the charges is briefly discussed below. Conceptually, they could be instituted as a substitute for current taxes, or some of them could be applied to offset shortfalls in recovery under current taxes, or to eliminate cross-subsidies within or between user groups.

5.2.1 Charges at Operating Sites

FAA operating sites produce identifiable services that are consumed by the aviation public. The unit costs of producing these services for each of the ten user groups are identified in Volumes 1 and 2. Charging these costs per unit of service would insure that users pay for only those resources they consume.

The four FAA operating sites--towers, TRACONS, FSSs and ARTCCs--would levy a separate charge each time they provided services. At towers, a charge would be levied for each aircraft operation.[8] At FSSs, a charge would be made for each service rendered, while at ARTCCs users would be charged for each aircraft handled (i.e., departure, arrival or over). At TRACONs, users would be charged for each primary or secondary operation. No charge would be made for an over since doing so would discourage

Table 5.2.1

DEFINITIONS OF PER UNIT CHARGES

	Definition	Possible Collection Method	Cost Elements Included in Tax
Tower Operations	Levied on each operation at FAA Towers	IFR users--billed to users based on IFR Flight Plans VFR users--Collected by airports or FBO's	o Tower marginal and joint costs o Overhead assigned to Tower
Tracon Operations and Seconds Charge	Levied on each operation or second at an FAA Tracon	IFR users--billed to users based on IFR Flight Plans VFR users--Collected by airports or FBO's	o Tracon marginal and joint costs o Overhead assigned to Tracons
FSS Service Charge	Charged per service rendered	Users open an FAA FSS account and are billed monthly for services rendered	o FSS marginal and joint costs o Overhead assigned to FSS's
ARTCC Handle Charge	Charged per handle	Billed based on IFR flight plans	o ARTCC marginal and joint costs o Overhead assigned to ARTCC's o Amortized F&E for IFR users o R&D for IFR users o AVS for IFR users
F&E Surcharge on Operations and Seconds	Levied on each operation or second at FAA Towers and Tracons	IFR users--billed to users based on IFR Flight Plans VFR users--collected by airports or FBO's	o Amortized F&E (except for F&E for IFR users)

Table 5.2.1 (continued)

Maintenance Surcharge on Operations and Seconds	Levied on each operation or second at FAA Towers and Tracons	IFR users--billed to users based on IFR Flight Plans VFR users--collected by airports or FBO's	o Maintenance (including Navaids) not taking place at FAA operating sites
Grant Landing Fee at NPIAS Airports	Levied at primary commercial service, reliever and GA airports eligible for grants	IFR users--billed to users based on IFR Flight Plans VFR users--collected by airports or FBO's	o Grants made to NPIAS Airports
R&D, AVS and Airport Administration Registration Fee	Quarterly registration fee collected for each active aircraft	Mail notice to aircraft owner; upon receipt of payment, return current registration stamp to be displayed on aircraft	o Safety Administration of Airports o R&D and AVS (except for IFR users allocations)

users from making contact with the TRACON while passing through its territory. Instead, the cost of overs would be incorporated into the fees for the other two services at TRACONs.

Collection would depend upon whether a user was flying IFR or VFR, and upon the service consumed. IFR users of towers, TRACONs and ARTCCs could be billed for the services they consume based upon the details of their IFR flight plans. All of the necessary information to identify the services consumed is available. Local airports or FBOs would have to be depended upon to collect the taxes for VFR operations.

FSS service costs would be recovered in a different manner. Users would be assigned a unique account code through which they could access the FSSs. They would then be billed periodically for the services they consumed. It should be noted that users of FSS services, such as weather reports, can find private-sector alternatives at a lower cost to them; the FAA might find itself in competition with the private sector. If this occurred, it would be necessary to ensure that the private alternatives did not compromise safety.

The level of charges at operating sites could be set to account for the marginal and joint costs at the sites. Also included in each charge would be the overhead assigned to the relevant type of operating site. The ARTCC handle charge also would include F&E, R&D and Aviation Standards services performed specifically for IFR users.

5.2.2 F&E and Maintenance Surcharges on Operations and Seconds

These surcharges would be added to the basic tower and TRACON charges. This collection method is appropriate because users benefit from capital and maintenance services based on how often and how intensively they use the FAA system. For example, a general aviation piston operator who flies only a few hours per year and utilizes few FAA facilities consumes less F&E and maintenance services than an air carrier flying thousands of hours per year and utilizing all of the most sophisticated FAA equipment. The surcharge would reflect these very different use patterns.

The F&E surcharge would include all F&E allocated to users (except for capital services performed exclusively for IFR users). The maintenance surcharge would include all FAA maintenance not assigned to operating sites and includes maintenance of NAVAIDs and other FAA facilities.

5.2.3 Grant Landing Fees at NPIAS Airports

These fees would be levied at primary, commercial service, reliever and general aviation airports eligible for FAA airport grants. Revenue would be allocated among airports based on need, and the allocation formula in the relevant tax law. In this way, users would pay for upgrading airport facilities based upon their pattern of usage, and the airport system would become self-financing.

The fees would be collected in exactly the same manner as the charges described above. However, non-towered airports would have to be depended upon to collect fees from VFR operators. The size

of the fees would depend upon the type of airport. Those collected at primary airports would be higher than at general aviation airports, reflecting the differences in the sizes of the capital investment in each type of facility.

It should be noted that these fees are likely to be less efficient than having airports establish their own landing fees, from which they would finance their own capital requirements. The landing fees discussed in this section still require a collection and reallocation function through the FAA. It may be more efficient for the FAA to establish standards for airports that local airport authorities would meet in part by collecting landing fees. At a minimum, the administrative cost of collecting and reallocating fees would be avoided. Phasing in airport self-financing could cause dislocations, however, in cases where short-term requirements would exceed the capacity of the airport to collect funds to meet them in a timely manner.

5.2.4 R&D, AVS and Airport Safety Administration Registration Fee

This registration fee would recover the cost of airport safety administration, and R&D and aviation standards programs with the exception of those benefitting only IFR users. The fee would be collected by mailing a bill to the aircraft owner. Upon the receipt of payment, a registration certificate would be returned to the user who would then display it prominently on the aircraft.

It may be desirable to make the registration fee quarterly in order to make the payment schedule more convenient for users. This payment schedule could be particularly important to owners

of older commercial equipment and to general aviation-piston operators, both of whom may deploy their aircraft on a seasonal basis.

5.3 Evaluation Criteria for Direct User Charges

Table 5.3.1 summarizes the evaluation criteria applied to the direct user charges. These results are discussed immediately below.

5.3.1 Economic Efficiency

The main objective of a direct user charge is to promote economic efficiency. For all of the charges considered in Table 5.3.1, users would pay only for those costs which they impose on the FAA. Their decision to use FAA facilities and services would be based on whether they believe that the benefits received were at least equal to the cost of the service. As a result, the FAA would produce only those services which users could justify economically. The charges would act as efficient price signals.

Potential charges outlined here are based on average marginal costs. True economic efficiency would be based on more detailed fees--e.g., peak-load prices. In addition, if more complete data were available, it would be possible to calculate user fees for more services--e.g., pilot certification.

Developing these more detailed charges is for the most part a data problem which could be eliminated with additional work. Methods for improving the data are currently being evaluated by FAA. Conceptually, the fees described in this section are economically efficient.

Table 5.3.1

SELECTION CRITERIA APPLIED TO DIRECT USER CHARGES

	Economic Efficiency	Safety	Administrative Efficiency	Equity	Precedents	Effect on FAA
Tower Operations Charge	Users pay for the costs they impose	GA diversion to non-towered airports could cause safety problem if congestion increases	Efficient for IFR users; requires local airport/FBO cooperation for VFR users; Collection costs high at VFR facil.	GA-Piston may not be able to pay	Landing fees at airports	Diversion to non-towered airports could lower workload and/or cause additional towers to be established
Tracon Operations and Seconds Charge	Users pay for the costs they impose	GA diversion to towered or non-towered airports could cause safety problem if congestion increases	Efficient for IFR users; requires local airport/FBO cooperation for VFR users	GA-Piston may not be able to pay	Landing fees at airports	Diversion to non-towered airports could lower workload and/or cause additional towers to be established
FSS Service Charge	Users pay for the costs they impose	Potentially significant effects due to GA pilot decisions not to use services	As efficient as similar private sector services	GA-Piston may not be able to pay	NOAA weather hotlines for general public	Lower workload due to decreased demand
ARTCC Handle Charge	Users pay for the costs they impose	Some GA pilots opt not to fly IFR	Efficient	GA-Piston may not be able to pay	Landing fees at airports	Marginal reduction in center workload
F&E Surcharge	Users pay for the costs they impose	GA diversion to non-towered airports could cause safety problem if congestion increases	Efficient for IFR users; requires local airport/FBO cooperation for VFR users	GA-Piston may not be able to pay	Landing fees at airports	Diversion to non-towered airports could lower workload and/or cause additional towers to be established

Table 5.3.1 (continued)

Maintenance Surcharge on Operations and Seconds	Users pay for the costs they impose	GA diversion to non-towered airports could cause safety problem if congestion increases	Efficient for IFR users; requires local airport/FBO cooperation for	GA-Piston may not be able to pay	Landing fees at airports	Diversion to non-towered airports could lower work-load and/or cause additional towers to be established
Grant Landing Fee at NPIAS Airports	Users pay for the costs they impose	GA diversion to non-NPIAS airports could cause safety problem if congestion increases	Efficient for IFR users; requires local airport/FBO cooperation for	GA-Piston may not be able to pay	Landing fees at airports	Diversion to non-NPIAS airports could lower FAA workload
R&D, AVS and Airport Safety Administration	Users pay for the costs they impose	None	As efficient as other aircraft registration fees	GA-Piston may not be able to pay	State aircraft and auto registration fees Part 183 designees	None other than administration costs

5.3.2 Safety

Direct user fees would divert general aviation operators from FAA facilities and services. There would also be reductions in use at NPIAS airports. Safety concerns arise in two cases:

- If a significant number of aviators opt not to use a service that they otherwise would have used, the level of safety could be reduced. For example, some aviators may choose to fly without a proper pilot briefing.
- If an alternative, but inferior, service--e.g., non-towered airports--is chosen by a substantial number of users, there could be a reduction in the level of safety due to congestion at alternative facilities. For example, some aviators may opt to use non-towered facilities, and so cause congestion at these facilities.

Two of the more serious potential problems would include a reduction in the use of FSS pilot briefing services without suitable substitution of private services,[9] and a reduction in the use of general aviation IFR flying. One reason for the reduction in general aviation IFR flying might be that fewer pilots would be willing to pay the high user fees at towered facilities where IFR training is conducted. The remaining effects would be local in nature and would involve decreased (increased) safety due to increased (decreased) congestion.

5.3.3 Administrative Efficiency

The administrative efficiency of the direct user fee depends upon whether or not the user flies IFR. With the exception of FSS services, IFR users could be billed for all of the services

they consume. Charges levied at FAA operating sites and at NPIAS airports could be assessed to users based upon their IFR flight plans. The registration fee could be collected quarterly via the mail. Fees for FSS services would be collected in the same manner as that employed by private providers. Each FSS user would have a unique account number which would be used to access both pre-flight and in-flight FSS services.

Collection of fees from VFR users would require the cooperation of non-FAA personnel at airports without manned FAA facilities. Most would have to be collected in the form of landing and take-off fees collected by airports or FBOs. Since not all of the airports are staffed 24 hours per day, there could be instances when collections would not be made. Fees could be adjusted for prime-time use of facilities in order to offset this problem, however.[10]

5.3.4 Equity

In general, there is a question about the ability of general aviation piston operators to pay the full cost of FAA services they consume. This problem exists for both direct and indirect taxes. Identifying fully-compensatory direct user fees facilitates the design of subsidies for general aviation operators if such subsidies are deemed to be warranted.

Commuter airlines would also face increases in their costs of using FAA facilities, because the current tax system does not reflect the true costs imposed on the FAA by this user group. If a government subsidy for these operators is deemed to be justified, it should be developed in the light of their true

costs. One outcome of the imposition of the user fees described above might be for larger carriers to subsidize commuter use of the FAA system because of the close marketing relationship between the two types of carriers.

5.3.5 Precedents

In general, there are acceptable precedents for all of the direct user fees. Aviators have become accustomed to paying landing fees at certain large airports, and most of the charges in this section are conceptually similar to these fees. The use of FAA-designated individuals to perform various certification examinations provides another precedent for direct user fees. This is especially important because the arrangement for payment is made directly between the designee and the party seeking certification.[11]

FSS service taxes and the quarterly registration fee are not similar to landing fees, however. The FSS service charges would be similar to the fees charged by NOAA when it establishes regional hotlines. For example, NOAA sets up a hotline in the southern U.S. during hurricane season. Members of the public are invited to call the hotline to obtain the latest weather information, and pay for the service on their phone bills. With regard to registration fees, both the federal and state governments have historically charged such fees to owners of aircraft, although not at the levels discussed in this section.

5.3.6 Effects on the FAA

In general, the effect of the direct user fees would be to reduce consumption of FAA services by general aviation operators. The assessment of direct user fees would cause these operators to

divert to non-FAA facilities, or to forego the use of FAA services. As a result, future workloads would be below levels currently forecast.

Offsetting this trend, however could be the potential need to establish additional FAA facilities at new sites that would become congested due to the diversion caused by the charges. Since the levels of traffic and its distribution among user groups, are the main elements of FAA facility establishment criteria, new traffic patterns induced by the fees would be reflected in these criteria. Assessing the extent of the need for additional facilities, however, is beyond the scope of this study.

5.4 Illustrative Charges

This section reports, for the purpose of illustration, selected rates for the direct user charges. These rates do not take into account the effects of the incidence of the fees. That is, the charges themselves could cause users to reduce their consumption of FAA services. To the extent that the FAA avoids costs when demand falls, these charges should be sufficient to recover all FAA revenue requirements. However, if the FAA is unable to avoid all of the costs, for whatever reason, there might be some revenue shortfall. Fee schedules would have to be adjusted in order to cover this shortfall.

The illustrative charges, which represent the marginal cost for the average user, for 1985 are shown in Table 5.4.1. There are two sets of charges--one where the costs of aviation standards and airport safety administration are allocated to

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Table 5.4.1

1985 =YEAR

DIRECT CHARGES

REGULATORY COSTS ALLOCATED TO USERS

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OPTION 7

	TOWER CHARGE	TRACON CHARGE	FSS CHARGE	ARTCC CHARGE	F&E SURCHARGE	MAINTENANCE SURCHARGE	GRANT LANDING FEE AT NPIAS AIRPORTS
BASIS	(PER OPERATION)	(PER OP OR SEC)	(PER SERVICE)	(PER HANDLE)	(PER OP OR SEC)	(PER OP OR SEC)	(PER LANDING)
USERS							
AC-D	$46.14	$27.01	$10.96	$34.59	$50.33	$19.75	$106.33
AC-I	$46.14	$27.01	$10.96	$34.59	$56.98	$22.35	$176.23
AC-F	$46.14	$27.01	$10.96	$34.59	$46.85	$18.38	$1.99
COM	$10.85	$27.01	$10.96	$34.59	$28.90	$11.34	$25.42
AT	$8.40	$7.86	$10.96	$31.36	$5.52	$6.06	$2.23
GA-P	$2.94	$5.82	$8.33	$19.82	$1.76	$1.87	$4.38
GA-T	$8.40	$7.68	$10.96	$31.36	$12.39	$13.61	$65.78
ROTOR	$8.40	$8.62	$10.96	$0.00	$3.44	$3.78	$3.38
GOV	$8.40	$8.37	$10.96	$31.36	$5.43	$5.96	$3.93
MIL	$25.96	$29.28	$10.96	$52.88	$16.04	$23.91	$8.06

Table 5.4.1 (continued)

TAXRAM1-TABLE
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OPTION 8

1985 =YEAR
DIRECT CHARGES
REGULATORY COSTS ALLOCATED TO PUBLIC

	TOWER CHARGE	TRACON CHARGE	FSS CHARGE	ARTCC CHARGE	F&E SURCHARGE	MAINTENANCE SURCHARGE	GRANT LANDING FEE AT NPIAS AIRPORTS
BASIS	(PER OPERATION)	(PER OP OR SEC)	(PER SERVICE)	(PER HANDLE)	(PER OP OR SEC)	(PER OP OR SEC)	(PER LANDING)
USERS							
AC-D	$43.87	$25.82	$10.24	$33.69	$50.22	$18.28	$106.39
AC-I	$43.87	$25.82	$10.24	$33.69	$56.86	$20.69	$176.30
AC-F	$43.87	$25.82	$10.24	$33.69	$46.75	$17.02	$2.00
COM	$10.32	$25.82	$10.24	$33.69	$28.84	$10.49	$25.45
AT	$7.99	$7.51	$10.24	$30.54	$5.48	$5.61	$2.23
GA-P	$2.87	$5.69	$8.09	$19.52	$1.74	$1.73	$4.38
GA-T	$7.99	$7.34	$10.24	$30.54	$12.32	$12.59	$65.84
ROTOR	$7.99	$8.24	$10.24	$0.00	$3.42	$3.50	$3.39
GOV	$7.99	$8.00	$10.24	$30.54	$5.40	$5.52	$3.90
MIL	$24.68	$27.99	$10.24	$51.50	$15.91	$22.14	$8.08

users, and one where these programs are allocated to the public sector. The charges are based on the cost data in Volumes 1 and 2.

In reviewing these charges, it must be borne in mind that the levels shown in these tables are designed to be fully compensatory. The rates could be lowered:

- If it was decided that certain users require a subsidy from the general fund, or from other user groups.
- If these fees were to be utilized to supplement those which already exist.

For example, commuters are a user group with a substantial short-fall in revenue collected under current taxes. If a national landing fee of $21 per landing at NPIAS airports were established for commuters, it would have raised approximately 105 percent of the total amount of funds collected from these users in 1985. The combination of the current passenger tax and a landing fee would have raised commuter cost recovery 25.8 percent from 12.6 percent.

Table 5.4.4 summarizes the estimated percent of total 1985 allocated costs that would be recovered by each direct user charge. The large revenue generators vary from user group to user group. For example, the tower and FSS charges would be the largest revenue generators for rotor operators; this reflects the fact that these users use other FAA resources relatively less than other groups. Unlike other general aviation groups, GA-turbo operators are relatively heavy users of ARTCC services; the ARTCC charge would, therefore, be a relatively large revenue generator for this group. Air carriers, as a group, would pay large

amounts under the F&E surcharge, which reflects the fact that they are prime beneficiaries of many NASP and other capital programs.

Finally, it should be noted that the fees shown on the accompanying tables reflect average congestion caused by users. It may be desirable to charge peak load and off-peak fees in order to encourage more efficient utilization of existing facilities. Deriving the exact sizes of these fees is beyond the scope of the present project. Additional information and analyses would have to be undertaken to identify the optimal size of different types of FAA facilities. Developing optimal congestion fees would reduce the long-term investment and maintenance requirements of the agency.

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Table 5.4.2

ESTIMATED PERCENT OF RECOVERY ACCOUNTED FOR BY EACH DIRECT CHARGE*

1985

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USERS	TOWER CHARGE	TRACON CHARGE	FSS CHARGE	ARTCC CHARGE	F&E SURCHARGE	MAINTENANCE SURCHARGE	LANDING FEE AT NPIAS AIRPORTS
AIR CARRIER-DOMESTIC	0.5%	12.2%	0.7%	22.0%	23.3%	9.1%	22.3%
AIR CARRIER-INTL	0.6%	9.5%	0.5%	21.5%	20.9%	8.2%	29.7%
AIR CARRIER-FREIGHT	0.9%	16.6%	0.9%	26.6%	29.8%	11.7%	0.6%
COMMUTER	1.9%	19.4%	2.8%	13.2%	25.7%	10.1%	13.5%
AIR TAXI	9.4%	10.4%	15.8%	22.1%	13.5%	14.8%	4.1%
GENL AVIATION-PISTON	7.8%	13.5%	23.9%	7.4%	8.7%	9.3%	24.9%
GENL AVIATION-TURBO	3.6%	3.2%	5.6%	34.8%	10.5%	11.5%	25.7%
ROTORCRAFT	17.4%	14.8%	23.4%	0.0%	13.0%	14.3%	10.9%
GOVERNMENT	10.4%	8.9%	14.5%	20.9%	12.5%	13.7%	13.3%
MILITARY	3.4%	16.9%	6.0%	39.8%	11.3%	16.9%	1.5%

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* Assumes regulatory costs are allocated to users

NOTES

[1]While there is a technical difference between a "tax" enacted by Congress, and a "fee" or "charge" set by an agency, the terms will be used interchangeably because the ultimate authority for collecting revenue comes from Congress regardless of who sets the final levels of fees or taxes.

[2]It should not be presumed that very small changes in safety can never be compensated for by large changes in economic efficiency. However, it is important to understand the degree to which the Congress or the Administration will accept reductions in the absolute level of safety even if cost-beneficial.

[3]Some general aviation piston users employ auto fuel instead of avgas.

[4]The FAA is characterized by joint production. The marginal cost of a service which is provided jointly cannot always be clearly defined. For example, a single ARTCC provides radar separation for a variety of users. No user could receive the service if the Center did not exist, but there is no clear rule based on the production technology by which to assign portions of the joint cost of the Center to each group.

Even if marginal costs for jointly provided services could be clearly defined, the data to identify the exact marginal cost of each do not exist. For example, no data exist on the consumption of capital services at FAA operating sites.

[5]The design of a set of taxes which would provide sufficient revenue for the FAA with a minimum of economic distortion can be described using the following hypothetical problem. Suppose that the government wishes to raise a given amount of revenue by placing per-unit taxes on a set of goods and services. The most economically efficient set of taxes would be those which signal buyers and sellers to act as closely as possible to the way they would act if all prices were equal to marginal costs, while still raising the revenue necessary to operate the FAA in the long-run. The taxes, or prices, which solve this problem are known as Ramsey Prices.

[6]This section is based on discussions with Jean O'Leary. Office of Aviation Policy, FAA.

[7]Certification fees are separately discussed in another volume.

[8]It might be more convenient, administratively, to charge a fee for landing or taking off that would cover all operations costs.

[9]A recent FAA study of the feasibility of privatizing Flight Service Stations examined the impact on the use of various FSS services that charging for them directly would have. See: Comsis Corporation, Gellman Research Associates, J. Tilghman Montgomery Associates, EXP Associates, Flight Service Station Privatization Study, prepared for Office of Aviation Safety, Federal Aviation Administration under contract number DTFA01-84-Y-01033, June 1985.

[10]A survey on the impact of airport passenger head taxes in 1973 noted that the expectation of administrative costs in excess of revenues collected was one factor inhibiting the implementation of such taxes at non-hub airports. See: William R. Fromme, The Airport Passenger Head Tax: Analysis of its Potential Impact, (Washington, D.C., U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Policy, July 1974), p. 23.

[11]The regulatory basis for designees is contained in 14 CFR Part 183, Representatives of the Administration.