A. JOSEPH DeNUCCI
AUDITOR

# The Commonwealth of Massachusetts

**AUDITOR OF THE COMMONWEALTH**
**ONE ASHBURTON PLACE, ROOM 1819**
**Boston, MASSACHUSETTS 02108**
**TEL. (617) 727-6200**

No. 2008-0044-4T

OFFICE OF THE STATE AUDITOR'S
REPORT ON THE EXAMINATION OF
INFORMATION TECHNOLOGY-RELATED CONTROLS AT
THE MASSACHUSETTS AERONAUTICS COMMISSION

February 1, 2006 through May 30, 2008

**OFFICIAL AUDIT REPORT**
**NOVEMBER 13, 2008**

# TABLE OF CONTENTS

**INTRODUCTION** **1**

**AUDIT SCOPE, OBJECTIVES, AND METHODOLOGY** **3**

**AUDIT CONCLUSION** **7**

**AUDIT RESULTS** **10**

1. **Aircraft Registration** **10**
2. **Business Continuity Planning** **13**

**APPENDIX – PROPOSED CHANGES TO MASSACHUSETTS AERONAUTICS COMMISSION STATUTES** **15**

## INTRODUCTION

The Massachusetts Aeronautics Commission (MAC), which was authorized by Chapter 90 of the Massachusetts General Laws, is an agency under the Executive Office of Transportation (EOT). MAC has jurisdiction over the Commonwealth's 37 public-use airports, of which 24 are publicly-owned and 13 privately-owned; 184 private-use landing areas; and two seaplane bases. MAC does not have jurisdiction over activities at Logan International Airport or Hanscom Field, which are both owned and operated by the Massachusetts Port Authority. MAC is responsible for airport development and improvement, airport safety and security, accident investigation, and pilot and aircraft registration. For those facilities under MAC's jurisdiction, MAC certifies airports and heliports, licenses airport managers, registers small aircraft, enforces safety and security regulations, and conducts annual airport inspections. MAC works in partnership with federal, state and local government to manage financial resources necessary to maintain Massachusetts airports. Twenty-eight airports are eligible to receive Airport Improvement Program (AIP) funds from the Federal Aviation Administration (FAA). A separate State program, the Airport Safety and Maintenance Program (ASMP), serves to leverage AIP funds and to fund safety and maintenance projects that are not eligible for AIP assistance. According to MAC, for calendar years 1991-2007 over $234 million in airport improvement projects have been completed at Massachusetts airports and the FAA's contribution was approximately $158 million.

The Commission also acts as a conduit for federal and state capital funds to improve and maintain municipal airports. MAC, which is headed by a Director and has a staff of 11 full-time employees, operates under the direction of a five-member commission, and is organized under the Executive Office of Transportation. MAC's state appropriation for fiscal year 2008 was $462,992.

MAC's mission is to promote aviation while establishing and maintaining a safe, efficient airport system to meet the current and future air transportation and economic needs of the Commonwealth. Information technology processing at the Massachusetts Aeronautics Commission is supported by the Executive Office of Transportation's IT department which manages network operations and associated technology to support MAC's systems as well as IT services for the other two sub-agencies of EOT. MAC's local area network (LAN) is comprised of 12 workstations. The four LAN servers allow users to share software applications and data files, such as electronic mail, word processing, spreadsheets, and fiscal data within the agency. MAC's primary application system is the Airport Information Management System (AIMS) that was developed by the Commission in 1996. The AIMS application is a web-based database program that stores data related to MAC's daily functions, including aircraft registration, airport

contacts, airport project management, airport inspections, airport improvement program, and the Commission's spending plan. Besides being used by MAC staff, AIMS is used by the Federal Aviation Administration, airport managers, and airport consultants.

As a sub-agency of the Executive Office of Transportation, MAC is dependent upon EOT for its IT processing capabilities, internal control planning, business continuity planning, environmental protection, system access security, hardware acquisitions, and payroll support. EOT also provides internal control planning, program support, and overall funding. The other sub-agencies of the Executive Office of Transportation are the Highway Department and the Registry of Motor Vehicles.

The Office of the State Auditor's internal control examination was limited to a review of selected IT general controls over and within MAC's and EOT's IT environment.

# AUDIT SCOPE, OBJECTIVES, AND METHODOLOGY

## Audit Scope

In accordance with Chapter 11, Section 12, of the Massachusetts General Laws, we performed an information technology (IT) general controls examination of IT-related activities at the Massachusetts Aeronautics Commission (MAC) for the period of February 1, 2006 through May 30, 2008. The audit was conducted from November 14, 2007 through May 30, 2008. Our audit scope included a general controls examination of IT-related policies and procedures, physical security, environmental protection, system access security for MAC's application systems, inventory control over computer equipment, business continuity planning, and on-site and off-site storage of backup copies of magnetic media. We also completed a review of controls in place to determine whether MAC adequately performed a review to ensure all aircraft under the Commission's jurisdiction are registered.

## Audit Objectives

Our primary objective was to determine whether adequate controls were in place and in effect to support MAC's IT processing environment. We sought to determine whether the MAC's and EOT's IT-related internal control framework, including policies, procedures and practices, provided reasonable assurance that IT-related control objectives would be achieved to support business functions. We determined whether adequate controls regarding physical security and environmental protection were in place and in effect to safeguard computer operations and IT-related assets. With respect to system access security, we sought to determine whether adequate controls were in place to prevent and detect unauthorized access to application software and related data files residing on the EOT's LAN-based file servers and MAC's desktop workstations. Our objective, with respect to hardware inventory, was to determine whether IT computer equipment were properly recorded and accounted for in the MAC's inventory system of record.

With respect to the availability of automated processing capabilities and access to electronic information resources, we determined whether disaster recovery and business continuity controls would provide reasonable assurance that mission-critical and essential computer operations could be regained within an acceptable period of time should computer systems be rendered inoperable or inaccessible. In conjunction with reviewing business continuity planning, we determined whether proper backup procedures were being performed by EOT in conjunction with MAC and whether procedures were in place to ensure that copies of backup magnetic media were stored in secure on-site and off-site locations.

We determined whether adequate controls were in place regarding the registration process for aircraft under MAC's jurisdiction and the revenue generated by MAC for fiscal year 2007. We also reviewed MAC's management policies related to the registration of aircraft to determine whether all aircraft that should be registered are in fact registered.

**Audit Methodology**

To determine the scope of the audit, we performed pre-audit survey work regarding MAC's overall mission and its IT environment. The pre-audit work included interviews with senior management; a review of policies, procedures, and other internal control documentation; and observation of IT-related areas. To obtain an understanding of the MAC's activities and internal control environment, we reviewed MAC's mission and primary business functions. We assessed the strengths and weaknesses of the internal control system for selected IT activities, including physical security, environmental protection, system access security for MAC's application systems, inventory control over computer equipment, business continuity planning, and on-site and off-site storage of backup copies of magnetic media. Upon completion of our pre-audit work, we determined the scope and objectives of the audit.

Regarding our review of the adequacy of IT-related policies and procedures, we interviewed senior management and staff of MAC and EOT to identify IT functions and responsibilities and evaluated the degree to which documented policies and procedures addressed those functions. We reviewed the IT-related policies and procedures to assess whether they provided guidance to MAC staff.

To evaluate physical security, we interviewed senior management, conducted physical inspections, observed security devices, and reviewed procedures to address security violations and/or incidents. Through observation, we determined the adequacy of physical security controls over areas housing IT equipment, including areas housing MAC's and EOT's file servers and MAC's workstations. We examined controls such as office door locks, locked entrance and exit doors, the presence of personnel at entry points, and whether MAC's offices were equipped with intrusion alarms. We reviewed management policies and procedures regarding the distribution of access key cards to employees. We requested and obtained a list of key holders to the file server room and determined whether individuals identified as being authorized to access areas housing computer equipment were current employees.

To determine whether MAC and EOT had adequate environmental controls in place to properly safeguard areas housing computer equipment from loss or damage, we conducted walkthroughs and checked for the presence of smoke and fire detectors, fire alarms, fire suppression systems (i.e., sprinklers and fire extinguishers), an uninterruptible power supply (UPS), and emergency power generators and lighting.

To determine whether proper temperature and humidity controls were in place, we inspected the areas housing file servers both at MAC and EOT to ensure the presence of appropriate dedicated air conditioning units and/or heating, ventilation and cooling systems (HVAC). In addition, we reviewed environmental protection controls related to general housekeeping procedures in the file server room, as well as the office areas housing computer equipment. Audit evidence was obtained through interviews, observation, and review of relevant documentation.

We reviewed the MAC's system access security policies and procedures to prevent and detect unauthorized access to the MAC software and data files residing on the workstations and EOT's LAN. We reviewed the security policies and procedures with EOT's Chief Information Officer (CIO) who was responsible for controlling MAC's access to EOT's LAN. Our examination of system access security also included a review of MAC staff's access privileges to applications residing on the LAN and desktop workstations. Subsequently, we determined whether all system users authorized to access the automated systems were required to periodically change their passwords and, if so, the frequency of password changes. Our tests of system access security included a review of procedures used to authorize, activate, and deactivate access privileges to MAC's IT resources on the LAN and desktop workstations. To determine whether only authorized employees were accessing the automated systems, we obtained system-generated lists from MAC and EOT for individuals granted access privileges to the automated systems used by the Commission and compared it to MAC's current personnel listing.

With regard to inventory control over computer equipment, we evaluated whether an annual physical inventory was conducted, whether computer equipment was accurately reflected in the fixed asset inventory, and whether the computer inventory system of record was properly maintained. We also evaluated whether the computer equipment was properly accounted for in the system of record. To determine whether adequate controls were in place and in effect to properly account for MAC's computer equipment, we reviewed inventory control policies and procedures and requested and obtained MAC's inventory system of record for computer equipment dated November 19, 2007. We reviewed the current system of record to determine whether it contained appropriate data fields for identification tag number, location, description, historical cost, and condition of IT-related fixed assets. To determine whether the system of record for computer equipment for fiscal year 2007 was accurate, complete, and valid, we conducted a 100% test of hardware items to compare to the actual computer hardware on hand. We verified, by visual inspection, the existence and location of all 41 computer hardware items and determined whether they were properly tagged, in good condition, and whether the serial numbers affixed to the equipment were accurately recorded on the system of record for IT-related equipment.

To assess the adequacy of business continuity planning and disaster recovery, we reviewed the level of planning and established procedures MAC and EOT had identified and documented in order to resume computer operations in the event that the file servers and/or desktop workstations were rendered inoperable or inaccessible. We interviewed MAC and EOT management to determine whether the criticality of application systems had been assessed, whether risks and exposures to computer operations had been identified and evaluated, whether a written business continuity plan was in place, and, if so, whether the was plan adequately tested. Our interview also addressed an evaluation of the adequacy of controls to ensure that software and data files would be available for recovery efforts should the automated systems be rendered inoperable. The latter included a review of the adequacy of provisions for on-site and off-site storage back-up copies of magnetic media. In that regard, we interviewed the CIO of EOT and staff responsible for generating and storing backup copies of magnetic media.

Our audit methodology included reviewing MAC's calendar year 2007 aircraft registration files; certification program policies, processes, and procedures; certification reports and program statements; and monthly reports to the Executive Director. To evaluate program oversight activities, we reviewed data contained within the inventory listing of aircraft from 27 selected airports and compared the data to MAC's registrations and re-registrations of aircraft within AIMS for calendar year 2007. We reviewed the registration process for aircraft under MAC's jurisdiction and the revenue generated by MAC for fiscal year 2007.

Our review was conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS) issued by the Comptroller General of the United States and industry auditing practices. The audit criteria used for our control examination were based on applicable legal requirements, generally accepted IT control objectives and practices found in Control Objectives for Information and Related Technology (CobiT), the Office of the State Comptroller's "Internal Control Guide for Departments", and relevant sections of Chapter 90 related to MAC's operations and activities.

## AUDIT CONCLUSION

Based on our audit, we found that the information technology-related controls in place at the Massachusetts Aeronautics Commission (MAC) provided reasonable assurance that IT-related control objectives would be met with respect to IT-related policies and procedures, physical security, environmental protection, system access security, inventory control over computer equipment, and the generation of backup copies by EOT's IT Department of magnetic media for on-site and off-site storage. However, IT-related controls needed to be strengthened to provide reasonable assurance that control objectives regarding business continuity planning would be addressed. In addition, we found that MAC needed to improve controls to ensure the completeness of the AIMS data regarding the registration of airworthy aircraft based in Massachusetts or temporarily located in Massachusetts for sixty or more cumulative days during a year. Also, controls need to be strengthened to ensure that all aircraft under the jurisdiction of MAC were properly registered with the Commonwealth.

Our examination of MAC's organization and management revealed that there was an established chain of command, adequate segregation of duties among Commission employees, and clear points of accountability. Our review of IT-related activities disclosed that the primary IT functions were supported and maintained by the Executive Office of Transportation's IT Department. Due to the nature and limited extent of the IT environment at MAC, there was no established IT department, although there was an employee who served as the informal liaison between the MAC and EOT. Our audit indicated that MAC in conjunction with EOT had developed and documented policies and procedures for IT-related functions reviewed in our audit, except for business continuity planning.

We found that adequate physical security was implemented and in place for MAC within the State Transportation Building since the building was subject to perimeter security, the MAC office and Transportation building were locked during off hours, and the building was alarmed to guard against unauthorized access, damage, or theft. We found that MAC's and EOT's file server rooms were appropriately locked and that only authorized staff had been given keys to the rooms. We also found adequate physical security controls over the on-site backup storage area.

We found that MAC had appropriate controls in place to provide reasonable assurance that IT computer equipment would be properly accounted for on MAC's system of record for its equipment inventory. Our audit tests indicated that the inventory system of record was accurate, complete, current, and valid for computer equipment. We also found that computer equipment, including notebook computers, recorded on the inventory could be located and was found to be properly tagged.

Our examination of environmental protection over the office areas and the EOT and MAC file server rooms revealed that appropriate control mechanisms were in place to provide reasonable assurance that IT resources were safeguarded from damage or loss resulting from environmental hazards. Specifically, we found control objectives related to general housekeeping, air conditioning, fire prevention and detection, humidity and temperature control, and emergency power and lighting would be met. Our audit disclosed that the MAC and EOT file server rooms were neat and clean, general housekeeping procedures were adequate, and temperature and humidity levels within the room were appropriate. We found that an UPS was in place to prevent sudden loss of data and that hand-held fire extinguishers and emergency lighting were located within the MAC and EOT file server rooms. In addition, evacuation and emergency procedures were documented and posted within each file server room. An automatic fire suppression system exists throughout the State Transportation Building, including the Commission's offices and file server room and EOT's office area and file server room.

Our review of system access security controls revealed that adequate control practices were in place to provide reasonable assurance that only authorized users were granted access privileges to MAC's programs and data files residing on the EOT's file servers and MAC's workstations. We found that administrative controls over user IDs and passwords provided reasonable assurance that access privileges would be deactivated or appropriately modified should MAC employees terminate employment or incur a change in job requirements. We also determined that controls were in place through observations and interviews regarding administrative password protection and changes to passwords to MAC applications accessed through EOT's IT network. Specifically, we found all MAC users are required to change their password on a predefined time period, and passwords must meet a defined length of alpha/numeric characters as outlined in EOT's password policy. We determined that access privileges granted to MAC staff were appropriately aligned with job responsibilities and functions. Our tests revealed that the current system users were MAC employees.

Regarding on-site and off-site storage of back-up copies of magnetic media, our audit indicated that adequate control procedures were in place for the generation and storage of on-site tapes and the generation of off-site tapes. We determined that MAC and EOT had implemented procedures and schedules for generating backup copies of magnetic media and had documented procedures for maintaining inventory of data files and software that were backed up. Documentation was in place indicating which backup tapes were stored off-site, and logs were maintained demonstrating the authorized schedule for the transport and return of backup copies. We did not visit the off-site storage location.

Our audit disclosed that MAC in conjunction with EOT had not developed and implemented a formal, tested, disaster recovery plan to provide reasonable assurance that the AIMS case management system and essential data processing operations could be regained effectively and in a timely manner should a disaster render automated systems inoperable. At the time of our audit, MAC and EOT had an informal disaster recovery plan and had begun to collaborate and formulate a business continuity strategy. Our audit indicated that the level of disaster recovery and business continuity planning needed to be strengthened to provide detailed documented plans to address recovery strategies and continuity of business operations. Although a potential alternate processing site had been identified, no user area plans had been established to document the procedures to be followed by non-IT staff to support business continuity objectives in the event of a disaster.

Our audit revealed that MAC did not ensure that all civilian aircraft owned by residents and business organizations and operating in the Commonwealth were properly registered. MAC's computerized AIMS application, a database of aircraft information, including registration history and fees collected, identified 2,088 civilian aircraft registered at 34 airports within the Commonwealth for calendar year 2007. However, our judgmental sample of 27 of the 34 airports' aircraft inventory listings indicated a total of 2,456 civilian aircraft that represented approximately 90% of all aircraft based in Massachusetts under MAC's jurisdiction. Our analysis revealed a variance of 689 aircraft listed on inventories at the individual airports compared to MAC's own database listing of registered aircraft at these airports. In addition, we found that for the current fiscal year, the average annual registration fee for an aircraft was approximately $165. We estimate that MAC lost $113,685 in potential revenue based on the $165 registration fee times the 689 aircraft. In addition to the standard fee, failure to register aircraft within denoted time periods, as required through 702 CMR 3.03, could result in additional revenue losses in late fees, ranging from $25 to $75 per registration, and could also pose security and safety risks.

## AUDIT RESULTS

### 1. Aircraft Registration

Our audit revealed that MAC did not ensure that all civilian aircraft owned by residents and businesses and operating in the Commonwealth were properly registered in accordance with Chapter 90, Sections 48 and 49(b), of the Massachusetts General Laws. The purpose of the law is to ensure that all aircraft operating within the Commonwealth conform to the design, construction, and air-worthiness standards prescribed by the federal government. Chapter 90, Section 49, of the General Laws also allows MAC to charge a registration and renewal fee in lieu of property taxes. In January 2004, MAC instituted a fine of $25 to $75 per aircraft for late registrations. Although MAC does register aircraft, the information related to registered aircraft was not reconciled to local airports' inventories of aircrafts and MAC did not evaluate the integrity of the information being submitted by the airports. The variances between MAC's and the local airports' inventories of aircraft may have resulted in uncollected aircraft registration fees and could pose security and public safety risks.

MAC's computerized AIMS application, a database of aircraft information, including registration history and fees collected, identified 2,088 civilian aircraft registered at 34 airports within the Commonwealth for calendar year 2007. AIMS information is shared with local airport operators to assist in identifying and reporting unregistered aircraft. Airport operators are instructed to look for registration stickers, which are required to be displayed on the right side of the aircraft pursuant to 702 CMR 3.03. Aircraft making frequent use of an airport, but lacking a Massachusetts registration sticker, are compared with AIMS and FAA data to determine whether they should be registered in Massachusetts. However, our judgmental sample of 27 airports and their inventory lists of 2,456 civilian aircraft, representing approximately 90% of all aircraft based in Massachusetts, revealed a variance of 689 aircraft from MAC's own database listing of registered aircraft. Aircraft newly based in Massachusetts are required to be registered within ten days after arrival in the Commonwealth or be subject to a penalty as stated in MGL Chapter 90, Section 44. In addition, the variance may indicate noncompliance with Chapter 90, Sections 48 and 49 (b) of the Massachusetts General Laws. Section 48 states, in part:

> "*No aircraft shall be operated or navigated within the Commonwealth unless such aircraft has an appropriate effective license, permit or certificate, issued by the Civil Aeronautics Authority of the United States or other proper licensing authority and is registered by said authority…*"

Furthermore, Section 49(b) states, in part:

> *"….every person who operates an aircraft shall register the federal aircraft certificate of said aircraft with the Commission during each period in which the aircraft is operated within the Commonwealth*."

MAC utilizes the AIMS application in order to collect aircraft registration fees from aircraft registration data directly from the FAA. These reports identify all aircraft purchased in, or moved to or from, the Commonwealth during the prior month. The information provided to MAC includes the name and address of the owner and the federal identification number assigned to the aircraft. In addition, MAC is to reconcile MAC's aircraft registration files against the data obtained by Airport Managers pursuant to 702 CMR 5.04(3)f. This reconciliation of state records against both local and federal records is done in order to provide the most accurate accounting of aircraft registration files. However, our audit revealed that MAC does not adequately monitor the aircraft inventory annually filed by the individual airports to MAC and compare it to information of registered aircrafts identified in MAC's database system. An underlying cause may be that MAC only has one inspector whose job responsibilities do not include monitoring of aircraft at airports.

We identified 689 aircraft located in Massachusetts airports that were not registered with MAC. MAC registration fees of aircraft range from $100 to $300, based on gross weight. We found for the current fiscal year the average annual registration fee for registered aircraft was approximately $165. These fees generated total revenue of $405,464 for fiscal year 2008. However, we estimate that MAC lost $113,685 in potential revenue based on $165 registration fee times the 689 aircraft. Furthermore, noncompliance with 702 CMR 3.03 could result in a late fee assessment, ranging from $25 to $75, in addition to the standard registration fee. As a result, the Commonwealth has lost the potential to earn additional aircraft registration fees. In addition, since these 689 aircraft are not properly accounted for in MAC's database, security and public safety risk may increase and the potential for illegal activities may also increase.

**Recommendation**:

We recommend that in order to ensure that all aircraft under MAC's jurisdiction are registered with MAC and have paid applicable registration fees, MAC should reconcile the data from AIMS and the aircraft that are hangared at airports under its jurisdiction throughout the Commonwealth. MAC should also implement monitoring controls to determine whether the inventory of aircraft at individual airports supplied to MAC is accurate, complete and valid. These controls will provide additional assurance that all civilian aircraft are properly registered and that all fees due the Commonwealth are paid. In addition, procedures should be established that require that operators of all airports under the jurisdiction of MAC

provide MAC information on a continuing basis of all aircraft located at airports, even with regard to aircraft located in privately leased hangars.

**Auditee's Response:**

*MAC realizes the need to ensure that all aircraft remain in compliance with State regulations and register with the Commonwealth, to help aid in this objective MAC has developed a uniform spreadsheet for the airports to report their based aircraft. This spreadsheet requires the airport to report the MAC registration number of each aircraft; this will help MAC determine the unregistered aircraft at each airport.*

*MAC will also pursue changes to the Massachusetts Aeronautics Commission Statutes, Chapter 90 Sections 35-52. The changes will allow MAC to impose civil penalties for those found in non-compliance with the State aircraft registration regulations. (See Appendix)*

*MAC reviewed the 689 aircraft listed as being not registered and found that as of this date:*

- *198 are currently registered*
- *216 are **not** registered*
- *130 are not based in Massachusetts*
- *77 are unairworthy and are not required to register.*
- *30 are Federal, State or scheduled airlines which are not required to register. MAC also found a number of duplicates on this list.*

*Under the auspices of the Mobility Compact, the IT, Procurement and Operations working groups are exploring opportunities to streamline operations through standardization and further automation. The MAC aircraft registration process is one of the targets for updating to create a more effective system for enhanced revenue collection.*

**Auditor's Reply**

We are pleased that MAC has reconciled the data from AIMS with the aircraft inventories supplied by the airports that are under its jurisdiction throughout the Commonwealth and has been able to register an additional 198 aircraft since our audit fieldwork was completed. We believe that MAC's development of a uniform spreadsheet for the airports to report the aircraft that are based at their particular airport will help ensure that the inventory of aircraft reported to MAC at individual airports is accurate and complete, and will assist in identifying unregistered aircraft at each airport. We recommend that the aircraft inventory records be maintained on a perpetual basis to identify variances noted during the recent reconciliation process in a more timely manner. Understandably, the Commission will need to develop a reconciliation process to ensure the integrity of the aircraft inventory. The new controls will provide the Commission with additional assurance that all civilian aircraft are properly registered and that all fees due

the Commonwealth are paid. Subsequent to obtaining the response from MAC, the auditee acknowledged that there were 38 duplicate records included in the 689 variance figure.

**2. Business Continuity Planning**

We found that Executive Office of Transportation (EOT) in conjunction with MAC had appropriate policies and procedures regarding the generation of on-site and off-site back-up copies of magnetic media. However, we determined that EOT in conjunction with MAC had not documented and tested a disaster recovery and business continuity plan to provide for the timely restoration of mission-critical and essential business functions should systems that are processed through the EOT's local area network (LAN) be rendered inoperable. MAC and EOT had not assessed the relative criticality of automated systems supporting MAC's operations and identified the extent of potential risks and exposures to business operations, including maintaining the AIMS application. Given that business continuity is a shared responsibility with EOT, it is important that MAC have adequate mechanisms to provide assurance that adequate business continuity plans are in place and that staff are sufficiently trained in performing recovery efforts.

Since MAC is a sub-agency receiving IT support from EOT, the Commission needs to coordinate its disaster recovery and business continuity plans with that of EOT. One means of performing this is to have MAC and the other sub-agencies that report to EOT develop and maintain appropriate user area plans for each sub-agency. The user area plans would allow the sub-agencies to meet their respective business continuity planning responsibilities that affect only their agency while the department-wide disaster recovery and business continuity plan developed by EOT would coordinate the planning of the various sub-agencies into one cohesive set of recovery and contingency strategies.

Although a potential alternate processing site had been identified, no user area plans had been established to document or test the procedures to be followed by non-IT staff to support business continuity objectives in the event that MAC's IT processing were lost should a disaster occur. The absence of a tested business continuity plan, which designates an alternate processing site, places at risk EOT's and MAC's ability to regain mission-critical and essential data processing operations that support administrative functions such as aircraft registrations and airport inspection information within an acceptable time period. A coordinated business continuity planning effort between MAC and EOT is needed to ensure that the primary application system, AIMS, which is accessed through EOT, would be available for processing.

**Recommendation:**

MAC, in conjunction with EOT, should develop business continuity plans (user area plans) appropriate to business and operational objectives, potential risks and exposures, and the relative importance of MAC systems and data. We recommend that an assessment of criticality and business impact be performed at least annually, or upon major changes to MAC's operations or the overall IT environment. We recommend that MAC obtain assurance from EOT that network-based functionality would be available within an acceptable period of time at an alternate processing site to aid recovery efforts.

**Auditee's Response:**

> *The Massachusetts Aeronautics Commission is working, in conjunction with the Executive Office of Transportation and the Security working group of the Mobility Compact to develop a coordinated business continuity plan.*

**Auditor's Reply**

We are pleased that the Commission, in conjunction with the Executive Office of Transportation, will develop a business continuity plan. The business continuity strategy should be sufficiently comprehensive to address various disaster and recovery scenarios and ensure system availability to mission-critical operations and IT processing. Once a plan is developed, it should be tested to the extent possible, and should be regularly updated to ensure its viability with changes to business requirements and supporting technology.

DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

BERNARD COHEN
SECRETARY AND CHAIR

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF TRANSPORTATION
MASSACHUSETTS AERONAUTICS COMMISSION

EOT

# MEMORANDUM

**Date:** **05/03/2007**

**To:** **Jeff Mullan, Undersecretary and General Counsel, EOT**

**From:** **Wayne C. Kerchner, Chief Legal Counsel, Massachusetts Aeronautics Commission (MAC)**

**RE:** **Proposed Changes to MAC Statutes, Chapter 90 Sections 35-52**

---

The following are proposed changes, additions and up-dates to the MAC statutes:

## I. CIVIL PENALTIES

The MAC is in need of a non-criminal, civil procedure for disposition of violations of regulations and statues with specific civil penalties established for each violation. Presently, only criminal penalties are authorized through Section 44 of chapter 90. Civil penalties will be enacted by adding language to Section 40 of chapter 90, authorizing the use of civil citations and explaining the procedures for adjudicating the violations through a hearing officer and a method for collecting penalties. This includes a schedule of penalties to be enacted by amending 702 CMR stating the amounts assigned to the individual fines. This procedure will improve our enforcement potential and will increase our ability to collect fines without proceeding to court.

Civil penalties are more appropriate than criminal charges for the lesser violations. This will not eliminate the utilization of the criminal statute when warranted.

## II. AIRPORT SECURITY

The MAC has promulgated a Security Directive establishing guidelines to implement security measures at 37 public use airports in Massachusetts. Our authority to do so is not clearly spelled out. A new section, Section 39H of chapter 90, is proposed to give the MAC authority to promulgate rules, orders and directives. This section also requires each airport to complete and submit, for approval of the MAC, an Airport Security Plan using guidelines from the Security Directive.

## III. REGISTRATION OF AIRCRAFT

Section 49 of chapter 90 will update aircraft registration procedures to reflect present day practices and policies. This also eliminates the requirement for the MAC to register airmen. It is not our policy to do so since this is a function of the FAA. This change is a recommendation from the auditors during their review of MAC's administrative procedures during the last two audits.

## IV. AIRSPACE SURROUNDING AIRPORTS; OBSTRUCTIONS

Section 35B of chapter 90 will be re-written to standardize the MAC airspace dimensions, definitions and obstruction parameters with those used by the FAA, thereby eliminating confusion and conflicts when determining the potential penetration of structures proposed for construction in airspace surrounding airports.

## V. VEGETATIVE MANAGEMENT PROGRAMS FOR AIRPORTS

Vegetative Management Programs (VMP) are necessary at public-use airports to comply with minimum FAA and MAC safety standards for approach surfaces to the runway(s) and to remain eligible for federal grants. MAC, MassPort and the Department of Environmental Protection (DEP) combined to develop a state-wide Generic Environmental Impact Report to modify wetland regulations and streamline the review process for airports with adjacent wetlands.

Although the removal of vegetation in airport wetlands is carried out in full compliance with the Wetlands Protective Act (WPA), local communities often have their own regulations and wetland by-laws that are more restrictive than the State WPA. These bring about inordinate expenses and delays in implementing public safety measures.

The amendment to Section 35A of Chapter 90 will state that any Airport Vegetative Management Project that is required, for public safety reasons, to comply with FAA and MAC regulations to prevent vegetation from penetrating airport approach surfaces, is exempt from local by-laws that may impede the project.

## VI. ADMINISTRATIVE CHANGES TO UPDATE CHAPTER 90

Many of the Sections of chapter 90 date back to the 1940's and do not satisfy present day aviation terminology and practices. Various changes have been made, such as replacing the agency name, "civil aeronautics board" with the name of the successor agency, "Federal Aviation Administration".