

Market Intelligence Report

PREPARED FOR:

**North Dakota Department of
Transportation (NDDOT)**

Executive Summary

As part of NDDOT's assessment and economic evaluation of their current fleet, ARGUS was tasked to review the current travel profile, valuation and replacement aircraft options for the NDDOT fleet. The executive summary below is a brief overview of the findings for the specific areas of the assessment, along with the methodology used during the process. For a more detailed analysis please reference Appendix 1 for the travel assessment, Appendix 2 for the aircraft valuation and Appendix 3 for fleet replacement options.

NDDOT Travel Assessment

OBJECTIVE and SCOPE:

ARGUS was tasked with assisting NDDOT in assessing their current fleet and possible aircraft replacement. Appendix 1 covers a travel assessment of NDDOT flights.

DATA:

ARGUS was provided a pdf file of the flight activity for both the NDDOT Beechcraft B200 aircraft (N200ND and N202ND). The flight activity covered the full years of 2017-2020. For the year 2021, data is only for the months of January through April. As the project progressed we were able to assess additional Q2 & Q3 2021 flying data for NDDOT. Most of that data was obtained after the completion of Appendix 1, but it is noted in this report as flying has significantly increased from pandemic lows throughout the summer months.

Findings: PASSENGER LOADS

Number of Passengers

When reviewing passenger loads for NDDOT flights between 2017 and 2021, the most common passenger count was three (3), or twenty-five percent (25%) of all flights. Only 10% of the total flight (legs) carried seven to eight (7-8) passengers. For aircraft N200ND, the most common passenger count was three (3), twenty-seven percent (27%). The most common passenger count for aircraft N202ND count was also three (3) and accounted for twenty-three percent (23%) of flights (legs).

Average Passenger/Leg

The average number of passengers per leg between 2017 and 2020 for the NDDOT fleet was 3.2, N200ND averaged 2.7 passengers and N202ND averaged 3.6 passengers. N202ND averaged 0.8 passengers more per flight leg between 2017 and 2020.

ARGUS Analysis

Most flight (legs) carry less than four (4) passengers with each full year between 2017 and 2020 having a fleet average of @ 3 passengers. Flight (legs) that carry 5 – 8 passengers account for only twenty-eight percent (28%) of all flight (legs) flown during the review period. The average number of passengers per flight (leg) flown using the NDDOT fleet declined in 2020 and again for 2021. This is attributed to the COVID pandemic and the associated travel restrictions.

Findings: NAUTICAL MILES (NM), FLIGHTS (LEGS)

According to Conklin & de Decker, a corporate King Air B200 operation with 1-2 aircraft should fly approximately one hundred and fifteen thousand (115,000) nautical miles (nm) annually. The annual number of trips (legs) should be around three hundred eighty-three (383) with the average trip (leg) being three hundred (300) nautical miles (nm). Annual totals are developed using NBAA survey

responses. However, those totals are primarily focused on corporate entities. After reviewing King Air activity for other state governments in the US we found that, during 2020, the average airplane flew 63 flights and 7,704 NM for the period. This means that NDDOT, overall, is flying a similar number of flights per aircraft but it is flying more nautical miles, longer trip length, than the comparable average.

The NDDOT fleet did not reach the average annual nautical miles flown in any of the years between 2017 and 2020, but those numbers are based primarily on corporate operations and not the typical operations of a state government. The year 2017 saw the most (nm) flown, which was 64,430. The NDDOT fleet did not match the average flight (leg) average of 300 (nm) in any year between 2017 and 2020. The highest annual average was for N200ND in 2020 at two hundred (200) nautical miles (nm) per flight (leg). The shorter nature of activity is primarily attributable to intra-state flying within North Dakota.

ARGUS Analysis

The NDDOT fleet does not meet any of the annual nautical mile (nm) or flight (leg) standards established by Conklin & de Decker, but they do perform better than comparable US state government flight departments, in terms of miles flown. As with the passenger analysis, differences in operation exist as only N200ND flew flights (legs) that were nine hundred (900) nautical miles (nm) or greater. This is another area where an aircraft upgrade could be used to balance out capabilities.

The total of nautical miles flown, and the number of legs flown dramatically decreased in 2020. This can be attributed to the COVID pandemic and the associated travel restrictions. NDDOT fully expects for total nautical miles and flight legs to increase once COVID concerns and restrictions have been lowered.

Findings: Block time

The block time for the majority of NDDOT flights (legs) are under two (2) hours. From 2017 through 2021, 97.1% of flights (legs) were under two (2) hours. Flights (legs) two (2) hours and greater accounted for only 2.9% of activity.

ARGUS Analysis

Most flights (legs) are less than 2 hours of block time (97.1%). Flights (legs) that have greater than four (4) hours of block time occasionally occur and are flown on aircraft N200ND. These types of flights accounted for only 0.7% of all flights (legs) between 2017-2021.

Findings: ARGUS OVERALL ANALYSIS

The King Air B200 aircraft flown by NDDOT are fully capable of the overall flying required. From 2017 - 2020, all analyzed metrics (total passengers, nautical miles flown, total flights/legs, total block hours) for the NDDOT fleet have gone down. The years 2020 and 2021 showed a substantial decrease in flight activity. This reduction was a direct result of the COVID pandemic and associated travel restrictions. However, an analysis of recent 2021 summer flying indicates that NDDOT's flight department has seen a significant increase in activity and has almost returned to normal levels, even with continued COVID procedures in place.

ARGUS does not recommend aircraft replacement based solely on flight activity. This recommendation is not static as additional factors such as economic evaluation, market conditions and NDDOT needs have yet to be taken into consideration. ARGUS does recommend the development of specific criteria that a replacement aircraft needs to meet and establishing a list of potential replacement aircraft based on that criteria.

Aircraft Valuation Review

OBJECTIVE and SCOPE:

ARGUS was tasked with assisting NDDOT in assessing the current value of their aircraft fleet. Appendix 2 covers the current economic valuation of the NDDOT fleet.

DATA:

NDDOT provided specific information for each aircraft (N200ND and N202ND) in its fleet. Data included manufacturing year, TTAF (Total Time Airframe), engine TSN (Time Since New)/TSO (Time Since Overhaul) and optional equipment installed on each aircraft.

ARGUS utilized data provided by AMSTAT for current (as of 6/1/2021) sales data for Beechcraft B200 aircraft. Vref was used by ARGUS to review the current and historical values for 1998 Beechcraft B200 aircraft.

***Findings:* BEEHCRAFT B200 SALES DATA (AMSTAT, as of 6/1/2021):**

AMSTAT listed fifty-seven (57) Beechcraft B200 aircraft for sale. The median asking price is \$1.3M and the closest manufacturer year to the current NDDOT fleet, is a 1997 model listed for \$1,395,000.

The number of retail sales (by year) for medium turboprop aircraft (like the NDDOT fleet) have been declining since 2019. For aircraft that are listed for sale, the median days on market has been declining and the average asking price is increasing.

***Findings:* BEEHCRAFT B200 ECONOMIC VALUATION (Vref estimate):**

Overall Base Value (1998 mfg. yr.)

The current value listed (by Vref) for a Beechcraft B200 aircraft manufactured in 1998 is currently \$1,450,000 (retail) and \$1,252,800 (wholesale). B200 aircraft values have remained flat since Q3-2020 (\$1,450,000) and have lost 1.69% of value in the last twelve (12) months. Aircraft values are shown for both retail and wholesale sales.

*A **retail** sale would be one that is usually to an individual or company looking more for a quality plane at a fair price rather than a low priced aircraft. They are also more likely to be looking for, and willing to pay for, a plane with upgrades and/or lower total time on the airframe and engines. A retail sale usually takes more time to find a buyer and requires more active and focused marketing.*

*A sale for **wholesale** would be where the buyer is looking to purchase a plane at the low end of the price range. An example of this type of sale would be a broker or reseller who has a buyer or backer and is looking at planes as an investment where they want to buy low and resell at a higher price.*

Added Value: (equipment additions/conversions & TTAF, engine time)

Equipment Additions/Conversions: Value (Depreciation)

Optional Equipment Depreciation is based on the Year the equipment was installed and it is rare an airframe upgrade adds its total cost or nearly total cost to the value of the airplane. ARGUS used the value percentage that corresponds to the time installed and equipment that was reported as installed at the factory was not considered.

TTAF and Engine Time (added value)

Vref applies additional value for aircraft that are under the average TTAF for the specific model year. N200ND (5,035 TTAF) and N202ND (4,415 TTAF) are both under the average TTAF (8,370) and each receive an increase in value.

The estimated value of an aircraft is also based on engines with mid-life hours (1,800) based on 3,600 TBO (time between overhaul). N200ND has 1,911 engine hours since new (TSN) and incurs a reduction in value while N202ND has 941 engine hours since new (TSN) and receives an increase in value.

Findings: TOTAL VALUATION ESTIMATE

In determining the total valuation estimate, three (3) areas of value are combined (base price, TTAF, engine time bonus and equipment additions/modification).

N200ND has a total value estimate of \$1,887,086 (retail) and N202ND has a value estimate of \$2,079,348 (retail).

Findings: ARGUS ANALYSIS

If a decision to sell one of the aircraft is made, the value of each aircraft should be compared against the benefits each aircraft possess. N202ND could potentially provide the most capital if sold to acquire a new/different type of aircraft that would complement that of N200ND. NDDOT could place both aircraft for sale and once one is sold, remove the other aircraft for sale. Either way the current market indicates that NDDOT will get a fair value for the sale of N200ND or N202ND

The aircraft values that ARGUS has presented are not definitive and are estimates. Any determination on value or fair market value should be determined by a certified professional aircraft appraiser.

Aircraft Replacement Options

OBJECTIVE and SCOPE:

ARGUS was tasked with assisting NDDOT in assessing their current fleet and possible aircraft replacement. Appendix 3 details specific parameters NDDOT is looking for in a replacement aircraft and options are presented that meet/exceed the parameters.

DATA:

NDDOT provided specific trip scenario details that they would like potential new aircraft to meet or exceed if they are to upgrade from their current equipment.

1. Interior Seating
2. Aircraft Speed
3. Runway length requirement

ARGUS also reviewed the following data for the reviewed aircraft:

4. NBAA IFR (Instrument Flight Rules) Range
5. Estimated Annual Operating Costs
6. Historical Estimated Aircraft Values for Each Aircraft

ARGUS utilized data provided by the various aircraft manufactures and Blackhawk Aerospace to determine which aircraft could meet the runway limits under the scenario requirement.

Vref was used by ARGUS to review the current and historical values for various aircraft that could potentially be replacement candidates for NDDOT. AMSTAT was used for the estimated annual operating costs. BCA (Business and Commercial Aviation magazine) was used for comparisons of seating, aircraft speed and the added comparisons.

Findings: INTERIOR SEATING:

NDDOT prefers to have an aircraft interior that seats nine (9) or more passengers in the normal or executive configuration. All the aircraft reviewed will seat nine (9) passengers, but some would require use of side facing seats/couch, a belted lavatory seat or the high-density configuration.

In the Appendix 1 report, a passenger count of eight (8) was only three percent (3%) of flights. Upgrading to an aircraft that seats nine (9) or more passengers in the normal/executive configuration would provide cabin seating for all flights and passenger counts.

Findings: AIRCRAFT CRUISE SPEED (320+ KTAS):

Long Range Cruise

All ten (10) of the reviewed jets will deliver long range cruise speeds in excess of 320 KTAS. The only aircraft that cannot deliver this type of speed are the King Air aircraft (350i/360). Each of the King Air aircraft have long range cruise speeds of 235 KTAS. With the addition of the Blackhawk engine upgrade, speeds would be increased an additional 20-25 kts.

High Speed Cruise

All ten (10) of the reviewed jets will deliver high speed cruise numbers in excess of 400 KTAS.

The two turboprop aircraft produce high speed cruise numbers of 312 KTAS. Investing in the Blackhawk engine upgrade would increase KTAS by approximately 30 kts, depending on weight and other performance variables.

Findings: RUNWAY LENGTH REQUIREMENT (TAKEOFF):

The majority of NDDOT flights occur between airports within the state. ARGUS was provided a list of airports within North Dakota (w/runway length) to determine which aircraft would be able to takeoff under a specific mission scenario. The mission scenario is as follows:

1. 2 pilots
2. 4 passengers (200 lb/ea)
3. 50 lb baggage
4. 2000 lb fuel
5. 2000' elevation
6. 30C temp

The King Air 350i and 360 aircraft would require runway lengths that would not allow takeoff from all forty-five (45) airports under this scenario. With the Blackhawk engine conversion, the King Air aircraft models (3,632ft). would accommodate thirty (30) or sixty-seven percent (67%) of the intra-state airports. The current King Air 200 fleet can accommodate twenty-seven (27) or sixty percent (60%) of the intra-state airports, so a King Air 350 would provide a slight performance improvement under this scenario.

All the jet aircraft, except one (1), can accommodate all forty-five (45), one hundred percent (100%) of the intra-state airports. The Lear 75 aircraft with a required runway length of (4,020ft) can only accommodate twenty-two (22) or forty-nine percent (49%) of the intra-state airports.

Findings: NBAA IFR RANGE

NDDOT does fly to multiple locations outside of the state, with the longest trip ranges being greater than 1,000nm. It would be optimal to have an aircraft that could make these trips to/from without having to make a mid-trip fuel stop. An upgraded aircraft would be required to have enough range to cover between 1,122nm (KIAD- Washington Dulles Airport) and 1,142nm (KDCA- Washington National Airport).

Maximum Payload w/Available Fuel, 100nm Reserve at Destination

Both the King Air aircraft (350i, 360) and the CJ3+ jet do not exceed +1100 (nm) in range. The Pilatus PC-24 aircraft has adequate range to meet +1100nm (1206nm) while the Embraer Praetor 600 has the most range (3277nm). Five (5) of the jet aircraft have range between 1000nm and 1500nm.

Four Passengers with Available Fuel

All the reviewed aircraft have ranges that would cover 1,500nm with 4 passengers. The King Air aircraft have the least amount of range (1533nm) and there are five (5) jet aircraft that have range between 1800nm and 2100nm.

Findings: ESTIMATED OPERATING COSTS (200 FLIGHT HOURS):

If NDDOT would choose to upgrade their current aircraft fleet, there would be an increase in annual operating costs. The CJ3+ has the smallest increase of the jet aircraft (+24%), while the King Air 350i would have the smallest increase overall (+12%) but does not satisfy all the aircraft upgrade requirements.

Findings: HISTORICAL ESTIMATED AIRCRAFT VALUES:

In reviewing potential aircraft upgrade models, historical aircraft values were compared to see possible acquisition costs of a "new" and/or a "preowned" aircraft model. There was a 2.2% increase in the asking price across the entire available fleet.

When reviewing the estimated historical values, you could acquire preowned aircraft of the below aircraft for about the same price. The difference is \$200k, but the age favors the CJ4 (2-4 years newer).

Cessna Citation CJ4 – 2020 - \$8,000,000

Cessna Citation XLS+ - 2016 - \$8,000,000

Pilatus PC-24 – 2018 - \$8,200,000

Findings: ARGUS RECOMMENDATION:

While NDDOT has been able to successfully conduct flights under current restrictions, an upgraded aircraft would provide solutions to their current flight restriction issues and provide enhanced capabilities.

ARGUS would recommend the investment in a Class 2 jet aircraft (>10,000lb to 20,000lb basic operating weight). The upgrade to a jet aircraft would meet and exceed each of the requirements presented, while a King Air turboprop would continue to provide a similar or slightly improved performance.

After reviewing various aircraft, the Cessna Citation CJ4 had the better overall characteristics when compared against the other options.

APPENDIX 1

OBJECTIVE and SCOPE:

ARGUS is tasked with assisting NDDOT in assessing their current fleet and possible aircraft replacement. Market Intelligence will work with NDDOT to review all travel, trip and support costs to assess a valuation of their current fleet and to determine whether there is a need to replace part or all their aircraft within the NDDOT fleet.

The project will be broken out into 3 different parts by the Market Intelligence team:

1. NDDOT travel assessment

2. Current economic valuation of NDDOT fleet

3. Potential replacement options for NDDOT fleet, if that is deemed necessary

This report will deal specifically with the travel assessment (1). ARGUS reviewed passenger counts, nautical miles travelled, total flights (legs), block time and reviewed input from NDDOT on any instances of restrictions to travel mission.

DATA:

ARGUS was provided a pdf file of the flight activity for both the NDDOT Beechcraft B200 aircraft (N200ND and N202ND). The pdf file was converted to an excel spreadsheet so ARGUS could analyze the contained data. The flight activity covered the full years of 2017-2020. For the year 2021, data is only for the months January through April. As the project progressed we were able to assess additional Q2 & Q3 2021 flying data for NDDOT. Most of that data was obtained after the completion of Appendix 1, but it is noted in this report as flying has significantly increased from pandemic lows throughout the summer months.

The data contained 1,066 lines of combined data for the two (2) aircraft. Individually, N200ND had 495 data lines and N202ND had 571 data lines. The lines of data from 2016, nine (9) in total, were eliminated from the analysis.

PASSENGER LOADS:

Number of Passengers

When reviewing passenger loads between 2017 and 2021, flight legs that had zero (0) passengers were omitted. This is due to the flight legs most likely positioning flights and not intended to carry passengers. With the zero (0) passenger legs omitted, there are a total of nine hundred fifty (950) legs reviewed. The total of zero (0) passenger legs is one hundred sixteen (116). The most common passenger count was three (3), twenty-five percent (25%).

Passengers FLEET	2017	2018	2019	2020	2021	Total
1	48	28	24	18	2	120
2	55	57	57	21	4	194
3	97	60	41	38	2	238
4	39	35	42	13		129
5	38	28	19	4		89
6	24	29	26	6		85
7	15	21	16	10		62
8	14	2	17			33
Grand Total	330	260	242	110	8	950

Passengers FLEET	2017	2018	2019	2020	2021	Total
0	45	27	35	9		116

Between 2017 and 2021, there were 552 legs that carried one to three (1-3) passengers. This is fifty-eight percent (58%) of the total legs flown. For legs that carried one to four (1-4) passengers, there were 681 legs for a total of seventy-two percent (72%). The total of legs that carried five to eight (5-8) passengers was 269 for twenty-eight percent (28%). Only 10% of the total legs carried seven to eight (7-8) passengers.

N200ND only carried between one and seven (1-7) passengers while N202ND carried between one and eight (1-8).

Passengers N200ND	2017	2018	2019	2020	Total
1	34	17	15	4	70
2	27	42	25	7	101
3	60	36	19	4	119
4	16	16	18	6	56
5	24	14	10		48
6	9	5	10		24
7	8	6	2	2	18
Grand Total	178	136	99	23	436

Passengers N200ND	2017	2018	2019	2020	Total
0	26	15	15	3	59

For N200ND, legs that carried one to three (1-3) passengers accounted for sixty-seven percent (67%). Legs that carried one to four (1-4) passengers was seventy-nine percent (79%). Twenty-one percent (21%) of legs carried five to seven (5-7) passengers. The most common passenger count was three (3), twenty-seven percent (27%) with two (2) passengers at twenty-three percent (23%).

Passengers N202ND	2017	2018	2019	2020	2021	Total
1	14	11	9	14	2	50
2	28	15	32	14	4	93
3	37	24	22	34	2	119
4	23	19	24	7		73
5	14	14	9	4		41
6	15	24	16	6		61
7	7	15	14	8		44
8	14	2	17			33
Grand Total	152	124	143	87	8	514

Passengers N202ND	2017	2018	2019	2020	2021	Total
0	19	12	20	6		57

For N202ND, legs that carried one to three (1-3) passengers accounted for fifty-one percent (51%). Legs that carried one to four (1-4) passengers was sixty-five percent (65%). Thirty-five percent (35%) of legs carried five to seven (5-7) passengers. The most common passenger count was three (3) and accounted for twenty-three percent (23%) of flights (legs) and two (2) passenger flights (legs) accounted for eighteen percent (18%).

Average Passenger/Leg

In reviewing the average number of passengers per leg, N200ND was lower than N202ND for each year (2017-2020). When only looking at the averages between 2017 and 2020, N200ND averaged 2.7 passengers, N202ND averaged 3.6 passengers and the FLEET averaged 3.2 passengers. N202ND averaged 0.8 passengers more per leg between 2017 and 2020. The largest difference was in 2018 when the average difference was 1.2 passengers. NDDOT's fleet average passenger load increased every year prior to the pandemic which may be a factor in aircraft replacement needs if passenger load is anticipated to grow post-pandemic.

Avg Pax/Leg	2017	2018	2019	2020	2021
FLEET	3.1	3.3	3.4	3.0	2.0
N200ND	2.8	2.7	2.8	2.6	
N202ND	3.5	3.9	3.7	3.1	2.0

ARGUS ANALYSIS

Most flight legs carry less than four (4) passengers with each full year between 2017 and 2020 having a fleet average of @ 3 passengers. While there are legs that carry higher passenger loads, legs that carry 5 – 8 passengers account for only twenty-eight percent (28%) of all legs flown. There is a difference in the number of max passengers each aircraft has carried. This is an area where any upgrade in aircraft could be used to balance passenger capabilities.

The average number of passengers flown per flight leg using the NDDOT fleet declined in 2020 and again for 2021. This can be attributed to the COVID pandemic and the associated travel restrictions. NDDOT fully expects for flight activity and passenger loads to increase once COVID concerns and restrictions have been lowered.

NAUTICAL MILES (nm), FLIGHTS (LEGS):

Nautical Miles (nm)

According to Conklin & de Decker, a corporate King Air B200 operation with 1-2 aircraft should fly approximately one hundred and fifteen thousand (115,000) nautical miles (nm) annually. The annual number of trips (legs) should be around three hundred eighty-three (383) with the average trip (leg) being three hundred (300) nautical miles (nm). Annual totals are developed using NBAA survey responses. However, those totals are primarily focused on corporate entities. After reviewing King Air activity for other state governments in the US we found that, during 2020, the average airplane flew 63 flights and 7,704 NM for the period. This means that NDDOT, overall, is flying a similar number of flights per aircraft but it is flying more nautical miles, longer trip length, than the comparable average.

NDDOT, for the years 2017 through 2020, the King Air B200 fleet flew a total of 170,349 (nm). The year 2017 saw the most (nm) flown, which was 64,430. The NDDOT fleet did not reach the average annual nautical miles flown (115,000) in any of the years between 2017 and 2020.

FLEET		N200ND		N202ND	
Yr	Sum of (nm)	Yr	Sum of (nm)	YR	Sum of (nm)
2017	64430	2017	36574	2017	27856
2018	43600	2018	24283	2018	19317
2019	42768	2019	16842	2019	25926
2020	19551	2020	5194	2020	14357
Average	42587	Average	20723	Average	21864

The average trip (leg) from 2017 to 2020 for NDDOT was one hundred sixty-one (161) nautical miles (nm). 2017 saw the highest average of one hundred seventy-two (172) nautical miles (nm). The NDDOT fleet did not match the average trip (leg) average of 300 (nm) in any year between 2017 and 2020. The highest annual average was for N200ND in 2020 at two hundred (200) nautical miles (nm) per trip (leg).

FLEET		N200ND		N202ND	
Yr	Average of (nm)	YR	Average of (nm)	YR	Average of (nm)
2017	172	2017	179	2017	164
2018	154	2018	162	2018	144
2019	154	2019	148	2019	159
2020	164	2020	200	2020	154
Average	161	Average	172	Average	155

Nautical Miles (nm) per Flight (Leg)

The average flight (leg) in nautical miles (nm) for NDDOT is below the stated average of three hundred (300). Most flights (legs) are conducted between one (1) and one hundred ninety-nine (199) nautical miles (nm). There were only forty-four (44) flights (legs) from 2017 through 2021 that were three hundred (300) nautical miles (nm) or greater. This was 4.1% of the total flight activity.

All Flights (Legs)				N200ND Flights (Legs)				N202ND Flight Legs			
(nm)	Legs	%		(nm)	Legs	%		(nm)	Legs	%	
>1000	7	0.7%		>1000	7	0.7%		>1000	0	0.0%	
900-999	1	0.1%		900-999	1	0.2%		900-999	0	0.0%	
800-899	1	0.1%		800-899	0	0.0%		800-899	1	0.2%	
700-799	2	0.2%		700-799	1	0.2%		700-799	1	0.2%	
600-699	7	0.7%		600-699	3	0.6%		600-699	4	0.7%	
500-599	5	0.5%		500-599	4	0.8%		500-599	1	0.2%	
400-499	10	0.9%		400-499	0	0.0%		400-499	10	1.8%	
300-399	11	1.0%		300-399	5	1.0%		300-399	6	1.1%	
200-299	31	2.9%		200-299	12	2.4%		200-299	19	3.3%	
100-199	854	80.1%	92.6%	100-199	398	80.4%	93.1%	100-199	456	79.9%	92.1%
1 - 99	133	12.5%		1 - 99	63	12.7%		1 - 99	70	12.3%	
Returns	4	0.4%		Returns	1	0.2%		Returns	3	0.5%	
	1066	100%			495	100%			571	100%	

(Returns – flights that have the same location for origin and destination.)

FLIGHTS (LEGS)

NDDOT, for the years 2017 through 2020, the King Air B200 fleet flew an average of two hundred sixty-five (265) flights (legs). The year 2017 saw the most flights (legs) flown, which was three hundred seventy-five (375). The NDDOT fleet did not reach the average annual average flights (legs) in any of the years between 2017 and 2020. 2017 was the only year NDDOT flew a comparable number of flights (legs) to the expectation of three hundred eighty-three (383).

FLEET		N200ND		N202ND	
Row Labels	# of Legs	Row Labels	# of Legs	Row Labels	# of Legs
2017	375	2017	204	2017	171
2018	287	2018	151	2018	136
2019	277	2019	114	2019	163
2020	119	2020	26	2020	93
Average	265	Average	124	Average	141

ARGUS ANALYSIS

The NDDOT fleet does not meet any of the annual nautical mile (nm) or flight (leg) standards established by Conklin & de Decker, but they do perform better than comparable US state government flight departments, in terms of miles flown. As with the passenger analysis, differences in operation exist as only N200ND flew flights (legs) that were nine hundred (900) nautical miles (nm) or greater. This is another area where an aircraft upgrade could be used to balance out capabilities.

The total of nautical miles flown, and the number of legs flown dramatically decreased in 2020. This can be attributed to the COVID pandemic and the associated travel restrictions. NDDOT fully expects for total nautical miles and flight legs to increase once COVID concerns and restrictions have been lowered.

BLOCK TIME:

The block time for the majority of NDDOT flights (legs) are under two (2) hours. From 2017 through 2021, 97.1% of flights (legs) were under two (2) hours. Flights (legs) two (2) hours and greater accounted for only 2.9% of activity.

NDDOT has a sixteen (16) hour duty day limitation for their pilots. With the large percentage of flights (legs) under two (2) hours, it is unlikely the limit would be reached even adding additional hours for report /pre-flight, layover and post-flight. Flights that had large block times (IAD, MMU, DCA) are sometimes scheduled with overnight layovers. **Note- MMU- Morristown, New Jersey*

FLEET				N200ND				N202ND			
Block Time (hr)	# Legs	%		Block Time (hr)	# Legs	%		Block Time (hr)	# Legs	%	
4 or >	7	0.7%		4 or >	7	1.4%		4 or >	0	0.0%	
3 < 4	8	0.8%		3 < 4	5	1.0%		3 < 4	3	0.5%	
2 < 3	16	1.5%		2 < 3	6	1.2%		2 < 3	10	1.8%	
1 < 2	262	24.6%	97.1%	1 < 2	108	21.8%	96.4%	1 < 2	154	27.0%	97.7%
< 1	773	72.5%		< 1	369	74.5%		< 1	404	70.8%	
Total	1066	100%		total	495	100%		total	571	100%	

ARGUS ANALYSIS

NDDOT does not conduct many flights (legs) that exceed two (2) hours of block time. Most flights (legs) are less than 2 hours of block time (97.1%). There are longer flights (legs) flown but they accounted for only thirty-one (31) events from 2017 through 2021. While flights (legs) that have greater than four (4) hours of block time are rare, they do occur and are flown on N200ND. These flights would be the exception to most flights (legs) as they only accounted for 0.7% of all flights (legs) between 2017-2021. This is again a situation where upgrading equipment could balance out capabilities between the two (2) aircraft.

ARGUS OVERALL ANALYSIS

The King Air B200 aircraft flown by NDDOT are fully capable of the overall flying required. From 2017 - 2020, all analyzed metrics (total passengers, nautical miles flown, total flights/legs, total block hours) for the NDDOT fleet have gone down. The years 2020 and 2021 showed a substantial decrease in flight activity. This reduction was a direct result of the COVID pandemic and associated travel restrictions. However, an analysis of recent 2021 summer flying indicates that NDDOT's flight department has seen a significant increase in activity and has almost returned to normal levels, even with continued COVID procedures in place. As restrictions due to the covid pandemic are eliminated, ARGUS believes NDDOT should see if flying increases back to pre-covid levels and if increased capabilities (range, weight limitations, speed etc.) would be required on a greater number of flights (legs).

FLEET		
Metric	2017-2019	2017-2020
Total Passengers	-20%	-70%
(nm) Flown	-34%	-70%
Total Flts (Legs)	-26%	-68%
Total Block Hrs	-32%	-70%

After review of the current flight analysis, ARGUS does not recommend aircraft replacement based solely on flight activity. This recommendation is not static as additional factors such as economic evaluation, market conditions and NDDOT needs have yet to be taken into consideration. ARGUS does recommend the development of specific criteria that a replacement aircraft needs to meet and establishing a list of potential replacement aircraft based on that criteria.

APPENDIX 2

OBJECTIVE and SCOPE:

ARGUS is tasked with assisting NDDOT in assessing their current fleet and possible aircraft replacement. Market Intelligence will work with NDDOT to review all travel, trip and support costs to assess a valuation of their current fleet and to determine whether there is a need to replace part or all the aircraft within the NDDOT fleet.

The project will be broken out into 3 different parts by the Market Intelligence team:

1. NDDOT travel assessment
- 2. Current economic valuation of NDDOT fleet**
3. Potential replacement options for NDDOT fleet, if that is deemed necessary

This report will deal specifically with the current economic valuation of the NDDOT fleet (2). ARGUS reviewed sales data compiled by AMSTAT and current and historical aircraft values developed by Vref.

DATA:

NDDOT provided specific information for each aircraft (N200ND and N202ND) in its fleet. Data included manufacturing year, TTAF (Total Time Airframe), engine TSN (Time Since New)/TSO (Time Since Overhaul) and optional equipment installed on each aircraft. Data on optional installed equipment included the year installed and the cost.

ARGUS utilized data provided by AMSTAT for current (as of 6/1/2021) sales data for Beechcraft B200 aircraft. AMSTAT is the leading provider of researched market information to the business aviation industry. AMSTAT provides data on the worldwide fleet of corporate aviation aircraft.

Vref was used by ARGUS to review the current and historical values for 1998 Beechcraft B200 aircraft. Also provided by Vref, were values for some of the optional equipment installed on the aircraft fleet.

BEECHCRAFT B200 SALES DATA (AMSTAT, as of 6/1/2021):

AMSTAT listed fifty-seven (57) Beechcraft B200 aircraft for sale. Of these listed aircraft, forty (40) aircraft were verified "for sale" and ten (10) aircraft were based in the U.S. For the aircraft on the market for sale, the median year of manufacturer is 1991 with three hundred one (301) the median days on market. The median asking price is \$1.3M with the median TTAF at 8,525 and landings at 9,352.

For Beechcraft B200 aircraft sold in 2021 (as of 6/1/2021), there were thirty-nine (39) resales to retail. For these aircraft, the median days on market was eighty-seven (87). Resales to retail for 2020 showed eighty-three (83) aircraft, for 2019 it was ninety-five (95) and in 2018 there were one hundred (100). The average days on market for the years 2018-2020 was one hundred sixty (160) days.

Of the ten (10) Beechcraft B200 aircraft verified for sale in the U.S., the earliest year of manufacture is 1982 and the latest year is 2004. The median year of manufacturer is 1991, median TTAF is 7,005 and the median listed for sale price is \$1,312,500. The closest manufacturer year to the current NDDOT fleet, is a 1997 model listed for \$1,395,000 with TTAF at 6,232.

To provide additional perspective and insight into the current medium turboprop market, ARGUS has listed the sales market details of the Beechcraft B200 (also listed above) with three (3) other aircraft that are defined as a "medium turboprop", like the B200. The top half of the first chart illustrates the number of aircraft for sale for each aircraft model. The lower section (blue type) shows the median values for the

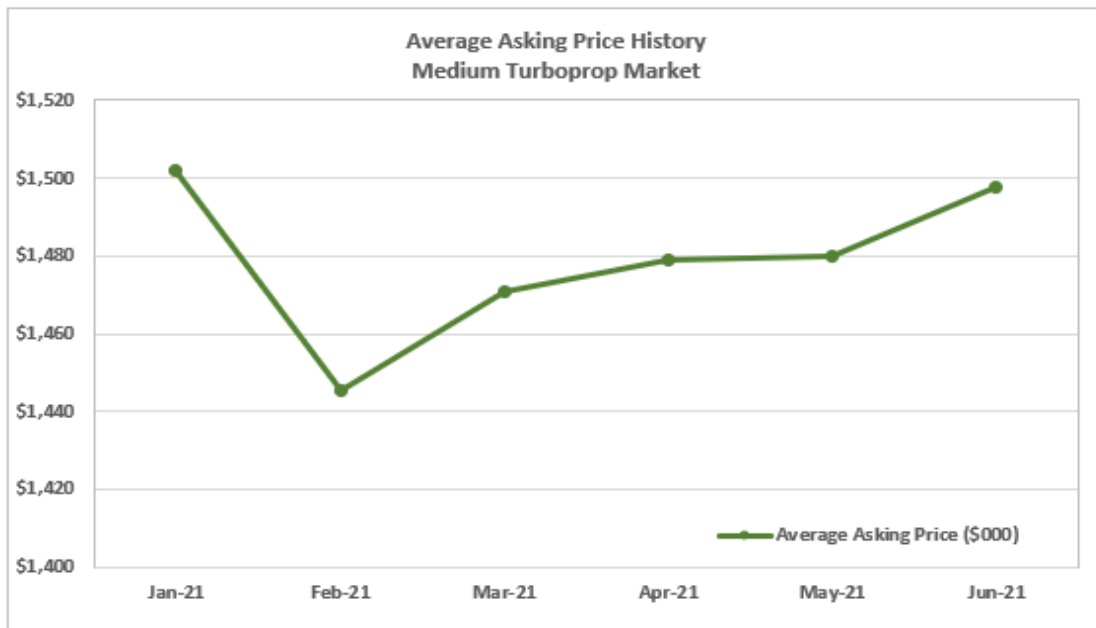
aircraft models listed for sale. Data is also listed on the overall medium turboprops market in the 2nd table.

AMSTAT Data (Median Value-All A/C for Sale)	King Air B200	King Air 350	Piaggio P-180 Avanti	Pilatus PC-12
# A/C for Sale	57	33	6	22
# A/C Verified (for Sale)	40	26	6	14
A/C Based in U.S. (for Sale)	10	16	3	8
Mfg Year	1991	1999	2000	2001
Asking Price (\$)	\$1.3M	\$2M	\$1.2M	\$2.2M
Days on Market	301	96	375	459
TTAF	8,525	5,050	3,936	5,900
Landings	9,352	4,409	3,532	7,017

The retail sales (by year) for medium turboprop aircraft have been declining since 2019. However, the median days on market has been declining and the average asking price is increasing (fewer aircraft for sale, aircraft for sale selling faster and at a higher price).

	Transaction Market History		
	Medium Turboprop		
	YTD	2020	2019
Resale Retail	344	739	732
Retail to Retail	245	522	462
Dealer to Retail	68	155	200
Other to Retail	31	62	70
Net Dealer Inv.	-9	29	20

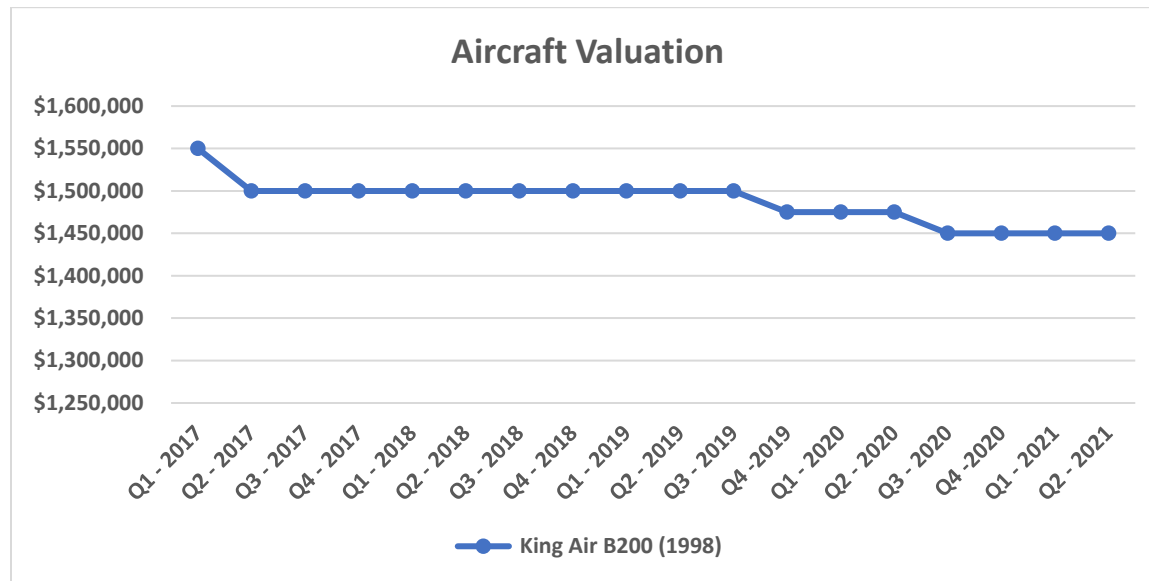
Days on Market (Median)	2020	2019
	140	186



BEECHCRAFT B200 ECONOMIC VALUATION (Vref estimate):

Overall Base Value (1998 mfg. yr.)

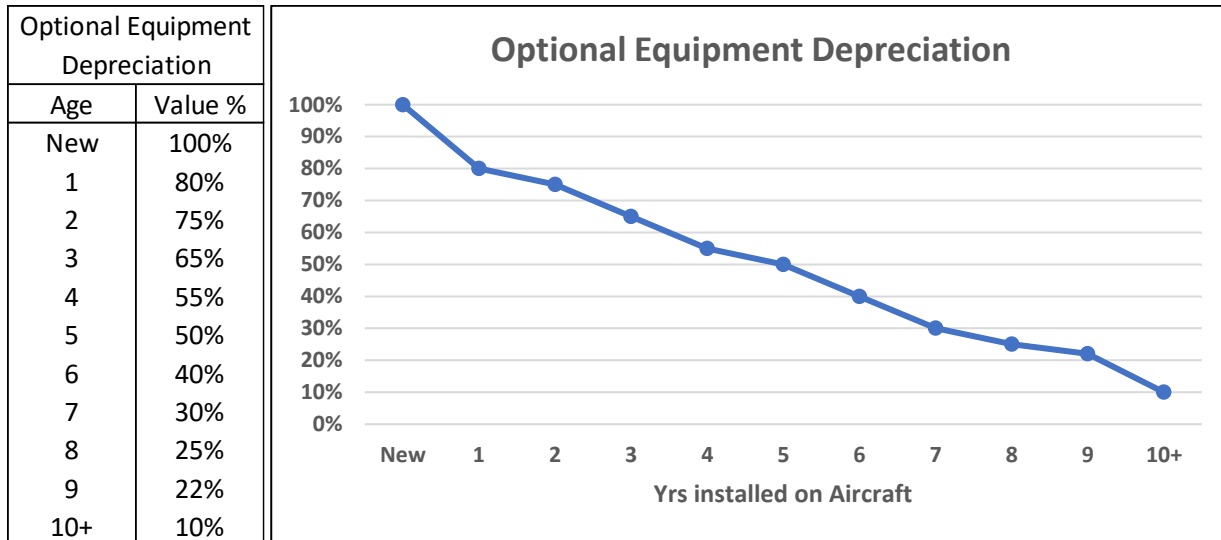
The current value listed (by Vref) for a Beechcraft B200 aircraft manufactured in 1998 is currently \$1,450,000 (retail) and \$1,252,800 (wholesale). The aircraft would have an average TTAF of 8,370 hours. The average base price new in 1998 is estimated at \$3,999,000 and currently has lost approximately 64% of value. Since Q1-2017 till Q2-2021, a 1998 Beechcraft B200 has lost \$100,000 in value. Value has remained flat since Q3-2020 (\$1,450,000) and has lost only 1.69% of value in the last twelve (12) months.



Added Value: (equipment additions/conversions & TTAF, engine time)

Equipment Additions/Conversions: Value (Depreciation)

Optional Equipment Depreciation is based on the Year the equipment was installed. It is rare an airframe upgrade adds its total cost or nearly total cost to the value of the airplane. Per Vref, If the engine or optional equipment is new within the last several months, it can add 80% or 90% of its cost to aircraft value. Most airframe modifications retain about 40% to 60% of their new price. Generally, it is appropriate to add about 50% of the new cost to aircraft value. A 40% to 60% factor is relevant in most cases. Older equipment does not necessarily have added value. Engine upgrades and airframe modifications may retain 50% or more of their value for many years. For this analysis, ARGUS used the value percentage that corresponds to the time installed. Equipment that was reported as installed at factory was not considered.



TTAF and Engine Time (added value)

Vref applies additional value for aircraft that are under the average TTAF for the specific model year. The average TTAF for a 1998 Beechcraft B200 is 8,370. Aircraft that are under the average TTAF receive an increase in value while those aircraft over the average TTAF have their valuation lowered. N200ND (5,035 TTAF) and N202ND (4,415 TTAF) are both under the average TTAF (8,370) and each receive an increase in value. Vref values each hour above or below the average TTAF at \$18.00.

The estimated value of an aircraft is also based on engines with mid-life hours (1,800) based on 3,600 TBO (time between overhaul). As with TTAF, aircraft with engine hours below the mid-life will receive an increase in value and aircraft above the mid-life have their valuation lowered. N200ND has 1,911 engine hours since new (TSN) and incurs a reduction in value. N202ND has 941 engine hours since new (TSN) and receives an increase in value. Vref values each hour above or below the mid-life of 1,800 hours at \$83.33.

TOTAL VALUATION ESTIMATE

In determining the total valuation estimate, three (3) areas of value are combined (base price, TTAF, engine time bonus and equipment additions/modification). Condition of paint and interior also play a part in determining the value of an aircraft. For this analysis, no defects in paint and interior are assumed.

Aircraft values are shown for both retail and wholesale sales. A retail sale would be one that is usually to an individual or company looking more for a quality plane at a fair price rather than a low priced aircraft. They are also more likely to be looking for, and willing to pay for, a plane with upgrades and/or lower total time on the airframe and engines. A retail sale usually takes more time to find a buyer and requires more active and focused marketing.

A sale for wholesale would be where the buyer is looking to purchase a plane at the low end of the price range. An example of this type of sale would be a broker or reseller who has a buyer or backer and is looking at planes as an investment where they want to buy low and resell at a higher price.

Estimated Aircraft Valuation				
Vref Parameters				
Item	\$/Retail		\$/Wholesale	
	N200ND	N202ND	N200ND	N202ND
Base Price	\$ 1,450,000	\$ 1,450,000	\$ 1,252,800	\$ 1,252,800
Airframe	\$ 60,030	\$ 71,190	\$ 51,626	\$ 61,223
Engine (2)	\$ (18,599)	\$ 143,061	\$ (15,995)	\$ 123,032
Equip Adds	\$ 395,625	\$ 415,097	\$ 340,238	\$ 356,983
Total	\$ 1,887,056	\$ 2,079,348	\$ 1,628,669	\$ 1,794,038

*These values are estimates by Vref and ARGUS and should be verified by a professional appraiser.

In reviewing aircraft listed for sale on AMSTAT. Listed (sale pending) is a 1991 model with a listing price of \$1,749,000. The aircraft has a TTAF of 7,050 and engine times of 1,523 hours. No paint or interior deductions were found when researching the sales information. After adding the base estimate and value increases for TTAF and engine time, the total remaining difference is applied to equipment additions/modifications. If this airplane sells for \$1.7M then it is likely that NDDOT aircraft values would not outprice the current market.

Estimated Aircraft Valuation	
Vref Parameters	
Item	\$/Retail
1991 Model	
Base Price	\$ 1,150,000
Airframe	\$ 53,756
Engine (2)	\$ 46,165
Equip Adds	\$ 499,075
Total	\$ 1,748,996
*Sale Price	\$ 1,749,000

*Listed Sale Price

ARGUS ANALYSIS

While NDDOT has two (2) 1998 Beechcraft B200 manufactured in 1998, they do not have the same estimated value. If a decision to sell or trade-in one of the aircraft is made the value of each aircraft should be compared against the benefits each aircraft possess. If selling one aircraft and purchasing another aircraft with upgraded capabilities, NDDOT should consider balancing the capabilities between the remaining aircraft and the upgraded aircraft to best address differences in mission.

For pure value, N202ND could potentially provide the most capital if sold/traded-in to acquire a new/different type of aircraft that would complement that of N200ND, however NDDOT would lose the extra seat that is available in N202ND. NDDOT could place both aircraft for sale and once one is sold, remove the other aircraft from sale. NDDOT could then assess the specific capabilities of the remaining aircraft and look to purchase an aircraft to specifically compliment the remaining B200. Either way the current market indicates that NDDOT will get a fair value for the sale of N200ND or N202ND.

The aircraft values that ARGUS has presented are not definitive and are estimates. Any determination on value or fair market value should be determined by a certified professional aircraft appraiser. The true value of each aircraft in NDDOT's fleet should be determined prior to any decision to sell or trade. ARGUS is available to aid NDDOT in obtaining a certified appraiser and/or an aircraft broker (for aircraft sale).

APPENDIX 3

OBJECTIVE and SCOPE:

ARGUS is tasked with assisting NDDOT in assessing their current fleet and possible aircraft replacement. Market Intelligence will work with NDDOT to review all travel, trip and support costs to assess a valuation of their current fleet and to determine whether there is a need to replace part or all their aircraft within the NDDOT fleet.

The project will be broken out into 3 different parts by the Market Intelligence team:

1. NDDOT travel assessment
2. Current economic valuation of NDDOT fleet
- 3. Potential replacement options for NDDOT fleet**

DATA:

NDDOT provided specific trip scenario details that they would like potential new aircraft to meet or exceed if they are to upgrade from their current equipment.

1. Interior Seating - 9 (+) passengers in a normal/executive configuration
2. Aircraft Speed - 320 (+) KTAS (knots true airspeed) cruise speed
3. Runway length requirement: specific mission scenario (45 intra-state airports)

ARGUS also reviewed the following data for the reviewed aircraft:

4. NBAA IFR (Instrument Flight Rules) Range
 - a. (Maximum payload, w/available fuel, 100 nm (nautical miles) alternate)
 - b. (4 passengers, w/available fuel, 100 nm alternate)
5. Estimated Annual Operating Costs
6. Historical Estimated Aircraft Values for Each Aircraft

ARGUS utilized data provided by the various aircraft manufactures (using the specific trip scenario) and Blackhawk Aerospace upgrades to determine which aircraft could meet the runway limits under the scenario requirement.

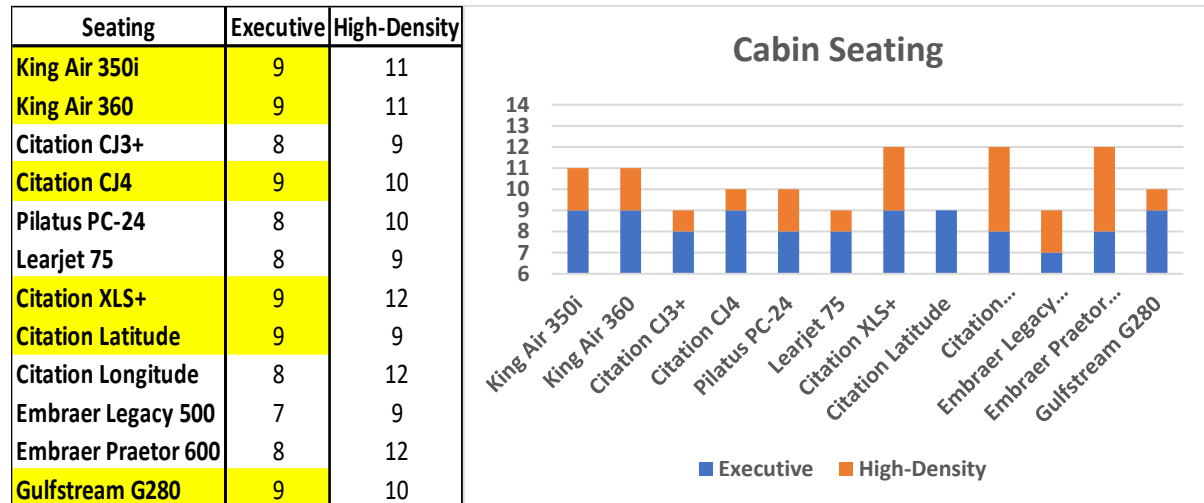
Vref was used by ARGUS to review the current and historical values for various aircraft that could potentially be replacement candidates for NDDOT. AMSTAT was used for the estimated annual operating costs. Business and Commercial Aviation (BCA) was used for comparisons of aircraft seating and speed.

INTERIOR SEATING:

NDDOT prefers to have an aircraft interior that seats nine (9) or more passengers in the normal or executive configuration. All the aircraft reviewed will seat nine (9) passengers, but some would require use of side facing seats/couch, a belted lavatory seat or the high-density configuration. Aircraft that will accommodate nine (9) passengers in the normal or executive configuration are:

1. King Air 350/350i
2. King Air 360
3. Citation CJ4
4. Citation XLS+
5. Citation Latitude (no high-density configuration)
6. Gulfstream G280

In the Phase I report, the most common passenger count on flights between 2017 and 2021 (April) was three (3), twenty-five percent (25%). A passenger count of eight (8) was only three percent (3%) of flights. Upgrading to an aircraft that seats nine (9) or more passengers in the normal/executive configuration would provide cabin seating for all flights and passenger counts. A nine (9) passenger seating configuration would provide an extra seat, although the seat may not be the most desired.



AIRCRAFT CRUISE SPEED (320+ KTAS):

A second requirement for aircraft that would be considered for fleet replacement is for the aircraft to deliver cruise speeds of 320 KTAS (knots true airspeed) or higher.

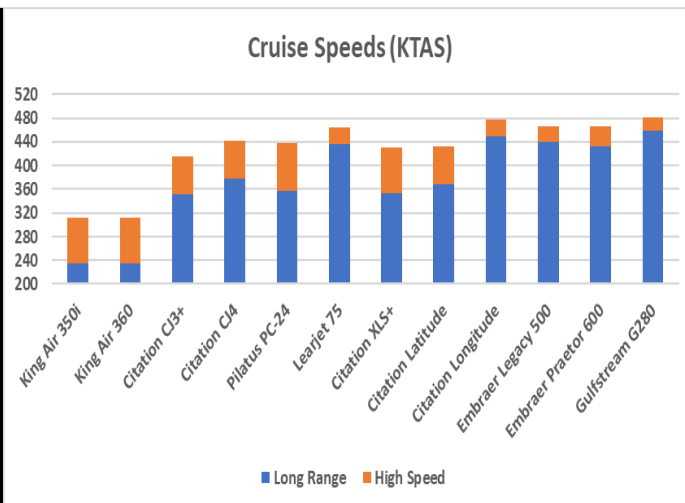
Long Range Cruise

All ten (10) of the reviewed jets will deliver long range cruise speeds in excess of 320 KTAS. The only aircraft that cannot deliver this type of speed are the King Air aircraft (350i/360). Each of the King Air aircraft have long range cruise speeds of 235 KTAS. The slowest long range cruise speed of the jets is 352 KTAS for the Citation CJ3+. The Gulfstream G280 has the highest long range cruise speed at 459 KTAS.

High Speed Cruise

All ten (10) of the reviewed jets will deliver high speed cruise numbers in excess of 400 KTAS. The two turboprop aircraft produce high speed cruise numbers of 312 KTAS. The slowest high speed cruise of the jet aircraft is 415 KTAS for the Citation CJ3+. The Gulfstream G280 has the fastest high speed cruise of the jet aircraft at 482 KTAS.

Cruise Speed (KTAS)	Long Range	High Speed
King Air 350i	235	312
King Air 360	235	312
Citation CJ3+	352	415
Citation CJ4	377	442
Pilatus PC-24	358	438
Learjet 75	437	465
Citation XLS+	353	431
Citation Latitude	368	432
Citation Longitude	449	478
Embraer Legacy 500	440	467
Embraer Praetor 600	433	466
Gulfstream G280	459	482



NDDOT indicated that any new replacement turboprop would undergo a Blackhawk engine conversion. Currently there is an engine conversion for the King Air 350i (XP67A) but not the King Air 360. Blackhawk Aerospace is working with Collins Aerospace to design an upgrade for the King Air 360 and hope to have it available in the 3rd quarter of 2021. The upgraded engines for the King Air 350i would see long range cruise speed increase 20-25- kts and high speed cruise increase 30+ kts (332+ KTAS). While this would be a significant increase from the original engine numbers (satisfy the 330+ speed requirement), they would still be less than all the jet aircraft.

RUNWAY LENGTH REQUIREMENT (TAKEOFF):

The majority of NDDOT flights occur between airports within the state. ARGUS was provided a list of airports within North Dakota (w/runway length) to determine which aircraft would be able to takeoff under a specific mission scenario. The mission scenario is as follows:

7. 2 pilots
8. 4 passengers (200 lb/ea)
9. 50 lb baggage
10. 2000 lb fuel
11. 2000' elevation
12. 30C temp

When comparing required runway lengths to actual lengths, the required distance is increased to the next 100ft.

The forty-five (45) intra-state airports have runways lengths from 3,500 ft to 6,302 ft. In reviewing potential upgrade aircraft, the ability to takeoff from most, if not all the airports are preferred. The current fleet of aircraft can accommodate twenty-seven (27) or sixty percent (60%) of the intra-state airports under the stated conditions. The current King Air 200 fleet can accommodate twenty-seven (27) or sixty percent (60%) of the intra-state airports, so a King Air 350 would provide a slight performance improvement under this scenario. All the reported required runway lengths are estimates as a true BOW (basic operating weight) was not provided.

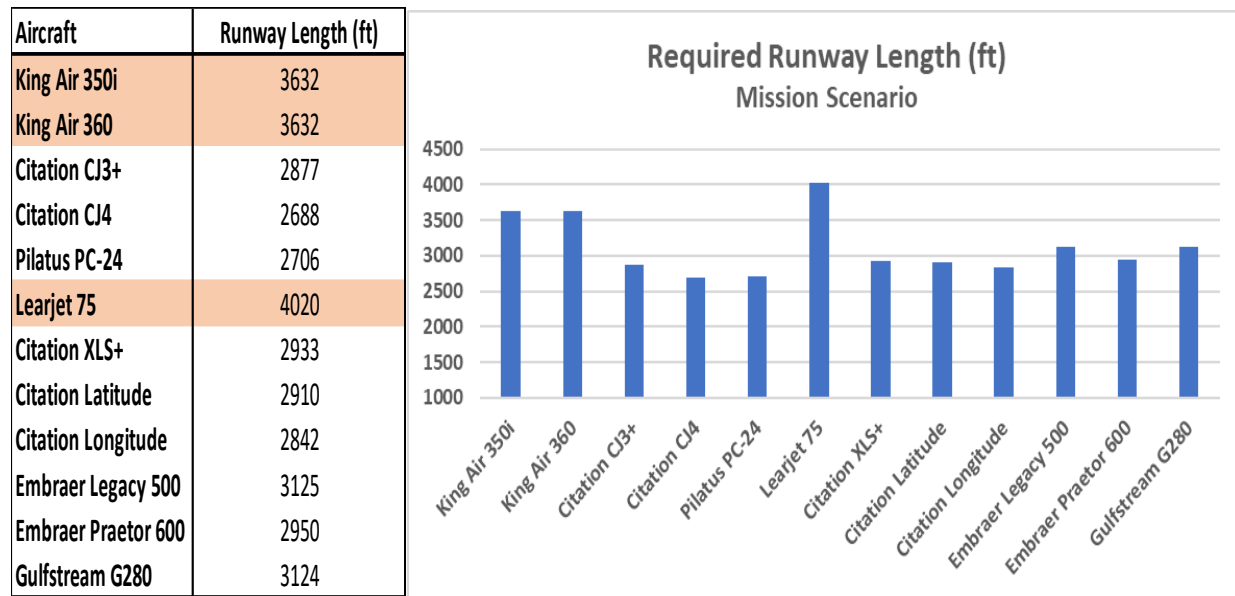
The King Air 350i and 360 aircraft would require runway lengths that would not allow takeoff from all forty-five (45) airports. Beechcraft/Textron estimates that the required runway length under the mission scenario to be 3,596ft. This would permit takeoff from thirty-six (36) or eighty percent (80%) of the intra-state airports. With the Blackhawk engine conversion, the takeoff length required for the King Air aircraft models is (3,632ft). This would accommodate thirty (30) or sixty-seven percent (67%) of the intra-state

airports. Data for the King Air 360 is estimated (same/similar weight specifications/engine to the 350i) as the upgrade has not been fully developed.

Blackhawk Engineering states (per their flight manual supplement) there is a 1% increase to takeoff distances and is the worst-case penalty for takeoff performance. While the engine conversion does have this takeoff penalty, any scenario where there is a 2nd segment climb limitation, the Blackhawk XP67A engine conversion will provide significantly more allowable takeoff weight.

The King Air 350 engine conversion (XP67A Kit) is priced at \$1,896,000 (exchange) and includes both factory new PT6A-67A engines and MT 5 blade props, along with the install kit, STC paperwork package. There is also a \$100,000 Blackhawk Incentive which are core credits for time remaining to TBO (Time Between Overhaul) given by Pratt & Whiney at \$70 per hour per engine.

All the jet aircraft, except one (1), can accommodate all forty-five (45), one hundred percent (100%) of the intra-state airports. The Lear 75 aircraft with a required runway length of (4,020ft) can only accommodate twenty-two (22) or forty-nine percent (49%) of the intra-state airports.



King Air 350i and 360 include the Blackhawk engine conversion.

NBAA IFR RANGE:

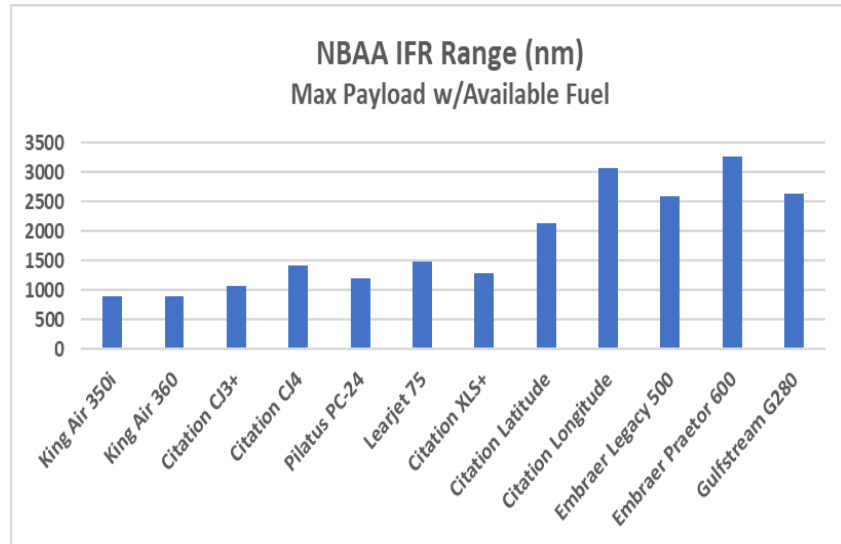
NDDOT does fly to multiple locations outside of the state. Two (2) of the locations are in the Washington D.C. area. These airports are greater than 1,000nm from the current aircraft base at KBIS. It would be optimal to have an aircraft that could make the trip from KBIS to/from either KIAD (Washington Dulles) or KDCA (Washington National) without having to make a mid-trip fuel stop. Flying from KBIS, an upgraded aircraft would be required to have enough range to cover 1,122nm to KIAD and 1,142nm to KDCA. As with KTAS, the King Air 350i/360 aircraft, would see an improvement in range with the Blackhawk upgrade. Range would be increased between 100-150nm depending on the cruise speed (Long Range or High Speed).

Maximum Payload w/Available Fuel, 100nm Reserve at Destination

Not all the reviewed aircraft have enough range to reach the D.C. metro area non-stop. Both the King Air aircraft (350i, 360) and the CJ3+ jet do not exceed +1100 (nm) in range. While NDDOT historically does

not carry max payload on these types of trips, if an upgraded aircraft could accomplish the mission, it would provide an added benefit. The Pilatus PC-24 aircraft would just meet the requirement (1206nm) and the Embraer Praetor 600 has the most range (3277nm). Five (5) of the jet aircraft have range between 1000nm and 1500nm.

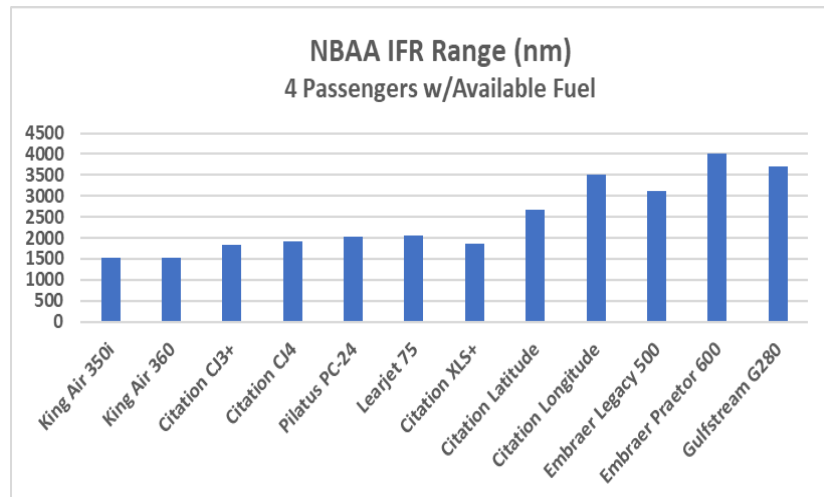
Max Payload w/Available Fuel	
NBAA IFR Range	(nm)
King Air 350i	896
King Air 360	896
Citation CJ3+	1080
Citation CJ4	1425
Pilatus PC-24	1206
Learjet 75	1491
Citation XLS+	1284
Citation Latitude	2135
Citation Longitude	3074
Embraer Legacy 500	2603
Embraer Praetor 600	3277
Gulfstream G280	2628



4 Passengers, With Available Fuel

All the reviewed aircraft have ranges that would reach the D.C metro area (1500nm). The King Air aircraft have the least amount of range (1533nm) while the Embraer Praetor 600 has the most range (4018nm). There are five (5) jet aircraft that have range between 1800nm and 2100nm.

4 Passengers w/Available Fuel	
NBAA IFR Range	(nm)
King Air 350i	1533
King Air 360	1533
Citation CJ3+	1825
Citation CJ4	1927
Pilatus PC-24	2030
Learjet 75	2058
Citation XLS+	1853
Citation Latitude	2678
Citation Longitude	3500
Embraer Legacy 500	3125
Embraer Praetor 600	4018
Gulfstream G280	3703



ESTIMATED ANNUAL OPERATING COSTS (200 FLIGHT HOURS):

If NDDOT would choose to upgrade their current aircraft fleet, there would be an increase in annual operating costs. ARGUS has reviewed the estimated annual operating costs for the various reviewed aircraft and compared them to the current aircraft to show the differences/increases.

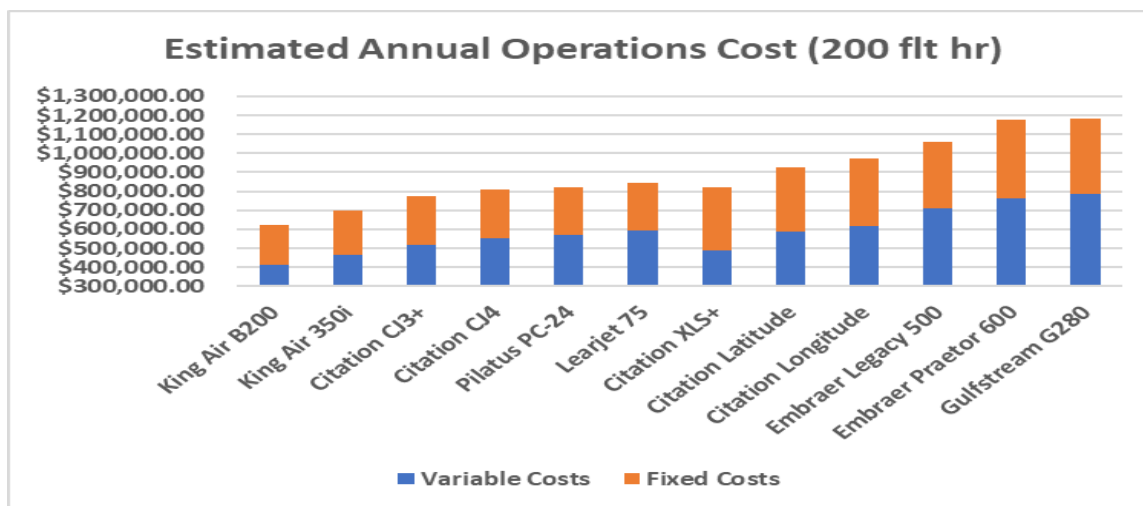
Listed below are the costs/expenses included in each category (Variable, Fixed).

Variable Costs (200 Ft/Hr)	Fixed Costs (per Year)
Fuel \$4.25/gal	Captain Salary and Benefits
Maintenance	First Officer Salary and Benefits
Engine	Hangar and Office Lease / Rent
Misc. Trip Expense	Hull Insurance
	Liability Insurance
	Maintenane Tracking
	Subscriptions

All the reviewed aircraft would be an increase in operating costs compared to the King Air B200. The CJ3+ has the smallest increase of the jet aircraft (+24%), while the Gulfstream G280 has the largest (+89%). The King Air 350i would have the smallest increase (+12%) but does not satisfy all the aircraft upgrade requirements. Four (4) aircraft show increased costs that would be between +30% and +35%.

Aircraft	Variable Costs	Fixed Costs	Total Annual Costs	% Increase
King Air B200	\$ 413,325.33	\$ 211,258.60	\$ 624,583.93	-
King Air 350i	\$ 464,512.00	\$ 233,577.31	\$ 698,089.31	12%
Citation CJ3+	\$ 520,266.68	\$ 256,679.04	\$ 776,945.72	24%
Citation CJ4	\$ 553,237.36	\$ 256,870.86	\$ 810,108.22	30%
Pilatus PC-24	\$ 568,554.64	\$ 251,695.09	\$ 820,249.73	31%
Learjet 75	\$ 593,274.00	\$ 251,695.09	\$ 844,969.09	35%
Citation XLS+	\$ 487,460.00	\$ 334,161.88	\$ 821,621.88	32%
Citation Latitude	\$ 589,640.00	\$ 335,473.97	\$ 925,113.97	48%
Citation Longitude	\$ 618,180.00	\$ 353,553.74	\$ 971,733.74	56%
Embraer Legacy 500	\$ 712,030.00	\$ 348,146.06	\$ 1,060,176.06	70%
Embraer Praetor 600	\$ 765,326.00	\$ 409,297.12	\$ 1,174,623.12	88%
Gulfstream G280	\$ 782,956.00	\$ 400,212.37	\$ 1,183,168.37	89%

*King Air 360 does not have any costs shown as there are few aircraft in service (8 in North America) to develop estimated costs.



HISTORICAL ESTIMATED AIRCRAFT VALUES:

In reviewing potential aircraft upgrade models, historical aircraft values were compared to see possible acquisition costs of a “new” and/or a preowned” aircraft model. Aircraft values vary due to the type of aircraft (turboprop or jet), the “new” manufacturer price and overall demand. Transactions for preowned aircraft in the 2nd quarter of 2021 were two (2) times what they were in the 2nd quarter of 2020. There was a 2.2% increase in the asking price across the entire available fleet. The volume of aircraft for sale saw a jump of 30% from Q1 to Q2 in 2021.

Model Yr	Textron Aviation	Textron Aviation
\$	Beechcraft King Air 350i	Beechcraft King Air 360
2021		\$ 7,900,000
2020	\$ 6,500,000	No pre-owned sales
2019	\$ 5,500,000	
2018	\$ 4,500,000	
2017	\$ 4,200,000	
2016	\$ 4,000,000	
2015	\$ 3,900,000	
2014	\$ 3,700,000	
2013	\$ 3,500,000	
2012	\$ 3,300,000	
2011	\$ 3,200,000	

Model Yr	Textron Aviation	Textron Aviation	Pilatus Aircraft	Bombardier	Textron Aviation
\$	Citation CJ3+	Citation CJ4	PC-24	Learjet 75	XLS+
2021	\$ 9,440,000	\$ 10,750,000	\$ 11,245,800	\$ 13,800,000	\$ 14,640,000
2020	\$ 7,500,000	\$ 8,200,000	\$ 10,290,000	\$ 8,400,000	\$ 11,000,000
2019	\$ 6,550,000	\$ 7,400,000	\$ 9,400,000	\$ 7,100,000	\$ 9,800,000
2018	\$ 6,050,000	\$ 6,500,000	\$ 8,000,000	\$ 6,600,000	\$ 9,000,000
2017	\$ 5,650,000	\$ 6,200,000		\$ 6,000,000	\$ 8,500,000
2016	\$ 5,250,000	\$ 5,900,000		\$ 5,500,000	\$ 8,000,000
2015	\$ 5,050,000	\$ 5,700,000		\$ 5,000,000	\$ 7,400,000
2014	\$ 4,950,000	\$ 5,500,000		\$ 4,600,000	\$ 7,100,000
2013		\$ 5,300,000		\$ 4,400,000	\$ 6,500,000
2012		\$ 5,100,000			\$ 6,100,000
2011		\$ 4,800,000			\$ 5,700,000

Model Yr	Textron Aviation Citation Latitude	Textron Aviation Citation Longitude	Embraer Legacy 500	Embraer Praetor 600	Gulfstream G280
2021	\$ 19,105,000	\$ 29,765,000		\$ 20,995,000	\$ 24,500,000
2020	\$ 14,800,000	\$ 25,000,000	\$ 18,000,000	\$ 20,500,000	\$ 19,500,000
2019	\$ 12,800,000	\$ 21,000,000	\$ 16,000,000	\$ 19,500,000	\$ 16,500,000
2018	\$ 11,800,000	\$ 20,000,000	\$ 14,000,000		\$ 15,500,000
2017	\$ 10,800,000		\$ 13,000,000		\$ 14,500,000
2016	\$ 9,800,000		\$ 12,000,000		\$ 13,500,000
2015	\$ 9,300,000		\$ 11,000,000		\$ 12,500,000
2014			\$ 10,000,000		\$ 11,500,000
2013					\$ 10,500,000
2012					\$ 9,750,000
2011					

ARGUS RECOMMENDATION:

NDDOT conducts both short-haul (ex. intra-state) and long-haul flights (ex. D.C metro area). The current King Air B200 aircraft have limitations on both the shorter intra-state flights due to short runway lengths and range to fly non-stop for the longer flights. While NDDOT has been able to successfully conduct flights under current restrictions, an upgraded aircraft would provide solutions to their current flight restriction issues and provide enhanced capabilities.

ARGUS would recommend the investment in a Class 2 jet aircraft (>10,000lb to 20,000lb basic operating weight). The upgrade to a jet aircraft would meet and exceed each of the requirements presented, while a King Air turboprop would continue to provide a similar or slightly improved performance.

After reviewing the aircraft, ARGUS focused on three (3) aircraft that met the stated NDDOT requirements and were better suited to their flight missions. These aircraft were the Cessna Citation CJ4, Cessna Citation XLS+ and the Pilatus PC-24.

The Cessna Citation CJ4 had the better overall characteristics when compared to the other two (2) aircraft. The criteria results are very close and any of the aircraft models would serve NDDOT well with their specific missions.

Aircraft Model	Seating (Normal/Executive)	KTAS		Runway Length (Req/NDDOT)	% NDDOT Airports Accommodated	Range		Annual Ops Cost % Increase
		LR	HS			Max Payload/Avail Fuel	4 Pax/Avail Fuel	
Citation CJ4+	9	377	442	2688	100%	1425	1927	30%
Citation XLS+	9	353	431	2933	100%	1284	1853	31%
Pilatus PC-24	8	358	438	2706	100%	1206	2030	32%

When reviewing the estimated historical values, you could acquire preowned aircraft of each for about the same price. The difference is \$200k, but the age favors the CJ4 (2-4 years newer).

Cessna Citation CJ4 – 2020 - \$8,000,000

Cessna Citation XLS+ - 2016 - \$8,000,000

Pilatus PC-24 – 2018 - \$8,200,000

The typical layout for the Cessna Citation CJ4 (same for the XLS+) is depicted below. It does have seats that NDDOT have determined would not be most desirable. These would be side-facing seats and the use of the belted lavatory seat for accommodate nine (9) passengers.



Because the comparative results are so close, the Pilatus PC-24 would be an option and it would have a better floorplan. As the aircraft would be used solely for business travel, the PC-24 double club seating would be beneficial. Although, it would require the use of the belted lavatory seat for nine (9) passengers.