Union County Airport

AIRPORT MASTER PLAN

2023

Union County Airport Authority

KMRT - Serving aviation and the business community

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The preparation of this document was financed through a planning grant from the Federal Aviation Administration (FAA) as approved under the Airport and Airway Improvement Act of 1982. The contents of this report reflect the views of the Consultant, which is responsible for the facts and accuracy of the data depicted herein, and do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

OHIO DEPARTMENT OF TRANSPORTATION

James E. Bryant, Administrator

12.13.23

MRT–UNION COUNTY AIRPORT, FAA AIP 3–39–0051–24–2019
ODOT Project #M20–39

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Chapter 1: Inventory

1.0 Introduction

The primary purpose of updating the Union County Airport (MRT) Master Plan is to provide planning and development strategies for the airport over the next 20 years. The initial step in the preparation of this Airport Master Plan is the collection or identification of information pertinent to the Airport and the surrounding areas. The Inventory of Existing Conditions chapter coalesces that data into a single document to provide a foundation for subsequent planning analyses conducted within this Airport Master Plan. Specifically, Chapter 1 examines three basic elements involved with the existing and future development of Union County Airport:

1. The Airport's facilities (runways, taxiways, aircraft parking aprons, hangars, maintenance facilities, ground access, etc.);
2. The relationship of the Airport to the regional airport system and the National Airport System (NAS); and
3. The Airport environs.

As with any proper planning study, efforts have been made to utilize existing data or information in associated planning documents to the maximum extent possible. The information collected and included in this chapter was obtained from many sources, including those listed below:

- Airport site visits by Woolpert;
- Tenant and user interviews;
- Airport administration records;
- FAA 5010 forms;
- 1997 MRT Airport Master Plan Update;
- 2018 MRT Airport Layout Plan;
- 2014 Ohio Airport System Plan;
- Union County Chamber of Commerce; and
- Other pertinent data and studies from the Federal Aviation Administration (FAA), Ohio Department of Transportation (ODOT) Aeronautics Division, and the Union County Airport Authority.

Subsequent chapters in this Airport Master Plan detail the Airport's forecasts of aviation activity, the ability of Airport facilities to safely and efficiently meet the needs associated with the projected aviation activity, and the recommended future development within and around Airport property.

During this inventory narrative and throughout this Master Plan, numerous aviation terms are used. For more complete definitions of these terms, a glossary is included in **Appendix F**. The current airport property is shown in **Exhibit 1.0-1**.

Exhibit 1.0-1: Airport Property

1.1 History

1.1.1 Local History

Union County, located in west central Ohio, was authorized by the Ohio government in 1820. Since the state created the county from parts of Franklin, Delaware, Logan and Madison counties, residents chose the name Union for the new county.

Marysville is the county seat of Union County, Ohio. Samuel W. Cuthbertson founded the city, which he named after his daughter Mary, in 1819. In the late 1800s, most businesses in Marysville provided services or products for farmers living in the surrounding countryside. The establishment of the Ohio Transportation Research Center, in nearby East Liberty, and the construction of limited access State Road 33 (linking Marysville to I-270 and I-71) spurred industrial development in the late 1960s. Marysville is an important center of manufacturing. Honda of America opened its first plant in 1979, and it has since grown dramatically to employ approximately 13,000 people.[1] The Union County Airport, opened on July 1967, is owned and operated by the Union County Airport Authority. The airport is located at 760 Clymer Road, Marysville, Ohio 43040, and is a public use airport which serves the region in and around Marysville, Union County, and Northwest Columbus.

During the late 1960's, the State of Ohio initiated a program to help the economies of the 88 counties in Ohio by assisting them in constructing a general aviation airport. Almost all the counties took advantage of this "County Airport Development Program." The idea behind the program was to help attract businesses and industries to the State by providing air access for transportation of goods and personnel, resulting in an increase in employment and population, as well as an improved tax base. Union County was the first county in Ohio to take advantage of this program. The County appointed an Airport Authority to oversee development of the Airport. The initial landside (fixed base operator) facilities were constructed by private investment in exchange for a 30-year land lease. Over the years, North American Rockwell, Goodyear Tire and Rubber, Dennison Engineering (now

[1] Ohio History Central, https://ohiohistorycentral.org/w/Marysville,_Ohio, (August 2020)

Parker Hannifin) have made major investments in manufacturing facilities in close proximity to the Union County Airport.

Development of the Union County Airport began with land acquired as part of an industrial development project carried out by the Mid-Ohio Development Corporation. Land for the airport was subsequently donated to the Union County Commissioners. Several sites had been reviewed by the County and the Ohio Department of Transportation – Division of Aviation before the present site was selected. The selection was based primarily on the availability of sufficient land for at least 3,500 feet of runway. Construction of the 3,500–foot long by 75–foot wide runway, main aircraft parking apron, and two taxiways connecting the apron to the runway began in July of 1966 and completed in 1967. Funding was provided by a block grant from the State of Ohio and by local money from the Board of County Commissioners. The Airport was formally dedicated in October 1967. Low intensity runway lighting was added in 1968 with local donations and County funds.

In 1970, the airport entered into an agreement with Flying Machines, Inc. to serve as the fixed base operator. In this role, Flying Machines provided commercial services to the flying public and an airport manager. Funded by Flying Machines, a new hangar with adjoined office and shop areas was constructed in 1970, along with 80 and 100 LL aviation fuel facilities. Jet fuel facilities were added a few years later by the operator. In 1976, a nondirectional beacon (NDB) was installed with local donations and County funding. Flying Machines ceased being the airport's fixed base operator in 1985.

Several other improvement projects were completed between 1968 and 1982 with additional financial assistance from the State of Ohio. The most significant of these projects was the construction of a ramp expansion and parallel taxiway from Runway 27 end to the apron and from the apron approximately halfway to Runway 9 in 1970. In addition, the County prepared and adopted Airspace Hazard Zoning in the area adjacent to the Airport to attempt to control object height to levels that would comply with recommended State standards. Runway 9-27was extended to its current length of 4,218 feet in 1985. The turf runway, Runway 8-26, was developed in approximately 2009. The original 13-unit T-hangar was constructed with two additional 14-unit T-hangars and an expansion of the original two 10-unit buildings (built in 1984) to a 14-unit structure sometime between 1984 and 1994, along with a single volume hangar constructed sometime between 1994 and 2003. A fourth T-hangar with 13 units was constructed sometime between 2007 and 2009.

1.1.2 FAA Airport Improvement Program Grant History

The Airport and Airway Improvement Act of 1982 provided the mechanism through which the federal government has provided many of the grants for airport development at MRT. In return, the airport owner had to commit to grant assurances (see **Appendix B**). See **Exhibit 1.1-1** for a history of FAA grant-funded projects at MRT.

Exhibit 1.1-1: MRT FAA AIP Grant History

Grant Number	Fiscal Year	Description	Federal Total
3-39-0051-001-1982	1982	Land acquisition, Obstruction removal, Obstruction lighting, Proper marking and lighting of a displaced threshold	Information unknown
3-39-0051-002-1983	1983	Land acquisition, construction of an aircraft apron expansion, a new partial parallel taxiway, access taxiways	Information unknown
3-39-0051-003-1984	1984	Acquire additional land to extend the runway	Information unknown

3-39-0051-004-1985	1985	Extend the new parallel taxiway to the new runway, Install new medium intensity runway lighting (MIRL)	Information unknown
3-39-0051-005-1988	1988	Acquire additional land and utility line removal, Construction of another access taxiway to the T-hangar area	Information unknown
3-39-0051-006-1990	1990	Land Acquisition, Runway overlay and edge drainage	Information unknown
3-39-0051-007-1991	1991	Purchase and install an automated weather observing station (AWOS III)	Information unknown
3-39-0051-008-1999	1999	Acquire Land for Approaches	$94,056.00
3-39-0051-009-2001	2001	Rehabilitate taxiway (T-hangar taxi lanes); Install perimeter fencing (approximately 1,675 L.F.); grade and fill Runway 27 runway safety area.	$117,956.00
3-39-0051-010-2002	2002	Update Airport Master Plan Study	$22,500.00
3-39-0051-011-2003	2003	Construct Taxiway	$245,456.00
3-39-0051-012-2004	2004	Construct Taxiway	$150,747.00
3-39-0051-013-2005	2005	Improve Runway Safety Area [Phase 1] - 09/27, Install Perimeter Fencing, Rehabilitate Runway [Design and Bid Only] - 09/27	$150,000.00
3-39-0051-014-2006	2006	Construct Building, Environmental Mitigation, Environmental Mitigation	$175,395.00
3-39-0051-015-2007	2007	Construct Building, Construct Taxiway	$144,728.00
3-39-0051-016-2008	2008	Construct Access Road, Install Perimeter Fencing, Rehabilitate Taxiway	$127,246.00
3-39-0051-017-2009	2009	Install Weather Reporting Equipment, Rehabilitate Taxiway	$58,276.00
3-39-0051-018-2010	2010	Install Perimeter Fencing, Rehabilitate Access Road	$172,679.00
3-39-0051-019-2011	2011	Improve Airport Drainage, Rehabilitate Apron [crack repair], Rehabilitate Taxiway	$179,741.00
3-39-0051-020-2013	2013	Rehabilitate Runway 09/27, Rehabilitate Runway Lighting - 09/27, Rehabilitate Taxiway	$335,527.00
3-39-0051-021-2014	2014	Rehabilitate Runway - 09/27, Rehabilitate Taxiway, Wildlife Hazard Assessments	$56,669.00
3-39-0051-022-2015	2015	Install Runway Vertical/Visual Guidance System	$35,438.00
3-39-0051-023-2017	2017	Acquire Land for Approaches, Update Airport Master Plan Study	$620,482.00
3-39-0051-024-2019	2019	Update Airport Master Plan Study	$283,181.00

3-39-0051-025-2020	2020	Coronavirus Aid, Relief, and Economic Security (CARES) Act Grant	$69,000.00
3-39-0051-026-2021	2021	Coronavirus Response and Relief Supplemental Appropriation (CRRSA Act Funds)	$13,000.00
3-39-0051-027-2021	2021	American Rescue Plan Act (ARPA)	$32,000.00
3-39-0051-028-2022	2022	Seal Runway Pavement Surface/Pavement Joints	$687,475.00
		TOTAL	**$3,084,077**

Note: 1999 is the earliest year of accessible FAA AIP financial data
Source: FAA Airport Improvement Program Grant Histories;
R.D. Zande & Associates, Inc, Union County Airport Master Plan, July 1997

1.2 Union County Airport Today

2023 marked the 56th anniversary of the Union County Airport. Along with its aviation-related businesses and facilities, the Airport represents a transportation and economic asset for its host communities and the greater region. In addition to its direct aviation-related benefits, the Airport supports local industries and encourages business development and expansion for cities and towns throughout the area by providing direct, quick, convenient access to the region. Many of these benefits are reflected in the 2014 Ohio Airports Economic Impact Study which quantified the total aviation and non-aviation related economic impacts attributable to the Union County Airport to be 54 jobs, with total annual wages of approximately $1.48 million, and a total annual economic impact of $4.87 million. Beyond those impacts, the Airport is also an important attractant for new industries that generate jobs for the community. Union County's economy consists of agriculture (80%+ of the county's land), industrial/manufacturing, including Scotts Miracle-Gro, Univenture, and Honda of America, Continental AG/Contitech, Parker Hannifin Hydraulics, and research and development, like the Transportation Research Center, Select Sires, Nestlé and Westrico. The payroll, taxes, and local investments generated by these types of businesses, in addition to those economic impacts that result from Airport business and maintenance operations, reflect the degree to which MRT serves as an economic generator for the area.

1.3 Airport Location and Role

Airports across the country function as an interrelated system. To coordinate and fund this system, the FAA developed the National Plan of Integrated Airport Systems (NPIAS), a system of more than 3,300 existing and proposed airports that are significant to the national air transportation network. The goal of the NPIAS is to provide as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport.

The aviation facilities included in the NPIAS are significant to the national aviation system and are eligible to receive federal funding. Communities that do not receive scheduled commercial service or that do not meet the criteria for classification as a commercial service airport may be included in the NPIAS as general aviation (GA) airports if they account for enough activity (having usually at least 10 locally-based aircraft) and are at least 20 miles from the nearest NPIAS airport. Union County Airport, owned by the Union County Airport Authority, is a public use airport which serves the region in and around Marysville, Union County, and northwest Franklin County (Dublin and Hillard).

MRT, with a reference north latitude of 40°13.470' and west longitude of 83°21.098', is located in the heart of Union County and it offers close proximity to the cities of Marysville (1 mile northwest), Dublin (15 miles southeast), Delaware (14.5 miles northeast) and Plain City (9 miles southeast), with convenient access to State Route 33 and the commercial and light industrial corridor northwest of Columbus. MRT is included in the 2019-2023

NPIAS as a general aviation facility with 59 based aircraft.[2] [3] **Exhibit 1.3-1** provides the distance between MRT and public airports within a 20-mile radius. **Exhibit 1.3-2** shows all the public use airports in Ohio.[4]

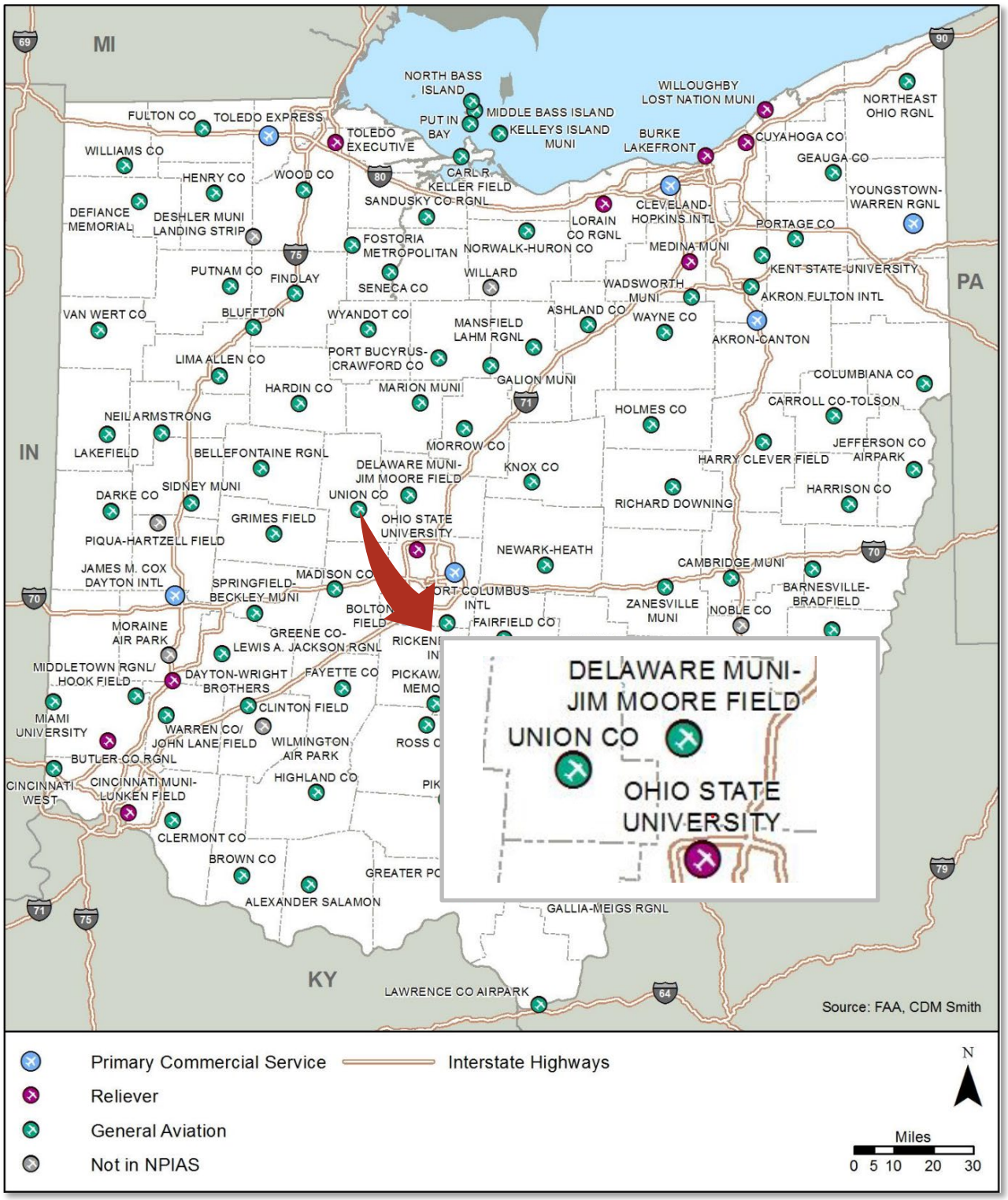
Exhibit 1.3-1: Distance from MRT to Surrounding NPIAS Airports

Airport Name	Distance from MRT	Runways	Lighting/Nav. Aids
Delaware Municipal (DLZ)	11 nm E	5,800 ft. x 100 ft.	MIRL, PAPI, REIL, GPS
Ohio State University (OSU)	15 nm SE	5004 ft. x 100 ft.	MIRL. REIL, PAPI, MALSR, HIRL, VASI, ILS, GPS
Madison County (UYF)	15 nm SE	4,000 ft. x 75 ft.	MIRL, REIL, PAPI, GPS
Grimes Field Airport (I74)	19 nm W	4400 ft. x 100 ft.	MIRL. REIL, PAPI, GPS
Bolton Field (TZR)	22 nm SE	5500 ft. x 100 ft.	MIRL. REIL, PAPI, MALSR, ILS, GPS

Source: FAA Forms 5010, July 2020 ; AirNav.com, (July 2020).

[2] Federal Aviation Administration, *National Plan of Integrated Airport Systems (NPIAS) Report,* Available at https://www.faa.gov/airports/planning_capacity/npias/reports/media/NPIAS-Report-2019-2023-Appendix-A.pdf (July 2020).
[3] Airport Authority, *Union County Ohio,* Available at https://www.co.union.oh.us/airport-authority (July 2020)
[4]http://www.dot.state.oh.us/Divisions/Operations/Aviation/OhioAirportsFocusStudy/TechnicalReport/Ohio%20Airports%20Focus%20Study%20-%20Technical%20Report%20-%20Complete%20for%20Web.pdf

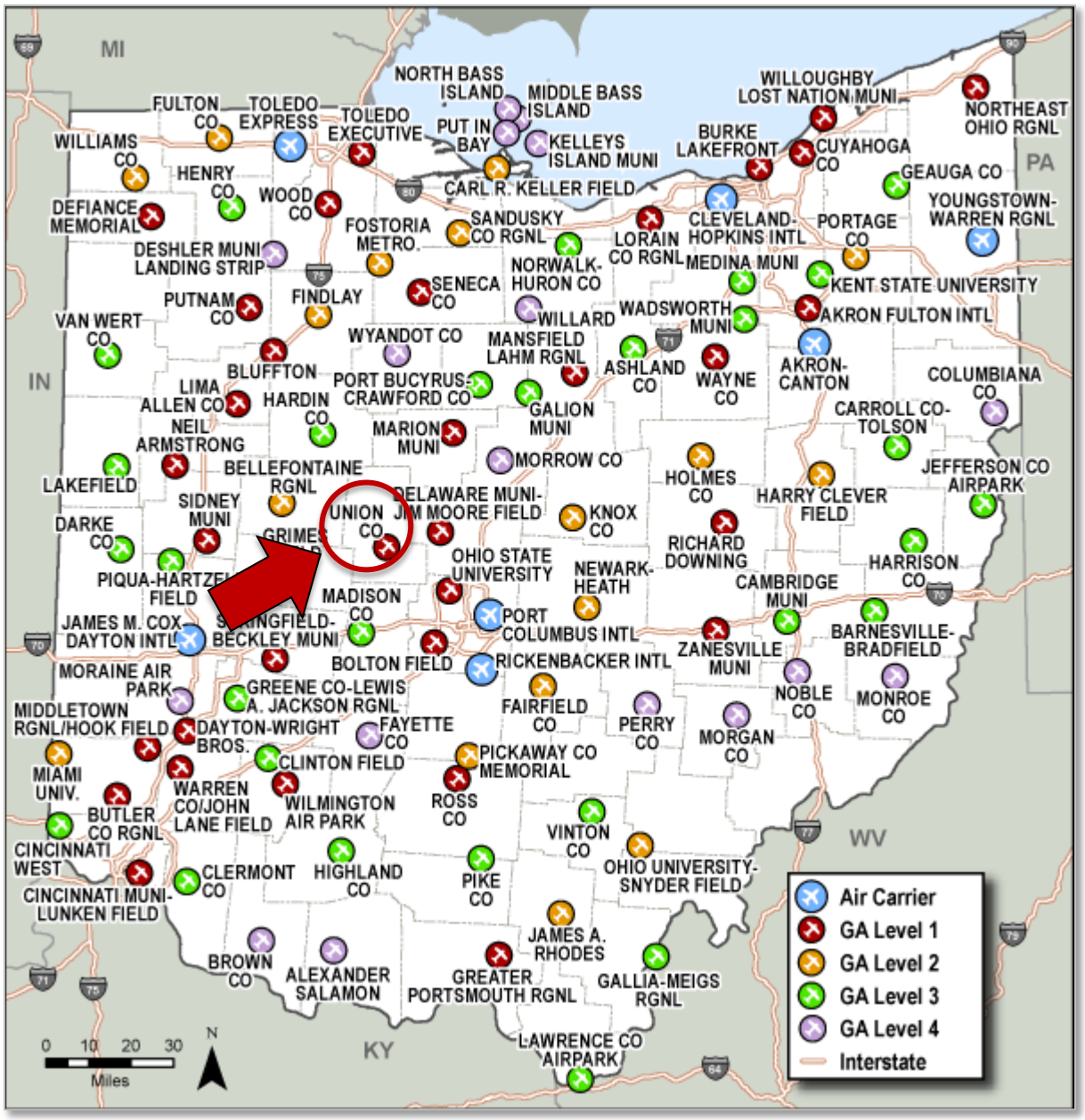
Exhibit 1.3-2: FAA Classification of Ohio System Plan Airports



Source: Ohio Airports Focus Study, ODOT.

MRT an important component of the Ohio Airport System Plan (OASP), which consists of 104 aviation facilities. Within the OASP, MRT is classified as a Level 1 airport. Level 1 airports are defined as intended to meet nearly all the needs of general aviation turbine-powered and corporate jet aircraft while also supporting recreational general aviation activities and flight training. **Exhibit 1.3-3** shows all the OASP airports within Ohio by Level.

Exhibit 1.3-3: Airports in Ohio



Source: Ohio Airports Focus Study, ODOT.

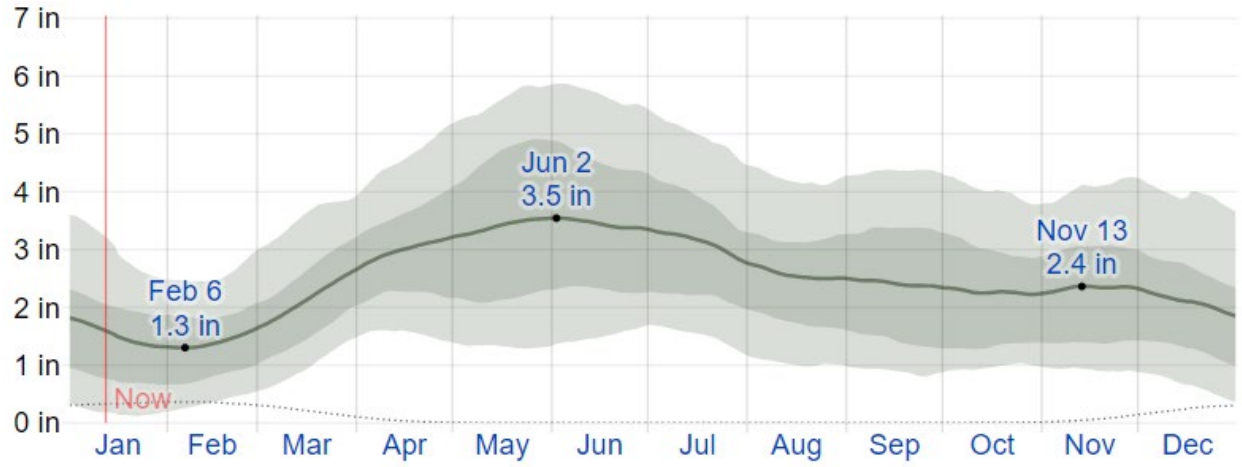
1.4 Climate and Meteorological Data

This section discusses general climate conditions. Specific weather as it relates to the facilities needed at MRT are discussed in the Facility Requirements chapter.

The climate at MRT is typical of the Midwest United States. The airport experiences the spectrum of weather with four distinct seasons, including warm, humid summers and cold winters. The average temperatures typically vary from 19°F to 83°F. Typically, the hottest day of the year comes in July, with an average high of 83°F and low of 64°F. The coldest day typically comes in January, with an average low of 19°F and high of 35°F.

Cloud cover varies throughout the year, with the clearer part of the year occurring from June through about October. Precipitation also varies throughout the year. The most snow falls in January and February. The wetter season lasts from the end of March to the beginning of August, with a greater than 30% change of precipitation on any given day. The wettest days happen in May and June (See **Exhibit 1.4-1**). The average rainfall is shown as a solid line, representing rainfall accumulated over the course of a sliding 31-day period centered, with 25th to 75th and 10th to 90th percentile bands. The thin dotted line is the corresponding average liquid-equivalent snowfall.

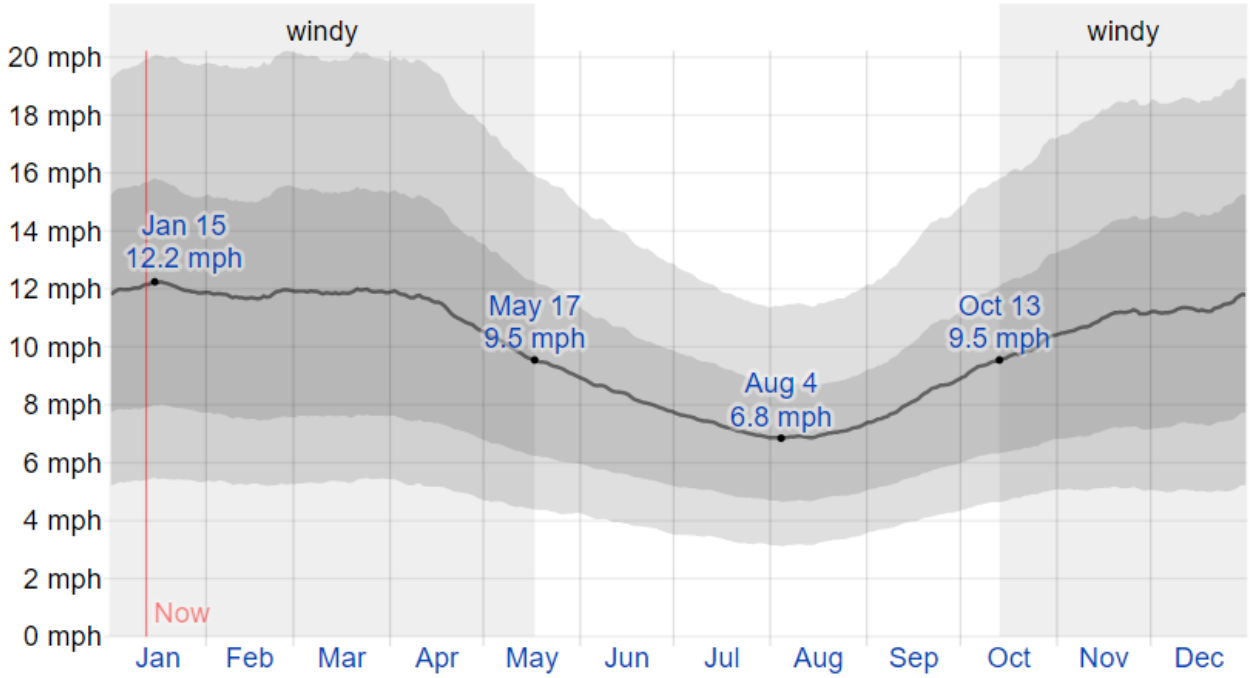
Exhibit 1.4-1: Average Monthly Rainfall



Source: WeatherSpark, Jan 2021

The average hourly wind speed in the Marysville area experiences significant seasonal variations. The windier part of the year runs from mid-October to mid-May, with average wind speeds of more than 9.5 miles per hour (at 10 meters above the ground). The windiest day of the year occurs in January, with an average hourly wind speed of 12.2 mph. The calmer time of year lasts from May 16 to October 12. The calmest day of the year is August 3, with an average hourly wind speed of 6.8 mph. The wind generally blows from the west the majority of the time, approximately 9 months. (See **Exhibit 1.4-2**.) The average of mean hourly wind speeds (dark gray line), with 25th to 75th and 10th to 90th percentile bands.

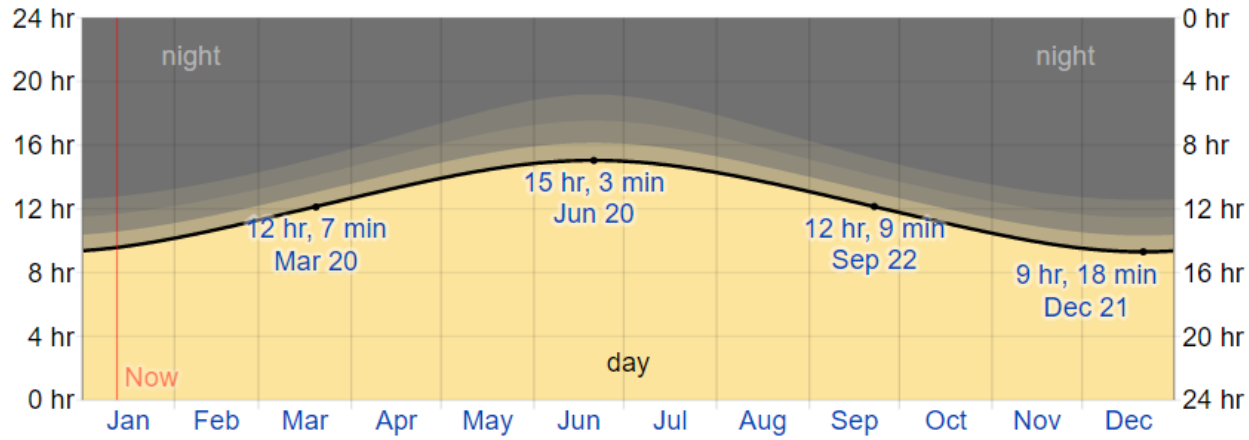
Exhibit 1.4-2: Average Wind Speed (10 meters above the ground)



Source: WeatherSpark, Jan 2021.

The length of the day at MRT varies like other areas of the world. The shortest day occurs December on the 21st and the longest day in June on the 20th. (See **Exhibit 1.4-3**.) The number of hours during which the Sun is visible (black line). From bottom (most yellow) to top (darkest gray), the color bands indicate: full daylight, twilight (civil, nautical, and astronomical), and full night. Left axis is day and right axis is night.

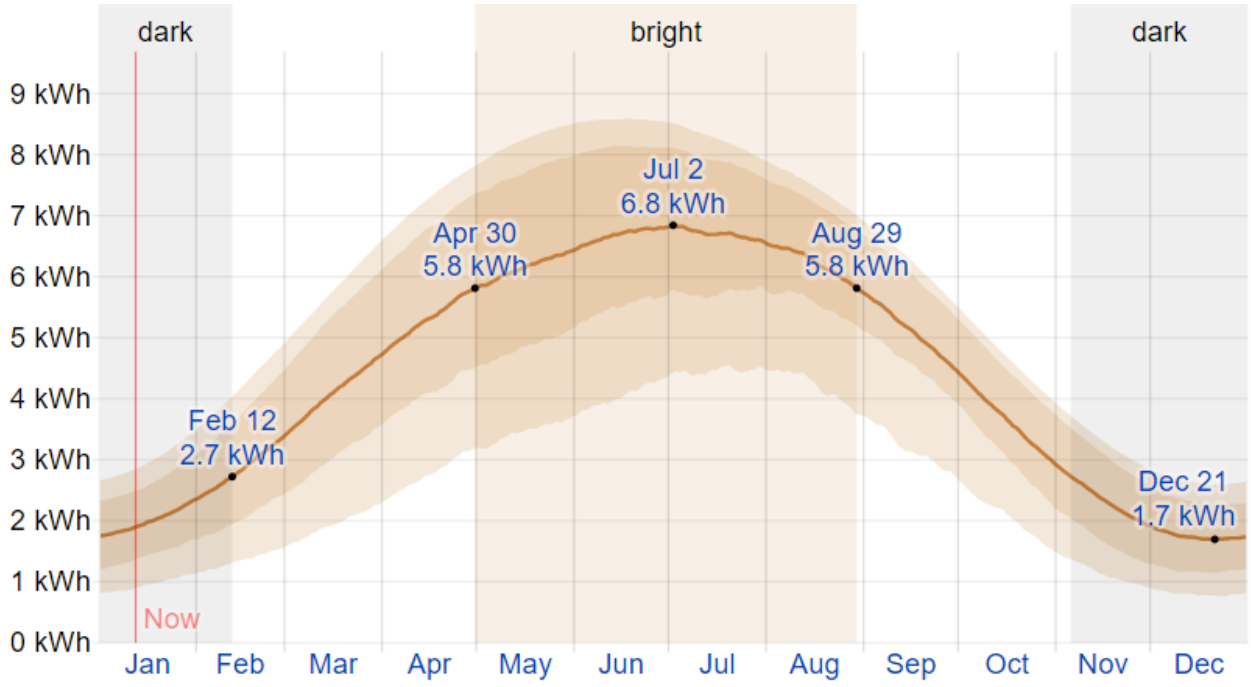
Exhibit 1.4-3: Hours of Daylight and Twilight



Source: WeatherSpark, Jan, 2021

In relation to solar energy, the brighter period of the year, from May through August, has an average daily incident shortwave energy per square meter of above 5.8 kWh. The darker period is from early November to mid-February, with the lowest of 1.7 kWh. See **Exhibit 1.4-4**. The average daily shortwave solar energy reaching the ground per square meter (orange curve), with 25th to 75th and 10th to 90th percentile bands.

Exhibit 1.4-4: Average Daily Incident Shortwave Solar Energy



Source: WeatherSpark, Jan, 2021

1.5 Existing Airport Facilities

MRT is comprised of an interconnected system of facilities that works to provide a safe and enjoyable user experience. Some of the facilities considered in more depth below are runways, taxiways, hangars, lighting networks, and navigational aids, to name a few. **Exhibit 1.5-1** below provides an overview of pertinent airport information.

Exhibit 1.5-1: General Airport Information

General	
State:	Ohio
County:	Union
Control Tower:	No
Sectional Chart:	Detroit
Elevation:	1020.6 ft.
Weather	
Weather Source:	AWOS-3 119.275
Frequency:	119.275
Communications/Navigation:	
CTAF/UNICOM:	122.8
Approach/Departure Control:	Columbus 125.95
ARTCC:	Indianapolis Center
Services	
Fuel:	100LL, JET A-1+
Airframe Service:	Major
Power Plant Service:	Major
Bottled Oxygen:	None
Bulk Oxygen:	None
Pilot Training:	Yes
Aircraft Rental:	Yes
Other	
Wind Indicator:	Lighted-In service
Segmented Circle:	No
Beacon:	White-Green (lighted land airport)
Hangars:	T-hangar, Conventional

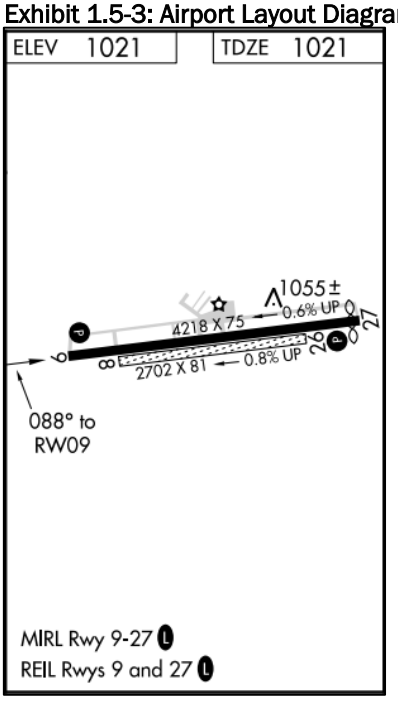
Source: FAA Airport 5010 Form; AirNav Website; MRT

MRT offers airside facilities that include one asphalt Runway 9-27 and one turf Runway (8-26). Runway 9-27 currently serves as the primary runway, measuring 4,218 feet long and 75 feet wide. The turf runway, Runway 8-26, is 2,702 feet long and 81 feet wide. These runways, as well as taxiways and the apron are shown below in **Exhibit 1.5-2.**

Exhibit 1.5-2: Airport Facilities

The airport is served by a combination of medium intensity runway and taxiway lights, 55 T-hangar units in a total of four buildings, one Single Volume Hangar, one FBO Hangar, thirteen tie-downs, and 2 underground fuel tanks with a capacity of 10,000 gallons each. One tank provides Avgas–100LL, and one tank provides Jet-A. **Exhibit 1.5-3** below is the airport layout diagram.

Exhibit 1.5-3: Airport Layout Diagram



Source: FAA, 2021.

1.5.1 Runways and Helipads

MRT is served by one asphalt runway and one turf runway. The details of these two landing surfaces are detailed below in **Exhibit 1.5-4**. There is no helipad identified on the Airport Layout Plan or listed in the Airport Master Record.

Exhibit 1.5-4: Runway and Helipad Information

Primary Runway Information	Runway 09	Runway 27
Threshold Latitude:	N 40° 13’ 26.3074"	N 40° 13' 31.3955"
Threshold Longitude:	W 083° 21' 32.7624"	W 083° 20' 38.7922"
Threshold Horizontal Datum:	NAD83	NAD83
Threshold Vertical Datum:	NAVD88	NAVD88
Status:	Asphalt	Asphalt
Markings:	Non-Precision	Non-precision
Physical Length:	4,218 ft.	4,218 ft.
Width:	75 ft.	75 ft.
Threshold Displacement	N/A	123 ft.
Gradient:	-0.6%	0.6%
Runway Lights:	MIRL	MIRL
REIL:	Yes	Yes
VGSI Lights		
Type:	PAPI-4L	PAPI-4L
Threshold Crossing Height:	25	33
Turf Runway Information	**Runway 08**	**Runway 26**
Threshold Latitude:	N 40° 13' 25.5485"	N 40° 13' 28.8093"
Threshold Longitude:	W 083° 21' 23.3229"	W 083° 20' 45.7527"
Threshold Horizontal Datum:	NAD83	NAD83
Threshold Vertical Datum:	NAVD88	NAVD88
Status:	Turf	Turf
Markings:	N/A	N/A
Physical Length:	2,702 ft.	2,702 ft.
Width:	81 ft.	81 ft.
Gradient:	-0.8%	+0.8%
Runway Lights:	No	No
REIL:	No	No
VGSI Lights		
Type:	N/A	N/A
Threshold Crossing Height:	N/A	N/A

Sources: FAA Airport 5010 Form, (July 2020); FAA Airport AVNIS Datasheet, (July 2020); FAA NFDC, (August 2020).

1.5.2 Taxiways

Taxiways are paved areas over which airplanes move from one part of the airfield to another with their primary use being providing access between the terminal/hangar facilities and the runways. There are two general types of taxiways: parallel and connector. Taxiways that are located parallel to runways generally provide a route for aircraft to reach a runway end. Connector taxiways, which can connect runways to parallel taxiways, provide paths for aircraft to enter the runway for departure or leave the runway after landing. Connector taxiways also provide a means for aircraft to move among the various airside components of an airport including aircraft hangar and storage areas, fueling area, and aircraft parking and aprons. Note that taxiways are generally identified by letters.

MRT has taxiways that provide access between the main ramp areas and the two runways. The taxiways are detailed below in **Exhibit 1.5-5.**

Exhibit 1.5-5: Taxiways at MRT

Taxiway ID	Type	Width	Condition
A	Full Parallel	35 ft	Fair
B	Connector	35 ft	Fair
C	Connector	30 ft	Fair
D	Connector	50 ft	Fair
E	Connector	50 ft	Fair

Source: MRT Airport Layout Plan 2018, ODOT Pavement Management Condition Rating System 2020

1.5.3 Aprons

An aircraft apron is used for aircraft movement and positioning, aircraft storage and tiedowns, aircraft fueling, and vehicle movement and parking. MRT has an apron on the north side of the Airport, displayed above in **Exhibit 1.5-2.**

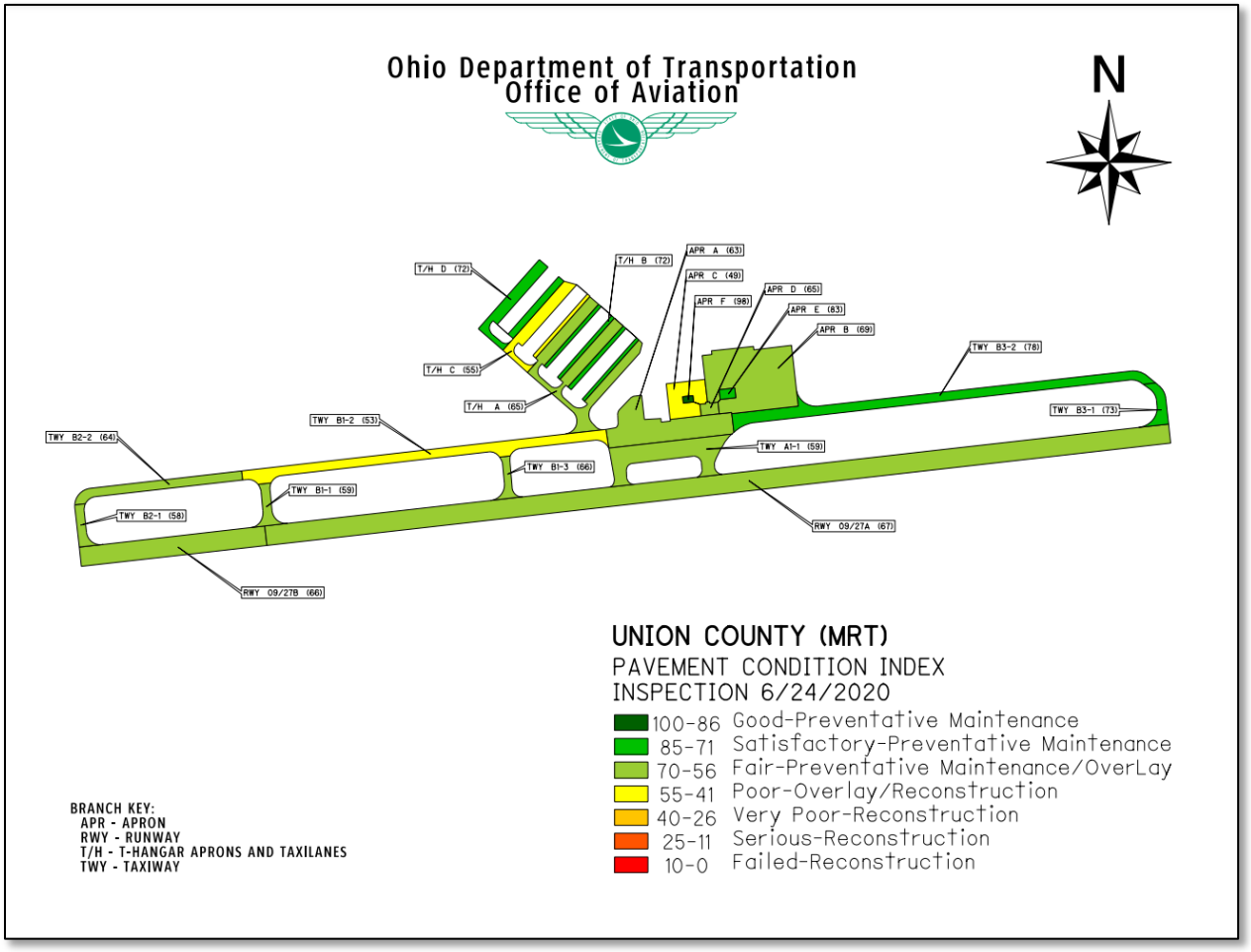
The asphalt apron exists at the Airport to accommodate the long- and short-term parking needs of both based and itinerant aircraft. The apron, comprised of approximately 8,400 square feet, is available for both based and itinerant aircraft. There are approximately 13 paved tie-downs available on the existing apron areas.
Note that generally, transient aircraft prefer power-in/power-out parking versus nested tiedowns that requires physically moving (e.g., manually/by hand or by tug) an aircraft into and out of each parking position. Note that power-in/power-out parking requires more space on an apron than nested tiedowns due to the need for additional taxilanes and space between aircraft parking spots.

1.5.4 Pavement Condition

FAA AC 150/5380-6C, Guidelines and Procedures for Maintenance of Airport Pavements, recommends conducting a detailed pavement inspection that follows the American Society for Testing and Materials (ASTM) D5340, Standard Test Method for Airport Pavement Condition Index Surveys. A detailed pavement inspection is conducted for airport pavements to employ a visual rating system for pavement distress. The condition and strength values are summarized in the Pavement Condition Index (PCI). The PCI scale ranges from a value of zero (representing a pavement in a failed condition) to a value of 100 (representing a pavement in excellent condition).
The Ohio Department of Transportation conducted a pavement condition analysis of MRT's airside pavement in 2020. Overall, the surfaces ranged from 49 to 83, indicating pavement condition ranging from poor to satisfactory, indicating varying levels of pavement reconstruction/maintenance. The east side of Taxiway A has the highest overall pavement rating with a score of 78. APR C, a section of the apron, has the lowest rating, with a score of 49. **Exhibit 1.5-6** below displays the condition of MRT's pavement as of June 2020. Since these

condition analyses were carried out, four pavement projects have been completed at MRT. In 2020, there was a rehabilitation and concrete pad improvement project on the main apron, and a mill and overlay was completed in 2021 on approximately 2,000' of the parallel taxiway on the western side. In 2022, the runway and T-hangar pavements were crack sealed.

Exhibit 1.5-6: Pavement Condition Analysis for MRT



Source: ODOT

1.5.5 Airfield Lighting

Airport Identification Lighting

A high-intensity rotating beacon identifies the location of the Airport at night and during periods of poor visibility. This beacon projects alternating green and white beams from dusk to dawn. When activated during daylight hours, the beacon signals Instrument Flight Rule (IFR) conditions. The MRT rotating beacon is located the top of the stack on hangar, identified in **Exhibit 1.8-1.**

Runway Lighting

Runway lighting aids are necessary to provide pilots with critical takeoff and landing information concerning runway alignment, lateral displacement, rollout operations, and runway distance remaining. MRT's existing runway lighting capabilities are detailed in **Exhibit 1.5-7.**

Runway edge lights are used to outline the edges of runways during periods of darkness or restricted visibility conditions. Runway 9-27 is outfitted with High and Medium Intensity Runway Lights (HIRL), whereas Runway 8-26 does not have runway lights. When required, the runway lights can either be activated by pilots operating at the Airport using pilot-controlled lighting (PCL) over MRT's Common Traffic Advisory Frequency (CTAF) of 122.8 MHz. Once activated through PCL, the lights remain on for 15 minutes, at which time they will then automatically shut down.

A Precision Approach Path Indicator (PAPI) is a series of lights that provide visual guidance during a runway approach. Four-light PAPI systems are installed on Runway 9 and Runway 27. It should be noted that both PAPI systems are set to a 3-degree glidepath to account for visual obstructions.

Runway End Identifier Lights (REILs) are high intensity white strobe lights located on each side of the runway threshold to enable rapid identification of the runway threshold, particularly at night and during periods of poor visibility. Runway 9 and Runway 27 is equipped with REILs.

Table 1.5-7: MRT Runway Lighting

Lighting	Runway 9	Runway 27	Runway 8	Runway 26
Approach Lighting	None	None	None	None
Runway Edge Lighting	MIRL	MIRL	None	None
Centerline Lights	None	None	None	None
Visual Approach Slope Indicator (VGSI)	PAPI-4 (Left)	PAPI-4 (Left	None	None
Other Lighting	REILs	REILs	None	None

Source: FAA 5010

Taxiway Lighting

Taxiway edge lights aid in providing visual guidance to pilots and ground service/maintenance vehicles accessing the taxiway in low visibility or night conditions. MRT installed LED Medium Intensity Taxiway Lighting (MITL) in 2021.

Other Visual Aids

Additional visual aids and instrumentation at MRT assist pilots in arriving or departing. The Airport's lighted wind cone provide pilots with traffic pattern and wind direction/velocity information. This equipment is centrally located just south of Runway 8-26.

Signage provides essential guidance to identify items and locations on an airport. Airfield signage gives pilots visual guidance information for all phases of movement on the airfield. MRT is equipped with FAA-compliant signs that include instruction, location, direction, destination, and information signs.

1.5.6 Automated Surface Observation System (ASOS)/Automated Weather Observation System (AWOS)

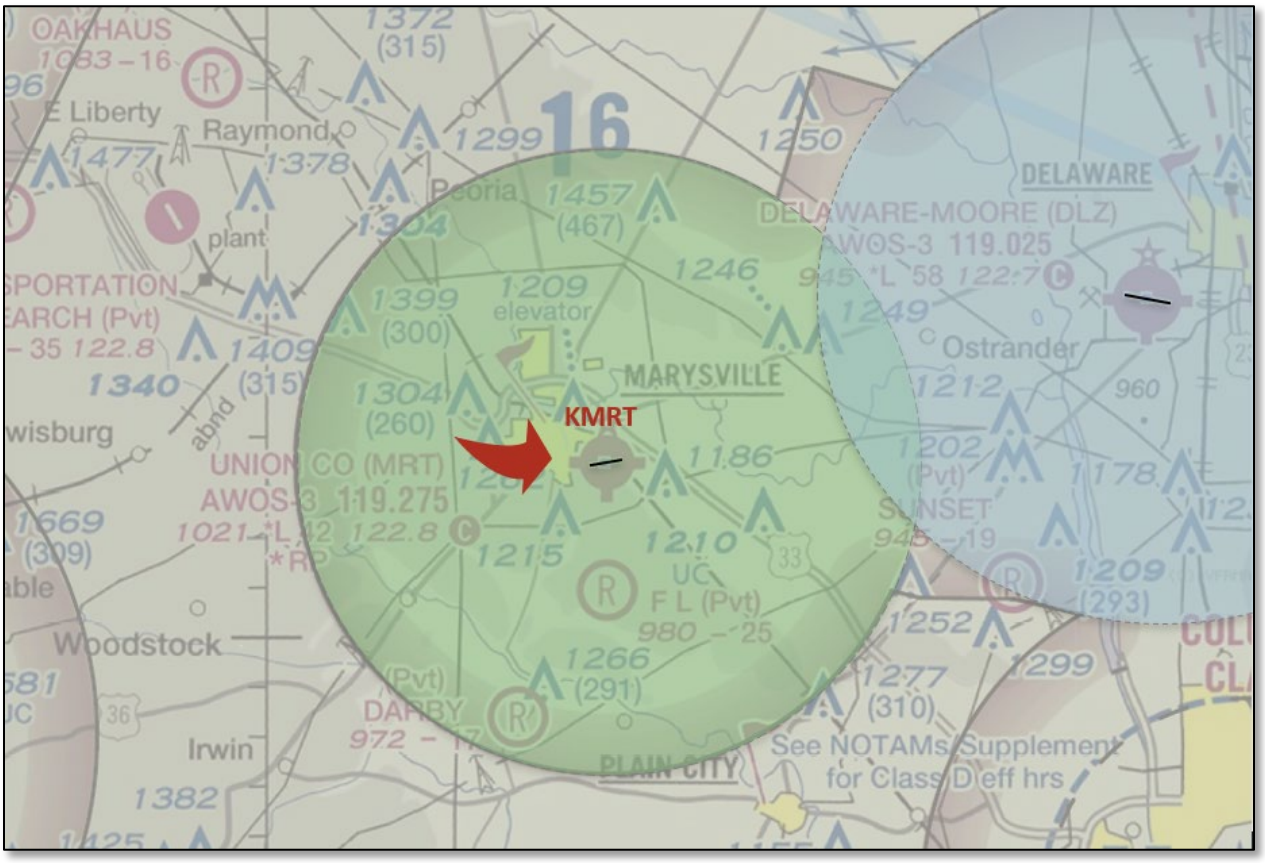
Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the FAA, and the Department of Defense, and serves as the nation's primary surface weather observing network. It is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. Without on-airport weather reporting, charter/air taxi flights may not be allowed to takeoff or land in instrument (poor) weather conditions. MRT currently does not have an ASOS but does have an AWOS-3 located south of Runway 8-26.

1.6 Airspace / Air Traffic Control

MRT is surrounded by Class E controlled airspace, which is the least restrictive of all controlled airspace. Class E airspace is generally established at an airport with an instrument approach and without a control tower. At MRT, it is established from 700 feet above ground level (AGL) to the overlaying adjacent controlled airspace, and configured to contain all instrument procedures. From the surface to the Class E airspace, the airspace is Class G, which is uncontrolled. Approach and departure services are provided by the Columbus Terminal Radar Control Facility via radio frequency 125.95. Almost all airports support both local and itinerant aircraft traffic. Local traffic represents operations that stay within the traffic pattern airspace and itinerant operations consist of operations that arrive from outside the traffic pattern or depart the airport traffic pattern.

Union County Airport operations consist of approximately 55% local general aviation traffic, 40% itinerant general aviation traffic, and 5% itinerant military traffic**. Exhibit 1.6-1** depicts the airspace around MRT.

Exhibit 1.6-1: MRT Airspace



Source: FAA Sectional Chart, ESRI ArcGIS

1.6.1 Arriving Aircraft

Pilots of inbound aircraft to MRT for a full stop, touch and go, low approach, or stop and go, obtain AWOS (Automated Weather Observation System) information prior to entering the traffic pattern at the airport.
In the case of VFR flight following with CMH Approach, the normal procedure is for CMH Approach to terminate service and switch the pilot to the MRT UNICOM (or Common Traffic Advisory Frequency) frequency far enough

out (generally after the pilot makes visual contact with the airport) to allow time for the pilot to hear any other radio communications of pilots operating in the traffic pattern at MRT. A frequency change to UNICOM constitutes termination of radar services. Once terminated and/or instructed to switch to UNICOM, the pilot assumes responsibility of seeing and avoiding other aircraft traffic while entering and operating in the traffic pattern at the airport. Inbound pilots flying via Instrument Flight Rules (IFR), due to inclement weather or other reasons, are able to land on Runway 9 or 27 via published RNAV GPS Instrument Approach Procedures (see Section 1.7.2).

1.6.2 Departing Aircraft

Pilots obtain the current AWOS information prior to taxi and indicate their intentions and departure heading on the UNICOM frequency. Aircraft are not to enter any movement area prior to announcing their intentions. At MRT, the movement area encompasses all taxiways and runways, but does not include ramp space. Additionally, there are departure procedures in place for both runway ends.

1.7 NAVAIDS

1.7.1 NAVAIDS and Proximity to MRT

A variety of navigational facilities are currently available to pilots around the Union County Airport, whether located at MRT or at other locations in the region. Many of these navigational aids are available to enroute air traffic as well. The navigational aids (NAVAIDS) available for use by pilots in the vicinity of Union County Airport are Very High Frequency Omni Directional Range (VOR), VOR/Tactical Aircraft Control (VORTAC) and Non-Directional Beacon (NDB) facilities. These NAVAIDS are listed below in **Exhibit 1.7-1.**

A VOR system is a Very High Frequency Omnidirectional Range Station (VOR). A VOR enables an aircraft with a receiving unit to determine its position and stay on course. There is one VOR in vicinity of MRT. A VORTAC (VHF Omnidirectional Range/Tactical Air Navigation) is a ground-based electronic navigation aid transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. There are two VORTACs in range of MRT. A non-directional beacon (NDB) is a Low/Medium Frequency (L/MF) radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and track to or from the station. There are three NDBs in range of MRT.

Exhibit 1.7-1. NAVAIDS in Proximity to MRT

Type	ID	Name	Frequency	Radial	Range
VOR	BUD	Buckeye	109.80	r214	26.9
VORTAC	ROD	Rosewood	117.50	r102	31.9
VORTAC	APE	Appleton	116.70	r283	35.3
NDB	OS	Fuler	515	327	11.5
NDB	CCJ	Clark County	341	047	28.8
NDB	CSS	Court House	414	009	37.5

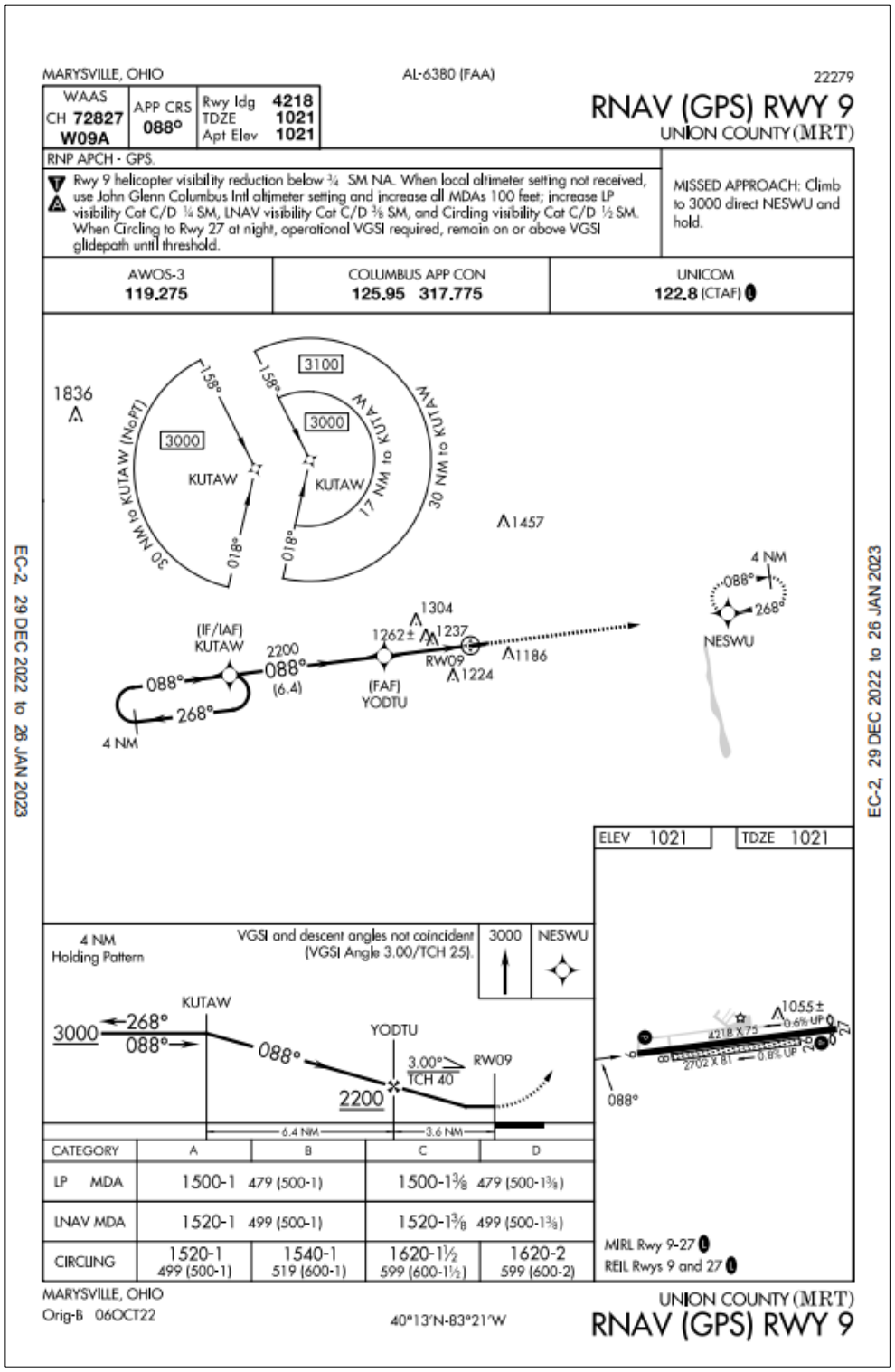
Source: FAA 5010

1.7.2 Published Approaches at MRT

There are two instrument approach procedures (IAP) for MRT, both for the primary Runway 9-27. These provide users with approach minimums that allow for safe landing at MRT in a variety of weather conditions. These minimums can be seen below in the approach plates in **Exhibit 1.7-1**. For the RNAV (GPS) Runway 9 approach, aircraft can descend as low as 479 feet above the runway to break out of the clouds and land in visual conditions.

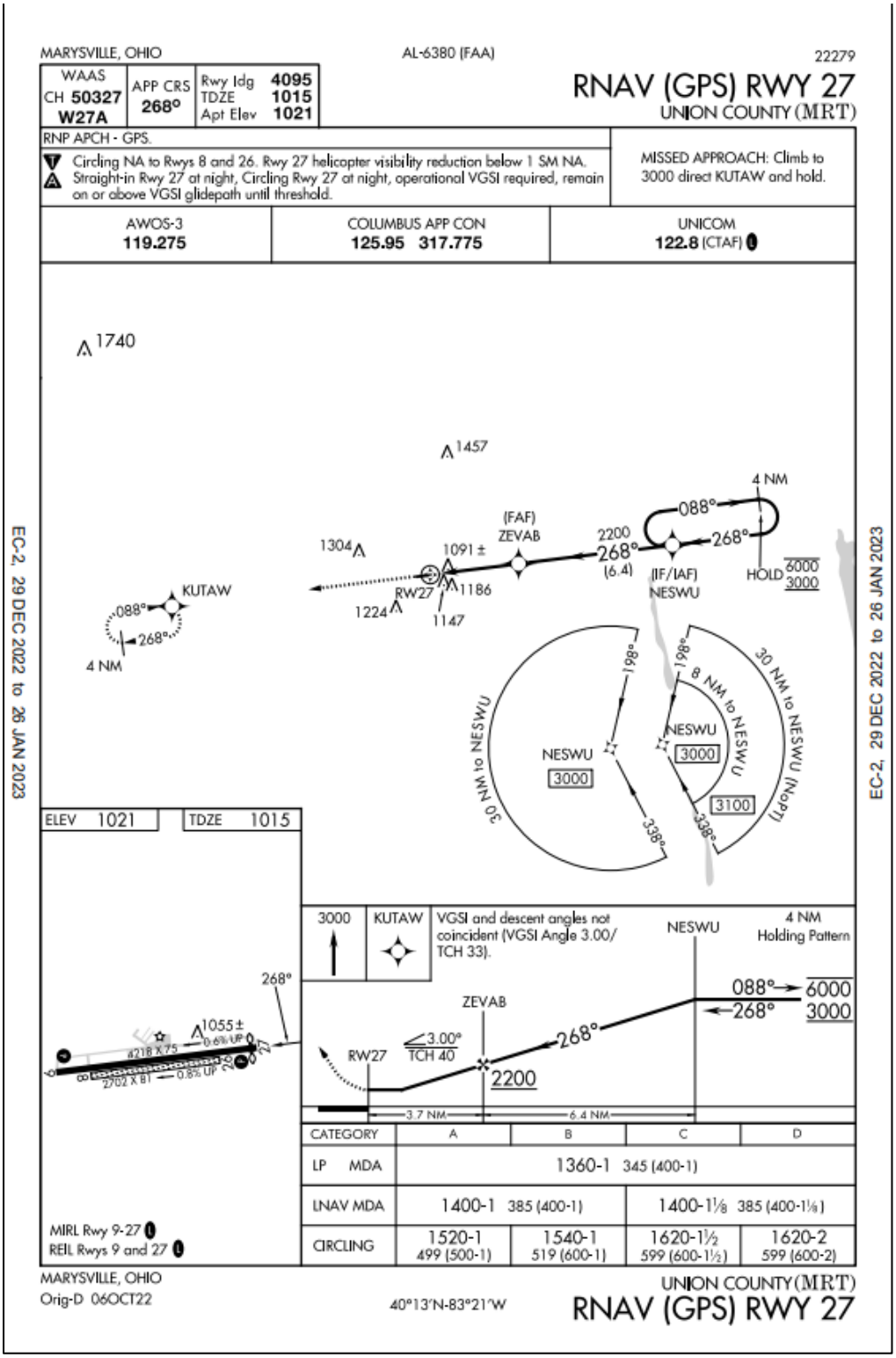
For the instrument approach to Runway 27, the RNAV (GPS) Runway 27 approach will allow aircraft to descend as low as 345 feet above the runway to break out of the clouds.

Exhibit 1.7-1: MRT Instrument Approach



Source: FAA Digital Terminal Procedures

Exhibit 1.7-1: MRT Instrument Approach Procedures, Con't.

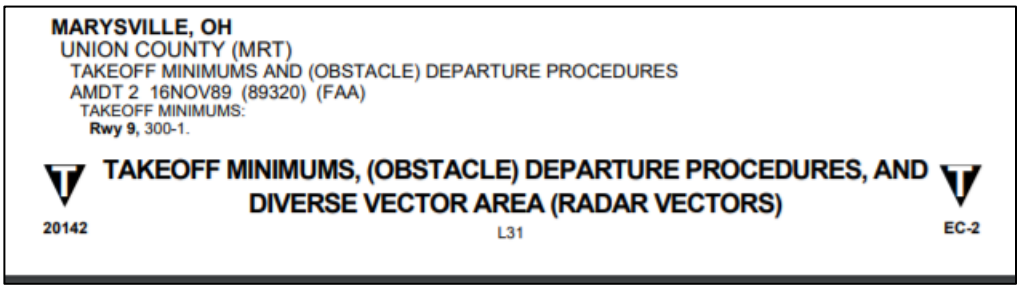


Source: FAA Digital Terminal Procedures

1.7.3 Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors)

Under the FAA published Takeoff Minimums, (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors), MRT has takeoff minimums established for Runway 9 of 300-foot cloud layer ceilings and 1 mile of visibility for aircraft to take off. This is displayed in **Exhibit 1.7-2.**

Exhibit 1.7-2 Takeoff Minimums, Departure Procedures, Diverse Vector Area


MARYSVILLE, OH
UNION COUNTY (MRT)
TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES
AMDT 2 16NOV89 (89320) (FAA)
TAKEOFF MINIMUMS:
Rwy 9, 300-1.
TAKEOFF MINIMUMS, (OBSTACLE) DEPARTURE PROCEDURES, AND DIVERSE VECTOR AREA (RADAR VECTORS)
20142
L31
EC-2

Source: FAA Digital Terminal Procedures

1.8 Support Facilities

1.8.1 Terminal Building & Fixed Base Operator (FBO)

Airports must provide a wide range of services to meet the varied demands of its individual market area. These demands are frequently accommodated by a fixed base operator (FBO) located on the airport that provides a variety of aeronautical services for pilots, aircraft, and passengers. FBO Services at MRT are offered by SkyVista Aviation, a private company that leases buildings, hangars, and aprons from and for the Airport Authority. It is a full-service FBO located on the north side of the Airport that is open from 8:00 AM to 5:00PM daily and/or during other hours with prior arrangement. Specific services include the following:

- Jet A & 100LL AvGas
- Forklift Service
- Maintenance
- GPU
- Pilot's Lounge
- Conference Room
- Baggage Handling
- Courtesy Car
- T-Hangars available for rent
- Large heated hangar for rent
- Heated hangar for overnight stays
- Large ramp for overnight tie down

The FBO/Administration/terminal is based in Building 05. The FBO/terminal houses a pilot briefing room, a lounge area, WiFi, restrooms, snacks, coffee, etc.

View of the MRT FBO/Administration/Terminal from the airfield. Source: Woolpert, 2021

1.8.2 Auto Parking

There are six automobile parking lots available at MRT. Each of the four T-Hangar buildings has 5 spots, the single volume hangar has 2 spots, and the FBO parking lot has approximately 30 spots, leading to a total of approximately 52 paved auto parking spaces.

1.8.3 Utilities

Water, gas, and electric are all available at the Airport. Sanitary water disposal is handled by the City of Marysville. Dayton Power & Light supplies electricity, and gas is supplied by Columbia Gas.

1.8.4 Airport Buildings

There are currently seven permanent buildings on airport property. They are listed below, along with their dimensions and condition. Their locations are highlighted in **Exhibit 1.8-1.**

01 T-Hangar 1
The dimensions of this building are 292.5 ft. × 52.5 ft.
The Gross Square Footage of this building is 15,356 sf.
This building is in **good condition**

02 T-Hangar 2
The dimensions of this building are 307.5 ft. × 52.5 ft
The Gross Square Footage of this building is 16,14sf.
This building is in **good condition**

03 T-Hangar 3
The dimensions of this building are 307.5 ft. × 52.5 ft
The Gross Square Footage of this building is 16,144 sf.
This building is in **good condition**

04 T-Hangar 4
The dimensions of this building are 307.5 ft. × 52.5 ft
The Gross Square Footage of this building is 16,144 sf.
This building is in **good condition**

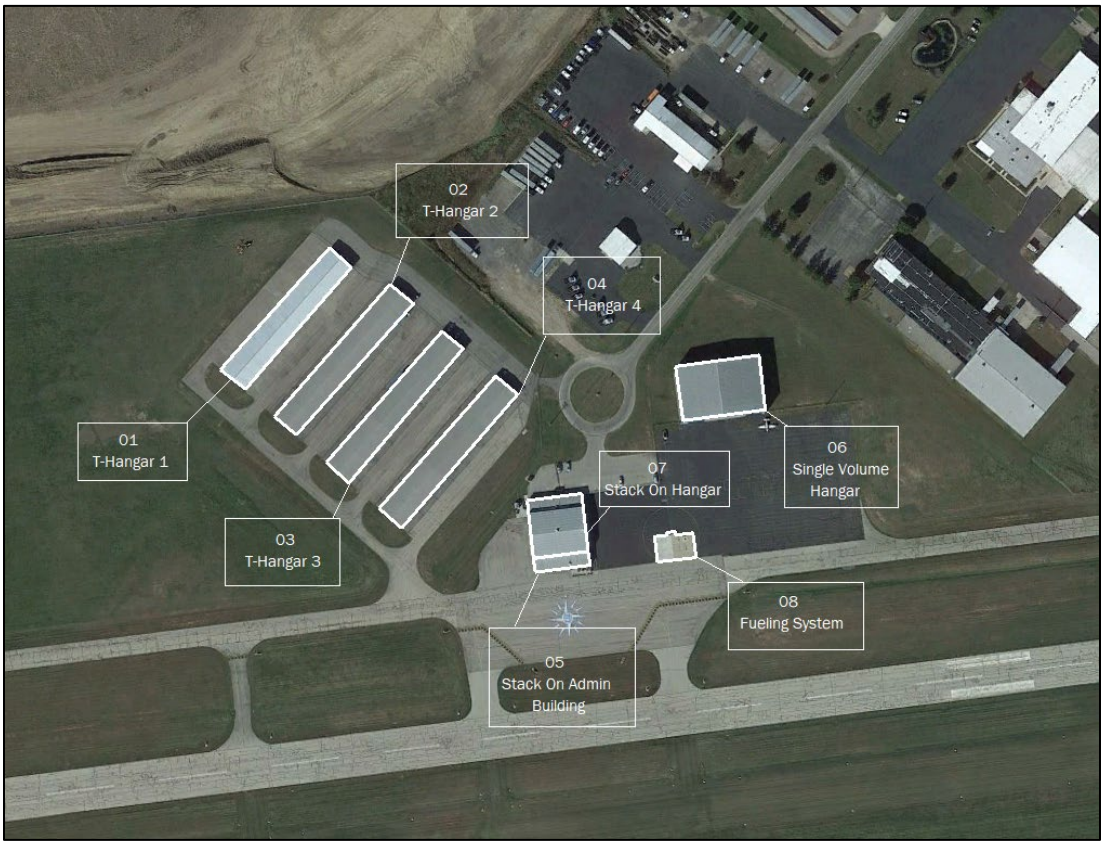
05 Stack On Administration/Terminal Building
The dimensions of this building are
97.5 ft. × 30 ft. and 37.5 ft. × 18.75 ft.
The Gross Square Footage of this building is 3,628 sf.
This building is in **good condition**

06 Single Volume Hangar
The dimensions of this building are 150 ft. × 93.75 ft
The Gross Square Footage of this building is 14,063 sf.
This building is in **good condition**

07 Stack On Hangar
The dimensions of this building are 97.5 ft × 97.5 ft
The Gross Square Footage of this building is 9,506 sf.
This building is in **good condition**

08 Fueling System
The dimensions of this system are 70 ft by 45 ft
The Gross Square Footage of this system is 3,150 sf.
This system is in **good condition**

Exhibit 1.8-1: Building Locations at MRT



Source: Google Earth; Woolpert, (August 2020)

1.8.5 Fueling

MRT operates the fuel facilities. MRT has the storage capacity for 10,000 gallons of 100LL AvGas, and 10,000 gallons of Jet A1+ fuel. The two fuel tanks are located underground and fueling at MRT is a self-serve/assisted service system. These tanks, along with the dispensing system, are located on the main ramp just east of FBO hangar and labeled in **Exhibit 1.8-1.**

1.8.6 Airport Snow Removal and Aircraft De-icing

The Union County Airport does not have de-icing capabilities. The airport contracts with a local firm for snow removal for both landside and airside.

1.8.7 Aircraft Rescue and Firefighting

MRT does not have dedicated Aircraft Rescue and Fire Fighting (ARFF). Firefighting is provided under an agreement with the City of Marysville.

1.8.8 Airport Security

As a general aviation facility, there are few security requirements for airports such as MRT. Instead of strict requirements, the Transportation Security Administration released Information Publication A-001: "Security Guidelines for General Aviation Airports" in May 2004. This document provides owners, operators, sponsors, and other entities charged with oversight of general aviation airports a set of federally endorsed security enhancements and a method for determining when and where these enhancements may be appropriate.

In addition to the Federal guidelines, the State of Ohio through Ohio Revised Code, Chapter 4563 does require that each airport develop and maintain a comprehensive security plan. The security plan for the Union County Airport is on file in the Airport Administrative Office. This document is considered safety-sensitive and is not available for public viewing.

MRT has perimeter fencing around a portion of the airport boundary that increases airport security. Notably there is fencing at the hangar and terminal entrances, the highest traffic areas, as well as other locations. The fencing is chain link with barbed wire and ranges from 4' to 10' in height.

1.9 Adjacent Development and Zoning

The Airport is located within the limits of the City of Marysville and existing airport property is zoned by the City as M-2 (heavy manufacturing), A-R (agricultural residential), and SD1 (special district one), as displayed in **Exhibit 1.9-1**. Land around the Airport is largely zoned as manufacturing (M-1 and M-2), residential (R-2, R-3, R-4, and R-5), planned unit development (PUD), and SD1.

The Union County Airport is predominantly surrounded by agricultural on the south, west, and east, with a mixture of commercial establishments to the east and northeast, and a mixture of agricultural and residential to the west, northwest, and north. In addition to aviation, other uses of property owned by the Union County Airport Authority include agricultural southeast of Runway 9-27. The airport has limited land available for aviation improvements and there is constant development pressure on the adjacent properties. The Airport Authority is vigilant in monitoring development plans and promoting community education about the airport to ensure protection of the airport's airspace and safety surfaces and promote compatible land use.

Exhibit 1.9-1: Land Use Zoning at MRT

Source: Union County GIS, Available at: https://www7.co.union.oh.us/unionoh/, (accessed January 2023)

1.10 Stakeholder Survey

In January 2021, a survey (see **Appendix C**) was sent via email to 55 stakeholders at the airport. 28 stakeholders responded and provided input regarding their use of MRT. Most respondents indicated that they intended to remain at MRT, didn't plan to sell their aircraft soon, and purchased fuel at the airport. At least three-quarters of respondents identified having an airport free of obstructions/hazards, hangar storage facilities, self-fueling facilities, and low fuel prices as either somewhat or very important to their experience at the airport.

When asked what MRT could do better, 54 percent identified lower fuel prices, 39 percent identified turf operations, and 36 percent mentioned keeping the airport free of obstructions/hazards. When asked about the future of MRT, 57 percent said additional T-Hangars would be welcome and 25 percent said residential development should be limited in the airport. 100 percent of respondents indicated they believe that MRT should strive to accommodate a wide range of sport, recreational, and business operations, appropriate to the needs of the community. Overall, 100 percent of those surveyed indicated they have a highly favorable impression of MRT, with an average satisfaction level of 4.2 out of 5.

1.11 Community Stakeholder Input

Beyond the stakeholder survey, notable efforts were made to garner input from community stakeholders and airport users for this planning effort. As a public use facility, community feedback is critically important. See Chapter 5, section 5.2 "Sponsor and Public Outreach Summary" for details on additional public outreach efforts.

Chapter 2: Aviation Activity Forecasts

2.1 INTRODUCTION

Activity forecasts help justify future airside and landside facility development. To assist in this effort, based aircraft and general aviation operations will be projected in this chapter and the Airport's critical aircraft will be identified. The projections of aviation demand for Union County Airport (MRT or the Airport) are documented in the following sections:

- Historic and Current Activity
- Present and Future Airport Role
- Trends Impacting Future Airport Growth
    - State, Regional, and Local Characteristics
    - National and State Aviation Trends
    - State Aviation Trends
    - Regional Airports
- Influence of COVID-19 Pandemic on Projections
- Projections of Aviation Demand
- Critical Aircraft
- Comparison to TAF and Summary

Aviation forecasts are based on numerous factors, including socioeconomic data, local, regional, and national aviation trends, historic growth trends, and Federal Aviation Administration (FAA) aviation forecasts. Historical airport data was collected from several sources including airport records, the National Based Aircraft Inventory Program (NBAI), and the FAA's Terminal Area Forecast (TAF).

It is important to point out that activity forecasts are generally based on available information and perceived assumptions captured and discussed at a particular point in time. Because of these factors, aviation activity forecasts need to be monitored to ensure validity as time and other influences dictate.

Projections of aviation activity for MRT were prepared for the near-term (5 year), mid-term (10 year), and long-term (20 year) timeframes. These projections are unconstrained and assume MRT will be able to develop the various facilities necessary to accommodate based aircraft and future operations.

2.3 HISTORIC AND CURRENT ACTIVITY

Historic based aircraft and operations data for the Airport provide the baseline from which future activity at MRT can be projected. While historic trends are not always reflective of future periods, when combined with other trends, they can provide insight into future growth.

A based aircraft is generally defined as an aircraft that is permanently stored at an airport. All non-primary airports included in the FAA's National Plan of Integrated Airport Systems (NPIAS) are required to report their current based aircraft to the FAA's NBAI Program. The FAA then validates the based aircraft counts and submits them to the 5010 inspection data.

The FAA NBAI registry was last updated by the Airport in June 2021 and is based on N-numbers of aircraft based at the Airport with lease agreements with Union County, the airport owner and operator. According to NBAI Program data, there are currently 68 aircraft based at MRT, 59 of which have been validated. Table 2-1 presents a summary of the based aircraft included in the database. Two single engine aircraft (N256GT and N4738H) are currently reported to be located at other airports but both of these aircraft are based at the Airport full-time and have current hangar lease agreements with the County. There are five aircraft at MRT that are currently not registered with the FAA and considered unairworthy. The Airport is encouraging with these owners to expeditiously repair aircraft if needed and register their aircraft with the FAA. All of these aircraft owners have their aircraft in hangars and pay a monthly fee to lease hangar space from the County.

Table 2-1: Summary of Current Based Aircraft at MRT

	Single Engine	Multi-Engine	Jet	Total
Validated by FAA	57	1	1	59
Reported at Other Airports	2	0	0	2
Deregistered/Unairworthy	5	0	0	5
Not Found in FAA database	1	0	0	1
Part-Time Only	1	0	0	1
Total	66	1	1	68

Source: FAA National Based Aircraft Inventory Program, June 2021.

For the purpose of the Master Plan, although there are 68 aircraft that have lease agreements with Union County and pay appropriate fees to the county, the 59 aircraft that are validated in the NBAI Program data will be used as the 2020 based aircraft. These include 57 single engine aircraft, one multi-engine aircraft, and one jet. The FAA's most recent counts included in the TAF (published January 2020) report 57 based aircraft at MRT.

An aircraft operation represents either a landing or departure conducted by an aircraft. A takeoff and a landing, for example, would count as two operations. The operations at MRT are estimates since an air traffic control tower is not located at the Airport. Based on conversations with the airport manager and the FBO, annual operations in 2019 were estimated to be 25,250. The annual operations reported in the TAF (31,866) have remained unchanged since 2005. Often at non-towered airports there is not a reliable source of operational data and when verifying the TAF data, it remains unchanged from previous years. This operational estimate for MRT appears to be appropriate based on FAA guidance found in *FAA Order 5090.5 – Formulation of the NPIAS and ACIP, Table 4-1 Alternative Methods for Estimating Aircraft Operations* on estimating operations at non-towered airports for master planning purposes. It is important to note that, as of the writing of this report, nighttime instrument operations are prohibited at MRT due to an obstruction located in the 20:1 approach surface. This is currently being resolved with the FAA and will be addressed in the next chapter. This restriction is not anticipated to impact projections of operational demand.

Historic based aircraft and general aviation operations for MRT from the FAA TAF are presented in **Table 2-2**. Based aircraft have fluctuated over the last 10 years. Training operations are included in the Local General Aviation Category.

Table 2-2: Estimated Historic Operations and Based Aircraft at MRT

Year	ITINERANT			LOCAL			Total Ops	Based Aircraft
	General Aviation	Military	Total	General Aviation	Military	Total		
2009	9,876	3,060	12,936	18,950	0	18,950	31,886	65
2010	9,876	3,060	12,936	18,950	0	18,950	31,886	64
2011	9,876	3,060	12,936	18,950	0	18,950	31,886	64
2012	9,876	3,060	12,936	18,950	0	18,950	31,886	45
2013	9,876	3,060	12,936	18,950	0	18,950	31,886	45
2014	9,876	3,060	12,936	18,950	0	18,950	31,886	45
2015	9,876	3,060	12,936	18,950	0	18,950	31,886	40
2016	9,876	3,060	12,936	18,950	0	18,950	31,886	63
2017	9,876	3,060	12,936	18,950	0	18,950	31,886	57
2018	9,876	3,060	12,936	18,950	0	18,950	31,886	57
2019	10,000	1,250	11,250	14,000	0	14,000	25,250	59

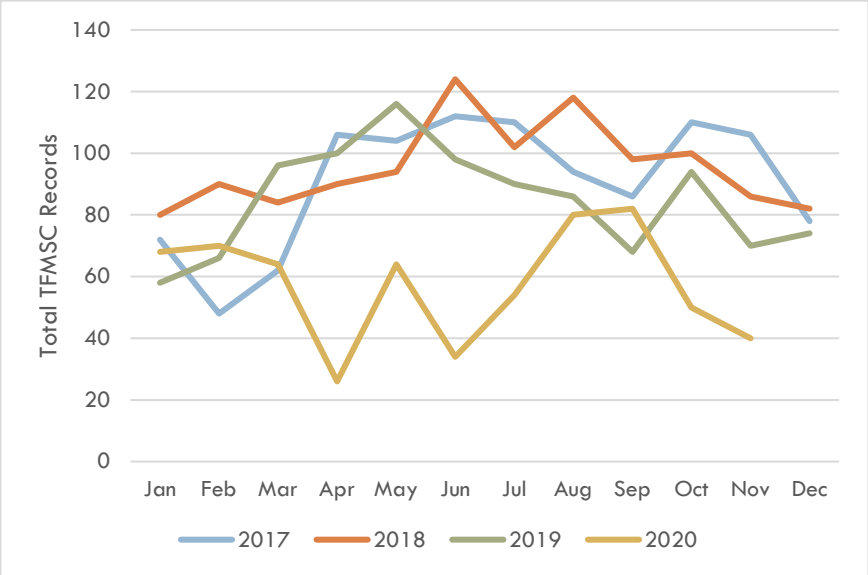
Sources: FAA Terminal Area Forecasts, 2020; Union County Airport.

The COVID-19 pandemic hit the U.S. beginning in March 2020 and aircraft operations at airports around the country were impacted by stay-at-home orders and safety concerns. According to MRT airport management, total operations in Summer 2020 were down slightly from Summer 2019 and by the fall, most operations had recovered. Some segments of operations have remained strong, especially agriculture/aerial application operations, recreational operations, and flight training. Corporate-related travel experienced the largest decline at MRT. Several additional aircraft have based at MRT since the beginning of 2020 as well.

Exhibit 2-1 presents the change in operations at MRT that are reported by the FAA's Traffic Flow Management System Counts (TFMSC). This database contains data for flights that fly under Instrument Flight Rules (IFR) and are captured by the FAA's enroute computers. Most VFR and some non-enroute IFR operations are excluded. Often, corporate-related flying is included in this data. In 2019, it is estimated that 4.5% of MRT's total operations were captured in this database (1,016 of 22,800).

As shown in Exhibit 2-1, operations at MRT beginning in March 2020 declined due to COVID-19 concerns. Non-essential businesses around the country were shuttered and employees were forced to work from home. Many corporate and recreational travel plans were cancelled. April 2020 IFR operations at MRT were just 25% of the previous three-year average. IFR operations rebounded in August and September but were below the previous three years in October and November. Based on these trends and as confidence in flying resumes, it is estimated that operations at MRT will be approximately 20,200 for 2020. This is 80% of the 25,250 annual operations estimated for 2019.

Exhibit 2-1: Change in FAA-Reported IFR Operations at MRT



Sources: FAA Traffic Flow Management System Counts (TFMSC).

2.4 PRESENT & FUTURE AIRPORT ROLE

Union County Airport is the only public-use airport in Union County, Ohio and is owned and operated by the County. The Airport is one of several general aviation airports that serve the 10-county Columbus, OH Metropolitan Statistical Area (MSA). The Airport plays a large role in supporting the economic vitality of the region and the welfare of the state. The Airport's present and future role will help support and justify the projections of future demand. The various roles of MRT supporting aviation are described in the following sections.

2.4.1 Corporate Activity

MRT serves the businesses located in the City of Marysville and other nearby towns in Union County. It also serves the northwestern Columbus area. Its location in the Columbus metro area makes it a convenient base and destination for corporate users in the larger region. The largest corporate user at the Airport is Scott's Miracle-Gro. Scott's roots in Marysville began in 1868 and has made a large contribution to the local economy for over 150 years. Scott's does business globally and owns and operates several aircraft. Pre-COVID, the CEO of Scott's Miracle-Gro flew from various east coast locations to MRT several times per week, utilizing a Cessna Citation CJ4. According to FAA TFMSC data, between January 2017 and February 2020, there were an average of 36 operations per month by this aircraft at the Airport. In addition, MRT is used for staging other Scott's corporate travel and when they hold their board meetings it is not uncommon to have several jet and turbine aircraft parked at the Airport.

Scott's continues to thrive financially during the COVID-19 pandemic; however, operations by the CJ4 have declined due to COVID-related concerns. It is anticipated that operations will resume as confidence in conducting business resumes. In addition to the CJ4 that flies at MRT, Scott's also utilizes John Glenn Columbus International Airport (CMH) with larger runways that can more comfortably accommodate its fleet which includes the Embraer Praetor 600.

Other local businesses that have aircraft based at MRT that utilize them for business proposes include Roof Management (2- Socata TBMs 700, Champion Citibria, and a Beech Bonanza), and Merchant Focus Processing (Cessna Citation II). Roof Management is the most active of the based corporate tenants and employees utilize aircraft to conduct site visits and aerial inspections on large warehouse and manufacturing facilities across the country. Honda of America Manufacturing has an auto plant in Marysville and also uses MRT for just-in-time parts delivery.

Visiting aircraft using MRT frequently include jet aircraft and air taxi operators to conduct business in the area. According to SkyVista, a few of the private business jet charter and aircraft management companies seen at MRT include Wheels Up and Executive Jet, who utilize the Airport to pick up and drop off charter passengers. Visitors also utilize MRT to access the companies in the nearby Ohio Smart Mobility Corridor and the Transportation Research Center (TRC), the largest independent vehicle testing facility and proving grounds in the U.S.

2.4.2 Agriculture

Agricultural-related operations for aerial spraying are a regular seasonal activity at MRT performed by several operators. Most operations involve repeated fueling and reloading of application, using the extreme easterly area of the main ramp. The most frequent aerial spraying operator is Butch Fisher, located at the Morrow County Airport who utilizes Air Tractors including the 802. Other operators utilize helicopters to spray nearby farms and stop at MRT to refuel or reload. Imboden Farms has a Cirrus SR-22 aircraft based at MRT but does not use the aircraft for aerial application.

2.4.3 Aircraft Maintenance

The FBO, SkyVista Aviation, offers aircraft maintenance including major airframe and powerplant (A&P), inspections, and avionics installations. SkyVista Aviation employees five full-time certified mechanics. SkyVista provides maintenance to nearly all based aircraft as well as one of the Ohio Civil Air Patrol (CAP) wings. SkyVista has extensive experience in maintaining Mooney aircraft, and aircraft owners fly from many states to get their aircraft serviced by SkyVista at MRT. SkyVista's aircraft maintenance business has been strong since the beginning of the COVID pandemic and operations associated with aircraft maintenance clients have increased.

2.4.4 Flight Training

With a paved runway length of 4,218 feet as well as a 2,702 foot turf runway, Union County Airport is a practical choice to introduce nearby student pilots to turf field operations. Spencer Aviation offers flight training at MRT and is located in the SkyVista Aviation FBO hangar. Spencer Aviation employs several flight instructors and owns eight aircraft that are based at Delaware Municipal Airport. Spencer Aviation offers ground school and programs in private pilot training, instrument pilot training, commercial pilot training, and flight instructor training. In addition, the flight school at The Ohio State University, Phoenix Flight Academy, and Capital City Aviation often utilize MRT to conduct touch and gos and other flight training operations.

2.4.5 Recreation

In addition to the above-mentioned aviation activities, MRT also provides access to visitors attending various recreational events and activities in the area. MRT supports the recreational pilots in the Marysville and Columbus region. The majority of its based single engine aircraft are utilized for recreational or personal use. MRT has experienced an increase of light sport and experimental aircraft in recent years. The Airport's turf

runway is appealing to these aircraft owners. The Northwest Flyers, a local recreational flying club, often utilizes the Airport for recreation as well as flight training.

2.4.6 Ohio Balloon Fest

MRT is the site for the annual All Ohio Balloon Fest. This is a multi-day event that includes static displays, musical acts, and fixed wing aircraft and rotorcraft rides, along with food vendors, beer sales, and an evening concert. Balloon events throughout the festival include an evening "glow" and several launches. This event is estimated to attract more than 10,000 attendees each year and thoroughly occupies all of the facilities at MRT for the weekend.

2.4.7 Other Transient Activity

MRT accommodates several other types of activity including:

- Muirfield Village and Golf Club is located in nearby Dublin. Each year Muirfield hosts the Memorial Golf Tournament. This event and the golf course in general attract thousands of visitors each year, many of which arrive via general aviation. MRT is utilized by visitors to Muirfield and it use is anticipated to grow as OSU Airport, located 25 miles southeast of Marysville, expands and gets more congested and more expensive to fly into.
- The Transportation Research Center (TRC) is located just north of Marysville and is the site of Ohio's UAS and autonomous Vehicle operations research project. The Airport is located along a technology corridor which extends from the TRC along State Route (SR) 33 to OSU Airport. MRT representatives serve on the UAS technology community advisory group. Transportation Research Center is a highly utilized world class research facility that attracts visitors and research from around the world, some of which arrive via MRT.
- Marysville is home to the Victor A. Hammond Squadron-OHWG Civil Air Patrol (CAP) and MRT accommodates operations related to this and other Ohio CAP squadrons. In addition to the CAP operations, other military training occasionally occurs at MRT.
- MRT often hosts Young Eagle, Eagle Flights, or other events for EAA Chapter 9, which is based at OSU.
- MedFlight provides critical care air transportation to and from the Airport. MRT Is located within one mile of the Memorial Hospital of Union County and the Airport is also used transport patients to larger hospitals in the Columbus metro area utilizing its fleet of helicopters. On occasion, MRT is used for recurrent training for MedFlight crews.
- Ohio State Highway Patrol utilizes MRT to stop or refuel on several types of missions including traffic enforcement, search assistance, aerial photography, evidence relays, or marijuana eradication.

2.8.8 Future Role

The success and growth of MRT can be attributed to the diversity of users. This diversity will allow the Airport to more easily weather economic recessions and will propel future growth. The role of MRT may shift somewhat over the 20-year forecast period. The county and community recognize that the Airport is a regional economic engine that supports the local economy and has the potential to attract future jobs and corporate activity.

Despite the impact of COVID-19 pandemic, it is anticipated that corporate activity will continue to thrive at the Airport as it is located in one of the fastest growing counties in Ohio along the Transportation Research corridor. Flight training, maintenance, and recreational-related activities will continue to be important at MRT over the

planning horizon as well. It is anticipated that the activity by larger corporate aircraft in the future will approach the threshold to consider changes to the identified critical aircraft at the Airport, as discussed later in this chapter. Future airport improvements and development should be based on accommodating the demand associated with these future airport activity levels. Recommended facilities and strategies to address future activity are considered in later chapters of this report.

2.5 TRENDS IMPACTING FUTURE AIRPORT GROWTH

There are several factors that may influence aviation activity which are independent of airport activity. It is worthwhile to review outside influences to determine how they may impact future growth. These factors include socioeconomic growth, aviation trends, and neighboring airports. The purpose of this section is to provide an overview of what trends might impact demand and the associated needs of MRT. The COVID-19 pandemic has impacted all socioeconomic and aviation-related trends and pre-COVID projections are mostly irrelevant. The current reality is that many businesses' growth plans have been put on hold and a long economic recession appears to be inevitable, thus likely impacting all facets of aviation. However, MRT's diverse users make it poised for future growth in activity as new opportunities arise.

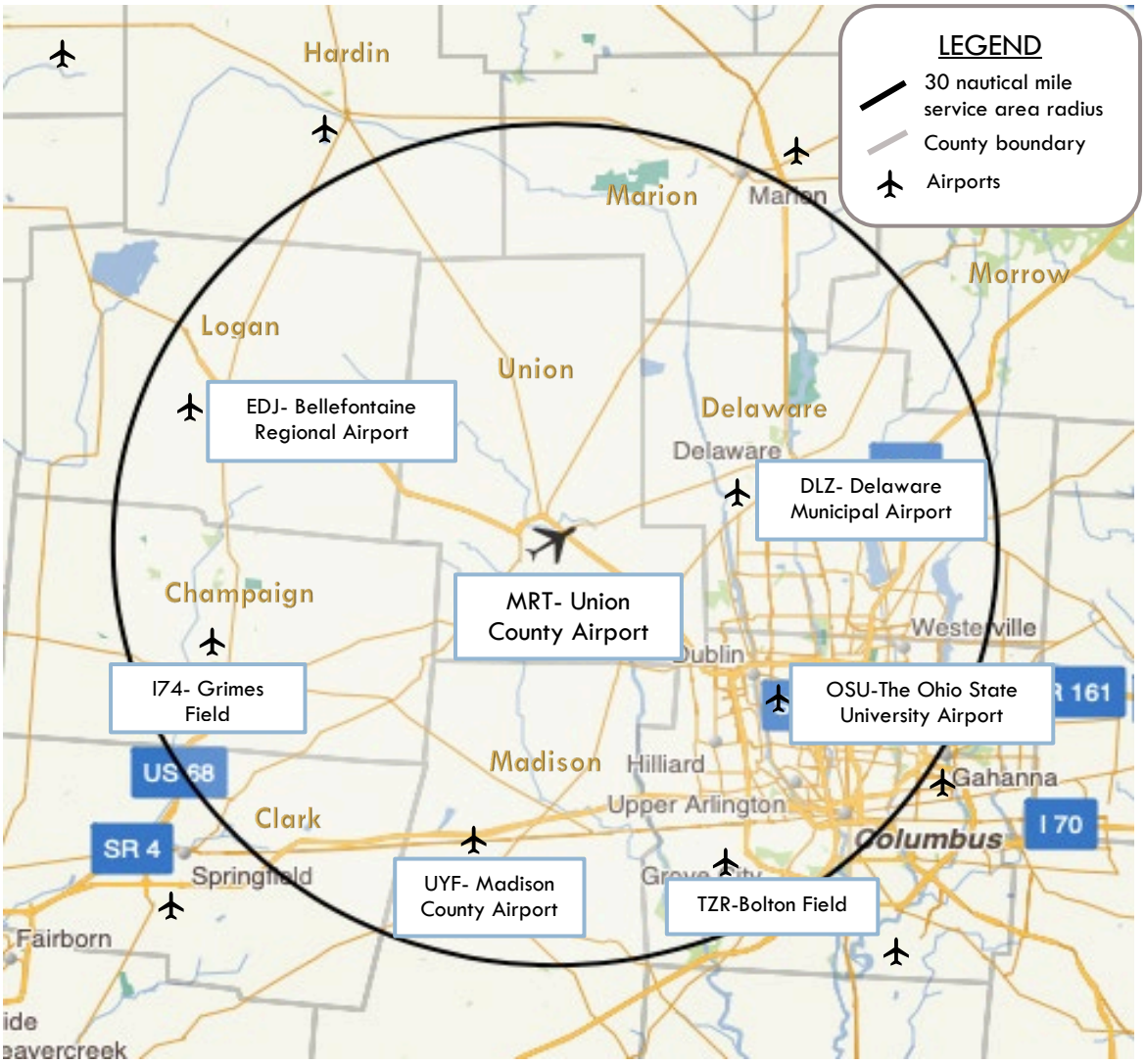
2.5.1 State, Regional, and Local Socioeconomic Growth

Demographic and socioeconomic characteristics are often collected and examined to derive an understanding of the dynamics of the business environment as well as historic and projected growth within the geographic area served by MRT.

Airport Service Area

The Airport's primary service area includes all of Union County, where the Airport is located, as well as northwestern Columbus including the towns of Hillard and Dublin. The 30 nautical mile radius encompasses parts of Franklin, Delaware, Morrow, Marion, Hardin, Logan, Clark, and Madison counties. The 30 nautical mile radius and the publicly-owned airports that are located within this radius are depicted in **Exhibit 2-2**.

Exhibit 2-2: Union County Airport Service Area



Source: Marr Arnold Planning.

Regional and Local Business Environment

Union County's overall economy is diversified with a balance of industrial, commercial, agricultural, and service-oriented companies. Union County provides businesses many advantages, including a diverse and highly-skilled workforce, a growing population, low cost of living and conducting business, and direct access to Columbus, the nation's 14th largest city.

The following facts are currently driving the county's success:

- **Industries:** Manufacturing, transportation, logistics, and research and development industries fuel a vibrant economy for commercial, retail and startup businesses of all kinds. Many of the major corporations are located along the US-33 corridor. Union County is also known for its agricultural production, alternative energy and life science industries. It is the home of the Ohio Quarter Horse Congress (Richwood), while the world headquarters for Select Sires, the Ohio Cattleman's Association and the Ohio Beef Council, are all located in Jerome Township. Additionally, The Ohio State University Veterinary Clinic is located in Marysville.

- **Ohio 33 Smart Mobility Corridor and the Transportation Research Center:** MRT and Union County are located along the 33 Smart Mobility Corridor, a 35-mile stretch of highway that is home to over 250 companies, including 70 automotive companies. The Corridor is a leading location in the U.S. for the testing of connected vehicle technology and home to one of most technologically-advanced automotive research facilities, the Transportation Research Center (TRC). Honda is currently constructing a $124 million wind tunnel at TRC to be used for automotive research and testing. In addition, DriveOhio and The Ohio State University's College of Engineering is currently studying the use of unmanned aircraft systems (UAS) to monitor traffic and roadway conditions from the air along the corridor. The success or the existing companies and projects and continued investment along the corridor solidifies the region as an major economic driver into the future.

- **Major Employers:** The top manufacturing and R&D companies in the county include:
    - Honda of America
    - Scotts Miracle-Gro
    - Continental
    - Transportation Research Center
    - Velocys
    - Environmental Management
    - Nestle Product Technology Center
    - Select Sires
    - Parker Hannifin Hydraulics

- **Job Growth:** According to the US Census Bureau, since 2010, total job growth in Union County has increased 12.2%, outpacing regional, state, and national averages. Between 2010 and 2017, Union County added 3,110 net new jobs. Over the last 10 years, the average unemployment rate has been well below regional, state, and national averages. The major companies not only employ thousands of Central Ohioans, but they have also spurred additional growth and development throughout Union County and the region.

Historic Socioeconomic Growth

Table 2-3 presents historic population, employment, and per capita income information for Union County, the Columbus MSA, Ohio, and the U.S. This information is used as one tool to assist in forecasting aviation demand. As of 2019, Union County was the 2nd fastest growing county in Ohio. Since 2000, Union County's population has increased 40% and there are more than 2.1 million residents within the Columbus MSA. From 2018 to 2019, Union County increased its number of housing units from 21,565 to 22,410, an almost 4% increase, making it one of the fastest growing counties in the country, ranking 13th in the U.S.

As shown in the table, population, employment, and per capita income in Union County and the MSA have grown since 1990, exceeding the growth experienced by the state and nation overall. Per capita income in Union County grew at an average annual rate of nearly 4% since 1990, higher than the growth experienced by the MSA, state, and U.S. overall. More recently since 2010, county population and per capita income continues to outpace the MSA, state and U.S., while employment growth is slightly under that experience by the entire MSA.

Table 2-3: Historic Growth in Population, Employment, and Per Capita Income

	Union County	Columbus MSA	Ohio	United States
Population				
1990	31,969	1,468,263	10,847,115	248,709,873
2000	40,909	1,682,068	11,353,140	281,421,906
2010	52,300	1,906,439	11,536,504	308,758,105
2019	58,980	2,122,271	11,689,100	328,231,337
AAGR 1990-2019	2.13%	1.28%	0.26%	0.96%
AAGR 2000-2019	1.94%	1.23%	0.15%	0.81%
AAGR 2010-2019	1.34%	1.20%	0.15%	0.68%
Employment				
1990	15,661	756,777	5,095,000	118,795,667
2000	21,476	878,809	5,546,000	136,931,727
2010	24,421	913,878	5,263,000	139,135,273
2019	28,041	1,059,463	5,609,000	157,610,636
AAGR 1990-2019	2.03%	1.17%	0.33%	0.98%
AAGR 2000-2019	1.41%	0.99%	0.06%	0.74%
AAGR 2010-2019	1.55%	1.66%	0.71%	1.39%
Per Capita Income (in current dollars, not adjusted for inflation)				
1990	$18,880	$19,242	$18,683	$19,621
2000	$26,766	$31,024	$28,671	$30,657
2010	$35,232	$38,542	$36,575	$40,547
2018	$55,470	$51,165	$48,793	$54,526
AAGR 1990-2018	3.92%	3.55%	3.49%	3.72%
AAGR 2000-2018	4.13%	2.82%	3.00%	3.25%
AAGR 2010-2018	5.84%	3.60%	3.67%	3.77%

Sources: U.S. Census Bureau, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis
Note: AAGR = Average Annual Growth Rate.

Current Socioeconomic Trends and Projected Growth

As shown in the table above, Union County has experienced higher than average socioeconomic growth in the last 30 years. However, the COVID-19 pandemic is leading to a prolonged economic recovery. There was again an increase in unemployment claims in July 2020[1], that unemployment will likely remain high into 2021 and hiring is anticipated to remain stagnant. Recent data also shows that consumer confidence fell in August 2020 to its lowest level since the pandemic started, due in part to the waning federal support for families and businesses.[2] Nearly every industry is impacted by the pandemic and are facing a great deal of uncertainty including those located in Union County including agriculture, manufacturing, healthcare, education, finance, hospitality and tourism, and research and development.

As mentioned previously, many of the socioeconomic projections developed pre-COVID are no longer relevant due to the pandemic and anticipated recession. However, for the purpose of this master plan, due to strong population growth and thriving economy, several assumptions were made that the economy in Union County will recover to Pre-COVID levels and grow, albeit at a slower rate than once projected.

[1] Schwartz and Hsu. *Unemployment Claims Rise as Rollout of $300 Benefit Lag*. https://www.nytimes.com/2020/08/20/business/economy/unemployment-claims.html
[2] Nielson. *The Conference Board Consumer Confidence Index Decreased in August*. https://conference-board.org/data/consumerconfidence.cfm

Future projections of the population and employment developed pre-COVID are presented in **Table 2-4.** Data was compiled from a variety of sources. As shown, according the Ohio Development Service Agency, population growth in Union County was projected to grow at approximately 1.15% per year on average between 2018 and 2038. This exceeds regional and state projections of growth. Employment growth for the Columbus MSA is anticipated to be approximately 0.87% per year through 2026 according to the Ohio Department of Job and Family Services, exceeding the state and US projected growth rates. These growth rates show that Union County and the Columbus MSA may be able to bounce back quicker than more economically depressed areas of the state and country.

Table 2-4: Projections of Population and Employment

Indicator	Area	Source	Time Frame	AAGR
Population				
	Union County	Ohio Development Service Agency	2018-2038	1.15%
	Columbus MSA	Ohio Development Service Agency	2018-2038	0.84%
	Ohio	Ohio Development Service Agency	2018-2038	0.04%
	U.S.	U.S. Census Bureau	2016-2040	0.61%
Employment				
	Columbus MSA	Ohio Dept. of Job and Family Services	2016-2026	0.87%
	Ohio	Ohio Dept. of Job and Family Services	2016-2026	0.43%
	U.S.	U.S. Bureau of Labor Statistics	2018-2028	0.52%

AAGR = Average Annual Growth Rate.

2.4.2 National General Aviation Trends

At the national level, fluctuating trends regarding general aviation usage and economic upturns/downturns have historically impacted general aviation demand. **Exhibit 2-3** presents pre-COVID trends in general aviation aircraft orders, active aircraft fleet, and operations. Pre-COVID, the FAA's 20-year projections of aircraft and operational activity were already conservative. The conservative approach will undoubtedly continue into the future.

Nearly all aspects of general aviation activity in 2020 have been impacted by the COVID-19 pandemic, turning many of the trends experienced over the prior decade upside down and leaving a lot of unknowns about the future of general aviation. A vaccine was aggressively rolled out in the U.S. in the first half of 2021 and confidence in travel is being restored. However it is difficult to estimate the full extent of the impact on the industry. Some segments of general aviation were hit harder than others. A summary of notable impacts on general aviation activities include:

- **Corporate**: The largest decline in general aviation were corporate-related air travel. Due to health concerns of face to face meetings, many business meetings once done in person went virtual or have been postponed until health concerns are eased. While there is some increased interest in new jet purchases for those that travel is essential for their jobs, this flying did not offset the decline in overall business flying.

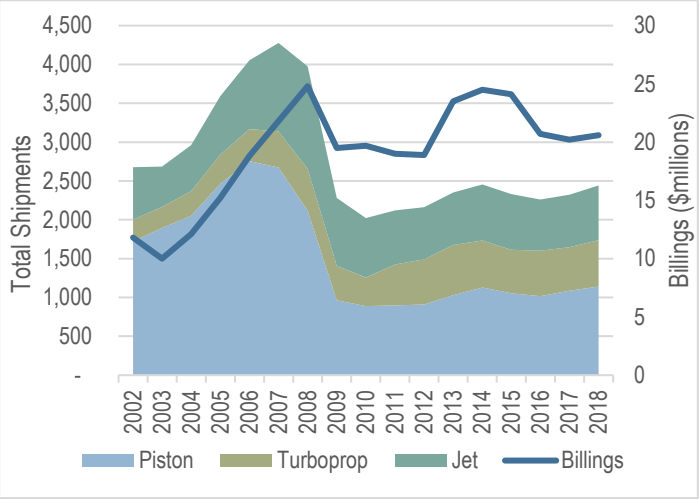
- **Air Charter:** Although they have been hit by a drop in corporate-related travel, companies such as NetJets, WheelsUp and Flexjet, saw an uptick in leisure travel in June and July 2020. A large portion of the charter growth (50-60%) is by first time customers[3], typically those with high net worth who can

[3] Sumers. *Private Jet Operators Are Stealing Passengers from U.S. Airlines*. https://skift.com/2020/08/19/private-jet-operators-are-stealing-passengers-from-u-s-airlines/

afford the convenience and safety provided by private aviation. Many private jet charter companies offered new programs including private jet membership, aircraft management, and even and whole aircraft sales as many of the new customers now look to become repeat customers.

- **Recreation**: Pilots with their own aircraft continued to fly recreationally or for commuting. Due to COVID, for some, the use of personal aircraft replaced the reliance on commercial air travel.
- **Agriculture:** Aerial application continued to be a strong segment of aviation as the need for most applications were not diminished during the pandemic.
- **Flight Training:** Despite the disruption of the pandemic, many flight schools around the country remained busy. There was an increased interest in general aviation flying as commercial service become a more difficult option for people flying with health concerns or as commercial service schedules were cut.

Exhibit 2-3: Pre-COVID General Aviation Trends and Projections

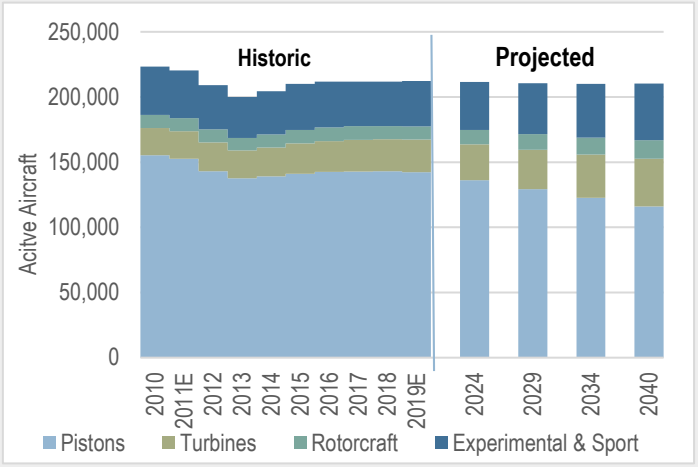


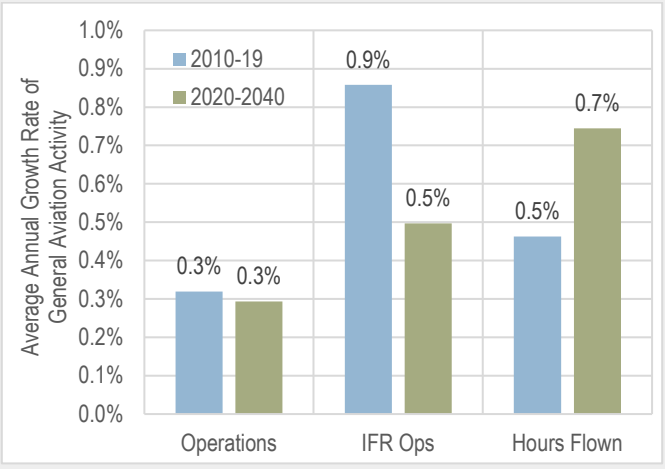
Slow Recovery of General Aviation Aircraft Shipments and Billings*

- Number of units produced fell beginning in 2007 due to economic downturn and escalating fuel prices and have not fully recovered. Single engine aircraft have taken the biggest hit.
- Between 2010 and 2018, production and billings have fluctuated slightly and have demonstrated an upward trend over the last 2 years.
- In 2018, piston shipments were up 6% from 2016, turboprops were up 2%, and jet shipments were up 3%. Billings unchanged due to the majority of the growth in lower priced piston aircraft.

Limited National Growth in Active Fleet over the Next 20 Years**

- 2010-2019: -0.8% average annual (AAGR^) decline in total aircraft, driven by -1.0% AAGR in single engine and multi-engine pistons.
- Projected growth in jets and turboprops offsets piston declines.
- Experimental and light sport aircraft[1] are growing in popularity and becoming an increasingly larger part of the GA fleet.
- 2020-2040 AAGRs:
  - Total aircraft: 0.0%
  - Single engine: -1.0%
  - Multi-engine: -0.5%
  - Turboprop: 1.2%
  - Jet: 2.2%
  - Rotorcraft: 1.6%
  - Experimental: 0.9%
  - Sport: 3.3%





Slightly Higher Growth Projected for General Aviation Activity**

- General aviation operations at towered airports to grow 0.3% per year, nearly the same growth as 2010-2019.
- General aviation instrument flight rules (IFR) operations to projected increase 0.5% per year.
- Hours flown by general aviation aircraft projected to increase 0.7% per year.
- 2020-2040 projected growth in turbine (2.2% AAGR), rotorcraft (2.1% AAGR), and experimental aircraft (1.6% AAGR) hours flown is expected to offset a decline in fixed wing piston hours flown (-0.9% AAGR).

Sources: * GAMA Quarterly Shipments and Billings; ** *FAA Aerospace Forecasts, Fiscal Year 2020-2040.*
Note: [1]Light sport aircraft are defined as 1-2 person simple-to-operate, easy-to-fly aircraft that have a max weight of 1,320 lbs.
AAGR = Average Annual Growth Rate.

2.4.3 Ohio Based Aircraft Trends

According to the FAA's TAF (published pre-COVID in January 2020), total based aircraft at Ohio's public use airports were approximately 4,613 in 2008. Over a ten-year period, total based aircraft in the State dropped to 4,262 in 2018, a decline of 8%. Much of this decline can be attributed to the FAA's rule on "Re-Registration and Renewal of Aircraft Registration" which corrected many registrations of unairworthy aircraft that had accumulated over the years. The FAA projects that "active general aviation aircraft" in Ohio will increase at a compound average annual growth rate of 0.6% from 2018 to 2038.

2.4.4 Regional General Aviation Airports

Another influential factor in determining future growth in airport operations is the proximity of nearby airports. As noted in **Table 2-5**, the neighboring airports within 30 nautical miles vary in size and activity. The airports are graphically depicted in Exhibit 2.2. Several airports in the region have longer runways and can more easily accommodate larger business jets including Delaware Municipal, Ohio State University, Bolton Field, and Bellefontaine Regional. When total based aircraft among all of airports in the area are considered, there are presently 468 based general aviation aircraft in the area. MRT accommodates 13% of the regional based aircraft and 8% of the regional operations.

Table 2-5: Regional Airport Summary

Airport	Primary Runway Length and Width	Based Aircraft	Annual Operations	Distance from MRT
Union County Airport	4,218' x 75'	59	23,750	
Delaware Municipal Airport	5,800' x 100'	90	39,420	11 nm NE
The Ohio State University Airport	5,004' x 100'	152	134,620	15 nm SE
Madison County Airport	4,001' x 75'	33	41,245	18 nm S
Grimes Field	4,400' x 100'	41	23,360	19 nm SW
Bolton Field	5,500' x 100'	64	22,630	22 nm SE
Bellefontaine Regional Airport	5,000' x 100'	29	8,395	23 nm NW
TOTAL		468	**293,420**	

Sources: MRT airport records, Airport IQ FAA 5010, AirNav.com.

2.2 INFLUENCE OF COVID-19 PANDEMIC ON PROJECTIONS

The COVID-19 pandemic caused a national and global health crisis in 2020. As a result of lockdowns, stay-at-home orders, and other restrictions, the pandemic caused a severe shock to the economy as well as air travel. Unlike previous crises experienced in the aviation industry, both aviation demand and supply were impacted due to consumer/passenger safety concerns and the suspension and restrictions of flights. Airlines made deep capacity cuts and grounded fleets. Nearly all aspects of corporate travel were suspended. Large gathering events like airshows were cancelled.

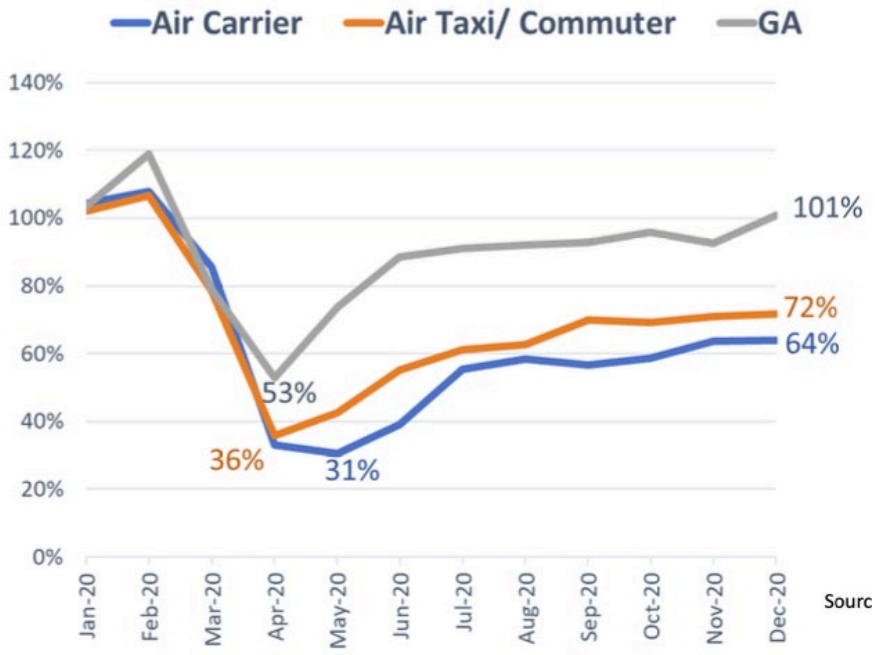
Although more cases of COVID-19 continue to be reported as of the writing of this chapter (June 2021), vaccinations in the U.S. were aggressively rolled out in the first half of 2021 and many of the safety restrictions have been lifted. Recreational and personal-related travel has picked up dramatically. However corporate and international travel, two key drivers for aviation, especially for commercial airlines, is still upended.

The pandemic has impacted MRT transient corporate operations, but operations by nearly every other segment of general aviation activity including recreation, flight training, and agriculture remained strong. The long-term implications of the pandemic and subsequent recession on the aviation industry are still largely unknown and that adds a level of uncertainty into these projections. Economic recovery to pre-crisis levels in the past have

ranged from three years post 9/11 to more than seven years after the financial crisis of 2008[4]. But the virus' impact to the economy and aviation is fundamentally different and much greater than any other crisis in history.

However, the aviation industry is resilient and it is anticipated that activity will return and exceed pre-pandemic levels. While there have been several rating agency and industry experts projecting the return to pre-COVID commercial service enplanement levels anywhere between 2022 and 2027[5], the return of general aviation activity has not been projected. This is likely due to the vast differences in impacts of the pandemic at general aviation airports from no impact to short term declines only to longer term declines. **Exhibit 2-4** presents a summary of operational changes at towered airports in the U.S. by types of activity. As shown, general aviation activity at towered airports fared better than commercial service activity and as of December 2020, had returned to pre-COVID levels.

Exhibit 2-4: U.S. Operations at Towered Airports as a % of Same Month in 2019



Source: FAA ATADS; Sharon Sarmiento, *Economic Conditions & Forecasting GA During Pandemic*, Airport Planning, Design, and Construction Symposium, March 2021.

The forecasts that are developed for MRT takes into consideration these recent trends in general aviation activity, COVID uncertainties, historical and regional economic trends, and the mix of operations. Based on information to date, the forecasts presented here assume that total general aviation operations at MRT were down around 20% in 2020 will return to pre-COVID levels by 2022. It is important to note that some airport development should occur when operational activity reaches certain planning milestones. Activity should be monitored to understand when these planning triggers are reached.

[4] Airlines for America, "Tracking the Impacts of COVID-19," June 18, 2020.

[5] Airlines for America, Impact of COVID-19: Data Updates (2020); S&P Global As COVID-19 Cases Increase, Global Air Traffic Recovery Slows (12 Nov, 2020), Moody's Investment Service, 2021 Outlook Negative with High Degree of Traffic Uncertainty, Airline Financial Health (1 Dec, 2020); FitchRatings Outbreaks, Travel Limits to Delay Global Air Traffic Recovery (12 Oct, 2020), IATA/Tourism Economics 'Air Passenger Forecasts' October 2020.

2.5 MRT FORECASTS

The general aviation facilities at an airport should accurately reflect the level and type of aviation activity. To assist in the Master Plan for MRT, forecasts of general aviation activity have been developed for the near-term (5 year), mid-term (10 year), and the long term (20 year) planning period. The general aviation activity categories forecasted include based aircraft, based aircraft fleet mix, total operations, local/itinerant split, operational fleet mix, and peak hour operations. Data collected at the Airport, FAA records of aircraft operations, historical aviation trends, and information collected through discussions with the Airport, Airport users, and local businesses have contributed to the forecast of future general aviation activity for MRT.

In a typical master plan study, projection methodologies are considered using straight-line methodologies by applying socioeconomic indicators, trends, and market share. Being in the midst of the COVID-19 pandemic and not yet knowing the true impact not only on aviation but on the local and US economy, a conservative approach has been adopted that accounts for possible short-term impacts to the economy and aviation. Based aircraft will remain constant until 2022 and it is assumed that general aviation operations will return to 2019 levels in 2022. All projection methodologies will assume that 2022 aircraft and activity will be equal to 2019 levels and projections of demand will begin in 2023.

An additional forecast alternative for based aircraft and operations is presented that takes planned T-hangar development at MRT into consideration. As of the fall of 2020, the county secured funding for a 14-bay T-hangar complex. Planning was underway to choose the best location that takes into consideration access and future development of the airport. It is anticipated that construction on the T-hangars will be completed mid-2022. These projections can be used for the development of future facilities.

2.5.1 Based Aircraft Forecast

Forecasting based aircraft requires the assumption that airport facilities will keep pace with and meet the demand for aviation use and those facilities will not limit the number of based aircraft to be accommodated in the future (i.e. unconstrained). Based on Airport estimates and the FAA's National Based Aircraft Inventory, a total of 62 aircraft are based at MRT as of November 2020.

- **Methodology 1 – MSA Employment Growth**: The Ohio Department of Job and Family Services projected Columbus MSA employment will grow at an average annual rate of 0.87% between 2016 and 2026. Employment tends to be one of the socioeconomic indicators closely correlated with aviation growth. This annual rate of growth has been applied to based aircraft between 2022 and 2040 to project based aircraft at MRT.
- **Methodology 2 – Graduated Socioeconomic Growth**: This projection utilizes the 0.87% MSA growth rate applied in Methodology 1. A growing percentage of this growth rate was applied to develop this projection: 25% of the rate was used from 2023-2025, 50% of rate was used from 2025-2030, 75% of the rate was used from 2030-2035 and the 0.87% annual growth rate (100%) was applied from 2035-2040. This projection allows aircraft to reach 65 based aircraft at the end of the representing an AAGR of 0.52%.
- **Methodology 3 – National Aircraft Growth**: The FAA projected total based aircraft at all public-use airports to grow at an average annual rate of -0.05% in its Aerospace Forecasts Fiscal Years 2020-2040. The rate of growth is applied to MRT's 2022 estimate of based aircraft to develop projections.
- **Methodology 4 – OH Focus Study Growth Rate**: The *Ohio Airports Focus Study*, published by the Ohio Department of Transportation in 2014, projected based aircraft to grow at 1.50% average annual growth. This was based on county population projections and the FAA's projected active aircraft. This growth rate was applied to the 2022 MRT based aircraft and allows aircraft to reach 77 based aircraft in 20 years.

The average annual growth rate for the four methodologies described above range from 0.00% to 1.35%. The projections are presented in **Table 2-6** and graphically depicted in **Exhibit 2-5.**

While all four methods provide an acceptable range of values, the graduated socioeconomic growth methodology (Methodology 2) was chosen as the preferred projection of based aircraft at MRT and results in a 20-year AAGR of 0.52%. Based on the recent economic growth, especially historic and projected population and employment growth in Union County, the preferred methodology is considered reasonable and takes into the consideration unknown impacts of the COVID-19 pandemic on aviation and the economy. It is important to note that there are currently 15 aircraft on the Airport's hangar waiting list.

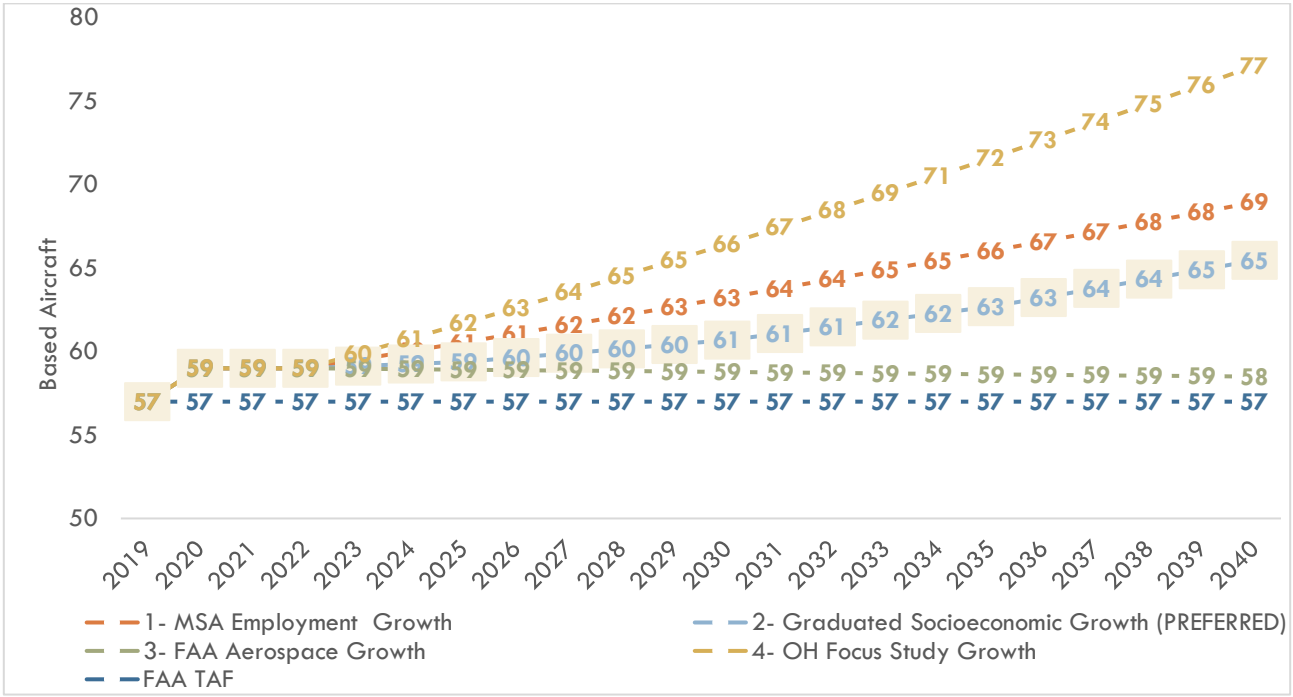
Table 2-6: Based Aircraft Forecasts

	Year	Method 1- Employment Growth	Method 2- Graduated Socioeconomic Growth (PREFERRED)	Method 3- National Aircraft Growth	Method 4- OH Focus Study Growth Rate
Historic	2020	59	59	59	59
Projected	2025	61	59	59	62
	2030	63	61	59	66
	2040	69	65	58	77
AAGR 2020-2040		0.78%	0.52%	0.00%	1.35%

Source: Marr Arnold Planning, 2020.
Note: Projected based aircraft have been rounded. AAGR = Average Annual Growth Rate.

Exhibit 2-5 also compares these methodologies to the FAA's Terminal Area Forecast (TAF) projections published in January 2020. The FAA TAF projects based aircraft to remain unchanged over the next 20 years. The preferred based aircraft projection for MRT is more aggressive than the TAF projections, which does not take the region's socioeconomic growth into consideration, but more conservative than the state projections included in the Ohio Airports Focus Study, which projected that aircraft at MRT would reach 77 by 2040.

Exhibit 2-5: Based Aircraft Projection Methodologies



Source: Marr Arnold Planning, 2020.

2.5.2 Based Aircraft Forecast Fleet Mix

The distribution of aircraft by number and type of engines is necessary in estimating the requirements for hangar and apron space. Consideration was given to the existing conditions and national trends, both historic and predicted, in the development of this forecast. The recommended forecast recognized that, nationally, the turboprop, business jet, light sport and experimental fleets are growing at a faster rate than the single-engine piston aircraft fleets.

The number of based aircraft is projected to increase by six aircraft from a total of 59 in 2020 to 65 by 2040. One additional jet and two multi-engine aircraft are projected to be based at MRT by 2040. (See **Table 2-7**). Single-engine aircraft are also expected to grow as they will continue to be a strong and part of the aircraft mix. The exact number and type of aircraft actually based at MRT in any of the planning periods may vary from what is shown. However, the total and mix of aircraft shown are a reasonable representation and may be adopted for planning purposes.

Table 2-7: Based Aircraft by Fleet Mix

	Year	Single-Engine	Multi-Engine	Jet	Helicopter	Total
Historic	2020	57	1	1	0	59
Projected	2025	57	1	1	0	59
	2030	58	2	1	0	61
	2040	61	2	2	0	65
Percent of Total						
Historic	2020	96.6%	1.7%	1.7%	0.0%	100%
Projected	2025	96.0%	1.7%	1.7%	0.0%	100%
	2030	95.6%	3.3%	1.6%	0.0%	100%
	2040	93.2%	3.1%	3.1%	0.0%	100%

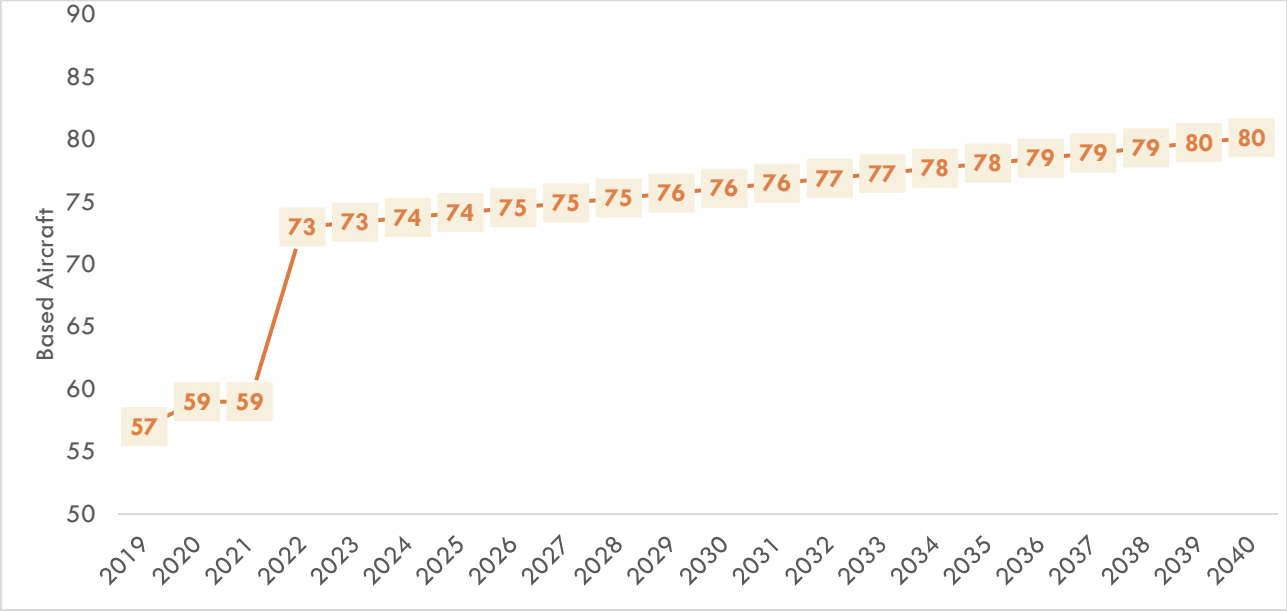
Source: Marr Arnold Planning, 2020.

2.5.3 Alternative Based Aircraft Projection

Plans to construct a new 14 bay T-hangar at MRT are currently underway as of the writing of this chapter. Construction is anticipated to be begin in Spring 2022 and completed in late Summer 2022. There are currently 30 people on the Airport's hangar waiting list. The list includes existing tenants that would like to purchase an additional aircraft, aircraft owners currently based at a nearby airport that would like to move to MRT, and people that would like to purchase an aircraft should a hangar become available at MRT. It is assumed that nearly all of the aircraft would be single-engine aircraft although the hangars would be large enough to accommodate a small twin-engine aircraft.

These additional aircraft will impact the projections presented above. An additional forecast alternative has been developed that includes the 14 aircraft that will be based at MRT beginning in 2022. The preferred growth rate (0.52% AAGR) was applied to the new based aircraft total of 73. The projected based aircraft for this alternative is presented in **Exhibit 2-6**. By 2040, MRT will reach 80 based aircraft under this scenario.

Exhibit 2-6: Alternative Based Aircraft Projection



Source: Marr Arnold Planning, 2020.

2.5.4 Operational Demand

The projections of operational demand at an airport are critical to determining the need for airside improvements. Total annual operations consist of several types of activities including air taxi, military, and general aviation. Although nighttime instrument operations are currently prohibited at MRT due to an obstruction located in the 20:1 approach surface to Runway 27, this is currently being addressed by the Airport and the FAA and will not impact projections of operations presented here.

Four methodologies were evaluated to project general aviation operations to ensure a reasonable forecast. For the purpose of this master plan, it was assumed that the 2019 estimate of annual operations (25,250) would be equal to the 2022 operations and projected growth would be applied to 2023 and beyond. Projections of general aviation operations were calculated for the next 20 years using these four methodologies:

- **Methodology 1 – Operations Per Based Aircraft**: This method examines operations per based aircraft (OPBA) ratio for the Airport and projects operations based on this ratio. MRT's 2019 operations per based aircraft ratio (427) was applied to the recommended forecast of based aircraft (population growth) noted in Table 2-6. This yields an average annual growth rate of 0.51%.
- **Methodology 2 –County Population Growth:** The Ohio Development Service Agency projects the population in Union County to grow at an average annual rate (AAGR) of 1.15% between 2018 and 2038. This rate of growth is applied to MRT's 2022 operations estimate to develop projections.
- **Methodology 3 – Ohio Airport Focus Study Growth Rate**: The *Ohio Airport Focus Study,* published in 2014, projected growth in MRT operations utilizing a bottom-up methodology. Based on their methodology, general aviation operations were expected to grow at 1.50% per year on average over the forecast period. This rate of growth was applied to the MRT's 2022 operations estimate to develop a projection through 2040.
- **Methodology 4 – National Growth in Operations at Towered Airports**: This method applies the projected growth in the national general aviation operations from the *FAA Aerospace Fiscal Years 2020-2040* to MRT operations to determine a projection of total airport operations. Although MRT does not have a

tower, this projection is one of the few general aviation operations projections developed on a national level and can be indicative of potential growth in general aviation activity even at non-towered general aviation airports across the country. This rate of conservative growth rate not reflect the strong socioeconomic growth of service area.

Table 2-8 presents the forecast of general aviation operations for the planning period. Of the four projections developed, the OPBA growth rate (Methodology 1) is the preferred forecast of general aviation operations for planning purposes at MRT. Operations are projected to grow at an average annual rate 0.51% and reach 28,100 annually by 2040.

MRT has a diversified user base of corporate activity, flight training, ag spraying, and recreational flying. Based on accommodating the general aviation needs of the region, Methodology 1's growth rate was chosen as the preferred methodology. It is considered reasonable yet conservative, albeit higher than national projections.

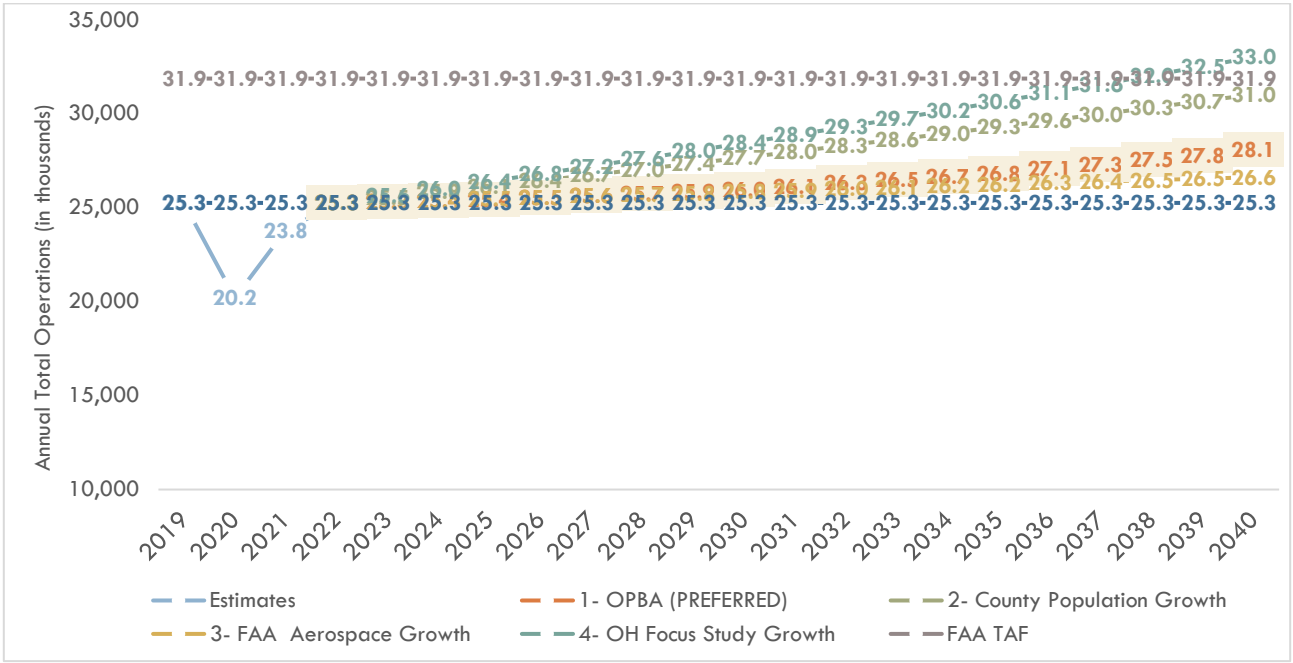
Table 2-8: General Aviation Operations Forecasts

	Year	Method 1- OPBA (PREFERRED)	Method 2- County Population Growth	Method 3- FAA Aerospace Growth	Method 4- Ohio Focus Study Growth
Historic	2019	25,250	25,250	25,250	25,250
Projected	2025	25,500	26,200	25,500	26,500
	2030	26,000	27,700	25,900	28,500
	2040	28,100	31,100	26,700	33,100
AAGR 2019-2040		0.51%	0.98%	0.25%	1.28%

Source: Marr Arnold Planning, 2020.
Note: Projections have been rounded. AAGR=Average Annual Growth Rate.

Exhibit 2-7 graphically depicts the four projection methodologies as well as the FAA TAF projections. As shown, estimates of operations have been made from 2020 to 2022 showing the decline in operations due to the COVID-19 pandemic and anticipated recession. The FAA projects operations at MRT to remain unchanged over the forecast period.

Exhibit 2-7: Comparison of General Aviation Operations Projections



Source: Marr Arnold Planning and FAA TAF, 2020.

2.5.5 Local and Itinerant Operations

Aircraft operations are divided into two types: local and itinerant. Local operations are classified as arrivals and departures of aircraft that operate in the local traffic pattern or within sight of the airport. Local operators are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport, or they have simulated approaches or low passes at the airport. Itinerant operations are defined as all other operations other than local. At MRT, itinerant operations are categorized as military or general aviation. Air taxi operations, often referred to as air charter operations, are those operations conducted by turbine aircraft with greater than six seats operating under FAR Part 135 or Part 91/91K flight rules are included in general aviation itinerant operations.

Based on the 2019 operations type estimate developed for the Master Plan, the current ratio of local to itinerant general aviation operations is 55% local and 45% itinerant. This ratio is based on the expected to continue throughout the study period as shown in **Table 2-9**. This growth correlates with the growth in both projected business travel (itinerant) and continued growth by aerial application operations and flight training (local).

Table 2-9: General Aviation Operations Forecast by Type

	Year	ITINERANT			LOCAL			Total Operations
		General Aviation	Military	Total Itinerant	General Aviation	Military	Total Local	
Historic	2019	10,000	1,250	11,250	14,000	0	14,000	25,250
Projected	2025	10,110	1,250	11,360	14,140	0	14,140	25,500
	2030	10,330	1,250	11,580	14,420	0	14,420	26,000
	2040	11,270	1,250	12,520	15,580	0	15,580	28,100

Source: Marr Arnold Planning, 2020.

2.5.6 Peak Hour Operations

Another primary consideration for facility planning at airports relates to peak hour, also referred to as design level activity. This operational characteristic is important to understand because some facilities should be sized to accommodate the peaks in activity, for example, the aircraft apron or terminal areas.

Forecasts were developed for peak month, peak day, and peak hour. The number of general aviation operations occurring during the peak month and hour were estimated based on discussions with the Airport. Peak season, which takes place from between May and September, when there is an increase in flight training, aerial application, and recreational activity due to the weather. Typically, the busiest month averages between 9 and 13 percent of annual operations. For this analysis, the following assumptions were made:

- Half of all annual operations occur during a 5-month period, which equates to the peak month accounting for 10 percent of annual operations.
- There are 30 days in a month.
- The peak day is 15% higher than an average day.
- The peak hour is 15% of the peak day operations.

The results of this analysis are shown in **Table 2-10.**

Table 2-10: Peak Period Forecasts

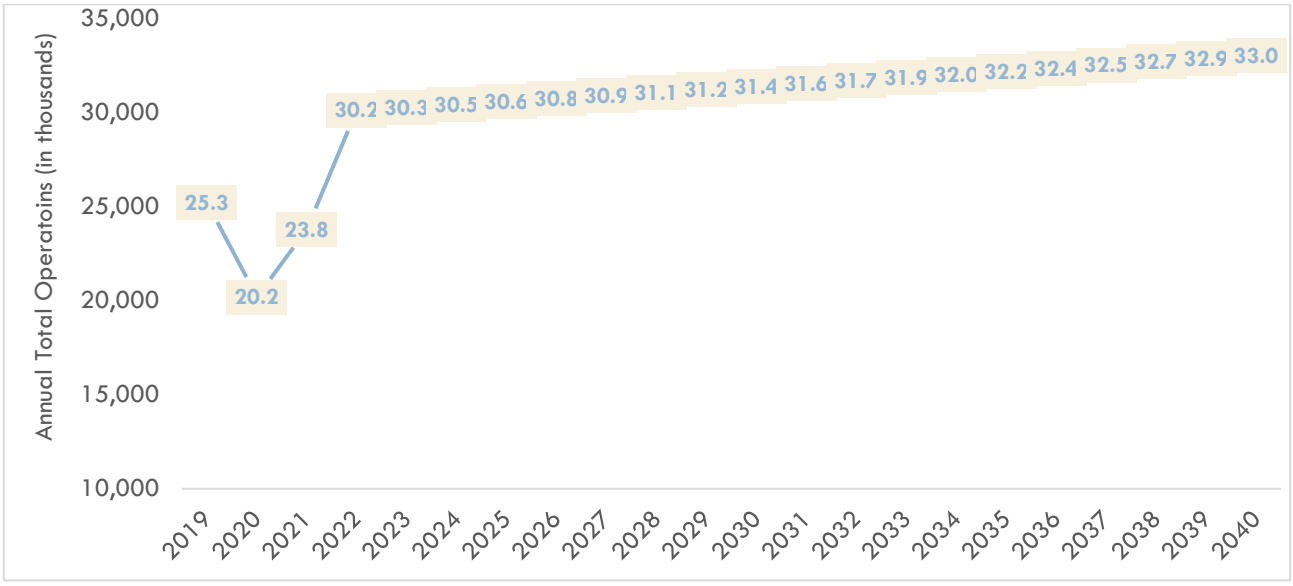
	Year	Annual Operations	Peak Month	Peak Day	Peak Hour
Historic	2019	25,250	2,525	97	15
Projected	2025	25,500	2,550	98	15
	2030	26,000	2,600	100	15
	2040	28,100	2,810	108	16

Source: Marr Arnold Planning, 2020.

2.5.6 Alternative Operations Projection

Based on the 14 additional aircraft that are anticipated to be based at MRT by the end of 2022 as noted in Section 2.5.3, there will be additional operations associated with those new aircraft. Using FAA guidance for estimating aircraft operations (FAA Order 5090.5 Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP)), 350 annual operations are estimated to be associated with each new aircraft. This equates to an additional 4,900 operations at MRT in 2022, for a total of 30,150 annual operations. **Exhibit 2-8** presents the alternative operations projection based on this new total in 2022. The annual growth rate of the preferred projection (0.51% AAGR) was then applied to this new total to derive the alternative projection scenario. Operations will reach 33,100 annual operations by 2040 under this scenario.

Exhibit 2-8: Alternative Operations Projection



Source: Marr Arnold Planning, 2020.

3.6 CRITICAL AIRCRAFT

Knowledge of the types of aircraft currently using, and those that are expected to use MRT provides insight concerning the Runway Design Code (RDC). FAA Advisory Circular 150/5300-13A, Change 1, Airport Design, provides guidance for this determination. The RDC is based on the "Design Aircraft" that is determined the most critical aircraft, or group of aircraft, using or projected to use a runway on a regular basis. A number of FAA guidance documents define regular basis as 500 or more annual operations (landing and takeoffs are considered as separate operations). It is important to note that the 500 annual operations substantial use threshold is not a cap or limit on aircraft operations, but rather a planning metric for consideration of the

potential need to upgrade airport facilities. The design aircraft can be only one aircraft or a composite of more than one aircraft representing the highest Aircraft Approach Category (AAC) and Airplane Design Group (ADG).

The selected AAC and ADG are combined to form the Runway Design Code (RDC) of a particular runway. The RDC provides the information needed to determine the dimensional criteria standards that apply to that runway. The first component, depicted by a letter, is the AAC and relates to the aircraft approach speed. The second component, depicted by a roman numeral, is the ADG and relates to the aircraft wingspan, and tail height. The AAC and ADG are presented in **Table 2-11** and **2-12**.

Table 2-11: Aircraft Approach Category (AAC)

AAC	Approach Speed
A	Approach speed less than 91 knots
B	Approach speed 91 knots or more but less than 121 knots
C	Approach speed 121 knots or more but less than 141 knots
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

Source: FAA AC 150/5300-13A, Airport Design, Change 1, February 2014.

Table 2-12: Airplane Design Group (ADG)

ADG	Tail Height	Wing Span
I	Less than 20 Feet	Less than 49 Feet
II	Greater than 20, but less than 30 Feet	Greater than 49, but less than 79 Feet
III	Greater than 30, but less than 45 Feet	Greater than 79, but less than 118 Feet
IV	Greater than 45, but less than 60 Feet	Greater than 118, but less than 171 Feet
V	Greater than 60, but less than 66 Feet	Greater than 171, but less than 214 Feet
VI	Greater than 66, but less than 80 Feet	Greater than 214, but less than 262 Feet

Source: FAA AC 150/5300-13A, Airport Design, Change 1, February 2014.

As discussed earlier, the FAA's TFMSC database provides traffic counts by airport and includes data for flights that interact with the National Airspace System, usually via radar, talking to an air traffic control tower, or filing a flight plan. Due to factors such as incomplete flight plans and limited radar coverage, TFMSC data does not account for all aircraft activity at an airport. For example, the aerial spraying operations and touch and go training operations MRT are not captured in this data. However, this information allows us to estimate and extrapolate aircraft activity for planning purposes.

Table 2-13 summarizes the IFR operations at MRT by aircraft AAC and ADG over the last three calendar years and year to date 2020 as recorded in the FAA's TFMSC database. According to the data, in 2019 there were 52 unique aircraft types that operated at MRT. There was a total of 1,016 IFR operations reported at MRT in 2019. More recent activity is likely been impacted the restriction of nighttime IFR operations at MRT due to obstructions in the approach to Runway 27. The Airport is currently working with the FAA remove this restriction. **Table 2-14** presents MRT's IFR operations the by ARC and aircraft type from 2019.

Table 2-13: Summary of Aircraft Operations at MRT by ARC

AAC + ADG		2017	2018	2019	YTD 2020 (Jan-Jul)
A-I		590	610	562	226
A-II		16	14	4	2
B-I		46	36	10	4
B-II		392	464	422	130
C-II		4	-	-	4
Other/Unknown		40	24	18	12
Total Operations		**1,088**	**1,148**	**1,016**	**378**
Subtotals by AAC	A	606	624	566	228
	B	438	500	432	134
	C	4	-	-	4
Subtotals by ADG	I	636	646	572	230
	II	412	478	426	136

Source: FAA TFMSC database, FAA AC 150/5300-13A Appendix 1.

Table 2-14: Summary of Aircraft Operations by Aircraft Reference Code (2019)

A-I		A-II	
BE36 - Beech Bonanza 36	114	PC12 - Pilatus PC-12	4
BE35 - Beech Bonanza 35	108	**Total A-II**	**4**
TBM7 - Socata TBM-7	64		
C182 - Cessna Skylane 182	42	**HELICOPTERS**	
C82T - Skyland RG,Turbo	22	EC45 - Eurocopter EC-145	2
RV6 - AIEP Air Beetle	20	EXP - McDonnell MD-902 Explorer	2
TBM9 - Socata TBM	20	**Total Helicopter**	**4**
C172 - Cessna Skyhawk 172/Cutlass	16		
C310 - Cessna 310	16		
Other A-I	140		
Total A-I	**562**		
B-I		**B-II**	
C340 - Cessna 340	4	C25C - Cessna Citation CJ4	348
BE40 - Raytheon/Beech Beechjet 400/T-1	2	C25B - Cessna Citation CJ3	24
C501 - Cessna I/SP	2	BE20 - Beech 200 Super King	16
C525 - Cessna CitationJet/CJ1	2	C550 - Cessna Citation II/Bravo	12
Total B-I	**10**	BE30 - Raytheon 300 Super King Air	10
		C208 - Cessna 208 Caravan	4
		Other B-II	6
		Total B-II	**422**
TOTALS			
Total Unknown	14		
Total All Records	**1,016**		

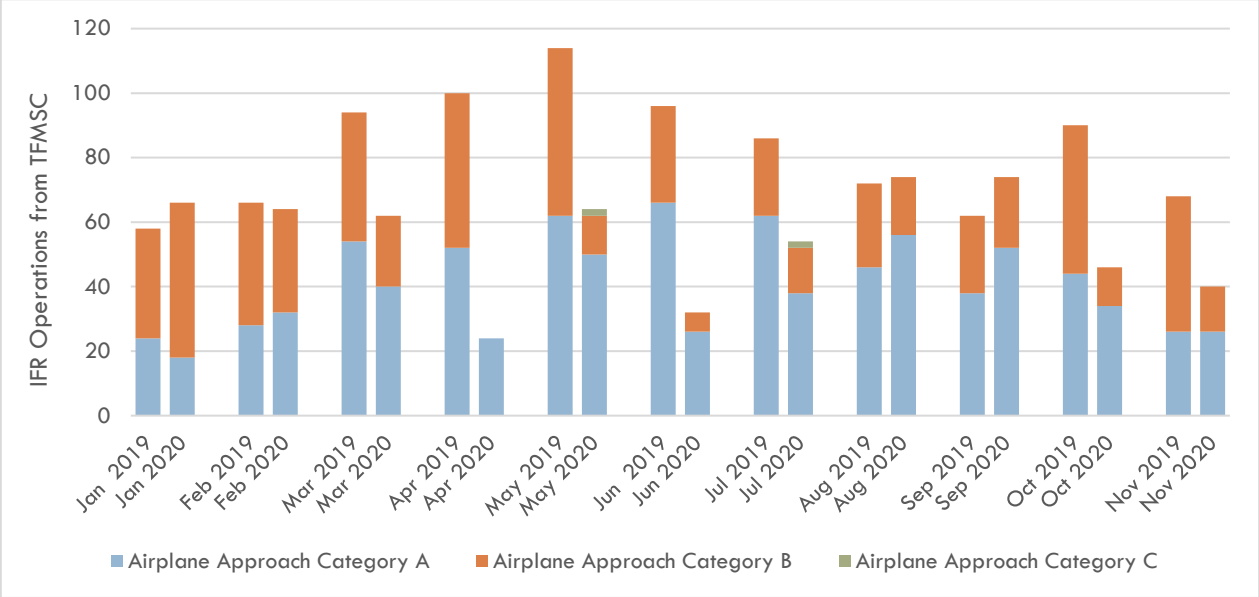
Source: FAA TFMSC database, FAA AC 150/5300-13A Appendix 1, and Marr Arnold Planning, 2020.

According to the TFMSC data, there have been between 400 and 500 annual operations by B approach category aircraft and by design category II aircraft in in 2017, 2018, and 2019. The Cessna Citation CJ4, operated by Scott's Miracle-Gro, accounted for 348 of the 418 B-II operations (83%) in 2019. In addition, one of the major aerial applicators that utilize MRT, Fisher's Ag Service, operates Air Tractors, including the 802, which is categorized as a B-II aircraft. The FBO at MRT, SkyVista estimates around 600 operations by Fisher's Ag Service

each year to spray seed, fertilizer and fungicides on nearby wheat, corn, and soybean farmland. These are VFR operations and are not captured in the FAA's TFMSC database. Based on IFR data and aerial application operations, the existing critical aircraft and RDC for Runway 09/27 is a B-II.

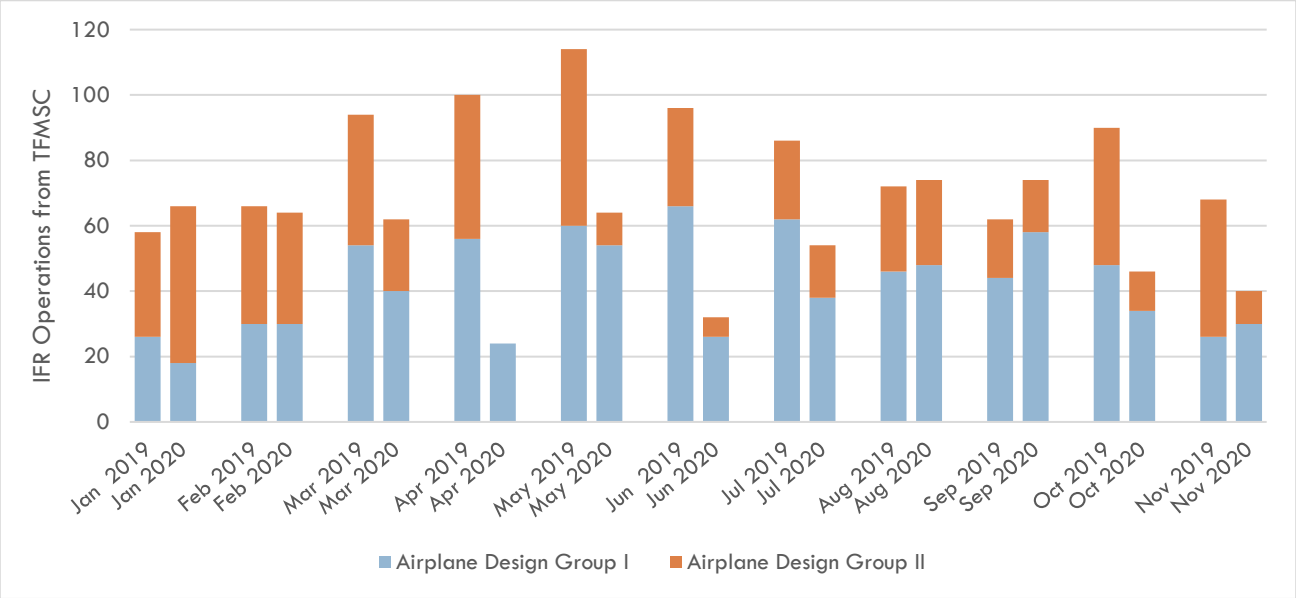
There has been a decline in operations as reported by TFMSC in 2020 due to the COVID-19 pandemic. A monthly summary of the change TFMSC data from 2019 to 2020 by AAC is presented in **Exhibit 2-9** and the summary by ADG is presented in **Exhibit 2-10** Scott's Miracle-Gro administrative offices, based in Marysville, has had employees working remotely as much as possible during the pandemic so the trips to town by the CEO (typically utilizing the CJ4 aircraft) have been less frequent. However, Scott's Miracle-Gro has made many changes internally to keep up with growing demand that will ensure the company's success.[6] The CEO recognizes the benefit of utilizing general aviation and it is anticipated that these operations will return. Aerial application at MRT has not been impacted by the COVID-19 pandemic and SkyVista Aviation estimated that there will be 600 operations by Fisher's Ag Service Air Tractor 802 again in 2020.

Exhibit 2-9: Monthly Changes in Reported IFR Operations by AAC



[6] Ghose. *Here's Why Scotts Miracle-Gro Thinks It Will Emerge From The Pandemic A Stronger Company.* https://www.bizjournals.com/columbus/news/2020/05/07/heres-why-scotts-miracle-gro-thinks-it-will-emerge.html

Exhibit 2-10: Monthly Changes in Reported IFR Operations by ADG



Source: FAA TFMSC database.

3.7 SUMMARY OF AVIATION FORECASTS

These forecasts indicate all aspects of aviation demand at the Airport will continue to grow during the planning period. MRT will continue to support its diverse tenants and users use while embracing the region's growing aviation needs. Ongoing development of facilities will enable the Airport to continue to accommodate the growth in aviation demand and contribute to the economic vitality of the region. Additionally, the B-II family of aircraft has been determined to be the existing and future critical aircraft.

The forecasts were based on the most recent data available at a particular point in time and adequately describe future conditions concerning MRT. Aviation activity and forecasts need to be monitored to ensure validity as time and other influences dictate. Facility requirements and plans will be presented in future chapters of this Master Plan.

Table 2-15 compares the recommended forecasts to the FAA's Terminal Area Forecast (TAF). MRT currently has two additional based aircraft than shown in the TAF. The operations estimates for 2019 are lower than reported by FAA TAF. The total operations counts in the TAF had not been updated since 2005. This master plan provides a new estimate of operations based on discussions with Airport management and tenants regarding Airport activity.

The TAF projects based aircraft and operations to remain unchanged through 2040. The recommended master plan forecasts for based aircraft are conservatively more aggressive than the FAA's TAF projections for the Airport, while the operations are well under what is reported in the TAF. As shown in the table, based aircraft and operations are within 10% of the TAF projections within the 5-year planning period and are within 15% of the TAF 10-year planning period projection. The master plan's projections are considered to be reasonable due to regional socioeconomic growth and continued strong corporate use of MRT.

Table 2-15: Recommended Forecasts Compared to TAF Forecasts

Forecast Element	Year	Recommended Forecast	TAF Forecast	% Difference
Based Aircraft				
Base Year	2020	59	57	3.5%
Base Year + 5 Years	2025	59	57	4.2%
Base Year + 10 Years	2030	61	57	6.5%
Base Year + 15 Years	2035	63	57	10.0%
Base Year + 20 Years	2040	65	57	14.9%
AAGR 2020-2040		0.52%	0.00%	
Total Operations				
Base Year	2019	25,250	31,886	-20.8%
Base Year + 5 Years	2025	25,500	31,886	-20.0%
Base Year + 10 Years	2030	26,000	31,886	-18.5%
Base Year + 15 Years	2035	26,900	31,886	-15.6%
Base Year + 20 Years	2040	28,100	31,886	-11.9%
AAGR 2019-2040		0.51%	0.00%	

Source: Marr Arnold Planning and FAA Terminal Area Forecasts, 2020.

Chapter 3: Environmental Overview

3.1 Introduction

Any time Federal Aviation Administration (FAA) funding is used for airport development projects, an environmental approval is required. As part of the environmental overview process, the FAA has issued orders 1050.1F, Environmental Impacts: Policies and Procedures and FAA Order 5050.4B, National Environmental Act (NEPA) Implementing Instructions for Airport Action to establish standardized guidelines for complying with the National Environmental Policy Act of 1969 (NEPA).

While the environmental overview itself will not satisfy all the NEPA requirements, it is a tool to be utilized as a preliminary review of the environmental considerations that will be studied in detail during the NEPA process. The purpose of the NEPA process is to identify, minimize, and mitigate potential environmental impacts as part of the initial planning process. Any time preferred development alternatives are designed at the Union County Airport (MRT), it is important to comply with the environmental overview process early on to determine the specific level of environmental analysis that will be necessary for these developments before construction can begin. NEPA provisions require federal agencies funding or approving a development proposal to make their decisions in a way that will protect, restore, and enhance the environment by first understanding the potential impacts of a proposed project.

The FAA Order 1050.1F, identifies specific impact categories that must be considered in the environmental review process. These categories are outlined in **Exhibit 3.1-1** below.

Exhibit 3.1-1: Environmental Impact Categories

NEPA Categories
1. Air Quality
2. Biological Resources (Including Fish, Wildlife, and Plants)
3. Climate
4. Coastal Resources
5. Department of Transportation Act, Section 4(f)
6. Farmlands
7. Hazardous Materials, Solid Waste, and Pollution Prevention
8. Historical, Architectural, Archaeological, and Cultural Resources
9. Land Use
10. Natural Resources and Energy Supply
11. Noise and Compatible Land Use
12. Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks
13. Visual Effects (Including Light Emissions)
14. Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Source: Federal Aviation Administration, Order 1050.1F: *Environmental Impacts: Policy and Procedures*, July 16, 2015

The end of this chapter will contain a summary of all the issues identified during this overview of concerns pertinent to proposed developments on airport property.

3.2 Airport Master Plans

Change 2 to the Federal Aviation Administration (FAA) Advisory Circular AC 150/5070- 6B, Airport Master Plans, provides guidance for including environmental conditions worthy of consideration when designing development alternatives at an airport. In order to reduce impacts to the environment, it is important that consideration be given to these environmental issues. As development alternatives are designed through the planning process at MRT, the issues identified in this chapter should be incorporated into all design considerations early in the planning process.

3.3 Level of Review

Upon determining that NEPA applies to a proposed action, the FAA will decide on the appropriate level of review. The three levels of NEPA review are Categorical Exclusions (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Each of the three types of review are described in the sections below in further detail.

3.3.1 Categorical Exclusion (CATEX)

A CATEX is a category of actions that neither individually nor cumulatively effect the human environment in a significant way and has no extraordinary circumstances, therefore neither an EA nor an EIS is required for these categories of actions. A CATEX is not an exemption or a waiver from the NEPA review process. It is itself a level of NEPA review. See Chapter 5 of Order 1050.1F for further information on CATEXs.

3.3.2 Environmental Assessment (EA)

An EA is used to determine if a proposed action has the potential to significantly impact the human environment. An EA is a concise public document that briefly provides evidence and analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI). An EA must be prepared when the proposed action does not normally require an EIS and does not fall within the scope of a CATEX or falls within the scope of a CATEX but has extraordinary circumstances.

3.3.3 Extraordinary Circumstances

Extraordinary circumstances are situations which cause a normally categorically excluded action to have a significant environmental impact that may require further analysis in the form of an EA or EIS. For all proposed actions receiving FAA funding, extraordinary circumstances exist when the proposed action fulfills both of the following criteria even if it otherwise would qualify under one or more CATEX categories (see 40 CFR § 1508.4, CEQ Regulations). (See **Exhibit 3.3.3-1**)

Exhibit 3.3.3-1: Extraordinary Circumstances

An extraordinary circumstance exists if a proposed action involves any of the following circumstances and has the potential for a significant impact:
1. An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended, 54 U.S.C §300101 et seq.
2. An impact on properties protected under Section 4(f)
3. An impact on natural, ecological, or scenic resources of Federal, state, tribal or local significance
4. An impact on resources protected by the Fish and Wildlife Coordination Act, 16 U.S.C. §§ 661-667d, wetlands, floodplains, coastal zones, national marine sanctuaries, wilderness areas, National Resource Conservation Service- designated prime and unique farmlands, energy supply and natural resources, resources protected under the Wild and Scenic Rivers Act, 16 U.S.C. §§ 1271- 1287, rivers or river segments listed on the Nationwide Rivers Inventory (NRI), and solid waste management.

5.	A division or disruption of an established community, or a disruption of orderly, planned development, or an inconsistency with plans or goals that have been adopted by the community in which the project is located.
6.	An increase in congestion from surface transportation (by causing decrease in level of service below acceptable levels determined by appropriate transportation agency, such as a highway agency).
7.	An impact on noise sensitive areas.
8.	An impact on air quality or violations of Federal, state, tribal or local air quality standards under the Clean Air Act, 42 U.S.C. §§ 7401-7671q.
9.	An impact on water quality, sole source aquifers, a public water supply system, or state or tribal water quality standards established under the Clean Water Act, 33 U.S.C. §§ 1251-1387, and the Safe Drinking Act, 42. U.S.C. §§ 300f- 300j-26
10.	Impacts on the quality of the human environment that are likely to be highly controversial on environmental grounds. See Order 1050.1F paragraph 5- 2.b(10) for specifics involving the definition of "highly controversial".
11.	Likelihood to be inconsistent with any Federal, state, tribal or local law relating to the environmental aspect of the proposed action.
12.	Likelihood to directly, indirectly or cumulatively create a significant impact on the human environment.

Source: Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*

3.3.4 Environmental Impact Statement (EIS)

The FAA must prepare an EIS for actions significantly impacting the quality of the human environment. An EIS is a detailed written statement required under section 102(2)C of NEPA when one or more environmental impacts would be significant and mitigation measures cannot reduce the impact(s) below significant levels. Direct, indirect and cumulative impacts must be considered when determining their significance.

3.3.5 Finding of No Significant Impact (FONSI)

If, during the NEPA process an FAA official reviews a proposed action and an EIS is not appropriate, a FONSI will be produced. The FONSI is a written notice from the FAA concurring with the airport's determination that no significant environmental impacts are caused by the proposed action.

3.4 Environmental Review Categories

Any developments considered for MRT should fully consider the environmental categories listed in **Exhibit 3.1-1** and ensure that they are fully analyzed for potential impacts. The remainder of this chapter provides an overview of these categories and the issues to be considered during project development at MRT.

3.4.1 Air Quality

The Clean Air Act (CAA) of 1970 as amended in 1990, 40 CFR part 50, National Ambient Air Quality Standards, provides the standards by which air quality is rated. These are referred to as the National Ambient Air Quality Standards (NAAQS). These standards outline the maximum healthy concentration for criteria pollutants in the ambient air focusing only on carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), coarse particulate matter (PM10), fine particulate matter (PM2.5), ozone (O3), lead (Pb), etc., as described below. The enforcement of the NAAQS was delegated to the states by the U.S. Environmental Protection Agency (USEPA) although the EPA has established general uniformity regulations including the limits for the NAAQS. Section 176(c) of the Clean Air Act Amendment 1977 required the FAA to ensure all airport improvement projects result in an increase in aircraft or automobile exhaust complying with the standards established by the USEPA and the local agencies in each state. The pollutant categories associated with air quality include the following:

Carbon Monoxide (CO): CO is a colorless, odorless gas emitted during certain combustion processes. Nationally, especially in metropolitan regions, the majority of CO emissions come from mobile sources. Exposure to CO can cause serious health effects by reducing overall oxygen availability to the body's organs and tissues. At high levels, CO can be fatal to those exposed to it.

Ozone (O3): O3 is a major component of smog. When in the upper atmosphere, ozone occurs naturally and protects the environment from the negative impacts caused by intense ultraviolet (UV) radiation. Ozone at ground level; however, is a noxious pollutant. Ground level ozone is not directly emitted by any singular source, but it is produced from the reaction between nitrogen oxides (NOx) and volatile organic compounds (VOC). Ozone is an irritant, responsible for the respiratory issues and eye irritation caused by high levels of smog. Before 2015, ozone standards were measured in the 1-hour and 8-hour periods. In 2015, the EPA revised their standards to consider only 8-hour ozone.

Nitrogen Dioxide (NO2): Scientific research correlates NO2 exposures with adverse respiratory effects, even in otherwise healthy individuals, and increased symptoms in people with asthma.

Sulfur Dioxide (SO2): SO2 is a group of highly reactive gasses generally produced by power plants and other industrial facilities. SO2 has been linked with several negative health impacts in the respiratory system.

Particulate Matter (PM): PM is a mixture of solid and liquid particles and droplets found in the air. They come in a vast range of sizes and can remain suspended in the air for various periods of time. PM can be either emitted directly or formed in the upper atmosphere. The EPA breaks particulate matter down into coarse particulate matter (PM10) and fine particulate matter (PM 2.5).

Coarse Particulate Matter (PM10): Ten micrometers is less than the width of a human hair. As a result of this, any particulate matter less than this size can get into the human respiratory tract, causing health problems for the people exposed to it.

Fine Particulate Matter (PM2.5): Even smaller than course particulate matter, fine particulate matter also poses significant health risks to organisms who come in contact with it. PM2.5 generally yields respiratory and cardiovascular distress and even mortality.

Lead (Pb): Pb is found naturally in the environment as well as being included in a number of manufactured products and lead-based paints and fuels. Exposure to Pb can have seriously adverse effects on the nervous system, kidneys, immune system, reproductive system, cardiovascular system and can reduce the oxygenation of the blood.

MRT is located within Union County, Ohio, and Union County is in attainment per the U.S. Environmental Protection Agency (USEPA), 40 CFR § 81.336[1]. The FAA Environmental Desk Reference for Airport Actions[2] states an air quality analysis for NEPA purposes is required for a project if it is at a general aviation airport that has at least 180,000 annual general aviation and air taxi annual operations. It may also be required if the airport is in an air quality non-attainment are or in a maintenance area. It is unlikely that any foreseeable projects at MRT would impact air quality, but air quality needs and permitting for future projects should be reexamined at the time a project is programmed for funding if the airport operations come close to the operational thresholds detailed in the FAA Environmental Desk Reference for Airport Actions.

3.4.2 Biological Resources (Including Fish, Wildlife, and Plants)

Section 7 of the Endangered Species Act of 1973 (16 USC 1531 et seq.) requires notification of Federal agencies to ensure that any impacts to rare, threatened and endangered (T&E) species of flora and fauna and their critical habitats are identified to avoid jeopardizing the existence of each species. The governing authority in the state of Ohio that has the resources to coordinate T&E species concerns with local development projects is the Ohio Department of Natural Resources (ODNR).

Review of the websites for the ODNR and the United States Fish and Wildlife Service (USFWS) yields **Exhibit 3.4.2-1** below, which lists both state and federally-listed threatened and endangered species that may inhabit

[1] U.S. Environmental Protection Agency (USEPA), 40 CFR § 81.336, Subpart C – Section 107 Attainment Status Designations, (e-CFR data current as of April 2, 2020), (accessed January 2022)
[2] https://www.faa.gov/airports/environmental/environmental_desk_ref/, (accessed January 2022)

Union County. Other additional species of state concern, that are not designated as threatened or endangered, are recognized within Union County.

Exhibit 3.4.2-1: Inventory of Federally and State Listed Species in Union County

Plants		
Glomerate Dodder	Royal Catchfly	Wild Rice
Large Blazing-star	Wild Pea	Yellowish Gentian
Birds		
American Bittern	Lark Sparrow	Northern Harrier
Barn Owl	Least Bittern	
King Rail	Loggerhead Shrike	
Fish		
Scioto Madtom		
Mammals		
Indiana Bat (Federal/State)	Northern Long-Eared Bat (Federal/State)	Tricolored Bat (Federal)
Mussels		
Clubshell	Pondhorn	Rayed Bean (Federal)
Northern Riffleshell	Rabbitsfoot	Snuffbox

Sources: ODNR State Listed Wildlife and Plant Species for Union County, http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county#plants, (accessed January 2023); USFWS County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species, January 2023.

As shown in Exhibit 3.4.2-2 and according to the last Wildlife Hazard Site Visit Report[3], multiple bird, waterfowl, and mammal species have been observed at the airport. Per the FAA Aircraft Wildlife Strike Database, no wildlife strike reports have been filed over the last 10 years[4]. While no reports are in the FAA's database, it does not mean there haven't been any strikes, reports have just not been filed.

Exhibit 3.4.2-2: Wildlife Observed at Union County Airport (MRT)

Birds		
American Crow	Horned Lark	Song Sparrow
American Robin	House Sparrow	Yellow Warbler
Barn Swallow	Killdeer Northern Cardinal	Turkey Vultures
Blue Jay	Northern Rough-winged Swallow	
Ducks	Red-tailed Hawks	
Geese	Red-winged Blackbird	
Great Blue Heron	Rock Dove	
Henslow's Sparrow	Savannah Sparrow	
Eastern Meadowlark		
European Starling		
Mammals		
White-tailed deer	Domestic dogs	Racoon
Coyotes		

Source: Union County Regional Airport Wildlife Hazard Site Visit Report, August 13, 2015

[3] Verdanterra, LLC, Union County Regional Airport Wildlife Hazard Site Visit Report, August 13, 2015, pages 7-9.

[4] Federal Aviation Administration, FAA Wildlife Strike Database. Available at: https://wildlife.faa.gov/database.aspx (accessed May 2020)

In comparing the above list to the list of federally and state listed endangered species in Union County (Exhibit 3.4.2-1), none of the birds or mammals seen at the airport are on the list of federally and state listed endangered species in Union County. Future projects may require a more detailed study of the on-site and surrounding wildlife to ensure that no endangered or threatened species are disturbed.

3.4.3 Climate

The Intergovernmental Panel on Climate Change (IPCC) estimates that aviation accounted for 4.1 percent of global transportation greenhouse gas (GHG) emissions[5]. In the United States, U.S. Environmental Protection Agency (EPA) data indicate that commercial aviation contributed 7.0 percent of total CO_2 emissions in 2018, compared with other sources, including the remainder of the transportation sector (27.9 percent).[6] Increasing concentrations of GHGs in the atmosphere affect global climate.[7] GHG emissions result from anthropogenic (defined as originating in human activity) sources including the combustion of fossil fuels. GHGs are defined as including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[8] Carbon dioxide (CO_2) is the most important anthropogenic GHG because it is a long-lived gas that remains in the atmosphere for up to 100 years. Research has shown there is a direct correlation between fuel combustion and GHG emissions. As projects are developed at the airport, if policy shifts to focus more on climate regulation, the mitigation for CO_2 and CH_4 production may need to be considered.

3.4.4 Coastal Resources

No coastal barriers or zones are located near MRT. The state of Ohio does have a coastal program for Lake Erie, but it will not be impacted by any potential projects at MRT.

3.4.5 Department of Transportation Act, Section 4(f)

The Department of Transportation Act, Section 4(f) of 1966 (re-codified and re-numbered as Section 303(c) of 49 U.S.C.) regulates the development of public land used as a public park, recreation area, waterfowl and wildlife refuge, or historic sites having national, state or local significance. **Exhibit 3.4.5-1** provides a summary of Section 4(f) resources within one mile of MRT. The historic sites potentially in and around MRT's property will be discussed at more length further in this environmental overview.

Exhibit 3.4.5-1: Section 4(f) Resources Near MRT

Resource	Type	Distance
Greenwood Park	Park	0.3 miles
Eljer Park	Park	0.4 miles
Morey Park	Park	0.6 miles
Cardinal Market Park	Park	0.6 miles
Trinity Lutheran School	School	0.75 miles
Ray Lewis Park	Park	1 mile

Source: Google Earth, Image Date 1/9/2023

[5] Federal Aviation Administration Order 1050.1F, *Environmental Impacts: Policies and Procedures,* page 3-1

[6] GHG allocation by economic sector. Environmental Protection Agency (2018). *DRAFT Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018*. Available at: https://www.epa.gov/ghgemissions/draft-inventory-us-greenhouse-gas-emissions-and-sinks-1990-2018, (accessed March 2020)

[7] *Understand Climate Change*. Available at: https://www.globalchange.gov/climate-change, (accessed March 2020)

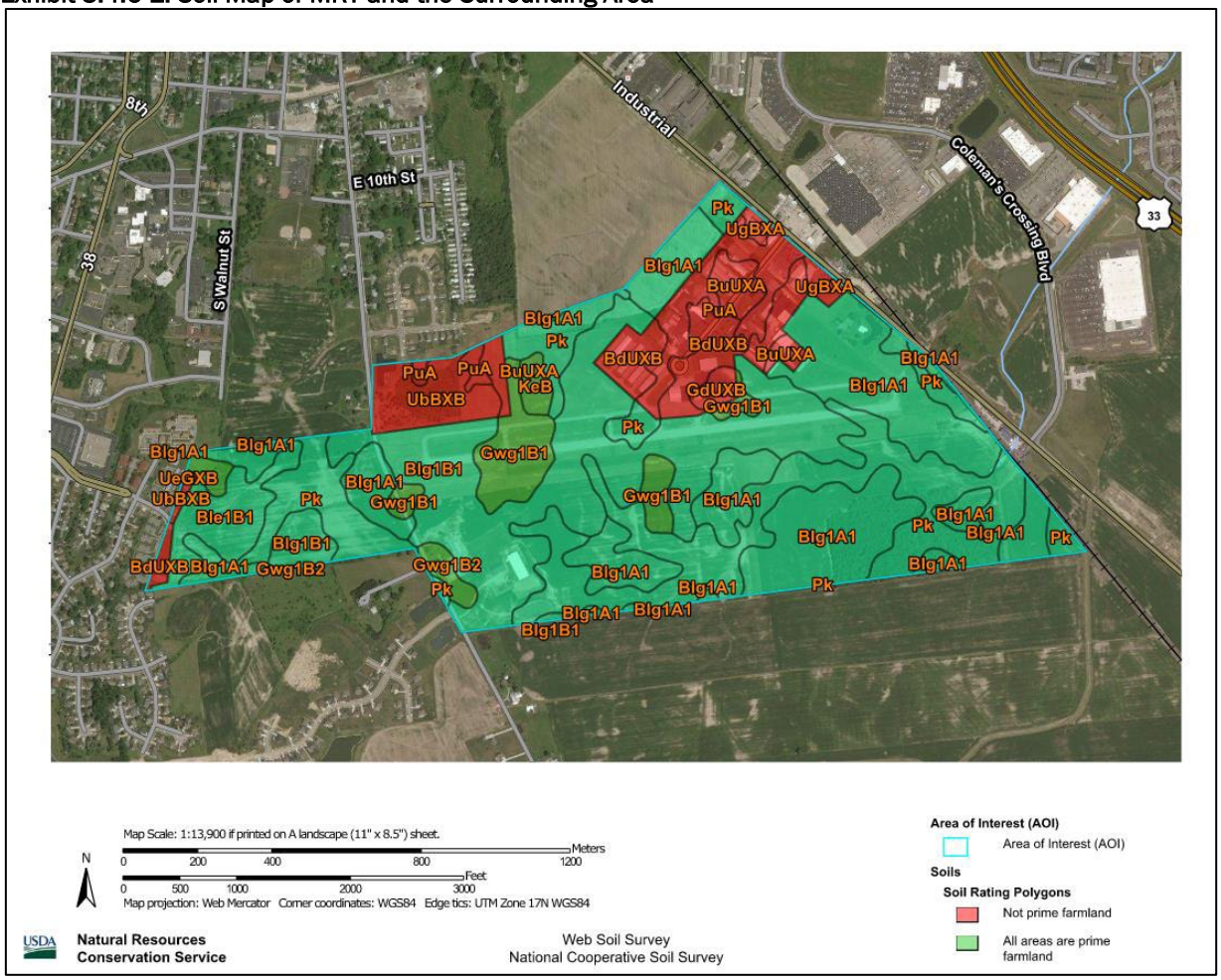
[8] US Environmental Protection Agency, *Overview of Greenhouse Gases*. Available at: https://www.epa.gov/ghgemissions/overview-greenhouse-gases, (accessed March 2020)

3.4.6 Farmlands

The Farmland Protection Policy Act (FPPA), Title 7 of the Code of Federal Regulations (CFR) Part 658, establishes the US Department of Agriculture (USDA) to develop criteria for identifying the potential impact of federal programs on the conversion of agricultural land to non-agricultural purposes. The FPPA generally protects prime and unique farmland. Prime farmland is defined in the FPPA as having the "best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with minimal inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion."

The USDA Natural Resource Conservation Service (NRCS) is the Federal agency responsible for determining if land converted by a development falls under the purview of the FPPA. Land does not need to be actively farmed for the FPPA to be under effect. The NRCS will evaluate and rate each area to be converted to non-agricultural use based upon a number of standards, including these soil characteristics, accessibility to the land, and any surrounding urbanization. As airport improvements are developed, coordination with the NRCS may be required to determine the potential for farmland impacts. **Exhibit 3.4.6-1** shows the soil characteristics in the immediate vicinity of MRT.[9]

Exhibit 3.4.6-1: Soil Map of MRT and the Surrounding Area



Source: USDA Soil Survey Mapper, Available at: https://websoilsurvey.nrcs.usda.gov/app/, (accessed January 2023)

[9] USDA Natural Resources Conservation Service, *Published Soil Surveys for Ohio,* Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=OH, (accessed April 2020)

The Union County Airport consists of 226 acres of land. Approximately 117 acres are currently used for agricultural purposes, which generates critical non-aeronautical revenues for MRT. As development recommendations included in this master plan are implemented, the agricultural land will be utilized as needed. If agricultural land will be taken out of production, coordination with the U.S. Department of Agriculture, Natural Resources Conservation Service may be required.

3.4.7 Hazardous Materials, Solid Waste, and Pollution Prevention

The Resource Conservation and Recovery Act (RCRA) [as amended by the Federal Facilities Compliance Act of 1992] and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1983 (SARA) and the Community Environmental Response Facilitation Act of 1992 are the main acts of legislation that regulate hazardous materials and waste affecting FAA projects.

RCRA establishes standards concerning the production, treatment, storage and disposal of hazardous wastes. CERCLA requires the cleanup of any release of a hazardous substance (excluding petroleum) into the environment. A project at the airport using federal funding that uses, generates or disturbs a hazardous substance must analyze the impact of that substance and provide measures for reducing that impact and controlling against the possibility of unintended contamination.

The Airport's fuel farm is located on the apron and adjacent to the taxiway. The fuel farm includes two underground storage tanks; a Jet A tank and a 100LL tank. Each tank has a capacity of 10,000 gallons.

Congress established the Superfund Program (administered by the EPA) in 1980 to identify and clean up the nation's worst uncontrolled or abandoned hazardous waste sites. Upon review of the National Priority List, no superfund sites were identified in the vicinity of MRT.

According to FAA AC 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports,* landfills that have the potential to attract wildlife should not be located within 5,000 feet of an airport serving piston-powered aircraft, 10,000 feet of an airport serving turbine-powered aircraft, and within five miles of a runway end that could cause hazardous bird species to fly across the airport's approach or departure lanes. Per the EPA database of waste removal facilities, there are no landfills within five miles of MRT. [10]

Union County is served by the North Central Ohio Solid Waste District (NCO). Waste removal services are the Airport are provided periodically by Rumpke Waste & Recycling, headquartered in Colerain Township, OH. Waste from the Airport is disposed of at the Cherokee Run Landfill, located at 2946 US Route 68 North in Bellefontaine, approximately 29 miles northwest the Airport. The Landfill is operated by the Logan County Solid Waste District. The existing waste collection and disposal facilities is anticipated to be adequate to handle the waste associated with Airport operations or improvements.

3.4.8 Historical, Architectural, Archaeological, and Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966 protects properties that are listed or eligible for listing in the National Register of Historic Places (NRHP). The NHPA requires Federal agencies to take into account the potential effects of their undertakings on historic properties and to coordinate with the State Historic Preservation Office (SHPO) and any other potentially impacted parties to develop and evaluate alternatives to modify the undertaking in order to avoid or minimize any potential impacts to these historic resources.

The Ohio National Register Searchable Database, provided by the Ohio History Connection, State Historic Preservation Office, indicates that there are currently no known sites listed or eligible for listing in the NRHP on MRT's property. [11]

[10] United States Environmental Protection Agency, *Project and Landfill Data by State,* Available at: https://www.epa.gov/lmop/project-and-landfill-data-state, (accessed January 2023)

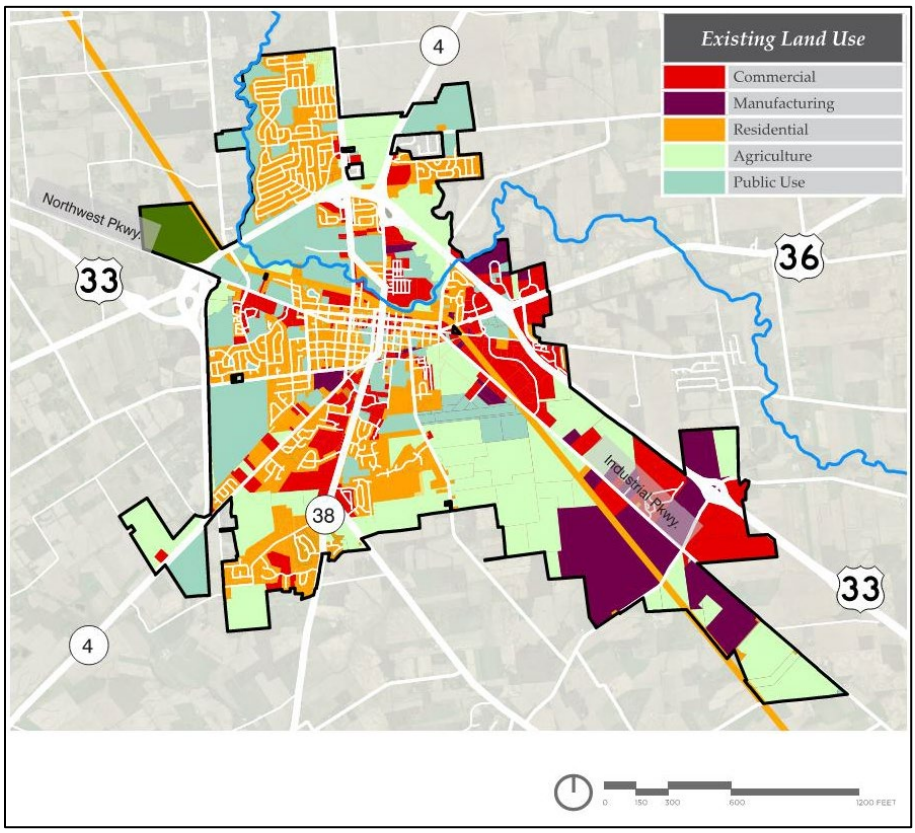
[11] Ohio History Connection, State Historic Preservation Office, *National Register of Historic Places,* Available at: https://www.ohiohistory.org/preserve/state-historic-preservation-office/nationalregister, (accessed January 2023)

Historic sites can be added to the registry at any time. For this reason, as airport improvement projects are developed, consultation with the Ohio SHPO should be made to assess the potential for any impacts on an individual project basis. More specifically, in accordance with Section 106 of the National Historic Preservation Act, additional consultation with the Ohio Historic Preservation Office may be required prior to the construction of any projects on previously undisturbed land to identify historic properties and assess the effects of the project undertakings on the properties. Consideration should be given to the Area of Potential Effects of the Airport expansion and the level of effort that will be required to comply with requirements to identify historic properties.

3.4.9 Land Use

The Airport is located within the limits of the City of Marysville; however, as discussed previously, it is owned by the Union County Airport Authority. The existing airport property's land use is designated by the City of Marysville as public use, see **Exhibit 3.4.9-1**. Land around the Airport is largely designated as agricultural and residential. The Union County Airport is predominantly surrounded by agricultural on the south, west, and east, with a mixture of commercial establishments to the east and northeast, and a mixture of agricultural and residential to the west, northwest, and north. In addition to aviation, other uses of property owned by the Union County Airport Authority include agricultural southeast of Runway 9-27. As projects are proposed and developed on airport property, community land use is one factor that should be considered to ensure compatibility as much as possible.

Exhibit 3.4.9-1: Land Use



Source: City of Marysville Comprehensive Plan, 2018

3.4.10 Natural Resources and Energy Supply

Executive Order 13123, *Greening the Government through Efficient Energy Management,* requires federal agencies to reduce their consumption of energy and water and to also reduce the air emissions associated with petroleum use. Federal agencies are encouraged to reduce this petroleum use through the expansion of renewable energy and sustainability practices. Most airport improvements at an airport like MRT do not result in substantial energy demand changes, increases in water consumption levels, or the utilization of any other unusual materials or resources in limited supply.

3.4.11 Noise and Compatible Land Use

Noise: FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports*, has identified land use compatibility guidelines that relate types of land uses to airport noise levels. Based on these guidelines, all land uses are considered compatible with yearly day-night sound levels below 65 DNL. The FAA defines "DNL" as the average day-night sound level for an entire year. More specifically, "The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between midnight and 7 a.m. and between 10 p.m. and midnight, local time, as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise."[12] Sensitive land uses include residential areas, schools, parks, hospitals, churches, amphitheaters, and libraries. Residential areas border the Airport immediately to the north and 0.3 miles to the southwest of the approach end of Runway 9, and 0.4 miles west of the departure end of Runway 27. Other sensitive areas within a mile of the Airport are listed in **Exhibit 3.4.11-1**.; all of which are located north or south of the runways approach path. Per FAA Order 1050.1F Desk Reference "No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations)." However, future projects that may result in changes in the type or frequency of aircraft operating at the Airport, should evaluate increased aircraft noise over sensitive areas and consider mitigation strategies.

Exhibit 3.4.11-1: Noise Sensitive Uses in Proximity to MRT

Resource	Type	Distance
Greenwood Park	Park	0.3 miles
Eljer Park	Park	0.4 miles
Timberview Golf Club	Golf course	0.5 miles
Memorial Hospital	Hospital	0.5 miles
Bible Baptist Church	Church	0.5 miles
Morey Park	Park	0.6 miles
Cardinal Market Park	Park	0.6 miles
Trinity Lutheran Church	Church	0.7 miles
The Rock Church	Church	0.7 miles
Marysville Public Library	Library	0.7 miles
Trinity Lutheran School	School	0.75 miles

[12] Federal Aviation Administration, AC 150/5020-1, *Noise Control and Compatibility Planning for Airports*, August 5, 1983, page 3

First Presbyterian Church	Church	0.8 miles
First United Methodist Church	Church	0.8 miles
First Congregational Church	Church	0.8 miles
Church Christ in Christian	Church	0.8 miles
Union County Veterans Memorial Auditorium	Auditorium	0.8 miles
Ray Lewis Park	Park	1 mile

Source: Google Earth, Accessed January 2023

Compatible Land Use: Any airport project using Federal funding must be compatible with the plans of public agencies for the overall development of the area. *Airport Improvement Program Grant Assurance 21, Compatible Land Use*, requires an airport sponsor to take reasonable actions to ensure the use of land around an airport is consistent to ensure safe operation of aircraft in the vicinity of an airport. Per the *FAA Order 5190.6B*, "Incompatible land use at or near airports may result in the creation of hazards to air navigation and reductions in airport utility resulting from obstructions to flight paths or noise-related incompatible land use resulting from residential construction too close to the airport."[13] Other factors that may create land compatibility issues are when a proposed development would negatively impact activities at the airport. One such example is municipal solid waste landfill facilities (MSWLF), which are a known attractant of large wildlife that may interfere with airport traffic and other airport business. As developments are undertaken on the airport and in the broader community, compatible land use should always be a major consideration for those designs. The most successful method to help avoid incompatible land use is to foster a strong communication channel with the local planning organization, which would be the Logan-Union-Champaign (LUC) Regional Planning Commission. Additionally, the city of Marysville has jurisdiction in planning and land use zoning applicable to both the airport and surrounding areas. Therefore, a strong line of communication should exist between the airport sponsor and appropriate city planning and zoning authorities. The Union County Regional Airport Authority should maintain an open and frequent dialog with the Planning Commission to keep mutually informed of all development activities both on and off the Airport.

3.4.12 Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks

Socioeconomics is an umbrella term used to describe aspects of a project that are either social or economic in nature. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s). Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Protection of children from environmental health risks and safety risks is identifying and assess environmental health risks and safety risks one has reason to believe could disproportionately affect children.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 requires that any time federally funded projects have the potential to cause extensive relocation or fragmentation of neighborhoods and communities, disproportionately high impacts on minority or low income communities, disproportionate health and safety risk to children, or significant community disruption, the degree of the impact and any need for mitigation or possible alternative measures must be identified. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, its accompanying presidential memorandum, and DOT Order 5610.2(a), *Environmental Justice*, require the FAA to provide opportunity for meaningful public involvement by minority and low-income populations during any proposed

[13] Federal Aviation Administration, Order 5190.6B, *FAA Airport Compliance Manual*, September 30, 2009, page 20-1

development that might disproportionately impact them. Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* requires the FAA to consider environmental health and safety risks that may disproportionately affect children.

The Airport has the potential to impact Union County. According to US Census Bureau data, Union County had a population of approximately 64,971, as of July 1, 2021[14]. The population consists of the following demographics:

- 89.6% White
- 2.7% Black or African American
- 0.2% American Indian and Alaska Native
- 5.7% Asian
- 1.8% Two or more races
- 2.5% Hispanic or Latino[15]
- 24.4% Persons under 18 years
- 13.0% Persons 65 years and over
- 6.8% Persons with a disability, under age 65 years

From the above information, it can be assumed that a similar demographic profile to the of the County would be found in proximity to the Airport.

In 2021 dollars, the median household income of Union County from 2017 to 2021 was $96,634[16], which is significantly higher than the median household income of the United States at $69,021. To ensure that no minority and/or economically disadvantaged communities would be negatively impacted by future airport development, if land acquisition is necessary, further socioeconomic research should be conducted.

3.4.13 Visual Effects (Including Light Emissions)

Airports cause light emissions that can impact visually sensitive land uses in an airport area. The characteristics of many runway lighting systems create potential sources of annoyance to nearby development such as homes, parks, or recreational areas in the airport vicinity if light is directed towards light-sensitive land uses. On the other hand, visual effects deal broadly with the extent to which airport development contrasts with the existing environment, architecture, historic or cultural setting, or land use planning.

Several residential neighborhoods border the Airport along the northwest, west, and southwest. Because of the proximity of these neighborhoods, visual effects should be considered with airport development projects. Certain impacts can be mitigated. For example, lighting on runways and taxiways can be shielded or controlled by pilots to minimize emissions that would impact or cause annoyance to the surrounding areas. The Union County Airport currently uses pilot-controlled lighting for its runway, taxiway, PAPI, and REIL systems.

3.4.14 Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Wetlands: There are four primary regulations governing federal projects that impact wetlands: Executive Order 11990, DOT Order 5660.1A, the Rivers and Harbors Act of 1899, and Section 404 of the Clean Water Act. This authority generally is invested in the US Army Corps of Engineers (USACE) but is often partially delegated at the local level depending on the agreements the state has with USACE. According to the U.S. Geological Survey's National Hydrology Dataset (NHD), few water resources occur on airport property; showing on stream/river intersecting the airport property in the southeast corner (see **Exhibit 3.4.14-1**). The NHD information should be verified by an on-site investigation prior to the start of any development projects.

[14] United States Census Bureau, Union County, OH, Available at: https://www.census.gov/quickfacts/fact/table/unioncountyohio#qf-headnote-b, (accessed January 2023)

[15] Hispanics may be of any race, so also are included in applicable race categories

[16] United States Census Bureau, Union County, OH, Available at: https://www.census.gov/quickfacts/fact/table/unioncountyohio#qf-headnote-b, (accessed January 2023)

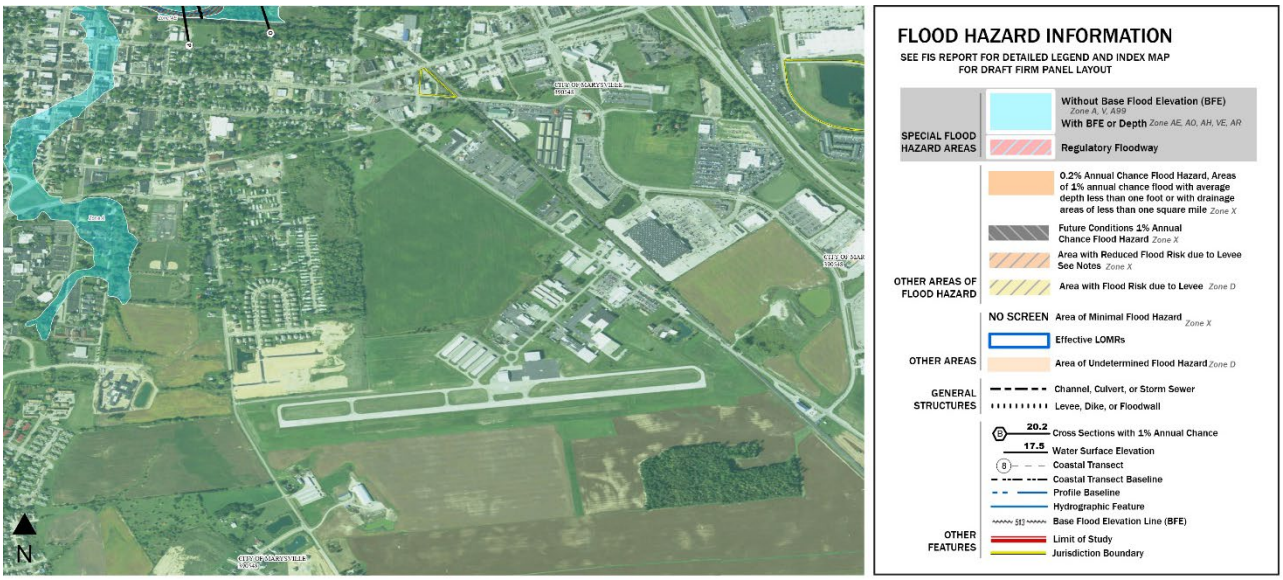
Exhibit 3.4.14-1: NHD Map Near MRT

Source: USGS National Hydrography Data, Available at: https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con, Data published on 08/13/2018.

Floodplains: Executive Order 11988, *Floodplain Management,* and US Department of Transportation (USDOT) Order 5650.2, *Floodplain Management and Protection*, ensure Federal agencies reduce flood loss risks and minimize any potential for flood impacts on human welfare, health, and safety by restoring and preserving any benefits provided by lowland and flat areas adjacent to waterways. Federal agencies are prohibited from taking any actions that impact a floodplain unless no feasible alternative exists. Encroachment is defined as any action that would cause the 100-year water surface profile to rise by one foot or greater.

The 100-year floodplain was established by the Federal Emergency Management Agency (FEMA) as the base flood level for floodplain management. Both Federal and state laws regulate development within floodplains and floodways. The Airport is located on Flood Insurance Rate Map (FIRM) map numbers 39159C0351 and 39159C0352D, both with an effective date of December 16, 2008. The floodplains and floodways in the vicinity of the Airport are shown on **Exhibit 3.4.14-2**. According to this FEMA flood map, MRT does not lie within the 100-year or 500-year floodplain. Therefore, there should be no potential to impact a floodplain by any airport development projects.

Exhibit 3.4.14-2: Flood Map of MRT and the Surrounding Area



Source: Flood Insurance Rate Map (FIRM) map numbers 39159C0351 and 39159C0352D, Effective date of December 16, 2008

Water Quality: The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act (CWA) of 1990, was instituted to protect water resources in the United States. It provides the US EPA with the authority to regulate water quality and to issue permits for actions that have the potential to adversely affect water quality. Compliance with these statutes is primarily achieved through the issuance of permits through the National Pollution Discharge Elimination System and for dredge and fill permitting in compliance with Section 402 and 404 of the CWA.

Ohio's water quality standards are maintained by the Ohio Environmental Protection Agency (EPA), Divisions of Surface Water, Environmental Services, and Drinking and Ground Waters. Ohio's drinking water comes from two sources; surface water and ground water. Surface water largely comes from lakes, reservoirs, rivers and streams and provides more than half of Ohio's drinking water. Although more readily available, surface water is also more susceptible to contamination. Groundwater comes from water below the surface, most often an aquifer. Ohio has two types of aquifers: sand and gravel aquifers and bedrock aquifers. The Airport is located above the Mill Creek carbonate aquifer (a bedrock aquifer).

Ohio's EPA Division of Drinking and Ground Waters maintains the Ambient Ground Water Monitoring Network in an effort to track the quality of Ohio's ground water. The nearest active ambient ground water monitoring well to the Airport, is located north of Marysville along Mill Creek.

Any future airport development projects that would modify the existing drainage patterns of the area should be reviewed as part of the environmental documentation to ensure water quality is maintained. Also, all permits required for the proposed development should be identified in the environmental documentation.

Wild and Scenic Rivers: The Wild and Scenic Rivers Act governs federal projects that may impact river segments that possess "outstandingly remarkable" natural or cultural values believed to be of more than local or regional significance. According to the National Wild and Scenic Rivers System, Ohio has more than 29,000 acres of river, of which approximately 212.9 miles (less than 1%) are designated as wild and scenic. Portions of the Big & Little Darby Creeks, Little Beaver Creek, and the Little Miami River are all designated as wild and scenic. The Big and Little Darby Creeks are located five miles south of MRT. Due to its proximity, the future development projects should consider indirect impacts to the Creeks.

3.4.15 Summary of Likely Development Concerns

The resources discussed above and impacts that may result from future development are summarized in **Exhibit 3.4.15-1.**

Exhibit 3.4.15-1: Summary of Environmental Resources and Development Concerns

Resource Category	Development Concerns
Air Quality	The Airport is located in an attainment area for all of the National Ambient Air Quality Standards.
Biological Resources	Species observed during the WHSV were not federally or state listed species; however, future development should ensure that no endangered or threatened species are disturbed
Climate	There are no standards by which the emissions of Green House Gasses can be evaluated; however, future development should consider impacts to the climate.
Coastal Resources	No coastal barriers or zones are located near MRT.
Department of Transportation Act, Section 4(f)	Section 4(f) resources are not located within or adjacent to Airport property.
Farmlands	Land within the airport property boundary is currently being used for agricultural purposes. Future development that may take this land out of production should coordinate with the NRCS.
Hazardous Materials, Solid Waste, and Pollution Prevention	Hazardous sites were not identified on Airport property. Future development projects should consider techniques to reduce waste and reuse materials when possible.
Historic, Architectural, Archaeological, and Cultural	Ohio History Connection, State Historic Preservation Office, indicates that there are currently no known sites listed or eligible for listing in the NRHP on MRT's property. Future projects should consider impacts to undisturbed ground that could potentially impact unknown historic, architectural, archaeological, and cultural resources.
Land Use	As projects are proposed and developed on Airport property, community land use should be considered to ensure compatibility is maintained.
Natural Resources and Energy Supply	Most airport improvements at an airport like MRT do not result in substantial energy demand changes, increases in water consumption levels, or the utilization of any other unusual materials or resources in limited supply; however, future development should consider techniques to reduce the consumption of natural resources and energy sources.
Noise and Compatible Land Use	Future development projects should consider changes to aircraft operations or land use that may result in increased noise in areas that area noise sensitive.
Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks	Minority populations are present within Union County. To ensure that no minority and/or economically disadvantaged communities would be negatively impacted by future airport development, if land acquisition is necessary, further socioeconomic research should be conducted.
Visual Effects	Several residential neighborhoods border the Airport along the northwest, west, and southwest. Because of the proximity of these neighborhoods, visual effects should be considered with future airport development projects.
Water Resources	Future airport development projects that would modify the existing drainage patterns of the area should be reviewed as part of the environmental documentation to ensure water quality is maintained. All permits required for the proposed development should be identified in the environmental documentation. Due to the Airport's proximity to the Big and Little Darby Creeks, a wild and scenic river, future development projects should consider indirect impacts to the Creeks.

Source: Woolpert, 2023

Chapter 4: Facility Requirements

4.1. Introduction

The next step in the master planning process is to determine the future requirements for airport facilities that will allow for appropriate airside and landside development over the 20-year planning period. By comparing the existing conditions of an airport to its predicted growth, the airport master plan defines requirements for runways, taxiways, aprons, hangars, and other airport facilities to accommodate growth over the short-, intermediate-, and long-term planning periods. The facility requirements analysis begins at the runway, as it is the most important infrastructure on the airport, then moves to the airside and landside facilities that support the movement and support services for aircraft. Facilities at an airport are often planned around the most demanding aircraft, the largest and fastest aircraft, which is based on the critical aircraft determined in the forecast.

The Federal Aviation Administration (FAA) provides guidance for the planning and design of airport facilities through Advisory Circulars (AC) that promote airport safety, economy, efficiency, and sustainability. Many of the facility requirements identified for MRT incorporate FAA planning and design standards presented in FAA AC 150/5300-13B, Airport Design, and FAA AC 150/5060-5, Airport Capacity and Delay. Other FAA ACs and industry principles were used to develop sections of this chapter and are cited throughout the document.

4.2. Design Standards and Critical Aircraft

The characteristics of the critical aircraft used in airport planning are approach speed, wingspan, tail height, main gear width, cockpit to main gear length, aircraft weight, and takeoff and landing distances. Dimensions for the layout of the airport that are determined by the critical aircraft include runways, taxiways, taxilanes, and aprons, and associated setbacks and clearances. In most cases, the critical aircraft for the purposes of airport geometric design is a composite aircraft representing a combination of aircraft classified by three parameters: Speed of aircraft on final approach (Aircraft Approach Category (AAC)), aircraft tail height and wingspan (Airplane Design Group (ADG)), and aircraft gear width and distance from cockpit to main gear (Taxiway Design Group (TDG).

Exhibit 4.2-1: Aircraft Approach Category (AAC)

AAC	Approach Speed
A	Approach speed less than 91 knots
B	Approach speed 91 knots or more but less than 121 knots
C	Approach speed 121 knots or more but less than 141 knots
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

Exhibit 4.2-2: Airplane Design Group (ADG)

ADG	Tail Height	Wing Span
I	Less than 20 Feet	Less than 49 Feet
II	20 feet to less than 30 Feet	49 feet to less than 79 Feet
III	30 feet to less than 45 Feet	79 feet to less than 118 Feet
IV	45 feet to less than 60 Feet	118 feet to less than 171 Feet
V	60 feet to less than 66 Feet	171 feet to less than 214 Feet
VI	66 feet to less than 80 Feet	214 to less than 262 Feet

Exhibit 4.2-3: Runway Visual Range (RVR)

RVR (ft)	Instrument Flight Visibility Category (statute mile)
5000	Not lower than 1 mile
4000	Lower than 1 mile but not lower than ¾ mile
2400	Lower than 3/4 mile but not lower than 1/2 mile
1600	Lower than 1/2 mile but not lower than 1/4 mile
1200	Lower than 1/4 mile

Source for all tables: FAA AC 150/5300-13B, *Airport Design*

The AAC is represented by a letter and the ADG is represented by a Roman numeral. Each runway also has a runway design code (RDC) formed by the particular runway's combined AAC, ADG, and approach visibility minimums. The RDC determines the specific design standards that apply. The visibility minimums are expressed by runway visual

range (RVR) values in feet of 1200, 1600, 2400, 4000, and 5000. This third component should read "VIS" for runways designed with visual approach use only (see **Exhibits 4.2-1, 4.2-2, 4.2-3**).

In addition to grouping aircraft by the AAC and ADG, the FAA also categorizes aircraft by their maximum takeoff weight (MTOW). *"Small" aircraft* have a MTOW of 12,500 pounds or less. Any general aviation aircraft with a maximum takeoff weight of more than 12,500 pounds is classified as a *"large" aircraft*. Pavement strength is associated with the weight of the anticipated aircraft, so areas developed with the appropriate size and separation to serve heavier aircraft also need to be planned with the appropriate pavement strength. Whereas areas that are planned for smaller aircraft, for example a small T-hangar development area, only need pavement strength and separations between buildings and taxiways for smaller aircraft.

The critical aircraft may be a specific aircraft type, or a combination of aircraft characteristics. Based on the forecast, MRT's critical aircraft is a combination of B-II aircraft. As determined in the forecast, the airport's critical aircraft ARC is the grouping of B-II aircraft. The Cessna Citation CJ4 (example shown to the right) is a B-II business jet that frequently operates at MRT. The previous MRT ALP designates the airport as B-II for the existing and future conditions. The new forecast of operations at MRT reiterates the B-II (large aircraft) classification. Therefore, in planning future development, development should be designed with B-II standards in mind (including surfaces and separations. While the airport in general, and specifically Runway 9-27, are designated B-II, the smaller and shorter turf Runway 8-26 is designated A-I (small aircraft).

Exhibit 4.2-4: Example Cessna Citation CJ4

Source: Wikimedia Commons

The existing design codes for the runways at MRT are listed in **Exhibit 4.2-4**. The RDC for primary Runway 9-27 is B-II-5000. The RDC for the turf runway is A-I-VIS and is not anticipated to change since it is not paved. For the turf Runway 8-26, the critical design aircraft is an A-I (small), which is represented by the Cessna 172. The Airport Sponsor does not plan to pursue lower minimums for either runway.

Exhibit 4.2-4: Existing Standard Codes

Runway	AAC	ADG	RVR
Runway 9-27	B	II (large)	5000
Runway 8-26 (Turf)	A	I (small)	VIS

Source: Woolpert

The critical aircraft's aircraft gear width and distance from cockpit to main gear determine the TDG. Runway to taxiway and taxiway/taxilane to taxiway/taxilane separation standards are related to ADG, TDG, and approach visibility minimums. The most commonly operating B-II aircraft at MRT are listed in **Exhibit 4.2-5** along with their respective TDG. The CJ4 and Air Tractor 802A together combine for the majority of B-II operations (more than 500 annually). Thus, the airport currently should be designed for TDG 1B at a minimum. With the plethora of other B-II aircraft that are TDG 2 operating at the airport, projects today should be designed as to not preclude implementation of TDG 2 standards in the future and any areas of the airport that already meet TDG 2 standards should be maintained as such. At such time that a pavement must be reconstructed, an analysis of the then-current design aircraft is to be conducted to confirm the TDG 2 standards are appropriate.

Exhibit 4.2-5: Taxiway Design Group (TDG)

Aircraft	ARC	TDG
Air Tractor 802A	**B-II**	**1B**
Beech 300 Super King	B-II	2
Beech 200 Super King Air	B-II	2
Cessna Citation CJ4	**B-II**	**1B**
Cessna Citation CJ3	B-II	2
Cessna Citation II/Bravo	B-II	2

Source: Woolpert

4.3. Runway Orientation

A factor influencing runway orientation and number of runways is wind. Ideally, a runway should be aligned with the prevailing wind. Wind conditions affect all airplanes in varying degrees; however, generally the smaller the airplane the more it is affected by wind, particularly crosswind components. Aligning the primary runway of an airport with the predominate wind direction increases the safety of operations and makes landing and taking-off easier for pilots. A crosswind is a wind that is perpendicular to the runway. Wind coverage is the percentage of time that crosswinds are below an acceptable speed. Airport wind is measured in knots which is nautical miles per hour.

Wind data was downloaded directly from the National Climate Data Center from the Automated Weather Observing System (AWOS) on MRT. The downloaded data contained wind direction and speed for every hour of the past ten complete calendar years (2011 – 2020). Instrument Flight Rules (IFR) apply when a cloud ceiling less is than 1,000 feet above the ground level and/or a horizontal visibility less than three miles.

The FAA design standard is to provide 95 percent wind coverage. This means that 95 percent of the time the crosswind does not exceed the demonstrated crosswind component (design capability) for the aircraft. As shown in **Exhibit 4.3-1**, the wind coverage on Runway 9-27 barely falls short of the 95 percent standard for 10.5 knot crosswinds. At this time, a crosswind runway is not recommended. For stronger 13 knot crosswinds, the wind coverage meets the FAA threshold. Based on the available data, the airport was under IFR conditions approximately 11% of the time.

Exhibit 4.3-1: Wind Coverage

Runway 9-27	10.5. Knots	13 Knots
All Weather (264054 observations)	94.42%	97.41%
IFR (29729 observations)	92.24%	96.14%
VFR (233797 observations)	94.76%	97.62%

Source: NOAA, On-Site AWOS

Three wind roses for the airport are provided for the existing one hard surface runway configuration (**Exhibits 4.3-2, 4.3-3, 4.3-4**). The wind coverage percentages listed reflect the amount of time operations can safely occur with the corresponding crosswind component (10.5 and 13 knots).

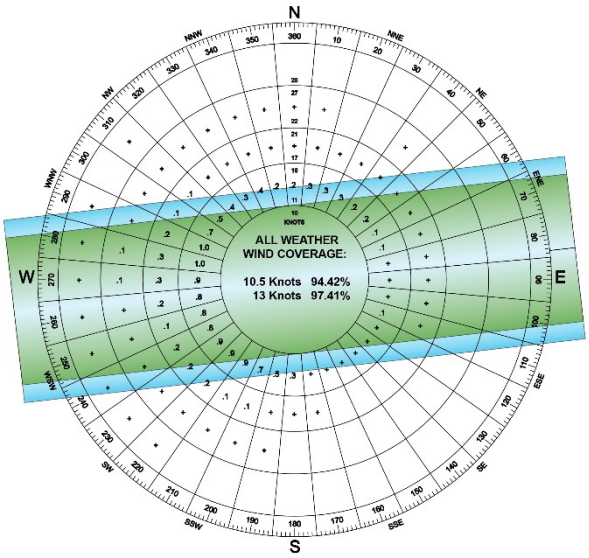


Exhibit 4.3-2: All Weather Wind Rose
Source: NOAA, On-site AWOS

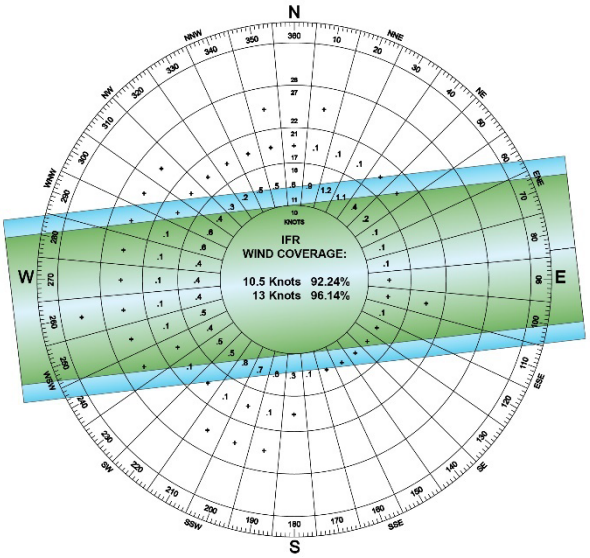


Exhibit 4.3-3: IFR Wind Rose
Source: NOAA, On-site AWOS

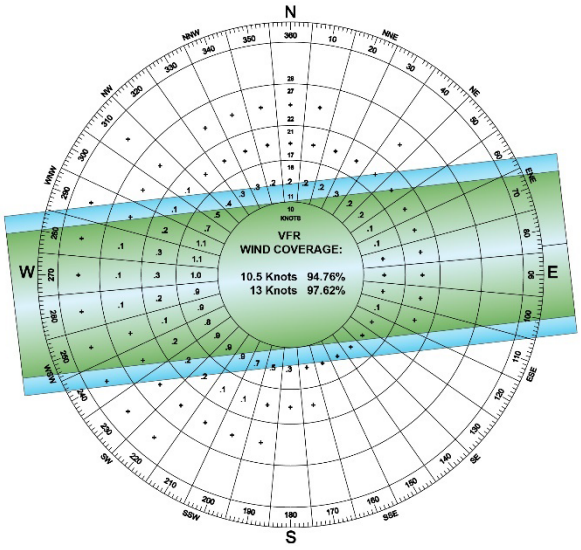
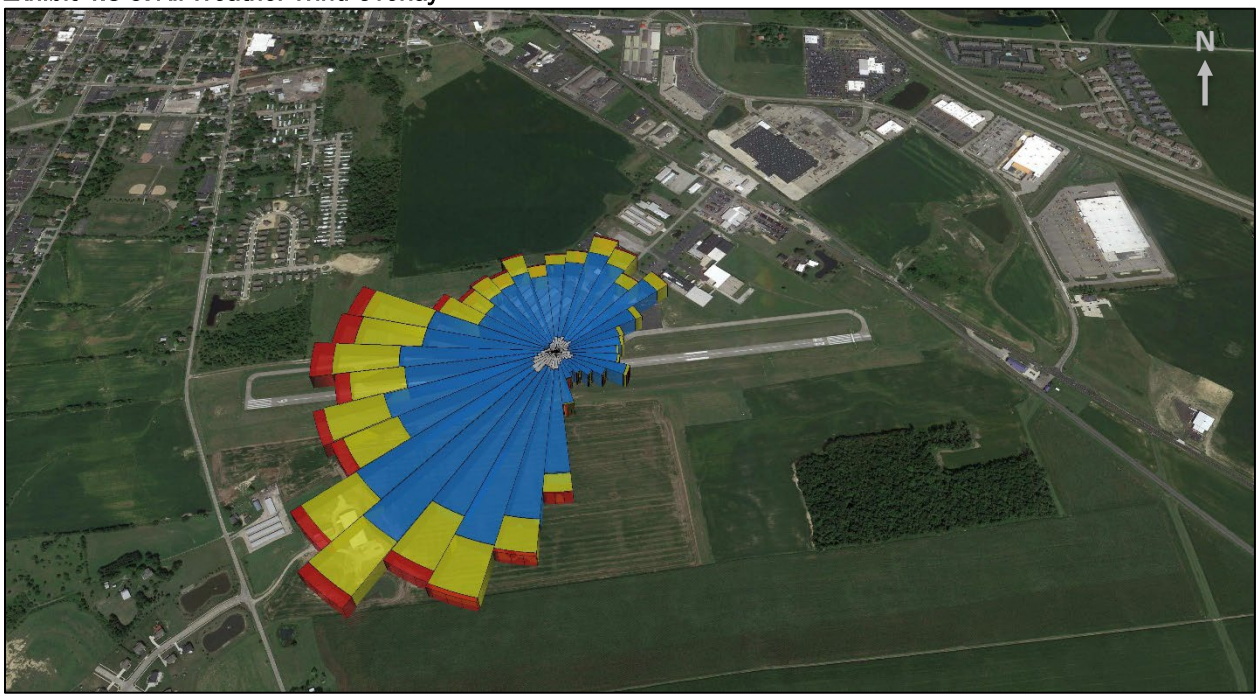


Exhibit 4.3-4: VFR Wind Rose
Source: NOAA, On-site AWOS

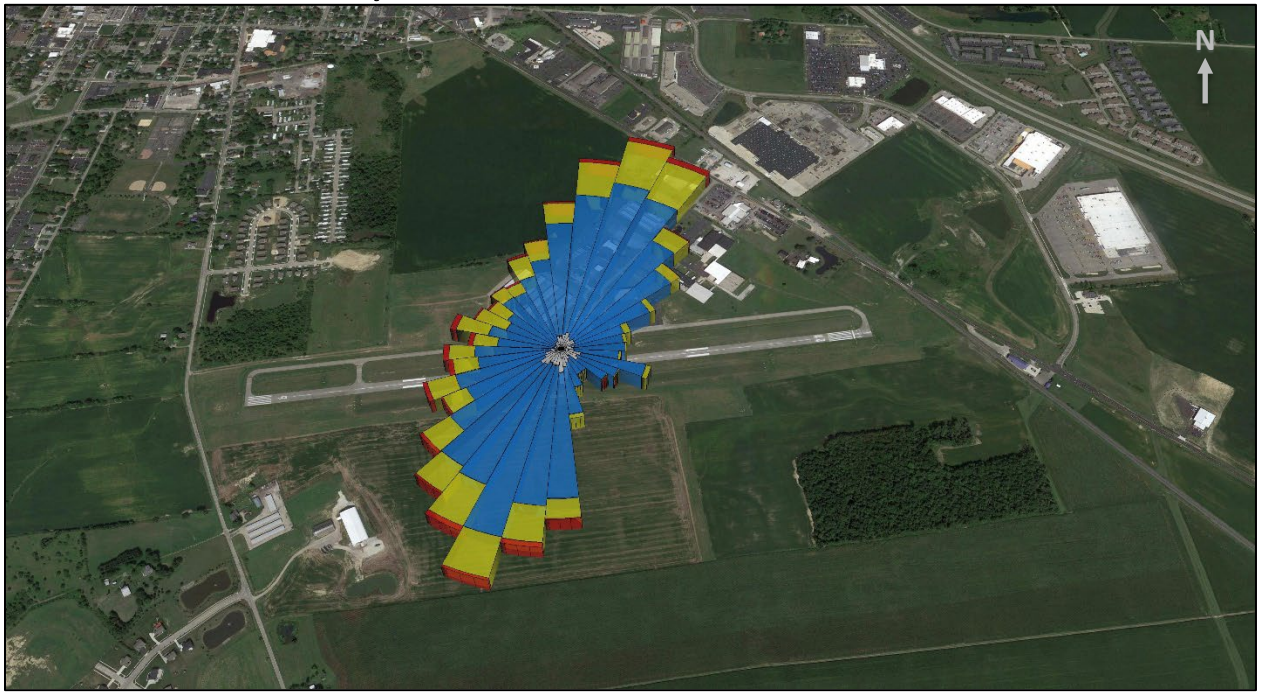
The all weather (**Exhibit 4.3-5**) and IFR (**Exhibit 4.3-6**) wind measurements are overlaid an aerial imagery of the airport. These graphical depictions highlight how the IFR wind changes dramatically, blowing more predominately from the north than during other weather conditions.

Exhibit 4.3-5: All Weather Wind Overlay



Source: NOAA, On-Site AWOS, Google Earth, Woolpert

Exhibit 4.3-6: IFR Weather Overlay



Source: NOAA, On-Site AWOS, Google Earth, Woolpert

4.4. Airfield Capacity

Airfield capacity is the measure of the runway system's ability to accommodate the existing and forecast demand for aircraft operations. The arrangement and interaction of airfield components (runways, taxiways, and apron/ramp entrances) refer to the layout or "design" of the airfield. The primary runway (Runway 9-27) is the only runway present on the airfield that is paved and usable year-round. Per FAA AC 150/5060-5, Airport Capacity and Delay, an airport with a single runway and aircraft mix of primarily under 12,500 pounds has an average annual service volume of 230,000 operations per year. As the forecast never exceeds more than 29,000 annual operations, Runway 9-27 at MRT provides sufficient operational capacity to accommodate the forecast annual operational volume over the next 20 years.

4.5. Basic Design and Separation Standards Specific to MRT

The major design and separation standards specific to MRT associated with the above discussed design codes are shown in **Exhibit 4.5-1**.

Exhibit 4.5-1: Design and Separation Standards

Design Standard	Runway 9-27 B-II Large Aircraft (1 Mile Min.)	Runway 8-26 (Turf) A-I Small Aircraft (Visual Only)
Runway Width	75 feet	60 feet
Runway Safety Area (RSA)		
Width:	150 feet	120 feet
Length Beyond Departure End:	300 feet	240 feet
Runway Object Free Area (ROFA)		
Width:	500 feet	400 feet
Length Beyond Runway End:	300 feet	240 feet
Runway Obstacle Free Zone (ROFZ)		
Width:	400 feet	250 feet
Length Beyond Runway End:	200 feet	200 feet
Runway Protection Zone		
Length:	1,000 feet	1,000 feet
Inner Width:	500 feet	500 feet
Outer Width:	700 feet	700 feet
Runway Centerline to Hold Position	200 feet	200 feet
Runway Centerline to Parallel Taxiway Centerline	240 feet	225 feet
Runway Centerline to Aircraft Parking	250 feet	200 feet

Source: FAA AC 150/5300-13B, *Airport Design*

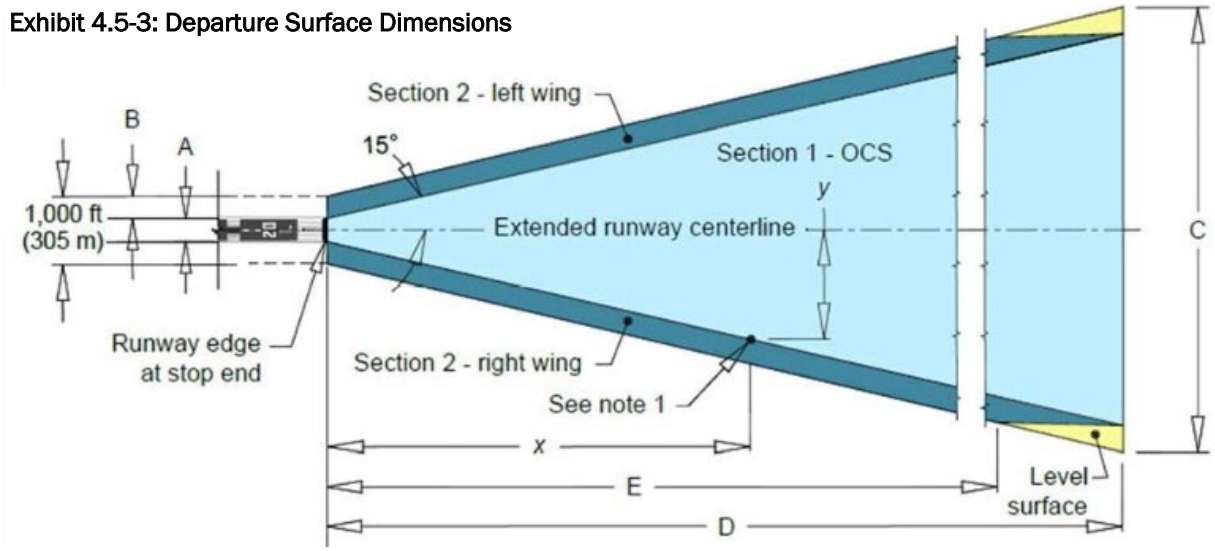
There are also several airspace standards applied to the runways and the airport. These include dimensions of FAR Part 77 approach surface and the FAA AC 150/5300-13B departure and threshold siting surfaces. The major airspace surfaces associated with MRT's runways are shown in **Exhibit 4.5-2**. Objects identified within these surfaces through the airspace obstacle evaluation should be mitigated to the extent possible.

Exhibit 4.5 2: Airspace Standards

Airspace	Runway 9-27 B-II Large Aircraft (1 Mile Min.)	Runway 8-26 (Turf) A-I Small Aircraft (Visual Only)
Part 77 Approach Surface		
Length:	10,000 feet	5,000 feet
Inner Width:	500 feet	250 feet
Outer Width:	3,500 feet	1,250 feet
Slope:	34:1	20:1
Threshold Siting Surface		
Distance from Threshold:	200 feet	0 feet
Inner Width:	400 feet	250 feet
Outer Width:	3,400 feet	700 feet
Inner Length:	10,000 feet	2,250 feet
Outer Length:	0 feet	2,750 feet
Slope:	20:1	20:1
Departure Surface		
A:	Runway Width (75 feet)	Not applicable
B:	500 feet	
C:	7,512 feet	
D:	12,152 feet (Nominal value for planning)	
E:	6,160 feet	
Slope:	40:1	

Source: FAA AC 150/5300-13B, *Airport Design;* 14 CFR Part 77;

Exhibit 4.5-3: Departure Surface Dimensions



Source: FAA *Advisory Circular 150/5300-13B, Airport Design*.

Taxiway design standards associated with ADG codes I and II are listed in **Exhibit 4.5-3** (which cover all the runway's existing and future critical aircraft) while taxiway design standards associated with TDG 1A, 1B, and 2 are listed in **Exhibit 4.5-4**.

Exhibit 4.5-3: Taxiway Design Codes for ADG Codes I and II

Design Standard	ADG I	ADG II
Taxiway Safety Area Width	49 feet	79 feet
Taxiway Object Free Area (TOFA) Width	89 feet	131 feet
Taxilane Object Free Area (TOFA) Width	79 feet	115 feet
Taxiway Wingtip Clearance	20 feet	26 feet
Taxilane Wingtip Clearance	15 feet	18 feet

Source: FAA AC 150/5300-13B, *Airport Design*

Exhibit 4.5-4: Taxiway Design Codes for TDG 1A, 1B, and 2A & B

Design Standard	1A	1B	2A & B
Taxiway Width	25 feet	25 feet	35 feet
Taxiway Edge Safety Margin	5 feet	5 feet	7.5 feet
Taxiway Shoulder Width	10 feet	10 feet	15 feet
Taxiway/Taxilane Centerline to Parallel Taxiway/Taxilane Centerline W/ 180 Degree Turn	70 feet	105 feet	162 feet

Source: FAA AC 150/5300-13B, *Airport Design*

4.6. Runway Analysis

4.6.1. Runway Dimensions

The runway analysis shown in **Exhibit 4.6-1** was conducted in accordance with FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, to determine overall flight requirements to ensure that the existing and future runway lengths are suitable for the forecasted critical design aircraft.

At 4,218 feet long, Runway 9-27 can accommodate most smaller aircraft under 12,500 pounds without aircraft weight limitations, which represents a large portion of the airport's current users. However, for larger aircraft, the runway length can be limiting, especially on hot and humid days as aircraft performance decreases. Another potential limiting factor is contaminants on the runway, such as snow, ice, and slush. By comparison, turf Runway 8-26 is only able to accommodate small aircraft with short runway length needs. Based on the critical aircraft, additional length for Runway 9-27 is recommended, extending to 5,000 feet. This is based on the shortest recommended length for large aircraft (matching MRT's critical aircraft) of 4,990 feet and then simply rounded up 10 feet to an even 5,000 feet. Given the frequent jet traffic this length is justified, however the next chapter will review alternatives to see if this length is feasible given the airport's property lines and surrounding land uses. This length, 5,000 feet, is also the recommendation for MRT in the Ohio Airports Focus Study, a technical study undertaken by ODOT looking at the state's system of airports.

The FAA runway width design standard for ARC B-II is 75 feet for approach visibility minimums of 1 mile. The current runway is 75 feet wide and matches the standard for the current critical aircraft and minimums. No change is justified.

Exhibit 4.6-1: Runway Length Calculation

Airport and Runway Data	Input
Airport Elevation	1,021 Feet
Mean Daily Maximum Temperature of the Hottest Month	83°F
Maximum Difference in Runway Centerline Elevation	35 Feet
Runway Lengths Recommended for Airport Design	**Length**
Small Airplanes with Approach Speeds <30 Knots	330 feet
Small Airplanes with Approach Speeds >30 Knots, <50 Knots	880 feet
Small Airplanes with <10 Passenger Seats	
75% of these Small Airplanes	2,790 Feet
95% of these Small Airplanes	3,300 Feet
100% of these Small Airplanes	3,920 Feet
Small Airplanes with 10 or More Passenger Seats	4,340 Feet
Large Airplanes weighing less than or equal to 60,000 pounds	
75% of these Large Airplanes at 60% Useful Load	4,990 Feet
75% of these Large Airplanes at 90% Useful Load	6,570 Feet
100% of these Large Airplanes at 60% Useful Load	5,690 Feet
100% of these Large Airplanes at 90% Useful Load	8,390 Feet
Airplanes of more than 60,000 pounds	Approximately 5,370 Feet

Source: FAA AC 150/5325- 4B, *Runway Length Requirements for Airports*

4.6.2. Runway Strength

While pavement strength is not a critical factor for single events, over time operations by aircraft that exceed a runway's pavement strength degrade the pavement prematurely and create wear issues that require more aggressive pavement maintenance.

Runway 9-27 has a single-wheel pavement strength rating of 17,000 pounds. MRT's critical aircraft was a grouping of aircraft with similar characteristics. Two of the more common aircraft currently operating at the airport at the Air Tractor 802A and Cessna Citation CJ4. The Air Tractor 802A's maximum takeoff weight (MTOW) is 16,000 pounds and the Cessna Citation CJ4's MTOW is 17,110 pounds. The current pavement strength is the minimum for current traffic. Additional pavement strength would better accommodate current traffic and new, heaver aircraft as well as reduce premature wear. It is recommended that MRT maintain, at a minimum, the current pavement strength of the primary runway. At the time the runway is rehabilitated, a runway strength analysis should be performed.

4.6.3. Runway Protection

FAA AC 150/5300-13B, *Airport Design* provides design standards to protect the runway environment. **Exhibit 4.6-2** lists the design standards Runway 9-27 and Runway 8-26.

Exhibit 4.6-2: Runway Protection

	Runway 9-27 B-II Large Aircraft (1 Mile Min.)	Runway 8-26 (Turf) A-I Small Aircraft (Visual Only)
Runway Centerline to:		
– Taxiway Centerline	240 feet	150 feet
– Aircraft Parking Area	250 feet	125 feet
Runway Object Free Area (ROFA):		
– Width	300 feet	250 feet
– Length Beyond Runway End	300 feet	240 feet
Runway Safety Area (RSA):		
– Width	150 feet	120 feet
– Length Beyond Runway End	300 feet	240 feet
Runway Protection Zone (RPZ):		
– Inner Width	500 feet	250 feet
– Outer Width	700 feet	450 feet
– Length	1,000 feet	1,000 feet

Source: FAA AC 150/5300-13B, *Airport Design*

FAA guidance dictates that the Airport owner must have sufficient interest in the Runway Protection Zone (RPZ) area to protect it from both obstructions and incompatible land use as well as striving to attain compatible zoning around the airport. The airport has been proactive in obtaining control of the primary runway RPZs. Aside from where Weaver Road crosses, the airport controls the land through fee simple for the entirety of the Runway 9 RPZ. The airport controls the land either through fee simple or avigation easements for the Runway 27 RPZ except for where Industrial Parkway and railroad run north to south through it. Obtaining control of these areas is not possible. For the Runway 8 RPZ, there is a small slice of the southern side that is on non-controlled farmland to the south of the airport property line. The airport should pursue control of this area, either through an avigation easement or, more preferably, land acquisition. Existing runways that do not meet current RPZ

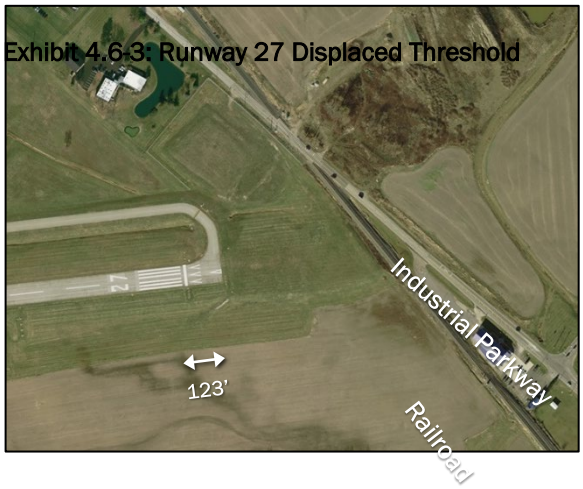
criteria are grandfathered into their existing condition until such time as the Airport Sponsor performs one of the following:

1. An airfield project (e.g., runway extension, runway shift)
2. A change in the critical design aircraft that increases the RPZ dimensions
3. A new or revised instrument approach, that increases the RPZ dimensions
4. A local development proposal in the RPZ (either new or reconfigured)

4.6.4. Runway Threshold

As shown in **Exhibit 4.6-3,** the Runway 27 end (east end of the primary runway) has a 123-foot displaced threshold due to the presence of a railroad and road. Based on the latest surveyed elevations, for the Threshold Siting Surface (Type 4) to clear the railroad, the threshold needs displaced an additional 94 feet to the west, bringing the total displacement to 222 feet. This would not clear the Part 77 penetration, which would require the physical end of the runway to moved approximately 636 feet, rather than only the marked threshold.

Exhibit 4.6-3: Runway 27 Displaced Threshold



Source: Woolpert

4.6.5. Runway Layout

The two runways at MRT run parallel to each other (**Exhibit 4.6-4**). From centerline to centerline the separation between the runways is 160 feet. Runway 8-26 is located outside of Runway 9-27's ROFA and vice versa. As these runways are not designed for simultaneous use and Runway 8-26 is VFR only, parallel runway separation standards in FAA AC 150/3500-13B are not applicable. It is imperative these runways are not operated simultaneously and that the airport clearly denotes and NOTAMs the proper manner of flying at the airport.

Exhibit 4.6-4: Runway Layout

Source: Woolpert

4.7. Taxiway/lane Analysis

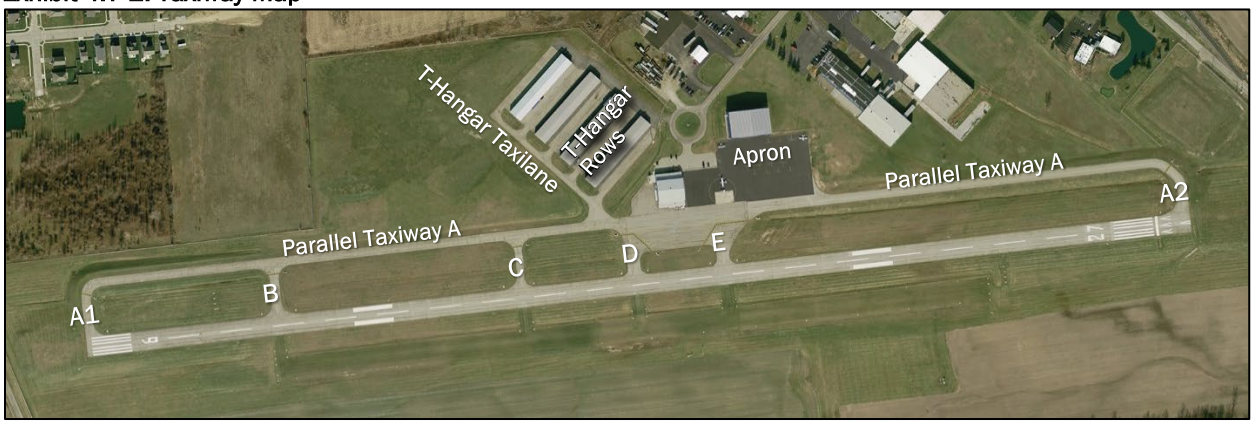
Taxiway design standards and principles (listed in Exhibit 4.7-1) are based on a combination of the ADG and TDG criteria, also defined in FAA AC 150/5300-13B. A taxiway system should be designed to facilitate safe and efficient aircraft movement to and from the runways and aprons that serve terminal buildings, hangars, and general aviation facilities.

Exhibit 4.7-1: Taxiway Design Principles

Design Principle	Summarized Definition
Steering Angle	Design taxiways such that the nose gear steering angles is < 50 degrees
Fillet Design	Traditional fillet design standards have been replaced New fillet design more effectively reflects aircraft wheel tracks
Standardize Intersection Angles	90-degree turns 30, 45, 60, 90, 120, 135, and 150-degree preferred intersection standard angles
Safety and Object Free Areas	Areas along the edges of taxiways to protect aircraft and property
Concepts to Minimize Runway Incursions	
Increase Pilot Situational Awareness	Utilize the "three-node concept" Pilot should have three or fewer choices at an intersection (left, right, straight ahead)
Avoid Wide Expanses of Pavement	Wide pavement requires placing signs far from a pilot's eye
Limit Runway Crossings	Reduces the opportunity for human error
Avoid "High Energy" Intersections	Located in the middle third of the runways Limit the runway crossings to the outer thirds of the runway
Increase Visibility	Provide right angle intersections for best pilot visibility Acute angle runway exits should not be used as runway entrance or runway crossing
Avoid "Dual Purpose" Pavements	Runways used as taxiways and taxiways used as runways can lead to confusion
Runway Direct Access	Eliminate taxiways leading directly from an apron to a runway
Hot Spots	Limit the number of taxiways intersecting in one spot

Source: FAA AC 150/5300-13B, *Airport Design*

Exhibit 4.7-2: Taxiway Map



Source: Woolpert

Exhibit 4.7-2 depicts the taxiway system at MRT. Based upon the critical aircraft and fleet mix at the airport, MRT needs to accommodate, at a minimum, ARC B-II and TDG 1B design standards. For areas already designed and

constructed for TDG 2 the dimensions should be maintained. At MRT the Parallel Taxiway A, designed for TDG 2, is a 35-foot wide, full-length parallel taxiway serving Runway 9-27 with six connectors (A – E). The connectors vary in width, with the narrowest (C Connector) being 30 feet. Constructing projects that preserve the ability to move up to TDG 2 standards in the future is critical for long-term planning and financial responsibility. A key difference between TDG 1B and TDG 2 standards is the taxiway width: 25 feet for TDG 1B compared to 35 feet for TDG 2.

Exhibit 4.7-3: Taxiway System

Taxiway/Taxilane	Width (Min.)	ADG	TDG	Width		Safety Area		Object Free Area	
				Standard	Met	Standard	Met	Standard	Met
Parallel Taxiway A	35’	II	1B	25’	Yes	79’	Yes	131’	Yes
A1 Connector	35’	II	1B	25’	Yes	79’	Yes	131’	Yes
B Connector	35’	II	1B	25’	Yes	79’	Yes	131’	Yes
C Connector	30’	II	1B	25’	Yes	79’	Yes	131’	Yes
D Connector	50’	II	1B	25’	Yes	79’	Yes	131’	Yes
E Connector	50’	II	1B	25’	Yes	79’	Yes	131’	Yes
A2 Connector	35’	II	1B	25’	Yes	79’	Yes	131’	Yes
T-Hangar Taxilane	18’	I	1A	25’	No	49’	Yes	79’	Yes
T-Hangar Rows	18’	I	1A	25’	No	49’	Yes	72’	Yes

Source: FAA AC 150/5300-13B, *Airport Design*

None of the T-hangar doors exceed 43 feet in width. The separation between T-hangars buildings is 76-77 feet in the unmarked taxiing area in between the T-hangar rows. This separation distance meets the separation distance required to allow aircraft that rent one of the T-hangars to taxi between the T-hangar buildings. It’s recommended that the Airport install signage at the entrance of the T-hangars that aircraft taxiing between T-hangar buildings have wingspans less than 43 feet.

Based on the taxiway design principles noted above, as well as key FAA taxiway design standards, the following items were noted:

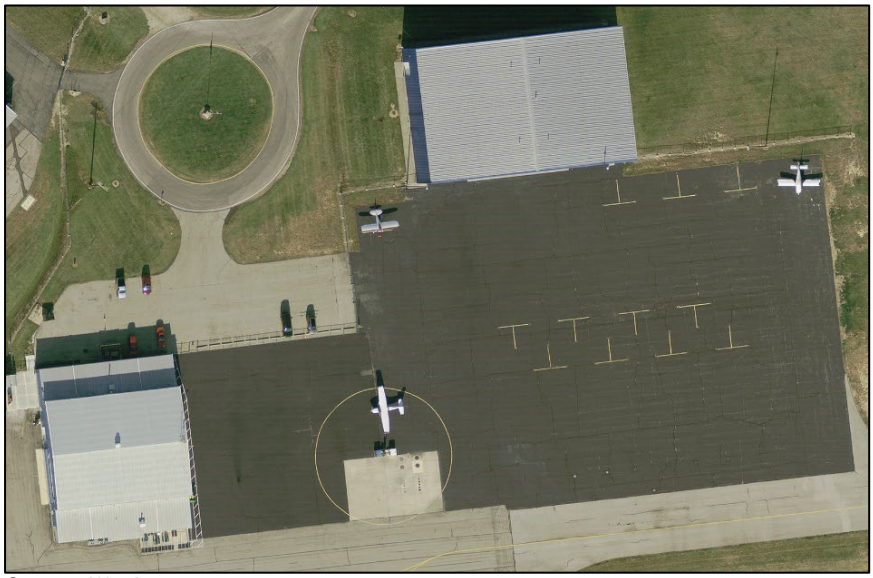
- The airport meets the ‘three-node concept’ as there are no intersections with more than three choices.
- Taxiway E connector currently permits direct runway access from the main apron. The taxiway connector will be relocated to the east of the future apron expansion to ensure no direct access to the runway from either the existing or future aprons.
- Taxiway fillet designs need updated. Notably, Taxiway Connector A2 is non-standard and large aircraft operators have indicated making the turn from the parallel taxiway to the runway can be challenging.
- There are minimal runway crossings; only for aircraft landing on the turf runway and taxiing to the terminal area.
- No pavement is used for dual purposes of a runway and taxiway.
- The parallel taxiway centerline jogs to the south to provide proper clearance around the FBO building. This then reduces the distance from the taxiway centerline to runway centerline from 240 feet (which is the design standard) to 200 feet. Potential options to provide 240-foot separation for the entire distance of the parallel taxiway include shifting the entire runway the south, removing the center portion of the parallel taxiway, reducing the FBO building size, or relocating the FBO building entirely.
- Based on the forecast of aviation activity, additional hangar and apron space may be needed to keep pace with demand. As such, any modification or expansion of the terminal area apron may require additional taxilanes or connectors to Taxiway A to provide for efficient aircraft flow.

- The taxilane leading to the T-hangars on the northside of the airport is 18 feet wide. The design standard for small aircraft (ARC A-I/B-I) is a 25-foot wide taxilane. There is adequate space available to widen the taxilane and still maintain proper object free clearance from the existing hangar buildings.

4.8. Apron

An apron must accommodate the required aircraft parking positions in addition to the required maneuvering space based on ADG standards. Specifically at MRT, aircraft maneuvering must accommodate safety standards setbacks for ADG II wingspan aircraft for the terminal apron area and ADG I for remote tie-downs and T-hangar areas. The preferred apron design for general aviation apron space is a dual taxilane configuration to support taxi-in and taxi-out operations (such that there is a taxilane on both sides of tie-downs, allowing for easier and safer parking).

Exhibit 4.8-1: Apron Area



Source: Woolpert

There are currently 13 tie-downs on the apron area, in addition to the fueling area which is delineated by a 100-foot wide marked circle (See Exhibit 4.8-1). No additional tie-downs are required to serve current and forecast aircraft levels. For planning purposes, an estimation of apron area is made based on the forecast peak design periods. The apron sizing calculator shown in **Exhibit 4.8-2** assumes the number of based aircraft and operations will reach levels predicted in the forecast. The results indicate that the current apron space is suitable to accommodate the forecasted activity within the 20-year planning period. Additional apron space and/or taxilanes for access will be required, however, as new hangars and other airport amenities are developed.

There are no marked taxilanes on the apron. The apron appears to have been designed to accommodate dual ADG I taxilanes around the tie-down area, although no taxilanes are marked. Sufficient spacing exists between tie-downs for ADG I Taxilane OFA clearance. If the airport desires to allow larger aircraft (ADG II) to utilize the tie-down area, the layout needs reevaluated in order to provide full clearance. In either case, proper taxiing markings should be made on the apron area.

Exhibit 4.8-2: Apron Calculator

Apron Size Calculations for Transient Aircraft

Airport	Union County Airport
Location	Marysville, Ohio

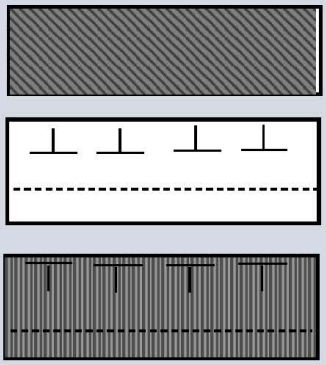
Existing Apron # square yards → 84,000

Calculations are based upon guidance established within Appendix 5 to AC 150/5300-13. User may calculate size of apron based upon total annual ops or user may develop an estimate of annual operations

	Based Aircraft	OR	Total Annual Ops
1. Calculate the total annual operations			
Enter number of based aircraft →	69		
Enter number of operations per aircraft [1] →	413		
Total Annual Operations →	28,500		28,500
2. Busiest Month (% of Annual Ops) [2]			
Enter % of Annual Ops that occur in busiest month →	15		
Busiest Month Operations →	4,275		4,275
3. Busiest Day (10%>Avg Day)			
Enter Busiest Month (e.g. August) →	Jul		
Avg Day Busy Month →	143		143
Busiest Day 10% > avg. day →	157		157
4. # Itinerant Aircraft			
Enter % of Itinerant Operations [3] →	45		
# Itinerant Aircraft operations →	71		71
# Itinerant Aircraft Landing Operations →	35		35
Enter % of Itinerant Operations on ground →	50		
# Itinerant AC on ground (assume 50%) →	18		18
5. Apron area			
# square yards per aircraft [4] →	1075		
Apron Area (sq yds) →	18,957		18,957
6. Planned Apron (10%>)			
# square yards →	20,853		20,853

NOTES:
1. Ops/Based Aircraft:
   Small GA-250 Med GA-350 Reliever-450 Busy Reliever-750
2. Amount of activity can be determined from fuel sales or from actual operations counts. For example if month with highest fuel sales accounts for 20% of annual sales, use 20% of annual as busy month. If actual traffic counts available, use those.
3. Assume 50% of operations are itinerant if no records are available.
4. Planning areas shown assume 10' clearance between wingtips. Taxilane @ edge places taxilane on edge of apron.
5. Users requiring assistance or reasonable accommodation may contact the FAA Central Region at 816-329-2600.

Apron Area	w/Taxilane
Group I	960
Group II	1,385



Source: FAA Central Region

4.9. Fueling

Exhibit 4.9-1: Fueling Area

Source: Woolpert

The existing fueling services are located adjacent to the terminal in the apron area (Exhibit 4.9-1). While this location provides easy access and space for taxiing maneuvering, it requires a large amount of area in a highly desirable location and is a potential hazard for errant aircraft. The airport currently has underground tanks for fuel storage. New fuel farms rarely, if ever, utilize underground tanks due to environmental and maintenance issues. New fuel installations use above ground tanks with secondary containment areas. The self-fueling capabilities should be relocated to accommodate safer fueling operations, above ground tanks, and allow for additional taxiing and parking area. Spill containment should be developed for all new fueling tanks/pads. National Fire Prevention Association (NFPA) 415, Standard on Airport Terminal Buildings, Fueling Ramp, and Loading Walkways includes minimum requirements for the design and maintenance of the drainage system of an aircraft fueling ramp to control the flow of fuel that can be spilled on a ramp and to minimize the resulting possible danger. Additional fuel storage is not required to adequately serve current and forecasted activity levels.

As the demand for alternative fuel increases, the airport will need facilities and equipment to accommodate both the storage and distribution of the alternative fuel. The airport should consider planning for one or more charging stations for electric aircraft as well as automobiles. In addition, the airport should preserve space at the fuels storage and dispensing locations for additional fuels tanks for future aircraft fuels.

4.10. Airfield Marking and Signage

Pavement markings are used to assist pilots and airport personnel with visually identifying important features on the airfield. The FAA has defined several different pavement markings to foster safety and situational awareness though FAA AC 150/5340-1, Standards for Airport Markings, and AC 150/5340-18, Standards for Airport Sign Systems. Runway 9-27 is equipped with lighted guidance signs. Both ends of this runway are marked with non-precision runway markings and Runway 27 end is marked with a displaced threshold. The outline of turf Runway 8-26 is marked with turf cones. Additionally, the turf connectors to Runway 9-27 from Runway 8-26 are mowed and marked.

On the paved surfaces the taxiway centerlines and holdlines are properly marked. For most connectors, the holdlines are placed 200 feet from the runway centerline, matching B-II standards. Holdines for the center connectors D and E are angled such that an aircraft could be only 125 feet from the runway centerline. The geometry of these holdlines needs corrected.

4.11. Lighting

The primary runway is lighted by incandescent medium intensity runway lights (MIRL), which has pilot control activation through the Common Traffic Advisory Frequency (CTAF). Runway 9-27 is served by PAPIs and REILs on both ends. The parallel taxiway is lighted by medium intensity taxiway lights (MITL). This system was upgraded to LED in 2019, so no further improvements necessary in the foreseeable future. There are flood lights on the north side of the apron providing nighttime illumination for pilots and additional security.

4.12. Airport Fencing and Security

Fencing helps keep vehicles, pedestrians, and animals from inadvertently accessing the airfield. A portion of the airfield is currently fenced of varying types and heights (ranging from 4' to 12'). FAA inspection reports have noted the presence of wildlife in and around the airport operating area. Recommendations should be followed from the completed wildlife hazard assessment. For increased security and safety, the entire airfield should be fenced. The fence should be of an adequate height to prevent deer from leaping over it.

4.13. Airport Beacon

Airport rotating beacons indicate the location of an airport by projecting beams of light spaced 180 degrees apart. These beacons are required for any airport with runway edge lights. Alternating white/green flashes are used to identify a lighted civil airport like MRT and are normally operated from dusk until dawn. Beacons should be located to not interfere with pilot vision and should be within 5,000 feet of a runway. There are no known deficiencies with the MRT airport beacon location or operation.

4.14. Wind Tee, Wind Sock, and Segmented Circle

The airport's wind tee and wind sock are located mid-field on the southern edge of the airport property. These items are located a few feet within the Runway 8-26 ROFA and should be relocated. A segmented circle is a system of visual indicators designed to provide traffic pattern information at airports without operating control towers. There airport does not have a segmented circle. Given that MRT has standard left-turn traffic patterns for the parallel runway ends, a segmented circle would be especially beneficial for pilots and should be considered for installation. The circle should be installed in a position affording maximum visibility to pilots in the air and on the ground. Consideration should also be given to accessibility for ground operations. A location near the relocated wind tee and windsock on the south side of the runways would be most convenient for pilot locating and visual scanning.

4.15. Aircraft Parking and Storage

At MRT there are two box hangars and four rows of T-hangars. In total, these buildings provide approximately 90,000 square feet of aircraft storage. An estimation of needed hangar facilities is made based on forecast peak design period. However, as with apron and tie-down, actual hangar and apron development should be based on the realized demand and financial conditions of the airport. While actual utilization of hangar space varies across airports and climate regions, national trends are moving toward more sophisticated and expensive aircraft. As a result, owners want to protect their investments and thus prefer enclosed space rather than outside storage.
To estimate future hangar space needs, certain planning assumptions were made on the amount of space need to hangar each aircraft type. In review of the FAA Aircraft Characteristics Database and the potential aircraft that can use the airport, the following storage area assumptions are made (see **Exhibit 4.15-1**):

Exhibit 4.15-1: Storage Area Needed for Different Aircraft Types

Type	Storage Area*	Square Feet
Single-Engine Piston	45 feet x 35 feet	1,575 SF
Multi-Engine Piston	50 feet x 40 feet	2,000 SF
Turbine	65 feet x 60 feet	3,900 SF

*includes a 5-foot buffer around aircraft
Source: Woolpert, FAA Aircraft Characteristics Database, 2019

Exhibit 4.15-2 lists the additional aircraft that are forecasted to be stored over the planning period along with corresponding storage space requirements. Using this estimated storage space, approximately 14,000 square feet of additional hangar space is needed to accommodate the forecasted aircraft from MRT. MRT is currently planning and designing a new multi-unit T-hangar that will be located to the west of the existing T-hangars.

Exhibit 4.15-2: Additional Aircraft to be Hangared

Aircraft Type	20 year Forecast	Square Feet Needed
Single Engine Piston	5	7,875 SF
Multi Engine Piston	1	2,000 SF
Turbine Engine	1	3,900 SF
TOTAL	**7**	**13,775 SF**

Source: Woolpert

4.16. Airport Access and Parking

Section 131 of the FAA Modernization and Reform Act of 2012 (49 U.S.C. § 47101(g)(2)) requires airport master plans to consider passenger convenience, access to airport facilities, and ground access. FAA AC 150/5060-6B, Airport Master Plans, provides guidance that states that the master plan may evaluate considerations that "will improve the overall passenger experience – enhancing the passenger's sense of convenience and facilitating access to and from and through the airport complex." At general aviation airports such as MRT, this includes considerations like ample auto parking and road access.

4.16.1. Passenger Convenience

Passenger convenience is generally considered the ease of throughput and flow of passengers using the airport terminal and facilities. In terminal area planning there must be a balance between convenience, operating efficiency, cost, and aesthetics. As MRT is not a commercial service airport (e.g., scheduled airlines), a major throughput of passengers does not exist. Currently, the FBO serves as the dedicated entry point for people outside of hangar tenants. This space provides a pilot briefing room, a lounge area, WiFi, restrooms, snacks, and coffee. Currently, this building meets the needs of the airport users.

4.16.2. Access

The airport is currently accessible from a roundabout at the end of Clymer Road, which is accessed off Columbus Avenue. There are two small airport directional signs on Columbus Avenue, one on the northwest and another on the southeast. Additional and more visible wayfinding signage on Clymer Road and Columbus Avenue would assist individuals in locating the airport. An updated entry sign at the edge of the airport property next to the roundabout would improve airport branding and general visibility to the community.

4.16.3. Automobile Parking

Parking requirements for airports vary based on size and services. While an airport many have an appropriate number of total parking spaces for its size and operation, those spaces may not be appropriately located. For airport parking lots, a general rule of thumb for the number of parking spaces is as follows[1]:

- Terminal - 2.5 spaces per peak-hour operations
- T-Hangar - .5 per unit
- Box Hangar – 1 per 1,000 square feet
- Apron – .5 per tiedown
- Administration – 1 per employee

There are approximately 52 parking spaces currently at MRT. Using these general rule of thumb numbers, total parking needs at MRT would be 100 (**Exhibit 4.16-1**)**.** While this provides for a general number of parking spaces needed over the planning period, planning for the appropriate number of spaces in the correct locations is most important. For example, each T-hangar row currently has four parking spaces designated. While this falls short of the recommended .5 spaces per unit, to date this parking has been sufficient for the T-hangar tenants.

Exhibit 4.16-1: Parking Space Requirements

Area	Units	Parking Spaces
Terminal	16 Peak Hour Operations	40
T-Hangars	55 Units	28
Box Hangars	23,000 SF	23
Apron	13 tie-downs	7
Administration	2	2
TOTAL	-	**100**

Source: Woolpert

[1] ACRP Report 113, Guidebook on General Aviation Facility Planning, TRB, 2014

4.17. Summary

As aviation evolves and changes, so do the standards and requirements imposed by the FAA to ensure safety. MRT must continue to maintain and improve its airport facilities to meet these standards and the growing demands of the gambit of airport user, from business aircraft owners to weekend recreational users. MRT facility needs are summarized below.

- Increase runway length
- Increase runway strength
- Relocate runway threshold
- Acquire Runway 8-26 RPZ land/easement
- Correct parallel taxiway to runway centerline separation
- Increase T-hangar taxilane width
- Adjust holdlines on center connectors
- Add taxilane markings
- Adjust apron and tie-down layout
- Relocate fueling
- Install alternative fuel/electric
- Complete perimeter fencing
- Install segmented circle
- Relocate wind tee and wind sock
- Add aircraft storage (~14,000 square feet of hangar)
- Improve airport wayfinding and entry signage
- Increase automobile parking

Chapter 5: Alternatives Analysis

5.0 Introduction

This chapter analyzes alternative development options to meet the 20-year demand for airport facilities at MRT previously identified. This analysis systematically evaluates the options and provides the technical basis necessary for choosing a preferred development alterative to carry forward as part of the capital improvement program and Airport Layout Plan (ALP) drawing set.

As a 20-year plan, the recommended alternatives should be functional through various stages of the plan and should also have the flexibility to meet unforeseen future conditions. FAA guidance advises that only the functional elements needed as part of the forecast should be evaluated (e.g., airline gates are not a functional part of MRT and, therefore, are not included.) Additionally, if there are no facility needs associated with a functional element, it need not be included in the analysis either. Facility development where the best alternative is both non-controversial and intuitive in nature will not be subject to an alternatives analysis (i.e. wildlife fencing).

"The alternatives chapter brings together many different elements of the planning process to identify and evaluate alternatives for meeting the needs of airport users as well as the strategic vision of the airport sponsor. Airports have a wide variety of development options, so an organized approach to identifying and evaluating alternative development options is essential for effective planning."

- FAA AC 150/5070-6B, Airport Master Plans

The functional elements analyzed for MRT were the runway, parallel taxiway, terminal, hangars, apron, taxilanes, maintenance building, fueling system, and automobile access and parking.

5.1 Evaluation Criteria

A set of evaluation criteria were used to assist in the selection of a preferred development plan. Through an assessment that incorporates these criteria, the potential benefits and impacts of the various alternative development scenarios were compared to aid in the selection process. The criteria used include, but were not limited to the following:

- Safety/Operational Factors

  Alternatives were evaluated to determine their ability to safely accommodate future demand for aircraft and vehicles. This criterion evaluates alternative development concepts based on anticipated improvements to operational safety and capacity, tenant convenience, and other relevant planning considerations such as ability to meet or enhance FAA design standards.

- Environmental Factors

  A broad evaluation of environmental factors associated with development was part of the review and comparison of alternatives. Relevant environmental factors include those stipulated in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*. Additional considerations include potential physical impacts to the surrounding area and community.

- **Economic Considerations**

  Economic factors include historic infrastructure investment, the remaining useful life of existing airport facilities, anticipated alternative project costs, and property acquisition requirements. These factors provide a basis for comparing the cost-effectiveness and economic ramifications of various development scenarios.

- **Implementation Feasibility**

  There are often factors, both direct and indirect, that can impact an airport's ability to implement certain development alternatives. The practicability of constructing a new development is an example of a direct factor. Community and governmental acceptance are examples of less tangible or indirect implementation feasibility dynamics that were considered.

5.2 Sponsor and Public Outreach Summary

Due to the ongoing COVID-19 pandemic at the time, a user/tenant meeting was not held in person. An online survey was prepared and emailed to all tenants at the airport on January 6, 2021. Of the 55 surveys emailed, 28 were returned. Respondents' highest three requested improvements were all related to aircraft storage: 1. additional T-hangars, 2. medium-sized hangars, and 3. condo hangars. The Union County Airport Authority (UCAA) has confirmed a need for additional aircraft storage space and is actively pursuing adding T-hangars at the airport. The details and sample survey can be found in Appendix C.

MRT was presented development alternatives during their Board meetings on June 14 and July 12, 2022. In response to the presentations and working discussions, the Board concurred with the proposed development alternatives as show in the final development program in the Chapter 6, I*mplementation Plan and Financial Feasibility*. Of chief focus was the discussion of the runway length alternatives and potential realignment of the runway, along with the realignment alternatives of Weaver Road.

On August 3, 2022, the UCAA Board of Directors met with the Union County Commissioner's to provide a briefing on the status of the master plan and the draft proposed alternatives. The Commissioner's agreed the master plan was conducted in a thoughtful and prescribed manner and agreed with the recommendations. The Commissioners preferred the alternative for the construction of the tunnel for Weaver Road to travel under the proposed runway extension but made the caveat that the cost of the project without FAA funding would make that alternative not desirable.

On August 26, 2022, the UCAA Board of Directors met with the City of Marysville City Manager, representatives of the Marysville Planning & Engineering office, and the Union County & Marysville Economic Development Director to provide an update on the master plan and draft proposed alternatives. The City Manager supported the development recommendations and reiterated the importance of the airport to the City of Marysville, and the City Manager felt the master plan was thorough and made appropriate development recommendations to support the long-term growth of the airport so it may support the development of the community. The City Manager was also supportive of the tunnel for Weaver Road to pass under the proposed runway extension as it would provide emergency vehicles the most expeditious route to the communities south of the airport, rather than be forced to take a circuitous route around the west side of the airport property.

A public Information meeting was held on November 17, 2022 at the administration building at MRT. Advertisements were placed in the Marysville Journal-Tribune on October 18 and November 15, 2022. One person from the public attended the information session and provided a positive comment form, which can be found in Appendix D.

5.3 Runway Alternatives

Because all airport functions relate to and revolve around the basic runway/taxiway geometry, airside development alternatives are first to be examined and evaluated. While it is essential that the initial development recommendations for the Airport be commensurate with the near-term needs and requirements of the users, the long-term improvement (beyond the 20-year planning period) of the facility should also be considered and planned for to ensure the Airport's capability to accommodate future potential activity levels. Consequently, the main objective of the planning recommendations presented in this section is to identify future development that will result in a runway/taxiway system capable of accommodating forecasted aviation activity levels while preserving potential for unforeseen future development opportunities.

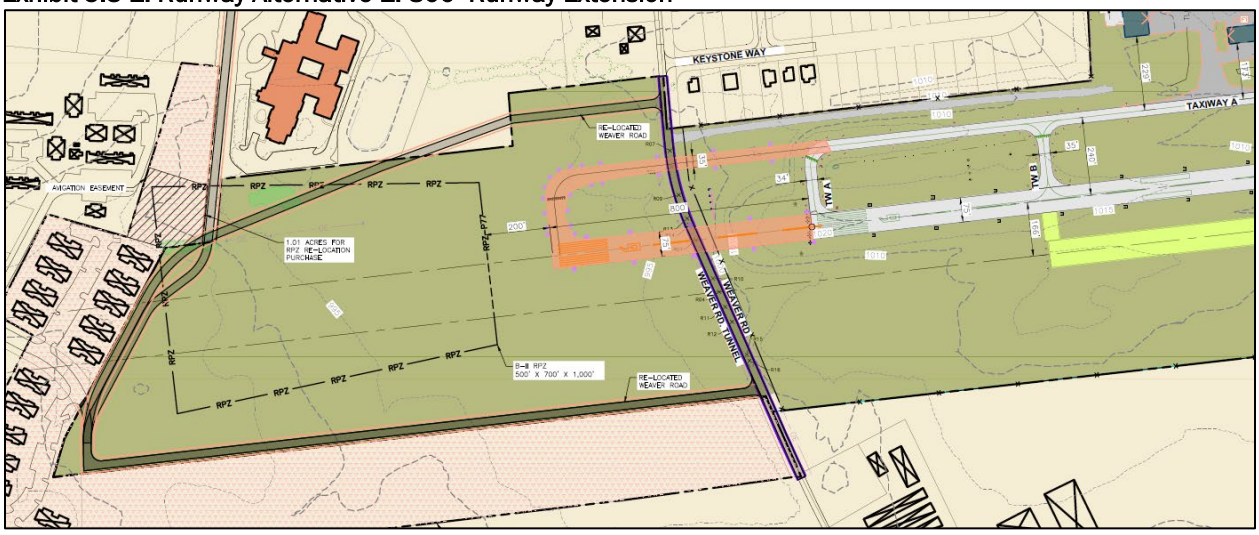
5.3.1 Runway 9-27

The facility requirements section identified the need for a longer primary runway up to 5,000 feet, based on current and forecasted aviation activity levels. The existing primary runway is 4,218 x 75 feet. The length for usable pavement is impacted by incompatible features and obstructions on the Runway 27 approach end resulting in a displaced threshold that reduces the landing distance. Due to the encroaching land uses surrounding the airport, accommodating the full recommended runway length of 5,000 feet was found unfeasible. Any extension to the east is not possible due to the presence of a highway and railroad, neither of which, notably the railroad, could be reasonably relocated. Therefore, numerous options were explored to gain additional runway length to the west. Primarily by adding length to the existing runway as well as some alternatives considering a slight reorientation. A *no action* alternative, that is not extending the runway, was also considered by the Airport Sponsor. The most reasonable runway alternatives are presented in the following exhibits.

Following multiple conversations with the UCAA Board in June and July 2022, and City and County representatives in August 2022, the 800' runway and parallel taxiway extension option was selected as the preferred alternative (**Exhibit 5.3-1**). This alternative was chosen based on a number of factors. As this option utilizes the existing runway, the associated cost is considerably lower than other options, other than the no action alternative. This layout provides the longest runway with no impacts to the Runway Protection Zone (RPZ) beyond the extended runway end. Any additional length (e.g., **Exhibit 5.3-2**) resulted in the RPZ overlaying residential homes. The community impact and cost associated with buying and relocating these homes was determined to be significant and prohibitive.

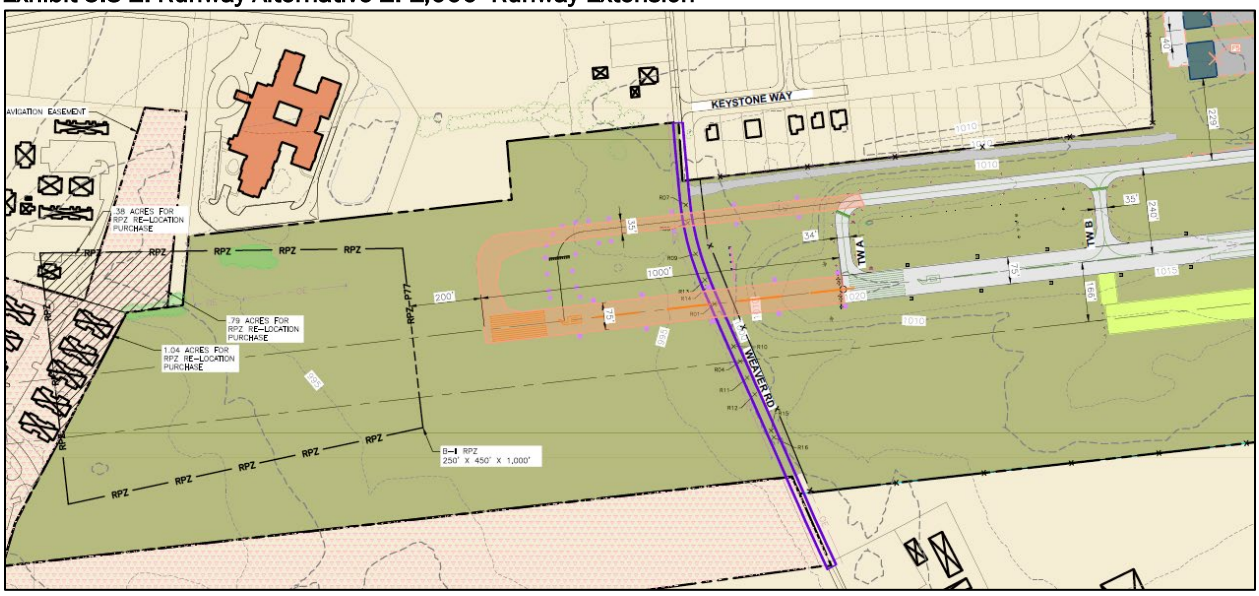
The slightly rotated runway alternatives were ultimately dismissed for two primary reasons. First, the length gained, compared to extending the existing runway, was minimal. Second, by rotating the runway the Runway 27 end would be modified which triggers a reevaluation of the RPZ and more significant mitigation of the highway and railroad. That would ultimately result in even less usable runway length. Rotating the runway to a more north/south orientation was examined, with multiple alternatives developed (not shown). Ultimately, these options were dismissed due to minimal length gain, massive associated costs, required land acquisition, and societal and environmental impacts of displacing local farmland.

Exhibit 5.3-1: Runway Alternative 1: 800’ Runway Extension



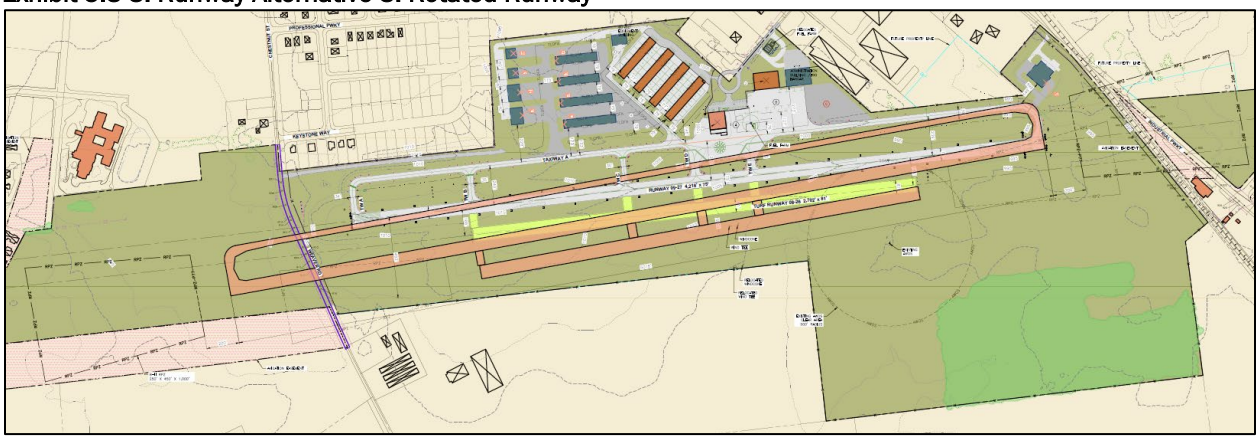
Source: Woolpert

Exhibit 5.3-2: Runway Alternative 2: 1,000’ Runway Extension



Source: Woolpert

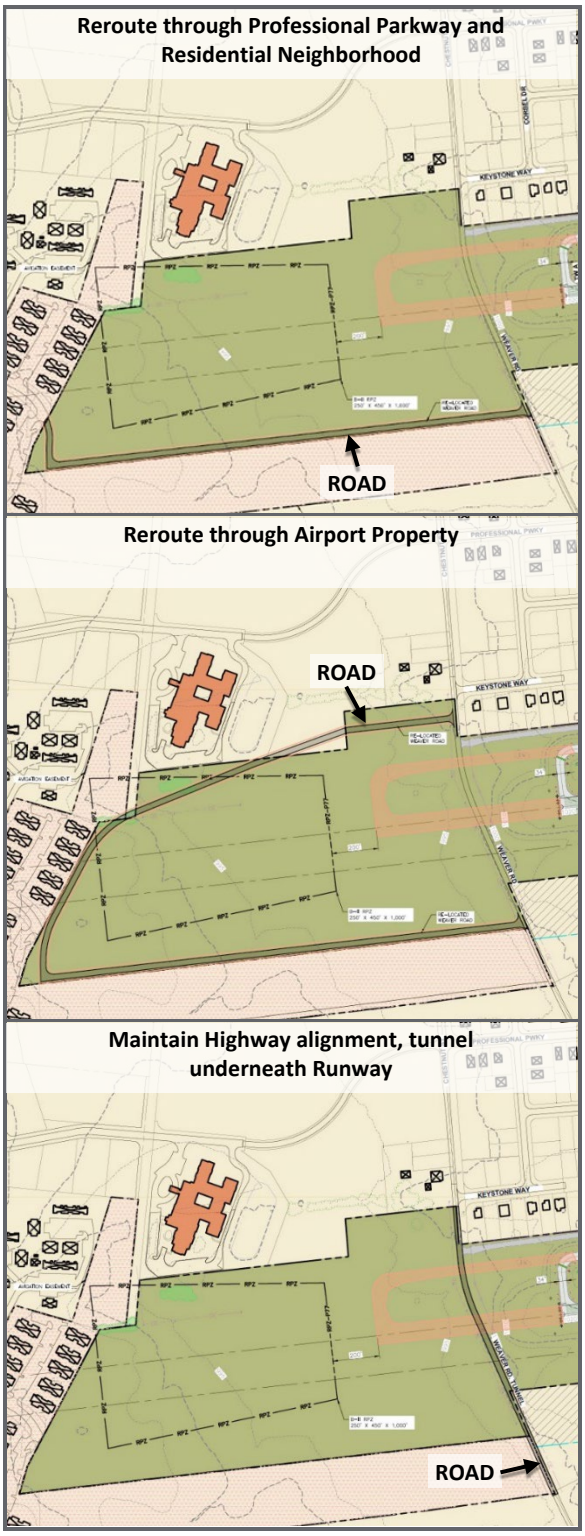
Exhibit 5.3-3: Runway Alternative 3: Rotated Runway



Source: Woolpert

5.4 Road Alternatives

Exhibit 5.4-1 County Road 52 (Weaver Road) Alternatives



Source: Woolpert

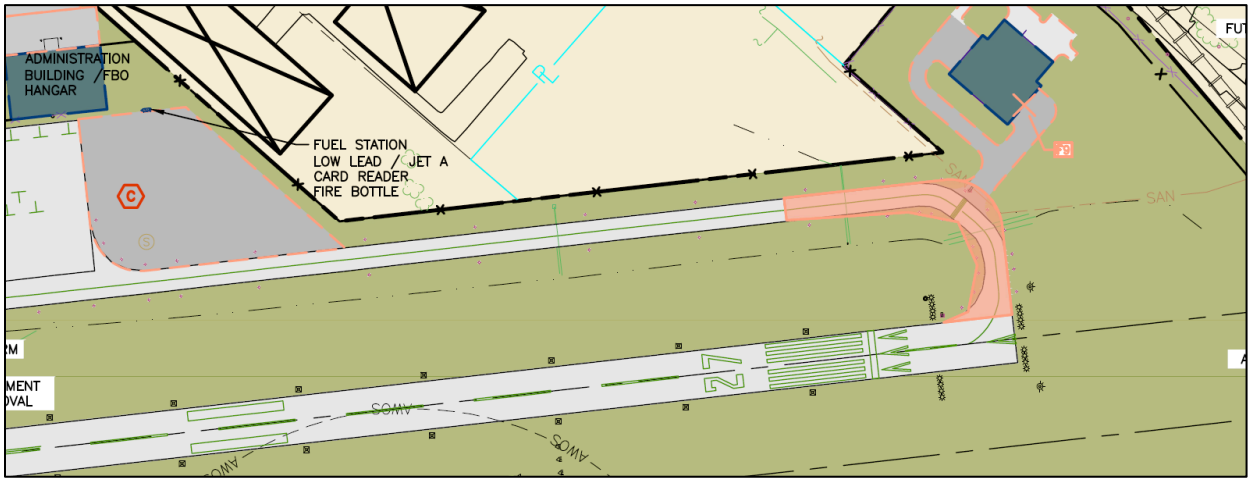
A critical component related to the runway extension is addressing Weaver Road (County Road 52). This highly used roadway exists on the western edge of the current runway RPZ. Four alternatives were reviewed: no action (closing the road), maintaining the current road alignment and constructing a tunnel, rerouting Weaver Road mainly on airport property, and rerouting the road through existing Professional Parkway and the residential neighborhood to the west. These alternatives, except for the no action, are depicted in **Exhibit 5.4-1**.

Ultimately, through discussion with the Airport Board and City of Marysville staff, it was determined that maintaining the existing county roadway alignment was a priority as this route is used by emergency vehicles (fire, ambulance, police, etc.) to access a large area of southern Marysville and the proposed changes, either road closure or rerouting, would increase emergency access time more than they would support. Additionally, the rerouting options would decrease the available area to extend the runway. It was decided that this important community factor outweighed the additional cost associated with constructing a tunnel, and, as such, the tunnel alternative was selected as the preferred alternative by the Airport Sponsor.

5.5 Taxiway Alternatives

In 2014, FAA AC 150/5300-13A, *Airport Design* was released which included major revisions to taxiway fillet designs. These revisions were carried forward to the current AC 150/5300-13B, *Airport Design*. As future pavement projects occur on the taxiway connectors at MRT, the updated fillet designs should be applied. Most notably, Taxiway Connector A2 at the far east end of the parallel taxiway and runway is non-standard and should be updated to better accommodate larger jet aircraft turning capabilities (see **Exhibit 5.5-1**).

Exhibit 5.5-1 Taxiway Connector A2



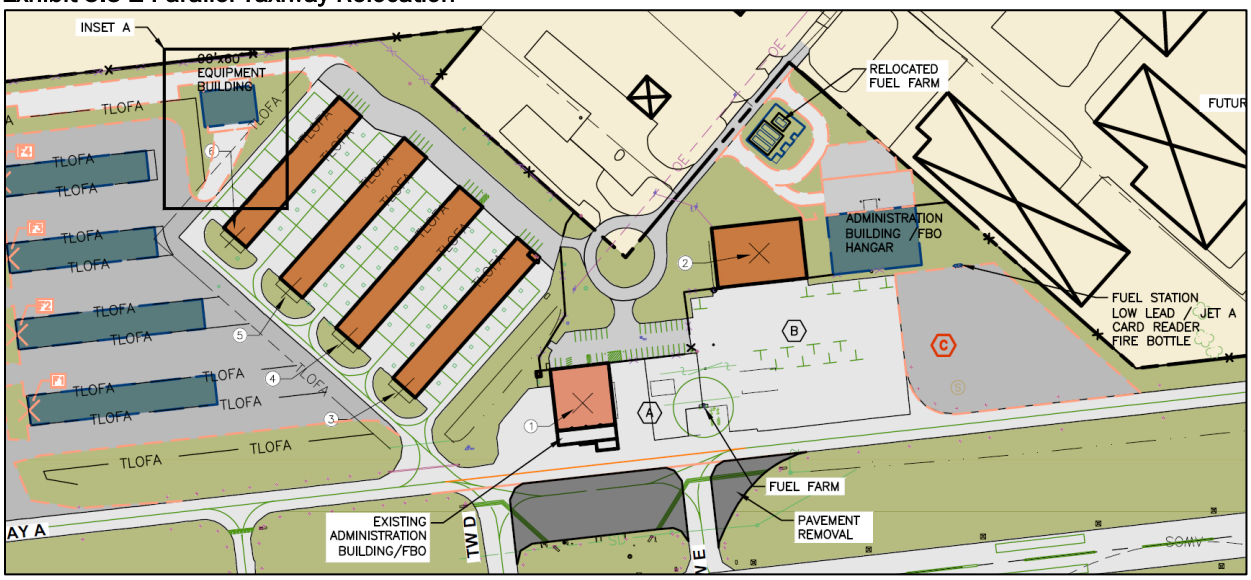
Source: Woolpert

The taxilane leading to the T-hangars requires widening to meet the 25-foot design standard. At the same time, the T-hangar taxiway should be strengthened to accommodate airfield maintenance equipment/snow removal equipment coming from the proposed maintenance building to the airfield.

The parallel taxiway centerline jogs to the south to provide proper clearance around the existing administration/FBO building. This then reduces the distance from the taxiway centerline to runway centerline from 240 feet (which is the design standard) to 200 feet. Potential options to provide 240-foot separation for the entire distance of the parallel taxiway include shifting the entire runway to the south, removing the center portion of the parallel taxiway, reducing the administration/FBO building size, or relocating the administration/FBO building entirely. The preferred alternative by the UCAA is to remove the south side of the existing administration building/FBO and relocate it to the northeast corner of the existing apron. The preferred alternatives for these fillet, width, and other revisions are shown below in **Exhibit 5.5-2.**

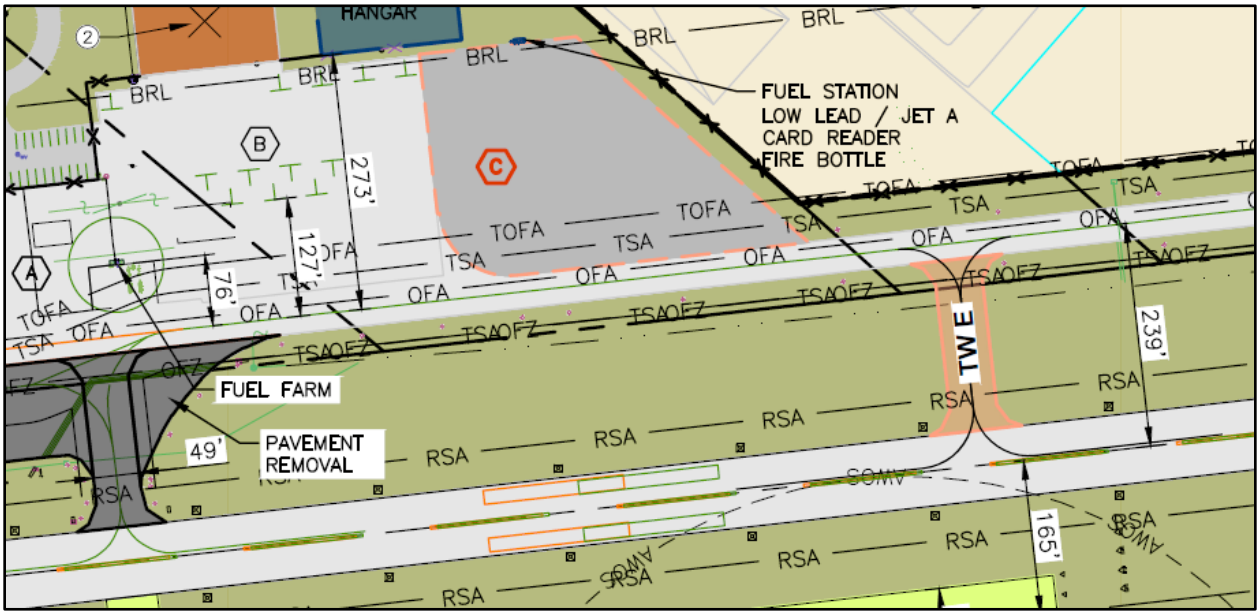
Taxiway E connector is currently positioned to allow aircraft to taxi directly from the main apron on to the runway. Per AC 150/5300-13B, *Airport Design*, taxiways connecting an apron directly to a runway can cause pilot confusion and is considered a safety issue. Accordingly, Taxiway E will be demolished in its current location and relocated east of the future Apron C. This is shown below in **Exhibit 5.5-3**.

Exhibit 5.5-2 Parallel Taxiway Relocation



Source: Woolpert

Exhibit 5.5-3 Taxiway E Relocation



Source: Woolpert

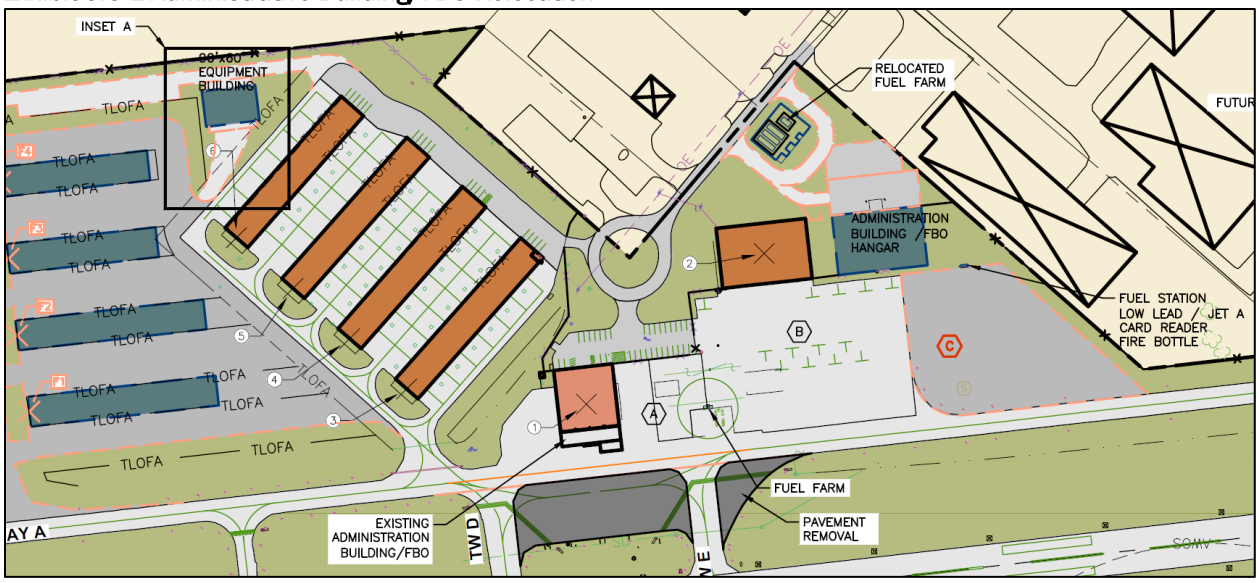
5.6 Administrative Building/FBO

The current administration/FBO is an older facility that was constructed in 1970. Due to existing impacts on the parallel Taxiway A, the UCAA desires to replace the existing administration/FBO and relocate it to a more desirable location next to the existing single volume hangar on the north side of the main apron (**Exhibit 5.6-1**).

This location was decided on due to its central location on the airport and would be co-located with the relocation of the fuel farm and fueling dispensers.

Several locations on the airport were briefly considered for a location to relocate the building. The first site was in the open area west of the existing T-Hangar development. This site was quickly rejected because this area was needed for the development of future hangar space, and access to the site was not readily available. In addition, a centrally located site was desirable to best serve the flying community. Likewise, a site east of the midfield area and west of Industrial Parkway was briefly reviewed and rejected due to not being centrally located in the midfield area, and land/access not being readily available. A site south of the existing turf runway was evaluated and determined to be undesirable because no infrastructure or access exists and require crossing the primary runway to access other airport infrastructure. The site adjacent to the existing single volume hangar was deemed the best location because the land and access is readily available, along with the plan to relocate the fuel farm to the north of the single volume hangar. This will allow for a collocated facility on the main existing apron, with the opportunity to construct another 100' x 100' single volume hangar adjacent to the new 50' x 100' administrative office/FBO.

Exhibit 5.6-1 Administrative Building/FBO Relocation



Source: Woolpert

5.7 Hangar Area

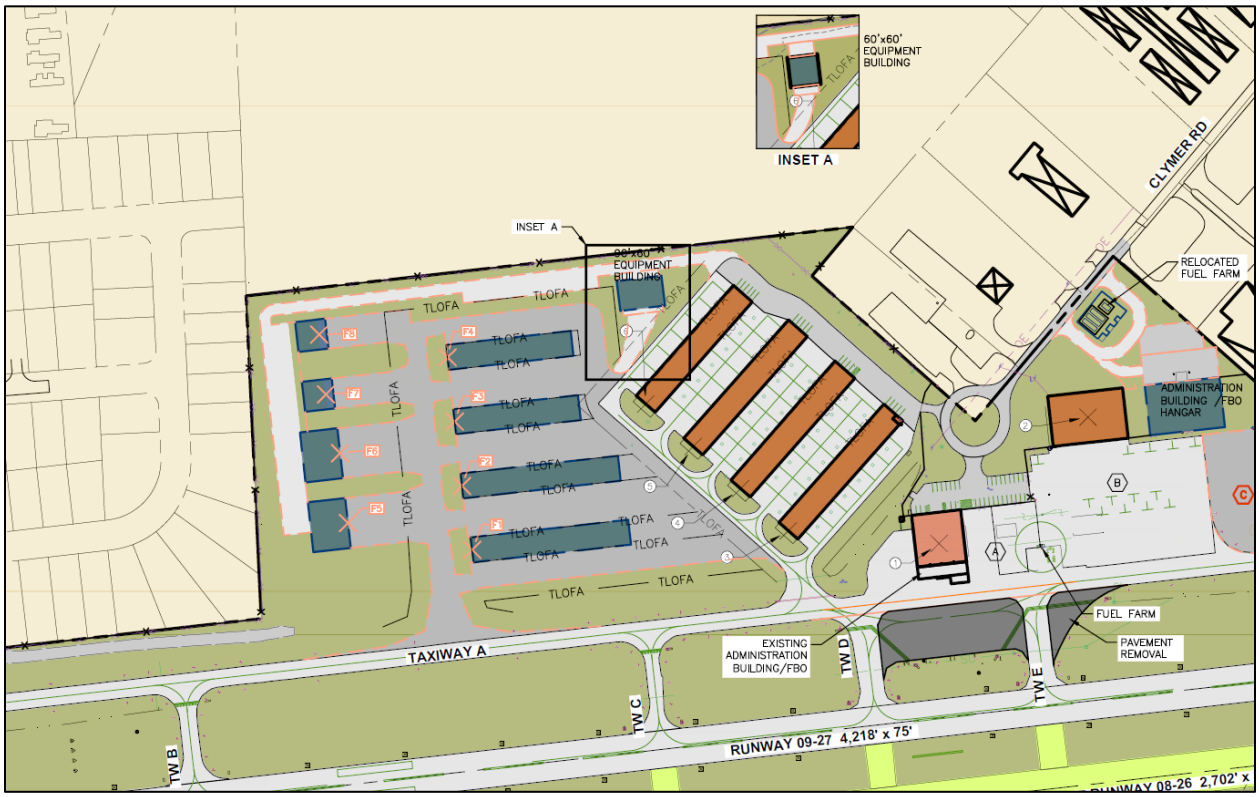
Conceptual layouts for the west hangar expansion area were carried forward from the previous master plan and then modified and decided prior to this current master plan. As such, this layout was incorporated into the future airport layout plan.

The hangar area evaluation sought to achieve a balance between the useful life of the T-hangars, meeting FAA design standards on object free areas, reasonable phasing of future development, and accommodations for future growth. In addition to the overarching criteria previously listed, the MRT evaluation for this area focused on the following planning guidelines, which reflect the airport's mission and role within the national airspace system:

- Meeting customer needs with quality service.
- Promote compatible land use on the airport.
- Co-locate like users/services where possible.
- Plan landside development in an efficient, flexible, and cost-effective manner.
- Preserve investment in existing facilities, property contiguous with taxiways and aprons for aviation purposes with airside needs.
- Maintain ARC B-II regulations and design standards.
- Be mindful of airport impact on neighborhoods.

The UCAA has a current wait list for T-hangar facilities that warrants the development of at least a 14-unit building. The UCAA designed a 14-unit building and put the project out for bids. Unfortunately, bids were not favorable, and the project was put on hold. A more modest 10-unit building is under consideration for the near future. In keeping with collocating like uses, the master plan preserved the area immediately west of the existing T-hangars for the development of multiple new T-hangar buildings that would utilize the existing taxilane. The existing taxiway needs widened. Moving to the west of the proposed T-hangars, common use/corporate box hangars are planned in the remaining land. These box hangars will be oriented with the hangar doors and aprons facing to the east, which will allow for a physical barrier for some level of noise reduction for the residential community that has been constructed immediately adjacent to the west and northwest of the airport.

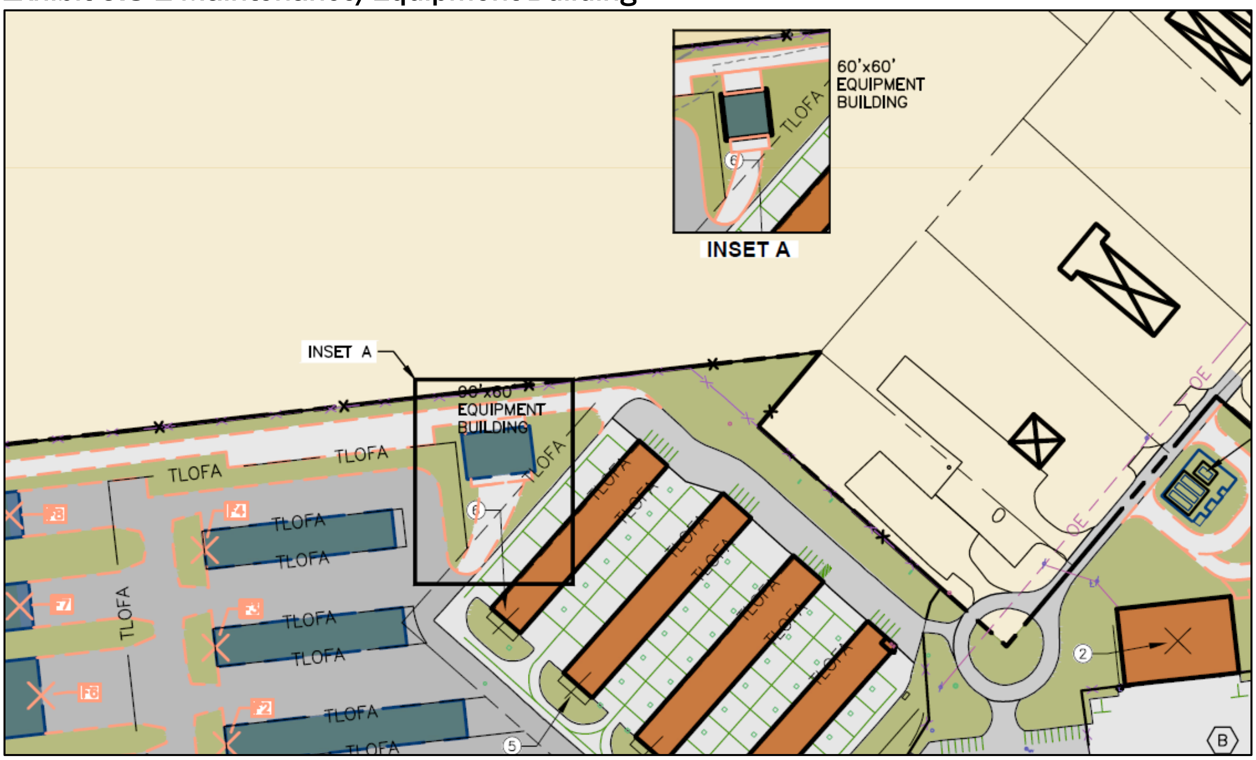
Exhibit 5.7-1 Hangar Area



5.8 Maintenance/Equipment Building

The airport needs a maintenance building for equipment and materials storage. The airport currently owns a large broom sweeper used for snow removal, formerly in service at two Part 139 airports. In addition, the UCAA plans to acquire additional support equipment once a storage facility is available and desires the ability to store a small dump truck on the airport to also be used for snow removal operations and hauling of various materials. A 2- or 3-bay maintenance building has been sited to the north of the existing and proposed T-hangars, to take advantage of existing pavements to access the airfield, while also siting it in a location that will not take up land that is more desirable for hangar development. In addition, utilities are readily available in the area with the existing T-hangar development.

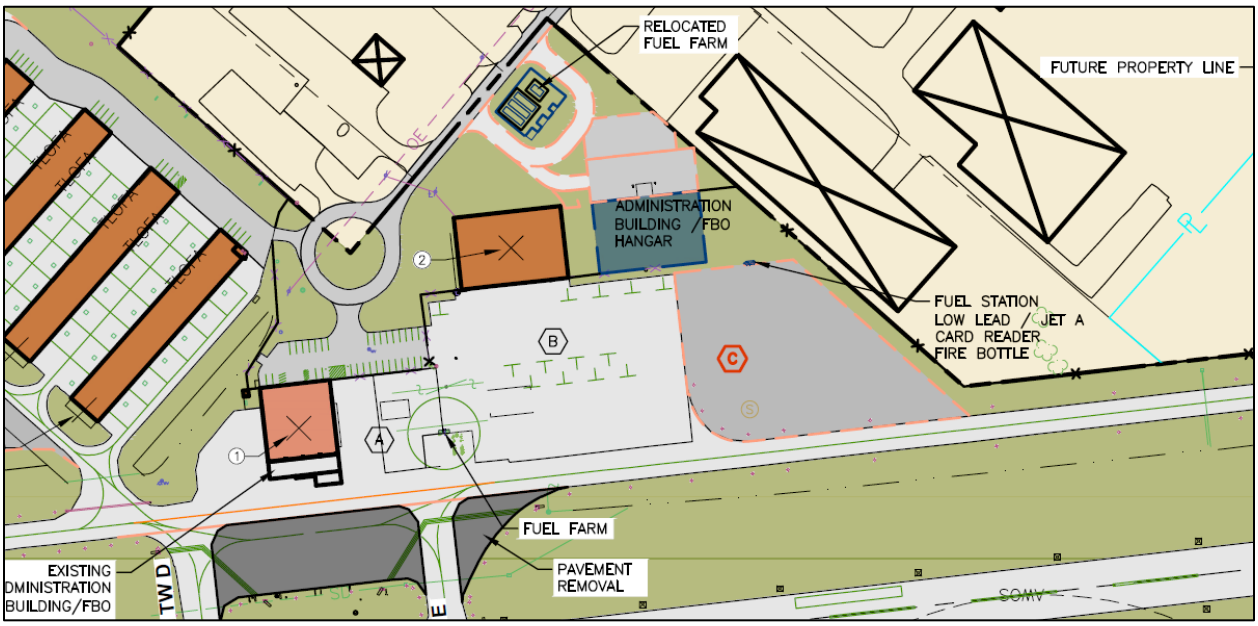
Exhibit 5.8-1 Maintenance/Equipment Building



5.9 East Apron Expansion

Additional apron space connected to the existing ramp, to the east of the main apron, was identified for potential expansion as demand warrants. The addition of approximately 7,500 square yards of apron would allow for improved and needed aircraft circulation to the proposed Administration Building/FBO. The apron would provide access to the proposed fueling dispenser area northeast of the existing apron. In addition to circulation, the new apron will provide for additional tie-down storage of aircraft as demand at the airport grows (**Figure 5.9-1**, area "C"). The development of the apron can be phased as demand and operational necessity warrants.

Exhibit 5.9-1 East Apron Expansion



Source: Woolpert

5.10 Fueling Services

The existing underground storage tanks and associated fueling pumps are to be relocated adjacent to the proposed Administration Building/FBO. As shown in **Exhibit 5.9-1**, this site will allow access to the fuel farm right from Clymer Road and will remove fuel delivery truck operations from the apron and segregate the delivery operations from aircraft movement activity, and the proposed site will allow for expansion of additional tanks as demand warrants. In addition to relocation, the two existing underground fuel tanks (10,000 gallons each) will be removed and replaced with two 10,000-gallon (1 tank each for Jet A and 100LL) above ground storage tanks, which will enhance safety for the airport and provide simpler and more robust spill containment.

5.11 Airport Wildlife Fencing

MRT has existing airport wildlife fencing that is not contiguous around the perimeter of the airport and is also of varying height. A wildlife site visit was conducted in 2015, and deer resistant fence that is at least 10 feet tall (topped by 2 strands of barbed wire) for the perimeter of the airport was recommended. An updated wildlife site visit is recommended as increased wildlife activity is observed, or wildlife attractant development occurs in the vicinity surrounding the airport.

5.12 Recommended Development Plan

Recommended airside and landside alternatives are aligned with forecasted operations and based aircraft and to allow the Airport space to accommodate additional hangars and other landside development. Utilizing the evaluation of alternatives described, future improvements have been summarized in the table below and shown on **Exhibit 5.12-1.** These improvements will be carried through to the Airport Layout Plan, and the financial implementation chapter will estimate costs and financial resources available to fund recommended projects.

Table 5.12-1 Development Recommendations

ITEM	MASTER PLAN RECOMMENDATIONS
Runway 9-27 and Parallel Taxiway A	800' Extension to Runway 9 Approach End and Parallel Taxiway A
Weaver Road	Construct tunnel under Runway 9-27 and Parallel Taxiway A extensions
Taxiway A / Administration Building/Hangar	Relocate aging Administration Building and remove from Taxiway A Object Free Area
Taxiway Connector A2	Reconfigure Connector A2 to meet FAA design criteria
Taxiway A Fillet Pavement Removal	Reconfigure Taxiway A near existing administration building and remove excess fillet pavement. Also remove pavement north of the intersection of Taxiway A and D and relocate Taxiway E to prevent direct runway access from the apron.
Aprons	Construct aprons as demand requires
Hangar Development	Construct hangars and associated aprons/taxilanes as detailed and based on demand
Maintenance/Equipment Building	Construct maintenance/equipment building
Airport Security/Wildlife Fencing	Maintain existing (including fencing) and improve as necessary
Airport Support Facilities	Relocate fuel system and replace existing underground tanks; Relocate wind cone
Airfield Equipment	Replace as required
Land Acquisition	Acquire parcels east and west of the approach ends of runways and north of east end of Taxiway A

Source: Woolpert

Chapter 6: Facilities Implementation and Financial Feasibility

6.0 Introduction

The purpose of the overall Master Plan process is to set the stage and develop consensus for the development and growth of the airport over the course of the next 20 years. The preferred development and capital projects determined from this planning process create a path for the growth of the airport. Future projects must balance the need between maintaining existing assets, expanding infrastructure, and growing the physical assets to meet the long-term needs of the facility.

6.1 Airport Capital Improvement Program (ACIP)

The ACIP process is an annual exercise which provides both the FAA and ODOT with the current projection of capital needs for the airport. Every December an updated ACIP summary is provided which communicates the priority level of the airport's capital needs. Consensus for the near-term priorities typically takes place during conference calls between the airport sponsor, the FAA ADO, and ODOT Office of Aviation. This gives all parties an opportunity to plan and allocate funding based upon the known budget of federal and state dollars. These conversations facilitate the ability to schedule and match multi-year projects to the design, bidding, and construction sequencing.

The ACIP beyond the first five years allows the airport to show and track future development needs. At MRT these projects include relocation of the fuel farm, east t-hangar taxiway and apron expansion, and other long-term hangar expansion projects.

Often, the total needed for projects identified in an airport's ACIP outweigh the ability of the airport, FAA, and ODOT to fund the projects. As a result, the implementation order of the projects will shift over time to match priorities and funding.

6.2 Funding Sources

6.2.1 FAA Funding

FAA grants to local airport sponsors are funded on a regular basis through Congressional authorization of the Aviation Trust Fund. This fund is built up with dollars authorized by Congress through multiple revenue streams including user fees, airline passenger taxes, and fuel fees. The current overall structure of funding has generally been in place since the 1980s but is subject to change based upon Congressional direction. FAA uses a National Priority Rating system for the distribution of AIP grant funds, which is a value-generated equation that takes into consideration the airport and project role in accordance with FAA goals and objectives.

When an airport sponsor accepts FAA grant funds, they also agree to a set of 39 obligations (more commonly referred to as grant assurances). These obligations require the sponsor to maintain and operate their airport safely and efficiently and in accordance with specific conditions. The duration of these obligations depends on the type of recipient, the useful life of the facility being developed, and other conditions stipulated in the assurances. Examples of assurances tied to the duration of the useful life of the project are a pavement project is designed for 20-years or a vehicle will have a shorter expectancy of 10 years. Some assurances, such as land acquisition, last in perpetuity as long as the airport continues to operate.

Non-compliance with grant assurances can result in withholding of future grants and payments on existing grants as well as other consequences. The full list of grant assurances can easily be found in FAA grant agreements as well as the FAA website.[1]

The three main sources of FAA funding utilized by MRT are Entitlements, Apportionment, and Bipartisan Infrastructure Bill funds.

- **FAA Entitlements:** General aviation airports, such as MRT, have traditionally been funded at an annual level of $150,000 by the FAA, which can constitute up to 90 percent of the funding for eligible projects. The remainder of the costs are covered by the airport sponsor and potentially ODOT. The funds must be used on eligible projects as determined by the FAA. The FAA allows the sponsor to carry over up to four years of Entitlement dollars to be used for larger-scale projects. The proposed capital projects list for MRT was developed with this stream as a source of capital funds and the timing of the near-term projects (1 to 5 years) was ordered to provide the airport with sufficient Entitlement funding to pay a substantial portion of the cost of a project. The table below lists broad categories of eligible and ineligible AIP projects[2]. FAA Order 5100.38D: *Airport Improvement Program Handbook*[3], details AIP funding eligibility.

Table 6.2.1-1: AIP Eligibility for Common Airport Projects

Eligible Projects	*Ineligible Projects*
Aircraft hangars (Non-Primary airports only)	Artwork
Airfield drainage	Development that exceeds FAA Standards
Airfield lighting	Development for Exclusive Use
Airfield signage	Improvements for commercial enterprises
Apron construction/rehabilitation	Industrial park development
Environmental Studies	Landscaping
Fuel farms (Non-Primary airports)	Maintenance equipment (e.g. Mowers)
General Aviation Terminal Buildings	Marketing plans
Land acquisition	Office equipment
Certain NAVAIDs (e.g. REILs, PAPIs)	Training
Planning Studies	Airport Operations Costs
Runway construction/rehabilitation	FBO support areas
Safety Area improvements	Airport Vehicles
Taxiway construction/rehabilitation	
Weather observation stations (AWOS)	

- **FAA Apportionment:** For general aviation airports, AIP funds are split first between the entitlements and then apportionments. These FAA funds are made available to states under various conditions and apportioned based on an area/population formula within the 50 states. These federal funds may be utilized at the discretion of the individual states.
- **FAA Discretionary:** After entitlements, apportionments, and other specific funds are calculated for dispersion, the remaining AIP funds may be made available as discretionary funds. These are another source of FAA funding available to MRT. These funds are typically set aside to assist airport sponsors in

[1] FAA Grant Assurances (Obligations). https://www.faa.gov/airports/aip/grant_assurances/
[2] FAA Airports Division Central Region, AIP Sponsor Guide.
https://www.faa.gov/airports/central/aip/sponsor_guide/media/0100.pdf
[3] FAA. Airport Improvement Program Handbook. https://www.faa.gov/airports/aip/aip_handbook/

completing larger scale projects that exceed the total entitlement funds they can carry over across a four-year basis. Projects must compete for priority among other project needs across the country and typically require multi-year discussions with the FAA. Major pavement rehabilitation projects are common candidates for this type of funding. For the purposes of the CIP development at MRT, the FAA has instructed the Airport to show any Discretionary funding as Apportionment.

- **Infrastructure Investment and Jobs Act:** also known as the Bipartisan Infrastructure Bill, or "BIL," was signed into law in November 2021 with the purpose of modernizing infrastructure through a $25 billion investment over five years. FAA funding under BIL will include: $5 billion for air traffic control facilities, $15 billion for airport infrastructure, and $5 billion for airport terminals. Of the $15 billion for airport infrastructure, up to $500 million is allocated for general aviation airports and can be used for AIP-eligible projects. The $5 billion terminal program provides competitive grants for aging and energy-inefficient terminals, including at general aviation airports such as MRT.

6.2.2 ODOT Funding

ODOT provides funding to complete different types of airfield-related improvements. Priority projects for ODOT typically include obstruction removal, resurfacing, pavement markings, and lighting improvements. MRT has been very successful over the recent years in obtaining funding from this source to resurface the taxiway, crack seal the runway, apron asphalt pavement, obstruction mitigation, and improve airfield lighting. ODOT requires the airport sponsor to fund 5 percent of the total cost of each project funded through an ODOT grant.

For general aviation airports, ODOT also provides 5 percent matching funds to FAA AIP grants. Thus, for most FAA AIP grants the final cost breakdown is 90 percent FAA, 5 percent ODOT, and 5 percent local.[4]

6.2.3 Local Funding

Local funding is typically provided by the airport sponsor and/or generated from operating revenues accrued on a given airport. Funding from Union County is an important aspect of the total funding package and approach for the airport. As the local sponsor, the County acknowledges and supports the importance of the airport and has the ability to fund local projects they deem will assist with the long-term goals for the facility. User fees are typically established by the airport based on market conditions in the area and vary from airport to airport. MRT has several sources for generating revenue including aircraft fuel sales, hangar leases, and tie-down fees.

Landside facility development and levels of aviation activity are typically the primary factors affecting airport operating revenues. These revenues will normally increase as a function of usual inflationary growth as well as average annual increases associated with existing leases. Additionally, as additional airport development occurs, growth in the numbers of based aircraft and itinerant aircraft operational levels will often be realized. In general, land and building leases provide the most stable long-term sources of revenue at an airport. Fuel sales, tie-downs and other operational fees will fluctuate with traffic levels. Unlike commercial service airports, general aviation airports typically generate little to no revenue from auto parking, concessions (e.g., restaurants and shops), and terminal building tenants (airlines, rental car agencies).

The Union County Airport Authority is a discrete component unit of Union County, which is legally separate from the County. The Airport Authority is governed by a seven-member Board of Trustees appointed by the Union County Commissioners, as established under Ohio Revised Code Section 308 with each member serving staggered 5-year term. The County Commissioners budget funds for airport operations and are responsible for the debt and deficits of the Airport Authority. Due to the imposition of will exerted by the County Commissioners

[4] Ohio Department of Transportation, Office of Aviation. Airport Grant Program. https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/aviation/resources/airport-grant-program

as well as the financial burden for the Airport Authority, the Airport Authority is presented separately as a component unit of Union County. The Airport Authority operates on a year ending December 31.[5]

The airport has liabilities in the form of accounts payable, accrued liabilities, liabilities due to other funds, and the general obligation fund. The major assets of the airport are land, land improvements, buildings, and equipment. As is the case with most general aviation airports, MRT has relied upon FAA and state grant monies for improvements. In 2021, the Airport Authority account ended with a $2,495 surplus (expenses of $925,484 compared against revenue of $927,979). The airport has an annual operating budget of more than $200,000, with 80% of the operating budget comes from leases and rents. The County has a history of providing $40,000 of general revenue annually, while the airport also received $43,463 in capital grants contributions. For 2023, the County government has increased general fund appropriations to $60,000, and county officials have expressed an intent to increase local general revenue support to the airport to $80,000 in 2024 and 2025.

The airport has established a capital improvement fund, or reserve fund, which has been used to provide local matching funds for FAA and ODOT projects. Capital funds have also been used to address needed airport improvements and maintenance needs including lighting upgrades hangar construction and maintenance as well as routine pavement repairs. Capital funds have been used to develop revenue producing assets which provide the bulk of funding for airport operations. The Board's capital funds are planned to be used for new additional T-hangar units. Approximately $350,000 of these funds is to be devoted to reducing the capital cost and reducing the future bond liability. This will allow for a timelier return on investment in the form of available operating revenue to support future operations.

6.2.4 Other Capital Project Funding Sources

The federal and state grants along with airport revenue are often insufficient to finance the full range of capital projects programmed for development during a CIP. In addition, some projects are not eligible for FAA or state grants. When the availability of traditional funding is lacking, other non-traditional sources need to be investigated and possibly utilized. Projects should be delayed until appropriate funding can be identified and secured.

Non-traditional funding sources for an airport typically include general fund revenues, bond issues, and public/private funding opportunities. Of these, general fund revenues and general obligation bonds are by far the most common funding sources, particularly at commercial service airports. The ability of municipalities and counties to issue general obligation bonds for airport capital projects is directly affected by their debt level and ability to finance their existing and future debt load. As the debt burden increases, rating agencies often lower their credit ratings, which increases their interest payments. Revenue bonds supported by airport-generated revenues are seldom used by general aviation airports because most such airports do not generate enough income to pay operating expenses and the debt service of capital funding requirements.

Private funding sources such as FBOs, aircraft owners, investors, etc., often assume the responsibility of paying for hangars, fuel storage tanks, and sometimes for parking aprons, taxiways, and utility hookups. However, when private parties make capital investments in airports, they often try to negotiate reduced land and/or building lease rates to balance their capital investment. Additionally, they can seek to avoid property reversion clauses whereby ownership of facilities constructed on an airport ultimately revert to the airport after a set period (often a minimum of 20 years). The airport has had some success in soliciting and receiving private funding in the past to enhance and strengthen apron pavements to better accommodate heavier aircraft which require reinforced or strengthened pavements. MRT also has the ability to directly request funding from the County during annual budget development cycles. Projects that exceed the financial capabilities of the airport can be funded through

[5] Union County, Comprehensive Financial Report. 2020.

direct line-item annual budget allocations. The Airport Authority Board has the authority to appropriate its own funds and meets with the county commissioners annually for the purpose of updating the commissioners with respect to airport operations and plans, and to make appropriation requests for increases in local general revenue funds for future years.

6.2.5 Airport Operating Revenues and Expenses

Airport revenues are typically generated through user fees charged by a given airport for the facilities and services that it provides. These user fees are normally established by that airport based on the market conditions within its service area and can vary dramatically from airport to airport. At MRT, operating revenues are realized through several sources including, but not limited to:

- Hangar/Ground Leases
- Aircraft Fuel Sales (fuel flowage fee)
- Tiedown/Ramp Fees
- Direct Financial Contributions by Union County

The amount of land and the number of buildings leased, the lease rates charged, and levels of aviation activity that generate fuel sales, parking and hangar storage are the primary factors affecting operating revenues at the Airport. Depending on typical traffic and neighboring area airports, competitive pricing of fuel may result in additional sales. Historically at MRT, hangar leases have been the major source of revenue from the airport.

Ideally, airport operating revenues will at least offset the airport's operating expenses, typically referred to as Operation and Maintenance (O&M) costs. Airport operating expenses are the day-to-day costs incurred by operating the airport. They do not include non-cash and capital costs associated with depreciation and infrastructure development. Primary components of O&M costs at MRT include, but are not limited to, the following: professional services, airport supplies, equipment and building maintenance, and utilities.

As additional airport development occurs, the number of based aircraft and itinerant aircraft operations should reasonably be expected to increase, resulting in a commensurate increase in airport operating revenues. (Note that revenues associated with fuel sales, aircraft tiedowns and transient hangar rentals are directly influenced by traffic levels). Additionally, as new leases are enacted and existing leases are updated to reflect prevailing rates and terms, the airport's most stable source of revenue will continue to increase over the long term.

6.3 Rates and Charges

Since the airport accepts AIP grants, it is stipulated that MRT must abide by FAA grant assurances. It is important that the airport continue to consider the following with respect to the future establishment of lease rates and other income-generating fees:

- FAA Grant Assurance 22, *Economic Nondiscrimination*, states: "It [the airport sponsor] will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport."
- FAA Grant Assurance 22 also states that the sponsor, as well as airport tenants who enter into an agreement with the sponsor, will "furnish said services on a reasonable, and not unjustly discriminatory, basis to all users" and "charge reasonable, and not unjustly discriminatory prices."
- FAA Grant Assurance 22 also states that "each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities."
- FAA strongly encourages airport sponsors to set rates and charges that will make an airport financially self-sustaining as possible given the circumstances at that airport. In 2022, the Union County Airport

Authority undertook a review of hangar rates in the Central Ohio area, and ultimately enacted a rate increase to continue being competitive with the local market.

- The airport sponsor will not use/include any FAA grants in establishing fees, rates, and charges for users of that airport.
- The airport sponsor will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. However, the airport sponsor may choose to provide any commercial aeronautical service on an exclusive basis.
- The FAA considers any lease with a term of greater than 20 years to be long-term, and a lease with a term of 50 years or greater to be in violation of FAA policy (source FAA Order 5160.9B, *Airport Compliance Manual*). FAA considers 50-year lease terms as equivalent to the sale of airport property, which FAA allows only under very specific circumstances, and considers 50-year lease terms as infringing on the powers of the sponsor. The FAA recommends that lease terms extend no longer than the end of the amortization period and/or useful life of the facility.

FAA requires airport sponsors to charge fair market value for leases with non-aeronautical tenants. FAA allows the airport sponsor to determine fair market value, which may be calculated using several different techniques, including appraisals, comparable assessments, and compensatory or cost recovery systems.

When setting new or adjusting existing rates and charges, airports and their tenants are bound not just by FAA policies, but also by market forces. Airports and FBOs operate in a competitive environment, and aviation users are price sensitive. As a result, while airport sponsors and the FAA may set a priority on achieving financial self-sufficiency, setting rates and charges on aeronautical users to achieve that goal may adversely impact the level of activity at the airport if competing airports and FBOs have lower rates and charges.

FAA does not maintain a database of rates and charges set by airports. Some state aeronautics agencies have undertaken statewide surveys of airport rates and charges, including Wyoming, Montana, Florida, Wisconsin, and Massachusetts, and individual airports also conduct surveys of adjacent airports and FBOs. However, most rates and charges surveys are typically not updated regularly. The rates and charges surveys reveal that there is little consistency between airports:

- Within each state, and even within each county, airport rates and charges vary widely. Charges for landing, tie-down and fuel flowage fees, hangar rentals, land and building leases, customer facility charges (CFC), etc., range from none to many dollars per item.
- Some airports impose a wide variety of fees, while others charge relatively few fees.
- Some airports update their rates and charges regularly, while other airports rarely change their rates and charges.

Additionally, most surveys do not include the actual amount of revenue generated by each fee within a given fiscal year, what percent of total revenue is generated by each fee, or whether each airport is financially self-sufficient based on their rates and charges. Several factors affect what rates and charges an airport can impose:

- The lease agreements in place affect an airport's ability to impose new fees and/or change existing fees. While the FAA provides guidance on leases between airports and tenants, the FAA does not review and comment on leases unless specifically requested to do so.
- Ownership of buildings and improvements; some airports own all or most of the buildings, while others have relied on private investment to construct and operate buildings and other improvements on the airport. Leases also have a bearing on this issue; some airport leases have reversion clauses whereby all improvements constructed by a third party revert to airport ownership at the end of the lease term, while other airports do not have reversion clauses in their leases.
- The amount of property available for both aeronautical and non-aeronautical development can affect revenue generation potential. For example, some airports that have large amounts of surplus property

that generate significant revenue each year, can maintain relatively low airfield rates and charges, which enhances their competitive standing among area airports.

- The ability of an airport and/or its FBO to collect and track fees. Some airports choose not to impose landing or tie-down fees because they do not have the staff or resources to collect the fees. Also, the cost of collecting the fees may exceed the revenue generated.
- The level of competition from area airports and FBOs.
- The demand for aviation facilities and services within a given market area, includes short and long-term trends in specific aviation sectors such as airline service, general aviation activity and military activity.

Given those variables, caution must be used when considering other airport rates and charges as guidance. Because the economy is constantly changing, it is important to look closely at the rates MRT is charging and compare them to industry standards. Current rates and charges at MRT have been set by the Union County Airport Authority and are periodically reviewed for reasonableness and competitiveness within the Central Ohio area.

As noted above, airports have a variety of revenue sources that provide multiple opportunities for revenue enhancement. Revenue generally falls into one of two categories:

- Aeronautical: tie-down, fuel flowage fees, hangar and terminal rental, additional services, etc.
- Non-Aeronautical: non-aviation land rental, advertising, agricultural production, etc.

When examining revenue enhancement options, airports should consider the following:

- How will a change in rates and charges negatively impact traffic? Most aviation users are price-sensitive and have alternative airports and/or FBOs they could use.
- Are new fees easy to collect and manage? And a directly related issue – do airports have the staff and resources to collect the fees? Many airports, for example, find that consistently collecting landing and tie-down fees are difficult and expensive. Airports often have FBOs collect the fees, only a fraction of which are returned to the airport. Airports that have instituted a percentage of gross fee revenue, for example, find that auditing tenants to confirm annual income levels is time-consuming and expensive.
- Are fees transparent? New or increased fees imposed on airport tenants, for example, are often passed along to airport users, often with markups to cover overhead costs.
- Are new fees or increased rates and charges non-discriminatory? FAA grant assurances specifically require that airport rates and charges be “reasonable and not discriminatory.”

6.4 Future Development Considerations

Regular review of the overall long-term plan is essential to the success of its implementation over the course of the next 20 years. MRT’s ACIP will continue to be updated on an annual basis as part of the ODOT and FAA annual ACIP process. Cost estimates should be updated over time to reflect current inflationary and market conditions.

The following are typical airport sponsor responsibilities for capital project improvements, particularly when FAA Airport Improvement Program (AIP) funding or environmental National Environmental Protection Agency (NEPA) documentation is required:

- Update the FAA Airport Capital Improvement Program (ACIP) and financial documentation on a continual basis.
- In addition to the typical project procurement and execution responsibilities that most airports address on a wide variety of non-airport projects, additional consideration of FAA requirements is needed for the projects listed in the ACIP.

- Verify justification supporting the project, and request FAA/State participation for projects using AIP funding. Project implementation must be demand-driven to support justification for federal and state funding.
- Assure completion of the necessary environmental processing through agency coordination
- Prepare and submit grant applications
- Prepare and issue a Request for Qualification and select the consultant/engineer for the project planning, design, or environmental analysis, as applicable
- Prepare and issue a Request for Proposals and selection for project construction, management, and related construction services; these services may be provided or assisted by the design engineer
- Provide project administration including FAA grant maintenance and closeout

6.5 Implementation Strategy and Financial Plan

The Capital Improvement Plan (CIP) provides the airport, state, FAA, and local decision-makers with a roadmap to guide development over the course of the next 20 years. This list (see **Table 6.5.5-1**) acts as a guidepost in the strategic implementation of these projects. It is highly likely that the order of implementation will shift, especially after the short-term (five year) window, but this is expected so that the airport and FAA can respond to varying local conditions. The cost estimates include allocations for all phases of a particular project type (planning, design, construction) and are meant to be used for planning level budgeting only. It is expected that more detailed cost estimates will be completed closer to the beginning of a project to reflect the current market.

The summary of the capital projects includes an initial allocation of how the project will be funded. This typically includes a combination of local, state, and federal dollars. The cost-sharing projection does not commit any party to these dollars, but rather is used to assist local decision-makers in budgeting and begin to lay out a strategy to maximize the impact of local dollars at the airport.

Table 6.5.5-1: Airport 20-Year Capital Improvement Plan

Fiscal Year	Project	Total Cost	FAA Entitlement	FAA Apportionment	FAA Discretionary	Apportioned BIL	Terminal BIL Funds	ODOT	Local
2022	Land Acquisition 16.85 acres	$683,025	$466,819	$147,904				$34,151	$34,151
2022	Runway Patching and Crack Repair	$80,836		$72,752				$4,042	$4,042
2023	15-Unit T-Hangar (NEPA/Design)	$94,700	$85,230					$4,735	$4,735
2023	FFY23-25 DBE Plan	$5,600	$5,040					$280	$280
2024	15-Unit T-Hangar (Construction Admin/Testing)	$95,000	$85,500					$4,750	$4,750
2024	15-Unit T-Hangar (Construction) - Reimbursement	$1,128,078				$449,000		$24,944	$24,944
2025	15-Unit T-Hangar (Construction) - Reimbursement	$161,111				$145,000		$8,056	$8,056
2025	1.73-acre land acquisition (Reimbursement)	$230,784	$207,706					$11,539	$11,539
2026	15-Unit T-Hangar (Construction) - Reimbursement	$161,111				$145,000		$8,056	$8,056
2027	Land Acquisition	$270,000	$243,000					$13,500	$13,500
2028	Wildlife Fencing (NEPA & Design)	$132,000	$118,000					$6,600	$6,600
2029	Runway Extension/Rehabilitation (NEPA & Design)	$755,000	$304,724	$374,776				$37,750	$37,750
2029	Weaver Road Tunnel (NEPA & Design)	$1,050,000		$945,000				$52,500	$52,500
2029	Wildlife Fencing (Construction)	$1,530,000		$1,377,000				$76,500	$76,500
2029	TW E Relocation (NEPA & Design)	$75,000		$67,500				$3,750	$3,750
2029	TWY D and Partial TWY A Rehabilitation (NEPA & Design)	$55,000		$49,500				$2,750	$2,750
2029	T-Hangar East Taxiway & Access Road (NEPA & Design)	$170,000		$153,000				$8,500	$8,500
2029	East Apron Expansion (NEPA & Design)	$195,500		$175,950				$9,775	$9,775
2029	Wildlife Fencing (Construction)	$1,668,000		$1,501,200				$83,400	$83,400
2030	Runway Extension/Rehabilitation (Construction)	$11,125,000	$150,000	$9,862,500				$556,250	$556,250
2030	Weaver Road Tunnel (Construction)	$17,000,000		$15,300,000				$850,000	$850,000

Fiscal Year	Project	Total Cost	FAA Entitlement	FAA Apportionment	FAA Discretionary	Apportioned BIL	Terminal BIL Funds	ODOT	Local
2030	TW E Relocation (Construction)	$765,000		$688,500				$38,250	$38,250
2030	TWY D and Partial TWY A Rehabilitation (NEPA & Design)	$573,500		$516,150				$28,675	$28,675
2030	AWOS Replacement (Design & construction)	$300,000		$270,000				$15,000	$15,000
2030	T-Hangar East Taxiway & Access Road (Construction)	$2,580,000		$2,322,000				$129,000	$129,000
2030	East Apron Expansion (Construction) (67,068 SF)	$3,300,000		$2,970,000				$165,000	$165,000
2030	Wildlife Site Visit	$35,000		$31,500				$1,750	$1,750
2031	Taxiway A Connector Reconstruction (NEPA & Design)	$102,000	$91,800					$5,100	$5,100
2032	Taxiway A Connector Reconstruction (Construction)	$1,298,000	$208,200	$960,000				$64,900	$64,900
2032	T-Hangar West Taxiway (NEPA & Design)	$165,000		$148,500				$8,250	$8,250
2032	10-Unit T-Hangar (NEPA & Design)	$210,000		$189,000				$10,500	$10,500
2032	New Terminal (NEPA & Design) (5,000 SF)	$300,000					$285,000	$7,500	$7,500
2032	Relocate Fuel Farm (NEPA & Design)	$147,000							$147,000
2032	Single Volume Community Hangar (100' x 100') (NEPA & Design)	$175,000							$175,000
2033	T-Hangar West Taxiway (Construction)	$2,435,000	$150,000	$2,041,500				$121,750	$121,750
2033	Excess Pavement Removal (NEPA & Design)	$122,000		$109,800				$6,100	$6,100
2033	New Terminal (Construction) (5,000 SF)	$3,000,000					$2,850,000	$75,000	$75,000
2033	Relocate Fuel Farm (Construction)	$1,653,000							$1,653,000
2034	Existing Terminal Building Demolition (NEPA/Design/Construction)	$200,000					$190,000	$5,000	$5,000
2034	Excess Pavement Removal (Construction)	$1,578,000	$150,000	$1,270,200				$78,900	$78,900
2034	10-Unit T-Hangar (Construction)	$2,960,000		$2,664,000				$148,000	$148,000

Fiscal Year	Project	Total Cost	FAA Entitlement	FAA Apportionment	FAA Discretionary	Apportioned BIL	Terminal BIL Funds	ODOT	Local
2034	Land Acquisition	$215,000		$193,500				$10,750	$10,750
2034	Single Volume Community Hangar (100' x 100') (Construction)	$2,925,000							$2,925,000

Source: MRT, Woolpert 2023

A review of the CIP shows that each capital project identified for the airport has been preliminarily programmed with Federal, State, and/or Local funds for the proposed scope of work. Local funds will be required for any project, and it will be incumbent upon the Airport Authority and County to allocate funds on an annual basis to support the proposed development at the airport. The FAA will also typically require a project-specific Financial Plan for any project which exceeds the funding available using Entitlement funds.

The Airport Authority has programmed local funds for the near-term projects identified in the CIP. These projects would utilize the existing non-primary entitlement funds available to the airport to reimburse the acquisition of 16.85 acres of land to preserve compatible land use. The next major Federally funded project is for the proposed 15-unit T-Hangar facility that is recommended to address existing demand. The total project cost is estimated at over $1.6 million. Apportioned BIL program money will fund $739,000 of this project, while non-primary entitlements will fund $170,730, state grants will fund $50,541, and local money will contribute $679,729.

Fiscal Years 2029 and 2030 include MRT's largest CIP projects by estimated cost. These are the design and construction of a runway extension/rehabilitation and the Weaver Road tunnel. These two projects are currently projected to cost nearly $30 million dollars, which is anticipated to be funded by a combination of FAA Apportionment, non-primary entitlement, state, and local funds.

Beyond the initial five-year planning horizon lie larger projects that would qualify for federal funding include construction of new wildlife fencing, and land acquisition. These projects are currently programmed for completion in 2027 and 2028. Other major capital projects that are programmed for 2029 through 2034 include the T-Hangar west taxiway, another 10-unit T-Hangar, and a 10,000 square-foot single volume community hangar, the east T-Hangar taxiway and access road, and the east apron expansion. Design and construction for these projects is estimated at $2.6 million, $1.6 million, $3.1 million, $2.8 million, and $3.5 million, respectively. Funding is anticipated to come from apportionment, state, and local sources. Other smaller future projects that would qualify for Federal funding include replacement of the AWOS and wildlife site visit. Another major project identified for the long-term is related to the design and construction of a new terminal, which is followed by the demolition of the existing terminal building. This cost for this two-year effort is estimated at $3.5 million, which the majority is anticipated to be funded locally and $180,000 is anticipated to come from federal funding to demolish the existing terminal.

Each of these projects is forecasted to occur in a future year once the airport has built up reserves in their entitlement funding pool. Although the ODOT funding is not guaranteed or programmed in future years, these funds have historically been available and are anticipated to be available during the study period. If ODOT matching funds no longer become available, then the Airport Authority would need to coordinate with the County to adjust their local match to cover 10 percent of the project cost.

The AIP reauthorization "Vision 100–Century of Aviation Reauthorization Act" allows AIP non-primary entitlements funds to be used for revenue-producing facilities, such as hangars. Neither state apportionment nor discretionary funds can typically be used for these types of projects. This statute is intended to allow airports to add new revenue-producing capabilities. In order to use AIP grant funds for a revenue-generating project the airport sponsor must demonstrate to the FAA that airside needs within the next three years will be able to be accommodated through local or non-primary entitlement funds only and show sufficient justification for the revenue-generating project. Another route for revenue generating projects, outside of direct County funding, is for the airport to partner with a business. This is a model that has worked at other locations and could be applied at MRT as well. There is a process to follow with the FAA which ultimately gives the ownership of the facility to the airport after a period of years. That term can be negotiated with the interested parties to make it financially viable for both the user and the County/Airport Authority.

Appendix A: Recycling, Reuse, and Waste Reduction Plan

Appendix A Airport Recycling, Reuse, and Waste Reduction Plan

A.1 Introduction

The FAA Modernization and Reform Act (FMRA) of 2012 was signed into law, which amended Title 49 of the United States Code. The law included a number of changes to the Airport Improvement Program (AIP), two of which relate to recycling, reuse, and waste reduction at airports. Section 132(b) of the FMRA expanded the definition of airport planning to include, "developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable State and local recycling laws, including the cost of a waste audit." Section 133 of the FMRA added a provision requiring airports that have or plan to prepare a master plan, and that receive AIP funding for an eligible project, ensure that the new or updated master plan addresses issues relating to solid waste recycling at the Airport. This includes:

- The feasibility of solid waste recycling at the Airport;
- Minimizing the generation of solid waste at the Airport;
- Operation and maintenance requirements;
- Review of waste management contracts;
- The potential for cost savings or the generation of revenue.

As defined by Congress, "recycling" refers to any program, practice, or opportunity to reduce the amount of waste disposed in a landfill. This includes reuse and waste reduction as well as the recycling of materials.

The Federal Aviation Administration (FAA) issued a memorandum on September 30, 2014, to provide guidance on preparing airport recycling, reuse, and waste reduction plans as an element of airport master plans, as well as within a sustainability document, or as a standalone document. The guidance is mandatory when preparing an airport master plan.

As part of the Union County Airport's Airport Master Plan, the current recycling, reuse, and waste program was reviewed, and guidance on ways to reduce waste and improve recycling and reuse is provided. The information was reviewed in the following ways and presented in this appendix respectively.

- Policy Statement
- Airport Facility Overview
- Waste Source Review and Audit
- Recycling Feasibility
- Airport Waste Contracts
- Waste/Recycling Revenue Generation
- Solid Waste Generation Minimization Plan

A.2 Policy Statement

The Union County Airport Authority (UCAA) does not currently have a policy statement; however, the following statement is recommended for future adoption "The UCAA is committed to operating the Airport in a manner that ensures a safe and healthy workplace for tenants, their employees, and minimizes impacts on the environment. The Airport will be operated in compliance with relevant federal, state, and municipal environmental legislation, and will strive to use environmental best practices in all that is done.

A.3 Airport Facility Overview

The Union County Airport (MRT) is located in Union County in central Ohio and is classified by the FAA as a general aviation airport. The Airport is owned and operated by the Union County Airport Authority. Additional facility information is presented in **Chapter 1, Inventory**.

As noted in **Chapter 3, Aviation Activity and Forecasts**, the number of operations and based aircraft at MRT have fluctuated over the past ten years. The forecasts anticipate growth in activity in the future. MRT accommodates

a variety of users, including agriculture operations, flight training, emergency medical services, and corporate, business, and private operators.

A.4 Waste Source Review

The identification and evaluation of sources of waste at an airport can be complicated. There are numerous groups, agreements, operational styles, and collection/disposal processes that play into the overall generation of waste at a given airport. The three primary sources of waste at MRT are the airfield, the terminal building, and hangars/tenants. The sources of waste, per the FAA's September 30, 2014 memo, can be further broken down by how much control the Airport has on the generation and disposal of waste. The three levels of control are:

1. Areas where the Airport has direct control of waste management (public space, office space, terminal building, airfield). These areas are controlled by the Airport and they are able to introduce recycling, reuse, and waste reduction programs directly.
2. Areas where the Airport has no direct control but can influence waste management (tenants). These are areas owned by the airport; however, they are leased out to tenants. The Airport can recommend that recycling, reuse, and waste reduction programs be used and can include language in the tenant contracts, but realistically can't control what is done.
3. Areas where the Airport has no control or influence over waste management. These are areas the Airport neither owns or leases (none of which are included in this chapter).

Table A.4-1 shows the identified areas of waste generation, what waste is generated, how the waste is collected, if any reduction and/or recycling programs are in place, and the Airport's level of control.

TABLE A.4-1: WASTE GENERATION

Area	Waste Generated	Reduction/Recycling	Control
Area 1: Airfield	General debris found on airfield. Construction material (asphalt, concrete, wood, metal)	NA	Direct Control
Area 2: Landside Facilities (including hangars, FBO, and other landside buildings)	Miscellaneous refuse. Including Empty oil containers cleaning rags, bottles and cans, oil, batteries, tires, paint, hazardous materials (fuels/solvents).	UCAA provides waste oil salvage tanks, battery collection, and tire salvage	Indirect Control

Source: MRT, Woolpert

The UCAA periodically provides dumpsters for airport tenants to dispose of airport generated waste during annual airport clean up opportunity. Otherwise, the airport tenants are responsible for the disposal of their own waste. As shown in Table A.4-1, the UCAA in conjunction with the tenants, collect and recycle used oil, batteries, and tires. Additionally, airport events and construction projects generate waste periodically; the event hosts or contractors are responsible for the removal of their waste.

The amount of waste generated by each of these sources varies depending on if they are operating under normal conditions, are expanding their operations, or are implementing capital improvement projects. According to the Airport Authority, the landside users typically fill one standard size tote (65 gallon) a week, equating to approximately eight and half cubic feet of waste.

A.5 Recycling Feasibility

Implementing a successful recycling program at an airport such as MRT would be challenging given the relatively small size of the airport, its minimal waste stream, and lack of direct control. Landside waste is generated by a variety of various tenants, none of which are controlled by the UCAA. The Authority currently provides a waste oil salvage tank and storage for salvaged tires. The Authority does not control how waste is handled by the FBO and tenants; however, they could encourage the FBO and tenants to use the provided oil salvage tank, tire storage, and to pursue a recycling program through the use of recycling containers.

A.6 Airport Waste Contracts

Union County is served by the North Central Ohio Solid Waste District (NCO). Waste removal services at the Airport are not provided on a regular basis. However, periodically, the UCAA contracts with Rumpke Waste & Recycling, headquartered in Colerain Township, OH to provide dumpsters for an annual airport clean up opportunity. Rumpke's recycling program, a single stream collection program, allows recyclables to be mixed together and later sorted at one of Rumpke's advanced recycling facilities. This approach helps divert the greatest volume of recyclable materials from landfills as the generators aren't burdened with separating or sorting recyclables. Ultimately, this results in more people participating in the program, which leads to an overall reduction in waste.

The following items can typically be recycled:

- Plastic bottles and jugs
- Glass bottles and jars
- Aluminum cans
- Steel cans and lids
- Paperboard (like cereal boxes)
- Cardboard
- Office paper
- Envelopes and junk mail
- Newspapers, magazines and inserts
- Telephone books and catalogs
- Cartons

The FBO maintains their own waste removal contract with Republic Services; these services are not controlled by the UCAA; however, lease contracts require all tenants to ensure pollution is not created as a result of the tenants.

A.7 Waste/Recycling Revenue Generation

As discussed MRT has a minimal waste stream resulting in a limited potential for revenue generation; however, there is potential for cost savings in relation to the construction and demolition (CD) waste. CD debris can be defined as the non-hazardous solid waste stream than results from land clearing, excavation, and/or the construction, demolition, renovation, and repair of structures, runways, taxiways, ramps, and utilities. On an airport, CD debris commonly includes concrete, asphalt, wood, metals, plastic, pipe, rocks, earthwork, and land-clearing debris. In all industries, CD debris makes up approximately a quarter of all solid waste discarded in this country.[1] When it comes to the typical construction projects that occur at MRT, redirecting reusable materials back to the manufacturing process allows for a cost savings and a reduction in waste that is sent to landfills.

The runway at MRT is constructed of asphalt. When the runway requires reconstruction, asphalt recycling may save costs. In this process, recycled asphalt can be combined with virgin material to produce "new" asphalt. Recycled asphalt can also serve other functions and is often used as a base or subbase layer for roadways.

A.8 Solid Waste Generation Minimization Plan

Although the Airport does not generate a significant amount of waste outside of CD waste, the Airport can voluntarily implement measures to recycle, reuse material, and reduce the production of waste. These may include:

- Encourage the purchase of recycled materials and products on the Airport.
- Encourage recycling in future lease contract.

[1] Federal Aviation Administration, *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document*, 2013

- Recycle grass and tree trimmings, brush, etc. from landscaping and maintenance operations into compost and mulch to be used on Airport property.
- Implement a pavement recycling program for new airport pavement replacement projects where there is a cost benefit.
- Provide recycling bins around the Airport.

The above mentioned practices are relatively basic; however, the success of implementing a long-term recycling, reuse, and waste reduction program requires management buy-in, staff commitment, planning, and follow-up. Table A.8-1 outlines "10 Steps to Design and Implement an Effective Airport Recycling/Waste Minimization Program" as recommended by the FAA in their *Recycling, Reuse and Waste Reduction at Airports – A Synthesis Document*[2]. The Airport should follow these steps when implementing their recycling program. The Airport Authority could follow all or some of these steps to adopt and implementing the above mentioned practices.

TABLE A.8-1: 10 STEPS TO DESIGN AND IMPLEMENT RECYCLING PROGRAM

10 Steps to Design and Implement an Effective Airport Recycling/Waste Minimization Program
1. Commitment from Management
2. Program Leadership
3. Waste Identification
4. Waste Collection and Hauler
5. Waste Management Plan Development
6. Education and Outreach
7. Monitor and Refine
8. Performance Monitoring
9. Promote Success
10. Continuous Improvements

Source: FAA, Recycling, Reuse and Waste Reduction at Airport – A Synthesis Document, 2013

A.9 Conclusions

As a general aviation airport that does not produce a significant amount of waste, the operation of MRT does not result in a large of waste going to landfills. The Airport has direct control over the terminal building and airfield; as discussed, there are opportunities to increase the reuse and recycling of materials. The Airport does not have direct control over their tenants but they do have the opportunity to encourage their tenants to recycle and reuse materials when possible.

[2] FAA, Recycling, Reuse and Waste Reduction at Airport – A Synthesis Document, 2013

Appendix B: Grant Assurances

FAA
Airports

ASSURANCES

AIRPORT SPONSORS

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this Grant Agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

   The terms, conditions and assurances of this Grant Agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

   The preceding paragraph (1) also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. **Airport Planning Undertaken by a Sponsor.**

   Unless otherwise specified in this Grant Agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 23, 25, 30, 32, 33, 34, and 37 in Section C apply to planning projects. The terms, conditions, and

assurances of this Grant Agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. General Federal Requirements

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance, and use of Federal funds for this Grant including but not limited to the following:

FEDERAL LEGISLATION

a. 49 U.S.C. subtitle VII, as amended.
b. Davis-Bacon Act, as amended — 40 U.S.C. §§ 3141-3144, 3146, and 3147, et seq.[1]
c. Federal Fair Labor Standards Act – 29 U.S.C. § 201, et seq.
d. Hatch Act – 5 U.S.C. § 1501, et seq.[2]
e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 U.S.C. § 4601, et seq.[1, 2]
f. National Historic Preservation Act of 1966 – Section 106 – 54 U.S.C. § 306108.[1]
g. Archeological and Historic Preservation Act of 1974 – 54 U.S.C. § 312501, et seq.[1]
h. Native Americans Grave Repatriation Act – 25 U.S.C. § 3001, et seq.
i. Clean Air Act, P.L. 90-148, as amended – 42 U.S.C. § 7401, et seq.
j. Coastal Zone Management Act, P.L. 92-583, as amended – 16 U.S.C. § 1451, et seq.
k. Flood Disaster Protection Act of 1973 – Section 102(a) - 42 U.S.C. § 4012a.[1]
l. 49 U.S.C. § 303, (formerly known as Section 4(f)).
m. Rehabilitation Act of 1973 – 29 U.S.C. § 794.
n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin).
o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.) (prohibits discrimination on the basis of disability).
p. Age Discrimination Act of 1975 – 42 U.S.C. § 6101, et seq.
q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
r. Architectural Barriers Act of 1968, as amended – 42 U.S.C. § 4151, et seq.[1]
s. Powerplant and Industrial Fuel Use Act of 1978 – Section 403 – 42 U.S.C. § 8373.[1]
t. Contract Work Hours and Safety Standards Act – 40 U.S.C. § 3701, et seq.[1]
u. Copeland Anti-kickback Act – 18 U.S.C. § 874.[1]

v. National Environmental Policy Act of 1969 – 42 U.S.C. § 4321, et seq.[1]

w. Wild and Scenic Rivers Act, P.L. 90-542, as amended – 16 U.S.C. § 1271, et seq.

x. Single Audit Act of 1984 – 31 U.S.C. § 7501, et seq.[2]

y. Drug-Free Workplace Act of 1988 – 41 U.S.C. §§ 8101 through 8105.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (P.L. 109-282, as amended by section 6202 of P.L. 110-252).

aa. Civil Rights Restoration Act of 1987, P.L. 100-259.

bb. Build America, Buy America Act, P.L. 117-58, Title IX.

EXECUTIVE ORDERS

a. Executive Order 11246 – Equal Employment Opportunity[1]

b. Executive Order 11990 – Protection of Wetlands

c. Executive Order 11998 – Flood Plain Management

d. Executive Order 12372 – Intergovernmental Review of Federal Programs

e. Executive Order 12699 – Seismic Safety of Federal and Federally Assisted New Building Construction[1]

f. Executive Order 12898 – Environmental Justice

g. Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency

h. Executive Order 13985 – Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government

i. Executive Order 13988 – Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation

j. Executive Order 14005 – Ensuring the Future is Made in all of America by All of America's Workers

k. Executive Order 14008 – Tackling the Climate Crisis at Home and Abroad

FEDERAL REGULATIONS

a. 2 CFR Part 180 – OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).

b. 2 CFR Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [4, 5]

c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment.

d. 14 CFR Part 13 – Investigative and Enforcement Procedures.

e. 14 CFR Part 16 – Rules of Practice for Federally-Assisted Airport Enforcement Proceedings.

f. 14 CFR Part 150 – Airport Noise Compatibility Planning.

g. 28 CFR Part 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services.

h. 28 CFR § 50.3 – U.S. Department of Justice Guidelines for the Enforcement of Title VI of the Civil Rights Act of 1964.

i. 29 CFR Part 1 – Procedures for Predetermination of Wage Rates.[1]

j. 29 CFR Part 3 – Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States.[1]

k. 29 CFR Part 5 – Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction (Also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act).[1]

l. 41 CFR Part 60 – Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and Federally-assisted contracting requirements).[1]

m. 49 CFR Part 20 – New Restrictions on Lobbying.

n. 49 CFR Part 21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation - Effectuation of Title VI of the Civil Rights Act of 1964.

o. 49 CFR Part 23 – Participation by Disadvantage Business Enterprise in Airport Concessions.

p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs.[1, 2]

q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

r. 49 CFR Part 27 – Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance.[1]

s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of Transportation.

t. 49 CFR Part 30 – Denial of Public Works Contracts to Suppliers of Goods and Services of Countries That Deny Procurement Market Access to U.S. Contractors.

u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance).

v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).

w. 49 CFR Part 38 – Americans with Disabilities Act (ADA) Accessibility Specifications for Transportation Vehicles.

x. 49 CFR Part 41 – Seismic Safety.

FOOTNOTES TO ASSURANCE (C)(1)

[1] These laws do not apply to airport planning sponsors.

[2] These laws do not apply to private sponsors.

[3] 2 CFR Part 200 contains requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation shall

apply where applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[5] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

SPECIFIC ASSURANCES

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this Grant Agreement.

2. Responsibility and Authority of the Sponsor.

a. Public Agency Sponsor:

It has legal authority to apply for this Grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

b. Private Sponsor:

It has legal authority to apply for this Grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this Grant Agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. Sponsor Fund Availability.

It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this Grant Agreement which it will own or control.

4. Good Title.

a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.

b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. Preserving Rights and Powers.

a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this Grant Agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere

with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

b. Subject to the FAA Act of 2018, Public Law 115-254, Section 163, it will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this Grant Agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this Grant Agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this Grant Agreement.

c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.

d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.

e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.

f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to ensure that the airport will be operated and maintained in accordance with Title 49, United States Code, the regulations and the terms, conditions and assurances in this Grant Agreement and shall ensure that such arrangement also requires compliance therewith.

g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. Consistency with Local Plans.

The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. Consideration of Local Interest.

It has given fair consideration to the interest of communities in or near where the project may be located.

8. Consultation with Users.

In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. Public Hearings.

In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. Metropolitan Planning Organization.

In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. Pavement Preventive Maintenance-Management.

With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. Terminal Development Prerequisites.

For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under 49 U.S.C. § 44706, and all the security equipment required by rule or regulation, and has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. Accounting System, Audit, and Record Keeping Requirements.

a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this Grant, the total cost of the project in connection with which this Grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The

accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.

b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this Grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this Grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. Minimum Wage Rates.

It shall include, in all contracts in excess of $2,000 for work on any projects funded under this Grant Agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor under 40 U.S.C. §§ 3141-3144, 3146, and 3147, Public Building, Property, and Works), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. Veteran's Preference.

It shall include in all contracts for work on any project funded under this Grant Agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in 49 U.S.C. § 47112. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. Conformity to Plans and Specifications.

It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this Grant Agreement, and, upon approval of the Secretary, shall be incorporated into this Grant Agreement. Any modification to the approved plans, specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this Grant Agreement.

17. Construction Inspection and Approval.

It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. Planning Projects.

In carrying out planning projects:

a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.

b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.

c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.

d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.

e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.

f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.

g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.

h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. Operation and Maintenance.

a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state, and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for:

   1. Operating the airport's aeronautical facilities whenever required;

   2. Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and

   3. Promptly notifying pilots of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood, or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or

facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.

b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. Hazard Removal and Mitigation.

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. Compatible Land Use.

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. Economic Nondiscrimination.

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to:

   1. Furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and

   2. Charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.

d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.

e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable

classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.

f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees (including, but not limited to maintenance, repair, and fueling) that it may choose to perform.

g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.

i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. Exclusive Rights.

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and

b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. Fee and Rental Structure.

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for

which a Grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. Airport Revenues.

a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:

   1. If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

   2. If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor’s acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.

   3. Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at 49 U.S.C. § 47102), if the FAA determines the airport sponsor meets the requirements set forth in Section 813 of Public Law 112-95.

b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.

c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of 49 U.S.C. § 47107.

26. Reports and Inspections.

It will:

a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the

public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;

b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;

c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this Grant Agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:

   1. all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and

   2. all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. Use by Government Aircraft.

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that:

a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or

b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. Land for Federal Facilities.

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. Airport Layout Plan.

a. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, it will keep up to date at all times an airport layout plan of the airport showing:

1. boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;

2. the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and roads), including all proposed extensions and reductions of existing airport facilities;

3. the location of all existing and proposed non-aviation areas and of all existing improvements thereon; and

4. all proposed and existing access points used to taxi aircraft across the airport's property boundary.

Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.

b. Subject to the FAA Reauthorization Act of 2018, Public Law 115-254, Section 163, if a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary:

1. eliminate such adverse effect in a manner approved by the Secretary; or

2. bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. Civil Rights.

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, color, and national origin (including limited English proficiency) in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4); creed and sex (including sexual orientation and gender identity) per 49 U.S.C. § 47123 and related requirements; age per the Age Discrimination Act of 1975 and related requirements; or disability per the Americans with Disabilities Act of 1990 and related requirements, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any program and activity conducted with, or benefiting from, funds received from this Grant.

a. Using the definitions of activity, facility, and program as found and defined in 49 CFR §§ 21.23(b) and 21.23(e), the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by or pursuant to these assurances.

b. Applicability

   1. Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.

   2. Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter, or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

   3. Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

   The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

   1. So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or

   2. So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this Grant Agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

   "The (**[Selection Criteria: Sponsor Name]**), in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award."

e. Required Contract Provisions.

   1. It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the Department of Transportation (DOT), and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.

2. It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.

3. It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.

4. It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability as a covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

    a. For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and

    b. For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.

g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. Disposal of Land.

a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:

    1. Reinvestment in an approved noise compatibility project;

    2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);

    3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;

    4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or

    5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

    If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development

project that would otherwise be eligible for grant funding or any permitted use of airport revenue.

b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, upon application to the Secretary, be reinvested or transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order:

    1. Reinvestment in an approved noise compatibility project;
    2. Reinvestment in an approved project that is eligible for grant funding under 49 U.S.C. § 47117(e);
    3. Reinvestment in an approved airport development project that is eligible for grant funding under 49 U.S.C. §§ 47114, 47115, or 47117;
    4. Transfer to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport; or
    5. Payment to the Secretary for deposit in the Airport and Airway Trust Fund.

c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.

d. Disposition of such land under (a), (b), or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. Engineering and Design Services.

If any phase of such project has received Federal funds under Chapter 471 subchapter 1 of Title 49 U.S.C., it will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services in the same manner as a contract for architectural and engineering services is negotiated under Chapter 11 of Title 40 U S.C., or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. Foreign Market Restrictions.

It will not allow funds provided under this Grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by

the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. Policies, Standards, and Specifications.

It will carry out any project funded under an Airport Improvement Program Grant in accordance with policies, standards, and specifications approved by the Secretary including, but not limited to, current FAA Advisory Circulars (https://www.faa.gov/airports/aip/media/aip-pfc-checklist.pdf) for AIP projects as of [Selection Criteria: Project Application Date].

35. Relocation and Real Property Acquisition.

a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.

b. It will provide a relocation assistance program offering the services described in Subpart C of 49 CFR Part 24 and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.

c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. Access By Intercity Buses.

The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. Disadvantaged Business Enterprises.

The sponsor shall not discriminate on the basis of race, color, national origin, or sex, in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its Disadvantaged Business Enterprise (DBE) and Airport Concessions Disadvantaged Business Enterprise (ACDBE) programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. § 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. §§ 3801-3809, 3812).

38. Hangar Construction.

If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. Competitive Access.

a. If the airport owner or operator of a medium or large hub airport (as defined in 49 U.S.C. § 47102) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that:

   1. Describes the requests;
   2. Provides an explanation as to why the requests could not be accommodated; and
   3. Provides a time frame within which, if any, the airport will be able to accommodate the requests.

b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

Appendix C: Tenant Survey

Union County Airport (MRT)
Tenant Survey

Summary of Survey Questions

The Union County Airport Tenanty Survey summary consists of data from 28 respondants. 55 invitations were originally emailed to tenants on January 6, 2021.

1. **Approximent hours currently flown each month.**

1-10 hours	11+ hours	Not Answered
86%	11%	4%

2. **Pilots who plan to fly more, less, about the same over the next 3-5 years.**

About the Same	More	Not Answered
46%	50%	4%

3. **Year, Make and Model of aircraft used.**

Year	Make	Model	Category
1946 & 1947	Aeronca	Champion	Part 23 SEL, Light Sport
1999	Beech Bonanza	A36	Utility
1965 & 1977	Beechcraft	BE55, V35B	Part 23, SEL
1971	Bellanca	7GCBC Citabria	Standard
1973	Bulldog	BH121	Experimental
1946,1958, 1959, 1965, 1966, 1981 & 1982	Cessna	140, 172, 182	Part 23 SEL, SEL
1972, 1976 & 1979	Grumman	AA-5A, A-5B	Part 23, SEL
1997	Loehle	5151	EAB
Building	Murphy	Renegade	
1958, 1962, 1969	Piper	PA28R200, Cherokee 180, PA24	Standard, Single Engine, Land
2010	Czech Sport Aircraft	Pipersport	ELSA
1997	Scottish Aviation	B-125	Experimental
2012	Sonex	Waiex	Experimental Light Sport
1947	Stinson	108-2	Part 23
2020	Titan Tornado		Experimental
2006 & 2013	Van's	RV-12, RV-6A	Experimental
2007	Wheeler	Express	Experimental

4. **Is the aircraft that is owned IFR Certified?**

Yes	No
46%	54%

Union County Airport (MRT)
Tenant Survey

5. Percentage planning to sell in the next 3-5 years and what aircraft they will purchase.

Yes	No	Maybe	Not Answered
11%	79%	7%	4%

Future Aircraft Purchase	
Cessna 206	Van's RV-7
Van's RV Series	
Newer Bonanza or Cirrus	

6. Storage Type and Tenant Length of time.

T-Hangar	Single Volume Hangar *	Not Answered
57%	4%	43%

Under 10 yrs	Over 10 yrs	Not Answered
18%	46%	36%

** One individual rents both types of hangars.*

7. Fuel Purchased at MRT, Type and Amount.

Yes	No	Fuel Type	Gallons Per Month 1-50	51-200
82%	18%	100 LL	39%	61%

If not purchased at MRT, where and why do you purchase somewhere else?

Alternative places they buy gas: MoGas, KUYF, I23, PCW, and Madison County
25% of surveyed indicated that they purchase elsewhere because of price.

8. 100% of those surveyed have a highly favorable impression of MRT with an average satisfaction level of 4.2 out of 5.

9. Ranking of importance by category.

	Very Important	Somewhat Important	Not At All	Not Answered
IFR Operational Capacity	32%	29%	18%	21%
Nighttime IFR Operations	21%	32%	25%	21%
Turf Operations	29%	14%	25%	32%
Hangar Storage Facilities	82%	0%	11%	7%
Maintenance Facilities and Service	46%	21%	0%	32%
Self-Fueling Facilities	64%	14%	4%	18%
Full Service Fueling	0%	14%	46%	39%
Availability of Auto Fuel	11%	18%	43%	29%
Aircraft Rental	11%	43%	32%	14%
Flight Instruction	11%	39%	21%	29%
Snow and Ice Removal	43%	11%	0%	46%
"In and Out" Hangar Service	14%	21%	36%	29%
Oxygen	7%	7%	57%	29%
Deicing Services	0%	4%	64%	32%
Aerobatic Box	7%	14%	54%	25%
General Appearce of Facilities	36%	14%	0%	50%
Maintain Airport Reference Code B-II RWY	36%	29%	4%	32%
Low Fuel Price	54%	21%	0%	25%
Aiport maintain free of obstructions/hazards	82%	4%	0%	14%
Community Events Located at the Airport	29%	21%	4%	46%

10. Of the facilities/services listed, which could KMRT do better?

	% of those surveyed
IFR Operational Capacity	7%
Nighttime IFR Operations	7%
Turf Operations	39%
Hangar Storage Facilities	29%
Maintenance Facilities and Service	7%
Self-Fueling Facilities	14%
Full Service Fueling	4%
Availability of Auto Fuel	29%
Aircraft Rental	18%
Flight Instruction	29%
Snow and Ice Removal	4%
"In and Out" Hangar Service	4%
Oxygen	7%
Deicing Services	0%
Aerobatic Box	11%
General Appearce of Facilities	18%
Maintain Airport Reference Code B-II RWY	14%
Low Fuel Price	54%
Aiport maintain free of obstructions/hazards	36%
Community Events Located at the Airport	32%

11. What facilies/services would you like to see at MRT in the future?

"()" indicates the number of individuals who made this comment.

- Approved use of Turf Facilities (1)
- T-Hangar maintenance/lighting (3)
- Additional aircraft for rent (1)
- North/South runway addition (2)
- Longer runway (2)
- Additional T-Hangars (16)
- Lower cost of fuel (2)
- Self-Serve MoGas (1)
- Runway obstruction planning (1)
- Overall facility maintenance (2)
- Wifi in the T-Hangars (1)
- In and out facilities more readily available (1)
- Fueling facilities more readily available (1)
- Additional mechanics (1)
- Condo Hangar (4)
- Medium-sized Hangar (5)
- Maintenance of grass runway (2)
- LPV Approaches (1)
- Community Events (1)

12. Suggestions for long term needs for future users.

"()" indicates the number of individuals who made this comment.

- Attraction of a larger business use base. (3)
- Expansion of the runway length. (4)
- Limiting the residencial development close to the airport and keep bounday clear. (7)
- Development of a cross runway. (2)
- Development of additional hangars. (2)
- Availability of courtesy vehicles. (1)
- Creation of community events. (1)

13. **KMRT should strive to accommodate all aspects of aviation ranging from sport and recreational to business and commercial operations (not airline operations) appropriate to the needs of the community.**

    100% of those surveyed agreed.

14. **KMRT should strive to expand the services available at the airport, to include other aspects of aviation not now available.**

    75% of those surveyed agreed, 25% disagreed.

15. **Airports are a part of the US transportation infrastructure and as such should qualify for public funds (federal, state and local) to partially offset the cost of operations.**

    93% of those surveyed agreed, 7% disagreed.

16. **Airports are a part of the US transportation infrastructure and as such should qualify for public funds (federal, state and local) to partially offset the cost of development.**

    100% of those surveyed agreed.

Union County Airport (MRT)
Tenant Survey

What is your overall impression of MRT?

> Positive
> Very nice airport
> Great airport community
> Nice facility. Good runways and taxiways. Nice sod runway. Houses too close to airport. Mo gas not available....needed.
> Great pilot community. Fuel and aircraft maintenance cost are high
> VERY nice FBO AND MAINTENACE GROUP.
> Great place to base an aircraft. Excellent maintenance. Very friendly atmosphere
> GA friendly airport
> Good
> Decent GA airport
> Hangers are full and there's a waiting list--BUILD MORE! I'd pay more for a larger hanger with insulation, office area and a bathroom. Wifi needs to reach all hangers as well. FBO needs more room. Why can't we get a corporate hanger or two?
> Active airport. Well staffed.
> Very favorable
> Fairly nice facility and people
> It is a good well managed airport
> Excellent
> Nice small airport with convenient location for me outside of Columbus
> Well run FBO. Excellent, qualified and responsive maintenance. Pilot community needs work - like kids at the school lunchroom there are cliques with barriers to entry for others.
> Very good
> Very professional and well-maintained.
> Good uncontrolled airport, runway length is good, well maintained
> Well maintained, but not a lot of activity
> Excellent
> Well managed good location
> Good
> I enjoy being based at MRT

Do you have any additional comments on your overall satisfaction with MRT?

> Would like to see In and Out , and fuelling services regularily available.
> Longer runway and T hagars are important
> Poor planning to have houses within 100 feet of runway departure end...
> More reasonable fuel and maintenance cost. More community pilot activities would be fun.
> WiFi in the T - Hangars would be nice to have.
> SkyVista has done more to develop the infrastructure than any other FBO the County has ever contracted with: Repairs to self serve fuel, taxi and taxiway lighting, paving and painting. Keep applying for those aviation grants!
> See below.
> A north south runway would be great
> FBO operations and airport authority do everything possible to contribute to the enjoyment and safety of avation.

> It would be appreciated if the Hangar's could get some freshening up with better lighting and added electrical outlets. One outlet and one light fixture is pretty primative. Also a Washing area for airplanes and ability to dispose of our trash (dumpsters are always locked) would be helpful.

> There is nothing I would change.

> I have flown out of OSU and Delaware Municipal in past years, but definitely prefer MRT

> Hangar maintenance of T Hangars is subpar, when my do would not fully open it took more than 60 days to get it repaired.

> I would like to see more aircraft available for rental

> Great people to work with particularly Dave & Steve

> Approved use of the turf facilities

> MRT is a nice airport to be based. The only reasons why I am not very satisfied is because the cost of 100LL tends to be higher and other local airports, and the grass runway is constantly NOTAM'd closed.

> A good maintenance department is essential. We have that.

Appendix D: Public Outreach

Union County Commissioners Briefing, August 3, 2022

UNION COUNTY COMMISSIONERS JOURNAL 2022
August 3, 2022

*Commissioner Robinson recessed the meeting at 9:23 a.m.

* * *

*Commissioner Robinson reconvened the meeting at 9:59 a.m. Commissioner Burke was not present as he had to attend another meeting.

*Airport Master Plan Discussion. In attendance were Airport Authority Board Members Robert Chapman, Jr., John Popio, Philip LePointe, Steve Koenig, Bruce Rausch and Ken Denman. Also in attendance were Dave Wall, Woolpert Senior Aviation Planner and Greg Shuttleworth, Woolpert Program Director.

- Mr. Popio stated that they are here today as part of their master plan project, which is approximately 95% complete. They did a master plan in 1990 and then again approximately 10 or 12 years later. This most recent plan was provoked by work they did 8 years ago to update the layout plan. At that time, they became aware of the fact that they were at risk of losing some of their published runway length and they also lost their nighttime instrument approach to Runway 27. At that time, there was a lot of discussion about the need to look at a runway extension to regain lost runway length that was a result of railroad changes. The FAA required a full blown master plan update, which they undertook about 3-1/2 years ago. This is an informal master plan.
- Mr. Wall presented the plan.

Agenda

- Welcome and Introductions
- What is a Master Plan?
- Aviation Activity Forecasts
- Existing and Future Airport Layout Plans
- Development Recommendations
- Questions & Next Steps

What is a Master Plan?

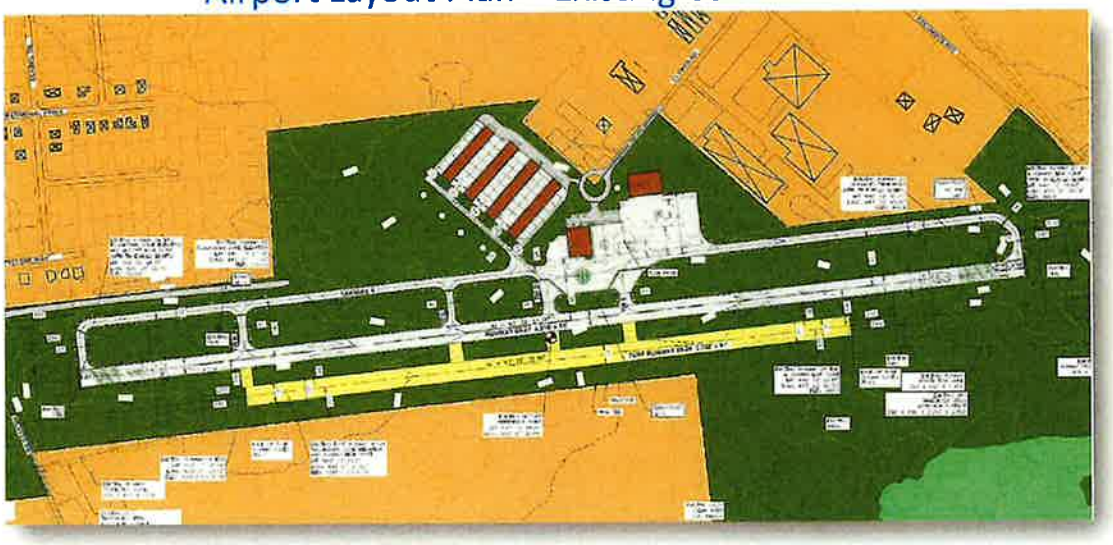
- Required by the FAA
- 20-year plan for development
- Unconstrained forecast future activity
- Plan for needed development
- Graphical representation of the future airport
- Required for FAA Airport Improvement Program funding

Approved Aviation Activity Forecasts

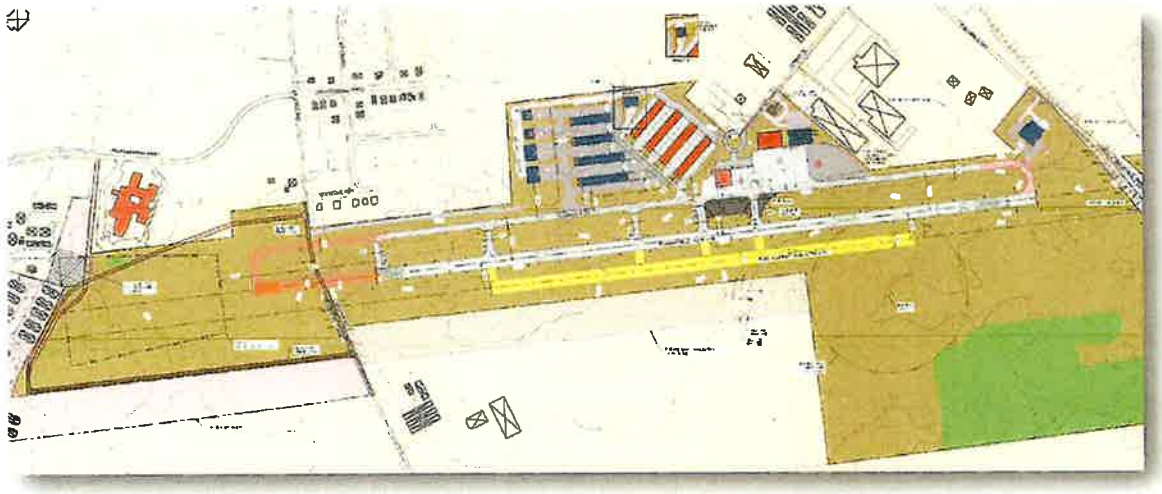
Forecast Element	Year	Recommended Forecast	TAF Forecast
Based Aircraft			
Base Year	2020	59	57
Base Year + 5 Years	2025	59	57
Base Year + 10 Years	2030	61	57
Base Year + 15 Years	2035	63	57
Base Year + 20 Years	2040	65	57
AAGR 2020-2040		0.52%	0.00%
Total Operations			
Base Year	2019	25,250	31,886
Base Year + 5 Years	2025	25,500	31,886
Base Year + 10 Years	2030	26,000	31,886
Base Year + 15 Years	2035	26,900	31,886
Base Year + 20 Years	2040	28,100	31,886
AAGR 2019-2040		0.51%	0.00%

Airport Layout Plan – Existing Conditions

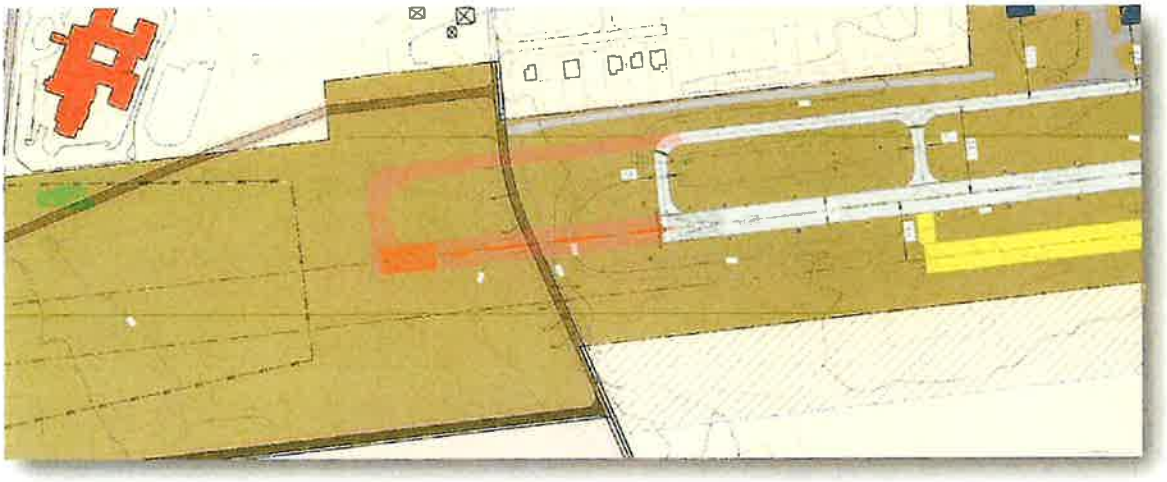
Airport Layout Plan – Existing Conditions



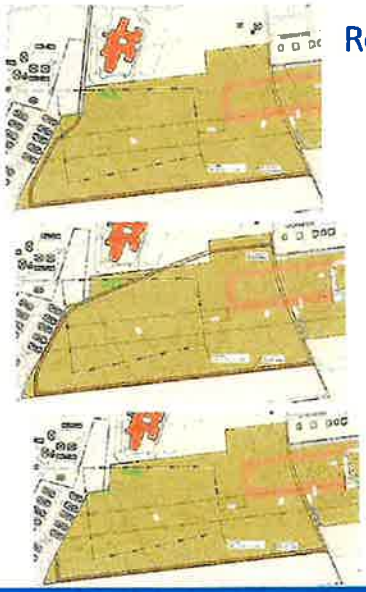
Airport Layout Plan – Future

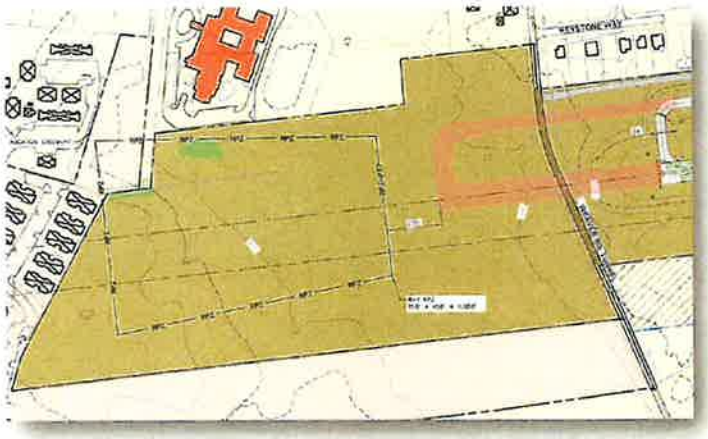


800-foot Runway Extension

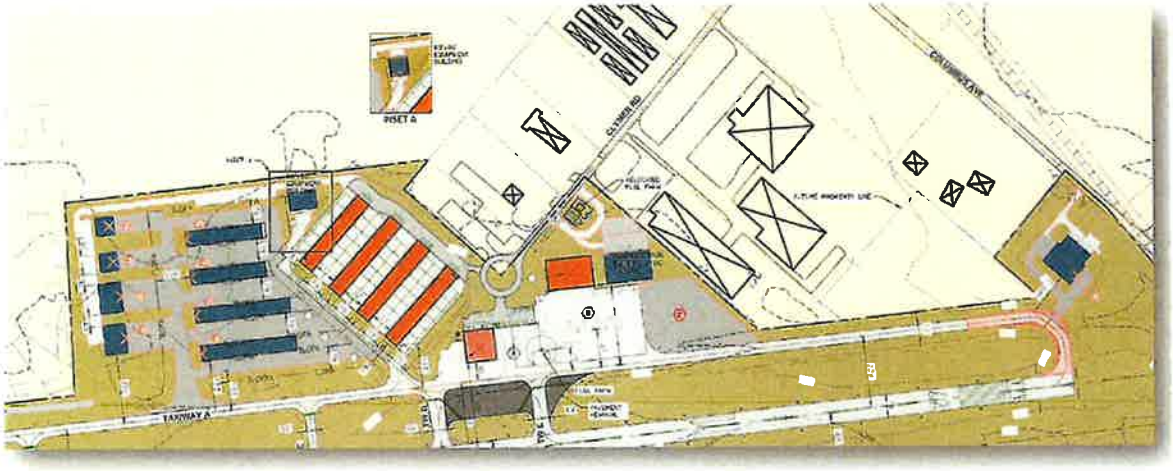


Roadway Reconfiguration





Hangar Development



Questions?

David Wall, AAE
Dave.Wall@Woolpert.com
(614) 827-6147

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August 3, 2022

- Mr. Wall stated that the plan is not complete but the majority is done.
- Commissioner Schmenk asked Mr. Narducci if he had heard any thoughts from Marysville on preferred routes.
- Mr. Narducci stated that taking cost implications of the tunnel, which would be a huge cost, would be preferable because it maintains the shortest distance. Topography is such that after moving off the runway, there is quite a drop-off on Weaver Road, so it would be like building over Weaver Road. This is not a county roadway.
- There was discussion on the proposed layouts and reconfigurations.
- Mr. Wall stated that the runway extension would cost about $8,000,000 and the tunnel approximately $18,000,000. They would be eligible for federal funding, but it is not a guarantee. Roadway reconfigurations through the neighborhood would be about $312,000, which would connect into the existing roadway and then go to the south and connect to Weaver Road. Coming into the north from Professional Parkway would cost approximately $3,900,000 and the the loop approximately $5,000,000.
- Mr. Popio stated that any option will require discretionary funding even using all of the entitlements.
- Mr. Wall stated that FAA funding is typically 90% and then 10% local. Of the 10% local, the ODOT Aviation Office pays approximately 5%.
- Commissioner Robinson asked if the FAA will eventually shut the airport down if they do not make the changes.
- Mr. Wall stated that pavement would need to be corrected, but there is no danger to being shut down. This is meant to be a living document and the master plan could change.

- In response to a question by Commissioner Robinson, Mr. Wall stated that while there has been discussion about relocating, it is an enormously expensive undertaking. The airport has accepted grants from the FAA and ODOT and those grants have grant assurances that say the airport will continue to maintain and be an airport for at least 20 years past when they accept the grant. If they were to close the airport, they would have the expense of new land, recreating infrastructure for the airport, then talking to the FAA and possibly having to pay the grants back to them and to the state. It would cost about $81,000,000 to move the airport including the work to close the existing airport.
- Mr. Koenig stated that he does not want to move the airport professionally or personally. This is an opportunity for Marysville and Union County to jointly own the airport.
- Mr. Wall stated that they have to document the financial, implementation and layout plans and should be done by the end of the year. When it is finished, they will have a public informational session.
- Commissioner Robinson stated that once the plan is laid out, the county's share would have to be worked into their budget or won't happen. He stated that he is concerned about the county's 5%.
- Mr. Popio stated that they talked about relocating the administration building, for which there is special discretionary funding. Just maintaining the current runway requires periodic maintenance and at some point the major expense of resurfacing the runway.
- Mr. Narducci stated that the projected 20 year growth of airport operations looks flat.
- Mr. Wall stated that the FAA is always very conservative because ultimately they help fund the development. This is very common in the growth rates they are seeing in aviation right now because of fuel prices and it is expensive to fly.
- Mr. LePointe stated that they have ten customers that want them to build a hanger, but that is not reflected in the numbers.
- Mr. Wall stated that the revenue projections are a snapshot in time for the forecast.
- Mr. Koenig stated that the county is a government entity and should not be concerned about revenue projections. If there is public interest, it is not the same standard as a business that needs a return on their investment and to make money.
- Commissioner Schmenk stated that when the county looks at funding, they also have competing priorities. They ask about things like returns on investment because they are always looking for dollars for operation of the county.
- In response to a question by Mr. Popio, Commissioner Schmenk stated that setting aside cost, it sounds like a tunnel would be the least disruptive for residents and the city and users of the roads.
- Commissioner Robinson stated that made the most sense to him. He said they would be working with the city because it is their street, so the project would be a joint effort.
- Mr. Popio stated that they will be meeting with Representative Jordan today and will be planting the seed for discretionary funding.
- Commissioner Robinson stated that the county will be starting their budget process in the next month and will be meeting with every entity in person.

* * *

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NEWS

Airport expansion plans tricky

By Michael Williamson — August 5, 2022 No Comments 5 Mins Read

The Union County Airport is looking to expand but costs, logistics and all around growth will have a say with exactly how and when that will happen.

Members of the airport board brought a master plan update Wednesday morning, at the regular meeting of the county commissioners. The plan, required by the Federal Aviation Administration (FAA), looks at the needs of the airport now and 20 years into the future.

Airport officials said the plan is 95% completed and the result of the last three to four years worth of work.

“This really started many, many years ago but, in earnest, this effort really dates back to our ALP (Airport Layout Plan) update and the information that became apparent then took us to a formal master plan,” said John Popio, Chairman of the Airport Authority. “(The ALP) was a non-starter with the FAA. They required us to do a full-blown, master plan update.”

The airport is working with planning consultant Dave Wall with Woolpert, an architecture, engineering, geospatial and strategic consulting firm.

Though FAA projections indicate little to no growth for the Union County Airport in the next 20 years, Wall’s analysis found just enough that would warrant some updates.

“We found that there is some modest growth, that there is going to be additional aircraft basing at the airport and that there’s going to be additional aircraft operations,” Wall said. “An aircraft operation is a landing or a take off. Each one is counted as one operation.”

Wall said several general aviation airports like Union County are growing at a similar rate which is a half percent over the 20 year forecasted time, which doesn’t sound like a lot, he said, but does have an impact.

Critical aircraft flying regularly in and out of the airport is a Cessna Citation, which is a small business jet, used by companies such as Scotts for operations out of the airfield, said Wall.

“That’s the critical aircraft and they operate more than 500 times a year and actually it’s about 4,000 times a year,” Wall added. “So they well-exceed the threshold, but that’s the most demanding aircraft for the airport.”

The FAA recommends airports that handle Citations have a runway length of just under 5,000 feet and the current length of the Union County runway is just over 4,200 feet.

The board looked at a number of options from a minor runaway extension of 100 feet to the full 800 foot addition that would meet the FAA recommendation.

Wall said extending the strip 800 feet west would be ideal but would significantly impact Weaver Road and surrounding properties – especially since a 200 foot empty space called a

Runway Protection Zone has to be installed at the end of the runway for safety.

“Looking a little bit closer at the runway extension, 800 feet was what we saw as the best we could fit in there,” Wall said.

Extending the runway to that length would mean intersecting Weaver Road just south of Keystone Way.

Because of the roadway disruption, Wall said the board looked at alternate roadway configurations that would take traffic off Weaver onto a newly built section that would loop around the airport property and reconnect to Weaver north and south of the proposed extension.

The other option, which Wall said was likely the best, was to create a “Weaver Road Tunnel.”

“That’s the shortest distance. In talking with Marysville and Marysville engineering, we said ‘here are some roadway options.’ What they were concerned about is that they want to maintain the shortest distance from the northside of the airfield to the southside for emergency services,” Wall said.

The existing runway sits at a higher elevation than Weaver Road, so the tunnel option would involve building the extension across and over the existing roadway, rather than excavating the land to take Weaver Road lower.

The runway extension would cost $8 million and the Weaver Road Tunnel option would cost $18 million.

Wall said both projects would be eligible for federal funding which airport officials said would be necessary given the high price tags.

The other three roadway configurations have estimated costs of $312,000, $3.9 million and $5 million.

“Whatever is done there, is going to require discretionary funding locally,” Popio added. “Any option we choose is going to require discretionary funding over and above what we would normally be allocated.”

Wall said the FAA funding is “90% FAA, 10% local” and that within the 10% number, half is matched by the Ohio Department of Transportation’s aviation office.

Commissioner Steve Robinson asked the board if there was thought given to relocating and what those costs would entail.

“We have thought a little bit about that and that’s usually something that comes to mind,” Wall said. “It’s an enormously expensive undertaking.”

Wall said the other issue with a public use airport is the accepted federal funding.

“The airport has accepted grants from the Federal Aviation Administration and ODOT. Well unfortunately those grants have what’s called grant assurances and within there, it says, in essence, that the airport will continue and maintain and be an airport for at least 20 years passed when you accepted the grant,” Wall said. “If you were to say today, ‘let’s close the airport,’ you’d have the expense of buying new land – of course you would sell this so you would have that land – but then recreating the infrastructure for the airport. Then you’d have to talk with the FAA because there is the caveat that you may have to pay all those grants back. Also, the state has that same requirement.”

Wall added the cost to move an airport would be around $81 million.

Commissioners Robinson and Chris Schmenk were open to the idea of the extension (Commissioner Dave Burke was absent for the airport half of the meeting), but wanted to wait to hear final numbers.

Wall said the plan would likely be totally complete by the end of 2022 or sooner.


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Auto Racing

Reformers take 6 of 14 UAW board seats, could win majority

20 hrs ago

Ganassi adds another Kiwi in Armstrong to IndyCar lineup

Dec. 02, 2022 11:51 AM EST

F1: Chinese Grand Prix canceled again over pandemic

Dec. 02, 2022 07:58 AM EST

Chase Elliott wins most popular driver for 5th straight year

Dec. 01, 2022 08:03 PM EST

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City of Marysville Briefing, August 26, 2022

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Union County Airport

Master Plan Update

Agenda

- Welcome and Introductions
- What is a Master Plan?
- Aviation Activity Forecasts
- Existing and Future Airport Layout Plans
- Development Recommendations
- Questions & Next Steps

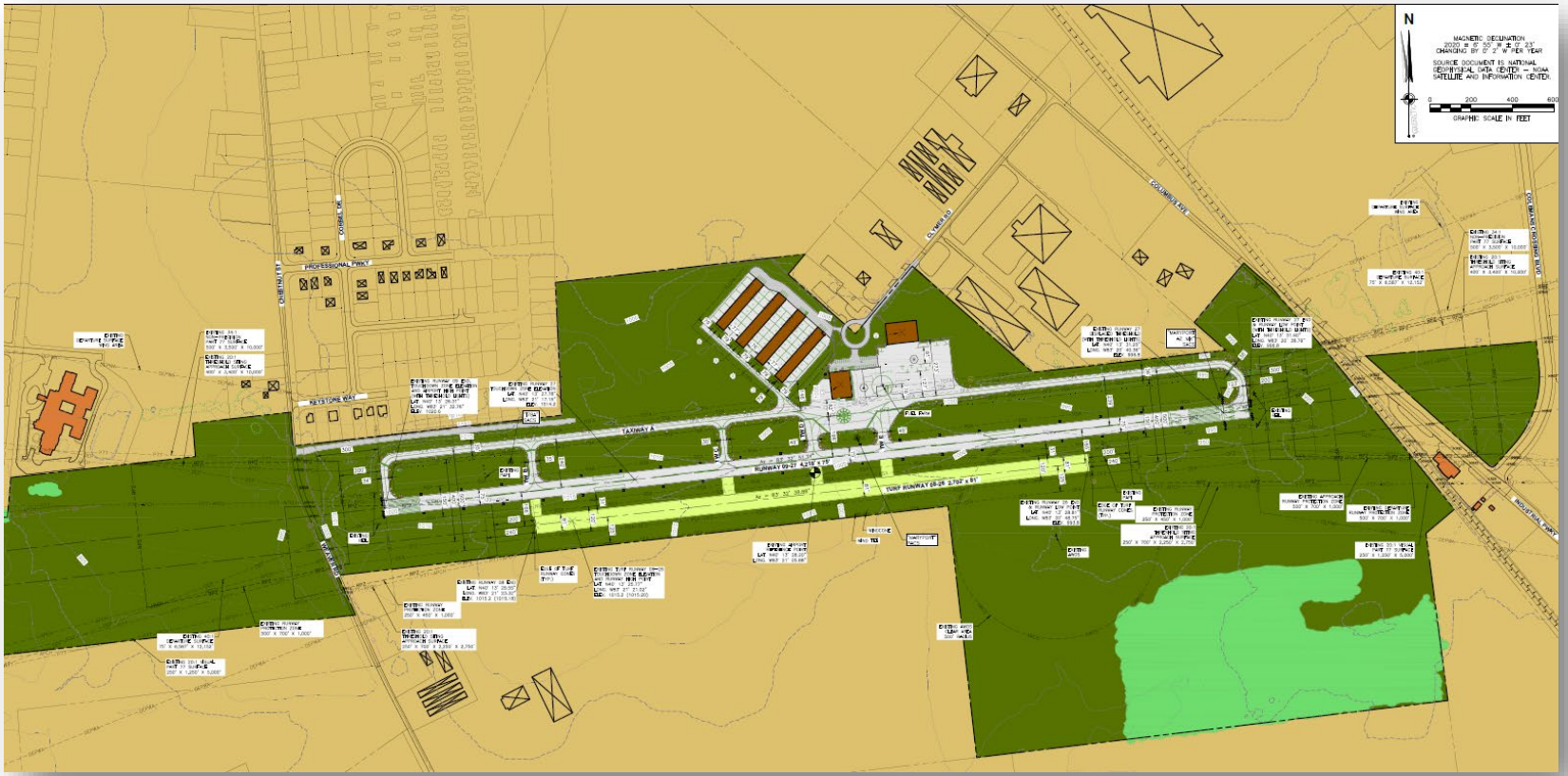
What is a Master Plan?

- Required by the FAA
- 20-year plan for development
- Unconstrained forecast future activity
- Plan for needed development
- Graphical representation of the future airport
- Required for FAA Airport Improvement Program funding

Approved Aviation Activity Forecasts

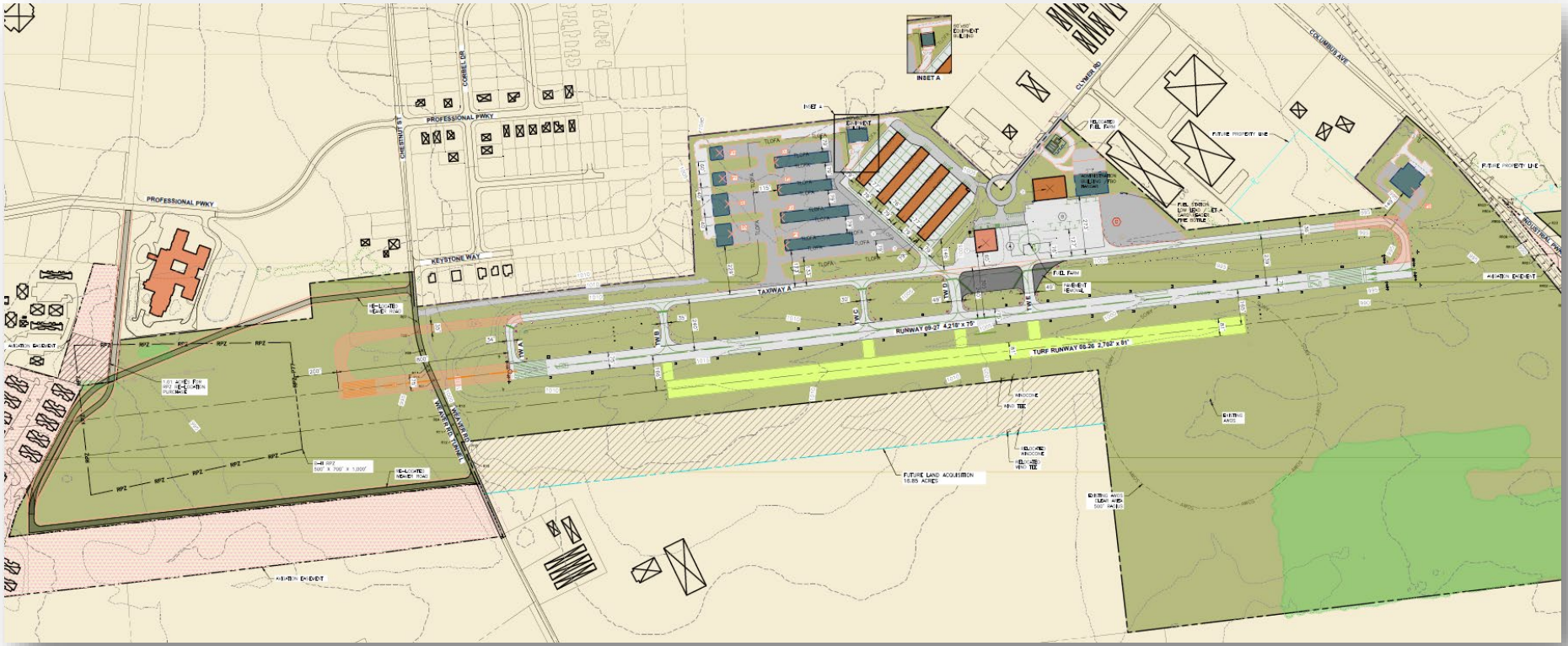
Forecast Element	Year	Recommended Forecast	TAF Forecast
Based Aircraft			
Base Year	2020	59	57
Base Year + 5 Years	2025	59	57
Base Year + 10 Years	2030	61	57
Base Year + 15 Years	2035	63	57
Base Year + 20 Years	2040	65	57
AAGR 2020-2040		0.52%	0.00%
Total Operations			
Base Year	2019	25,250	31,886
Base Year + 5 Years	2025	25,500	31,886
Base Year + 10 Years	2030	26,000	31,886
Base Year + 15 Years	2035	26,900	31,886
Base Year + 20 Years	2040	28,100	31,886
AAGR 2019-2040		0.51%	0.00%

Airport Layout Plan – Existing Conditions



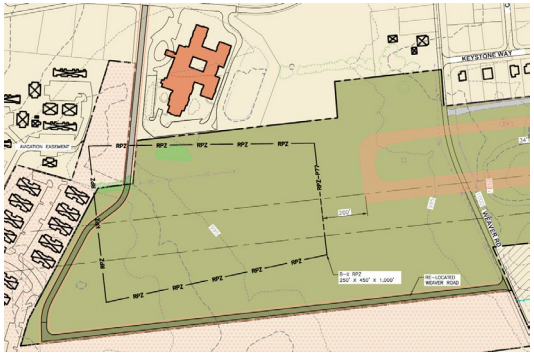
Airport Layout Plan – Existing Conditions

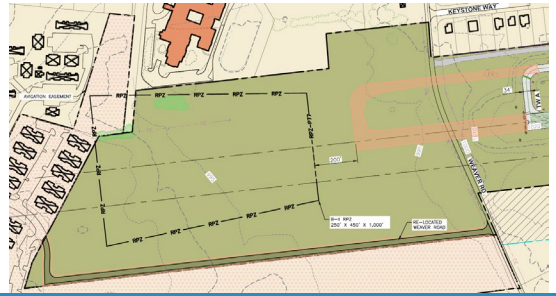
Airport Layout Plan – Future

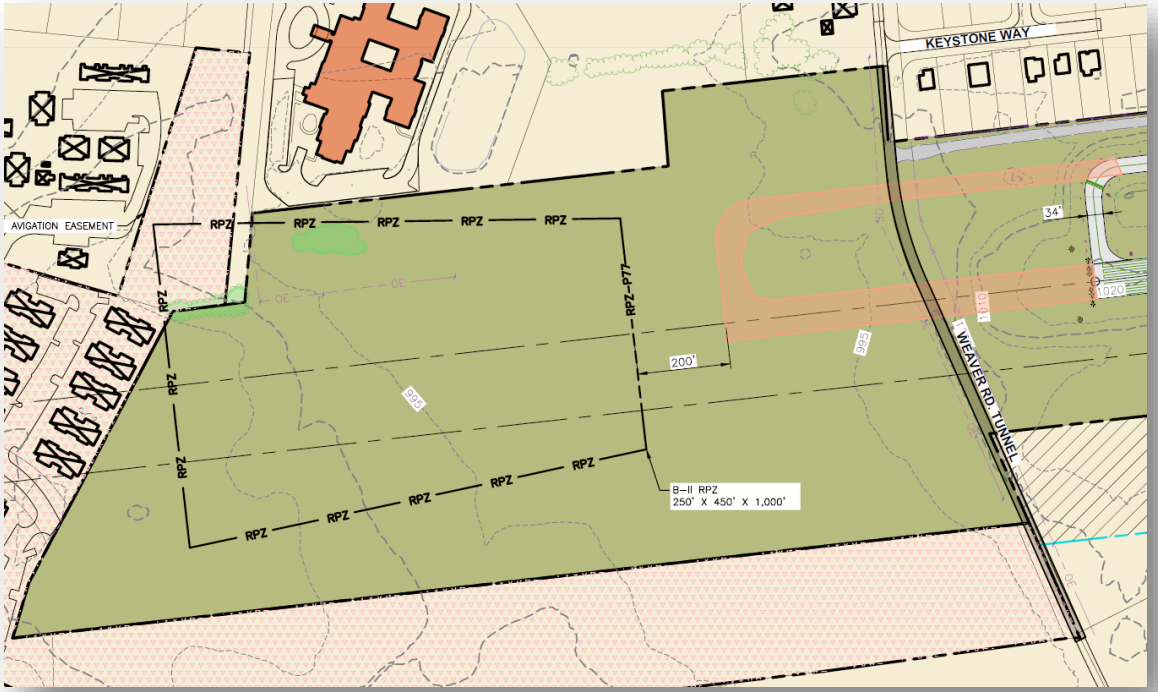


800-foot Runway Extension

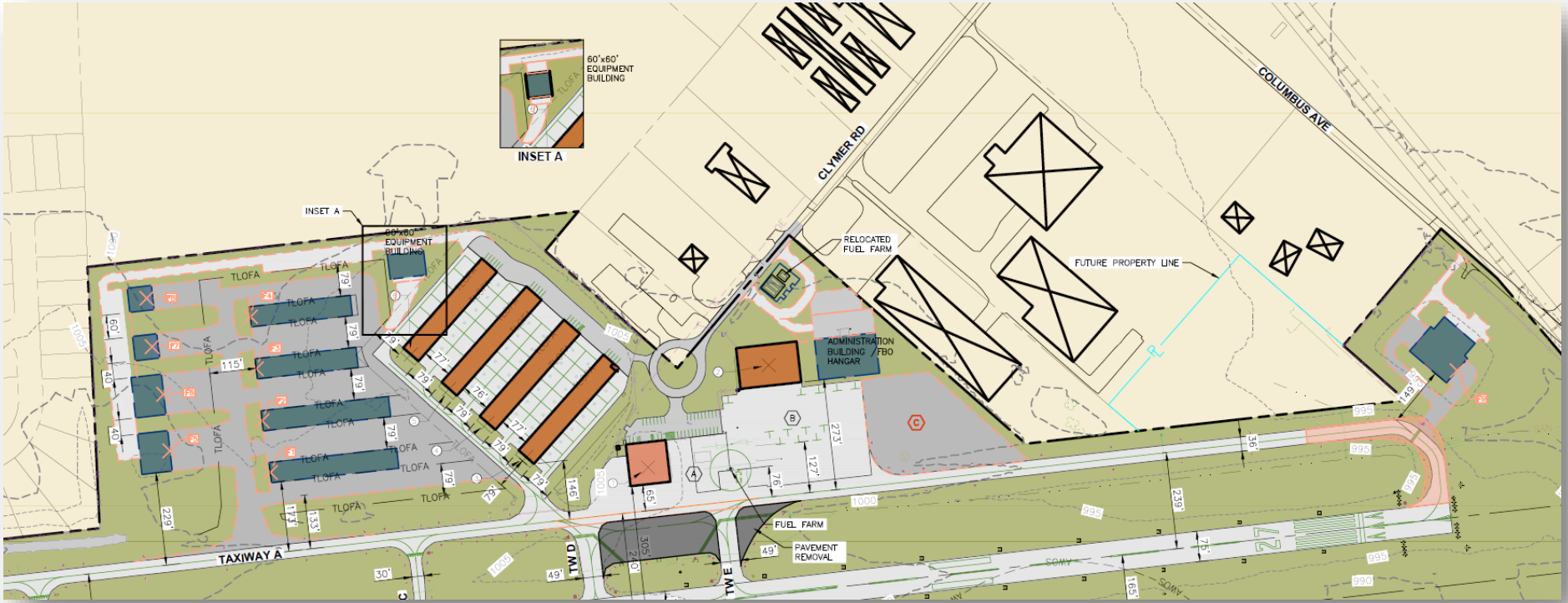
Roadway Reconfiguration







Hangar Development



Questions?

David Wall, AAE
Dave.Wall@Woolpert.com
(614) 827-6147

Thank you

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Meeting Minutes

Date of Meeting:	August 26, 2022 10:30a EDT	**Re:**	Union County Airport Master Plan
Location:	City of Marysville Administrative Offices	**Issue Date:**	January 14, 2023
Submitted By:	Wall, Dave	**Conference Call:**	
In Attendance:	Terry Emery, City Manager Eric Phillips, Economic Dev. Director Maryville Planning & Engineering staff John Popio Philip LaPointe Ken Denman		

ITEMS DISCUSSED:

On August 26, 2022, the UCAA Board of Directors met with the City of Marysville City Manager, representatives of the Marysville Planning & Engineering office, and the Union County & Marysville Economic Development Director to provide an update on the master plan and draft proposed alternatives. The City Manager supported the development recommendations and reiterated the importance of the airport to the City of Marysville, and the City Manager felt the master plan was thorough and made appropriate development recommendations to support the long-term growth of the airport so it may support the development of the community. The City Manager was also supportive of the tunnel for Weaver Road to pass under the proposed runway extension as it would provide emergency vehicles the most expeditious route to the communities south of the airport, rather than be forced to take a circuitous route around the west side of the airport property.

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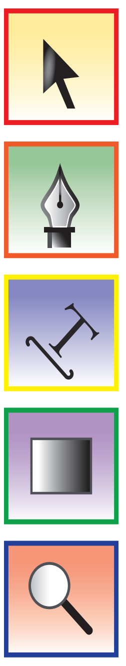
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LEGAL NOTICE
The Union County Airport (MRT) is updating its Airport Master Plan. The public is invited to a public information meeting to review and give input on current and future airport development needs for the next 20 years. The master plan will combine community input with the Union County Airport Authority's vision to formulate the blueprint for the airport's long-term development. The meeting will be held on November 17, 2022, from 6:00 to 8:00 pm at the Union County Airport administration building, 760 Clymer Road, Marysville, OH 43040. No formal presentation is planned, stop by any time. For questions, please call the Authority's consultant, Dave Wall, at Woolpert (614) 827-6147.
10-18-1T
11-15-1T

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		Dish	Dtv	6 PM	6:30	7 PM	7:30	8 PM	8:30	9 PM	9:30	10 PM	10:30	11 PM	11:30	12 AM	12:30
WSFJ	2	51	51	In the Heat of the Night		In the Heat of the Night		Bernie Mac	White Men Can't Jump ★★ ('92) Wesley Snipes. 'TVMA'					Sister Act ★★★ ('92) Whoopi Goldberg. 'TVPG'			
NBC WCMH	4	4	4	NBC4 at 6:00 p.m.	NBC Nightly News	NBC4 at 7:00 p.m.	Inside Edition	The Voice "The Battles Part 3"		La Brea "The Fog"		New Amsterdam "Grabby Hands"		NBC4 at 11:00 p.m.	(:35) The Tonight Show Starring Jimmy Fallon		(:35) Seth Meyers
ABC WSYX	6	6	6	ABC6 News at 6	ABC World News	Good Evening Columbus	On Your Side	Bachelor in Paradise				The Rookie: Feds "To Die For"		ABC 6 News at 11	(:35) Jimmy Kimmel Live		(:35) News Nightline
PBS WOSU	7	34	34	PBS NewsHour		Curious Traveler	Fly Brother "Adirondacks"	Finding Your Roots "Forgotten Journeys"		Making Black America "A Growing Resistance"		Frontline "Michael Flynn's Holy War"		Amanpour and Company		DW News	Finding Your Roots
FOX WSYX	8	28	28	Two and a Half Men	Young Sheldon	The Big Bang Theory	The Big Bang Theory	The Resident		Monarch		Fox 28 News at 10:00 p.m.		Two and a Half Men	(:35) Seinfeld	(:05) Modern Family	(:35) Modern Family
CBS WBNS	10	10	10	10TV News at 6:00 p.m.	CBS Evening News	Jeopardy!	Wheel of Fortune	FBI "Flopped Cop"		FBI: International		FBI: Most Wanted		10TV News at 11:00 p.m.	(:35) The Late Show With Stephen Colbert		(:35) James Corden
CW WWHO	13	53	53	Family Feud	Family Feud	Family Feud	Family Feud	The Winchesters		Professionals		The National Desk			iCrime E. Vargs	ABC6 News at 11	Neighbor-hood
CW WUAB	15	-	-	Josh and Maria LIVE	Jeopardy!	Inside Edition	19 News at 7:30 p.m.	The Winchesters		Professionals		19 News at 10:00 p.m.	(:45) Sports Extra	Modern Family	Modern Family	Black-ish	Black-ish
CABLE CHANNELS																	
A&E	41	118	265	The First 48 "Runner Runner"		The First 48		The First 48		The First 48		The First 48		(:05) The First 48		(:05) The First 48	
AMC	54	130	254	Halloween H2O: 20 Years Later ★★ ('98)				Halloween ★★★★ ('78) Donald Pleasence. 'TV14'				A Nightmare on Elm Street ★★ ('10) Jackie Earle Haley.				Fright Night ★★★ ('85)	
ANPL	60	184	282	Homestead Rescue		Homestead Rescue		Homestead Rescue				Homestead Rescue				Homestead Rescue	
B10	58	439	610	NCAA B1G Football in 60		The Journey	The B1G Trip	NCAA Soccer Indiana at University of Wisconsin (Madison)				B1G Show	The Journey	B1G Show	The B1G Trip	B1G Show	B1G Show
BET	50	124	329	Martin	Martin	Martin	Martin	Martin	Martin	Tyler Perry's the Oval		Tyler Perry's Ruthless		Bruh	Tyler Perry's the Oval		Ruthless
BRAVO	53	129	273	Winter House		Below Deck Down Under		Below Deck Down Under		Below Deck Down Under "Dirty Laundry"			Watch What Happens Live		Below Deck Down Under		Below Deck
BSGL	34	-	662	(5:) TheRally	Browns Red Zone		Zips Football	NCAA Football Ohio Dominican University vs. Ashland University						Browns Red Zone		Cruise-In	Zips Football
BSOH	33	425	660	(5:) TheRally	B.Jacket Pre	NHL Hockey Vancouver Canucks at Columbus Blue Jackets					Post-game	Jackets Live	18 Holes	WPT Poker		NHL Hockey	
CMT	47	166	327	Last Man St.	Last Man St.	Last Man St.	Last Man St.	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Golden Girls	Golden Girls
CNBC	56	208	355	Mad Money		The News		Shark Tank		Shark Tank		Shark Tank		Shark Tank		The News	
CNN	28	200	202	The Situation Room		Erin Burnett OutFront		Anderson Cooper 360		CNN Tonight		CNN Tonight		CNN Tonight		Anderson Cooper 360	
COM	51	107	249	The Office	The Office	The Office	The Office	The Office	The Office	The Office	The Office	The Office	The Office	Daily Show	(:45) Seinf.	(:15) Seinf.	(:45) Seinf.
DISC	40	182	278	The Viking Returns		Deadliest Catch: On Deck		The Viking Returns		Love Off the Grid		Homestead Rescue "Mississippi Mayhem"				The Viking Returns	
DISN	35	172	290	Miraculous	Miraculous	HamsterGretl	HamsterGretl	BigCityGreen	BigCityGreen	Villains Valley	Ultra Violet	BigCityGreen	BigCityGreen	Miraculous	Miraculous	Jessie	Jessie
E!	43	114	236	Last Man St.	The Proposal ★★★ ('09) Ryan Reynolds, Sandra Bullock. 'TV14'					The Proposal ★★★ ('09) Ryan Reynolds, Sandra Bullock. 'TV14'					Nightly Pop	Raising a F**ing Star	
ESPN	31	140	206	SportsCenter		NHL Hockey Philadelphia Flyers at Tampa Bay Lightning Site: Amalie Arena					NHL Hockey Los Angeles Kings at Nashville Predators Site: Bridgestone Arena					SportsCenter	
ESPN2	32	144	209	The Point Live				Interruption	MLS Soccer Playoffs Live			NFL Live		College Football Playoff "Top 25"			DC & RC
FREE	39	180	311	Ghostbusters ★★ (2016,Action) Kristen Wiig, Kate McKinnon, Melissa McCarthy. 'TVPG'						Beetlejuice ★★★ (1988,Comedy) Geena Davis, Alec Baldwin, Michael Keaton. 'TVPG'						Simpsons	Simpsons
FX	64	136	248	(5:30) Sweet Home Alabama ★★ ('02)				Captain America: The Winter Soldier ★★★ ('14) Scarlett Johansson, Chris Evans. 'TV14'						Fantastic Four ★★ ('05) Ioan Gruffudd. 'TV14'			
GOLF	62	401	218	Golf Central		P. Lessons	Golf Academy	Schwab Cup Preview		Golf Films		Golf Films		Golf Central		Schwab Cup Preview	
HALL	23	185	312	Love on the Sidelines ★★ ('16) Emily Kinny. 'TVG'				A Tail of Love ('22) Chris McNally, Brittany Bristow. 'TVG'				Golden Girls	Golden Girls	Golden Girls	Golden Girls	Golden Girls	Golden Girls
HGTV	45	112	229	Good Bones		The Renovator		The Renovator		Good Bones		House Hunt.	House Hunter	House Hunt.	House Hunter	Good Bones	
HIST	20	120	269	(5:00) Greatest Mysteries		Beyond Oak Island		Beyond Oak Island		Beyond Oak Island		(:05) The Curse of Oak Island		(:05) The Curse of Oak Island		(:05) Beyond Oak Island	
LIFE	42	108	252	Castle		Castle "Pretty Dead"		Castle "Knockout"		Castle "Rise"		(:05) Castle		(:05) Castle "Head Case"		Castle "Knockout"	
MTV	49	160	331	(4:30) To Be Announced		Messyness	Messyness	Catfish: The TV Show		True Life Crime		Messyness	Messyness	Ridiculous	Ridiculous	Ridiculous	Ridiculous
NGEO	68	186	276	Life Below Zero		Life Below Zero		Life Below Zero		Andes "Jagged Jungle"		Life Below Zero "Dog Power"		Life Below Zero		Andes "Jagged Jungle"	
NEWSN	16	239	307	NewsNation: Rush Hour		On Balance		Cuomo		Dan Abrams Live		Banfield		Cuomo		Dan Abrams Live	
NICK	37	170	299	Big Nate	Loud House	Space Jam ★★ ('96) Danny DeVito, Michael Jordan. 'TVG'				Friends	Friends	Friends	Friends	Friends	Friends	Friends	Friends
PARMT	46	168	241	Two 1/2 Men	Two 1/2 Men	Two 1/2 Men	Two 1/2 Men	Rocky III ★★ ('82) Talia Shire, Carl Weathers, Sylvester Stallone. 'TVPG'					Rocky IV ★★★ ('85) Talia Shire, Sylvester Stallone. 'TVPG'				Rocky III
SYFY	52	122	244	(5:00) Hell Fest ★★ ('18)		Ghost Rider ★★ ('07) Eva Mendes, Wes Bentley, Nicolas Cage. 'TV14'					The Last Witch Hunter ★★ ('15) Rose Leslie, Vin Diesel. 'TV14'					(:55) Bates Motel	
TBS	17	139	247	The Big Bang	The Big Bang	The Big Bang	The Big Bang	All Elite Wrestling: Dynamite				The Big Bang	The Big Bang	The Big Bang	The Big Bang	Sheldon	Sheldon
TLC	12	183	280	7 Little Johnstons		7 Little Johnstons		sMothered		7 Little Johnstons		My Big Fat Fabulous Life		90 Day: The Single Life		sMothered	
TNT	30	138	245	(5:00) NBA Tip-Off Live			NBA Basketball Philadelphia 76ers at Boston Celtics Site: TD Garden					NBA Basketball Los Angeles Lakers at Golden State Warriors					Inside NBA
TOON	36	176	296	WeBears	Titans!	Titans!	Titans!	King of Hill	King of Hill	Bob'sBurgers	Bob'sBurgers	Amer. Dad	Amer. Dad	Amer. Dad	Rick & Morty	Boondocks	Robot/ Robot
TRAV	14	215	277	Expedition Bigfoot				Expedition Bigfoot				Legend of Bigfoot				Expedition Bigfoot	
TCM	55	132	256	So Ends Our Night ('41) Margaret Sullavan, Fredric March.				By Design: The Joe Caro...		Manhattan ★★ ('79) Diane Keaton, Woody Allen. 'TVMA'				By Design: The Joe Caro...		Cabaret ★★★★ ('72)	
TVL	38	106	304	(:25) Andy Griffith Show		A. Griffith	A. Griffith	Loves Ray	Loves Ray	Loves Ray	Loves Ray	Loves Ray	Loves Ray	(:05) Queens	(:40) Queens	(:15) Queens	(:50) Queens
UNI	75	827	402	Noticiero	Noticiero	La rosa de Guadalupe		La Herencia		Los Ricos También Lloran		La Madrastra		Noticiero	NoticieroUni	Contacto Deportivo	
USA	29	105	242	Law & Order: S.V.U.		Law&Order: SVU "Imposter"		WWE NXT Live				(:10) 9-1-1 "Boston"		(:10) 9-1-1 "FOMO"		(:10) 9-1-1 "May Day"	
VH1	48	162	335	Black Ink Crew		Black Ink Crew		Black Ink Crew		My True Crime Story		My True Crime Story		My True Crime Story		My True Crime Story	
WE	66	128	260	Law & Order "Lost Boys"		Law & Order "Falling"		Law & Order "Knock Off"		Law & Order "Sweetie"		Law & Order "Zero"		Law & Order "Chattel"		Law & Order "By Perjury"	
PREMIUM CHANNELS																	
HBO	603	300	501	5:45 BillMaher	(:50) Harriet ★★ ('19) Leslie Odom Jr., Joe Alwyn, Cynthia Erivo. 'TVPG'					Mama's Boy ('22) Dustin Lance Black.			(:45) House of the Dragon		(:45) Avenue 5	(:15) 1stLook	Movie
MAX	622	310	512	(5:50) Rules of Engagement ★★ ('00) Tommy Lee Jones.				Kiss the Girls ★★★ ('97) Ashley Judd. 'TVMA'				(:55) Along Came a Spider ★★ ('01)			(:40) An American Haunting ★★ ('05)		
SHOW	642	318	537	(:55) Clerks ★★★★ ('94) Brian O'Halloran.			Crawlspace ★★ (2022,Thriller)			Let the Right One In		Gigolo	(:45) Once Upon a Time in America ★★★ ('84) Robert De Niro. 'TVMA'				

WEDNESDAY PRIME TIME — OCTOBER 19, 2022

		Dish	Dtv	6 PM	6:30	7 PM	7:30	8 PM	8:30	9 PM	9:30	10 PM	10:30	11 PM	11:30	12 AM	12:30
WSFJ	2	51	51	In the Heat of the Night		In the Heat of the Night		Bernie Mac	Enter the Dragon ★★ ('73,Act) John Saxon, Jim Kelly, Bruce Lee. 'TV14'					The Scorpion King ★★ ('02) Dwayne 'The Rock' Johnson.			
NBC WCMH	4	4	4	NBC4 at 6:00 p.m.	NBC Nightly News	NBC4 at 7:00 p.m.	Inside Edition	Chicago Med "Yep, This Is the World We Live In"		Chicago Fire "Haunted House"		Chicago P.D. "Pink Cloud"		NBC4 at 11:00 p.m.	(:35) The Tonight Show Starring Jimmy Fallon		(:35) Seth Meyers
ABC WSYX	6	6	6	ABC6 News at 6	ABC World News	Good Evening Columbus	Entertainm-ent Tonight	The Conners	The Goldbergs	AbbottElementary "Juice"	Home Economics	Big Sky "Flesh and Blood"		ABC 6 News at 11	(:35) Jimmy Kimmel Live		(:35) News Nightline
PBS WOSU	7	34	34	PBS NewsHour		Cycle Around Japan	QED with Dr. B	Nature "Running With the Beest"		Nova "Can Psychedelics Cure?"		Secrets of the Dead "Last Days of Pompeii"		Amanpour and Company		NHK Newsline	Nature
FOX WSYX	8	28	28	Two and a Half Men	Young Sheldon	The Big Bang Theory	The Big Bang Theory	The Masked Singer		Lego Masters		Fox 28 News at 10:00 p.m.		Two and a Half Men	(:35) Seinfeld	(:05) Modern Family	(:35) Modern Family
CBS WBNS	10	10	10	10TV News at 6:00 p.m.	CBS Evening News	Jeopardy!	Wheel of Fortune	Survivor		The Real Love Boat		The Amazing Race "The Amazing Race of Arabia"		10TV News at 11:00 p.m.	(:35) The Late Show With Stephen Colbert		(:35) James Corden
CW WWHO	13	53	53	Family Feud	Family Feud	Family Feud	Family Feud	DC's Stargirl		Kung Fu		The National Desk			iCrime E. Vargs	ABC6 News at 11	Neighbor-hood
CW WUAB	15	-	-	Josh and Maria LIVE	Jeopardy!	Inside Edition	19 News at 7:30 p.m.	DC's Stargirl		Kung Fu		19 News at 10:00 p.m.	(:45) Sports Extra	Modern Family	Modern Family	Black-ish	Black-ish
CABLE CHANNELS																	
A&E	41	118	265	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	(:05) Court C.	(:35) Court C.	(:05) Court C.	(:35) Court C.
AMC	54	130	254	A Nightmare on Elm Street ★★ ('10) Jackie Earle Haley.				House of Wax ★★ ('05) Chad Michael Murray, Elisha Cuthbert. 'TVMA'					Jeepers Creepers ★★ ('01) Gina Philips. 'TVMA'				Interview
ANPL	60	184	282	The Zoo		The Zoo		The Zoo				The Zoo: San Diego		The Zoo: San Diego		The Zoo	
B10	58	439	610	NCAA Volleyball Illinois vs. Ohio State Live				NCAA Volleyball Nebraska vs. Purdue Live				B1G Show	At the Net	B1G Show	B1G Show	The Journey	B1G Show
BET	50	124	329	Martin	Martin	Martin	Martin	House Payne	Assisted	Tyler Perry's Sistas		BET Star Cinema		House Payne	Assisted	Tyler Perry's Sistas	
BRAVO	53	129	273	Beverly Hills		Beverly Hills "Reunion Part 1"		Beverly Hills "Reunion Part 2"		Real Housewives "Bad Weather Betrayal"			Beverly Hills "Reunion Part 2"		Housewives-Salt Lake		Housewives
BSGL	34	-	662	(5:) TheRally	Zips Football	AVP Beach Volleyball Phoenix Championship				Zips Football	Inside/Asso.	Champions Tennis The Greenbrier Classic Site: The Greenbrier				Cruise-In	Zips Football
BSOH	33	425	660	(5:30) The Rally		Cavs Pre	NBA Basketball Cleveland Cavaliers at Toronto Raptors Site: Scotiabank Arena					Cavs Post Live	Inside/Asso.	WPT Poker		NBA Basketball	
CMT	47	166	327	Last Man St.	Last Man St.	Last Man St.	Last Man St.	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Golden Girls	Golden Girls
CNBC	56	208	355	Mad Money		The News		Shark Tank		Shark Tank		Shark Tank		Shark Tank		The News	
CNN	28	200	202	The Situation Room		Erin Burnett OutFront		Anderson Cooper 360		CNN Tonight		CNN Tonight		CNN Tonight		Anderson Cooper 360	
COM	51	107	249	South Park	South Park	South Park	South Park	South Park	South Park	South Park	South Park	South Park	South Park	Daily Show	(:45) HellWeek	(:15) SouthPk	(:45) SouthPk
DISC	40	182	278	Expedition Unknown		Expedition Unknown		King Tut 100 Year Anniversary Special				Expedition Unknown		Expedition Unknown		KingTut100Year	
DISN	35	172	290	Miraculous	Miraculous	BigCityGreen	BigCityGreen	BigCityGreen	BigCityGreen	Villains Valley	Ultra Violet	BigCityGreen	BigCityGreen	Miraculous	Miraculous	Jessie	Jessie
E!	43	114	236	Chrisley	Chrisley	Chrisley	Chrisley	Chrisley	Chrisley	Chrisley	Raising a F**ing Star		Chrisley	Chrisley	Nightly Pop	Sex & City	Sex & City
ESPN	31	140	206	SportsCenter		Countdown	Courtside /(:45) NBA Basketball New York Knicks at Memphis Grizzlies					(:05) NBA Basketball Dallas Mavericks at Phoenix Suns Site: Footprint Center					(:35) SC
ESPN2	32	144	209	Daily Wager Live		Football C.	NCAA Football Georgia State at Appalachian State Site: Kidd Brewer Stadium Boone, N.C. Live						SportsCenter		SportsCenter		
FREE	39	180	311	Beetlejuice ★★★ ('88) Michael Keaton. 'TVPG'				Simpsons	Simpsons	Simpsons	Simpsons	Simpsons	The Simpsons "Treehouse of Horror XXIV"			Simpsons	Simpsons
FX	64	136	248	Movie	Avengers: Infinity War ★★★★ (2018,Action) Chris Evans, Chadwick Boseman, Josh Brolin. 'TVPG'							American Horror Story: NYC		American Horror Story: NYC		American Horror Story: NYC	
GOLF	62	401	218	Golf Central		Learning C.	PGA: The CUT	Golf Films		School of Golf	P. Lessons	Golf Central		LPGA Golf BMW Championship Site: Oak Valley Country Club			
HALL	23	185	312	Pumpkin Everything ('22) Corey Sevier, Taylor Cole. 'TVG'				Sweet Autumn ('20) Andrew Walker, Nikki Deloach. 'TVG'				Golden Girls	Golden Girls	Golden Girls	Golden Girls	Golden Girls	Golden Girls
HGTV	45	112	229	Farmhouse Fixer		Farmhouse Fixer		Farmhouse Fixer		Farmhouse		House Hunt.	House Hunt.	House Hunt.	House Hunt.	Farmhouse	
HIST	20	120	269	Pawn Stars		Pawn Star "Yay or Neigh?"		Pawn Stars		(:05) Pawn Stars		(:05) Forged in Fire		(:05) Pawn Stars		(:05) Pawn Stars	
LIFE	42	108	252	Castle "Heartbreak Hotel"		Castle "Kill Shot"		Married at First Sight "This Isn't Best Friends at First Sight"				(:05) Married at First Sight		(:05) Married at First Sight		Married at First Sight	
MTV	49	160	331	Messyness	Messyness	Messyness	Messyness	The Challenge: Spies, Lies and Allies			Cribs	Messyness	Messyness	Ridiculous	Ridiculous	Ridiculous	Ridiculous
NGEO	68	186	276	Rome "Cocaine Pajamas"		Rome "To Rome with Love"		Dutch "Caught At Sea"		To Catch a Smuggler		Locked Up Abroad		Dutch "Caught At Sea"		To Catch a Smuggler	
NEWSN	16	239	307	NewsNation: Rush Hour		On Balance		Cuomo		Dan Abrams Live		Banfield		Cuomo		Dan Abrams Live	
NICK	37	170	299	Big Nate	Loud House	Slimetime	Young Dylan	SpongeBob	SpongeBob	Friends	Friends	Friends	Friends	Friends	Friends	Friends	Friends
PARMT	46	168	241	(:05) 2½ Men	Two 1/2 Men	Two 1/2 Men	Two 1/2 Men	The Waterboy ★★ ('98) Adam Sandler. 'TV14'				Anchorman: The Legend of Ron Burgundy ★★★ ('04) Will Ferrell. 'TV14'					Movie
SYFY	52	122	244	(5:00) Shaun of the Dead		Zombieland ★★★ ('09) Woody Harrelson. 'TVMA'				Chucky "Hail, Mary!"		Reginald the "Hypnos"		Chucky /(:10) The Purge: Election Year ★★ ('16)			
TBS	17	139	247	The Big Bang	The Big Bang	The Big Bang	Pregame Live	MLB Baseball American League Championship Series Live							Postseason	Sheldon	Sheldon
TLC	12	183	280	Dr. Pimple Popper		Dr. Pimple Popper		Dr. Pimple Popper		Dr. Pimple Popper		Delivering Miracles		My 600-lb Life		Dr. Pimple Popper	
TNT	30	138	245	Lucifer "Chloe Does Lucifer"		NHL Face Off	NHL Hockey Philadelphia Flyers at Florida Panthers Site: FLA Live Arena					NHL Hockey St. Louis Blues at Seattle Kraken Site: Climate Pledge Arena					Post-game
TOON	36	176	296	WeBears	Titans!	Titans!	Titans!	King of Hill	King of Hill	Bob'sBurgers	Bob'sBurgers	Amer. Dad	Amer. Dad	Amer. Dad	Rick & Morty	Boondocks	Robot/ Robot
TRAV	14	215	277	Osbournes Believe		Osbournes Believe		Osbournes Believe		Osbournes Believe		Osbournes Believe		Osbournes Believe		Osbournes Believe	
TCM	55	132	256	Movie	The Working Man ★★★ ('33)			Greased Lightning ★★ ('77) Richard Pryor. 'TVPG'				Friday Foster ★★ ('75) Yaphet Kotto, Pam Grier. 'TVMA'				Hit Man ('72) Bernie Casey.	
TVL	38	106	304	A. Griffith	A. Griffith	A. Griffith	A. Griffith	Loves Ray	Loves Ray	Loves Ray	Loves Ray	Loves Ray	Loves Ray	King-Queens	King-Queens	King-Queens	King-Queens
UNI	75	827	402	Noticiero	Noticiero	La rosa de Guadalupe		La Herencia		Los Ricos También Lloran		La Madrastra		Noticiero	NoticieroUni	Contacto Deportivo	
USA	29	105	242	Law & Order: S.V.U.		Law & Order: S.V.U.		Law & Order: S.V.U.		Chucky "Hail, Mary!"		Dr. Death "Dock Ellis"		(:10) Joe vs. Carole "Don"			(:25) Chucky
VH1	48	162	335	Wife and Kids	Wife and Kids	Scary Movie ★★ ('00) Shannon Elizabeth. 'TV14'				White Chicks ★★ ('04) Marlon Wayans, Shawn Wayans. 'TV14'					Scary Movie ★★ ('00) Shannon Elizabeth.		
WE	66	128	260	NCIS "Under Covers"		NCIS "Frame-Up"		NCIS "Probie"		NCIS "Model Behavior"		NCIS "Boxed In"		NCIS "Deception"		NCIS "Light Sleeper"	
PREMIUM CHANNELS																	
HBO	603	300	501	(:10) Avenue 5	(:40) Master and Commander: The Far Side of the World ★★ ('03)					To Be Announced			The Vow		Los Espookys	(:05) Halloween Kills ('21)	
MAX	622	310	512	(:05) I, Robot ★★ ('04) Will Smith. 'TV14'				Moon ★★★ ('09) Sam Rockwell. 'TV14'			(:40) Voyagers ★★ ('21) Tye Sheridan, Colin Farrell. 'TV14'				Righteous Kill ★★ ('08) Robert De Niro.		
SHOW	642	318	537	13 Minutes ★★ ('21) Thora Birch, Amy Smart. 'TVPG'				Let the Right One In		Kill Bill: Vol. 1 ★★★ ('03) Uma Thurman. 'TVMA'				Let the Right One In		Kill Bill: Vol. 2 ★★ ('04)	

The Marysville Journal-Tribune
CLASSIFIEDS
jtclass@marysvillejt.com 937-644-9111
WORKING FOR YOU!

Word Ad Deadlines
Monday ads placed by: 12pm Friday
Tuesday ads placed by: 2pm Friday
Wednesday ads placed by: 2pm Monday
Thursday ads placed by: 2pm Tuesday
Friday ads placed by: 2pm Wednesday
Saturday Ads placed by: 2pm Thursday

Block Ad Deadlines
Monday ads placed by: 10am Thursday
Tuesday ads placed by: 10am Friday
Wednesday ads placed by: 10am Monday
Thursday ads placed by: 10am Tueday
Friday ads placed by: 10am Wednesday
Saturday Ads placed by: 10am Thursday

Hours:
Monday-Friday
9:00am-5:00pm

ERRORS: The Marysville Journal-Tribune will not be responsible for errors beyond the first insertion. The classified department must be notified by 10am the next day of any error. Failure to do so will result in forfeit of any claim for adjustments. **The Journal-Tribune reserves the right to refuse any ad. Classified advertising must be paid in advance.**

CLASSIFIED INDEX

The ***Marysville Journal-Tribune*** does not knowingly accept any advertising that discriminates on the basis of age, sex, race, creed or religious Affiliation.

EQUAL HOUSING OPPORTUNITY

All real estate advertising in this newspaper is subject to the Federal Fair Housing Act of 1968 which makes it illegal to advertise "any preference, limitation or discrimination based on race, color, religion, sex, handicap, familial status or national origin, or an intention to make any such preference, limitation or discrimination." Familial status included children under the age of 18 living with parents or legal custodians, pregnant women and people securing custody of children under 18.
This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. Our readers are hereby informed that all dwellings advertised in this newspaper are available on an equal opportunity basis.
To report discrimination, call HUD toll-free at 1-800-669-9777. The toll-free telephone number for the hearing impaired is 1-800-927-9275.

NOTICES 30

LOWEST PRICES on Health Insurance. We have the best rates from top companies! Call Now! 844-209-1383.

ARE YOU BEHIND $10K or more on your taxes? Stop wage & bank levies, liens & audits, unfiled tax returns, payroll issues & resolve tax debt FAST. Call 844-288-7166.

ATTENTION: Auto Injury Victims. If you have suffered a serious injury in an auto accident, call us! Our attorneys have the experience to get you the full compensation you deserve. Call now: 855-756-0782.

SAVE YOUR HOME! Are you behind paying your mortgage? Denied a loan modification? Is the bank threatening foreclosure? Call Homeowner's Relief Line. Free consultation. 866-335-2802

BE DEBT FREE in 24-48 months! If you owe more than $10,000 in credit card or other debt, see how we can help. A+BBB rated. Call National Debt Relief Call 866-665-8620.

DONATE YOUR CAR TO CHARITY. Receive maximum value of write off for your taxes. Running or not! All conditions accepted. Free pickup. Call for details. 877-276-0365.

WANTED 10 HOMES needing Insulated Metal roofs, siding/windows. Opening branch office and will use homes for our advertising. SAVE HUNDREDS! **Credit cards/financing available.** 800-758-3559.

OVER $10K in Debt? Be debt free in 24 to 48 months. No upfront frees to enroll. A+BBB rated. Call National Debt Relief Call 866-665-8620.

WESLEY FINANCIAL GROUP LLC. Timeshare Cancellation Over $50,000,000 in timeshare debt and fees canceled in 2019. Get free informational package and learn how to get rid of your timeshare! Free consultations. Over 450 positive reviews. Call 844-881-7118

BUSINESS SERVICE 50

PREPARE FOR power outages with a Generac home standby generator. Free 7-yr extended warranty. A $695 value. Special financing available subject to credit approval Terms and conditions apply. Schedule your free in-home assessment today. 866-297-0137

DON'T MISS Our Business Directory! Let our subscribers (your potential clients), see how your business can help with their home improvement projects and much more! Your business listing will appear every Tuesday and Saturday in the Marysville Journal for the month and 2X a month in the Richwood Gazette! 1 col x 1.5" ad for only $65 per month. Schedule your ad today! Deadline for DECEMBER is before Tuesday, November 29. Call 937-644-9111 ext 111 or stop in 207 N. Main St. Marysville or email your ad information to:
jtclass@marysvillejt.com.
A one month requirement.

HAULING OF ALL KINDS
Haul away items from your garage, basement, tear down building. Power washing and painting, chimney foundation repair. 614-565-5469.

BUSINESS SERVICE 50

BATHROOM RENOVATIONS. EASY, ONE DAY updates! We specialize in safe bathing. Beautiful new walk-in showers with no slip flooring. Also, grab bars and seated showers available. Call for a free in-home consultation: 833-278-4397.

HELP WANTED 80

MAGNETIC SPRINGS needs a Zoning Inspector. Make $240 per quarter for usually no more than 10 hours per month. For more info, email jeans5243@aol.com.

MASONRY CONTRACTOR hiring for masons starting pay $20/hr plus based on experienced and laborers starting pay $15/hr plus based on experience. Work areas Union, Logan, Clark and Champaign counties. Must have own reliable transportation. Call 937-349-5684 leave contact information and call will be returned.

PETS & SUPPLIES 90

USE HAPPY JACK Kennel Dip as an area spray to control lyme disease ticks, fleas, stable files & mosquitoes where they breed. At Tractor Supply **(www.fleabacon.com)**

AUSTRAILIAN SHEPHERD puppies, up-to-date on shots, Blue Merle and Red and White. Asking $300.00. 937-464-2148.

WANTED TO BUY 150

TOP $$$ paid for cars and trucks, running or not. Call Mike 614-565-5469.

MISCELLANEOUS FOR SALE 160

DISH NETWORK. $64.99 for 190
Channels! Blazing Fast Internet, $19.99/mo. (where available). Switch & Get a FREE $100 Visa Gift Card. FREE Voice Remote. FREE HD DVR. FREE Streaming on ALL Devices. Call today! 1-866-745-7391.

ELIMINATE GUTTER cleaning forever! LeafFilter, the most advanced debris-blocking gutter protection. Schedule a FREE LeafFilter estimate today. 15% off entire purchase. 10% Senior & Military Discounts. Call 1-877-270-8386.

FARMERS COLUMN 190

LAND TO RENT, Available to cultivate farmland, 20 acres (parcel #——2900300521040), on Weaver Rd. 7.5 acres (parcel#—29001900330020), northeast corner of Route 736 and Fox Fire. Please contact—- Dr. S.Sehagal—-614-562-7233 or Mr. Paul Cugini at 614-989-7600.

FOR RENT 210

INCOME BASED SENIOR APARTMENT FOR RENT
Windsor Manor Apartments
1 bedroom newly built energy efficient modern apt. Beautiful kitchen with granite countertop, s/s appliances, dishwasher. Non-Smoking building with on-site fitness facility. Close to Memorial Hospital and ½ mile from downtown Marysville. Income must be less than...
$41,340.....1 Person
$47,280..... 2 Persons
Please apply in person to:
Windsor Manor Apartments
Rental Office
376 Rosehill Drive
Marysville, OH 43040
(937) 644-2905
EEOC

Marysville Green Apartments
460 Windmill Drive
Phone: 937-644-0625
1-800-750-0750 • Voice/TTY
Hours: M-F 10-11:30am & 12:30-4pm
NOW ACCEPTING APPLICATIONS
Section 8 - 2 & 3 BR

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Marysville Journal-Tribune

LEGAL NOTICES 900

LEGAL NOTICE
SECTION 00100
ADVERTISEMENT FOR BIDS
Proposals will be publicly opened and read at the office of the City Manager, 209 South Main Street, Marysville, Ohio 43040 at 1:00 p.m., Local Time, on December 12, 2022 for the construction of:
CITY OF MARYSVILLE
33 INNOVATION PARK, PHASE 3
The project consists of the following:
• **Public roadway** extension (including curb and asphalt multi-use path)
• **8" and** 10" Sanitary Sewer and associated appurtenances
• **Street lighting** system
The Bidding Documents are available online at www.bidexpress.com. The City has adopted the electronic bidding process in an effort to make the bidding process more efficient and cost effective for both the contractor and the City.
There will be a Pre-Bid Meeting held at City Hall, 209 South Main Street, Marysville, Ohio on November 30, 2022 at 1:00 p.m. Following the Pre-Bid Meeting, prospective Bidders are encouraged to inspect the project area and existing facilities. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.
Prospective bidders are required to submit all questions through www.bidexpress.com.
All formal bids shall be submitted using the electronic bidding process on Bid Express. All potential bidders must first register on www.bidexpress.com and create an Info Tech Digital ID for free, which is used to digitally sign bids. The creation of Digital IDs/Signatures assures the City knows the creator of the bid (forgery resistance), ensures that nobody can alter a bid (non-repudiation), prevents bid disclosure to unauthorized parties (secrecy) and safeguards that authorized parties cannot access the bid prior to the public opening (sealing). It can take up to seven (7) business days to process your Digital ID. Please plan accordingly.
Bidders shall provide proof of qualifications, to perform the Work as described in the Instructions to Bidders, and complete the Best Bidder Information Form provided.
Bidders shall comply with all statutory requirements in accordance with the Instructions to Bidders.
All Bids must include payment of wages at prevailing wage rates pursuant to Ohio Revised Code (ORC), Section 4115-15 and shall comply with the provisions, duties and obligations of ORC Section 4115. Further information provided in the Instructions to Bidders.
Each Bidder must deposit with its Bid, a Bid Guaranty in the form of either a bond for an amount of 100% of the Bid if in the form of a Bid Guaranty or in the amount of not less than ten percent (10%) of the Bid if in the form of a certified check, cashier's check, or irrevocable letter of credit, for and subject to the conditions provided in the Instructions to Bidders and pursuant with ORC Section 153.54, 153.57 and 153.571. Bid security furnished in Bond form shall be issued by a Surety Company or Corporation licensed in the State of Ohio to provide said surety or via the electronic bid bond options available on bidexpress.com.
11-08-2T

PUBLIC NOTICE
Project DRC-21F005-01
Ohio Department of Rehabilitation and Correction Ohio Reformatory for Women Improvements Project Package 1 - Kennedy Stair Replacement Marysville, Union County
Bids Due: 2:00 PM local time, December 1, 2022; through the State's electronic bidding system at https://bidexpress.com
EDGE Participation Goal: 5.0% of contract; **Domestic steel use is required per ORC 153.011.**
Contract **Estimated Cost**
General Contract $190,000
Pre-bid Meeting: November 9, 10:00–11:00 AM, Ohio Reformatory for Women, Kennedy Building, 1479 Collins Ave, Marysville, OH 43040. It is mandatory all attendees shall notify Richard Crawford via
email at:
Richard.Crawford@odrc.state.oh.us 24-hours prior to ensure a gate pass is in place for entry to the facility.
Electronic Bid Documents: https://bidexpress.com
More Info: A/E contact: Gary Louis, T 513-247-8565, glouis@fishbeck.com
11-01-3T

PUBLIC NOTICE
Notice is hereby given that a Final Hearing regarding the establishment of the Mid-Ohio Water and Sewer District will be held before the Honorable Judge Eamon Costello, Court of Common Pleas of Madison County, Ohio and Honorable Judge Don W. Fraser, Court of Common Pleas of Union County, Ohio, on the 2nd day of December, 2022 at 9:00 a.m. at the Court of Common Pleas of Madison County, Ohio.
11-01-4T

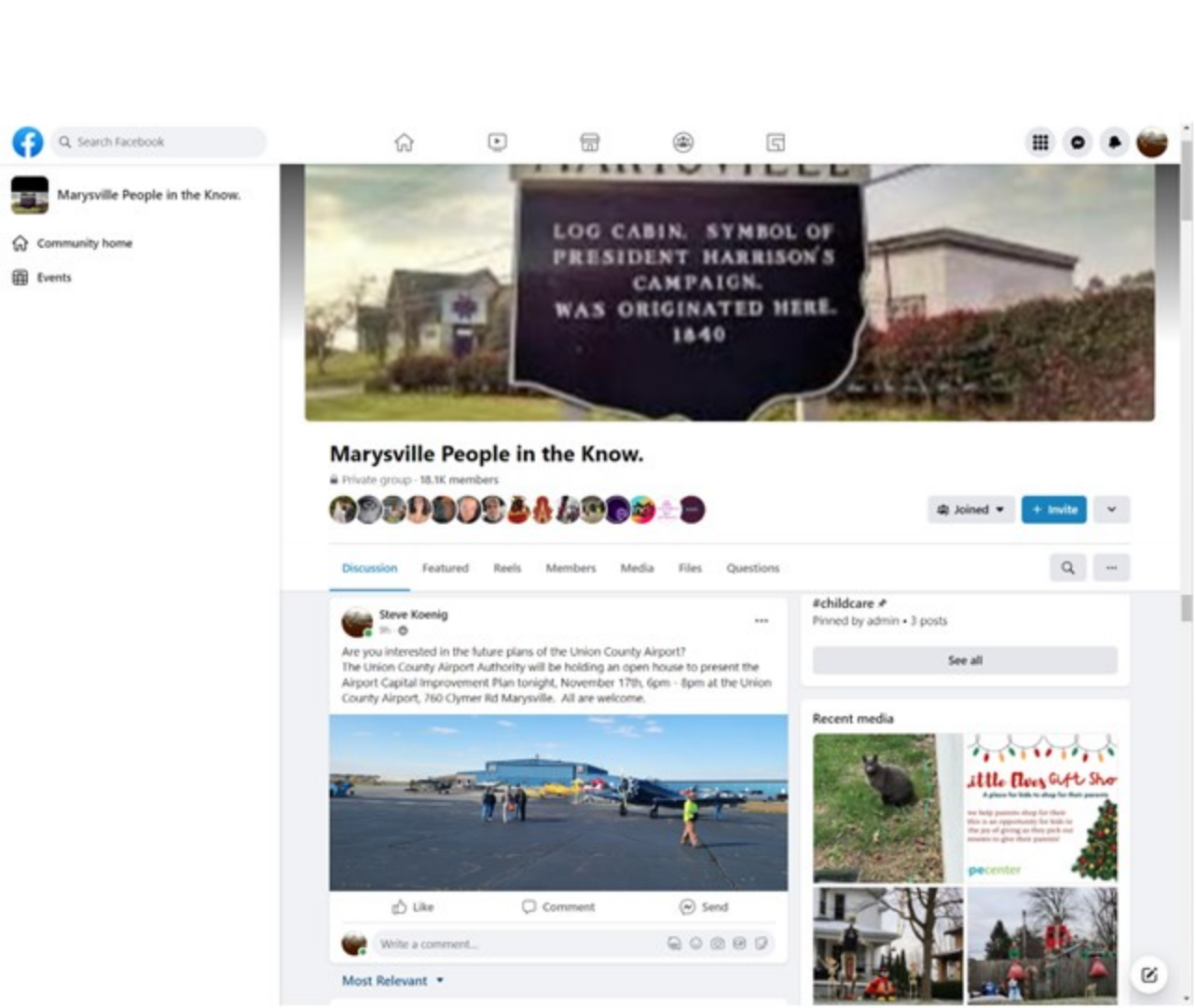
LEGAL NOTICE
Noce of Public Hearing for the Board of Zoning Appeals in the City of Marysville. The Public Hearing will be held on November 21st, 2022 at 7.00 p.m., in the Council Chambers on the second floor located at 209 S. Main Street, Marysville, Ohio 43040.
1. To hear a variance request to permit the installaon of solar panels on the front-facing roof pitch vs. the requirements of Secon 1139.07 (d) (2) B. Roof mounted solar panels shall not be installed on the front pitch facade without the issuance of a variance by the Board of Zoning Appeals, for residenal property located at 1679 Adena Pointe Drive.
2. To hear a variance request to permit the installaon of solar panels on the front-facing roof pitch vs. the requirements of Secon 1139.07 (d) (2) B. Roof mounted solar panels shall not be installed on the front pitch facade without the issuance of a variance by the Board of Zoning Appeals, for residenal property located at 700 W. 7th Street.
3. To hear a variance request to permit the installaon of a 6' foot tall privacy fence with 100% opacity into the front yard vs. the requirements of Secons 1123.20 (c) (2) D. Fence located in the front yard of residenal properes shall have a maximum opacity of fiy percent, and 1121.07: Fence Locaon: Front Yard (3), Side Yard (6), Rear Yards (6), for residenal property located at 613 Quail Hollow Drive N.
4. To hear an appeal of a noce of noncompliance/zoning violaon, which was issued following the compleon of exterior improvements, which were subject to review and approval by the Marysville Design Review Board, for commercial property located at 303 W. 5th Street.
5. To hear a sign variance request to permit the installaon of a 13.7 square foot, projecng sign vs. the requirements of Secon 1129.19 (c) (2) D. Projecng Sign. Eight (8) sq. . maximum: One (1) per unit, per street frontage, for commercial property located at 103 S. Main Street.
If you have any addional quesons, you may also contact Marysville Zoning Administrator at (937) 645-7362 or
zandrews@marysvilleohio.org
11-15-1T

LEGAL NOTICE
The Union County Airport (MRT) is updating its Airport Master Plan. The public is invited to a public information meeting to review and give input on current and future airport development needs for the next 20 years. The master plan will combine community input with the Union County Airport Authority's vision to formulate the blueprint for the airport's long-term development. The meeting will be held on November 17, 2022, from 6:00 to 8:00 pm at the Union County Airport administration building, 760 Clymer Road, Marysville, OH 43040. No formal presentation is planned, stop by any time. For questions, please call the Authority's consultant, Dave Wall, at Woolpert (614) 827-6147.
10-18-1T
11-15-1T

LEGAL NOTICE
CITY OF MARYSVILLE
ADVERTISEMENT FOR BIDS
Proposals will be publicly opened and read at the office of the City Manager, 209 South Main Street, Marysville, Ohio 43040 at 2:00 p.m., Local Time, on December 12, 2022 for the construction of the following projects:
1. RESERVOIR CONNECTOR BRIDGE - This project creates a connection from the Jim Simmons Trail to the City's Reservoir Park Trail by providing a pedestrian bridge over Mill Creek and a 10-foot-wide shared use path.
2. VINE STREET POCKET PARK - This project is the construction of a new pocket park located on the vacant lot at the corner of 5th Street and Vine Street in Marysville, Ohio.
3. 2023 WASTEWATER TREATMENT CHEMICALS - The work consists of providing the following chemicals (and estimated quantities) for the wastewater treatment plant operations in the 2023 calendar year:
a. Nitrate Solution (100,000 gallons)
b. Propane (75,000 gallons)
c. Ferric Chloride (110,000 gallons)
4. 2023 WATER TREATMENT CHEMICALS - The work consists of providing the following water treatment chemicals (and estimated quantities) for the water treatment plant operations:
a. Pebble Lime, Hi Cal QL water ¾"X 1/8" bulk >89% by weight.
b. Bulk Soda Ash, Dense >99.5% Sodium Carbonate.
c. Ferric Chloride, 38%. Bulk delivered by pump to, 2-4500-gallon tanks
The City has adopted the electronic bidding process in an effort to make the bidding process more efficient and cost effective for both the contractor and the City.
• **The Bidding** Documents are available online at www.bidexpress.com.
• **Please see** Instructions to Bidders on Bid Express for each solicitation to find information specific to that project.
All questions shall be asked via the Questions
11-15-2T

WEDNESDAY PRIME TIME — **NOVEMBER 16, 2022**

		Dish	Dtv	6 PM	6:30	7 PM	7:30	8 PM	8:30	9 PM	9:30	10 PM	10:30	11 PM	11:30	12 AM	12:30
WSFJ	②	51	51	(5:30) Volcano ★★ ('97) Anne Heche, Tommy Lee Jones.				Unstoppable ★★★ ('10) Chris Pine, Denzel Washington.				American Gangster ★★★ (2007) Russell Crowe, Chiwetel Ejiofor, Denzel Washington.					
NBC WCMH	④	4	4	NBC 4 at 6	NBC Nightly News	NBC 4 at 7	Inside Edition	Chicago Med		Chicago Fire "A Beautiful Life"		Chicago P.D. "Under the Skin"		NBC 4 at 11	(:35) The Tonight Show Starring Jimmy Fallon		(:35) Seth Meyers
ABC WSYX	⑥	6	6	ABC 6 News at 6PM Live	ABC World News	Good Evening Live	Entertain-ment Tonight	The Conners	The Goldbergs	Abbott Elementary	Home Economics	Big Sky		ABC 6 News at 11PM Live	(:35) Jimmy Kimmel Live!		(:35) Nightline
PBS WOSU	⑦	34	34	PBS NewsHour		Cycling-Japan	QED with Dr. B	Nature "Nature's Biggest Beasts"		NOVA "Zero to Infinity"		Secrets of the Dead "The First Circle of Stonehenge"		Amanpour and Company		DW News	Nature
FOX WSYX	⑧	28	28	Two and a Half Men	Young Sheldon	The Big Bang Theory	The Big Bang Theory	The Masked Singer "Comedy Roast Night"		LEGO Masters "Mini Golf Masters"		FOX28 News at 10PM Live		Two and a Half Men	(:35) Seinfeld	(:05) Modern Family	(:35) Modern Family
CBS WBNS	⑩	10	10	10TV News at 6pm	CBS Evening News	Jeopardy!	Wheel of Fortune	Survivor		The Amazing Race		So Help Me Todd		10TV News at 11pm	(:35) The Late Show With Stephen Colbert		(:35) James Corden
CW WWHO	⑬	53	53	Family Feud	Family Feud	Family Feud	Family Feud	DC's Stargirl "Frenemies -- Chapter Eleven: The Haunting"		Kung Fu "Villians"		The National Desk Live			iCRIME - Vargas	ABC 6 News at 11	Neighbor
CW WUAB	⑮	-	-	Cribbs in CLE	Daytime Jeopardy	Inside Edition	19 News at 7:30PM	DC's Stargirl "Frenemies -- Chapter Eleven: The Haunting"		Kung Fu "Villians"		19 News at 10:00PM	(:45) Sports Extra	Modern Family	Modern Family	black-ish	black-ish "Old Digger"
CABLE CHANNELS																	
A&E	(41)	118	265	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Court Cam	Road Wars	Road Wars	Court Cam	Court Cam	Court Cam	Court Cam
AMC	(54)	130	254	(5:15) Star Trek Beyond ★★★ ('16) Chris Pine.				Spider-Man ★★★ ('02,Act) Willem Dafoe, Kirsten Dunst, Tobey Maguire.				(:45) Spider-Man 2 ★★★ ('04) Kirsten Dunst, Tobey Maguire.					
ANPL	(60)	184	282	The Zoo: San Diego		The Zoo: San Diego		The Zoo: San Diego		The Zoo: San Diego "Baby Miracles"				The Zoo: San Diego		The Zoo: San Diego	
B1G	(58)	439	610	B1G Football in 60		College Basketball Live				Women's College Basketball Live				B1G Show	Big Ten	B1G Show	B1G Show
BET	(50)	124	329	Payne	Payne	Neighbor	Neighbor	Payne	As. Living	Tyler Perry's Sistas		After Happily Ever After		Payne	As. Living	Tyler Perry's Sistas	
BRAVO	(53)	129	273	Housewives SLC		Housewives SLC		Housewives SLC		Housewives SLC "RSVPlease"		Watch What	Housewives SLC "RSVPlease"		Housewives/Potomac		Family Karma
BSGL	(34)	-	662	(5:) The Rally	College Football							College Football					
BSON	(33)	425	660	The Rally			Cavaliers Live	NBA Basketball Live					Cavaliers Live	Bearcats	Inside the	World Poker Tour	
CMT	(47)	166	327	Last Man	Last Man	Last Man	Last Man	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Mom	Gold Girls	Gold Girls
CNBC	(56)	208	355	Mad Money		Shepard Smith Live		Shark Tank		Shark Tank		Shark Tank		Shark Tank		Shepard Smith	
CNN	(28)	200	202	Situation Room Live		Erin Burnett OutFront Live		Anderson Cooper 360 Live		CNN Special Program		CNN Tonight Live		CNN Tonight Live		Anderson Cooper 360	
COM	(51)	107	249	South Park	South Park	South Park	South Park	South Park	South Park	South Park	South Park		RENO 911!	Daily Show	(:45) Tooning	:15 RENO911!	:45 South Park
DISC	(40)	182	278	Moonshiners "The Shining"		Moonshiners: Outlaw Cuts		Moonshiners				(:05) Diesel Brothers		(:05) Moonshiners		Moonshiners	
DISN	(35)	172	290	Ladybug	Ladybug	Hamster &	Big City	Big City	Big City	Bunk'd: Learn	Bunk'd: Learn	Big City	Big City	Ladybug	Ladybug	Jessie	Jessie
E!	(43)	114	236	Just Friends ★★ ('05) Amy Smart, Ryan Reynolds.				Just Friends ★★ ('05) Amy Smart, Ryan Reynolds.				Being Honest		E! News	Sex-City	Sex-City	Sex-City
ESPN	(31)	140	206	SportsCenter		NBA	NBA Basketball Live					NBA Basketball Live					(:35) SportsC.
ESPN2	(32)	144	209	College Football Live						TrueSouth	College Basketball				SportsCenter Live		NFL Live
FREE	(39)	180	311	Freaky Friday ★★★ ('03) Lindsay Lohan, Jamie Lee Curtis.				The Parent Trap ★★★ (1998,Children) Dennis Quaid, Natasha Richardson, Lindsay Lohan.						The 700 Club		The Simpsons	The Simpsons
FX	(64)	136	248	(4:00) Transformers: Age of Extinction				Deadpool ★★★ (2016,Action) Morena Baccarin, Ed Skrein, Ryan Reynolds.				American Horror Story: NYC		American Horror Story: NYC		American Horror Story: NYC	
GOLF	(62)	401	218	Golf Central		PGA TOUR	PGA TOUR	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf	School of Golf
HALL	(23)	185	312	'Tis the Season to Be Merry ('21) Rachael Leigh Cook.				The Royal Nanny ('22) Rachel Skarsten. 'TVG'				A Magical Christmas Village ('22) Alison Sweeney. 'TVG'				A Timeless Christmas ('20)	
HGTV	(45)	112	229	Property Brothers		Property Brothers		Property Brothers		Property Brothers		Hunters	Hunters	Hunters	Hunters	Property Brothers	
HIST	(20)	120	269	Pawn Stars		Pawn Stars		Pawn Stars Do America "Revolutionary Deals"				(:05) Secret Restoration		(:05) Secret Restoration		(:05) Pawn Stars Do America	
LIFE	(42)	108	252	A Sweet Christmas Romance ('19) Adelaide Kane. 'TVG'				Married at First Sight "Where Are They Now: San Diego"				(:05) Married-Sight "Wild Weddings & Hot Honeymoons"				Married at First Sight	
MTV	(49)	160	331	Ridiculous	Ridiculous	Ridiculous	Ridiculous	The Challenge			Love at First Lie	Ridiculous	Ridiculous	Ridiculous	Ridiculous	Ridiculous	Ridiculous
NGEO	(68)	186	276	To Catch a Smuggler		To Catch a Smuggler		To Catch a Smuggler		To Catch a Smuggler		Banged Up Abroad		To Catch a Smuggler		To Catch a Smuggler	
NEWSN	(16)	239	307	NewsNation: Rush Hour Live		On Balance		Cuomo		Dan Abrams Live Live		Banfield		Cuomo		Dan Abrams Live	
NICK	(37)	170	299	Loud House	Loud House	Slimetime	Loud House	SpongeBob	SpongeBob	Friends	Friends	Friends	Friends	Friends	Friends	Friends	Friends
PARMT	(46)	168	241	Two Men	Two Men	Two Men	Two Men	Grown Ups 2 ★ (2013,Comedy) Kevin James, Chris Rock, Adam Sandler.				The Longest Yard ★★ ('05,Com) Chris Rock, Burt Reynolds, Adam Sandler.					
SYFY	(52)	122	244	Furious 7 ★★★ (2015,Action) Paul Walker, Dwayne Johnson, Vin Diesel.						Chucky "Goin' to the Chapel"		Reginald the Vampire		Chucky /(:10) Peppermint ★ ('18) Jennifer Garner.			
TBS	(17)	139	247	Big Bang	Big Bang	Big Bang	Big Bang	All Elite Wrestling: Dynamite Live				Sheldon	Sheldon	Sheldon	Sheldon	Sheldon	Sheldon
TLC	(12)	183	280	My 600-Lb. Life		My 600-Lb. Life		600-Lb. Life "Cynthia: The Full Journey"				My 600-Lb. Life		Too Large		600-Lb. Life	
TNT	(30)	138	245	Lucifer "A Devil of My Word"		NHL on TNT	NHL Hockey Live					NHL Hockey Live					NHL on TNT
TOON	(36)	176	296	Teen	Teen	Gumball	Gumball	Regular Show	Regular Show	Bob's Burgers	Bob's Burgers	American	American	American	Rick	MikeTyson	AquaTV
TRAV	(14)	215	277	Terrifying Places		Terrifying Places		Ghosts of Devil's Perch "Caught in the Crossfire"				Terrifying Places		Terrifying Places		Ghosts of Devil's Perch	
TCM	(55)	132	256	Wuthering Heights ★★★ ('39) Merle Oberon.				Queen Christina ★★★★ ('33) John Gilbert, Greta Garbo.				The Scarlet Empress ★★ ('34) Marlene Dietrich.				Nicholas and Alexandra	
TVL	(38)	106	304	Griffith	Griffith	Griffith	Griffith	Raymond	Raymond	Raymond	Raymond	Raymond	Raymond	King	King	King	King
UNI	(75)	827	402	Noticiero	Noticiero	La rosa de Guadalupe		La herencia		Los ricos también lloran		La madrastra		Noticiero	SaborDe	Contacto deportivo Live	
USA	(29)	105	242	Law & Order: SVU		Law & Order: SVU		Law & Order: SVU		Chucky "Goin' to the Chapel"		Dr. Death "Feet of Clay"		(:15) Law & Order: SVU		(:15) Chucky	
VH1	(48)	162	335	My Wife	My Wife	Movie					Movie				Movie		
WE	(66)	128	260	NCIS "Freedom"		NCIS		NCIS "Defiance"		NCIS "Kill Screen"		NCIS "One Last Score"		NCIS		NCIS "Tell-All"	
PREMIUM CHANNELS																	
HBO	(603)	300	501	(:15) The King's Man ★★ ('21) Harris Dickinson, Rhys Ifans, Ralph Fiennes.				Master of Light (2022)				Hard Knocks	(:50) Back on the Record		(:50) The White Lotus "Bull Elephants"		
MAX	(622)	310	512	Movie	(:35) Dude, Where's My Car? ★ ('00)			Coming to America ★★★ ('88) Eddie Murphy.				(:55) The Stepford Wives ★★ ('04)			All About Steve ★ ('09) Sandra Bullock.		
SHOW	(642)	318	537	The Circle ★★ ('17) Tom Hanks, Emma Watson.				Kill Bill: Vol. 1 ★★★ ('03) Lucy Liu, Uma Thurman.				Kill Bill: Vol. 2 ★★★ ('04) David Carradine, Uma Thurman.					Right One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Marysville People in the Know.
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LOG CABIN. SYMBOL OF PRESIDENT HARRISON'S CAMPAIGN. WAS ORIGINATED HERE. 1840
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Private group · 18.1K members
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Questions
Steve Koenig
Are you interested in the future plans of the Union County Airport?
The Union County Airport Authority will be holding an open house to present the Airport Capital Improvement Plan tonight, November 17th, 6pm - 8pm at the Union County Airport, 760 Clymer Rd Marysville. All are welcome.
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Write a comment...
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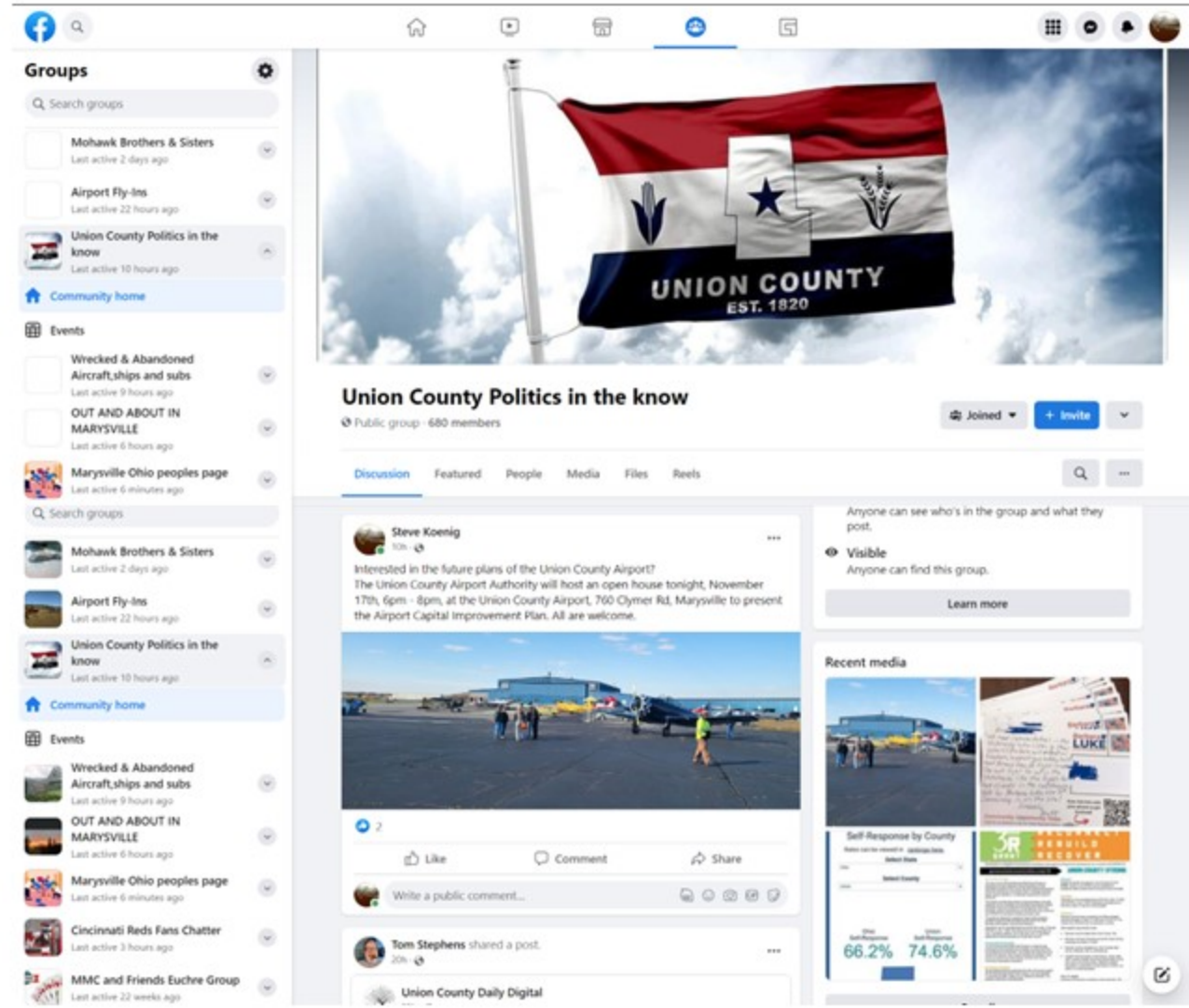
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Union County Politics in the know
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Last active 6 hours ago
Marysville Ohio peoples page
Last active 6 minutes ago
Cincinnati Reds Fans Chatter
Last active 3 hours ago
MMC and Friends Euchre Group
Last active 22 weeks ago
UNION COUNTY
EST. 1820
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Tom Stephens shared a post.
Union County Daily Digital
Anyone can see who's in the group and what they post.
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Anyone can find this group.
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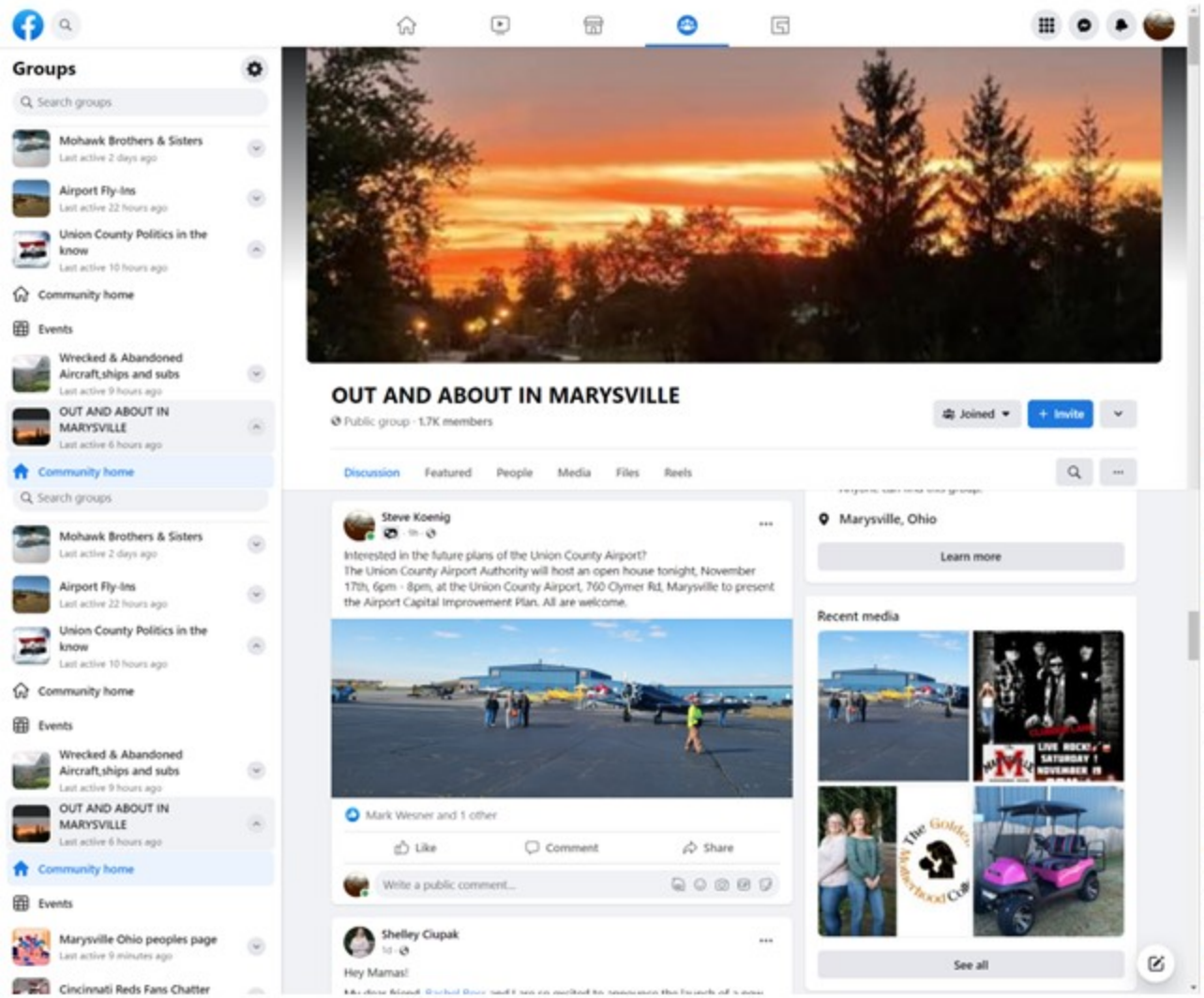
Self-Response by County
66.2%
74.6%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Mark Wesner and 1 other
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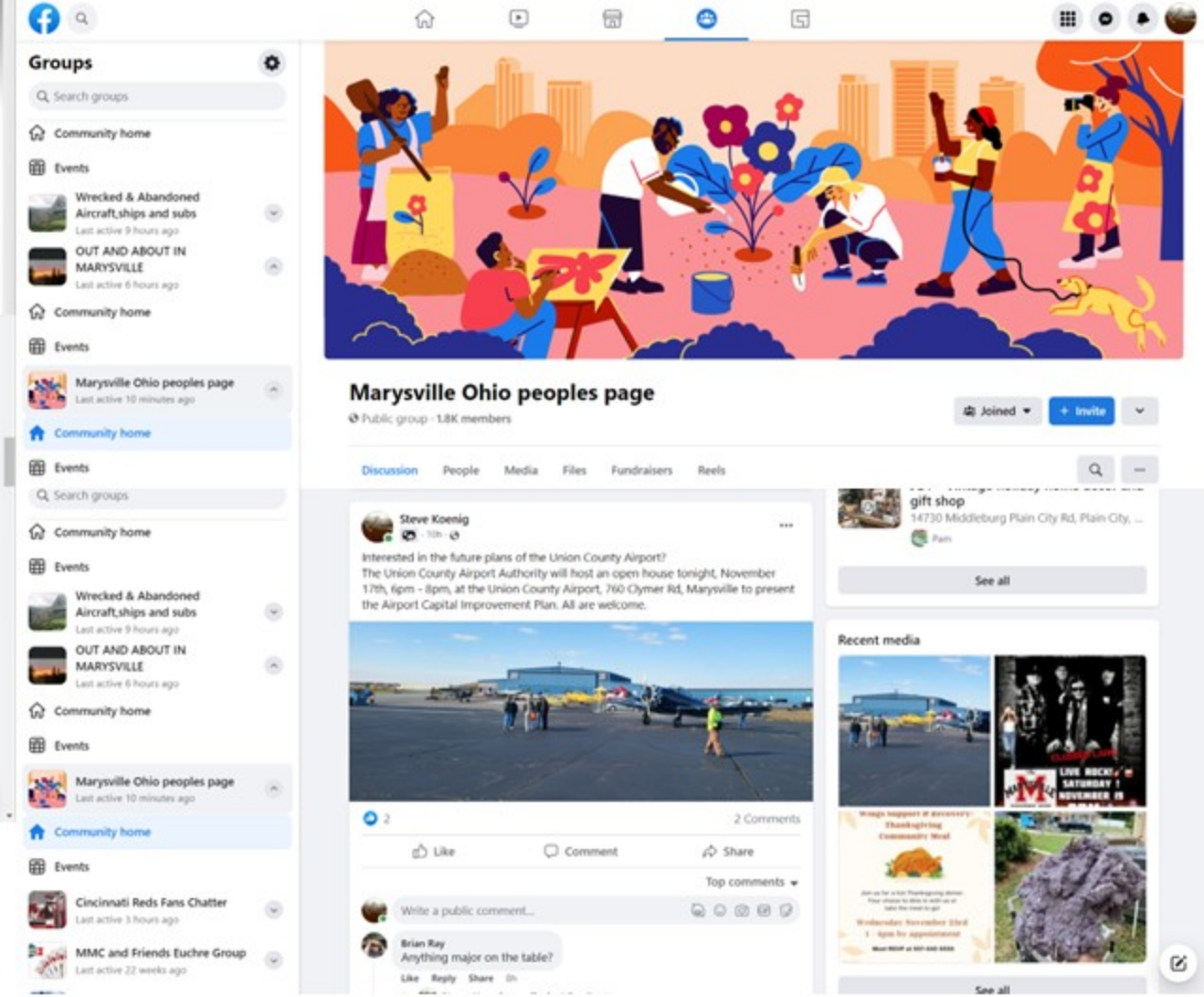
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2 Comments
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Brian Ray
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Union County Airport

Master Plan Update

What is a Master Plan?

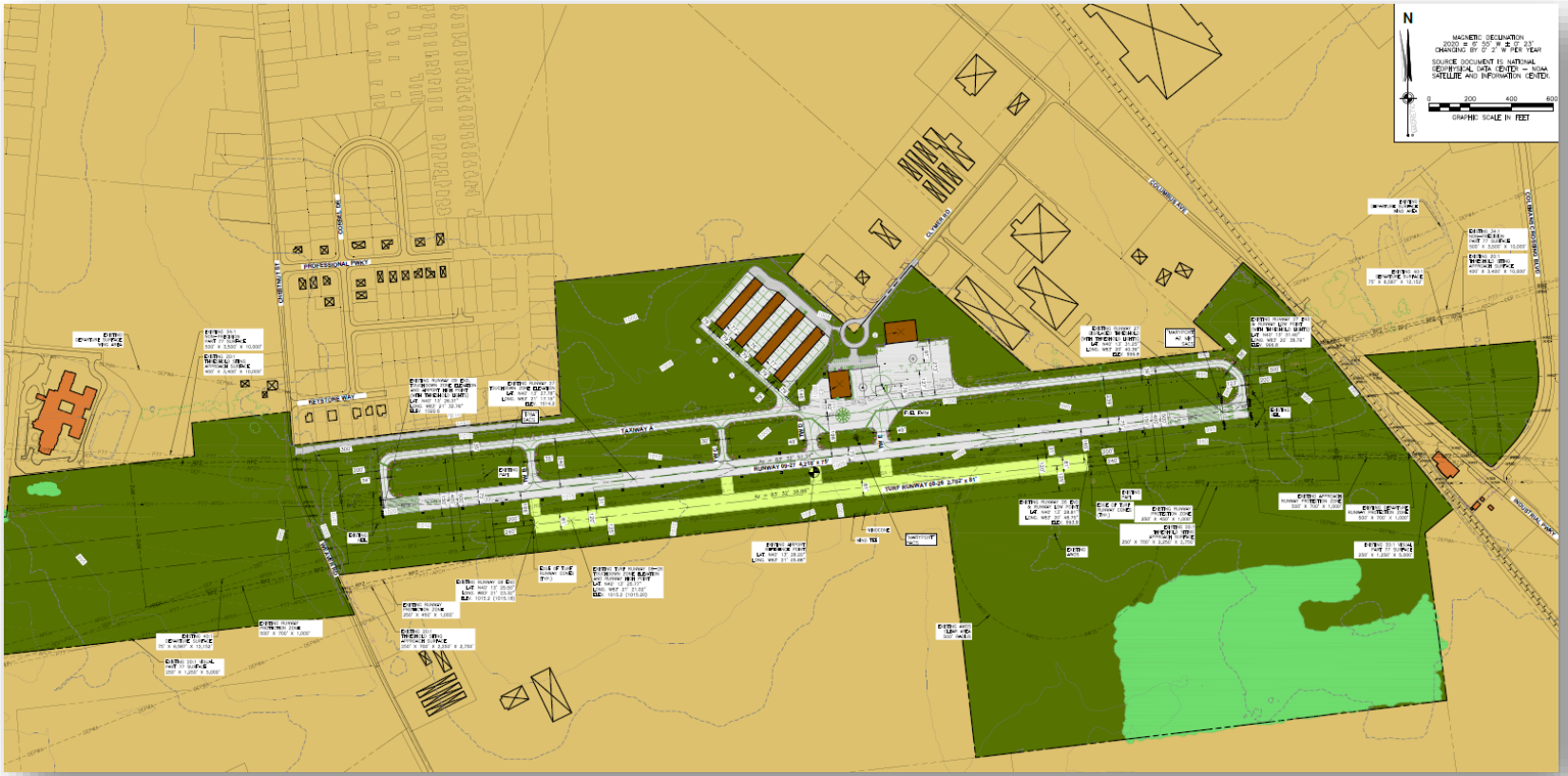
- Required by the FAA
- 20-year plan for development
- Unconstrained forecast future activity
- Plan for needed development
- Graphical representation of the future airport
- Required for FAA Airport Improvement Program funding

Approved Aviation Activity Forecasts

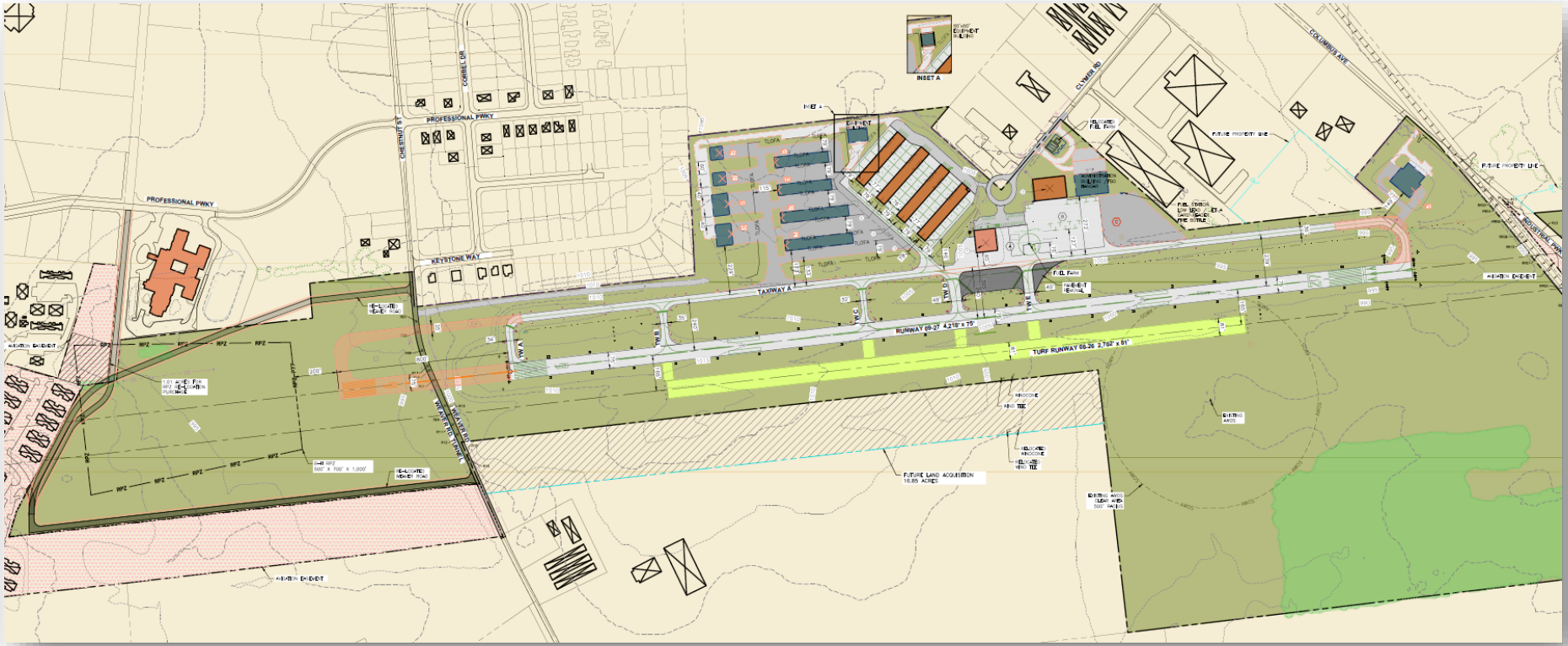
FAA Approved Critical Aircraft is B-II for the study.

Forecast Element	Year	Recommended Forecast	TAF Forecast
Based Aircraft			
Base Year	2020	59	57
Base Year + 5 Years	2025	59	57
Base Year + 10 Years	2030	61	57
Base Year + 15 Years	2035	63	57
Base Year + 20 Years	2040	65	57
AAGR 2020-2040		0.52%	0.00%
Total Operations			
Base Year	2019	25,250	31,886
Base Year + 5 Years	2025	25,500	31,886
Base Year + 10 Years	2030	26,000	31,886
Base Year + 15 Years	2035	26,900	31,886
Base Year + 20 Years	2040	28,100	31,886
AAGR 2019-2040		0.51%	0.00%

Airport Layout Plan – Existing Conditions



Airport Layout Plan – Future



20-Year Capital Improvement Program

Short-Term (1-3 years)	Total Cost	FAA	State	Local
Aeronautical Development	-	-	-	-
Economic Development	$6,269,750	$5,807,775	$313,488	$313,488
Maintenance/Preservation	$80,836	$72,752	$4,042	$4,042
Safety/Standards	$1,113,809	$804,723	$44,151	$(168,633)
TOTALS	**$7,464,395**	**$6,685,250**	**$361,681**	**$130,897**

Mid-Term (4-7 years)	Total Cost	FAA	State	Local
Aeronautical Development	$30,295,500	$27,040,950	$1,514,775	$1,514,775
Economic Development	-	-	-	-
Maintenance/Preservation	-	-	-	-
Safety/Standards	$3,700,000	$3,300,000	$185,000	$185,000
TOTALS	**$33,995,500**	**$30,370,950**	**$1,699,775**	**$1,699,775**

Long-Term (8-20 years)	Total Cost	FAA	State	Local
Aeronautical Development	$8,780,000	$7,902,000	$439,000	$439,000
Economic Development	$6,270,000	$5,643,000	$313,500	$313,500
Maintenance/Preservation	-	-	-	-
Safety/Standards	$3,100,000	$2,790,000	$155,000	$155,000
TOTALS	**$18,150,000**	**$16,335,000**	**$907,000**	**$907,500**

Next Steps

- Receive public comment
- Assemble Master Plan and Airport Layout Plan documents
- Transmit documents to the FAA for review and approval
- Receive FAA comments
- Publish accepted Master Plan and approved Airport Layout Plan

Union County Airport Authority
KMRT - Serving aviation and the business community

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Project Name/Description: Union County Airport (KMRT) Master Plan Update

Meeting Date/Time: November 17, 2022 6:00-8:00pm EST

Meeting Location: Union County Airport Administration Building
760 Clymer Road Marysville, OH 43040

Name	Company	Email	Phone
PHILIP LAPOINTE	UNION CO. AIRPORT AUTHORITY	ZANGY&MOTORSPORTS@YAHOO.COM	
DAVE WALL	WOOLPERT	DAVE.WALL@WOOLPERT.COM	614-827-6147
Greg Shuttleworth	Woolpert	greg.shuttleworth@woolpert.com	513-527-2654
DAVID HOLDEN	UNION COUNTY RES.	holdendavid@yahoo.com	9372743075
MARK Wesner	caf EAA 1629	miamisonshine@gmail.com	614-562-384

Woolpert, Inc.
One Easton Oval, Suite 400
Columbus, OH 43219-6062
614.476.6000

Union County Airport Authority
KMRT - Serving aviation and the business community

COMMENT FORM

Public Information Open House – November 17, 2022

Instructions

After reviewing the exhibits and speaking with the project representatives, please share your opinions with us regarding the Union County Airport Master Plan Update.

! Please be aware that all comments received are considered public comments and subject to disclosure under Ohio's Public Records Act.

Great presentation hope you get money for all the projects

Contact Information (optional):

Name Mark Wesner

Phone 614-562-3849

Email miamisonshine@gmail.com

How to Submit Comments

After completing the comment form, please drop it off in the designated area at the Public Information Open House. You may also mail your comments to Woolpert, c/o Dave Wall One Easton Oval, Suite 400, Columbus, OH 43219, or email your comments to: Dave.Wall@Woolpert.com.

Your comments are important to us and will be accepted through December 1, 2022. Thank you for your participation!

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Appendix E: Wildlife Site Visit

Union County Regional Airport
Wildlife Hazard Site Visit Report

Prepared by: **Craig B. Swope, CWB**

Verdanterra, LLC

August 13, 2015

Wildlife Hazard Site Visit – Union County Regional Airport

Verdanterra, LLC (Verdanterra) performed a Wildlife Hazard Site Visit at the Union County Regional Airport (MRT) between June 16 and June 17, 2015.

BACKGROUND

Airports that hold Airport Operating Certificates issued under Title 14, Code of Federal Regulations (C.F.R.), Part 139, Certification of Airports, Subpart D, must use the standards, practices and recommendations contained in Draft Advisory Circular (AC) 150/5200-XX to comply with the wildlife hazard management requirements in 14 C.F.R. §139.337. All other airports that have received federal assistance and/or that have authority to impose and/or use a Passenger Facility Charge must use the standards practices and recommendations contained in AC 150/5200-XX during the conduct and preparation of Site Visits, Assessments and Plans. Per Federal Aviation Administration (FAA) recommendation, Verdanterra used a Qualified Airport Wildlife Biologist (as defined in 14 C.F.R. §139.337) to perform this Site Visit. The Verdanterra Qualified Airport Wildlife Biologist, Craig Swope, was assisted by a Stantec Consulting Service, Inc. Wildlife Biologist, Angela Sjollema, during part of the wildlife surveys.

The intent of this Site Visit was to provide an abbreviated analysis of the airport's wildlife hazards, determine if a Wildlife Hazard Assessment is warranted and, if necessary, provide actionable information that allows the airport to mitigate these hazards. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. This Wildlife Hazard Site Visit weighs the overall risk of wildlife that pose a threat to aircraft operations along with ongoing airfield management to determine whether more in depth study and planning is warranted.

Aircraft collisions with wildlife, also commonly referred to as wildlife strikes, cost the civil aviation industry a more than $187 million dollars annually based on damage reported to the FAA Wildlife Strike Database. When taking into consideration that at least 60% of strikes are not reported, the cost could be as high as $937 million dollars per year. Since 1988, there have been 243 aircraft either destroyed or damaged beyond repair. The economic costs of wildlife strikes can be extreme; however, the cost in human lives (255 fatalities globally since 1988) when aircraft crash because of a wildlife strike best expresses the need for a Wildlife Hazard Assessment or Wildlife Hazard Site Visit and the development of a Wildlife Hazard Management Plan.

A Wildlife Hazard Assessment is an ecological study conducted by a qualified airport wildlife biologist that provides the scientific basis for the development, implementation, and refinement of a Wildlife Hazard Management Plan.

Hazard rankings for wildlife (as shown in Table 1) help focus hazardous wildlife management efforts on those species or groups that represent the greatest threats to safe air operations. These rankings were used by Verdanterra airport biologists in conjunction with the site visit data to assess the general wildlife threat level at MRT. Although not all of these high-threat wildlife species are likely to be present at MRT we are able to use them to draw parallels to other species in a similar guild, activity type or habitat preference that may in fact be located on or around the airport. Table 1 lists the top 30 "most hazardous" wildlife species and denotes which of those species were observed during the Wildlife Hazard Site Visit; no state or federally listed birds or mammals where observed.

In addition to individual species, other environmental factors (habitat types and human activities) influence the occurrence of potentially hazardous wildlife at 1P1. AC No. 150/5200-33B *Hazardous Wildlife Attractants On or Near Airports* provides guidance to help identify potential attractants on-site. Prior to conducting the Wildlife Hazard Site Visit, we reviewed and characterized current aerial photographs of the airport property and its natural surroundings or manmade facilities (e.g. surface waters, commercial development, etc.) that may serve as wildlife attractants. The information was summarized and used as reference material during the airport personnel interviews and field assessments. To identify these wildlife attractants and their locations, the survey team also utilized the following data sources and on-site reconnaissance:

- Recent aerial photographs;
- Interviews with airport personnel on types of aircraft and annual movements, wildlife strike records, mowing strategy, vegetation clearing strategy, and other wildlife management activities;
- Habitat observations during the surveys (wetlands, ditches, overgrown vegetation, forested areas, stormwater treatment areas, abandoned structures, construction sites/debris, snags, and food sources that could attract wildlife); and
- GIS review of wetlands, agriculture, forested/shrub areas, golf courses, commercial development, recycling facilities, wildlife management areas, and other known attractants within five miles of the airport.

Table 1[a]. Ranking of bird and mammal species or groups (1 = most hazardous) as to relative hazard to aircraft in airport environments (i.e., ≤500 ft [152 m] above ground level), based on a composite rank (listed for those species with a relative hazard score of 15 or higher). The composite rank reflects 3 variables: the percentage of total strikes (for that species–group) that caused damage to the aircraft, the percentage of total strikes that caused substantial damage to the aircraft, and the percentage of total strikes that caused an effect on flight. (Source, FAA AC 150/5200-XX)

Species	Scientific Name	Relative Hazard Score	Composite Rank	Damage Rank	Observed during MRT surveys
mule deer	*Odocoileus hemionus*	100	1	1	
white-tailed deer	*Odocoileus virginianus*	88	2	2	YES
domestic dog	*Canis lupus familiaris*	71	3	4	YES
other geese		61	4	3	YES
Canada goose	*Branta canadensis*	46	5	7	YES
turkey vulture	*Cathartes aura*	44	5	10	YES
other ducks		48	7	8	YES
great horned owl	*Bubo virginianus*	44	8	6	
double-crested cormorant	*(Phalacrocorax auritis*	43	8	5	
brown pelican	*Pelecanus occidentalis*	40	10	14	
wild turkey	*Meleagris gallopavo*	40	11	13	
sandhill crane	*Grus canadensis*	37	11	11	
glaucous-winged gull	*Larus glaucescens*	39	13	9	
bald eagle	*Haliaeetus leucocephalus*	36	14	12	
great black-backed gull	*Larus marinus*	32	14	18	
osprey	*Pandion haliaetus*	32	16	16	
great blue heron	*Ardea herodius*	31	17	15	YES
ring-necked pheasant	*Phasianus colchicus*	29	18	20	
herring gull	*Larus argentatus*	29	18	23	
snowy owl	*Bubo scandiacus*	28	20	24	
mallard	*Anas platyrhynchos*	29	21	17	YES
great egret	*Ardea alba*	28	22	21	
red-tailed hawk	*Buteo jamaicensis*	25	23	19	YES
California gull	*Larus californicus*	22	24	33	
cattle egret	*Bubulcus ibis*	23	25	32	
ring-billed gull	*Larus delawarensis*	23	26	26	
Franklin's gull	*Larus pipixcan*	19	27	41	
raccoon	*Procyon lotor*	20	28	28	YES
coyote	*Canis latrans*	22	29	36	YES
rock dove	*Columba livia*	20	30	29	YES

[a]This table represents wildlife observations during a limited time period. Wildlife surveys were conducted from June 16 – 17, 2015. The wildlife observed do not represent a complete list of species present on or around MRT.

AIRPORT INFORMATION

Union County Regional Airport (MRT) is a public use airport in Union County, Ohio, United States. It is owned by the Union County Airport Authority and located one nautical mile (2 kilometers) southeast of the central business district of Marysville, Ohio. It is in close proximity to the cities of Dublin, Delaware, and Plain City near State Route 33 and the commercial and light industrial corridor northwest of Columbus. This airport is included in the National Plan of Integrated Airport Systems for 2011–2015, which categorized it as a general aviation facility.

Union County Airport covers an area of 54 acres (22 hectares) at an elevation of 1,021 feet (311 m) above mean sea level. It has one runway designated 9/27 with an asphalt surface measuring 4,218 by 75 feet (1,286 x 23 m). Airport surfaces, facilities and airspace are protected by aviation zoning and recorded easements and compatible land use zoning.

Aircraft tie down and storage is available with 57 individual secure T hangars, a heated single volume hangar and separate repair facilities. The airport is staffed during regular business hours. Facilities include public access reception area, pilots lounge, full service and self-service fueling for 100LL and Jet A. Comprehensive FBO (fixed base operator) services are provided by PRIME AERO. The airport is governed under the authority granted in the Ohio Revised Code section 308, which provides for the establishment of the Union County Regional Airport Authority.

For the 12-month period ending April 3, 2015, the airport had 31,886 aircraft operations, an average of 87 per day. The composition of these operations included 88% general aviation, 10% military, and 2% air taxi. There are 65 aircraft based at this airport, which include 59 single-engine aircraft, 3 multi-engine aircraft, 1 jet, and 2 ultralights. Data publically available (Airport IQ 5010) was amended slightly based on a conversation with the Airport Authority to reflect June 2015 based aircraft.

WILDLIFE HAZARD SITE VISIT

The Wildlife Hazard Site Visit at MRT was conducted over a 2 day period from June 16 to June 17, 2015. On June 16, 2015 Qualified Airport Wildlife Biologist Craig Swope and Wildlife Biologist Angela Sjollema met separately with Gary Sitz, a longtime employee of the airport operator and John Popio, President of the Airport Authority at MRT to discuss what airport staff and pilots believed were the top wildlife hazards at the airport. These meetings were combined with an airport site visit to characterize ecological communities and plan locations for wildlife observation surveys that would characterize onsite wildlife attractants. Mr. Sitz described the airport as having no known wildlife strikes with aircraft. He has decades of experience with the airport and reported infrequent observations of white-tailed deer (*Odocoileus virginianus*), Canada geese (*Branta canadensis*), coyote (*Canis latrans*), and gulls (*Larus sp.*). Mr. Popio described similar wildlife observations and discussed in detail the ongoing vegetation management program, including a new mowing schedule, and tree and brush removal that he was directing at the airport. There are no known aircraft strikes of wildlife at MRT either in the FAA Strike Database or by airport personnel.

Wildlife biologists conducted wildlife surveys throughout the day on June 16, 2015 and in the early morning hours of June 17, 2015. Wildlife surveys and general observations on the airport property took place from 9:30 a.m. to 12:00 p.m. on June 16, 2015 and from 12:30 a.m. to 1:30 a.m. on June 17, 2015. Wildlife observations surrounding the airport took place from 12:30 p.m. to 4:30 p.m., 5:15 p.m. to 9 p.m., and 10:30 p.m. to 11:59 p.m. on June 16, 2015; and 1:30 a.m. to 2:00 a.m. on June 17, 2015. A total of 28 species were observed (Table 2). Table 2 is not an exhaustive list of wildlife species that utilize MRT throughout the year, only those present and observed during the Wildlife Hazard Site Visit. Although, MRT doesn't currently have state or federal take

permits for take or harassment of wildlife, depredation permits are recommended for ongoing management of hazardous species. In all cases, refer to and comply with state, county, and municipal laws, regulations, and policies regarding take of wildlife and methods used. No state or federal threatened or endangered wildlife species were observed.

Wildlife observations are infrequent among those airport personnel interviewed. Pilots with aircraft stationed at MRT are generally aware of the hazard of white-tailed deer near the agricultural fields, particularly at dawn and dusk. In addition, pilots are aware of occasional flocking birds over the airfield (i.e., European starlings and barn swallows). The agricultural areas on and adjacent to the airport are likely the greatest wildlife attractants.

The goal of turf maintenance by the airport is six to eight inches in height. Under existing vendor contracts, woody vegetation and shrubs are to be removed regularly in areas adjacent to the runway (especially in the wet ditches that parallel the runway). Buildings are maintained to be free of nesting opportunities for birds. The Airport Authority does not currently inspect hangers for openings that allow birds and mammals to use these areas as shelter or nesting areas, however, lease holders do report general disrepair to the Authority. The airport fence is non-existent in some areas and inadequate as a wildlife exclusionary device in others. There are currently no active wildlife management activities (e.g. pyrotechnics, wildlife removal, nest removal, etc.) being conducted.

The airport and surrounding landscape was surveyed for wildlife hazards following the initial meeting with Mr. Sitz. Figures that document the airport context and wildlife hazards follow this report. Biologists characterized the ecological communities surrounding the airfield and looked for wildlife, their signs, or attractive habitats. The airport leases land to an adjacent farmer that is managed in row crops of corn and soybeans. The adjacent farm is known to attract flocking birds and white-tailed deer. The wildlife attractants on and adjacent to the airport are shown in the attached figures.

Following the airport site visit, biologists conducted surveys of potential wildlife attractants within five miles of MRT. Wildlife attractants in the area are significant and include ponds, lakes, streams, wetlands, agricultural lands, golf courses, and athletic fields. The areas thought to act as wildlife attractants within five miles of the airfield are shown in the attached figures. The overall land use of the region surrounding the airport is shown in the attached figures. Limited waterfowl were observed during the site visit at the numerous ponds and lakes within 5 miles of the airport, however, they undoubtedly provide habitat for waterfowl and wading birds during breeding and migration season. Canada geese and great blue herons (*Ardea herodias*) were observed with the greatest frequency, however the overall waterfowl and wading bird activity was lower than anticipated. This low activity is likely attributable to the survey occurring during the middle of June. These areas likely support reasonable amounts of wading bird and waterfowl activity, particularly during migration. The location of these ponds, lakes, streams, and wetlands likely create wildlife strike hazards at MRT. The Airport Authority should continue to work with local municipalities to develop ordinances and zoning that acknowledges the impact of development on aviation safety.

In the evening of June 16, 2015, biologists returned to the airport to conduct a dusk/early evening survey. Spotlight surveys were conducted in the early morning hours of June 17, 2015. Wildlife observed during these surveys are listed in Table 2. Over the course of the two days, biologists walked the perimeter of the airfield/runway looking for wildlife and their signs. Numerous song birds, turkey vultures (*Cathartes aura*), American crows (*Corvus brachyrhynchos*), great-blue herons and coyote scat were observed on, over, or adjacent to the runway.

Biologists recorded detections of wildlife seen and heard, and all detections of wildlife signs (scat, tracks, browse, burrows, trails, etc.) while on the airfield. Table 2 is a summary of the wildlife observations. This list is

not a comprehensive list of wildlife that use the airfield; however it is representative the types of wildlife known to occur at MRT. Figures demonstrating indirect wildlife hazards in the 5-mile general area surrounding the airport are attached to this report.

SUMMARY AND CONCLUSIONS

There are several wildlife attractants on and near the airport that warrant management. The mowed airfield environment contains forage species that are attractive to white-tailed deer and Canada goose; however the grass height and thin vegetative cover will limit the attractiveness. The proximity of the farm and row crops to the airfield is perhaps the greatest wildlife risk at the airport. Secondarily, the poor drainage has resulted in the establishment of wetland plant species and year round open water between the runway and taxiway. These areas are attractive to numerous bird species and small mammals that may feed on the insects and amphibians. Perching opportunities can be found on signs and instruments and shrubby wetland areas to the northeast of the taxiway. Perching features are limited when compared to other airports of similar size and operational mission.

Wildlife hazards within 5 miles of the airport include numerous ponds, lakes, streams and wetlands in the region that attract waterfowl and wading birds; and agricultural fields that encourage ungulate, coyote, and goose forage. These wildlife concentration areas, particularly to the south of the airfield pose threats to aviation primarily because the airfield is used as a travel corridor between forested areas and agricultural areas to the northeast of the airfield. Except for the established wetland areas, the airport represents a small island of poor wildlife habitat and does not pose as a major barrier to wildlife movement in the landscape. There are currently no recorded wildlife strikes at MRT that are part of the FAA Wildlife Strike Database (accessed June 15, 2015) or that are known to the Airport Authority.

There are 6 species we observed at MRT that have a relative hazard score and damage ranking between 1 and 10. These species are all common to Central Ohio airports and can generally be managed through harassment, removal, and habitat management (including fencing) if necessary. Implementation of current practices and recommendations provided in this summary should be adequate to reduce risk of wildlife incidents at the airport. Interactions between aircraft and wildlife are stochastic events that would not be further reduced by conducting a Wildlife Hazard Assessment or by implementing a Wildlife Hazard Management Plan. The current conditions at MRT do not meet the conditions specified in 14 C.F.R. §139.337 for necessitating a Wildlife Hazard Assessment. Recommendations included in this summary should be implemented to reduce the likelihood of a triggering event. .

Table 2. Wildlife observations or wildlife signs recorded during the Wildlife Hazard Site Visit conducted June 16 to June 17, 2015 at Union County Regional Airport. This list should not be considered a complete record of wildlife that use the airfield.

Common name	Scientific name	Observation
American crow	*Corvus brachyrhynchos*	Groups of up to four birds flying over and feeding on and adjacent to runway; common within 5 miles of the airport
American robin	*Turdus migratorius*	Observed perching on AOA fence, signs and buildings on the airport; common within 5 miles of the airport
barn swallow	*Hirundo rustica*	Observed feeding over taxi way and wetland area on the NE end of the airfield; wetland is off-airport property, but adjacent to the taxiway

blue jay	*Cyanocitta cristata*	Regularly observed within 5 miles of the airport

Canada goose	*Branta canadensis*	Commonly observed at open water locations within 5 miles of the airport; closest location was just east of the runway using the ponds associated with the commercial/retail development (up to 9 birds at each observation)
coyote	*Canis latrans*	Scat was observed on the east end of the taxiway at the hold short line; additional scat was observed in disturbed areas adjacent to the taxiway
domestic dog		Observed roaming freely around the farm to the south of the runway during evening surveys
domestic duck		Observed at open water locations within 5 miles of the airport
Eastern meadowlark	*Sturnella magna*	Observed singing and feeding with young in the grassy areas between the runway and taxiway
European starling	*Sayornis phoebe*	Observed in small flocks (approx. 50 birds) on the airfield; common within 5 miles of airport
great blue heron	*Ardea herodius*	Observed flying across the runway from south to north; commonly observed at open water locations within 5 miles of the airport; observed in higher numbers than expected (possible rookery in close proximity)
Henslow's sparrow	*Ammodramus henslowii*	Observed and heard in mowed areas and wet ditches adjacent to the runway and taxiway
horned lark	*Eremophila alpestris*	Observed signing and feeding with young in the grassy areas between the runway and taxiway
house sparrow	*Passer domesticus*	Regularly observed within 5 miles of the airport
killdeer	*Charadrius vociferus*	Observed loafing on the runway and taxiway and disturbed areas adjacent to the runway; observed with young
mallard	*Anas platyrhynchos*	Commonly observed at open water locations within 5 miles of the airport; closest location was just east of the runway using the ponds associated with the commercial/retail development
northern cardinal	*Cardinalis cardinalis*	Regularly observed within 5 miles of the airport
northern mockingbird	*Mimus polyglottos*	Observed singing and perching on hanger buildings adjacent to the tarmac; common within 5 miles of the airport
northern rough-winged swallow	*Stelgidopteryx serripennis*	Observed perching and heard singing within on the airfield

raccoon	*Procyon lotor*	Observed during spotlight surveys to the SE of the runway in a woodlot on the airport property and the corn field north of the hangers; common within 5 miles of the airport
red-tailed hawk	*Buteo jamaicensis*	Soaring above commercial/retail development area east of the runway
red-winged blackbird	*Agelaius phoeniceus*	Observed and heard in wetland areas associated with commercial/retail development east of the runway.
rock dove	*Columba livia*	Observed perching on AOA fence and electrical lines near the airport; common within 5 miles of the airport
savannah sparrow	*Passerculus sandwichensis*	Observed and heard in mowed areas and wet ditches adjacent to the runway and taxiway
song sparrow	*Melospiza melodia*	Observed and heard in wet ditches adjacent to the runway and taxiway and the wooded area NW of the hangers
turkey vulture	*Cathartes aura*	Observed soaring above runway; common within 5 miles of the airport
white-tailed deer	*Odocolleus virginianus*	Observed during spotlight surveys to the SE of the runway in a woodlot on the airport property and the corn field north of the hangers; also observed in agricultural fields within 0.5 miles of the airport
yellow warbler	*Setophaga petechia*	Heard singing while on the airfield
Unindentified waterfowl		Observed at the reservoir northwest of Marysville, within 5 miles of the airport

General recommendations that will aid in hazard management are as follows:

1. Improve Reporting of Wildlife Strikes

   Wildlife strikes are deemed to have occurred when: 1) a pilot reports striking a bird or mammal, 2) aircraft maintenance personnel identify damage as having been caused by wildlife, 3) ground personnel see wildlife collide with an aircraft, or 4) wildlife remains are found on airside pavement area or within 200 feet of a runway, unless another reason for the animal's death is identified. The fourth category of this definition, the collection of bird carcasses near movement areas, usually constitutes the greatest proportion of an airport's wildlife strike record.

   Diligent and accurate collection of wildlife strike information is the most important element in identifying and monitoring wildlife hazards at airports. Therefore, the following is recommended:

   Report strikes from all four categories. Do not rely only on pilot-reported strikes. These typically represent less than 25% of all strikes that occur. Pavement and grassy areas should be searched regularly to locate and collect carcasses. Submit all wildlife strikes using one of two methods. An on-line strike reporting form (FAA Form 5200-7) is available on the FAA's Airport Wildlife Hazard Mitigation Home Page (http://wildlife.faa.gov). Strikes can also be reported by completing the paper version of the form and mailing directly to FAA. Anyone at MRT who has knowledge of a wildlife strike

should report the incident to the airport manager and/or complete the strike reporting protocol. The airport manager should coordinate with the airport authority operators to ensure that duplication of the strike reporting is not occurring.

A significant portion of the strikes that are reported are not been identified to exact species of bird. For example, identification of bird type (e.g. "gull") does not yield sufficient information to monitor strike hazards and implement meaningful management actions. In your area, different gull species are common and these species pose different types of hazards during different times of the year. Management actions differ based on species behavior and ecology. If bird carcasses are in a condition that does not allow MRT personnel to identify the species, send the feathers and/or other remains to the Smithsonian Institution, which has an agreement with the FAA to provide bird identification services free of charge to airports.

To submit bird remains:

- Place the feathers and other material in a clean plastic zip-lock bag;
- Include a copy of FAA Form 5200-7;
- For US Postal Service, recommended for routine cases, send to: Feather Identification Lab, Smithsonian Institution, NHB E-600, MRC 116, P.O. Box 37012, Washington, D.C. 20013-7012;
- For overnight shipping (e.g. FedEx, DHL, UPS), recommended for damaging or priority cases, send to: Feather Identification Lab, Smithsonian Institution, NHB E-600, MRC 116, 10th & Constitution Ave., NW, Washington, D.C. 20560-0116.

2. Review all New Landscaping/Development Plans for Wildlife Hazards

All landscaping and airport development plans should be reviewed by a Qualified Airport Wildlife Biologist to identify potential wildlife attractants and hazard potential. Vegetation that provides fruits, nuts, and nesting/roosting sites should be avoided. Dense stands of evergreens and deciduous trees that provide roosting habitat should not be planned.

3. Water Management

Whenever possible, all standing water should be eliminated from the airport. Fresh water in temporary pools on pavement surfaces, wet grassy areas, ditches and drains, and wetlands were observed throughout the airfield. These temporary pools are a very strong attractant to wildlife, including ducks, Canada geese, blackbirds, gulls, and other birds and mammals. For the wet grassy areas around MRT, I recommend improving drainage to allow water to move off the airport; in particular ensure culverts are free of debris and drainage areas are not overgrown. Temporary pools on pavement surfaces, as observed during the site visit, should be dissipated within 24 hours or leveled to prevent pooling. Wetland management to eliminate their attractant value to wildlife should be coordinated with the Ohio EPA. If possible, on-airport wetlands with standing water should be modified to eliminate the water and/or bird access. Ditches should be modified to allow proper flow off the airport or replaced by underground systems whenever possible. At a minimum, ditches should be cleared of vegetation and ditch slopes should be modified to permit easy access by mowing equipment.

4. Vegetation Management

   MRT should continue to control vegetation in the wet ditches between the runway and taxiway to help minimize habitat for wildlife. Brushy areas along ditches and streams should be mowed and maintained clear of vegetation to increase runoff and eliminate wildlife habitat where animals would nest, feed, and roost/loaf. Additionally, vegetative debris should be removed from culvert openings after each mowing and significant rainfall event.

   There is no single recommendation regarding maintenance of grass height to reduce all wildlife hazards on an airport. Research findings made by USDA Wildlife Services note marginally higher use by birds in short vegetation during the spring and summer. In areas where Canada geese, gulls, starlings and other bird species are prevalent, maintenance of grass between 6 to 8 inches may reduce the extent to which these birds will occur there. Maintenance of longer grass height (10 to 12 inches) could further reduce the presence of these birds, but does have the potential to harbor populations of small mammals, which in turn could exacerbate aircraft hazards created by raptors and other predators. With the exception of short grass (3 to 4 inches) within runway and taxiway safety areas, grass length of at least 6 to 8 inches should be maintained at MRT.

5. Deer Resistant Fencing

   A deer resistant fence that is at least 10 feet tall (topped by 2 strands of barbed wire) is the most effective long-term deer damage management method for use on airports. MRT's current fence is not contiguous and has several areas where deer could jump over or crawl under. The wooded area bordered by agricultural crops to the south of the runway provides the best habitat for white-tailed deer. This area is also completely open to the airport. Based on interviews with airport personnel and observations made during the Wildlife Hazard Site Visit, white-tailed deer pose a hazard to aviation safety, although not on a consistent basis. Refer to *FAA Certalert No. 01-01 Deer Aircraft Hazard*, for additional information on deer hazards and fencing recommendations.

6. Acquire State and Federal Permits

   MRT should work with the Ohio Department of Natural Resources (Division of Wildlife) and the US Fish and Wildlife Service to acquire depredation permits that authorize harassment and take of wildlife that are frequently observed on the airfield. Several of the mammals and birds observed during this Wildlife Hazard Site Visit are known to cause damaging strikes, occasionally resulting in death. The Airport Authority must have the legal means to mitigate this risk whenever it is present; in fact the airport is legally obligated to manage these hazards immediately. Verdanterra qualified airport wildlife biologists can provide additional information regarding integrated hazard management at the request of MRT.

7. Maintain an Airport Wildlife Log

   It is a sound practice for all airports to maintain a Wildlife Log. The log should contain pertinent wildlife hazard management information (strike reports, summaries, wildlife control activity forms, wildlife observations/surveys, personnel training, etc.) in one readily-accessible source, so that MRT personnel can review and add to it as appropriate. The wildlife log, if properly maintained, will assist MRT in determining appropriate strategies to reduce hazards and in predicting when hazards might develop.

Conclusion

In conclusion, the Wildlife Hazard Site Visit documented several direct and indirect wildlife hazards on, or within five miles of the airfield. There have been no known wildlife strikes at the airport. While wildlife hazards do exist, additional recommended management actions are unlikely to be identified or substantially altered by conducting a Wildlife Hazard Assessment or Wildlife Hazard Management Plan. Continued monitoring of wildlife observations, habitat conditions and hazard management actions should be done as part of continuous and periodic safety self-inspections at the airport in accordance with AC150-5200-18c. Further involvement of a qualified airport wildlife biologist in evaluating and mitigating wildlife hazards could be conducted upon request of the Airport Authority as needed.

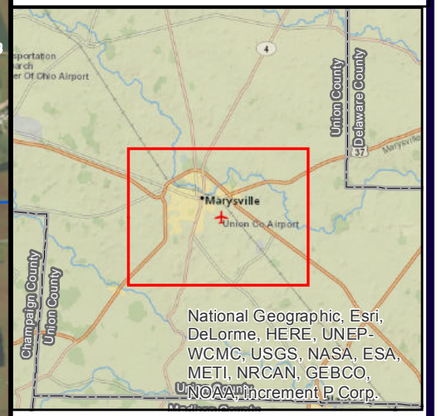
Should you have any questions about the site visit or the suggested recommendations, please do not hesitate to contact us at:

Craig B. Swope, Certified Wildlife Biologist
Verdanterra, LLC
717-830-9104
cswope@verdanterra.com

Figures

Figure 1

Airport Location
Union County Airport



Map Location in Red

Legend

Airport Location

0 1,500 3,000
Feet

Data Sources include: USGS, ESRI

VERDANTERRA

Map Details

Location

Union County,
Ohio

Last Modified: July 07, 2015

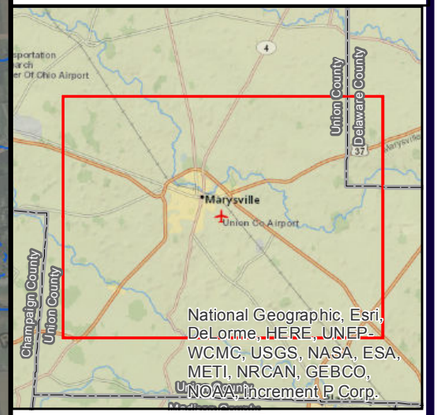
REVISION	00	
CREATOR	CCP	07/07/2015
REVIEWED	ACS	07/07/2015

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

P:\004_Stantec\00415003_Union_County_Airport\GIS\MXDs\Figure 1 Union County Airport.mxd

Figure 2

Hazard Locations
Union County Airport



Map Location in Red

Legend

- Airport Location
- 5 Mile Airport Buffer

Hazard Locations

- G Golf Course
- F Open Grass Fields
- W Open Water
- S State Natural Area

0 0.5 1
Miles

Data Sources include: USGS, OhioDNR, ESRI
Imagery: 2013 NAIP

VERDANTERRA

Map Details

Location

Union County,
Ohio

Last Modified: July 08, 2015

REVISION	00	
CREATOR	CCP	07/07/2015
REVIEWED	ACS	07/07/2015

Union County Airport

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

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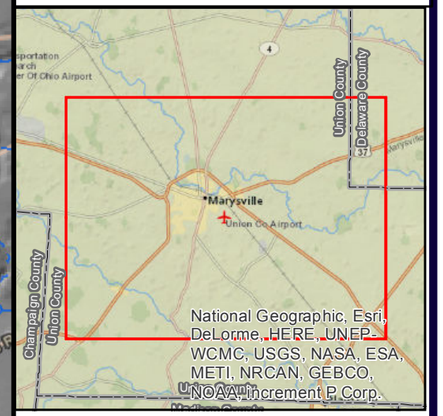
Figure 3

Land Cover
Union County Airport



Map Location in Red

Legend

- Airport Location
- 5 Mile Airport Buffer

Landcover Analysis

- Agriculture
- Forest
- Golf Course
- Open Grass Field
- Open Water
- State Natural Area
- Urban / Residential

0 0.5 1
Miles

Data Sources include: USGS, OhioDNR, ESRI
Imagery: ESRI

VERDANTERRA

Map Details

Location

Union County,
Ohio

Last Modified: July 08, 2015

REVISION	00	
CREATOR	CCP	07/07/2015
REVIEWED	ACS	07/07/2015

Union County Airport

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P:\004_Stantec\00415003_Union_County_Airport\GIS\MXDs\Figure 3 Union Co Airport Land Cover.mxd

Appendix F: Glossary of Terms

ABOVE GROUND LEVEL (AGL). An altitude that is measured with respect to the underlying ground.

ACCELERATED-STOP DISTANCE AVAILABLE (ASDA). See Declared Distances.

ACI-NA. Airports Council International – North America.

ADMINISTRATOR. Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

ADVISORY CIRCULAR (AC). External communications or publications issued by the FAA to provide non-regulatory guidelines for the recommendations relative to a policy, and guidance and information relative to a specific aviation subject matter. An example of this is AC 150/1300-13A, Airport Design, which is frequently referenced throughout a typical master plan.

AIR CARRIER. A person or company who undertakes directly by lease, or other arrangement, to engage in air transportation.

AIR ROUTE TRAFFIC CONTROL CENTERS (ARTCC). A facility responsible for enroute control of aircraft operating under IFR in a particular volume of airspace (within its area of jurisdiction) at high altitudes between airport approaches and departures. Approximately 26 such centers cover the Unite States.

AIR TAXI. An aircraft operating under an air taxi operating certificate for the purpose of carrying passengers, mail, cargo for revenue in accordance with FAR 121 or FAR Part 135.

AIR TRAFFIC. Any aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

AIR TRAFFIC CONTROL (ATC). A service provided by ground-based controllers who direct aircraft on the ground and in the air. The primary purpose of ATC systems is to separate aircraft to prevent collisions, to organize and expedite the flow of traffic, and to provide information and other support for pilots when able.

AIR TRAFFIC CONTROL TOWER (ATCT). A facility in the terminal air traffic control system located at an airport which consists of a tower cab structure and an associated instrument flight rules rooms, if radar equipped, that uses ground-to-air and air-to-ground communications and radar, visual, signaling, and other devices to provide for the safe and expeditious movement of terminal area air traffic in the airspace and airports within its jurisdiction.

AIR TRAFFIC CONTROL (ATC) SERVICE. A service provided for the purpose of promoting the safe, orderly, and expeditious flow of air traffic, including airport, approach, and enroute air traffic control services. ATC is provided by the Federal Aviation Administration, a branch of the federal government under the Department of Transportation or, at Airport Traffic Control Tower (ATCT), through an independent service provider contracted with the Federal Aviation Administration.

AIRCRAFT. A device that is used or intended to be used for flight in the air.

Airplane. An engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings.

- Large Airplane. An airplane of more than 12,500 pounds maximum certified takeoff weight.

- Small Airplane. An airplane of 12,500 pounds or less maximum certified takeoff weight.

- Balloon. A lighter-than-air aircraft that is not engine-driven, and that sustains flight through the use of either gas buoyancy or an airborne heater.
- Glider. A heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its lifting surfaces and whose free flight does not depend principally on an engine.
- Heavy Aircraft. Aircraft capable of takeoff weight of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.
- Helicopter. A rotorcraft that, for horizontal motion, depends principally on its engine-driven rotors.
- Large Aircraft. Aircraft of more than 41,000 pounds maximum certified takeoff weight, up to 255,000 pounds
- Regional Jet (RJ). There is no regulatory definition for an RJ; however, for FAA use, an RJ is a commercial jet airplane that carries fewer than 100 passengers.
- Rocket. An aircraft propelled by ejected expanding gases generate in engine from self-contained propellants and not dependent on the intake of outside substances.
- Rotorcraft. A heavier-than-air aircraft that depends principally for it support in flight on the lift generated by one or more rotors.
- Small Aircraft. Aircraft of 41,000 pounds or less maximum certified takeoff weight.

AIRCRAFT APPROACH CATEGORY (AAC). A grouping of aircraft based on approach speed, defined as 1.3 times the aircraft stall speed at maximum certificated takeoff weight. The categories are as follows:

- Category A: Speed less than 91 knots.
- Category B: Speed 91 knots or more but less than 121 knots
- Category C: Speed 121 knots or more but less than 141 knots.
- Category D: Speed 141 knots or more but less than 166 knots.
- Category E: Speed 166 knots or more.

AIRCRAFT DEICING PAD. See Deicing Pad.

AIRCRAFT ENGINE. The component of the propulsion system for an aircraft that generates mechanical power. They are almost always either lightweight piston engines or gas turbines, although electric engines are currently in development.

- Piston Engine. A heat engine that uses one or more reciprocating pistons to convert pressure generated from aviation gasoline into a rotating motion.
- Turbine Engine. A mechanical device or engine that spins in reaction to fluid flow through or over it. This device is used in turbofan, turbojet, and turboprop-powered aircraft and utilizes jet fuel.
    - Turbofan. A turbojet engine whose thrust has been increased by the addition of a low-pressure compressor fan.

- Turbojet. An engine that derives power from a fanned wheel spinning in reaction to burning gases escaping from a combustion chamber. The turbine in turn drives a compressor and other accessories.
- Turboprop. A turbine engine in which the rotating turbine turns a propeller.

AIRCRAFT OPERATION. See Operation.

AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF). A special category of fire fighting that involves the response, hazard mitigation, evacuation and possible rescue of passengers and crew of an aircraft involved in (typically) an airport ground emergency.

AIRPLANE. See Aircraft.

AIRPLANE DESIGN GROUP (ADG). A numerical classification aircraft based on wingspan or tail height. Where an airplane is in two categories, the most demanding category should be used. The groups are as follows:

- Group I: Up to but not including 49 feet wingspan or tail height up to but not including 20 feet. (e.g. Cessna 172)
- Group II: 49 feet up to but not including 79 feet wingspan or tail height from 20 up to not including 30 feet. (e.g. Cessna Citation Business jet).
- Group III: 79 feet up to but not including 118 feet wingspan or tail height from 30 up to but not including 45 feet. (e.g. Boeing 737)
- Group IV: 118 feet up to but not including 171 feet wingspan or tail height from 60 up to but not including 66 feet. (e.g. Boeing 767)
- Group V: 171 feet up to but not including 214 feet wingspan or tail height from 60 up to but not including 66 feet. (e.g. Boeing 747)
- Group VI: 214 feet up to but not including 262 feet wingspan or tail height from 66 up to but not including 80 feet. (e.g. Airbus A380)

AIRPORT. An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any. Different types of airports include the following:

- Cargo Service Airport. An airport served by aircraft providing air transportation of property only, including mail, with an annual aggregate landed weight of at least 100 million pounds.
- Certificated Airport. An airport that has been issued an Airport Operating Certificate (AOC) by the FAA under the authority of FAR Part 139, Certification and Operation.
- Commercial Service Airport. A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers.
- General Aviation Airport. An airport that provides air service to only general aviation.
- Hub Airport. An airport that an airline uses as a transfer point to get passengers to their intended destination. It is part of a hub and spoke model, where travelers moving between airports not served by direct flights change planes en route to their destinations.
    - Large Hub Airport. An airport that handles over 1% of the country's annual enplanements.

- Medium Hub Airport. An airport that handles 0.25% ≥ 1% of the country's annual enplanements.
- Small Hub Airport. An airport that handles 0.05% ≥ 0.25% of the country's annual enplanements.
- Non-Hub Airport. An airport that handles over 10,000 enplanements, but less than 0.05% of the country's annual enplanements.

- International Airport. Relating to international flight, it means:
  - An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.
  - A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.
  - Airports designated under the Convention on ICAO as an airport for use by international commercial air transport and/or international general aviation.
- Primary Airport. A commercial service airport that enplanes at least 10,000 annual passengers.
- Reliever Airport. General aviation airports in a major metropolitan area that provides pilots with attractive alternatives to using congested hub airports.
- Uncontrolled Airport. An airport without an air traffic control tower at which the control of VFR traffic is not exercised. Pilots "see and avoid" other traffic without the aid of air traffic control.

AIRPORT AUTHORITY. A quasi-government public organization responsible for setting the policies governing the management and operation of an airport or system of airports under its jurisdiction.

AIRPORT CAPITAL IMPROVEMENT PLAN (CIP). The planning program used by the FAA to identify, prioritize, and distribute funds for airport development and the needs of National Airspace System (NAS) to meet specified national goals and objectives.

AIRPORT CERTIFICATION MANUAL (ACM). An approved ACM is an extension of the Part 139 regulation and its contents are legally enforceable under Federal law. An ACM should describe how a certificate holder complies with Part 139 requirements in a manner acceptable to the Administrator.

AIRPORT DIAGRAM. A diagram of an airport that is specifically designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations.

AIRPORT ELEVATION. The highest point of an airport's usable runway(s) expressed in feet above mean sea level (MSL).

AIRPORT EMERGENCY PLAN (AEP). A coordinated plan to provide emergency related actions to ensure for the safety of and emergency services for the airport and community.

AIRPORT FACILITY DIRECTORY (AFD). Now known as a Chart Supplement, a publication with information on all airports, seaplane bases, and heliports open to the public. This publication is issued in seven volumes according to geographical area, and includes communications data, navigational facilities, and certain special notices and procedures.

AIRPORT HAZARD. Any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to aircraft landing, taking of, or taxiing at the airport.

AIRPORT IMPROVEMENT PROGRAM (AIP). An FAA program authorized by the Airport and Airway Improvement Act of 1982 that serves as the primary source of funding airport planning and development. This funding is provided at specific levels, with the funding priority based on the airport's Capital Improvement Program (CIP) and available funds.

AIRPORT INFLUENCE AREA. The area defined by overlaying the FAR Part 77 Imaginary Surfaces, Aircraft Accident Safety Zone data, and Noise Contour data over the top of an existing land use map, critical areas map or other base map.

AIRPORT LAYOUT PLAN (ALP). A scaled drawing (or set of drawings), in either traditional or electronic form, of current and future airport facilities that provides a graphic representation of the existing and long-term development plan for the airport and demonstrates the preservation and continuity of safety, utility, and efficiency of the airport to the satisfaction of the FAA.

AIRPORT LIGHTING. Various lighting aids that may be installed on an airport. Types of airport lighting include:

- ALS. See Approach Light System.
- Boundary Lights. Lights defining the perimeter of an airport or landing area.
- Runway Centerline Lighting. Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway. Only used on Category II/III ILS Runways.
- Runway Edge Lights. Lights used to outline the edges of the runways during periods of darkness or restricted visibility conditions. They are usually uniformly spaced at intervals of approximately 200 feet, and intensity may be controlled or preset. These light systems are classified according to the intensity they are capable of producing:
    - High Intensity Runway Lights (HIRLs).
    - Medium Intensity Runway Lights (MIRLs).
    - Low Intensity Runway Lights (LIRLs).
- Runway End Identifier Lights (REIL). Provides rapid and positive identification of the approach end of particular runway. The system consists of a pair of synchronized flashing lights, one on each side of the runway threshold.
- Threshold Lights. Fixed lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold. Lights are green for arriving aircraft and red for departing aircraft.
- Touchdown Zone Lighting. Two rows of transverse light bars located symmetrically about the runway centerline normally at 100-foot intervals. Only used on Category II/III ILS Runways.

AIRPORT MARKINGS. Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as: 1) Visual, 2) Non-precision instrument, 3) Precision Instrument.

AIRPORT MASTER PLAN. A comprehensive study of an airport that focuses on the short-, medium-, and long-term development plan to meet future aviation demand of the airport.

AIRPORT OBSTRUCTION CHART (OC). A scaled drawing depicting the FAR Part 77 imaginary airspace surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads, and other detail in the vicinity of the airport.

AIRPORT OPERATIONS AREA (AOA). An area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An AOA includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

AIRPORT OPERATOR. The operator (private or public) or sponsor of a public-use airport.

AIRPORT REFERENCE CODE (ARC). A coding system used to relate the airport design criteria to the operational and physical characteristics of the airplanes intended to use the airport or the critical aircraft. It is a two-character code consisting of the Aircraft Approach Category and the Airplane Design Group.

AIRPORT REFERENCE POINT (ARP). The latitude and longitude of the approximate center of the runway(s) at an airport.

AIRPORT SIGNS. Signs used to identify items and locations on the airport. Following are the most common sign types:

- Boundary Sign. These signs are used to identify the location of the boundary of the RSA/ROFZ or ILS critical areas for a pilot, or an existing the runway. These signs have a black inscription on a yellow background.
- Destination Sign. These signs indicate the general direction to a remote location. They have black inscriptions on a yellow background and ALWAYS contain an arrow.
- Direction Sign. These signs indicate directions of taxiways leading out of an intersection. They may also be used to indicate a taxiway exit from a runway. These signs have black inscriptions on a yellow background and ALWAYS contain arrows.
- Information Sign. These signs are installed on the airside of an airport and are considered to be signs other than mandatory signs. They have black inscriptions on a yellow background.
- Location Sign. These signs identify the taxiway or runway upon which the aircraft is located. The sign has yellow inscriptions on a black background with a yellow border and does NOT use arrows.
- Mandatory Instruction Sign. They denote taxiway/runway intersections, runway/runway intersections, ILS critical areas, OFZ boundaries, runway approach areas, CAT II/II operations areas, military landing zones, and no entry areas. These signs have white inscriptions with a black outline on a red background.
- Roadway Sign. These signs are located on the airfield and are solely intended for vehicle operators. They should conform to the categorical color codes established by the Manual on Uniform Traffic Control Devices (MUTCD).
- Runway Distance Remaining Signs. These signs are used to provide distance remaining information to pilots during takeoff and landing operations. These signs have a white numeral inscription on a black background.

AIRPORT SPONSOR. The entity that is legally responsible for the management and operation of an airport including the fulfillment of the requirements of laws and regulations related thereto.

AIRPORT SURVEILLANCE RADAR (ASR). A radar system used at airports to detect and display the position of aircraft in the terminal area.

AIRSIDE. The portion of an airport that contains the facilities necessary for the operations of aircraft.

ANNUAL SERVICE VOLUME (ASV). The number of annual operations that can reasonably be expected to occur at the airport based on a given level of delay.

APPROACH END OF RUNWAY. The approach end of runway is the near end of the runway as viewed from the cockpit of a landing airplane.

APPROACH LIGHT SYSTEM (ALS). An airport lighting facility aids in runway identification during the transition from instrument flight to visual flight for landing. Typical approach lighting systems used at airports include:

- Approach Light System with Sequenced Flashing (ALSF).
- Lead-in-light System (LDIN). Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.
- Medium-Intensity Approach Light System with Runway Alignment Indicator (MALSR). A lighting system installed on the approach end of a runway and consists of a series of lightbars, strobe lights, or a combination that extends outward from the runway end. It usually serves a runway that has an instrument approach procedure associated with it and allows the pilot to visually identify and align self with the runway environment once the pilot has arrived at a prescribed point on the approach.
- Omnidirectional Approach Lighting System (ODALS). Consist of seven omnidirectional flashing lights located in the approach area of a non-precision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located on each side of the runway, with a lateral distance of 40 feet from the runway edge, or 75v feet from the runway edge when installed on a runway equipped with VASI.
- Runway Alignment Indicator Lights (RAILS). Sequenced Flashing Lights which are installed only in combination with other lighting systems.

APPROACH PROCEDURES WITH VERTICAL GUIDANCE (APV). Instrument approach procedures conducted under IFR that provide both lateral and vertical guidance, but that do not meet all the accuracy requirements and navigation specifications to be classified as precision approach. Examples of APV approaches include Area Navigation (RNAV) (lateral approach procedures with vertical guidance (LPV) or lateral navigation (LNAV)/vertical navigation (VNAV) minimums) and localizer-type directional aid (LDA) with glideslope (GS).

APPROACH SURFACE. See Imaginary Surfaces.

APRON. A specific portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft. Also referred to as ramp or tarmac.

ARCHITECTURAL/ENGINEERING (AE).

ARFF BUILDING. A facility located at an airport that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.

ARRIVAL TIME. The time an aircraft touches down on arrival.

AVIATION SECURITY STAKEHOLDER PARTICIPATION ACT OF 2014 (ASSPA OF 2014). Directs the DHS and TSA to establish in the TSA an aviation security advisory committee.

AVIATION AND TRANSPORTATION SECURITY ACT (ATSA). This act created the Transportation Security Administration. Prior to the passage of the ATSA, passenger screening was the responsibility of airlines.

AUTOMATED FLIGHT SERVICE STATION (AFSS). An automated air traffic facility that provides information and services to aircraft pilots before, during, and after flights, but it is not responsible for giving instructions or clearances or providing separation.

AUTOMATED SURFACE OBSERVATION SYSTEM (ASOS). Similar data reporting as an AWOS, but usually owned and maintained by the National Weather Service.

AUTOMATED WEATHER OBSERVATION SYSTEM (AWOS). An automated sensor suite which is voice synthesized to provide a weather report that can be transmitted via VHF radio, NDB, or VOR ensuring that pilots on approach have up-to-date airport weather for safe and efficient aviation operations. Most AWOS observe and record temperature and dew point in degrees Celsius, wind speed and direction in knots, visibility, cloud coverage and ceiling up to 12,000 feet, freezing rain, thunderstorm (lightning), and altimeter setting.

AVGAS. Aviation fuel (gasoline) used for aircraft with internal-combustion engines. The most common Avgas is currently 100LL (Low Lead).

AVIATION SECURITY ADVISORY COMMITTEE (ASAC). Initially established in 1989 and managed by the FAA, it was transferred to the TSA with the enactment of the ATSA. The ASAC provides advice to the TSA administration on aviation security matters.

AVIGATION EASEMENT. A contractual right or a property interest in land over which a right of unobstructed flight in the airspace can occur.

BALLOON. See Aircraft.

BAGGAGE CLAIM. An area where passengers obtain luggage that was previously checked at an airline ticket counter at the departing airport.

BASED AIRCRAFT. An aircraft permanently stationed at an airport by agreement between the airport owner (management or FBO) and the aircraft owner.

BASE LEG. See Traffic Pattern.

BENEFIT-COST ANALYSIS (BCA). An analysis of the cost, benefit, and the uncertainty associated with a project or action. A formal BCA is required for capacity projects of $5 million or more AIP discretionary funds.

BIRDS BALLS. High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.

BLAST FENCE. A barrier used to divert or dissipate jet blast or propeller wash.

BOUNDARY LIGHTS. See Airport Lighting.

BOUNDARY SIGN. See Airport Signs.

BUILDING RESTRICTION LINE (BRL). A line that identifies suitable building area locations on airports to limit building proximity to aircraft movement areas. Typically based on the FAR Part 77 Airport Imaginary Surfaces.

CAPACITY (THROUGHPUT CAPACITY). A measure of the maximum number of aircraft operations or their airport components which can be accommodated on the airport.

CAPITAL IMPROVEMENT PROGRAM (CIP). Provides a schedule of development for the proposed projects identified by an airport or through the development of an Airport Master Plan.

CARGO SERVICE AIRPORT. See Airport.

CEILING. The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as broken, overcast or obscured.

CERTIFICATED AIRPORT. See Airport.

CIRCLING APPROACH. A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable.

CLEARWAY (CWY). A defined rectangular area beyond the end of the runway cleared or suitable for use in lieu of runway to satisfy take off distance requirements.

COMMERCIAL SERVICE AIRPORT. See Airport.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF). The VHF radio frequency used for air-to-air communication at uncontrolled airports or where no control tower is currently active. Pilots use the common frequency to coordinate their arrivals and departures safely, give position reports, and acknowledge other aircraft in the airfield traffic pattern.

COMPASS ROSE. A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction. When marked on the ground it is used to calibrate an aircraft's compass.

CONICAL SURFACE. See Imaginary Surfaces.

CONSULTANT. A firm, individual, partnership, corporation, or joint venture that performs architectural, engineering or planning service as defined in FAA AC150/5100-14D, employed to undertake work funded under an FAA airport grant assistance program.

CONTROLLED AIRSPACE. Airspace of defined dimensions within which air traffic control service is provided to IFR flight and to VFR flights in accordance with the airspace classification. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E Airspace.

CRITICAL (DESIGN) AIRCRAFT. The most demanding aircraft with at least 500 annual operations that operates, or is expected to operate, at the airport.

CROSSWIND. A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

CROSSWIND COMPONENT. The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.

CROSSWIND LEG. See Traffic Pattern.

DISADVANTAGED BUSINESS ENTERPRISE (DBE). "Disadvantaged Business Enterprise" (DBE) means a business which is at least fifty-one percent (51%) owned and operated by one or more socially and economically disadvantaged individuals and whose management and daily operation is controlled by the qualifying party(ies).

DECISION HEIGHT (DH). The lowest height or altitude in an approach descent and the point at which a missed approach shall be initiated if the required visual reference has not been established. This term is used only in procedures where an electronic glide slope provides the reference for descent, as in ILS.

DECLARED DISTANCES. The distances the airport owner declares available for an aircraft's takeoff run, takeoff distance, accelerated-stop distance, and landing distance requirements.

- Takeoff Run Available (TORA). The runway length declared available and suitable for the ground run of an aircraft taking off.
- Takeoff Distance Available (TODA). The runway length equal to the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA; the full length of TODA may need to be reduced because of obstacles in the departure area.
- Accelerated Stop Distance Available (ASDA). The runway length equal to the runway plus stopway length declared available and suitable for the acceleration and deceleration of an aircraft aborting a takeoff.
- Landing Distance Available (LDA). The runway length equal to the length of runway available and suitable for the landing ground run of airplanes.

DESIGN AIRCRAFT. An aircraft whose dimensions and/or other requirements make it the most demanding aircraft for an airport's facilities (i.e. runways and taxiways). The Design Aircraft is used as the basis for airport planning and design since it is assumed that airport facilities are designed to accommodate the Design Aircraft will also be able to accommodate less demanding aircraft as well. An aircraft can be utilized as the Design Aircraft for an airport if it will (has) conduct(ed) 500 or more annual operations (250 landings) at that airport.

DECISION HEIGHT (DH). This is associated with precision approaches and the aircraft is continually descending on final approach. When the aircraft reaches the DH, the pilot must make a decision to land or execute the missed approach procedure.

DEICING. The removal, though application of a max of heated water and propylene or ethylene glycol, of frost, ice, slush, or snow from the aircraft in order to provide clean surfaces.

DEICING PAD. A facility where an aircraft received deicing or anti-icing.

DELAY. The difference between constrained and unconstrained operating time.

DEMAND. The number of aircraft operations, passengers, or other factors that are required in a specific period of time.

DEPARTMENT OF TRANSPORTATION (DOT). The United States federal department that institutes and coordinates national transportation programs; created in 1966. The FAA is an organization within the DOT.

DEPARTURE AIRSPACE. See Approach Airspace.

DESTINATION SIGN. See Airport Signs.

DETENTION PONDS. Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.

DIRECTION SIGN. See Airport Signs.

DISCRETIONARY GRANT FUNDS. Annual Federal grant funds that may be appropriate to an airport based upon designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety, and security or mitigating noise.

DISPLACED THRESHOLD. See Threshold.

DISTANCE MEASURING EQUIPMENT (DME). See Navigation Aid.

DOWNWIND LEG. See Traffic Pattern.

EMERGENCY LOCATOR TRANSMITTER (ELT). A radio transmitter attached to the aircraft structure that aids in locating downed aircraft by radiating an audio tone on 121.5 MHz or 243 MHz.

ENPLANEMENT. The boarding of a passenger, cargo, freight or mail on an aircraft at an airport.

END-AROUND TAXIWAY (EAT). Taxiways constructed to allow an aircraft to cross the extended centerline of the runway without specific clearance from ATC. EAT projects must be pre-approved by the FAA Office of Airport Safety and Standards, Airport Engineering Division.

ENTITLEMENT GRANT FUNDS. Annual federal funds for which all airports in the NPIAS are eligible for.

ENVIRONMENTAL ASSESSMENT (EA). An environmental analysis performed pursuant to the Nation Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environment al impact statement.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A document required of federal agencies by the National Environmental Policy Act (NEPA) for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive. If no significant impact is found a Finding of No Significant Impact (FONSI) is issued.

FAA ELIGIBILITY. Refers to an airport sponsor's eligibility to receive funds under the AIP program which varies per the type of airport and the type of proposed project.

FEDERAL AVIATION ADMINISTRATION (FAA). An agency of the United States Department of Transportation with authority to regulate and oversee all aspects of civil aviation in the United States.

FEDERAL AVIATION REGULATION (FAR). The general and permanent rules established by the executive departments and agencies of the Federal government for aviation which are published in the Federal Register. These are the aviation subset of the U.S. Code of Federal Regulations (CFR).

FEDERAL GRANT AGREEMENT. A Federal agreement that represents an agreement made between the FAA (on the behalf of the United States) and an airport sponsor for the grant of Federal Funding.

FEDERAL GRANT ASSURANCE. A provision within a Federal grant agreement to which the recipient of Federal airport development assistance has agreed to comply in consideration of the assistance provided.

FEDERAL SECURITY DIRECTOR (FSD). The federal security director is responsible for security operations at United States federal airports.

FINAL APPROACH FIX (FAF). The fix from or over which final approach (IFR) to an airport is executed.

FINAL APPROACH. A flight path of a landing aircraft in the direction of landing along the extended runway centerline from the base leg to the runway. For instrument approaches, the final approach typically begins at the final approach fix (FAF).

FINDING OF NO SIGNIFICANT IMPACT (FONSI). A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

FIX. A geographical position determined by visual reference to the surface by reference to one or more radio NAVAIDs, by celestial plotting, or by another navigational device.

FIXED BASE OPERATION or FIXED BASE OPERATOR (FBO). A business enterprise located on the airport property that provides services to pilots including aircraft rental, training, fueling, maintenance, parking, and the sale of pilot supplies.

FLIGHT SERVICE STATION (FSS). An air traffic facility that provides information and services to aircraft pilots before, during, and after flights, but unlike ATC, is not responsible for giving instructions, clearances, or providing separation.

FLIGHT STANDARDS DISTRICT OFFICE (FSDO). An FAA field office serving an assigned geographical area and staffed with Flight Standard personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operation safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

FOREIGN OBJECT DEBRIS (FOD). Any object found on an airport that does not belong in or near airplanes, and as a result can injure personnel and damage aircraft.

FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERNATION. Federal law requires filing a Notice of Proposed Construction or Alteration (Form 7460) for all structures over 200 feet AGL or lower if closer than 20,000 feet to a public use airport with a runway over 3,200 feet in length.

FORM 7480-1, NOTICE OF LANDING AREA PROPOSAL. Submitted to the FAA Airport Regional Division Office or ADO as formal written notification for project involving the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport.

FUEL FLOWAGE FEE. A tax assessed on the user, which is paid at the pump. Fuel flowage fee revenues are sent to the airport governing body, usually the board or authority and are then used for airport improvements or other expenses.

GAP ANALYSIS. See Safety Management System.

GATE. An aircraft parking position used by a single aircraft loading or unloading passengers, mail, or cargo, etc.

GENERAL AVIATION (GA). The segment of aviation that encompasses all aspects of civil aviation except certified air carriers and other commercial operators, such as airfreight carriers.

GENERAL AVIATION AIRPORT. See Airport.

GEOGRAPHIC INFORMATION SYSTEM (GIS). A technology that manages, analyzes, and disseminates geographic data.

GLIDER. See Aircraft.

GLIDESLOPE. See Instrument Landing System.

GLOBAL POSITIONING SYSTEM (GPS). A satellite based navigational system that provides signals in the cockpit of aircraft defining aircraft position in terms of latitude, longitude, and altitude.

GPS RUNWAY. See Runway.

GRANT AGREEMENT. See Federal Grant Agreement.

GROUND ACCESS. The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicle for passengers, employees, cargo, freight, and airport services.

HAZARD. See Safety Management System.

HAZARD TO AIR NAVIGATION. An existing or proposed object that the FAA, as a result of an aeronautical study, determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

HAZARDOUS WILDLIFE. Species of wildlife (birds, mammals, reptiles) including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard.

HEAVY AIRCRAFT. See Aircraft.

HEIGHT ABOVE AIRPORT (HAA). Indicates the height of the MDA above the published airport elevation. This is published in conjunction with circling minimums.

HELICOPTER. See Aircraft.

HELIPAD. A small, designated area, usually with prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, movement area used for takeoff, landing, or parking of helicopters.

HELIPORT. An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters.

HIGH INTENSITY RUNWAY LIGHTING (HIRL). See Airport Lighting.

HOLDING. A predetermined maneuver which keeps an aircraft within a specified airspace while awaiting further clearance.

HOLDING FIX. A specified geographical point or NAVAID used as a reference point in establishing and maintaining the position of an aircraft while holding.

HOLDOVER TIME. The estimated time the application of anti-icing fluid will prevent the formation of frozen contamination on the protected surfaces of an aircraft. With a one-step deicing/anti-icing operation, the holdover beings at the start of the operations; with a two-step operation, the holdover beings at the start of the final anti-icing application.

HOT SPOT. A location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

HORIZONTAL SURFACE. See Imaginary Surfaces.

HUMAN RESOURCES (HR). The people who make up the workforce of an organization, business sector, or economy.

HUB AIRPORT. See Airport.

INDEPENDENT FEE ESTIMATE (IFE). An independent cost analysis for a project to be utilized as a negotiation tool and/or a cost validation tool by the sponsor.

IMAGINARY SURFACES. Are surfaces defined in 14 CFR Part 77 and are in relation to the airport and each runway. The size of these imaginary surfaces is based on the category of each runway for current and future airport operations. Any objects which penetrate these surfaces are considered an obstruction and affects navigable airspace.

- Approach Surface. An imaginary obstruction limiting surface defined in 14 CFR Part 77which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance upon the type of available or planned approach by aircraft to a runway.

- Conical Surface. An imaginary obstruction-limiting surface defined in 14 CFR Part 77that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

- Horizontal Surface. An imagery obstruction-limiting surface defined in 14 CFR Part 77that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimension of this surface is a function of the types of approaches existing or planned for the runway.

- Primary Surface. An imaginary obstruction-limiting surface defined in 14 CFR Part 77that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are function of types of approaches existing or planned for the runway.

- Transitional Surface. An imaginary obstruction-limiting surface defined in 14 CFR Part 77that extends outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the slides of the primary surface.

INCURSION. The unauthorized entry by an aircraft, vehicle, or obstacle into the defined protected area surrounding an active runway, taxiway, or apron.

INFORMATION SIGN. See Airport Signs.

INITIAL APPROACH. The segment of a standard instrument approach procedure between the initial approach fix and the intermediate fix, or the point where the aircraft is established on the intermediate segment of the final approach course.

INITIAL APPROACH ALTITUDE. The altitude prescribed for the initial approach segment of an instrument approach.

INNER MARKER (IM). See Instrument Landing System.

INSTRUMENT APPROACH PROCEDURE (IAP). A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

INSTRUMENT FLIGHT RULES (IFR). Procedures for the conduct of flight in weather conditions below Visual Flight Rules (VFR) weather minimums. The term IFR is often also used to define weather conditions and type of flight plan under which an aircraft is operating. IFR is defined as the weather condition that occurs whenever the cloud ceiling is at least 500 feet above ground level, but less than 1,000 feet and/or visibility is at least one statue mile, but less than 3 statute miles.

INSTRUMENT LANDING SYSTEM (ILS). A precise ground-based navigation system for aircraft that provides precision guidance to an aircraft approaching a runway. It uses a combination of radio signals and, in many cases, high-intensity lighting arrays to enable a safe landing during instrument meteorological conditions. Normally consists of the following components and visual aids:

- Localizer. The component of an ILS which provides horizontal guidance to the runway.

- Glideslope. An independent ILS subsystem that provides vertical guidance to aircraft approaching a runway. It is an antenna array that is usually located on one side of the runway touchdown zone.

- Outer Marker (OM). A marker beacon at or near the glideslope intercept altitude of an ILS approach and it keyed to transmit two dashes per second.
- Middle Marker (MM). A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of DH (CAT I). It is keyed to transmit alternate dots and dashes.
- Inner Marker (IM). A marker beacon used with an ILS (CAT II & CAT III) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second, and indicating that the pilot, both aurally and visually, is at the DH
- Approach Lights. See Approach Lighting Systems.

ILS CATEGORIES. The weather minimums associated with an ILS is defined by the following categories (note that to make landing under these conditions, aircraft must be equipped with special avionics, pilot must be qualified to land under specified conditions for that category, and aircraft must have proper ground equipment for conditions):

- Category I: 200-foot ceiling and 2,400-foot RVR;
- Category II: 100-foot ceiling and 1,200-foot RVR;
- Category IIIA: zero-foot ceiling and 700- foot RVR;
- Category IIIB: zero-foot ceiling and 150-foot RVR; and
- Category IIIC: zero-foot ceiling and zero-foot RVR.

INSTRUMENT METEOROLOGICAL CONDITIONS (IMC). Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions. IMC are defined as period when cloud ceiling are less than 1,000 feet above ground and/or visibility less than three miles

INSTRUMENT RUNWAY. See Runway.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO). An agency of the United Nations which codifies the principles and techniques of the international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth. The ICAO Council adopts standards and recommended practices concerning air navigation, prevention of unlawful interference, and facilitation of border-crossing procedure for international civil aviation.

IRREGULAR OPERATIONS (IROPS). Unique events that require special attention from airport operations and airline staff that can impact all or part of an airport.

ISLAND. An unused paved or grassy area between taxiways, between runways, or between a taxiway and a runway. Paved islands are clearly marked as unusable, either by painting or the use of artificial turf.

INFORMATION TECHNOLOGY (IT). Information Technology is the application of computers to store, retrieve, transmit and manipulate data or information, often in the context of a business or other enterprise. IT is considered to be a subset of information and communications technology (ICT). Information technology is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones.

ITINERANT OPERATIONS. See Operation.

JET-A. Type of aviation fuel designed for use in aircraft powered by gas-turbine engines.

KNOT. A unit of speed equal to one nautical mile per hour, or 1.15 statute mile per hour.

LAND AND HOLD SHORT OPERATIONS (LAHSO). To increase airport capacity, efficiency, and safety, LAHSO clearances usually instruct an aircraft to land, and then hold short of an intersecting runway, taxiway, or predetermined point.

LARGE HUB AIRPORT. See Airport.

LANDING DISTANCE AVAILABLE (LDA). See Declared Distances.

LANDSIDE. The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.

LARGE AIRPLANE. See Aircraft.

LEAD-IN-LIGHT SYSTEM (LDIN). See Approach Light System.

LOCALIZER. See Instrument Landing System.

LOCALIZER PERFORMANCE WITH VERTICAL GUIDANCE (LPV). An instrument approach procedure that uses wide area augmentation system (WAAS) and very precise GPS capabilities to attain an airplane's position. Although it does provide vertical guidance and can provide minimums consistent with an ILS, an LPV is considered to be a non-precision approach.

LOCALIZER TYPE DIRECTIONAL AID (LDA). A facility of comparable utility and accuracy to a localizer but which is not part of a complete ILS and will not be aligned with the runway.

LOCAL OPERATIONS. See Operation.

LOCATION SIGN. See Airport Signs.

LOW INTENSITY AIRPORT LIGHTING. See Airport Lighting.

LOCAL OPERATION. See Operations.

MAGNETIC (COMPASS) HEADING. The heading relative to the magnetic poles of the Earth and indicated by a magnetic compass.

MANDATORY INSTRUCTION SIGN. See Airport Signs.

MAXIMUM CERTIFIED TAKEOFF WEIGHT (MTOW). The Maximum certificated weight for the airplane at takeoff, i.e. the airplane’s weight at the start of the takeoff run.

MEAN SEA LEVEL (MSL). The average or mean height of the sea, with reference to a suitable reference surface.

MEDIUM HUB AIRPORT. See Airport.

MEDIUM INTENSITY APPROACH LIGHT SYSTEM WITH RUNWAY ALIGNMENT INDICATOR (MASLR). See Approach Light System.

MEDIUM INTENSITY RUNWAY LIGHTS (MIRL). See Airport Lighting.

MIDDLE MARKER (MM). See Instrument Landing System.

MILITARY OPERATIONS. See Operation.

MINIMUM DESCENT ALTITUDE (MDA). This is associated with non-precision approaches and is the lowest altitude an aircraft can fly until the pilot sees the airport environment. If the pilot has not found the airport environment by the Missed Approach Point (MAP) a missed approach is initiated.

MISSED APPROACH POINT (MAP). The point prescribed in an instrument approach at which a missed approach procedure shall be executed if visual reference of the runway environment is not in sight or the pilot decides it is unsafe to continue. The MAP is similar in principle to the Decision Height.

MODIFICATION TO STANDARDS (MOS). Any approved nonconformance to FAA standards, other than dimensional standards for Runway Safety Areas (RSAs), applicable to an airport design, construction, or equipment procurement project that is necessary to accommodate an unusual local condition for a specific project on a case-by-case basis while maintaining an acceptable level of safety.

MOVEMENT AREA. The runway, taxiways, and other area of an airport an airport/heliport which are utilized for taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

NATIONAL AIRSPACE SYSTEM (NAS). The network of air traffic control facilities, air traffic control areas, and navigational facilities throughout the U.S.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA). Federal legislation that established environmental policy for the nation. It requires an interdisciplinary framework for federal agencies to evaluate environmental impacts and contains action-forcing procedures to ensure that federal agency decision makers take environmental factors into account.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS). The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.

NATIONAL TRANSPORTATION SAFETY BOARD (NTSB). A federal investigatory board whose mandate is to ensure safe public transportation. As part of the DOT, the NTSB investigates accidents, conducts studies, and makes recommendations to federal agencies and the transportation industry.

NAUTICAL MILE (NM). The unit measure of distance in both nautical and aeronautical context. A nautical mile equals 1.15 statute miles (6,080 feet). The measure of speed in regard to nautical miles is known as KNOTS (nautical miles per hour).

NAVIGATION AID (NAVAID). Any electronic and visual air navigation aids, lights, signs, and associated supporting equipment used or available for providing point-to-point guidance information or position data to aircraft in flight.

- Distance Measuring Equipment (DME). Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME NAVAID.
- Non-Directional Beacon (NDB). A radio beacon transmitting non-directional signals whereby an aircraft equipped with direction finding equipment can determine headings to or from the radio beacon and “home” in on a track to or from it. The signal transmitted does not include inherent directional information.
- Precision Approach Path Indicator (PAPI). A path indicator that uses a single row of lights arranged to provide precision descent guidance information during approach to a runway.

- Rotating Beacon. A visual NAVAID used to assist pilots in finding an airport, particularly those flying in IMC or VFR at night. The beacon provides information about the type of airport through the use of a particular set of color filter:
    - Green flashed alternated with two quick white flashes: Lighted military land airport.
    - Alternating White and green flashes: Lighted civilian land airport.
    - Alternating white and yellow flashes: lighted water airport.
    - Alternating yellow, green, and white: Lighted heliport.
- Tactical Air Navigation (TACAN). An ultra-high frequency electronic rho-theta NAVAID which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.
- Visual Approach Slope Indicator (VASI). A system of lights arranged to provide vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beam.
- VOR (Very High Frequency Omni-directional Radio-range). A ground-based electronic NAVAID transmitting very high frequency navigation signals, 360-degree azimuth, oriented from magnetic north, used as a basis for navigation in NAS.
- VORTAC (Very High Frequency Omni-Directional Radio-range/Tactical Aircraft Control). A NAVAID providing VOR azimuth, TACAN azimuth, and TACAN DME at one site.

NIGHT. The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

NOISE ABATEMENT PROCEDURES. Procedures developed by the FAA and community to reduce the level of noise generated by aircraft departing over-populated areas.

NOISE CONTOUR. A continuous line on a map of the airport vicinity connecting all points of the same noise level. These contours represent noise levels generated from aircraft operations, takeoff and landing of aircraft. They are generated based on mythology developed by the FAA and the data provides information that can be used to identify varying degrees of noise impacts on the surrounding area.

NON-DIRECTIONAL BEACON (NDB). See Navigation Aid.

NON-HUB AIRPORT. See Airport.

NON-MOVEMENT AREA. Taxilanes and apron areas not in the movement area and therefore not under the control of traffic control.

NONPRECISION APPROACH PROCEDURE. A standard instrument approach procedure in which no electronic glideslope is provided.

NONPRECISION RUNWAY. See Runway.

NOTICE TO AIR MISSION (NOTAM). A notice containing information concerning the establishment, condition, or change in any component (facility, service, procedure of, or hazard in the NAS) the timely knowledge of which is essential to personnel concerned with flight operations.

OBJECT. Includes, but is not limited to above ground structures, NAVAIDs, people, equipment, vehicles, natural growth, terrain, and parked aircraft.

OBJECT FREE AREA (OFA). An area on the ground centered on a runway (ROFA), taxiway (TOFA), or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

OBSTACLE. An existing object at a fixed geographical location or which may be expected at a fixed location within a prescribed area with reference to which vertical clearance is or must be provided during flight operation.

OBSTACLE FREE ZONE (OFZ). The three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles for protection for aircraft landing or taking off from the runway and for missed approaches. It is the airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches.

OBSTRUCTION. An existing or future object that is of a greater height than any of the heights or surfaces defined in 14 CFR Part 77.23 and 77.25. (Note that obstructions to air navigation are presumed to be hazards to air navigation until an FAA study has determined otherwise.)

OFFICE OF MANAGEMENT AND BUDGET (OMB). The OMB may help or assist the Governor, State agencies, and their employees provide effective, efficient, and fiscally sound government to the citizens of their state. OMB support agency efforts to achieve results by helping them obtain the fiscal, capital, and personnel resources needed to provide services to their citizens. The OMB may be a cabinet-level agency within the executive branch of state government. OMB develops, coordinates and monitors the individual budgets of state agencies and reviews all financial transactions made with public funds.

OMNIDIRECTIONAL APPROACH LIGHTING SYSTEM (ODALS). See Approach Light System.

OPERATION. The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport. Operations can be categorized into the following categories:

- Itinerant Operations. Operations by aircraft that leaves the local airspace.
- Local Operations. Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.
- Military Operations. Aircraft operations performed in military aircraft. May be itinerant or local operations.
- Transient Operations. Operations by aircraft that are not based at a specified airport.

OUTER MARKER (OM). See Instrument Landing System.

PARALLEL RUNWAYS. See Runway.

PARALLEL TAXIWAYS. See Taxiway.

PASSENGER FACILITY CHARGE (PFC). The collection of PFC fees for every enplaned passenger at commercial airports controlled by public agencies to be used to fund FAA-approved projects that enhance safety, security, or Capacity; reduce noise; or increase air carrier competition.

PEAK HOUR (PH). An estimate of the busiest hour in a day. This is also known as the design hour.

PERFORMANCE-BASED NAVIGATION (PBN). It specifies that aircraft RNP and RNAV systems performance requirements be defined in terms of accuracy, integrity, availability, continuity and functionality required for the proposed operations in the context of a particular airspace, when supported by the appropriate navigation infrastructure.

- Area Navigation (RNAV). A method of navigation that permits aircraft operations on any desired flight path.
- Required Navigation Performance (RNP). A type of Performance-Based Navigation (PBN) that allows an aircraft to fly a specific path between two, 3 dimensionally defined points in space.

PISTON ENGINE. See Aircraft Engine.

PLANNING ACTIVITY LEVEL (PAL). Selected activity levels that may trigger the need for additional facilities or improvements.

PRECISION APPROACH CATEGORIES I, II, III (CAT I, CAT II, CAT III). See Instrument Landing System.

PRECISION APPROACH PROCEDURE. A standard precision approach procedure in which an electronic glideslope is provided, such as ILS or PAR.

PRIMARY AIRPORT. See Airport.

PRIMARY SURFACE. See Imaginary Surfaces.

POOR VISIBILITY AND CEILING (PVC). Is a condition that exists whenever the cloud ceiling is less than 500 feet, and/or the visibility is less than one statue mile.

PRECISION APPROACH PATH INDICATOR (PAPI). See Navigational Aid.

PUBLIC USE AIRPORT. An airport that is open to the general public with or without a prior request to use the airport.

RADAR (RADIO DETECTION AND RANGING). A device which, by measuring the time interval between transmission and reception of radio pulses, provides information on range, azimuth and/or elevation of objects in the path of the transmitted pulses.

RADAR SERVICE. A term which encompasses aircraft separation, navigation guidance, and/or flight track monitoring services based on the use of radar which can be provided by a controller to a pilot of a radar-identified aircraft.

RADAR SURVEILLANCE. The radar observation of a given geographic area for the purpose of performing some radar function.

RADIAL. A magnetic bearing extending from a VOR, a VORTAC, or a TACAN navigational facility.

RAMP. Synonymous with Apron. See Apron.

RECORD OF DECISION (ROD). A public document that reflects the FAA's final decision of an EIS, rationale behind that decision, and commitments to enforce and monitor mitigation.

REGIONAL JET. See Aircraft.

REGRESSION ANALYSIS. A statistical technique that seeks to identify and quantify the relationships between factors associated with a forecast.

RELIEVER AIRPORT. See Airport.

RETENTION PONDS. Storm water management ponds that hold water for several months.

REQUEST FOR QUALIFICATIONS (RFQ). The RFQ is a formal process of procuring a product or service. It is typically a screening step to establish a pool of firms or individuals to provide a product that is then evaluated on their qualifications.

REQUEST FOR PROPOSALS (RFP). The RFP is typically a second step in a procurement process following the Request for Qualification stage where there is a pre-selected short-list of firms. These short-listed firms will respond to the project requirements and allow for further evaluation by the selection committee.

RISK ASSESSMENT. See Safety Management System.

RNAV. See Performance Based Navigation

RNP. See Performance Based Navigation.

ROADWAY SIGN. See Airport Signs.

ROCKET. See Aircraft.

ROTATING BEACON. See Navigation Aid.

ROTORCRAFT. See Aircraft.

RUNWAY (RW). Defined as rectangular surface on an airport prepared or suitable for the landing and takeoff of airplanes. Runways can be classified as the following:

- Instrument Runway. A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved.
- GPS Runway. A runway having a precision or non-precision approach procedure using GPS navigational guidance with or without vertical guidance.
- Non-precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which a straight-in or side-step non-precision approach procedure has been approved.
- Non-precision Runway. A runway with only horizontal guidance available.
- Parallel Runways. Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).
- Precision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with both horizontal and vertical guidance for which a precision approach procedure has been approved.
- Utility Runway. A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
- Visual Runway. A runway without an existing or planned straight-in instrument approach procedure and no instrument approach procedure/equipment.

RUNWAY ALIGNMENT INDICATOR LIGHTS (RAILS). See Approach Light System.

RUNWAY BLAST PAD. A surface adjacent to the ends of the runways provided to reduce the erosive effect of jet blast and propeller wash.

RUNWAY CENTERLINE LIGHTING. See Airport Lighting.

RUNWAY DESIGN CODE (RDC). A code signifying the design standards to which a runway is to be built.

RUNWAY DISTANCE REMAINING SIGN. See Airport Signs.

RUNWAY EDGE LIGHTS. See Airport Lighting.

RUNWAY END IDENTIFIER LIGHTS (REIL). See Airport Lighting.

RUNWAY ENVIRONMENT. The physical runway and the areas surrounding the runway out to the hold position marking.

RUNWAY GRADIENT. The ratio of the change in elevation divided by the length of the runway expressed as a percentage.

RUNWAY HEADING. The magnetic direction that corresponds with the runway centerline extended.

RUNWAY INCURSION. Any occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.

RUNWAY LIGHTS. See Airport Lighting.

RUNWAY PROTECTION ZONE (RPZ). A trapezoidal area off the runway end intended to enhance the protection of people and property on the ground.

RUNWAY SAFETY AREA (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

RUNWAY VISUAL RANGE (RVR). The distance over which a pilot of an aircraft on the centerline of the runway can see the runway surface markings delineating the runway or identifying its centerline. RVR is normally expressed in feet.

SAFETY ASSESSMENT. See Safety Management System.

SAFETY ASSURANCE. See Safety Management System.

SAFETY MANAGEMENT SYSTEM (SMS). The formal top-down business-like approach to managing safety risk. It includes systematic procedures, practices, and policies for the management of safety (including safety risk management, safety policy, safety assurance, and safety promotion).

- Gap Analysis. Identification of existing safety components compare to SMS program requirements. Gap analysis provides an airport operator an initial SMS development plan and Safety roadmap to compliance.
- Hazard. Any existing or potential condition that can lead to injury, illness, or death to people; damage to or loss of a system, equipment, or property, or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.
- Risk Assessment. Assessment of the system or component to compare the achieved risk level with the tolerable risk level.

- Safety Assessment. A systematic, comprehensive evaluation of an implemented system.
- Safety Assurance. SMS process management functions that systematically provides confidence that organizational products/services meet or exceed safety requirements.
- Safety Policy. Defines the fundamental approach to managing safety that is to be adopted within an organization. Safety policy further defines the organization's commitment to safety and overall safety vision.
- Safety Promotion. A combination of safety culture, training, and data sharing activities that supports the implementation and operation of an SMS in an organization.
- Safety Risk Control. Anything that mitigates the safety risk of a hazard. Safety risk controls necessary to mitigate an unacceptable risk should be mandatory, measurable, and monitored for effectiveness.
- Safety Risk Management (SRM). A formal process within the SMS composed of describing the system, identifying the hazards, assessing the risk, analyzing the risk, and controlling the risk. The SRM process is embedded in the operation system: is not a separate/distinct process.
- Severity. The consequence or impact of a hazard in terms of degree of loss or harm.

SAFETY POLICY. See Safety Management System.

SAFETY PROMOTION. See Safety Management System.

SAFETY RISK. See Safety Management System.

SAFETY RISK CONTROL. See Safety Management System.

SAFETY RISK MANAGEMENT (SRM). See Safety Management System.

SCOPE. The document that identifies and defines the tasks emphasis, and level of effort associated with a project or study.

SELF-FUELING. The fueling of an aircraft by the owner or operator of the aircraft.

SEGMENTED CIRCLE. A circle located on an airport where wind and runway pattern information are located. It performs two functions: it aids the pilot in locating the obscure airports, and it provides a centralized location for wind and traffic pattern indicators as may be required on a particular airport.

SEPARATION. The spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

SEPARATION MINIMA. The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

SERVICE AREA. The FAA organizes the airspace across the U.S. into three geographic Service Areas (Eastern, Central and Western) which are managed through one of the three Service Centers.

SERVICE CENTER. There is a Service Center for each of the three Service Areas and the Service Centers report to FAA Headquarters in Washington, D.C.

SEVERITY. See Safety Management System.

SHOULDER. An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection.

SIDA. Security Identification Display Area is a special area designated by an airport operator in the United States to comply with Federal Aviation Administration requirements directed by Federal Aviation Regulations (FAR) Part 107.205.

SMALL AIRPLANE. See Aircraft.

SMALL HUB AIRPORT. See Airport.

SNOW REMOVAL EQUIPMENT (SRE). Equipment, such as plow trucks and brooms, to remove snow from the paved surfaces on an airport.

SOQ. Statement of Qualifications is a written response to a Request for Qualification by an individual or firm identifying the prospective bidder's experience and key personnel.

SPONSOR. A public agency or private owner of a public-use airport that submits to the Secretary an application for financial assistance for the airport.

STATUTE MILE. A regular "highway" mile measuring 5,280 feet.

STOP END OF RUNWAY. The far runway end as viewed from the cockpit of a landing airplane.

STOPWAY. An area beyond the stop end of the takeoff runway which is no less wide than the runway and is centered on the extended centerline of the runway. It is able to support an airplane during an aborted takeoff without causing structural damage to the airplane and designated by airport authorities for use in decelerating the airplane during an aborted takeoff. A blast pad is not a stopway.

SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM (SMGCS). Systems providing routing, guidance, surveillance and control to aircraft and affected vehicles in order to maintain movement rates under all local weather condition within the Aerodrome Visibility Operational Level (AVOL) whilst maintaining the required level of safety.

SYSTEM OF AIRPORT REPORTING (SOAR). The FAA Office of Airport integrated database that contains airport planning, development, and financial information.

STRAIGHT-IN APPROACH. Entry into the traffic pattern by interception of the extended runway centerline (final approach) without executing any other portion of the traffic pattern.

TACTICAL AIR NAVIGATION (TACAN). See Navigation Aid.

TAILWIND. Any wind more than 90 degrees to the longitudinal axis of the runway.

TAKEOFF DISTANCE AVAILABLE (TODA). See Declared Distances.

TAKEOFF RUN AVAILABLE (TORA). See Declared Distances.

TAXI. The movement of an airplane under its own power on the surface of an airport.

TAXILANE (TL). The portion of the aircraft parking area used for access between taxiways and aircraft parking positions. A taxilane is outside the movement area and is normally not controlled by the Air Traffic Control Tower.

TAXIWAY (TW). A defined path established for the taxiing aircraft from one part of an airport to another.

- Parallel Taxiway. A taxiway whose centerline is parallel to an adjacent runway.

TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA). Clearing standards which prohibit service vehicle roads, parked aircraft, and other objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. Vehicles may operate within the OFA provided they give right of way to oncoming aircraft.

TAXIWAY/TAXILANE SAFETY AREA (TSA). A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

TAXIWAY DESIGN GROUP (TDG). FAA aircraft classification system for taxiway design based on design aircraft undercarriage dimensions. These include the overall Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG).

TECHNICAL ADVISORY COMMITTEE (TAC). A group of individuals that provide input on technical issues.

TERMINAL AREA. A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL AREA FORECAST (TAF). The official forecast of aviation activity, both aircraft and enplanements, at FAA facilities. This includes FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports.

TERMINAL INSTRUMENT PROCEDURES (TERPS). Published flight procedure standards for conducting instrument approaches to runways under instrument meteorological conditions. Information on TERPS is contained in FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS).

THRESHOLD (TH). The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.

- Displaced Threshold. A threshold that is located at a point on the runway other than the designated beginning of the runway.

THRESHOLD LIGHTING. See Airport Lighting.

THROUGH-THE-FENCE (TTF) OPERATIONS. Those activities permitted by the airport sponsor through an agreement that permits access to the public landing area by independent entities or operator offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not a part of, the airport property. The obligation to make an airport available for the use and benefit of the public does not impose any requirement for the airport sponsor to permit ground access by aircraft from adjacent property.

THROUGHPUT CAPACITY. See Capacity.

TOUCH AND GO. A training operation in which a landing approach is made, the aircraft touches-down on the runway, but does not fully reduce speed to turn off the runway. Instead, full engine power is applied while still rolling and a takeoff is made, thereby practicing both maneuvers as part of one motion. It counts as two separate aircraft operations.

TOUCHDOWN ZONE LIGHTING. See Airport Lighting.

TRACK. The flight path of an aircraft over the surface of the earth.

TERMINAL RADAR APPROACH CONTROL FACILITY (TRACON). Uses radar to “see” the airspace and typically manage the airspace for approximately a 30-mile radius around busy airports. Not all airports have TRACON’s.

TRAFFIC PATTERN. The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The following defines components of a standard traffic pattern:

- Base Leg. A flight path at right angles to the landing runway off its approach end. The base leg extends from the downwind leg to the intersection of the extended runway centerline.
- Crosswind Leg. A flight path at right angles to the landing runway off its upwind end.
- Downwind Leg. A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
- Upwind Leg. A flight path parallel to the landing runway in the direction of the landing.

TRANSITIONAL SURFACE. See Imaginary Surfaces.

TRANSIENT OPERATIONS. See Operation.

TRANSPORTATION SECURITY ADMINISTRATION (TSA). An agency established in 2001 to safeguard United States transportation systems and to insure safe air travel. TSA operates under the Department of Homeland Security.

TRUE HEADING. A heading relative to the actual North and South Poles of the Earth, rather than the magnetic poles.

TURBINE ENGINE. See Aircraft Engine.

TURBOFAN. See Aircraft Engine.

TURBOJET. See Aircraft Engine.

TURBOPROP. See Aircraft Engine.

UNCONTROLLED AIRPORT. See Airport.

UNCONTROLLED AIRSPACE. Airspace where an ATC service is not deemed necessary or cannot be provided for practical reasons. Uncontrolled airspace is a generic term that covers Class F and Class G Airspace.

UNIVERSAL INTEGRATED COMMUNICATIONS (UNICOM). An air-ground communication facility operated by a private agency to provide advisory service at uncontrolled airport. Aircraft call the ground station to make announcements of their intentions. In some cases, the ground station is not staffed. If no one is staffing the ground station, pilots broadcast their location and intentions over the UNICOM or CTAF channel. When the ground station is closed this is done without an acknowledgement.

UPWIND LEG. See Traffic Pattern.

UTILITY RUNWAY. See Runway.

VISIBILITY. A measure of the horizontal opacity of the atmosphere at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night; and is expressed in terms of the horizontal distance at which a person should be able to see and identify, is measured in statute miles.

VISUAL APPROACH. An approach conducted on an IFR flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot, at all times, must have either the airport or the preceding aircraft in sight. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of three miles or greater.

VISUAL APPROACH SLOPE INDICATOR (VASI). See Navigational Aid.

VISUAL FLIGHT RULES (VFR). Procedures for the conduct of flight in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often also used to define weather conditions and type of flight plan under which an aircraft is operating. VFR is defined as the weather condition whenever the cloud ceiling is at least 1,000 feet above ground level and visibility is at least three statue miles.

VISUAL METEOROLOGICAL CONDITIONS (VMC). Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for IMC.

VISUAL RUNWAY. See Runway.

VOR. See Navigation Aid.

VORTAC. See Navigation Aid.

WAKE TURBULENCE. The air turbulence caused by a moving aircraft, originating at the tips of the wings. The turbulence is caused by vortices generated by an aircraft's wingtips as it travels through the air. This turbulence is greatest when the aircraft is taking off and landing.

WIDE AREA AUGMENTATION SYSTEM (WAAS). An enhancement of the GPS that includes integrity broadcasts, differential correction, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

WILDLIFE ATTRACTANTS. Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the approach or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

WILDLIFE HAZARD ASSESSMENT (WHA). An FAA assessment to assess the potential of and mitigate the risk of wildlife strikes at an airport. It includes an analysis of the airport's wildlife strike history; the identification of the wildlife species observed and their numbers, locations, local movements, and daily and seasonal occurrences; the identification and location of features on and near the airport that attract wildlife; a description of wildlife hazards to aircraft operations; and ultimately, if required, a Wildlife Hazard Management Plan (WHMP) to identify measures to be implemented to reduce the risk of wildlife strikes.

WIND COVERAGE. The percent of time for which aeronautical operations are considered safe due to acceptable crosswind components.

WIND DIRECTION. The opposite direction in which the windsock is pointing and is specified in terms of a magnetic heading.

WINDSOCK (WIND CONE). A conical textile tube designed to indicate wind direction and relative wind speed.

WINGSPAN. The maximum horizontal distance from one wingtip to the other wingtip, including the horizontal component of any extensions such as winglets or raked wingtips.