



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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October 1, 2014

MEMORANDUM

TO: Joint Legislative Transportation Oversight Committee

FROM: Bobby L. Walston, PE *BLW*
Director, Division of Aviation

SUBJECT: NCDOT – Division of Aviation Aircraft Fleet Plan

Pursuant to Senate Bill 744, Section 34.10.(b), this Division of Aviation Aircraft Fleet Plan is designed to outline actions currently being taken, and those the Division recommends be taken, to amend its current fleet.

The Aircraft Fleet Plan was written to address each of the sections outlined by the legislature including asset utilization, assets recommended for disposal or acquisition, contracted services, cost efficiencies, recommendations for adjustments to passenger transport rates, and interagency coordination of assets and personnel.

Additionally, the Plan provides details on the sale of the two aircraft as directed by the legislature in Section 34.10.(a).

Please let me know if anyone has any questions and/or if further information is needed.

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October 1, 2014

NC Department of Transportation



Division of Aviation



A Plan for the Joint Legislative Transportation Oversight Committee

Session Law 2014-100

Senate Bill 744: NCDOT – Division of Aviation Aircraft Fleet Plan

TABLE OF CONTENTS

Bill Language.....3

NCDOT Division of Aviation Flight Operations – Overview.....4

Asset Utilization.....6

Assets Recommended for Disposal or Acquisition.....7

Contracted Services.....10

Cost Efficiencies.....11

Recommendations for Adjustments to Passenger Transport Rates.....12

Interagency Coordination of Assets and Personnel.....14

Status of Division of Aviation’s Efforts to Sell Aircraft.....15

Index of Tables and Charts.....16

**GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2013
SESSION LAW 2014-100
SENATE BILL 744 PLAN**

AN ACT TO MODIFY THE CURRENT OPERATIONS AND CAPITAL IMPROVEMENTS APPROPRIATIONS ACT OF 2013 AND FOR OTHER PURPOSES.

DEPARTMENT OF TRANSPORTATION AIRCRAFT FLEET

SECTION 34.10.(a) The Division of Aviation of the Department of Transportation shall sell the following aircraft from its fleet as expeditiously as possible in order to modernize the fleet:

- (1) Sikorsky S-76C helicopter.
- (2) Cessna 550 Citation Bravo airplane.

Proceeds from these sales as well as any future sales under the plan required by subsection (b) of this section shall be credited to a nonreverting reserve within the Highway Fund to be used for future aircraft or equipment acquisitions by the Division of Aviation. The Division shall not acquire or dispose of additional aviation assets prior to its report to the Joint Legislative Transportation Oversight Committee required by subsection (c) of this section.

SECTION 34.10.(b) The Division of Aviation shall develop a plan to further reduce operating requirements and optimize its fleet to fulfill its regional passenger and photogrammetry missions, addressing, at a minimum, the following:

- (1) Asset utilization.
- (2) Assets recommended for disposal or acquisition.
- (3) Contracted services.
- (4) Cost efficiencies.
- (5) Recommendations for adjustments to passenger transport rates.
- (6) Interagency coordination of assets and personnel.

SECTION 34.10.(c) The Division shall report on the plan required by subsection (b) of this section to the Joint Legislative Transportation Oversight Committee no later than October 1, 2014.

NCDOT Division of Aviation Flight Operations - Overview

The NCDOT Division of Aviation Flight Operations Section provides 24-7 on-demand flight operations throughout North Carolina and the United States. Missions support state agencies and departments such as Transportation, Public Safety, Commerce, Agriculture and the Executive Office.

The Division of Aviation has four aircraft, all based at the Raleigh-Durham International Airport, and listed below.

Table 1.1 – Current Fleet

Manufacturer	Model Year	Aircraft Type	Mission	Seats
Cessna	1998	Citation Bravo	Passenger	8
Hawker Beechcraft	2007	King Air 200	Passenger	9
Hawker Beechcraft	2007	King Air C-90	Photogrammetry	6
Sikorsky	1998	S-76 Helicopter	Passenger	7



Citation Bravo



King Air 200



King Air C-90



S-76 Helicopter

Current Staff:

NCDOT Division of Aviation

Division of Aviation staff consists of four pilots (the Flight Operation Manager and three Executive Pilots), two mechanics and one flight scheduler. The current number of positions within Flight Operations is listed below. This number of positions reflects a reduction of two executive pilot positions made in FY 2013-14. The current number of staff is sufficient for the Division to execute this Aircraft Fleet Plan in conjunction with utilization of interagency partnerships and contract pilots.

Table 1.2 – Current Staff Positions

Title	Number
Flight Operations Manager	1
Executive Pilot	4
Senior Mechanic	1
Mechanic	1
Scheduler	1

Types of Flight Missions:

Management Support: Passengers flown in support of executive management at the secretarial level for all departments of state government (including Deputy Secretaries and their immediate staff).

Governor’s Office: Passengers include the Governor, security, and support staff with the Executive Office.

Commerce Support: Airlift support to the state’s economic development programs for business and industry recruiting.

Emergency and Safety Operations: Flights in response to local, regional, and state disaster prevention and relief missions in which state aircraft resources are needed. These missions often involve Department of Public Safety State Emergency Management and transportation officials.

Photogrammetry Operations: Flights conducting aerial photography for NCDOT and other governmental agencies to create topographic maps to be used for engineering planning purposes; accident reconstruction; the assessment of environmental conditions such as soil erosion, aquatic vegetation patterns, and damage from natural disasters.

Maintenance and Training Operations: Flights in support of maintenance required by the FAA or the Division of Aviation. Training flights are required by the FAA so that flight crews remain current on all types of flying conditions.

Asset utilization

Flight hours per aircraft during the past two fiscal years are listed below. Flight hours account for the actual time the aircraft engines are running, and accrue until the engines are shut down.

Table 2.1 – Flight Hours per Aircraft per Fiscal Year

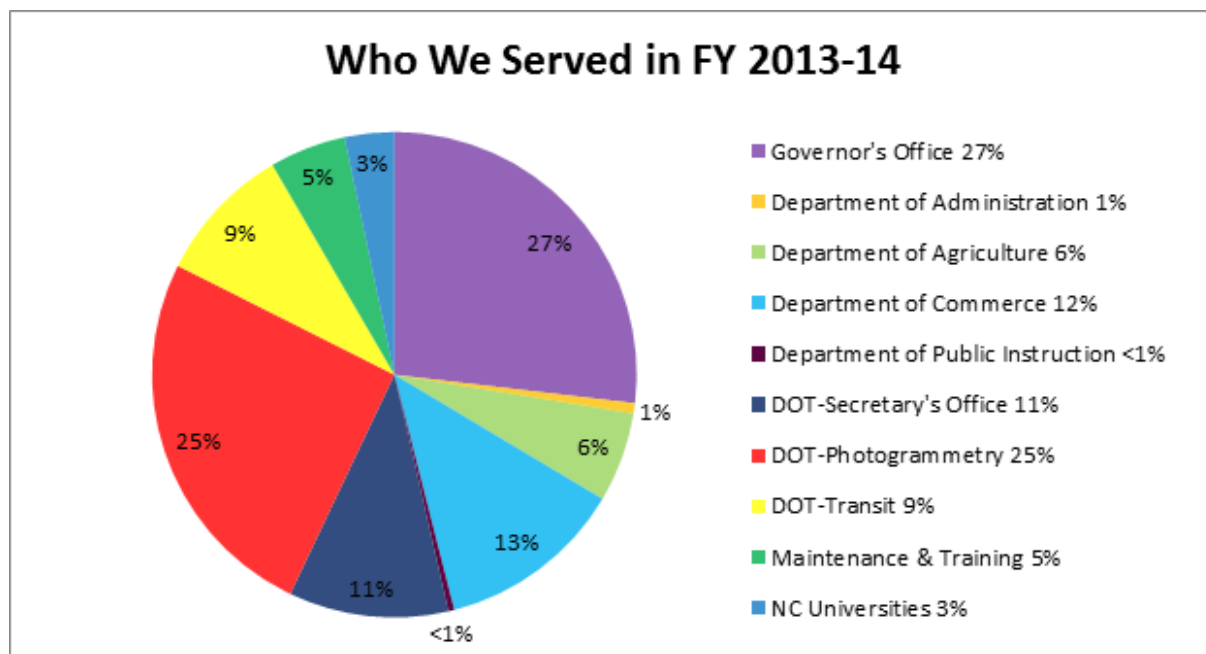
Aircraft Type	FY 2012-13 Flight Hours	FY 2013-14 Flight Hours
Citation Bravo	150	138
King Air 200	183	235
King Air C-90	183	161
S-76 Helicopter	50	22
Total Fleet	566	556

To provide additional savings for the state, NCDOT began partnering with UNC Medical Air Operations beginning in FY 2012-13. As part of the Division's efforts to reduce cost, this partnership has grown during the past fiscal year as seen in Table 2.2 below.

Table 2.2 – Flights Flown by UNC on Behalf of NCDOT per Fiscal Year

Aircraft Type/ Model	FY 2012-13 Flight Hours	FY 2013-14 Flight Hours
TBM / 850,700	12	34
Baron / BE-58	7	31
Total	19	65

Chart A – Users Served FY 2013-14



Assets Recommended for Disposal or Acquisition

The Division of Aviation is acting on the legislature's call for the sale of two aircraft, the Sikorsky S-76 Helicopter and the Citation Bravo. The table below also indicates the Division of Aviation's plan to retain two aircraft, the Hawker Beechcraft King Air 200 and Hawker Beechcraft C-90.

Table 3.1 – Sales as Directed by Legislature

Manufacturer	Aircraft Type	Mission	Action	Estimated Value
Cessna	Citation Bravo	Passenger	Sell	\$1,500,000
Hawker Beechcraft	King Air 200	Passenger	Retain	0
Hawker Beechcraft	King Air C-90	Photogrammetry	Retain	0
Sikorsky	S-76 Helicopter	Passenger	Sell	\$1,800,000
			Total	\$3,300,000

The process of selling the Sikorsky S-76 is underway and is broken down in detail on page 18. At this time, the Division of Aviation also recommends the following asset acquisition plan to be taken immediately after the sale of the Sikorsky S-76 and prior to the sale of the Citation Bravo.

Assets Recommended for Acquisition – Immediate Needs

In order to continue reducing operating costs while serving the needs and demands of our users, the Division of Aviation recommends purchasing an additional aircraft, a Cessna Grand Caravan EX. This aircraft should be purchased prior to selling the Citation Bravo. Otherwise, if the Citation Bravo is sold prior to this acquisition, the Division of Aviation will be down to one passenger aircraft and will not be able to meet demand on days when two or more passenger missions are needed.

Therefore, it is recommended that the Grand Caravan EX be purchased and set up as the Division's photogrammetry aircraft as expeditiously as possible. The King Air C-90 would then be able to transition to operating as a passenger aircraft, allowing the Division to maintain its ability to transport six passengers with multiple aircraft.

This plan allows for a significant reduction in operational cost for photogrammetry missions. In addition, the Cessna Grand Caravan EX will also be used as a single-engine passenger aircraft for certain missions. This flexibility offers the opportunity for increased utilization, therefore reducing operating cost per flight hour.

Table 3.2 – Immediate Asset Needs

Manufacturer	Aircraft Type	Mission	Action	Est. Value
Cessna	Grand Caravan EX	Passenger	Acquire	\$2,000,000
Cessna	Citation Bravo	Passenger	Sell*	0
Hawker Beechcraft	King Air 200	Passenger	Retain	0
Hawker Beechcraft	King Air C-90	Photogrammetry	Retain	0
			Total	\$2,000,000
			Reserve Balance	\$1,800,000
			Additional Cost	-\$200,000

*After the acquisition of the Grand Caravan EX and customizing it for use in photogrammetry, the Division would immediately move forward with selling the Citation Bravo.

**Cessna Grand Caravan EX****Cockpit (Equipped with Garmin 1000)****Photogrammetry Configuration (8 pax)****Passenger Configuration (11-14 pax)****Table 3.3 – Cessna Grand Caravan EX Operational Cost and Specifications**

Average Speed	190kt
Average Fuel Flow	67 gallons per hour
Fuel (\$6.00 per hour)	\$402
Labor (\$90.00 per hour)	\$39.60
Parts	\$31.95
Engine Reserve	\$98.27
Propeller Reserve	\$2.27
Total Variable Cost per Hour	\$574.09
Cost per Nautical Mile	\$3.19

Final Phase Fleet Realignment

To best serve the future needs of North Carolina, contingent upon increased demand and utilization, the Division of Aviation recommends two options for future planning of asset acquisition during the next 2-5 years. Each option includes the sale of the Hawker Beechcraft C-90, replacing it with a more cost-effective utility aircraft.

Additionally, the tables below list the nonreverting reserve balance as \$1,500,000, reflecting the sale of the Citation Bravo.

Option A provides a replacement for the King Air C-90 with an aircraft that has a lower variable cost. This option maintains two passenger aircraft with the capability of up to six passengers. The Pilatus PC-12 is a single-engine aircraft, giving it an inherently lower annual variable cost (fuel costs, maintenance, parts, etc.) than that of the King Air C-90, given that it is a dual-engine aircraft. See Table 6.5 on page 14 for the variable costs of the current fleet during a 12-month period.

Table 3.4 – Fleet Inventory Option A

Manufacturer	Aircraft Type	Mission	No. of Seats	Recommendation	Cost
Hawker Beechcraft	King Air 200	Passenger	9	Retain	0
Cessna	Grand Caravan EX	Passenger/Photogrammetry	10-14	Retain	0
Hawker Beechcraft	King Air C-90	Passenger/Photogrammetry	7	Sell	-\$2,100,000
Pilatus	PC-12	Passenger	6	Buy	\$3,500,000
				Total	\$1,400,000
				Reserve Balance	\$1,500,000
				Remaining Reserve	\$100,000

Option B also provides a replacement for the King Air C-90 with a lower priced TBM aircraft that has an even lower variable cost than the Pilatus PC-12, due to its size. The TBM can only seat four passengers when operating with two pilots, giving it a more limited mission scope than the Pilatus PC-12.

Table 3.5 – Fleet Inventory Option B

Manufacturer	Aircraft Type	Mission	No. of Seats	Recommendations	Cost
Hawker Beechcraft	King Air 200	Passenger	7	Retain	0
Cessna	Grand Caravan EX	Passenger/Photogrammetry	10-14	Retain	0
Hawker Beechcraft	King Air C-90	Passenger/Photogrammetry	7	Sell	-\$2,100,000
TBM	850/900	Passenger	4	Buy	\$2,500,000
				Total	\$400,000
				Reserve Balance	\$1,500,000
				Remaining Reserve	\$1,100,000

Contracted Services

To date, the Division of Aviation has not contracted out any aircraft services. During the past 15 months, the Division has explored areas where contracting out services may present cost savings, and will continue to do so. However, to date no such outsourcing has been feasible.

For example, in Q4 of Fiscal Year 2013-14, the Division of Aviation put out a Request for Proposals (RFP) pertaining to on-demand helicopter service as an alternative to flying the Division's helicopter. Even after amending the RFP requirements to be more accommodating to providers, the Division did not receive any proposals from the private sector.

Despite the lack of success to this point, as part of the Division of Aviation's commitment to reducing cost, the Division will continue to explore contractual options prior to any future budget decision.

Division of Aviation Flight Operations also utilizes contract pilots on an as-needed basis.

Cost Efficiencies

The sections below list several recent business improvements that have been implemented realizing significant immediate and on-going savings.

1. **Reduction in Staff:** Over the past year, Flight Operations has reduced its staff by two full-time executive pilots. The decision to reduce executive pilot staff was made primarily in light of the plan to sell the S-76 Helicopter, but is also supported by the Division's ongoing use of contract pilots as a part of its cost reduction efforts.

Savings: \$240,500

2. **Newly Negotiated Fuel Contract:** Flight Operations has a newly negotiated fuel contract with Landmark Aviation which has reduced the price from an average of \$6.00 per gallon to \$4.40 per gallon. The plan incorporates all Landmark facilities to provide NCDOT with a reduced rate below the market price at all of its locations.

Example of savings: Last year the Division of Aviation purchased more than 20,000 gallons of Jet A fuel at RDU International Airport. At the old rate, the price for that volume was \$120,000. Purchasing 20,000 gallons at the new rate of \$4.40 would result in a projected savings of \$32,000 at RDU alone.

Potential savings: \$80,000

3. **Flight Training:** Flight Operations is currently reevaluating the cost of pilot training. We are attempting to reduce the cost, but are unwilling to sacrifice the safety of flights by shortcutting the overall needs of maintaining a high level of training. We are investigating alternative ways to work with the FAA.

Potential Savings: \$28,600 per year

4. **Revised Insurance Policy:** Flight Operations has adjusted its insurance policy by changing the status of our helicopter to ground operation only. Until it is sold, if the Division needs to use the helicopter, the policy can be altered to update the helicopter to flight status for \$100 per day.

The original cost of insurance for the helicopter was \$52,360 per year. With this change, the cost of insuring the helicopter has been reduced to \$29,715.

Savings: \$22,645

5. **Redefining the Goals of Management:** To improve the effectiveness of the Division, management is now tasked with actively revisiting and analyzing all aspects of operations. The Division of Aviation has hired a new Flight Operations Manager who is charged with managing aircraft services, from flight scheduling and aircraft maintenance to increasing fleet utilization, all while improving customer service. Additionally, the new Flight Operations Manager effectively fills two positions by also serving as the Pilot in Command for all fixed-wing aircraft. In sum, the position is designed to make the operations of the Division more efficient and cost effective.

Recommendations for Adjustments to Passenger Transport Rates

Current Aircraft Rates

Table 6.1 – State Agencies Rates

Aircraft	Commerce Rate (per hour)	Executive Rate (per hour)	Other Agencies (per hour)
Cessna Citation Bravo	\$650	\$770	\$910
King Air 200	\$525	\$560	\$700
King Air C-90	\$500	\$530	\$600
S-76 Helicopter	\$975	\$975	\$975

Table 6.2 – Actual Operating Cost Rate (Political Use)

Aircraft	Rate (per hour)
Cessna Citation Bravo	\$3,511
King Air 200	\$3,039
King Air C-90	-
S-76 Helicopter	\$6,450

Note: Actual Operating Cost Rate is a charge to a non-state source for a political function, per guidance in State of NC Budget Manual Office. Only one flight and 1.5 hours have been flown under this designation during the past two years.

Flight Operations Cost

Flight Operations costs are divided into two categories, variable and fixed. Variable costs are the costs of operating and maintaining aircraft as a result of use, including contracted personnel, unscheduled maintenance, and fuel. Table 6.3 outlines the variable costs for the Division during FY 2012-13 and 2013-14.

Table 6.3 – Variable Costs

Item	Description	FY 2012-13 Cost	FY 2013-14 Cost
General Operating Expense	Parts, Repair, and Service	\$218,473	\$275,900
Supplies and Materials	Fuel	\$233,887	\$313,260
Mandatory Navigational Aids	Aircraft Electronic Charts Updates	\$15,177	\$22,166
Total		\$467,537	\$611,328

Fixed costs are the annual costs of owning, maintaining, and administering aircraft, regardless of how much the aircraft flies. Crew salaries and benefits, scheduled maintenance and inspections, operations overhead, depreciation, and insurance are all fixed costs. Table 6.4 outlines the fixed costs for the Division during FY 2012-13 and 2013-14.

Table 6.4 – Fixed Costs

Item	Description	FY 2012-13 Cost	FY 2013-14 Cost
Staff	Pilots, Contract Pilots, Mechanics, Scheduler, Insurance, Training	\$1,192,961	\$1,093,229
Facilities	Hangar	\$50,000	\$50,000
Total		\$1,242,961	\$1,143,229

The variable cost to operate all agency aircraft during FY 2013-14 was \$611,329. Dividing this amount by the number of flight hours (see Table 2.1 on p.6) during the same time period, the average cost per hour was \$1,100 for each aircraft. However, due to the low utilization of the S-76, the cost per hour for the S-76 is significantly higher than the three fixed wing aircraft. With this data in mind and projecting numbers for FY 2014-15, the Division of Aviation recommends adopting rate changes by January 1, 2015.

Recommended Rate Adjustments

The following proposed rates were designed to allow the Division of Aviation to recoup variable costs. In review, utilizing the aircraft as shown in Table 3.2 (page 8) under the Assets Recommended for Disposal or Acquisition, it is the Division's plan to sell the S-76 Helicopter immediately, purchase a Grand Caravan EX, and sell the Citation Bravo thereafter.

Table 6.5 below outlines the estimated future variable cost per hour for each aircraft the Division will retain or acquire in the near term. The estimated variable cost for each aircraft was divided by the projected number of flight hours that aircraft will be flown to provide an estimated cost per flight hour. For simplicity in accounting and tracking, these rates are proposed for use by all agencies.

Table 6.5 – Projected Annual Fleet Variable Cost

Aircraft	Projected Flight Hours	Estimated Variable Cost	Estimated Cost per Flight Hour
Citation Bravo	50	\$90,000	\$1,000
King Air 200	250	\$200,000	\$700
King Air C-90	200	\$150,000	\$625
Grand Caravan EX	150	\$60,000	\$500

Table 6.6 – Proposed Rates for All State Agencies

Aircraft	Agency Rate
Citation Bravo	\$1,000
King Air 200	\$700
King Air C-90	\$625
Grand Caravan EX	\$500

Adoption of these rates should be scheduled for January 1, 2015. Moving forward with the plan as laid out in the Assets Recommended for Disposal or Acquisition coupled with these rate adjustments will lower the Division's operating cost, encourage an increase in utilization, and aid the Division toward the goal of recouping all variable costs.

Interagency Coordination of Assets and Personnel

The Division of Aviation is working to build an interagency affiliation that will allow the sharing of resources (personnel, aircraft, and equipment) with other state agencies on an “as-needed” basis. The Division is already collaborating with UNC Medical Air Operations to share pilots, maintenance personnel, flight dispatchers, and aircraft. Our goals are to establish the following:

- Online aircraft scheduling throughout all state agencies (the system would show the number of passenger seats available and the destinations of all flight missions).
- Better communication between agencies to avoid duplicate flights to the same destination on the same day.
- Consolidation of flight proficiency training.
- Provide regularly scheduled safety briefings for all state agency flight departments.
- Monthly meetings with representatives from the flight departments of all state agencies, including the Division of Forestry, State Bureau of Investigation and the North Carolina Highway Patrol.

The goal of the Division of Aviation is to implement these plans by the end of Fiscal Year 2015.

Status of Division of Aviation's Efforts to Sell Aircraft

Pursuant to the call from the legislature, the Division of Aviation is actively offering for sale the Sikorsky S-76 Helicopter and is readying the Cessna Citation Bravo for sale. Neither aircraft has been sold as of the issuing of this report.

Table 7.1 – Attempts to Sell Helicopter by State Surplus

Venue	Highest Bid	Outcome
eBay	N/A – No bidders	Relisted
eBay	\$1,500,200	Did not meet \$2,000,000 minimum

Comments from State Surplus

- Attempt to negotiate a sale with the highest bidder to date, rather than relisting the helicopter on eBay
- The market value for the helicopter may be lower than the acceptable minimum of \$2,000,000
- Because maintenance issues compound with time, waiting to sell the aircraft will affect its future value negatively

Possible Courses of Action as Outlined by State Surplus

- Negotiate with previous bidder (permissible because due diligence is complete and aircraft was offered for sale to the public twice)
- Relist on eBay
- Contact all interested parties, gauge interest, evaluate options at that time
- Other recommendations as outlined by the Division of Aviation

Division of Aviation Recommendations for Sale of Aircraft

State Surplus and the Division of Aviation continue to look at the leads generated from the attempts to sell the aircraft on eBay. The Division of Aviation has also completed all maintenance that was behind schedule and the aircraft is now in airworthy condition. There are currently seven parties who have expressed interest in the helicopter.

Listing the Sikorsky S-76 Helicopter in Sales Publications

It is the intention of the Division of Aviation to have the specifications and pictures of the helicopter updated and listed in three leading aircraft sales publications, *Executive Controller*, *Controller*, and *Global Air*, by October 7th. These publications will then list the aircraft for sale by October 10th.

Those advertisements run through October and possibly November, depending on interest. After compiling offers, State Surplus will ask for a written “best and final offer” from the interested parties.

An update on the sale of each aircraft can be provided at any time upon request.

INDEX OF TABLES AND CHARTS

Table 1.1 – Current Fleet, p.4

Table 1.2 – Current Staff Positions, p.5

Table 2.1 – Flight Hours per Aircraft per Fiscal Year, p.6

Table 2.2 – Flights Flown by UNC on Behalf of NCDOT per Fiscal Year, p.6

Table 3.1 – Sales as Directed by Legislature, p.7

Table 3.2 – Immediate Asset Needs, p.7

Table 3.3 – Cessna Grand Caravan EX Operational Cost and Specifications, p.8

Table 3.4 – Fleet Inventory Option A, p.9

Table 3.5 – Fleet Inventory Option B, p.9

Table 6.1 – State Agencies Rates, p.12

Table 6.2 – Actual Operating Cost Rate (Political Use), p.12

Table 6.3 – Variable Costs, p.12

Table 6.4 – Fixed Costs, p.12

Table 6.5 – Projected Annual Fleet Variable Cost, p.13

Table 6.6 – Proposed Rates for All Agencies, p.13

Table 7.1 – Attempts to Sell Helicopter by State Surplus, p.15

Chart A – Users Served FY 2013-14, p.6