DAYTON-WRIGHT BROTHERS AIRPORT

Oct.2014 **Airport Layout Plan Update**

Prepared For:
The City of Dayton, Ohio

Prepared By:
Passero Associates

FAA AIP # 3-39-0030-014-2012

Approved by the Master Plan Technical Advisory Committee and City of Dayton, Department of Aviation

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Introduction, Goals, and Objectives

1. INTRODUCTION

The Dayton-Wright Brothers Airport (MGY or Airport) is a public use airport serving the general aviation needs of the City of Dayton, Ohio (City), the regional area, and the general aviation community as a whole. The Airport is developed on nearly 530 acres of land located approximately 12 miles south of the City's central business district. The Airport is owned and operated by the City of Dayton and serves as a reliever airport for Dayton International (DAY).

Since the last update of the Airport's federally approved Airport Layout Plan (ALP) in 2008, significant and rapid development has occurred around Airport property. As a result of the Airport's proximity to the I-75 and Austin Boulevard interchange and the City of Dayton, neighboring properties have been recently developed to accommodate a variety of land uses. Additionally, local townships are in the process of rezoning vacant lands in the vicinity of the airport to accommodate the anticipated further development of the area. As a means to protect aeronautical operations both now and into the foreseeable future, the City has requested the Airport's ALP be updated so as to ensure MGY remains an operationally safe and efficient transportation facility able to serve the general and business aviation needs of its users and tenants while serving as a catalyst for airport compatible economic development in its regional area.

To accomplish this task, this report will include:

- A review of existing airport infrastructure and facilities,
- A forecast of aeronautical demand developed using a variety of methodologies,
- An analysis of airport development alternatives with a special focus on environmental consequences,
- Preparation of Airport Layout Plan (ALP) set,
- And preparation of a Capital Improvement Plan (CIP).

The ALP update is prepared under a planning grant (AIP Project #3-39-0030-014-2012) from the Federal Aviation Administration (FAA), as provided for in the Airport and Airway Improvement Act, 1982, as amended.

1.1. Goals and Objectives

As alluded to above, the overarching goal of this study is to determine how MGY can best position itself to provide for safe, reliable, and efficient aeronautical operations, accommodate growing and changing aeronautical demands, and communicate the Airport vision with community stakeholders so as to maximize synergies and protect aeronautical operations. To simplify this broad goal, a number of specific goals and objectives can be identified for this study. These include:

Goal #1 – Provide an airport that is safe and reliable

Objectives:

- Protect FAA mandated safety areas around the airfield.
- Ensure that facilities meet the demands of the most demanding aircraft making regular use of the facilities.
- Minimize obstructions to air navigation.

Goal #2 – Provide a long-term development plan which minimizes negative environmental impacts

Objectives:

- Identify the major environmental issues of concern.
- Minimize potential environmental impacts through thoughtful development planning.
- Provide a facility that minimizes adverse effects on intangible environmental concerns

Goal #3 – Develop the airport that supports local and regional economic goals while accommodating new opportunities or shifts in development patterns.

Objectives:

- Develop an ALP that easily integrates with existing and proposed transportation infrastructure.
- Provide a highly graphical, easily understood ALP update narrative and ALP set to enable the City to communicate the Airport's development initiatives.
- Pre-position the Airport to benefit from a broad range of funding sources including state and federal agencies.

Goal #4 – Engage Airport stakeholders in the visioning and planning process
Objectives:

- Establish and meet regularly with a Technical Advisory Committee (TAC) as part of the ALP update process.
- Provide a forum for stakeholders to discuss future planning needs of the Airport.
- Integrate the contributions of the TAC into the ALP update.
- Solicit letters from businesses which utilize Airport facilities outlining their use patterns and airfield needs, if any.

1.2. Review of Existing Studies

To support the effort of updating the Dayton-Wright Brothers Airport ALP drawings, a number of previously developed studies and reports pertaining to the Airport and its surroundings were referenced. The following sections discuss the most substantive elements of these studies, as well as studies commissioned specifically for this study effort.

1.2.1. 1998 Airport Master Plan Update

The 1998 Airport Master Plan Update represents the most significant Airport specific planning study for Dayton-Wright Brothers in recent years. This study identified the Airport as a regional general aviation airport of choice, projected significant increases in utilization - especially by business jet aircraft, and programmed many significant development initiatives, including; runway improvements, parallel taxiway construction, apron expansions, east side hangar development and access roadway, Austin Blvd. realignment, property acquisition, and property easements. The majority of these initiatives were to support the approval of a precision approach to Runway 20 while providing the required safety clearances for medium- to large-size business jet aircraft.

Since the 1998 Airport Master Plan Update and its associated ALP were created, the ALP has been updated to reflect changes in airfield condition or airport property, but very little of the programmed activity from this document has been realized. This study will reevaluate a number of the initiatives identified in 1998 and re-project facility requirements into the foreseeable future.

1.2.2. 2008 Airport Layout Plan Update

The 2008 update to the Airport's ALP was largely a reiteration of the primary development initiatives proposed in the 1998 study. This plan however removed the proposed taxiway improvements on the west side of the runway as was presented in the 1998 study, and provided only a single parallel taxiway on the east side of the runway. This taxiway was intended to support the aeronautical development area on the Airports east side as well as the proposed precision approach to Runway 20.

1.2.3. Studies Commissioned for This Report

1.2.3.1. Aeronautical Survey and Photogrammetry - AeroMetric

As a means to ensure quality data is utilized and relied upon during the development of the ALP drawings, an aeronautical survey was performed to capture topographic information, planimetric details of manmade and natural objects, and aerial imagery for the Airport property and its immediate surroundings. This information is utilized throughout this report as well as the ALP drawings. Additionally, this data was captured and organized in accordance with guidance found in FAA Advisory Circular (AC) 150/5300-17, *Standards for Using Remote Sensing Technologies in Airport Surveys*, and AC 150/5300-18B, *General Guidance and Specifications for Aeronautical Surveys: Airport Survey Data*

Collection and Geographic Information System Standards, and uploaded to the FAA Airport Geographic Information System (AGIS) so as to introduce basic information regarding MGYs existing facilities and immediate surroundings into that system.

1.2.3.2. Environmental Reconnaissance - Lawhon & Associates

To ensure any recommended development action resultant from this planning analysis is knowledgeable and considerate of any environmental concerns, a detailed environmental analysis was performed to gain understanding on the most substantive environmental issues having the potential to impact development initiatives at the Airport. These include: wetland analysis, endangered and threatened species analysis, and an assessment of historic/archaeologically significant areas within the Airport's vicinity. The information obtained from these analysis are utilized throughout this report and identification of future development action.

1.2.3.3. Roadway Realignment Analysis - VanAtta Engineering

Recognizing the proposed realignment of Austin Blvd. presented in the 1998 master plan as well as subsequent updates to the ALP, the feasibility of this action was further explored as part of this analysis. Austin Road, is a primary arterial road in its region and provides direct access to both I-75 and major commercial areas within a mile of the Airport, so the feasibility analysis for the potential realignment of this road was performed to ensure traffic flow (speed) and congestion would not be affected under different alignments compatible with airport development interests. This information was utilized to supplement discussions with the TAC and guide decision making during the airport planning process.

Chapter Two

Inventory of Existing Conditions

2. INVENTORY OF EXISTING CONDITIONS

The process of updating the ALP for Dayton-Wright Brothers Airport requires the collection and evaluation of baseline information relating to the Airport's property, facility, services, tenants, access, and utilities. This information is vital in determining any expansions necessitated by the existing or anticipated future aeronautical demand. The information presented in this chapter was obtained through a variety of sources including: airport site visits; interviews with Airport management, fixed base operators (FBOs), representative of various City offices, and the technical advisory committee (TAC) organized for this study; A survey of tenants' facilities and their future development plans; examination of airport records; and review of other public documents.

2.1. Airport Background

2.1.1. Airport Location

The Airport is located approximately 12 miles south of central business district of Dayton, Ohio and approximately 25 miles south of Dayton International Airport. The Airport is located within both Montgomery and Warren Counties; approximately 1,200 feet of the southern portion of Runway 2-20, its associated taxiway and adjacent lands lay within Warren County. The geographic location of the Airport is defined by the airport reference point (ARP). For MGY the ARP is currently located at latitude 39°35'15.511" North, longitude 084°13'11.42" West. The Airport is publicly owned by the City of Dayton and sits on 529.77 acres of land at an elevation of 957 feet Above Mean Sea Level (AMSL), and is operated daily from 0800-2100 local time.

The Airport is accessible via Springboro Pike and is located less than one mile southeast of the Interstate 75 (I-75) corridor and Austin Boulevard Interchange. To the north of the Airport is Waldruhe Park, commercially zoned parcels, and single family residentially zoned parcels. Located east of the Airport are single family and multi-family residentially zoned lots. To the south of the Airport is Southwest Church, YMCA of Greater Dayton-Coffman YMCA, and commercially zoned lots. To the west of the Airport is, Jubilee Community Church, South Regency Tennis Center, Dayton Squash Center, Alien Technology Corporation, Alegre Incorporated, Flooring America Design Center, Med Pass Incorporated, Color Savvy System Limited, Renegade Materials, and Printing Service Company. **Figure 2-1** provides both a location and vicinity map of the Airport.

2.1.2. Airport History

Dayton-Wright Brothers Airport was built in the early 1950s by industrialist Mr. Charles F. Kettering to support one of the nation's first corporate flight departments. Originally named the Montgomery County Airport, the Airport's primary role was to serve as a private general aviation airport for southern Montgomery County, Ohio.

In 1970 the City of Dayton leased Montgomery County Airport from the Kettering Foundation with the objective of utilizing it as a general aviation reliever airport to off-load the ever increasing amount of general aviation traffic from Dayton International Airport, located 25 miles north of Montgomery County Airport. During this period, Airport facilities consisted of two runways, three 12-unit T-hangars, one large conventional hangar, and an administrative building. In 1974, with assistance of federal grants of $1,490,000 the City of Dayton purchased the Airport from the Kettering Foundation. Shortly after the City purchased the Airport it was renamed Dayton General Airport South.

In February 1990, the Airport introduced Northcoast Executive Airlines from Erie, Pennsylvania. The airline initiated daily scheduled air carrier service from the Airport to the following markets: Detroit and Flint, Michigan; Chicago, Illinois; and Cleveland, Ohio. Due to a national and regional economic recession that affected business-related air travel from Dayton to the industrial region of the Great Lakes, Northcoast Airlines ceased operations in January 1991.

On December 6, 1995 the Airport was renamed Dayton-Wright Brothers Airport in honor of Wilbur and Orville Wright in celebration of Dayton's rich aviation history. Today, Airport facilities include a single bi-directional runway equipped with a non-precision approaches, an approach lighting system (MALS), visual approach slope indicators, 69 T-hangars, 6 conventional hangars, 5,000 square foot maintenance facility and 9,600 square foot administration building.

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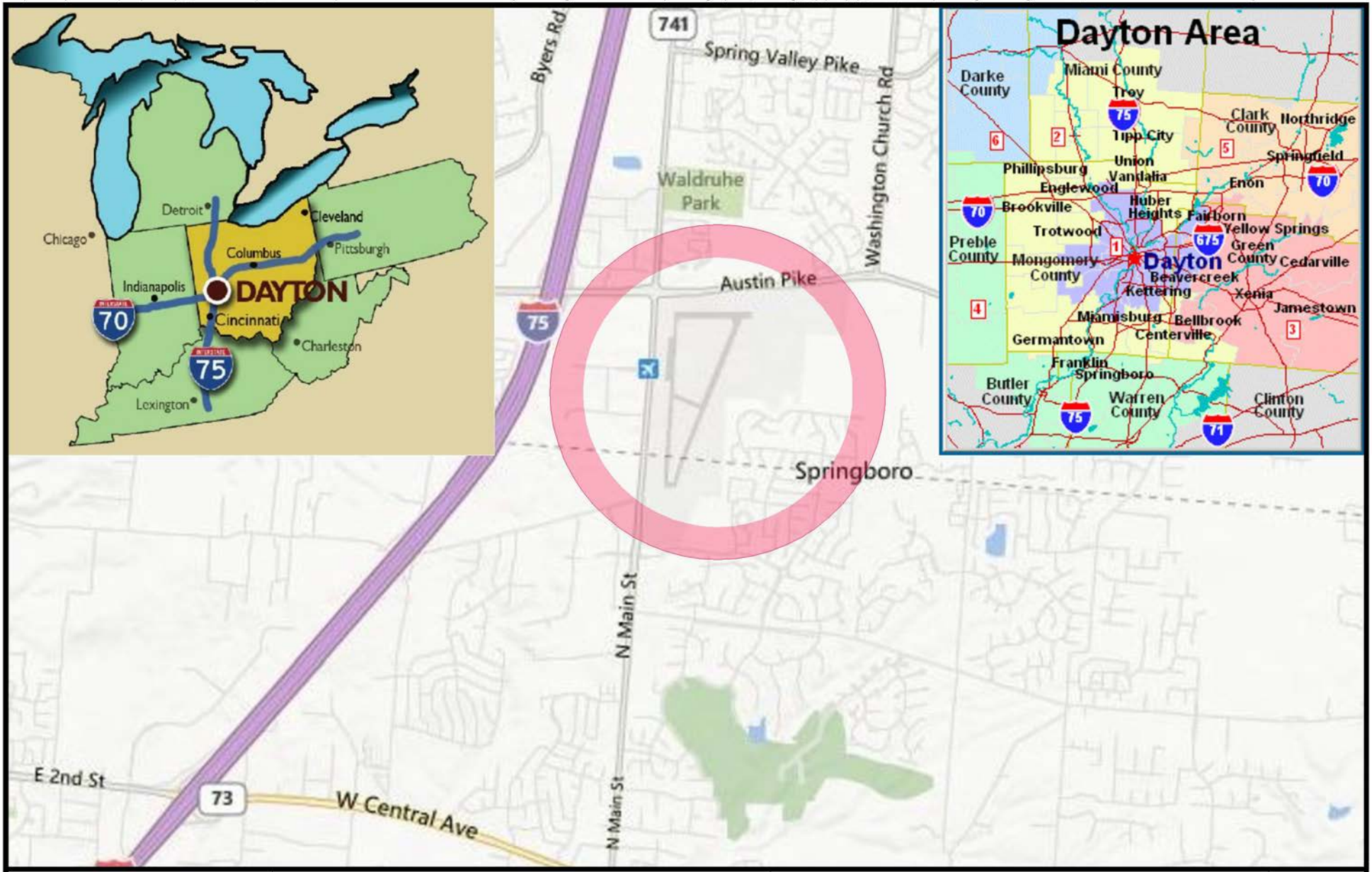

PASSERO ASSOCIATES LWC INCORPORATED	Dayton - Wright Brothers Airport Dayton, Ohio	Location and Vicinity Map	Figure 2-1

2.1.2.1. Recent Grant History

Table 2-1 contains a recent history of Federal Aviation Administration (FAA) Airport Improvement Program (AIP) grants the Airport has received for Capital Improvement Projects (CIPs). These grants were supplemented with City matching funds.

Table 2-1. Recent Grant History

GRANT NUMBER	DESCRIPTION	AMOUNT
3-39-0030-014-2012	Update Airport Master Plan Study	$287,010
3-39-0030-013-2011	Rehabilitate Runway 2-20	$164,162
3-39-0030-012-2010	Improve Airport Drainage, Update Master Plan Study	$88,350
3-39-0030-011-2009	Conduct Miscellaneous Study, Rehabilitate Runway 2-20	$168,369
3-39-0030-010-2008	Installation Perimeter Fence	$20,391
3-39-0030-009-2008	Installation Perimeter Fence	$111,240
3-39-0030-008-2007	Improve RSA 2-20, Install Perimeter Fencing, Update Airport Master Plan Study	$300,000
3-39-0030-007-2005	Improve RSA 2-20 (Conduct Environmental Assessment-Phase I), Improve RSA (Construct Rd [Design])	$150,000
3-39-0030-006-2004	Improve Airport Drainage; Install Apron Lighting; Install Miscellaneous NAVAIDS; Rehabilitate Apron, Rehabilitate Runway 2-20; Rehabilitate Runway Lighting 2-20; Rehabilitate Taxiway	$300,000
3-39-0030-005-2003	Improve Airport Drainage; Rehabilitate Taxiway; Install Airfield Guidance Signs	$87,418
3-39-0030-004-2001	Rehabilitate Runway 2-20 (5,000'x100') and Associated HIRL; Rehabilitate Taxiway A (Partial 3,400'x50') and Associated MITL, Taxiway B (800'x50'), and Taxiway C (325'x50'); Construction Services (2) Regulators and Runway 2 PAPI; Remark Runway 2-20 Holdlines; Grade Runway 2-20 RSA; and Remove Obstructions	$1,970,072
Total Capital Airport Improvements		$3,647,012

Source: FAA Grant History Website: http://www.faa.gov/airports/aip/grant_histories/

2.2. Airport Facility Inventory

2.2.1. Airside Facilities

An inventory of airside facilities at the Airport includes a review of runways, taxiways, apron areas, airfield pavement conditions, airfield lighting and equipment, as well as visual aids, navigational, aids and published aeronautical approaches.

The Airport's facilities will be reviewed against criteria in FAA Advisory Circular AC 150/5300-13A, *Airport Design*. The previous Master Plan and existing ALP identify the airport as having an runway design code (RDC) of B-II, capable of accommodating aircraft with approach speeds less than 121 knots and wingspans less than 79 feet. This classification however is not substantiated by the data relative to historical operations presented in the subsequent chapters. In recent years the Airport has been facilitating a significant number of business jet aircraft, many of which approach the airport at speeds in excess of 121 knots. For this reason, the airport is recognized to be operating as an TDC C-II facility. While the specifics of the RDC C-II classification will be discussed in greater detail later in this report, the classification essentially designates a series of design standards prescribed by FAA AC 150/5300-13A, *Airport Design*. **Figure 2-2** depicts the Airport's existing facilities

2.2.1.1. Runway System

MGY is developed about a single bi-directional runway, Runway 2-20, measuring 5,000 feet in length and 100 feet in width and oriented in a northeast-southwest direction. Runway 2-20 is constructed of asphalt and finished with a grooved surface to increase operational performance of aircraft during rain events, and has a published weight bearing capacity of 50,000 pounds for single wheel gear aircraft and 60,000 pounds for dual-wheel gear aircraft. Non-precision instrument approaches are available to each runway end enabling aircraft to make safe use of the Airport during times

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Dayton - Wright Brothers Airport
Dayton, Ohio

Existing Conditions

Figure 2-2

of inclement weather. The approaches available to Runway 20 are enhanced by a medium intensity approach lighting system (MALS) extending 1,400 feet out from the Runway 20 landing threshold and a 4-light visual approach slope indicator (VASI-4) located just left of the runway and beyond the threshold which is displaced 590 feet from the Runway end. The non-precision approach to Runway 2 is supported by a 2-light precision approach path indicator (PAPI-2). Both Runway 2 and 20 are marked with non-precision markings which are in good condition and the entire length of the runway is equipped with a medium intensity runway lighting system (MIRL). Beyond physical elements of the runway system, the FAA defines a number of safety surfaces around a runway for a variety of purposes. Those most relevant to this study are discussed below. **Table 2-2** presents a summary of runway system data.

Runway Protection Zone

The function of the runway protection zone (RPZ) is to enhance the protection of people and property on the ground. This is recommended by the FAA to be achieved via airport ownership or control of lands within the limits of the RPZ and clearing of incompatible objects and activities within the area. Structurally, the RPZ is a trapezoidal area at ground level initiating at a point past the runway threshold and runway departure end. The exact dimensions of an RPZ is dependent upon the type of aircraft making regular use of the runway and the lowest visibility minimums available to the runway.

Runway Safety Area

The Runway Safety Area (RSA) is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. The RSA should be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations and should be drained by grading or storm sewers to prevent water accumulation. Additionally, the RSA should be free of objects except those fixed by function such as runway lighting and navigational aids. Similar to the RPZ, the dimension of the RSA are depended upon the type of aircraft making regular use of the runway and the lowest visibility minimums available to the runway.

Runway Object Free Area

The Runway Object Free Area (ROFA) is centered about the runway centerline. The ROFA clearing standard requires clearing the ROFA of above-ground objects protruding above the nearest point of the RSA unless fixed by function. Objects not essential to air navigation or ground maneuvering should not be located within the limits of the ROFA.

Table 2-2. Runway System Data

	Runway	
	2	20
Runway Design Code (RDC)	C-II	
Length / Width	5,000’ / 100'	
Threshold Crossing Height	49’	18’
Landing Pattern	Left	
Surface	Asphalt	
Condition	Good	
Single Wheel Strength	50,000 lbs.	
Dual Wheel Strength	60,000 lbs.	
Instrument Procedures	GPS	LOC/DME/GPS
Lighting	Medium	Medium
Approach	No	1,400 Medium Approach Light System (MASL)
End Identifier	No	No
VGSI	2-PAPI	4-VASI
Markings	Non-Precision	
Condition	Good	
Displaced Threshold	No	590’
RPZ Dimensions	500' IW, 1,700' L, 1,010' OW	500' IW, 1,700' L, 1,010' OW
RSA Dimensions	500' Wide / 1,000'BDE / 600' PTh	500' Wide / 1,000'BDE / 600' PTh
ROFA Dimensions	800' Wide / 1,000' BDE / 600' PTh	800' Wide / 1,000' BDE / 600' PTh

Source: Airport 5010, Facility Survey, 2013.
Notes: LOC = Localizer; DME = Distance Measuring Equipment; IW = Inner Width; L= Length; OW= Outter Width; BDE = Beyond Departure End; PTh = Prior to Threshold

2.2.1.2. Taxiway System

The existing taxiway system at MGY connects both runway ends with apron and hangar areas and provides two midfield entrance/exit taxiways allowing pilots to minimize runway occupancy time and proceed more directly to their intended destination when full runway length is not required. All taxiways at the Airport are 50-feet wide and constructed of asphalt. Only the southernmost 600-foot section of Taxiway Alpha (A) is parallel with the Runway. This portion of Taxiway A has a centerline to centerline separation from the Runway of 250 feet. The remaining portion of Taxiway A is angled away from the runway creating significant infield area outside of the runway safety areas and ensuring landside development is well away from the Runway environment before connecting back to the Runway at the Runway 20 end. Taxiway Bravo (B) connects Taxiway A to the Runway. Taxiway Charlie (C) connects Taxiway A to the Runway approximately 1,000 feet north of the Runway 2 threshold. At present, all taxiways meet or exceed the design standards established by the FAA for an RDC C-II airfield with exception to the southernmost 600-foot section of Taxiway A parallel with Runway 2-20 which does not meet centerline to centerline separation criteria from the Runway. For a C-II facility, this separation is required to be no less than 300 feet; however, Taxiway-A is currently has a centerline to centerline separation from the Runway of only 250 feet. **Figure 2-3** illustrates the location and dimensions of all Taxiways at the Airport.

Taxiway/Taxilane Object Free Area

The Taxiway/Taxilane Object Free Area (TOFA) is centered about the taxiway/taxilane centerline and defines an area in which objects, other than those fixed by function, must be cleared so as to provide the appropriate safety clearance for an aircraft's wingtips. At present, the TOFA identified for the airfield is compliant with RDC C-II standards - 65.5-foot TOFA on either side of a taxiway centerline and 57.5-foot TOFA on either side of a taxilane centerline. While the existing TOFAs at the Airport are free and clear of obstructions, should the taxiway system be upgraded to handle Group III aircraft or larger, and number of existing facilities would be to near the taxiway to provide for the greater wingtip clearances required.

2.2.1.3. Aprons

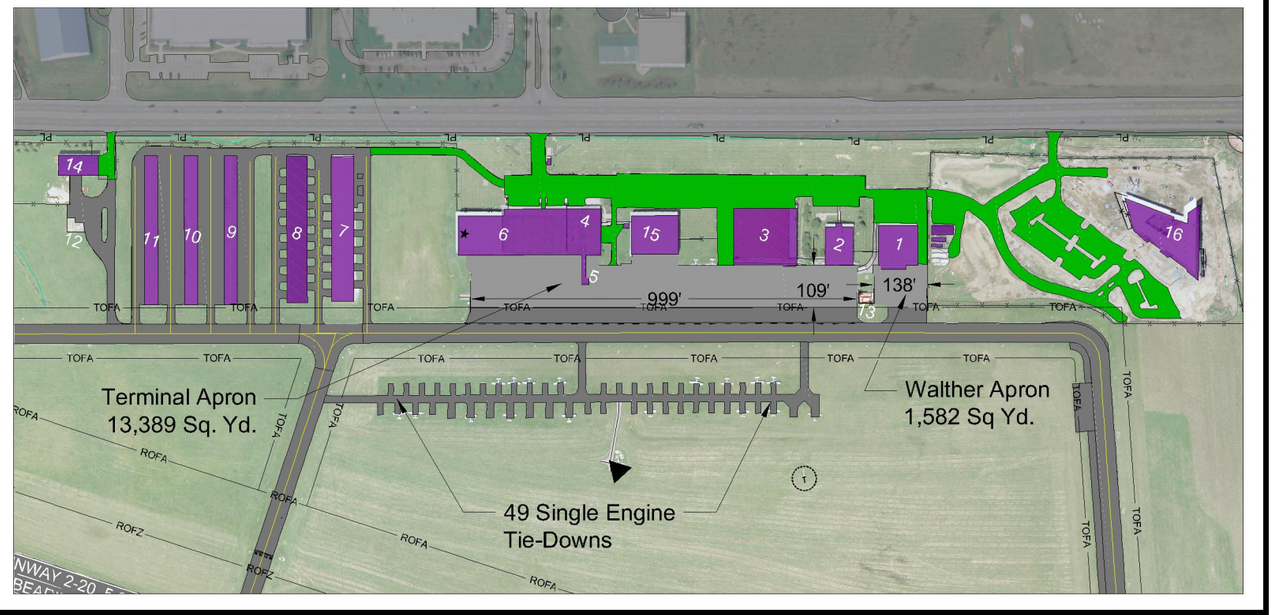
As shown in **Figure 2-3**, there are two independent and identifiable aprons located at MGY including the terminal apron, which services numerous hangars, and the Walther apron which supports a single hangar facility (building #1). These apron spaces together provide approximately 14,971 square yards of apron pavement fully outside of any TOFA restrictions. The terminal apron is the largest of the two providing 13,389 square yards and abuts five large multi-aircraft hangars. This apron serves GA and corporate aircraft frequenting either of the fixed base operators (FBOs) on the airfield as well as the Wright "B" Flyer's hangar and museum. The Walther apron is approximately 1,582 square yards in size. In addition, 49 paved aircraft parking pads intended for use by small single engine aircraft are located in the infield area west of the runway and east of Taxiway Alpha.

In discussions with the TAC established for this study, it was brought to light early in the planning process that the overall size and utility of the terminal apron area should receive extra scrutiny during the analysis of facility requirements and ALP revisions. During the first TAC meeting in fact, multiple references were made to this apron area being at capacity during times of peak activity and having to temporarily relocate aircraft to grassy areas to make room and ensure the apron remains a safe operating environment for a variety of aircraft and without impeding access to hangars. This condition is amplified when facilitating large corporate aircraft on the apron - a regular occurrence at MGY.

2.2.1.4. Airfield Pavement Conditions

The State's Department of Aviation (ODOT) regularly inspect airfield pavements and rates pavements on a condition index ranging from 0 to 100 and divided into five conditions categories, including: routine maintenance, preventative maintenance, corrective maintenance/rehabilitation, rehab/reconstruct, reconstruction. The most recent pavement condition index analysis performed at Dayton-Wright Brothers Airport was in November of 2010. The results of this analysis are graphically depicted in **Figure 2-4** and tabulated conditions and remarks per pavement section are shown in **Table 2-3**.

Facilities Table				
Existing				
#	Facility Description	Tenant	Area	Top Elevation (Ft. MSL)
1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
3	Conventional Hangar	City of Dayton (Commander Aero)	22,400 S.F.	1000
4	Airport Terminal	City of Dayton (Aviation Sales Inc.)	9,600 S.F.	960
5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-It Inc.	20,800 S.F.	954
8	16 Unit T-Hangar	South Dayton Hangars Inc.	17,800 S.F.	954
9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
11	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
12	Fuel Farm	Aviation Sales Inc.	24,000 GALS	940
13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971



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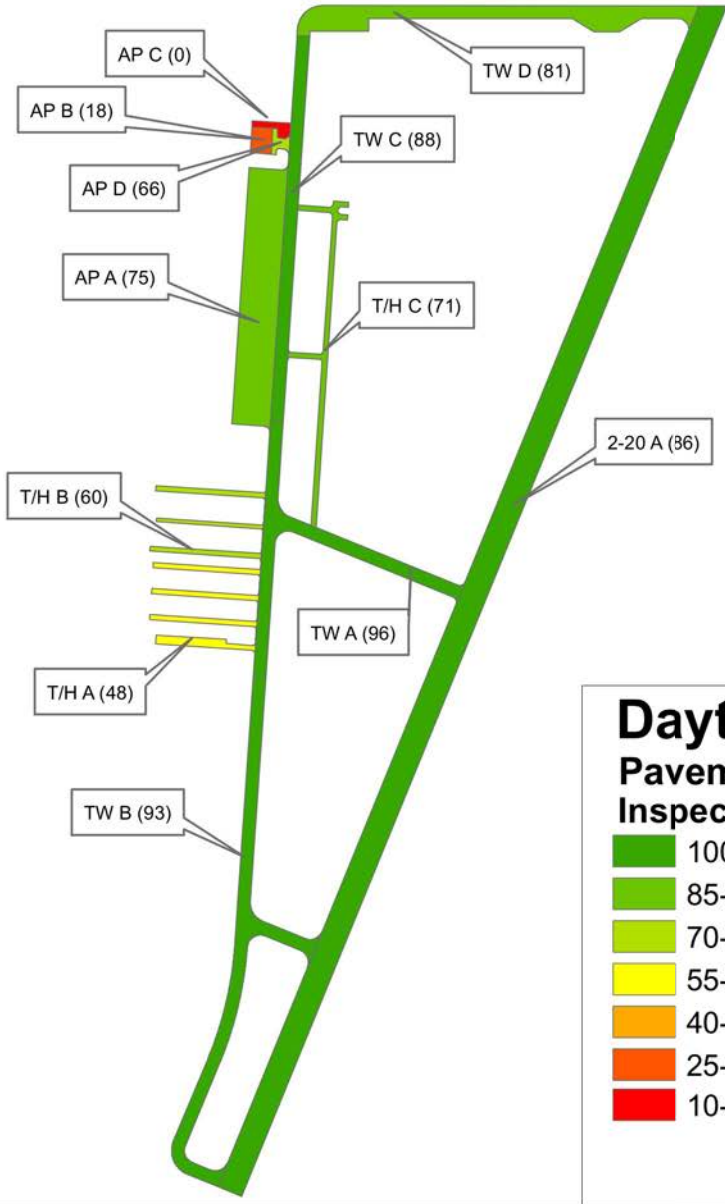
Taxiway System & Terminal Area

Figure 2-3



Dayton Wright Brothers

Pavement Condition Index

Inspection 11/12/2010

- 100-86 Routine Maintenance
- 85-71 Preventative Maintenance
- 70-56 Corrective Maintenance/Rehabilitation
- 55-41 Rehab/Reconstruction
- 40-26 Rehab/Reconstruction
- 25-11 Reconstruction
- 10-0 Reconstruction

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Taxiway System, Aprons, and On-Airport Buildings

Figure 2-4

Table 2-3. Pavement & Equipment Condition Table

ITEM	CONDITION	REMARKS
Runway 2-20	Very good	Routine Maintenance.
Taxiway A	Very good	Routine Maintenance.
Taxiway B	Very good	Routine Maintenance.
Taxiway C	Very good	Routine Maintenance.
Apron A (Airport Apron)	Good	Preventative Maintenance
Apron B	Poor	Reconstruction by 2015
Apron C	Poor	Reconstruction by 2014
Apron D	Good	Corrective Maintenance/Rehabilitation
T-Hangar Apron A	Fair	Rehabilitation/Reconstruction by 2018
T-Hangar Apron B	Good	Corrective Maintenance
T-Hangar Apron C	Good	Preventative Maintenance
Rotating Beacon	Good	Normal Maintenance.
Windsock	Good	Normal Maintenance.
ASOS	Excellent	Maintained by FAA.
PAPI's Runway 2-20	Good	Maintained by FAA.
Airfield Electrical Vault	Good	Requires normal maintenance.

Source: ODOT Pavement Condition Index Report

2.2.1.5. Airfield Lighting and Equipment

Proper airfield lighting is required at all airports that are utilized for nighttime operations. The existing lighting systems at MGY allows aircraft operations at night and are supported by equipment in the airfield electrical vault located between building #4 and building #15. Specific lighting system are discussed in the subsequent sections.

Identification Lighting

Rotating beacons universally indicate the location and presence of an airport at night or in adverse weather conditions. The rotating beacon at MGY is located atop a tower structure located on the roof of the maintenance hangar currently leased by Aviation Sales, Inc. (Building #6 on the ALP set). This tower is equipped with an optical rotating system that projects two beams of light, one green and one white, 180 degrees apart. The beacon, which is in good condition is continuously operated during nighttime hours and when the airfield is under instrument conditions through the use of a photocell trigger.

Runway and Taxiway Lighting

Runway lights allow pilots to identify the edges of the runway and assist them in determining the length remaining during periods of darkness or restricted visibility. These lighting systems are classified according to their intensity or brightness. Runway 2-20 is equipped with a pilot-controlled medium intensity runway lighting system (MIRL). This system can be activated by pilots through the common traffic advisory frequency (CTAF) for the airport. The MIRLs for Runway 2-20 consist of base mounted light fixtures on cans placed 10 feet from the Runway edge along the entire runway length.

All four taxiways are equipped with medium intensity taxiway lights (MITL). The MITLs have been installed using base mounted light fixtures placed on cans placed 10 feet from the taxiway edge.

Takeoff and Landing Aids

There are a number of takeoff and landing aids at the Airport, which are described below and depicted in **Figure 2-5**.

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Dayton, Ohio

Takeoff and Landing Aids

Figure 2-5

Medium Intensity Approach Lighting System MALS

The typical medium intensity approach lighting system (MALS) consist of nine light bars across seven rows spaced 200 feet apart. Each light bar consist of five lights and the entire system extends 1,400 feet from the runway. This system provides early runway lineup and lead-in guidance, runway end identification and roll guidance. The lights are helpful during some periods of restricted visibility. The MALS is beneficial where extraneous lighting prevents the pilot from lining up with the runway centerline or where the surrounding terrain is devoid of lighting and does not provide the cues necessary for proper aircraft attitude control.

Presently, Runway 20 is equipped with a MALS system. Portions of this system are embedded in the runway pavement prior to the Runway 20 threshold (in-pavement lighting), while the remaining lighting arrays are erected on structures along the extended runway centerline which can be found on both sides of Austin Blvd.

Threshold Lights

Threshold lights are located at both the Runway 2 and Runway 20 thresholds. Threshold lights typically consist of a two-sided light which shows green to arriving aircraft to indicate the beginning of the landing threshold and shows red to aircraft departing the other runway to indicate the end, or near end, of useable runway. Runway 2 threshold has a typical threshold lighting system, while Runway 20 has a threshold lighting system slightly revised for its displaced threshold. At the Runway 20 threshold the threshold lights are located on each side of the pavement, additionally an array of red lights is located at the end of pavement to ensure aircraft departing Runway 2 have a visual conformation of the end of useable pavement.

Runway End Identification Lights

Runway End Identification Lights (REIL) provide pilots with a rapid and positive visual identification of the approach end of the Runway during night, instrument, and marginal weather conditions. REIL systems consist of a pair of synchronized white flashing lights which are situated on each side and abeam of the runway end threshold lights.

Unidirectional REIL systems have a beam axis oriented 15 degrees outward from a line parallel to the runway edge and inclined at an angle of 10 degrees upward, facing the approaching aircraft.

At present, no REILs are provided at MGY. It would inappropriate to co-locate a REIL system with a MALS system, but it may be appropriate to supplement the Runway 2 threshold lights with a REIL system to improve visual recognition of the runway end to pilots approaching to Runway 2 during times of low and/or restricted visibility.

Visual Glide Slope Indicators

There are a number of systems installed at airports which provide an indication of the aircraft's relation to the proper glideslope. At MGY a Precision Approach Path Indicator (PAPI) system is installed on Runway 2 and a Visual Approach Slope Indicator (VASI) is installed on Runway 20. Both PAPIs and VASIs provide the pilot with visual descent information during an approach to a runway. These lights are typically visible from 5 miles during the day and up to 20 miles or more at night. PAPIs use a light bar unit that is installed in a single row perpendicular to the runway edge, while VASIs utilize two light bars perpendicular to the runway and different distances from the runway threshold. The lights project a beam of white light in the upper segment and red light in the lower segment. Depending on the aircraft's angle in relation to these lights, the pilot will receive a combination that indicates his position relative to the desired 3.0 degree glideslope. The Runway 2 PAPI is a 2-light unit (PAPI-2) and the Runway 20 VASI is a 4-light unit (VASI-4).

Wind Indicators

Perhaps the most basic takeoff and landing aid is the wind indicator, which informs pilots as to the prevailing wind direction and speed at the time of takeoff or prior to landing. MGY has two wind indicator systems. The primary system is the wind-tee located southwest of the Runway 20 threshold adjacent to the terminal apron and infield tie-down area. Supplementary systems include two lighted windsocks located just northwest of Runway 2 and southeast of the Runway 20 thresholds, respectively.

Automated Surface Observing System

Automated Surface Observing System (ASOS) units are automated sensor suites that are designed to serve meteorological and aviation observing needs. There are currently more than 900 ASOS sites in the United States. These systems generally report at hourly intervals, but also report special observations if weather conditions change rapidly and cross aviation operation thresholds. ASOS's serve as a primary climatological observing network in the United States, making up the first-order of climate stations. The ASOS at MGY is located adjacent to the infield tie-down area. The equipment is maintained by the FAA and its data filed with the National Climatic Data Center (NGDC). Detailed wind data captured by this ASOS was utilized in the preparation of updated windroses found on the ALP data sheet.

2.3. Airspace Structure & Approach Procedures

2.3.1. Airspace Structure

Airspace is classified as controlled or uncontrolled. Controlled airspace is supported by ground-to-air communications, NAVAIDS, and air traffic services. FAA identified airspace classification are graphically depicted in **Figure 2-6**. **Figure 2-7** depicts the regional airspace surrounding MGY as shown on the Cincinnati VFR Sectional Chart.

2.3.1.1. Class E Airspace

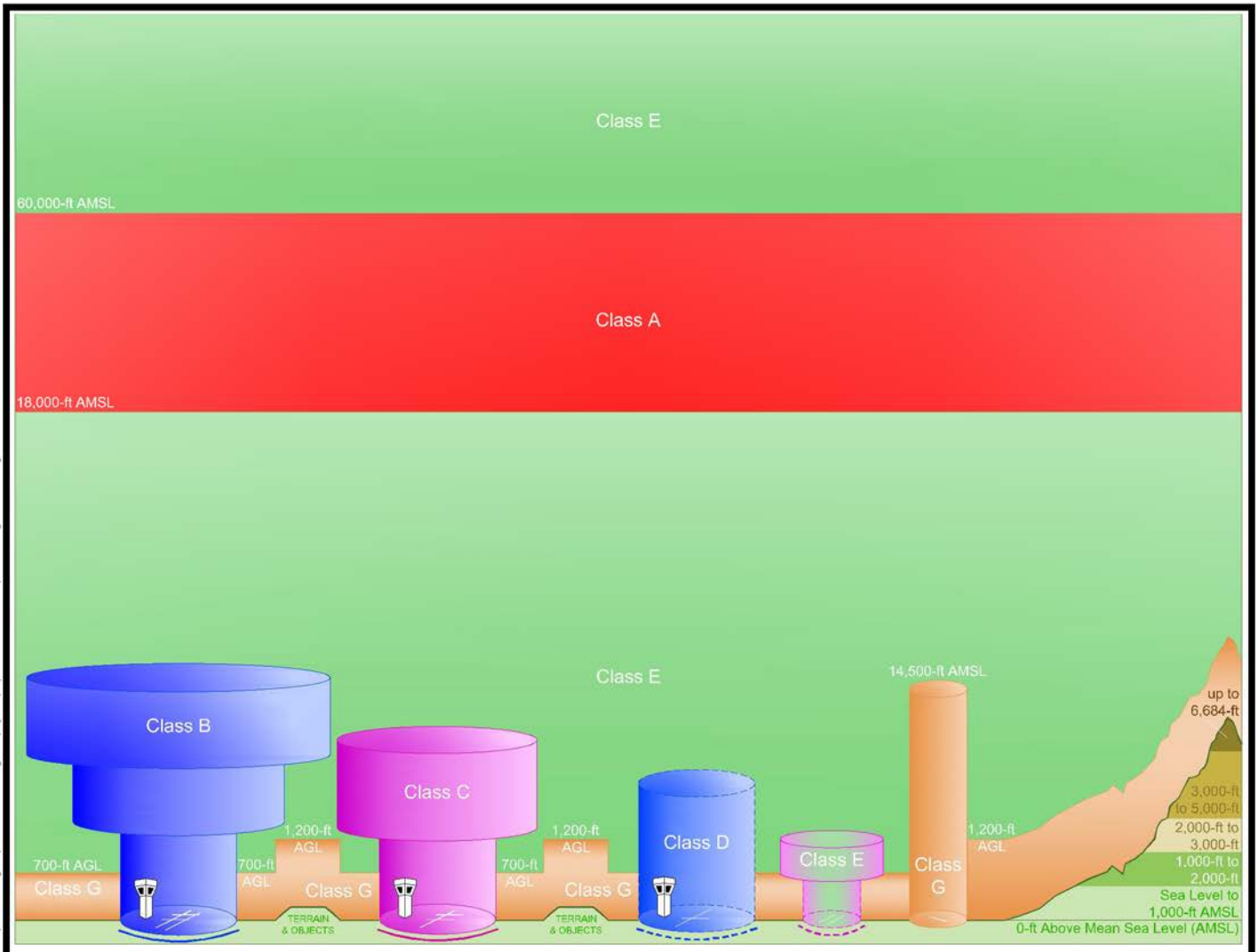
Class E airspace is designated to provide controlled airspace for terminal operations where a control tower is not in operation. The class E surface area at MGY extends upward from the surface and overlaps airspace of multiple nearby airports, including; Jackson Regional, Middletown Regional, Warren Co, and comes very near Dayton International airspace and Cincinnati/Northern Kentucky International's airspace. No military restricted areas or other special activity areas were identified within the Airport's vicinity.

2.3.2. Approach Procedures

During times of inclement weather, instrument approaches enable pilots to safely descend into the airport environment for landing. There are a number of different instrument approaches that can be established, each with specific limitations. As the height of clouds and visibility deteriorate, the necessity for instrument approaches increases. When the cloud ceiling is greater than 1,000 feet above ground level (AGL) and the visibility is greater than three statute miles, the conditions are considered visual and pilots can operate under visual flight rules (VFR). In VFR conditions, no published approaches are required for an aircraft to safely land at an airport. However, once the cloud ceiling is less than 1,000 feet AGL and/or the visibility is less than three statute miles, pilots must operate under instrument flight rules (IFR). Additional air traffic control services are provided to pilots during IFR conditions. During the arrival phase, instrument approaches are what allow a pilot to safely navigate to and land on a runway.

2.3.2.1. Categories of Instrument Approaches

There are two basic categories for instrument approaches: precision and non-precision. Both precision and non-precision approaches provide course guidance to the runway centerline they serve. The degree of horizontal guidance increases with the sophistication of the instrument approach aid, which is reflected through the minimum operating parameters for each approach. The primary difference between a precision and non-precision approach is that the precision approach will also have vertical guidance for a specific runway end. This allows an aircraft to descend more safely on a fixed glideslope signal, even when the runway environment is not yet in sight. All instrument approaches however, precision or non-precision, have heights published that dictate how low a pilot can descend without making visual conformation of the runway environment before having to abandon the approach and go around for another attempt. For precision approaches this is called the decision height and for non-precision approaches it is referred to as the minimum descent altitude (MDA). Both heights are published in the number of feet above the intended runway's touchdown zone elevation. In addition, every instrument approach has minimum visibility requirements, measured in feet or miles, at which an instrument approach can be attempted. For either type of approach, if visual contact cannot be made before the decision height or missed approach point, then the aircraft must execute a missed



Communication Requirements and Weather Minimums

	Class A	Class B	Class C	Class D	Class E	Class G
Minimum Pilot Qualification	Instrument Rating	Student *	Student *	Student *	Student *	Student *
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 AMSL **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 AMSL	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal ***
VFR Visibility 10,000 AMSL and Above **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 AMSL and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal
Airport Application	N/A	• Radar • Instrument Approaches • Weather • Control Tower • High Density	• Radar • Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather	
Special VFR Permitted?	No	Yes	Yes	Yes	Yes	N/A

* Prior to operating within Class B, C, or D airspace (or Class E airspace with an operating control tower), student, sport, and recreational pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recreational pilot operations are prohibited at those airports listed in FAR Part 91, Appendix D, Section 4.

** Student pilot operations require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.

*** Class G VFR cloud clearance at 1,200 AGL and below (day): clear of clouds.

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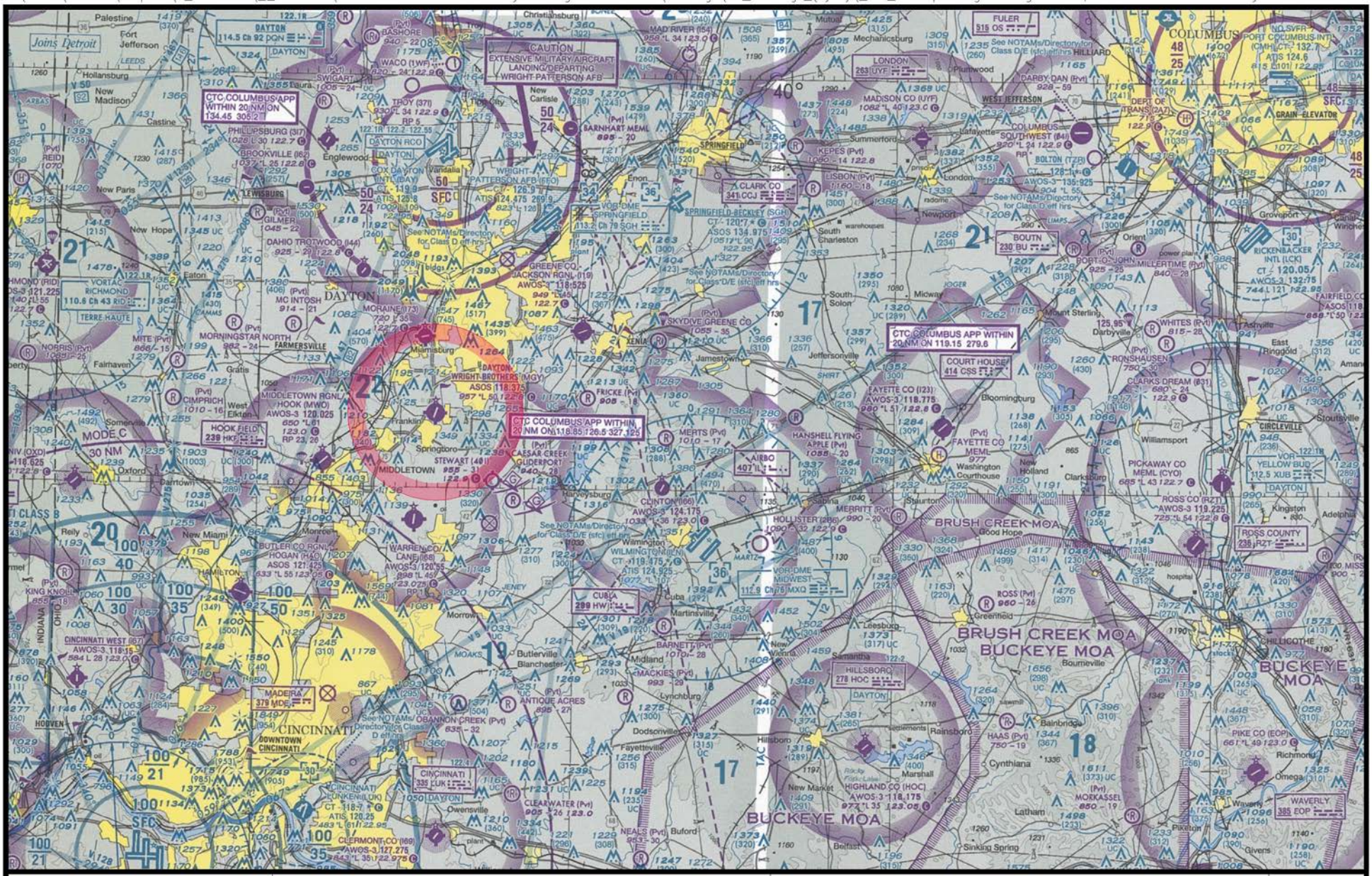
Dayton - Wright Brothers Airport
Dayton, Ohio

Airspace Classifications

Figure 2-6



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Dayton - Wright Brothers Airport
Dayton, Ohio

Dayton Area Airspace
VFR Sectional Chart

Figure
2-7

approach and either try the approach again or proceed to a different airport. For this reason, the airport with the lowest achievable minima (height and visibility) will have the highest operational reliability.

2.3.2.2. Published Approaches for Dayton-Wright Brothers Airport

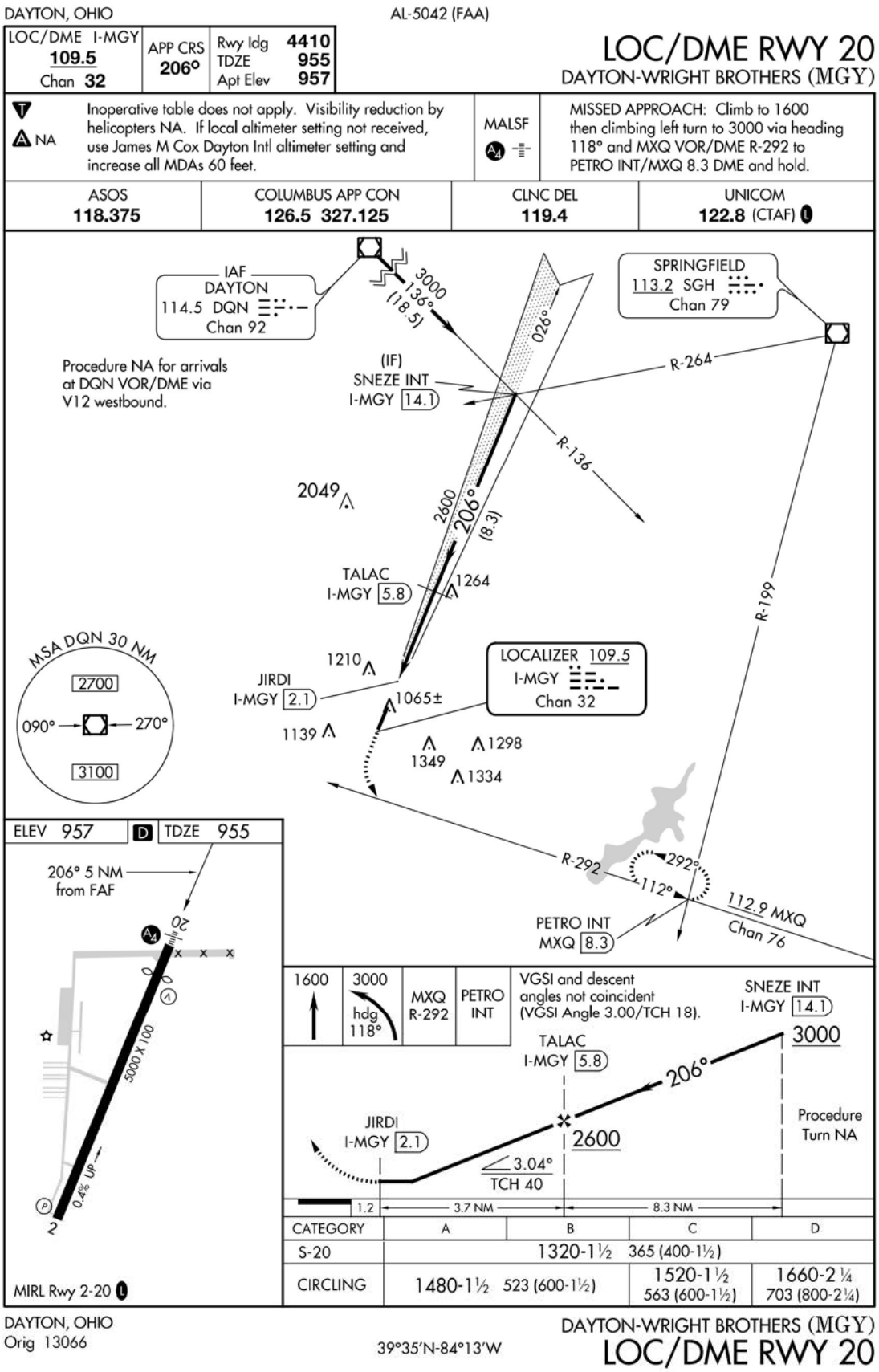
Currently, MGY has published straight-in, non-precision instrument approaches to both ends of Runway 2-20. Approaches to Runway 2 are supported by an area navigation (RNAV) procedure based on global positioning satellites (GPS). Runway 20 is supported by both an RNAV procedure and a localizer (LOC)/distance measuring equipment (DME) approach. The LOC/DME approach is reliant on ground based equipment, primarily the localizer which provides lateral guidance to aircraft inbound for landing. For each end of Runway 2-20, there are multiple type of RNAV GPS approaches available to pilots. These include: localizer performance with vertical guidance (LPV), lateral navigation/vertical navigation (LNAV/VNAV), and lateral navigation (LNAV). Each of the GPS approaches available to pilots at MGY provide slightly different approach minima based upon the sophistication of the approach and GPS equipment within an aircraft. The various approach minima for the GPS approaches at MGY are detailed in **Table 2-4**, these values could be slightly higher when applied to large high-performance aircraft.

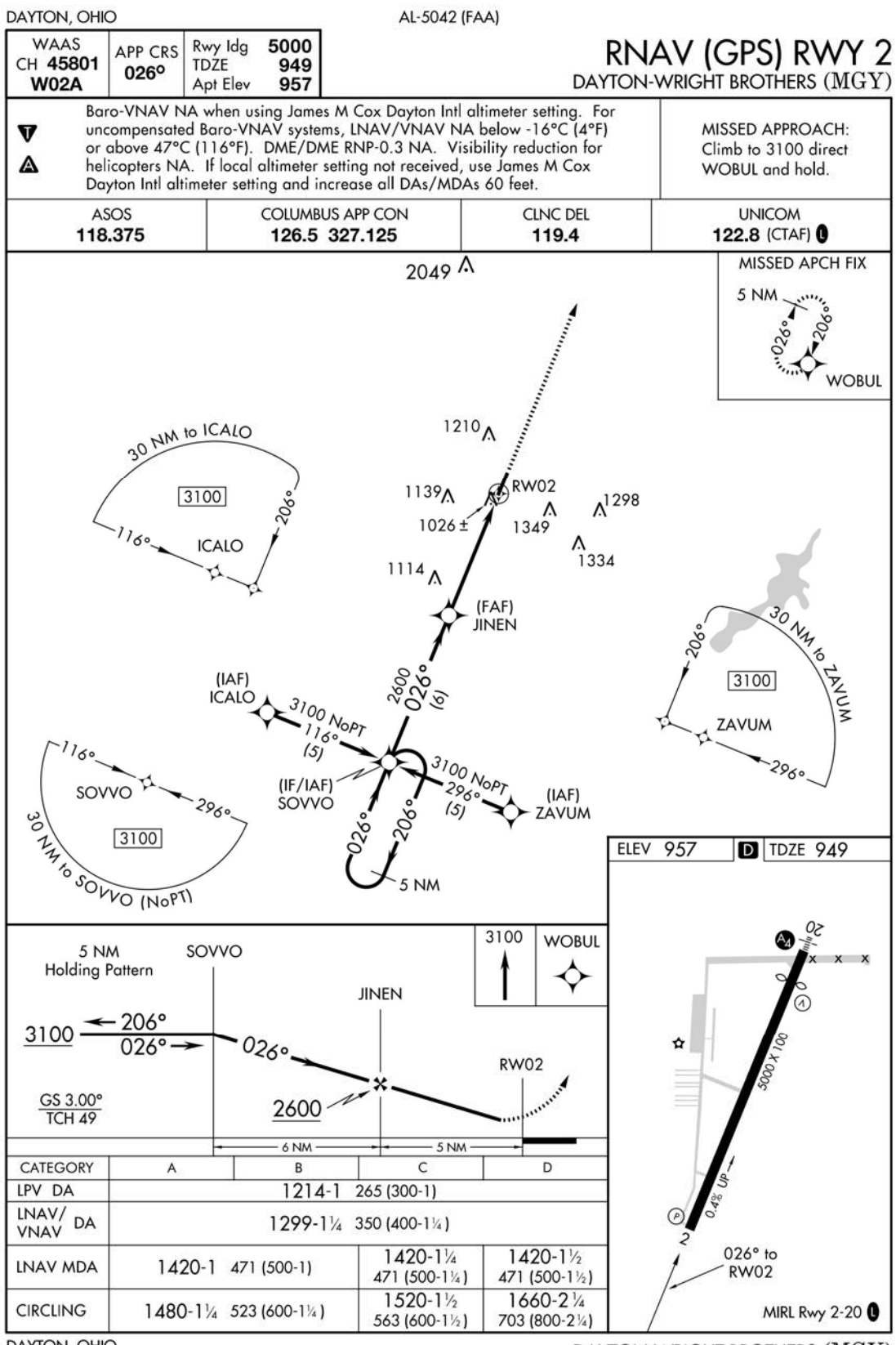
Table 2-4. GPS Approach Minima Available

	RUNWAY 2		RUNWAY 20	
	Minimum Altitude (Ft. Above Runway End Elevation)	Visibility (sm)	Minimum Altitude (Ft. Above Runway End Elevation)	Visibility (sm)
LPV	265	1	339	1¼
LNAV/VNAV	350	1¼	N/A	N/A
LNAV	471	1	485	1

The available GPS approaches to MGY also allow for a circling approach which simply define the MDA and visibility minimums for the different aircraft categories to remain clear of obstacles. The difference is that the circling approach, with its higher minimums, allows an aircraft to approach and establish visual contact with the Airport environment in less than visual conditions. Once in the vicinity of the airport and after visual contact is made, the pilot would execute a traditional visual approach. In addition to the GPS approaches available, aircraft equipped with instrument landing system (ILS) equipment can execute a Localizer approach to Runway 20. This approach enables aircraft to descend as lost as 365 feet above the Runway 20 touchdown zone elevation in visibility conditions as low as 1½ miles. Lastly, and off-site radio beacon called a non-directional beacon (NDB), enables pilots to hone in on the MGY terminal area and execute a circling approach.

Figure 2-8 through **Figure 2-11** present the various published approaches at MGY.





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EC-2, 09 JAN 2014 to 06 FEB 2014

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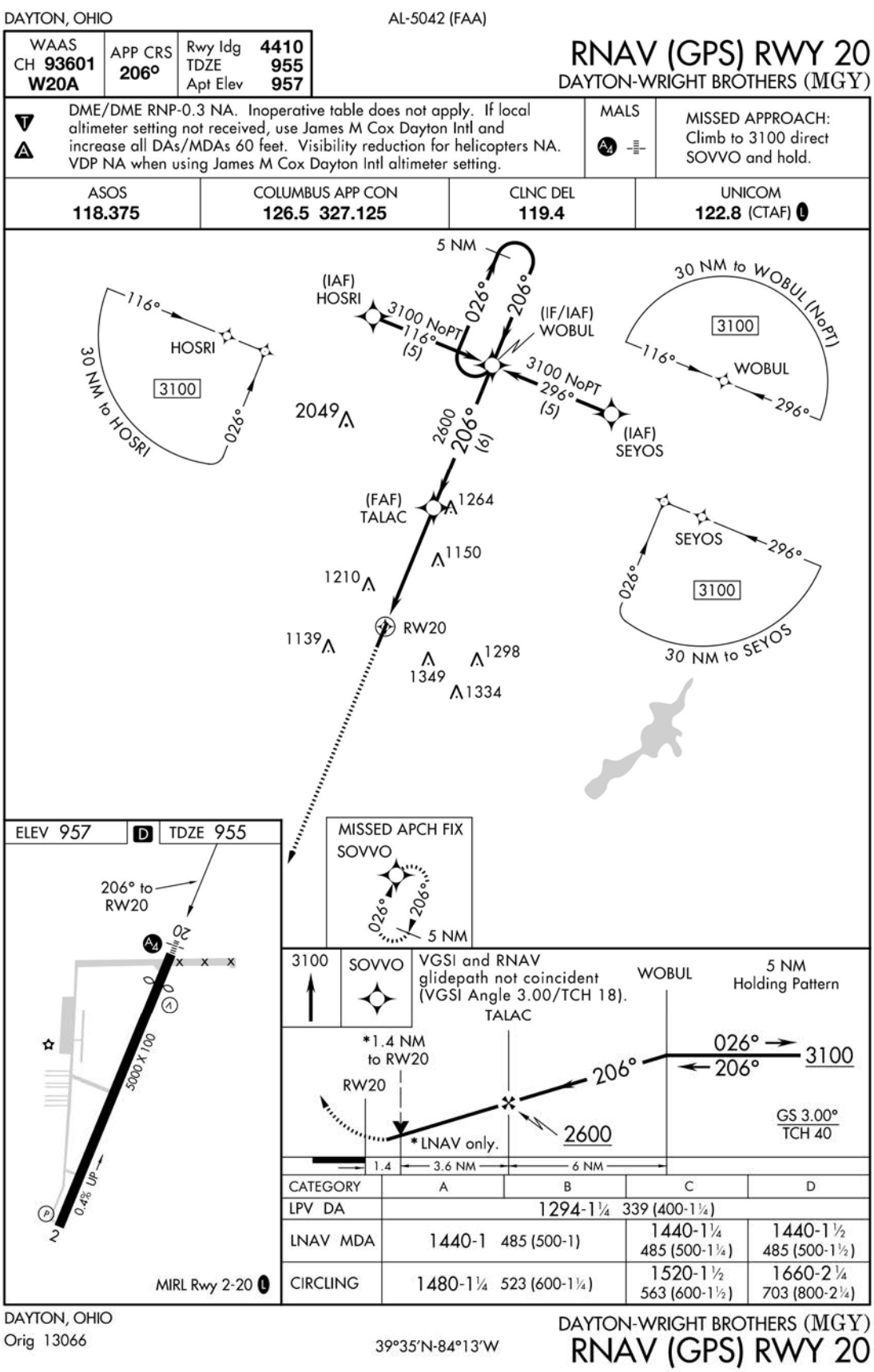
PASSERO ASSOCIATES / LWC	Dayton - Wright Brothers Airport Dayton, Ohio	RNAV Runway 2	Figure 2-9



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Dayton - Wright Brothers Airport
Dayton, Ohio

RNAV Ruwnay 20

Figure 2-10

DAYTON, OHIO

AL-5042 (FAA)

NDB-A

DAYTON-WRIGHT BROTHERS (MGY)

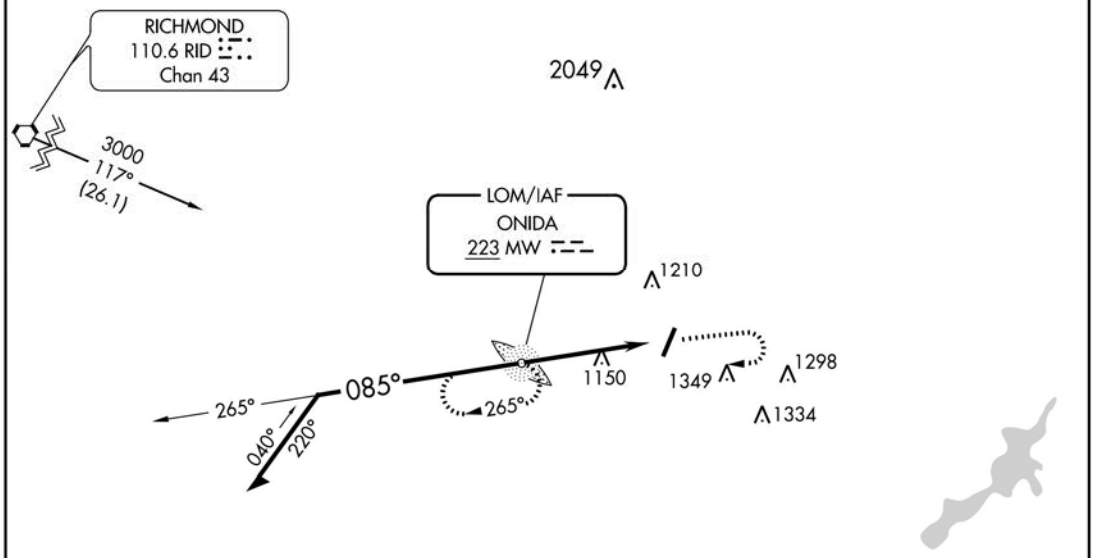
LOM MW	APP CRS	Rwy Idg	N/A
223	085°	TDZE	N/A
		Apt Elev	957

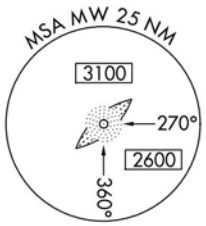
T
NA

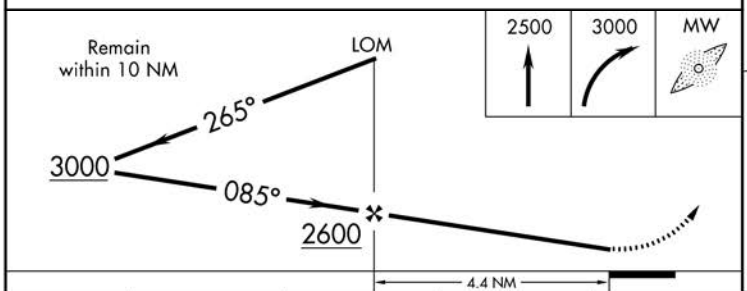
If local altimeter setting not received, use James M Cox Dayton Intl altimeter setting and increase all MDAs 60 feet.

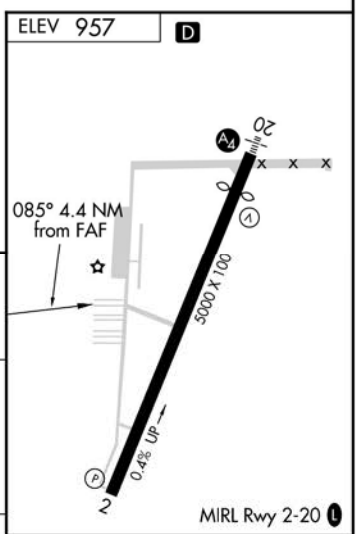
MISSED APPROACH: Climb to 2500, then climbing right turn to 3000 direct MW LOM and hold.

ASOS	COLUMBUS APP CON	CLNC DEL	UNICOM
118.375	126.5 327.125	119.4	122.8 (CTAF) L









CATEGORY	A	B	C	D
CIRCLING	1480-1	523 (600-1)	1520-1½ 563 (600-1½)	1660-2¼ 703 (800-2¼)

FAF to MAP 4.4 NM					
Knots	60	90	120	150	180
Min:Sec	4:24	2:56	2:12	1:46	1:28

DAYTON, OHIO
Amdt 2 12264

39°35'N-84°13'W

DAYTON-WRIGHT BROTHERS (MGY)

NDB-A

EC-2, 09 JAN 2014 to 06 FEB 2014

EC-2, 09 JAN 2014 to 06 FEB 2014

2.3.3. Landside Facilities

Landside facilities at the Airport consist of support buildings and structures, typically accessible to the airfield. This section will describe the Airport's support facilities. The conditions reported in this section are based on on-site visual inspections, a review of the Airport's existing drawings and documents, and discussions with Airport staff and tenants.

2.3.3.1. Airport Hangars

As shown on Figure 2-3, the City of Dayton currently owns a number of hangars at the Airport. The City rents 35 individual T-hangar units with the primary tenants being the Dayton Pilots Club and the Miami Valley Pilots, Inc., another local flying club.

Aviation Sales Inc. leases space in the terminal as well as the adjacent 19,200 square foot maintenance hangar. Dayton-Walther Corporation leases a 10,000 square foot hangar on the north airfield, this hangar is subleased to Commander-Aero. DO-IT, Inc. and Frank Furlong both have two acre ground leases which are utilized for T-hangars. The Wright "B" Flyer, Inc. leases approximately one acre on the north airfield for a small conventional hangar.

Nine aircraft storage facilities containing approximately 64,800 square feet exist on the airfield. The FBO operates one maintenance hangar located adjacent to the Terminal. Two large hangars are owned by private organizations, and one large hangar is owned by the City of Dayton. There are also five rows of T-hangars. Three rows of T-hangars, or 36 units, are owned by the City of Dayton. Two rows of T-hangars, or approximately 32 units, are owned by private individuals. The land for the privately owned T-hangers is leased from the City of Dayton, as is the land for two of the conventional hangars located in the northern portion of the airfield.

Appendix A of this report provides a detailed facilities evaluation for on-airport buildings. This analysis provides information on building construction materials and in-building systems and offers recommendations relative to the condition and anticipated lifespan of the structure.

2.3.3.2. Fuel Storage

Aviation Sales, Inc. (ASI) operates two underground fuel tanks, located on the south airfield, each with a capacity of 12,000 gallons. ASI supplies both 100 low lead (100LL) and Jet-A fuel from these facilities. ASI utilizes two fuel trucks for fueling both based and transient aircraft.

Additionally, the City of Dayton owns a fueling facility that is operated by Commander Aero. This facility has two tanks each with a capacity of 11,000 gallons and offers 100LL and Jet-A-fuel. In total, capacity exist at MGY for 23,000 gallons of both Jet-A and 100LL.

2.3.3.3. Automobile Parking

A paved vehicle parking lot located west of the terminal contains approximately 100 parking spaces. The six large hangars have limited parking for the individual hangar tenants, while T-hangar tenants have no parking area offering direct access to T-hangar units. Early coordination with the TAC made evident the need for improved automobile parking at the Airport.

2.3.3.4. Airport Maintenance Facilities

The City of Dayton employs one full-time airport maintenance person to care for the airfield pavement, grounds, electrical equipment, plow snow, and conduct a variety of other maintenance needs. City equipment is utilized for all Airport maintenance as required and stored in the maintenance building located south of the T-hangar facilities and accessible via Springboro Pike.

2.3.3.5. Additional Landside Facilities

To maintain the open airfield areas, as well as to provide additional Airport operating revenue, approximately 242 acres of airport property are leased for agricultural purposes.

2.3.3.6. Security

General Aviation security is not federally regulated. TSA published Security Guidelines for General Aviation Airports[1] in May 2004. In 2008, TSA attempted to regulate large aircraft with the release of the Large Aircraft Security Program (LASP) Notice of Proposed Rulemaking (NPRM) that applied to all aircraft weighing more than 12,500 pounds. The NPRM was met with substantial resistance leading to an overwhelming amount of comments from industry leaders and aviation enthusiasts. The NPRM, if passed, would have required security programs for thousands of privately operated GA aircraft and ultimately seek to combine a number of security programs currently in place for GA, including the Twelve-Five Standard Security Program (TFSSP), into one single, uniform program.

In April 2006 Ohio Senate Bill 9 went into law, requiring the following:

- All public- and private-use airports to register biennially with Ohio.
- Public-use airports, and when appropriate, private-use airports, to prepare a written security plan, including an emergency locator map of the airport. Copies of these documents would have to be provided to the Department of Public Safety, the Office of Aviation, the local sheriff's department, and to the local chief of police.
- All aircraft owners to secure their aircraft.
- Airports to restrict access to aircraft keys by unlicensed personnel.
- A government ID in order to rent an aircraft.

At present, and in addition to those measures listed above, the Airport has the following security measures in place:

- Security perimeter fencing, six feet tall with three feet of barbed wire;
- Perimeter gate access control, and;
- Airport badges for employee identification.

2.4. Property, Land Use and Zoning

2.4.1. Existing Property, Ownership, and Easement Records

Property in and around the airport are identified on **Figure 2-12**. MGY is located in the extreme south central portion of Montgomery County and the north central area of Warren County. All Airport property is owned by the City of Dayton.

Sections 4561.30 to 4561.39 of the Ohio Revised Code (ORC) address Structures or Objects Near Airport. The ORC gives ODOT authority to issue permits regulating the height and location of structures and objects of natural growth that would penetrate certain surfaces, zones, or areas at or near airports; to prohibit installation of such structures or objects without such a permit; to expand the powers of airport zoning boards with respect to all publicly owned airports; to specify certain payment and other conditions concerning township underground relocation of wires and cables; and to give townships zoning authority for cellular telephone towers. Furthermore, the City of Dayton maintains some regulatory authority of properties in the vicinity of the Airport through a number of avigation easements, which are largely used to limit the height of objects (natural or man-made) so as to protect airspace in the immediate vicinity of the airfield.

[1] *http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/security_guidelines_for_general_aviation_airports.pdf*

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PASSERO ASSOCIATES

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Dayton - Wright Brothers Airport
Dayton, Ohio

Airport Property

Figure 2-12

2.4.2. Existing Land Use and Zoning Considerations

The land use map established for the Montgomery County Comprehensive Plan is illustrated in **Figure 2-13** and depicts the intended land use, from the County's persepective, for lands surrounding and to the north of the Airport. **Figure 2-14** depicts Springboro Townships's land use classifications for properties around the Airport. As is evident by the graphics, the Airport property has a primary classification of Institutional/Airport but with portions classified as Office/Light Industrial along the apron areas wehre hangars have been constructed.

North of the Aiprort property on currently undeveloped land, a land use of Neighboorhood Commercial can be identified. Given its location and proximitey to the Runway 20 end, special attention should be paid to how these properties might be developed in the future. The Airport and community should oppose any development action here that would impeed upon the overall utility of the Dayton-Wright Brothers Airport.

2.5. Environmental Considerations

2.5.1. Meteorological Data and Magnetic Declination

The climatic conditions commonly experienced at an airport can play a large role in the layout and usage of the facilities. Weather patterns characterized by periods of low visibility and cloud ceilings often lower the capacity of an airfield, and wind direction and velocity dictate runway usage.

2.5.1.1. Ceiling and Visibility

FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*, identifies three categories of ceiling and visibility minimums. These categories include Visual Flight Rules, Instrument Flight Rules (IFR), and Poor Visibility Conditions (PVC). Meteorological data was obtained through the National Climatic Data Center (NCDC) consisting of 10 years of hourly observation and environmental conditions as reported by the Automated Surface Observing System (ASOS) located on the airfield. This data was analyzed to explore ceiling, visibility, and wind conditions at the Airport. According to a detailed review of the information obtained from the MGY ASOS, the following can be reasonably expected at Airport:

- VFR conditions, when the ceiling is equal to or greater than 1,000 feet above ground level (AGL) and when visibility is equal to or greater than three (3) statute miles, occur at the Airport approximately 89.6 percent of the time.
- IFR conditions, when the ceiling is less than 1,000 feet AGL and/or when visibility is less than three (3) statute miles, but when ceiling is greater than 200 feet AGL and visibility is greater than 0.5 statute miles, occur at the Airport approximately 9.6 percent of the time.
- PVC conditions, when ceiling is less than 200 feet and/or visibility is less than 0.5 statute miles, occur at the Airport approximately 0.8 percent of the time

2.5.1.2. Wind Coverage

The existing airfield is designed to C-II. Based on the FAA guidance, a crosswind component of 13 knots should be applied to an airfield of this type when determining the suitability of its runway system to provide at least 95 percent wind coverage. For the purpose of this analysis and to show the sensitivity between crosswind components in computation of airfield wind coverage both a 10.5 and 16 knot crosswind value were also modeled. A 10.5 knot crosswind would be used for runways intended to only support small aircraft, while the 16 knot crosswind is most appropriate for runways regularly supporting mid- to large-size business jets. Wind data was obtained from the National Oceanic and Atmospheric Administration (NOAA) for the years 2000-2009, taken at MGY , and summarized for All Weather, Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) based on true north. Based on airfield survey the true runway heading is calculated to be 23° 19' 40.2463". **Table 2-5** below summarize the wind coverage using the FAA windrose software and data obtained via the onsite ASOS.

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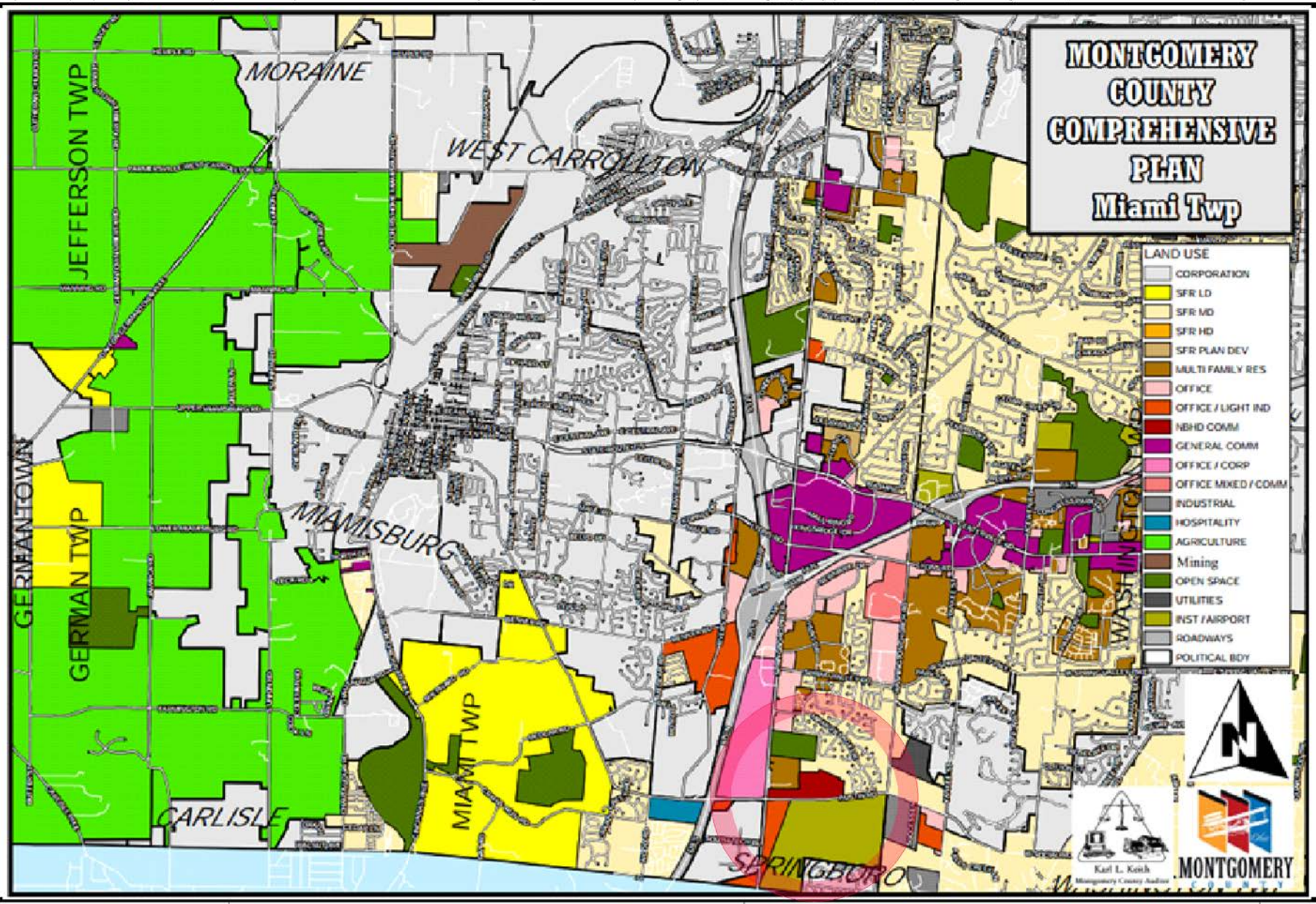

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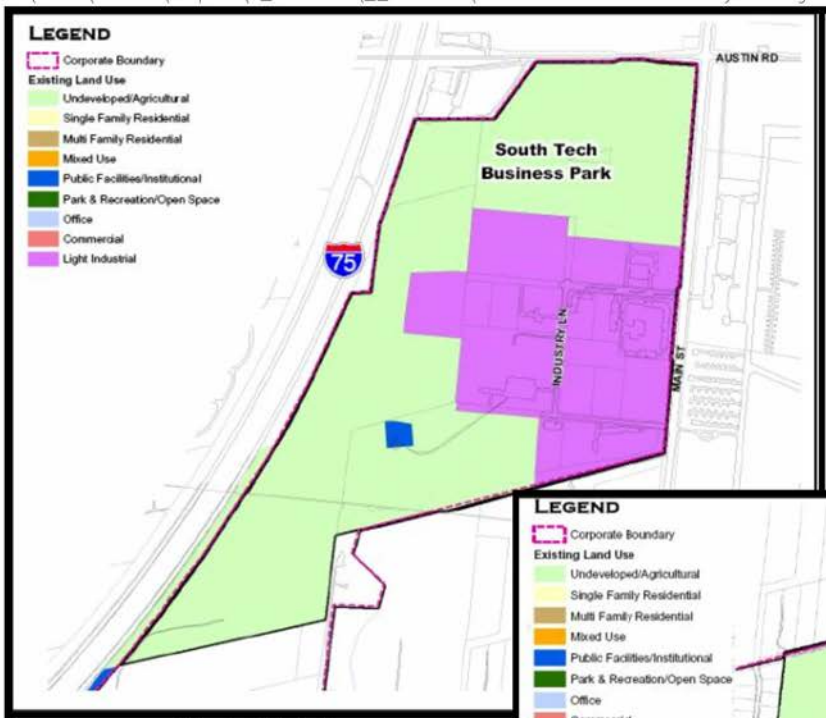
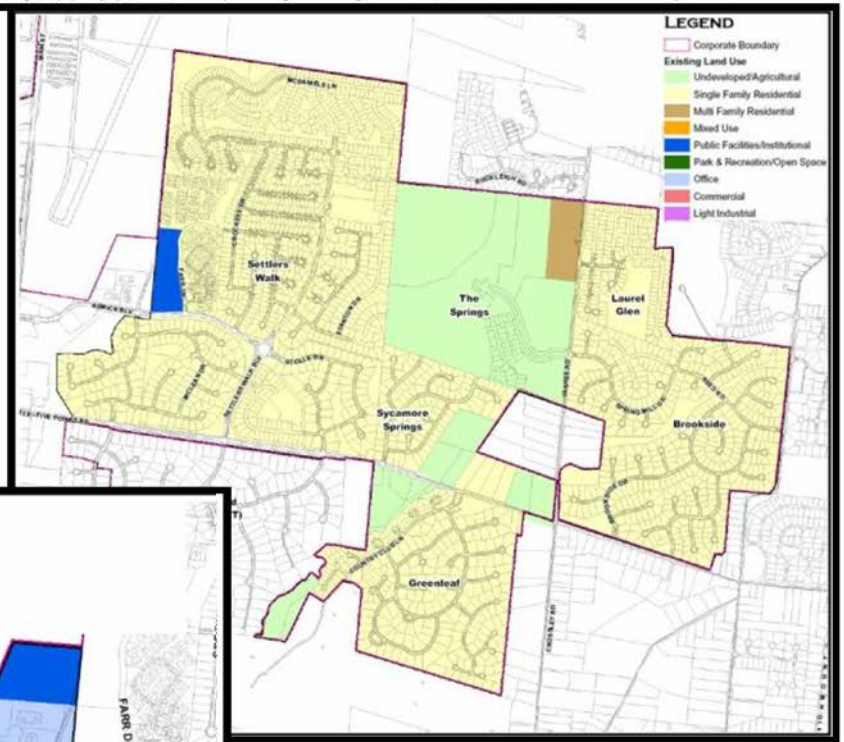
Dayton - Wright Brothers Airport
Dayton, Ohio

Montgomery County Land Use

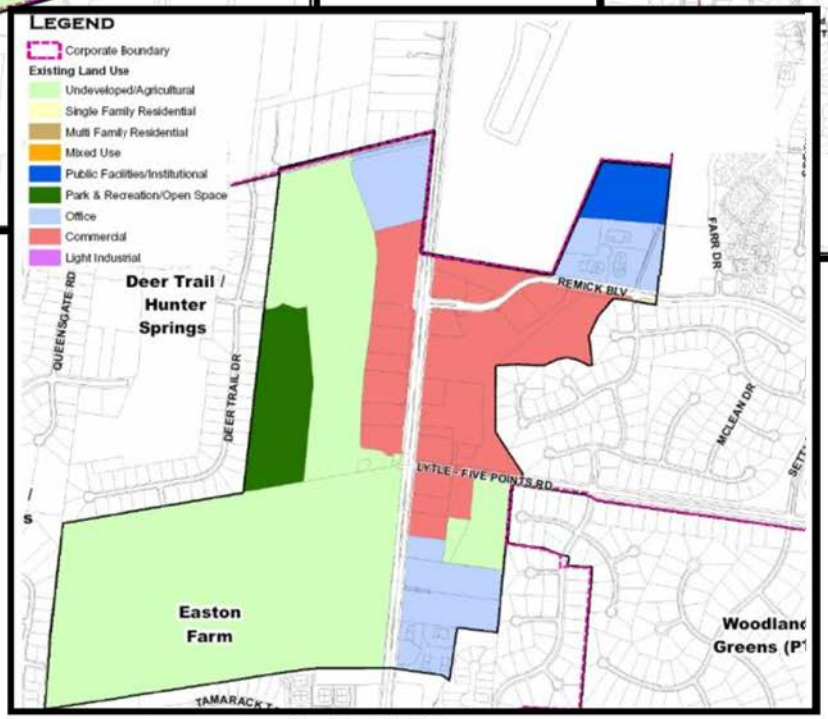
Figure 2-13



West of Airfield



East of Airfield



South of Airfield

PASSERO ASSOCIATES

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Dayton - Wright Brothers Airport
Dayton, Ohio

Springboro Township Rural Land Use

Figure
2-14

Table 2-5. Wind Coverage

ALL WEATHER			
RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS
2	44.39	45.38	48.18
20	60.75	62.38	63.60
2-20	**94.94**	**97.55**	**99.55**
VFR			
RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS
2	43.78	44.73	45.53
20	61.52	63.19	64.44
2-20	**94.89**	**97.52**	**99.55**
IFR			
RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS
2	50.12	51.40	52.27
20	53.51	54.73	55.61
2-20	**95.35**	**97.85**	**99.59**

Source: NOAA, MGY ASOS Data 2000-2009

Runway 2-20 provides adequate wind coverage for its mix of aircraft activity. Additionally, the table above identifies that winds have a tendency to favor operations on Runway 20.

2.5.2. Other Environmental Considerations

As identified in section 1.2.3.2 of this report, several site specific environmental concerns were evaluated and reviewed as part of this study effort, including; wetlands, endangered species, and historic preservation. Each of these are discussed briefly below.

2.5.2.1. Wetland & Floodplains

Both the National Wetlands Inventory (NWI) and Ohio Wetlands Inventory (OWI) contribute to the understanding of aquatic resources on and in the vicinity of the Airport. As shown in **Figure 2-15**, the NWI depicts four mapped freshwater forested/shrub wetlands, while the OWI depicts several areas of woods on hydric soils as well as wet meadow areas located north and west of the residential development south of the airfield. The OWI also depicts a small shrub/scrub wetland area along the western boundary of the Airport.

No FEMA Flood Zones are mapped within the airport area, and the airport itself is entirely within an "X" zone on the flood map as shown on **Figure 2-16**.

2.5.2.2. Endangered Species

Federally listed threatened or endangered species within Montgomery and Warren Counties include: Indiana bat, eastern massasuga, rayed bean freshwater mussel, snuffbox freshwater mussel, and running buffalo clover. Potential habitat for the Indiana bat, eastern massasuga, and running buffalo clover was identified during on-site field surveys, however limited habitat was found to exist for either of the mussel species of concern. The endangered species study recommended further review of the three species for which habitat exist prior to any major construction activities.

2.5.2.3. Historic Preservation

A detailed analysis of historic and historically significant properties on and in the vicinity of the Airport resulted in the understanding that multiple properties of concern do exist on and in the vicinity of the Airport, but that none are situated so as to preclude any potential development interest relative to the airfield system.

0 500 1,000 2,000 Feet

N

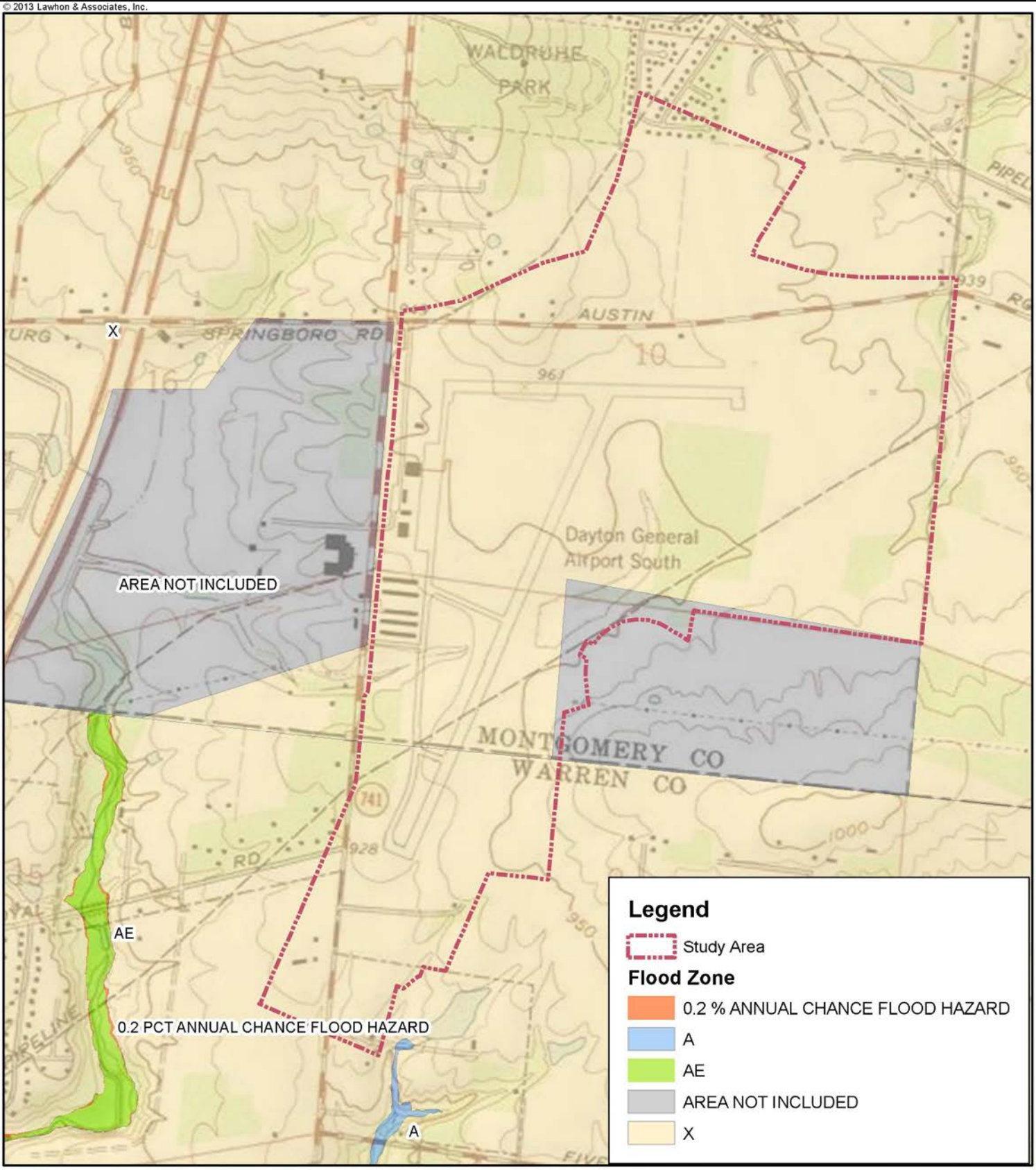
Figure 2-15
Dayton Wright Bros. Airport
NWI & OWI Map

Lawhon & Associates, Inc.
1441 King Ave.
Columbus, OH 43212
Ph. (614) 481-8600
Fax (614) 481-8610

Date:	Project Manager:	L&A Project No.	Figure
June 2013	DV	13-0438	2-15

Produced using Arc GIS 10.1

File Name: NWI_OWI.mxd Edited: 6/21/2013 By: afraley



0 370 740 1,480 Feet

N

Figure 2-16
Dayton Wright Bros. Airport
FEMA Map

Lawhon & Associates, Inc.
1441 King Ave.
Columbus, OH 43212
Ph. (614) 481-8600
Fax (614) 481-8610

Date:	Project Manager:	L&A Project No.	Figure
June 2013	DV	13-0438	2-16

Produced using Arc GIS 10.1 File Name: FEMA map.mxd Edited: 6/20/2013 By: afraley

2.6. Summary

The above descriptions do not provide an exhaustive account for every specific detail and facet of the Dayton-Wright Brothers Airport. The purpose of this inventory was to provide general facility data for subsequent analyses pertinent to this study effort. The following sections of this report will seek to project future aeronautical demand and compare that to existing facility data for the purpose of analyzing future facility requirements.

Chapter Three

Forecast of Aeronautical Demand

3. FORECAST OF AVIATION DEMAND

3.1. Introduction

General aviation activity is largely determined by local population, corresponding business activity and personal income, the cost of flying, the national economy, and number of based aircraft at the airport. Forecast of aviation demand are presented in this chapter for a 20-year planning period (2014-2034). The projections of aviation activity provide a basis for determining the type, size, and timing of aviation facility development. As a result, the forecast will influence all subsequent chapters of this report.

Forecasting future activity involves both analytical techniques and subjective considerations. The forecasting approach used in this analysis will be to identify several methodologies to project future aviation demand, apply those methodologies to each forecast area of interest, and identify a preferred forecast of activity growth at the Airport. The preferred forecast will be identified through detailed consideration of the forecast analyses presented in this chapter by the technical advisory committee (TAC) established for this study effort.

Aviation forecasts are divided into three planning phases: short-term (0-5 years), intermediate-term (6-10 years) and long-term (11-20 +/- years). The forecasts shall form the basis for facility requirements and airfield capacity analysis. Historical information from airport operations, FAA Terminal Area Forecasts (TAF) and Enhanced Air Traffic Management System Counts (ETMSC) database, Airport Master Record (FAA Form 5010) and the most current data available from the Ohio Department of Transportation, Office of Aviation (ODOT) Ohio State Airport System Plan (OSASP) will be considered.

The following forecasts will be developed and presented in this chapter:

- Based Aircraft
- Based Aircraft Fleet Mix
- Annual Aircraft Operations
- Aircraft Operations – Local vs. Itinerant
- Peaking Characteristics

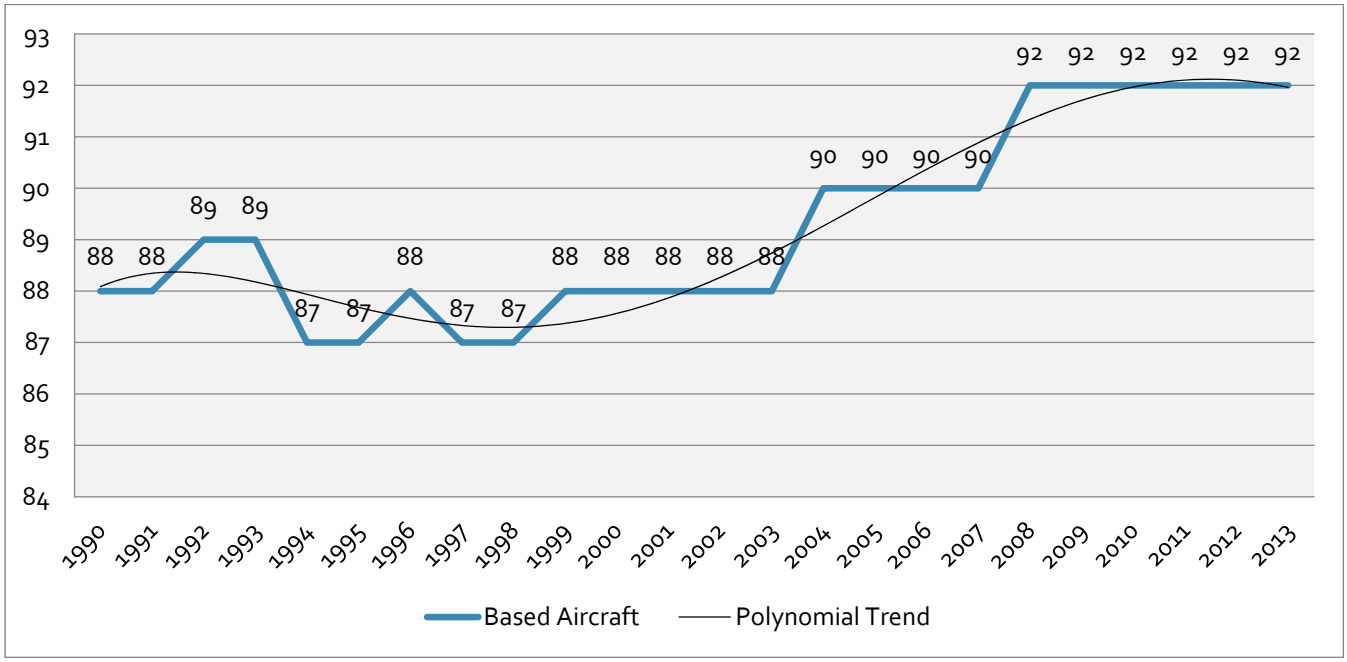
3.2. Historical Aeronautical Activity and Based Aircraft

This section presents a general overview of long-term historical trends at MGY which can be identified through historical operational data. Focusing specifically on based aircraft and aviation activity levels, the historical operational information obtained will be utilized to project future activity and based aircraft levels.

3.2.1. Historical Based Aircraft Levels

A projection of GA aircraft that will be based at MGY is required for the proper planning of future airside and landside elements that may be required to facilitate the demand, such as runway usage, aircraft parking apron, and the number and type of hangar space required. The historical based aircraft data was obtained primarily from the FAA TAF, 2014. The data was also compared against based aircraft presented in the OSASP, which was slightly higher. For the purposes of this study the TAF data will be used to identify historical activities at MGY. This data is more comprehensive than that presented in the State's system plan and is generated though annual reporting to the FAA initiated at the Airport level. **Figure 3-1** depicts the annual based aircraft counts from 1990 to 2013.

Figure 3-1. Historical Based Aircraft

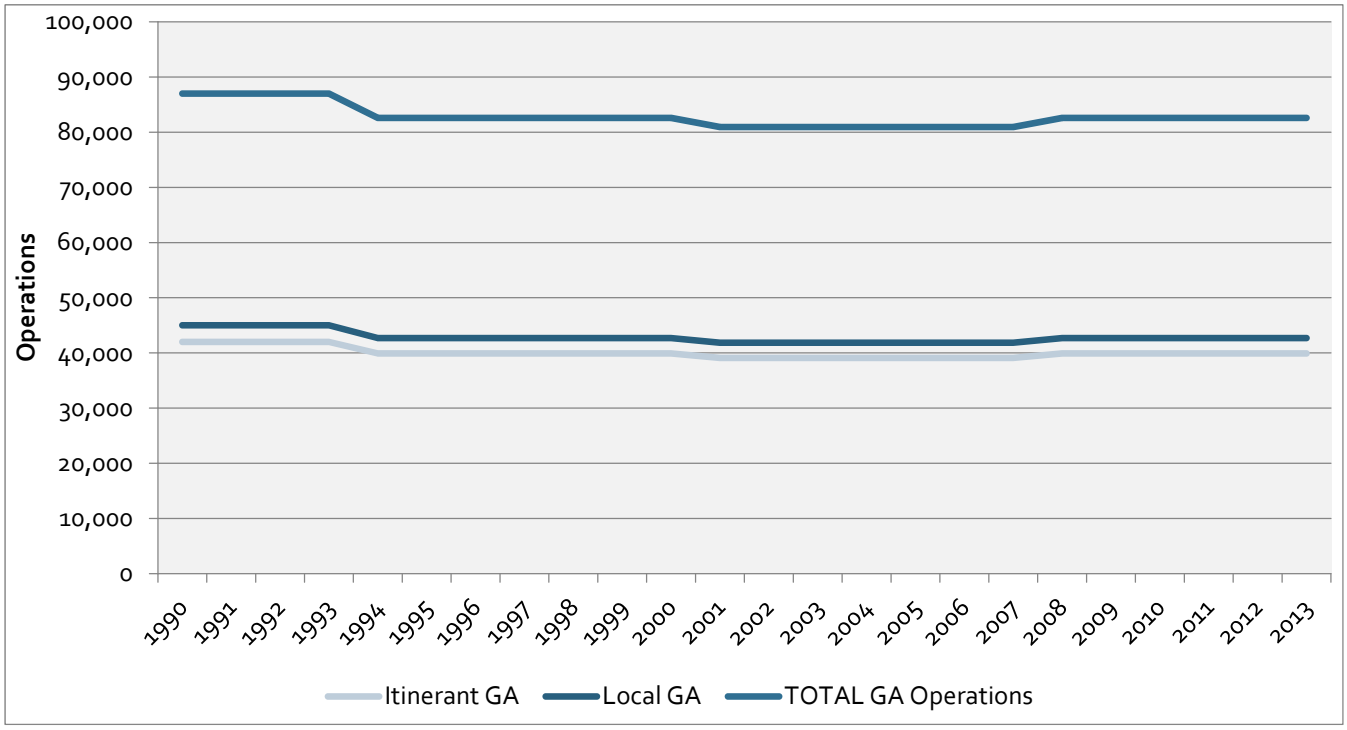


Source: Airport Records, FAA TAF.

3.2.2. Historical Aeronautical Activity

The number of annual operations at MGY has remained relatively steady since 1990. Annually, the Airport reports operations just shy of 90,000 with an activity mix of 52% local and 48% itinerant. **Figure 3-2** depicts the annual level of general aviation activity at the Airport.

Figure 3-2. Historical Aeronautical Activity



Source: Airport Records, FAA TAF.

3.3. Aviation Activity Projections

Forecast of aviation demand for MGY will serve as the basis for airport facility planning and facility development implementation to support the Airport's short-term initiatives. Although the prepared forecast covers an extended timeframe, aviation, social, and economic trends can only be reasonably projected for the first five years or so. It is difficult to predict with a great deal of certainty the year-to-year trend changes in a dynamic aviation industry while forecasting 20+ years into the future. Unexpected events in any of these trends, which cannot be factored into the assumptions of the forecast, can cause dramatic changes across the forecast period. Therefore, aviation activity forecasts should be continually evaluated and updated on a regular basis, often every three to five years.

3.3.1. Methodologies

The forecasts prepared herein are developed using two primary frameworks – baseline methodologies and strategic scenarios. Both of these frameworks are described below, but generally, baseline methodologies will utilize traditional data analysis and forecasting techniques on verifiable data, where as the strategic scenarios will introduce subjective elements to the forecasts expected to drive operational growth and overall activity at the Airport. Strategic scenarios could include such things as a new major tenant locating to the airfield, an upstart air charter operation, or some other activity that may result in changes in operational activity that otherwise would not be forecasted via baseline methodologies.

3.3.1.1. Baseline Methodologies

The most reliable approach to estimating future aviation demand is to use a variety of analytical techniques. Various methods of forecasting aviation demand exist and are widely used throughout the industry including, trend line analysis, market share analysis, and projecting along national growth rates. These methods have been applied to develop the most accurate forecast possible for MGY and are described in more detail below.

Trend Line Analysis

Trend line analysis examines historical growth trends in activity at a specific airport and applies the historical trends to current demand levels to produce projections of future activity. Trend line analysis assumes that activity, and the factors which have historically affected activity, will continue to influence demand levels at similar rates over an extended period of time. Linear time series trend projections are typically used to provide baseline forecast that reflect stable market conditions. **Table 3-1** presents the historical growth trends in terms of average annual growth rate (AAGR) which have been identified for both based aircraft and GA operations at MGY and identifies essentially a no- to low-growth condition for each.

Table 3-1. Trend Line Growth Rates

	SHORT-TERM	MID-TERM	LONG-TERM
	(2-year)	(4-year)	(10-year)
BASED AIRCRAFT (AAGR)	0.0000%	0.5510%	0.4455%
OPERATIONS (AAGR)	0.0000%	0.5063%	0.2247%

Source: Airport Records, FAA TAF.

Market Share Analysis

Market share analysis is a method for projecting future aeronautical activity is a relatively easy method to use, and can be applied to any measure for which a reliable higher-level forecast is available. Using this methodology, historical shares are calculated and used as a basis for projecting future shares. This approach is a "top-down" method of forecasting since forecasts of larger aggregates are used to derive forecasts for smaller elements of the system – in this case Dayton-Wright Brothers Airport. For the purpose of performing market share analysis for Dayton-Wright Brothers Airport, data relative to the State of Ohio, the FAA's Great Lakes Region, and the entire U.S. was reviewed for both general aviation operations and based aircraft. Specific growth rates used in the market share analysis are presented in the summary tables in subsequent sections of this chapter.

FAA Forecasts

The FAA presents aviation activity forecasts in several different sources which can be referenced when forecasting future aeronautical demands for a specific airport. Primarily, they include the FAA Aerospace forecast which provides growth projections for the entire aviation industry, and the FAA Terminal Area Forecast (TAF) which utilizes identified national growth trends coupled with historical local growth trends to produce airport-specific activity forecast. The FAA's national aerospace forecast for 2013-2033 identifies projected average annual growth rates for a variety of fixed wing aircraft through the end of its forecast period (2033). These growth rates are identified in **Table 3-2** below. The FAA prepared TAF prepared for MGY was discredited in this analysis as it projected no growth through 2040 essentially indicating the FAA did not commit resources to forecasting activity at MGY.

Table 3-2. FAA National Aerospace Forecast Average Annual Growth in GA Hours Flown by Aircraft Type – 2012-2033

SINGLE ENGINE	MULTI-ENGINE	TURBO PROP	TURBO JET	TOTAL
-0.40%	-0.50%	2.10%	4.30%	3.50%

Source: FAA National Aerospace Forecast 2013-2033

The table above identifies that no growth is anticipated in single and multi-engine piston aircraft activity, and in fact, very modest reductions could be realized over the forecast period. Conversely, the forecast projects strong growth in activities by turbo prop and turbo jet aircraft.

For the purpose of projecting operational activity, a weighted growth rate was calculated using the national forecast rates in the table above and a 10 year history of airport operations filtered by physical class (Jet, Piston, Turbine) for MGY as provided by the FAA Enhanced Traffic Management System Counts (ETMCS) database. This technique yielded a weighted AAGR 1.15% for MGY.

For the purpose of projecting based aircraft at MGY using the FAA Forecast methodology the average annual growth rate of 0.5 percent will be used as the FAA national aerospace forecast projects the active general aviation fleet to increase at that rate between 2012-2033.

Ohio State Airport System Plan Projections

The most recently published OSASP identified a 1.52 percent AAGR to operations state wide for its forecast period and a 0.73 percent AAGR for based aircraft. The forecast prepared for MGY will utilize these projections to examine plausible growth at the Airport.

3.3.1.2. Strategic Scenarios

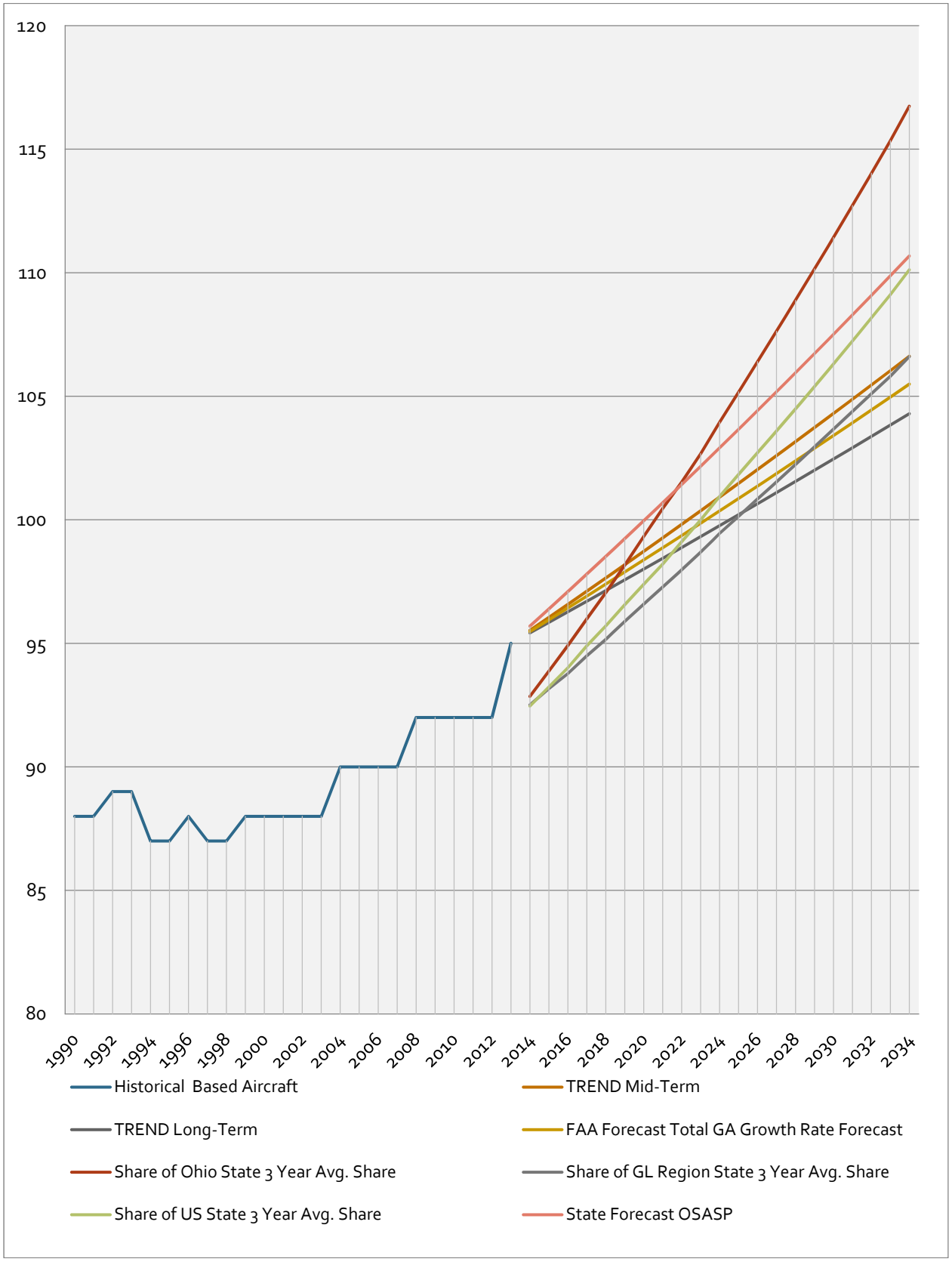
The baseline forecasting methodologies previously discussed are certainly valuable methods for projecting estimates of future activity; however, these methods fail to account for the untapped potential of a local market and an airport's ability to attract new service and significantly impact its activity levels.

The ability to review strategically focused scenarios from which to project airport operations or based aircraft was reviewed with the TAC established for this study effort. This group considered the baseline forecast and determined that no subjective or strategic forecasting scenarios were warranted. The TAC expressed that a defendable and conservative forecast would be the most appropriate for the Airport.

3.3.2. Forecast of Based Aircraft

Utilizing the baseline and strategic methodologies outlined in the preceding sections, multiple forecast of general aviation operations were developed for MGY. A selection of based aircraft projections for MGY are depicted in **Figure 3-3**, while a tabulated list containing projections for all methodologies can be found on **Table 3-3**.

Figure 3-3. Summary of Based Aircraft Projections Across Selected Methodologies



Source: Passero Analysis, 2014.

Table 3-3. Based Aircraft Projections

	TREND			FAA FORECAST	SHARE OF OHIO				SHARE OF GL REGION				SHARE OF US				STATE FORECAST
YEAR	SHORT-TERM	MID-TERM	LONG-TERM	TOTAL GA GROWTH RATE FORECAST	STATE 3 YEAR AVG. SHARE	STATE 5 YEAR AVG SHARE	STATE 10 YEAR AVG SHARE	STATE 20 YEAR AVG SHARE	STATE 3 YEAR AVG. SHARE	STATE 5 YEAR AVG SHARE	STATE 10 YEAR AVG SHARE	STATE 20 YEAR AVG SHARE	STATE 3 YEAR AVG. SHARE	STATE 5 YEAR AVG SHARE	STATE 10 YEAR AVG SHARE	STATE 20 YEAR AVG SHARE	OSASP
2014	95	96	95	95	93	89	79	80	93	90	82	83	92	90	82	84	96
2015	95	96	96	96	94	90	80	81	93	90	83	83	93	90	83	84	96
2016	95	97	96	96	95	91	81	82	94	91	83	84	94	91	84	85	97
2017	95	97	97	97	96	92	82	83	94	91	84	85	95	92	84	86	98
2018	95	98	97	97	97	93	83	84	95	92	85	85	96	93	85	86	99
2019	95	98	98	98	98	94	84	84	96	93	85	86	97	94	86	87	99
2020	95	99	98	98	99	96	85	85	97	93	86	86	97	94	87	88	100
2021	95	99	98	99	100	97	86	86	97	94	87	87	98	95	87	89	101
2022	95	100	99	99	102	98	87	87	98	95	87	88	99	96	88	90	101
2023	95	100	99	100	103	99	88	88	99	96	88	88	100	97	89	90	102
2024	95	101	100	100	104	100	89	89	99	96	89	89	101	98	90	91	103
2025	95	101	100	101	105	101	90	91	100	97	89	90	102	99	91	92	104
2026	95	102	101	101	106	102	91	92	101	98	90	90	103	99	91	93	104
2027	95	103	101	102	108	103	92	93	102	98	90	91	104	100	92	94	105
2028	95	103	102	102	109	105	93	94	102	99	91	91	104	101	93	94	106
2029	95	104	102	103	110	106	94	95	103		92	92	105	102	94	95	107
2030	95	104	102	103	111	107	95	96	104	100	92	93	106	103	95	96	108
2031	95	105	103	104	113	108	96	97	104	101	93	93	107	104	95	97	108
2032	95	105	103	104	114	110	97	98	105	102	94	94	108	105	96	98	109
2033	95	106	104	105	115	111	99	99	106	102	94	95	109	106	97	99	110
2034	95	107	104	105	117	112	100	100	107	103	95	95	110	107	98	100	111
AAGR																	
2014-2019	0.000%	0.551%	0.446%	0.500%	1.121%	1.121%	1.121%	1.121%	0.722%	0.722%	0.722%	0.722%	0.873%	0.873%	0.873%	0.873%	0.730%
2014-2024	0.000%	0.551%	0.446%	0.500%	1.136%	1.136%	1.136%	1.136%	0.726%	0.726%	0.726%	0.726%	0.882%	0.882%	0.882%	0.882%	0.730%
2014-2034	0.000%	0.551%	0.446%	0.500%	1.152%	1.152%	1.152%	1.152%	0.712%	0.712%	0.712%	0.712%	0.878%	0.878%	0.878%	0.878%	0.730%

Source: Passero Analysis, 2014.
Notes: AAGR color scale utilizes a red-to-green color pallet where red signifies a low rate, and green a high rate.

As is evident by the analysis performed, there are a range of plausible possibilities for based aircraft growth at MGY. The market share projection using the most recent three year average of based aircraft at MGY to based aircraft within the state of Ohio provides the most accelerated growth in based aircraft. This approach forecasts 117 based aircraft by 2034 – an AAGR of 1.15 percent. The lowest growth potential is a result of the long term trend analysis, based on the last 10 years of based aircraft records. As indicated previously, the 10-year based aircraft trend only provides expectation for 0.45 percent annual growth, which would indicate 104 based aircraft by 2034.

3.3.2.1. Selection of Preferred Based Aircraft Forecast

Utilizing the based aircraft projections presented in the preceding sections, the TAC organized for this study effort discussed in an open forum the merits of each, with the goal of identifying the most plausible growth scenario for MGY to further enable the long-term visioning of the Airport. Through this discussion, the market share methodology utilizing MGY's 3-year average market share of based aircraft in the State of Ohio, and the federal projections for Ohio based aircraft over the planning period was identified as the preferred methodology from which to project future based aircraft levels at the Airport. This methodology reflects an AAGR of 1.152 percent through 2034. **Table 3-4** tabulates the projected level of based aircraft in each of the cardinal forecast years.

Table 3-4. Preferred Forecast of Based Aircraft

YEAR	BASED AIRCRAFT
2015	94
2020	99
2025	105
2030	111
2034	117

Sources: Passero Associates, DWBA ALP Technical Advisory Committee, 2014.

3.3.3. Based Aircraft Fleet Mix

The forecast of based aircraft presented in Table 3-3, specifically the TAC preferred forecast, was used to project the types of based aircraft (the fleet mix) that should reasonably be expected at MGY in the future. The current fleet mix was identified by aircraft class: single-engine piston (SE), multi-engine piston (ME), turboprop (TP), and jet aircraft. This information was sourced from airport records and on-site discussions with airport management staff. The future fleet mix was projected by examining historical trends as well as national data for general aviation aircraft anticipated to be operational within the national airspace over the coming decades. As shown in **Table 3-5** the share of based single- and multi-engine piston aircraft decrease slightly over the forecast period, while jet aircraft increases slightly. This forecast is therefore generally consistent with the expected level of active GA aircraft by user class.

Table 3-5. Based Aircraft Fleet Mix Forecast

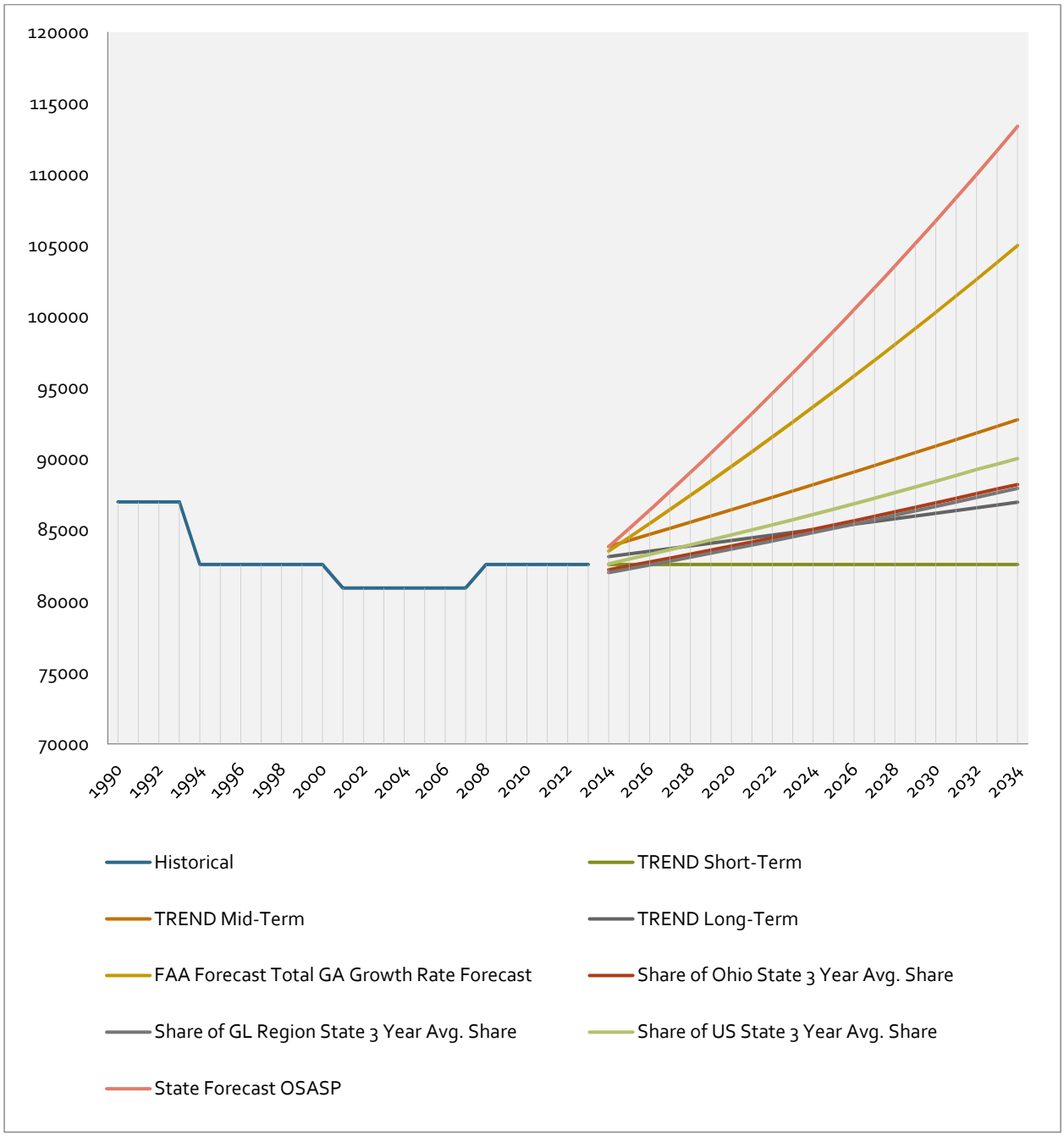
YEAR	SE	%	ME	%	TP	%	TJ	%	HE	%	UL	%	TOTAL
2011	65	70.65%	23	25.00%	-	0%	5	5.32%	0.9752	1.06%	0	0%	92
2012	65	70.65%	23	25.00%	-	0%	5	5.32%	0.9752	1.06%	0	0%	92
2013	65	68.42%	23	24.21%	-	0%	5	5.32%	1.007	1.06%	0	0%	95
FORECAST													
2015	65	68.65%	23	24.47%	0	0.50%	5	5.32%	1	1.06%	0	0%	94
2020	67	67.75%	24	24.07%	1	1.00%	6	6.12%	1	1.06%	0	0%	99
2025	70	66.85%	25	23.67%	2	1.50%	7	6.92%	1	1.06%	0	0%	105
2030	73	65.95%	26	23.27%	2	2.00%	9	7.72%	1	1.06%	0	0%	111
2034	76	65.05%	27	22.87%	3	2.50%	10	8.52%	1	1.06%	0	0%	117

Sources: ODOT OSASP 2006-2014, Table 1-8

3.3.4. Forecast of General Aviation Operations

Utilizing the baseline methodologies outlined in the preceding sections, multiple forecast of general aviation operations were developed for MGY. **Figure 3-4** below depicts these different forecast as well as the preferred forecast identified through this planning effort. A number of previously identified methodologies were not included in the graphic below, or further in this analysis, as they yielded unlikely negative projections. The methodologies employed present a range of potential GA activity at MGY. The short-term trend presents a no-growth scenario, while the OSASP scenario projects over 113,000 annual operations by 2034 representing a 1.52 percent AAGR. **Table 3-6** tabulates general aviation operations projections across all methodologies employed.

Figure 3-4. Summary of General Aviation Operations Projections Across Selected Methodologies



Source: Passero Analysis, 2014.

Table 3-6. General Aviation Operations Projections

	TREND			FAA Forecast	Share of Ohio				Share of GL Region				Share of US				State Forecast
Year	Short-Term	Mid-Term	Long-Term	Total GA Growth Rate Forecast	State 3 Year Avg. Share	State 5 Year Avg Share	State 10 Year Avg Share	State 20 Year Avg Share	State 3 Year Avg. Share	State 5 Year Avg Share	State 10 Year Avg Share	State 20 Year Avg Share	State 3 Year Avg. Share	State 5 Year Avg Share	State 10 Year Avg Share	State 20 Year Avg Share	OSASP
2014	82,600	83,861	83,158	83,550	82,237	79,430	74,936	75,112	82,029	80,081	73,857	70,538	82,654	80,316	75,158	73,030	83,856
2015	82,600	84,286	83,345	84,511	82,509	79,693	75,184	75,361	82,299	80,344	74,099	70,770	82,982	80,635	75,457	73,320	85,130
2016	82,600	84,712	83,532	85,483	82,786	79,960	75,436	75,613	82,572	80,611	74,345	71,005	83,312	80,955	75,756	73,611	86,424
2017	82,600	85,141	83,720	86,466	83,058	80,223	75,684	75,862	82,845	80,877	74,591	71,240	83,645	81,279	76,060	73,906	87,738
2018	82,600	85,573	83,908	87,460	83,334	80,489	75,936	76,114	83,121	81,147	74,840	71,477	83,984	81,608	76,367	74,205	89,071
2019	82,600	86,006	84,097	88,466	83,613	80,759	76,190	76,369	83,400	81,419	75,091	71,717	84,327	81,941	76,679	74,508	90,425
2020	82,600	86,441	84,286	89,483	83,896	81,032	76,448	76,627	83,681	81,694	75,344	71,959	84,675	82,280	76,996	74,816	91,800
2021	82,600	86,879	84,475	90,512	84,182	81,308	76,708	76,888	83,966	81,972	75,601	72,204	85,027	82,622	77,316	75,127	93,195
2022	82,600	87,319	84,665	91,553	84,472	81,588	76,972	77,153	84,254	82,253	75,860	72,451	85,385	82,969	77,641	75,443	94,612
2023	82,600	87,761	84,855	92,606	84,765	81,871	77,240	77,421	84,545	82,537	76,122	72,702	85,747	83,322	77,971	75,763	96,050
2024	82,600	88,205	85,046	93,671	85,062	82,159	77,511	77,693	84,839	82,823	76,386	72,954	86,115	83,679	78,306	76,088	97,510
2025	82,600	88,652	85,237	94,748	85,364	82,450	77,786	77,968	85,135	83,113	76,653	73,209	86,489	84,042	78,645	76,419	98,992
2026	82,600	89,101	85,429	95,838	85,670	82,746	78,065	78,248	85,436	83,407	76,924	73,468	86,868	84,411	78,990	76,754	100,497
2027	82,600	89,552	85,621	96,940	85,981	83,046	78,348	78,532	85,741	83,705	77,199	73,730	87,254	84,786	79,341	77,094	102,024
2028	82,600	90,006	85,813	98,055	86,296	83,350	78,635	78,819	86,051	84,007	77,478	73,997	87,645	85,166	79,697	77,440	103,575
2029	82,600	90,461	86,006	99,182	86,615	83,658	78,926	79,111	86,365	84,314	77,761	74,267	88,043	85,552	80,058	77,792	105,149
2030	82,600	90,919	86,199	100,323	86,939	83,971	79,221	79,407	86,684	84,625	78,047	74,541	88,447	85,945	80,425	78,148	106,747
2031	82,600	91,380	86,393	101,477	87,268	84,289	79,520	79,707	87,007	84,940	78,339	74,819	88,857	86,343	80,798	78,510	108,370
2032	82,600	91,842	86,587	102,644	87,601	84,611	79,824	80,012	87,335	85,261	78,634	75,101	89,273	86,748	81,177	78,879	110,017
2033	82,600	92,310	86,783	103,824	87,911	84,910	80,106	80,294	87,641	85,560	78,910	75,364	89,658	87,122	81,527	79,219	111,689
2034	82,600	92,780	86,979	105,018	88,222	85,210	80,390	80,578	87,949	85,860	79,186	75,628	90,045	87,497	81,879	79,560	113,387
AAGR																	
2014-2019	0.000%	0.506%	0.225%	1.150%	0.332%	0.332%	0.332%	0.332%	0.332%	0.332%	0.332%	0.332%	0.401%	0.401%	0.401%	0.401%	1.520%
2014-2024	0.000%	0.506%	0.225%	1.150%	0.338%	0.338%	0.338%	0.338%	0.337%	0.337%	0.337%	0.337%	0.411%	0.411%	0.411%	0.411%	1.520%
2014-2034	0.000%	0.507%	0.225%	1.150%	0.352%	0.352%	0.352%	0.352%	0.349%	0.349%	0.349%	0.349%	0.429%	0.429%	0.429%	0.429%	1.520%

Source: Passero Analysis, 2014.

3.3.4.1. Selection of Preferred Operations Forecast

Similar to the selection of a preferred based aircraft forecast, the projections of annual operations were presented to the TAC during an open forum where the merits of each forecasting methodology was discussed and selection of a preferred forecast for aircraft operations to guide the remainder of this study effort was made. Through this discussion it was determined that the State of Ohio's aviation activity projections published in the most recent state aviation system plan, would serve well to predict future operations at MGY over the planning period. This methodology reflects an AAGR of 1.52 percent through 2014. **Table 3-7** presents the projected level of annual aircraft activity in each of cardinal forecast years.

Table 3-7. Preferred Forecast of Aeronautical Operations

YEAR	ANNUAL OPERATIONS
2015	85,130
2020	91,800
2025	98,992
2030	106,747
2034	113,387

Sources: Passero Associates, DWBA ALP Technical Advisory Committee, 2014.

3.3.5. Airport Utilization Forecast–Local/Itinerant Operation Split

The level of local and itinerant operations at an airport can influence a variety of facility recommendations to in include such things as hangar and apron space considerations. A local operation is one that is conducted within the airport traffic pattern or stays within 20 miles of the takeoff airport without landing anywhere else. Typically local general aviation operations are associated with training activities and flight instruction; while itinerant operations are arrivals and departures other than local operations performed by either based or transient aircraft, and that do not remain in the traffic pattern. Based on the Ohio OSASP, FAA TAF, Airport Master Record 5010 and airport management the operations split are 52.05% local operations and 47.95% itinerant operations. For the purposes of this analysis the TAC determined these values appropriate to use to project future activity. Using the preferred operations forecast presented in Table 3-7, **Table 3-8** projects the level of local and itinerant traffic for the cardinal forecast years.

Table 3-8. Utilization Forecast - Local vs. Itinerant

YEAR	LOCAL	%	ITINERANT	%	TOTAL OPERATIONS
2011	42,993	52.05%	39,607	47.95%	82,600
2012	42,993	52.05%	39,607	47.95%	82,600
2013	42,993	52.05%	39,607	47.95%	82,600
FORECAST					
2015	44,310	52.05%	40,820	47.95%	85,130
2020	47,782	52.05%	44,018	47.95%	91,800
2025	51,525	52.05%	47,467	47.95%	98,992
2030	55,562	52.05%	51,185	47.95%	106,747
2034	59,018	52.05%	54,369	47.95%	113,387

Source: Airport Records, FAA TAF, OSASP, Passero, DWBA ALP Technical Advisory Committee, 2014.

3.4. Peaking Characteristics

Annual projections provide a good overview of activity at an airport, but fail to reflect operational characteristics of the facility. In many cases, facility requirements are not driven by annual demand, but rather by the capacity shortfalls and delays experienced during times of peak operational activity. Therefore, forecasts are developed for the peak

month, the average day in the peak month, and the peak hour of the peak day. The values for these metrics were calculated using the methodology in FAA Advisory Circular 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*, with exception to the peak month calculation. For the purpose of this analysis, the peak month calculation was assumed to be an average month plus 20 percent. Specifically, peak hour operations were calculated using the following approach:

- **Peak Month Operation:** This level of activity is defined as the calendar month when peak aircraft operations occur, assuming 20% increase of total annual operations within that month.
- **Average Day/Peak Month:** This level of operation is defined as the average day within the peak month determined by dividing peak month operations by number of days within the peak month (in this case 30).
- **Design Hour Operation:** This level of operation is defined as the peak hour within the design day, assuming 12% of daily operations in the design hour.

Using the preferred operations forecast presented in Table 3-7, **Table 3-9** depicts the computation of peak month, peak day, and design hour for each cardinal forecast year.

Table 3-9. Peak Hour Operations

YEAR	ANNUAL OPERATIONS	PEAK MONTH	PEAK DAY	DESIGN HOUR		
				LOCAL	ITINERANT	TOTAL
2015	85,130	8,513	284	18	16	34
2020	91,800	9,180	306	19	18	37
2025	98,992	9,899	330	21	19	40
2030	106,747	10,675	356	22	20	43
2034	113,387	11,339	378	24	22	45

Source: Passero Analysis, 2014.
Airport: Operating Hours 0800-2100 hours

3.5. Comparison to FAA Terminal Area Forecast

If an airport is included in the FAA Terminal Area Forecasts, any new aviation activity forecasts needs to be reviewed and approved by the agency before they can be applied to further analyses. During this review the FAA looks to see if the based aircraft and annual operations forecast differ from the TAF by less than ten percent in the first five year period and 15 percent in the first 10-year period. However, an FAA Memorandum dated December 23, 2004 states, "Where the 5 or 10-year forecast does not exceed 100,000 total annual operations or 100 based aircraft, then it does not need headquarters review, and should be provided for use in the annual update of the TAF." Being the preferred forecast of annual operations does not exceed 100,000 in the first 10 years of the forecast period, it should be validated by the FAA's airports district office in the Great Lakes Region, approved for use in this planning study, and included in the next update to the FAA's TAF. As mentioned previously in this report, the FAA has historically not committed the resources to forecasting based aircraft and operational activities at MGY. To express the relationship between the FAA forecast for MGY and that developed in this report, **Table 3-10** compares each for both based aircraft and operations.

Table 3-10. FAA Comparison Forecast

	BASED AIRCRAFT			AIRPORT OPERATIONS		
	ALP FORECAST	TAF FORECAST	% DIFFERENCE	ALP FORECAST	TAF FORECAST	% DIFFERENCE
2015	94	95	-1.05%	85,130	82,600	3.06%
2020	99	95	4.21%	91,800	82,600	11.14%
2025	105	95	10.53%	98,992	82,600	19.85%
2030	111	95	16.84%	106,747	82,600	29.23%
2034	117	95	23.16%	113,387	82,600	37.27%

Source: Passero Analysis, 2014.

3.6. Summary

As a general aviation reliever airport for the Dayton area and an Ohio Level 1 airport, Dayton-Wright Brothers Airport is a vital asset to both the aeronautical community as well as the City of Dayton and its surrounding municipalities. As identified in the previous chapter, the Airport was initially developed to be a business-class general aviation facility supporting one of the nation's first flight departments. Today, high levels of business aircraft are still apparent at MGY and are anticipated to grow in the coming years. The data and methods used to forecast aviation demand for the Airport are consistent with those used by the FAA and other general aviation airports around the nation. The forecasts presented in this study are considered to reasonably reflect the activity anticipated at Dayton-Wright Brothers Airport through 2034 given the information analyzed and available during this study. The subsequent chapter will utilize the preferred forecasts identified to examine the ability of existing facilities to accommodate the type and level of traffic anticipated at the Airport.

Chapter Four

Design Criteria/Facility Requirements

4. DESIGN CRITERIA/FACILITY REQUIREMENTS

4.1. Introduction

To ensure that the Dayton-Wright Brothers Airport meets airfield design and safety requirements and is adequately prepared to accommodate future aeronautical demands, this chapter reviews airfield design criteria and establishes facility requirements for the future planning and development of the Airport. The principal challenge facing any growing airport is that of meeting future development requirements while maintaining compliancy with design and safety requirements. Airport development can be costly, and since each project is typically planned to last many years, care must be taken to ensure that each project will help satisfy the projected level of airport needs, be compliant with grant obligations, and remain consistent with the overall Airport and community vision.

4.2. Airside Facility Requirements

In order to determine facility requirements, airport facilities must be evaluated against the both existing and forecasted levels of aircraft activity. Before that can be done, it is necessary to identify the FAA criteria for the planning and design of airports. Such criteria is a key element in defining airport development needs, as most facilities are directly associated with the size and type of aircraft using the airport. As identified in FAA AC 150/5300-13A, *Airport Design,* airport design standards provide basic guidelines for safe, efficient, and economic airport systems. These standards are based upon three primary classifications: Aircraft Approach Category (AAC) and Airplane Design Group (ADG), together called the Runway Design Code (RDC), and Taxiway Design Group (TDG). Each of these is defined below while **Tables 4-1** and **4-2** and **Figure 4-1** details the parameters of each.

AAC – A grouping of aircraft based on a reference landing speed (V_{ref}), if specified, or if V_{ref} is not specified, 1.3 times stall speed (V_{so}) at the maximum certificated landing weight.

ADG – A classification of aircraft based on wingspan and tail height.

TDG – A classification of airplanes based on outer to outer main gear width (MGW) and cockpit to main gear (CMG) distance.

Table 4-1. Aircraft Approach Category (AAC)

AIRCRAFT APPROACH CATEGORY	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
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

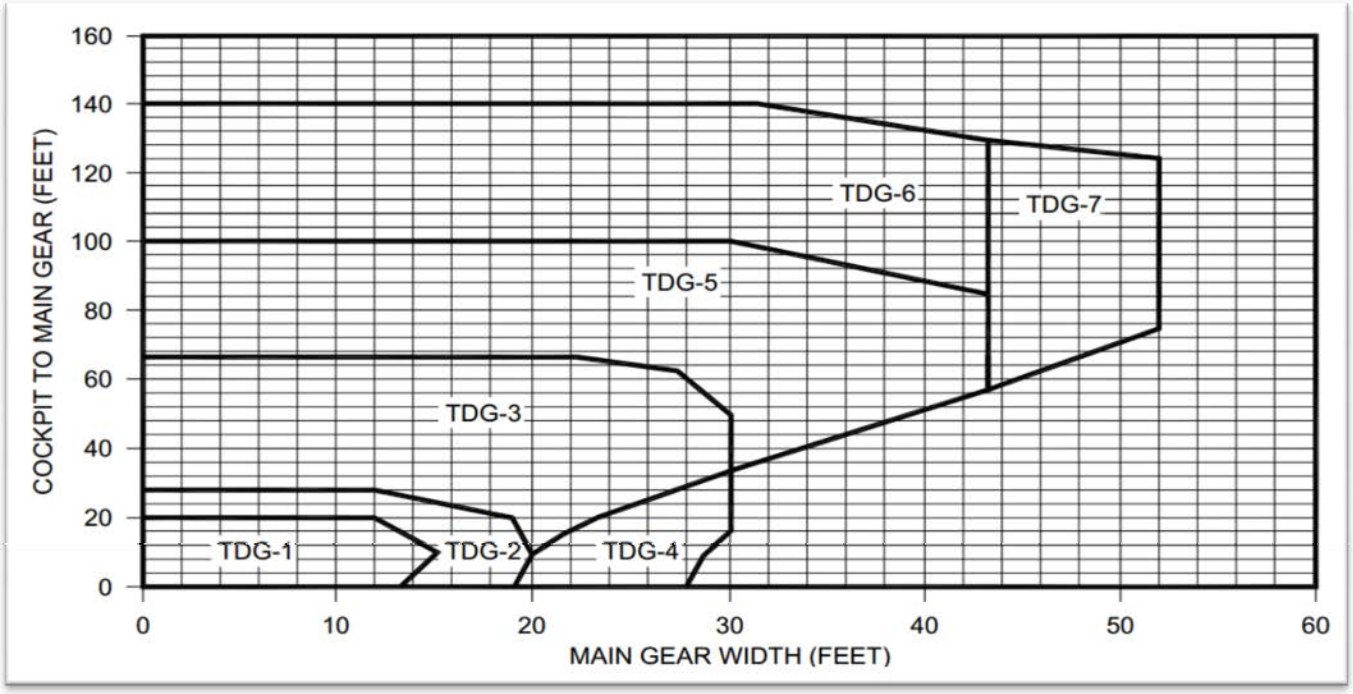
Source: FAA AC 150/5300-13A, Table 1-1

Table 4-2. Airplane Design Group (ADG)

GROUP #	*TAIL HEIGHT (FT)*	*WINGSPAN (FT)*
I	<20'	<49'
II	20' - <30'	49' - < 79'
III	30' - < 45'	79' - < 118'
IV	45' - < 60'	118' - < 171'
V	60' - < 66'	171' - < 214'
VI	66' - < 80'	214' - < 262'

Source: FAA AC 150/5300-13A, Table 1-2

Figure 4-1. Taxiway Design Group



Source: FAA AC 150/5300-13A, Table 1-2

4.2.1. Critical Aircraft

In accordance with FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, dimensional standards (such as runway length and width, separation standards, surface gradients, etc.) should be selected which are appropriate for the critical aircraft that will make substantial use of the airport in the planning period. Substantial use is defined as 500 or more annual itinerant operations (or 250 arrivals/departures), or scheduled commercial airline service. The critical aircraft may be a single aircraft or a composite of the most demanding characteristics of several aircraft.

To facilitate the analysis of airport activity levels by aircraft approach category and airplane design group, the FAA's Enhanced Air Traffic Management System Counts (ETMSC) database was consulted for calendar year 2013 operational data. The ETMSC database provides information on aeronautical traffic counts at U.S. airports and sources its data from flight plans filed by pilots and/or when flights are directed by the National Airspace System (NAS), most often via RADAR. So, while the ETMSC database does not capture 100 percent of all airport activity, particularly local operations not filing formal flight plans, the database does provide a reasonable understanding of airport activity and should be considered to be most accurate with respect to the more complex aircraft as they are more likely to fly under IFR and along a filed flight plan. **Table 4-3** below reveals the level of Airport activity by AAC and ADG for calendar year 2013 which confirms the runway design code (RDC) of C-II as the most appropriate for MGY. While only 416 AAC C aircraft were logged into the ETMSC database in 2013, the Airport recognizes that number is arguably low as a result of reporting practices and data inconsistencies associated with ETMSC, as evidenced by the fact that the 2013 ETMSC report accounted for just over 6 percent of all operations in 2013. Further, letters received from aircraft operators indicate that MGY would experience more AAC "C" and ADG "II" aircraft if additional runway length is provided. This correspondence between Airport staff and aircraft operators which occurred as part of this study effort is detailed in **Appendix B** of this document. As such, the airfield's RDC classification should remain C-II as adequate demand exists to substantiate that classification.

Table 4-3. Critical Aircraft Pivot Table

DESIGN GROUP	AIRCRAFT APPROACH CATEGORY				
	A	B	C	D	GRAND TOTAL
I	1960	1058	179	0	3197
II	207	1471	235	2	1915
III	0	0	2	0	2
IV	0	0	0	0	0
GRAND TOTAL	2167	2529	416	2	5114

Source: FAA ETMSC – CY2013.

Based on a detailed analysis of ETMSC records, records provided by on-site FBO's, and other sources, the Learjet 45 and Cessna Citation 550, can Challenger 600 were determined to best represent the critical aircraft for future facility planning at MGY. The Learjet 45, a C-I aircraft, conducted in excess of 144 operations in 2013. The Cessna Citation 550, a B-II aircraft, conducted in excess of 230 operations in 2013. The Challenger 600, a C-II aircraft, conducted in excess of 20 operations in 2013. All of these aircraft are common in the national airspace system, and are representative of a number of business jet aircraft.

Figure 4-2 and **4-3** review the established FAA design criteria for RDC C-II airfields. **Table 4-4** examines existing airfield conditions as described in Chapter 2 against those design standards.

Table 4-4 identifies a number of instances where MGY fails to meet the minimum design standards as prescribed by the FAA. Specifically, the RSA length beyond the Runway 2 departure end (north) is 525 feet short of its required 1,000-foot length. The Airports fence line and Austin Blvd. are the primary limitations for the RSA beyond the Runway 2 departure end. Additionally, the ROFA beyond the departure end of Runway 2 is similarly impacted, as only 365 feet is available before the fence and road pose obstructions. Additionally, the ROFA beyond the departure end of Runway 20 (south) is 460 feet short of its 1,000-foot required length as a result of its relationship to Springboro Pike which impacts the ROFAs southwest corner. Further, this analysis identifies that the parallel portion of Taxiway-A does not provide the required 300-foot centerline-to-centerline clearance as required, and the airfield RPZs are not fully owned by the Airport or under some form of control enabling the airport to limit certain activities or uses. Further, a number of incompatible developments were identified within the limits of the RPZs, specifically Austin Blvd. which intersect the Runway 20 RPZ, and multiple retail developments and roadways within the Runway 2 RPZ were identified. These and other airfield deficiencies will be address in the following sections and mitigation decisions reflected in the ALP document.

Table A7-8. Runway design standards matrix, C/D/E - II

Aircraft Approach Category (AAC) and Airplane Design Group (ADG):		C/D/E - II			
ITEM	**DIM [1]**	VISIBILITY MINIMUMS			
		Visual	Not Lower than 1 mile	Not Lower than 3/4 mile	Lower than 3/4 mile
RUNWAY DESIGN					
Runway Length	A	*Refer to paragraphs 302 and 304*			
Runway Width	B	100 ft	100 ft	100 ft	100 ft
Shoulder Width		10 ft	10 ft	10 ft	10 ft
Blast Pad Width		120 ft	120 ft	120 ft	120 ft
Blast Pad Length		150 ft	150 ft	150 ft	150 ft
Crosswind Component		16 knots	16 knots	16 knots	16 knots
RUNWAY PROTECTION					
Runway Safety Area (RSA)					
Length beyond departure end [9, 10]	R	1,000 ft	1,000 ft	1,000 ft	1,000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width [13]	C	500 ft	500 ft	500 ft	500 ft
Runway Object Free Area (ROFA)					
Length beyond runway end	R	1,000 ft	1,000 ft	1,000 ft	1,000 ft
Length prior to threshold [11]	P	600 ft	600 ft	600 ft	600 ft
Width	Q	800 ft	800 ft	800 ft	800 ft
Runway Obstacle Free Zone (ROFZ)					
Length		*Refer to paragraph 308*			
Width		*Refer to paragraph 308*			
Precision Obstacle Free Zone (POFZ)					
Length		N/A	N/A	N/A	200 ft
Width		N/A	N/A	N/A	800 ft
Approach Runway Protection Zone (RPZ)					
Length	L	1,700 ft	1,700 ft	1,700 ft	2,500 ft
Inner Width	U	500 ft	500 ft	1,000 ft	1,000 ft
Outer Width	V	1,010 ft	1,010 ft	1,510 ft	1,750 ft
Acres		29.465	29.465	48.978	78.914
Departure Runway Protection Zone (RPZ)					
Length	L	1,700 ft	1,700 ft	1,700 ft	1,700 ft
Inner Width	U	500 ft	500 ft	500 ft	500 ft
Outer Width	V	1,010 ft	1,010 ft	1,010 ft	1,010 ft
Acres		29.465	29.465	29.465	29.465
RUNWAY SEPARATION					
Runway centerline to:					
Parallel runway centerline	H	*Refer to paragraph 316*			
Holding Position		250 ft	250 ft	250 ft	250 ft
Parallel taxiway/taxilane centerline [2]	D	300 ft	300 ft	300 ft	400 ft
Aircraft parking area	G	400 ft	400 ft	400 ft	500 ft
Helicopter touchdown pad		*Refer to AC 150/5390-2*			

Note:

- Values in the table are rounded to the nearest foot. 1 foot = 0.305 meters.

Footnotes:

1. Letters correspond to the dimensions in Figure 3-26.
2. The runway to taxiway/taxilane centerline separation standards are for sea level. At higher elevations, an increase to these separation distances may be required to keep taxiing and holding aircraft clear of the inner-transitional OFZ (refer to paragraph 308.c). Using this standard to justify a decrease in runway to taxiway/taxilane separation is not permitted.
3. The standard runway centerline to parallel taxiway centerline separation distance is 400 feet for airports at or below an elevation of 1,345 feet; 450 feet for airports between elevations of 1,345 feet and 6,560 feet; and 500 feet for airports above an elevation of 6,560 feet.
4. For approaches with visibility less than ½-statute mile, runway centerline to taxiway/taxilane centerline separation increases to 400 feet.
5. For approaches with visibility less than ½-statute mile, the separation distance increases to 500 feet.
6. For approaches with visibility less than 3/4 statute mile, the separation distance increases by any elevation adjustment. For approaches with visibility less than ½-statute mile, the separation distance increases to 550 feet.
7. This distance is increased 1 foot for each 100 feet above 5,100 feet above sea level.
8. This distance is increased 1 foot for each 100 feet above sea level.
9. The RSA length beyond the runway end begins at the runway end when a stopway is not provided. When a stopway is provided, the length begins at the stopway end.
10. The RSA length beyond the runway end may be reduced to that required to install an Engineered Materials Arresting System (EMAS) (the designed set-back of the EMAS included) designed to stop the design aircraft exiting the runway end at 70 knots.
11. This value only applies if that runway end is equipped with electronic or visual vertical guidance. If visual guidance is not provided, use the value for "length beyond departure end."
12. For airplanes with maximum certificated takeoff weight of 150,000 lbs or less and approach visibility minimums of not less than 3/4 mile, the standard runway width is 100 feet, the shoulder width is 20 feet, and the runway blast pad width is 140 feet.
13. An RSA width of 400 feet is permissible.

Table 4-4. Airfield Compliancy Matrix

	C-II DESIGN STANDARD	CURRENT	
		RW 2	RW 20
RUNWAY DESIGN			
Runway Length	N/A	TBD	
Runway Width	100 ft	100 ft	
Shoulder Width	10 ft	10 ft	
Blast Pad Width	120 ft	N/A	
Blast Pad Length	150 ft	N/A	
RUNWAY PROTECTION			
Runway Safety Area (RSA)			
Length beyond departure end	1,000 ft	475 ft	1,000 ft
Length prior to threshold	600 ft	900 ft	1,075 ft
Width	400 ft	400 ft	400 ft
Runway Object Free Area (ROFA)			
Length beyond departure end	1,000 ft	365 ft	540 ft
Length prior to threshold	600 ft	540 ft	955 ft
Width	800 ft	800 ft	800 ft
Runway Obstacle Free Zone (ROFZ)			
Beyond departure end	200 ft	200 ft	200 ft
Width	400 ft	400 ft	400 ft
Appch. & Dept. Runway Protection Zone (RPZ)			
Length	1,700 ft	1,700 ft	1,700 ft
Inner Width	500 ft	500 ft	500 ft
Outer Width	1,010 ft	1,010 ft	1,010 ft
Acres / (owned or controlled)	29.465	(>29.465)	(>29.465)
RUNWAY SEPARATION			
Runway Centerline to:			
Holding position	250 ft	250 ft	
Parallel taxiway/taxilane Centerline	300 ft	250 ft	
Aircraft parking area	400 ft	> 400 ft	

Source: Passero, 2014.
Notes: Red text delineates a failure to meet design standards and Green text delineates where design standards are exceeded.

4.2.2. Runway Requirements

As the primary airfield component, a runway must have the proper length, width, and strength to safely accommodate the critical aircraft. FAA advisory circulars and specific aircraft performance data provide guidelines to determine the ultimate runway length required. Runway width requirements are delineated in FAA AC 150/5300-13A. These and other design standards are based on the critical aircraft's Approach Category, Design Group, and the runway's approach visibility minimums.

Pavement strength is predicated upon the critical aircraft's weight and how that weight is distributed through the landing gear. Projects to rehabilitate runway pavements are routinely conducted every 15 to 20 years after the previous major rehabilitation, strengthening, or new construction. These projects, which repair damage to the runway pavement resulting from normal wear, need to be conducted even at airports with regular pavement maintenance programs, including crack sealing and surface seal coats.

4.2.2.1. Runway Length Requirements

Runway length requirements will be calculated by taking into consideration the elevation and average hot temperature at the airport, the performance characteristics of the individual aircraft, runway conditions, the operating weight, and the amount of payload (passengers, baggage, and cargo) being carried. The following sections identify FAA recommended adjustments to runway length calculations as well as the assumptions made specific to this analysis used to guide the realization of a preferred runway length at MGY.

Density Altitude

When aircraft operate during periods of high temperatures, the relative increased density altitude decreases an aircraft's operational performance. Density altitude is defined as the altitude at which the density of the International Standard Atmosphere (ISA) is the same as the density of the air being evaluated. Actual density altitude for any given location at any specific time is a function of ground elevation, temperature, atmospheric pressure, and dew point (or the amount of water vapor in the air). Being the density altitude changes over time and has the potential to impact aircraft operational performance, it is prudent to plan a runway to accommodate its traffic demand during times of elevated density altitudes when aircraft operate with less efficiency. When aircraft performance characteristics for specific density altitudes are not obtainable and only sea level performance characteristics are published, a seven percent multiplier is applied to sea level runway length per each 1,000 feet of density altitude calculated, as prescribed by FAA guidance. **Figure 4-4** depicts the calculation of density altitude for this analysis. Based on this information, a multiplier of 1.22 was utilized to adjust runway length requirements when those lengths were provided for sea level operations under standard atmospheric conditions.

Runway Vertical Geometry

The FAA recommends that the determined runway lengths required for an airport be adjusted, if necessary, to account for specific conditions including the maximum difference in runway centerline elevation along the runways length and runway surface conditions. The maximum difference of runway centerline elevation has the potential to impact recommended runway lengths. A runway that has variation in centerline elevation between runway ends produces uphill and downhill conditions, which in turn, impose additional limitations on aircraft when arriving or departing the airfield. For instance, an aircraft departing a runway on its uphill alignment will require additional power and runway length to compensate for the uphill situation. Conversely, aircraft landing on a runway will require additional distance to come to a full stop if oriented on the runways' downhill alignment. To adjust for this and ensure runways are appropriately sized to accommodate aircraft in all conditions, the FAA encourages an additional 10 foot of runway length be added to the runway length calculation for each foot of elevation difference between the high and low points of the runway. Considering the 20.4-foot different in runway end elevation for Runway 2-20 at MGY, an additional 204 feet will be added to any calculated runway length requirements to adjust for this condition.

Contaminated Runway Conditions

An adjustment is made to a determined runway length relative to the runway's surface condition to address wet and/or slippery runways for landing operations. Wet, slippery, or otherwise contaminated runway conditions, decrease traction and reduce the deceleration performance of aircraft during landing operations. To account for this the required runway length for landing under dry/uncontaminated conditions is increased by 15 percent, as prescribed by the FAA, to adjust landing length requirements for wet conditions which can be regularly expected at the Airport.

Operational Limitations – Declared Distances

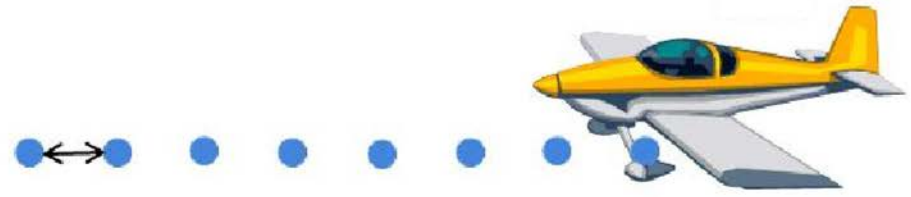
When the physical runway length at an airfield is not declared as useable for a specific type of operation (takeoff or landing) in a specific direction, declared distances are used to express to pilots the useable runway lengths and ensure airfield and airspace safety requirements are met. Declared distances therefore represent the maximum distances available and suitable for meeting takeoff, rejected takeoff, and landing distance performance requirements. Most often, declared distances are implemented at an airfield to meet Runway Safety Area (RSA) and/or Runway Object Free Area (ROFA) requirements, or to meet runway approach and/or departure surface clearance requirements.

Density Altitude Calculator

Elevation	(•) feet	( ) meters	957
Air Temperature	(•) deg F	( ) deg C	86
Altimeter Setting	(•) inches Hg	( ) hPa	29.92
Dew Point	(•) deg F	( ) deg C	68

Calculate Reset

Density Altitude	3196	feet	974	meters
Absolute Pressure	28.9	inches Hg	978.66	hPa
Air Density	0.0696	lb/ft3	1.114	kg/m3
Relative Density	90.98	%	90.98	%
Estimated AWOS	2900	feet	884	meters



At 1000', the air molecules are closer together. The closer together they are, the higher the pressure is. The faster the plane moves, the faster the air molecules go into the Pitot tube and the higher the pressure is. The amount of total pressure is what determines what airspeed you see on your airspeed indicator.

At 5000' the air molecules are farther apart. Since the density of the air is less at higher altitudes, the pressure is also less. Since the total pressure is what determines the speed you see, then in order to get the pressure the same at a higher altitude, the plane has to go faster since the air is less dense.

Source: FAR/AIM

PASSERO ASSOCIATES

LWC INCORPORATED

Dayton - Wright Brothers Airport
Dayton, Ohio

Density Altitude Calculation & Explanation

Figure 4-4

The following definitions are necessary to fully understand the terminology and implications of declared distances.

- Take-off Runway Available (TORA) is defined as the distance to accelerate from brake release to lift off, plus safety factors. This distance defines the length of runway declared available and suitable to satisfy take-off run minimums.
- Take-off Distance Available (TODA) is the distance to accelerate from brake release past lift off to start the take-off climb, plus safety factors. This distance consists of the TORA plus any remaining runway or clearway beyond the far end of the TORA available to satisfy take-off distance requirements.
- Accelerate Stop Distance Available (ASDA) is the distance to accelerate from brake release to aircraft take-off decision speed (V1) and then decelerate to a stop, plus safety factors. This distance defines the runway plus stopway declared available and suitable for satisfying ASDA requirements.
- Landing Distance Available (LDA) is the distance from threshold required to complete approach, touchdown, and deceleration to a stop, plus safety factors.

Runway length recommendations made in this report take into account not just the physical runway length, but the operational lengths available to aircraft depending on operation type and direction as well. In general, the available TORA and ASDA are the most critical for determining the required runway length for specific aircraft.

Presently, and as a result of the 590-foot displacement to the Runway 20 threshold, declared distances are in place and do present operational limitations for aircraft. This displacement was made previously to ensure the Threshold Siting Surface (TSS) remained clear of the obstruction presented by Austin Blvd. Additionally, as a result of the limited RSA beyond the Runway 2 departure end operational lengths are also affected. Based on the current airfield markings and existing ALP, **Table 4-5** tabulates the individual declared distances for each runway end.

Table 4-5. Existing Declared Distances

	TORA	TODA	ASDA	LDA
RUNWAY 2	4,475	4,475	4,475	4,475
RUNWAY 20	5,000	5,000	5,000	4,410

Source: Passero, 2014.

Input Data and Assumptions

To perform initial calculations and determine a baseline understanding of the optimal runway length for MGY, the following input data was used and assumptions made:

- The fleet mix of aircraft reviewed include all aircraft indicated in letters from operators (Appendix B) to be utilizing MGY's facilities and validated through the FAA's ETMSC database.
- The aircraft weight was assumed to be the maximum allowable gross takeoff weight (MTOW) for the specific aircraft type and model based on FAA guidance for determining runway length requirements.
- The temperature at takeoff was assumed to be the average maximum daily temperature in the summer months for the Dayton area (86° F).
- The density altitude based on the elevation, temperature, and humidity for all operations equals 3,196 feet MSL resulting in a multiplier of 1.22 for runway lengths in standard atmospheric conditions at sea level per FAA guidance.
- Landing distances increased 15 percent to account for contaminated runway conditions.
- Wind speed was assumed to be zero.
- Aircraft were assumed to operate with their optimal flap settings for takeoff and landings.

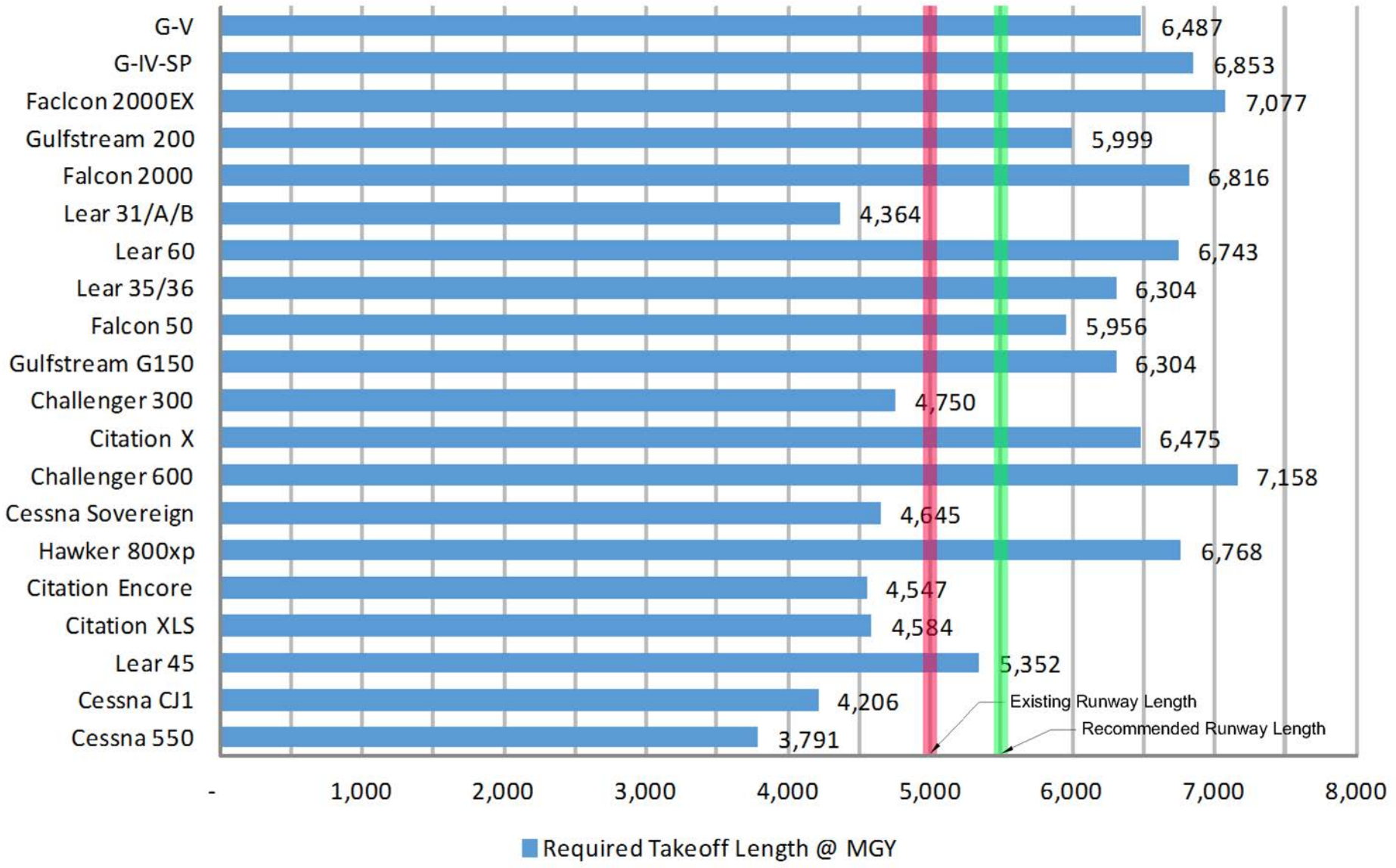
Runway Length Findings

Utilizing the approach to calculating runway length for MGY described in the preceding sections, **Table 4-6** presents the analysis in tabular form for the fleet mix of aircraft selected, while **Figure 4-5** and **4-6** graphically depict the takeoff and landing length requirements, respectively, for the same grouping of aircraft. Operational information as published by the aircraft manufacturer was reviewed for each aircraft and a balanced field length determined. Being manufacturers of the aircraft reviewed only published takeoff requirements for sea level ISA conditions, each initial field length was adjusted for a typically high pressure altitude at MGY before being further adjusted to account for runway gradient. Based on the analysis presented, Runway 2-20 at MGY should be extended to a total length of 5,500 to 6,000 feet. A length of at least 5,500 feet would fully accommodate both critical aircraft (C550 and Lear 45) identified for the Airport and provide a significant operational improvement for a number of large business jets making regular use of the facility. To that end, many of the letters from operators in support of a longer runway length at MGY (Appendix B) indicate that 5,500' feet or more would improve, and in some cases initiate, their activities at the Airport.

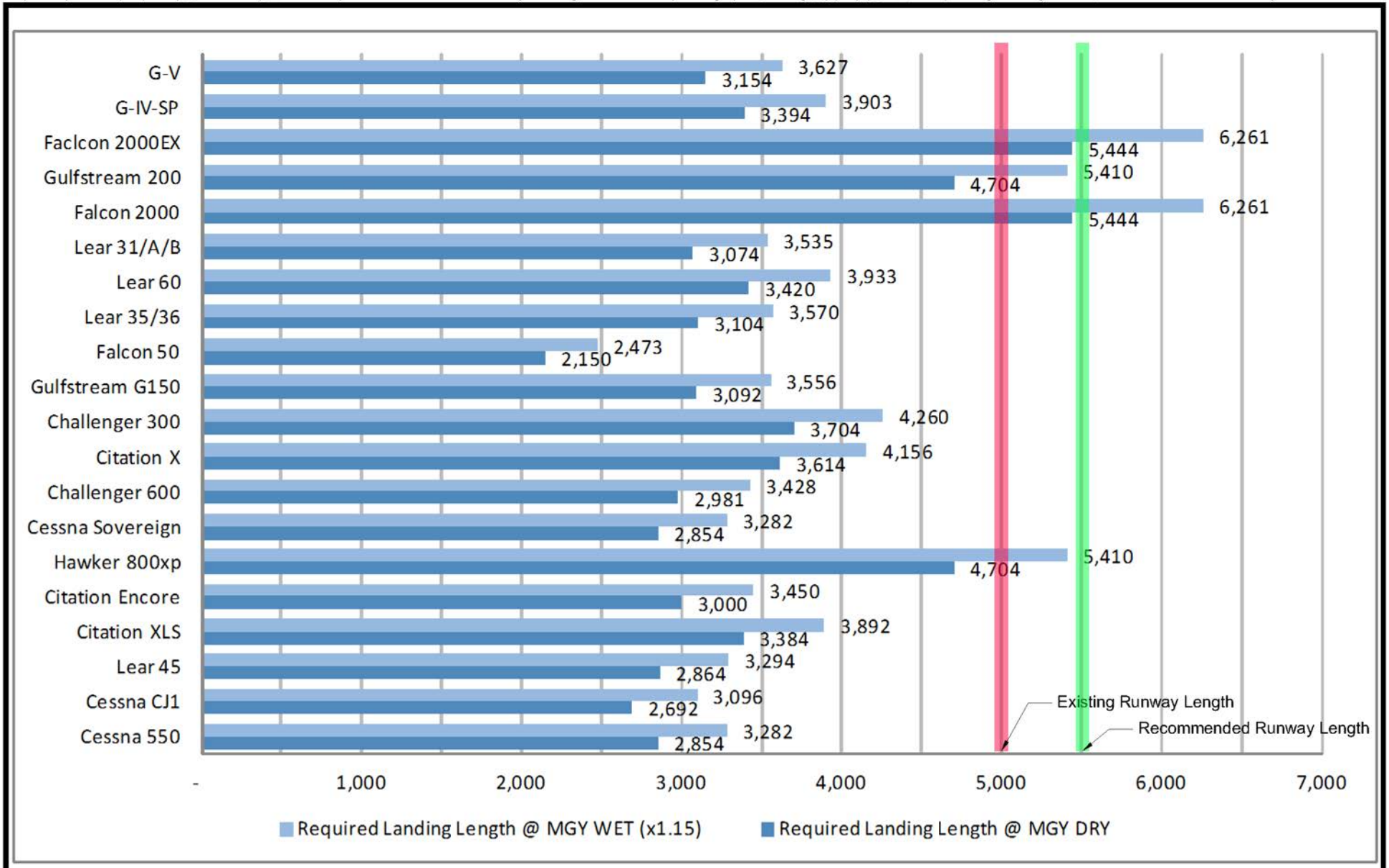
Table 4-6. Runway Length Analysis

AIRCRAFT	AIRPORT REFERENCE CODE (ARC)	ETMSC RECORDED OPERATIONS CY2013	MAXIMUM TAKEOFF WEIGHT (POUNDS)	BALANCED FIELD LENGTH (FT)	X 1.21 FOR PRESSURE ALTITUDE	RUNWAY END ELEVATION ADJUSTMENT	REQUIRED TAKEOFF LENGTH @ MGY	REQUIRED LANDING LENGTH @ MGY	
								DRY	WET (X1.15)
Cessna 550	B-II	230	15,100	2,940	3,587	+204	3,791	2,854	3,282
Cessna CJ1	B-II	170	10,700	3,280	4,002	+204	4,206	2,692	3,096
Lear 45	C-I	144	21,500	4,220	5,148	+204	5,352	2,864	3,294
Citation XLS	B-II	122	20,200	3,590	4,380	+204	4,584	3,384	3,892
Hawker 800xp	B-II	33	28,000	5,380	6,564	+204	6,768	4,704	5,410
Cessna Sovereign	C-II	26	30,300	3,640	4,441	+204	4,645	2,854	3,282
Challenger 600	C-II	20	47,600	5,700	6,954	+204	7,158	2,981	3,428
Citation X	C-II	15	35,700	5,140	6,271	+204	6,475	3,614	4,156
Challenger 300	C-II	12	38,850	NA	NA	+204	4,750	3,704	4,260
Gulfstream G150	C-II	8	26,100	5,000	6,100	+204	6,304	3,092	3,556
Lear 35/36	C-I	8	18,300	5,000	6,100	+204	6,304	3,104	3,570
Lear 31/A/B	C-I	5	15,500	3,410	4,160	+204	4,364	3,074	3,535
Falcon 2000	B-II	2	35,000	5,420	6,612	+204	6,816	5,444	6,261
Faclcon 2000EX	B-II	-	41,300	5,634	6,873	+204	7,077	5,444	6,261
G-IV-SP	D-II	-	74,600	5,450	6,649	+204	6,853	3,394	3,903
G-V	D-II	-	90,500	5,150	6,283	+204	6,487	3,154	3,627
Gulfstream 200	C-II	-	35,450	4,750	5,795	+204	5,999	4,704	5,410
						Straight Average	**5,761**	**3,592**	**4,131**
						Weighted Average	**4,647**	**3,022**	**3,476**

Source: Passero, 2014.



PASSERO ASSOCIATES LWC INCORPORATED	Dayton - Wright Brothers Airport Dayton, Ohio	Takeoff Length Requirements Analysis	Figure 4-5



PASSERO ASSOCIATES LWC INCORPORATED

Dayton - Wright Brothers Airport
Dayton, Ohio

Landing Length Requirements Analysis

Figure 4-6

4.2.2.2. Runway Width

The existing runway width of 100 feet meets the standards for a C-II airfield. Being the RDC designation of C-II is not anticipated to change over the planning period, the 100-foot runway width should be preserved and maintained so as to meet the needs of users and uphold its position as a general aviation reliever airport for Dayton International (DAY).

4.2.2.3. Runway Pavement Strength

Runway 2-20 has a published weight bearing capacity of 50,000 pounds for aircraft with single wheel type landing gear, and 60,000 pounds for aircraft with dual wheel landing gear. While the Runway does support irregular traffic by some heavy aircraft, the majority of aircraft operating at MGY fall below these weights. Existing pavement strength should be maintained and all pavements on the airfield should be included in a routine maintenance program to maximize their lifespan.

4.2.3. Taxiway Requirements

As one of the critical aircraft, the Cessna C550, is used to determine taxiway design standards for MGY. This aircraft is classified by the FAA is a taxiway design group (TDG) II aircraft as a result of its landing gear dimensions (cockpit to main gear length and main gear width). This design group requires taxiways be at least 35 feet wide and meet specific clearance requirements, including the taxiway safety area and taxiway/taxilane object free areas.

The taxiway safety area (TSA) serves a similar purpose as the runway safety area. the TSA provides for cleared and graded land capable of supporting emergency equipment on either side of the taxiway. For a TDG II airfield the TSA is 79 feet wide, or 39.5 feet on either side of the taxiway centerline.

The taxiway and taxilane object free area (TOFA) provide for wingtip clearance for aircraft while on a taxiway or taxilane. Taxiways and taxilanes are considered separately based on the typical speed of aircraft movements. Taxilanes are generally located on apron areas and/or provide access to hangar areas where aircraft move slowly, While taxiways are more of the arterial connectors where aircraft move more quickly. As a result the taxiway object free area for TDG II aircraft is 65.5 feet on either side of centerline and the taxilane OFA is reduced to 57.5 feet on either side of centerline.

At present, the taxiway system at MGY conforms to the TDG II design standards discussed. The taxilanes supporting the T-hangar areas and infield tie-down area however were design for smaller aircraft more in line with TDG I standards.

4.2.3.1. Parallel Taxiway

Parallel taxiways serve to enhance airport capacity and safety by encouraging pilots to exit the runway environment quickly. At present only the southernmost 600 feet of Taxiway A is parallel to Runway 2-20 at MGY and has been identified to fail to meet separation standards from the runway for an RDC C-II airfield. With a centerline to centerline distance of only 250 feet from Runway 2-20, this portion of Taxiway A should be relocated 50 feet west at a minimum to provide the required 300-foot centerline to centerline separation.

While not required, a full parallel taxiway at MGY could prove to be a valuable asset. An extension to Taxiway A could significantly enhance developable lands on the west side of the runway, while a parallel, or partial parallel, taxiway on the runways east side could support aviation-centric development in this area.

The merits of a parallel taxiway system were evaluated by the TAC as part of this study effort and included in the future development plans for the Airport as discussed in the subsequent chapter.

4.2.4. Airfield Support Equipment Requirements

A number of facilities are necessary to support the operations of the airfield, including; instrument approaches, airfield lighting, airfield signage and markings, and communications equipment. Each of these are described in the following sections.

4.2.4.1. Instrument Approach Needs

As identified in Chapter 2 of this report, the Airport is currently supported with non-precision instrument approaches to each runway end. Satellite based GPS approaches enable aircraft to approach both Runway 2 and Runway 20 during periods of inclement weather or for training purposes, and Runway 20 is further supported with a localizer based approach enabled by the localizer equipment located off the departure end of Runway 20 on the south side of the airfield.

Prior planning conducted for the Airport indicated a future precision approach to Runway 20, achieved by either locating glide slope equipment on the airfield to augment the localizer equipment for the development of an instrument landing system (ILS) approach, or by improving the existing GPS approach to achieve precision approach visibility minima(< 3/4 statute mile).

However, after understanding some of the challenges associated with providing a precision approach to either end of the airfield as well as the runway length need and typical meteorological conditions in the area, the TAC determined that the Airport should not pursue precision approaches to either runway end, but rather maintain the existing non-precision approaches with visibility minima not less than 1 statue mile.

Obstructions and Instrument Approach Limitations

Presently, the instrument approach surface to Runway 20 has a number of obstructions, most notably Austin Blvd, which the FAA requires to be reviewed at 15 feet AGL to account for any motorist on the roadway. As a result of Austin Blvd's location to the Runway 20 end, the Runway 20 threshold was previously displaced 590 feet to ensure the threshold siting surface (TSS) remained clear of obstructions. Beyond Austin Blvd. a number of vegetative obstructions can be found, though given their distance from the Runway end only minimally impact the non-precision approach surface and are far removed from the less restrictive threshold siting surface. No obstructions to the Runway 2 non-precision approach surface were identified as part of this study which relied on detailed mapping of terrain, vegetation and structures within the inner portion of the approach surface to each runway end.

4.2.4.2. Airfield Lighting

Medium intensity runway lights (MIRLs) are installed on Runway 2-20 and operated through the common traffic advisory frequency (CTAF). MIRLs are required on most runways with non-precision or precision instrument approaches while high intensity runway lights (HIRLs) are required for those runways with precision instrument approach capability using runway visual range (RVR) based minimums. Being a precision approach is not recommended at MGY, the existing MIRLs will adequately support non-precision approaches to the Airport.

As documented earlier, the current runway lighting system consist of base mounted light fixtures on can with conduit. Once the runway is extended, the future runway edge lights should also include a can and conduit type installation. The extension would also require new threshold light fixtures on the extended end. When the runway is extended, the option of installing light-emitting diode (LED) runway lights should be considered. If LEDs are allowed by the funding agency, then the existing incandescent runway light fixtures would also have to be changed. This option would make the MIRL circuit much more efficient and sustainable. After adjusting the wattage allotment from the electrical vault for an LED MIRL system, significant cost savings could be realized.

4.2.4.3. Airfield Signage

Currently there are a number of illuminated signs installed along the runway and taxiway lighting circuits. The signage system in place at MGY conforms to all minimum requirements established by both the FAA and the State of Ohio for a general aviation airport. Additional lighted airfield signage however, could significantly improve the efficient and safe movement of aircraft to and from the runway environment as well as pilot satisfaction and overall user experience. As projected in the activity forecast in the preceding chapter, the increase in operations will include an increase in itinerant traffic, which increases the number of pilots not familiar with MGYs facilities. Airfield signage should be added with each runway and taxiway lighting improvement and at a minimum, should include the mandatory runway hold position signs. Additional location and direction signs would facilitate the safe ground movement of aircraft, especially since MGY is a non-towered facility.

Runway distance remaining signs should be considered as part of the project that extends Runway 2-20 to its' ultimate preferred length and rectifies the non-standard safety and object free areas north of Runway 20. These signs, which are located along the sides of the runway provide quick reference to pilots on the length available for takeoff or landing operations. While preferred on the left side of the runway, the most economical option is to utilize double-faced signs installed so as to be on the left side of the most utilized runway - Runway 20 in this case.

4.2.4.4. Ground Communications

An improvement to the communications between aircraft on the ground at MGY with air traffic control facilities should be considered. Presently, pilots conducting instrument arrivals into the Airport must either cancel their instrument flight plans in the air before landing or by telephone once on the ground (within a specified amount of time). Instrument departures out of the Airport require pilots to telephone the Flight Service Station for a "void if not off by" time to properly obtain instrument clearance.

At non-towered airports like Dayton-Wright Brothers, it is possible for a Remote Communications Outlet (RCO) or a Remote Transmitter/Receiver (RTR) facility to be installed to enhance the ground communications described above. Both of these systems utilize VHF radio to extend the ability for aircraft on the ground to make radio contact with either a Flight Service Station or air traffic control facilities. In fact, RCOs are used to link ground communications with Flight Service Stations while RTRs connect to air traffic control facilities. For Dayton-Wright Brothers, the ground communications would be best served by the installation of a RCO. Unfortunately, the number of operations requiring this service would not justify the costs associated with a full RCO at this time.

4.2.4.5. Airfield Pavement Markings

Runway Designation

A runway designation is identified by the whole number nearest the magnetic azimuth of the runway when oriented along the runway centerline, as if on approach to that runway end. This number is then rounded off to the nearest unit of ten. Magnetic azimuth is determined by adjusting the geodetic azimuth associated with a runway to compensate for magnetic declination. Magnetic declination is defined as the difference between true north and magnetic north which varies over time and relative any specific location on earth. Magnetic declination is a natural process and does periodically require the re-designation of runways.

Current magnetic declination information was derived from the National Geophysical Data Center (NGDC) database in March 2014. Magnetic declination for the Dayton area was calculated to be 06°05'19" West changing by 4.1' West per year and the true bearing for Runway 2-20 was calculated to be 23° 19' 40.2463" based on the aeronautical survey conducted for this study effort. Using the method of *West is Best - East is Least* the declination of 06°05'19" West would need to be added to the Runway's true bearing to determine its magnetic bearing. **Table 4-4** conducts this calculation and identifies that Runway 2-20 at the Airport should be remarked as Runway 3-21. Re-designating the Runway will assist pilots in aligning their aircraft with the runway, especially when reliant on instruments.

Table 4-7. Runway Designation Calculation

RUNWAY	TRUE BEARING	MAGNETIC DECLINATION	MAGNETIC BEARING	RUNWAY DESIGNATION REQUIRED
2	23° 19' 40.2463"	+ 06°05'19" West	29° 24' 59.2463'	3
20	203° 19' 40.2463"	+ 06°05'19" West	209° 24' 59.2463'	21

Source: Passero, 2014.

Pavement Markings

Airport pavements are marked with painted lines and numbers in order to aid in the identification of the runways from the air and to provide information to the pilot during the approach phase of the flight, as well as during ground movements. There are three standard sets of markings used depending on the type of runway. These are visual markings, non-precision markings, and precision markings.

Depending on the type of aircraft activity and physical characteristics of the pavement, additional markings may be required for any of the three broad categories identified above. For example, the FAA requires aiming point markings

on any visual or non-precision runway that is greater than 4,000 feet and used by jet aircraft. The FAA also allows markings on the runway to be upgraded at any time in include elements that are not required, buy may be deemed necessary to enhance safety. Runway pavements and displaced threshold markings are painted white, while taxiway pavement markings are painted yellow. FAA guidelines state that taxiways should have centerline markings and runway holding position markings whenever they intersect with a runway.

Presently, all runway and taxiway markings are compliant with design requirements. After the relocation of the southernmost portion of Taxiway A to have a 300-foot centerline-to-centerline separation from the runway, it may be prudent to remark the hold position marking adjacent to the Runway 2 threshold so that it is perpendicular to the runway. This would maximize pilots visibility in both directions of the runway when holding and prior to accessing the active runway pavement. Additionally, it is generally advisable to extend hold position markings to the edge of pavement, including shoulders, and not be limited to that area in between a taxiways edge stripe. With that in mind, the Airport should extend the hold short marking on Taxiway A to the edge of pavement. Lastly, the markings on the terminal apron denoting the western limits of Taxiway A and its associated TOFA boundary should be improved to ensure maximum visibility to pilots and ground crews. This will help ensure that Taxiway A remains a safe and efficient movement area by clearly identifying this critical movement area.

4.3. Landside Facility Requirements

Landside facility requirements are primarily predicated upon the level of aeronautical activities at an airport, the needs and desires of based aircraft owners, and the level of service an airport intends to provide to both its local and itinerant operators. The following sections will review a number of individual landside facilities and any specific requirements they may have over the planning horizon. While specific requirements may be identified through a quantitative analysis between existing facilities and forecast of aeronautical demand, recommendations for facility improvement may also be made in the following sections based on qualitative analysis and the desired level of service the City wishes to provide at the Airport.

4.3.1. General Aviation Aprons

Given the wide variety of aircraft that can be categorized as general aviation, the planning of GA aprons is largely dependent on aircraft parking and aircraft movements. GA aprons support a variety of functions, including: parking and storage of based and itinerant aircraft, terminal access, fuel access, hangar access, and hangar utility.

For planning purposes, based and itinerant aircraft apron requirements are usually considered separately since they serve different functions. Currently 7.37 percent, or seven, of the 95 are not based in hangars. These aircraft are stored on the infield tie-down area and not on the terminal apron. The vast majority of itinerant aircraft do however utilize the terminal apron and generally do not prefer to use the in-field tie down area.

Planning metrics to estimate the apron space required for itinerant aircraft parking are provided in Airport Cooperative Research Program (ACRP) Report 96, *Apron Planning and Design Guidebook*. This report identifies that roughly a 110 square yards of apron space should be provided for ADG I aircraft and 165 square yards for ADG II aircraft when an adjacent taxilane is provided. However, to account for this maneuvering space on the apron with separations for group II aircraft these values were increased to 225 square yards for ADG I aircraft and 450 feet for ADG II aircraft.

In addition, the apron must remain open and available to the numerous transient aircraft frequenting the Airport, as well as provide access to, and additional utility for, the hangars located adjacent to the parking apron. **Figure 4-7** quantifies the presently open and available apron areas for the parking of aircraft, and **Table 4-8** calculates the future apron requirements at MGY using the following assumptions:

- Adequate apron area must be reserved for all aircraft based on the apron as well as peak period itinerant aircraft without limiting access or utility of the hangars adjacent to the apron area.
- The peak period for apron utilization is calculated by applying a multiplier of 1.75 to the peak hour calculation for itinerant aircraft.

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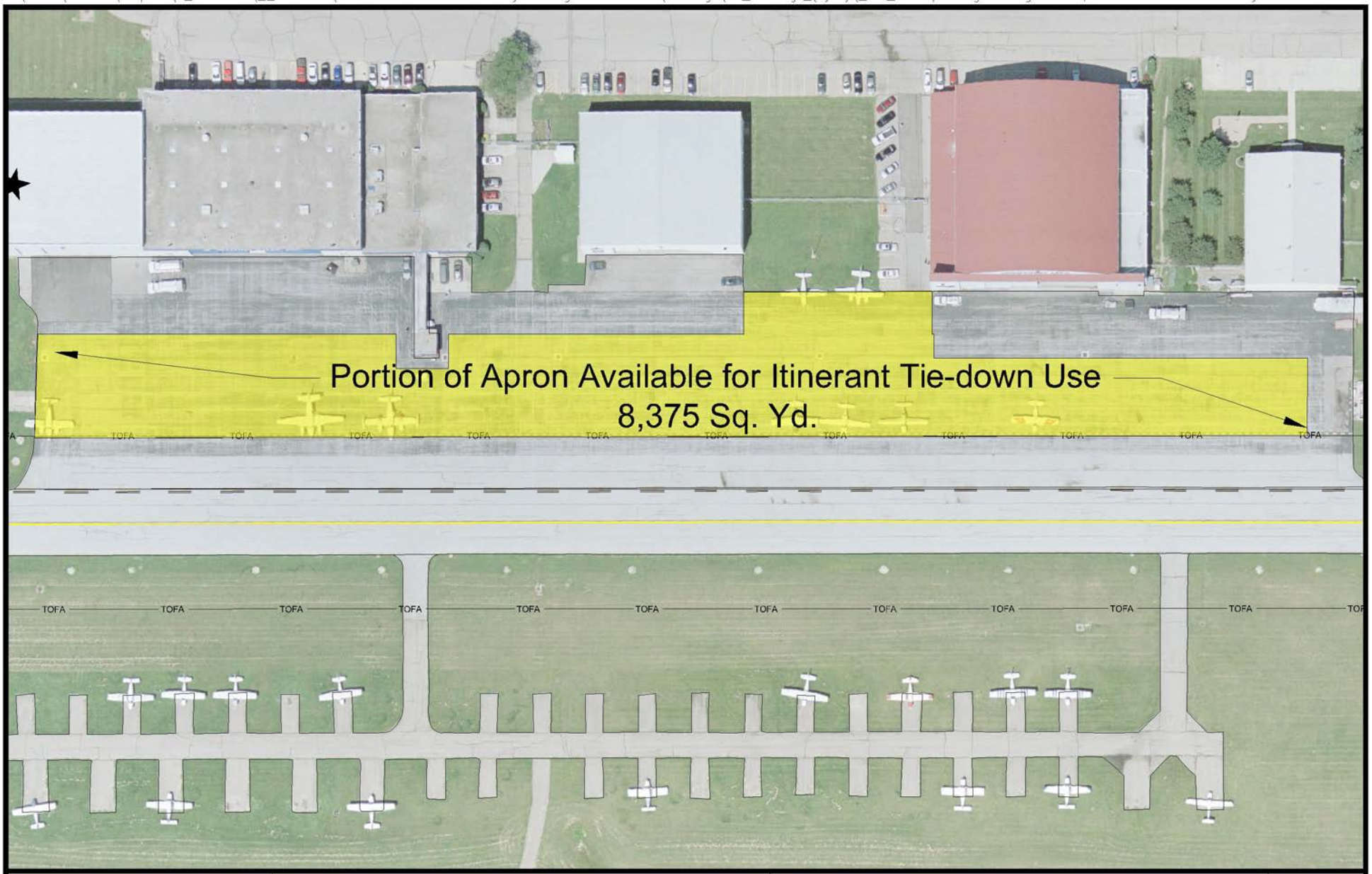

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Dayton, Ohio

Available Apron for Itinerant Tie-Down

Figure
4-7

- Group I aircraft represent 45 percent of the total aircraft calculated to require apron space during the peak period and require 225 square yards of apron space each to provide for tie-down area, safety clearances, and movement area.
- Group II aircraft represent 55 percent of the total aircraft calculated to require apron space during the peak period and require 450 square yards of apron space each to provide for tie-down area, safety clearances, and movement area.

Table 4-8. Apron Area Requirements

	2015	2020	2025	2030	2034
BASED AIRCRAFT	95	99	105	111	117
BASED AIRCRAFT ON APRON	7	7	8	8	9
ITINERANT AIRCRAFT - PEAK HOUR	16	18	19	20	22
ITINERANT AIRCRAFT - PEAK PERIOD (1.75*PH)	28	32	33	35	39
TOTAL	35	39	41	43	47
ANTICIPATED GROUP I	15.75	17.55	18.45	19.35	21.60
ANTICIPATED GROUP II	19.25	21.45	22.55	23.65	26.40
SQUARE YARDAGE REQUIRED	12,206	13,601	14,299	14,966	16,740
EXISTING SQUARE YARDAGE	8,375	8,375	8,375	8,375	8,375
SURPLUS/(DEFICIENCY)	(3,753)	(5,226)	(5,924)	(6,621)	(8,365)

Source: Passero, 2014.

It is apparent form the analysis above that the terminal apron area is, at times, operating beyond its capacity and an apron expansion project should take place in the short-term. Over the long-term, significant apron expansion should be plan so as to provide the greatest utility to both existing and future aircraft hangars located on the apron as well as itinerant aircraft requiring temporary storage on the apron.

4.3.2. Aircraft Hangars

Hangars are one of the most desirable means for aircraft storage at any airport when offered at reasonable rates. Most hangar space is primarily utilized by the aircraft based at the airfield with only a small percentage used by itinerant traffic (usually for maintenance or occasional overnights). In general, hangar types include a combination of the following facilities:

T-hangars – A fully enclosed building housing individual stalls, each capable of storing one aircraft, typically a single-engine or a light multi-engine aircraft.

Clearspan Hangars – A fully enclosed building typically capable of holding multiple aircraft. These are often referred to as storage or box hangars.

Corporate Hangars – Similar to clearspan hangars, but typically have an attached office. These hangars may only store one aircraft each.

Currently 92.63 percent of the based aircraft are stored in hangars at MGY - 70.58 percent in T-hangars and 21.05 percent in conventional clearspan hangars. Additionally, there is a strong demand for more hangar space by based aircraft owners and other aircraft owners who wish to store their aircraft at MGY. Demand for hangars is documented by a lengthy waiting list. Currently, there are 68 T-hangar units, six clearspan hangars and no corporate style hangars or shade hangars. These facilities are currently operating at 100 percent capacity. Additional capacity will be needed to meet the forecast demand. It is forecast that 117 aircraft will be based at MGY by 2034. Additionally, the Airport currently has a waiting list of 20 aircraft owners who desire hangar space. For future planning, the percentage of hangared aircraft to based aircraft will be held constant to ensure that adequate demand will exist to fill the hangars provided. Some future based aircraft owners however, are likely to desire a corporate style hangar as opposed to having their aircraft co-located with other tenants aircraft in a clearspan hangar. One such

project is already anticipated. The Connor Group is currently developing its corporate headquarters on Airport property located at the corner of Austin Blvd. and N. Springboro Pike. Future plans exist for the Connor Group to build a corporate style hangar adjacent to Taxiway A and the Walther hangar (Bldg #1) capable of basing multiple Connor Group aircraft. Therefore, it is prudent to plan for additional demand for corporate style hangars supported by attached or detached office space. For this reason demand for clearspan hangar storage will be held constant while any new based aircraft requiring hangar space will be assumed to require corporate style hangars to allow for adequate planning of this type of hangar facility. Considering existing conditions, it is estimated that clearspan hangars will store three based aircraft initially and transition to a density of 2 based aircraft per clearspan by the end of the planning period. For future planning, corporate style hangars are anticipated to house only one aircraft.

By maintaining the above mentioned metrics to determine future facility requirements, an additional 37 T-hangar units, two clearspan hangars, and 16 corporate hangars will be required by 3034. **Table 4-9** illustrates the complete hangar requirements, by cardinal forecast years, through the planning period.

Table 4-9. Hangar Facility Requirements

	2015	2020	2025	2030	2034
BASED AIRCRAFT	95	99	105	111	117
BASED AIRCRAFT REQUIRING HANGAR SPACE	88	92	97	103	108
- T-HANGAR UNIT DEMAND (+20 WAITING LIST)	87	89	94	98	102
- CLEARSPAN DEMAND	7	7	7	7	7
- ANTICIPATED CORPORATE-STYLE HANGAR DEMAND	0	1	4	9	10
ADDITIONAL T-HANGAR UNITS REQUIRED	**22**	**24**	**29**	**33**	**37**
ADDITIONAL CLEARSPAN	**0**	**1**	**1**	**1**	**1**
ADDITIONAL CORPORATE-STYLE	**0**	**2**	**5**	**7**	**10**

Source: Passero, 2014.

For reasons stated above, a number of hangar facilities, potentially exceeding the minimum identified, will be reflected on the final ALP drawing set. This provides flexibility for the City when moving forward with the development of any hangar facilities. Ultimately, each will be based on the availability of funds, demand at that time, and the business decisions of the tenants using these facilities.

4.3.3. General Aviation Terminal

A general aviation terminal provides space for offices, waiting areas, flight planning, concessions, storage, and other amenities for pilots and passengers. General aviation terminals also provide the first and last impression of the airport and local area that pilots and passengers experience. The following analysis was conducted to estimate what amount of space should be considered to accommodate the pilots/passengers expected during the planning period. For this, an estimate of the peak hour pilots/passengers is necessary to determine the number of people that would use the general aviation terminal facilities during a one-hour period. To estimate the peak hour pilots/passengers, the following methodology was applied with the results shown in **Table 4-7**.

- The number of operations conducted during the peak hour of the average day during the peak month was calculated using data from the forecast chapter. It was assumed that arriving and departing general aviation pilots/passengers could use the terminal at the same time. Likewise, both local and itinerant operations would require terminal space at the Airport.
- The number of peak hour operations was reduced by 25 percent to eliminate most of the activity attributed to touch and go operations. While training operations require terminal space (flight planning, meeting with flight instructor, restrooms, etc.), not all have a direct relationship.
- The adjusted peak hour operations (arriving or departing) were estimated to have an average of two people on board (pilots and passengers).

- An area of 150 SF was used for each peak hour pilot/passenger to determine the terminal space requirements. This value accommodates all functions of a full service general aviation terminal building including FBO counter space, waiting area, snack room, office space, pilot's lounge, restrooms, training area, circulation space, etc.

Table 4-10. GA Terminal Gross Area Analysis

	PEAK HOUR OPERATIONS	ADJUSTED OPERATIONS	NUMBER OF PEOPLE	TOTAL TERMINAL SPACE (SF)	SURPLUS/(DEFICIENCY)
BASE YEAR					
2015	34	25.5	51	7,650	1950
FORECAST					
2020	37	27.75	55.5	8,325	1,275
2025	40	30	60	9,000	600
2030	43	32.25	64.5	9,675	(75)
2034	45	33.75	67.5	10,125	(525)

Source: Passero, 2014.

The existing Airport terminal is roughly 9,600 square feet in size and includes a lounge, restroom, flight planning area, training room, reception area, and private offices. The existing terminal area is of sufficient size to accommodate most all of the forecast demand through the planning period. As such, no terminal expansions are recommended.

4.3.4. Automobile Parking and Access

An integral yet often overlooked aspect of an airport's operation is that which is not related to aircraft or air travel. The landside facilities such as the local street access, airport circulation roads, and automobile parking are equally critical to development. Likewise, the airside components addressed previously are dependent upon the availability of the proper landside features. The following sections address these elements.

4.3.4.1. Landside Access

The only direct landside access to the current airport facilities is provided via North Springboro Pike. The primary public entrance is located across from the South Tech Blvd. and N. Springboro Pike intersection and provides access to the expansive public parking area just west of the existing hangar facilities. Additionally, the Airport is accessible to maintenance staff and other Airport employees via an entrance road located just across from the W Tech Rd and Springboro Pike intersection. In the near future the Connor Group development will add an additional access road to Springboro Pike from its parking lot near the Springboro Pike and Austin Blvd. intersection.

Currently there is no landside access into any other portions of the airfield. While it is not expected for the entire airport property to be developed within the 20-year planning horizon, plans should be made to preserve future ground access corridors. Of particular importance is to provide the ability to access the northeast corner of Airport property. A road stub does exist in this area indicating a future southerly extension of Washington Church Road onto Airport property which would be beneficial in opening up the eastern side of the airport for a variety of interest, aviation and non-aviation alike. Options for future airport access will be evaluated in the airport alternatives chapter, especially as it relates to the various airfield setback requirements, physical environment of the airport property, and potential for aeronautical and non-aeronautical development.

4.3.4.2. Automobile Parking

At many general aviation airports, a number of automobiles are parked in the hangar facilities while the aircraft are in use. In some cases, vehicles are left on the aircraft parking apron during a flight or trip. This practice should be avoided whenever possible as it only increases the number of automobiles on the airside of the airport as well as the risk of an incursion between an aircraft and a vehicle. For these reasons alone, automobile parking is an important facility to provide at an airport.

There is no dedicated automobile parking for the five T-hangar facilities located south of the terminal apron. To access these areas, automobiles must utilize portions of the taxilanes between these hangars to access their facilities. Unfortunately, due to the taxilane object free areas, as well as the right-of-way for North Springboro Pike Road, there is no immediate area in this part of the airport that could provide automobile parking. The limited options that might exist will be evaluated in the next chapter in an effort to reduce and/or eliminate the mix of automobile traffic and aircraft ground movements.

The existing parking lot adjacent to the terminal apron has the capacity to support the Airports needs over the planning period. Concern was raised during TAC meetings however regarding the quality and aesthetics of the pavement in this lot. It would be prudent to incorporate a pavement restoration and rehabilitation projecting into the capital improvement program.

For any future facilities an adequate amount of space shall be allotted for automobile parking. This includes separate parking lots for any future hangar facilities.

4.4. Support Facilities and Property

4.4.1. Airport Rescue and Fire Fighting (ARFF)

Being MGY is currently identified as a general aviation reliever airport there is no federal requirement to position or maintain an aircraft rescue and firefighting (ARFF) unit on the airfield. At present, local fire fighting personnel and other first responders are on call to aid in case of an emergency at the Airport. Being the Airport has no plans to expand from its current role it is unlikely that ARFF equipment and personnel will be required at the MGY. It may be prudent however to seek to locate a fire station on airport property reserved for a non-aviation land use, but where secure and direct access to the airfield could be maintained.

4.4.2. Fuel Storage

Two fuel storage facilities exist at MGY providing capacity for 23,000 gallons of both AvGas and Jet-A aviation fuels, as described in section 2.3.3.2 of this report. Fuel flowage information was provided by Airport staff, and was used to forecast the demand of fuel gallons over the planning period as well as a 14-day storage requirement over the planning period. based on the fuel flowage projections, it is estimated that nearly 500,000 gallons of fuel will be sold annually by 2034. These calculations are depicted in **Table 4-11** and reflect the assumption that gallons per operations for all fuel types will remain constant over the planning period. The gallons per operation number was calculated by dividing annual AvGas sales and annual Jet-A sales independently by the total annual operations in 2013. Additionally, a 14-day fuel storage requirement was calculated using a low and a high activity scenario.

Based on this analysis, no additional fuel facilities are anticipated over the planning period. The two fuel servicers at the airport have a cumulative capacity to support the forecasted level of activities. It may be prudent however to plan for future fuel facilities associated with new clearspan or corporate hangars. Tenants of large hangars such as these may desire to maintain their own fuel tank for their aircraft and benefit for bulk fuel purchase discounts and not rely on any external service for their fueling needs. Additionally, a self-service fuel facility may be appropriate for any development in the northeast quadrant so as to minimize any need for fuel trucks to cross the runway environment.

Table 4-11. Fuel Demand & Storage Projections

YEAR	ANNUAL OPERATIONS	GALLONS/ OPERATION	ANNUAL AVGAS DEMAND	DAILY OPERATIONS		14-DAY STORAGE REQUIREMENTS (GAL. AVGAS)	
				LOW	HIGH	LOW	HIGH
2013	83,550	1.3615	113,753	229	282	4,363.13	5,375.19
2015	85,130	1.3615	115,904	233	284	4,445.64	5,413.31
2020	91,800	1.3615	124,985	252	306	4,793.96	5,832.65
2025	98,992	1.3615	134,777	271	330	5,169.54	6,290.11
2030	106,747	1.3615	145,336	292	356	5,574.52	6,785.70
2034	113,387	1.3615	154,376	311	378	5,921.27	7,205.04
YEAR	ANNUAL OPERATIONS	GALLONS/ OPERATION	ANNUAL JET-A DEMAND	DAILY OPERATIONS		14-DAY STORAGE REQUIREMENTS (GAL. JET-A)	
				LOW	HIGH	LOW	HIGH
2013	83,550	3.0611	255,753	229	282	9,809.70	12,085.13
2015	85,130	3.0611	260,590	233	284	9,995.21	12,170.84
2020	91,800	3.0611	281,007	252	306	10,778.35	13,113.65
2025	98,992	3.0611	303,022	271	330	11,622.77	14,142.18
2030	106,747	3.0611	326,761	292	356	12,533.29	15,256.41
2034	113,387	3.0611	347,086	311	378	13,312.90	16,199.22

Source: Passero, 2014.
Notes: Daily Low projections were calculated by dividing annual operations by 365. Daily High projections utilized the peak day operations calculated in Chapter 3.

4.4.3. Property

4.4.3.1. Security Fencing and Access Control

Security fencing is the most common means of securing a perimeter of an airport. As described in section 2.3.3.6, the entirety of the airfield area is enclosed with a 6-foot tall perimeter fence with 3-feet of barbed wire on top. The fenceline has a number of secure access points and security measures are in place within hangar buildings to ensure positive access control of the airfield is maintained. The existing fence and access control measures meet recommendations made by the State of Ohio and the Transportation Security Administration (TSA) for general aviation airport security. Any future development on the airfield will include additions or modifications to the security fence as needed.

4.4.3.2. Wildlife

The FAA has had a wildlife hazard management program in place for more than 50 years. This program focuses on mitigating wildlife hazards on or near airports through habitat modification, harassment technology, and research. The program continues to evolve and includes a number of advisory circulars, best management practices, and resources to assist airports. The current focus is for Airports to complete a site specific wildlife hazard assessment (WHA) which systematically documents all potential wildlife threats on or in the vicinity of the airport.

MGY initiated a yearlong wildlife hazard assessment in the Summer of 2014. The pre-planning for this project identified a number of site survey location, both on and off Airport property, as well as a schedule to perform the periodic on-site wildlife surveys. The finalized WHA, once received, will provide Airport staff with a more thorough understanding of potential wildlife hazards existing on or in the vicinity of the airfield.

4.4.3.3. Land Acquisition and Easement

The existing airport property boundary encompasses approximately 530 acres of land. the Airport property is enclosed by a multilane highway to both its north and west, Austin Road and Springboro Pike, respectively, and commercial and residential developments to its south and east. If runway extensions and others facility improvements are programmed in the future, additional lands will need to be acquired so as to ensure compliancy with FAA

directives and avoid any further land use compatibilities with surrounding development. Further, existing land use incompatibilities and possible mitigation alternatives will be explored in the following chapter, and could include land acquisition, land easements, airfield modification, or combination thereof.

4.5. Consistency with Ohio Airports Focus Study

In 2012 the Ohio Department of Transportation (ODOT) initiated a study to identify how to optimize investment in Ohio's airport system while improving safety and efficiency across Ohio airports and supporting economic growth. The study identified needed system improvements, developed a framework for prioritizing those projects, and assessed the economic impact of each publicly owned airport within the state.

This study identified MGY as one of 33 Level 1 GA airports within the State. The Level 1 airport classification is reserved for those airports able or anticipated to serve nearly all the needs of general aviation turbine powered aircraft and their users. While MGY meets the minimum requirements to be considered a Level 1 airport, the Runway 2-20 fails to meet the runway length benchmark established for this classification of airport as a result of operational limitations induced by the use of declared distances. The proposed runway improvements discussed in this report will enable MGY to meet the State's preferred runway length for this caliber of airport, and therefore support the needs of the GA community.

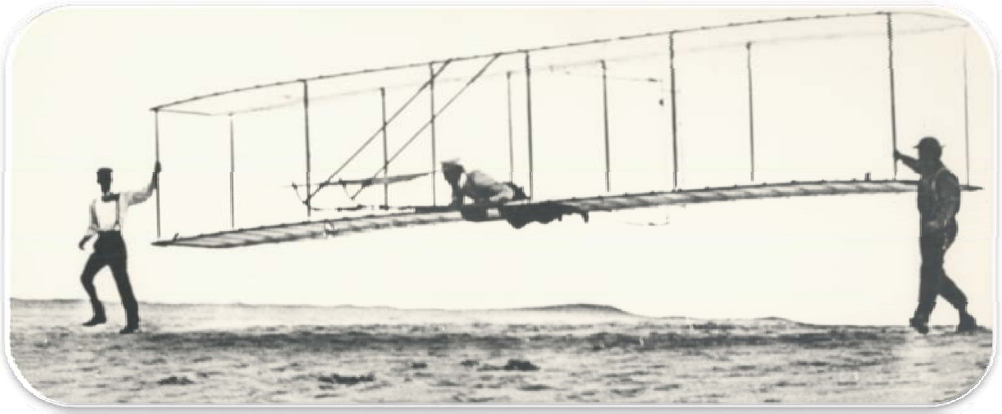
4.6. Summary

Table 4-12 provides a summary of the facility requirements that were determined necessary to satisfy the forecast of aviation demand and provide a safe, efficient, and user-friendly operating environment. Essentially, this table includes the minimum improvements required over the 20-year planning period. Some additional facilities will also be planned and included as part of the Final ALP drawing set and capital improvement program to enhance the Airport. The order in which these improvements are listed does not have any relation to the priority or phasing of such projects.

Table 4-12. Summary of Facility Requirements

RUNWAYS	
	Extend Runway 2-20 at least 500 feet
	Extend LED MIRLs with any runway improvement
	Periodic runway pavement maintenance
	Improve RSA & ROFA on north end to meet FAA design standards
	Request MOS for ROFA incompatibility to south
	Redesignate Runway 2-20 as 3-21
TAXIWAYS	
	Relocate southern most portion of Taxiway A for 300' parallel separation
	Extend relocated portion of Taxiway A to be full-length of Runway 2-20
	Periodic taxiway pavement maintenance
AIRFIELD ENVIRONMENT	
	Conduct Environmental Assessment for Runway 2-20 Extension
	Periodic clearing of any runway obstructions
	Install LED MIRL system on Runway 2-20
	Periodic remarking of all airfield pavements
AIRPORT FACILITIES	
	Additional T-hangar units
	Clearspan hangar space
	Rehabilitate terminal apron
	Expand terminal apron
	Airfield security fencing (as required)
OTHER FACILITIES	
	Terminal area parking lot rehabilitation
	Landside access and parking to new development areas
	Access control improvements

Source: Passero, 2014.



Chapter Five

Airport Alternatives Analysis and Development Plan

5. AIRPORT DEVELOPMENT PLAN

The primary objective of this chapter is to consider airport development alternative that will lead to a logical development plan for the Dayton-Wright Brothers Airport. The plan will meet the aviation needs over the planning period while satisfying the ultimate development goals of the City of Dayton and the municipalities in proximity to the Airport. The identification of alternatives was completed based on the information presented in the previous chapters of this report, in conjunction with reasonable foresight into industry trends and associated facilities.

All alternatives were evaluated across the general criteria outlined in **Table 5-1**.

Table 5-1. Evaluation Criteria for Future Development Initiatives

CRITERIA	DESCRIPTION
Operational	Any selected development plan should be capable of meeting the Airport's facility needs as they have been identified for the planning period. Further, preferred plan must resolve any existing or future deficiencies as they relate to FAA design and safety criteria.
Environmental	Airport growth and expansion has the potential to impact the Airport's environs. The selected development plan should seek to minimize environmental impacts. The preferred development plan should also recognize sensitive environmental features; such as, wetlands, archeologically/historically significant areas, etc., that may be impacted by any proposed development.
Cost	Some alternatives may result in excessive costs as a result of expensive construction, acquisition, or other development and/or environmental requirements. In order for a preferred development plan to best serve the Airport and the community it must satisfy development needs at a reasonable cost.
Feasibility	The selected development plan should be capable of being implemented. Therefore, it must be acceptable to the FAA, ODOT, the City of Dayton, other local governments, and the community served by the Airport. The preferred development plan should proceed along a path that supports the area's long-term economic development and diversification objectives.

Source: Passero, 2014.

5.1. Airport Development Alternatives and Concepts

The Airport development plan outlines the necessary development and facility improvements to meet the forecast demand, to ultimately ensure competitiveness and financial viability for the Airport, and to provide the Airport and surrounding community with the greatest overall benefit.

5.1.1. Airfield Alternatives

Airfield facilities are, by their very nature, the focal point of an airport complex. Because of their role, and the fact that they physically dominate a great deal of an airport's property, airfield facility needs are often the most critical factor in the determination of viable airport development alternatives. Specifically, the runway and taxiway systems of an airfield generally require the greatest commitment of land area and often have the greatest influence on the identification and development of other airport facilities.

The potential for physical expansion of an airport to accommodate airfield development is the primary factor that determines development in the long term. The runway and taxiway systems directly affect the efficiency of aircraft movements both on the ground and in the surrounding airspace – not only within the airfield's terminal area, but the regional airspace as well. The runway and taxiway systems also impact the size and type of aircraft an airfield can regularly facilitate.

The following sections of this report outline a variety of development options when looking specifically at the airfield and its necessary facilities and spatial requirements to facilitate safe and efficient aircraft operations. Other landside development concepts will be presented and analyzed in subsequent sections of this report; building on the foundation created by selecting a preferred airfield alternative up front.

5.1.1.1. Required Airfield Improvements

Some airfield improvements are required at the Airport to meet FAA design and safety standards and to ensure compliancy with federal grant assurances. As outlined in Chapter 4, a number of airfield improvements are recommended at the Airport, including; runway extension, runway re-designation, safety area improvement, and taxiway relocation.

5.1.1.2. Proposed Airfield Improvements

Some airfield improvements have been proposed at the Airport to enhance the existing aeronautical capacity of the airfield and to make taxiway accessible land available for future aviation related development. Primarily, this includes development of a full-length parallel taxiway to Runway 2-20, removal of the threshold displacement to Runway 20, a partial parallel taxiway east of Runway 4-22, and rehabilitation of the abandoned pavement east of the Runway 20 end.

5.1.1.3. Airfield Alternatives

Three airfield alternatives are presented in the following sections. Each airfield alternative attempts to include the required and proposed improvements discussed previously, however do so in different ways and with varying degrees of utility, offsite impacts, and feasibility. These three concepts were prepared for the purpose of facilitating an active discussion with the TAC and discover a growth plan for MGY which supports its aeronautical users and maximizes its public value to the surrounding communities.

Airfield Alternative One

Alternative One, **Figure 5-1**, is essentially a "Do-Nothing" approach with respect to runway development. This alternative is used to examine a minimalist approach to airport improvement. This alternative would serve to address issues relative to meeting basic design standards and safety requirements and would even remove the threshold displacement thereby providing more landing length. Being the Runway 20 threshold is currently displaced as a result of its proximity to Austin Blvd., and its' hazard to protected airspace, relocation of Austin Blvd. to address the existing RSA and ROFA impacts would also allow for this runway improvement. However, this alternative would not fully support all the aeronautical demands currently placed on the airport, nor those anticipated in the future, or adhere to the long held plan for airport development and a synergistic relationship with the significant development occurring about the I-75 and Austin Blvd. interchange, while maximizing airport utility and attractiveness to business interests. **Figure 5-1** depicts this alternative concept.

Airfield Alternative Two

Alternative Two explores the option of extending Runway 2-20 500-feet to the south. While the runway pavement would remain on property, its associated safety and object free area (RSA and ROFA) would extend off property and into established roadway systems and developed properties. Additionally, the RPZ to Runway 2 would only become further impacted by incompatible land uses under this option. Further, an extension to the south would not address the existing compliancy issues with the RSA and ROFA on the north end as Austin Blvd. would still be required to be relocated. **Figure 5-2** depicts this alternative concept.

Airfield Alternative Three

Alternative Three examines the option of extending Runway 2-20 500-feet to the north. This option would provide similar improvements to airfield utility as shown in Alternative two, but have less off-site impacts. This alternative would require re-routing Austin Blvd. around the future RSA and ROFA, but would impact only a single existing structure (located on Parcel #10, shown on Property Map). The relocation of Austin Blvd. shown in Alternative Three would also allow for an unrestricted inner approach zone to Runway 20, thereby improving airport accessibility and safety. **Figure 5-3** depicts this alternative concept.

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PASSERO ASSOCIATES

LWC INCORPORATED

Dayton - Wright Brothers Airport
Dayton, Ohio

Airfield Alternative #1

Figure
5-1

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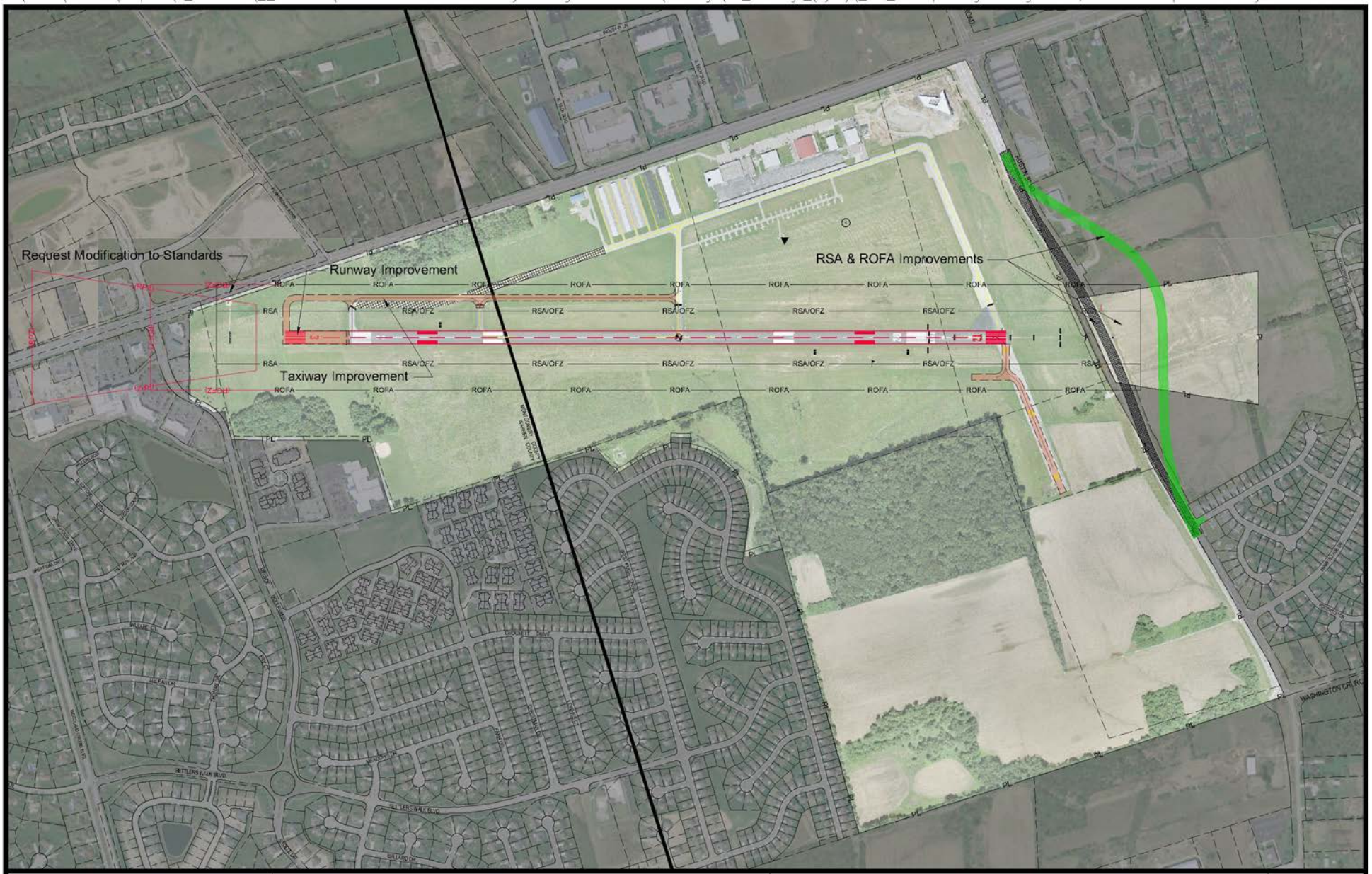

PASSERO ASSOCIATES

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Dayton - Wright Brothers Airport
Dayton, Ohio

Airfield Alternative #2

Figure 5-2

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PASSERO ASSOCIATES LWC INCORPORATED

Dayton - Wright Brothers Airport
Dayton, Ohio

Airfield Alternative #3

Figure 5-3

5.1.1.4. Preferred Airfield Development Alternative

During a working session with the TAC, each of the three airfield alternative concepts were presented and the individual elements of each discussed. This spurred a detailed and constructive dialogue amongst the group and resulted in a clear consensus amongst the group that airfield alternative #3 would be the most appropriate for the Airport and community moving forward. Recognizing the only feasible direction to extend Runway 2-20 is to the north, the TAC members did express concern over the relocation of Austin Blvd. However, as an airfield regularly supporting C-II type aircraft, MGY will suffer further operational restrictions if unable to meet RSA requirements. Some discussion regarding Engineered Materials Arresting Systems (EMAS) and their ability to mitigate substandard RSAs, however no options were identified which would allow for a runway extension without impacting the existing roadway alignment. *After review, the FAA indicated the need for an interim ALP that shows development of the airport to C-II standards on airport property, prior to the runway extension, as the first step toward the preferred alternative.*

5.2. On-Airport Land Use Concept

As a preliminary guideline for the creation of landside development alternatives for MGY, a variety of on-airport land use maps were developed and considered, and a preferred land use concept selected. A well thought out and executed land use plan for an Airport can guide development interests, protect for a variety of airport users, and maximize revenues. Similar to the identification of a preferred airfield layout, the process for identifying a preferred land use plan was based on three different land use alternatives which were used to initiate an open discussion amongst TAC members regarding the highest and best use of Airport property in the future. Each of the three concepts prepared utilized the following five broad categories of land use: light GA, corporate GA, aircraft services (FBO, maintenance/repair/overhaul MRO, etc), airfield services (airport maintenance, fuel, etc.), and non-aviation use areas.

5.2.1. Land Use Concept One

Land use concept one is depicted in **Figure 5-4** and expresses a significant dedication of land for both Light GA and Corporate GA uses. Green spaces are planned for areas within or near approach zones and as community buffers. Additionally a 90 acre area has been reserved for non-aviation uses. This area could be developed in a variety of was including commercial retail, commercial/industrial, recreational, or some mixed-use. In this plan light GA activities are planned for the Southside of the airfield, while larger corporate GA developments would be located on the north side.

5.2.2. Land Use Concept Two

Land use concept two, depicted in **Figure 5-5**, is somewhat similar to concept one with a few exceptions. Land use concept two maintains a significant vegetative buffer area between the residential areas east and southeast of the airport where future development would not be encouraged. Additionally, the area reserved for Corporate GA activities is considerable smaller, thought still nearly 35 acres, and additional space (40 acres) was programs for aircraft service type uses. A large non-aviation use area continues to be shown for the extreme eastern side of Airport property.

5.2.3. Land Use Concept Three

Land used concept three is depicted in **Figure 5-6** and is relatively similar to concept two except future land uses east of Runway 20 are more balanced between Corporate GA and Aircraft Services. This concept also depicts an expanded non-aviation development area in the northeast quadrant. Additionally, the large vegetative buffer on the east side of the airfield remains in place and additional vegetative buffers are depicted outside of the future Austin Blvd. alignment and the expanded airfield use area to the north of Runway 20.

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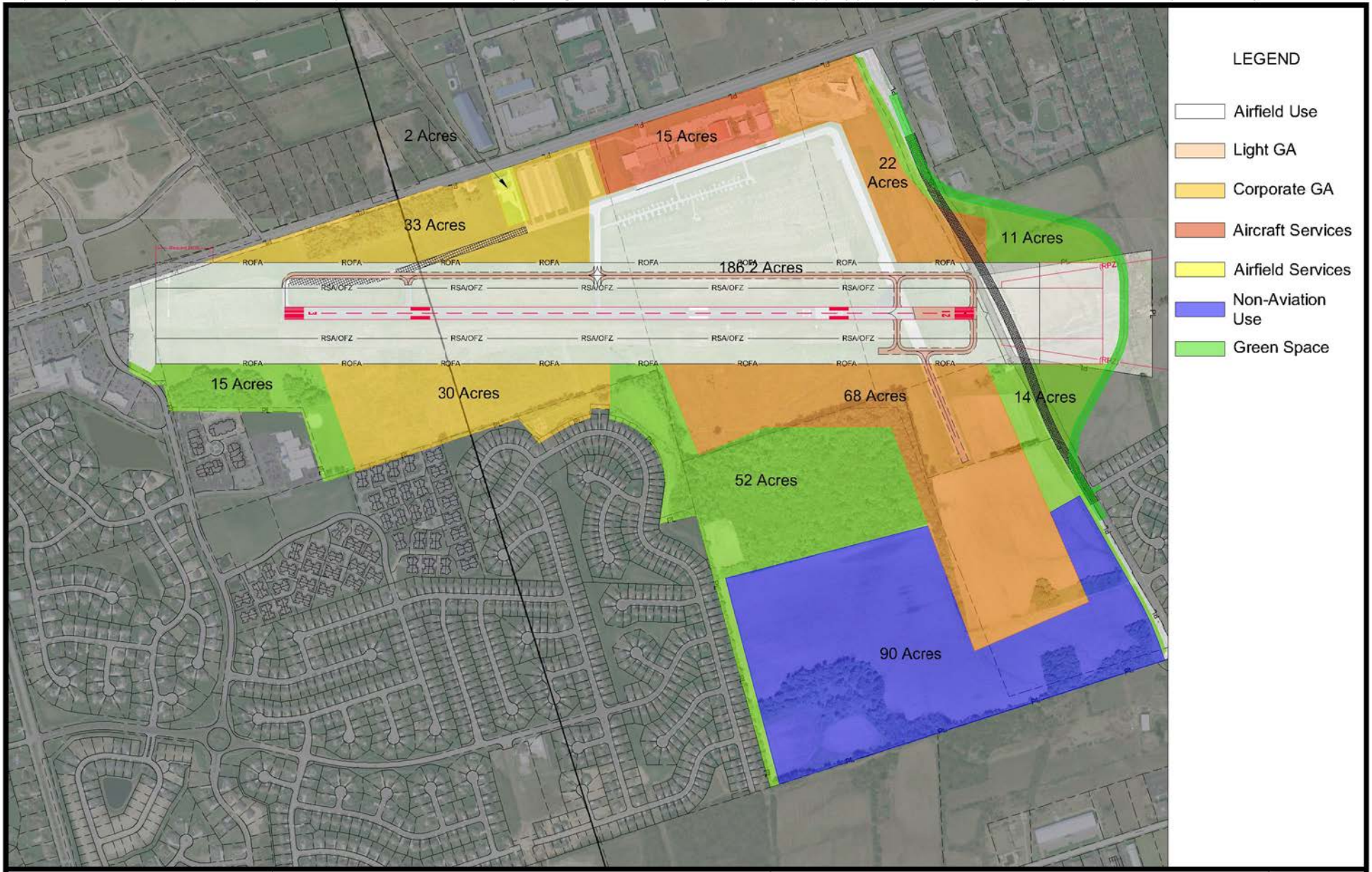

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Dayton - Wright Brothers Airport
Dayton, Ohio

On-Airport Land Use Alternative #1

Figure 5-4

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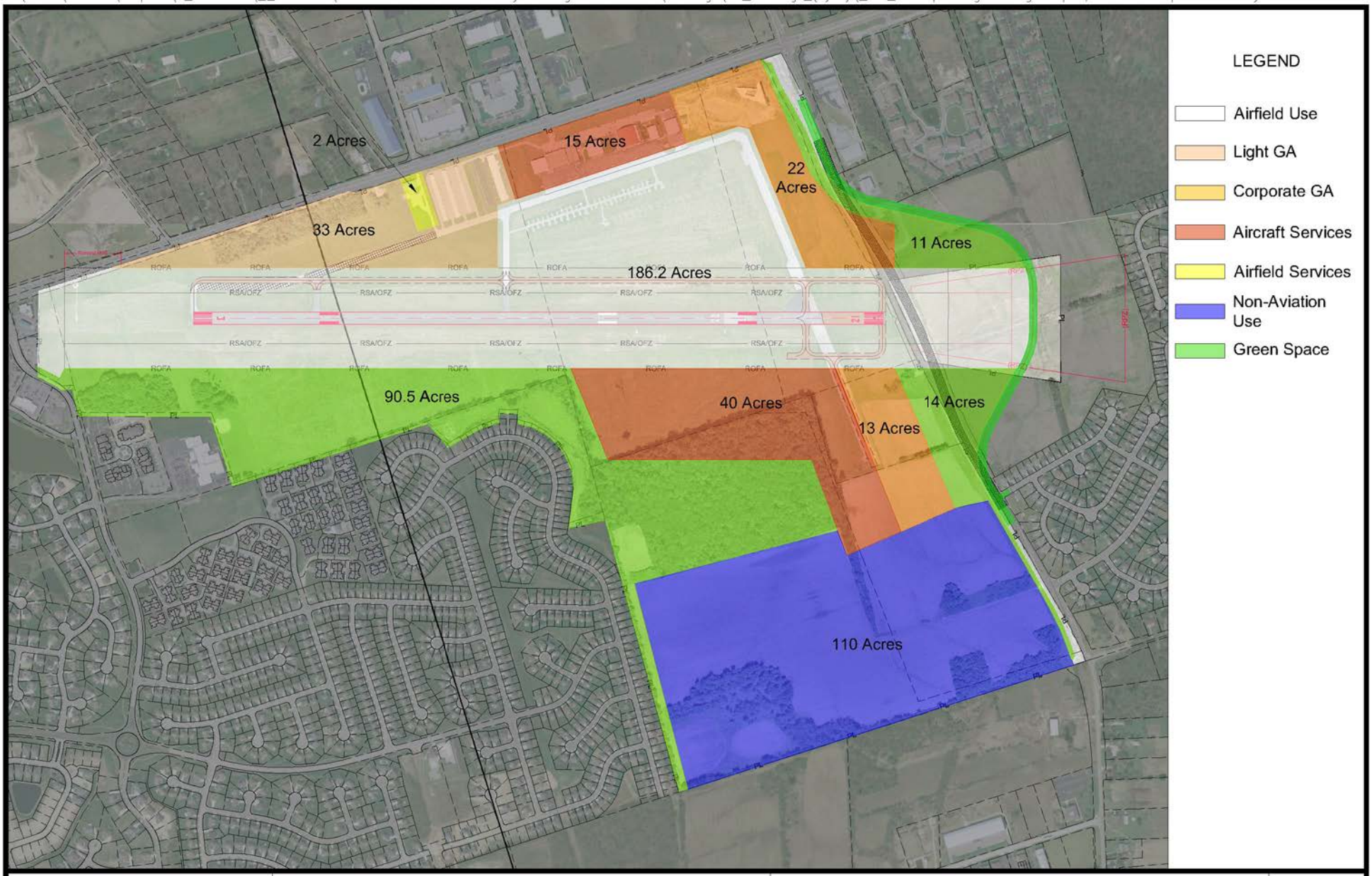

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Dayton - Wright Brothers Airport
Dayton, Ohio

On-Airport Land Use Alternative #2

Figure 5-5

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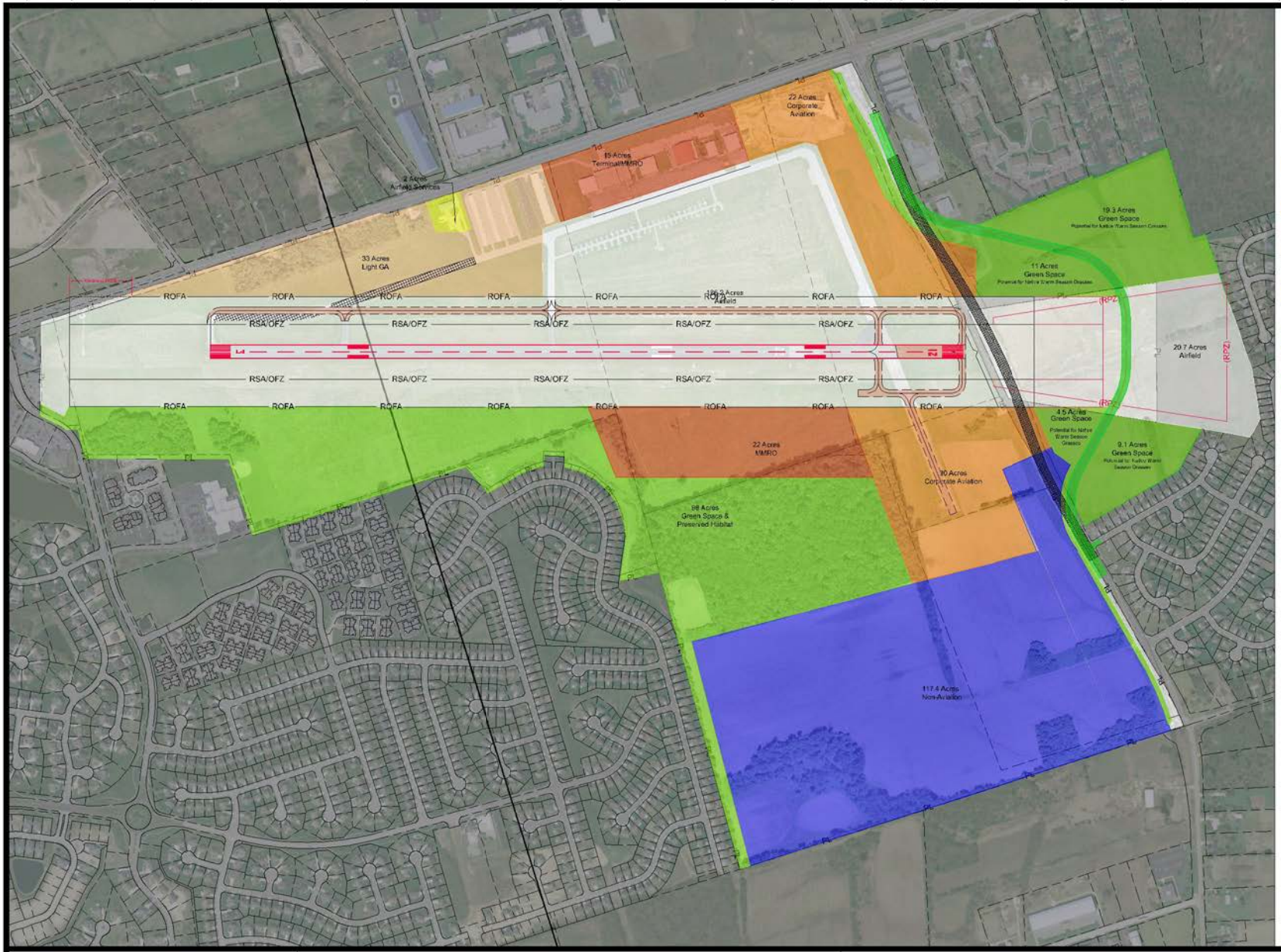

LEGEND

- Airfield Use
- Light GA
- Corporate GA
- Aircraft Services
- Airfield Services
- Non-Aviation Use
- Green Space

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Dayton - Wright Brothers Airport
Dayton, Ohio

On-Airport Land Use Alternative #3

Figure 5-6

5.2.4. Preferred Land Use Concept

Similar to the airfield alternatives, three on-airport land use concepts were developed and presented to the TAC in an open forum with for the purpose of spurring discussion regarding the highest and best use of airport properties. With an understanding of forecasted aviation demand, regional development trends, regional market forces, etc., the members of the TAC provided exceptional direction for how the airport should manage its growth and development over time. In the end, land use concept three was refined by the group and selected as the preferred concept. Further, the following information resulted from the discussion:

- Properties abutting Springboro Pike have high value for non-aviation use.
  - Taxiway Alpha relocation in this area could provide space for aviation and non-aviation interest in the area south of the maintenance building.
- Green Space is valuable and should be protected as able as vegetative buffer from residential communities.
  - Native warm-season grasses could be considered in some vegetative buffer areas.
  - Southeast side of Airfield unlikely for development - maintain vegetative buffer in this area.
- Existing T-Hangar area should be expanded.
- Additional T-units could also be shown in future development area east of Runway 20 threshold adjacent to abandoned pavement.
  - Self-service fuel farm in this area would help minimize runway crossings and make development in this area more appealing.
- Areas north of Taxiway A are ideal for future corporate style hangars with attached or detached office space.
- Any future large clearspan hangar should be developed on the east side of the Runway south of any development proposed on the abandoned pavement. A future partial parallel taxiway (originating at the Runway 20 end) would provide direct airfield access for hangars developed in this area.
- As much of the existing thicket of trees east of the runway should be preserved.
- Proposed development should be sensitive to wetlands identified on the north side of the existing thicket of trees east of the Runway.
- The infield area north of Taxiway C, east of Taxiway A, and south of Taxiway A should remain as Airfield use.
  - Future apron expansions are appropriate for this area.
  - Helicopter positions should also be considered for this area.

5.3. Preferred Landside Development Plan

Following the identification of a preferred airfield layout incorporating airfield changes to be reflected on the 20-year development plan and selection of a preferred land use plan to guide on-airport development, the TAC met in an open forum and discussed how best to depict future landside developments on the ALP drawing set. Discussions in this meeting ranged from access and control, to the type and caliber of facilities, to how the Airport can be a good neighbor though smart and thoughtful development planning. The result of this discussion was a rather clear understanding of how to depict a 20-year+ development vision for the. The following chapter presents a much more detailed view of the proposed airport development through review of the Airport Layout Plan (ALP) set developed as part of this study effort. The ALP is a graphical representation of existing facilities and planned improvements. the ALP is reviewed and conditionally approved by the FAA regularly, and is one of the primary ways an airport communicates its compliance with design standards and development intentions with the FAA. Further, should any grant monies be sought from the FAA for airport development purposes, that development must be shown on the ALP drawings.

Chapter Six

Airport Layout Plan Drawing Set

6. AIRPORT LAYOUT PLAN DRAWING SET

This chapter describes the Airport Layout Plan (ALP) drawing set developed as part of this study. These plans identify areas needed for aviation related development during and beyond the planning horizon. Additionally, available land on the Airport positioned to best serve non-aviation interest have been identified for the purpose of airport revenue diversification and regional economic development. These plan will also serve as a reference for the City of Dayton to evaluate existing and/or future obstruction disposition in conjunction with Federal Aviation Administration (FAA) criteria. The ALP set presented becomes the official development plans for the Airport, which may be amended over time to reflect changes in the airfield environment or the demand affecting future facilities.

The ALP set consist of eleven (11) separate drawings which have been prepared on a computer assisted drafting system to graphically depict the recommended airfield improvements, imaginary surfaces, and the layout of future facilities. This ALP set is compliant with all pertinent criteria established by the FAA in Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, and AC 150/5300-13, *Airport Design*. Specifically, this drawing set includes:

- Cover Sheet
- Airport Data Sheet
- Existing Facilities Drawing
- Airport Layout Plan
- Terminal Area Plan #1
- Terminal Area Plan #2
- Terminal Area Plan #3
- Runway 2 Inner Portion of the Approach Surface Drawing
- Runway 20 Inner Portion of the Approach Surface Drawing
- Part 77 Airspace Plan
- On-Airport Land Use Plan
- Property Map

This chapter presents a halfsize (11"x17") version of the drawings with a brief discussion of each. A full-sized (22"x34") ALP set is provided in conjunction with this report.

6.1. Cover Sheet

The Cover Sheet serves as an introduction to the ALP set. This sheet includes the name of the Airport, a location map, vicinity map, and an index of drawings included in the ALP set. The cover sheet is included as **Figure 6-1**

6.2. Data Sheet

The Data Sheet is typically included in an ALP set when adequate space is not available on the ALP sheet to include all the necessary tabular information about the Airport and its facilities, as was the case for this project. The Data Sheet includes a variety of information relative to the Airport and its runways, taxiways, instrument approach capabilities, as well as operational and environmental conditions. The Data Sheet is presented in **Figure 6-2**.

6.3. Existing Facilities

The existing facilities sheet identifies airport facilities as they existed during the course of this planning study (2013-2014). This sheet identifies airfield pavement, markings, buildings, and safety areas, and was used to identify the

Airports ability to meet design standards established for a C-II airfield. The existing facilities sheet is included as **Figure 6-3**

6.4. Airport Layout Plan

The ALP is the primary planning document for the Airport and is a graphic representation, to scale, of existing and proposed Airport facilities, their location, dimensional and clearance data, and the overall infrastructure of the Airport including runways, taxiways, and aprons. The Interim ALP is presented in **Figure 6-4A**, while the ultimate buildout ALP is presented in **Figure 6-4B**. Once approved by the FAA and ODOT, the ALP becomes the official guidance for the City of Dayton for how to manage the development of the Airport while meeting state and federal obligations, ensuring the economic goals of the City are realized, and providing the greatest possible public benefit. The FAA refers to the ALP when considering grant applications for development assistance at the Airport as well as when analyzing the aeronautical impacts from some off-airport development in the near vicinity of the Airport.

6.5. Terminal Area Plans

The Terminal Area Plan presents an enlarged area of the ALP and illustrates existing and proposed building and apron facilities in greater detail. The Terminal Area Plan generally seeks to present a detailed view of the terminal building, aircraft parking aprons, automobile parking areas, general aviation (GA) and corporate hangars, and non-aviation development areas. For Dayton-Wright Brothers' ALP, two separate Terminal Area Plans were developed to highlight future development across multiple areas of the airfield.

6.5.1. Terminal Area Plan #1

The first Terminal Area Plan provides a close up view of landside development in the southwest quadrant of the Airfield. This drawing depicts how both aeronautical and non-aeronautical developments could occur along Springboro Pike should Taxiway A be extended as a full- or partial-length parallel taxiway. It is anticipated that T-hangar development will be the most prevalent in this area, though this plan does provide some small box and corporate style hangars in this area. The T-hangars are shown in a north/south alignment so as to maximize sun exposure on movement areas during winter months. The first terminal area plan for the Airport is presented in **Figure 6-5**.

6.5.2. Terminal Area Plan #2

The second Terminal Area Plan provides a close up view of the landside development in the northwest quadrant of the Airfield. This drawing depicts the location of future terminal apron expansions along with a number of corporate style hangars along Taxiway A. Additionally, two helipad locations are depicted adjacent to the terminal apron. The second terminal area plan for the Airport is presented in **Figure 6-6**.

6.5.3. Terminal Area Plan #3

The third Terminal Area Plan provides a close up view of the landside development in the northeast quadrant of the Airfield. This drawing depicts how land south of the abandoned pavement could be utilized for large hangar developments and reserves a large area for corporate aviation development on each side of the abandoned pavement. Additionally, a significant amount of land is reserved for non-aviation development east. This plan presents an office/tech park in this area with open parcels of varying sizes for future expansion. The third terminal area plan for the Airport is presented in **Figure 6-7**.

6.6. Inner Portion of the Approach Surfaces

The inner portion of the approach surface drawings display the existing and future approach surface configurations and their interaction with airport and off-airport environs. The extended runway centerline ground profiles and the critical point profiles are shown for terrain clearance purposes. Notable objects of height are identified in both the plan and profile views in each plan and are tabulated with object height and penetration information as well as future mitigation efforts if required. These drawings are supplemental to the Part 77 Airspace Surface drawings.

6.6.1. Runway 2

Although of number of structures and trees were identified within the inner portion of the approach surface to Runway 2, none were found to penetrate any of the protective surfaces associated with CFR Part 77 or Terminal Instrument Procedures (TERPS). **Figure 6-8** presents the analysis of the inner portion of the Runway 2 approach surface.

6.6.2. Runway 20

Runway 20 was found to have a number of man-made and vegetative obstructions to the Part 77 approach surface, which was previously mitigate by displacing the Runway 20 threshold so as to allow for a clear threshold siting surface (TSS). Presently, Austin Blvd. and its associated street lights pose the largest impact to airspace surfaces. In the future, the relocation of Austin Blvd. will remedy this condition. After the runway is extended, a cleared TSS is anticipated at the Runway 20 end with minimal tree topping/clearing. **Figure 6-9** presents the analysis of the inner portion of the Runway 20 approach surface.

6.7. Future FAR Part 77 Airfield Surfaces

Federal Aviation Regulations (FAR) Part 77, *"Objects Affecting Navigable Airspace,"* prescribes airspace standards which establish criteria for evaluating navigable airspace. Airport imaginary surfaces are established relative to the Airport and its runways. The size of each imaginary surface is based on the runway category with respect to existing and proposed visual, non-precision, or prevision approaches for that runway. The space and dimensions of the respective approach surfaces are determined by the most demanding, existing or proposed, approach for each runway. The imaginary surfaces definitions include:

Primary Surface

The primary surface is a rectangular area symmetrically located about the runway centerline and extending a distance of 200 feet beyond each runway end. The elevation of the primary surface is the same elevation as the nearest point of the runway.

Horizontal Surface

The horizontal surface is an oval shaped area situated 150 feet above the published airport elevation. Its dimensions are determined by circles, either 5,000 feet or 10,000 feet in radius depending on the sophistication and utility of the runway, which are centered about the midpoint of each end of the primary surface. These circles are then connected by lines of tangent to enclose the limits of the horizontal surface.

Conical Surface

The conical surface is a sloped area originating at the edge of the horizontal surface and extending outward and upward at a slope of 20:1 for a horizontal distance of 4,000 feet.

Transitional Surfaces

These surfaces extend outward and upward at right angles to the runway centerline and centerline extended at a slope of 7:1 from the sides of the primary surface as well as from the sides of the approach surface. Transitional surfaces for those portions of the prevision approach, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface at right angles to the runway centerline.

Approach Surface

This surface begins at the ends of the primary surface and slopes upward at a predetermined ratio while at the same time flaring out horizontally. The width and elevation of the inner ends conform to that of the primary surface, while the slope, length, and outer width are determined by the runway service category and existing or proposed instrument approach capabilities.

Analysis of the Part 77 surfaces surrounding the Airport was based upon a multiple data sources including, the FAA digital obstacle file (DOF) for the State of Ohio, data capture through remote sensing performed as part of the base

mapping for this study, and municipal GIS data. As part of this analysis, 22 objects were found to penetrate various Part 77 surfaces and recommendations made for how to manage these obstructions. **Figure 6-10** presents the Part 77 analysis.

6.8. Airport Land Use Map

As discussed in the previous chapter, this planning effort engaged the TAC in a planning exercise looking at the highest and best use of airport properties. As a large and well rounded committee, the TAC offered some very valuable information relative to the most appropriate and sustainable way to develop the airfield environment. The land use plan presented in **Figure 6-11** represents a synthesis of the TACs guidance relative to on-airport land use.

6.9. Property Map

The airport property map is intended to depict the areas of existing airport sponsor ownership and areas proposed for ownership or release. The map also shows easement, buildings, aprons, fences, roads, and other features of concern. Parcels are shown for depiction purposed only and this map is not intended to be used for survey or land acquisition purposes. Property information includes ownership, date of acquisition, and federal involvement if applicable. The property map identifies property acquisition of parcel 10 and 11 north of Runway 20 as well as a future easement over a number of parcels southwest of the Runway 2 end and west of Springboro Pike. **Figure 6-12** depicts the existing property information for the Airport.

6.10. Summary of Changes to the ALP Set

Since the last ALP update was prepared for Dayton-Wright Brothers Airport a variety of development actions have been added to, or removed from, the current ALP set shown in this chapter. The most substantive of these changes are itemized below:

- Removal of a future precision approach to Runway 20.
- Change to alignment of proposed Austin Blvd. realignment.
- Change in land acquisition/release program.
- Removal of future approach lighting system improvement (MALSR).
- Runway Safety Area and Object Free Area mitigation plan
- Added runway extension project
- Changes to future taxiway system
- Improved On-Airport land use planning.

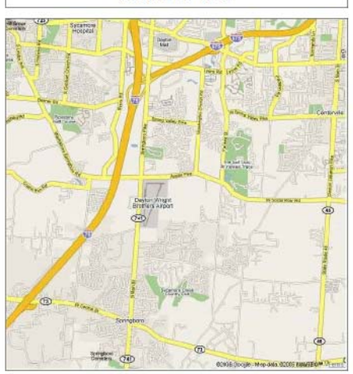
Airport Layout Plan

DAYTON - WRIGHT BROTHERS AIRPORT

STATE MAP

LOCATION MAP

VICINITY MAP



INDEX OF DRAWINGS

Prepared For:

Department of Aviation
City of Dayton, Ohio

Prepared By:

Passero Associates

In Association With

LWC, Incorporated.

Updated: October 2015

On behalf of Passero Associates, this Airport Layout Plan (ALP) was prepared for Dayton-Wright Brothers Airport according to the applicable Advisory Circulars, the current version of the Great Lakes Region ALP Checklist, and accurately depicts the proposed use of airspace at the time of submittal. The ALP conforms with FAA design standards, except as noted.

SPONSOR REVIEW

Terrence Slaybaugh, Director, Department of Aviation — Date

FEDERAL AVIATION ADMINISTRATION

Signature of Approval — Date

OHIO DEPARTMENT OF TRANSPORTATION

Signature of Approval — Date

AIRPORT DATA

AIRPORT DATA	EXISTING	ULTIMATE
Airport Elevation (MSL)	956.6'	SAME
Airport Reference Point (NAD 83)		
Lattitude	39° 35' 20.304" N	39° 35' 22.512"
Longitude	84° 13' 29.450" W	84° 13' 28.242"
Mean Max Temperature of Hotest Month	86° F	SAME
Airport Terminal Area NAVAIDS	LOC, VGSI, Beacon	SAME
Airport Reference Code (ARC)	C-II	SAME
Critical Aircraft	Lear 45 / C550 / CL600	SAME
Taxiway Design Group (TDG)	II	SAME
Misc. Facilities	ASOS, Windcone/Tee	SAME
Magnetic Variation	06° 05' 19" W	
Date of Magnetic Variation	March 2014	
NPIAS Service Level	Reliever	SAME
State Service Level	Level 1	SAME
Wind Coverage Crosswind Component		
VFR (Note wind speed)	99.55 (16kts)	
IFR (note wind speed)	99.59 (16kts)	
All Weather (note wind speed)	99.55 (16kts)	

RUNWAY DATA

RUNWAY DATA	Runway 2/20			
	Existing		Ultimate	
	Runway 2	Runway 20	Runway 2	Runway 20
Runway Design Code (RDC)	C-II		SAME	
Pavement Strength & Material Type	ASPHALT		SAME	
Strength by Wheel Loading	50K lbs SW / 60k lbs DW		SAME	
Strength by PCN				
Surface Treatment	GROOVED		SAME	
Effective Runway Gradient (%)	0.40%			
Wind Coverage @ 16kt (%)	99.55%		SAME	
Runway Dimensions	5,000' x 100'		5,500' x 100'	
Displaced Threshold Elevation (MSL)	N/A	956.0'	N/A	N/A
Runway Safety Area (RSA)				
Width	400'		SAME	
Length Prior to Threshold	600'		SAME	
Length Beyond Runway End	1000'		SAME	
Runway End Coordinates (NAD 83)				
Latitude	39°34'57.390"	39°35'43.217"	SAME	39°35'47.792"
Longitude	84°13'41.555"	84°13'17.344"	SAME	84°13'14.926"
Runway Lighting Type	MIRL		MIRL (LEDs)	
Runway Protection Zone (RPZ)				
Inner Width	500'	500'	SAME	SAME
Length	1,700'	1,700'	SAME	SAME
Outter Width	1,010'	1,010'	SAME	SAME
Runway Marking Type	Non-Precision	Non-Precision	SAME	SAME
14 CFR Part 77 Approach Category	34:1	34:1	SAME	SAME
Approach Type	GPS	LOC, GPS	SAME	SAME
Visibility Minimums	Not <1 mile	Not <1 mile	SAME	SAME
Type of Aeronautical Survey Required	Non Vert. Guided	Non Vert. Guided	SAME	SAME
Runway Departure Surface Required	Yes	Yes	SAME	SAME
Runway Object Free Area (ROFA)				
Width	800'		SAME	
Length Prior to Threshold	600'		SAME	
Length Beyond Runway End	1000'		SAME	
Obstacle Free Zone (OFZ)	400' wide & 200' past RW ends		SAME	
Threshold Siting Surface (TSS)	20:1	20:1	SAME	SAME
Visual and Instrument NAVAIDs	PAPI	LOC, MALS, VASI	SAME	SAME
Touchdown Zone Elevation (TDZE)	948.6'	956.6'	SAME	SAME
Taxiway and Taxiline Width	50' / 50'		35'	
Taxiway Safety Area	79'		SAME	
Taxiway and Taxilane Object Free Area	131' / 115'		SAME	
Taxiway and Taxilane Separation	105'		SAME	
Taxiway/Taxilane Lighting	MITL		MITL (LEDs)	
Horizontal/Vertical Datum	NAD 83 / NVD 88		SAME	

Runway Safety Area Determination

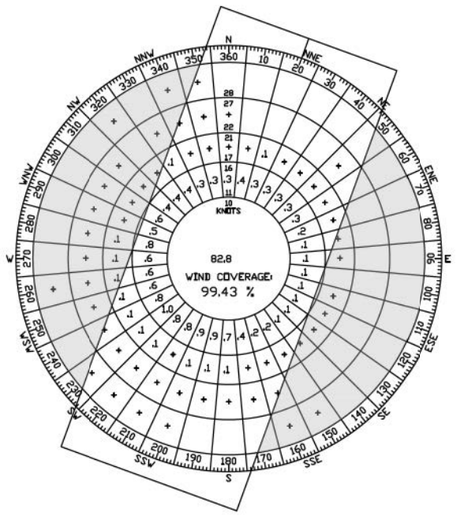
Runway End Number	Standard RSA Length beyond rwy	Standard RSA Width	Actual RSA Length beyond rwy	Actual RSA Width	Violations to RSA* along side of runway	RSA Determination*	Date Approved
Existing 2	1,000'	400'	1,000'	400'	NONE	NO	
Ultimate 2	1,000	400'	1,000	400'	NONE	NO	
Existing 20	1,000'	400'	475'	400'	NONE	NO	
Ultimate 20	1,000'	400'	1000'	400'	NONE	NO	

Modifications of Design Standards

No.	Standard Modified	FAA standards	Existing Condition	Proposed Action	Date Approved
PROP #1	ROFA	800' Wide & 1,000' Beyond each RW end.	SW CORNER OF RWY 2/20 ROFA FAILS TO MEET CLEARANCE REQUIREMENTS.	REQUEST MOS FOR NON-COMPLIANT ROFA AREA SO AS TO NOT IMPACT RUNWAY UTILITY.	

Existing Declared Distances	TORA	TODA	ASDA	LDA
Runway 2	4,475	4,475	4,475	4,475
Runway 20	5,000	5,000	5,000	5,000

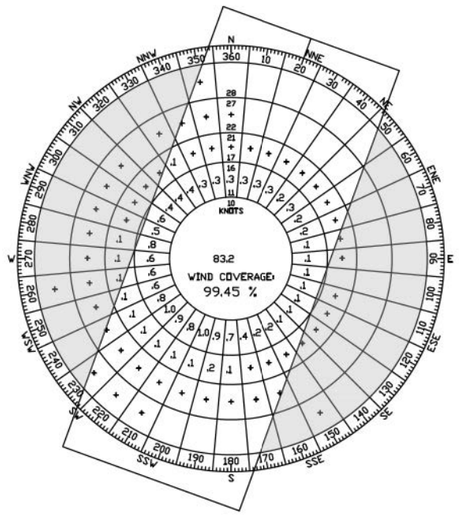
Future Declared Distances	TORA	TODA	ASDA	LDA
Runway 3	5,500	5,500	5,500	5,500
Runway 21	5,500	5,500	5,500	5,500



All Weather

Runway	10.5 knots	13 knots	16 knots
2	44.39	45.38	48.18
20	60.75	62.38	63.60
2-20	94.94	97.55	99.55

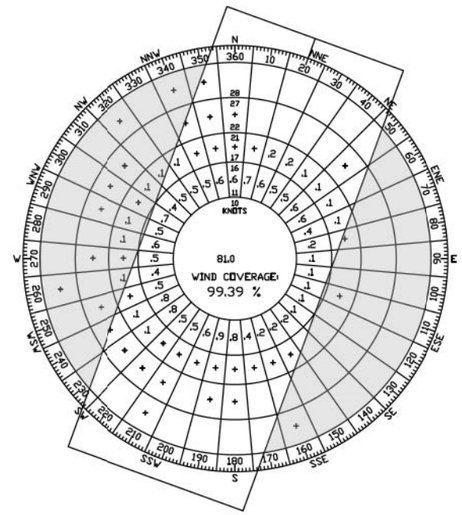
Source: NOAA, MGY ASOS 2000-2009.



VFR

Runway	10.5 knots	13 knots	16 knots
2	43.78	44.73	45.53
20	61.52	63.19	64.44
2-20	94.89	97.52	99.55

Source: NOAA, MGY ASOS 2000-2009.



IFR

Runway	10.5 knots	13 knots	16 knots
2	50.12	51.40	52.27
20	53.51	54.73	55.61
2-20	95.35	97.85	99.59

Source: NOAA, MGY AIOS 2000-2009.

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Principal-in-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

DATA SHEET

Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
2 OF 12

Date
October 2015

RUNWAY 2-20 5,000' X 100'
TRUE BEARING - 23° 19' 40.2463"

LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	950'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

#	Facility Description	Tenant	Area	Top Elevation (Ft. MSL)
1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
3	Conventional Hangar	City of Dayton (Commander Aero)	22,400 S.F.	1000
4	Airport Terminal	City of Dayton (Aviation Sales Inc.)	9,600 S.F.	960
5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-It Inc.	20,800 S.F.	954
8	16 Unit T-Hangar	South Dayton Hangars Inc.	17,800 S.F.	954
9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
11	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
12	Fuel Farm	Aviation Sales Inc.	24,000 GALS	940
13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

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06° 05' 19"
West Declination

TRUE
MAGNETIC

0 300 600 Feet

Client:

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Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

EXISTING FACILITIES

Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015

Remaining portions of the Runway 2 RPZ are depicted below

RUNWAY 2-20 5,000' X 100'
TRUE BEARING -23° 19' 40.2463"

LEGEND

DESCRIPTION	EXISTING	FUTURE
RUNWAY SAFETY AREA (RSA)	RSA	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA	TOFA
AIRPORT PAVEMENT		
AIRPORT REFERENCE POINT		
AIRPORT BUILDINGS		
OTHER BUILDINGS		
AIRPORT PROPERTY	PL	PL
AVIGATION EASEMENTS	NOT SHOWN	
FENCE	X X	N/A
ROAD		
WETLANDS		N/A
GROUND ELEVATION CONTOURS	950'	N/A
INACTIVE PAVEMENT		N/A
GENERIC VISUAL GLIDE SLOPE INDICATOR		
AIRPORT BEACON		
AUTOMATED SURFACE OBSERVING SYSTEM		
THRESHOLD LIGHTS		
WINDSOCK		

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06° 05' 19"
West Declination

TRUE
MAGNETIC

0 300 600
Feet

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Principal-In-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

ALP

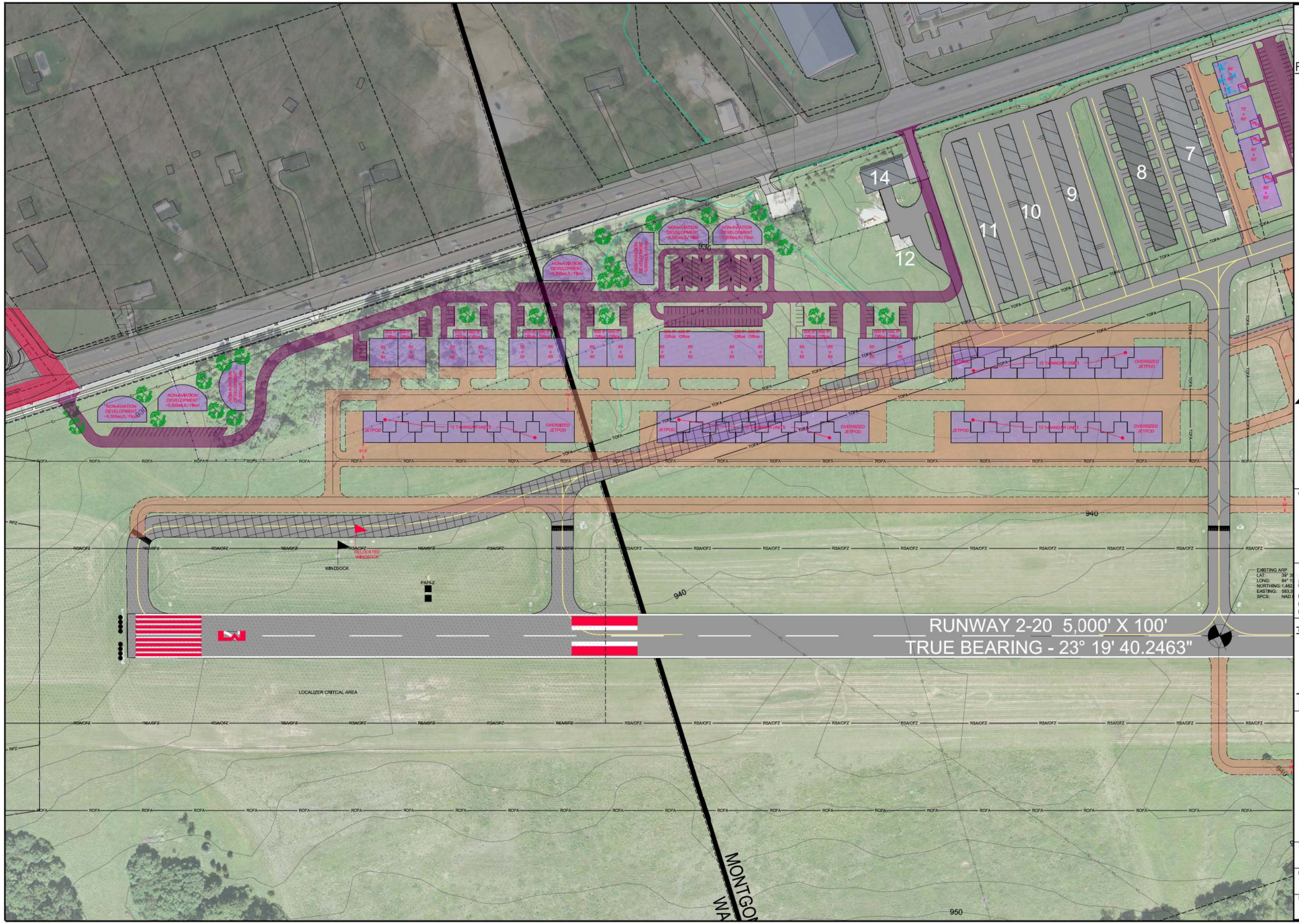
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
4 OF 12

Date
October 2015



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06° 05' 19"
West Declination

TRUE

MAGNETIC

0 150 200 Feet

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Project Manager	Zach E. Nelson
Designed by	Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

TERMINAL AREA PLAN #1

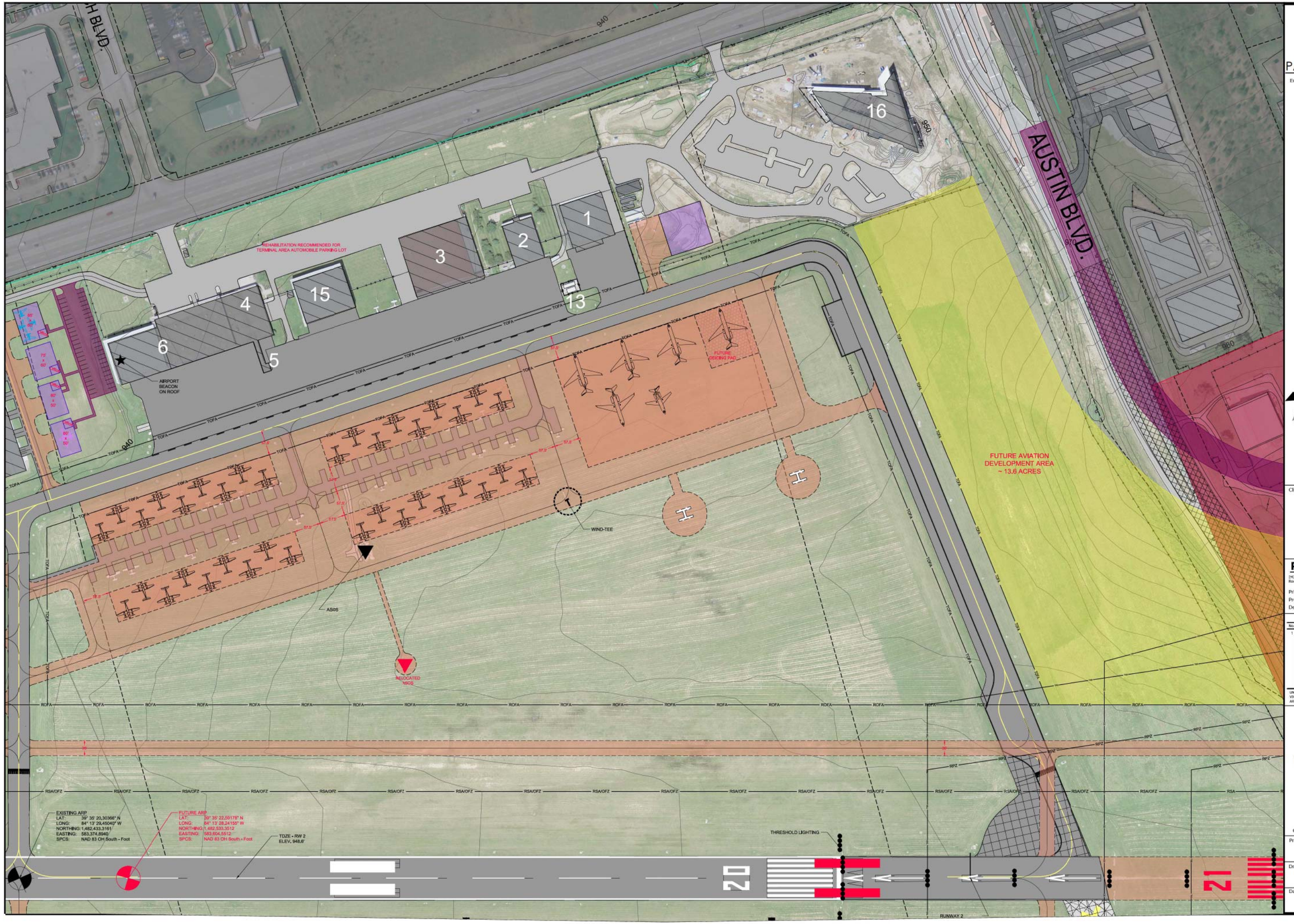
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
5 OF 12

Date
October 2015



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06° 05' 19"
West Declination

TRUE

MAGNETIC

0 150 200 Feet

Client:

THE CITY OF DAYTON, OHIO INCORPORATED A.D. 1805

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Revisions

No.	Date	By	Description
1			

Airport Layout Plan

TERMINAL AREA PLAN #2

Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
6 OF 12

Date
October 2015

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06° 05' 19"
West Declination

TRUE

MAGNETIC

0 150 200 Feet

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Designed by	Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

TERMINAL AREA PLAN #3

Dayton-Wright Brothers Airport

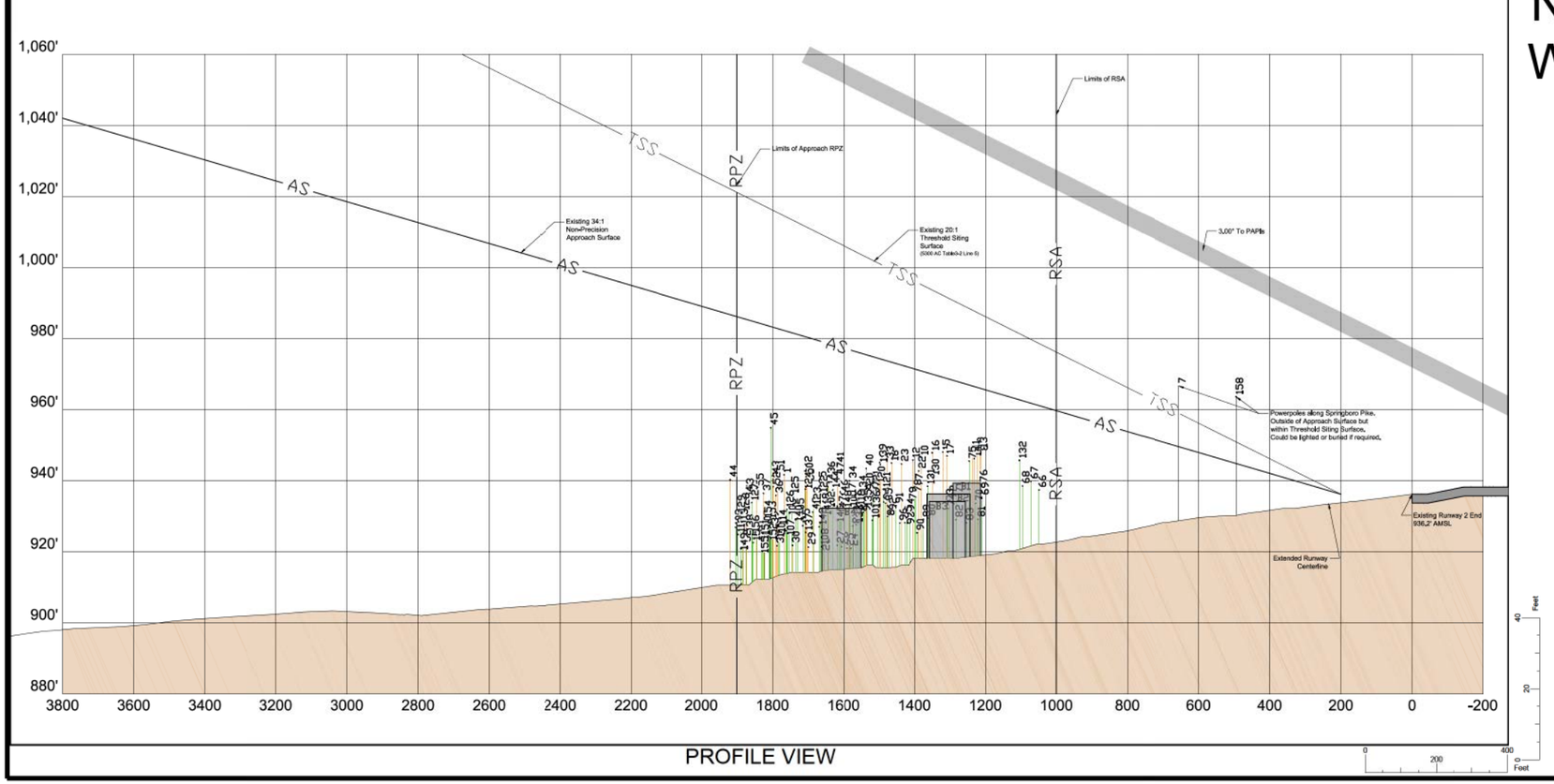
Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
7 OF 12

Date
October 2015

PLAN VIEW



PROFILE VIEW

No Identified Obstructions Within the Inner-Portion of the Approach Surface

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06° 05' 19"
West Declination

TRUE
MAGNETIC

Client:

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Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

INNER PORTION OF THE RUNWAY 2 APPROACH SURFACE PLAN & PROFILE

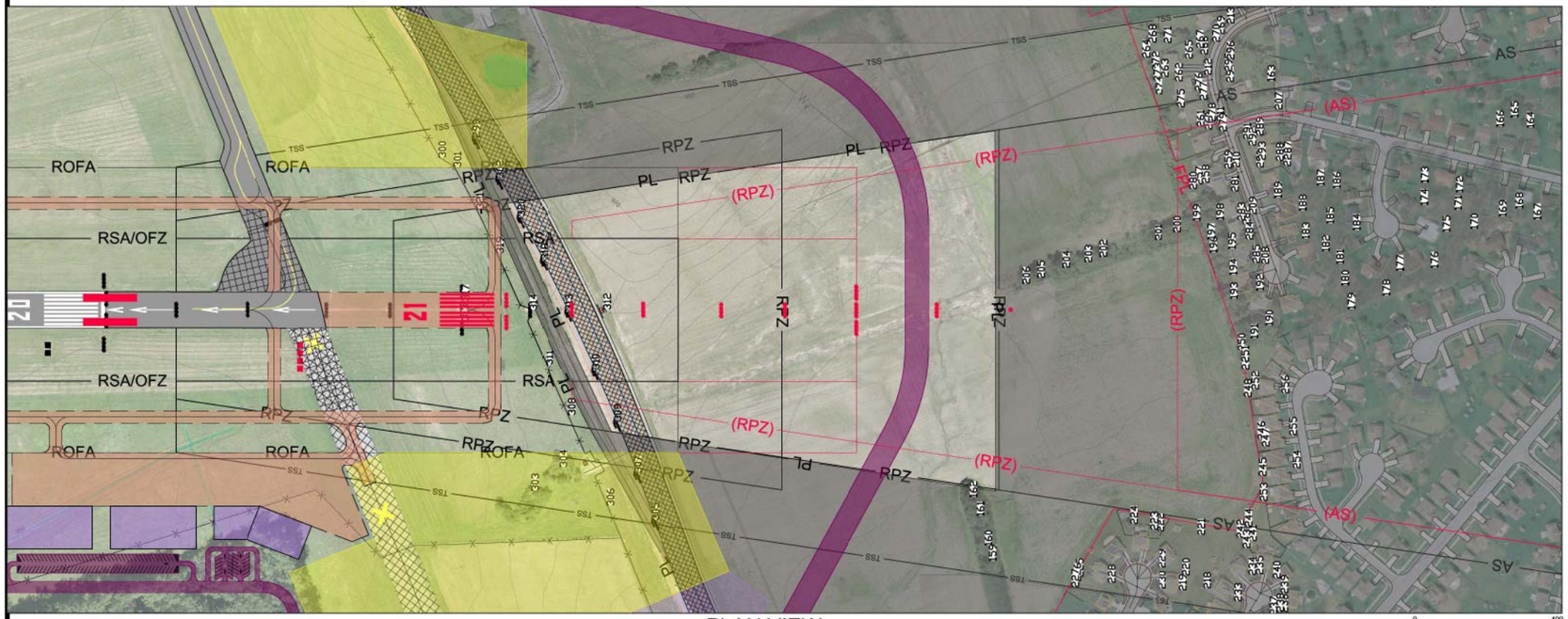
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

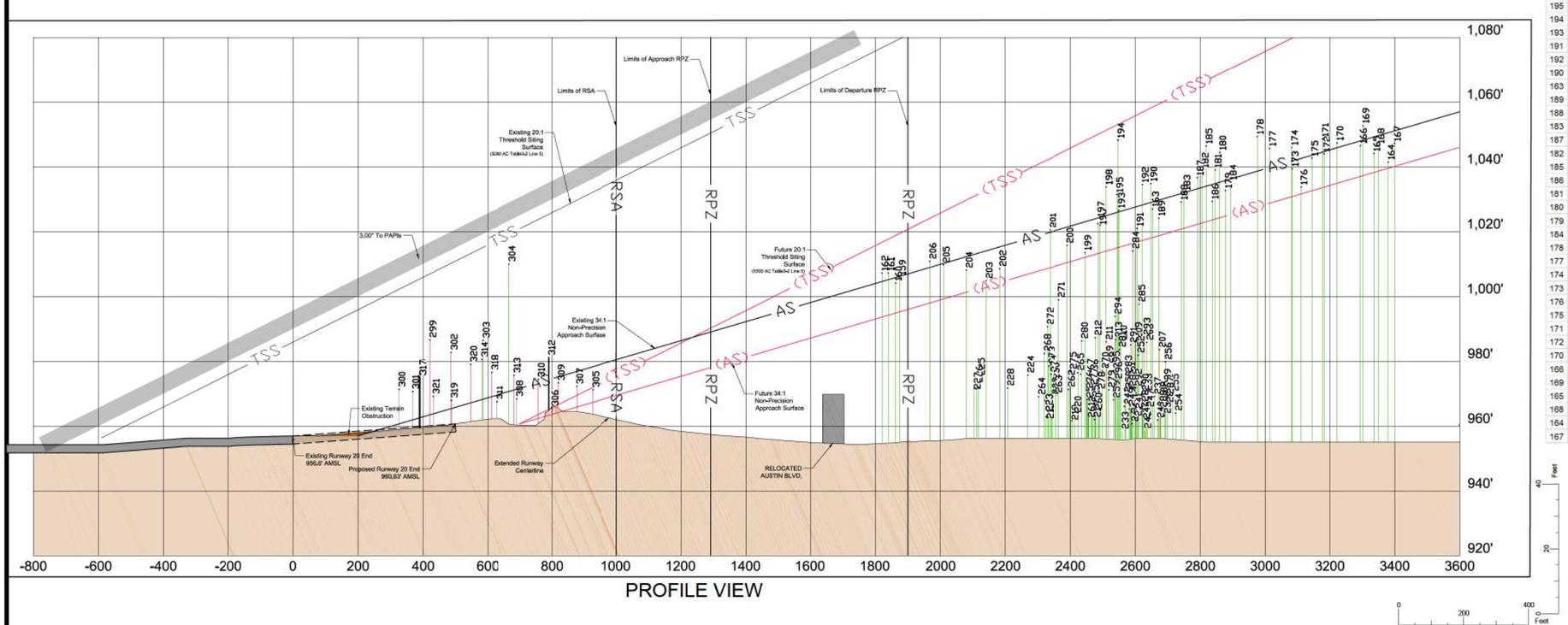
Project No.
20111339.0003

Drawing No.
8 OF 12

Date
October 2015



PLAN VIEW



PROFILE VIEW

KEY	DESCRIPTION	ELEVATION (AMSL)	+ Moving Object Elevation	PART 77 APPROACH SURFACE ELEVATION (AMSL)	APPROACH SURFACE PENETRATION	DESPOSITION
300	Airport Fence	971.29	N/A	960.33	10.96	RELOCATE
301	Airport Fence	970.63	N/A	961.58	9.05	RELOCATE
316	MALS	974.7	N/A	962.20	12.50	RELOCATE
315	MALS	975	N/A	962.21	12.79	RELOCATE
317	MALS	975.12	N/A	962.24	12.88	RELOCATE
299	Austin Road	986.53	1001.53	963.14	23.39	RELOCATE
321	Fence	969.13	N/A	963.42	5.71	RELOCATE
302	Austin Road	982.7	997.7	965.07	17.64	RELOCATE
319	Fence	967.88	N/A	965.07	2.81	RELOCATE
320	Austin Road	978.97	993.97	966.83	12.14	RELOCATE
314	Airport Fence	980.55	N/A	967.82	12.73	RELOCATE
303	Tree	986.39	1001.39	967.96	18.43	APPLY TSS
318	Austin Road	976.56		968.74	7.82	RELOCATE
311	Airport Fence	967.5		969.18	1.68	RELOCATE
304	Tree	1009.91		970.36	39.55	REMOVE
313	Austin Road	975.63	990.63	970.81	4.82	RELOCATE
308	Airport Fence	968.36		971.04	2.68	RELOCATE
310	Austin Road	974.32	959.32	973.01	1.31	RELOCATE
312	MALS	981.08		956.60	24.48	RELOCATE
306	Airport Fence	965.4		956.60	8.80	RELOCATE
309	Austin Road	973.26		974.82	1.56	RELOCATE
307	Austin Road	972.17		976.49	4.32	RELOCATE
305	Austin Road	971.19		977.95	6.76	RELOCATE
162	Tree	1007.18		1004.24	2.94	APPLY TSS
161	Tree	1007.18		1004.82	2.36	APPLY TSS
160	Tree	1004.09		1005.47	1.38	APPLY TSS
159	Tree	1005.85		1005.83	0.02	APPLY TSS
206	Tree	1010.81		1008.59	2.22	APPLY TSS
205	Tree	1009.65		1009.81	0.16	NONE
204	Tree	1008.06		1011.89	3.83	NONE
203	Tree	1004.83		1013.70	8.87	NONE
202	Tree	1008.5		1014.94	6.44	NONE
201	Tree	1020.43		1019.45	0.98	APPLY TSS
200	Tree	1015.68		1021.03	5.35	NONE
199	Tree	1013.49		1022.65	9.16	NONE
197	Tree	1022.39		1023.84	1.45	NONE
196	Tree	1021.98		1024.03	2.05	NONE
198	Tree	1033.75		1024.57	9.18	APPLY TSS
195	Tree	1031.38		1025.55	5.83	APPLY TSS
194	Tree	1048.13		1025.66	22.47	APPLY TSS
193	Tree	1026.53		1025.71	0.82	APPLY TSS
191	Tree	1020.95		1027.38	6.43	NONE
192	Tree	1034.44		1027.85	6.59	APPLY TSS
190	Tree	1034.77		1028.61	6.16	APPLY TSS
163	Tree	1026.93		1028.78	1.85	NONE
189	Tree	1024.09		1029.34	5.25	NONE
188	Tree	1029.06		1031.37	2.31	NONE
183	Tree	1032.04		1031.63	0.41	APPLY TSS
187	Tree	1036.61		1032.84	3.77	APPLY TSS
182	Tree	1038.95		1033.27	5.68	APPLY TSS
185	Tree	1046.36		1033.62	12.74	APPLY TSS
186	Tree	1029.32		1034.18	4.86	NONE
181	Tree	1039.01		1034.44	4.57	APPLY TSS
180	Tree	1044.41		1034.86	9.55	APPLY TSS
179	Tree	1032.68		1035.37	2.69	NONE
184	Tree	1035.25		1035.81	0.56	NONE
178	Tree	1049.27		1038.25	11.02	APPLY TSS
177	Tree	1045.59		1039.37	6.22	APPLY TSS
174	Tree	1045.9		1041.37	4.53	APPLY TSS
173	Tree	1039.32		1041.41	2.09	NONE
176	Tree	1033.69		1042.21	8.52	NONE
175	Tree	1042.61		1043.20	0.59	NONE
171	Tree	1048.53		1044.17	4.36	APPLY TSS
172	Tree	1043.92		1044.30	0.38	NONE
170	Tree	1047.33		1045.52	1.81	APPLY TSS
166	Tree	1046.47		1047.64	1.17	NONE
169	Tree	1052.68		1047.86	4.82	APPLY TSS
165	Tree	1044.02		1048.84	4.82	NONE
168	Tree	1046.44		1049.23	2.79	NONE
164	Tree	1041.55		1050.14	8.59	NONE
167	Tree	1047.15		1050.72	3.57	NONE

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Principal-In-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

INNER PORTION OF THE RUNWAY 20 APPROACH SURFACE PLAN & PROFILE

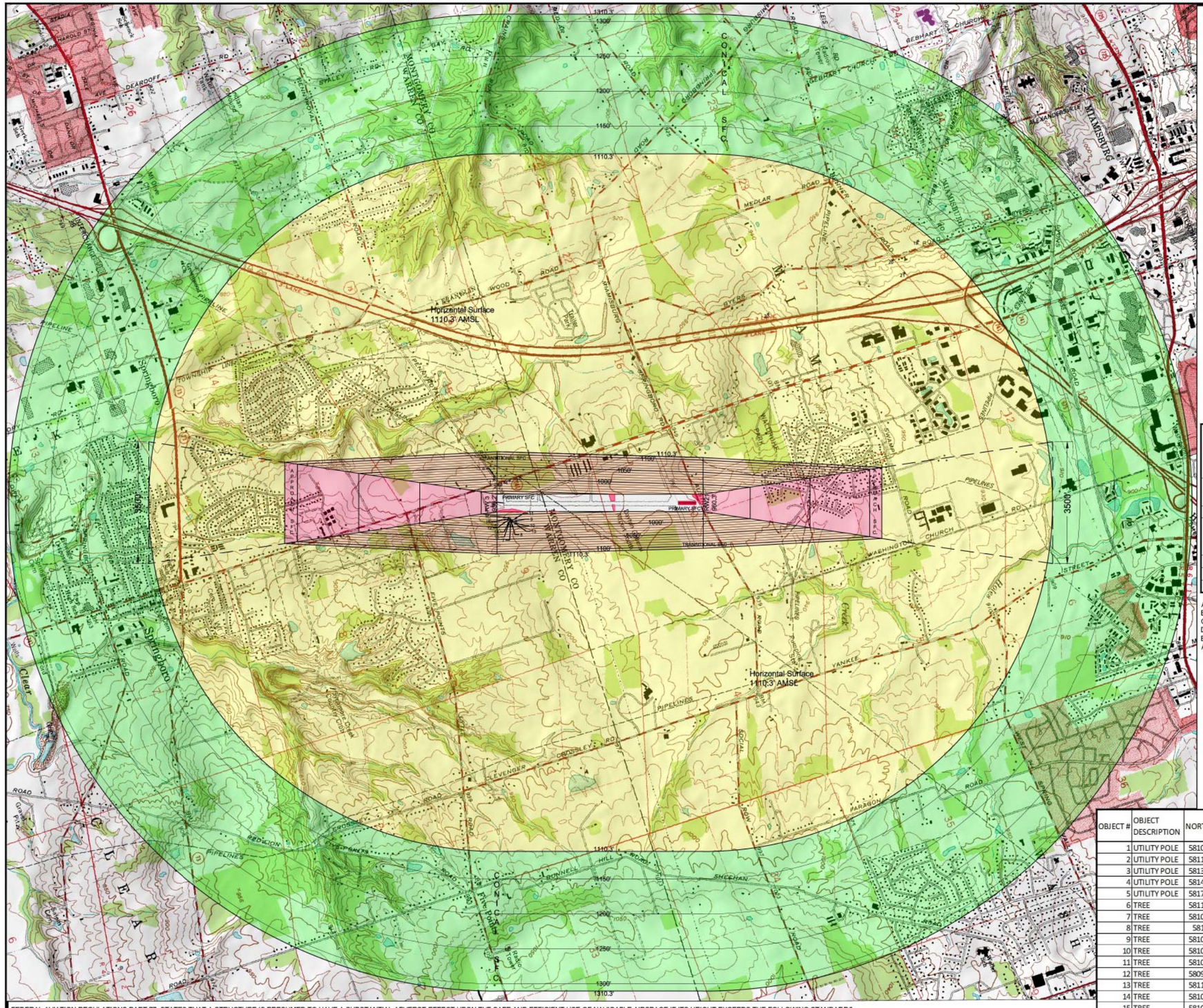
Dayton-Wright Brothers Airport

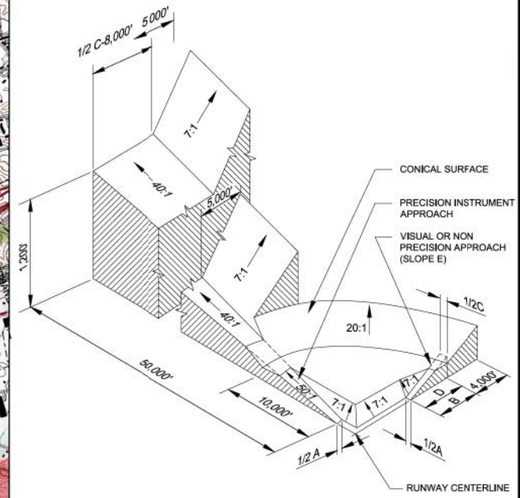
Town/City: Dayton
County: Montgomery
State: Ohio

Project No.
20111339.0003

Drawing No.
9 OF 12

Date
October 2015





ISOMETRIC VIEW OF SECTION

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B C	B D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B C	B D	
C	APPROACH SURFACE WDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A - UTILITY RUNWAYS
B - RUNWAYS LARGER THAN UTILITY
C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILES
D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
E - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

LEGEND	
OBSTRUCTING TERRAIN	
OBSTRUCTION POINTS	⊕

OBJECT #	OBJECT DESCRIPTION	NORTHING	EASTING	IMPACTED PT-77 SURFACE	Pt-77 ELEV (FT. AMSL)	OBJECT HEIGHT (FT. AMSL)	PENETRATION HEIGHT (FT)	DISPOSITION
1	UTILITY POLE	581071.713	1480718.541	TRANSITIONAL	961	968.838	7.84	LIGHT
2	UTILITY POLE	581142.162	1480893.787	TRANSITIONAL	941	971.837	30.84	LIGHT
3	UTILITY POLE	581322.754	1480910.095	TRANSITIONAL	949.5	972.025	22.53	LIGHT
4	UTILITY POLE	581475.526	1480924.055	TRANSITIONAL	957	968.508	11.51	LIGHT
5	UTILITY POLE	581787.042	1480952.579	TRANSITIONAL	972	973.359	1.36	LIGHT
6	TREE	581130.154	1480636.983	TRANSITIONAL	975	991.004	16.00	TRIM/REMOVE
7	TREE	581045.816	1482003.168	TRANSITIONAL	941	965.129	24.13	TRIM/REMOVE
8	TREE	581055.06	1482015.763	TRANSITIONAL	941.5	967.303	25.80	TRIM/REMOVE
9	TREE	581067.349	1482023.885	TRANSITIONAL	941.5	966.858	25.36	TRIM/REMOVE
10	TREE	581065.595	1482036.728	TRANSITIONAL	942	967.451	25.45	TRIM/REMOVE
11	TREE	581093.264	1481998.422	TRANSITIONAL	938.5	960.634	22.13	TRIM/REMOVE
12	TREE	580980.355	1481941.239	PRIMARY	938	958.582	20.58	REMOVE
13	TREE	581142.186	1482118.544	TRANSITIONAL	952	962.777	10.78	TRIM/REMOVE
14	TREE	581062.262	1481939.394	PRIMARY	938	964.601	26.60	REMOVE
15	TREE	581046.273	1481962.373	PRIMARY	938	966.668	28.67	REMOVE
16	TREE	581030.588	1481916.181	PRIMARY	938	965.27	27.27	REMOVE
17	TREE	581030.106	1481888.705	PRIMARY	938	973.356	35.36	REMOVE
18	TOWER	576170.357	1493205.758	CONICAL	1247.5	1349	101.50	LIGHT
19	TOWER	594941.673	1479247.009	HORIZONTAL	1110.3	1165	54.70	LIGHT
20	TOWER	594068.228	1479463.435	HORIZONTAL	1110.3	1214	103.70	LIGHT
21	TOWER	594220.02	1479937.505	HORIZONTAL	1110.3	1111	0.70	LIGHT
22	TOWER	590181.16	1479468.533	HORIZONTAL	1110.3	1120	9.70	LIGHT

FEDERAL AVIATION REGULATIONS PART 77, STATES THAT A STRUCTURE IS PRESUMED TO HAVE A SUBSTANTIAL ADVERSE EFFECT UPON THE SAFE AND EFFICIENT USE OF NAVIGABLE AIRSPACE IF ITS HEIGHT EXCEEDS THE FOLLOWING STANDARDS:

1. A HEIGHT OF FIVE HUNDRED (500) FEET ABOVE GROUND LEVEL AT THE SITE OF THE OBJECT ANYWHERE IN THE STATE.
2. A HEIGHT THAT IS TWO HUNDRED (200) FEET ABOVE GROUND LEVEL OR ABOVE THE ESTABLISHED AIRPORT ELEVATION, WHICHEVER IS HIGHER, WITHIN THREE (3) NAUTICAL MILES OF THE ESTABLISHED REFERENCED POINT OF A PUBLIC-USE AIRPORT, EXCLUDING HELIPORTS, AND THE HEIGHT INCREASES IN THE PROPORTION OF ONE HUNDRED (100) FEET FOR EACH ADDITIONAL NAUTICAL MILE OF DISTANCE FROM THE AIRPORT UP TO A MAXIMUM OF FIVE HUNDRED (500) FEET.
3. A HEIGHT WITHIN A TERMINAL OBSTACLE CLEARANCE AREA, INCLUDING AN INITIAL APPROACH SEGMENT, A DEPARTURE AREA, AND A CIRCLING APPROACH AREA, AS DEFINED BY FEDERAL LAWS AND REGULATIONS, WHICH WOULD RESULT IN THE VERTICAL DISTANCE BETWEEN ANY POINT ON THE OBJECT AND AN ESTABLISHED MINIMUM INSTRUMENT FLIGHT ALTITUDE WITHIN THAT AREA OR SEGMENT TO BE LESS THAN THE REQUIRED OBSTACLE CLEARANCE.
4. A HEIGHT WITHIN AN EN ROUTE OBSTACLE CLEARANCE AREA, AS DEFINED BY FEDERAL LAWS AND REGULATIONS, INCLUDING TURN AND TERMINATION AREAS, OF A FEDERAL AIRWAY OR APPROVED OFF-AIRWAY ROUTE, THAT WOULD INCREASE THE MINIMUM OBSTACLE CLEARANCE ALTITUDE.
5. THE SURFACE OF A TAKEOFF AND LANDING AREA OF A PUBLIC-USE AIRPORT OR ANY IMAGINARY SURFACE AS ESTABLISHED BY FAR PART 77. HOWEVER, NO PART OF THE TAKEOFF OR LANDING AREA ITSELF WILL BE CONSIDERED TO BE AN OBSTRUCTION.

NOTE: FAR PART 77 IMAGINARY SURFACES ARE AS SHOWN ON THIS SHEET FOR THE DAYTON-WRIGHT BROTHERS AIRPORT. THESE SURFACES ARE DEPICTED BASED UPON ULTIMATE AIRPORT DEVELOPMENT. OBSTRUCTION DATA COLLECTED OCTOBER 2013

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Fax: (585) 325-1691

Principal-in-Charge Andrew M. Holesko
Project Manager Zach E. Nelson
Designed by Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

PART 77 AIRSPACE

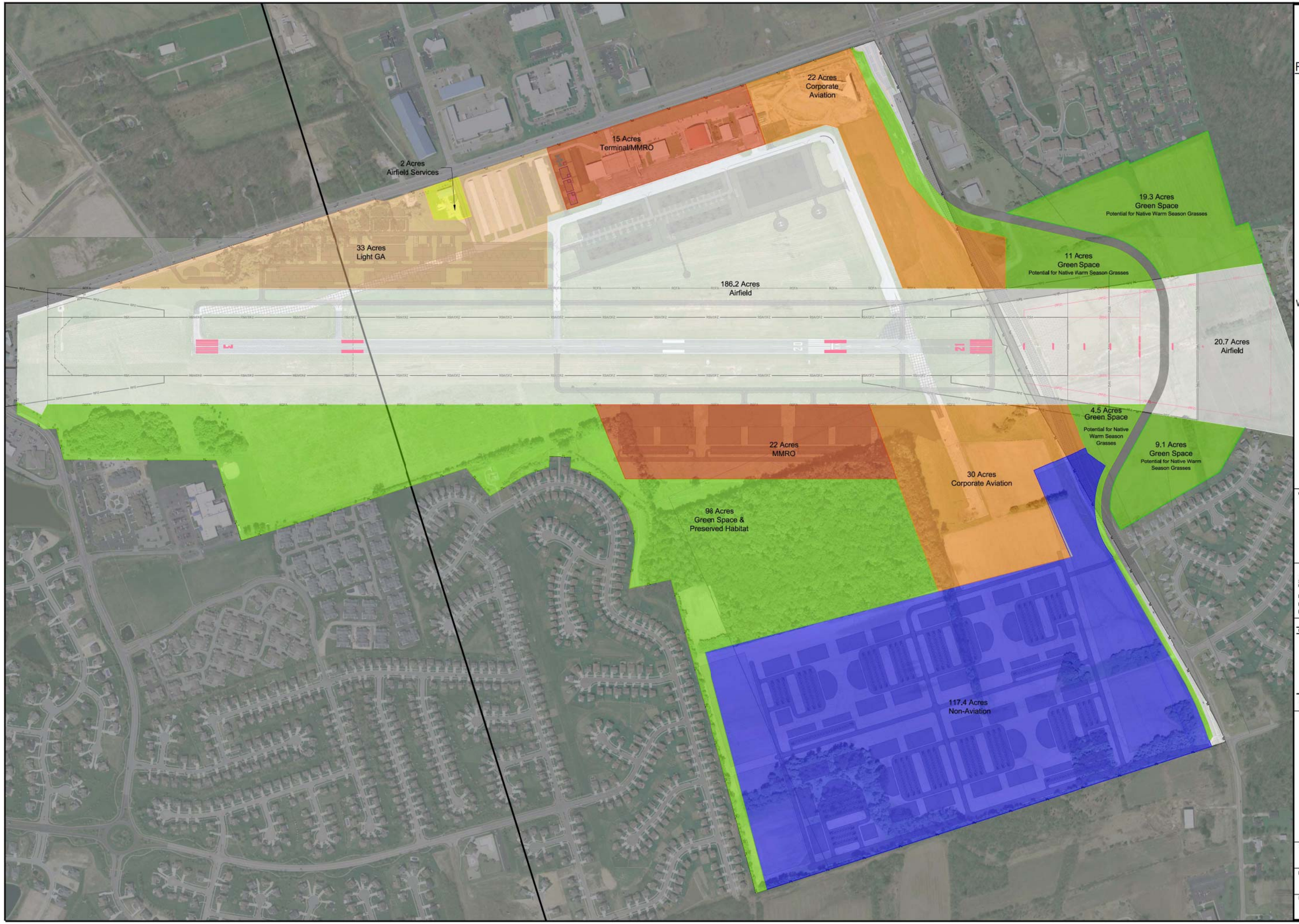
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
10 OF 12

Date
October 2015



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Principal-In-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

LAND USE MAP

Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
11 OF 12

Date
October 2015

FEE SIMPLE LAND OWNERSHIP PROGRAM				
PARCEL#	ORIGINAL OWNER		ACREAGE	DEED
1	City of Dayton		57.72	74-0023 D06
2	City of Dayton		16.7	74-0023 D07
3	City of Dayton		100	74-0023 D06
4	City of Dayton		167.943	74-0036 B06
5	City of Dayton		118.3	86-0547 C12
6	City of Dayton		53.6	86-0547 D10
7	City of Dayton		23.744	83-0011 B03
8	Robet House & Margaret House		7.1	DB 1250 PG 278
9	Farm Properties		4.458	78-0254 E04
10	George Wimpey of Ohio, Inc.		4.275	86-0751 C03
11	George Wimpey of Ohio, Inc.	Miami	60.517	86-0751 C03
12	George Wimpey of Ohio, Inc.	Township	7.39	86-0751 C03
13	George Wimpey of Ohio, Inc.	(Current	8.356	86-0751 C03
14	George Wimpey of Ohio, Inc.	Owner)	8	86-0751 C03
15	George Wimpey of Ohio, Inc.		21.228	86-0751 C03
16	Ray D. Kershner & Therese A. Kershner		3.386	DB 2209 PG 242
17	Donald L. Philpot & Jeannine E. Philpot		48.348	82-0139 B12
18	Richard F. Glennon		42.768	75-0476 C05
19	Richard F. Glennon		43.27	93-0092 B03
20	Lester E. Stolle		233.98	82-0525 D05
21	Lester E. Stolle		201.14	DB 1925 PG 34
22	John R. Remick & Carole E. Remick		62.12	OR 613 PG 295
23	Bank One, Dayton, N/A/ & Polly H. Gardner		82.7212	VOL 481 PG 899
24	Welsh Woods Subdivision		26.077	VOL 351 PG 89
25	John V. Lakes & Ruth E. Lakes		5.129	OR 313 PG 488
26	Peral N. Metcalf		5.128	88-0101 C12
27	Danis Properties Co., Ltd.		54.9824	87-0002 E04
28	Danis Properties Holding Co.		46.39	92-0639 B12
29	Robert P. House		0.379	92-0596 A01
30	The Mead Corporation		43.894	76-0586 B10
31	Carl & Lucille A. Gross		5.492	82-525 D09
32	Danis Properties Co., Ltd.		5.492	82-525 D09
33	South Tech Section One		6.2388	P.B. 132 PG 32 AUD.BK. 265 PG 2

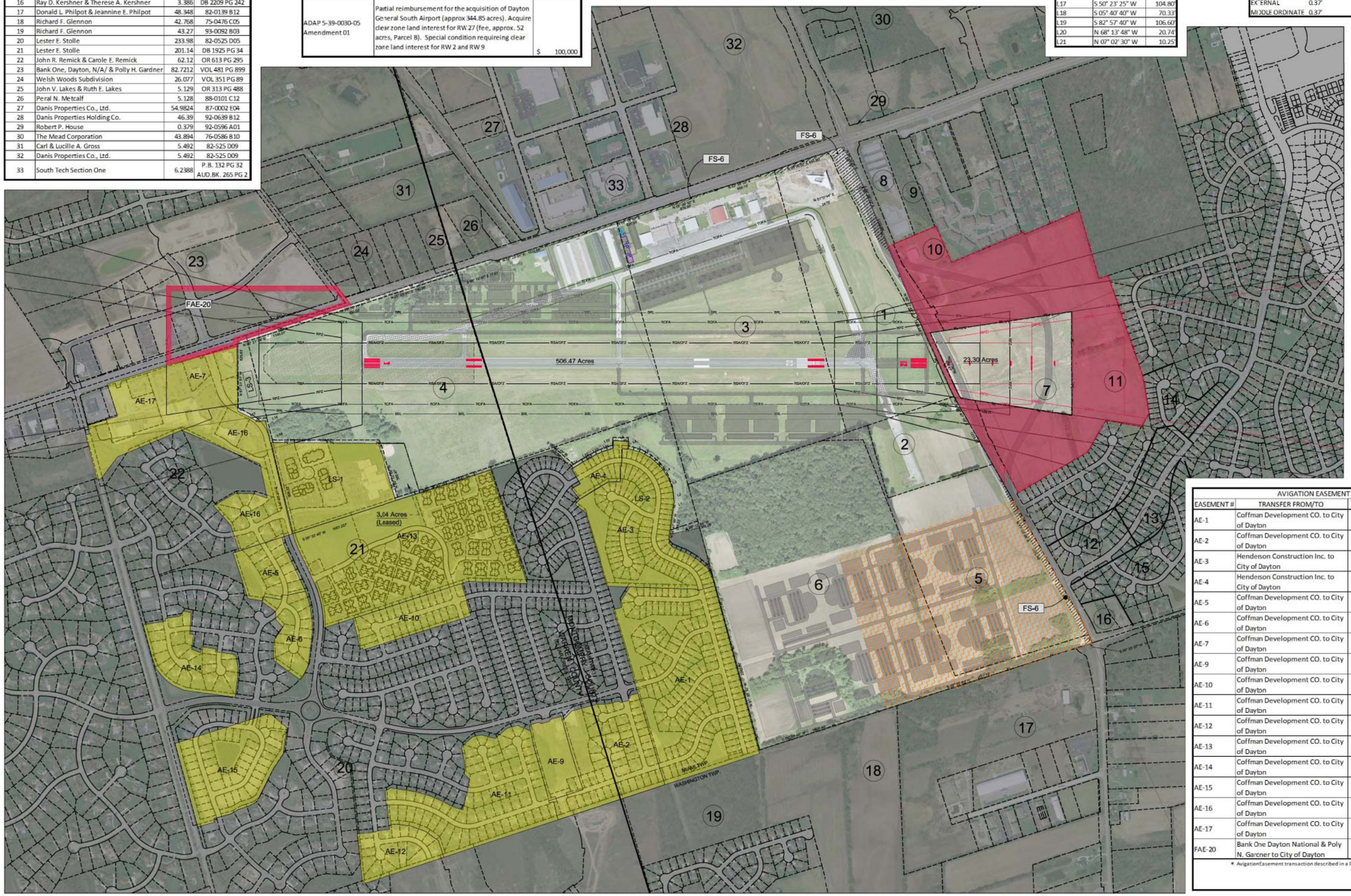
FEDERAL GRANT PROPERTY ACQUISITION		
Federal Grant Number	Description	Dollar Amount
ADAP 5-39-0030-01	Partial reimbursement for the acquisition of Montgomery County Airport (approx. 344.85 acres)	$ 100,000
ADAP 5-39-0030-02	Partial reimbursement for the acquisition of Dayton General South Airport (approx 344.85 acres)	$ 661,433
ADAP 5-39-0030-03	Partial reimbursement for the acquisition of Montgomery County Airport (approx. 344.85 acres)	$ 240,400
ADAP 5-39-0030-04	Partial reimbursement for the acquisition of Dayton General South Airport (approx 344.85 acres). Acquire clear zone land interest for RW's 2-20 and 9-27	$ 990,000
ADAP 5-39-0030-05	Partial reimbursement for the acquisition of Dayton General South Airport (approx 344.85 acres). Acquire clear zone land interest for RW's 2-20	$ 802,500
ADAP 5-39-0030-05 Amendment 01	Partial reimbursement for the acquisition of Dayton General South Airport (approx 344.85 acres). Acquire clear zone land interest for RW 27 (fee, approx. 52 acres, Parcel B). Special condition requireing clear zone land interest for RW 2 and RW 9	$ 100,000

CITY OF DAYTON, OHIO PROPOSED LAND SWAP AND AVIGATION EASEMENT PROGRAM ***			
No.	LAND TRANSFER (TO/FROM)	ACRES	DESCRIPTION
LS-1	To the YMCA to the City of Dayton	17.50	PB 1741, Pg 419, Warren Co. Filled 4/20/99 Land Swap & Avigation Easement
LS-2	To the City of Dayton from the YMCA	10.08	MF 99-385-E06 Montgomery Co. Filled 6/11/99 Land Swap
LS-3	To the City of Dayton from the YMCA	2.92	PB 1741, Pg 425, Warren Co. Filled 4/20/99 Land Swap & Avigation Easement
FS-4	To Miami Township Trustees from City of Dayton	12.00	Proposed land swap and Avigation Easement
FS-5	To the City of Dayton from Miami Township Trustees	40.90	Proposed land swap and Avigation Easement
FS-6	To Miami Township Trustees from City of Dayton	7.80	Proposed land swap and Avigation Easement

*** Land swap transaction described in a letter from the City of Dayton to FAA Detroit ADO dated 12/4/98.
Land release letter from the FAA Detroit ADO to the City of Dayton

LINE CHART		
L1	N 60° 42' 41" W	61.44'
L2	N 73° 38' 56" W	122.92'
L3	N 87° 29' 47" W	122.92'
L4	S 79° 23' 19" W	122.92'
L5	S 65° 32' 28" W	122.92'
L6	S 52° 25' 33" W	122.92'
L7	S 38° 34' 42" W	122.92'
L8	N 64° 32' 13" W	75.00'
L9	S 25° 27' 47" W	149.49'
L10	S 64° 32' 13" E	75.00'
L11	S 05° 23' 06" W	123.21'
L12	S 00° 51' 31" E	61.16'
L13	S 06° 37' 15" E	153.45'
L14	S 08° 20' 22" E	114.93'
L15	N 80° 45' 05" W	222.10'
L16	S 20° 43' 42" W	95.22'
L17	S 50° 23' 25" W	104.80'
L18	S 05° 40' 40" W	70.33'
L19	S 82° 57' 40" W	106.60'
L20	N 68° 13' 48" W	20.74'
L21	N 07° 02' 30" W	10.25'

CURVE 1 (C1)		CURVE 3 (C3)	
CENTRAL ANGLE	12° 05' 01"	CENTRAL ANGLE	7° 32' 21"
CHORD DIRECTION	S 56° 25' 57" W	CHORD DIRECTION	N 88° 38' 10" w
RADIUS	246.00'	RADIUS	1228.24'
LENGTH	72.97'	LENGTH	161.61'
TANGENT	36.62'	TANGENT	80.92'
CHORD DIRECTION	72.84'	CHORD DIRECTION	161.50'
EXTERNAL	1.93'	EXTERNAL	2.66'
MIDDLE ORDINATE	1.92'	MIDDLE ORDINATE	2.66'
CURVE 2 (C2)		**CURVE 4 (C4)**	
CENTRAL ANGLE	5° 43' 34"	CENTRAL ANGLE	7° 38' 27"
CHORD DIRECTION	S 53° 15' 11" W	CHORD DIRECTION	N 88° 40' 03" E
RADIUS	295.00'	RADIUS	1273.24'
LENGTH	29.48'	LENGTH	169.80'
TANGENT	14.75'	TANGENT	85.02'
CHORD DIRECTION	29.47'	CHORD DIRECTION	169.67'
EXTERNAL	0.37'	EXTERNAL	2.84'
MIDDLE ORDINATE	0.37'	MIDDLE ORDINATE	2.83'



LEGEND

- Future Acquisition
- Future Land Swap (For Parcels 10 and 11 (1:1))
- Future Easement
- Existing Easement

AVIGATION EASEMENT OWNERSHIP LEGEND*				
EASEMENT #	TRANSFER FROM/TO	ACREAGE	DATE	TRANSFER
AE-1	Coffman Development CO. to City of Dayton	40.632	3/12/1999	Ease-99-038470-000 Warren County
AE-2	Coffman Development CO. to City of Dayton	18.093	3/12/1999	Ease-99-038470-0007 Montgomery County
AE-3	Henderson Construction Inc. to City of Dayton	22.974	4/15/1999	Ease-99-033920-0007 Montgomery County
AE-4	Henderson Construction Inc. to City of Dayton	3.607	4/15/1999	Ease-99-033920-0007 Montgomery County
AE-5	Coffman Development CO. to City of Dayton	6.311	4/17/1999	EasePt-04-09-463-004 Warren County
AE-6	Coffman Development CO. to City of Dayton	5.014	4/17/1999	EasePt-04-09-463-004 Warren County
AE-7	Coffman Development CO. to City of Dayton	8.424	3/12/1999	Pt04-09-371-023 Warran County
AE-9	Coffman Development CO. to City of Dayton	5.681	4/17/1999	EasePt-04-09-230-002 Warren County
AE-10	Coffman Development CO. to City of Dayton	8.648	4/17/1999	EasePt-04-09-200-001 Warren County
AE-11	Coffman Development CO. to City of Dayton	24.422	4/17/1999	EastPt-04-09-275-020 Warren County
AE-12	Coffman Development CO. to City of Dayton	7.251	4/17/1999	EasePt-04-09-374-021 Warren County
AE-13	Coffman Development CO. to City of Dayton	45.000	4/17/1999	EasePt-04-09-100-005
AE-14	Coffman Development CO. to City of Dayton	10.014	4/12/1999	EasePt-04-09-463-004 Warren County
AE-15	Coffman Development CO. to City of Dayton	18.899	4/12/1999	EastPt-04-09-453-004 Warren County
AE-16	Coffman Development CO. to City of Dayton	21.737	4/14/1999	EasePt-04-09-371-022 Warren County
AE-17	Coffman Development CO. to City of Dayton	16.061	4/14/1999	EasePt-04-09-370-029 Warren County
FAE-20	Bank One Dayton National & Poly N. Garcner to City of Dayton	20.994		

* AvigationEasement transaction described in a letter from the City of Dayton to FAA Detroit ADO dated 12/4/98.

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(585) 325-1000 Fax: (585) 325-1691

Principal-In-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

PROPERTY MAP

Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
12 OF 12

Date
October 2015

Chapter Seven

Development Phasing and Capital Improvement Program

7. DEVELOPMENT PHASING & CAPITAL IMPROVEMENT PROGRAM

The preceding chapters have identified the project necessary for the Dayton-Wright Brothers Airport to accommodate the forecast levels of demand and provide for substantive economic development opportunities in the future. As discussed in Chapter 4, specific improvements to both airside and landside elements of the Airport are recommended for implementation over the 20-year planning period. The project included in the development plan form the basis of the Airport' capital improvement program (CIP).

It is the primary purpose of this chapter to: (1) itemize the individual development projects or development related projects required to fulfill the preferred development plan for the Airport as depicted in the Airport Layout Plan (ALP); (2) establish a phasing plan for the development projects which meets the forecasted needs; (3) review available funding sources and make assumptions as to the probable funding structure for each itemized project; (4) summarize recent and future potential cash flows for the airports; and (5) present a financially feasible CIP for each development phase.

The CIP includes projects that represent the facility's planned growth over the next 20+ years. Additionally, the proposed facilities reflect strategic development initiatives intended to maximize the safety and utilization of the Airport. As part of the development process, project phasing and cost estimates are developed and included in the CIP in order to manage and plan for the implementation requirements associated with these development projects.

7.1. Development Phasing

This section of the Airport's master plan report seeks to establish a tentative schedule for the various projects required to fulfill the future development goals of the Dayton-Wright Brothers Airport. Essentially the schedule represents a prioritized Airport development plan to meet regulatory issues, forecast increases in aeronautical activity, and/or economic development initiatives of the municipality. Naturally, projects appearing in the first phase are of the greatest importance to the Airport and have the least tolerance for delay. Additionally, some projects included in an early phase may be a prerequisite for other planned improvements in a later phase. The development phasing for MGY has been divided into four distinct phases as follows:

- Phase I: (0 to 5 years), 2015-2019
- Phase II: (6 to 10 years), 2020-2024
- Phase III: (11 to 20 years), 2025-2034
- Phase IV (Beyond 20 years), 2035+

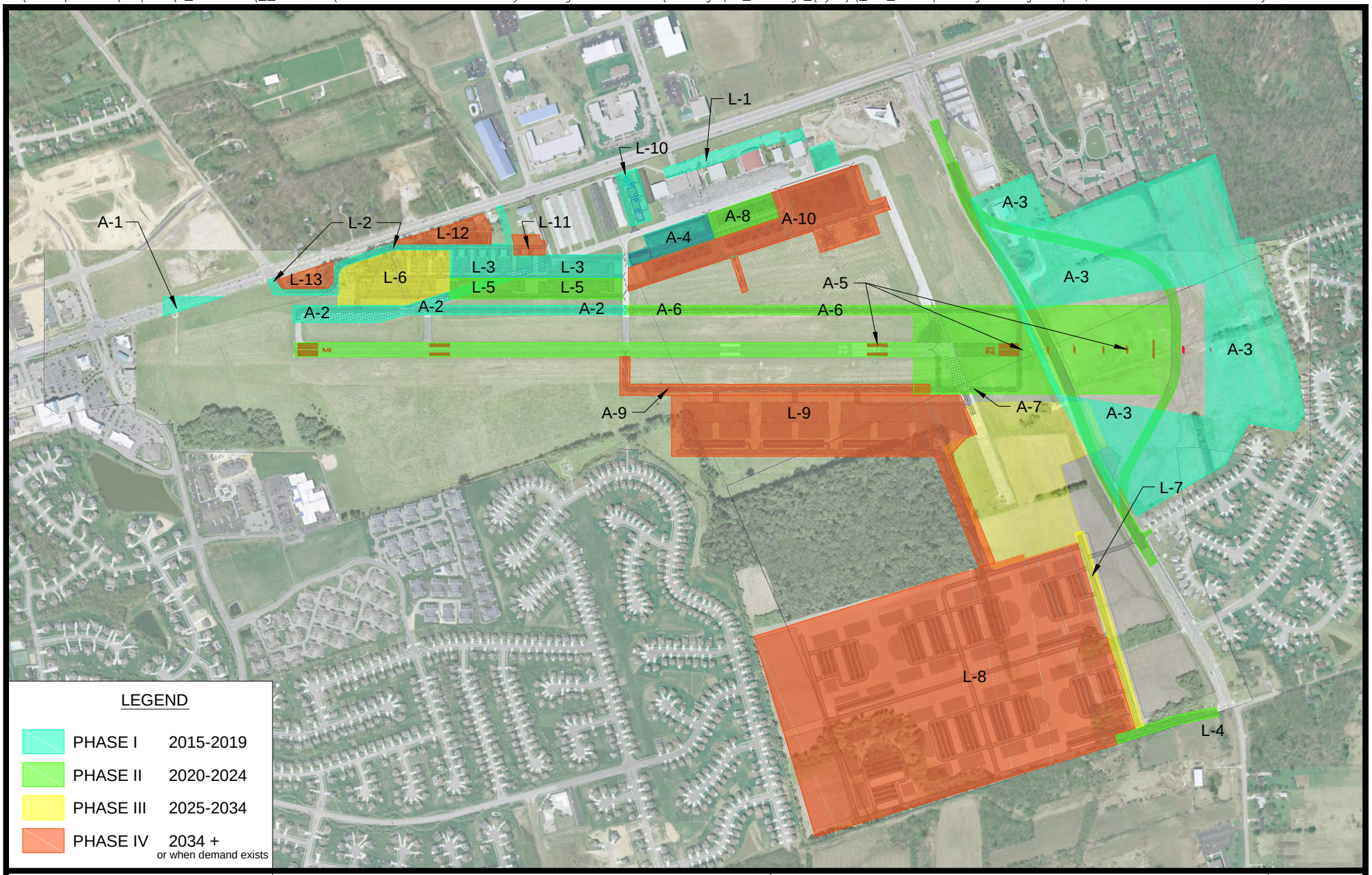
It should be pointed out here, however, that the phasing of individual projects should undergo periodic review to determine the need for changes based upon variations in forecast demand, available funding, economic conditions, and/or other factors that may reasonably influence airport development. Additionally, other projects not foreseen in this report may be identified in the future and would, therefore, likely necessitate changes in the phasing of projects and the overall CIP. Further, the projects and overall development identified in the CIP, though tied to a time table, will only occur once the triggering demand and/or need is realized. Phasing for the projects included in the development plan is shown in **Table 7-1** and depicted in **Figure 7-1**.

Table 7-1. Phased Development Plan Matrix

ID #	PROPOSED DEVELOPMENT ACTION:	PHASE I (2015-2019)	PHASE II (2020-2024)	PHASE III (2025-2034)	PHASE IV (2035+[1])
	AIRSIDE				
A-1	Obtain modification to standard for extreme southwest corner of ROFA	①			
A-2	Design and construct Group II parallel taxiway from RW2 threshold to TW "C"	①			
A-2	Demolish old portions of TW "A" south of airfield maintenance building	①			
A-3	Purchase/land swap properties required for runway extension	①			
A-4	Design and construct terminal apron expansion - east of TW "A"	①			
A-5	Design and construct 500 foot runway extension		②		
A-5	Relocate/replace 1400' MALS system		②		
A-5	Remark runway with no displaced thresholds and with designator 3-21		②		
A-6	Extend Taxiway "A" to be a full length parallel taxiway		②		
A-6	Demolish old portions of run-up pad east of TW "A" near new RW 20 Threshold		②		
A-7	Construct stub parallel taxiway on NE side of field with RW 20 connection			③	
A-8	Design and construct terminal apron expansion - east of TW "A"				④
A-9	Extend east side parallel taxiway south to TW "C"				④
A-10	Terminal Apron build-out				④
ID #	LANDSIDE				
L-1	Rehabilitate terminal area parking lot	①			
L-2	Design and construct new access road in southwest quadrant	①			
L-3	Design and construct 24 T-hangar units in southwest quadrant	①			
L-4	Extend stub at Washington Church Rd and Austin Pike intersection onto Airport property		②		
L-5	Design and construct another 24 t-hangar units		②		
L-6	Southwest Quad build-out			③	
L-7	Northeast Quad access roadway			③	
L-8	Business/Tech Park				④
L-9	FBO and/or Manufacturing/Maintenance Repair & Overhaul (MMRO) facilities				④
L-10	GA Hangar Development	①			
L-11	GA Hangar Development				④
L-12	Springboro Pike non-aviation development Phase 1				④
L-13	Springboro Pike non-aviation development Phase 2				④

Note: 1) Development phased in the 2035+ period could potentially be developed at anytime in the future should adequate demand/ opportunity exist.
Source: Passero, 2014.

C:\Users\Znelson\Dropbox\Z_WorkDrive__PASSERO\20111339.0003 – RSA Study at Wright Bro Airfield\Drawings\ZN_Drawings_(Sync)_For_REChapter6Figures.dwg Sep18,2015 – 11:08am Plotted By: ZNelson



PASSERO ASSOCIATES

LWC INCORPORATED

Dayton - Wright Brothers Airport
Dayton, Ohio

Phasing Plan

Figure
7-1

7.2. Capital Improvement Program

The objective of this section is to outline the CIP for MGY over the 20 years and beyond, while providing a brief description of the projects included and rationale for their priority within the CIP. Special attention has been placed on the first five years of the CIP. These projects slated for immediate implementation have been identified as critical to the Airport in terms of both providing adequate facilities to meet the needs of its users, as well as supporting the strategic economic development initiatives of the Airport and its sponsoring communities.

Near-Term Capital Improvement Program (2015-2019)

In the first five years of the CIP a number of projects are identified. These primarily include taxiway realignment, construction of an access road in the southwestern quadrant, taxilane construction, T-hangar and private hangar development. **Table 7-2** identifies Phase I projects, their rough-order cost estimates, and the funding participation from federal, state, local, or other agencies which may be anticipated for each specific project.

Mid-Term Capital Improvement Program (2020-2024)

The second five years of the CIP includes relocation of Austin Blvd. and a 500-foot extension to Runway 2-20. Taxiway A is also recommended to be extended as a full length parallel taxiway during this time. Further, an access road in the northwest quadrant is planned to enable the development of the corporate hangar area along Taxiway A. Apron improvements and T-hangar development are also anticipated during this time period. **Table 7-3** identifies Phase II projects, their rough-order cost estimates, and the funding participation from federal, state, local, or other agencies which may be anticipated for each specific project.

Long-Term Capital Improvement Program (2025-2034)

In the second decade of the CIP largely revolves around development of properties east of the Runway 20 threshold and along the strip of abandoned airfield pavement. Taxiway improvements are planned during this time period, as is the construction of access roadways and a variety of hangar facilities. **Table 7-4** identifies Phase III projects, their rough-order cost estimates, and the funding participation from federal, state, local, or other agencies which may be anticipated for each specific project.

Ultimate Future Capital Improvement Program (Beyond 2034)

Beyond 2034 a number of projects are identified. These primarily include development of hangar and apron spaces, a taxiway extension, and development of non-aviation properties. Some of these improvements however may be required much earlier than 2034 as a result of expressed demand. The MMRO facilities and second FBO site for interest could be developed during any point in time should sufficient demand exist. Anticipated costs and funding shares for these projects however were not developed as part of this study effort.

Table 7-2 Short-Term Capital Improvement Program

ID	Year	Project Title and Description	Estimated Total Cost	Funding Sources	
A-1	2015	Obtain modification to standards Work with FAA Airports Distric Office to request a modification to standards (MOS) for the southwestern corner of the Runway Object Free Area. As an RDC C-II Runway, the ROFA associated with Runway 2-20 is impacted by Springboro Pike.	$ -	Federal (FAA)	0% or $ -
				State	0% or $ -
				Local	0% or $ -
				Other	0% or $ -
A-2	2015-2016	Design and construct Group II parallel taxiway from RW2 threshold to TW "C" & Demo Portions of TW "A" To rectify the non-standard separation between the existing portion of Taxiway A parallel with the Runway, as well as to make more landside development areas available, this project would construct a new parallel taxiway from the Runway 2 end to Taxiway C (compliant with C-II design standards) and demolish old unneeded taxiway pavements in this area.	$ 1,865,000	Federal (FAA)	90% or $ 1,678,500
				State	0% or $ -
				Local	10% or $ 186,500
				Other	0% or $ -
A-3	2016	Purchase/land swap properties required for runway extension In preparation for the northerly extension to Runway 2-20, this project would accquire (through fee ownership, swap, or some other means) all necessary lands required to relocate Austin Blvd. and extend the Runway.	$ 1,428,000	Federal (FAA)	90% or $ 1,285,200
				State	0% or $ -
				Local	10% or $ 142,800
				Other	0% or $ -
A-4	2016	Design and construct terminal apron expansion - east of TW "A" This project would serve to provide more apron space by expanding the terminal area apron, which at times of heavy traffic is noticibly under capacity. This initial expansion should provide in the vicinity of 4,000 square yards of additional apron pavement.	$ 1,165,000	Federal (FAA)	90% or $ 1,048,500
				State	0% or $ -
				Local	10% or $ 116,500
				Other	0% or $ -

ID	Year	Project Title and Description	Estimated Total Cost	Funding Sources	
L-1	2015	Rehabilitate terminal area parking lot The existing terminal area automobile parking lot is in disrepair and has been noted as an asthetic issue during the TAC meets orgainized for this study effort. This project would rehabilitate this parking area to improve both the life of the asset and user experience.	$ 1,615,000	Federal (FAA)	0% or $ -
				State	50% or $ 807,500
				Local	50% or $ 807,500
				Other	0% or $ -
L-2	2017	Design and construct new access road in southwest quadrant To capitalize on the new taxiway alignment in this area, an access road is planned which would provide frontage to new hangar and T-hangar areas as well as frame out some areas for non-aviation development interest with frontage to Springboro Pike.	$ 1,250,000	Federal (FAA)	90% or $ 1,125,000
				State	0% or $ -
				Local	10% or $ 125,000
				Other	0% or $ -
L-3	2017-2019	Design and construct 24 T-hangar units in southwest quadrant In order to facilitate the demand for T-hangars as well as provide better T-hangar facilities, a number of multi-unit T-hangar facilities are planned. This project would provide 24 T-hangar units in the Airport's southwest quadrant.	$ 3,600,000	Federal (FAA)	0% or $ -
				State	0% or $ -
				Local	100% or $ 3,600,000
				Other	0% or $ -

Subtotals:	
Federal (FAA)	$5,137,200
State	$807,500
Local	$4,978,300
Other	$0
TOTAL	$10,923,000

Table 7-3 Mid-Term Capital Improvement Program

	Year	Project Title and Description	Estimated Total Cost	Funding Sources	
A-5	2020	Design and construct 500 foot runway extension, extend/relocate lighing, re-mark Runway In order to better accommodate the type and level of traffic the Airport is experiencing, as well as provide a more safe and operationally reliable Airport, a runway extension is requried. This project would provide 500 feet of additional pavement to the runway after relocating Austin Blvd. and appropriately grading and clearing within the new limits of the RSA and ROFA on the Airport's north end.	$ 6,000,000	Federal (FAA) State Local Other	90% or $ 5,400,000 0% or $ - 10% or $ 600,000 0% or $ -
A-6	2020	Extend Taxiway "A" and Demolish Pavement This project extends Taxiway A to become a full length parallel taxiway to Ruwnay 2-20. Pavement demolition will occur east of this taxiway between the taxiway and the runway so as to minimize ecessive pavement near the runway/taxiway intersection and thereby increase safety.	$ 2,550,000	Federal (FAA) State Local Other	90% or $ 2,295,000 0% or $ - 10% or $ 255,000 0% or $ -
L-4	2022	Extend stub at Washington Church Rd and Austin Blvd. intersection onto Airport property The existing intersection of washington Church Rd. and Austin Blvd. (a 3-way intersection) has a southerly stub road indicating a future 4-way intersection and access on to Airport property. This project provides an extension to this road so as to open begin to provide access to future aviation and non-aviation development areas.	$ 415,000	Federal (FAA) State Local Other	0% or $ - 0% or $ - 100% or $ 415,000 0% or $ -
L-5	2022-2024	Design and construct another 24 t-hangar units This project programs the development of another 24 t-hangars in the southwest quadrant.	$ 2,845,000	Federal (FAA) State Local Other	0% or $ - 0% or $ - 100% or $ 2,845,000 0% or $ -

Subtotals:	
Federal (FAA)	$7,695,000
State	$0
Local	$4,115,000
Other	$0
TOTAL	$11,810,000

Table 7-4. Long-Term Capital Improvement Program

	Year	Project Title and Description	Estimated Total Cost	Funding Sources	
A-7	2025	Construct stub parallel taxiway on NE side of field with Runway 20 connection As a means to simply runway/taxiway intersection geometry and begin to provide airfield access to the future development areas in the northeast quad, this project provides a partial-length parallel taxiway to Runway 2-20.	$ 1,185,000	Federal (FAA)	90% or $ 1,066,500
				State	0% or $ -
				Local	10% or $ 118,500
				Other	0% or $ -
L-6	2025-2030	Southwest Quad Build-Out This project programs the long-term build out of aeronautical use development ares in the southwest quad. This plan anticipates a mix of both T-hangar and small box hangars during this period.	$3,660,000	Federal (FAA)	27% or $ 988,200
				State	0% or $ -
				Local	40% or $ 1,464,000
				Other	33% or $ 1,207,800
L-7	2026	Northeast Quad Access Roadway This project would develop an access roadway which intersects both Austin Blvd. and the extended Washington Church road. This roadway would provide access to both avaition and non-avaition use development areas.	$755,000	Federal (FAA)	0% or $ -
				State	0% or $ -
				Local	100% or $ 755,000
				Other	0% or $ -

Subtotals:	
Federal (FAA)	$2,054,700
State	$0
Local	$2,337,500
Other	$1,207,800
TOTAL	$5,600,000

Chapter 8

Environmental Overview

8. ENVIRONMENTAL OVERVIEW

In addition to identifying airport projects that are financially and technically feasible, an important part of the master planning process is ensuring that future airport developments minimize impacts to the environment. Council on environmental Quality (CEQ) 1501.2 states, "Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts." Accordingly, identifying potential environmental impacts of proposed airport project has become an integral part of the master planning process. This environmental overview has been prepared to identify potential environmental impacts associated with the proposed airport improvement projects for the Dayton-Wright Brothers Airport and to discuss potential mitigation measures that will be considered to minimize these impacts. This environmental overview discusses potential environmental impacts of the following proposed airside improvements, as well as proposed landside developments identified in the previous Chapter. It is important to note that impacts related to projects associated with the ultimate airfield development program as depicted on the ALP may not be considered in this Environmental Overview. Only airport development actions programs in Phase 1 (2015-2019) and Phase 2 (2020-2024) reviewed.

This environmental overview was conducted in accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, FAA Order 1050.1E, *Environmental Desk Reference for Airport Actions*, which require the analysis of a number of environmental impact categories. Each of these are discussed in detail in the following sections.

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, outlines types of impacts and thresholds that determine if an impact is considered to be significant. In general, project fall into one of the following three categories:

> ***CATEGORICAL EXCLUSIONS*** *- Projects that are categorically excluded include those actions that have been found under normal circumstances to have no potential for significant environmental impact.*
>
> ***ACTIONS NORMALLY REQUIRING AN ENVIRONMENTAL ASSESSMENT (EA)*** *- Projects that normally require an EA are actions that have been found to sometimes have significant environmental impacts.*
>
> ***ACTIONS NORMALLY REQUIRING AN ENVIRONMENTAL IMPACT STATEMENT (EIS)*** *- If a project is found to have significant impacts during the preparation of an EA, the FAA can determine that an EIS is required to investigate in greater detail a project's potential environmental impacts.*

For the purposes of this study, environmental impact categories will be discussed but addressed only as they apply specifically to MGY and its master development plan as outline in the previous chapters and will otherwise be noted as not applicable. In considering potential environmental impacts within this framework, this environmental overview identifies those categories that may warrant more detailed analysis in a formal EA.

8.1. Environmental Impact Categories Analysis

The following sections discuss the preliminary evaluation of the recommended airport development projects for each of the environmental impact categories included in FAA Order 1050.1E.

Air quality

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. FAA guidance states that an air quality analysis is required only if the forecast of aviation demand projects in excess of 180,000 annual operations or the airport's commercial air service supports 1.3 million passengers or more annually. As presented in Chapter 3 of this report, MGY is not anticipated to reach or exceed these thresholds within the next 20 years. As such, no air quality analysis is required or performed as part of this analysis.

Temporary impacts from construction-related activities could be expected as part of some development initiatives as the Airport. These impacts are anticipated to be minimal and could be mitigated by use of best

management/construction practices. Temporary air quality impacts during these periods are likely to include, but not be limited to, wind-blown dust and equipment exhaust.

Coastal Resources

The Coastal Barriers Resources Act (COBRA) of 1982 prohibits the Federal government from financial involvement associated with building and development in undeveloped portions of designated coastal barriers, which consist of undeveloped coastal barriers along the Atlantic and Gulf coasts. These areas were mapped and designated as Coastal Barrier Resources System (CBRS) units or "otherwise" protected areas and are deliniated on the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Maps (FIRMs).

MGY is not situated within any federally assigned units included in the CBRS.

Compatible Land Use

The majority of issues regarding compatible land use surrounding airports are based on noise impacts. However, other issues such as relocation of residences or businesses and alteration of floodplains, wetlands or critical habitat may also influence property surrounding the airport. For these reasons, the FAA requires that airports and airport sponsors seek compatible uses for the land surrounding that airport through zoning and municipal planning efforts. Forecast of aviation activity presented in Chapter 3 do not meet the threshold required to trigger the need for a noise analysis. Further, the Airport has received very few noise complaints in the previous years.

As discussed in Section 2.4 of this report, Airport property is surrounded by a number of land uses of varying density. The proposed development plan primarily remains on airport property and seeks to maximize land use compatibility while providing the airport with diversified revenues streams. Compatible land use concerns, including noise, associated with the runway extension and road relocation project will be explore as part of the EA that will be required for that development effort.

Construction Impacts

Generally, during periods of development, extensive construction activities will occur. Construction activities may include, but are not limited to, earthmoving activities, delivery of equipment and materials, and removal of debris, etc. The potential for impacts to off-airport properties is greatest in the initial phase of development. These impacts may consist of increased traffic on local roads, noise, mud, dust, and other effects associated with the activity of heavy construction vehicles.

All potential impacts related to development projects are anticipated to be minor and temporary. Nevertheless, Airport management should exercise best practices at MGY to contain and minimize the impact of any construction activities.

The construction impacts associated with the runway extension and roadway relocation project will be explored as part of the EA that will be required for that development effort.

Department of Transportation Act: Section 4(f)

Section 4(f) of the USDOT Act of 1966 (Title 49, USC, Section 303) requires special considerations be made regarding the "use" of any publicly owned park, recreation area, wildlife/waterfowl refuge or historic property that is listed in or eligible for the National Register of Historic Places (National Register).

There are no Section 4f properties located in the vicinity of the Airport that would be impacted as a result of the preferred development plan.

Farmlands

The FAA requires an EA for an airport project that would convert land protected under the Farmland Protection Policy Act (FPPA) to non-agricultural use. Prime farmland is defined as land best suited for producing food, feed, forage, fiber, and oilseed crops.

Although some development initiatives identified on the ALP do utilized lands currently being used for agricultural purposes, these lands are not considered prime or unique farmland.

Biotic Communities

For development projects that impact wildlife (both flora and fauna) habitat, coordination with appropriate agencies is required. Projects that involve water resources such as wetlands, streams or groundwater, or projects that impact wildlife habitat, require coordination with the US Fish and Wildlife Service and the appropriate state agencies.

Five federally endangered species are identified to exist in Montgomery and Warren counties. Section 2.5.2.2 of this report recommended further review of the Indiana Bat, Eastern Massasuga, and Running Buffalo Clover prior to disruption of any habitat as part of any construction effort.

Floodplains

A floodplain is the land area adjacent to a river or stream or other body of flowing water which is, on the average, likely to be covered with flood waters resulting from a 100-year frequency storm. Maintaining floodplains are critical in that they provide important flood water storage functions. Projects that propose building or filling a floodplain must provide compensation for any waters that might be displaced during a flood event. Development in a floodplain must also be managed so as to prevent any potential release of hazardous materials or wastes during a flood.

Figure 2-16 of this report identifies the Airport to be in FEMA flood zone "X" indicating a minimal risk of flood.

Hazardous Materials, Pollution Prevention, and Solid Waste

When improperly managed, solid waste can be detrimental to the environment. Planning of airport actions must account for collection, control and disposal of solid waste including construction debris.

The primary waste streams anticipated from the proposed development of the Airport is likely to be from demolished pavement associated with Taxiway A improvements and the Austin Blvd. realignment. These materials should be recycled on site where applicable and otherwise disposed of in a sustainable manner.

Historical, Architectural, Archeological, and Cultural Resources

Historic and archaeological resources include districts, sites, buildings, structures, objects, and landscapes included in or eligible for inclusion in the state and national registers of historic places, or areas designated as historically or archaeologically sensitive. As part of the environmental reconnaissance conducted as part of this master planning effort some historically/archaeologically sensitive areas were identified in the area but outside of any development interest.

Light Emissions and Visual Impacts

Airport light emissions and the resulting glare from lighted, and flashing airport lighting facilities have the potential to adversely affect surrounding communities through visual impacts. Therefore, the FAA requires that light emissions be analyzed.

Visual or aesthetic impacts are inherently more difficult to define because of the subjectivity involved. Aesthetic impacts deal more broadly with the extent that the development contrast with the existing environment and whether the jurisdictional agency considers this contrast objectionable. Public involvement and consultation with the appropriate Federal, State, and local agencies and tribes may help determine the extent of these impacts. The visual sight of aircraft, aircraft contrails, or aircraft lights at night (particularly at a distance) should not be assumed to constitute and adverse impact.

The overall development program is not anticipated to create any negative impacts with respect to light emissions or visual impacts.

Natural Resources, Energy Supply, and Sustainable Design

Energy and natural resources are scarce commodities, which may also be nonrenewable. The Airport Handbook requires that environmental analysis of airport development projects assess the impact to energy supplies and scarce naturally occurring materials.

The FAA's policy is consistent with NEPA and the Council of Environmental Quality (CEQ) regulations, which is to encourage the development of facilities that exemplify the highest standards of design, including principles of sustainability. As such, all elements of the transportation system are encouraged to be designed with a view to their aesthetic impact, conservation of resources such as energy, pollution prevention, harmonization with the community environment, and sensitivity to the concerns of the traveling public.

The proposed development at the Airport is not anticipated to significantly affect the energy supply or natural resources. The largest demand requirements are expected to result from increased electrical requirements of additional tenant facilities.

Noise

Noise is the most apparent impact that an airport has on the environment with the majority of complaints coming from nearby residents. Noise is usually defined as unwanted sound; a definition that includes both the psychological and physical nature of the sound. Under certain conditions, noise may cause hearing loss, interfere with human activities at home and work, and may affect human health, and well being in various ways. It is important that potential noise impacts be considered when planning for airport improvements.

The Airport does not have a history of noise complaints and does not anticipate the proposed improvement program to increase airport noise exposure on surrounding communities. However, the potential for increased noise exposure will be explored as part of the environmental assessment to be required for the runway extension.

Induced Socio-Economic Impacts

Actions of the airport such as land acquisition and roadway modifications can potentially have major effects on the surrounding community. Federal law requires that disruptive impacts be carefully evaluated as part of any proposed airport improvement project. Such induced impacts are those which may create shifts in population movement and growth patterns, public service and demand, and changed in commercial and economic activity.

No induced socio-economic impacts are anticipated as part of the proposed airport development program.

Water Quality

The Clean Water Act establishes regulatory authority and standards for controlling discharges to surface and groundwater. Planning airport actions must include appropriate management practices to prevent and mitigate potential water pollution. To the extent possible, FAA Order 5050.4B, *Airport Environmental Handbook*, requires consideration be given to the following: storm and sanitary sewer design, requirements for additional water supply or water treatment capacity, erosion controls to prevent siltation, provisions for containing oil spills and wastewater from aircraft washings, designs to preserve existing drainage or minimize dredge and fill, and locations with regard to surface and subsurface aquifers or sensitive ecological areas such as wetlands.

Wetlands

Wetlands are areas that are flooded or have water near or at the surface of the ground, and are most commonly known as swamps, marshes and bogs. Wetlands perform functions and provide benefits that no other areas of the landscape can, such as supplying and purifying our drinking water. They help control floods by temporarily storing rainwater and snowmelt, and provide us with recreational opportunities such as swimming, fishing, hiking, and birdwatching. Wetlands also provide critical habitat for wildlife, and many animals depend entirely on wetlands for their survival, while others depend on wetlands for feeding, nesting, resting, or breeding purposes. As such, the protection of wetlands systems are of critical importance, and must be considered in relation to any airport improvement project.

Figure 2-15 of this report depicts the wetlands located on Airport property as deliniated by the National Wetlands Inventory (NWI) and the Ohio Wetlands Inventory (OWI). The overall development plan does have the potential to impact portions of a few wetland areas along the Airport's eastern property line.

Wild and Scenic Rivers

As provided in the Wild and Scenic Rivers Act, "certain selected rivers of the nation which, with their immediate environments, possess outstandingly remarkable scenic recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." The Act goes on to identify, and provide for recognition of, those river segments designated or eligible to be included in the Wild and Scenic Rivers System.

The proposed development at MGY will not impact any wild or scenic rivers.

8.2. Summary

This chapter serves as a cursory review of the potential for environmental impacts that may be associated with the proposed development at MGY. Further environmental studies, such as an EA or EIS, will likely be necessary. Project-specific impacts and necessary mitigation measures will be determined and identified as in those environmental review documents.

Appendices

Appendix A
Facilities Evaluation

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	1
Name	Conventional Hangar
Area	10,000 sf
Tenant	JW Investment

A. Structure
   1. Concrete foundation and floor slab
   2. Pre-engineered steel framing appears to be sound but needs to be painted to limit corrosion

B. Enclosure
   1. Metal roof and gutters appear to be in good condition; there have been some repairs at a perimeter leak. Batt insulation needs some repair.
   2. Metal siding (vertical) has some corrosion and needs to be painted. Wall insulation is in good condition.
   3. Hangar bi-fold doors are functional.

C. Interior
   1. Floor exposed concrete
   2. Wall exposed insulation

D. Systems
   1. HVAC radiant strip heat
   2. Electric:
      a. lighting
      b. power

Recommendation:

Building can continue with a moderate level of upgrades.

EAST VIEW

WEST VIEW

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	2 (10550)
Name	Conventional Hangar
Area	8,000 sf
Tenant	Wright B Flyer

A. Structure
   1. Concrete foundation and floor slab
   2. Pre-engineered steel

B. Enclosure
   1. Purlin wall with exterior siding (needs repair at northwest eave)
   2. Metal roof and gutters in good condition
   3. Sliding hangar doors are operable

C. Interior
   1. Painted floor
   2. Walls: painted 8' surface with exposed faced insulation above
   3. Ceiling: exposed faced insulation between steel roof members

D. Systems
   1. Plumbing:
      a. Restrooms
      b. Breakroom
   2. HVAC:
      a. Heating
      b. Air conditioning
   3. Electric:
      a. Lighting
      b. Power

Recommendation:

Building can be continued in use with a minimal upgrade expense.


WRIGHT "B" FLYER

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	3
Name	Conventional Hangar
Area	22,400 sf
Tenant	City of Dayton (Commander Aero)

A. Structure
   1. Concrete foundation and floor slab
   2. Framing for the hangar consists of steel columns and long span "Bow String" trusses. There is a concrete block bearing wall two story addition on the north side of the hangar.

B. Enclosure
   1. Roofs:
      a. Hangar roof is painted corrugated metal, with gutters and downspouts.
      b. North addition is a built up system with scupper boxes and downspouts.
   2. Walls:
      a. Hangars – vertical painted metal siding
      b. North wing – painted concrete block
   3. Hangars – sliding doors are functional
      Shop – overhead doors are functional

C. Interior
   1. Hangar floor: painted concrete
   2. Hangar walls: lined exposed insulation
      Metal surfaces: painted
   3. Ceiling: Painted metal and lined exposed insulation
   4. Lobby, Offices, and Support Areas:
      a. Floors – exposed concrete
      b. Walls – painted concrete block
      c. Ceiling – Lay in acoustic and painted structure
      d. Metal – doors, metal painted

D. Systems
   1. Plumbing – Restrooms and shop
   2. HVAC – Hangar: Radiant and large fans
   3. Electric:
      a. lighting
      b. power

Recommendation:

Building can be continued in use with a minimal upgrade expense.


GARMIN


COMMANDER AERO


GARMIN

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	4 (10600)
Name	Airport Terminal
Area	9,000 sf
Tenant	Aviation Sales

A. Structure
   1. Concrete foundation and floor slab
   2. Light steel frame, walls, and roof

B. Enclosure
   1. Roof – Built up
   2. Walls – Precast concrete and aluminum framed glass storefront

C. Interior
   1. Hangar floor: painted concrete
   2. Hangar walls: lined exposed insulation
      Metal surfaces: painted
   3. Ceiling: Painted metal and lined exposed insulation
   4. Lobby, Offices, and Support Areas:
      a. Floors – exposed concrete
      b. Walls – painted concrete block
      c. Ceiling – Lay in acoustic and painted structure
      d. Metal – doors, metal painted

D. Systems
   1. HVAC – Cooling and Heating/Roof Top Units
   2. Electric:
      a. Lighting – fluorescent layins
      b. Power and I.T.

Recommendation:

Building can be continued in use with a minimal upgrade expense.


AVIATION SALES, INC.


AVIATION SALES, INC.


VIATION SALES, INC.

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No. 5
Name Airport Fueling Stand
Area
Tenant

A. Structure

B. Enclosure

C. Interior

D. Systems

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	6
Name	Maintenance Hangar
Area	31,200 sf
Tenant	Aviation Sales

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Roof – Part metal and part built up
   2. Metal wall panels
   3. Aluminum framed glass storefront
   4. Hangar doors are sliding and bi-fold

C. Interior
   1. Floors are painted concrete
   2. Walls - painted
   3. Ceiling: layin acoustical tile

D. Systems
   1. HVAC – Radiant panels
   2. Electric:
      a. Lighting
      b. Power
   3. Fire Protection – wet sprinkler system

Recommendation:

Building can be continued in use with a minimal upgrade expense.


AVIATION SALES, INC.

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	7 (11100)
Name	16 Unit "T" Hangar
Area	20,800 sf
Tenant	"Do – It, Inc."

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Metal roof and gutters
   2. Metal siding

C. Interior
   1. Exposed metal siding and roofing

Recommendation:
The T-hangars have reached the end of their useful life. It is recommended that they be replaced.

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	8
Name	16 Unit "T" Hangar
Area	17,800 sf
Tenant	South Dayton Hangar, Inc.

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Metal roof and gutters
   2. Metal siding

C. Interior
   1. Exposed metal siding and roofing

Recommendation:
The T-hangars have reached the end of their useful life. It is recommended that they be replaced.

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	9
Name	12 Unit "T" Hangar
Area	12,000 sf
Tenant	City of Dayton

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Metal roof and gutters
   2. Metal siding

C. Interior
   1. Exposed metal siding and roofing

Recommendation:
The T-hangars have reached the end of their useful life. It is recommended that they be replaced.


120

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	10 (11130)
Name	12 Unit "T" Hangar
Area	12,000 sf
Tenant	City of Dayton

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Metal roof and gutters
   2. Metal siding

C. Interior
   1. Exposed metal siding and roofing

Recommendation:
The T-hangars have reached the end of their useful life. It is recommended that they be replaced.


DAYTON PILOTS CLUB
DaytonPilotsClub.org

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	11 (11140)
Name	12 Unit "T" Hangar
Area	12,000 sf
Tenant	City of Dayton

A. Structure
   1. Concrete foundation and floor slab
   2. Steel framed walls and roof

B. Enclosure
   1. Metal roof and gutters
   2. Metal siding

C. Interior
   1. Exposed metal siding and roofing

Recommendation:
The T-hangars have reached the end of their useful life. It is recommended that they be replaced.


DAYTON PILOTS CLUB


DAYTON PILOTS CLUB

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No. 12
Name Fuel Farm
Area
Tenant

A. Structure

B. Enclosure

C. Interior

D. Systems


NO
SMOKING

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No. 13
Name Fuel Farm
Area
Tenant

A. Structure

B. Enclosure

C. Interior

D. Systems

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	14 (11160)
Name	Airfield Maintenance
Area	5,000 sf
Tenant	City of Dayton

A. Structure
   1. Concrete foundation
   2. Concrete block knee wall
   3. Pre-engineered metal structure

B. Enclosure
   1. Roofing – corrugated metal panels and gutters, interior exposed insulation
   2. Siding – painted vertical panels, interior exposed insulation
   3. Doors – overhead aluminum

C. Interior
   1. Floor – exposed concrete
   2. Walls – exposed concrete block knee wall and exposed insulation
   3. Ceiling – exposed insulation

D. Systems
   1. HVAC – Ventilation/Conditioning
   2. Electrical
      a. Lighting
      b. Power

Recommendation:
Building can be continued in use with minimal upgrade expense.


11160

Wright Brothers Airport Facilities Evaluation

GENERAL DESCRIPTION

Building No.	15
Name	Maintenance Hangar
Area	12,000 sf
Tenant	Aviation Sales, Inc.

A. Structure
   1. Concrete foundation and floor slab
   2. Pre-engineered steel frame

B. Enclosure
   1. Roof – formed metal roofing
   2. Walls – vertical painted metal siding

C. Interior
   1. Floor – exposed concrete
   2. Walls – exposed insulation
   3. Ceiling – exposed insulation, some repair is needed

D. Systems
   1. HVAC – Radiant strip
   2. Electrical
      a. Lighting
      b. Power

Recommendation:
Building can be continued in use with minimal upgrade expense.


APPAREL

Wright Brothers Airport Facilities Evaluation

Summary

	Building No. 1 Conventional Hangar	Building No. 2 Conventional Hangar	Building No. 3 Conventional Hangar	Building No. 4 Airport Terminal
Area	10,000 s.f.	8,000 s.f.	22,400 s.f.	9,000 s.f.
Tenant	JW Investment	Wright B Flyer	City of Dayton (Commander Aero)	Aviation Sales
Structure	Concrete foundation and floor slab. Good condition	Concrete foundation and floor slab.	Concrete foundation and floor slab.	Concrete foundation and floor slab.
	Pre-engineered steel frame. Good condition	Pre-engineered steel frame.	Steel columns and bow-string truss	Light steel frame, walls, and roof
			Concrete block bearing wall at addition	
Enclosure	Metal roof and gutters. Good condition	Purlin wall with exterior siding. Needs repair at northwest eave.	Hangar roof: painted corrugated metal with gutters and downspouts	Roof: built-up
	Batt insulation at roof. Needs some repair	Metal roof and gutters. Good condition	North addition roof: Built-up with scupper boxes and downspouts	Walls: precast concrete and aluminum framed glass storefront
	Metal siding has some corrosion. Needs painting	Sliding hangar doors are operational	Hangars walls: vertical painted metal siding	
	Wall insulation is good condition		North wing walls: Painted concrete block	
	Hangar bi-fold doors in functional condition		Hangar doors: sliding doors are functional	
			Shop doors: overhead doors are functional	
Interior	Floor: exposed concrete	Floor: painted	Hangar floor: painted concrete	Hangar floor: painted concrete
	Walls: exposed insulation	Walls: painted surface to 8', exposed insulation above	Hangar walls: lined exposed insulation and painted metal	Hangar walls: lined exposed insulation and painted metal
		Ceiling: exposed faced insulation	Hangar ceiling: lined exposed insulation and painted metal	Hangar ceiling: lined exposed insulation and painted metal
			Lobby, Offices, and Support: Floors: exposed concrete Walls: painted concrete block Ceilings: lay in acoustical and painted structure Metal: doors – painted metal	Lobby, Offices, and Support: Floors: exposed concrete Walls: painted concrete block Ceilings: lay in acoustical and painted structure Metal: doors – painted metal
Systems	N/A	Plumbing: Restrooms Break room	Plumbing: Shop Restrooms	N/A
	HVAC: radiant strip heat	HVAC: Heating Air conditioning	HVAC – Hangar: Radiant and large fans	HVAC: Roof top heating and cooling
	Electric: Lighting Power	Electric: Lighting Power	Electric: Lighting Power	Electric: Lighting – lay-in fluorescent Power and I.T.
Recommendations	Building can continue with moderate level of upgrades. Repair insulation at roof and paint exterior	Building can be continued in use with a minimal upgrade expense. Repair eave at northwest	Building can be continued in use with a minimal upgrade expense	Building can be continued in use with a minimal upgrade expense
	$78,000	$3000		

Summary

	Building No. 5 Airport Fueling Stand	Building No. 6 Maintenance Hangar	Building No. 7 16 Unit "T" Hangar	Building No. 8 16 Unit "T" Hangar
Area	N/A	31,200 s.f.	20,800 s.f.	17,800 s.f.
Tenant	N/A	Aviation Sales	Do-It, Inc.	South Dayton Hangar, Inc.
Structure	N/A	Concrete foundation and floor slab	Concrete foundation and floor slab	Concrete foundation and floor slab
		Steel framed walls and roof	Steel framed walls and roof	Steel framed walls and roof
Enclosure	N/A	Roof: part metal and part built-up	Metal roof and gutters	Metal roof and gutters
		Walls: metal panels	Metal siding	Metal siding
		Aluminum framed glass storefront		
		Hangar door: sliding and bi-fold		
Interior	N/A	Floors: painted concrete	Exposed metal siding and roof	Exposed metal siding and roof
		Walls: painted		
		Ceiling: lay-in acoustical tile		
Systems	N/A	HVAC: radiant panels		
		Electric: Lighting Power		
		Fire Protection: wet sprinkler system		
Recommendations		Building can be continued in use with a minimal upgrade expense	Above grade structure is nearing the end of its life and recommend replacement. Foundation and slabs could remain.	Above grade structure is nearing the end of its life and recommend replacement. Foundation and slabs could remain.
			$832,000	$712,000

Summary

	Building No. 9 12 Unit "T" Hangar	Building No. 10 12 Unit "T" Hangar	Building No. 11 12 Unit "T" Hangar	Building No. 12 Fuel Farm
Area	12,000 s.f.	12,000 s.f.	12,000 s.f.	N/A
Tenant	City of Dayton	City of Dayton	City of Dayton	N/A
Structure	Concrete foundation and floor slab	Concrete foundation and floor slab	Concrete foundation and floor slab	N/A
	Steel framed walls and roof	Steel framed walls and roof	Steel framed walls and roof	
Enclosure	Metal roof and gutters	Metal roof and gutters	Metal roof and gutters	N/A
	Metal siding	Metal siding	Metal siding	
Interior	Exposed metal siding and roof	Exposed metal siding and roof	Exposed metal siding and roof	N/A
Systems				N/A
Recommendations	Above grade structure is nearing the end of its life and recommend replacement. Foundation and slabs could remain.	Above grade structure is nearing the end of its life and recommend replacement. Foundation and slabs could remain.	Above grade structure is nearing the end of its life and recommend replacement. Foundation and slabs could remain.	
	$480,000	$480,000	$480,000	

Summary

	Building No. 13 Airport Fueling Stand	Building No. 14 Airfield Maintenance	Building No. 15 Maintenance Hangar	
Area	N/A	5,000 s.f.	12,000 s.f.	
Tenant	N/A	City of Dayton	Aviation Sales, Inc.	
Structure	N/A	Concrete foundation	Concrete foundation and floor slab	
		Concrete block knee wall	Pre-engineered steel frame	
		Pre-engineered metal structure		
Enclosure	N/A	Roof: corrugated metal panels and gutters, interior exposed insulation	Roof: Formed metal roofing	
		Siding: painted vertical panels, interior exposed insulation	Walls: vertical painted metal siding	
		Doors: overhead aluminum		
Interior	N/A	Floor: exposed concrete	Floor: exposed concrete	
		Walls: exposed concrete block knee wall and exposed insulation	Walls: exposed insulation	
			Ceiling: exposed insulation, some repair needed	
Systems	N/A	HVAC: ventilation/conditioning	HVAC: radiant strip	
		Electrical: Lighting Power	Electrical: Lighting Power	
Recommendations		Building can be continued in use with a minimal upgrade expense	Building can be continued in use with a minimal upgrade expense. Repair roof insulation liner	
			$3000	

Appendix B

Letters from Aircraft Operators

ULLIMAN SCHUTTE CONSTRUCTION, LLC
General Contractor

BUILDING A BETTER ENVIRONMENT®

July 30, 2013

Mr. Terry Slaybaugh
Director of Aviation
Dayton International Airport (DAY)
City of Dayton Department of Aviation
3600 Terminal Drive, Suite 300
Vandalia, Ohio 45377

Subject: Support for Additional Runway Length at Dayton-Wright Brothers Airport (MGY)

Dear Mr. Slaybaugh:

This letter is sent to provide support for the current demand and feasibility study to extend Runway 2-20 at Dayton-Wright Brothers Airport (MGY).

Ulliman Schutte Constructions regularly operates at MGY, using N750TB. We could operate more efficiently, and frequently at MGY if Runway 2-20 was extended, especially during the hotter months of the year, when our aircraft can be restricted in terms of maximum takeoff weight or distance, because of the current length of Runway 2-20.

For our use, the optimum runway length at MGY should be 5,500-feet, based on the operational performance of the N750TB on a hot day (with temperatures greater than 90 degrees).

Please contact me if you need additional information. We hope to operate on the extended runway in the near future.

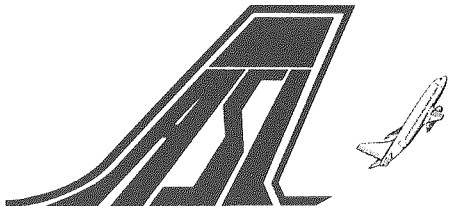
Sincerely,

Ulliman Schutte Construction

Eric A. Meister
Executive Manager

EAM/kas

9111 Springboro Pike ❖ Miamisburg, OH 45342 ❖ Tele: (937) 910-9900 ❖ Fax: (937) 910-9910



50 Years
Of
General Aviation
Excellence

AVIATION SALES, INCORPORATED
www.aviationsalesinc.com

June 5, 2013

Brandon Ellis
City of Dayton
Department of Aviation
3600 Terminal Drive
Vandalia OH 45377

Dear Mr. Ellis:

Aviation Sales is a full service Fixed Base Operator (FBO) located in Dayton, Ohio at the Dayton International Airport and Dayton Wright Brothers Airport. Founded in 1958, Aviation Sales has been serving the Dayton Ohio aviation community for over 55 years.

Aviation Sales provides a range of FBO services including Aircraft Refueling, Aircraft Maintenance and Parts Supplier, Pilot Flight Training, Aircraft Rental, and Hangar Leasing. We strive to excel in customer service in whatever service we are providing. Keeping our customers safe and satisfied is our number one priority. Meticulous and constant attention to all customer needs is an integral part of our service.

As service providers to approximately 100 corporate clients we believe that lengthening the existing runway at Dayton-Wright Brothers Airport would greatly enhance our ability to expand our business.

Sincerely,

Rick Penwell
President

Dayton International Airport • 501 North Dixie Drive • Vandalia, Ohio 45377
Phone 937.898.3927 • Fax 937.898.1846

Dayton Wright Brothers Airport • 10600 Springboro Pike • Miamisburg, Ohio 45342
Phone 937.885.3662 • Fax 937.885.3118

COMMANDER AERO

June 7, 2013

Brandon Ellis
City of Dayton
Department of Aviation
3600 Terminal Drive
Vandalia OH 45377

Dear Mr. Ellis:

As the owner of Commander Aero I am pleased to provide full support and endorsement for lengthening our runway at MGY. This will avoid incoming flights from being diverted to DAY because of weather conditions. A longer runway will also attract larger jets to be hangared at MGY.

By way of background, Commander Aero was established at Greene County Airport in 1981. In 1985 I became a partner and in 1995 when I was the sole owner I had the opportunity to move the business to MGY and occupy the same hangar that was used by Southern Ohio Aviation which was the predecessor corporation to Commander Aero.

While we specialize in maintaining twin Commanders, Cessna Citations, and all models of Cirrus,we service a broad range of piston, turboprop and jet aircraft.

We feel fortunate to be located in a historic hangar and at a field both of which where built by Charles Kettering. Extending the runway will only add to our prospects for increased business not to mention the safety improvements from a longer runway.

In summary, the existing runway needs to be lengthened by 500-1000 feet so that we can grow our aircraft business to its full potential. Feel free to call me for any additional information you may want.

Sincerely,

President
888.881.5580 ext 12

Dayton - Wright Brothers Airport
10570 Springboro Pike Miamisburg, Ohio 45342
Phone 888-881-5580 937-885-5580 Fax 937-885-5586
Web commander-aero.com email service@commander-aero.com

4111 Bridgeway Avenue, Columbus, OH 43219 T 614 239 5500

NETJETS®

May 8, 2013

Dayton-Wright Brothers Airport
City of Dayton, Department of Aviation
3848 Wright Drive
Vandalia, Ohio 45377

Dear Brandon,

As you are aware, NetJets Aviation, Inc. aircraft include many varieties of late model business jets. Looking at the fleet from the perspective of size, NetJets has ordered and is accepting Bombardier Global Express and Global 5000 aircraft, which would be the two largest aircraft in our fleet. These would be in addition to the Gulfstream IV-SP and Gulfstream V (450 and 550) aircraft already in the fleet.

NetJets fleet aircraft have averaged about 150 FAA-like (each arrival and each departure counts as one operation) operations since 2005. As a result of economic factors experienced by Owners participating in our Fractional and Management programs, my forecast is that NetJets related activity for the next couple years would not exceed the average.

NetJets large cabin aircraft mentioned above share the same performance requirements with many medium cabin fleets which often require runway length greater than 5000 feet to operate at, or closer to, their design specifications. Examples of these fleets include Citation 750 (Ten), Falcon 2000 and 2000EX, Hawker 800XP, and Gulfstream 200 models. The existing runway length of 5000 feet at Dayton-Wright Brothers airport limits the range of these medium and long range business jets - sometimes to the extent that the Owner chooses to conduct operations at adjacent facilities with longer runways. A length of 6000 feet would be beneficial to Owners of these aircraft especially in warm or wet conditions and help to assure operations at the facility closest to their intended destination.

Sincerely,

Al Ball
Manager
Operational Intelligence & Analysis
614 239 4873
ball@netjets.com

Mike Brinker - Chief Pilot
Teradata Aviation Dept
3700 McCauley Drive
Dayton Intl Airport
Dayton OH, 45377

TERADATA
Raising Intelligence

March 20, 2013

Mr. Ellis,

Teradata currently operates a Cessna Citation XLS out of the Dayton International airport. As you know the company headquarters is practically within walking distance of the Dayton-Wright Brothers airport and would certainly be a convenient airport for them to use. While we have used it a few times, we are somewhat limited because of the rather short landing length available on runway 20. (4410ft)
Our particular model of Citation can operate into and out of MGY if conditions are right. However, any runway contamination, of rain, snow, sleet or ice increases our landing distance to the point that there is insufficient runway to legally and safely operate.
I believe that if the runway were extended to 6000ft then we would not have those particular operational limitations. That of course assumes that any possible displaced threshold would not be too restrictive.
We are currently averaging 10 to 20 operations per month and I would anticipate that to only increase in the future.

Mike Brinker
Director of Aviation/Chief Pilot
Teradata Aviation Dept.
Phone # 937-409-7995 (cell)
Fax # 937-264-8065

THE CONNOR GROUP

A REAL ESTATE INVESTMENT FIRM

December 13, 2012

Brandon Ellis
Airport Operations/ Maintenance Garage Supervisor
Dayton-Wright Brothers Airport Manager
City of Dayton, Department of Aviation
3848 Wright Drive
Vandalia, OH 45377

Mr. Ellis,

The Connor Group operates a Lear 45 and a Cessna CJ1 out of Dayton Wright Brothers airport.

In the Lear, we often have to limit the number of passengers, due to the 5000 foot of available runway. During the winter, if there is even the slightest contamination on the runway, we have to divert and land at Dayton International. In the summer, we can be restricted to only two passengers on long range trips. We operate 160 to 200 flights (246 to 290 hours) annually in the Lear.

The Cessna CJ1 is also limited during the winter due to the 5000 foot runway. In 2013, we plan to operate the CJ for approximately 190 to 250 flights (290 to 350 hours).

Our future plans include a potential Cessna Citation X. This aircraft would be similar to the Lear, in that the 5000 foot of available runway would limit its usefulness during summer and winter operations.

If you need any further clarification, you can contact our Chief Pilot, Brett Hunter, at 513-464-1151.

Best regards,

Larry Connor

6485 Centerville
Business Parkway
Centerville, OH 45459
937.434.3095
937.434.6215 fax

Appendix C

Detailed Cost Estimates

A-1				2015
Modification to Standards for Southwestern Corner of Runway 2 Object Free Area				
Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
MOS Coordination Effort				$0.00
TOTAL CONSTRUCTION COSTS				**$0.00**
Engineering				
Contingencies @ 10% (Construction + Engineering)				
TOTAL PROJECT COST				**$0.00**

A-2				2015-2016
Parallel Taxiway from Runway 2 Threshold to Taxiway "C" and Partial Taxiway "A" Demolition				
Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Mobilization	1	LS	$50,000.00	$50,000.00
Maintenance of Traffic and Airfield Safety	1	LS	$50,000.00	$50,000.00
Engineer's Field Office	4	MO	$2,500.00	$10,000.00
Contractor Quality Control Program	1	LS	$50,000.00	$50,000.00
Bonds and Insurance	1	LS	$15,000.00	$15,000.00
Project Survey and Stakeout	1	LS	$20,000.00	$20,000.00
As-builts	1	LS	$15,000.00	$15,000.00
Pavement Removal (Existing Pavement)	11,000	SY	$5.00	$55,000.00
Utility/Lighting/Signage Demolition	1	LS	$25,000.00	$25,000.00
Stripping and Stockpiling	3,000	CY	$12.00	$36,000.00
Unclassified Excavation	5,000	CY	$10.00	$50,000.00
Storm Conduit- RCP	1,000	LF	$50.00	$50,000.00
Storm inlets	6	EA	$2,500.00	$15,000.00
Storm manhole	2	EA	$3,000.00	$6,000.00
Underdrain	5,000	LF	$10.00	$50,000.00
Cleanout	20	EA	$250.00	$5,000.00
Trenching/Conduit	5,500	LF	$15.00	$82,500.00
Cable (Conductors)	10,000	LF	$3.00	$30,000.00
Elevated Taxiway Edge Light	40	EA	$1,500.00	$60,000.00
Base Cans, transformers, ground, light tag id's,	40	EA	$1,000.00	$40,000.00
Handhole	6	EA	$4,000.00	$24,000.00
Ductbank	500	LF	$30.00	$15,000.00
Vaut Work / CCRs	1	LS	$20,000.00	$20,000.00
Bituminous Pavement	14,000	SY	$18.00	$252,000.00
PCC Pavement	0	SY		$0.00
Aggregate Base	3,000	CY	$40.00	$120,000.00
Lime Treated Subgrade	14,000	SY	$15.00	$210,000.00
Tack Coat	1,400	GA	$2.00	$2,800.00
Prime Coat	3,500	GA	$3.00	$10,500.00
Taxiway centerline marking	2,725	LF	$0.50	$1,362.50
RW Hold Position Markings	500	SF	$3.00	$1,500.00
Other Pavement Markings	2,000	SF	$3.00	$6,000.00
New Guidance Signs	4	EA	$2,500.00	$10,000.00
Topsoil, 4" Min (Placed)	3,000	CY	$5.00	$15,000.00
Seeding and Mulching	10	AC	$2,000.00	$20,000.00
Erosion Control	1	LS	$10,000.00	$10,000.00
TOTAL CONSTRUCTION COSTS				**$1,432,662.50**
Engineering, Support Services, and Bidding (10%)				$ 143,266.25
Services During Construction (10%)				$ 143,266.25
Contingencies @ 10%				$ 143,266.25
TOTAL PROJECT COST				**$1,862,461.25**

A-3 **2016**

Purchase/Land Swap Properties for Runway Extension

Item	Quantity	Unit	Unit Price	Amount
Purchase/Land Swap Properties for Runway Extension	64	AC	$20,000.00	$1,280,000.00
TOTAL COSTS				**$1,280,000.00**
Engineering Coordination / Appraisals				$ 20,000.00
Contingencies @ 10%				$ 128,000.00
TOTAL PROJECT COST				**$1,428,000.00**

A-4 **2016**

Terminal Apron Expansion East of Taxiway "A"

Item	Quantity	Unit	Unit Price	Amount
Mobilization	1	LS	$30,000.00	$30,000.00
Maintenance of Traffic and Airfield Safety	1	LS	$30,000.00	$30,000.00
Engineer's Field Office	4	MO	$2,500.00	$10,000.00
Contractor Quality Control Program	1	LS	$30,000.00	$30,000.00
Bonds and Insurance	1	LS	$8,500.00	$8,500.00
Project Survey and Stakeout	1	LS	$15,000.00	$15,000.00
As-builts	1	LS	$15,000.00	$15,000.00
Pavement Removal	3500	SY	$5.00	$17,500.00
Utility/Lighting/Signage Demolition	1	LS	$10,000.00	$10,000.00
Stripping and Stockpiling	2,000	CY	$12.00	$24,000.00
Unclassified Excavation	2,000	CY	$10.00	$20,000.00
Storm Conduit- RCP	500	LF	$50.00	$25,000.00
Storm inlets	2	EA	$2,500.00	$5,000.00
Storm manhole	1	EA	$3,000.00	$3,000.00
Underdrain	1,000	LF	$10.00	$10,000.00
Cleanout	6	EA	$250.00	$1,500.00
Trenching/Conduit	1,000	LF	$15.00	$15,000.00
Cable (Conductors)	1,000	LF	$3.00	$3,000.00
Taxiway Edge Light	10	EA	$1,500.00	$15,000.00
Base Cans, transformers, ground, light tag id's,	10	EA	$1,000.00	$10,000.00
Handhole	1	EA	$4,000.00	$4,000.00
Ductbank	500	LF	$30.00	$15,000.00
Vaut Work /Misc.	1	LS	$5,000.00	$5,000.00
Bituminous Pavement	7,000	SY	$20.00	$140,000.00
PCC Pavement, Tie Downs, & Sealing	3,500	SY	$45.00	$157,500.00
Aggregate Base	2,250	CY	$40.00	$90,000.00
Lime Treated Subgrade	10,500	SY	$15.00	$157,500.00
Tack Coat	150	GA	$2.00	$300.00
Prime Coat	300	GA	$3.00	$900.00
Joint Sealing	5,000	LF	$3.00	$15,000.00
Taxiway Centerline	1,100	LF	$0.50	$550.00
Other Pavement Markings	1	LS	$2,000.00	$2,000.00
New Guidance Signs	1	EA	$2,500.00	$2,500.00
Topsoil	200	CY	$5.00	$1,000.00
Seeding and Mulching	1	AC	$2,000.00	$2,000.00
Erosion Control	1	LS	$5,000.00	$5,000.00
TOTAL CONSTRUCTION COSTS				**$895,750.00**
Engineering, Support Services, and Bidding (10%)				$ 89,575.00
Services During Construction (10%)				$ 89,575.00

A-4				2016
Terminal Apron Expansion East of Taxiway "A"				
Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Contingencies @ 10%				$ 89,575.00
TOTAL PROJECT COST				**$1,164,475.00**

A-5 2022

500 Foot Runway Extension; Remove Displaced Threshold Markings and Remark Runway; Replace Lighting, Relocate MALS System, Relocate Roadway

Item	Quantity	Unit	Unit Price	Amount
Mobilization	1	LS	$150,000.00	$150,000.00
Maintenance of Traffic and Airfield Safety	1	LS	$100,000.00	$100,000.00
Engineer's Field Office	18	MO	$2,500.00	$45,000.00
Contractor Quality Control Program	1	LS	$75,000.00	$75,000.00
Bonds and Insurance	1	LS	$50,000.00	$50,000.00
Project Survey and Stakeout	1	LS	$45,000.00	$45,000.00
As-builts	1	LS	$25,000.00	$25,000.00
Pavement Marking Removal	40,000	SF	$2.00	$80,000.00
Pavement Removal	6,700	SY	$5.00	$33,500.00
Utility/Lighting/Signage Demolition	1	LS	$50,000.00	$50,000.00
Clearing and Grubbing	1	LS	$1,000.00	$1,000.00
Stripping and Stockpiling	3,700	CY	$12.00	$44,400.00
Unclassified Excavation	1,850	CY	$10.00	$18,500.00
Site Grading (RSA)	16,700	SY	$5.00	$83,500.00
Storm Conduit- RCP	5,000	LF	$50.00	$250,000.00
Storm inlets	20	EA	$2,500.00	$50,000.00
Storm manhole	10	EA	$3,000.00	$30,000.00
Underdrain	1,500	LF	$10.00	$15,000.00
Cleanout	10	EA	$250.00	$2,500.00
Relocate /Reinstall MALS (Approach Lighting)	1	LS	$500,000.00	$500,000.00
Trenching/Conduit	10,500	LF	$15.00	$157,500.00
Cable (Conductors)	15,000	LF	$3.00	$45,000.00
Ductbank	500	EA	$30.00	$15,000.00
Base Cans, transformers, ground, light tag id's,	66	EA	$1,000.00	$66,000.00
Handhole	12	EA	$4,000.00	$48,000.00
Ductbank	500	LF	$30.00	$15,000.00
Vaut Work /Misc.	1	LS	$5,000.00	$5,000.00
Elevated Runway Edge Lights	48	EA	$1,500.00	$72,000.00
In-Pavement Runway Edge Lights	2	EA	$1,750.00	$3,500.00
Runway End Lights	16	EA	$1,500.00	$24,000.00
New Guidance Signs	12	EA	$3,000.00	$36,000.00
Other Approach Systems - VASI/PAPI Replacement	1	LS	$100,000.00	$100,000.00
Bituminous Pavement	5,600	SY	$40.00	$224,000.00
PCC Pavement	5,600	SY	$45.00	$252,000.00
Aggregate Base	2,800	CY	$40.00	$112,000.00
Lime Treated Subgrade	5,600	SY	$15.00	$84,000.00
Tack Coat	250	GA	$2.00	$500.00
Prime Coat	500	GA	$3.00	$1,500.00
Joint Sealing	20,000	LF	$7.50	$150,000.00

A-5 2022

500 Foot Runway Extension; Remove Displaced Threshold Markings and Remark Runway; Replace Lighting, Relocate MALS System, Relocate Roadway

Item	Quantity	Unit	Unit Price	Amount
Pavement Grooving	5,600	SY	$2.00	$11,200.00
Runway Markings	80,000	SF	$3.00	$240,000.00
Taxiway Markings	2,000	SF	$2.00	$4,000.00
Topsoil	5,000	CY	$20.00	$100,000.00
Seeding and Mulching	10	AC	$2,500.00	$25,000.00
Erosion Control	1	LS	$50,000.00	$50,000.00
Turf /Vegetation Restoration	10	AC	$4,000.00	$40,000.00
Roadway Relocation - Grading & Drainage	1	LS	$250,000.00	$250,000.00
Roadway Relocation - Pavement, Marking, Signage	1	LS	$500,000.00	$500,000.00
Roadway Relocation - Fencing	2,600	LF	$60.00	$156,000.00
				$0.00
				$0.00
TOTAL CONSTRUCTION COSTS				**$4,435,600.00**
Environmental Studies (5%)				$ 221,780.00
Engineering, Support Services, and Bidding (10%)				$ 443,560.00
Services During Construction (10%)				$ 443,560.00
Construction Contingencies @ 10%				$ 443,560.00
TOTAL PROJECT COST				**$5,988,060.00**

A-6 **2020**

Taxiway "A" Extension to Runway 20 Threshold

Item	Quantity	Unit	Unit Price	Amount
Mobilization	1	LS	$50,000.00	$50,000.00
Maintenance of Traffic and Airfield Safety	1	LS	$50,000.00	$50,000.00
Engineer's Field Office	4	MO	$2,500.00	$10,000.00
Contractor Quality Control Program	1	LS	$50,000.00	$50,000.00
Bonds and Insurance	1	LS	$15,000.00	$15,000.00
Project Survey and Stakeout	1	LS	$20,000.00	$20,000.00
As-builts	1	LS	$15,000.00	$15,000.00
Pavement Removal (Existing Pavement)	10,000	SY	$5.00	$50,000.00
Utility/Lighting/Signage Demolition	1	LS	$25,000.00	$25,000.00
Stripping and Stockpiling	4,500	CY	$12.00	$54,000.00
Unclassified Excavation	7,500	CY	$10.00	$75,000.00
Storm Conduit- RCP	1,500	LF	$50.00	$75,000.00
Storm inlets	9	EA	$2,500.00	$22,500.00
Storm manhole	3	EA	$3,000.00	$9,000.00
Underdrain	7,500	LF	$10.00	$75,000.00
Cleanout	30	EA	$250.00	$7,500.00
Trenching/Conduit	8,250	LF	$15.00	$123,750.00
Cable (Conductors)	15,000	LF	$3.00	$45,000.00
Elevated Taxiway Edge Light	70	EA	$1,500.00	$105,000.00
Base Cans, transformers, ground, light tag id's,	70	EA	$1,000.00	$70,000.00
Handhole	9	EA	$4,000.00	$36,000.00
Ductbank	750	LF	$30.00	$22,500.00
Vaut Work / CCRs	1	LS	$20,000.00	$20,000.00
Bituminous Pavement	19,500	SY	$18.00	$351,000.00
PCC Pavement	0	SY		$0.00
Aggregate Base	4,500	CY	$40.00	$180,000.00
Lime Treated Subgrade	19,500	SY	$15.00	$292,500.00
Tack Coat	2,100	GA	$2.00	$4,200.00
Prime Coat	5,250	GA	$3.00	$15,750.00
Taxiway centerline marking	4,000	LF	$0.50	$2,000.00
RW Hold Position Markings	1,000	SF	$3.00	$3,000.00
Other Pavement Markings	3,000	SF	$3.00	$9,000.00
New Guidance Signs	6	EA	$2,500.00	$15,000.00
Topsoil, 4" Min (Placed)	4,500	CY	$5.00	$22,500.00
Seeding and Mulching	15	AC	$2,000.00	$30,000.00
Erosion Control	1	LS	$10,000.00	$10,000.00
TOTAL CONSTRUCTION COSTS				**$1,960,200.00**
Engineering, Support Services, and Bidding (10%)				$ 196,020.00
Services During Construction (10%)				$ 196,020.00

A-6				2020
Taxiway "A" Extension to Runway 20 Threshold				
Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Contingencies @ 10%				$ 196,020.00
TOTAL PROJECT COST				**$2,548,260.00**

A-7

2024

Partial Length Parallel Taxiway at Runway 20

Item	Quantity	Unit	Unit Price	Amount
Mobilization	1	LS	$50,000.00	$50,000.00
Maintenance of Traffic and Airfield Safety	1	LS	$50,000.00	$50,000.00
Engineer's Field Office	4	MO	$2,500.00	$10,000.00
Contractor Quality Control Program	1	LS	$50,000.00	$50,000.00
Bonds and Insurance	1	LS	$15,000.00	$15,000.00
Project Survey and Stakeout	1	LS	$20,000.00	$20,000.00
As-builts	1	LS	$15,000.00	$15,000.00
Pavement Removal (Existing Pavement)	2,800	SY	$5.00	$14,000.00
Utility/Lighting/Signage Demolition	1	LS	$25,000.00	$25,000.00
Stripping and Stockpiling	1,500	CY	$12.00	$18,000.00
Unclassified Excavation	2,500	CY	$10.00	$25,000.00
Storm Conduit- RCP	500	LF	$50.00	$25,000.00
Storm inlets	3	EA	$2,500.00	$7,500.00
Storm manhole	1	EA	$3,000.00	$3,000.00
Underdrain	2,500	LF	$10.00	$25,000.00
Cleanout	10	EA	$250.00	$2,500.00
Trenching/Conduit	2,750	LF	$15.00	$41,250.00
Cable (Conductors)	5,000	LF	$3.00	$15,000.00
Elevated Taxiway Edge Light	20	EA	$1,500.00	$30,000.00
Base Cans, transformers, ground, light tag id's,	20	EA	$1,000.00	$20,000.00
Handhole	4	EA	$4,000.00	$16,000.00
Ductbank	250	LF	$30.00	$7,500.00
Vaut Work / CCRs	1	LS	$20,000.00	$20,000.00
Bituminous Pavement	7,000	SY	$18.00	$126,000.00
PCC Pavement	0	SY		$0.00
Aggregate Base	3,000	CY	$40.00	$120,000.00
Lime Treated Subgrade	7,000	SY	$15.00	$105,000.00
Tack Coat	700	GA	$2.00	$1,400.00
Prime Coat	1,750	GA	$3.00	$5,250.00
Taxiway centerline marking	1,200	LF	$0.50	$600.00
RW Hold Position Markings	1,000	SF	$3.00	$3,000.00
Other Pavement Markings	2,000	SF	$3.00	$6,000.00
New Guidance Signs	4	EA	$2,500.00	$10,000.00
Topsoil, 4" Min (Placed)	1,500	CY	$5.00	$7,500.00
Seeding and Mulching	5	AC	$2,000.00	$10,000.00
Erosion Control	1	LS	$10,000.00	$10,000.00
TOTAL CONSTRUCTION COSTS				**$909,500.00**
Engineering, Support Services, and Bidding (10%)				$ 90,950.00
Services During Construction (10%)				$ 90,950.00

A-7				2024
Partial Length Parallel Taxiway at Runway 20				
Item	**Quantity**	**Unit**	**Unit Price**	**Amount**
Contingencies @ 10%				$ 90,950.00
TOTAL PROJECT COST				**$1,182,350.00**

Appendix D

Interim ALP Alternatives

Airport Development Alternatives for Interim ALP

During the Master Plan Update there were extensive discussions with the Technical Advisory Committee (TAC) regarding the future development of the airfield. Of particular interest and need is a runway extension from 5,000 feet to 5,500 feet. In addition, the airfield, which has historically been designed to B-II standards, needs to be upgraded C-II standards involves significant changes to the airfield. The TAC determined that the only direction to extend the runway was to the north, which resulted in the need to re-align Austin Blvd. After the submission of the Master Plan Report to the FAA, it was suggested that this alternative may be financially limiting, and additional alternatives should be examined. Another alternative to provide the recommended runway length would be to create a tunnel over Austin Blvd that could meet the runway safety area requirements. This alternative was conceptually reviewed along with draft cost estimates for the work. This particular alternative will need to be further evaluated during the environmental assessment phase to determine which alternative, the re-alignment of Austin Blvd, or the tunnel alternative is most environmentally sensitive. This alternative however is included here in the appendix because it was not part of the TAC meetings, thus the TAC did not have an opportunity to provide input or comment. That opportunity will present itself during the environmental assessment as well.

Tunnel Austin Blvd

In lieu of routing Austin Blvd, a tunnel, approximately 40- 50 Ft W x 500 Ft L x 15 Ft H, could be constructed along the current horizontal alignment of Austin Blvd. The vertical alignment would need to be lowered to accommodate a future Runway extension. As such, the lower configuration would likely need to be lower than surrounding topography and require a pumping system, lighting, and potential ventilation. Since the tunnel section would span the width of the Runway Safety Area (RSA), the structure itself would need to be designed to accommodate aircraft loading in the event of an overrun to the north.

A typical tunnel cost is estimated at an average $100-$150 per square ft. Given the increased structural capacity, an estimated $200-$300 per square ft is anticipated.

500 LF x 50 Ft. = 25,000 SF

Estimated Construction cost ranges from $5M to $7.5M for a tunnel which would span the RSA. Roadway improvements (approaches to the tunnel), site grading and earthwork, drainage improvements, as well as maintenance of traffic would add an estimated $2-3M to the cost of the tunnel/decking

While this alternative to address roadway, RPZ and RSA issues is a viable option, a more detailed feasibility study would need to be conducted during the Environmental Assessment phase in order to verify structural requirements and costs associated with this alternative.

The Airport Master Plan on file was developed to B-II standards. Aircraft using the airport today, and proposed for future use, fall into C-II design standards. As such the design surfaces and protection zones expand considerably. Alternatives move from B-II to C-II on airport property are presented below.

Long term goal for the facility to be upgraded to C-II standards, within the airport fence, before the runway extension is in place. Ultimately the alternative chosen should be an interim step working toward the recommended (future) ALP, which extend the Runway 20 end.

As outlined in the Airport Master Plan Update, page 4-3, and in comments provided by the FAA, there are a number of deficiencies that exist on airport property when the RDC changes from B-II to C-II, particularly:

- Runway Safety Area
- Runway Object Free Area
- Runway to Parallel Taxiway Separation
- Runway Protection Zone

Runway Safety Area will be addressed in each alternative below.

Runway Object Free Area will be addressed in each alternative below.

Runway to Parallel Taxiway separation is the same throughout each alternative. The last (southernmost) 900 feet of parallel taxiway would need to be relocated to the standard 300 foot offset from the runway centerline. The only other option would be to temporarily close a portion of the parallel taxiway which would require Aircraft would have to access Runway 2 through taxiway connector A2, and would also require back taxi to the Runway 2 end, or conduct a short-field takeoff from A2 intersection.

Runway Protection Zone increases in size from the B-II standard (500-foot inner width, 700-foot outer width, 1,000-foot length) to C-II standards (500-foot inner width, 1,010-foot outer width, 1,700-foot length) based on the existing approaches remaining above 1-mile visibility. The B-II RPZ off Runway 20 end of runway already encompasses Austin Blvd and undeveloped land on the north side of Austin Blvd. the increased RPZ size doesn't affect different land uses.

However, the increased size in RPZ off Runway 2 end of runway does encounter additional land uses, particularly six structures, that were not present under the B-II RPZ. The travel lanes of Springboro Pike (Rt. 741) were included the in the B-II standards. Review of FAA Memo, *Interim guidance on Land Uses within a Runway Protection Zone*, requires additional review off Runway 2. Coordination with APP-400 will be required if an alternative can't minimize the impact of incompatible land uses.

Alternative Analysis:

1. **Remove the structures from the RPZ**. Of the six structures, a gas station (pumps and support building), a commercial mall, business buildings and a restaurant become included in the RPZ. Ideally these land uses should not be within the RPZ, and the sponsor should make every effort to control the RPZ. The sponsor may seek to acquire structures that are within the central portion of the RPZ, but acquisition and demolition of the mall is a low probability.

a. **Examine the central portion of the RPZ.** Examining the central portion of the RPZ, which in this case is 800 feet wide. When extending the ROFA width to the edge of the RPZ (central portion of the RPZ) the mall and hospital lies outside. The gas station remains inside the RPZ. (the airport sponsor has stated intent to purchase lands north of Remick Blvd and South of the airport fence)

2. **Shorten the runway to keep RPZ outside incompatible land uses.**
    a. Shortening the runway to keep the RPZ length outside of the incompatible land uses would result in the loss of 700 feet of runway on Runway 2 end alone. The travel lanes of Springboro Blvd would still remain inside the RPZ. The reduced runway length would negatively impact the usability of the airport by the existing business aircraft users of today. An alternative is drawn to address this issue, and maintain C-II standards on airport property.

The following alternatives were examined to provide C-II on airport property.

Alternative 1: Maintain 400' wide RSA, seek MOS for ROFA

This alternative examines a 400' wide RSA per Table 3-5 footnote 13, seeks a Modification of Standards for Runway Object Free Area, requires the relocation of the localizer antennae and support shed outside the safety area and object free areas. This alternative relocates the end of Runway 22 by 525 feet to provide safety area on airport property and shortens the runway length to 4,485 feet.

Runway 2 RSA:

- length prior to threshold is provided on airport property and does not impact the localizer.
- To provide the Length beyond departure end is provided on airport property, requires relocating the runway end 525 feet.

Runway 20 RSA:

- length prior to threshold is provided on airport property considering the displaced threshold
- Length beyond departure end is provided on airport property, but includes the localizer, which would need to be relocated outside the RSA.

Runway 2 ROFA: seek Modification of standards

- Length prior to threshold is not located on airport property, short by about 60 feet
- Length beyond departure end encompass the shoulder of Austin Blvd

Runway 20 ROFA: seek Modification of standards

- Length prior to threshold is located on airport property because of the displaced threshold
- Length beyond departure end encompass the travel lanes of Springboro Pike.

Parallel Taxiway Offset

- The last 900 feet of parallel taxiway, near Runway 2, would need to temporarily be closed until the taxiway could be properly offset. This would require aircraft to back taxi on Runway 2 for full-length takeoff.
- Taxiway connector to Runway 20 is impacted with the relocation of Runway 22 end of runway.

RPZ

- Both RPZ extends over roadway, which they do under B-II standards
- RPZ off Runway 2 now includes incompatible land use structures. Coordination with APP-400 is required.
- RPZ off Runway 20 encompasses additional lands but are the same land uses that exist under B-II standards.

Summary

- Airfield components impacted to make standard RSA: Runway 20 end shortened 525' - edge lights between existing runway end and threshold lights; runway markings, relocation of the MALSR, and relocation of the Localizer and shed included in cost estimate
- Incompatible land uses exist in the increased C-II RPZ prior to Runway 2 end
- Other airfield components affected: taxiway connector at Runway 20 end will be abandoned, or a new connector should be considered; relocation of last 900 feet of Taxiway at Rwy 2 end to meet standards, included in cost estimate, but separate from RSA standards

This alternative does not appear to be a viable interim alternative.

Alternative 2: Maintain 500' wide RSA, seek MOS for ROFA

This alternative examines a 500' wide RSA per Table 3-5 standard dimensions, seeks a Modification of Standards for Runway Object Free Area. This alternative relocates the end of Runway 20 by 545 feet to provide safety area on airport property and shortens the runway length to 4,455 feet.

Runway 2 RSA:

- length prior to threshold is provided on airport property and does not impact the localizer.
- Length beyond departure end is provided on airport property, but requires relocating the runway end 545 feet.

Runway 20 RSA:

- length prior to threshold is provided on airport property because of the displaced threshold
- Length beyond departure end is provided on airport property, but includes the localizer, which need to be relocated, and the support shed is on the edge of the RSA, which would require relocation outside the ROFA too.

Runway 2 ROFA: seek Modification of standards

- Length prior to threshold is not on airport property, short by 60 feet.
- Length beyond departure end encompass the airport fence and shoulder of Austin Blvd

Runway 20 ROFA: seek Modification of standards

- Length prior to threshold is located on airport property because of the displaced threshold
- Length beyond departure end encompass the travel lanes of Springboro Pike.

Parallel Taxiway Offset

- The last 900 feet of parallel taxiway, near Runway 2, would need to temporarily be closed until the taxiway could be properly offset. This would require aircraft to back taxi on Runway 2 for full-length takeoff.
- Taxiway connector at Runway 20 end is impacted.

RPZ

- Both RPZ extends over roadway, which they do under B-II standards
- RPZ off Runway 2 now includes incompatible land use structures. Coordination with APP-400 is required.
- RPZ off Runway 20 encompasses additional lands but are the same land uses that exist under B-II standards.

Summary

- Airfield components impacted to make standard RSA: Runway 20 end shortened 545', edge lights between existing runway end and threshold lights; runway markings; relocation of the MALSR, and relocation of the Localizer and shed included in cost estimate

- Incompatible land uses exist in the increased C-II RPZ prior to Runway 2 end
- Other airfield components affected: taxiway connector at Runway 20 end will be abandoned, or a new connector should be considered; relocation of last 900 feet of Taxiway at Rwy 2 end to meet standards, included in cost estimate, but separate from RSA standards

This alternative does not appear to be a viable interim alternative.

Alternative 3: Install EMAS Rwy

Per Order 5200.9, an EMAS can be considered as an alternative to provide standards safety area. It reduces the length prior to threshold to 600 feet, but the length of the EMAS is defined further in AC 150/5220. An EMAS can be used to protect for undershoots, thereby reducing the length of the RSA to 600 feet before the threshold, or overshoots, on the departure end of the runway. Examining the aircraft that use the runway, Figure A2-7 of AC 150/5220 was used as a sample C-II aircraft, with a resulting EMAS length of 425 feet, inclusive of the 75-foot ramp.

Runway 2 RSA:

- The standard 600 feet is provided prior to the threshold
- Departure end, installation of the EMAS can mitigate the length requirement for overshoot. Review of AC 150/5200-22 would require a 425 foot EMAS with estimated costs of:
    - Site Preparation: 100 *(350+75) *14 = $595,000
    - EMAS Bed Installation: 100*350*78 = $2,730,000
    - Total generic EMAS cost = $3,325,000
    - Max cost (from Figure 4 5200.9) = 15,000,000*.67 = $10,050,000

Runway 20 RSA:

- The standard 600 feet is provided prior to the threshold because of the displaced threshold
- The full length can be provided on airport property, but the Localizer is inside the length. To mitigate the localizer, installation of an EMAS on the airfield, prior to the antennae could benefit the RSA length beyond departure end.
- Estimated costs for the EMAS, using Order 5200.9:
    - Site Preparation: 100 *(350+75) *14 = $595,000
    - EMAS Bed Installation: 100*350*78 = $2,730,000
    - Total generic EMAS cost = $3,325,000
    - Max cost (from Figure 4 5200.9) = 15,000,000*.67 = $10,050,000

Runway 2 ROFA: Modification to standards required

- Installation of EMAS does not mitigate ROFA
- 600 feet prior to threshold is not located within the airport fence. It is short by 60 feet, which would require relocating Runway 2 end. Instead, a modification would be required to avoid relocating Runway 2 end of runway.
- Runway 2 departure end ROFA would extend over Austin Blvd and a modification to standards required. This extends over all travel lanes of Austin Blvd.

Runway 20 ROFA: Modification to standards required

- Installation of EMAS does not mitigate ROFA
- 600 feet prior to threshold is located within the airport fence.
- Runway 20 departure end ROFA would extend over Springboro Pike and a modification to standards required. This extends over all travel lanes.

Parallel Taxiway Offset

- The last 900 feet of parallel taxiway, near Runway 2, would need to temporarily be closed until the taxiway could be properly offset. This would require aircraft to back taxi on Runway 2 for full-length takeoff.

RPZ

- Both RPZ extends over roadway, which they do under B-II standards
- RPZ off Runway 2 now includes incompatible land use structures. Coordination with APP-400 is required.
- RPZ off Runway 20 encompasses additional lands but are the same land uses that exist under B-II standards.

Summary

- Airfield components impacted to make standard RSA: relocation of the Localizer and shed included in cost estimate, MALSR would need to be considered with the installation of the EMAS bed
- Incompatible land uses exist in the increased C-II RPZ prior to Runway 2 end
- Other airfield components affected: relocation of last 900 feet of Taxiway at Rwy 2 end to meet standards, included in cost estimate, but separate from RSA standards

The installation of EMAS off the departure end of Runway 2 is not a wise investment of funding, as this is the direction the runway extension is intended.

The installation of EMAS off the departure end of Runway 20 would mitigate the impact the RSA length has on the localizer antennae. The localizer shed would still need to be relocated, unless a modification to standards could be achieved.

Overall, this alternative does not appear to be a financially sound solution.

Alternative 4: Apply Declared Distances

Review of FAA Order 5200.9 identifies that declared distances may be an option to provide standard safety areas. This alternative applies declared distances to the existing runway ends, without impacting the runway ends, and using the airport perimeter fence as the controlling points. RDC C-II criteria requires 600' prior to threshold for landing, and a 1,000' length after departure end for takeoff. TORA and TODA assume the aircraft becomes airborne, while ASDA and LDA must provide the safety area/object free area lengths at departure end of runway, as outlined in Section 322 of AC 150/5300-13.

This alternative uses the existing runway ends and the airport fence as the controlling points.

Runway 2 RSA/ROFA:

- The standard 600 feet prior to the threshold for the RSA is provided on airport property
- A modification would be sought for 450 +/- SF of area between the airport fence and Springboro Pike right-of-way, to avoid relocating the Runway 2 end of runway.
- Departure end, declare a length where the ASDA/LDA end, 620 feet inbound from Runway 20 end of pavement to provide 1,000 feet length

Runway 20 RSA/ROFA

- The standard 600 feet is provided prior to the threshold because of the displaced threshold
- Departure end, declare a length where the ASDA/LDA end, 400 feet inbound from Runway 2 end of pavement to accommodate for the ROFA width to provide 1,000 length

Applying declared distances eliminated the travel lanes from the OFA for both runway ends; and maintains the localizer and support shed outside the RSA/ROFA. Maintaining the runway end locations results in no impact to the MALSR.

Parallel Taxiway Offset

- The last 900 feet of parallel taxiway, near Runway 2, would need to temporarily be closed until the taxiway could be properly offset. This would require aircraft to back taxi on Runway 2 for full-length takeoff.
- Keeping the Runway 20 end in its current location there is no impact on the access taxiway to end of runway 20.

RPZ

- Both RPZ extends over roadways.
- RPZ off Runway 2 now includes incompatible land use structures. Coordination with APP-400 is required.
- RPZ off Runway 20 encompasses additional lands but are the same land uses that exist under B-II standards.
- With declared distances two RPZ exist. The approach RPZ would not change from their current situation, and since the TORA is at the runway end, the departure RPZ matches the existing situation.

Applying declared distances results in the following distances, based on the aforementioned assumptions:

Runway	TORA	TODA	ASDA	LDA
2	5,000’	5,000’	4,380’	4,380’
20	5,000’	5,000’	4,552’	4,010’

Applying declared distances shortens the runway lengths available for accelerate-stop distances and landing distances available, but would not limit the takeoff runway available. This alternative would have to temporarily shorten the Taxiway near Runway 2, at Taxiway B, until such time as that taxiway could be built to C-II separation standards. This would require aircraft to back taxi on Runway 2 for full - length takeoff. This alternative does not impact the localizer or the MALSR.

Summary

- Airfield components impacted to make standard RSA: None, since there are no changes to the runway pavement, just applying declared distances
- Incompatible land uses exist in the increased C-II RPZ prior to Runway 2 end
- Other airfield components affected: taxiway connector at Runway 20 end will be abandoned, or a new connector should be considered; relocation of last 900 feet of Taxiway at Runway 2 end to meet standards, included in cost estimate, but separate from RSA standards

This appears to be a viable interim alternative if a Modification to Standards can be issued.

Alternative 5: Shorten Runway to achieve RSA/ROFA within airport fence and provide Land Use Compatible RPZ off Runway 2.

To keep RSA/ROFA design surfaces for an RDC of C-II on airport property, and maintain the Runway 2 RPZ outside incompatible land uses would result in a loss of 700 feet on the Runway 2 end and an additional 624 feet off the existing Runway 20 end, resulting in a length of 3,676 feet.

RSA/ROFA: Each relocated runway end results in the RSA and ROFA being on airport property. The localizer would no longer be in the RSA, and the localizer support shed would no longer be in the ROFA.

RPZ: Relocating the Runway 2 end removes incompatible land uses from the C-II RPZ. The travel lanes of Springboro Pike would still remain in the RPZ, as they currently do under B-II standards. Runway 20 RPZ would continue to have the travel lanes for Austin Blvd, as they currently do under B-II standards. This alternative may not require coordination with APP-400 as the proposed project mimics the existing situation.

Taxiway Separation: The southern portion of Taxiway A that does not meet the 300' offset would be eliminated with the relocation of Runway 2 end.

This alternative is not a viable interim alternative, as it would negatively impact the usability of the airport, potentially reduce available runway length, and subsequently the economic viability of the airport to the surrounding area.

With a future runway extension of 500 feet off the Runway 20 then the runway length could potentially be reduced by 200 feet of length from the existing 5,000 feet of runway length, resulting in a total length of 4,800 feet.

Summary

- Airfield components impacted to make standard RSA: Each runway end would need to be re-established, the runway markings and lighting would need to be replaced. The MALSR would be impacted. The localizer and shed are no longer inside the design surfaces.
- Incompatible land uses are removed from the increased C-II RPZ prior to Runway 2 end
- Other airfield components affected: taxiway connector at Runway 20 end will be abandoned, or a new connector should be considered; elimination of the last 900 feet of Taxiway at Runway 2, included in cost estimate, but separate from RSA standards

Alternative 6: Shorten Runway and apply declared distances as an interim step to maintain 5000 feet of Runway after extension

This alternative is a direct result of Alternative 5, as the resulting impact would be a loss of runway length after the runway extension is in place. This alternative seeks to provide a balance runway length of 5,000 feet after the runway extension, and remove most incompatible land uses from the C-II RPZ off airport property. It is acknowledged that the airport sponsor would seek to acquire the properties between Remick Road and the Airport and demolish those structures. The hospital building itself would be outside central corridor of the RPZ, but the edge of the RPZ would overlap the hospital building. The mall would no longer be located within the RPZ.

This alternative will require the relocation of Runway 2 end 500 feet to the north.

Runway 2 RSA/ROFA:

- The standard 600 feet prior to the threshold for the RSA/ROFA is provided on airport property
- A modification would be sought for the airport fence on the edge of the ROFA. Springboro Pike is outside the ROFA
- The localizer and support shed are outside the RSA/ROFA
- Departure end, declare a length where the ASDA/LDA end, 620 feet inbound from Runway 20 end of pavement to provide 1,000 feet length

Runway 20 RSA/ROFA

- The standard 600 feet is provided prior to the threshold because of the displaced threshold
- Departure end, declare a length where the ASDA/LDA end, 10 feet inbound from Runway 2 end of pavement to accommodate for the ROFA width to provide 1,000 length

Applying declared distances eliminated the travel lanes from the OFA for both runway ends; and maintains the localizer and support shed outside the RSA/ROFA. Maintaining the runway 20 end location results in no impact to the MALSR.

Parallel Taxiway Offset

- 400 feet of parallel taxiway, near Runway 2, would need to temporarily be closed until the taxiway could be properly offset. This would require aircraft to back taxi on Runway 2 for full-length takeoff. There would be a permanent loss of 500 feet of Taxiway due to loss of Runway length
- Keeping the Runway 20 end in its current location there is no impact on the access taxiway to end of runway 20.

RPZ

- Both RPZ extends over roadways.
- RPZ off Runway 2 still includes incompatible land use structures, but the sponsor would seek to acquire the structures in the central corridor of the RPZ.
- RPZ off Runway 20 encompasses additional lands but are the same land uses that exist under B-II standards.

- With declared distances two RPZ exist. The approach RPZ would not change from their current situation, and since the TORA is at the runway end, the departure RPZ matches the existing situation.

Applying declared distances results in the following distances, based on the aforementioned assumptions:

Runway	TORA	TODA	ASDA	LDA
2	4,500’	4,500’	3,880’	3,880’
20	4,500’	4,500’	4,490’	3,900’

This alternative shortens the runway to less than 5,000 feet. Applying declared further shortens the accelerate-stop distances and landing distances available. This alternative would have to temporarily shorten the Taxiway near Runway 2, at Taxiway B, until such time as 400 feet from Taxiway B could be built to C-II separation standards. This would require aircraft to back taxi on Runway 2 for full -length takeoff. This alternative does not impact the localizer or the MALSR.

Summary

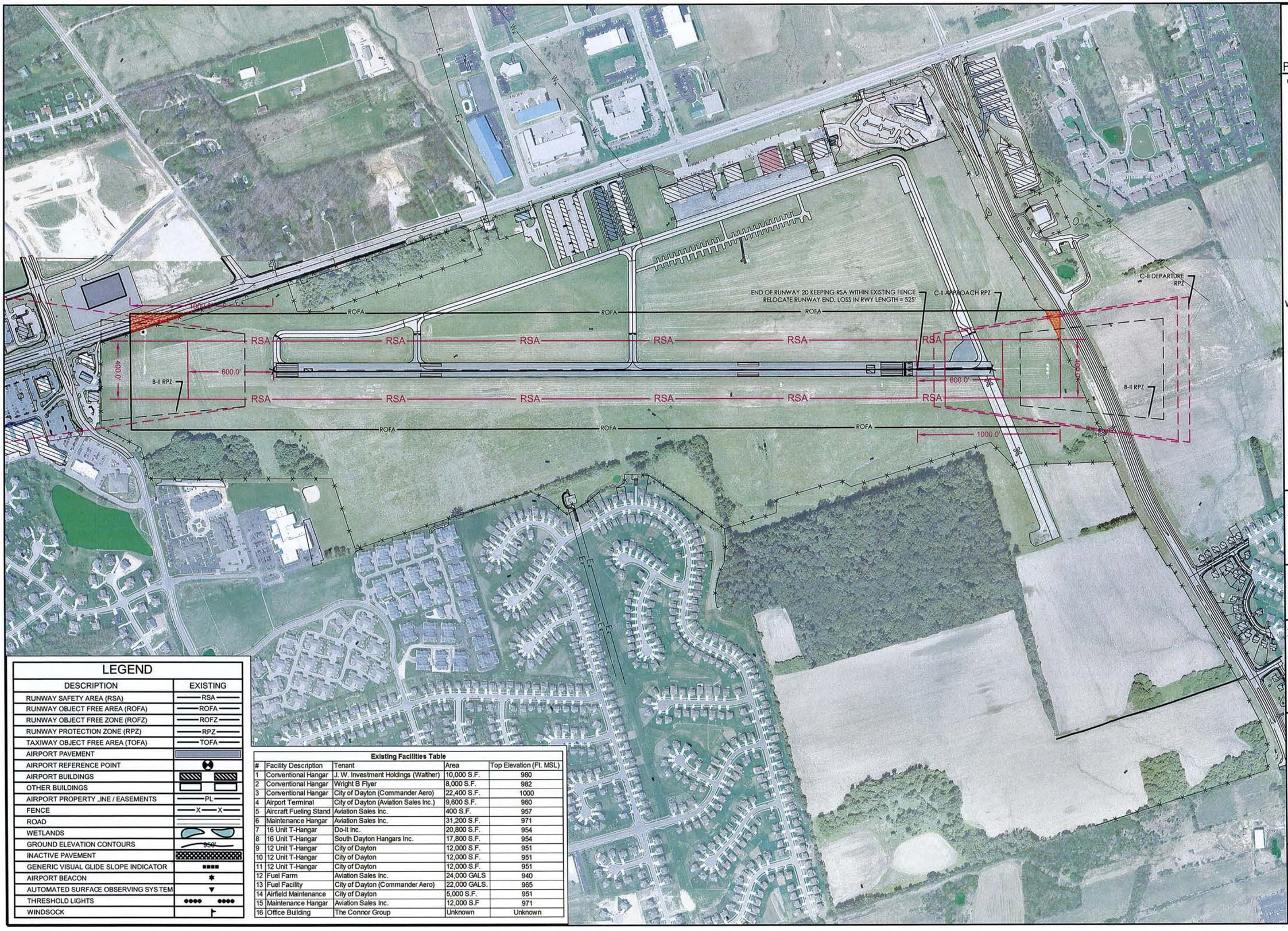
- Airfield components impacted to make standard RSA: loss of 500 feet of runway, and lighting and marking adjustments for the runway 2 end
- Removal of the mall from the increased RPZ prior to Runway 2 end, but maintain some incompatible land uses, with anticipation of the sponsor purchasing lands between Remick Road and the airport
- Other airfield components affected: 500 feet of taxiway connector at Runway 2 end will be abandoned - included in cost estimate, but separate from RSA standards

This is a viable interim alternative if toward the end goal of maintaining only 5000 feet of runway after an extension.

Alternative Conclusions:

Based on these alternatives, it is recommended that declared distances be applied to the existing runway to provide the required runway safety area/object free lengths, as the interim step toward achieving C-II on airport property. This would provide design standards on airport property without impacting existing infrastructure. It would also maintain the runway, without impacting lighting, marking, etc; and acts as an interim to provide for the long-term runway extension. This alternative however does not rectify the incompatible land uses within the Runway 2 RPZ. The only available alternative is to reduce Runway 2 by 700 feet to eliminate the incompatible land uses.

After review by the FAA, Alternative #4 (Declared Distances) will be carried forward as an Interim ALP to bring the airport from B-II to C-II on airport property.



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	950'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYS TEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

#	Facility Description	Tenant	Area	Top Elevation (Ft. MSL)
1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
3	Conventional Hangar	City of Dayton (Commander Aero)	22,400 S.F.	1000
4	Airport Terminal	City of Dayton (Aviation Sales Inc.)	9,600 S.F.	960
5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-It Inc.	20,800 S.F.	954
8	16 Unit T-Hangar	South Dayton Hangars Inc.	17,800 S.F.	954
9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
11	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
12	Fuel Farm	Aviation Sales Inc.	24,000 GALS	940
13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

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06° 05' 19"
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Client:

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Rochester, NY 14614
(585) 325-1000
Fax: (585) 325-1691
Principal-in-Charge Andrew M. Holesko
Project Manager Zach E. Nelson
Designed by Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

ALTERNATE 1
400' RSA

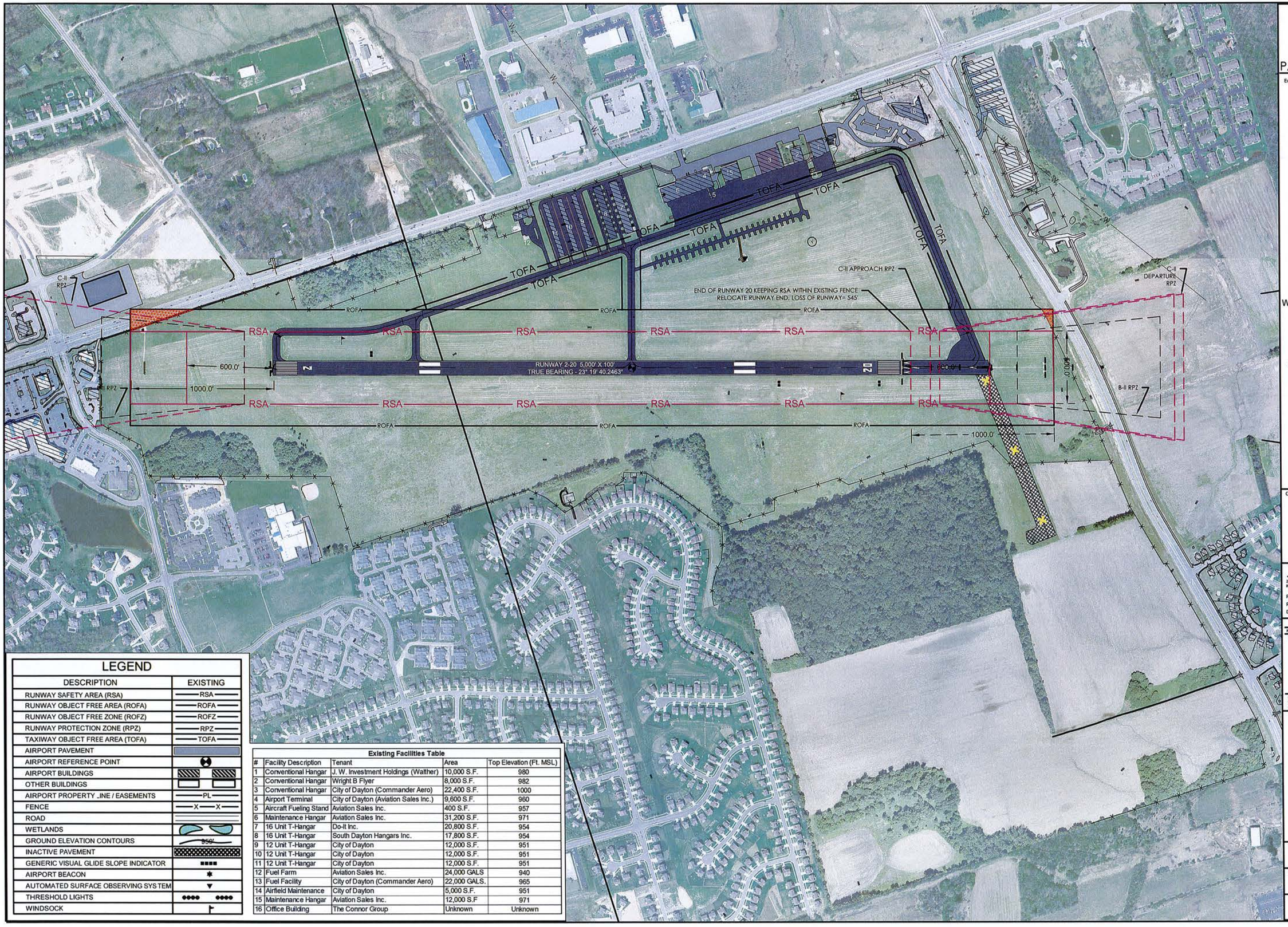
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	950'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

#	Facility Description	Tenant	Area	Top Elevation (Ft. MSL)
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2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
3	Conventional Hangar	City of Dayton (Commander Aero)	22,400 S.F.	1000
4	Airport Terminal	City of Dayton (Aviation Sales Inc.)	9,600 S.F.	960
5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-it Inc.	20,800 S.F.	954
8	16 Unit T-Hangar	South Dayton Hangars Inc.	17,800 S.F.	954
9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
11	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
12	Fuel Farm	Aviation Sales Inc.	24,000 GALS	940
13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

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Client:

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Rochester, NY 14614
(585) 325-1000
Fax: (585) 325-1691

Principal-in-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

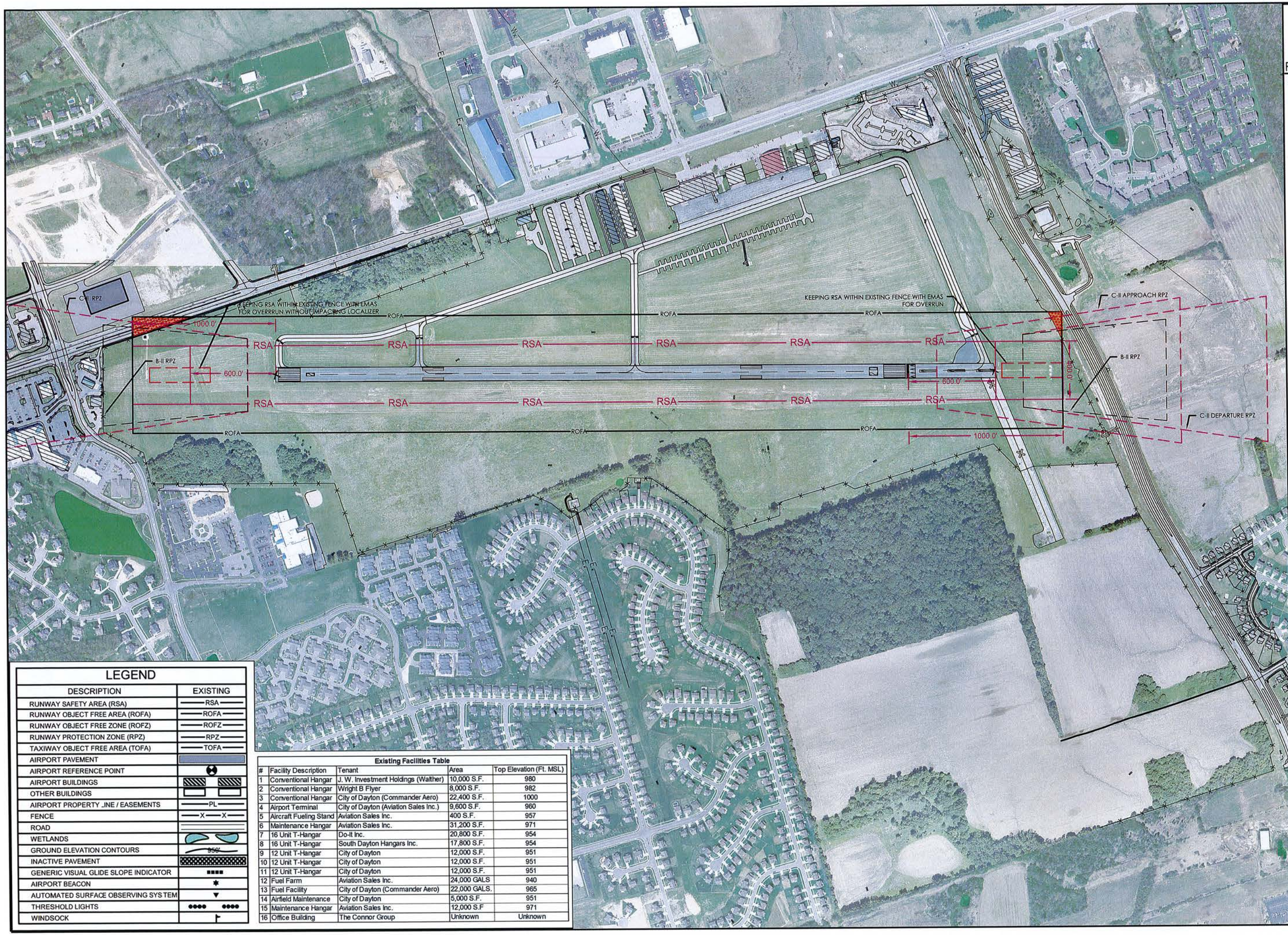
ALTERNATE 2
500' RSA

Dayton-Wright Brothers Airport
Town/City: Dayton
County: Montgomery
State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	950'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

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1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
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5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-It Inc.	20,800 S.F.	954
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9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
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14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

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(585) 325-1000
Fax: (585) 325-1691
Principal-in-Charge Andrew M. Holesko
Project Manager Zach E. Nelson
Designed by Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

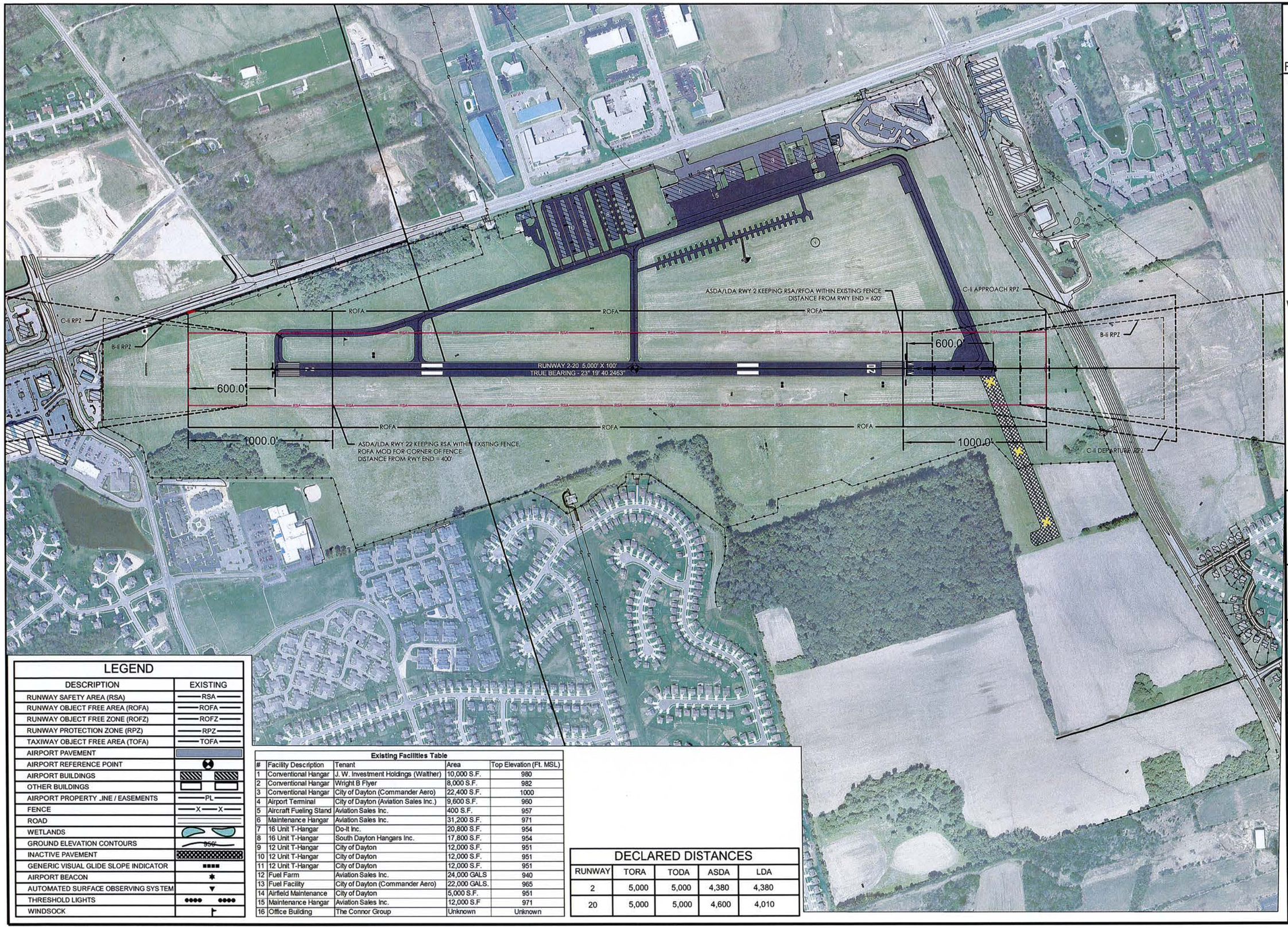
ALTERNATE 3
EMAS

Dayton-Wright Brothers Airport
Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	359'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

#	Facility Description	Tenant	Area	Top Elevation (Ft. MSL)
1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
2	Conventional Hangar	Wright B Flyer	8,000 S.F.	982
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4	Airport Terminal	City of Dayton (Aviation Sales Inc.)	9,600 S.F.	960
5	Aircraft Fueling Stand	Aviation Sales Inc.	400 S.F.	957
6	Maintenance Hangar	Aviation Sales Inc.	31,200 S.F.	971
7	16 Unit T-Hangar	Do-It Inc.	20,800 S.F.	954
8	16 Unit T-Hangar	South Dayton Hangars Inc.	17,800 S.F.	954
9	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
10	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
11	12 Unit T-Hangar	City of Dayton	12,000 S.F.	951
12	Fuel Farm	Aviation Sales Inc.	24,000 GALS	940
13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

DECLARED DISTANCES

RUNWAY	TORA	TODA	ASDA	LDA
2	5,000	5,000	4,380	4,380
20	5,000	5,000	4,600	4,010

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(585) 325-1000
Fax: (585) 325-1691
Principal-in-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

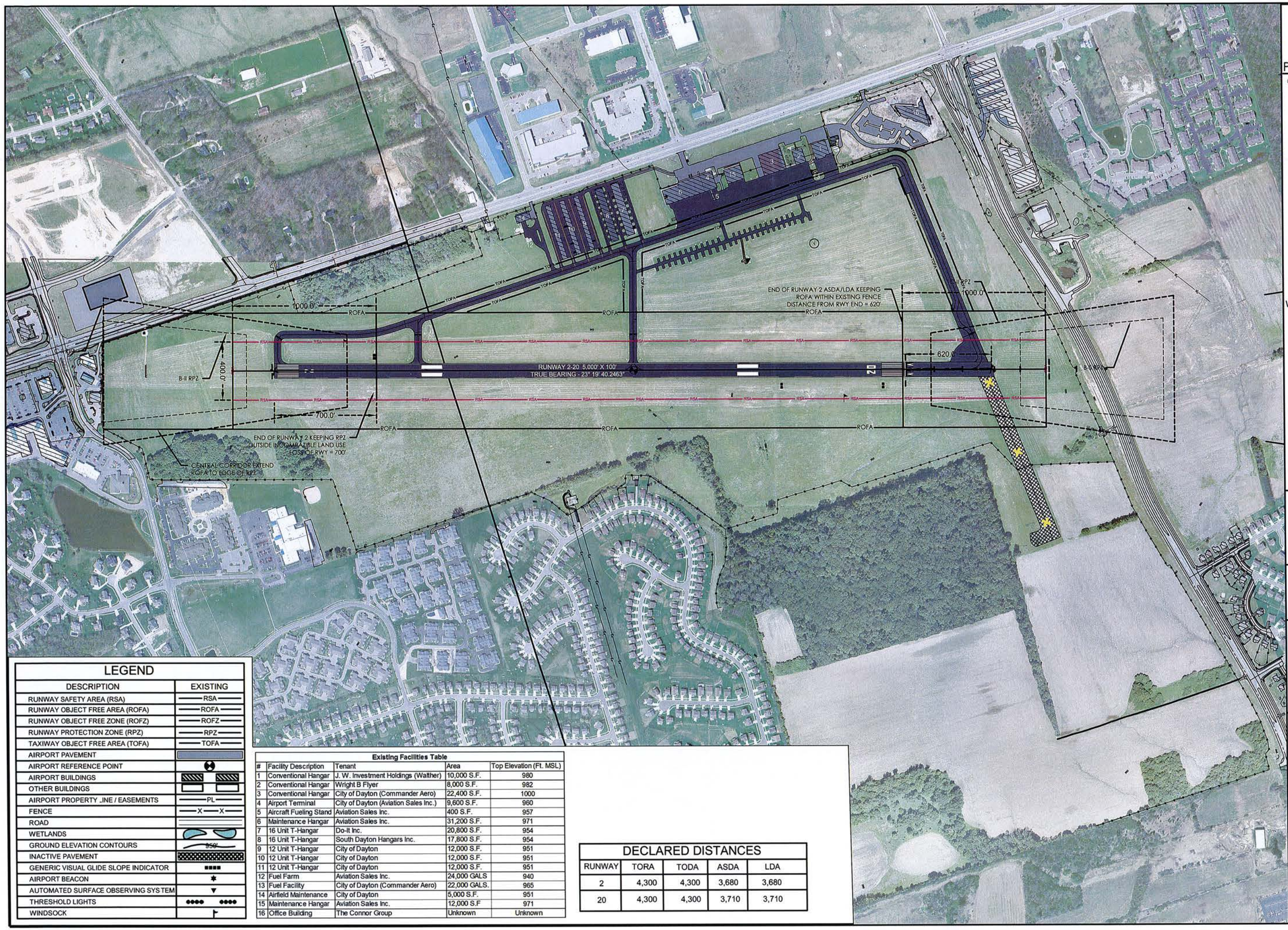
ALTERNATE 4
Declared Distances

Dayton-Wright Brothers Airport
Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	950'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

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13	Fuel Facility	City of Dayton (Commander Aero)	22,000 GALS.	965
14	Airfield Maintenance	City of Dayton	5,000 S.F.	951
15	Maintenance Hangar	Aviation Sales Inc.	12,000 S.F	971
16	Office Building	The Connor Group	Unknown	Unknown

DECLARED DISTANCES

RUNWAY	TORA	TODA	ASDA	LDA
2	4,300	4,300	3,680	3,680
20	4,300	4,300	3,710	3,710

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(585) 325-1000
Fax: (585) 325-1691

Principal-in-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

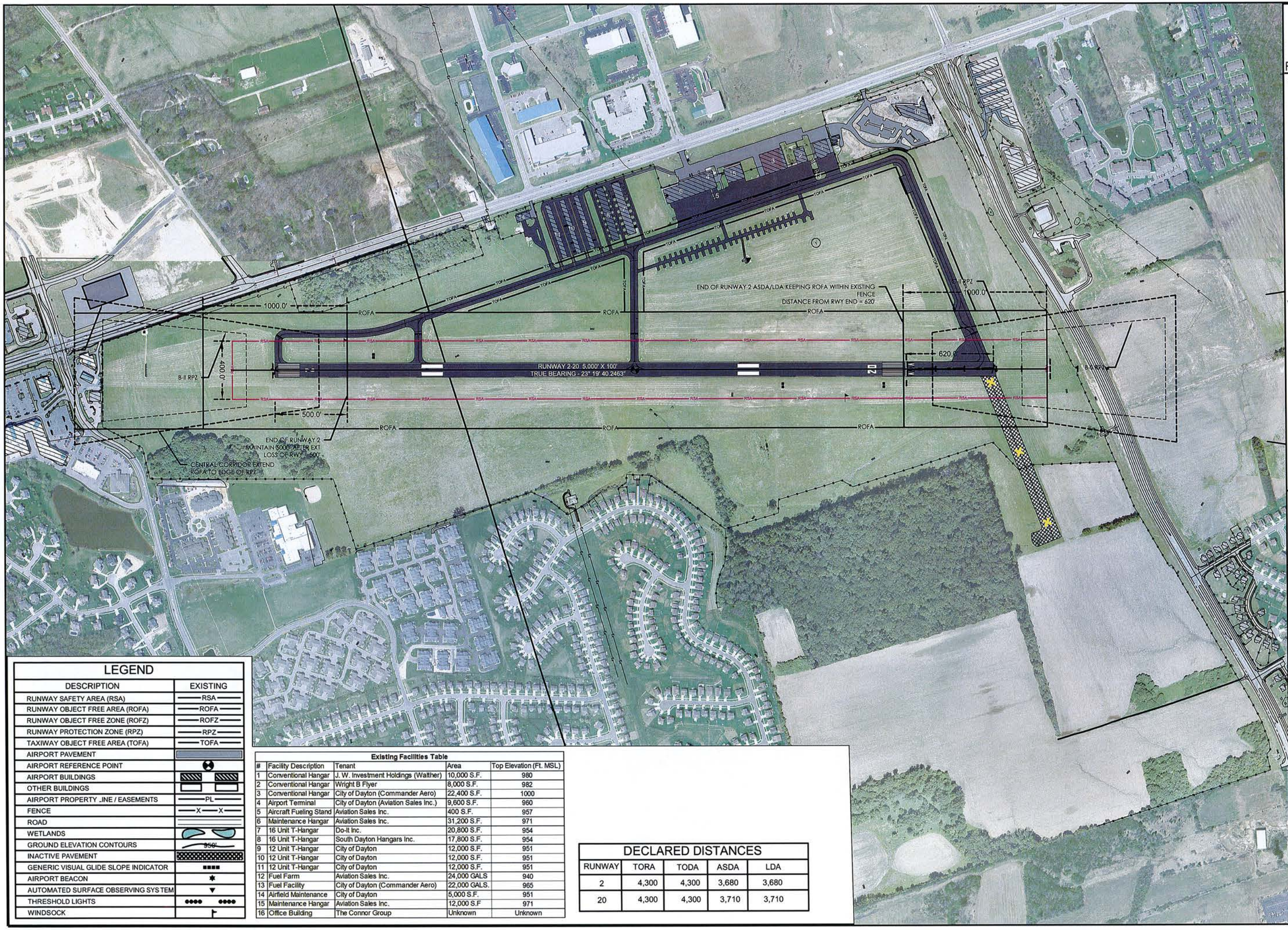
ALTERNATE 5
SHORTEN RWY
WITH MOS & DD
Dayton-Wright
Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015



LEGEND

DESCRIPTION	EXISTING
RUNWAY SAFETY AREA (RSA)	RSA
RUNWAY OBJECT FREE AREA (ROFA)	ROFA
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFZ
RUNWAY PROTECTION ZONE (RPZ)	RPZ
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA
AIRPORT PAVEMENT	
AIRPORT REFERENCE POINT	
AIRPORT BUILDINGS	
OTHER BUILDINGS	
AIRPORT PROPERTY LINE / EASEMENTS	PL
FENCE	X X
ROAD	
WETLANDS	
GROUND ELEVATION CONTOURS	956'
INACTIVE PAVEMENT	
GENERIC VISUAL GLIDE SLOPE INDICATOR	
AIRPORT BEACON	
AUTOMATED SURFACE OBSERVING SYSTEM	
THRESHOLD LIGHTS	
WINDSOCK	

Existing Facilities Table

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1	Conventional Hangar	J. W. Investment Holdings (Walther)	10,000 S.F.	980
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DECLARED DISTANCES

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2	4,300	4,300	3,680	3,680
20	4,300	4,300	3,710	3,710

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Fax: (585) 325-1691

Principal-in-Charge: Andrew M. Holesko
Project Manager: Zach E. Nelson
Designed by: Zach E. Nelson

Revisions

No.	Date	By	Description
1			

Airport Layout Plan

ALTERNATE 6
SHORTEN RWY
(KEEP 5000' LONG TERM)
Dayton-Wright Brothers Airport

Town/City: Dayton
County: Montgomery State: Ohio

Project No.
20111339.0003

Drawing No.
3 OF 12

Date
October 2015