



2017 MICHIGAN AVIATION SYSTEM PLAN

ANN ARBOR - ANN ARBOR MUNICIPAL AIRPORT

This document serves as the airport's individual airport report. This report includes information pertinent to the facility that was generated as a part of the 2017 Michigan Aviation System Plan (MASP). Included in this report are the following:

1. Airport Forecast
2. Airport Report Card
3. Airport Community Benefits Assessment (CBA) Report

An introduction to each of these components is provided in this report. To view the 2017 MASP Technical Report or Executive Summary, please visit the Michigan Department of Transportation (MDOT) Aeronautics (AERO) website at <http://www.michigan.gov/aero/>. A PDF copy of this individual airport report is also available on the website.



Airport Forecast

This forecast presents the historical and projected activity for the airport and includes:

- Table presenting operations and based aircraft. Ten years of historical data (2005 to 2015) is shown, where available, as well as data for forecast years 2020, 2025, 2030 and 2035. Operations are segmented by type:
 - Itinerant Air Carrier
 - Itinerant Air Taxi
 - Itinerant GA
 - Itinerant Military
 - Local GA
 - Local Military
 - Total Operations
- Graph of total operations
- Graph of total based aircraft

The growth rate shown is the compounded annual growth rate of operations from 2015 to 2035.

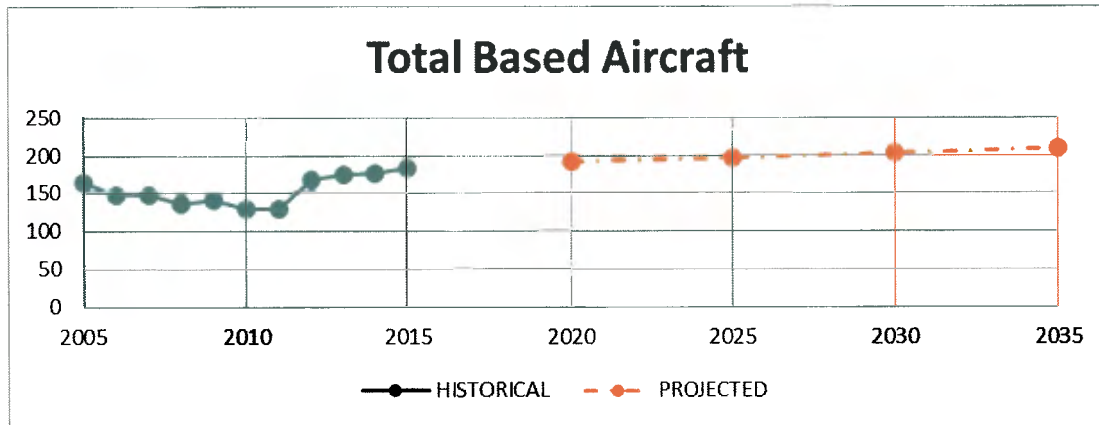
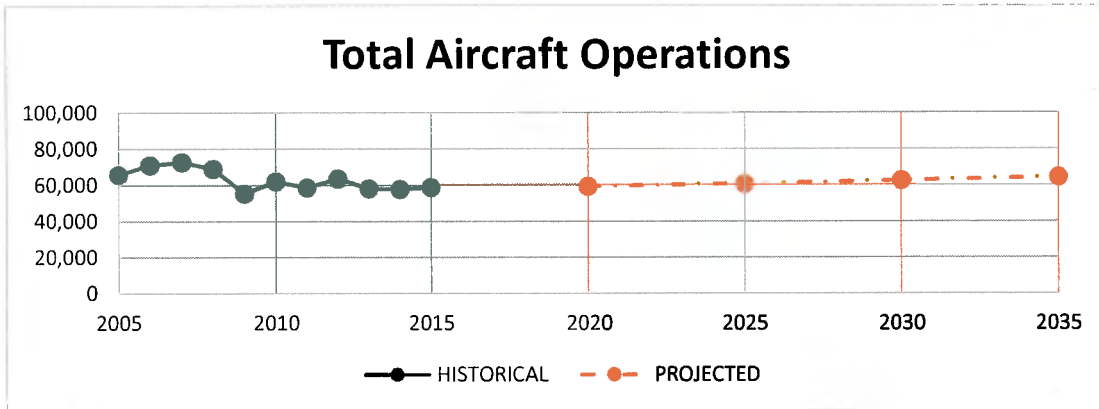
Ann Arbor Municipal (ARB)

Ann Arbor, MI

Growth Rate (2015-2035): 0.53%

Year	Itinerant				Local		Total Operations	Based Aircraft
	Air Carrier	Air Taxi	GA	Military	GA	Military		
Historical								
2005	0	1,989	24,748	80	39,122	5	65,944	164
2006	0	2,210	25,822	247	42,971	0	71,250	148
2007	0	1,862	26,137	238	44,658	0	72,895	148
2008	0	1,532	23,436	61	44,136	2	69,167	136
2009	0	415	20,953	14	34,140	2	55,524	141
2010	12	232	20,775	22	41,096	13	62,150	129
2011	16	227	20,891	40	37,509	2	58,685	129
2012	6	481	23,694	53	39,488	1	63,723	168
2013	2	538	22,241	42	35,411	4	58,238	175
2014	2	513	21,701	38	35,599	4	57,857	176
2015	5	489	22,403	62	36,000	16	58,975	183
Projected								
2020	5	500	22,918	62	36,828	16	60,329	191
2025	5	513	23,497	62	37,757	16	61,850	196
2030	5	517	23,686	62	38,061	16	62,347	202
2035	6	543	24,887	62	39,991	16	65,505	209

Source: Jacobsen|Daniels, June 2017 (MASP forecast), FAA Terminal Area Forecast 2016 – 2036 (historical)
Totals may not add due to rounding.





Airport Report Card

Michigan’s system airports are classified using a two-step methodology including:

1. MASP Airport Tier (1, 2 and 3)
2. Airport Reference Codes (ARCs) associated with the airport tier known as a MASP ARC (ranging from A-I to C-II).

Airports are assigned a tier classification based on the role they play in achieving the eight system-wide goals. The highest tier achieved for any of the eight system goals becomes the airport’s overall MASP Tier. The ARC associated with the airport’s MASP Tier becomes the airport’s MASP ARC. **Table 1** below summarizes the system goals, tiers and associated ARCs. For example, if an airport meets Tier 1 criteria under the Business Center goal, the airport is a Tier 1 airport with a MASP ARC of C-II.

Table 1: MASP System Goals, Tiers, and ARCs

Tier	Population Center	Business Center	Tourism Center	General Population	Land Coverage	Regional Capacity	Isolated Areas	NPIAS Inclusion
Tier 1	C-II	C-II	B-II	B-II	B-II	A-I	B-I	B-I
Tier 2	B-II	B-II	B-II	n/a	n/a	A-I	n/a	B-I
Tier 3	No target							

The MASP ARC is an indicator of the type of activity that occurs at an airport, and the role the airport plays in meeting system goals. The MASP ARC helps align the facility goals appropriate to each airport, including:

- Primary Runway System
- Lighting and Visual Aids
- Approach Protection
- Basic Pilot and Aircraft Services
- All-Weather Access
- Year-Round Access
- Landside Access

Each facility goal contains specific development items based on the MASP ARC assigned to an airport. The MASP ARC and the associated facility goals reflect what MDOT Office of Aeronautics (AERO) believes is the appropriate level of development to support each system goal, however, it is not a justification for individual airports to require funding to meet their MASP ARC designations and associated facility goals. Individual planning studies may be necessary to address site specific justification for various development projects. **Table 2** lists the specific facility goals by MASP ARC.



Table 2: Michigan Airport Facility Development Goals by MASP ARC for Tier 1 and Tier 2 Airports

Facility Goal	Airport Development Item	MASP Airport Reference Code (ARC)			
		A-I	B-I	B-II	C-II*
Primary Runway System	Length (feet)	2,500	3,500	4,300	5,000*
	Width (feet)	100	60	75	100*
	Surface Type	Turf	Paved	Paved	Paved
	Primary Taxiway System	None	Full Parallel if 20,000+ ops		Full Parallel
Lighting and Visual Aids	Runway Lighting System	Markers	MIRL	MIRL	HIRL
	PAPI	No	Yes	Yes	Yes
	REIL	No	Yes	Yes	Yes
	MALSR	No	No	No	Yes
	Rotating Beacon	No	Yes	Yes	Yes
	Lighted Wind Indicator	No	Yes	Yes	Yes
	Segmented Circle	No	Yes	Yes	Yes
Approach Protection	Approach Protection Plan	Yes	Yes	Yes	Yes
Basic Pilot and Aircraft Services	Restrooms	No	Yes	Yes	Yes
	Fuel	No	Yes	Yes	Yes
	Aircraft Parking	Yes	Yes	Yes	Yes
	Aircraft Maintenance	No	No	Yes	Yes
	Available Staff	Yes	Yes	Yes	Yes
All-Weather Access	Instrument Approach	Visual	Non-Precision	Non-Precision	Precision
	Weather Reporting (AWOS)	Preferred	Preferred	Yes	Yes
	Weather Briefing Access	Preferred	Preferred	Yes	Yes
Year-Round Access	Open Year-Round	Yes	Yes	Yes	Yes
	Snow Removal	Yes	Yes	Yes	Yes
Landside Access	Public/Private Transportation	No	No	Yes	Yes

Notes:

Tier 3 airport minimum development standards are defined in the MAC General Rules for licensed airports.
 Runway length goals shown in the table are subject to FAA/AERO justification determination.
 For A-I airports with paved runways, the standard width is 60 feet.
 Airports having a VASI instead of a PAPI are acceptable. VASI/PAPI/REIL on one runway end is acceptable.
 An Airport Zoning Ordinance is considered an acceptable Approach Protection Plan.
 Aircraft parking consists of either a hangar, tie-down, or parking area.
 Weather briefing access may be provided by a Weather Briefing System, computer, internet access, or cell phone coverage.
 Source: MDOT AERO

The airport report card provided on the next page includes a comparison between the existing facilities and services available at the airport and the facility goals assigned to the airport. Please note that because the MASP ARC assigned to the airport is independent of its existing Federal Aviation Administration (FAA) design ARC, the airport should continue to develop in accordance with individual airport needs and federal design standards as identified in airport planning studies and documents. However, the facility development goals assigned to the airport through its MASP ARC should also be recognized and considered during future planning exercises in an effort to meet system goals.

Airport Report Card

ANN ARBOR

Airport Name: Ann Arbor Municipal Airport

FAA Identifier: ARB

2017 MASP Tier: 1

Current FAA Airport Reference Code (ARC): B-II

2017 MASP Airport Reference Code (ARC): B-II

Facility Goal	Airport Development Item	Currently Has	2017 MASP ARC	
			B-II Development Goals	Met?
Primary Runway System	Length (feet)	3,505	4,300	No
	Width (feet)	75	75	Yes
	Surface Type	Paved	Paved	Yes
	Primary Taxiway System	Full Parallel	Full Parallel (see notes)	Yes
Lighting and Visual Aids	Runway Lighting System	MIRL	MIRL	Yes
	PAPI	Yes	Yes	Yes
	REIL	Yes	Yes	Yes
	MALSR	No	No	Yes
	Rotating Beacon	Yes	Yes	Yes
	Lighted Wind Indicator	Yes	Yes	Yes
	Segmented Circle	Yes	Yes	Yes
Approach Protection	Approach Protection Plan	Yes	Yes	Yes
Basic Pilot and Aircraft Services	Restrooms (24 hours)	Yes	Yes	Yes
	Fuel	Yes	Yes	Yes
	Aircraft Parking	Yes	Yes	Yes
	Aircraft Maintenance	Yes	Yes	Yes
	Available Staff	Yes	Yes	Yes
All-Weather Access	Instrument Approach	Non-Precision	Non-Precision	Yes
	Weather Reporting (AWOS/ASOS)	Yes	Yes	Yes
	Weather Briefing Access	Yes	Yes	Yes
Year-Round Access	Open Year-Round	Yes	Yes	Yes
	Snow Removal	Yes	Yes	Yes
Landside Access	Public/Private Transportation	Yes	Yes	Yes

Notes:

For A-I airports with paved runways, the standard width is 60 feet.

Runway length goal shown is subject to FAA/AERO justification determination.

A VASI in lieu of a PAPI is acceptable. VASI/PAPI/REIL on one runway end is acceptable.

An Airport Zoning Ordinance is considered an acceptable Approach Protection Plan.

Aircraft parking consists of either a hangar, tie-down, or parking area.

Weather briefing access may be provided by a Weather Briefing System, computer, internet access, or cell phone coverage.

Additional Airport Notes:

Taxiway development standards require full parallel taxiway because airport has more than 20,000 operations annually.

Pavement Condition Index (PCI)		Existing PCI	Minimum PCI Goal	PCI Performance
Based on FAA Aircraft Approach Category (AAC): 'B'	Runway	86	55	Meeting goal
	Taxiway	85	45	Meeting goal

Source: ASM/Facility Information Worksheets/MDOT Airport Directory/FAA Form 5010/MDOT APMS/FAA Digital-Chart Supplement (d-CS)

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Airport CBA Report

Based upon a 2017 study, the contribution of Michigan airports to the state economy is nearly \$22 billion in business sales and budget expenditures (economic output) that includes more than \$7 billion in labor income to Michigan residents and supports almost 184,000 full-time and part-time jobs across the state. These totals are based on findings from 114 of the nearly 230 public-use airports in Michigan. Surveys were distributed to 111 airports that are identified as Tier 1 and Tier 2 levels and three Tier 1 airports provided their own recently completed economic studies that were used as part of the calculation.

Findings from the survey effort of the 111 airports were entered in to the MDOT Office of Aeronautics' (AERO) Community Benefit Assessment (CBA) Tool. The CBA enables AERO to record aviation activities and the direct economic contributions of Michigan airports, including: (1) aviation reliant and non-aviation reliant activities on airports; (2) off-airport related and/or reliant activity; (3) economic impacts to Michigan from out-of-state visitor spending facilitated by airports (and separated from #2 to avoid double counting); and (4) the impacts of construction on airport.

Reports generated by the CBA list each of these four segments of Michigan's aviation economy and separate direct impacts (initial transactions) from the multiplier impacts of both sales by Michigan suppliers that support the direct impacts, and spending of wages earned from the direct and supplier transactions (see sample CBA Report on the following page). The CBA analysis was completed for 111 airports. In addition, Detroit Metropolitan Wayne County (DTW), Gerald Ford International (GRR), and Willow Run (YIP) had completed economic impact studies in 2013 (DTW) and 2014 (GRR and YIP). To minimize costs and burdens on these airports, AERO used these studies and the totals were added to the findings from the CBA base analysis.

Total Statewide Economic Impact of Michigan's Aviation System

	Jobs	Labor Income	Output
111 System Airports with CBA Reports	55,757	\$2,244,280,000	\$7,906,093,000
Airport Economic Impact Studies Provided for Airports without CBA Reports¹			
Grand Rapids - Gerald R Ford Int'l (GRR) ²	40,582	\$1,537,670,000	\$3,244,928,000
Detroit – Willow Run (YIP) ³	950	\$41,372,000	\$126,164,000
Detroit – Detroit Metro Wayne County (DTW) ⁴	86,308	\$3,226,185,000	\$10,630,255,000
TOTAL	183,597	7,049,507,000	\$21,907,440,000

Notes:

¹Dollars updated to 2016 using BEA price deflators for GDP

²Study published January, 2015. Dollars updated from 2014 to 2016. Additional economic impact since study publication was not calculated. **Study region:** Barry, Kent, Montcalm, Muskegon and Ottawa counties.

³Study published in 2014. Dollars updated from 2014 to 2016. Additional economic impact since study publication was not calculated. **Study region:** Genesee, Lapeer, Lenawee, Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne counties.

⁴Study published in 2013. Dollars updated from 2013 to 2016. Additional economic impact since study publication was not calculated.

Study region: State of Michigan.

Source: CBA Tool, Economic Impact Studies from GRR, YIP, DTW

The CBA Reports that were generated by the CBA Tool include the components outlined below (a sample airport is used). The airport's actual CBA Report is included on the next page.

This section includes information about the airport, such as location, ownership, date the report was run, airport features (runway length, width, approach), evaluation year, and activity statistics. The total passengers listed in this section include both GA and commercial service passengers.

On-going Contribution to the County Economy

This section includes economic impact data for the airport, including:

- **Direct effects:** jobs, income and output as a direct result of on and off-airport activity. For example, jobs at the airport and in retail and services that support aviation activity (such as airport managers, FBO staff, etc.) are counted here.
- **Supplier and income re-spending effects:** indirect and induced jobs, income and output that result from the recycling of dollars in the community. For example, the spending of airport employee income on consumer purchases that leads to sales at other businesses that support other jobs & income to workers
- **Total Impact:** a combination of direct and indirect impacts in the form of jobs, income and output.
- **Tax Generated by Aviation-Related Activities:** income tax levied on wages of jobs supported by aviation activity and sales tax levied on visitor spending and more. Fuel tax is also calculated for airports that sell fuel and is based on gallons of fuel sold.

All impacts shown are based on information provided by the airport manager or sponsor on jobs reliant on the airport and annual activity, such as the number of operations and visitor portion of passengers. This information is collected by MDOT on a periodic basis.

Michigan Department of Transportation - Office of Aeronautics

CBA Community Benefits Assessment

Airport Role in Economy

Airport:	FtCh Beach Mem.	MASP Tier	Tier 2	Evaluated for Year:	2016
City:	Charlotte	MASP ARC	B-II		
Current FAA ARC:	B-II				
County:	Eaton				
Ownership:	Public				
Scenario:	Current				
Service Area:	Eaton				
Run Date:	3/28/2017 11:46:16 AM				

Airport Features		Activity Data	
Primary Runway Length	3,510	Total Operations:	8,760
Primary Runway Width	75	Total Aircraft:	26
Instrument Approach	Non-Precision	Total Passengers:	20,805
		Total Cargo Tons:	0

On-going Contribution to the County Economy

Direct Effect	Jobs		Income (\$)		Output (\$)	
	Local	State	Local	State	Local	State
1. Airport (incl. FBO and air related tenants)	8	8	\$683,000	\$683,000	\$2,662,000	\$2,662,000
2. Airport Tenants: non-air related	0	0	\$0	\$0	\$0	\$0
3. Off-Site: Supported by Visitor Spending	4	4	\$100,000	\$100,000	\$310,000	\$310,000
4. Off-Site: Staff or Cargo Reliant	17	17	\$1,362,000	\$1,362,000	\$22,489,000	\$22,489,000
Supplier and income re-spending effects:						
5. -due to Airport and Related Activities*	8	10	\$416,000	\$424,000	\$1,111,000	\$1,572,000
6. -due to Visitor Spending	1	2	\$31,000	\$69,000	\$94,000	\$230,000
7. -due to Reliance on Air Transport	17	50	\$647,000	\$2,112,000	\$1,920,000	\$13,134,000
8. Total Impact from Airport Activities	55	91	\$3,239,000	\$4,750,000	\$28,586,000	\$40,397,000

Tax Generated by Aviation-Related Activities		At-Airport	Off-Site
9. State Income Tax		\$28,000	\$39,000
10. State Sales Tax		\$254,000	\$1,382,000
11. Tax generated by fuel sales		\$0	

Annual Capital Expenditures

	Total	Federal \$	State \$	Local \$
2015 Budget:	166,667	150,000	8,333	8,334

2017 MASP Goals:	Other Attributes:
Serve Significant Population Centers Tier 2	
Serve Significant Business Centers Tier 2	
Serve Significant Tourism/Convention Centers Tier 2	
Provide Access to the General Population Tier 3	
Provide Adequate Land Area Coverage Tier 3	
Preserve Regional Capacity Tier 2	
Serve Seasonally Isolated Areas Tier 3	
Inclusion in NPIAS	

* on the Service-area economy as defined by the user
 ** Supplier and income re-spending effects pertain only to air-related and air support activities

ARC = Airport Reference Code
 NPIAS = National Plan of Integrated Airport Systems
 Average visitor spending (per visitor): \$42.00
 Visitor spending source: Prosperity Region & Class

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 Developed by Economic Development Research Group, Inc., Boston, MA

Annual Capital Expenditures

This section includes a breakdown of annual capital expenditures into federal, state and local amounts. The year for which the capital expenditures are reported is also provided.

2017 MASP Goals

This section includes the airport's role in meeting each of the 8 goals established in the 2017 Michigan Aviation System Plan (MASP).

Other Attributes

Any other attributes or pertinent notes about the CBA Report are also included in this section.

ANN ARBOR

CBA Community Benefits Assessment

Airport Role in Economy

Airport: Ann Arbor Municipal
 City: Ann Arbor
 Current FAA ARC: B-11
 County: Washtenaw
 Ownership: Public
 Scenario: Current
 Service Area: Washtenaw
 Run Date: 3/31/2017 9:01:07 AM

MASP Tier	Tier 1
MASP ARC	B-II

Evaluated for Year: 2016

Airport Features	
Primary Runway Length	3,505
Primary Runway Width	75
Instrument Approach	NPI

Activity Data	
Total Operations:	56,854
Total Aircraft:	183
Total Passengers:	120,680
Total Cargo Tons:	0

On-going Contribution to the County Economy

	Jobs		Income (\$)		Output (\$)	
	Local	State	Local	State	Local	State
Direct Effect						
1. Airport (incl. FBO and air related tenants)	80	80	\$7,664,000	\$7,664,000	\$23,952,000	\$23,952,000
2. Airport Tenants: non-air related	2	2	\$168,000	\$168,000	\$810,000	\$810,000
3. Off-Site: Supported by Visitor Spending	257	257	\$7,024,000	\$7,024,000	\$20,251,000	\$20,251,000
4. Off-Site: Staff or Cargo Reliant	0	0	\$0	\$0	\$0	\$0
Supplier and income re-spending effects*						
5. -due to Airport and Related Activities**	70	89	\$3,384,000	\$4,036,000	\$9,335,000	\$14,141,000
6. -due to Visitor Spending	75	110	\$3,640,000	\$4,884,000	\$10,271,000	\$15,011,000
7. -due to Reliance on Air Transport	0	0	\$0	\$0	\$0	\$0
8. Total Impact from Airport Activities	484	538	\$21,880,000	\$23,776,000	\$64,619,000	\$74,165,000

Tax Generated by Aviation-Related Activity

	At-Airport	Off-Site
9. State Income Tax	\$305,000	\$306,000
10. State Sales Tax	\$2,334,000	\$2,116,000
11. Tax generated by fuel sales	\$88,186	

Annual Capital Expenditures

	Total	Federal \$	State \$	Local \$
2015 Budget:	166,667	150,000	8,333	8,334

2017 MASP Goals:

Serve Significant Population Centers	Tier 2
Serve Significant Business Centers	Tier 2
Serve Significant Tourism/Convention Centers	Tier 1
Provide Access to the General Population	Tier 3
Provide Adequate Land Area Coverage	Tier 3
Preserve Regional Capacity	Tier 1
Serve Seasonally Isolated Areas	Tier 3
Inclusion in NPIAS	Tier 2

Other Attributes

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* on the Service-area economy as defined by the user

** Supplier and income re-spending effects pertain only to air-related and air support activities

ARC = Airport Reference Code

NPIAS = National Plan of Integrated Airport Systems

Average visitor spending (per visitor): \$150.00

Visitor spending source: -Survey



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