MEMORANDUM

TO: Thad Howell, Chief Pilot & Flight Operations Manager, NCDOT Division of Aviation
Bobby Walston, Director, NCDOT Division of Division
FROM: Nel Stubbs, Vice President, Conklin & de Decker Associates, Inc., *a JSSI Company*
DATE: February 25, 2022
SUBJECT: B200 Aircraft Rate Charges Report

KNOWN/GIVEN

1. NCDOT when flying for outside agencies, such as the Governor's office or his cabinet, is charging for the operating costs (fuel, unscheduled maintenance, engine/prop reserves) of the aircraft.
2. A recent budget bill increased this rate to external customers until the results of the rates analysis can be determined. Budget bill language:
    a. *The Division of Aviation shall conduct a rates and charges analysis for the Hawker Beechcraft King Air B200 passenger aircraft (King Air). The report shall contain a comparison of the market rates of private aircraft providers in North Carolina and surrounding states and an analysis of actual operating-cost-rate for the King Air. The Division of Aviation shall submit the results of the study, including a recommended rate, to the Joint Legislative Transportation Oversight Committee and the Fiscal Research Division by March 1, 2022.*

SCOPE OF WORK

1. Provide a report that contains a comparison of the market rates on King Air B200's from private aircraft providers in NC and surrounding states.
    a. Conduct a charter rate analysis on a King Air B200 that is used for passenger travel of state executives.
        i. Determine private aircraft charter rates of vendors of B200 aircraft in the above-mentioned states.
        ii. Notate any differences in comparative aircraft (model, seating capacity) versus NCDOT's King Air B200 and any bearing these differences may have on cost structure.
    b. Provide a description of the pricing structure of charter operator's fee vs. Part 91 operators.
        i. Describe how for-profit charter operators structure their rates vs a typical Part 91 operator.

ANALYSIS/REVIEW

1. Charter rate analysis on a King Air B200 which is used for passenger travel of state executives.
    a. Private aircraft charter rates of vendors of King Air B200 aircraft in the above-mentioned states:
        i. Spoke to sources across the Southeast to identify six operators, located in AL, FL, GA, KY & SC that use B200s *(See attached)* and obtained rates. The retail rate includes the intent to make a profit.

a. Group 1 – do not own their aircraft, rather they are leased to the operators. After a charter flight is flown, the Operator retains 15% of the retail rate and the remaining 85% goes to the aircraft, aka lease payment.
    i. Southern Sky Aviation (AL), their retail rate is $2,150 per hour (includes fuel and pilots).
    ii. Skylife Elite (FL)), their retail rate is $1,950 per hour (includes fuel and pilots).
    iii. Gold Aviation (FL), their retail rate is $2,500 per hour (includes fuel and pilots).

b. Group 2 - charges an hourly rate for the aircraft and a flat rate for pilots.
    i. SAI Flight (SC), their retail rate is $1,850 per hour for the aircraft and $1,200 per day for pilots. Assuming a 4-hour day the cost per hour would work out to around $2,150 per hour
        - SAI Flight retains 15% of their retail rate
    ii. Atlanta Air Charter (GA), their retail rate is $1,669.50 per hour for the aircraft and $1,250 per day for pilots. Assuming a 4-hour day the cost per hour would work out to around $1,982 per hour.
        - Atlanta Air Charter owns their aircraft so there is no revenue sharing with an aircraft owner.
    iii. Triton Airways (KY), their retail rate is $1,800 per hour for the aircraft and $1,700 per day for pilots. Assuming a 4-hour day the cost per hour would work out to around $2,250 per hour
        - Triton retains 15% of their retail rate

b. Other Costs
    i. In addition to the retail rate, there are other costs that are added to the cost of the charter flight, such as profit, landing fees, supplies/catering, crew expenses, fuel surcharge, custom fees, taxes, and other costs that are incurred by the flight.
    ii. According to the operators I spoke to, the retail rates have increased significantly over the last 6 months to a year. The increase in charter rates is due to low aircraft availability and high demand.

b. Analysis of actual operating cost rate for the King Air B200:
    ii. See *attached* Conklin & de Decker Aircraft Operating Cost & Performance Guide (AOCPG) report, which provides the industry benchmark for aircraft operating costs on all aircraft, to include the King Air B200.
        1. Conklin & de Decker has been gathering aircraft cost information since 1984. Conklin & de Decker gets its costs from OEMs, MROs, FBOs, operators, our own research, and more recently from Jet Support Services, Inc., which has been our parent company since April 2018.
            a. The CDD AOCPG costs for a King Air B200 at 300 hours/year *(see attached)*
                i. Variable Cost
                    - $690/hour

ii. Maintenance Cost
- $782/hour

iii. Fixed Costs
- $1,343/hour

iv. Total Annual Costs
- Annual - $844,509
- Hourly – $2,815

c. Components (direct & indirect costs) included in hourly rates:
   i. In most cases the costs included in an hourly rate are the variable and maintenance costs. Under variable costs, this would include cost of fuel, landing fees, crew expenses and catering/supplies.
      1. Conklin & de Decker Definitions
         a. **Landing and Parking Fees**
            i. This cost element represents typical charges associated with landing and parking the aircraft away from the home base. These charges vary widely from airport to airport. In general, landing charges are based on the maximum take-off gross weight of the aircraft and parking charges are based on the weight of the aircraft and the duration of the stay. However, every airport and FBO uses its own formula. For that reason, we use an average of a variety of airports to calculate the average hourly cost. Costs for airports outside the US tend to be higher, sometimes by a very significant margin. Our approach has been to obtain the basic formula for various representative airports in a particular region from data published on the internet by these airports or from operators familiar with these airports/countries. The resulting data is then averaged to obtain an average cost per hour for Landing and Parking fees for the US and other regions/countries.
         b. **Crew Expenses**
            i. If shown, this is the cost incurred by the flight crew (Pilots & Flight Attendants), when away from home base, for accommodations, transportation, and meals. The costs for the US are typical of a major metropolitan area and use a formula that includes $250 per person per night (Hotel $150, Meals $50, Misc $50). For other regions we adjust these costs by means of the US State Department allowances in the different countries or regions for these expenses. This information is then cross checked with local operators and adjusted if appropriate.
         c. **Small Supplies & Catering**
            i. This is the costs incurred for minor supplies for the cabin and cockpit (flashlight batteries, napkins, toilet paper, etc.) and all in-flight catering for the crew and passengers. We use a formula based on the number of crew, number of passenger seats and class of aircraft.

ii. Other variable costs are the maintenance costs, such as maintenance labor, maintenance parts, propeller allowance, major periodic maintenance, and engine reserves. These terms are defined, for a turboprop, as follows

2. **Maintenance Labor**
    a. Maintenance labor costs assume one full life cycle of the aircraft. An aging factor is applied to the aircraft costs during the aircraft's operational life cycle.
    b. Maintenance labor cost is composed of two parts: the cost per labor hour and number of labor hours.
        i. Cost per Labor Hour
            1. The cost per labor hour is an average of the cost per hour experienced by operators at various manufacturers' authorized maintenance facilities in the US for the different types of aircraft (jets, turboprops, pistons, and helicopters). This cost is surveyed and adjusted annually. A similar approach is used for other regions around the world.
        ii. Labor Hours per Flight Hour
            1. Labor included in our aircraft labor calculation is all labor required for:
                a. Scheduled maintenance to include all inspections for a FulLife™ period, including the labor required for major periodic inspections due on many jets at 96 months or on one manufacturer's helicopters at 12 years.
                b. Discrepancies found during scheduled maintenance inspections/events for the airframe and avionics (on condition)
                c. Routine engine maintenance not covered during engine overhaul
                d. Labor for the removal/replacement of components requiring overhaul/inspection /servicing as well as life limited components.
                e. Unscheduled maintenance discrepancies
                f. Minor airworthiness directives and service bulletins.
            2. Labor not included in our labor calculation is labor required for:
                a. Major engine maintenance covered by our estimated engine restoration costs
                b. Off market aircraft overhaul and repair of major components, such as landing gear, propellers, and main rotor gearboxes
                c. Maintenance labor required for optional equipment, aircraft completion items (interior), aircraft cleaning and washing, any

administrative labor, stocking of aircraft supplies or travel to repair aircraft.

3. **Maintenance Parts**
    a. Parts included in our aircraft parts cost calculation:
        i. All airframe, avionics and minor engine consumable parts required for routine scheduled maintenance including for major inspections
        ii. Unscheduled maintenance, including for standard avionics and cockpit displays
        iii. On-condition maintenance
        iv. An average of 20% of the total component overhaul and life limited parts cost has been added to account for premature removal of these parts due to failure (helicopters only)
        v. Parts associated with airworthiness directives and mandatory service bulletins
    b. Not included in our parts cost calculation:
        i. Parts used in the normal overhaul of components, life limited parts and engines.
        ii. Parts required for inventory costs, optional equipment, and aircraft completion items (interior)
        iii. Shipping, import duties and taxes/VAT
4. **Propeller Allowance**
    a. This is an estimate of the maintenance labor and parts costs to overhaul the propeller(s), including the cost of any life limited parts. This cost is divided by the overhaul interval to arrive at a cost per hour.
5. **Major Periodic Maintenance**
    a. In addition to the engines, many fixed and rotary wing aircraft require major periodic inspections and/or overhauls of major components. Examples include the landing gear overhaul at a specified number of landings on almost all fixed-wing aircraft and the main rotor gearbox after a certain number of hours on almost all helicopters. As with the engines, it is important to have a clear understanding of the long-term cost of this type of major maintenance. For this reason, we show the cost per hour that should be set aside to cover the estimated cost of these major inspections and overhauls when they are due – i.e., the total estimated cost of the inspection or component overhaul divided by the major inspection/overhaul intervals in hours.
    b. The costs per flight hour shown are estimated using our major inspection and component overhaul costs included in our FulLife™ cost database. Included in the cost per hour for this element are:
        i. Major Component Overhauls
            1. This includes the inspection labor plus the maintenance labor and parts, as well as the required testing for the major component overhaul.
        ii. Life Limited Parts
            1. Only the cost of the parts is included here since the cost of labor is included in the airframe maintenance labor cost. For example, an item with a life of 20,000

cycles and a cost of $20,000 would have a cost of $1 per hour.

6. **Engine Reserves/Restoration**
    a. The engines used on all aircraft require major periodic maintenance to maintain and/or restore their integrity and performance. For most turbine and all piston powered aircraft (fixed-wing and helicopters) these major engine maintenance events occur on a fixed interval inspection schedule. However, for some large and long-range corporate fixed-wing aircraft and almost all airliner aircraft the major engine maintenance occurs on an "on-condition" basis. To obtain a clear understanding of the long-term cost of engine maintenance we show the cost per hour that should be set aside to cover the estimated cost of the major maintenance when it is due – i.e., the total estimated cost of the engine major maintenance divided by the major inspection interval in hours or the average number of hours between on-condition removals. The source for these estimated costs per flight hour are as follows:
        i. Turbine Powered Fixed-Wing Aircraft
            1. Engine allowances for turbine powered fixed-wing aircraft use the Jet Support Services, Inc. Essential+ LLC plan to cover the cost of scheduled and unscheduled maintenance, all required inspections and overhauls and replacement of any Life Limited Components (LLC) such as the turbine disks or impeller). Aircraft for which no JSSI plan rate is available are estimated using our engine cost database.
            2. This rate was calculated using our FulLife™ methodology
                a. All jet, turboprop, helicopter, and piston aircraft maintenance costs are estimated using our FulLife™ cost approach. Under the FulLife™ approach we estimate the funds that should be set aside in order to pay for all scheduled and unscheduled, near-term, and eventual maintenance of the aircraft over one operational life cycle of each inspection, component overhaul, engine overhaul and replacement of life limited items.
        ii. The CDD AOCPG total for variable and maintenance costs is $1,472/hour.
d. Description of the pricing structure of charter operator's fee vs. a Part 91 operators (corporate/agency flight departments)
    i. How for-profit charter operators structure their rates vs. a typical Part 91 operator.
        1. **Charter Operators** (Part 135)
            a. Do not own the aircraft
            b. Do not pay any of the costs of the aircraft
            c. There is a profit motive
            d. They are in the business of providing air charter

e. They can charge whatever the market will bear
f. Split revenue from retail charter rate with aircraft Owner. This is traditionally an 85/15 split.
    i. In the case of Atlanta Air Charter, they own the aircraft so there is not a split with the owner.
    ii. In the case of Steve Wiley, they are not the owner, and their split is 85/15.

2. **Part 91 Operators**
    a. The aircraft is owned by the Part 91 operator, and they incur all the costs of the ownership and operation of the aircraft.
    b. Part 91 operators have a lot of restrictions on whether and when they can charge for the use of the aircraft
        i. In order to charge internally, the operator needs to meet the requirements under FAR Part 91.501(b)(5).
            1. Carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;
        ii. If operator cannot meet the requirements of FAR 91.501(b)(5) another alternative that is available for a Part 91 operator to charge is a Time-Sharing arrangement defined under FAR 91.501(c)(1)
            1. A "time sharing agreement" means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under that arrangement other than those specified in paragraph (d) of this section.
                a. (d) The following may be charged, as expenses of a specific flight, for transportation as authorized by paragraphs (b) (3) and (7) and (c)(1) of this section:
                (1) Fuel, oil, lubricants, and other additives.
                (2) Travel expenses of the crew, including food, lodging, and ground transportation.
                (3) Hangar and tie-down costs away from the aircraft's base of operation.
                (4) Insurance obtained for the specific flight.
                (5) Landing fees, airport taxes, and similar assessments.
                (6) Customs, foreign permit, and similar fees

directly related to the flight.
(7) In flight food and beverages.
(8) Passenger ground transportation.
(9) Flight planning and weather contract services.
(10) An additional charge equal to 100 percent of the expenses listed in paragraph (d)(1) of this section.

2. NARRATIVE/DISCUSSION

Charter Rates

Research of charter rates in the southeast region of the United States (SE US) showed that the charter rates have gone up over the last couple of years. The high demand and lack of availability is causing this. Research showed that the average retail rate in SE US is $2,164 plus other costs such as landing fees, catering, crew expenses, fuel surcharge, taxes, which can add up to more than $400 per hour.

In context of this report, the cost of charter may not be all that relevant as the NCDOT King Air B200 is a Part 91 aircraft and there is no profit motive under Part 91, where in the case of Part 135 profit is a motive.

CONKLIN & de DECKER - Aircraft Operating	
ASSUMPTIONS	
Hours/year	300
Cost of fuel/gallon	$4.63
Fuel Burn - gallons/hour	113
Passenger Load	6
VARIABLE COSTS	
Fuel	$523
Landing Fees	$17
Crew Expenses	$87
Supplies/Catering	$63
Hourly Cost	**$690**
Annual Cost	**$207,000**
MAINTENANCE COSTS	
Maintenance Labor	$168
Parts Airframe/Engine/Avionics	$209
Propeller Allowance	$10
Major Periodic Maintenance	$83
Engine Reserves ($156/engine)	$312
Hourly Cost	**$782**
Annual Cost	**$234,600**
FIXED COSTS	
Captain	$131,000
Co-Pilot	$105,000
Benefits (30% of Salaries)	$70,800
Hangar	$33,600
Insurance - Hull	$16,800
Insurance - Single Limit Liability	$11,000
Aircraft Modernization	
Training	$30,000
Navigation Chart Service	$1,009
Refurbishing	
Computer Maintenance	$3,000
Weather	$700
Annual Cost	**$402,909**
Hourly Cost	$1,343
TOTAL COSTS PER YEAR	**$844,509**
TOTAL COSTS PER HOUR	**$2,815**