Department of Legislative Services
Office of Legislative Audits

Performance Audit

Department of State Police
Aviation Command
Helicopter Operations

Report Dated August 14, 2008

Presentation to the Joint Audit Committee

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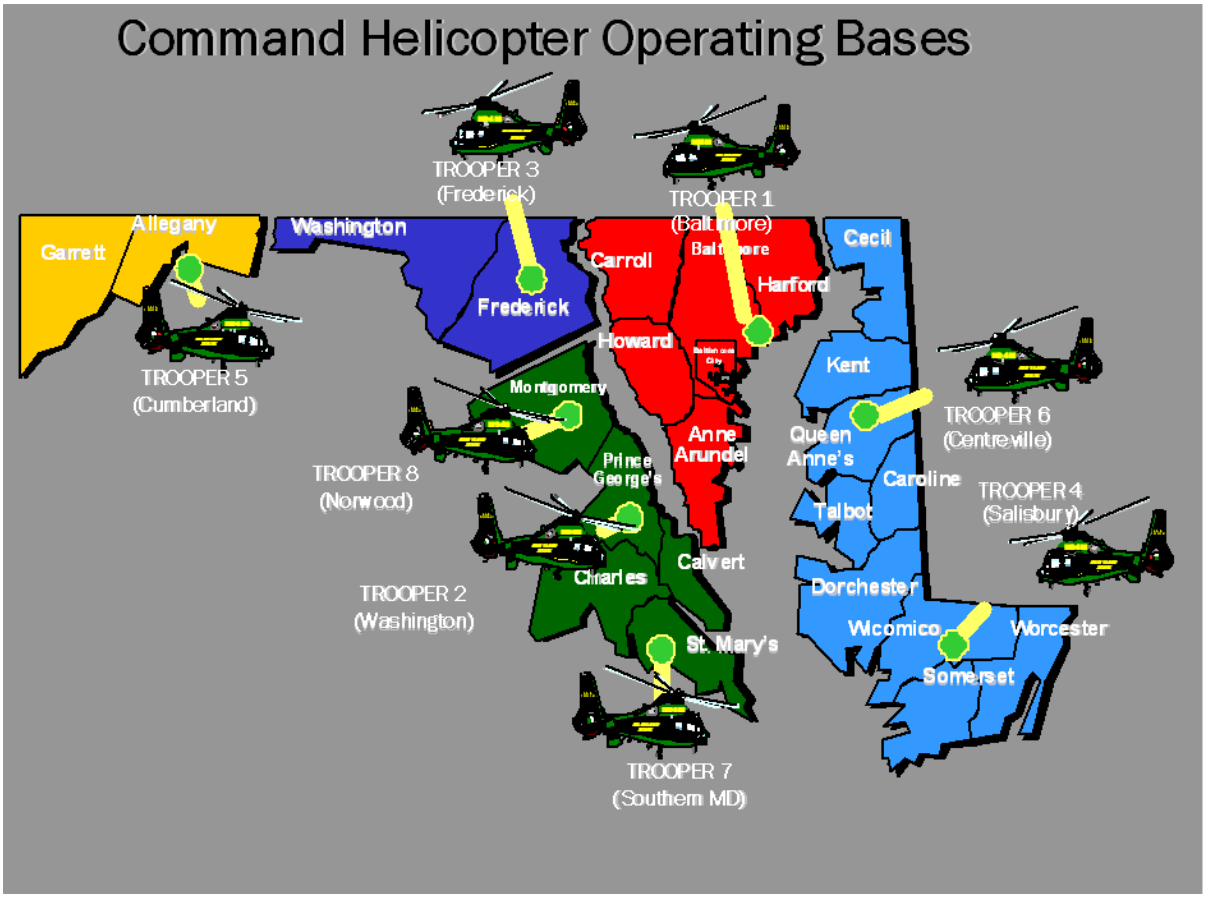
September 9, 2008

Background

- The Command operates 12 helicopters from 8 bases (or sections).



- Primary helicopter missions are emergency medical transport, airborne law enforcement, and search and rescue.

Background (continued)

- The Command has 161 authorized positions including pilots, flight paramedics, technicians, management and support personnel. Staffing is provided by both troopers and civilian personnel.

- Fiscal year 2007 expenditures totaled $22.3 million.

- The Command flew an average of 8,000 missions per year during the five year period from fiscal year 2003 to 2007. Medevac missions comprise over 60% of the total.

- Eleven helicopters were purchased between 1989 and 1994. The remaining one was purchased in 1999. Age of the helicopters in the current fleet is from 9 to 19 years.

- Between September 1989 and October 2007, the current fleet has logged almost 90,000 flight hours without a NTSB reportable accident, injury or fatality.

Audit Objectives

1. To determine the use and availability of the Command's helicopter fleet

2. To assess the effectiveness and efficiency of the Command's helicopter maintenance and inspection operations

3. To evaluate the adequacy of the Command's staffing structure, personnel practices, and training policies

4. To determine the reliability of the Command's fiscal year 2005 and 2006 "Golden Hour" Managing for Results performance measure for timeliness of patient transport to trauma centers

Issues Excluded from Scope

- Assessment of plans for helicopter replacement
- Analysis of the cost/benefit of privatizing or transferring helicopter operations to another State agency
- Assessment of the adequacy of the Command's funding source(s)
- Evaluation of guidelines or protocols used by emergency responders to request a medevac flight

Audit Methodology

We conducted comprehensive reviews and tests of numerous mission, maintenance, and personnel records and automated systems. Much of this effort was directed at developing meaningful statistics (not always readily available) covering multiple years (e.g., FY 2003 to 2007) and verifying the reliability of Command data. Our work included:

- Interviewing more than 110 Command personnel,
- Surveying other law enforcement agencies and reviewing various industry data and FAA regulations,
- Assessing the controls over, and the effectiveness of, the Command's major data information systems, and
- Performing extensive tests of maintenance work orders, inspection reports and flight records.

Key Audit Issues

- Use of helicopters for non-critical missions was not deemed to be significant.
- Better information systems are needed to provide data needed to manage critical aspects of its operations, including the identification of:
  - downtime by helicopter, and
  - all costs associated with maintenance to help assess efficiency, appropriate staffing levels and the cost/benefits of outsourcing.
- Certain personnel policies and practices should be addressed to foster more stable leadership, reduce staff turnover and establish competitive salaries.
- A key performance measure needs to be better defined and subject to quality assurance processes to ensure the reliability of results.

Common Theme – Need for Better Data

Throughout the report, many findings were related to the Command's need for more complete and accurate data on which to base management decisions. For example,

- Downtime information by individual helicopter was not captured and section downtime data was not reliable. (Objective 1)

- Cost per flight hour could not be calculated because certain helicopter and airplane costs were comingled and the time spent servicing the helicopters was not recorded or tracked. Also, completed maintenance work was not recorded on the automated aircraft maintenance and inventory system. (Objective 2)

- The automated database used to calculate the "Golden Hour" performance measure was not subject to periodic internal quality assurance reviews. (Objective 4)

Objective 1 - Helicopter Use & Availability

Mission Data

- Helicopters were found to be used primarily for the State's critical missions (e.g., medevac) during FY 2003-2007, and other uses did not appear to impact use and availability. (Finding 1)

- The primary cause of mission cancellations was ground responders subsequently determining that services were not needed. (Finding 2)

Section & Aircraft Downtime Statistics

- Although the Command maintains downtime by section (i.e., the reason a section could not respond to a call), the related database was unreliable. Thirty-two of 61 entries tested did not agree to the source documents. (Finding 3)

- Downtime was not tracked by helicopter. Using various sources, OLA estimated that for 51 days during FY 2007, < 8 helicopters were in service, and 6 were out of service > 120 days. (Finding 4)

Objective 2 - Maintenance Operations

Best Practices

- OLA testing found that helicopter inspections were conducted at proper intervals. (Finding 6)

Maintenance Costs

- Costs for helicopter operations were not tracked separately nor were actual labor hours spent on helicopter inspections and repairs. (Finding 8)

- A formal process was not in place to assess when a contractor should be used for more comprehensive/complex inspections, such as T inspections (required every 600 flight hours). Our review of 8 recent T inspections showed that the 4 outsourced inspections were completed significantly quicker than the 4 done in-house. (Finding 9)

Objective 2 - Maintenance Operations (continued)

Maintenance Information Systems

- Available features of the automated inventory system were not used to ensure that critical parts were on hand to meet expected needs. Also, significant routine delivery delays were noted; of 20 parts orders tested, 10 were received >90 days after order, including 7 received >150 days after ordering. Also, vendor records of open purchase orders often did not include all open orders per the Command's records. (Finding 11)

- A process was not in place to ensure that all FAA directives or manufacturer service bulletins were incorporated into inspection checklists. (Finding 12)

Objective 2 – Maintenance Operations (continued)

Physical Controls Over Parts & Supplies Inventories

- Documented physical inventories of parts and supplies were not conducted and inventory records were often inaccurate. (Finding 14)
- Access to the parts and supplies storeroom was not properly restricted and controlled and sufficient controls over withdrawals were lacking. (Findings 15 and 16)

Manuals & Policies

- Maintenance manuals were not always current. For example, 4 avionics manuals had not been updated for manufacturer revisions for 5 to 14 years. (Finding 17)

Other Findings

- Policies to account for tools (to ensure tools were not left in helicopters) were not always followed. Also, current certificates documenting FAA-required annual calibrations for 2 of 20 tools tested could not be found. (Finding 19)

Objective 3 - Personnel, Staffing ,and Training

Organizational Structure

- Given the Command's comprehensive mission profile and current staffing, the organizational structure appears reasonable. (Finding 20)

Employee Turnover & Vacancies

- Turnover in key management positions appears to result in a lack of leadership continuity. Also, qualifications for these positions had not been formally established. (Finding 21)

- Turnover and overtime costs for certain non-management staff has increased.
  - OLA analysis of 5-year staffing trends (through FY 2007) found an increase in turnover, especially among pilots and technicians. For example, during fiscal year 2007, turnover for pilots and technicians was 16%.

Objective 3 - Personnel, Staffing and Training (cont.)

Employee Turnover & Vacancies (continued)

- Position vacancies have contributed to the Command's annual overtime expenditures increasing from $530,000 to $1.17 million between fiscal years 2004 and 2007.

- Low salaries and the limited advancement opportunities for civilian pilots and technicians appear to be the primary causes of the turnover. A large proportion of employees, mainly technicians, have minimal experience with the Command. For example, as of June 30, 2007, 11 of the 21 technicians had <5 years of service with the Command, including 8 who had <1 year.

- Considering the age of many pilots (33 are over the age of 50) and the Command's policy of requiring pilot applicant's to have at least 2,000 hours of flight time, hiring qualified replacements under the current salary structure could be challenging.

Objective 3 - Personnel, Staffing and Training (cont.)

Training Enhancements

- The Command had not complied with all requirements in its FAA-approved technician training manual, including the development of a curriculum of training courses. Also, OLA's review of 10 technicians' training files disclosed that there had been no formal assessments of training needs for 9 of the technicians as required. (Finding 25)

Objective 4 – "Golden Hour" MFR Reliability

Background

- For FYs 2005 and 2006, the Command had a goal of completing 95% of medevac missions within the "Golden Hour." Reported results were 94.81% and 94.36 %, respectively.

"Golden Hour" Definition

- Actual statistic measured did not represent the commonly understood definition of the "Golden Hour," which is the time between the occurrence of the accident to patient delivery at a trauma center. (Finding 26)

Data Reliability

- The Command did not retain documentation to support how it calculated its reported results, necessitating a re-creation of results for audit purposes, and also lacked an internal quality assurance process. Review and testing of re-created results indicated certain errors and unexplained anomalies. (Finding 27)

Objective 4 – "Golden Hour" MFR Reliability

Data Reliability (continued)

- OLA test of time stamps from recorded voice transmissions for 61 missions during FY 2007 found 10 errors in the recordation of times into the automated records that are used to calculate the reported results.

- The automated records for FYs 2005 and 2006 included missions for which the recorded duration appeared questionable. These missions included some >1 day and others <20 minutes. For example, in 2006, the data included 242 missions out of 4,863 total completed missions with a duration of 20 minutes or less.

Overall finding, based on inconsistent definition and data issues, was that the OLA could not conclude with respect to the reliability of the reported FY 2005 and 2006 MFR results.

Conclusions

- The Command's helicopters were used almost exclusively for critical missions.
- The Command should improve its data systems and information to more effectively manage its operations.
- The Command should implement processes and procedures to better manage critical parts and supplies. In addition, the Command should pursue efforts to ensure the timely delivery of necessary parts.
- The Command should formally examine staffing and pay issues to foster more stable leadership, help minimize turnover and improve its flexibility and authority in hiring, maintaining and promoting staff.
- The Command should implement appropriate procedures to ensure the accuracy of the Command's most publicized measure of its success (timely patient transport to trauma centers).