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## MEMORANDUM

**To:** Members of the South Carolina General Assembly

**From:** Marcia S. Adams, Executive Director *msa*

**RE:** Aircraft Chartering Services Analysis

**Date:** January 13, 2014

Pursuant to Proviso 117.130 of the FY 2013-14 Appropriations Act, the SC Budget and Control Board is submitting the Aircraft Chartering Services Analysis. Per the proviso, the report includes an analysis of the costs and benefits of the state-owned aircraft operated by the Division of Aeronautics.

If you have any questions or need additional information, please feel free to contact me at 803-734-2320.

Thank you.

Enclosure

# **Aircraft Chartering Service Analysis**



*Prepared by:*  
**SC Budget and Control Board**

*Issued in accordance with Proviso 117.130 of the  
FY 2013-14 Appropriations Act (H.3710)*

## **I. Introduction**

Proviso 117.130 of the state budget for fiscal year 2013-2014 directs the Budget and Control Board to analyze the cost and benefits of selling the two state owned aircraft presently operated by the South Carolina Division of Aeronautics and authorizing use of private airline charters for official state business. Specifically, the proviso provides:

**117.130.** (GP: Aircraft Chartering Services Analysis) The Budget and Control Board is directed to conduct an analysis to determine the costs and benefits of selling the following state-owned aircraft operated by the Division of Aeronautics: Hawker Beechcraft King Air 350 and Hawker Beechcraft King Air C90; and authorizing private chartering services for use by state officials and state agencies to conduct the state's official business. This analysis must be presented to the Governor and General Assembly no later than January 1, 2014. The Budget and Control Board shall have the authority to sell the state-owned aircraft if the cost-benefit analysis justifies the sale.

This analysis is contained in the pages that follow. The core of the analysis is a comparison of the cost effectiveness of aircraft ownership and charter service. This analysis is conducted by comparing the Division's cost for five common trips to the cost of the same trips if flown by charter services. Specific trips are used for analysis because no other approach produces a sufficiently fair "apples-to-apples" comparison. Comparison by hourly rate is inexact because charter airlines typically add several trip specific charges to their hourly rates. Landing fees, fuel cost above a base rate and additional crew are examples of trip costs added by charters. The trips used for comparison are typical of the more frequent trips made by state officials and employees during FY 2012 and FY 2013, with certain exclusions consistent with a new FY 2014 budget proviso prohibiting flights on the state planes for athletic recruiting.

Because the proviso specifies a comparison between state-ownership of aircraft and a business charter, the analysis does not include an analysis of other ways of providing air transportation, such as fractional aircraft ownership or commercial flights. In addition, combinations of ownership and leasing are not analyzed because the proviso specifically required an evaluation involving a sale of the state-owned aircraft. The analysis also does not quantify the benefit or cost of a particular decision as it may affect the purposes for which the aircraft are used or the effectiveness and efficiency of flying as a mode of transportation. These are beyond exact, meaningful measurement, and most must be weighed by those charged with making public policy. Finally, the analysis does not add or subtract value for such factors as safety records or aircraft availability, and it does not estimate the monetary cost or benefit of subsequent actions that could arise out of and as a by-product of the decision to own or charter.

## **II. Overview of Aeronautics Commission and Division**

The Aeronautics Division is a separate and distinct component of the South Carolina Budget and Control Board. The Division is governed and overseen by the Aeronautics Commission which is

composed of one member from each congressional district, elected by the legislative delegation of the district, and one member from the state at large, appointed by the Governor upon the advice and consent of the Senate. On a day to day basis, the Division is administered by an executive director, who serves at the pleasure of the Commission. The executive director, who must satisfy the same minimum qualifications as the members of the Commission, is nominated by the Commission and appointed by the Governor. Minimum qualifications for the Commission and executive director require experience or involvement with aviation or legal experience.

The Budget and Control Board is charged with providing administrative support for the Aeronautics Division. Purchases or sales of any aeronautics assets must be approved by the Aeronautics Commission. In addition, if the purchase or sale involves an aeronautics asset with a value in excess of fifty thousand dollars, the Joint Bond Review Committee must review the purchase or sale before approval by the Aeronautics Commission. However, for FY 2013-2014, the Budget and Control Board is authorized to sell the Division's two aircraft if justified by this analysis.

The Division consists of two departments that reflect the Division's missions. The two departments include a flight department, which is charged with providing safe air transportation for state agency employees, legislators, and constitutional officers, and an airport development department, which fosters air commerce by overseeing the safety and development of the state's public use airports.

The flight department is discussed more fully in the following section, and legal authorities relevant to the establishment, organizational structure, governance, administration and missions of the Commission and Division are reported and many replicated in Appendix A.

### **III. Background on Flight Department**

The Aeronautics Division operates and maintains two aircraft for conduct of official business by the Governor, Constitutional Officers, General Assembly, state agencies and political subdivisions. The two aircraft are a 1983 King Air C90 and 1990 King Air 350. Both are two engine, turbine powered propeller jets (turboprops) manufactured by the Beech Aircraft Corporation, now a division of Hawker Beechcraft. The King Air C90 is a small, six passenger aircraft and the King Air 350 is a medium size aircraft with seating for up to nine passengers. The manufacturer's recommended cruise speed is 250 miles per hour (217 knots) for the King Air C90 and 357 miles per hour (310 knots) for the King Air 350. Carrying four passengers, the aircraft have a range of approximately 966 and 1,656 statute miles, respectively (statute miles measure the distance between two points in a straight line, regardless of the curvature of the Earth, with 5,280 feet equal to one statute mile).

The King Air 350 requires two pilots for all flights with passengers. The King Air C90 requires only one, but is flown with two upon request and, as a matter of Division practice, when

transporting the Governor. The Aeronautics Division employs a Chief Pilot as a salaried full-time permanent employee and 5 part-time pilots as temporary employees paid on a daily rate when needed. According to the Division, the Division requires its pilots to meet requirements in excess of those mandated by the Federal Aviation Administration. The Aeronautics Division reports that its pilots must possess an FAA commercial pilot certificate with multi-engine land and instrument rating and have a minimum of 4,000 hours for a captain on the King Air 350 and a minimum of 2,500 hour for a captain on the King Air C90. The FAA requires charter operator pilots to have only 1,200 hours for captain in the King Air 350, and there is no minimum pilot hour requirement for the King Air C90. The total flight time logged by the Division's full and part-time pilots ranges from 4,212 to 12,300 hours. The chief pilot has a total of 6,500 hours flight time, 16 years flying experience, and an Airline Transport Pilot rating. The FAA requires each pilot serving as a flight captain to participate in training at an FAA approved facility every two years, but the Division sends its Chief pilot and one part-time pilot once a year.

Division aircraft are reserved on a first come-first served basis and available any day of the year, including holidays. According to the Division, requests are most often received days and weeks in advance, sometimes one day in advance and occasionally the same day as the requested flight. Although advance planning is preferable, the Division indicates it can be airborne within an hour of a request. With two aircraft, the Division reports that it has been unable to accommodate requests for flights only on rare occasions. Previously, when the Division had one aircraft, the King Air 350, it was common for the airplane to be unavailable.

The Chief Pilot assigns the particular aircraft to be used for a flight, giving consideration to, among other things, plane availability, number of passengers, trip distance, the most efficient aircraft for the flight, the destination's available landing and take-off distance, and the user's request.

Presently, Aeronautics Commission policy is to provide flight service to the Governor's Office, Legislative Branch, and Constitutional Officers at no charge. An annual general fund appropriation is considered to provide support for use of the aircraft by these entities. All other agencies are charged at a fixed rate that is calculated annually using a formula designed to generate revenue equal to the prior year's variable cost to operate the planes. Variable operational costs are costs that vary depending on how much the aircraft are used. In the Division's calculation, variable cost elements are actual expenditures for: (i) salary and fringe for temporary pilots called in when permanent pilots are unavailable or a second-in-command is needed, (ii) crew travel expenses such as meals and lodging, (iii) airplane parts provided in-house, (iv) fuel, (v) oil, (vi) airport fees, and (vii) outside maintenance. Fixed costs are the annual costs of owning, maintaining and administering the aircraft regardless of how often an aircraft flies. For purposes of calculating the hourly rate the Division categorizes expenditures such as the following as fixed and excludes them as cost elements: (i) salaries and fringe paid to pilots who are permanent employees, (ii) hangar rental, (iii) insurance, (iv) scheduled maintenance and (v) inspections. For FY 2013, the hourly rate for the two airplanes, based on

the variable operational cost, was \$850 an hour for the King Air C90 and \$1,250 an hour for the King Air 350. Rates apply to flight time, which is from lift off to touch down.

Division aircraft are maintained primarily by its mechanics at the Division's maintenance facilities on the Columbia Metropolitan Airport Campus. In-house maintenance is provided by a Chief of Aircraft Maintenance, who is a full-time permanent employee and an Aircraft Maintenance and Ground Support Specialist, who is a full-time temporary employee. The Chief of Maintenance possesses FAA mechanic certifications with both an Airframe and Powerplant rating (A&P) and holds an Inspection Authorization (IA). The Airframe and Powerplant ratings allow the Chief of Maintenance to perform major repairs and aircraft alterations. The Inspection Authorization (IA certificate) permits him to determine the airworthiness of an aircraft following a major repair or alteration or performance of an annual or progressive inspection. The Chief of Maintenance is also a certified Beechcraft Master Mechanic and receives training on an annual basis to maintain his certification. When outside maintenance and inspections are required, a Beechcraft service center is utilized.

In addition to the Division's aircraft, Division mechanics maintain three Department of Natural Resources piston engine aircraft housed in the Division's hangars on the campus of the Columbia Metropolitan Airport. The Civil Air Patrol and SLED also use the Division for maintenance on occasion. The Division charges these agencies for the cost of parts and \$55 an hour for labor. The Division reports that its \$55 hourly rate is lower than the rate DNR would pay in the marketplace. The Division is also able to secure and sell parts to DNR at or below-market prices.

The Division controls two aircraft hangars under a long-term ground lease with the Richland-Lexington Airport Commission. The Wilder Office/Hangar is located at 2553 Airport Boulevard and is 14,021 square feet. This hangar houses the Division's King Air C90 and King Air 350 aircraft and its maintenance department. The second hangar, called the Quonset Hangar, is a 22,000 square foot facility and the oldest hangar at the Columbia Metropolitan Airport grounds. It was built in the 1940's and has a clear-span arched roof. The Quonset Hangar is located on the Division's property, but is separate from the Division's main building. The Division incurs an annual lease payment of \$73,611 for the entire complex from the Richland-Lexington Airport Commission, which is offset by sub-leasing office and hangar space to the South Carolina Army National Guard and the Department of Natural Resources for \$74,412. The Division leases space in the Quonset Hangar to the Army National Guard for its large turboprop airliner and, as noted previously, to the Department of Natural Resources for its three piston aircraft.

The Division of Aeronautics owns and manages seven in-ground fuel tanks that service its aircraft and provides fuel for sale to other state agencies. The fuel tanks are located at its facilities on the Columbia Metropolitan Airport Campus. The Jet fuel tanks consist of three 20,000 gallon fuel tanks and one 2,000 gallon tank for waste fuel. One of the 20,000 gallon

tanks is inactive. The Aviation Gas fuel tanks consists of two 10,000 gallon fuel tanks and one 2,000 waste tank.

The Department of Natural Resources is the Division's primary customer for fuel sales, but SLED and the Civil Air Patrol also purchased fuel from the Division during FY 2012 and FY 2013. The Aeronautics Division sold these agencies 4,983 gallons in FY 2012 and 5,259 in FY 2013 at or below market prices. The Aeronautics Division is able to offer fuel at the reduced price because it monitors its tank levels and wholesale fuel prices to keep its tanks supplied with fuel at the most advantageous price. Aeronautics then passes the savings on to other agencies by only marking up the wholesale price about \$.50 a gallon to cover costs of its equipment and line and pumping service personnel.

In addition to its more familiar mission, the division is a member of the emergency management division's air branch, which provides air support in disasters and emergencies. The division, along with other state agency flight departments' assets and personnel, are pre-assigned roles and responsibilities according to an operational plan.

The Division is also authorized to enter agreements with public hospitals and medical centers owned, operated, or supported in whole or in part by state funds for the purpose of transporting personnel or patients. The Division has a long standing reciprocating relationship with MUSC and has provided flights in the past on an as-needed basis.

The Division's flight department is usually supported by five sources of income, with hangar rent used for this purpose on occasion. The usual five sources are as follows:

a. general fund appropriation—The Aeronautics Division is one budgeted program, aggregating funding for the flight department, airport planning and development and administration. The Division expended \$176,748 of its general fund appropriation for the flight department in FY 2012 and \$368,062 in FY 2013. Through November 30, 2013, the Division expended \$193,876 of its general fund appropriation for the flight department.

b. passenger revenue—As previously noted , the Division charges some state agencies for flights at a rate designed to cover certain variable flight costs. The Division collected \$98,195 from passenger revenue in FY 2012 and \$170,390 in FY 2013. Through November 30, 2013, the Division has received \$40,280 in passenger revenue.

c. aircraft maintenance revenue—The Division generated \$60,303 for the flight department from sales of maintenance services to other agencies during FY 2012 and \$98,909 in FY 2013. Through November 30, 2013, sales had generated \$24,976.

d. aircraft fuel revenue— The Division produced \$22,423 for the flight department from sales of fuel to other agencies in FY 2012 and \$23,665 in FY 2013. Through November 30, 2013, the Division sold \$11,646 in fuel.

e. State Aviation Fund—Since FY 2013, the Division has been authorized to use an allocation from the State Aviation Fund for the maintenance and repair of the Division’s aircraft. The Fund consists of revenue from airport and other aeronautical licensing fees, taxes on aviation fuel and appropriations for aviation grants. During FY 2013, \$192,065 was allocated from the State Aviation Fund for maintenance and repair of Division aircraft. Through November 30, 2013, the Division has expended \$127,305 from the Fund for aircraft maintenance.

#### **IV. Present Use of Airplanes**

##### Source and Methodology

Analysis of the use of the two aircraft owned and operated by the state of South Carolina was conducted using flight data from the two most recently completed fiscal years, FY 2011-2012 (FY 2012) and FY 2012-2013 (FY 2013). Elements of flight data collected for each plane include flight dates, authorizing party, flight purpose, number of flight legs, airport and county of origination, airport and county of destination, actual flight time en route, statute miles per flight leg, and number of passengers per flight leg. All data elements used in the analysis of aircraft usage were gathered from flight logs and manifests provided by the Division of Aeronautics, which are also available on the division’s website for viewing by the general public.

##### Aircraft Use – FY 2012 and FY 2013

###### *Trips*

During FY 2012 and FY 2013, the state operated two airplanes, a King Air 350 and a King Air C90, which provided air transportation to officials and agencies for approximately 200 state business trips. Over the two years, the number of trips were nearly equally divided between the two aircraft. The King Air C90 flew 99 trips and the King Air 350 flew 103. For the purpose of this analysis, a trip is defined as a flight originating from and returning to Columbia, where the planes are stationed.

Approximately 55% of the trips were to in-state destinations, with Clemson, Columbia, and Charleston being the most frequent destinations for both the King Air C90 and the King Air 350. Other common in-state destinations include Myrtle Beach, Sumter, Greenville/Spartanburg, and Hilton Head. The King Air 350 was the airplane used most often for trips out of state, making 58 trips or 63.7% of those flights. The most frequent out-of state destinations for the King Air 350 were Manassas, Virginia; Teterboro, New Jersey; Orlando, Florida; and Atlanta, Georgia. For the King Air C90, the most frequent out-of–state destinations were Manassas, Virginia; Raleigh, North Carolina; and Atlanta, Georgia.

The number of round trips in-state and out-of-state by fiscal year and aircraft are reported in the tables found in Appendix B. For round trips with multiple stops, the trip is considered out-of-state if the destination of at least one flight leg is outside the state of South Carolina.



### *Flight Legs*

All flights that are not one-way consist of legs, which are the segments between take-offs and landings. For the approximately 200 trips conducted by the state's King Air 350 and King Air C90, the number of legs per trip ranged from two to eleven, with the majority of trips having between two and four legs.

Both planes are based in Columbia and must occasionally be positioned for passengers. This means the planes may not have passengers for some legs of a multi-stop trip. These "empty legs" generally occur when passengers begin and conclude their trip from a location other than Columbia. The state plane flies empty to pick up the passengers and empty when it returns to Columbia after dropping off its passengers at their original point of departure. The same is true for charter operators that pick up passengers in cities outside of their home airports.

Over the past two fiscal years, about 29% of the legs of a trip were empty, while approximately 71% carried passengers. Excluding maintenance and training flights, the King Air 350 flew 30 empty legs in FY 2012 and 43 in FY 2013. The King Air C90 flew 40 in FY 2012 and 52 in FY 2013. The average empty leg was 34 minutes and 149.2 statute miles. The most frequent empty leg flights were between Columbia and Clemson and Columbia and Charleston.

### *Flight Hours and Statute Miles*

Together, both planes flew a total of 50,652 statute miles during FY 2012 and 77,289 miles during FY 2013. The King Air 350 flew 60% of the statute miles in FY 2012 (30,400 statute miles) and 60.9% in FY 2013 (47,130 statute miles). The King Air C90 flew the remaining 40% (20,252 statute miles) in FY 2012 and 39.1% (30,159 statute miles) in FY 2013. The number and percentage of flight hours for each plane generally paralleled the statute miles. The King Air 350 logged around 56% of the flight hours both years. Specifically, the King Air 350 flew 100.9 hours in FY 2012 and 160.2 in FY 2013 for a total of 261.1 hours over both years, and the King Air C90 flew 82.4 hours in FY 2012 and 123.1 hours in FY 2013 for a total of 205.5 hours over both years. Statute miles and flight hours for each plane and fiscal year are reported in the tables found in Appendix C.

### *Aircraft Use by Authorizing Party*

During FY 2012 and FY 2013, the state's two aircraft were used by various entities to conduct state business. Users include the Governor's Office, institutions of higher education, constitutional officers, members of the General Assembly, state agency personnel, and Division of Aeronautics staff.

Aircraft use was determined by the percentage of hours flown by each authorizing party on both airplanes during a fiscal year. In both FY 2012 and FY 2013, 42% of the total flight hours (76.8 hours in FY 2012 and 117.9 hours in FY 2013) were authorized by institutions of higher

education. In FY 2012, Clemson University was the only institution of higher education to use the state aircraft. Clemson University, Coastal Carolina University, and the Medical University of South Carolina all utilized the aircraft in FY 2013.

The remaining use of state aircraft in FY 2012 was distributed as follows: 23% (42.7 hours) authorized by members of the General Assembly (House of Representatives and Senate); 13% (23.8 hours) authorized by two state agencies, the SC Department of Commerce and SC Ports Authority; 11% (19.6 hours) authorized by the Governor's Office; 8% authorized by the Division of Aeronautics; and 3% (4.5 hours) authorized by constitutional officers, other than the Governor.

The remaining use of state aircraft in FY 2013 was distributed as follows: 22% (63.1 hours) authorized by the General Assembly; 17% (47.5 hours) authorized by two state agencies, the SC Department of Commerce and the SC Ports Authority; 12% (35.1 hours) authorized by the Governor's Office; 4% authorized by constitutional officers, other than the Governor; and 3% (7.6 hours) authorized by the Division of Aeronautics.

Flight hours authorized by the Division of Aeronautics in both fiscal years include all aircraft maintenance and training flights. Aircraft use information by authorizing party for both FY 2012 and FY 2013 is reported in the pie charts found in Appendix D.

#### Proviso 117.120 – Athletic Recruiting Restriction

Proviso 117.120, added to the General Appropriation Act in fiscal year 2013-2014 and effective July 1, 2013, prohibits institutions of higher learning from using state aircraft operated by the Division of Aeronautics for athletic recruiting. Flight information from FY 2012 and FY 2013 was adjusted to exclude flights categorized as "Athletic" and reevaluated in order to anticipate the effect this proviso might have on the use of Division aircraft in the current and subsequent fiscal years. Flights attributed to athletic recruiting were either identified by the university on the flight manifest or were identified by the Division.

Excluding flights categorized as "Athletic" in nature, both planes flew 189 trips during fiscal years 2012 and 2013 with the King Air C90 flying 92 trips and the King Air 350 flying 97 trips. Both planes together flew a total of 112,542 statute miles in FY 2012 and FY 2013, approximately 15,400 statute miles less than the total including athletic flights. Exclusion of athletic flights results in a drop in miles flown per fiscal year for both planes, from 50,652 statute miles to 43,928 statute miles during FY 2012, a 13.3% decrease, and from 77,289 statute miles to 68,614 miles during FY 2013, an 11.2% decrease. Flight hours for both planes per fiscal year also decreased, dropping from 183.3 hours to 160.9 hours in FY 2012 and from 283.3 hours to 252.2 hours in FY 2013. This resulted in an 11.5% decrease in total hours flown by both planes over both fiscal years. Round trips, statute miles, and flight hours excluding athletic flights for each plane and fiscal year are reported in the tables found in Appendix E.

## **V. Methodology for Determining Cost and Cost Effectiveness of Alternatives**

The method by which the Budget and Control Board determined the relative cost of air transportation provided by the Division of Aeronautics and charter operators is explained in the subsections below. In short, the Budget and Control Board calculated cost for the Division of Aeronautics based upon actual expenditures and flight hours for the past two complete fiscal years. This calculation was then used to determine the cost of the Division to provide five of its more typical trips. The Division's trip cost is compared to pricing for the same five trips as reported by South Carolina and Georgia charter operators responding to a written Request for Information from the Board. The results of this comparison are reported in Section VI of this analysis.

### **Cost of Current Flight Operations**

The Budget and Control Board's cost analysis was conducted using data compiled from the two most recently completed fiscal years; Fiscal Year 2011-12 and Fiscal Year 2012-13. The goal of the Board's analysis was to obtain an understanding of expenses incurred by the Aeronautics Division for activities associated with maintaining and operating its aircraft, as well as segregate those expenses based on the behavior of the expenses. In addition to analyzing actual data, the Board evaluated benchmark data for each aircraft prepared by Conklin & de Decker, an industry leader in providing aviation information to make informed decisions.

### **Variable Costs**

Variable costs refer to those costs that change in total in proportion to flight hours.

#### ***Aviation Fuel***

Aviation Fuel is a product of the gallons consumed per flight hour (fuel burn) and the average fuel cost per gallon. The Division of Aeronautics estimates the fuel burn rate at 126 gallons per hour for the King Air 350 and 75 gallons per hour for the King Air C90. The estimated fuel burn provided by Aeronautics is comparable to estimates provided by Conklin & de Decker, which estimated fuel burn rates of 136 gallons per hour and 78 gallons per hour for the King Air 350 and King Air C90 respectively.

The cost per gallon of fuel was estimated at \$4.00 per gallon for the Board's cost analysis. The cost per gallon was estimated through an analysis of fuel purchases occurring from June 2012 to June 2013. Aeronautics achieves greater cost savings when purchasing fuel in bulk to replenish their fuel inventory.

#### ***Engine Reserves***

Engine reserves are estimated to cover the cost of an overhaul of the engine at the recommended Time Between Overhaul (TBO). The engine reserve rate for the King Air 350 is based on the

Division's existing service plan with Pratt and Whitney for overhauling both engines. The Division does not have a service plan to overhaul the King Air C90 engines since transferring the plane from the Medical University of South Carolina during fiscal year 2012. The engine reserve calculated for the King Air C90 was obtained from a study conducted by Conklin and de Decker in which the overhaul cost was estimated at \$552,200 for two PT6A-21 engines. The recommended time between overhaul for the King Air C90 is 3600 hours, resulting in an hourly rate of \$153.33.

#### *Maintenance Supplies and Services*

Maintenance supplies and services include expenditures by the Division for aircraft parts and supplies used by the Division's maintenance staff as well as maintenance services performed by external service centers in repairing or maintaining the Division's aircraft. These expenditures do not include salaried maintenance personnel who are captured under fixed costs. Because Aeronautics also incurs expenditures for supplies and services performing maintenance and repair work on other agencies' aircraft (Department of Natural Resources, SLED, Civil Air Patrol), these costs were excluded from the Board's calculation.

Prior to fiscal year 2013-14, Aeronautics did not capture maintenance expenditure data by airplane. To determine the average maintenance costs applicable to each airplane, the Board developed an allocation to assign those costs based on the relative fair market value of each airplane. Table 1 below outlines the allocation methodology used to calculate maintenance costs for each airplane.

*Table 1*

	<b><u>FY 2011- 12</u></b>	<b><u>FY 2012- 13</u></b>	<b><u>Total</u></b>
Total Maintenance Supplies and Services	196,678	205,742	402,420
<b>Less:</b>			
Engine Reserve Payments	(22,342)	(32,342)	(54,685)
Reimbursable Parts and Services	(30,810)	(68,425)	(99,235)
Uncommon Maintenance Expenditures <sup>(1)</sup>	(18,401)		(18,401)
<b>Net Maintenance Costs</b>	<b>125,124</b>	<b>104,975</b>	<b>230,099</b>
Allocation of Net Maintenance Costs <sup>(2)</sup> :			
King Air 350 (73% *Net Maint. Costs)	91,340	76,632	167,972
King Air C90 (27% *Net Maint. Costs)	33,783	28,343	62,126
<b>Total Allocation</b>	<b>125,123</b>	<b>104,975</b>	<b>230,098</b>
	<b><u>KA 350</u></b>	<b><u>KA C90</u></b>	<b><u>Total</u></b>
Allocated Maintenance Costs (FY12 & FY13)	\$167,972	\$62,126	\$230,098
Total Flight Hours (FY12 & FY13)	261.10	205.50	466.60
<b>Weighted Average Cost / Flight Hour</b>	<b>\$643</b>	<b>\$302</b>	<b>\$493</b>

<sup>(1)</sup> Excludes non-maintenance related modification to King Air C90 in FY 2011-12

<sup>(2)</sup> Average Resale value King Air 350 (\$1.563M) – 73%  
Average Resale value King Air C90 (\$585K) – 27%  
Total Resale Value – (\$2.148M) – 100%  
(Resale Values Provided by Aeronautics)

### *Travel Expenses*

Variable Travel Expenses include reimbursements to state employees and contract pilots for eligible travel expenses incurred during business trips. These travel expenses include reimbursements for meals, lodging, and other expenses such as parking fees. Travel expenses for aircraft maintenance staff and expenses associated with pilot training are included under fixed charges since these expenses do not vary with hours flown. To determine an hourly rate, the Board calculated the weighted average travel cost over two fiscal years. Table 2 outlines the calculation of the variable travel rate.

**Table 2**

	<b><u>FY 2011- 12</u></b>	<b><u>FY 2012- 13</u></b>	<b><u>Total</u></b>
Reimbursements for meals	1,410.00	1,974.00	3,384.00
Lodging Reimbursements	2,971.87	3,823.18	6,795.05
Other Travel	454.38	1,121.06	1,575.44
Non-State Employee Travel Expenses		677.01	677.01
<b>Total Travel</b>	<b>4,836.25</b>	<b>7,595.25</b>	<b>12,431.50</b>
 <b>Total Flight Hours</b>	 <b>183.30</b>	 <b>283.30</b>	 <b>466.60</b>
 <b>Weighted Average Travel Cost / Flight Hour</b>			 <b><u>\$26.64</u></b>

*Airport Fees*

Variable airport fees include landing fees, ramp fees, de-icing and any other fees charged by airports. To determine an hourly rate for airport fees, the Board calculated the weighted average cost over a 2 year period. Table 3 summarizes the calculation of airport fees per flight hour.

**Table 3**

	<b><u>FY 2011- 12</u></b>	<b><u>FY 2012- 13</u></b>	<b><u>Total</u></b>
Total Airport Fees	3,069.00	6,748.00	9,817.00
Total Flight Hours	183.30	283.30	466.6
 <b>Weighted Average Airport Fees / Flight Hour</b>			 <b><u>\$21.04</u></b>

*Fixed Costs*

Fixed Costs are those costs that do not change in total regardless of changes in total flight hours. These costs include salaries of pilots and aircraft maintenance staff, expenditures for telephones and data processing, aircraft insurance, electricity and utilities, and travel and training unrelated to flights. Since total fixed costs do not change with changes in flight hours, the total fixed cost per hour decreases as flight hours increase, and increases as flight hours decrease. In order to compare Aeronautics' total cost per hour to fly to private charter operators, the Board assumed a baseline number of flight hours to project fixed costs. Because of the new budget proviso prohibiting the use of the Division aircraft for athletic recruiting, the Board used two projections of annual flight hours for analysis. One projection, 233 hours, is the average flight hours per year for fiscal years 2011-12 and 2012-13. The second projection, 206 hours, is 233 hours reduced 11.5%, which is the percentage of flight hours attributed to athletic recruiting during the two fiscal years which is precluded by proviso 117.120. Flights attributed to athletic recruiting

were either identified by the university on the flight manifest or were identified by the Division. Additionally, the following adjustments and/or assumptions were made when calculating fixed costs:

#### *Salaries and Fringe*

In addition to servicing Aeronautics' aircraft, aircraft maintenance staff also service aircraft owned by the Department of Natural Resources, SC Law Enforcement Division and the Civil Air Patrol when requested. When calculating salaries and fringe associated with maintaining the Division of Aeronautics' aircraft, the Board excluded labor reimbursements from other state agencies for servicing their aircraft. Aeronautics was reimbursed \$25,025 and \$26,703 in Fiscal Years 2011-12 and 2012-13 respectively.

#### *Fixed Charges- Net Facility Costs*

Aeronautics incurs relatively little or no costs associated with operating their facility at Columbia Metropolitan airport as a result of rental income received from leasing their administration building and hangar space. Table 4 provides a summary of their rental income and lease costs.

***Table 4***

	<u><b>Amount</b></u>
<b>Rental Income:</b>	
National Guard Administration Building	\$60,012
National Guard (Quonset Hangar)	5,400
Dept of Natural Resources (Hangar Rental)	9,000
<b>Total Rental Income</b>	<b>\$74,412</b>
 Lease Expense – Cola Metropolitan Airport (Beginning 1/1/14)	 <b>\$73,611</b>

The analysis above is summarized in Appendices F and G.

After the Division's hourly variable and fixed flight rates were calculated, the rates were multiplied by the length of time needed to fly each of the five specified trips to produce the Division's cost for each trip. The Division provided the round trip flight time for the five specified trips for both aircraft using commercial software designed for this purpose.

This methodology does not include wait or taxi time in the total trip time. However, that cost is reflected in the Division's hourly rate, which includes all of the Division's flight department cost for the year. This methodology also assumes the entire trip is flown at normal cruise speed, which understates trip time to some degree.

### **Cost of Charter Service**

The Budget and Control Board requested pricing information from charter operators to estimate the cost for charter operators to provide transportation similar to that provided by the Aeronautics Division. The request was submitted to charter operators with aircraft based in South Carolina and within 100 miles of South Carolina's border airports. An Atlanta charter operator was also asked to respond because it had recently entered an agreement with the State of Georgia to provide it charter air service. The request was made in writing as a formal "Request for Information", with an explanation of the purpose of the request, a description of the passenger flights flown by the Aeronautics Division over fiscal years 2012 and 2013, and two templates for responses. One template asked for the charter operators' hourly rate and other charges not included in the hourly rate. The second template asked charter operators to provide an all-inclusive price for 4 passengers to fly five specified trips. The five specified trips were representative of typical flights flown by the Aeronautics Division during FY 2012 and FY 2013. Specifically, the charter operators were asked to provide a price to fly passengers on the following round trips:

<b>Passenger Departure and Return</b>	<b>Passenger Business Destination</b>
Columbia, SC	Charleston, SC
Columbia, SC	Greenville, SC
Columbia, SC	Washington, DC (with 1 overnight stay)
Columbia, SC	Hilton Head, SC
Clemson, SC	Columbia, SC

Trip pricing proved the most useful for comparing costs between the Aeronautics Division and charter operators. Although charter operators' pricing features an hourly rate, the hourly rate may not include all customer costs. Hourly rates may not include expenses such as landing fees, pilots, overnight fees, stand-by fees or federal taxes and fees. Hourly rates usually include fuel at a set cost per gallon and customers receive an additional charge for the cost of fuel in excess of the base rate at the time of the flight. The expenses included in the hourly rate and the formulas by which they are calculated also vary among charter operators, and the hourly cost of a charter flight may apply to time spent taxiing before lift-off as well as actual flight time. All these nuances complicate and undermine the validity of a comparison of charters' hourly rates with the Aeronautics Division's cost calculated on the basis of the flight department's total cost divided by its in-flight hours. Consequently, the Budget and Control Board limited its comparison of flight costs to the five trip scenarios presented in the Request for Information.

A comparison of costs on a trip basis also has its limitations. One, charter responses to the Request for Information are not binding on the respondents and therefore do not carry any commitment to actually provide air transportation at the prices provided. In addition, charter costs may be different depending upon the terms of an official Request for Proposals. Requiring



certain types of aircraft, guarantees of aircraft availability or levels of insurance coverage are a few examples of terms that could increase or decrease charter operators' proposals.

Finally, for its analysis, the Budget and Control Board used responses from only those charter operators with aircraft comparable to the Division's King Air C90 and King Air 350. Comparable aircraft were identified for the Board by staff of the Division.

Limiting the comparison to aircraft similar to the Division's effectively excluded pricing of trips in jet, single turboprop, and piston powered aircraft. Responses from charter operators generally indicated using a jet for in-state trips, which are the majority of the Division's flights, would be more costly than the same trip in the Division's turboprop aircraft. Jet aircraft are designed for efficiency at higher speeds and longer distances, so the difference is not unexpected. Responses from charter operators for single turboprops were very close to the cost of the Division for the same trip. Single turboprops are designed for usage similar to that of the aircraft operated by the Division, but are powered by only one engine. All responses from charter operators with piston powered airplanes indicated their trip cost would be substantially less than that of the Division for the same trip, except the Columbia to Washington, D.C. flight. Again, this is not surprising. Piston aircraft are well-suited and economical for short missions. However, they are subject to vibration and louder cabin noise when cruising than turboprops and jets. Piston aircraft fly at lower altitudes, which has a bearing on the amount of turbulence and inclement weather conditions that may be encountered, and their cabins are typically smaller and may not be pressurized. These factors, among others, affect the "quality" of the flight experience, but they are beyond quantification for this analysis.

Given this background, the Budget and Control Board concluded the most useful comparison is trip cost among charter operators with aircraft similar to the Division's King Airs.

## **VI. Results: Cost Effectiveness Based on Trips Comparison**

The total flight hours flown by the Aeronautics Division varies from year to year due to a variety of factors. These factors include the flight needs of state officials, state agencies and universities, and limitations placed on the usage of the state's aircraft. All of these factors were taken into account when calculating the Aeronautics Division's total annual flight hours.

As mentioned in the Fixed Costs section of this report, two different comparisons were conducted using 206 total flight hours and 233 total flight hours for the Division. 233 total flight hours represents the average of total flight hours for FY 2012 and FY 2013 which were 183 and 283, respectively. While the difference between annual flight hours for the two years is substantial, use of the aircraft during FY 2014 through November 15, 2013 parallels the average for the same period of FY 2012 and FY 2013.

206 total flight hours represents an 11.5% adjustment to the average of 233 hours to account for the potential effect of a new FY 2014 budget proviso. The proviso, 117.120, prohibits higher education from using the Division's aircraft for athletic recruitment. Approximately 11.5% of the Division's flights during the past two complete fiscal years were for this purpose and would be prohibited by the proviso now. The impact of the new proviso is not addressed by averaging the flight hours for FY 2012 and FY 2013. Although FY 2014 aircraft usage through November 15, 2013 is at the two year average, the interval of FY 2014 reviewed (July 1, 2013 through November 15, 2013) was before the period generally allowed by the NCAA for official contact with football recruits.

The Aeronautics Division provided the Budget and Control Board a list of comparable aircraft owned by various charter operators. Six aircraft were identified as being comparable and included in this comparison. The six aircraft are twin turboprops similar to those operated by the Division. Of the Request for Information responses the Board received from charter operators, five operated one or more comparable aircraft. Five trip scenarios were used in the comparison:

<b>Passenger Departure and Return</b>	<b>Passenger Business Destination</b>
Columbia, SC	Charleston, SC
Columbia, SC	Greenville, SC
Columbia, SC	Washington, DC (with 1 overnight stay)
Columbia, SC	Hilton Head, SC
Clemson, SC	Columbia, SC

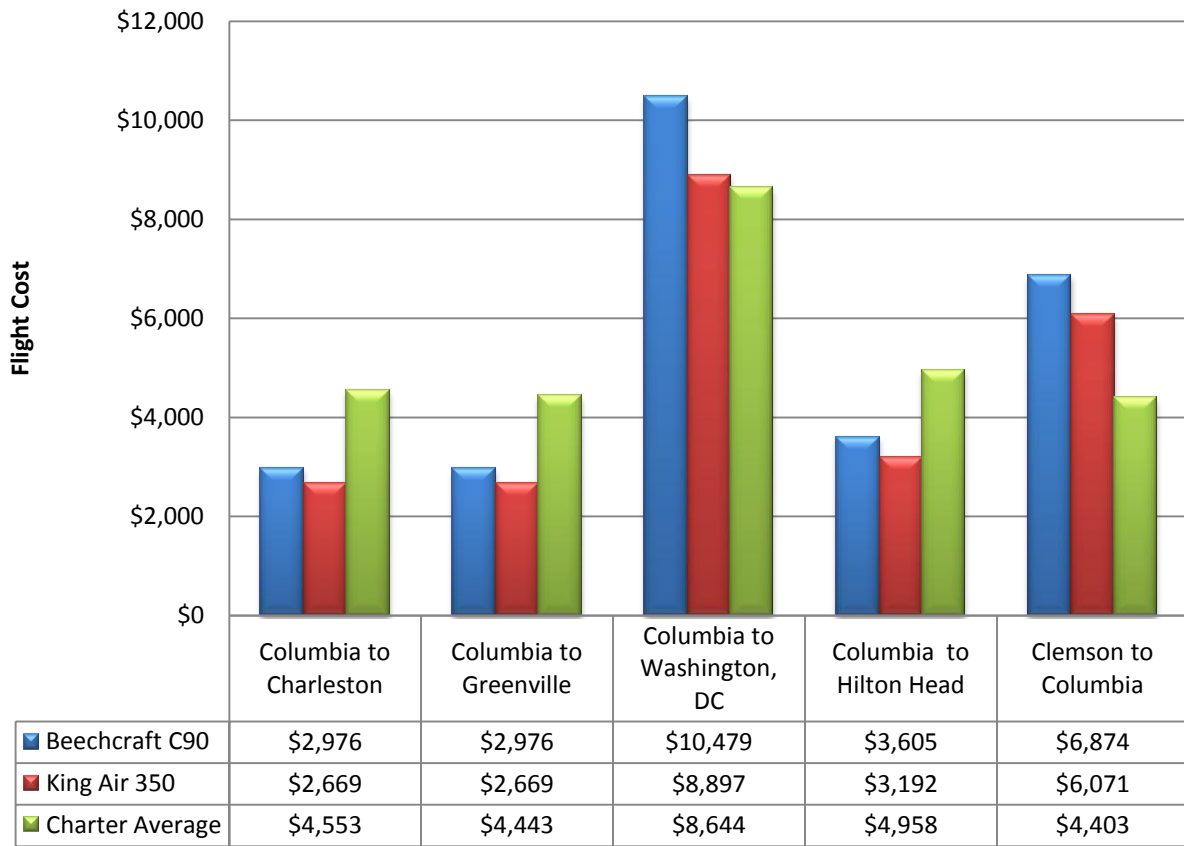
These trips embody characteristics of typical flights flown by the Division during FY 2012 and FY 2013.

#### *Comparison based on 206 Total Flight Hours*

The chart below compares Aeronautics' round trip flight costs for the King Air C90 (in blue) and the King Air 350 (in red) against the charter average flight cost (in green) for the same trips. This comparison is based on 206 total flight hours, which is the average number of hours flown by the Division during FY 2012 and FY 2013 reduced by 11.5% to reflect the restriction imposed by proviso 117.120.

## Aeronautics vs. Charter Average Flight Cost

Based on 206 Flight Hours



*Note: Aeronautics is reimbursed for its variable costs by state agencies for travel excluding Constitutional Officers and members of the General Assembly*

For in-state flights originating out of Columbia, SC, with passengers, Aeronautics' costs using its King Air C90 are 27% to 35% lower than the average cost for a charter company to make the same flight. Using the King Air 350, Aeronautics' costs are 36% to 41% lower. For the long-range out of state flight to Washington, DC with passengers, Aeronautics' cost using the King Air C90 is 21% higher than the average for a charter company's and 3% higher using the King Air 350. Based on 206 total flight hours, Aeronautics' costs equate to \$2,515 per flight hour for the King Air C90 and \$3,140 for the King Air 350.

For the Clemson, SC to Columbia, SC trip, Aeronautics' costs are 56% higher than the charter average using the King Air C90 and 38% higher using the King Air 350. The originating location of the aircraft is the primary contributing factor to this result for two of the charters. Aeronautics' aircraft are located in Columbia, SC. Using the Clemson to Columbia scenario, Aeronautics would fly two empty leg flights, or flights without passengers, to pick up and return the passengers from Clemson. Essentially, Aeronautics would make the 113-mile trip four times

(twice with passengers and twice without passengers). The charter companies that responded to the survey are located in Greenville, SC, Greenwood, SC, Augusta, GA, and Atlanta, GA. The distance between Clemson and the home base airport for the Greenville charter is 41 miles and 51 miles for the Greenwood charter. This shorter distance results in a lower cost for the charter companies located in Greenville and Greenwood. The distance between the Clemson and Augusta airport and the Clemson and Atlanta airport are 104 miles and 114 miles, respectively. Although the Augusta and Atlanta airports are relatively the same distance to Clemson as the Columbia airport, the Division's calculated hourly rate at 206 hours annually increases the Division's trip cost.

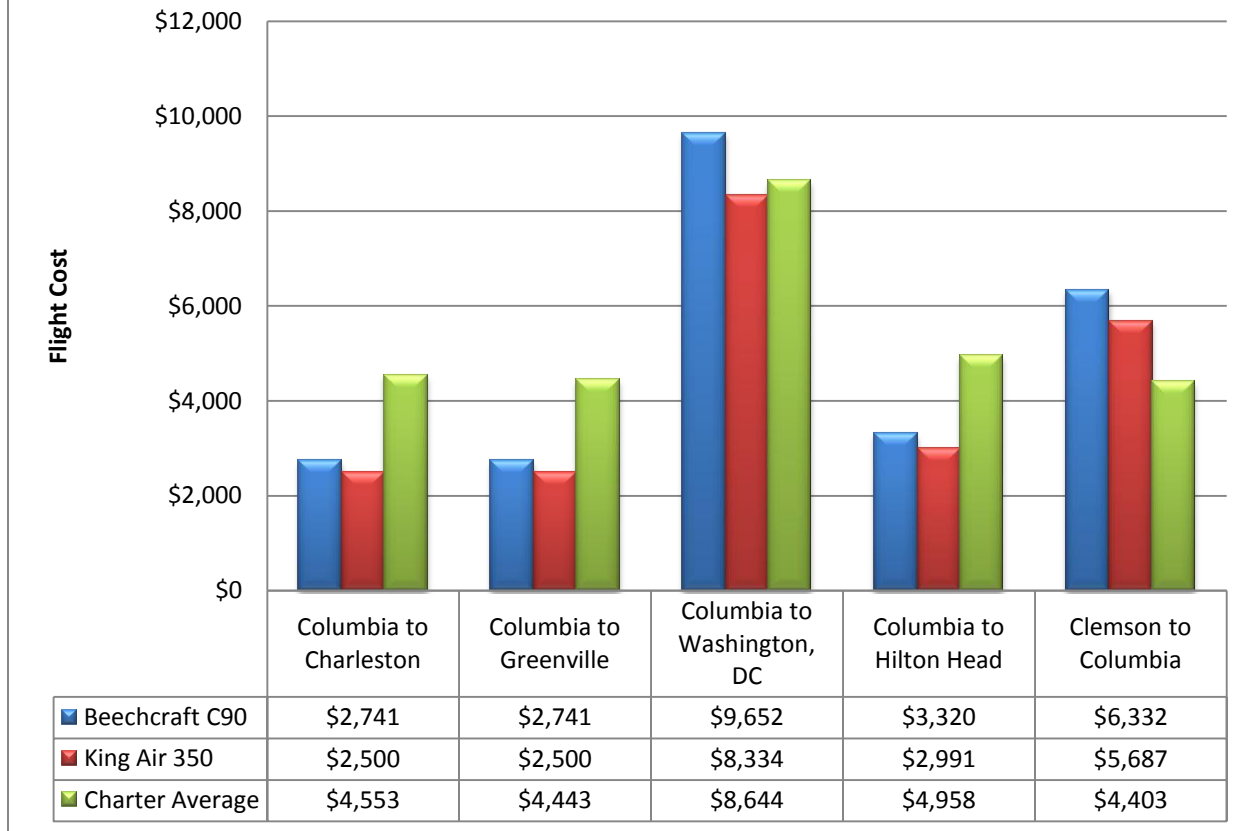
As previously stated, charter responses to the Response for Information are not binding and therefore do not carry any commitment to actually provide air transportation at the prices quoted. Actual charter costs could be higher or lower based on the terms of a negotiated contract. Aeronautics' costs would also differ if the number of its flight hours changed.

#### *Comparison based on 233 Total Flight Hours*

The chart below compares Aeronautics' round trip flight costs for the King Air C90 (in blue) and the King Air 350 (in red) to the charter average flight cost (in green) for the same trips. This comparison is based on 233 total flight hours, the average number of flight hours flown by the Division during FY 2012 and FY 2013.

## Aeronautics vs. Charter Average Flight Cost

*Based on 233 Flight Hours*



*Note: Aeronautics is reimbursed for its variable costs by state agencies for travel excluding Constitutional Officers and members of the General Assembly*

For in-state flights originating out of Columbia, SC, with passengers, Aeronautics' costs using its King Air C90 are 33% to 40% lower than the average cost for a charter company to make the same flight. Using its King Air 350, Aeronautics' costs are 40% to 45% lower. Although the Division's trip costs are still affected significantly by its low number of annual flight hours, the location of its aircraft in Columbia makes the difference. Based on 233 total flight hours, Aeronautics' costs equate to \$2,317 per flight hour for its King Air C90 and \$2,942 for its King Air 350. However, because Aeronautics' aircraft are based in Columbia, there would not be an expense for the empty leg flights to Columbia to pick up and drop off passengers as the charter companies would incur.

For the long-range out of state flight to Washington, DC, with passengers originating out of Columbia, SC, Aeronautics' costs are 12% higher than the average for a charter company using its King Air C90 but almost 4% lower using its King Air 350.

For the Clemson, SC to Columbia, SC trip, Aeronautics' costs are 44% higher than the charter average using its King Air C90 and 29% higher using its King Air 350. The originating location of the aircraft is the primary contributing factor to this result for two of the charters. Aeronautics' aircraft are located in Columbia, SC. Using the Clemson to Columbia scenario, Aeronautics would fly two empty leg flights, or flights without passengers, to pick up and return the passengers from Clemson. Essentially, Aeronautics would make the 113-mile trip four times (twice with passengers and twice without passengers). The charter companies that responded to the survey are located in Greenville, SC, Greenwood, SC, Augusta, GA, and Atlanta, GA. The distance between Clemson and the home base airport for the Greenville charter is 41 miles and 51 miles for the Greenwood. This shorter distance results in a lower cost for the charter companies located in Greenville and Greenwood. The distance between the Clemson and Augusta airport and the Clemson and Atlanta airport are 104 miles and 114 miles, respectively. Although the Augusta and Atlanta airports are relatively the same distance to Clemson as the Columbia airport, the Division's hourly rates at 233 hours annually increases the Division's trip cost.

In summary, both of Aeronautics' aircraft fared better than the charter companies' average flight cost for in-state passenger flights that originate out of Columbia. The King Air 350 is slightly lower than the charter average for the long distance flight to Washington, D.C., but the King Air C90 costs more. Aeronautics' costs were higher for the Clemson to Columbia flight regardless of which of its aircraft are used due primarily to two charters' proximity to the point of passenger origination.

As with the 206-flight hour comparison, charter responses to the Response for Information are not binding and therefore do not carry any commitment to actually provide air transportation at the prices quoted. Actual charter costs could be higher or lower based on the terms of a negotiated contract. Also, comparing Aeronautics' flight costs in the 206-flight hour to the 233-flight hour comparison illustrates the impact the total hours flown has on the Division's cost. As the number of total flight hours increases, Aeronautics' hourly rate decreases resulting in lower flight costs for both of its aircraft.

## **VII. Quantifiable Opportunity Costs**

In addition to comparing trip costs, an analysis of the alternatives should include consideration of opportunity cost. That is, the value of what is lost by choosing one alternative over another should be a factor in the decision-making. Opportunity costs the Budget and Control Board could quantify are discussed below. Others that could not be validly quantified are discussed in section VIII of this analysis.

### Aviation Fuel

The Division of Aeronautics owns and manages an aviation fuel tank farm at its facilities on the Columbia Metropolitan Airport Campus and sells fuel to other state agency flight departments. The Division's primary customer is the Department of Natural Resources, but SLED and the Civil Air Patrol also purchased fuel from the Division during FY 2012 and FY 2013. Aeronautics sold these agencies 4,983 gallons in FY 2012 and 5,259 in FY 2013 at a price of \$4.50 a gallon. According to a local vendor, the average retail market price for the fuel, and the price the agencies would have paid without the Division's fueling facilities over this period was \$5.90 a gallon in FY 2013 to \$6.15 a gallon in FY 2012. If the Division's airplanes are sold and its support functions discontinued, other state agencies would be expected to incur approximately \$10,000 additional expense each year, based on FY 2012 and FY 2013 activity and prices.

The Aeronautics Division is able to offer fuel at the reduced price because it monitors its tank levels and wholesale fuel prices to keep its tanks supplied with fuel at the most advantageous price. Aeronautics then passes the savings onto other agencies by only marking up the wholesale price \$.50 a gallon to cover costs of its equipment and line and pumping service personnel.

### Parts and Maintenance

The Aeronautics Division maintains the three Department of Natural Resources' piston engine aircraft housed in the Division's hangar and services aircraft of the Civil Air Patrol and SLED upon request. The Division provides aircraft mechanic labor at \$55 an hour. Market shop rates depend upon the type aircraft serviced, with turbine/jet engines ranging from \$90 to \$110 an hour, and piston aircraft repair and maintenance running from \$65 to \$85 an hour. Based on information from the Division, it provided almost 890 hours of mechanic service to the Department of Natural Resources over the course of FY 2012 and FY 2013. At a market rate of \$80 an hour, this service would have cost the Department of Natural Resources \$71,200 if provided by commercial shops instead of approximately \$48,950. Based on the FY 2012 and FY 2013 experience, closing the Division's flight support services would cost the Department of Natural Resources an additional \$11,125 annually.

Similarly, the Division purchases parts at wholesale and then resells them at less than market price to other state agencies. The Division offered two recent examples of agencies' savings. In FY 2013, the Division purchased and provided a replacement engine for one of the Department of Natural Resources' aircraft at an estimated 15% off the market price, a savings of \$5,661. The Division also reports saving SLED approximately \$20,000 on a similar transaction.

### One-Time Revenue From Sale-of State Aircraft

The King Air C90 was formally appraised as having an actual retail market value of \$575,000 to \$600,000 in July, 2010 and was purchased by the Division for \$600,000 in FY 2011. The Division reports the average retail market price for the King Air 350 is \$1,563,455 with a

wholesale price of \$1,405,355, based upon a review of comparable aircraft for sale on the online market and use of software employed by an in-state commercial vendor who is engaged in aircraft management, maintenance and sales. If a decision is made to sell the Aeronautics Division's aircraft, the state should expect to receive a one-time sum of about \$2,000,000.

### **VIII. Non-Financial/Unquantified Factors**

A cost benefit analysis usually involves assigning a monetary value to options for performing a business function. The object is to help decision-makers choose among alternatives based on facts rather than "gut feelings". Unfortunately, many factors affecting a decision about selling the airplanes operated by the Aeronautics Division and using charter operators cannot be quantified, or at least, cannot be quantified with sufficient validity. The Budget and Control Board has attempted to identify and briefly discuss some of these factors in this section.

#### *Safety*

Safety is a key consideration in any decision about air transportation, especially when the passengers are the top executives of state government and officers of corporations being recruited by the state. Although airplane accidents are relatively rare, they usually have tragic outcomes when they occur. The loss of life or serious injury to passengers transported by the state could have serious long term consequences for the state. Should an accident involve an economic development prospect, for example, efforts to recruit business to South Carolina could be set back for years.

The Aeronautics Division has a stellar safety record. For more than 78 years, the Division has operated a flight department without a major accident. Three years ago, in October 2010, the Division received the National Business Aviation Association's Safe Flying Achievement Award recognizing the Division for 75 years of flight without an accident. The Division attributes its safety record, at least in part, to the Division's on-site maintenance professionals and the experience and training of its pilots. According to the Division, it requires more of its pilots than the minimum standards mandated by the Federal Aviation Administration for on-demand passenger charter pilots. The Aeronautics Division reports that its pilots must possess an FAA commercial pilot certificate with multi-engine land and instrument rating and have a minimum of 4,000 hours for a captain on the King Air 350 and a minimum of 2,500 hour for a captain on the King Air C90. The FAA requires charter operator pilots to have only 1,200 hours for captain in the King Air 350, and there is no minimum pilot hour requirement for the King Air C90. The total flight time logged by the Division's full and part-time pilots ranges from 4,212 to 12,300 hours. The chief pilot has a total of 6,500 hours flight time, 16 years flying experience, and an Airline Transport Pilot rating.



If there is a solicitation for charter service information about offerors' safety records should figure prominently in the ultimate choice of vendors.

#### *Aircraft Availability*

The Division does not keep data on the number of times it is unable to fulfill a request for an airplane, but there were a limited number of days in the past two years when both of the Division's aircraft were in the air on the same day. Consequently, it is reasonable to conclude that at least one of the state aircraft was almost always available when needed. The Division estimates an aircraft is unavailable only one to two times a year at most.

Division aircraft may be scheduled twenty-four hours a day, seven days a week, and can respond to a request within an hour, according to the Division.

Charter aircraft also may be scheduled twenty-four hours a day, seven days a week, and most charter operators reported they could respond to requests within two to four hours. Availability of charter aircraft is a function of demand and the size of a charter's fleet and ability to broker additional aircraft if needed. Most charters indicated five to seven days' notice was sufficient to ensure a reservation, but noted they are on-demand services with a first come, first served policy and strive to have their aircraft in use.

#### *Resource Available for Emergency Response (e.g., hurricane)*

As noted above, the Division and its aircraft are part of the state's response in an emergency situation and the flight department participates in planning exercises for this role. It may be possible to charter aircraft in an emergency, but access and availability may be more limited and less reliable. In addition, a charter service is less likely to be involved in emergency preparedness activities and used more on an impromptu basis during and immediately after the emergency. Consequently, changing to charter service could result in diminished effectiveness and efficiency in responding to emergencies.

#### *Accountability: Centralized Posting of Flight Logs and Manifests*

Presently, the Division reports flight activity (logs and manifests) for all agencies using its services on the Division's website within one working day of each flight. The Division serves as a single source for the information. With a charter service, flight activity may be reported separately by each agency using the service, making it more challenging for the public to find and stay abreast of activity and expenditures for this category of travel.

#### *Recruitment of Economic Development Prospects*

Often the state uses air transportation in its efforts to recruit businesses to the State. If the State uses charters instead of its own aircraft, the state may have less flexibility in responding as discussions progress, especially if ad hoc scheduling and destinations are involved. Proponents

of ownership also contend using a charter instead of a state-owned aircraft may affect closing a deal. The contention is that owning aircraft favorably influences business officials' perception of the state and its negotiators.

#### Potential Reduction in Empty Legs

The Division's aircraft are based at the Columbia Metropolitan Airport and dispatched from there. Consequently, the aircraft occasionally fly to another location before boarding any passengers. During FY 2012 and FY 2013, 29% of the trips involved "empty leg" segments, and 24,622 statute miles were flown en route to pick up passengers and return to Columbia after dropping them off elsewhere. If the state moves to charter service, the state could potentially be divided into regions with each region served by a different charter airline situated in or near a particular region. This arrangement may reduce the number of passengerless flight segments and the cost of air service. However, because most flights depart and return to Columbia with passengers, regionalization would only be a viable alternative if a Columbia-based charter operator bids and can provide cost effective flights.

### **IX. Concluding Comments**

Two scenarios were used to calculate the Division's hourly flight cost. One used the average number of hours flown by the Division during the last two complete fiscal years, which was 233 hours. The second used 206 flight hours, which is the average of 233 adjusted to reflect a potential reduction in aircraft usage, in FY 2014 and subsequent years. Under both scenarios, 206 and 233 annual flight hours, the Division's cost was less to fly the three in-state trips with passengers departing from and returning to Columbia. The Division's trip cost was less regardless of which of its King Air aircraft was flown.

For the remaining trips, the Division's cost compared favorably for the Washington D. C. trip in the Division's King Air 350. Basing the Division's cost on 233 flight hours annually, the trip in its King Air 350 cost \$310 or about 3.6% less than the average charter cost. At 206 flight hours annually, the Division's King Air 350 cost more to make the Washington D. C. trip but the difference is relatively small, \$253 or about 3.0% more than the charter average.

The Division's King Air C90 cost at least \$1,000 more than the charter average for the Washington D. C. trip whether its cost was based on 206 or 233 flight hours annually. However, the Division generally uses the King Air 350 rather than the C90 for longer flights such as the Washington D. C. trip.

For the trip with passengers departing from and returning to Clemson, the trip cost more in both of the Division's aircraft than the average cost of the trip by charter. This result holds regardless of whether 206 or 233 annual flight hours are used to calculate the Division's cost.

The difference in trip cost between the Division and the charter average relates in part to the distance between an aircraft's base of operations and the point of passenger departure and return. For trips with passengers leaving from and returning to Columbia, the Division's base of operations, the Division's flights were more cost effective. For the trip with passengers departing from and returning to Clemson, charter operators located near Clemson were generally and on average more cost effective. The average charter and Division trip cost for the longer Washington D. C. trip were essentially the same when the Division uses its King Air 350.

As reported, factors beyond cost effectiveness are also important in reaching an ultimate decision whether to sell the Division's aircraft. However, these factors cannot be validly assigned a monetary value. Their importance and value must be determined by public policy decision-makers. In addition, when considering the trip comparisons, it is important to keep in mind the variable nature of factors affecting cost. A change in some of these factors could make a significant difference. For example, the cost effectiveness of the Division is dependent to a large extent upon the level at which the state utilizes the Division's aircraft. The more hours the aircraft are flown, the more the fixed costs are reduced per trip and flight hour. If fewer hours are flown, costs per trip and flight hour increase. Consequently, and again as an example, a decision to use a charter to provide just the Clemson to Columbia flight would reduce the Division's annual flight hours and increase the cost of its remaining flight service. Such a decision would need to be evaluated for its overall cost effectiveness.

# **APPENDICES**

## **Appendix A**

### **Selected Enactments**

#### **1. Division of Budget and Control Board governed by Aeronautics Commission**

**SECTION 55-1-1.** There is created a Division of Aeronautics within the South Carolina Budget and Control Board that shall be governed by the Aeronautics Commission as provided in Chapter 1, Title 57.

**SECTION 55-1-5.** For the purposes of Chapters 1 through 9, Title 55, the following words and terms are defined as follows:... (9) "Commission" means the Aeronautics Commission which shall assist and oversee the operation of the division.... (11) Notwithstanding another provision of law, "Executive Director" means the person or persons appointed by the Governor in accordance with Section 13 1 1080 and serving at the pleasure of the Aeronautics Commission to supervise and carry out the functions and duties of the Division of Aeronautics as provided for by law.

**SECTION 13-1-1010.** Notwithstanding any other provision of law, the Aeronautics Commission is hereby created within the Budget and Control Board. The Budget and Control Board shall provide administrative support functions to the division. The commission shall oversee the operation of the division as the division's governing body. The Joint Bond Review Committee must review, prior to approval by the Aeronautics Commission, purchases or sales of any aeronautics assets, the value of which exceeds fifty thousand dollars. There may be no purchase or sale of any aeronautics assets without the approval of the commission.

#### **2. Division must be maintained as a distinct component/function**

**A270, R293, H3918, SECTION 15. A.** The Aeronautics Commission, and the commission's functions, powers, duties, and responsibilities transferred to the Budget and Control Board, or its successor entity, by this act must be maintained as a distinct component, function, power, duty, or responsibility of the Budget and Control Board, or its successor entity. Any funds appropriated to the commission must not be transferred to another component of the Budget and Control Board, or its successor entity. Any funds appropriated for a distinct function, power, duty, or responsibility of the commission must be exercised by the commission.

B. Regulations promulgated by this commission as it formerly existed under the Department of Commerce are continued and are considered to be promulgated by this commission under the Budget and Control Board, or its successor entity.

C. The Aeronautics Commission shall use its existing resources that are transferred to the Budget and Control Board, or its successor entity, including, but not limited to, funding, personnel, equipment, and supplies.

D. Any reference to the Budget and Control Board shall mean the Budget and Control Board or its successor entity.

#### **3. Composition of Commission**

**SECTION 13-1-1020.** Notwithstanding any other provision of law, the congressional districts of this State are constituted and created commission districts of the State, designated by numbers corresponding to the number of the respective congressional districts. The commission shall be composed of one member from each district elected by the delegations of the congressional district and one member appointed by the Governor, upon the advice and consent of the Senate, from the State at large. The elections or appointments shall take into account race and gender so as to represent, to the greatest extent possible, all segments of the population of the State and shall comply with the provisions of Chapter 13, Title 8. However, consideration of these factors in making an appointment or in an election does not create a cause of action or basis for an employee grievance for a person appointed or elected or for a person who fails to be appointed or elected.

**SECTION 13-1-1030.** (A) Notwithstanding any other provision of law, a county that is divided among two or more commission districts, for purposes of electing a commission member, is considered to be in the district which contains the largest number of residents from that county.

(B) Notwithstanding any other provision of law, no county within a commission district shall have a resident commission member for more than one consecutive term and in no event shall any two persons from the same county serve as a commission member simultaneously.

**SECTION 13-1-1050.** (A) Notwithstanding any other provision of law, beginning February 15, 2005, commissioners must be elected by the legislative delegation of each congressional district. For the purposes of electing a commission member, a legislator shall vote only in the congressional district in which he resides. All commission members must serve for a term of office of four years that expires on February fifteenth of the appropriate year. Commissioners shall continue to serve until their successors are elected and qualify, provided that a commissioner may only serve until their successors are elected and qualify, and provided that a commissioner may only serve in a hold over capacity for a period not to exceed six months. Any vacancy occurring in the office of commissioner must be filled by election in the manner provided in this article for the unexpired term only. No person is eligible to serve as a commission member who is not a resident of that district at the time of his appointment, except that the at large commission member may be appointed from any county in the State regardless of whether another commissioner is serving from that county. Failure by a commission member to maintain residency in the district for which he is elected shall result in the forfeiture of his office. The at large commission member, upon confirmation by the Senate, shall serve as chairman of the commission.

(B) The terms of the initial members of the commission appointed from congressional district are as follows:

(1) commission members appointed to represent congressional district one and two, two years;

(2) commission members appointed to represent congressional district three, four, and seven, three years;

(3) commission members appointed to represent congressional district five and six, four years.

(C) The at large commissioner shall serve at the pleasure of the Governor.

#### **4. Qualifications for commission chairman and members**

**SECTION 13-1-1090.** Notwithstanding any other provision of law, individuals serving on the commission must meet the following minimum qualifications to be qualified:

(1) the commission chairman must have experience in the fields of business, general aviation, and airport management;

(2) all other members of the commission must have a proven record of public and community service, and experience in the fields of business and aviation. Additionally, each member must meet at least two of the following criteria:

- (a) general aviation experience;
- (b) airport or fixed based operator (FBO) management experience;
- (c) aviation service provider experience;
- (d) previous service as a state or regional airport commissioner;
- (e) legal experience; or
- (f) active involvement in a recognized aviation association.

#### **5. Appointment of Executive Director for Division**

**SECTION 13-1-1080.** Notwithstanding any other provision of law, the executive director shall be appointed in accordance with the following procedures:

(A)(1) The commission shall nominate no more than one qualified candidate for the Governor to consider for appointment as executive director. In order to be nominated, a candidate must meet the minimum requirements as provided in Section 13 1 1090.

(2) If the Governor rejects a person nominated by the commission for the position of executive director, the commission must nominate another candidate for the Governor to consider until such time as the Governor makes an appointment.

(3) In the case of a vacancy in the position of executive director for any reason, the name of a nominee for the executive director's successor must be submitted by the commission to the Governor.

(4) The appointment must comply with the provisions contained in Chapter 13, Title 8.

(B) The executive director shall serve at the pleasure of the commission and be appointed as provided in this section.

## **6. Executive director of aeronautics and other employees**

**SECTION 55-5-50.** Notwithstanding another provision of law, the division shall employ an executive director of aeronautics in accordance with the provision contained in Section 13 1 1050 and 13 1 1080 and other employees necessary for the proper transaction of the division's business.

## **7. Responsibilities and authority of Division**

**SECTION 55-5-70.** The division shall promote and foster air commerce within the State and the division shall have an interest in the maintenance and enhancement of the aeronautical activities and facilities within the State. The division shall adopt reasonable rules and promulgate regulations as it may deem necessary and advisable, in conjunction with Federal Aviation Administration regulations, for the public safety and for the promotion of aeronautics governing the designing, laying out, location, building, equipping, operation and use of all airports.

**SECTION 55-5-71.** It is unlawful for a restricted use airport, or other air navigation facility within three nautical miles of a public use facility to be used or operated without the written approval of the division. This approval must be based upon consideration of aviation safety, including a location that would constitute a collision or air traffic hazard or conflict with flight operations in the vicinity of a public use airport.

**SECTION 55-5-72.** Except as provided in this section, no airport open for public use shall be constructed in this State unless the master plan study, or airport layout plan, or the construction plans and specifications for such airport or landing strip have been approved in writing by the division. No additions shall be made to any existing airport or landing strip open for public use unless the master plan study or the construction plans and specifications for an airport or landing strip have been approved in writing by the division. This provision shall not apply to airports owned by private entities, or an airport which does not receive State funds.

**SECTION 55-5-73.** No state airport construction funding or funding from the State Aviation Fund shall be provided to an airport unless it has an airport layout plan and construction plan approved by, and on file with the division at the time the request for funding is made.

**SECTION 55-5-80.** (A) The division shall have a seal and shall adopt rules and promulgate regulations for its administration, not inconsistent, as it considers necessary. It may amend its rules and regulations and shall adopt reasonable rules and promulgate regulations as it considers necessary and advisable for the public safety and the safety of those engaged in aeronautics.

(B) The division shall enter into contracts or agreements with the Federal Aviation Administration to administer, and shall administer grant programs, maintenance programs, or other programs in the support of the state aeronautical system.

(C) The division shall operate a flight department including the purchase, operation, and maintenance of aircraft to support the transportation needs of the State, and may support and cooperate with other state agencies who own aircraft through maintenance and operations agreements.



(D) The division shall consult with the Federal Aviation Administration, persons involved in aeronautics and aeronautical activity, public airports, and airport governing boards as necessary for the purpose of enhancing the public safety and the safety of those engaged in aeronautics. The division may promulgate regulations to carry out this purpose. However, these regulations must not be inconsistent with federal law or regulations governing aeronautics.

(E) The division shall assist in the development of aviation and aviation facilities within the State for the purpose of safeguarding the interest of those engaged in all phases of the aviation industry and of the general public and of promoting aeronautics.

(F) The division may cooperate with any authority, county, or municipality in the establishment, maintenance and operation of airports, landing fields or emergency landing strips and may do so in cooperation with other states or with any federal agency.

(G) The division shall have the authority to partner with local governments, private entities, special purpose districts, or others to establish, own, operate, and maintain existing or future airports.

(H) The division may conduct inspections of aviation facilities for compliance with federal grants, or to assist in obtaining grants from federal agencies, or to ensure compliance with national building or fire codes, including premises and the buildings and other structures at airports, or at prospective airports or other air navigation facilities. In order to effectuate this purpose, the division shall cooperate with the local governing body of an airport and any state or municipal officer or agency that may have jurisdiction over the airport.

(I) The division may participate in and support the emergency management division air branch emergency support function.

(J) The division shall have the authority to review and approve airport master plans pursuant to Section 55-5-72.

(K) The division shall have the authority to take action to abate any imminent or foreseeable hazard to aviation safety at a public use airport in the State or in the vicinity of a public use airport when it can be shown that:

(1) a violation of this title or a violation of a federal, state, or local law, ordinance, regulation, or federally approved airport design criteria that relates to aviation safety has occurred;

(2) a condition exists that interferes with, or has a reasonable potential in the judgment of the division to interfere with aircraft operations;

(3) a condition poses an increased risk to aviation safety;

(4) the persistence of a condition would cause aircraft takeoff, landing, or approach criteria to be adversely impacted; or

(5) a condition exists that would constitute a nuisance to aircraft operation. These conditions may include, but are not limited to:

- (a) obstructions such as towers, trees, or manmade structures;
- (b) conditions that adversely affect FAA or industry criteria for safe approach, landing, takeoff and departure profiles;
- (c) landfills or other activities that have the potential to attract a large number of birds;
- (d) interference with airport markings, including lighting;
- (e) light pollution, including off-airport lighting;
- (f) land uses that have a reasonable potential to interfere with aircraft operations, pose an increased risk to aviation safety, adversely affect aircraft takeoff, landing or approach criteria, or constitute a nuisance to aircraft operations; or
- (g) interference with airport and aviation navigational equipment and facilities.

(L) Legal action may include the issuance of an order directing the abatement or removal of the hazard, an action in circuit court or the Administrative Law Court to enjoin the construction or maintenance of a hazard, or the removal and abatement of a hazard.

(M) Except in emergency situations, before taking legal action, the division shall cooperate with the airport sponsor and affected local governments with the objective of achieving a mutually agreeable solution. If necessary, the parties shall engage in alternative dispute resolution. The alternative dispute resolution must be between the governmental entity and the division and shall not involve any private parties.

(N) The division may promulgate regulations necessary to implement this section.

(O) The division and an affected local government shall have the ability to seek cost recovery for the actual costs in the removal or abatement of the hazard against the persons responsible for creating or maintaining an airport hazard that violates this section, or violates a federal, state, or local law, ordinance, regulation, or federally approved airport design criteria.

**SECTION 55-5-150.** (A) The division may close, order closure, or approve closure of an airport, airport runway, or any portion of one only when a condition exists on the airport property that constitutes an imminent and substantial endangerment to aircraft operations and aviation safety, and the condition remains unabated after notice to the airport owner and operator, and a reasonable opportunity has expired to correct any deficiencies determined by the division. The division may promulgate regulations to administer this section.

(B) If the division disagrees with a decision of an airport sponsor or governmental body to close a public use airport or any part of one, both the division and the airport sponsor or governmental body shall engage in mediation or another form of alternative dispute resolution mutually agreed upon in an attempt to resolve their differences. In addition, the division may require that the airport sponsor develop a proposed closure plan that contains:

(1) a certification that all grant conditions imposed by federal or state funding have been complied with, and that all grant funds have been repaid to the appropriate agency;

(2) a statement for the reason for the closure;

(3) an economic analysis of the impact of the closure on the community;

(4) a plan and schedule for the use of or development of a replacement facility acceptable to the division; and

(5) other information required by the division.

**SECTION 55-5-190.** The division, its members and employees and every county and municipal officer charged with the enforcement of state and municipal laws shall enforce and assist in the enforcement of this chapter. The division also may in the name of the State enforce the provisions of this chapter by injunction in the circuit courts of this State. Other departments and political subdivisions of the State may also cooperate with the division in the development of aeronautics and aeronautic facilities within the State.

**2013 Act 101, Part IB, paragraph 87.1.** (AERO: Reimbursement for Services Carry Forward) The Division of Aeronautics may retain and expend reimbursements derived from charges to other government agencies for service and supplies for operating purposes and that a reserve not to exceed \$300,000 may be carried forward to the current fiscal year for the replacement of time limit aircraft components.

**2013 Act 101, Part IB, paragraph 87.2.** (AERO: Office Space Rental) Revenue received from rental of Division of Aeronautics office space may be retained and expended to cover the cost of building operations.

**2013 Act 101, Part IB, paragraph 87.4.** (AERO: Hangar/Parking Facilities) The Division of Aeronautics will provide hangar/parking facilities for government owned and/or operated aircraft on a first come basis. Funds shall be retained by the division for the purpose of hangar and parking facility maintenance. The Hangar Fee Schedule shall be determined by the division and shall not exceed local average market rates.

Personnel from the agencies owning and/or operating aircraft will be responsible for ground movement of their aircraft.

## **8. Use of state-owned aircraft and maintenance of flight logs**

**SECTION 55-1-90.** State-owned aircraft may be used by state agencies, and other governmental bodies or political subdivisions within the state for matters pertinent to, and in the normal course of business for the governmental entities. Use of state aircraft by other governmental bodies or political subdivisions that are not a part of South Carolina State government must be accompanied by a written statement by a legislative sponsor or a sponsor from an agency of the State attesting to the need for one or more flight operations. The written statement must be in a manner acceptable to the division.

Nothing in this section shall prohibit the division from entering into agreements with a public hospital or medical center owned, operated, or supported in whole or in part by state funds for the purpose of transporting personnel or patients, whether on an emergency basis or otherwise, as long as payment is made, including any insurance proceeds, to the State Treasurer. All funds paid for use of state aircraft under this section must be deposited into the general fund and credited to the division. The division may adopt rules and promulgate regulations governing this section.

**2013 Act 101, Part IB, paragraph 117.23.** (GP: State Owned Aircraft - Flight Logs) Each agency having in its custody one or more aircraft shall maintain a continuing log on all flights, which in order to promote accountability and transparency shall be open for public inspection and shall also be posted online. Any and all aircraft owned or operated by agencies of the State Government shall be used only for official business. The Division of Aeronautics and other agencies owning and operating aircraft may furnish transportation to the Governor, Constitutional Officers, members of the General Assembly, members of state boards, commissions, and agencies and their invitees for official business only; no member of the General Assembly, no member of a state board, commission, or committee, and no state official shall use any state owned or operated aircraft unless the member or official files within twenty-four hours after the completion of the flight with the agency that provided the flight a sworn statement certifying and describing the official nature of his trip; and no member of the General Assembly, no member of a state board, commission or committee, and no state official shall be furnished air transportation by a state agency unless such agency prepares and maintains in its files a sworn statement from the highest ranking official of the agency or its designee certifying that the member's or state official's trip was in conjunction with the official business of the agency. Official business shall not include routine transportation to and from meetings of the General Assembly or committee meetings for which mileage is authorized. Official business also does not include attending a press conference, bill signing, or political function.

All logs shall be signed by the parties using the flight and the signatures shall be maintained as part of the permanent record of any agency. All passengers shall be listed on the flight log by their legal name; passengers flying with an appropriate official of SLED or the Department of Commerce whose confidentiality must, in the opinion of SLED or the department, be protected shall be listed in writing on the flight log as "Confidential Passenger SLED or the Department of Commerce (strike one)" and the appropriate official of SLED or the department shall certify to the agency operating the aircraft the necessity for such confidentiality. The Division of Aeronautics shall post its flight logs on its website within one working day of completion of trips.

Violation of the above provisions of this section is prima facie evidence of a violation of Section 8-13-700(A) of the 1976 Code and shall subject a violating member of the General Assembly to the ethics procedure of his appropriate house and shall subject a violating member of a state board, commission or committee, or a state official to the applicable ethics procedure relating to them as provided by law. The above provisions do not apply to state owned or operated aircraft when used by the Medical University of South Carolina, nor to aircraft of the athletic department or the educational foundations of any state-supported institution of higher education, nor to law enforcement officers when flying on state owned aircraft in pursuit of fugitives, missing persons, or felons or for investigation of gang, drug, or other violent crimes.

Aircraft owned by agencies of state government shall not be leased to individuals for their personal use.

**2013 Act 101, Part IB, paragraph 117.120.** (GP: Prohibit Use of State Aircraft for Athletic Recruitment) Institutions of higher learning may not use the state aircraft operated by the Division of Aeronautics for the purpose of athletic recruiting.

## **9. State Aviation Fund**

**SECTION 55-5-280.** (A)(1) All monies received from licensing of airports, landing fields, or funds appropriated for aviation grants, the tax on aviation fuel, and fees for other licenses issued under this chapter must be paid into the State Treasury and credited to the fund known as the "State Aviation Fund".

(2) The fund also may receive gifts, grants, and federal funds and shall include earnings from investments of monies from the fund.

(3) A fund balance at the close of the fiscal year shall not lapse but must be carried forward to the next fiscal year.

(4) The revenue credited to the State Aviation Fund pursuant to this subsection must be used solely as provided in subsection (C).

(B) In any fiscal year in which the tax levied by the State pursuant to Section 12-37-2410, et seq., exceeds five million dollars, the revenues in excess of five million dollars must be directed to the State Aviation Fund; however, any revenue in excess of ten million dollars must be credited in equal amounts to the general fund and the State Aviation Fund.

(C) The State Aviation Fund must be used solely for:

(1) maintenance and repairs of the division's aircraft; or

(2) maintenance, rehabilitation, and capital improvements to public use airports, which may include use as matching funds for FAA Airport Improvement Grants, provided that those airports receiving grants meet the requirements set forth by the division.

(3) The State Aviation Fund must not be used for operating expenses of the division.

(D) The division may promulgate regulations governing the eligibility requirements and procedures for disbursements from the State Aviation Fund.

## **Appendix B**

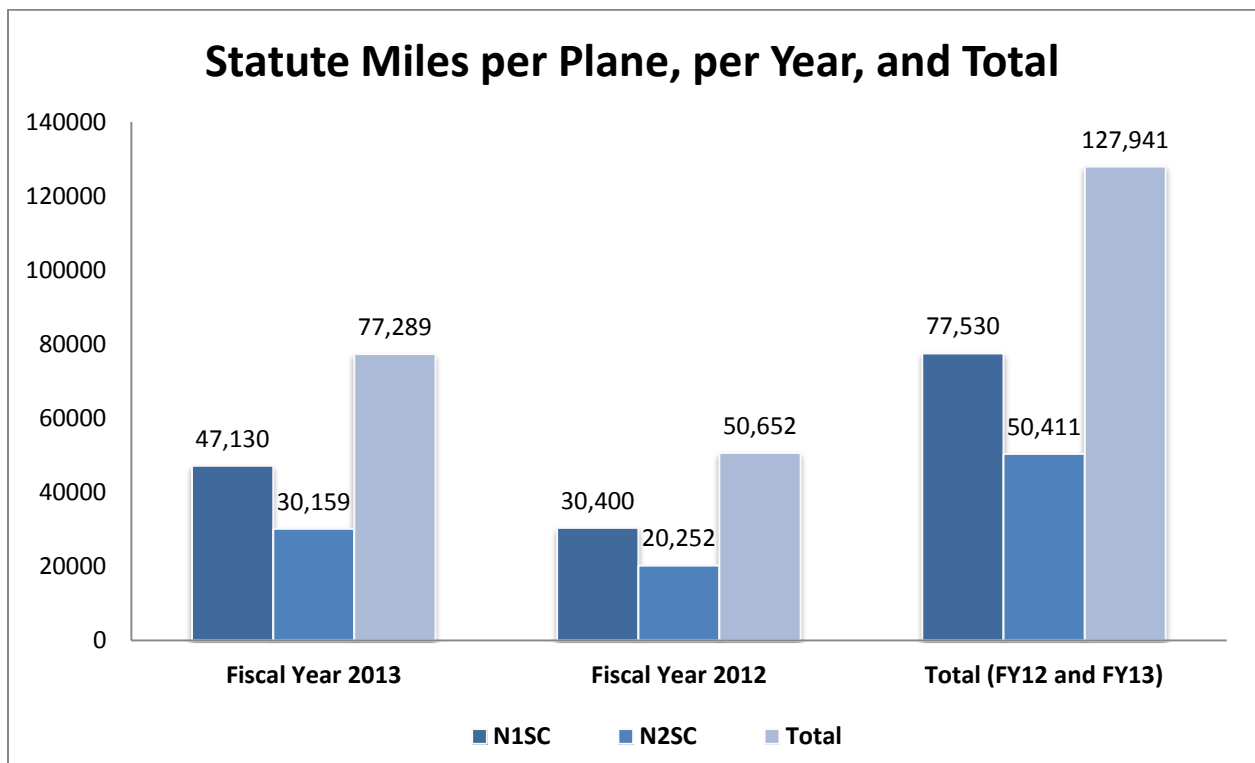
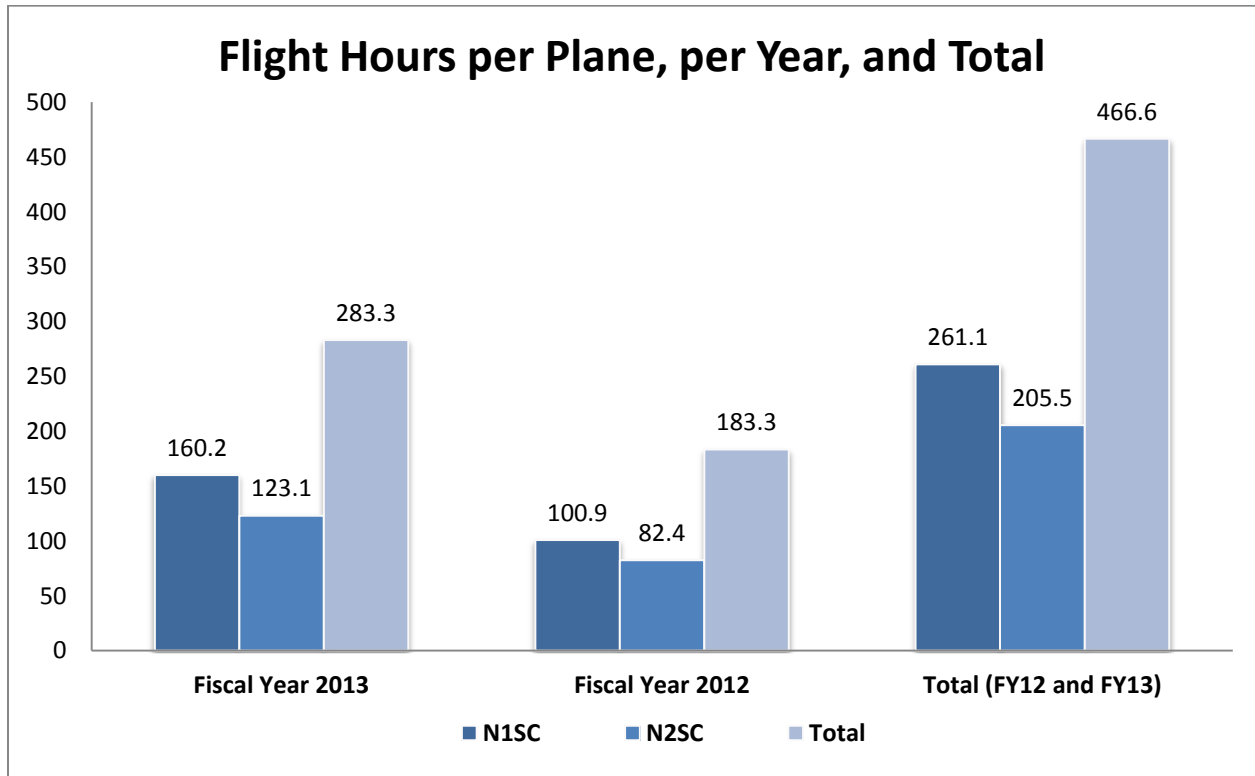
### **Round Trips FY 2012**

<b>Aircraft</b>	<b># of Trips</b>	<b>Statute Miles</b>	<b>Avg Miles/Trip</b>	<b>Flight Hours</b>	<b>AvgHours/Trip</b>
<b>N1SC (350)</b>					
In-State	24	8,269	344.54	29.4	1.23
Out-of-State	22	22,131	1,005.95	71.5	3.25
Total	46	30,400	660.87	100.9	2.19
<b>N2SC (C90)</b>					
In-State	29	11,365	391.90	46.8	1.61
Out-of-State	11	8,887	807.91	35.6	3.24
Total	40	20,252	506.30	82.4	2.06
<b>Both Aircraft</b>					
In-State	53	19,634	370.45	76.2	1.44
Out-of-State	33	31,018	939.94	107.1	3.25
Total	86	50,652	588.98	183.3	2.13

### **Round Trips FY 2013**

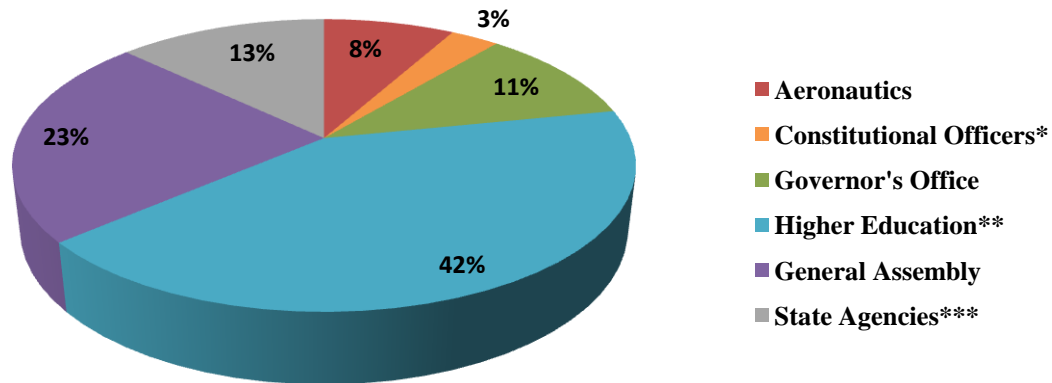
<b>Aircraft</b>	<b># of Trips</b>	<b>Statute Miles</b>	<b>Avg Miles/Trip</b>	<b>Flight Hours</b>	<b>Avg Hours/Trip</b>
<b>N1SC (350)</b>					
In-State	21	7,437	354.14	27.5	1.31
Out-of-State	36	39,693	1,102.58	132.7	3.69
Total	57	47,130	826.84	160.2	2.81
<b>N2SC (C90)</b>					
In-State	37	14,355	387.97	60.6	1.64
Out-of-State	22	15,804	718.36	62.5	2.84
Total	59	30,159	511.17	123.1	2.09
<b>Both Aircraft</b>					
In-State	58	21,792	375.72	88.1	1.52
Out-of-State	58	55,497	956.84	195.2	3.37
Total	116	77,289	666.28	283.3	2.44

### Appendix C



## Appendix D

### Percentage of Aircraft Use by Authorizing Party FY 2012

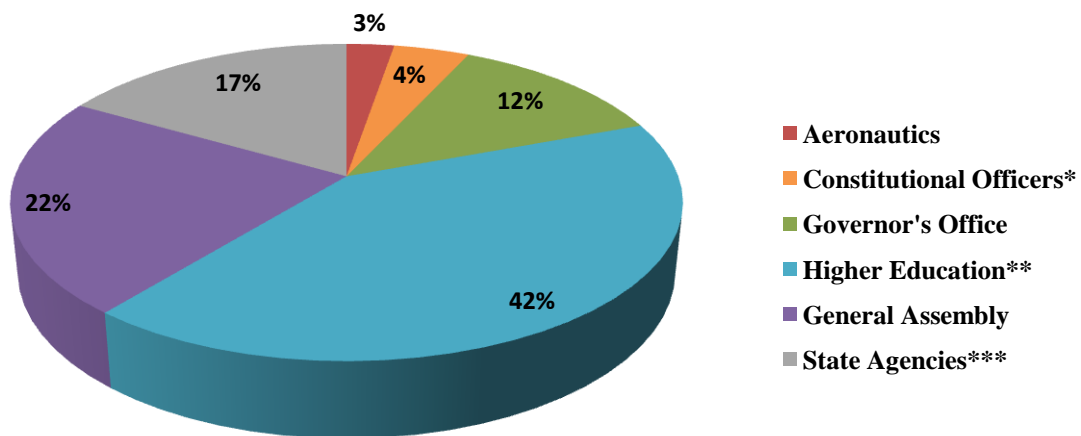


*\*Excluding Governor's Office, which is reported separately*

*\*\* Clemson University*

*\*\*\* Department of Commerce and Ports Authority*

### Percentage of Aircraft Use by Authorizing Party FY 2013



*\*Excludes Governor's Office, which is reported separately*

*\*\* Clemson University, Coastal Carolina University, and Medical University of South Carolina*

*\*\*\* Department of Commerce and Ports Authority*



## Appendix E

### Round Trips for Both Aircraft FY12 and FY13 - Excluding Athletic

FY	# of Trips	Statute Miles	Avg Miles/Trip	Flight Hours	Avg Hours/Trip
<b>FY13 (Both Aircraft)</b>					
In-State	59	21,792	369.36	88.1	1.49
Out-of-State	51	46,822	918.08	164.1	3.22
Total	110	68,614	623.76	252.2	2.29
<b>FY12 (Both Aircraft)</b>					
In-State	51	18,240	357.65	71.3	1.40
Out-of-State	28	25,688	917.43	89.6	3.20
Total	79	43,928	556.05	160.9	2.04
<b>Total (Both Aircraft)</b>					
In-State	110	40,032	363.93	159.4	1.45
Out-of-State	79	72,510	917.85	253.7	3.21
Total	189	112,542	595.46	413.1	2.19
<b>Average</b>	<b>95</b>	<b>56,271</b>		<b>206</b>	

## Appendix F

### Aeronautics Cost Calculation based on 206 Flight Hours

	<b>King Air 350</b>	<b>King Air C90</b>
<b>Estimated Variable Costs/Flight Hour:</b>		
Aviation Fuel	504.00	300.00
Engine Reserves	234.00	154.00
Maintenance Supplies and Services	643.00	302.00
Travel Expenses	26.64	26.64
Airport Fees	21.04	21.04
<b>Total Variable Cost / Flight Hour</b>	1,428.68	803.68
<b>Estimated Fixed Costs/Flight Hour <sup>(1)</sup>:</b>	1,711.17	1,711.17
<b>Total Cost / Flight Hour</b>	<b>\$ 3,139.85</b>	<b>\$ 2,514.85</b>

<b><sup>(1)</sup> Estimated Fixed Costs - Flight Department:</b>	
<i>Salaries and Fringe</i>	
Pilots and Aircraft Maintenance Staff	260,000
<i>Contractual Services</i>	
Telephones, Data Processing, Uniform Cleaning, etc	25,000
<i>Supplies</i>	
Clothing, Educational, misc. supplies	1,000
<i>Fixed Charges</i>	
Aircraft Insurance and Other fixed Charges	40,000
<i>Fixed Travel and Training</i>	
Pilot Training and Aircraft Maintenance Travel Exps	11,000
<i>Electricity &amp; Utilities</i>	
Allocated Electricity and Utilities	14,500
<i>Other Miscellaneous Exps</i>	
Other costs not reflected in another category	1,000
<b>Total Fixed Costs</b>	<b>352,500</b>
<b>Cost / Hour based on 206 Flight Hours / Year</b>	<b>\$ 1,711</b>

## Appendix G

### Aeronautics Cost Calculation based on 233 Flight Hours

	<b>King Air 350</b>	<b>King Air C90</b>
<b>Estimated Variable Costs/Flight Hour:</b>		
Aviation Fuel	504.00	300.00
Engine Reserves	234.00	154.00
Maintenance Supplies and Services	643.00	302.00
Travel Expenses	26.64	26.64
Airport Fees	21.04	21.04
<b>Total Variable Cost / Flight Hour</b>	1,428.68	803.68
<b>Estimated Fixed Costs/Flight Hour <sup>(1)</sup>:</b>	1,512.88	1,512.88
<b>Total Cost / Flight Hour</b>	<b>\$ 2,941.56</b>	<b>\$ 2,316.56</b>

**<sup>(1)</sup> Estimated Fixed Costs - Flight Department:**

*Salaries and Fringe*

Pilots and Aircraft Maintenance Staff 260,000

*Contractual Services*

Telephones, Data Processing, Uniform Cleaning, etc 25,000

*Supplies*

Clothing, Educational, misc. supplies 1,000

*Fixed Charges*

Aircraft Insurance and Other fixed Charges 40,000

*Fixed Travel and Training*

Pilot Training and Aircraft Maintenance Travel Exps 11,000

*Electricity & Utilities*

Allocated Electricity and Utilities 14,500

*Other Miscellaneous Exps*

Other costs not reflected in another category 1,000

**Total Fixed Costs**

352,500

**Cost / Hour based on 233 Flight Hours / Year**

**\$ 1,513**

## Appendix H

### Flight Cost Ranking

206 Flight Hours per Year

<u>Columbia - Charleston</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,103
2	Option #3 - Greenville	\$5,327
3	Option #6 - Augusta	\$5,050
4	Option #2 - Greenville	\$4,560
	<b>Charter Average</b>	<b>\$4,553</b>
5	Option #1 - Greenville	\$4,515
6	Option #5 - Augusta	\$4,098
7	Option #7 - Greenwood	\$3,571
8	Option #8 - Augusta	\$3,482
9	<b>Aeronautics C90</b>	<b>\$2,976</b>
10	<b>Aeronautics 350</b>	<b>\$2,669</b>

<u>Columbia to Hilton Head</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,506
2	Option #3 - Greenville	\$5,610
3	Option #6 - Augusta	\$5,559
4	Option #1 - Greenville	\$5,050
5	Option #2 - Greenville	\$5,008
	<b>Charter Average</b>	<b>\$4,958</b>
6	Option #5 - Augusta	\$4,382
7	Option #8 - Augusta	\$3,982
8	Option #7 - Greenwood	\$3,909
9	<b>Aeronautics C90</b>	<b>\$3,605</b>
10	<b>Aeronautics 350</b>	<b>\$3,192</b>

<u>Columbia - Greenville</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,068
2	Option #3 - Greenville	\$5,327
3	Option #6 - Augusta	\$5,050
	<b>Charter Average</b>	<b>\$4,443</b>
4	Option #1 - Greenville	\$4,406
5	Option #2 - Greenville	\$4,345
6	Option #5 - Augusta	\$4,098
7	Option #8 - Augusta	\$3,428
8	Option #7 - Greenwood	\$3,160
9	<b>Aeronautics C90</b>	<b>\$2,976</b>
10	<b>Aeronautics 350</b>	<b>\$2,669</b>

<u>Clemson to Columbia</u>		
Rank	Vendor Option	Cost
1	<b>Aeronautics C90</b>	<b>\$6,874</b>
2	<b>Aeronautics 350</b>	<b>\$6,071</b>
3	Option #6 - Augusta	\$5,729
4	Option #4 - Atlanta	\$5,053
5	Option #3 - Greenville	\$4,987
6	Option #5 - Augusta	\$4,522
	<b>Charter Average</b>	<b>\$4,403</b>
7	Option #2 - Greenville	\$3,830
8	Option #1 - Greenville	\$3,765
9	Option #7 - Greenwood	\$3,160

<u>Columbia - Washington, DC</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$11,156
2	Option #6 - Augusta	\$10,646
3	<b>Aeronautics C90</b>	<b>\$10,479</b>
4	Option #3 - Greenville	\$9,537
5	Option #2 - Greenville	\$9,125
6	Option #5 - Augusta	\$9,075
7	<b>Aeronautics 350</b>	<b>\$8,897</b>
	<b>Charter Average</b>	<b>\$8,663</b>
8	Option #1 - Greenville	\$8,027
9	Option #7 - Greenwood	\$7,656
10	Option #8 - Augusta	\$4,082

## Appendix I

### Flight Cost Ranking

233 Flight Hours per Year

<u>Columbia - Charleston</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,103
2	Option #3 - Greenville	\$5,327
3	Option #6 - Augusta	\$5,050
4	Option #2 - Greenville	\$4,560
	<b>Charter Average</b>	<b>\$4,553</b>
5	Option #1 - Greenville	\$4,515
6	Option #5 - Augusta	\$4,098
7	Option #7 - Greenwood	\$3,571
8	Option #8 - Augusta	\$3,482
9	<b>Aeronautics C90</b>	<b>\$2,741</b>
10	<b>Aeronautics 350</b>	<b>\$2,500</b>

<u>Columbia - Hilton Head</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,505
2	Option #3 - Greenville	\$5,610
3	Option #6 - Augusta	\$5,559
4	Option #1 - Greenville	\$5,050
5	Option #2 - Greenville	\$5,008
	<b>Charter Average</b>	<b>\$4,958</b>
6	Option #5 - Augusta	\$4,382
7	Option #8 - Augusta	\$3,982
8	Option #7 - Greenwood	\$3,909
9	<b>Aeronautics C90</b>	<b>\$3,320</b>
10	<b>Aeronautics 350</b>	<b>\$2,991</b>

<u>Columbia - Greenville</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$6,068
2	Option #3 - Greenville	\$5,327
3	Option #6 - Augusta	\$5,050
	<b>Charter Average</b>	<b>\$4,443</b>
4	Option #1 - Greenville	\$4,406
5	Option #2 - Greenville	\$4,345
6	Option #5 - Augusta	\$4,098
7	Option #8 - Augusta	\$3,428
8	Option #7 - Greenwood	\$3,160
9	<b>Aeronautics C90</b>	<b>\$2,741</b>
10	<b>Aeronautics 350</b>	<b>\$2,500</b>

<u>Clemson to Columbia</u>		
Rank	Vendor Option	Cost
1	<b>Aeronautics C90</b>	<b>\$6,332</b>
2	Option #6 - Augusta	\$5,729
3	<b>Aeronautics 350</b>	<b>\$5,687</b>
4	Option #4 - Atlanta	\$5,053
5	Option #3 - Greenville	\$4,987
6	Option #5 - Augusta	\$4,522
	<b>Charter Average</b>	<b>\$4,403</b>
7	Option #2 - Greenville	\$3,830
8	Option #1 - Greenville	\$3,765
9	Option #7 - Greenwood	\$3,160

<u>Columbia - Washington, DC</u>		
Rank	Vendor Option	Cost
1	Option #4 - Atlanta	\$11,156
2	Option #6 - Augusta	\$10,646
3	<b>Aeronautics C90</b>	<b>\$9,652</b>
4	Option #3 - Greenville	\$9,537
5	Option #2 - Greenville	\$9,125
6	Option #5 - Augusta	\$9,075
	<b>Charter Average</b>	<b>\$8,644</b>
7	<b>Aeronautics 350</b>	<b>\$8,334</b>
8	Option #1 - Greenville	\$8,027
9	Option #7 - Greenwood	\$7,656
10	Option #8 - Augusta	\$4,082