

# AVIATION



## OVERVIEW

Michigan's 200+ airports bring \$4.3 billion into the economy each year. The state's Tier 1 and Tier 2 airports were evaluated based on six key infrastructure components. Each component was given a statewide grade, ranging from an "A" to a "C," based on the percentage of airports meeting State guidelines for that component. Michigan's aviation infrastructure is generally in good shape, but funding issues are beginning to cause problems. Resources are being diverted to fund security and airspace safety easements, thereby reducing funds available for infrastructure maintenance, repair and expansion. Terminal facilities are reaching the end of their useful life system. Dedicated funding for airport infrastructure must be established.

## BACKGROUND

The Federal Aviation Administration requires that each state publish an Aviation System Plan describing its current aviation system plans and forecasts. In Michigan's Aviation System Plan (MASP), published by the Michigan Department of Transportation (MDOT), airports are classified as belonging to one of three tiers.

Tier 1 airports, or Air Carrier airports, are used by scheduled airlines or charter companies. Eighty-eight (88) airports in Michigan meet the Tier 1 definition. These airports respond to essential or critical state airport system goals and objectives. The MASP's goal is that these core airports be developed to their full and appropriate level. Typical Tier 1 airports include Houghton County, Gerald R. Ford International Airport, Muskegon County, Beaver Island, Mackinac Island, or Sparta Airports.

Tier 2 airports, or General Aviation airports, complement the critical state airport system and/or respond to local community needs.

The goal of these facilities is to maintain infrastructure with a lesser emphasis on facility expansion. Typical Tier 2 airports include Hastings, Cheboygan, or South Haven Airports.

Tier 1 and Tier 2 airports share purposes but Tier 1 airports have higher priority for state funding to meet MASP goals. Michigan airports across all three tiers pump \$4.3 billion into the state economy annually. To increase that annual revenue, MASP outlines seven goals for the state's airports:

- Serve significant population centers
- Serve isolated areas
- Serve significant business centers
- Serve significant tourism centers
- Allow general population access to aviation system
- Serve land areas
- Preserve regional capacity

In order to develop an airport to the fullest extent to serve the public effectively, the authors of this report believe that there are 6 important components necessary to effective Tier 1 and Tier 2 airports. Those components are:

- 1) Complete and Adequate Runway System
- 2) Runway Pavement Conditions
- 3) Terminal Buildings (Air Carrier and General Aviation)
- 4) All Weather Access (Navigation Aids and Airport Weather Service)
- 5) Security (Air Carrier and General Aviation)
- 6) Basic Pilot and Aircraft Services

## CURRENT CONDITIONS

Runway Pavement Conditions

Using an FAA-developed procedure to track pavement history and to predict pavement performance, MDOT-Bureau of Aeronautics evaluated two-thirds of the Tier 1 airports in



Michigan in 2006 and 2007. This evaluation procedure uses the Pavement Condition Index (PCI) to quantify pavement conditions. Following is a typical PCI grade scale for airport pavements. (Note that this scale differs from the scale used to evaluate the overall condition of Michigan’s airports.)

- PCI – 87 to 100 = **A**
- PCI – 74 to 85 = **B**
- PCI – 60 to 73 = **C**
- PCI – 41 to 59 = **D**
- PCI – 40 or less = **F**

MDOT evaluated 35,000,000 square feet of airfield pavements. The average PCI rating was 84, a grade of B. Although a PCI rating of 84 indicates the pavements are currently in good condition, it is important to note that Michigan airports have received significantly more state funding through a special State of Michigan aviation bond program for airport improvements in the last six years (2001-2007) than it has at any time in the history of state aviation funding. This special bond program expired in 2007. As a result, funding for airport improvements at the state level has been significantly reduced for upcoming years.

**Terminal Buildings (Air Carrier and General Aviation)**

Whether vacation or business traveler, passenger on commercial airlines or on corporate aircraft, the terminal building creates a visitor’s first impression of the state. Upgrading terminal buildings are important steps in creating a positive impact.

According to MDOT, the terminal buildings in airports servicing Air Carriers rate B grades. However, for General Aviation airports, the grade is closer to a C. In order to improve the conditions of General Aviation terminal buildings, state officials and community aviation leaders should review their respective terminal buildings to determine whether the facility meets the current Americans with Disabilities Act (ADA) code, energy code and building

code requirements. Facilities that do not meet current standards should be upgraded to meet codes. Most of the funding programs available for General Aviation airports are designated for runway improvements, expansions or airfield safety projects. Projects to improve or replace terminal buildings are given low priority for funding.

**All Weather Access**

Navigational aids, Federal Aeronautics Administration (FAA) instrument approach procedures, and airport weather reporting systems assist pilots when landing or taking off in a wide range of weather conditions. These systems ensure safer flying operations and allow more people access to more Michigan communities at all times of the year. MDOT has reported in MASP 2008 that 62 of 88 Tier 1 airports (70%) meet this standard completely.

**Complete and Adequate Runway System**

Many of the corporate aircraft in use today require a runway with a minimum length of 4,300 feet. Some of the aircraft owned by the larger corporations require a mile or more of pavement to operate safely. Longer runways and parallel taxiways where warranted through operations allow the airport and the communities it serves to be accessed by more aircraft. The MASP outlines the level of service that an airport should provide to the communities it serves. MDOT has determined that approximately 76% of the Tier 1 airports currently meet the MASP goal.

**Security (Air Carrier and General Aviation)**

Since 9/11/2001 the Federal Government has offered significant funding to help Air Carrier airports develop, maintain, and improve security measures. The consequence is that this emphasis on funding for security has diverted money from other infrastructure projects. While funding these necessary security projects are important to the airline industry, the focus



on security creates a significant shortfall in funding for the other five components of airport infrastructure. Due to limited funding and no scheduled passenger service, general aviation airports have less stringent security requirements.

**Basic Pilot and Aircraft Services**

Ground service for pilots, aircraft, and passengers are important at Tier 1 and Tier 2 airports. Basic services include 24 hour access to shelter, telephone, restrooms, gas pumps, aircraft parking, aircraft maintenance, and at least one available airport staff member during business hours. 67 of 88 Tier 1 airports (76%) meet this standard.

**FUNDING**

“The Michigan Department of Transportation and the Michigan Aeronautics Commission have a long history of partnering with airports, consultants and other aviation stakeholders resulting in an adequate aviation basic infrastructure. Primary pavements and navigation aids are in good repair.”

“However, mandated Federal Aviation Administration changes are putting demands on existing resources to fund security and airspace safety easements, thereby reducing funds available for infrastructure maintenance, repair and expansion. Terminal facilities are reaching the end of their useful life system wide, at both air carrier and general aviation airports. Retrofits to address handicap accessibility and security have provided short term relief, but new facilities will be necessary to address energy efficiency, security, and other needs.”

“Current requests for infrastructure repair, maintenance and expansion exceed \$1.3 billion over the next five years. In order to keep pace with these aviation needs, expansion of existing revenues or creation of new revenue sources will be necessary.”

- Joyce Woods, Chair, Michigan Aeronautics Commission

According to the Chair of the Michigan

Aeronautics Commission, the amount required to keep pace with state airport aviation needs over the next five years exceed \$1.3 billion. The program that funded the recent improvements in Michigan airports expired in 2007. If Michigan is to meet the goals established in its MASP to preserve, improve, or expand the aviation infrastructure, then it must increase current funding to meet or exceed the levels of the now-expired program.

The state tax on aviation fuel sold in Michigan has not changed since 1929, when it was established at \$.03/gallon.

**DISCUSSION AND GRADES**

The state’s Tier 1 and Tier 2 airports were evaluated based on six key infrastructure components:

- Complete and Adequate Runway System
- Runway Pavement Conditions
- All Weather Access
- Security
- Basic Pilot and Aircraft Services
- Terminal Buildings

Tier 3 airports, which are privately held and often with short grass runways, are not included in this evaluation.

Grading rules for the report card are as follows:

- Excellent (90 to 100):** **A**
- Good (80 to 89):** **B**
- Average (70-79):** **C**
- Below Average (60-69):** **D**
- Fail (59 and below):** **E**

## REPORT CARD ON MICHIGAN AVIATION INFRASTRUCTURE

### Airport Infrastructure Component



#### Runway Pavement **B**

Condition Two-thirds of the Tier 1 airport pavements (58) have been evaluated and found to be in good condition, with overall average PCI score of 84. The Pavement Condition Index (PCI), coupled with a pavement maintenance program will help preserve pavement conditions for the future. (Tier 2 and 3 airports would score lower because of funding limitations.)

#### All Weather Access **C**

Navigation aids, airport weather reporting services to pilots coupled with FAA Instrument Approach Procedures (IAP) are very important for safe flying operations. MDOT has reported in MASP that 62 of 88 Tier 1 airports (70%) meet the state standard completely.

#### Security **A1**

(Air Carrier and General Aviation)

Perimeter airport fencing, terrorist counter-measures, baggage screening, and air traveler checkpoints, are all necessary security items that help keep air travelers safe. Air carriers airports rate an A. Due to limited funding and no scheduled passenger service, general aviation airports have less stringent security requirements. (Note 1: The grade at right relates only to airports that service Air Carriers and is shown for informational purposes only. This grade is not factored into the overall score.)

#### Terminal Buildings **B**

(Air Carrier)

Family travelers, corporate travelers, and professional pilots expect to have comfortable and accessible facilities at Tier 1 and 2 airports. Terminal buildings that service Air Carriers rate a B for traveler amenities.

#### Terminal Buildings **C**

(General Aviation)

General Aviation airport terminal buildings are less than adequate due to poor energy efficiency, handicap inaccessibility, or low security. Some General Aviation terminal buildings have reached the end of their useful life.

#### Complete and

#### Adequate Runway Systems **C**

Complete and adequate runway systems are important considerations for many corporations and airlines, when evaluating business location or expansion sites. Length and width of runway, parallel taxiway (if warranted through operations) and instrument approaches are important for safe operations. 76% of Tier 1 airports have complete and adequate runway systems.

#### Basic Pilot and Aircraft Services **C**

It's important for airports to have phones, restrooms, aircraft maintenance, aircraft parking, fuel, shelter for patrons and one airport staff member available during business hours. 67 out of 88 Tier 1 airports (76%) meet these state facility goal guidelines completely.

#### Overall Score **C**

The overall score of the six key airport infrastructure components averages to a grade of C.

## RECOMMENDATIONS

Adding \$.03 tax per gallon of aviation fuel sold to the current \$0.03 per gallon would help to mitigate the state funding shortfall. Increasing the sales tax on aviation parts and supplies by \$.01 would also help to boost the aeronautic state fund. These funding proposals would significantly increase the amount of funding available for the state's vital aviation needs.



## SOURCES

1. Michigan Airport System Plan – 2000: Volume 1 Report
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4. Michigan Airport System Plan – 2008 in Final Draft
5. John P. Kozal, PE – American Society of Civil Engineers/Michigan Section/Aviation Committee
6. Ron Engel, PE – American Society of Civil Engineers/Michigan Section/Aviation Committee
7. Mark Noel, PE – Manager Project Development – MDOT Airports Division

