

Understanding Business Aviation's Costs

Overview

Whitepaper Series

- *A Primer on the Business Aviation Industry*
- ▶ **Understanding Business Aviation's Costs**
- *The True Cost of Commercial Air Travel*
- *Analyzing Your Air Travel Budget For Savings*

As companies continue to deal with travel budget pressures, travel managers are increasingly being consulted to help uncover and recommend potential areas for cost savings. However, determining the cost/benefit or financial justification of a travel budget item requires a thorough understanding of its components and one area of travel spending that has typically been little understood (and perhaps overlooked) is business aviation.

Business aviation, also referred to as private aviation or corporate aviation, is the use of general aviation (GA) aircraft via charter, jet card, fractional share, aircraft ownership or managed aircraft ownership to conduct business. Thousands of businesses and over 70% of S&P 500 companies¹ justify the use of business aviation for its flexibility to meet executive's time scheduling constraints, ability to access airports or cities not served directly by airlines, effectiveness in protecting travelers' privacy and security, and capacity to ship products or goods that are not otherwise easily transported.

While commercial airline fares are relatively easily understood and compared (caveat: recently introduced ancillary services and fees), business aviation costs are more complex and require a thorough understanding to perform an apples-to-apples comparison. This whitepaper provides an approach for understanding and breaking down traditional business aviation cost components to a \$ Cost Per occupied seat Mile (CPM) basis - a traditional air spending metric - for easier analysis and comparison. The goal of this white paper is to help travel managers, finance personnel, business owners, and anyone who may be considering air travel alternatives more easily understand and provide a basic financial comparison of air travel alternatives.

¹ NEXA Advisor's. *Business Aviation – An Enterprise Value Perspective*. Washington: NEXA Advisors, LLC, 2009.

what is not covered

This whitepaper does not cover many important factors (besides costs) that should be considered when selecting the right business aviation alternative for your needs. These include safety & security provisions, operational capabilities, aircraft type, travel requirements, maintenance standards, and insurance terms amongst many others. There are numerous resources and

organizations which can be consulted to provide more information on these subjects. A review of the publications listed at the end of this whitepaper will provide a good understanding of key factors to consider when choosing the right business aviation alternative for your or your company's travel needs.

fixed vs. variable costs

An analysis of any business aviation alternative first requires a basic understanding of fixed vs. variable costs of owning and operating a business jet. Regardless of your business aviation provider, both fixed and variable operating costs are accounted for when determining

rates and pricing. However, each business model - charter, jet card, fractional share, aircraft ownership or managed aircraft ownership - treats and passes along these costs in different ways as explained in this section.

Fixed Costs

Fixed costs are those that the operator and/or owner of the aircraft are committed to paying regardless of the number of flight hours the jet will be flown. Fixed costs are typically determined as annual costs and allocated on an hourly basis to the aircraft according to the # of hours the aircraft is flown. Generally, the three largest fixed costs are (1) aircraft financing, (2) aircraft insurance and (3) crew labor (pilot salary and benefits) expenses. While crew labor costs and aircraft insurance costs are relatively straightforward to understand, financing costs are complex and subject to a number of variables.

If your company owns or shares ownership in an aircraft or possesses a fractional share of

an aircraft, you can consult your financial personnel to determine how your company is calculating annual costs associated with aircraft debt financing. Depending on the age, type, and quality of aircraft as well as your organization's ability to recognize depreciation, service debt (i.e. secure favorable interest rates) and resell the aircraft at the end of its financing period (i.e. enjoy a high residual value), your company will recognize varying annual costs (or perhaps gains) from owning an aircraft asset throughout its lifetime.

In addition to crew labor expenses and insurance costs, the remaining fixed costs are those associated with aircraft overhead (excluding maintenance) and on-going investment in personnel. They include the following expenses:

- Hangar & office expenses
- Aircraft modernization & modification
- Crew Training
- Flight planning services
- Maintenance software
- Management fees

If your company owns or shares ownership, these expenses can be gathered from your flight department or management company.

Variable Costs

Variable costs are those that are directly attributed to operation of an aircraft and are only incurred as a result of flying the aircraft. Fuel costs represent the majority of variable operating costs and typically can account for between 50-75% total variable costs depending on fuel prices. Because of the unpredictable nature of fuel prices many charter, fractional, and jet card providers charge a separate fuel surcharge (discussed in section, Surcharges and Other Trip Costs) on top of quoted hourly rates based on the price of fuel on the day or week of operation.

The other key component of variable costs is associated with maintenance, both regular and periodic, of the aircraft. The most expensive maintenance costs are typically jet engine overhauls and inspections required

If you are enrolled in a fractional program, these expenses are all conveniently rolled up into your monthly management fee. Charter and Jet Card programs include fixed costs in their hourly rates thereby simplifying the cost gathering exercise further. Subsequently however, their quoted hourly rates will be higher than the variable hourly costs of operating the aircraft, as discussed in the next section.

on a periodic interval mandated by the engine manufacturer. Since both aircraft and engine maintenance costs are typically billed and calculated according to hours of aircraft operation, these can be calculated as hourly variable costs as well.

There are various sources of information on variable costs including from the aircraft and engine manufacturers themselves or independent sources listed at the end of this whitepaper. If your company owns or shares ownership, these expenses can be gathered from your flight department or management company. Fractional companies and jet card providers publish Flight Hour costs which include all variable costs associated with operation of your designated class of aircraft. Charter operators include both variable and fixed costs in their hourly rates.

hourly to per aircraft mile costing

Now that you understand fixed annual costs and variable hourly costs, the next step is to determine an overall hourly cost for usage of the aircraft. It's also good to point out at this step that different modes of business aviation are typically selected depending on the # of hours your company is expected to

utilize a business aircraft. These are also good projections to use if you own or share ownership of an aircraft and need to convert your anticipated fixed annual costs to hourly fixed costs. A sample 6 passenger seat, mid-size jet is used for this example:

	Full Aircraft Ownership	Managed/Shared Ownership	Fractional Ownership	Jet Charter/ Card
Annual Fixed Costs	\$1,200,000	\$1,000,000*	\$745,000*	N/A
Typical Annual Usage (Hours used for calculation)	250-400 Hrs	150-250 Hrs	100-200 Hrs	25-100 Hrs.
Hourly Fixed Costs = Annual Fixed Costs ÷ Annual Usage	\$3,000/Hr	\$4,000/Hr	\$3,725/Hr	\$0
Variable Operating Costs per Hour	\$1,900/Hr	\$1,900/Hr	\$3,600/Hr	\$8,750/Hr
Fixed + Variable Costs = Total Hourly Aircraft Cost	\$4,900/Hr	\$5,900/Hr	\$7,325/Hr	\$8,750/Hr

* includes management fees

The next step is to convert these hourly costs into per-aircraft-mile costs. If you have specific trips that you are analyzing, you can use the actual distance or duration of each trip; otherwise, you can use a typical trip segment length based on historical trip averages.

As is the case with variable and fixed costs for an aircraft, flying time on a particular segment length is determined primarily by the performance capabilities of a particular aircraft (e.g. cruise speed; climb and descent performance). Manufacturers and

other publications (listed at the end of the whitepaper) provide good average flight times inclusive of all aspects of a flight (taxi, takeoff, landing, cruise) so that you determine flight time and convert hourly costs to per aircraft mile costs. In this example, we'll use a trip length of 600 miles (for simplification, statute miles are used instead of nautical miles, however, most publications list aircraft performance times against nautical mile segment lengths) and a segment time of 1 hour and 30 minutes which includes taxi time):

	Full Aircraft Ownership	Managed/Shared Ownership	Fractional Ownership	Jet Charter/ Card
Total (Fixed + Variable) Hourly Aircraft Cost	\$4,900/Hr	\$5,900/Hr	\$7,325/Hr	\$8,750/Hr
Trip Flight Time	1:30	1:30	1:30	1:30
Total Trip Cost = Hourly Costs x Trip Time	\$7,350	\$8,850	\$10,988	\$13,125
Trip Length	600 miles	600 miles	600 miles	600 miles
Aircraft Cost/Mile = Trip Cost ÷ Trip Length	\$12.25/Mile	\$14.75/Mile	\$18.31/Mile	\$21.88/Mile

surcharges and other trip expenses

Depending on your chosen business aviation model and provider there may be additional surcharges and expenses for your particular trip. These should be paid close attention since they can significantly add to

the Total Trip Cost, in some case doubling it if the aircraft needs to be re-positioned between requested segments. Here are the most common types of trip surcharges and other expenses:

Trip Surcharges w/ definition

	Full Aircraft Ownership	Manager/ Shared Ownership	Fractional Ownership	Jet Charter/ Card
<u>Fuel Surcharges</u> – Depending on the fuel price used in the original charter, jet card, or fractional quoted hourly rates, the fuel surcharge makes up for the difference between the quoted fuel price and actual fuel price on the day or week of your trip. Aircraft owners generally pay for fuel as needed so do not incur surcharges unless specified by their management company.			●	●
<u>Re-positioning/Empty Leg Costs</u> – Aircraft may need to be returned to its home base between outbound and return segments of your trip. This will likely be the case if your trip is longer than 1 day, you are requesting a 1-way trip, or the aircraft's home base is not located at your intended point of departure. Fractional and Jet Card providers often include anticipated re-positioning costs in their hourly rates.	●	●		●
<u>Minimum Flight Time</u> – Most providers of business aviation will require a minimum daily usage of the aircraft, regardless of your intended trip flight time. Charter operators typically required a 2 hour minimum while Fractional and Jet Card provider mandate a 1 hour minimum.			●	●

<p><u>Crew/Overnight Charges</u> – If your trip involves an overnight stay and the aircraft is not re-positioned between outbound and return segments, there will likely be crew/overnight charges. These are lodging and incidental expenses of having your crew stay overnight at your trip destination or transportation costs to return your crew to their homebase. Overnight charges can range from \$300-\$400 per night per crew member. Charter Operators typically charge separately for this while Fractional and Jetcard providers build these charges into their hourly rates.</p>	●	●	●	●
<p><u>Catering & Service Charges</u> – If you have specific preferences for food/drink, flight attendants, in-flight telephone/internet service, or other supplies, these costs will be included in your trip cost. Most business aviation providers can accommodate a range of services and will break these costs out separately. Flight attendants typically cost \$500 per day.</p>	●	●	●	●
<p><u>Landing, Airport, Security Fees</u> – Depending on your trip, there may be additional fees involved with flying into or from your designated airports. Landing fees can range from \$100 - \$500 per landing, depending on the size of the aircraft. Busier airports will charge high density fees.</p>	●	●	●	●
<p><u>FET & Segment Taxes</u> – There is a flat 7.5% federal excise tax (FET) on all domestic charges and a \$3.70 segment fee charged per person.</p>				●

Any additional costs should be thoroughly understood and included into the above Total Trip Costs before finalizing an Aircraft

Cost Per Mile. These costs may increase your trip by 25-50% depending on the nature of your trip.

converting to passenger Cost Per Mile

The last, and perhaps the most important, factor of all is the number of passengers expected to travel on the trip. This is often the deciding factor to justify a business aviation expense since a fully loaded aircraft may work out to a very reasonable per-passenger cost. According to a survey commissioned by the National Business Aviation Association (NBAA) and the General Aviation Manufacturer's Association and conducted by Harris Interactive, the average number of passengers flying on a business jet (i.e. average load factor) with an eight seat capacity is 3.4.

Ideally, you have a record of actual passenger loads for prior trips that can be used for this calculation. Otherwise, it's recommended that an average anticipated passenger load be used based on your typical trip profile. In the example below and staying with our 6 seat mid-size jet, we'll assume the plane is 50% full or there are 3 passengers. Also, above listed Aircraft CPM's are used with an increase (Surcharge/Trip Expense Multiplier) to account for average trip surcharges and determine an accurate Passenger CPM.

	Full Aircraft Ownership	Managed/Shared Ownership	Fractional Ownership	Jet Charter/ Card
Aircraft CPM	\$12.25/Mile	\$14.75/Mile	\$18.31/Mile	\$21.88/Mile
Surcharge/Trip Expense Multiplier	1.33 (empty legs, crew overnight)	1.33 (empty legs, crew overnight)	1.10 (minimum flight time, fuel)	1.10 (minimum flight time, fuel)
Revised Aircraft CPM = Aircraft CPM x Surcharge Multiplier	\$16.30/Mile	\$19.62/Mile	\$20.14/Mile	\$24.07/Mile
Passenger Load	3	3	3	3
Passenger CPM = Aircraft CPM ÷ Passenger Load	\$5.43/Mile	\$6.54/Mile	\$6.71/Mile	\$8.02/Mile

conclusion

As companies search for ways to be more efficient and effective, travel costs of all kinds are being closely scrutinized. This whitepaper provides a basic understanding of the cost components of business aviation models and an approach to converting these costs to a Passenger Cost Per occupied seat Mile (CPM) basis for better comparison, ROI or cost/benefit calculations. This is by no

means an exhaustive summary of cost components of operating, managing, or chartering an aircraft; but we hope it gives you a basic approach for comparing costs across various air travel options. If you have further questions about business aviation costs, please refer to the resources listed on the next page, contact your business aviation provider, or refer to your flight department.

contact us

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Resources for Understanding, Selecting Business Aviation Alternatives

- **General Aviation Businesses and Services**, National Air Transportation Association (NATA); www.nata.aero – a comprehensive factbook of GA businesses and services that contribute to this \$150B industry including an overview of aircraft types and service providers with detailed statistics about safety, fuel consumption, airports, and pilots. Includes a helpful overview of GA regulatory agencies and their contact information.
- **General Aviation Options for Business**, National Business Travel Association (NBTA); www.nbta.org – an overview of business aviation alternatives – On-demand Charter, Jet Card Programs, Fractional Aircraft Ownership, Joint Aircraft Ownership, and Full Aircraft Ownership – and associated financial considerations including a listing of website addresses of general aviation providers.
- **Chartering An Aircraft**, National Air Transportation Association (NATA); www.nata.aero – a basic overview of the charter operator industry and questions to ask when contacting charter operators about their services including a glossary of key general aviation terms used within the industry.
- **Aircraft Charter Consumer Guide**, National Business Aviation Association (NBAA); www.nbaa.org/charter - a well researched guide to selecting charter operators and brokers including a list of pre-screening questions and a Request for Proposal (RFP) template to use when evaluating operators and/or brokers.

For a thorough explanation of business aviation alternatives, including their costs and other factors to consider when selecting a business aviation alternative, we recommend the following book:

- John J. Sheehan, **Business and Corporate Aviation Management: On-Demand Air Transportation** (McGraw-Hill Companies, Inc., 2003).

Sources for Aircraft Fixed/Variable Costs & Performance Capabilities

- Conklin & de Decker Associates (www.conklindd.com)
- Business & Commercial Aviation magazine Operations Planning Guide (www.AviationWeek.com/bca)