

DESCRIPTION OF DATA PROCESSING AND INTEGRATION FOR ACTIVITY, ATO COST AND TAX DATA

INTRODUCTION

This section describes the datasets used to produce user group specific air traffic activity data and related measures for the Air Traffic Organization (ATO). It examines service delivery points (SDPs) including FAA Towers and approach control facilities, which are Terminal SDPs, and Air Route Traffic Control Centers (ARTCCs), which are En Route SDPs. It shows how cost estimates were developed for individual ATO services and SDPs. It then details the steps involved in combining the datasets, and provides definitions and formulas for terms used. The modeling work described below was performed by GRA, Inc., under contract to FAA.

SERVICE DELIVERY POINTS AND SDP COST REPORTS

Service Delivery Points (SDPs) are locations or facilities from which ATO services are provided to NAS users. The current modeling work is intended to associate ATO service costs with the delivery of those services through SDPs. Service delivery points include terminal facilities, facilities providing en route services to aircraft in domestic or oceanic air space, and Flight Service Stations. Greater detail about these SDPs and the costs and services associated with them is provided in an accompanying document (ATO Data Package for Stakeholders) and in the remainder of this document. These SDP cost tables assemble direct and indirect costs into fully loaded cost pools using allocation methods suitable for managerial analysis and reporting purposes. Note that these use allocation rules are not an appropriate basis for use in a rates and charges setting.

SOURCE DATA

The model combines a number of databases to develop cost, activity and tax information in a format useful for further analysis by ATO stakeholders. Attachment A describes source data files. Some of these databases, such as ETMS and ATADS, are used to support activity analysis only while others, such as CAS, apply to SDP cost analysis only. Attachment B contains data definitions.

Enhanced Traffic Management System (ETMS)

The Enhanced Traffic Management System (ETMS) facility is housed at the Volpe National Transportation System Center. After processing, the ETMS file provides detailed flight records, including time, distance, aircraft type and user type. ETMS is restricted to that subset of flights that fly under Instrument Flight Rules (IFR) and are

captured by FAA's en route computers – all Visual Flight Rules (VFR) and some non-En Route IFR traffic is excluded.

FAA's ETMS is a primary data source. The Air Traffic Laboratory (ATA-100) provides Boundary Crossing File (BCF) records for each flight in the NAS. A flight segment for this purpose is one aircraft traveling through one ARTCC, so a flight that travels through three ARTCCs would be divided up into three records.

The flight segment records are then grouped into flight records (one record per flight) using a unique flight identity code. The aircraft's Maximum Takeoff Weight (MTOW) is also added to the flight record using an aircraft type reference file (this file also contains seating capacity, cargo capacity, load factors and fuel consumption). For international arrivals and departures, the model also estimates flight time and distance outside of U. S. airspace, which is later used to calculate user revenues and costs.

The model then sums the number of operations, actual flight miles, great circle flight miles and flight hours at each ARTCC¹ and these data are used for further processing:

- ➔ Count of flights (departures, arrivals and both departing and arriving in the same ARTCC)
- ➔ Actual miles flown
- ➔ Great-circle equivalent of miles flown
- ➔ Hours flown

The en route activity used is in the form of Counts, Hours, Miles and Great Circle Miles for flights departing, arriving, both departing and arriving, or overflying an En Route Service Delivery Point (SDP). Additional records are created to turn a "both" (departs and arrives within one center) flight into two operations for the En Route SDP, which is a more accurate depiction of how en route activity is counted in other data systems.

For Terminal SDPs, two counts of ETMS operations are made: "ETMS Operations" are the number of flights which departed or arrived at that terminal SDP. A flight to one location can use multiple terminal SDPs, such as a flight to Newark International (EWR), which also uses the New York TRACON (N90). "ETMS Associated Operations" are the number of flights which departed or arrived at that terminal SDP and all of the terminal SDPs for which it provides terminal airspace radar coverage, also referred to as approach control. In the case of a flight to Newark, EWR would be credited with one ETMS Operation, and N90 would be credited with one

¹ ARTCCs are referred to in the model as En Route Service Delivery Points (SDPs). Airports and TRACONS are referred to as Terminal SDPs.

ETMS Associated Operation. All flight data are separated by User Type and Engine Type for tax calculation purposes.

ETMS Associated Operations data are provided as counts of arrivals and departures, with separate tabs for each User Type and aircraft engine type.

Table 1: Aircraft User Type Categorization

Aircraft User Type Code	Aircraft User Type
C	Commercial
F	Freight
M	Military
G	General Aviation
O	Other
T	Taxi
TOT	Total

Table 2: Aircraft Engine Type Categorization

Aircraft Engine Type Code	Aircraft Engine Type
J	Jet
P	Piston
R	Rotor
T	Turboprop
A	Total

Classifying ETMS Flight Records into Detailed User Groups

Because the ETMS user type is incomplete or not representative of all ATO air traffic, a more detailed set of users and flight regions was developed. The ETMS flight records are classified into seven geographic regions:

- ➔ Domestic/Exclusion Zone²
- ➔ Domestic/Exclusion Zone, Rural Airport
- ➔ CONUS to AK or HI or between AK & HI
- ➔ CONUS to AK or HI or between AK & HI, Rural Airport
- ➔ International, non-Exclusion Zone
- ➔ Overflight, billed
- ➔ Overflight, not billed

The ETMS flight records are also classified into detailed User Groups based on:

² The exclusion zone refers to airports in Canada and Mexico that are within 225 miles of the border of the Continental United States (CONUS). U.S. domestic aviation taxes apply to these flights.

- Three letter identifier for aircraft operators
- Aircraft registration number (N-number)
- Operating Specifications Subsystem (OPSS) data
- Registry by aircraft owner
- Military aircraft
- Carrier nationality (foreign or domestic)
- Aircraft type and seating capacity
- All cargo vs. passenger service

The following table shows the User Groups into which all ETMS flight records were classified. These groups are discussed in greater detail in Appendix 1.

Table 3: User Groups for ETMS Flight Records

Commercial Passenger Transportation	Private Aviation
US Commercial Carrier - Passenger	General Aviation - Turbine Airplane
-US Commercial Carrier	-Turbojet Airplane
-US Low Cost Carriers	-Turboprop Airplane
Foreign Carrier - Passenger	General Aviation - Piston Airplane
Regional Airline - Passenger	General Aviation - Rotor
-Turboprop/Piston	General Aviation - Tax Exempt
-Jet <60 seats	-Air Ambulance (code starts with LN)
-Jet 61+ seats	-Resource Extraction Aircraft
Charter Flight on US Carrier - Passenger	
Commercial Cargo Transportation	Non-ETMS
US Commercial Carrier - Freight	Commercial
Foreign Carrier - Freight	Military
Regional Airline - Freight	General Aviation
Small Commercial/GA Transportation	Other
Fractional Ownership Programs	Government/Military
Non-Scheduled Part 135 Passenger	-Civilian Government
Non-Scheduled Part 135 Passenger, Large Aircraft	-Military
Non-scheduled Part 135 - Freight	Not Enough Information to Classify

There is a very small number of flights that cannot be classified into one of these groups. In Appendix 1, there is a description of each group, which includes examples of the kinds of operations conducted by each group.

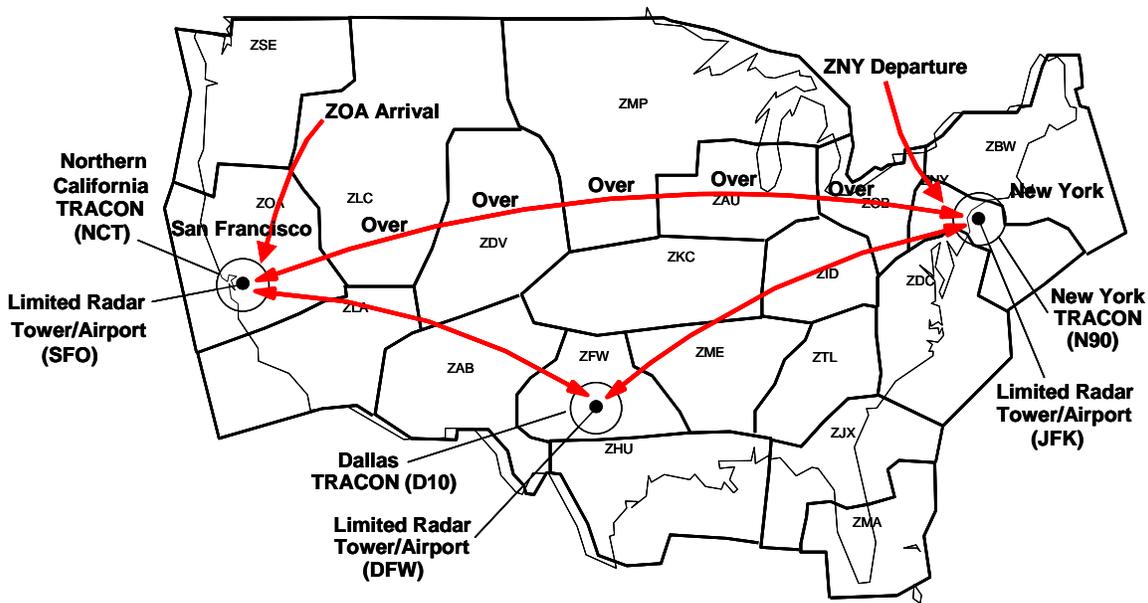
The flight records in each group are reviewed to ensure that the classification is carried out as intended. It should be noted that all operators that flew at least one flight per day in FY2004 are classified into one of the above described user groups. Operators with a fewer number of operations are classified based on their aircraft user group code (see Table 1):

Table 4: Aircraft User Types and User Group Classification

Aircraft User Type Code	Aircraft User Type	User Group Classification
C	Commercial	13.PAX
F	Freight	23.FRT
M	Military	42.MIL
G	General Aviation	30.GEN
O	Other	49.N/A
T	Taxi	17.PAX

Figure 1 illustrates the use of the ETMS Boundary Crossing File data in the analysis. All analyses are conducted at the flight segment level of detail, and flight segments are created by joining the boundary crossing files for the same aircraft flight identifier and date from ETMS. Terminal usage is based on the relationship of terminal facilities contained in the Extended Master Decode File (EMDF) obtained from FAA-APO. For example, a flight from JFK to San Francisco International Airport uses the limited radar tower function at JFK, New York TRACON, Northern California TRACON and the limited radar tower at SFO. Each of the terminal facilities and en route centers is a separate CAS-reporting entity. The ETMS data provides the capability to calculate types of operations (arrival, departure or overflight for en route centers), terminal operations counts (arrivals, departures, and overflights) and instrument operations (primary, secondary and over) on a flight-specific basis. In addition, for the en route and oceanic environment it is also possible to derive the time within the center's airspace, actual distance flown within the center's airspace, and the Great Circle Route distance between the entry and exit point of the center's airspace.³ This allows the merging of activity and costs (costs can be developed at many levels including average cost, marginal cost or another cost measure depending upon the intended purpose of the cost reports) for en route and oceanic services. For terminal services, we can track all the costs and we have the ETMS portion of the usage of these facilities.

Figure 1: Use of Boundary Crossing File*



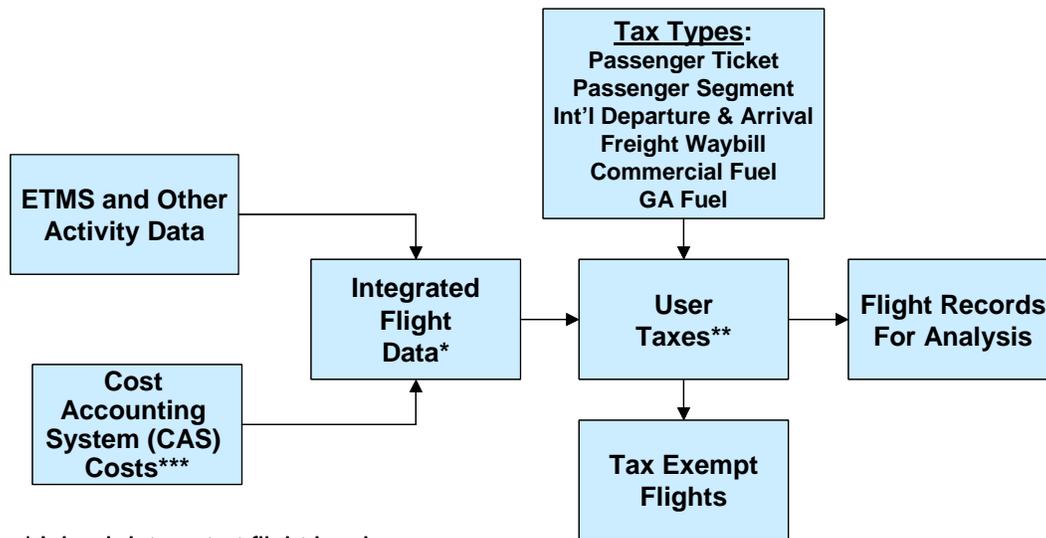
*Alaska, Hawaii, Puerto Rico, and Oceanic airspace not shown

³ The Great Circle Route is that unique segment between any two points on the globe that is the minimum distance between these two points.

Thus for each flight, a data record is developed that contains origin and destination airport, the unique flight identifier, and the specific ATO services used by that flight. It is also possible to assign CAS costs to the flight using any of the elements reported in the CAS Service Delivery Point report as well as other measures of costs developed using cost-activity drivers, statistical models and related techniques.

All the ETMS data is organized by flight records. Figure 2 shows the organization of the combined flight record, which results from the integration of Cost Accounting System, ETMS and other data. This includes estimates of the specific user taxes paid for each flight and identifying flights that are exempt from taxes (public users, lifeguard flights, and others). This produces a series of flight records for analysis. The next is to account for the use of terminal facilities by aircraft flights not in ETMS.

Figure 2: All ETMS-Based Data Organized by Combined Flight Record



*Joined data set at flight level

** FY 2004 rates

***All CAS cost elements available from Service Delivery Point report, or other unit cost estimates.

Air Traffic Activity Data System (ATADS)

The Air Traffic Activity Data System (ATADS) is used to derive the non-ETMS usage of terminal facilities. ATADS is the official source for historical counts of operations at air traffic facilities. ATADS provides several datasets; the model uses instrument and tower operations for Terminal SDPs. It is assumed that ETMS operations at Terminal SDPs are one component of the ATADS counts at these SDPs. Therefore, non-ETMS Terminal SDP activity is represented by ATADS counts net of activity captured in the ETMS database. As noted above, ETMS data for flights in the IFR system is quite rich. ATADS data are much more limited in content.

ATADS data come from the website of the FAA Office of Aviation Policy and Plans (APO-130).⁴ ATADS data for Terminal SDPs are classified to match the structure used for ETMS and CAS.

Extended Master Decode File (EMDF)

The Extended Master Decode File (EMDF) shows the relationships among ATO facilities, such as the airport's that receive service from specific approach control facilities. The EMDF comes from FAA-APO-100. All non-current records are removed, and this new table is used both in calculation of ETMS activity and in preparing the Terminal SDP table.

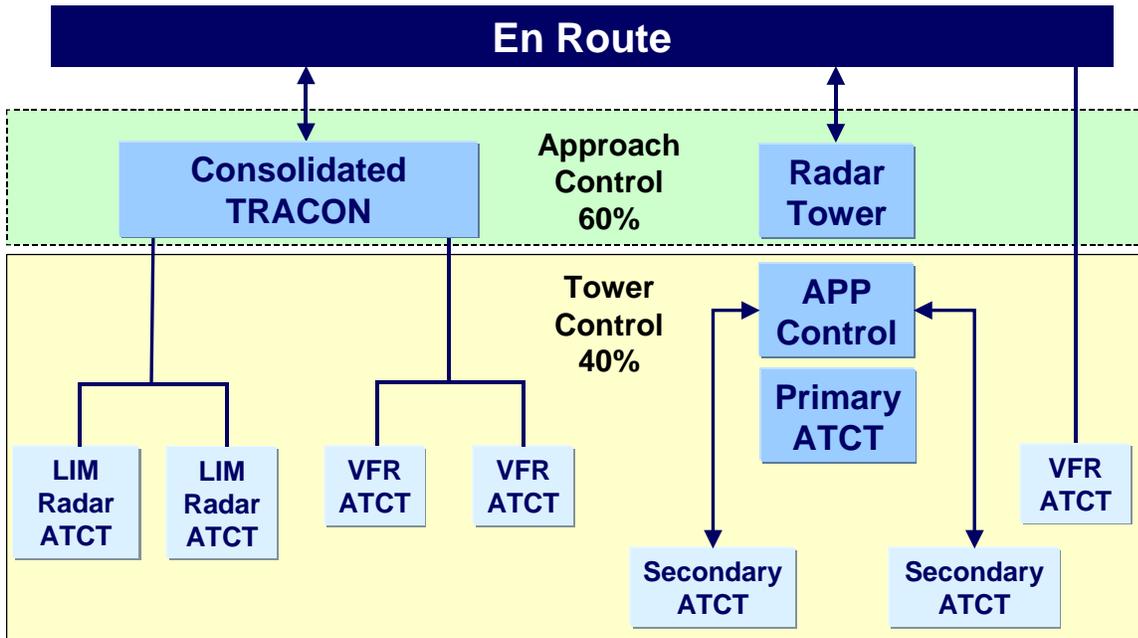
Cost Accounting System (CAS)

The model's cost data come from FAA's Cost Accounting System (CAS), which is maintained in the Office of Cost and Performance Management (APF), a part of the FAA Chief Financial Officer's (CFO) office. CAS provides a detailed breakdown of costs for each SDP (and other accounting units) on a monthly basis. (Data for FY 2004 were only available for the full year.) One objective of CAS is to allocate all ATO costs to individual service delivery points using a set of business rules for managerial reporting purposes. These costs are at the service level (en route, oceanic, terminal and flight service) and are allocated to SDPs based on the amount of Level 1 costs at each SDP within a service. For FY 2004, some service level costs (\$154 million out of total ATO CAS costs of \$7.9 billion) were not allocated to SDPs.

It is important to understand the relationship in the terminal environment in terms of the type of facilities used and the various measures of activity available. In addition, the relationship among facilities is also important in understanding the cost of ATO services.

⁴ <http://www.apo.data.faa.gov/>, where ATADS is described as "The official source of historical air traffic operations for center, airport, instrument and approach counts."

Figure 3: Terminal Activity and Cost Assignment



All activity estimates are based on the specific airports used by the ETMS flights and the remaining non-ETMS flights, which are calculated based on ATADS less ETMS activity. As shown in Figure 3, flights can use either a consolidated TRACON or a radar tower for radar approach control services.⁵

A consolidated TRACON places the approach control function into a separate facility, which also is a separate Cost Accounting System project code. However, radar tower facilities contain both the approach control and the tower for the primary airport within a single cost accounting identity. While we can track approach control activities in terms of instrument operations, we need to correctly relate these activities to the costs of operating the respective facilities. In the case of flights served by a consolidated TRACON, we simply have to track its unit costs and the unit costs of other facilities underlying it, such as limited radar towers, VFR towers (both FAA and contract), and other facilities.

In the case of a radar tower, we first need to divide the CAS costs into the approach control and tower function. Due to a functionality limitation in the CAS data, this division was based on an analysis of FY2003 data for independent TRACONs and constituent towers that showed approximately 60 percent of the total costs of the facilities together were related to the approach control function. We applied this ratio to the radar towers in the data set. The radar tower approach control facility can provide air traffic control for flights destined to the primary air traffic control tower or to secondary towers within its airspace. It is also possible for flights to transit approach control airspace (an overflight). Finally, it is also possible in some cases for a flight to go directly from en route airspace into an air traffic control tower and not go through a terminal approach control facility. (An en route center sector usually routes such aircraft to a fixed point and then releases them to the terminal air traffic control facility.) It is possible for an IFR flight to travel between two terminal areas without using the en route system. (This usually occurs when terminal facilities are close to one another.) We also track tower facilities that are not CAS service delivery points and accumulate activity at these.

For each SDP type (Terminal, Domestic En Route, Oceanic En Route, or Flight Service Station), the costs are sorted and grouped into categories. Attachment C lists the structure of CAS data available for SDPs and groups of SDPs as required for ATO managerial reporting.

There were \$47 million of PC&B costs that were a post-period adjustment for FY 2004. These were allocated to services by ATO-F (and to SDPs based on the amount of Level 1 costs at each SDP within a service). Another adjustment removes the CAS

⁵ There are two facilities that have non-radar approach controls, but these are treated as air traffic control towers for cost and activity measurement.

capital accounts (acquisition, implementation, and depreciation and capital lease amortization). These were approximately \$650 million in FY 2004. We then allocate the facilities and equipment budget (F&E) to services and SDPs based on Level 1 costs and add this amount to the acquisition account.⁶ This is done so ATO costs reflect the FY 2004 budget.

User Revenues

Data from the Department of Transportation's DB-1B (commonly known as "Ticket Sample") database, (from DOT's Office of Airline Information), are regressed to produce yield curves, which relate carrier revenue to flight distance. Three separate yield curves are calculated:

- Domestic passenger fares for Low Cost Carriers
- Domestic passenger fares for all other carriers
- International passenger fares

The domestic and international passenger yield curves are applied to the appropriate flights by commercial and air taxi users.

Separate yield curves are also produced for:

- Domestic and international freight
- Belly cargo (cargo carried on passenger aircraft) revenues

These curves are regressed from data in the Form 41 database, which is available from DOT's Bureau of Transportation Statistics website.⁷ The freight yield curve is applied to flights by freight users, and the belly cargo yield curve is applied to flights by commercial and air taxi users that carry passengers and cargo.

For all other user types (GA, military and other), user revenues are set equal to user costs, under the assumption that the flight would not have taken place if it were not at least that valuable to the operator.

User Aircraft Operating Costs

For all aircraft types appearing more than thirty times in a month's ETMS data, the aircraft type is added to the aircraft database. The aircraft database contains hourly operating costs, based on an FAA study⁸ and adjusted for inflation. These are direct

⁶ The F&E costs for projects are assigned to services based on the nature of the project and upon managerial reporting requirements. .

⁷ <http://transtats.bts.gov>

⁸ Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs, December 2004 (draft).

costs only, including crew, fuel, maintenance, depreciation and insurance, but excluding passenger service, aircraft service, traffic service, reservation and advertising expenses. Aircraft not in the database are costed based on weighted averages for their ETMS user type and engine type.

Aviation Taxes and Tax Rates

There are various aviation excise taxes levied on passengers, shippers and aircraft operators. Some flights do not produce aviation taxes. In the model, we estimate the tax revenue generated by each ETMS flight and non-ETMS operation. This is done using estimates of the tax basis and tax rates for FY 2004. The source for these rates is IRS Publication 510, available at the IRS website.

DATA PROCESSING

En Route SDPs

For En Route SDPs, the cost table (CAS) and activity query (ETMS) are joined, producing a single record for each ARTCC. Both data sources provide separate entries for oceanic and domestic airspace, and this separation is preserved.

Terminal SDPs

Adjustments to Source Data – The process for Terminal SDPs is considerably more complicated because of the several types of terminal facilities. Also, the model performs several operations on the data to allow for data reporting differences or enhanced detail. By reporting differences, we mean that some facilities which are listed separately in CAS are grouped together in ATADS. For example, ATADS activity at ATL (Atlanta Hartsfield airport) and M87 (Macon RAPCON) are grouped under the A80 (Atlanta TRACON) location identifier in CAS. An “ATADS equivalent” location identifier field is added to the CAS table to account for this type of relationship.

The Southern California TRACON (SCT) provides radar service to airports throughout the Los Angeles and San Diego metropolitan areas. The model separates the SCT facility into two (SCT North for Los Angeles and SCT South for San Diego) based on destination airports. This adjustment to CAS and ETMS data provide better representation of activity in the distinct metropolitan areas.

Certain location identifiers are changed to merge cost and activity data, and to reflect the type of data available. The following table provides a list of the changed location identifiers.

Table 5: Model Updating of Certain Location Identifiers

Old Value	New Value
A11	ANC
A80	ATL
A90	BOS
D01	DEN
D10	DFW
D21	DTW
HCF	HNL
I90	IAH
L30	LAS
M87	ATL
MCC	NCT
O90	NCT
P31	PNS
P50	PHX
R90	OMA
S46	SEA
S56	SLC
ZHN	HNL

We then join the Terminal SDP cost table with the ATADS activity tables (instrument operations and tower operations), the ETMS activity tables (ETMS operations and ETMS associated operations), the table assigning SDPs to metropolitan areas, and the EMDF, which provides the facility type and name. There are multiple steps in the processing of ETMS and ATADS data. The redefinition of some facilities to make the activity and CAS data reflect the same entity leads to small differences between the final non-ETMS counts and those that are reported as the starting point for the analysis. The differences are not material and are generally well under one percent.

For Radar Tower facilities, the CAS and ATADS tables are combined in an additional table. This is done to account for the fact that these facilities provide two different types of service, labeled “radar” or approach control service and “tower” service. A radar service represents guidance through terminal airspace and is provided by Radar Towers both to flights to or from its runways and also to flights to or from airports for which it is the Primary Facility, as defined in the EMDF table. A tower service represents approach or departure guidance, and instructions while on the

runway. All terminal facility costs are retained at the level of detail in the CAS SDP report and are also grouped into terminal types.

There are also terminal facilities that FAA does not operate or contract for, but where FAA nonetheless maintains some equipment or personnel. These are referred to as Non-FAA Facilities. All costs for Non-FAA Facilities are grouped together into a single record.

Non-ETMS terminal activity is assumed to consist of local and itinerant flights of a specific duration. While the taxation of ETMS flights is complex and described elsewhere, the non-ETMS GA flights are assessed only fuel tax. We assume that non-ETMS commercial operations pay the fuel tax of an average turboprop flight flying the same distance.

TERMINAL AIRSPACE TYPES

Terminal SDPs are classified as of one of several types, as shown in the table below.

Table 6: EMDF Terminal Facility Types

Facility Type	Facility Code	Description
TRACON	A	Provides radar coverage to the terminal area. Not an airport.
Radar Tower/TRACAB	B	Provides both radar coverage and a control tower at an airport.
Limited Radar Tower	C	Provides a control tower at an airport. Offers radar coverage through an associated TRACON.
Non-Radar Tower	D	An ATCT providing approach control service without the use of radar (e.g., use of radar vectors).
FAA VFR Tower	E	An ATCT providing takeoff and landing services only. It does not provide approach control services. May use radar.
Non-FAA Facility	F	Facility which is not operated by FAA. In some cases, FAA may have equipment or personnel at such facilities, and thus generate costs.
VFR Tower, Contracted	G	Tower where controllers are provided under contract to FAA, but where FAA is responsible for all other ATC costs.
ARTCC / CERAP	H	An ARTCC is an en route facility, but in a few instances (such as San Juan, PR), they are co-located with a CERAP and provide terminal services.

Activity Definitions for Terminal SDPs:

- ➔ **Instrument Operations** – Count of Instrument Operations at the facility, from ATADS

- **Tower Operations** – Count of Tower Operations at the facility, from ATADS
- **ETMS Operations** – The number of flights originating or terminating at that SDP
- **ETMS Associated Operations** – The Number of flights originating or terminating at airports for which the SDP provides terminal airspace services. This includes the SDP itself.

For example: Newark (EWR) is a Limited Radar Tower (facility code C). Flights arriving at or departing Newark Airport receive terminal airspace guidance from the New York TRACON (N90, facility code A). These flights are ETMS Associated Ops for N90.

The following figures illustrate how the ETMS and ATADS traffic data are used to account for all activity at each SDP.

Figure 4: Illustration of the Relationships Between ATADS Tower, ATADS Instrument and ETMS Counts by Facility Type

ATADS Instrument count represents total activity at TRACON SDPs

ETMS associated activity is a subset of this

TRACON Example:

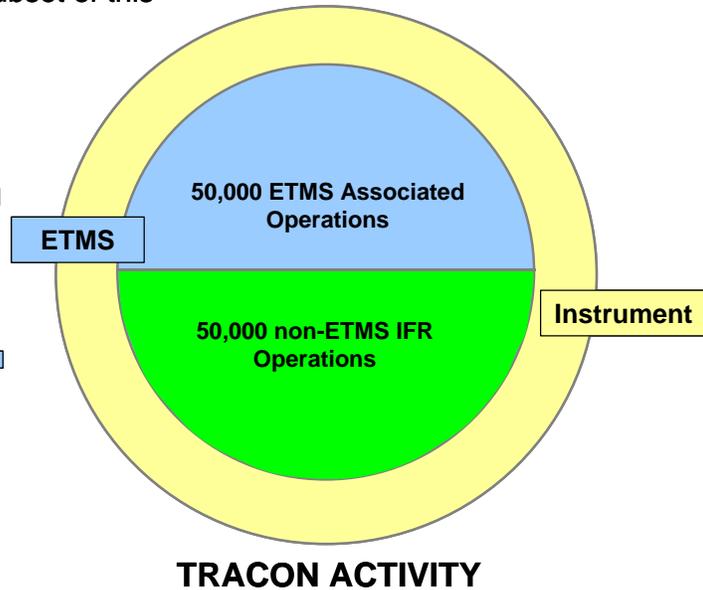
This SDP has

- ➔ 100,000 Instrument ops
- ➔ 50,000 ETMS Associated ops

In the Model, this would be represented as:

- ➔ 50,000 ETMS Associated ops
- ➔ 50,000 Non-ETMS IFR ops

Non-ETMS IFR flights are assigned terminal costs only



ATADS Instrument count represents total activity at Limited Radar Tower SDPs

ETMS activity is a subset of this

Limited Radar Tower Example:

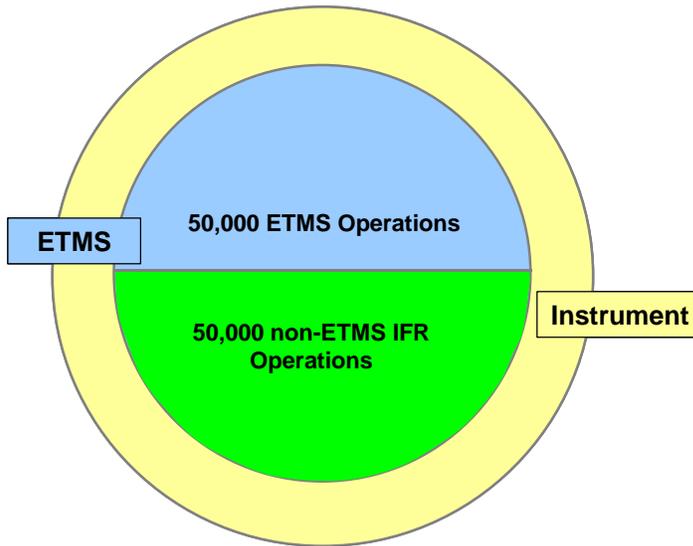
This SDP has

- 100,000 Instrument ops █
- 50,000 ETMS ops █

In the Model, this would be represented as:

- 50,000 ETMS ops █
- 50,000 Non-ETMS IFR ops █

Non-ETMS IFR flights are assigned terminal costs only



LIMITED RADAR TOWER ACTIVITY

ATADS Tower count represents total activity at Non-radar and VFR Tower SDPs

ETMS activity is a subset of this

Non-radar/VFR Tower Example:

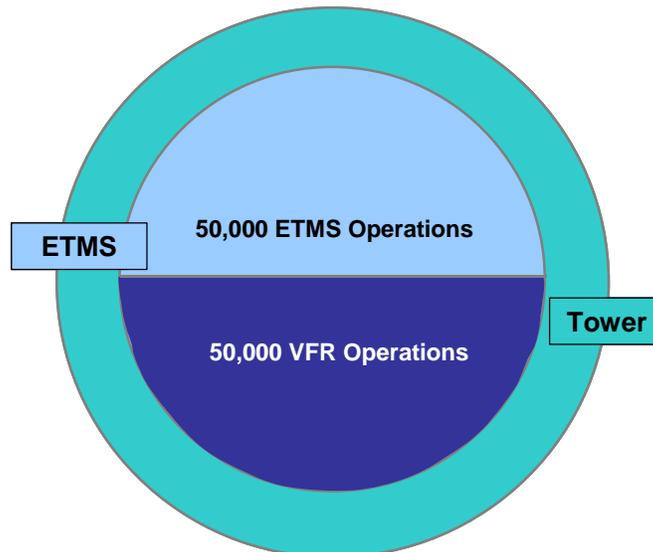
This SDP has

- 100,000 Tower ops █
- 50,000 ETMS ops █

In the Model, this would be represented as:

- 50,000 ETMS ops █
- 50,000 VFR ops █

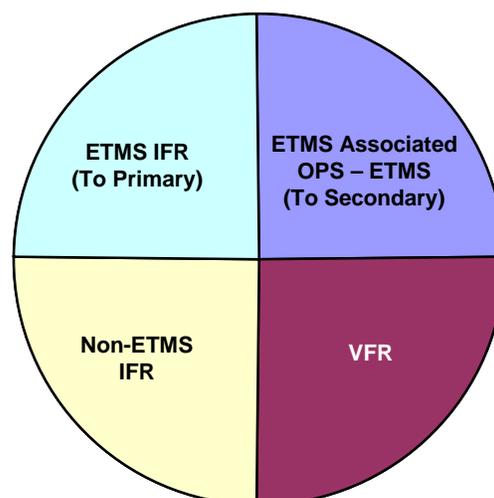
VFR flights are assigned terminal costs only



NON-RADAR/VFR TOWER ACTIVITY

- ➔ **ETMS Associated Operations represent total ETMS activity at a Radar Tower SDP**
 - ETMS Primary Operations represent ETMS flights to the Radar Tower's runways
 - ETMS Associated Operations minus ETMS Primary Operations represent ETMS flights to other airports for which the Radar Tower provides terminal airspace radar services

- ➔ **Radar Towers also handle non-ETMS traffic:**
 - ATADS Instrument Operations minus ETMS Associated Operations represents non-ETMS IFR traffic
 - ATADS Tower Operations minus ETMS Operations represents VFR traffic



RADAR TOWER ACTIVITY

PRODUCING THE TERMINAL SDP DATA

The data prepared in the steps above are combined together and additional fields are calculated, in the following way. A record is produced for each terminal SDP, and the following steps are performed:

1. CAS cost percentages are calculated (i.e., the percentage of SDP costs that each CAS cost level and cost element represent)
2. Non-ETMS IFR and VFR operations are divided among engine types, based on percentages in an FAA study of General Aviation activity.⁹
3. The fuel tax incurred by non-ETMS IFR and VFR operations is calculated, based on the number of operations and ATADS user type.

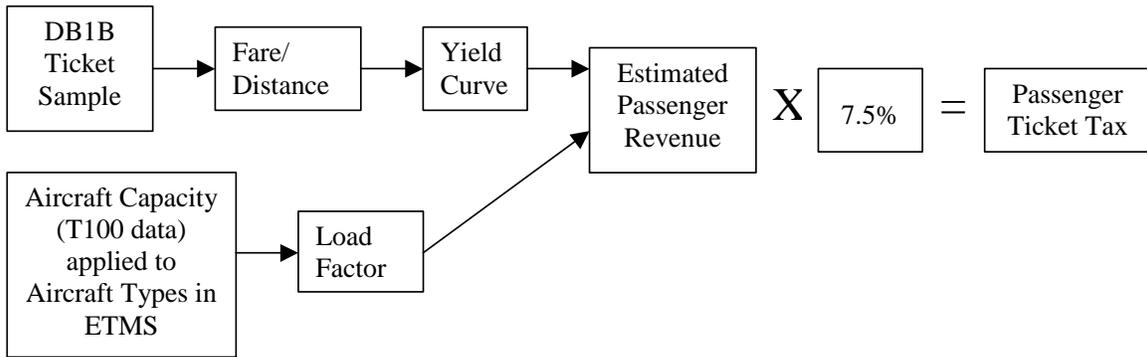
USER TAXES

User taxes vary by user type. Passenger and cargo taxes are paid by the ultimate consumer; the airline acts as a collection agent for the government. Fuel taxes are paid by the aircraft operator and are collected from the operator or the entity that sold the fuel.

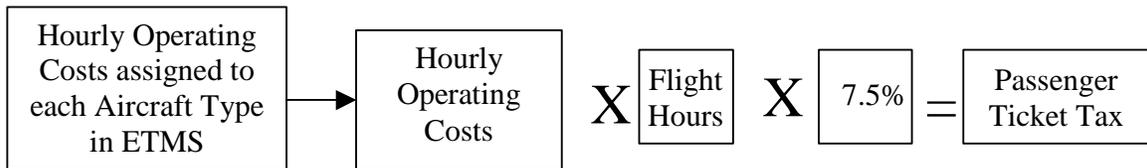
⁹ *General Aviation and Air Taxi Activity Survey*, February 2003, Table 1.4.

For Commercial and Air Taxi users, domestic flights generate (using FY 2004 rates):

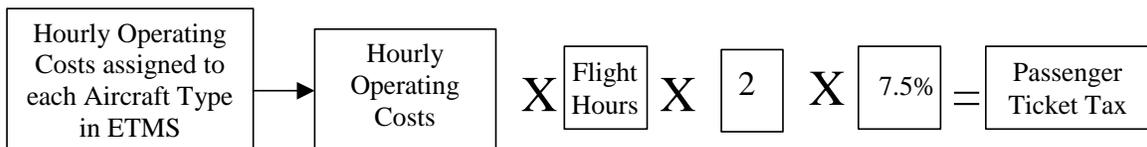
- ➔ **Passenger Ticket Tax** – A percentage of the estimated fares collected. The rate is 7.5% for years in the model.



- For user groups 14.PAX and 17.PAX, passenger tax = 7.5% of operating cost¹⁰ (revenue surrogate):



- For user group 18.PAX, passenger tax = 7.5% x 2 x operating cost (charter rate estimate)

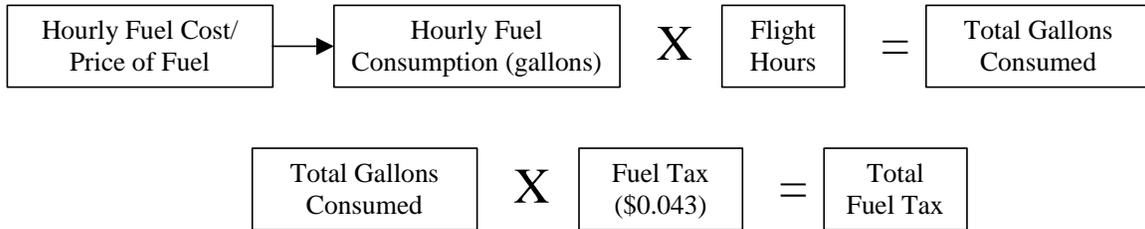


- ➔ **Fuel Tax** – A fixed amount per estimated gallon consumed. The rate is 4.3 cents for years in the model, and is applied to only domestic flights. Fuel gallons consumed are estimated by dividing hourly fuel cost¹¹ by price of

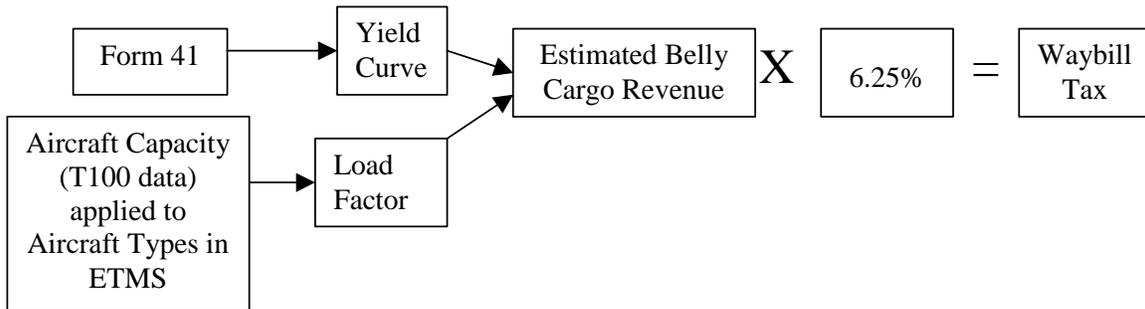
¹⁰ Source: "Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs, December 2004" (draft).

¹¹ Source: "Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs, December 2004" (draft).

fuel¹². This gives us hourly fuel burn which is then multiplied by number of flight hours and fuel tax (4.3 cents):



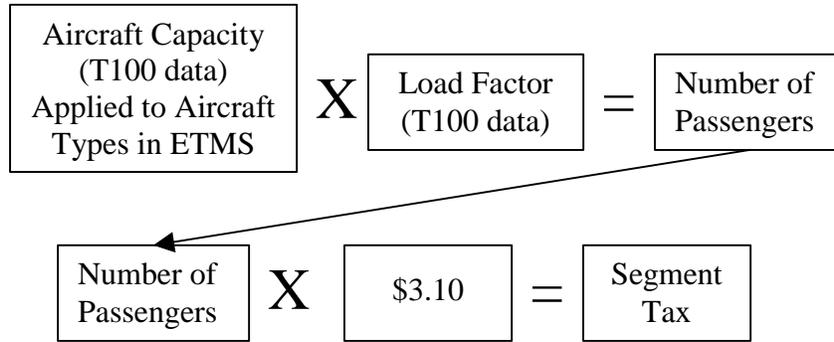
→ **Waybill Tax** – A percentage of the estimated revenue collected on belly cargo (freight transported in the hold of passenger aircraft). The rate is 6.25% for years in the model. It only applies to air cargo where the origin and destination are both in the U.S.



→ **Segment Tax** – There may also be a **Segment Tax**, if neither end of the flight is to an airport designated “rural”¹³ by the IRS. This is a flat fee per passenger, per flight segment, and varies by year (\$3.10 for FY04). Flights to or from Alaska or Hawaii are exempted from the Segment Tax, and instead assessed an Alaska-Hawaii Departure Tax on each departing passenger. This varies by year (\$6.90 for FY04).

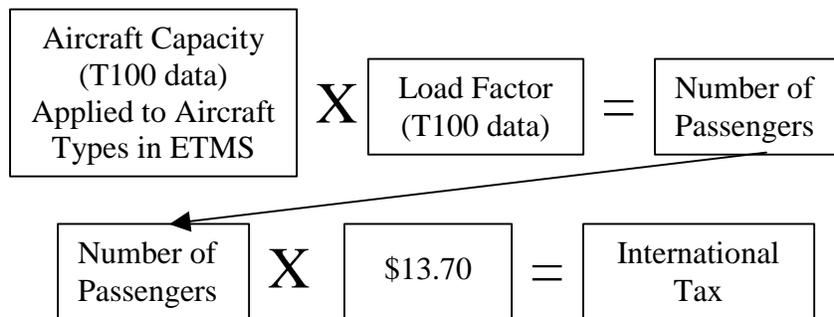
¹² Around \$1.0197 in FY04

¹³ “An airport is a Rural Airport for any calendar year if, during the second preceding calendar year, there were fewer than 100,000 commercial passengers departing by air from such airport, and such airport either (1) is not located within 75 miles of an airport from which at least 100,000 commercial passengers departed by air during such second preceding calendar year or (2) was receiving essential air service subsidies as of August 5, 1997, the date of enactment of the Taxpayer Relief Act of 1997” (Source: “US Tax on Air Transportation”, ARC Industry Agents’ Handbook, Section 7.2, page3.)

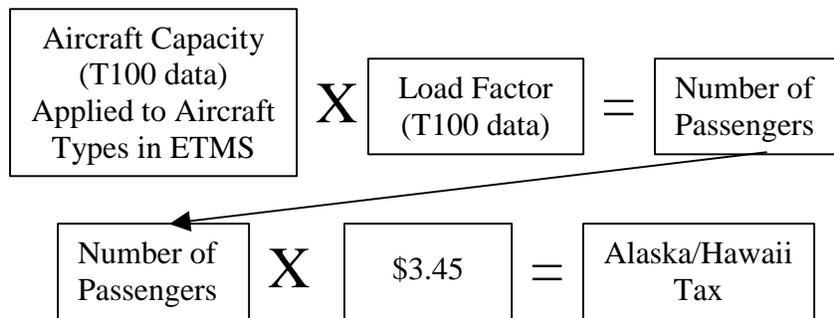


For Commercial and Air Taxi users, international flights pay:

- **International Arrival or Departure Tax**— This is a flat fee per passenger, and is set at \$13.70 for FY04 in the model.

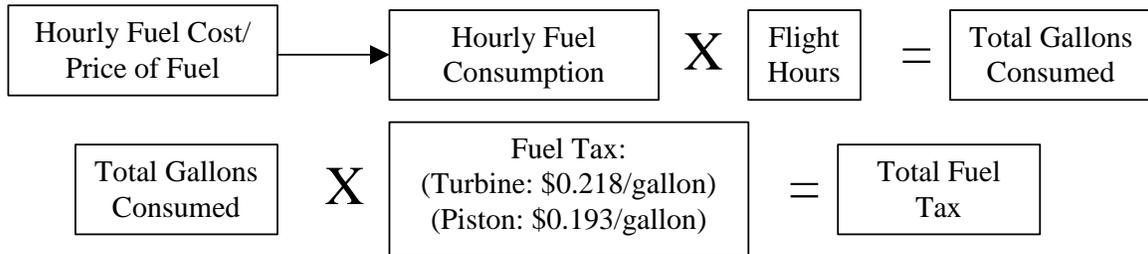


- **Alaska/Hawaii Passenger Tax**— This is a flat fee per passenger and is set at \$3.45 for FY04. The number of passengers is estimated using aircraft capacity and load factors on relevant flights:



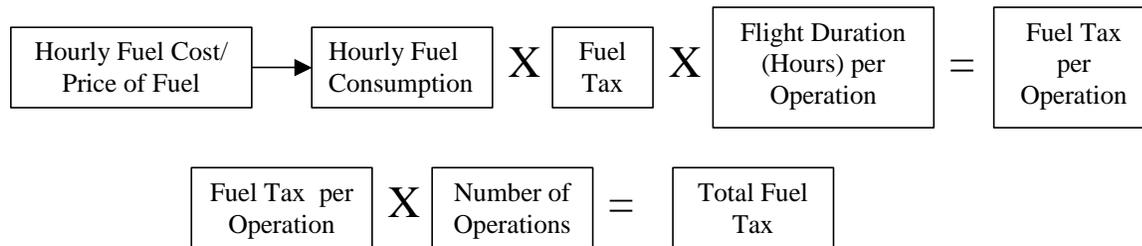
For Freight users, domestic flights pay **Waybill Tax**, a percentage of the estimated revenue collected (based on cargo yield curve). Set at 6.25% for years in the model. There are no aviation excise taxes applied to international all cargo flights. Domestic flights by commercial freight users also pay 4.3 cent per gallon commercial fuel tax discussed above.

General Aviation flights pay a fuel tax, a fixed amount per estimated gallon consumed. For years in the model, rates are set at 21.8 cents for jet fuel (used by aircraft with jet or turboprop engines) and 19.3 cents for aviation gasoline (used by aircraft with piston engines), to reflect FY 2004 rates. Fuel gallons consumed are estimated by dividing hourly fuel cost¹⁴ by the price of fuel¹⁵. This gives us hourly fuel burn, which is then multiplied by number of flight hours and fuel tax:



Other user types – Military, Other (civilian government) and Unknown, are not assessed taxes. There are also tax exemptions for flights used in resource exploration and medical transportation.

Non-ETMS GA operations are also assessed fuel taxes. General Aviation non-ETMS operations are divided among engine types, based on percentages in a study of General Aviation activity.¹⁶ A weighted-average hourly fuel consumption rate for each engine type, fuel tax rates and an assumed per-operation flight duration are used to calculate an estimated fuel tax per operation.¹⁷



For Commercial non-ETMS operations, the average fuel tax per mile for passenger ETMS flights with turboprop aircraft is calculated. This per-mile tax rate is

¹⁴ Source: “Economic Values for Evaluation of Federal Aviation Administration Investment and Regulatory Programs, December 2004” (draft).

¹⁵ In FY 2004 prices for general aviation fuel were about \$2.85 per gallon for turbine engine fuel, and \$3.00 per gallon for piston engine fuel (aviation gasoline).

¹⁶ General Aviation and Air Taxi Activity Survey, February 2003.

¹⁷ There also is an adjustment made because some aircraft have a Supplemental Type Certificate to use auto gas. The taxes paid on this fuel do not go into the Airport and Airway Trust Fund.

applied to an assumed per-operation flight distance to calculate an estimated fuel tax per operation. Military non-ETMS operations are not assessed tax.

$$\left(\frac{\text{Total Fuel Taxes}}{\text{Total Miles Flown}} \right)^* \rightarrow \text{Fuel Tax per Mile} \times \text{Non-ETMS Flight Miles} = \text{Total Fuel Tax}$$

*This calculation is based on ETMS flights on commercial turboprop aircraft.

Note that for purposes of taxation, the US consists of the fifty states and the District of Columbia. US territories are outside of the US Customs zone and are treated as international points in the model.

APPENDIX 1: USER GROUP DETAILS FOR ETMS DATA

COMMERCIAL PASSENGER TRANSPORTATION

US Commercial Carriers - Passenger Transportation

This User Group is composed primarily of large, scheduled passenger carriers and low cost passenger carriers. Large commercial carriers representative of this user group are:

- American Airlines
- Delta Airlines
- United Airlines
- Northwest Airlines
- US Airways
- Continental Airlines
- Alaska Airlines
- Hawaiian Airlines
- Continental Micronesia
- North American Airlines
- Southwest Airlines.
- America West Airlines
- Airtran Airways
- Jetblue Airways
- American Trans Air
- Frontier Airlines
- Spirit Airlines
- Sun Country Airlines
- Midway Airlines
- National Airlines

Foreign Passenger Carriers

Commercial passenger carriers whose country is other than US are identified as foreign passenger carriers. Some representative carriers in this category are:

- Air Canada
- Air Canada Regional Inc.
- British Airways
- Compania Mexicana De Aviacion, S.A.
- Deutsche Lufthansa, A.G.

- Air France
- Aerovias De Mexico, S.A. De C.V.
- Japan Air Lines Company, Ltd.
- Westjet Airlines Ltd, etc.

Regional Passenger Airlines

Regional passenger airline group includes carriers with scheduled operations that are not already classified as commercial passenger carriers. The following list comprises of representative carriers with the most flights:

- American Eagle, Inc.
- Sky West Aviation, Inc.
- Continental Express/ Air Mike Express
- Comair, Inc.
- Atlantic Southeast Airlines, Inc.
- Mesa Aviation Services, Inc.
- United Express
- Mesaba Aviation
- Chautauqua Airlines, etc.

All ETMS flights by carriers classified as regional passenger airlines are further segregated by aircraft engine and seating capacity into the following subcategories:

- Turboprop
- Jets less than 60 seats
- Jets with 61-90 seats
- Jets more than 90 seats
- Piston Commuter

For reporting purposes turboprops and pistons are grouped together and all jets with more than 60 seats are also grouped together.

Charter Operators of US Carrier Aircraft Passenger & Freight

The following list includes all carriers classified as charter operators:

- Ryan International Airlines
- USA 3000 Airlines
- Pace Airlines
- Champion Air
- TransMeridian Airlines
- World Airways Inc.
- Omni Air Express, Inc.

- Miami Air International, Inc.
- Falcon Air Express
- Pacific Airlines Holding Co.

Military or Government Charter of Foreign Carrier Aircraft PAX and Freight

There are currently no carriers classified in this group so we do not report it.

COMMERCIAL CARGO TRANSPORTATION

US Commercial Freight Carriers

All flights by US freight carriers on aircraft with equivalent of 60 or more seats. Carriers representative of this User Group are:

- Federal Express Corporation
- United Parcel Service Company
- U S Check Airlines
- Airborne Express, Inc.
- Astar Air Cargo
- Quest Diagnostics

Foreign Freight Carriers

Foreign cargo carriers such as:

- Nippon Cargo Airlines Co., Ltd.
- Transportes Aereos Mercantiles Panamericanos S.A., `Tampa`
- Cargolux Airlines International
- Avialeasing Aviation Company
- China Cargo Airlines Ltd.
- Cargojet Airways Ltd
- Allcanada Express Ltd, etc.

Regional Airline - Freight

All flights by US freight carriers on aircraft with equivalent of less than 60 seats. Following is a list of representative carriers:

- Ameriflight, Inc.
- Flight Express
- Corporate Air
- Empire Airways

- Mountain Air Cargo, Inc.
- Wiggins Airways (Norwood, MA)

Charter-Contract Flight on US Commercial Freight Carrier

There are currently no carriers in this group so this user group is not reported.

Charter-Contract Flight on Foreign Commercial Freight Carrier

There are currently no carriers in this group so this user group is not reported.

SMALL COMMERCIAL / GA

Fractional Ownership Programs

Fractional ownership providers are identified based on the following list of largest providers:

- NetJets
- Flight Options
- FlexJets
- CitationShares
- Jet Linx Aviation
- Summit Jets
- Fractionair
- Bombardier Business Jet Solutions

The remaining fractional ownership providers are identified by looking up aircraft N numbers in OPSS and identifying those classified as "Fractional (91K)" operators. We do not include in this group fractional ownership programs that are operated solely as Part 135 operations.

Non-Scheduled Part 135 Operators - Passenger Transportation

Carriers in this category provide mostly charter operations (as declared on companies' websites). The OPSS aircraft list is used in identifying Part 135 operators. Some aircraft N-numbers have a prefix "TN" which is also used in identifying non-scheduled commercial operators.

It should be noted that many charter carriers offer both cargo and passenger transportation, sometimes on the same flight; such carriers are taxed passenger taxes with cargo taxes on belly cargo.

Non-Scheduled Part 135 Passenger Carriers, Large Aircraft

All ETMS flights by operators identified as not-scheduled Part 135 passenger carriers are then extracted if flown on aircraft with 60 or more seats.

Non-Scheduled Part 135 Freight

Carriers in this category provide mostly charter operations (as declared on companies' websites). OPSS aircraft list is used in identifying Part 135 operators. Some aircraft N-numbers have a prefix "TN" which is also used in identifying non-scheduled operators.

PRIVATE AVIATION

General Aviation

This user group is comprised of Part 91 and other non-commercial operators, flight schools, aircraft manufacturers (test flights), etc. All ETMS flights classified as general aviation are further classified by aircraft engine into the following subcategories:

- Turbojet Airplane
- Turboprop Airplane
- Piston Airplane
- Rotor (all helicopters and related aircraft)
- Piston Helicopter

For reporting purposes, the above mentioned subcategories are grouped into more aggregate subgroups:

- **Turbine Airplane (turbojets and turboprops)**
- **Piston Airplane**
- **Rotor**

Air Ambulance

All flights with "LN" flight prefix are classified as Air Ambulance

Resource Extraction

Flights involved in resource extraction are exempt from aviation excise taxes. This is based on operator identity.

Since Air Ambulance and Resource Extraction user groups are both tax exempt we report them together under "General Aviation - Tax Exempt" user group.

OTHER

Government/Military

The following are examples of users identified as government operators:

- United States Department of Justice Prisoner and Alien Transportation Service
- US Air Force Auxiliary, Civil Air Patrol
- FINFO Flight Inspection Aircraft
- Kansas State University
- United States Department of the Interior
- State of Oklahoma, Department of Public Safety
- Federal Aviation Administration
- Federal Aviation Administration (ATO-330)

Military

All military flights are classified under “Military” user group. Though the model maintains the distinction between government and military operators, for reporting purposes we merge the two groups together.

Not Enough Information to Classify

Not enough information can be developed from ETMS records to classify the users conducting these flights.

ATTACHMENT A

Sources of Data Used*

Source File	Description of Data	Use in the Analysis	Limitations
Cost Accounting System (CAS)	Data for FY 2004 by Service Type and Service Delivery Point (SDP)	Determine ATO cost of service by location and service type.	Requires adjustments to put on same basis as required budget. Largest change is to reflect the F&E budget.
Enhanced Traffic Management System (ETMS)	File of all flights under control in En Route System	Measure usage of en route, oceanic and some terminal services.	Requires assignment of flights to detailed user groups. Use of approach control services tracked by relationship of FAA facilities serving specific origin-destination airports.
Air Traffic Activity Data System (ATADS)	File of operations/services produced at staffed facilities	Used to track non-ETMS usage in the terminal environment.	Users are in broad groups. No data to describe individual flights.
Aircraft Identity File	ETMS and other data sets to determine aircraft attributes	Drives estimates of taxes that depend on aircraft capacity, load factor, revenue and fuel consumption.	Not possible to identify small number aircraft; no identity for non-ETMS activity beyond broad user type.
Aircraft Operating Costs and Related Data	Aircraft operating cost estimates from Form 41, Conklin deDecker and military services.	Used in calculation of aircraft operating costs, fuel consumption rate, and related measures.	Not available for some aircraft.
Extended Master Decode File (EMDF)	Decode File for ATO Facility Relationship	Terminal type classification. Relationship between airport used and ATO terminal facilities used.	When ATO facilities change category, EMDF, ATADS, and CAS updates may not be available at same time.
U.S. DOT Data Bank 1B and air cargo operator financial data	Ten percent sample of airline tickets reporting fares and revenues for all cargo operator. Data adjusted to flight segment level.	Estimate unit revenues to use in conjunction with aircraft type to estimate revenue-based taxes.	Sparse financial data for foreign carriers; estimation of yield curves at aggregate level, and limited data for all cargo operators.

*See MS Excel workbook and data description document for more detail.

ATTACHMENT B

Data Dictionary	
Air Carrier (AC)	An aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds carrying passengers or cargo for hire or compensation. This includes US and foreign flagged carriers.
Air Route Traffic Control Center (ARTCC)	A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance service may be provided to VFR aircraft. Commonly referred to as an Enroute Center.
Air Taxi (AT)	Aircraft designed to have a maximum seating capacity of 60 seats or less or a maximum payload capacity of 18,000 pounds or less carrying passengers or cargo for hire or compensation.
Aircraft Contacted	Aircraft with which the flight service stations have established radio communications contact. One count is made for each en route landing or departing aircraft contacted by a flight service station regardless of the number of contacts made with an individual aircraft during the same flight. A flight contacting five FSSs would be counted as five aircraft contacted.
Airport Operations	The number of arrivals and departure from the airport at which the airport traffic control tower is located. There are two types of operations: local and itinerant. 1. Local operations are performed by aircraft which: (a) operate in the local traffic pattern or within sight of the airport; (b) are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the airport; (c) execute simulated instrument approaches or low passes at the airport. 2. Itinerant operations are all aircraft operations other than local operations.
Airport Traffic Control Tower (ATCT)	A terminal facility which, through the use of air/ground communications, visual signaling, and other devices, provides air traffic control services to airborne aircraft operating in the vicinity of an airport and to airport operating on the movement area. The following tower types are used in this analysis: - FAA ATCT facilities: Are ATCTs providing anywhere from full radar approach control services to low activity VFR air traffic control services. These towered airports are staffed by FAA air traffic controllers. These include: -- Non-Radar: An ATCT providing approach control service without the use of radar (e.g., use of radar vectors). -- Limited Radar: An ATCT that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility. It provides radar ATC service to aircraft operating in the vicinity of one or more civil and/or military airports in the terminal area. -- VFR: An ATCT providing takeoff and landing services only. It does not provide approach control services. -- Technical Operations Maintained SDP: Where FAA owns facilities and has operating and maintenance costs, but where there is not a tower staffed by FAA or Contract Tower Program Controllers. - FAA-contracted: Are low activity VFR ATCTs providing air traffic control services for a municipality or subdivision thereof while under contract to the FAA. The municipality has the option of using its own employees or subcontracting for these services. - Non-FAA: Non-federal low activity VFR ATCT providing air traffic control services for a municipality or subdivision thereof which IS NOT under contract to the FAA.
Terminal Radar Approach Control (TRACON)	An FAA air traffic control facility using radar and air/ground communications to provide approach control services to aircraft arriving, departing, or transiting the airspace controlled by the facility. Service may be provided to both civil and military airports.
ATADS	Air Traffic Activity Data System
ATADS Instrument Operations	Arrivals or departures of an aircraft in accordance with an IFR flight plan (Instruments Operations only) or special VFR procedures (Stage III/TCA Operations only) or an operation where IFR separation between aircraft is provided by a terminal control facility. (The Instrument Operations Summary selection combines the Instrument Operations with the Stage III/TCA.) Instrument Operations are reported in four categories, described separately: Air Carrier, Air Taxi, General Aviation and Military.
ATADS Tower Operations	The number of arrivals and departures from the airport at which the airport traffic control tower is located. Tower Operations are reported in four categories, described separately: Air Carrier, Air Taxi, General Aviation and Military.
Automated Flight Service Station (AFSS)	See Flight Service Station.
ETMS	Enhanced Traffic Management System. The ETMS is a real-time aircraft tracking system being used operationally by all FAA air traffic control personnel to direct aircraft flow in the United States NAS. Goals of the ETMS are to maintain safe airways, minimize delays, and conserve energy. Four measures of activity are shown for flights in ETMS: flights, flight hours, flight miles and GCR miles (described separately).
ETMS Operations	The number of flights which departed or arrived at that terminal SDP.
ETMS Associated Operations	The number of flights which departed or arrived at that terminal SDP and all of the terminal SDPs for which it provides terminal airspace radar coverage. In the case of a flight to Newark, EWR would be credited with one ETMS Operation, and N90 would be credited with one ETMS Associated Operation.
Flight Plans Originated	The first flight service station which receives a flight plan, a Special VFR clearance request, or a flight plan en route change, as long as it is not relayed by means of an automated installation or if the en route change does not impact the original route or destination. It does include an activated prefiled flight plan.
Flight Service Station (FSS)	Air traffic service facilities which provide preflight pilot briefings and en route communications with VFR flights, assist lost IFR/DVFR & VFR aircraft, assist aircraft having emergencies, relay air traffic control clearances, originate, classify, and disseminate NOTAMS, broadcast aviation weather and national airspace system information, receive and close flight plans, monitor radio navigational aids, notify search and rescue units of missing VFR aircraft and operate the national weather teletypewriter systems. In addition, at selected locations, FSSs take weather observations, issue airport advisories, administer airmen written examinations, and advise Customs and Immigration of transborder flights.
GCR Miles	Great Circle Route miles. The Great Circle Route is the shortest distance between two points on a sphere, such as the earth. GCR miles represent what an ETMS flight's distance would have been had it traveled a GCR between its entry and exit points of an ARTCC's airspace.
General Aviation (GA)	Takeoffs and landings of all civil aircraft, except those classified as air carriers or air taxis.
Military	All classes of military takeoffs and landings at FAA and FAA-contracted facilities.
Pilot Briefings	A service provided by all types of flight service stations to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information, and other items as requested.
Service Area	The FAA's Air Traffic Organization (ATO) combined the FAA's Research and Acquisitions, Air Traffic Services and Free Flight offices into one performance-based organization. The employees of the organization are the service providers and ATADS collects data from two of the ten services - Terminal and En route (domestic and oceanic).
Terminal Radar Approach Control (TRACON)	An FAA air traffic control facility using radar and air/ground communications to provide approach control services to aircraft arriving, departing, or transiting the airspace controlled by the facility. Service may be provided to both civil and military airports.
TAXES	
Passenger Tax	A percentage of the estimated passenger fares collected. The rate is 7.5%.
Segment Tax	A flat fee per passenger, per flight segment. Assessed at \$3.10.
International Passenger Tax	This is the international departure tax. This is a flat fee per passenger, and is set at \$13.70 on international arrivals and departures.
Alaska-Hawaii Passenger Tax	This is the Alaska-Hawaii departure tax. This is a flat fee per passenger, and is set at \$3.45 on arrivals and departures between the mainland and Alaska or Hawaii.
Waybill Tax	A percentage of the estimated revenue for transportation of cargo. Set at 6.25%.
Commercial Fuel Tax	A fixed amount per estimated gallon consumed in commercial flight operations. The rate is 4.3 cents.
GA Turbine Fuel Tax	A fixed amount per estimated gallon of jet fuel consumed in general aviation flight operations. The rate is 21.8 cents.
GA AvGas Tax	A fixed amount per estimated gallon of aviation gasoline consumed in general aviation flight operations. The rate is 19.3 cents.

ATTACHMENT C

Cost Element Definitions in the Service Delivery Points (SDP) Reports		
CAS CATEGORIES	CAS ELEMENTS	CAS DESCRIPTION
Level 1 Facility		Includes all direct and non-labor costs related to providing Service Delivery Point (SDP) service that are controllable by the local facility managers at the SDP facility level.
	Air Traffic Control	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, for SDP personnel performing Air traffic control duties.
	Traffic Management	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, for SDP personnel performing traffic management duties, i.e. traffic management specialists and supervisors.
	Operational Support	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, for SDP personnel performing operational support duties, i.e. Ops manager, training specialists, Support specialists, etc.
	Management	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc., and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, for SDP personnel performing facility management duties, i.e., Facility manager and assistant manager.
	Administrative Support	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, for SDP personnel performing administrative support duties, i.e. secretaries, budget specialists, etc.
	Accruals and Adjustments	Accounting accruals for monthly reporting from a bi-weekly pay system.
	Air Traffic Operations PC&B	Labor costs associated with personnel compensation and benefits costs of controllers, supervisors and staff assigned to ATC facilities. Sum of above six lines.
	SSC Labor	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, from any SSC cost center with personnel performing maintenance and control of any equipment or function relating to the SDP.
	SMO Labor	Pay & Benefits, including all paid labor object classes in DELPHI (11xxx) including overtime, holiday, shift differentials, etc and government contribution object classes in DELPHI (12xxx) including health and life insurance contributions, and retirement system contributions, from any SMO cost center for personnel providing oversight and support to SSC personnel performing maintenance and control of any equipment or function relating to the SDP.
	Accruals and Adjustments	Accrual transaction for labor not yet paid to correlate bi-weekly pay period with monthly CAS reporting.
	Technical Operations PC&B	Pay & Benefits for any SSC and SMO cost center with personal performing maintenance and control of any equipment or function relating to the SDP. Sum of above three lines.
	21XXX Travel	All facility locally paid expenses with DELPHI accounting system Travel object classes in the 21000 series, includes travel, per diem, and rental car expenses for air traffic SDP facility employees.
	22XXX Transportation	All facility locally paid expenses with DELPHI accounting system Transportation object classes in the 22000 series, includes mail, FedEx, household goods moving or a change of station for air traffic SDP facility employees.
	23XXX Communications	All facility locally paid expenses with DELPHI accounting system Communications object classes in the 23000 series, includes cell phones, and pager services for air traffic SDP facility.
	24XXX Printing and Copying	All facility locally paid expenses with DELPHI accounting system Printing and Copying object classes in the 24000 series, includes printing and copying services for air traffic SDP facility.
	25XXX Other Services	All facility locally paid expenses with DELPHI accounting system Other Services object classes in the 25000 series, includes contracts for office equipment services and repairs and any other locally paid contract services for air traffic SDP facility.
	26XXX Supplies	All facility locally paid expenses with DELPHI accounting system Other Services object classes in the 26000 series, includes office supplies and any other locally paid supplies to support the air traffic SDP facility.
	31XXX Equipment	All facility locally paid expenses with DELPHI accounting system Other Services object classes in the 31000 series, includes computer purchases or other local equipment or furniture purchases to support the air traffic SDP facility or employees.
	XXXX All Other	All facility locally paid expenses with DELPHI accounting system Other Services object classes not included in the above categories to support the air traffic SDP facility.
	ATC Non-Labor	Non-Labor includes all costs expended by the local air traffic SDP cost center that are not labor related. Sum of the above 8 lines.
	ATC ab initio Training	Training and travel Costs for the provision of Agency-wide centralized training services for air traffic controllers.
	O&M Training	Training and travel costs identified by the FAA Academy to provide NAS equipment and system training to system specialists.
	Contract ATC Training	Costs for special training to controllers due to site specific conditions.
	Training	Costs for the provision of training. Sum of above three lines.
	O&M Non-Labor	Non-Labor includes all costs expended by the local SMO and SSC cost center that are not labor related as defined by Dafis object classes 14000 through 99000 (Same categories as 21xxx, 22xxx, etc., above).
	Telecommunications	Cost for providing internal and external operations communications connectivity for services between the SDP and other facilities.
	Flight Inspection Services	Costs identified by flight inspection office that are associated with ensuring the safety and compliance of electronic navigation equipment and procedures.
	Utilities	Cost for providing energy to the FAA facilities.
	Logistics	Costs as identified by the FAA Logistics Center associated with maintaining stocks and stores of spare parts for issuance to the field for performing facility refurbishment services and providing on-site repair services.

ATTACHMENT C (Continued)

Level 2 Service Unit	Capital Equipment Acquisition*	Total costs for purchase, installation of equipment as well as the modernization of the ATC system and infrastructure in the NAS.
	Contract Weather	Costs for weather personnel at the 21 ARTCC'S who provide timely and accurate weather information to controllers and pilots
	Contract Weather Observations	Costs for services performed in the Terminal environment where remote contract weather observers provide periodic reports to Air Traffic Control Towers, TRACONS, and CERAPS for use in Terminal air traffic control.
	Contract Towers	Costs for contract towers.
	DUATS	Direct User Access Terminal. Costs for automated information and flight planning services. Cost is shared equally by Flight Service Station SDPs.
	Capital Equipment Installation	Costs as identified by the Facilities & Equipment (F&E) cost centers for purchase, installation of equipment as well as the modernization of the ATC system and infrastructure in the NAS.
	Depreciation and Capital Lease Amortization	The proportionate amount of an asset's acquisition costs expensed over its estimated useful life and assigned to the period during which it is in use.
Level 3 - ATO		Includes all costs that are systemwide within the Air Traffic Organization (ATO) level and allocated to the SDP facility level.
	ATC Systems Command Center	ATC System Command Center. Costs associated with traffic management services provided from the centralized facility at Herndon, VA.
	Atlantic Operations Control Center	All costs, labor and non-labor, associated with NAS management/maintenance services for the equipment and services provided by the Eastern, New England, and Southern Regions.
	Mid-States Operations Control Center	All costs, labor and non-labor, associated with NAS management/maintenance services for the equipment and services provided by the Central, Great Lakes and Southwestern Regions.
	Pacific Operations Control Center	All costs, labor and non-labor, associated with NAS management/maintenance services for the equipment and services provided by the Alaskan, Northwest, and Western-Pacific Regions.
	Operational Control Centers	Costs for the overall coordination of the AF NAS management. Sum of above three lines
	Workers Compensation	Recognition of the appropriate level of liability related to workers compensation as identified by the Department of Labor.
	National Network Control Center	Costs for the sharing of the major data network management system. Sharing of flight planning data and weather information between locations with a traffic management presence.
	Contract Maintenance	Service from commercial vendors to maintain certain hardware and software items used in the NAS.
	Charting	Cost for providing aeronautical charts and approach procedures.
	RE&D	Research and development expenses for the FAA to sustain the technology currently deployed in the field.
	ATO Regional Overhead	Costs of ATO support, labor and non-labor, services provided to the field by personnel residing at regional offices.
	ATO Headquarters Overhead	Costs of ATO support, labor and non-labor, services provided to the field by personnel residing at FAA headquarters.
Level 4 - FAA	FAA Regional Overhead	Costs of FAA general and administrative services provided to the ATO line of business by personnel residing at FAA regional headquarters offices.
	FAA Headquarters Overhead	Costs of FAA general and administrative services provided to the line ATO of business by personnel residing at FAA headquarters and the Aeronautical Center.
	Medical	Costs for regular medical exams as well as drug and alcohol testing for direct controllers and technicians.
	Gain/(Loss)	Costs associated with adjustments made in order to recognize financial gains or losses on inventory and assets, reclassification or certain labor costs, accounts payable, and other miscellaneous adjustments.
	Accrued Liabilities	Adjustments made in order to recognize liabilities for retirement, pension, sick and annual leave, and others.
*Capital removed and replaced with F&E capital.		
Source: Costing Methodology Report, Development of En Route and Oceanic Air Traffic Control Services Cost, Arthur Andersen, May 2003, and Conversation with Tom Thornton.		