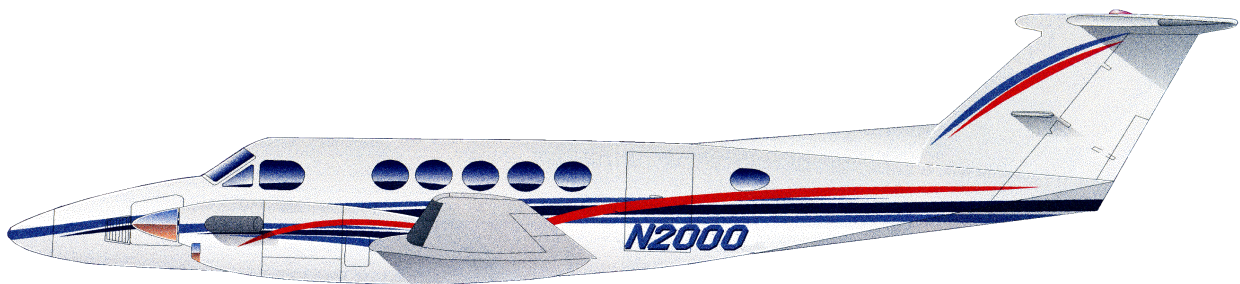


AIRCRAFT EFFICIENCY TASK FORCE



REPORT

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Introduction

Pursuant to the reporting requirements of Section 804, Public Act 136 of 1999, which reads as follows:

Section 804. The department and the departments of state police, natural resources, and military affairs shall develop plans for the maintenance, scheduling, and use of all state-owned, non-combat aircraft. It is the intent of the legislature that these plans maximize the cost-efficient use of the state transportation air fleet. The departments shall prepare a joint report, coordinated by the department, on the development of these plans.

The Michigan Department of Transportation (MDOT), Natural Resources (DNR), State Police (MSP), and Military and Veterans Affairs (DMVA), have created an Aircraft Efficiency Task Force (AETF) to review, and continuously evaluate, aircraft operations to maximize appropriate utilization and efficiency. The purpose of this report is to provide information and recommendations regarding how to best increase efficient use of the aircraft operated by state agencies. Contained within the report is a summary of all aircraft owned by state agencies, their mission(s), past and current areas of cooperation between state agencies, and opportunities for increased efficiencies.

Aircraft are used by various state agencies to perform essential services and for the efficient and appropriate transportation of state officials and employees. With the reductions in workforce that have occurred over the past decade, state government has been challenged to meet an increase in demand for products and services. Now more than ever, the productivity of employees is paramount. The use of aircraft is an essential tool to improve productivity and provide essential products and services.

Summary

The State of Michigan owns and operates many types of vehicles, including various size automobiles, trucks, patrol cars and snow removal equipment. The total number of vehicles owned or leased by the state is approximately 10,500. The state also owns and operates a total of twenty (20) aircraft, two of which are helicopters. Of the twenty aircraft, five are utilized for the purpose of transporting state officials and employees. The remainder of the fleet is used for specific missions relating to the departments (MDOT, DNR, MSP, DMVA) that operate the aircraft. Their missions vary from law enforcement to wildlife and natural resource preservation to the protection and maintenance of aviation navigation and weather reporting equipment at airports. The aircraft are utilized in four distinctly different flight operations. A breakdown by department follows:

- ➔ MDOT - seven fixed wing aircraft
- ➔ MSP - three fixed wing aircraft and two helicopters
- ➔ DNR - eight fixed wing aircraft
- ➔ DMVA* - aircraft are owned by Department of Defense

* Aircraft operated by Military Affairs are owned by the federal government and therefore were not considered for purposes of this report.

In 1993, MDOT Aeronautics moved its facility to the southeast ramp at Lansing's Capital City Airport, thereby co-locating the air operations of MSP, DMVA, and MDOT. The DNR operates aircraft from several locations throughout the state, allowing for quick response related to fire surveillance, law enforcement patrols and duties related to forestry and wildlife preservation.

MDOT has been the primary provider of air transportation for the executive, legislative, and judicial branches of all state government agencies. This transportation is provided in four of MDOT's seven total aircraft. The three other MDOT aircraft are used to support Aeronautics missions related to regulatory and aviation infrastructure critical to aviation safety.

Utilization

All of the aircraft are used as "on-demand" aircraft, as opposed to scheduled operations. The annual utilization generally meets or exceeds national averages of similar-type aircraft.

Aircraft Missions and Inventory

Each agency utilizes aircraft for specific missions. Due to the specialized nature of each agency's mission, personnel are skilled and trained as pilots as well as for mission-related responsibilities. These missions are accomplished with aircraft located in Lansing and throughout the state. *See Attachment 1.*

While some consolidation of similar services can be achieved, the specific missions of each agency make total integration impractical. The following is an overview of those missions and a listing of each aircraft, engine type, and seating.

Michigan State Police

The mission of the Michigan State Police, Aviation Section, is to provide a wide variety of support services to all law enforcement and emergency service agencies in Michigan. The objective of the program is to be a support resource to enhance public safety for all citizens of the state. The aviation program provides an enhanced aerial perspective not available to ground personnel. Duties include: search for persons or property, investigative support, surveillance, HEMP (Help Eliminate Marijuana Planting) flights, and work in conjunction with the Michigan Aviation Cooperative on traffic enforcement, traffic and crowd control, disaster response, reconnaissance, emergency relays, prisoner extradition, aerial protection and communication for specialists (divers, dog handlers, SWAT team, bomb disposal, and crime scene technicians), VIP security, and prisoner and administrative transportation.

MSP missions are completed with the following aircraft based in Lansing:

Plane 1. 1980 Cessna 404, turbo-charged, twin-engine, nine-passenger aircraft. Cruising speed of 182 knots. Used for long passenger flights and over water. Certified to operate in icing conditions. This aircraft is no longer in production.

Plane 2. 1972 Cessna 421B, turbo-charged, twin-engine, seven-passenger aircraft. Cruising speed of 190 knots. Pressurized and A/C. Used for long passenger flights and over water. Not certified to operate in icing conditions. Due to the aircraft's age, over-the-counter parts are hard to obtain, creating made-to-order purchases. This aircraft is no longer in production.

Plane 3. 1982 Cessna 182R, single-engine, four-passenger aircraft. Cruising speed of 140 knots. Used for airspeed timing, short passenger flights, and law enforcement support missions. This aircraft is no longer in production.

Helo 1. 1970 Bell 206A Jet Ranger, single-turbine engine, four-passenger aircraft. Cruising speed of 108 knots. Aircraft equipped with Nightsun searchlight. Uses Jet A fuel. Used for searches, HEMP, and general law enforcement support. This aircraft is no longer in production.

Helo 2. 1990 Bell 206L-3 Long Ranger III, single-turbine engine, configured six-passenger aircraft. Cruising speed of 110 knots. Aircraft equipped with Nightsun searchlight, Forward Looking Infrared (FLIR) and VCR. Requires two pilots for FLIR flights. Used for searches, HEMP, and law enforcement support. This aircraft is no longer in production.

Michigan Department of Transportation

For over 50 years, MDOT has owned and operated aircraft and has been the primary provider of air transportation for the executive, legislative, and judicial branches of all state government agencies. These services have been provided in the highest quality aircraft flown and maintained by professional pilots and mechanics. In addition, MDOT aircraft are used to support Aeronautics missions related to regulatory and aviation infrastructure critical to aviation safety. This includes flights to perform airport inspections, maintaining pilot information systems, and Automated Weather Observation Stations (AWOS), which provide continuous weather information to pilots via voice, telephone, and computer, and state-owned navigation aids.

All MDOT aircraft are based in Lansing.

Plane 1. 1999 Beechcraft BE-200 (King Air) nine-passenger, pressurized, twin-engine turboprop. Cruising speed of 270 knots. Used for air transport of all eligible state officials. Certified to operate in icing conditions.

Plane 2. 1982 Beechcraft BE-200 (King Air) nine-passenger, pressurized twin-engine turboprop. Cruising speed of 270 knots. Used for air transport of eligible state officials. Certified to operate in icing conditions.

Plane 3. 1994 Beechcraft BE-58 (Baron) four-passenger, twin-engine piston. Cruising speed of 190 knots. Used for air transport of eligible state officials and the bureau's mission requirements. Certified to operate in icing conditions.

- Plane 4. 1985 Beechcraft BE-58 (Baron) four-passenger, twin-engine piston. Cruising speed of 190 knots. Used for air transport of eligible state officials and the bureau's mission requirements. Certified to operate in icing conditions.
- Plane 5. 1984 Beechcraft A-36 (Bonanza) four-passenger, single-engine piston. Cruising speed of 160 knots. Used for air transport of eligible state officials and support of Aeronautics missions. Not certified in icing conditions.
- Plane 6. 1982 Cessna-206 (Stationair) five-passenger, single-engine piston. Cruising speed of 135 knots. Used in support of Aeronautics missions. Outfitted for aerial photography.
- Plane 7. 1974 Cessna-182 (Skylane) three-passenger, single-engine piston. Cruising speed of 130 knots. Used in support of Aeronautics missions, such as airport inspections, navigational aid inspections, and maintenance of state-owned weather facilities.

Department of Natural Resources

DNR aircraft are utilized for a variety of missions: forest management (forest fire detection), animal tracking and surveys, off road vehicle enforcement, night aerial surveillance and transporting of personnel. The aircraft are based throughout the upper and lower peninsulas.

- Plane 1. 1979 Cessna 310R five-passenger, twin-engine. Cruising speed of 180 knots. Based in Marquette, used for field transportation. Certified to operate in icing conditions. This aircraft is no longer in production.
- Plane 2. 1979 Cessna 182Q (Skylane) three-passenger, single-engine piston. Cruising speed of 130 knots. Based in Baraga, used for forest management.
- Plane 3. 1979 Cessna 206G (Stationair) five-passenger, single-engine piston. Cruising speed of 135 knots. Based in Escanaba, used for forest management.
- Plane 4. 1975 Cessna 182P (Skylane) three-passenger, single-engine piston. Cruising speed of 130 knots. Based in Newberry, used for forest management.
- Plane 5. 1976 Cessna 182 (Skylane) three-passenger, single-engine piston. Cruising speed of 130 knots. Based in Roscommon, used for forest management.
- Plane 6. 1978 Beechcraft A36 (Bonanza) four-passenger, single-engine piston. Cruising speed of 160 knots. Based in Roscommon, used for forest management.
- Plane 7. 1979 Cessna 182Q (Skylane) three-passenger, single-engine piston. Cruising speed of 130 knots. Based in Roscommon, used for law enforcement.

Plane 8. 1977 Cessna 172N (Skyhawk) three-passenger, single-engine piston. Cruising speed of 110 knots. Based in Roscommon, used for forest management.

Current Areas of Cooperation

Since co-locating aircraft facilities in 1993, the three agencies have been cooperating in the following areas:

- ➔ Sharing of mechanical tools/equipment/parts for maintenance operations. Mechanics share equipment that otherwise would need to be purchased by each agency. Information and trouble-shooting between mechanics saves time and increases safety. Some parts are exchanged as needed.
- ➔ Joint-use of MSP fuel storage facilities. MDOT has been purchasing both 100 octane, and Jet-A from MSP. During FY 98-99, MDOT purchased 21,843 gallons of Jet-A and 20,054 gallons of 100 low-lead from MSP fuel farm. This represented a cost savings of \$62,355 for a nine month period during FY 98-99. Savings would have been greater; however, due to fuel tank replacement during the fiscal year, MSP was unable to provide fuel for a three-month period.
- ➔ Joint-use of MDOT/MSP/DNR aircraft for various mission-related duties. MDOT and MSP have used each other's aircraft when schedule conflicts exist or during peak demand.
- ➔ MDOT avionics technicians perform required tests and perform maintenance for MSP and DNR with communication/navigation pulse test sets. The avionics test equipment owned by MDOT cost approximately \$80,000.
- ➔ Maintenance and fueling of DNR aircraft by MDOT. Routine and heavy maintenance is performed on DNR aircraft by MDOT. In December 1999, MDOT completed an engine replacement on the DNR Cessna-310.
- ➔ Use of DNR aircraft in Marquette by MDOT, MSP, and other state agencies. DNR provides needed transportation for many state agencies with its Marquette-based twin Cessna. This joint-use allows for schedule flexibility, convenience, reduced costs, and increased utilization of the state's assets.

Opportunities for Increased Efficiencies

Though opportunities exist for increased efficiencies, due to specialized missions, there remains a need to maintain a level of autonomy and separate fleets in each department. To further increase utility and efficiency of the state's aviation assets, a replacement plan to eventually achieve common aircraft types (within separate fleets) is recommended to be implemented over a 5-to-10-year time frame.

- ✈ **Commonality of Aircraft Types and Equipment.**
Fundamental to maximizing all possible efficiencies in the use of aviation assets is the need to achieve commonality in aircraft types. A consensus should be reached on the types of aircraft to be operated and how they are equipped in order to better utilize personnel, maintenance, training and scheduling. It is recommended that the following aircraft types be established and used for replacement purposes:

Cabin Class Aircraft. Multi-engine turboprop aircraft capable of transporting six to eleven passengers and equipment. Pressurized, certified for known icing, radar equipped for long distance flights, including flights over large bodies of water. Recommended aircraft: Beech King Air 200. (This is the only U.S.-manufactured aircraft in production in this category.)

Light Twin Engine Aircraft. Aircraft capable of transporting one to five passengers. Non-pressurized, certified for known icing, radar equipped for flights throughout Michigan and contiguous states. Recommended aircraft: Beech Baron. This aircraft is the only light twin in the state fleet currently in production.

Complex Single Engine Aircraft. Aircraft capable of transporting one to four passengers throughout Michigan and contiguous states but not for extended distances over open water or flights in icing conditions. Recommended aircraft: Beech Bonanza.

Single Engine Utility Aircraft. Aircraft capable of utilizing grass strips, providing aerial surveys, and general utility for all of the state agencies. Recommended aircraft: Cessna single-engine 100 and 200 series.

Helicopter. Due to the specialized mission performed by current state helicopters for MSP only, possible efficiency gains are negligible. In the future, should needs arise from other state agencies for helicopters, the type and use will be evaluated with commonality a consideration.

With common aircraft types in the state aircraft fleets, the following efficiencies can be gained:

- ✈ **Aircraft Parts and Maintenance.**
With common aircraft types, parts inventory could be coordinated and reduced. There are additional benefits in familiarity with the equipment among aircraft and power plant mechanics and maintenance technicians. Coordination of training for these personnel could save dollars and increase safety.

- Utilization and Coordination of Pilots.
Common aircraft types would permit exchange of pilots between agencies. However, each agency will have to maintain a certain level of autonomy to complete its specific missions. There are, however, opportunities for exchange, as the need arises, to utilize pilots between agencies for transport flights.
- Training Efficiencies.
With coordination, a “one level of safety” concept between agencies could be realized. A common safety officer could be identified, who could develop a common training syllabus. Advanced and recurrent training on simulators is done by outside vendors. When selecting vendors for pilot safety training, all pilots could attend the same training institution, potentially reducing overall costs. Additionally, training in common aircraft increases efficiency and safety through familiarization. Specialized mission-specific training could be designed by each agency in cooperation with a common “safety officer.”
- Development of a Common Method for Exchange of Personnel and Equipment.
To allow for a seamless exchange of equipment and personnel, it will be necessary to develop a standard cost accounting system among the agencies with short and long-term goals. Currently, these institutional impediments prevent MDOT, MSP and DNR from freely exchanging personnel and equipment.
- Scheduling.
A common computerized scheduling system could enable all other agencies to view current schedules, thereby allowing for better utilization of aircraft and pilots, increased coordination between agencies, and the filling of vacant seats. A common scheduling program would allow the agencies to better serve more people with increased efficiency.
- Upper Peninsula Based Aircraft.
There is a substantial increase in demand by state officials for aviation transportation in the upper peninsula, both east and west, within the upper peninsula, and south to other Michigan destinations. Currently, the DNR operates a 21-year-old Cessna 310 based at Marquette-Sawyer International Airport that has been utilized by other agencies for transportation to the lower peninsula. Demand for this aircraft by other agencies has reached a point where DNR is unable to fully utilize the aircraft for its missions. Having an additional aircraft based in the upper peninsula could serve the transportation needs to both the lower peninsula and other destinations in the upper peninsula.

Recommendations

- Continue meetings between agencies to monitor operations and develop common costing methodology to further increase efficiencies.
- Propose a five to ten-year replacement plan for aircraft with a goal to achieve common aircraft types.
- Appoint a single safety officer to coordinate safety functions, such as training, from a common training syllabus.
- Study demand and cost effectiveness of locating an additional aircraft in the upper peninsula for transport purposes. If warranted, a two-year *pilot project* to determine effectiveness is recommended.
- Equip agencies with common scheduling program to allow schedulers to view flights to increase coordination and utilization of aircraft.
- Develop procedures for sharing of aircraft and pilots for back-up or emergency purposes.