

**Overflight Fee Development Report
In Support of “Fees for FAA Services for Certain Flight,” Interim Final
Rule**

**Office of Financial Services
Federal Aviation Administration
800 Independence Ave. S.W.
Washington, DC 20591**

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Overflight Fee Development Report

PURPOSE OF THE REPORT

The purpose of this document is to derive a schedule of air traffic control fees for aircraft flights that transit US-controlled airspace, but do not land in or depart from the United States.

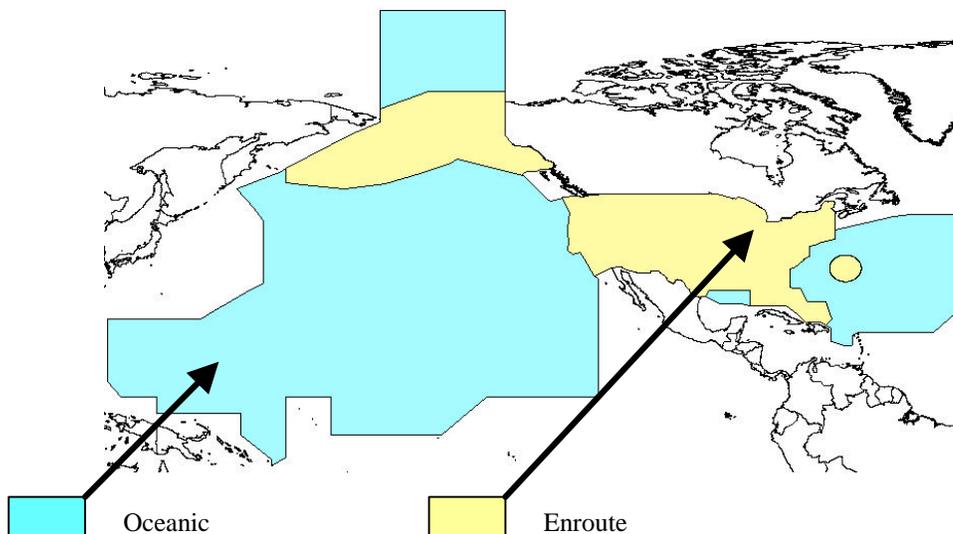
INTRODUCTION

Fees for FAA services for aircraft flights that transit US-controlled airspace, but do not land in or depart from the United States, are authorized by 49 USC 45301. These flights are commonly referred to as “overflights”. Unlike flights that either take-off or land in the United States¹, overflights currently do not pay for the costs they impose on FAA’s air traffic control (ATC) system.

The practice of charging user fees for ATC services provided to overflights is common within the international community. For example, a flight from Frankfurt, Germany, to Bogota, Colombia, could pass through airspace controlled by France, Portugal, the United States, the Netherlands Antilles, and Venezuela, in addition to airspace controlled by the countries of origin and destination, Germany and Colombia. The operator would be charged ATC fees by all of these countries except the United States.

The level of air traffic service provided to overflights depends, in part, on the portions of US-controlled airspace transited by such flights. This report, however, is only concerned with the two types of ATC services that are used by overflights: enroute and oceanic ATC. Figure 1 identifies the U.S.-controlled airspace and illustrates where FAA’s enroute and oceanic services are generally provided. A complete description of U.S.-controlled airspace has been placed in the overflight rulemaking docket (docket No. FAA-00-7018).

Figure 1
U.S.-Controlled Airspace



¹ which pay either a ticket tax, fuel tax, international arrival/departure tax or a cargo waybill tax

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Cost of Services:

The FAA's overflight fees are based on the agency's cost of providing enroute and oceanic services. The FAA's new cost accounting system determines the costs of providing ATC services within the oceanic and enroute environments. Other FAA costs, such as the cost of providing regulation/certification services, as well as the cost of providing ATC terminal services and Flight Service Stations are not included in the enroute and oceanic cost pools.

For the purpose of this document, all enroute flights (overflights and domestic/international U.S. operations) which are handled by enroute air traffic controllers are assumed to use similar types of service. The same assumption also applies to those flights receiving procedural control in US-controlled oceanic airspace. Consequently, there is little difference between the cost of providing ATC control to an overflight versus any other operation within each of these service environments.

The process of developing overflight fees from the cost of providing enroute and oceanic services involves four steps:

1. Determine the FAA's full cost to provide both enroute and oceanic ATC services;
2. Determine which of these costs can be charged based upon the statutory requirement that fees be "directly-related" to the cost of providing the ATC services;
3. Determine the unit costs of enroute and oceanic ATC services;
4. Derive the overflight fees that recover the cost of ATC services plus the cost of billing and collections.

STEP 1:

Determine the FAA's full cost to provide both enroute and oceanic ATC services

Introduction

The FAA's cost accounting system was developed both for management purposes and to provide the basis for determining overflight fees. Each cost category in the FAA cost accounting system was individually analyzed to determine whether it was directly-related to the provision of the enroute and/or oceanic services. Other costs, such as those incurred for the provision of such services as regulation/certification, security, ATC terminal services, and Flight Service Stations are not included, as they are not directly-related to the provision of enroute and oceanic services.

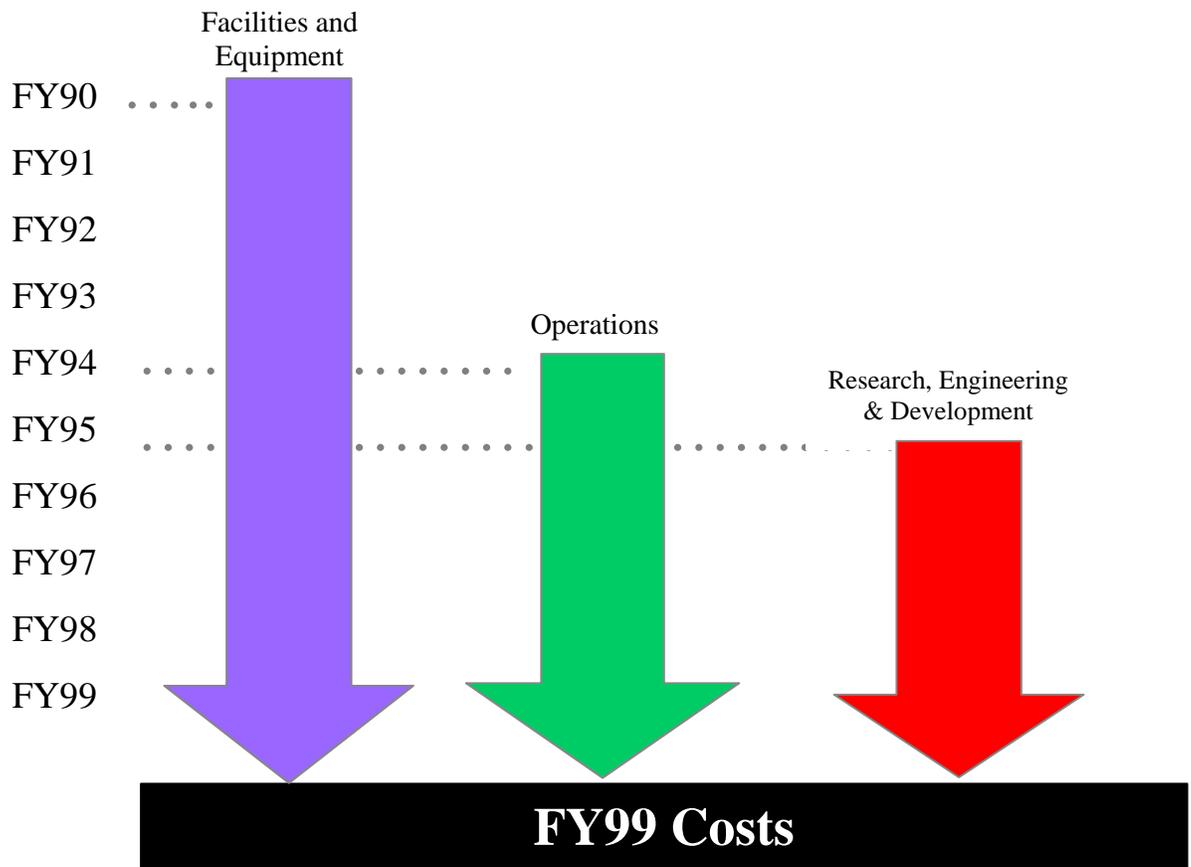
All costs in the cost accounting system have been either assigned or allocated to final cost objects based on generally accepted accounting principles. Federal Accounting Standards Advisory Board's "Statement of Federal Financial Accounting Standards," Number 4, the Federal Government's guiding framework authority on cost accounting matters, was used throughout the development of the cost accounting system. All assignments were performed using the best available data and, where economically feasible, new processes were created to enhance the fidelity of particular assignments.

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Expenditures vs. Obligations

The FAA's cost accounting system has addressed costs that were expended during the agency's 1999 fiscal year (October 1, 1998 through September 30, 1999). Total expenses recorded for fiscal year (FY) 1999 do not precisely match the FAA's FY 1999 budget as enacted by the US Congress. This is due to the Governmental budgeting rules which allow obligations (legal reservations of budgeted amounts) to be incurred over a period of from one to several years after enactment of the budget by Congress. As Figure 2 below indicates, expenses for FY 1999 were actually obligated against budgets enacted from FY 1990 through FY 1999, depending on whether the expenditures were for Facilities & Equipment, Operations, or Research, Engineering & Development.

Figure 2
Conversion of Obligations to FY 1999 Expenditures



Description of Cost Accounting System

The FAA has developed a cost accounting system to better understand its costs. The purpose of the development of the cost accounting system is twofold: 1) to provide information to help improve the management of the FAA, and 2) to determine the cost of enroute and oceanic services in support of user fees. The first phase of the cost accounting system developed the cost information for the agency's enroute and oceanic

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air traffic services. This cost information is the basis from which the agency's overflight fees have been derived.

Full details on how the FAA's cost accounting system captures costs for all FAA lines of business, and the method of assignment of costs to the enroute and oceanic ATC services is available in a separate document. This document, titled "Costing Methodology Report", was prepared for the FAA by the public accounting firm of Arthur Andersen. A copy is located in the overflight rulemaking docket (docket No. FAA-00-7018).

Enroute and Oceanic Costs

Table 1 below indicates the cost categories and the total costs for the FAA's enroute and oceanic ATC services as determined by the FAA's cost accounting system. Appendix A contains greater detail, including a definition of each cost category, determination as to how the costs were assigned, the business rationale for the assignments, and reference numbers for the Arthur Andersen "Costing Methodology Report".

These costs were based on FAA's FY 1999 (October 1, 1998 through September 30, 1999) expenditures.

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Table 1
Full Cost of Enroute and Oceanic Services

Cost Categories	Enroute Costs	Oceanic Costs
<u>Air Traffic Operations</u>		
Field Labor	\$999,426,809	\$23,261,737
Field Non-Labor	\$944,334	\$6,763
ATCSCC	\$18,040,176	(\$14)
Contract Weather	\$8,176,488	\$0
Contract Training	\$10,814,599	\$252,204
Academy Training	\$5,785,261	\$225,914
Aviation Medical	\$7,060,379	\$164,327
Aviation Security	\$3,219,936	\$74,942
Workers Compensation	\$26,445,389	\$615,503
Subtotal	\$1,079,913,370	\$24,601,377
<u>Airway Facilities Operations</u>		
SSC Field Labor	\$172,510,218	\$2,354,522
SMO Field Labor	\$35,322,498	\$547,056
Accruals & Adj Labor	\$724,261	(\$3,200)
National Network Control Center	\$7,753,579	\$167,103
National Maintenance Control Center	\$1,197,837	\$11,186
Field Non-Labor	\$27,095,741	\$367,806
Telecommunications	\$118,444,991	\$24,356,126
Flight Inspection	\$14,948,854	\$0
Utilities	\$24,260,336	\$638,945
Maintenance Contracts	\$25,175,337	\$2,272,851
Logistics	\$40,749,294	\$117,783
Academy Training	\$15,095,316	\$140,886
Workers Compensation	\$3,200,750	\$43,601
SMP/Compliance	\$1,092,338	\$2,741
Subtotal	\$487,571,351	\$31,017,404
<u>Overhead Allocations</u>		
ATS Regional Overhead	\$77,116,590	\$1,893,255
ATS Headquarters Overhead	\$119,896,795	\$1,966,879
FAA Regional Overhead	\$30,967,716	\$742,678
FAA Headquarters Overhead	\$69,467,114	\$1,671,104
Subtotal	\$297,448,215	\$6,273,915
<u>Capital Investment</u>		
AF Expensed F&E Labor/Non-Labor	\$34,600,810	\$515,536
ARA Expensed F&E Labor/Non-Labor	\$668,351,218	\$33,186,457
ATS RE&D Expensed Labor/Non-Labor	\$33,123,471	\$3,154,610
Depreciation	\$208,296,479	\$5,182,602
Subtotal	\$944,371,977	\$42,039,205
<u>Other Costs</u>		
Gain/Loss	(\$79,279,026)	(\$5,235,049)
Accrued Liabilities	(\$11,055,626)	\$2,484,921
Subtotal	(\$90,334,652)	(\$2,750,128)
Total Cost	\$2,718,970,261	\$101,181,773

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As indicated by the table above, the full cost for the FAA’s provision of enroute services was \$2,718,970,261 and the full cost for the provision of oceanic ATC services was \$101,181,773 as determined by the agency’s cost accounting system.

Step 2:

Determine which of these costs can be charged based upon the statutory requirement that fees be “directly-related” to the cost of providing the ATC services

Overhead Costs

The full costs of the FAA providing enroute and oceanic services are reported in Table 1. However, the FAA has been directed by Congress to charge fees that are “directly-related” to FAA’s cost of providing services to overflights². To comply with this direction, all overhead costs (i.e., overhead allocations and those overhead costs attributed to each cost category) are removed from both the enroute and oceanic cost totals. Table 2 illustrates the derivation of directly-related ATC costs.

**Table 2
Derivation of Directly Related ATC Costs**

	(1) Enroute Costs	(2) Oceanic Costs
Total ATC Costs	\$2,718,970,261	\$101,181,773
(-) Total Overhead Costs	\$326,616,676	\$7,059,377
=Total Directly Related Costs	\$2,392,353,585	\$94,122,396

As calculated above, the directly related costs for providing enroute and oceanic ATC services are \$2,392,353,585 and \$94,122,396, respectively.

Step 3:

Determine the unit costs of enroute and oceanic ATC services

In the previous section, the directly related costs for enroute and oceanic ATC services were identified. The next step is to derive the unit cost of providing ATC services within the enroute and oceanic environments. As derived, the unit costs reflect the actual cost of ATC services, on a per 100 nautical mile basis. Because the level of ATC services are assumed identical for all aircraft operations within a particular environment (i.e., enroute or oceanic), it is reasonable to assume that the costs of providing ATC services to overflights are proportional to total ATC costs within each environment. Consequently, the unit costs of providing ATC services to overflights

² 49 USC 45301 (b)(B).

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within each environment is identical to the unit costs of providing ATC services to all air traffic within each environment.³

To construct these unit costs, flight miles within each environment are identified on an annual basis. The costs of providing ATC services within each environment are divided by the respective flight miles to determine the unit costs of service. Flight miles are tracked using FAA’s Enhanced Traffic Management System (ETMS). ETMS provides detailed information on a flight-by-flight basis for every aircraft operation. Using ETMS data, it is possible to track from origination to destination and thereby determine the amount of ATC services provided based on distance flown within US-controlled airspace.

Activity Estimate

Table 3 reports the total number of flights and miles traveled within the enroute and oceanic environment for the period October 1, 1998 through September 30, 1999.

Table 3
ENROUTE AND OCEANIC ACTIVITY
TOTAL TRAFFIC WORKED⁴
(10/1/98-9/30/99)

	Enroute Airspace		Oceanic Airspace		US-controlled Airspace **/	
	Flights	GCD nm */	Flights	GCD nm	Flights	GCD nm
Total annual activity	15,881,083	6,619,138,872	593,314	483,522,588	16,129,383	7,102,661,460

*/ GCD nm is the great circle distance for these flights expressed in nautical miles.

**/ US-controlled airspace activity is not the sum of flights across the enroute and oceanic environments. Some flights transit both environments and summing flights across these environments would result in double counting.

Over this 12 month period, there were approximately 15,881,083 flights traveling 6,619,138,872 nautical miles within the enroute environment and approximately 593,314 flights traveling 483,522,588 nautical miles within the oceanic environment.

³ Let $\alpha_i = (\text{Overflight Activity}_i) / (\text{Total Activity}_i)$, for $i = \text{enroute, oceanic}$. It is assumed that within each airspace environment, the cost of providing ATC services to overflights is proportional to the total cost of providing ATC within that environment, i.e., $\text{Overflight Costs}_i = \alpha_i * \text{Total ATC Costs}_i$. The unit cost of ATC services provided to overflights within environment i , for $i = \text{enroute, oceanic}$ is as follows:

$$(\text{Overflight Costs}_i) / (\text{Overflight Activity}_i) = (\alpha_i * \text{Total ATC Costs}_i) / (\alpha_i * \text{Total ATC Activity}_i) = (\text{Total ATC Costs}_i) / (\text{Total ATC Activity}_i).$$

⁴ Flight miles are expressed in terms of the great circle distance traveled in US-controlled airspace. For any individual flight, the point of entry and the point of exit are determined within the airspace controlled by each ARTCC. The GCD is calculated for each set of entry and exit points and this mileage is then summed across the entire flight. GCD was used rather than actual flight miles, for among other reasons, to reduce the computational burden associated with the calculation of flight miles.

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Estimating the Unit Cost of Service

Using the total annual GCD flight miles calculated in Table 3, the unit cost of service is computed. Table 4 illustrates this calculation. The unit costs of service are calculated by dividing the respective ATC costs by the respective flight miles.

Table 4
Unit Cost of ATC Services

	Enroute	Oceanic
Directly Related ATC Costs	\$2,392,353,585	\$94,122,396
Total annual GCD (nautical miles -- nm)	6,619,138,872	483,522,588
Unit Cost (per 100 nm) = (ATC Costs/ GCD nm)*100	\$36.14	\$19.47

Because the cost of providing service for overflights is the same as for any other aircraft operation within the enroute and oceanic environments, these unit costs represent the “directly related” unit costs of providing ATC services to overflights on a per hundred nautical mile basis. On a per hundred nautical mile basis, the cost of providing ATC services to a flight within the enroute environment is \$36.14; similarly, the cost of providing ATC services to a flight within the oceanic environment is \$19.47.

Step 4:

Derive the overflight fees that recover the cost of ATC services plus the cost of billing and collections

The overflight fees are composed of the unit costs of ATC services as detailed in Table 4 adjusted to reflect the cost of billing and collections. The FAA has identified the cost of billing and collections to be \$1.738 million on an annual basis.

To make this adjustment it is first necessary to identify which flights are overflights and then determine to total ATC costs associated with these flights. Table 5 identifies those operations and flight miles associated with overflight activity (a subset of the data reported in Table 3). Public use aircraft are excluded from this table since they are exempt from payment of overflight fees under 49 USC 45301.

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Table 5
OVERFLIGHT TRAFFIC ACTIVITY
 (Excluding Public Use Aircraft)

	Enroute Airspace		Oceanic Airspace		US-controlled Airspace	
	Flights	GCD nm	Flights	GCD nm	Flights	GCD nm
Total annual activity	199,134	81,417,450	69,379	98,897,076	235,986	180,314,526

As Table 5 illustrates, 199,137 annual overflights accounted for 81,417,450 nautical miles within the FAA’s enroute environment and 69,379 overflights accounted for 98,897,076 nautical miles within the FAA’s oceanic environment.

The total ATC costs associated with overflights is calculated by multiplying the unit costs of service by the respective flight miles. Table 6 illustrates this calculation.

Table 6
OVERFLIGHT ATC COSTS
 (Excluding Public Use Aircraft)

	Enroute	Oceanic	Total
Annual GCD nm	81,417,450	98,897,076	
Unit Cost (per 100 nm)	\$36.14	\$19.47	
Total Cost Of Overflights	\$29,424,266	\$19,255,261	\$48,679,527

To calculate the set of overflight fees that recover the cost of ATC services plus the cost of billing and collections, each unit cost is scaled by the ratio of the total cost of overflights plus the cost of collections divided by the total cost of overflights. The result is an overflight fee for each airspace environment (Enroute and Oceanic) that recovers the cost of the services provided plus the cost of billing and collections. Table 7 illustrates this derivation.

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Table 7
OVERFLIGHT FEES

Enroute Service	Unit Cost per 100 Nautical Miles	Scale Factor */	Fee per 100 Nautical Miles (Including The Cost of Collections)
Enroute	\$36.14	1.036	\$37.43
Oceanic	\$19.47	1.036	\$20.16

*/ The scale factor (SF) was based on the following formula: $SF = (TC + CC) / TC$, where TC is cost of providing overflight service (\$48,679,527), and CC is the annual cost of collections (\$1,738,000).

The annual cost (including the cost of collections) for ATC services for overflights is approximately \$50.4 million. The total fee per 100 nautical miles is \$37.43 in the enroute environment and \$20.16 in the oceanic environment.

Appendix A

Table A1
Detailed Cost Category Analysis for Enroute and Oceanic Services

Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Air Traffic Operations				
Field Labor	Labor costs of air traffic (AT) controllers, supervisors, and others working at Service Delivery Points (SDPs)	Costs were directly assigned to individual SDPs and projects through cost center coding in DAFIS. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	These personnel perform the functions of air traffic control, traffic management, management and support at SDPs. SDPs are assigned to a specific service.	\$999,4
Field Non-Labor	Non-labor costs, primarily for office supplies and travel, incurred at individual SDPs	Costs were directly assigned to individual SDPs and projects through cost center coding in DAFIS. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	Costs support the provision of service at an SDP which is assigned to a service.	\$9
Air Traffic Control System Command Center (ATCSCC)	Total cost (labor and non-labor) component of large multipurpose facility providing air traffic flow management and advisory services to SDPs	Costs were assigned to SDPs in direct proportion to the number of traffic management coordinators (TMCs) at each SDP. No costs were assigned to the oceanic SDPs.	The Command Center provides traffic management services to many SDPs via TMCs. Thus, the level of service provided is directly proportional to the number of TMCs within an SDP.	\$18,0
Contract Weather	The cost of on-site weather services provided at each of the 21 enroute SDPs by contract personnel	Costs were assigned equally to all 21 enroute SDPs. No costs were assigned to oceanic SDPs.	These weather services are provided for the use of air traffic operations at the 21 enroute SDPs. The level of service provided at each of the 21 SDPs is roughly equal.	\$8,1

† Percentages varied by SDP as follows: Oakland = 18.65%; New York = 19.11%; Houston = 2.96%; and Anchorage = 5.14%. These statistical analysis of sign-in/sign-out (on-position time) data logged by controllers at each ARTCC.

‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent the ratio of “sectors” to total “sectors” at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Contract Training	The cost of specialized local training provided by contract personnel at an SDP	Costs were assigned to SDPs based on actual contract hours billed to the Agency for SDPs. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	This training is directly related to the air traffic control function at the 21 SDPs. The hours invoiced by the contractor represent an accurate distribution of the contract training costs incurred by SDP.	\$10,8
Academy Training	The cost of centralized training provided to AT personnel at the FAA Academy in Oklahoma City, OK	26.5% of total AT academy training costs were assigned to SDPs based on course enrollment and attendance records. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	Course hours taken by AT personnel represent an accurate measure of the distribution of AT academy costs incurred. Further, attendees can be traced directly to an SDP.	\$5,7
Aviation Medical	The cost of regular medical exams and drug testing for controllers and maintenance technicians	The entire ATS cost pool was identified as 32.78% of Aviation Medicine (AAM) costs. The costs are assigned to all ATS SDPs based on total labor. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	The level of effort required to perform exams and testing is proportional to personnel levels within each ATC facility.	\$7,0

† Percentages varied by SDP as follows: Oakland = 18.65%; New York = 19.11%; Houston = 2.96%; and Anchorage = 5.14%. These statistical analysis of sign-in/sign-out (on-position time) data logged by controllers at each ARTCC.

‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent the ratio of “sectors” to total “sectors” at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Aviation Security	The cost of physical security of air traffic control and National Airspace System (NAS) facilities and incident investigations.	The entire ATS cost pool was identified as 5.39% of Security (ACS) costs. The costs are assigned to all ATS SDPs based on total labor. Further, a fixed percentage was assigned from each of the enroute SDPs that provide oceanic service. †	The level of effort required to provide security is proportional to personnel levels within each ATC facility. Therefore, personnel compensation at each SDP is an accurate measure of the cost to provide security at each SDP.	\$3,2
Workers Compensation - AT	AT cost incurred for payment of workers compensation claims	Costs were assigned to enroute and oceanic programs and SDPs based on labor costs.	The amount of workers compensation claims is directly proportional to personnel levels within each SDP. Therefore, personnel compensation is an accurate measure of the distribution of workers compensation claims to SDPs.	\$26,4
<i>Subtotal</i>				<i>\$1,079,9</i>
Airway Facilities Operations				
System Support Center (SSC) Field Labor	Labor costs of maintenance technicians and supervisors responsible for maintaining the NAS.	Costs were assigned to facilities using Staffing Standards Analysis System (SSAS) and Facilities/ Service/Equipment Profile (FSEP); facilities are then assigned to a specific service/SDPs. For facilities shared between enroute and oceanic, a fixed percentage was used to allocate costs between enroute and oceanic SDPs. ‡	Properly maintained facilities enable the provision of service. Staffing standards provide an approximate measure of the level of effort required by SSCs to maintain facilities.	\$172,5

† Percentages varied by SDP as follows: Oakland = 18.65%; New York = 19.11%; Houston = 2.96%; and Anchorage = 5.14%. These statistical analysis of sign-in/sign-out (on-position time) data logged by controllers at each ARTCC.

‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent the ratio of "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
System Management Office (SMO) Field Labor	Labor costs of Airway Facilities (AF) personnel, working at SMOs, who oversee and support field maintenance work.	Costs were assigned to facilities in the same ratio as the costs of its "children" SSCs. For facilities shared between enroute and oceanic, a fixed percentage was used to allocate costs between enroute and oceanic SDPs. ‡	SMO's provide direct program and technical support functions for each SSC. The distribution of labor costs of a SMO's "children" SSCs is an approximate measure of the level of effort required by SMOs to manage SSCs.	\$35,3
Accruals & Adjusted Labor	Accruals are costs recognized as expenses in the current period for labor that has been earned but unpaid and adjustments are high-level corrections made to accurately reflect labor costs.	Costs were assigned to facilities based on the ratio of labor distributed in the same accounting period. For facilities shared between enroute and oceanic, a fixed percentage was used to allocate costs between enroute and oceanic SDPs. ‡	Labor costs assigned to individual facilities provide an approximate measure of the distribution of these costs.	\$7.
National Network Control Center (NNCC)	Labor and non-labor costs of the NNCC located at Atlanta and Salt Lake City ARTCCs, plus NNCC-related equipment at all 21 ARTCCs.	Costs were assigned to all 21 enroute SDPs based on number of aircraft handles by each enroute SDP. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	The NNCC provides weather, flight plan, and flight movement information. An aircraft handle is an accurate measure of the distribution of costs to SDPs with TMCs. .	\$7,7:

† Percentages varied by SDP as follows: Oakland = 18.65%; New York = 19.11%; Houston = 2.96%; and Anchorage = 5.14%. These statistical analysis of sign-in/sign-out (on-position time) data logged by controllers at each ARTCC.

‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent the ratio of "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
National Maintenance Control Center (NMCC)	AF cost (labor and non-labor) component of large multipurpose facility providing national remote maintenance monitoring and national maintenance coordination for all NAS facilities.	25.61% of the cost of the NMCC was assigned to the enroute service based on number of facilities assigned to enroute when compared to the total number of facilities. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	NMCC services are provided to the entire NAS. The level of service provided is directly proportional to the number of facilities within each service.	\$1,19
Field Non-Labor	Non-labor costs incurred in the field that are primarily for office supplies, spare parts, and local travel.	Costs were assigned to AF programs and SDPs in the same proportion as direct SSC labor. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	Non-labor costs cannot be directly traced to facilities. Therefore, the distribution of labor costs to facilities provides an approximate measure of the distribution of field non-labor costs.	\$27,0
Telecommunications	Operational cost incurred by Telecommunication program for leased telecommunications lines used primarily to communicate radar, flight plan, and remote maintenance monitoring information.	Costs of the ATS telecommunications program were assigned to specific facilities based on the cost of leased telecommunications lines which connect facilities and SDPs. This data was derived from the Telecommunications Information Management System (TIMS). An additional amount was assigned to the oceanic service based on an analysis of ARINC invoices.	Telecommunications costs are required to provide service at SDPs. TIMS statistical data indicates costs to a facility, which provides a means to allocate the centralized cost of the telecommunications program to facilities and SDPs which are in turn assigned to services. ARINC provides high-frequency voice communications, which is used, exclusively for oceanic service.	\$118,4

† Percentages varied by SDP as follows: Oakland = 18.65%; New York = 19.11%; Houston = 2.96%; and Anchorage = 5.14%. These statistical analysis of sign-in/sign-out (on-position time) data logged by controllers at each ARTCC.

‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages are assigned to "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Flight Inspection	All operational costs (labor and non-labor) of flight inspection of NAS facilities.	Costs were assigned to specific facilities based on number of inspection hours flown, as derived from the Aircraft Management Information System (AMIS). No flight inspection costs were allocated to the oceanic service.	Flight inspection is required to provide continuous service at specific facilities assigned to SDPs. Inspection hours flown is the most accurate measure of the distribution of flight inspection costs. No facilities assigned to the oceanic service require flight inspection.	\$14,96
Utilities	Total cost of energy (i.e., electricity, fuel, water, etc.) consumed by individual facilities.	All energy costs incurred were assigned to facilities (and their associated SDPs) based on energy consumption data reported, by facility, in the Energy Management Reporting System (EMRS). Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	Energy costs are required to operate facilities which support the provision of services. EMRS data, which captures energy costs by facility, provides an accurate measure of the distribution of these costs.	\$24,26
Contract Maintenance	Large-dollar, multi-year contracts that provide for maintenance of various FAA systems.	49.34% of the total maintenance contract cost pool was assigned to the enroute service and 4.30% assigned to the oceanic service.	These costs are necessary to support the provision of service at SDPs. An analysis conducted by ATS identified the systems being maintained under contract and the value of each contract. This provides an approximate measure of the distribution of these costs to the services.	\$25,16

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‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages are based on the ratio of "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Table A1
Detailed Cost Category Analysis for Enroute and Oceanic Services

Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Logistics	Operational costs of the FAA Logistics Center that maintains stocks and stores of spare parts.	ATS' share (94.36%) of the total cost of the Logistics Center was assigned to the services based on actual spare parts shipments to facilities using data from the Logistics Information System (LIS). Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	Costs are necessary to maintain facilities which support the provision of services. The data from LIS, cost per part shipped from the Logistics Center, provides an appropriate means of distribution of these costs to the facilities because parts can generally be associated with specific facilities which are assigned to SDPs.	\$40,74
Academy Training	Cost of centralized training provided to AF personnel at the FAA Academy in Oklahoma City, OK.	The enroute-related share of total AF Academy training costs (47.15%) were assigned to facilities based on course enrollment and attendance records. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	Training costs are required to maintain a technician's proficiency. Course hours taken by AF personnel represent an accurate measure of the distribution of AF Academy costs incurred. Further, courses can generally be associated to facilities which are assigned to services.	\$15,09
Workers Compensation - AF	AF cost incurred for payment of workers compensation claims.	Costs were assigned to enroute and oceanic programs and SDPs based on labor costs.	The amount of workers compensation claims is proportional to personnel levels within the AF organization. Therefore, personnel compensation is an accurate measure of the distribution of workers compensation claims across the projects to which AF labor has been assigned.	\$3,20

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‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages are assigned to "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Special Maintenance Programs (SMP)/Compliance	Operational labor and non-labor costs of environmental and safety compliance, and other special maintenance projects.	Costs were assigned to programs and SDPs in proportion to the amount of AF direct labor. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. †	The assignment of direct labor costs is an approximate measure of how SMP costs relate to programs and SDPs.	\$1,09
<i>Subtotal</i>				<i>\$487,51</i>
Overhead Allocations				
ATS Regional Overhead	Cost of ATS support services provided to the field by ATS Regional Office personnel	Costs were assigned to ATS programs and SDPs within a specific region in direct proportion of total labor costs.	ATS regional costs support ATS operations solely within a given region. Labor costs by program and SDP are an appropriate approximation of the distribution of these costs.	\$77,1
ATS Headquarters Overhead	Cost of ATS support services provided to the field by FAA Headquarters Office personnel	Costs were assigned to all ATS programs and SDPs in direct proportion of total labor costs.	ATS headquarters costs support ATS operations across all of ATS. Labor costs by program and SDP are an appropriate approximation of the distribution of these costs.	\$119,8
FAA Regional Overhead	Cost of FAA support services provided to the LOBs by FAA Regional personnel	Costs were assigned to LOBs, by region, in direct proportion of total labor costs with the exception of finance and accounting costs. Those costs are assigned to same targets but using total cost as the basis.	FAA regional costs support each LOB within each region and at a level proportional to the total amount of labor by LOB within each region.	\$30,9

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‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages are assigned to “sectors” to total “sectors” at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Detailed Cost Category Analysis for Enroute and Oceanic Services

Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
FAA Headquarters Overhead	Cost of FAA support services provided to the LOBs by FAA Headquarters personnel	Costs were assigned to LOBs in direct proportion to total labor costs with the exception of finance and accounting costs. Those costs are assigned to same targets but using total cost as the basis.	FAA headquarters costs support each LOB at the national level. For finance and accounting related costs, total cost by organization reflects the most appropriate distribution of these costs. While labor cost by organization reflects the most appropriate distribution of all other costs.	\$69,4
<i>Subtotal</i>				\$297,4
Capital Investment				
AF Expensed F&E Labor/Non-Labor (Implementation)	All direct expensed capital costs (both labor and non-labor) incurred by AF organizations necessary to complete system implementations.	Costs are assigned to projects through direct coding in DAFIS and projects are assigned to services based on the capability of the system being implemented. Further, a fixed percentage was assigned to oceanic SDPs from each of the enroute SDPs that provide oceanic service. ‡	Capital projects serve to modernize the NAS enabling the continued provision of a specific service. Because these costs are collected in projects by DAFIS, direct assignment of these costs to specific services and programs/SDPs is possible.	\$34,6

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‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent the ratio of "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
ARA Expensed F&E Labor/Non-Labor (Acquisition)	All expensed costs (labor, non-labor, and overhead) incurred by ARA organizations necessary to complete NAS modernization programs.	Expensed acquisition costs are assigned to projects through DAFIS coding. Projects are then assigned to services based on the functionality of the system being developed/acquired; overhead costs are assigned to all modernization projects based on total project costs.	Capital projects serve to modernize the NAS enabling the continued provision of a specific service. Because these costs are collected by projects in DAFIS, direct assignment of these costs to specific services is possible. For overhead costs, the level of support provided is proportional to total program costs.	\$668,33
ATS RE&D Expensed Labor/Non-Labor (Research, Engineering, & Development)	Research, engineering, and development costs, fully loaded with ARA overhead costs attributable to ATS services	Research, engineering and development costs and associated burdens were assigned to services based on an analysis of R&D project expenditures and the nature of the research over the past two years.	RE&D costs are essential to the development of new and improved facilities and equipment for future use in the NAS. The intended purpose of the research effort is a good indicator of the service it may eventually benefit.	\$33,17
Depreciation	The proportionate amount of every asset's capitalized cost expensed in FY99 through the depreciation process.	Costs were assigned to programs and SDPs based on DAFIS coding and personal and real property records.	Property records provide enough information to allow depreciation costs to be assigned at a service/program/SDP level.	\$208,29
Subtotal				\$944,33
Other Costs				
Gain/Loss	End of year adjustments to recognize financial gains and losses, primarily on capital leases and spare parts inventories	Costs were assigned to services based on total cost.	The amount of gain/loss is proportional to the total costs of a given service.	(\$79,27)

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‡ Percentages varied by SDP as follows: Oakland = 17%; New York = 17%; Houston = 5%; and Anchorage = 14%. These percentages represent "sectors" to total "sectors" at each of the four Oceanic SDPs. See the Costing Methodology Report for additional details.

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Detailed Cost Category Analysis for Enroute and Oceanic Services

Cost Element	Definition	Cost Assignment	Business Rationale	FY99 Enroute Costs
Accrued Liabilities	End of year adjustments to reflect the appropriate level of unfunded liabilities for retirement, pension and relocation expenses and the cost of environmental remediation projects	Costs were assigned to services based on total cost.	The amount of accrued liabilities is proportional to the total costs of a given service.	(\$11,05
<i>Subtotal</i>				<i>(\$90,33</i>
Total Costs				\$2,718,9'

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