



## CHAPTER 2 - EXISTING CONDITIONS

The first step in the preparation of the Master Plan Update for Cuyahoga County Airport is to assemble information about existing conditions at the Airport and in the surrounding communities. The information gathered in this phase of the project will provide a foundation for subsequent analysis throughout the plan.

The inventory step includes an examination of existing airport facilities, air traffic activity, and the airspace surrounding the Airport. Additionally, general information regarding the airport setting is gathered. This includes the Airport's role in the regional and national aviation system, local economic and development characteristics, local climate, and demographics.

### 2.01 Background

Cuyahoga County Airport was a small grassy field when it opened in 1928 as a privately-owned airport known as Curtiss Wright Field. In 1946, Cuyahoga County voters approved a bond to purchase the airport property. Four years later, in 1950, the County Airport opened with two grass strip runways.

As the Airport became more viable, in 1956 the County commissioned a master plan study to determine future demand for air carrier operations, general aviation uses, and to provide for aeronautical access to the eastern portions of the County. The plan deemed the Airport as a “feeder” or reliever airport as it is called today, to take some of the excess general aviation traffic away from the busy Cleveland Hopkins International Airport (CLE). That study resulted in the development of the physical layout of the Airport and its facilities.

Throughout the years, various commercial air carriers have operated scheduled passenger service out of Cuyahoga County Airport, with little success or staying power. With the close proximity of Cleveland Hopkins International Airport, operating scheduled service out of the local airport was not feasible. The Cuyahoga County Airport sustains an industrial park with six office buildings, an Administrative/Safety Service complex, a Fixed Based Operator, 15 hangar facilities (including corporate hangars and four T-hangars), a flight school, restaurant, an FAA-contracted Air Traffic Control Tower, and an 18-hole golf course. Businesses with direct access to the airfield range from corporate hangars to headquarters for a national fractional aircraft ownership company. In 2004, an economic and fiscal impact analysis of the Airport noted that over 3,000 people are employed on the Airport campus and within about ¼ mile of the Airport. (The full *Economic and Fiscal Impacts* report, prepared by Robert Simons & Associates, Inc., is included in **Appendix B**.) In 2003, the Airport recorded an average of approximately 190 aircraft operations per day, and continues to operate as a reliever to Cleveland Hopkins



International (being designated as such by the FAA in its National Plan of Integrated Airport Systems, or NPIAS).

## 2.02 Airport System Planning Role

The airport planning process occurs at the local, regional, and national levels, each with its own particular emphasis. The update of Cuyahoga County Airport’s Master Plan provides planning at the local level. At the national level, Cuyahoga County Airport is included in the *National Plan of Integrated Airport Systems 2005-2009 (NPIAS)*. This planning document includes 3,344 existing airports that are significant to national air transportation. It estimates a five-year cost of \$39.5 billion for infrastructure development that is eligible for Federal development grants under the FAA’s Airport Improvement Program (AIP). General aviation and reliever airports account for 24 percent of the total development needs. The FAA uses the NPIAS to administer the implementation of AIP funding. The Plan supports the FAA’s strategic goals for safety, system efficiency, and environmental compatibility by identifying the specific airport improvements that will contribute to achievement of those goals. The NPIAS anticipates Cuyahoga County Airport project development costs that will be eligible for funding in excess of \$24 million over the next five years.

Cuyahoga County Airport is designated as a Reliever Airport within the NPIAS; in this role, it provides “relief” by drawing some of the general aviation traffic away from the congestion that can occur at Cleveland Hopkins International Airport, the primary commercial service airport for the region. Four other airports were identified in the 1990 *Cleveland Airport Reliever Study* as relievers to Cleveland Hopkins International: Lorain County Regional to the west of Hopkins; Medina Municipal to the south; and Burke Lakefront and Willoughby Lost Nation to the east.

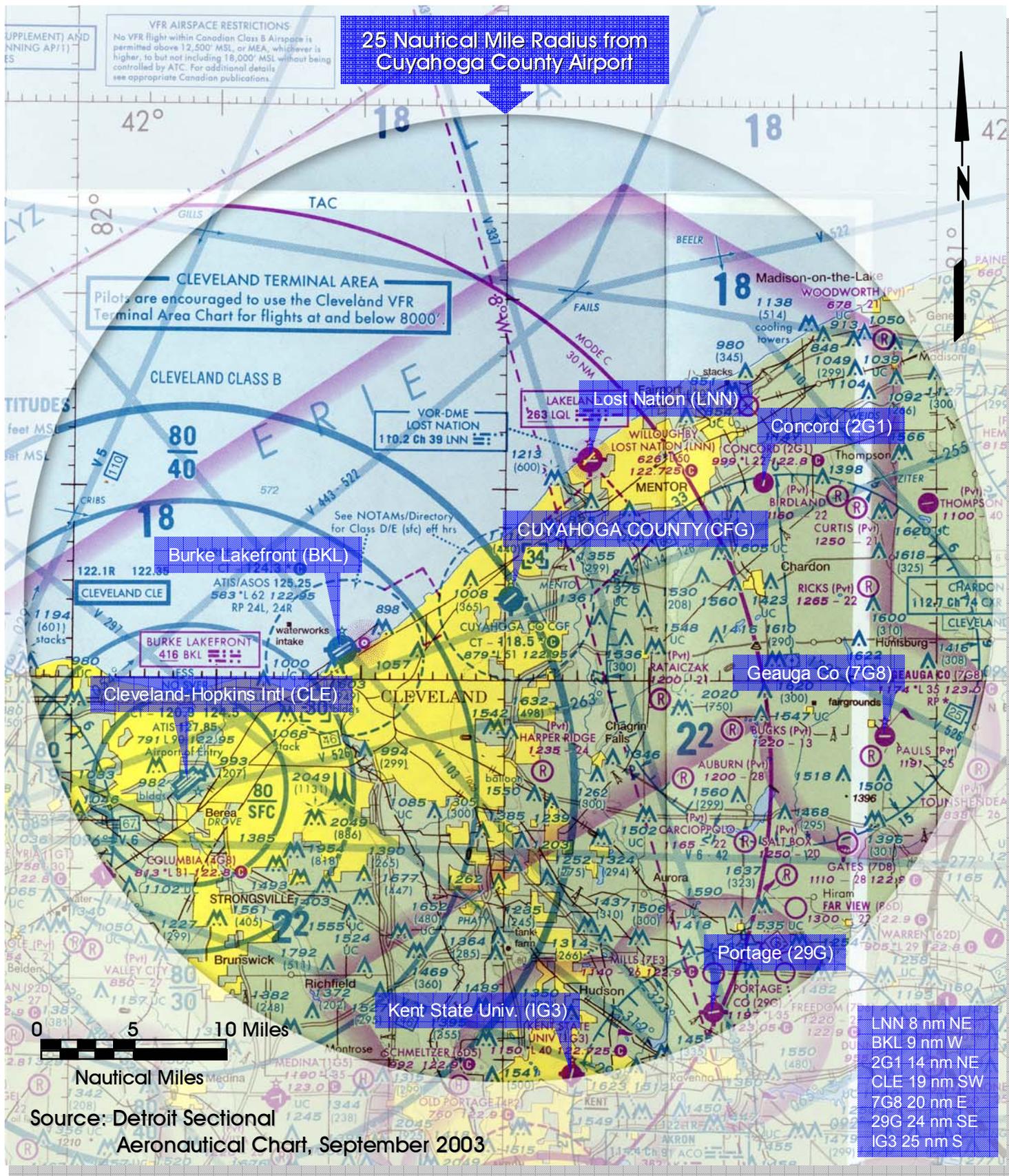
There are seven public-use airports within a 25-nautical mile (nm) radius of Cuyahoga County Airport, as shown on **Figure 2-1**.

- Cleveland Hopkins International Airport, primary commercial service airport, 19 nm SE, with four runways:
  - 9,000’ by 150’ with precision approach;
  - 8,999 by 150’ with precision approach;
  - 7,096’ by 150’ with nonprecision approach; and
  - 6,017’ by 150’ with precision approach.
  
- Burke Lakefront Airport, reliever, 9 nm W, with two runways:
  - 6,198’ by 150’ with precision approach; and
  - 5,197’ by 100’ with visual approach.



- Willoughby Lost Nation Airport, reliever, 8 nm NE, with two runways:
  - 5,028' by 100' with nonprecision approach; and
  - 4,272' by 100' with visual approach.
  
- Concord Airpark, general aviation, 14 nm NE, with one runway:
  - 2,181' by 38' runway with visual approach.
- Geauga County Airport, general aviation, 20 nm E, with one runway:
  - 3,500' by 65' runway with nonprecision approach.
- Portage County Airport, general aviation, 24 nm SE, with one runway:
  - 3,500' by 75' runway with nonprecision approach.
- Kent State University Airport, general aviation, 25 nm S, with one paved runway:
  - 3,999' by 60' with nonprecision approach.

Cleveland Hopkins International handles the majority of scheduled passenger service in the region. With over 400,000 residents within a 5-mile radius of the airfield, Cuyahoga County Airport primarily serves private and corporate aircraft in the eastern Cleveland suburbs. Burke Lakefront and Willoughby Lost Nation airports, because of proximity to Cuyahoga County Airport and types of facilities, are the two airports that would be considered as alternatives to Cuyahoga County Airport for many typical Airport users.





## 2.03 Airport Setting

Cuyahoga County Airport - Robert D. Shea Field is located approximately 11 miles east of downtown Cleveland, Ohio. It serves the aviation needs of eastern Cuyahoga County and western Lake and Geauga Counties in the northeastern region of Ohio.

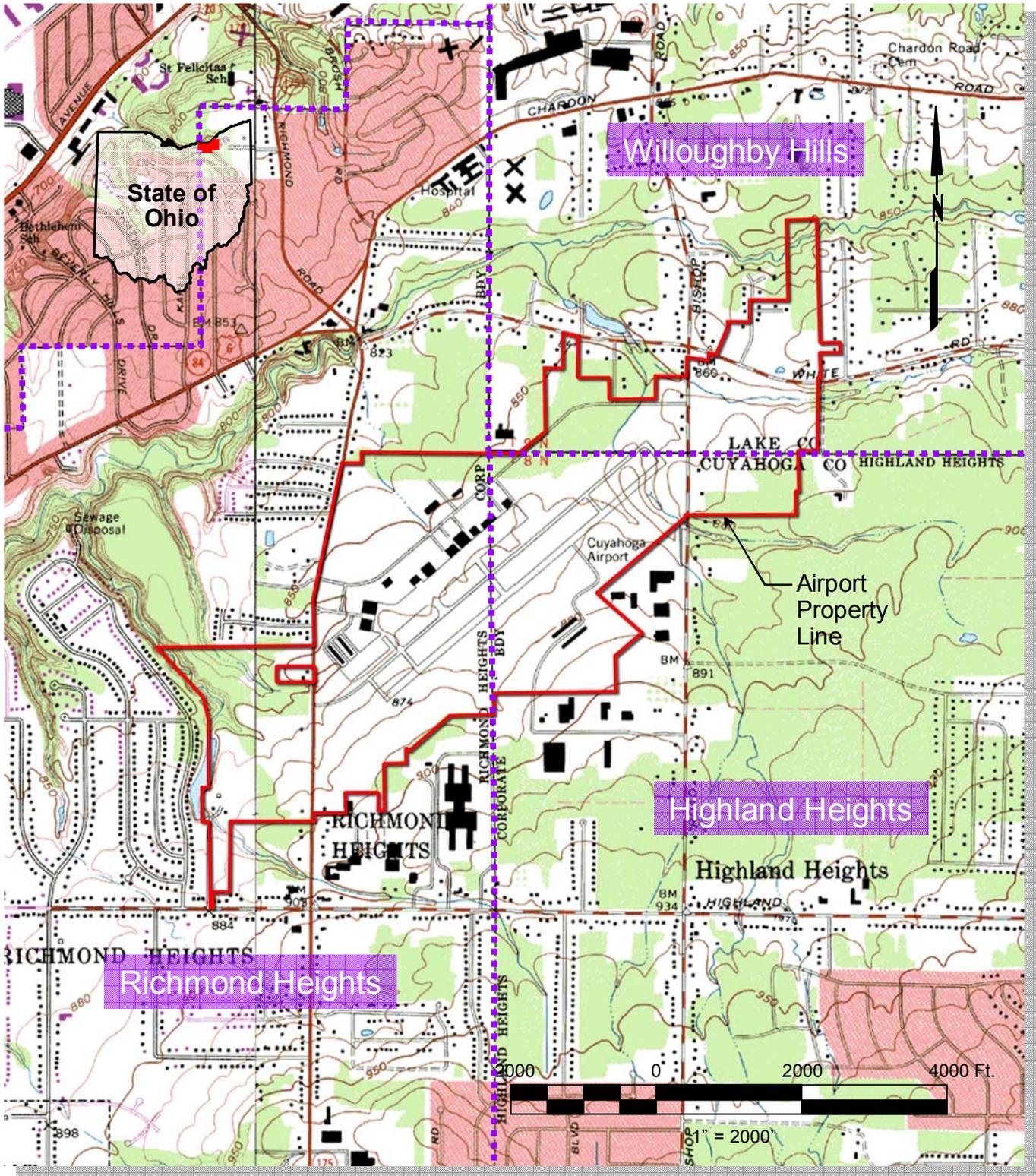
The land area of the Airport consists of approximately 660 acres that lie within the political boundaries of two counties, Cuyahoga and Lake, and three cities, Richmond Heights, Highland Heights, and Willoughby Hills. The Airport is principally located in Richmond Heights to the east of Richmond Road, north of Highland Road, and south of White Road. On the east side of the Airport is Bishop Road (with an Airport parcel extending east of the road that incorporates a golf course). The Airport is located approximately 10 minutes from Interstate 90, a major east-west highway, and Interstate 271, a major north-south highway. **Figure 2-2** shows the Airport and vicinity. The Airport's elevation is 879 feet above mean sea level. The geographic location is latitude 41° 33' 54.446" North, longitude 81° 29' 10.884" West.

### 2.03.1 Climate and Topography

The climate and topography of Cuyahoga County are fairly typical of Midwestern states. Summers are moderately warm and humid and winters are cold and cloudy with an average of five days per season of sub-zero temperatures. The average temperature for the year is 49.7 °F. The daily range in temperature is usually greatest in the late summer and least in winter. On the average, freezing temperatures in fall are recorded in October while the last freezing temperature in spring normally occurs in May.

Showers and thunderstorms account for most of the rainfall during the growing season. Snowfall may fluctuate widely from the annual mean of 50 inches. Mean annual snowfall increases from west to east in Cuyahoga County ranging from about 45 inches in the west to more than 90 inches in the extreme east. The record was broken in the winter of 2004-2005 when a late-April storm brought Cleveland's total snow accumulation for the season to 116.3 inches.

Cuyahoga County Airport is surveyed at approximately 879 feet above mean sea level. The terrain remains flat to the west and south, with minor deviations in elevation as one approaches Lake Erie to the north. To the east, the topography gradually rises towards Pennsylvania and the Allegheny Mountains.



Source: USGS Topographic Maps – Mayfield Heights Quadrangle (1990)

41°31'57.48"N  
81°28'49.20"W



# VICINITY

Cuyahoga County Airport  
Airport Master Plan Update  
Vicinity Map  
Figure 2-2



## 2.03.2 Land Use and Zoning Analysis

Airports provide significant employment and economic benefits to communities through the movement of people and goods, promotion of tourism and trade, stimulation of business development, and the opportunity for a wide variety of jobs. The flying public and local communities are often unaware of the magnitude and scale of the economic development provided and stimulated by an airport.

General aviation airports are an important component of the national economy, providing services that commercial service airports, like Cleveland Hopkins International, cannot provide. Land use decisions that conflict with aviation activity and airport facilities can result in undue constraints being placed on an airport. In order to enable this sector of the economy to continue to grow, to provide for a wide variety of job opportunities for local citizens, and to meet the needs of the traveling public, it is important that both general aviation and commercial service airports operate in an environment that maximizes the compatibility of these airports *with* off-airport development.

In 1982, the federal government adopted the Airport and Airway Improvement Act (AAIA) to provide assurances with which an airport owner must comply. One facet of the Act involves the establishment and maintenance of compatible land uses around airports. This assurance requires an airport to restrict the use of land adjacent to or in the immediate vicinity of the airport, within reason. Other assurances in the Act relate to planning, land use plan consistency, public participation, and safety.

The process of developing this Master Plan Update includes coordination with local jurisdictions surrounding the Airport to ensure that future airport development plans are taken into consideration in each community's local comprehensive land use plan or master plan. Local land use planners and airport planners are encouraged to utilize and compare this and other planning documents when evaluating new development on or around the Airport.

The land use analysis began with a review of the land use and master plans of the three communities surrounding the Airport property. These municipal master plans provide policy-makers, the Airport, land use regulators, developers and local citizens with an understanding of the magnitude of potential land use issues and potential relevant solutions.



In general, residential development surrounds the Airport. Commercial development is concentrated to the west (across Curtiss Wright Parkway within Airport property) and south and east of the Airport (along Avion Park Drive and Bishop Road). Areas north of the Airport are wooded vacant land; recreational facilities (two golf courses) are east of the Airport. Upon reviewing data provided by the US Census Bureau, the residential areas in the Airport vicinity can be generally described as middle to upper income, suburban neighborhoods.

The existing and future land use characteristics of all three communities surrounding the Airport were analyzed for land use compatibility. **Figure 2-3** depicts existing land use, based upon a review of 2003 aerial photography and tax parcel data for the two adjoining counties, Cuyahoga and Lake. **Figure 2-4** provides an aerial view of the Airport and its environs. For clarification purposes, the following discussion of land uses in the surrounding communities has been separated and geographically referenced to the Airport.

- The City of Richmond Heights Zoning Map was updated March 18, 2003, with 15 zoning classifications.<sup>1</sup> Those classifications contiguous to Cuyahoga County Airport include Senior Residential (RS) on the northern border of the Airport; Single Family Residential (R-1) and Single Family Residential (R-2) on the west; and Medium Rise Multiple Family (RMF-2) and Wireless Communication Tower Overlay District to the south. The airport property located in Richmond Heights is zoned Industrial (I-2) and includes many of the businesses located along Curtiss Wright Parkway.
- The City of Highland Heights Master Plan was adopted in 1996.<sup>2</sup> The plan's land use inventory indicates that 47.5% of the overall acreage in the City was devoted to single-family use at that time and that no residential land was devoted to other types of housing, such as apartments, condominiums, senior housing, or cluster homes. Cuyahoga County Airport is located in the northwest quadrant of the City. Its land use is classified as Utilities while Light Industrial uses border it to the southeast and Parks and Recreation (the Airport Greens Golf Course) is due east.
- The City of Willoughby Hills published its Comprehensive Plan in 2003.<sup>3</sup> Single family residential use comprises 58% of the total land use in the City.

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<sup>1</sup>*Zoning Map*, City of Richmond Heights, March 18, 2003.

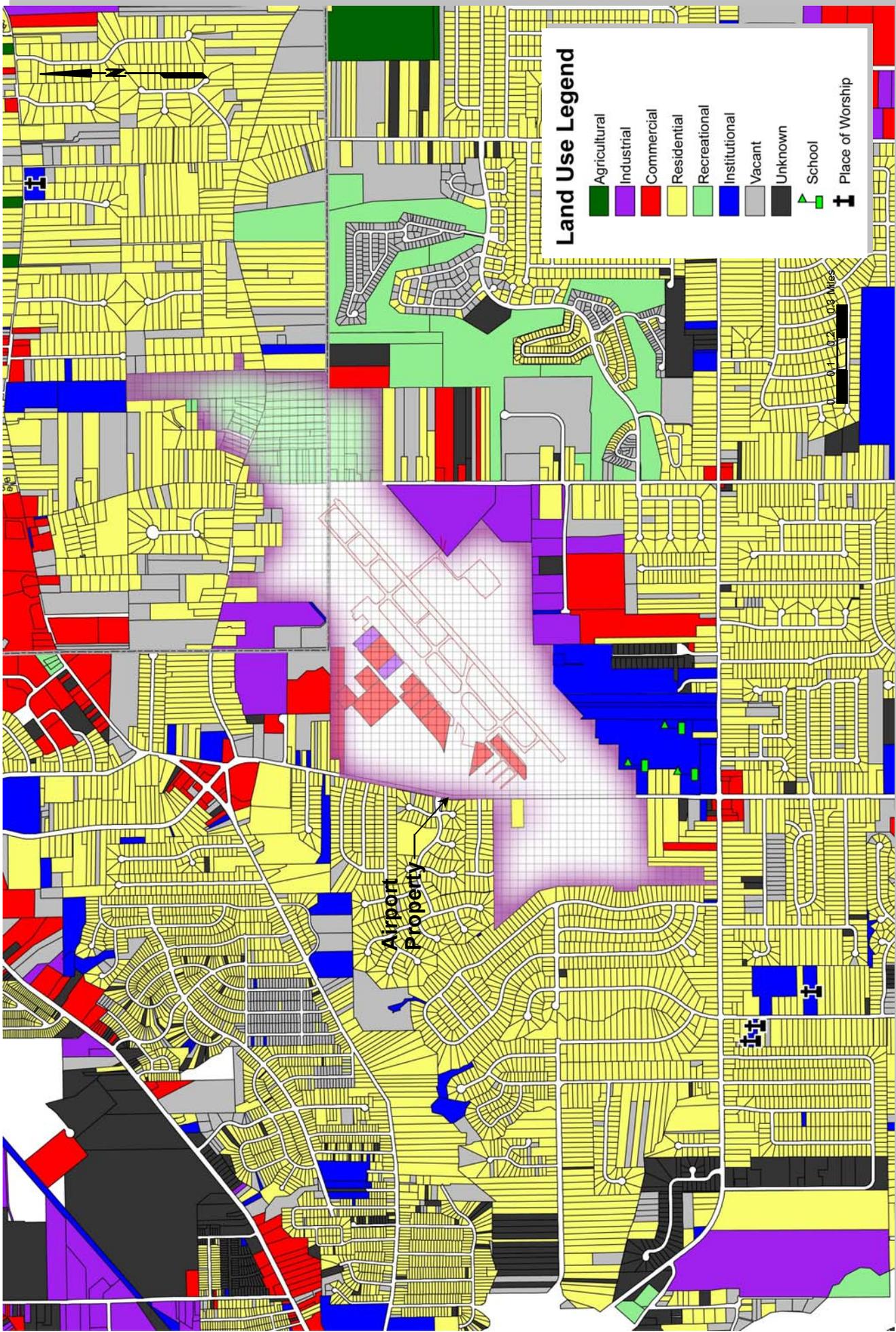
<sup>2</sup>*City of Highland Heights Master Plan*, Cuyahoga County Regional Planning Commission, February 1996.

<sup>3</sup>*Comprehensive Plan*, City of Willoughby Hills, 2003.



The surrounding communities comprehensive plans provide short and long-range recommendations regarding how the land areas in and around the Airport should be developed, redeveloped, and maintained in the future. Land use policy (zoning) resulting from these efforts serve as the basis for development of future land use plan goals and objectives, which suggest and support implementation strategies to execute the land use plan, thus, realizing the policy goals adopted by the community.

The most common issue between airport and non-airport land uses is the noise generated by aircraft. Aircraft, regardless of size or type, produce an amount of noise that can be a nuisance to uses that are noise-sensitive, such as residential dwellings, schools, and hospitals.

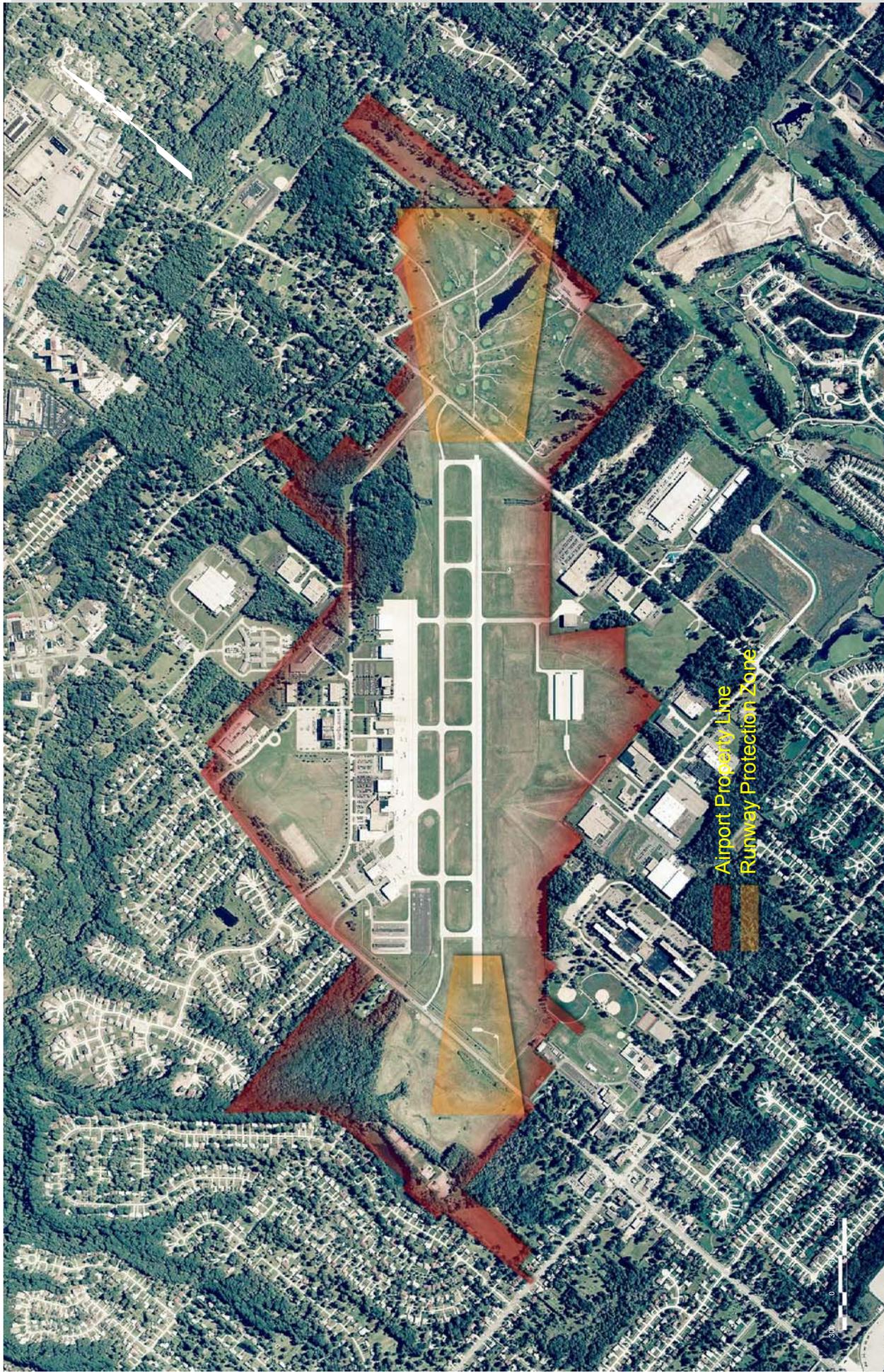


Sources: Aerial photography, Columbus Engineering Consultants, Inc., October 2003  
 Tax parcel data, Cuyahoga County Planning Commission, January 2005  
 Tax parcel data, Lake County GIS, April 2000



Cuyahoga County Airport  
 Airport Master Plan Update  
 Existing Land Use  
 Figure 2-3

LAND



Source: Aerial photography, Columbus Engineering Consultants, Inc., October 2003



# Cuyahoga County Airport Airport Master Plan Update Airport Aerial View

Figure 2-4



### 2.03.3 Economic Impact Analysis

As part of the Airport Master Plan Update, an analysis of the Airport's direct and indirect economic impact to the region has been evaluated. This analysis has documented the significant employment and economic benefits to the surrounding communities resulting from business activity at and near the Airport. A survey of Airport area businesses, undertaken in September 2004, provided the raw data. Survey results indicate these direct economic effects:

- 3,000 employees
- Annual payroll of \$150 million (including benefits)
- Average salary: \$50,000
- 24 property owners in 34 different parcels
- 63 Airport tenants and entities
- 1.5 million square feet of developed space
- Market value for tax purposes of \$59 million
- Direct annual expenditures (goods and services, rent, other, including fuel): over \$2 million

Using standard economic base multiplier methodology, the Airport's indirect economic effects (economic and employment spin-offs flowing from this economic engine) were estimated to be:

- 1,500 additional local retail and service jobs
- \$35 million in total additional payroll in local retail and service firms
- \$175 million in annual expenditures at local retail and service establishments

The total fiscal impacts of the Cuyahoga County Airport study area are substantial:

- Real property taxes paid in the Airport study area are \$1.1 million per year, and real estate taxes are up about 25% since 1996
- Over \$1 million in personal property taxes per year
- Direct employee income tax @ 2% are \$3 million per year
- Indirect employee income tax @ 2% are \$0.7 million per year
- TOTAL annual taxes (real estate, personal, income tax) from Airport study area tenants and property are \$5.8 million
- Projected present value of fiscal benefits (20 years) is over \$100 million

The full *Economic and Fiscal Impacts* report, prepared by Robert Simons & Associates, Inc., is included in **Appendix B**.

## 2.04 Existing Airport Facilities

The following sections provide background and information regarding the facilities that currently exist at Cuyahoga County Airport. These facilities are depicted in detail



on **Figure 2-5**, Existing Airport Layout. The specific types and quantities of facilities, identified in these sections, will be evaluated in Chapter 4, in conjunction with forecast demand and established planning criteria, to determine future needs for the Airport.

### 2.04.1 Airside Facilities

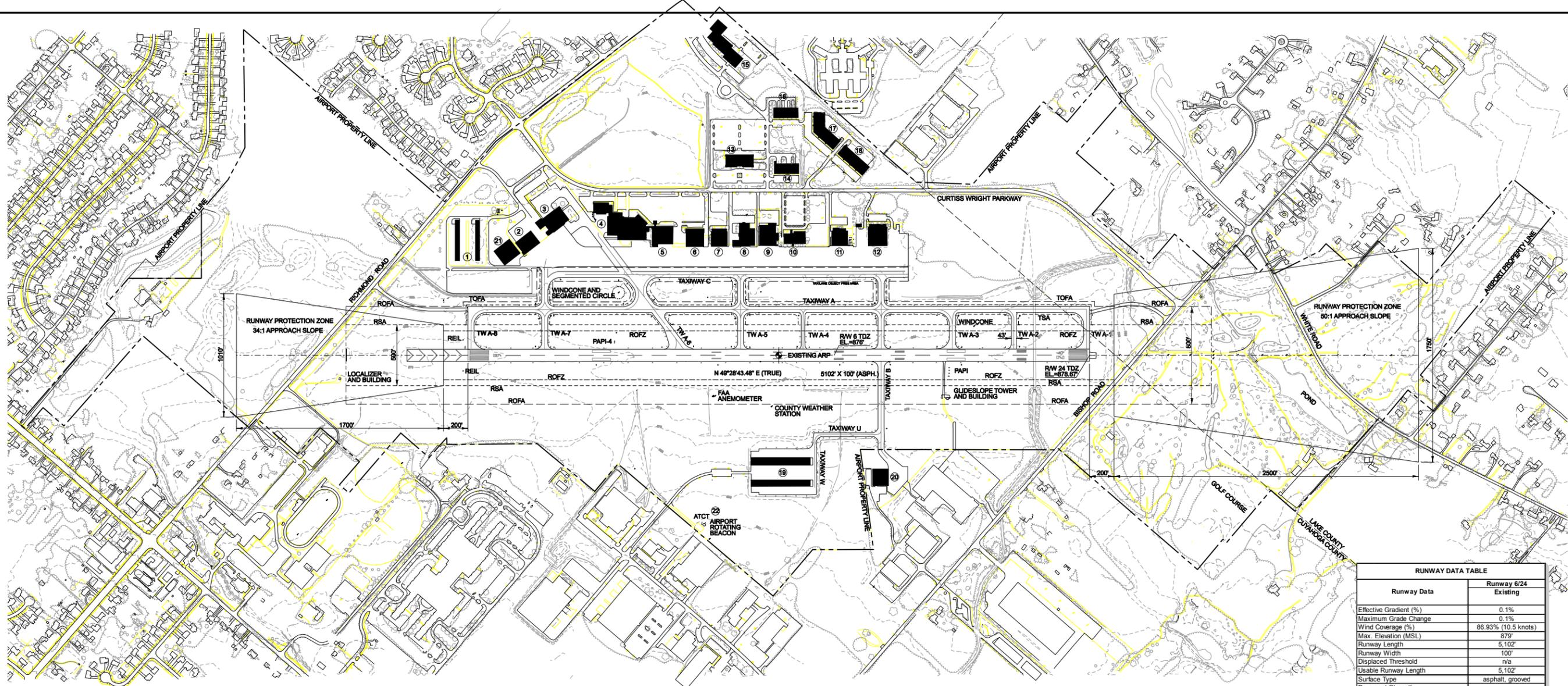
Airside facilities consist of the runway, taxiways, airfield lighting, and navigational aids. Characteristics of the runway and taxiway system at the Airport, and the safety areas and object free areas that surround them, are described in the following sections. Navigational aids at the Airport are described in Section 2.05 as part of the discussion of the Airport’s airspace environment.

#### RUNWAY

Cuyahoga County Airport is equipped with a single runway, designated as Runway 6-24. The runway is 5,102 feet long and 100 feet wide, with a northeast-southwest orientation. The northeast end of the runway (Runway 24) is the highpoint on the runway and the measurement of the field elevation at 879 feet above mean sea level (MSL). The runway slopes downward to the southwest end which has an elevation of 873 feet MSL. This results in a 0.1% runway gradient.

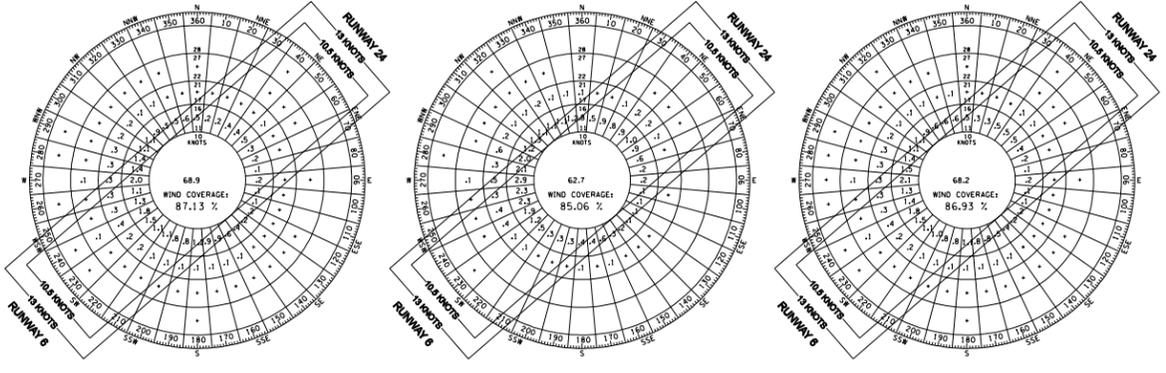
At the southwest end of the runway (the Runway 6 end), there is a 500-foot long paved stopway/overrun. The stopway is an area of lesser strength pavement beyond the end of the runway, not less wide than the width of the runway, and centrally located about the extended centerline of the runway. It is designated by airport authorities for use in decelerating an aircraft during an aborted takeoff. To be considered as such, the stopway must be capable of supporting an aircraft during an aborted takeoff without resulting in structural damage to the aircraft.

The runway is constructed of asphalt and grooved. The runway has a single wheel (SW) loading strength of 43,000 pounds, 55,000 pounds for dual wheel (DW) load and a dual tandem wheel (DTW) loading strength of 100,000 pounds. A pavement inspection conducted by the Ohio Department of Transportation in November 2004 evaluated the runway, taxiway, and apron pavement conditions at the Airport. The condition of the runway pavement, depending on section and age of pavement, ranged from fair to good. Most runway pavement areas were noted as requiring pavement overlay or reconstruction. A need for preventative maintenance or overlay was noted for one 500-foot long section near the Runway 24 end. The 15-year-old stopway pavement is considered to be in very good condition and requires only preventative



RUNWAY DATA TABLE	
Runway Data	Runway 6/24 Existing
Effective Gradient (%)	0.1%
Maximum Grade Change	0.1%
Wind Coverage (%)	86.93% (10.5 knots)
Max. Elevation (MSL)	879'
Runway Length	5,102'
Runway Width	100'
Displaced Threshold	n/a
Usable Runway Length	5,102'
Surface Type	asphalt, grooved
Pavement Strength	
Single Wheel	43,000 lbs.
Dual Wheel	55,000 lbs.
Dual Tandem	100,000 lbs.
Approach Surface Slope	34:1 / 50:1
Approach Minimums	1-1/2 mile / 1/2 mile
Visual Approach Aids	PAPI-4L, REIL / PAPI-4L, MALSR
Instrument Approach Aids	LOC BC / ILS/DME, NDB or GPS
Runway Lighting	HIRL
Runway Marking	NPI / PIR
Airport Reference Code (ARC)	D-II
Critical Aircraft	Gulfstream IV
Runway Object Free Area (ROFA)	
Length Beyond Runway	1,000'
Width	800'
Runway Safety Area (RSA)	
Length Beyond Runway	1,000'
Width	500'
Object Free Zone (OFZ) Width	400'
FAR Part 77 Category	NPI / PIR
Runway End Coordinates (NAD 83)	
Latitude	6: 41° 33' 38.073"
Longitude	6: 81° 29' 36.392"
Latitude	24: 41° 34' 10.818"
Longitude	24: 81° 28' 45.372"
Runway End Elevations (MSL)	872.48' / 878.67'
Displaced Threshold Elevation (MSL)	n/a
TDZ Elevation (MSL)	876' / 878.67'
Line of Sight Violations	n/a

FACILITIES TABLE	
#	Existing Facility Name
1	County T-Hangars
2	Corporate Wings Hangar
3	Corporate Wings Hangar
4	Flight Options Hangar
5	Flight Options Hangar
6	Corporate Wings Hangar
7	Progressive Insurance Hangar
8	County/Admin/Maintenance/ARFF Building
9	Eaton Corporation Hangar
10	Destination Building
11	National City Bank Hangar
12	Fire Star Aviation Hangar
13	Horizon Building
14	Curtiss Wright Center - II
15	Associates Estates
16	Curtiss Wright Center - I
17	Curtiss Wright Center - III
18	Curtiss Wright Center - IV
19	Zonar T-Hangars
20	Swagelok Hangar
21	Corporate Wings Hangar
22	Air Traffic Control Tower



Runway	12 MPH (10.5 Knot)			15 MPH (13 Knot)		
	VFR	IFR	All Weather	VFR	IFR	All Weather
6	55.41%	56.91%	55.63%	58.40%	60.76%	58.73%
24	74.36%	65.62%	73.36%	79.88%	71.48%	78.90%
6-24	87.13%	85.06%	86.93%	93.40%	92.26%	93.29%

Source: National Climatic Data Center, Asheville, North Carolina  
 Observations taken at: Cleveland Hopkins International Airport, Cleveland, Ohio  
 Period Covered: 1994-2003

LEGEND	
Existing	Description
---	Runway Centerline
---	Runway Safety Area (RSA)
---	Runway Object Free Area (ROFA)
---	Runway Obstacle Free Zone (ROFZ)
---	Runway Protection Zone (RPZ)
---	Taxiway Object Free Area (TOFA)
---	Taxiway Safety Area (TSA)
---	Existing Pavement
+	Airport Reference Point
---	Existing Buildings
---	Airport Property Line
---	Other Property Lines
---	Fence
---	Tree Line
---	Wetlands
---	Ground Elevation Contours
---	Proposed Land Acquisition
---	Proposed Easement Acquisition

AIRPORT DATA TABLE	
Airport Data	Existing
Airport Elevation (MSL)	879'
Airport Reference Point (NAD 83)	
Latitude	41° 33' 54.446" N
Longitude	81° 29' 10.884" W
Mean Max Temperature of Hottest Month	81.4° F
Airport Terminal Area NAVAIDS	ATCT, lighted windsock, segmented circle, beacon
Magnetic Variation	7.5° W
Date of Magnetic Variation	1995
NPIAS Service Level	RL
State Service Level	TC
Wind Coverage Crosswind Component @ 10.5 knots & 13 knots	
VFR	87.13%, 93.40%
IFR	85.06%, 92.26%
All Weather	86.93%, 93.29%
Airport Reference Code	D-II
Design Aircraft	Gulfstream IV
Taxiway Lighting	MIL
Taxiway Marking	Standard

REVISIONS		
BY	DATE	CHANGE

**FIGURE 2-5**  
**CUYAHOGA COUNTY AIRPORT**  
 CITY OF CLEVELAND CUYAHOGA COUNTY, OHIO  
**EXISTING AIRPORT LAYOUT**

DESIGNED: JCT	DRAWN: JCT	SHEET <b>2</b> OF <b>12</b>
CHECKED: KCK	DATE: DECEMBER 2008	
PROJECT FILE NO.: A27.001.001		CADD FILE NO.: Cuyahoga EAL

**ENGINEERS**  
 DESIGN BUILD  
 TECHNICAL RESOURCES  
 OPERATIONS



maintenance. The runway system and its physical characteristics are described further in **Table 2-1**.

**TABLE 2-1  
AIRSIDE FACILITIES DATA**

	<b>Runway 6</b>	<b>Runway 24</b>
Runway Length (ft.)	5,102	5,102
Runway Width (ft.)	100	100
Surface Material	Asphalt/Grooved	Asphalt/Grooved
Surface Condition	Fair	Fair
Edge Lighting (Intensity)	High	High
Traffic Pattern	Left	Left
Load Bearing Strength (lbs.)		
Single Wheel	43,000	43,000
Double Wheel	55,000	55,000
Dual Tandem Wheel	100,000	100,000
Markings	NPI-G	PIR-G
Runway End Coordinates		
Latitude	41° 33' 38.073"N	41° 34' 10.318"N
Longitude	81° 29' 36.392"W	81° 28' 45.372"W
Elevation (MSL)	873'	879'
Visual Slope Indicator	VASI (4L)	PAPI (4L)
Touchdown Elevation (MSL)	873'	879'
Instrument Approach	Localizer Back Course	ILS, NDB, GPS
Approach Lighting	None	MALSR

Source: FAA Airport Master Record Form 5010 (April 27, 2005) and C&S Engineers, Inc. (April 2005)

## TAXIWAYS

The runway at the Airport is served by a full-length parallel taxiway, along with several exit taxiways and connecting taxiways. The taxiway numbering system is identified in Figure 2-5. Taxiway A, the full-length, parallel taxiway, is 50 feet wide and the runway-to-taxiway centerline separation is 375 feet. In addition to Taxiway A, there are eight entrance/exit taxiways providing access/egress along the runway.

Taxiways A-1, A-2, A-3, A-4, A-5, A-6, A-7, and A-8 provide for aircraft movements between the runway and parallel Taxiway A. Taxiway A6 is a diagonal exit taxiway that crosses Taxiway A and connects with the apron. Taxiways A5 and A7 also provide access directly from the runway to the apron. Taxiway B extends from the north end of the main apron area and runs southeast, crossing the runway, to additional aviation facilities on the southeast portion of the field. Taxiways U and W



connect with Taxiway B, providing access to the T-hangars on the east side of the airfield.

The condition of the twelve taxiways that make up the taxiway system at the Airport ranges from fair to poor. The Ohio Department of Transportation (ODOT), is currently assisting CGF in preparing an Airport Pavement Management System (APMS), in line with its statewide program. Preparation of an APMS includes research and evaluation of the construction history of the airfield pavements, a survey of their condition, and development of a pavement condition index (PCI) value for their condition. Pavements with a PCI ranging from 100 to 85 are considered “Excellent,” from 85 to 70 “Very Good,” from 70 to 55 “Good,” from 55 to 40 “Fair,” from 40 to 25 “Poor,” from 25 to 10 “Very Poor,” and from 10 to 0 “Failed.” Preliminary results have indicated that airfield pavement conditions at the Airport are generally fair to poor. **Table 2-2** describes the taxiways and their characteristics. Pavement condition indexes as noted are as determined by the Ohio DOT inspection completed in November 2004. A range of PCI values is indicated where conditions varied for different sections of the taxiway.

**TABLE 2-2  
TAXIWAY CHARACTERISTICS**

Taxiway	Pavement Condition Index (PCI)	Dimensions	Description
A	4-65	5,102' x 50'	Full parallel taxiway providing access to all other taxiways
A-1	38-52	300' x 50'	Exit/enter taxiway to Runway 6/24
A-2	15	300' x 43'	Stub taxiway to Runway 6/24
A-3	42-57	300' x 50'	Stub taxiway to Runway 6/24
A-4	47	300' x 30'	Stub taxiway to Runway 6/24
A-5	74-79	580' x 50'	Exit taxiway to Runway 6/24 and apron
A-6	8-65	750' x 50'	Exit taxiway provides access to main apron
A-7	72-77	580' x 50'	Exit taxiway to Runway 6/24 and apron
A-8	16-60	300' x 50'	Exit/enter taxiway to Runway 6/24
B	38	1,420' x 50'	Crossfield taxiway connecting the runway to the main apron and to the facilities on the southeast side of the airfield
U	47	500' x 30'	Connecting taxiway between Taxiways B and W
W	35	450' x 30'	T-hangar access taxiway

Note: Pavements with a PCI ranging from 100 to 85 are considered “Excellent,” from 85 to 70 “Very Good,” from 70 to 55 “Good,” from 55 to 40 “Fair,” from 40 to 25 “Poor,” from 25 to 10 “Very Poor,” and from 10 to 0 “Failed.”

Source: C&S Engineers, Inc. Conditions determined by the Ohio DOT inspection (November 20, 2004)





## NAVIGATION AIDS, LIGHTING & MARKING

Airfield lighting systems allow aircraft to use the Airport in periods of darkness and/or inclement weather. Pavement markings and guidance signs aid in the movement of aircraft along airport surfaces. The following is a summary of the various lighting and marking systems at Cuyahoga County Airport.

### *Identification Lighting*

The location of an airport at night is universally indicated by a rotating beacon which projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at Cuyahoga County Airport is located on the southeast side of the airfield, north of the control tower.

### *Pavement Edge Lighting*

Runway and taxiway edge lighting is located near the pavement edge to define the lateral limits of the pavement. This lighting is essential for maintaining safe operations at night and during times of poor visibility allowing aircraft to taxi from the runway and ramp areas. The runway has high intensity runway lighting (HIRL) and taxiway edge lighting is medium intensity (MITL).

### *Visual Approach Lighting*

Visual glide slope indicators provide visual descent guidance to pilots during an approach to a runway. At Cuyahoga County Airport, Runway 6 is equipped with a four-light precision approach path indicator (PAPI) on the left side of the runway. A four-light PAPI is located on the left side of Runway 24 as well. Each of these visual slope indicators has a 3 degree glide path.

### *Instrument Approach Lighting*

A 1,400-foot long medium intensity approach lighting system with runway alignment indicator lights (MALSR) is associated with the instrument approach for Runway 24. The MALSR is a system of lights mounted on pedestals in alignment with the runway. The system has sequenced flashing lights, beginning with the unit farthest from the runway, that provide visual guidance for the pilot on approach to the runway during times of poor visibility.

### *Airfield Guidance Signs*

Airfield guidance signs are necessary for the safe and efficient operation of aircraft taxiing on the Airport. Lighted airfield signs are located at aircraft hold positions, runway exits, and taxiway intersections.

### *Pavement Marking*

Runway 6-24 centerline and edge markings are painted white. The characteristics of markings for the two runway ends vary because of the type of runway approach. Runway 6 has nonprecision approach markings and Runway 24 has precision approach markings. As per the FAA criteria, the precision markings will take



precedence over the nonprecision markings. The taxiways are marked with a yellow centerline and edge markings. Centerline markings assist aircraft and pilots in maintaining proper clearance from pavement edges and objects near the taxilane/taxiway exits. White pavement markings also identify aircraft parking positions.

#### *Weather Reporting and Segmented Circle*

Cuyahoga County Airport is not currently equipped with an automated weather reporting system. Weather reports can be given by the control tower during the hours of operation. The airfield is equipped with a segmented circle and lighted wind cone located at the intersection of Taxiways A6 and C. The circle provides traffic pattern information to pilots. The lighted wind cone in the center of the circle alerts pilots to current surface wind conditions along the runway.

#### *Pilot Controlled Lighting*

Airfield lighting systems can be controlled through a pilot-controlled lighting system (PCL) when the control tower is closed. A PCL allows pilots to turn on or increase the intensity of the lighting systems from the aircraft with the use of the aircraft's radio transmitter. The high intensity runway edge lighting (HIRL), the MALSR for Runway 24, and the runway end identifier lights (REILs) for Runway 6 are connected to the PCL system at Cuyahoga County Airport.

### SAFETY AREAS AND OBJECT FREE AREAS

Runways and taxiways are surrounded by imaginary rectangular areas known as "safety areas" (also shown on Figure 2-5). These areas have slopes ranging from 1% to 5% and should be graded and free of obstructions to enhance the safety of aircraft that may undershoot, overrun, or veer off a runway or taxiway. The purpose of these safety areas is to minimize the probability of serious damage to aircraft. In addition, the areas provide greater stability for fire fighting and rescue equipment during such incidents.

An airport's safety area dimensions are based upon the characteristics of the critical or design aircraft (or combination of aircraft) with the highest approach speed and the greatest wingspan that use or are expected to make substantial use of the airport. Cuyahoga County Airport has an Airport Reference Code (ARC) of D-II based upon a design aircraft in Aircraft Approach Category D (approach speed less than 166 knots) and Airplane Design Group II (wingspans up to but not including 79 feet). Thus the standard runway safety area (RSA) width is 500 feet and the RSA extends 1,000 feet beyond the end of each runway or stopway. The standard taxiway safety area width is 79 feet.

There are also areas surrounding runways and taxiways where objects that are non-essential for aircraft navigation, including parked aircraft and support vehicles, are prohibited. These areas are designated as Object Free Areas (OFAs). The standard



dimensions for Runway OFAs at a D-II airport are 800 feet wide and 1,000 feet beyond the end of each runway or stopway. The standard taxiway OFA width is 131 feet.

**Table 2-3** presents design standard dimensions and compares these to existing conditions and deficiencies of the RSAs and ROFAs. The non-compliant conditions range from objects located within restricted areas to non-standard grading of the terrain surrounding the runway. The deficiencies are discussed further in this document in Chapter 4, Facility Requirements.

**TABLE 2-3  
RSA AND ROFA DESIGN STANDARDS FOR RUNWAY 6-24**

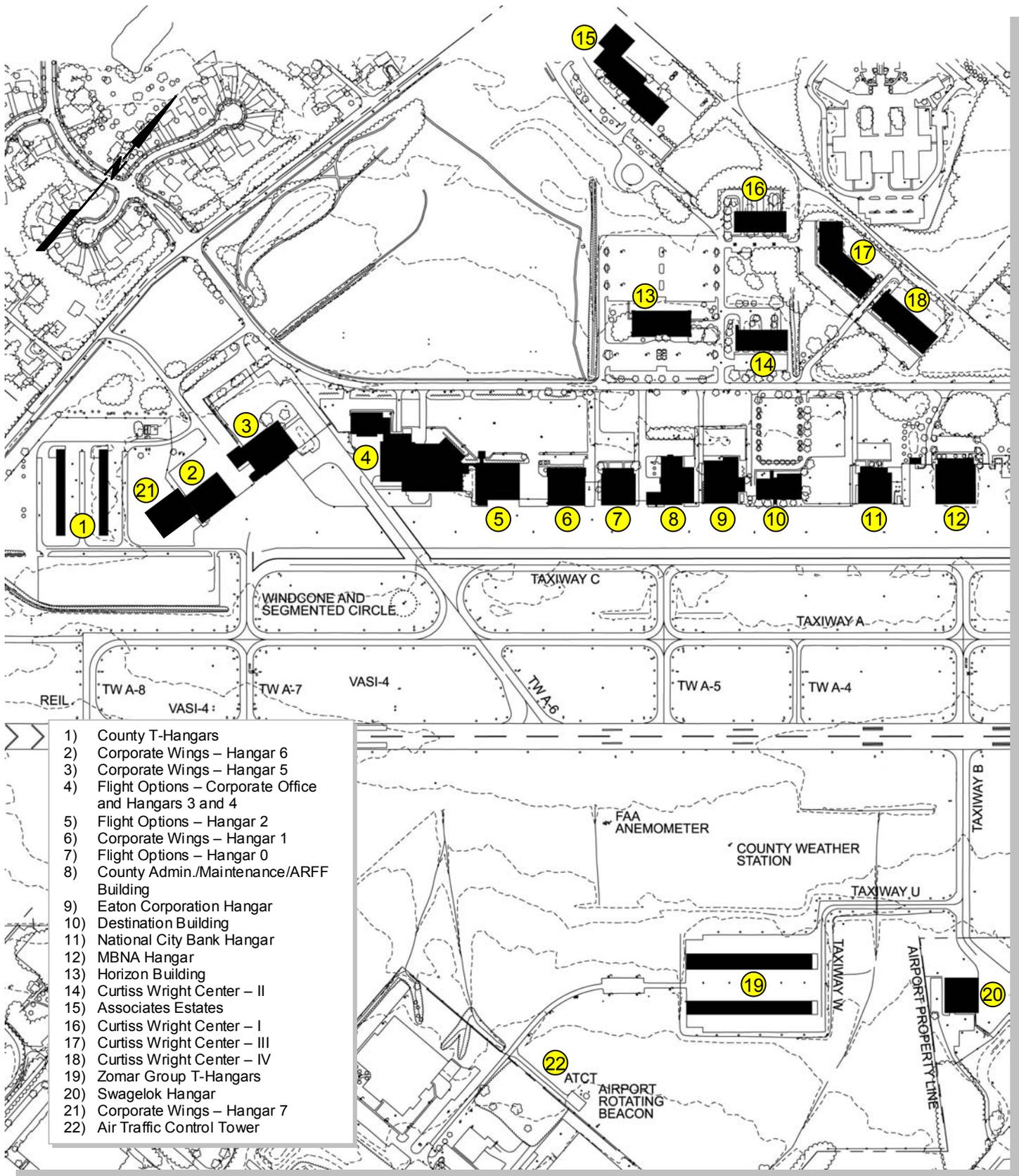
Item	Design Standard ARC (D-II)	Existing Condition	Meet Requirements?
Runway Width	100'	100'	Yes
Runway Safety Area			
-Width	500'	310'	No
-Length (Beyond Runway End - 24)	1,000'	57'	No
-Length (Beyond Stopway - 6)	1,000'	43'	No
Runway Object Free Area			
-Width	800'	735'	No
-Length (Beyond Runway End - 24)	1,000'	0'	No
-Length (Beyond Stopway - 6)	1,000'	285'	No

Source: FAA Advisory Circular 150/5300-13, *Airport Design*, and *Runway Safety Area Study*, draft final report, October 2004, C&S Engineers, Inc.

## 2.04.2 Landside Facilities

The landside facilities are the ground-based facilities that are central to the operation, function, and promotion of the Airport. These include public and private facilities used for aviation as well as facilities for non-aviation-related commercial enterprises.

The following describes the major terminal area/landside facilities at the Airport. Their locations are indicated on **Figure 2-6** and the buildings are listed on **Table 2-4**. Photos of landside facilities are shown on **Figures 2-7** through **2-11**.





AIRCRAFT PARKING APRON

The apron area, which is used for the tie-down, fueling, taxiing of aircraft and other airport-related service vehicles, totals nearly 80,000 square yards of pavement. The apron area serving the corporate hangars is 48,500 square yards; of this approximately one-third is used by Flight Options. A 16,000 square-yard transient aircraft parking area is located near Corporate Wings, the fixed based operator. The tie-down apron near the county-owned T-hangars has an area of 14,600 square yards; this apron area serves privately-owned aircraft that are not hangared. Apron pavement conditions, evaluated during the Ohio DOT’s inspection in November 2004, range from excellent (in some corporate apron areas) to poor (in the County T-hangar tie-down area).

**TABLE 2-4  
BUILDING INVENTORY**

Reference Number	Building Use	Size	Building Tenant	Auto Parking Spaces
1	T-hangars	23,556 SF (2 buildings)	Cuyahoga County	52
2	Hangar 6	20,100 SF	Corporate Wings	54
3	Hangar 5 & restaurant	30,780 SF	Corporate Wings/ Milano’s Restaurant	148 40
4	Corporate office & Hangars 3 and 4	74,560 SF	Flight Options	112
5	Hangar 2	23,830 SF	Flight Options	140
6	Hangar 1	21,485 SF	Corporate Wings	121
7	Hangar 0	19,000 SF	Flight Options	26
8	Administration/ Maintenance/ ARFF	21,136 SF	Cuyahoga County	27
9	Hangar	24,640 SF	Eaton Corporation	44
10	Offices	45,600 SF	Destination Building	228
11	Hangar	18,060 SF	National City Bank	26
12	Hangar	27,170 SF	MBNA Bank	30
13	Offices	91,160 SF	Horizon Building	370
14	Offices	16,600 SF	Curtiss Wright Center II	42
15	Offices	41,325 SF	Associates Estates	226
16	Offices	16,600 SF	Curtiss Wright Center I	44
17	Offices	30,730 SF	Curtiss Wright Center III	115
18	Offices	24,656 SF	Curtiss Wright Center IV	112
19	T-hangars	53,000 SF (2 buildings)	Zomar Group	40
20	Hangar	17,550 SF	Swagelok	30
21	FBO Terminal & Hangar 7	24,000 SF	Corporate Wings	48
22	Air Traffic Control Tower			

Source: C&S Engineers, Inc. (December 2003)



## AIRPORT ADMINISTRATION BUILDING

The Cuyahoga County Airport administration building incorporates airport management offices, airport maintenance equipment and operations facilities, and Airport Rescue and Fire Fighting (ARFF) facilities. The building, constructed in 1973, was originally planned to be a combined fire fighting and maintenance facility with offices, dormitory, dining and training areas. The current airport administration offices now consist of a reception area, conference room, kitchen, restrooms, and three private offices for the airport manager and staff. A maintenance office, repair shop, and tool room are associated with the maintenance service area of the building where maintenance equipment is housed. The ARFF facilities are described below. Of the total 21,136 square footage, administrative office space occupies 3,348 square feet; 5,010 square feet is dedicated to maintenance; and 3,542 square feet houses ARFF facilities. A 3,120 square-foot maintenance and storage area is located on the mezzanine level of the building. The 6,116 square-foot building annex (on the northwest side of the building) currently houses tenants that include the T&G Flying Club, a design business, and a company that sells planes and leases autos.

Mechanical systems in the airport administration building include gas-fired hot water heat and central air-conditioning. The electrical equipment includes a generator that handles emergency lighting for the runway and taxiways only.

## AIRCRAFT RESCUE AND FIREFIGHTING FACILITY

The Aircraft Rescue and Firefighting Facility (ARFF) is headquartered in the same building as the Airport administrative offices. The fire apparatus room has three truck bays opening to the aircraft parking apron. Fire tool storage, mechanical rooms, office space, and toilet/locker facilities are adjacent to the apparatus room. Equipment includes a Chevrolet C-30 4x4 fire truck, an Oshkosh M-1000 4x4 fire truck, and a Dodge 4x4 power wagon for handling hazardous material situations.

## AIR TRAFFIC CONTROL TOWER

The Air Traffic Control Tower (ATCT), operated by Midwest Air Traffic Control Service, Inc., has been part of the FAA's Contract Tower Program since 1982. The Cuyahoga ATCT, located on the southeast side of the airfield near the Zomar T-hangars, operates between the hours of 7 A.M. and 11 P.M. The tower services are described in Section 2.05-1.



Administrative/Maintenance/ARFF Facility viewed from Curtiss Wright Parkway

Air Traffic Control Tower

Administrative/Maintenance/ARFF Facility viewed from the apron



Cuyahoga County Airport  
Airport Master Plan Update  
Airport Administration and FAA Facilities  
Figure 2-7



## CORPORATE HANGARS

**Eaton Corporation**, headquartered in downtown Cleveland since 1948, has 56,000 employees at locations around the world and sells products to customers in more than 125 countries. The company is a diversified industrial manufacturer with four units: fluid power (hydraulic systems); electrical parts; truck components; and automotive components. Eaton has maintained a flight department at their 24,640 square-foot hangar at the County Airport for over thirty years. Three of the company's five aircraft are kept here. All are Bombardier Lear 45 jets. Eaton's fueling facility is a 15,000 gallon tank for Jet A fuel, 120" in diameter and 25'6" long, in a concrete vault.

**National City Corporation** is a large regional bank with operations primarily in seven states (Ohio, Illinois, Indiana, Kentucky, Michigan, Missouri, and Pennsylvania) and customers in selected markets nationally. National City is headquartered in Cleveland and maintains a corporate flight department at their 18,060 square-foot hangar at Cuyahoga County Airport. Three aircraft are based here: two Falcon 50s and a King Air 200. There are 14 employees on staff at this facility, including nine pilots, three technicians, and two schedulers. The National City facility has its own fuel farm, consisting of two Jet A 12,000-gallon fiberglass underground tanks.

**MBNA** is an international financial services company with three operations, in Rockland, Maine; Wilmington, Delaware (corporate headquarters); and at their Central Region office in Beachwood, Ohio. The Beachwood facility, seven miles from the airport, has a staff of 2,600. The company employs 26,000 to 27,000 worldwide. The 27,170 square-foot MBNA hangar facility was designed and built for MBNA in 1993. The facility includes a reception area; conference room; flight planning room/pilots lounge; sleeping room; fitness room; bathroom facilities with showers; kitchen/dining room; several offices; a mechanical room off the hangar space with a backup generator powering all facilities; storage space above the hangar

area; and openings to the hangar space at both ends of the building. In 2004, there was one aircraft based here; the facility is currently unoccupied. Efforts were reported underway in 2005 for the firm to divest itself of the facility and market it to other potential users.



**Swagelok Company**, founded in 1947 in Cleveland, Ohio, is a fluid systems components manufacturer with about 3,000 employees at more than 25 research, manufacturing, and product distribution facilities in North America, Europe, and Asia. Its main corporate office is located 12 miles from the County Airport in Solon, Ohio. Swagelok’s hangar facility, built in 1978, is a 17,550 square-foot building to the east of the airfield with a through-the-fence operation at the Airport. (This is the only corporate hangar at the Airport that is outside of airport property and not located along the flight line between Curtiss Wright Parkway and the airport’s main apron area.) The two aircraft based at the Swagelok hangar are both Bombardier Challengers (601-3As) that are flown worldwide. The company switched aircraft from Gulfstream IIs to Challengers due to the noise impact on the surrounding communities because the Challenger is a quieter aircraft.

## T-HANGARS

Two county-owned T-hangar buildings, able to accommodate 40 aircraft, are located at the south end of the airfield adjacent to Richmond Road. There are no interior walls separating aircraft spaces within the buildings, which lack water and electric service and are in fair to poor condition. There are 52 auto parking spaces associated with the T-hangars.

The Zomar Group owns the two T-hangar buildings on the east side of the airfield. These hangars can accommodate 42 aircraft. Parking is available for hangar tenants along the entrance road west of the hangar area. Vehicle access to the T-hangar complex is from Bishop Road via Avion Park Drive.

## AIRCRAFT FUEL FACILITIES

Four aviation fuel systems are located at the airport. One 12,000-gallon underground tank for Jet A fuel is owned by Flight Options. This tank is currently not in use because Flight Options has a contract with Corporate Wings for fueling. Corporate Wings, the fixed based operator, has a 15,000-gallon Jet A inground tank that is dedicated for Flight Options’ use. Corporate Wings also has two 12,000-gallon aboveground tanks on a concrete pad north of the county T-hangars. One tank is for Jet A fuel; the other is AvGas. There is room at this location to add two more tanks. Corporate Wings also has AvGas available in a fueling truck parked on the ramp. Eaton Corporation’s Jet A fuel facility, a 15,000 gallon tank for Jet A fuel, is described above. The National City facility also has its own fuel farm, consisting of two Jet A 12,000-gallon fiberglass underground tanks, as noted above.



County T-hangars

Zomar T-hangars

County T-hangar – interior view



Cuyahoga County Airport  
 Airport Master Plan Update  
 General Aviation T-Hangars  
 Figure 2-8



## VEHICLE FUEL FACILITIES

The County has two underground tanks to service their maintenance vehicles. One 4,000-gallon tank is for diesel fuel; the second tank with a 2,500-gallon capacity is for unleaded fuel. These tanks are located between the Airport Administration building and Curtiss Wright Parkway. Eaton Corporation and National City have their own vehicle fueling facilities. MBNA also has its own tank (currently not in use).

## AUTO ACCESS AND PARKING

Curtiss Wright Parkway is the main access road to most airport facilities. The parkway is aligned with the runway and connects Richmond Road (a state route to the west of the airfield site) and Bishop Road, a county route to the east. Over 1,950 auto parking spaces are available for the various businesses and corporate users at the Airport. Parking spaces associated specifically with the seven office buildings total over 1,100.

The T-hangars on the east side of the airfield and the Swagelok hangar are accessed from Bishop Road. There are 40 auto parking spaces for pilots who store their aircraft at the Zomar T-hangars. Principal roadway corridors in the vicinity of the Airport are Highland Road to the south and Chardon Road to the north. There is interstate access within three miles of the Airport: to I-90 via Highland Road and to I-271 via Wilson Mills Road.

## UTILITIES

Cuyahoga County Airport is served by the Cleveland city sewer and water systems. Electric service to the airport site is provided by Cleveland Electric Illuminating Company (CEI). East Ohio Gas provides natural gas to the site.

## TERMINAL AREA BUSINESSES

***Corporate Wings*** is the sole Fixed Based Operator (FBO) at Cuyahoga County Airport. The business began in 1981 and has provided a variety of aircraft maintenance and support services for over 20 years. Services offered include tie-down, aircraft fueling, hangaring, deicing, and aircraft parts sales and service. Catering, courtesy car, pilots lounge, and conference room are other amenities available.



Corporate Wings occupies four hangars located along the flight line. Hangar 1 is a 21,485 square-foot hangar that is currently leased from Flight Options and used for aircraft storage. Hangar 5, a county-owned hangar with 30,780 square feet, consists of an interior maintenance shop (with office space), fueling, and deicing facilities; Milano's Restaurant is attached. Hangar 6 is a 20,100 square-foot building owned by Corporate Wings, with land leased from the county. The hangar is used for maintenance, avionics, aircraft storage, fueling, and leased office space. Hangar 7, built in 2004, is owned by Corporate Wings, with land leased from the county. The building serves as a terminal for Corporate Wings FBO services, as well as tenant office space, aircraft storage, and fueling. This new 24,000 square-foot building houses complete first-class terminal facilities for pilots including a lounge, flight planning, conference rooms, and offices.

Corporate Wings has two based jets, a Citation II and a Citation IV. The FBO leases space in its facility to Cleveland Air Sports (a flight school) that stores two aircraft here at Cuyahoga County Airport and ten at Burke Lakefront. Corporate Wings has a total of 27 aircraft hangared. They also lease space (6,000 square feet) to corporate flight departments.

***Flight Options*** is headquartered at Cuyahoga County Airport. It is the second largest fractional-ownership aircraft company in the U.S. with a fleet of over 200 jets and more than 2,000 owners. The business occupies five hangars at the Airport, totaling approximately 142,000 square feet of space, and incorporating a state-of-the-art office complex. There are 523 full-time employees at the airport; 400 of these employees work the day shift. Flight Options' operations control center is located at this facility and handles all scheduling activities for fleet and services for the company's clients. In addition, aircraft maintenance staff performs fleet maintenance at this facility, one of ten maintenance centers operated by Flight Options across the country.



# Cuyahoga County Airport Airport Master Plan Update Corporate Wings Facilities Figure 2-9

# CORPORATE WINGS



Corporate Wings new hangar (#21 to left of #2)



Corporate Wings hangar (#3)



Corporate Wings hangar (#2) prior to construction of new hangar



Corporate Wings hangars (#3 & #2) and Milano's Restaurant





Flight Options hangar (#7)  
(Former TRW hangar)



Flight Options hangar (#4)



Flight Options hangars (#4 & #5)



Flight Options hangar (#5)



Flight Options hangar (#4)



Auto parking at Flight Options



FLIGHT OPTIONS

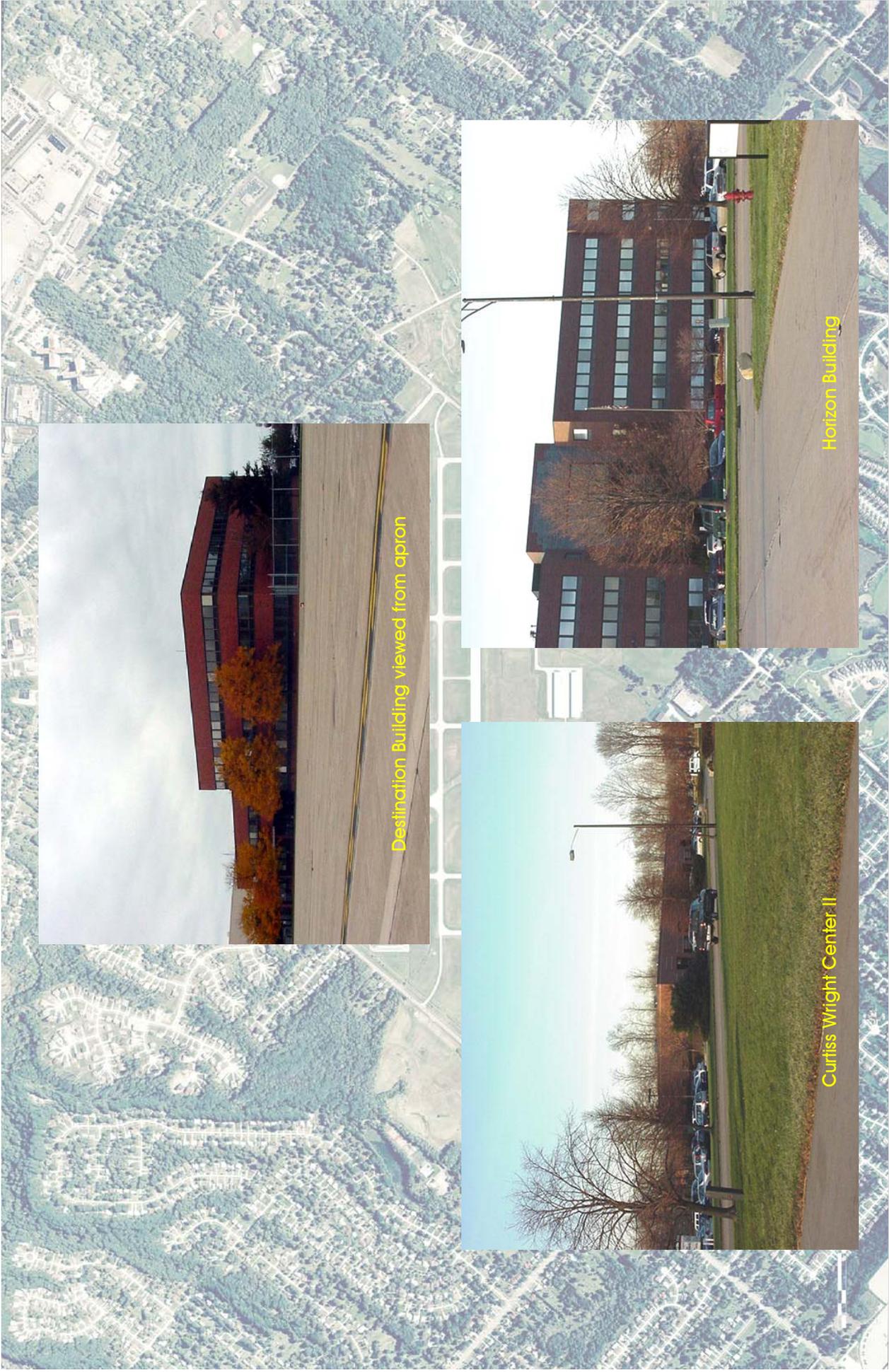


***T&G Flying Club*** is based in the airport administration building annex. The flying club has 275 to 300 members and operates a flight school with more than 15 instructors. The club has six planes at the airport. There are three “lease back” aircraft. (Three club members own aircraft that T&G leases to other club members.)

***J.B. Milano’s Restaurant*** is located in an annex to the Corporate Wings building (Hangar 5) that includes both hangar and office space. The restaurant serves breakfast, lunch, and dinner.

## OFFICE PARK

Office buildings within the airport property include the Destination building, Associates Estates, the Horizon building, and four Curtiss Wright Center buildings, designated I, II, III, and IV. These buildings house a variety of businesses ranging from real estate management to small professional offices. The Destination building is a three-story brick building with 45,600 square feet of office space that is located between the Eaton and National City corporate hangars adjacent to the aircraft apron. Associates Estates is a 41,325 square-foot office building located in the northwest corner of the airport property off Swetland Court with access directly from Richmond Road. The Horizon Building is a four-story 91,160 square-foot brick structure facing the Airport Administrative Building across Curtiss Wright Parkway. The four Curtiss Wright Center buildings are single-story office structures clustered on the north side of the airport property. The total area of the four buildings is 88,586 square feet; individually they range from 16,600 square feet to 30,730 square feet.



Cuyahoga County Airport  
Airport Master Plan Update  
On-Airport Commercial Office Space  
Figure 2-11



## 2.05 Airspace

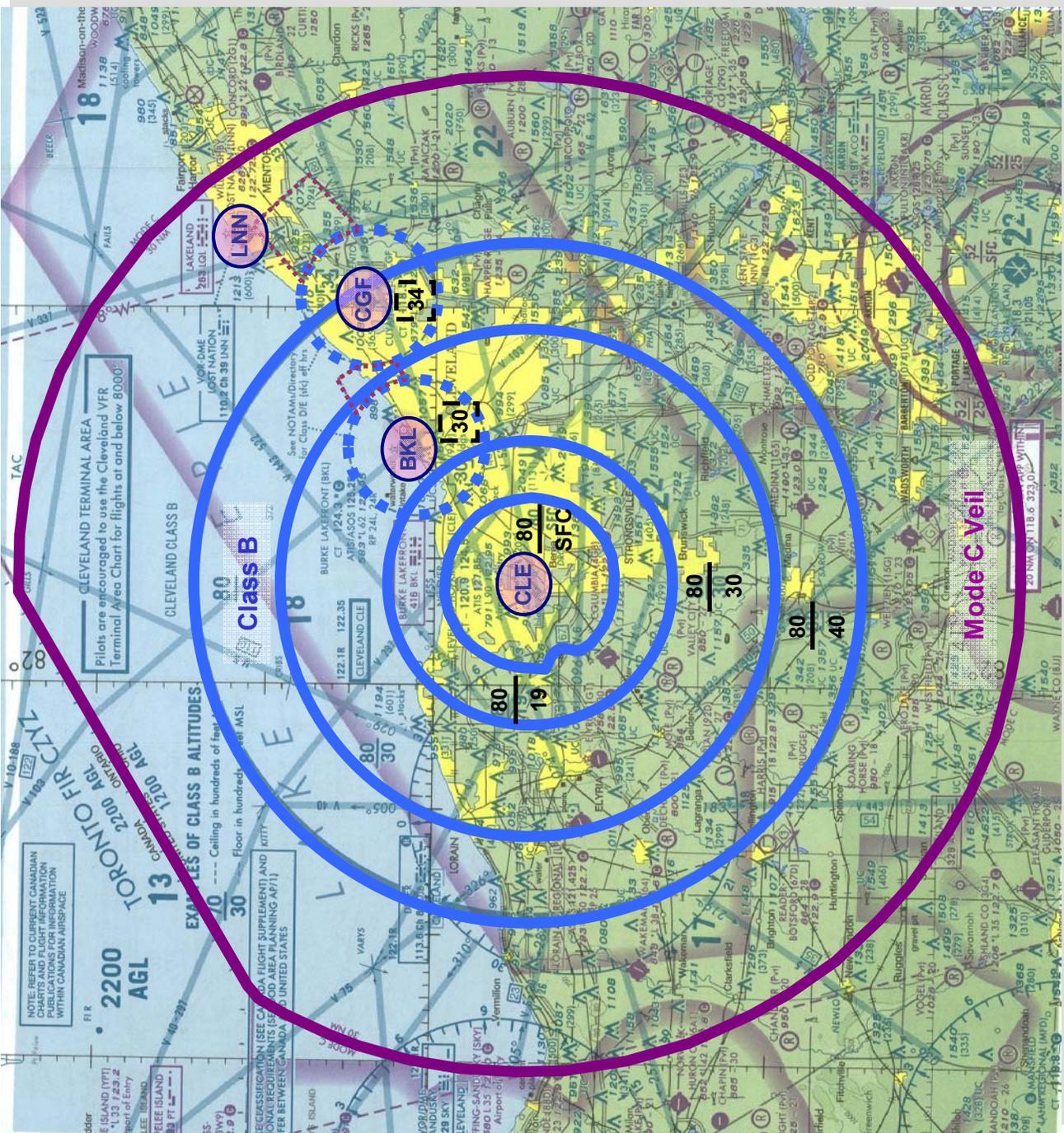
The National Airspace System is controlled by the Federal Aviation Administration (FAA). Airspace is controlled or uncontrolled and is classified as either A, B, C, D, E, F, or G airspace. The airspace classification system defines the altitude of various segments of the airspace, required aircraft equipment, and operational restrictions.

The airspace surrounding Cuyahoga County Airport (CGF) is Class D airspace. Because of its proximity, CGF is also located within the Cleveland Hopkins International Airport (CLE) Class B airspace (**Figure 2-12**).

Class D airspace surrounds those airports that have an operational air traffic control (ATC) tower. Two-way radio communication must be established with the ATC facility prior to entry and while operating within Class D airspace. The Class D airspace surrounding CGF has a Class E arrival extension for instrument approach procedures into the airport.

Class B airspace surrounds the nation's busiest airports in terms of IFR operations or passenger enplanements. An ATC clearance is required for all aircraft prior to operating in Class B airspace, and all aircraft that are cleared receive separation services within the airspace. The aircraft must be equipped with a two-way radio and a transponder, and the pilot must generally have at least a private pilot certificate.

The airspace within 30 nautical miles of CLE, from the surface upward to 10,000 feet MSL, is surrounded by a Mode C veil. This means that, unless otherwise authorized by ATC, aircraft operating within this airspace must be equipped with automatic pressure altitude reporting equipment having Mode C capability.



**KEY**



Class B Altitude  $\frac{80}{19}$



Class D Ceiling [ 30 ]



Cleveland Hopkins International (CLE)

Burke Lakefront (BKL)

Cuyahoga County (CGF)

Willoughby Lost Nation (LNN)



Cuyahoga County Airport  
 Airport Master Plan Update  
 CGF Class D and CLE Class B Airspace  
 Figure 2-12



## 2.05.1 Air Traffic Control

The National Airspace System is divided into various air traffic control sectors for complete aircraft origin-to-destination oversight. The primary purpose of ATC is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic. ATC does this by separating, sequencing, and metering air traffic.

Aircraft landing and departing CGF Class D controlled airspace are controlled by three main air traffic control entities:

- 1) Cleveland Air Route Traffic Control Center (ZOB ARTCC)
- 2) Cleveland Terminal Radar Approach Control (CLE TRACON)
- 3) Cuyahoga County Air Traffic Control Tower – Midwest Air Traffic Control Services (CGF ATCT)

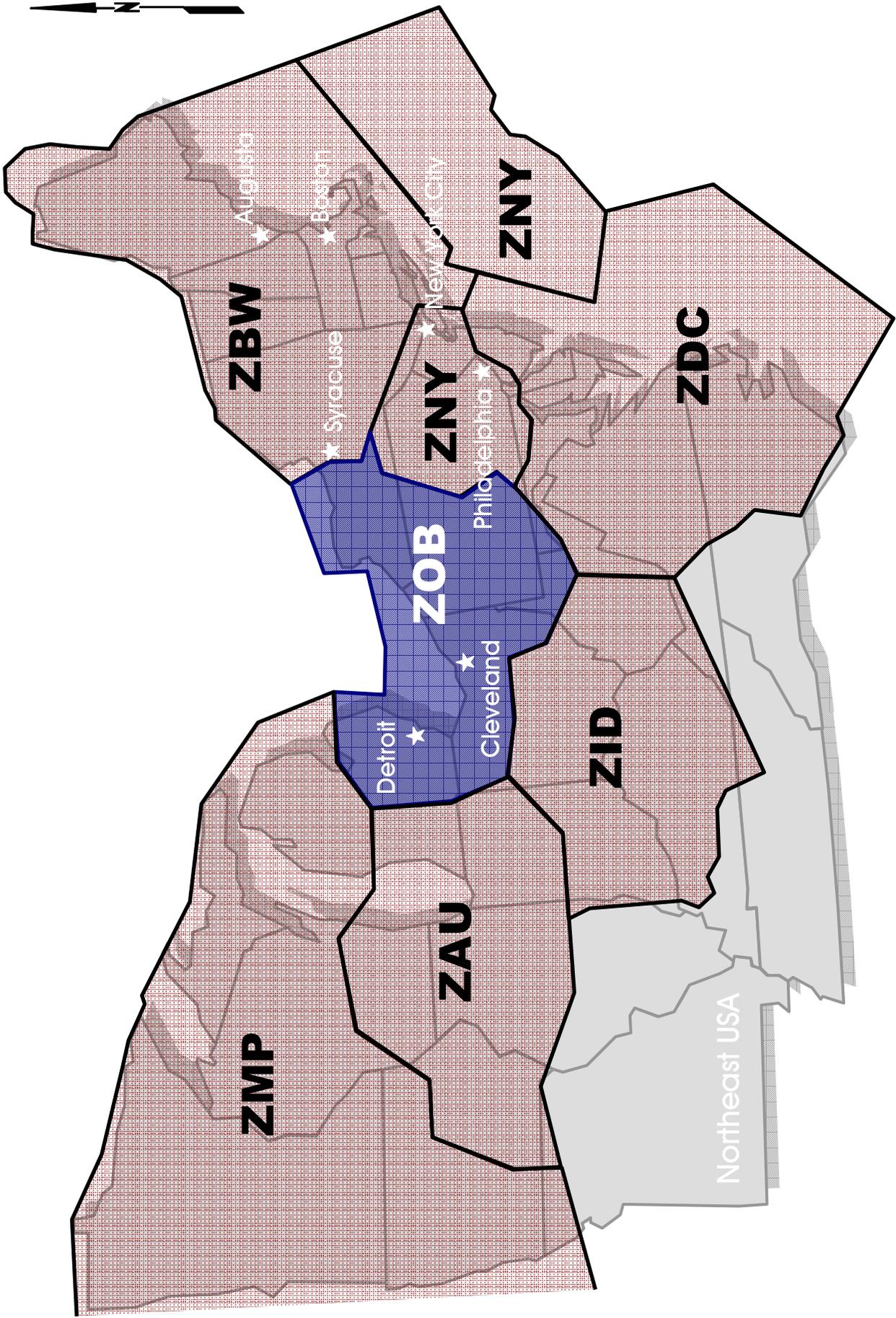
The ARTCC facilities in the United States are the largest component of the national airspace system. These facilities manage IFR air traffic over a multi-state area during the enroute or cruise phase of flight, within their geographical perimeter from the surface upwards. The ARTCC facilities serving the northeastern part of the United States are shown on **Figure 2-13**. Final en route coordination for aircraft destined for CGF is completed by ZOB ARTCC.

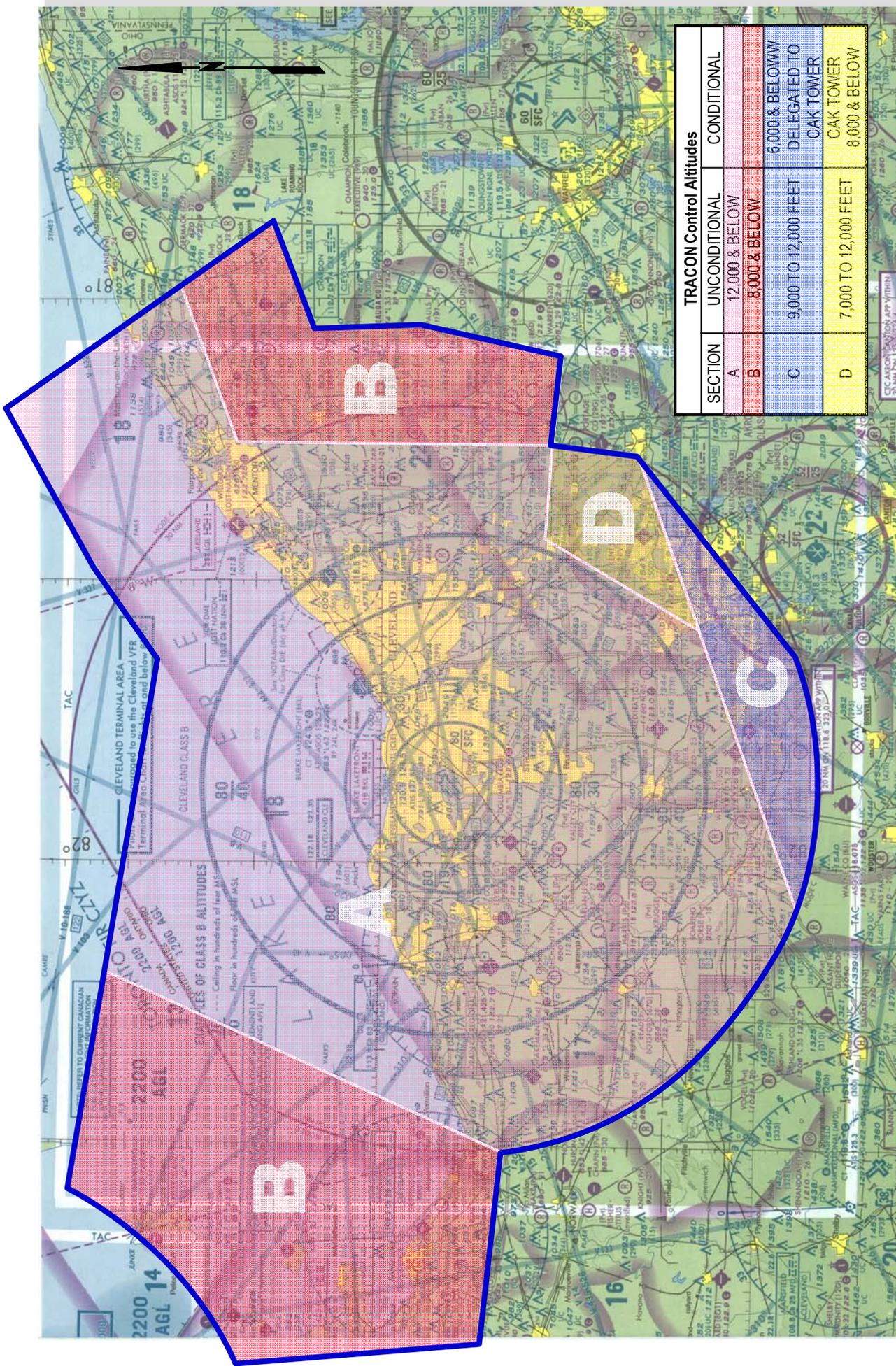
Class B and Class C airspace are typically serviced by a TRACON facility. TRACON facilities transition aircraft to and from the local airport's airspace into an aircraft's enroute phase of flight, and coordinate the typically high volumes of air traffic flying within the area. The geographical boundary and control altitudes for the CLE TRACON facility are shown on **Figure 2-14**.



Cuyahoga County Airport  
Airport Master Plan Update  
Northeast ARTCC Boundaries  
Figure 2-13

BOUNDARY





Cuyahoga County Airport  
 Airport Master Plan Update  
 CLE TRACON Boundary  
 Figure 2-14





The CGF ATCT controls all surface movement on the Airport, as well as any air traffic departing, landing, or overflying the Airport within a four and a half mile radius and from the surface to 3,500 feet AGL. Although the vast majority of air traffic control towers (ATCTs) are directly managed by the FAA, the CGF ATCT is operated by Midwest Air Traffic Control Service, Inc., as part of the FAA’s Contract Tower Program. Services provided by contract towers are identical to those of the federal ATCT. Under the federal Contract Tower Program, “low density airports” are eligible to participate in the program. The Cuyahoga ATCT became a contract tower in 1982 and is open between the hours of 7 A.M and 11 P.M.

## 2.05.2 Navigation

Aircraft navigating from one airport to another operate using Visual Flight Rules (VFR) or Instrument Flight Rules (IFR). The term VFR refers to rules that govern the procedures for conducting flight under visual conditions. It is also a term used to indicate a type of flight plan. The term IFR refers to a set of rules governing the conduct of flight under instrument meteorological conditions. It is also a term used to indicate a type of flight plan.

Whether a pilot files a VFR or IFR flight plan depends on the weather conditions at the departing and arriving airports, whether or not ATC services are required, and the class(es) of airspace the pilot will be flying through. For example, all aircraft flying in Class A airspace (above 18,000 feet MSL) must file an IFR flight plan. As a result, most commercial activity is conducted under an IFR flight plan. Aircraft flying IFR rely on navigational aids for enroute navigation from origin to destination, and on final approach to an airport.

### INSTRUMENT ARRIVAL AND DEPARTURE PROCEDURES

To safely expedite the flow of aircraft arriving and departing airports with a large volume of traffic, air traffic control assigns Standard Terminal Arrival Routes (STARs) and Departure Procedures (DPs). STARs and DPs are published for airports surrounded by Class B airspace.

STARs are designed to facilitate transition between enroute and terminal airspace for aircraft on an IFR flight plan. The procedure ends when it joins an instrument approach or when the pilot receives radar vectors for approach to landing. DPs provide aircraft on an IFR flight plan with a way to depart the airport and transition to the en route airspace. Both STARs and DPs ensure obstacle clearance.

Cleveland Hopkins International Airport has three published STARs. Because aircraft arriving at CGF typically have to transition through Class B airspace, CLE TRACON will issue the KEATN TWO Arrival and WAKEM TWO Arrival to CGF traffic.



**Figure 2-15** shows the IFR arrival and departure routes around the Class B airspace.

## INSTRUMENT APPROACH PROCEDURES

There are many different navigational aids available to aircraft on approach to an airport depending on the airport, type of aircraft, and mission, i.e., civilian or military. For the purpose of this section, only those navigational aids available at CGF will be summarized.

**Table 2-5** summarizes all of the approaches available at CGF. The landing minimums listed are based upon a straight in approach with full operation of all components and visual aids associated with the particular instrument approach. Higher minimums are required with inoperative components or visual aids. Higher minimums are also required when a straight in approach is impractical because of unfavorable winds or a runway closure. Under these circumstances, aircraft would make a circling approach to the runway.

Because CGF does not have an automatic weather observation system or automatic data interchange system (ADIS), during the hours of 11 P.M. to 7 A.M. when the CGF ATCT is closed, pilots must use the Cleveland Hopkins International Airport altimeter. This also increases landing minimums for pilots.

**KEY**



**IFR Arrival Routes**



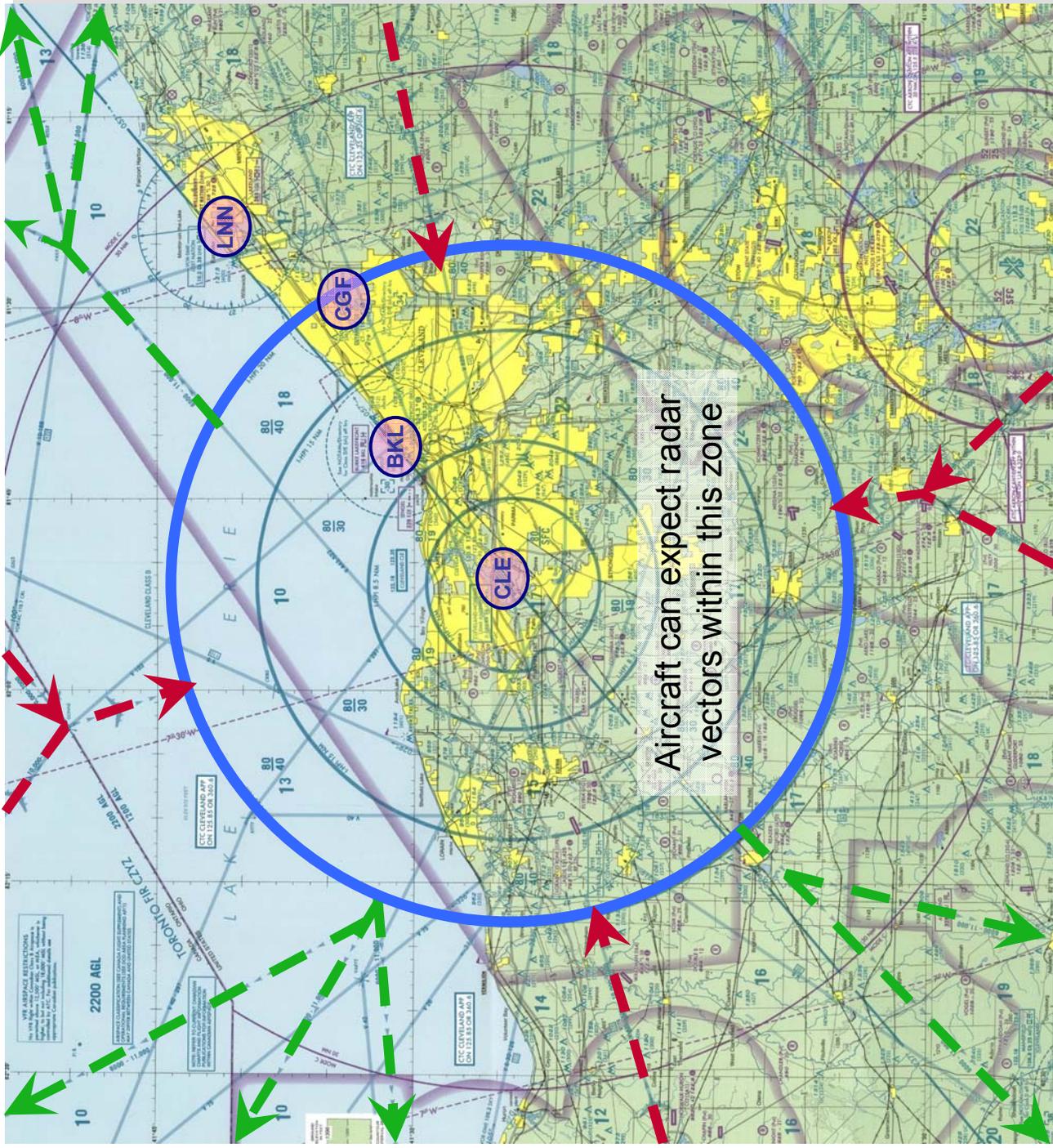
**IFR Departure Routes**

Cleveland Hopkins International (CLE)

Burke Lakefront (BKL)

Cuyahoga County (CGF)

Willoughby Lost Nation (LNN)



**Cuyahoga County Airport  
Airport Master Plan Update  
Instrument Arrival and Departure Routes  
Figure 2-15**



The first number for each aircraft approach category is the decision height, which is a specified height above the threshold elevation in the precision approach. At this point, a missed approach must be initiated if a pilot cannot visually reference the airport to continue the approach. The second number is the required visibility for the approach in statute miles.

**TABLE 2-5  
CUYAHOGA COUNTY AIRPORT INSTRUMENT APPROACHES**

Approach	Aircraft Approach Category			
	A	B	C	D
ILS Runway 24	1079 – ½			
ILS Runway 24 – Localizer Only	1240 – ½			1240 – ¾
Localizer Back Course Runway 6	1380 – 1		1380 – 1 ½	
NDB or GPS Runway 24	1360 – ¾			1360 – 1 ¼

Source: National Aeronautical Charting Office, FAA, U.S. Terminal Procedures (12 May 2005)

### INSTRUMENT LANDING SYSTEM (ILS)

The ILS is a precision approach system designed to provide an approach path for exact alignment and descent of an aircraft on final approach to a runway. In general the ILS consists of a localizer and glide slope ground equipment for aircraft guidance information, approximately three marker beacons and Distance Measuring Equipment (DME) for range information, and approach lights, touchdown and centerline lights, and runway lights for visual information. CGF has an ILS approach for Runway 24. CGF also has a published approach for Runway 6 using the back course of the ILS. This is the course line along the extended centerline, in the opposite direction.

### NONDIRECTIONAL RADIO BEACON (NDB)

NDB approaches are nonprecision and often referred to as “backup” procedures, because they are secondary procedures when VHF navigation failure occurs. NDB approaches are common at small airports, which are remote from VHF navigation aids. NDB equipment is subject to disturbances that may result in erroneous bearing information. These disturbances are caused by intermittent or unpredictable signal propagation due to factors such as lightning, precipitation static, and nighttime interference from distant stations. An NDB approach is available for Runway 24.



## GLOBAL POSITIONING SYSTEM (GPS)

GPS is a satellite-based navigation system, which was originally developed by the Department of Defense (DOD) for the military. GPS is a space-based satellite radio positioning and navigation system. The system provides highly accurate position and velocity information on a continuous global basis. The system is unaffected by weather and provides a common worldwide grid reference system based on three-dimensional position, velocity, and time. A GPS approach is available for Runway 24.

## ENROUTE NAVIGATION

Enroute navigation for IFR flights relies mostly on victor airways and jet routes, which are airways in the sky defined by VORs (ground-based navigational aids). Airways located below 18,000 feet MSL are depicted on low altitude enroute charts and are referred to as Victor Airways. Victor Airways are prescribed tracks between VORs, along which air traffic control service is provided.

Airways at and above 18,000 feet MSL up to 45,000 feet MSL are shown on high altitude enroute charts and are called Jet Routes. Jet Routes are also prescribed tracks between VORs, along which air traffic control service is provided.

Area Navigation (RNAV) is a method of aircraft navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigational signals or within the limits of a self-contained system capability. RNAV is accomplished by the installation of special computers in aircraft that navigate between waypoints defined in terms of latitude and longitude coordinates. RNAV provides enhanced navigational capability to the pilot and more flexible routing capability that allows for better utilization of the airspace.

### 2.05.3 Airspace Activity

Airspace activity at CGF consists of traditional general aviation such as flight training, recreational flying, charter flights, and business aviation. There is a small amount of military activity at the Airport, since it cannot accommodate many of the larger and heavier military. The Airport also has some medevac activity that includes transient helicopters and one based jet aircraft used for life flights.



## GENERAL AVIATION ACTIVITY

According to the forecasts prepared for CGF, approximately 30 percent of the total operations are local and 70 percent are itinerant. Itinerant operations at CGF are comprised of approximately 25 percent air taxi and 75 percent general aviation operations.

When an aircraft takes off and lands at the same airport without landing at any other airport, the aircraft is said to be performing local operations. An itinerant operation is a flight that takes off from one airport and lands at another. The high level of itinerant operations at CGF reflects the high level of corporate activity at the airport. Twenty-six percent of the total operations are performed by jet aircraft.

The remainder of operations can be attributed to recreational pilots with based aircraft at CGF, medevac flights, and flight training.

CGF has two flight schools. Pilots training at CGF perform touch-and-go's at CGF as well as at Willoughby Lost Nation Airport, which is approximately 10 miles northeast of CGF. There is also a flight training area southeast of CGF outside of its Class D airspace.

## FRACTIONAL OWNERSHIP ACTIVITY

Fractional jet owners purchase a share of a jet aircraft that entitles them to a certain number of flying hours per year. Fractional sales are growing by about 30 percent a year and forecasters believe fractional aircraft ownership will continue to serve as a powerful growth engine for business aviation.

Flight Options was founded in October 1998 and was the first to offer fractional shares in previously owned aircraft. This new concept translated into a cost savings of 35% on comparable programs offered by its competitors, and thus opened private jet travel to a broader audience.

Since its inception, Flight Options has experienced exceptional growth. The company had 150 customers after its first full year of operation. In December 2001, Flight Options combined operations with Raytheon Travel Air, effectively doubling the size of the company. Currently, Flight Options has more than 2,000 owners and a fleet of over 200 new and pre-owned aircraft.



## 2.05.4 CGF Airspace Considerations

There are a number of airspace considerations that affect operations at CGF. These include:

- Aircraft departing or arriving on an IFR flight plan coordinate with CLE TRACON approach and departure control. Aircraft departing CGF to the north may experience delays because of departing CLE traffic or arriving Burke Lakefront traffic. Aircraft arriving into CGF from the east have altitude restrictions because of CLE traffic and routing that can cost aircraft fuel and time.
- As traffic grows at CGF, staffing needs may increase at the ATCT and the Airport may need to re-evaluate their hours of operation.
- Lack of an automatic weather observation system limits operation capabilities during inclement weather at the Airport. Pilots rely on air traffic control observations for actual weather conditions at the Airport and higher approach minimums are required when the ATCT is closed.
- The LOC BC Runway 6 approach does not have a glideslope (vertical guidance). This increases visibility minimums for the approach.

## 2.06 Environmental Overview

The objective of conducting an environmental overview as part of the Master Plan Update is twofold: a) to describe the existing environmental conditions in the vicinity of the airport and surrounding communities, and b) to identify environmentally sensitive areas that may require special management, conservation and/or preservation during the planning, design and construction of proposed airport development projects.

The research methodologies applied in preparing this section of the Master Plan Update include literature review, agency consultation, field visits, and application of geographic information system (GIS) data for sensitivity mapping. (See **Appendix C** for environmental correspondence and documentation.)



Guidelines used in preparing this overview include the Federal Aviation Administration (FAA) Order 5050.4A, *Airport Environmental Handbook*, (dated October 8, 1985, and currently being updated by the FAA) which sets forth procedures based on the Council of Environmental Quality (CEQ) Regulations implementing the National Environmental Policy Act of 1969 (NEPA). This environmental overview does not replace environmental documents such as an environmental assessment (EA) or an environmental impact statement (EIS) required for proposed major actions in the master plan. To obtain environmental clearance for any proposed projects at the Airport, a full environmental evaluation document prepared in accordance with United States Department of Transportation (USDOT) policy; the Federal Aviation Administration (FAA) Order 5050.4A, *Airport Environmental Handbook*; FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*; and CEQ Regulations will be necessary.

The environmental discussion that follows focuses on describing the current environmental conditions within the airport and its environs and is divided into two principal categories:

- Description of the Natural Environment
- Description of the Socioeconomic Environment

Discussion of environmental impacts and associated mitigation is not covered in this section as these topics typically relate to specific actions proposed in the master plan. Impacts and mitigation will be considered during the evaluation of development alternatives in Phase 2 of the master plan update and addressed during the preparation of the appropriate environmental clearance document.

### 2.06.1 Natural Setting

The following sections describe current environmental conditions related to the natural environment in the vicinity of Cuyahoga County Airport.

#### AIR QUALITY

Air pollutants, defined as atmospheric contaminants, can be generated from either manmade or natural sources. Air pollutants resulting from incomplete combustion of fossil fuels are among the common manmade pollutants, and are the major focus of airport air quality studies. The major pollutants associated with airport operations, and for which National Ambient Air Quality Standards (NAAQS) exist, are:



- Sulfur dioxide (SO<sub>2</sub>)
- Carbon monoxide (CO)
- Nitrogen dioxide (NO<sub>2</sub>)
- Ozone (O<sub>3</sub>)
- Particulate (PM-10)

The federal Environmental Protection Agency (USEPA) designates areas throughout the United States according to their attainment of NAAQS. Cuyahoga County is designated by the USEPA as an attainment area for some of the above-listed pollutants and a non-attainment area for others.

Primary federal standards for specific contaminants are levels deemed to be protective of human health, whereas secondary standards address effects such as visibility reduction and soiling. **Table 2-6** presents the existing federal and state ambient air quality standards for specific air contaminants associated with airport operations, along with the appropriate averaging interval for each contaminant.

**TABLE 2-6  
STATE OF OHIO AND FEDERAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Interval	Standard (micrograms per cubic meter)		
		State of Ohio	Federal Primary	Secondary
Sulfur Dioxide	Annual	80	80	-
	24-hour	365	365	-
	3-hour	1,300	-	1,300
	8-hour	10,000	10,000	-
Carbon Monoxide	1-hour	40,000	40,000	-
Nitrogen Dioxide	Annual	100	100	100
Ozone	1-hour	160	235	235
Suspended Particulates (PM-10)	Annual	50	50	50
	24-hour	150	150	150

Sources: OHEPA Division of Air Pollution Control; Ohio Administrative Code 3745-17-02; and US Environmental Protection Agency Green Book Part 50 (July 2001)

Title 40 CFR Part 93 contains regulations requiring federal agencies to demonstrate that actions within areas designated as non-attainment areas or maintenance areas would not cause or contribute to exceedences of NAAQSs. These regulations set forth *de minimis* emission rates for identified air pollutants resulting from federal actions, and have been applied to airport expansion activities.



In accordance with the requirements of the Clean Air Amendments of 1977, the FAA has assumed responsibility for assuring that federal airport actions conform to state plans for controlling air pollution impacts. Any development at Cuyahoga County Airport may require that an air quality study be conducted.

## WATER QUALITY

The 660-acre Airport property is the endpoint for eight headwater tributaries that enter the East Branch of Euclid Creek, a federally-regulated stream. Correspondence received on December 23, 2003, from CT Consultants, city engineer for the City of Willoughby Hills, states that the city is in the process of a major sanitary sewer expansion program in areas surrounding the Airport. The letter states that failing on-site sewerage systems have impaired the water quality of the Euclid Creek and the city is addressing Administrative Findings and Orders issued to them by the Ohio EPA. The city is installing sewers along White and Bishop Roads. This sewer program is designed to address the Findings and Orders issued to the City of Willoughby Hills by the Ohio Environmental Protection Agency (OEPA).

No communication has been received from the OEPA identifying significant water quality impacts or related problems existing around the airfield. Consultation with the U.S. Department of the Interior (DOI) Fish and Wildlife Service (FWS), and the U.S. Environmental Protection Agency (EPA) will occur as part of any environmental assessment associated with proposed development projects at the airfield.

Construction best management practices will be implemented to mitigate any temporary impacts to water quality because of or resulting from construction activities associated with any future development projects. The contractor will be required to comply with the requirements outlined in FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*. Water quality would be protected by installing and maintain soil erosion and sediment controls properly sequencing construction operations, and stabilizing exposed earth as soon as practicable during construction.

## WETLANDS

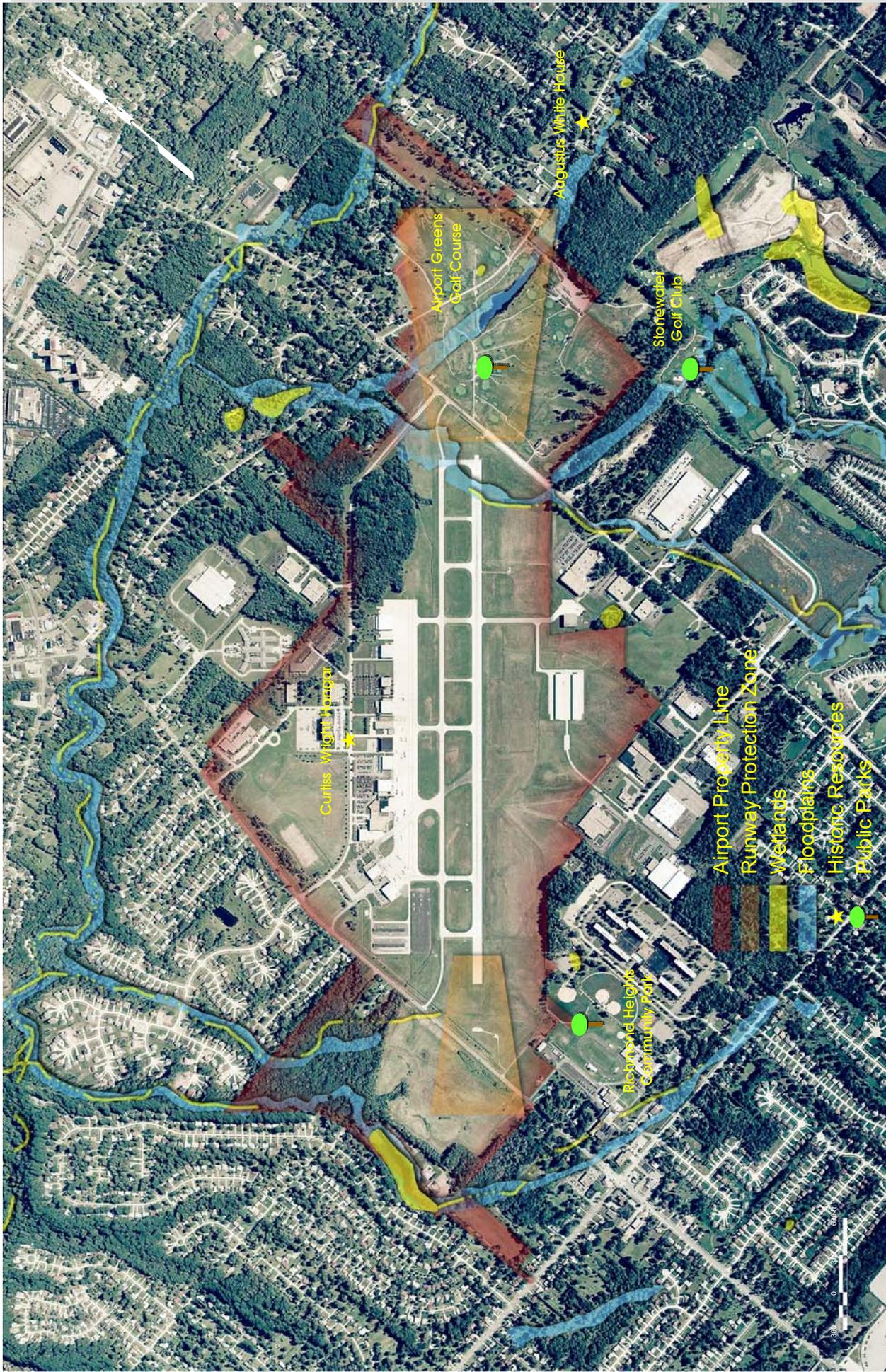
According to the National Wetlands Inventory Map provided by the United States Department of Interior, there is a wetland area located on the airport property. The wetland is located on the westernmost portion of the property, west of Richmond Road and bordering the Euclid Creek and is classified as Riverine/Upper Perennial. Due to its location well outside the boundaries of the airfield, the potential of this wetland being disrupted or disturbed during airport activities is unlikely.



Activities within the waters of the United States, including wetlands, are regulated by the ACE under Section 404 of the Clean Water Act, which defines wetlands as:

*Those areas that are inundated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.*

**Figure 2-16**, the Environmental Inventory Map, shows the federally-regulated wetlands (as depicted on National Wetlands Inventory mapping). Although this area is unlikely for any airport development, wetland permits will be acquired before any development will occur that would impact this wetland area. It is recommended that a qualified professional evaluate the airport property and areas of potential acquisition to conduct a wetland survey and delineation conforming to the procedures outlined in the Army Corps of Engineers Wetland Delineation Manual (1987) and that this survey be contained in any subsequent environmental assessment document.



# Cuyahoga County Airport Airport Master Plan Update Environmental Inventory Map Figure 2-16

Sources: Aerial photography, Columbus Engineering Consultants, Inc., October 2003  
 National Wetlands Inventory Mapping, USDOI,  
 East Cleveland and Mayfield Heights quadrants  
 Historic Inventory Properties, Ohio Historic Preservation Office, Columbus, Ohio





## FLOODPLAINS

Floodplains are defined as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year."

Flood Insurance Rate Maps (FIRM) for Richmond Heights, Highland Heights, and Willoughby Hills, were reviewed to determine if the airport property is within a floodplain. According to these maps, 100-year flood hazard areas exist on airport property to the west of Richmond Road and east of Bishop Road (within the golf course). Mapping also shows a 100-year flood hazard area where a Euclid Creek tributary crosses the north end of the airfield. This tributary is contained within a culvert and drainage swale where it crosses the paved runway and taxiway areas of the airfield. Figure 2-16 shows the 100-year floodplain areas on and near the airport property. Any construction projects associated with the Airport will require additional study to determine what impacts, if any, they will have on the floodplains.

## BIOTIC COMMUNITIES

Consideration of biotic communities and endangered and threatened species is required for all proposals under the Endangered Species Act. Section 7 of the Endangered Species Act as Amended requires each Federal agency to insure that any action the agency carries out "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat" of critical species.

According to correspondence from the Ohio Department of Natural Resources (ODNR) dated December 17, 2003, there are no known biotic communities that will be impacted by activities or development at the Airport. Consultation with the United States Department of the Interior (USDO I) Fish and Wildlife Service (FWS) will be made as part of the preparation of an environmental assessment for any proposed development.

## ENDANGERED AND THREATENED SPECIES OF FLORA AND FAUNA

Based on correspondence from the ODNR, and no contrary evidence from other agencies or sources, no impacts to endangered or threatened species are expected to be associated with any proposed project at the Airport, and no mitigation measures are likely to be required.



## COASTAL ZONE MANAGEMENT PROGRAM AND COASTAL BARRIERS

Cuyahoga County Airport is not located within or adjacent to a coastal zone; therefore, any proposed action and reasonable alternatives would not adversely impact the coastal zone natural resources protected by the National Oceanic and Atmospheric Administration.

## WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act describes those river areas eligible to be included in a system that offers protection to rivers which “are free flowing and possess... outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.” Correspondence from ODNR dated December 17, 2004, states that there are no existing or proposed scenic rivers in the vicinity of the Airport; thus, there will be no impacts.

### 2.06.2 Socioeconomic Setting

The following sections describe current environmental conditions related to the socioeconomic environment in the vicinity of Cuyahoga County Airport. Background is presented on land use and zoning, growth characteristics, population trends, and economic and fiscal impacts of the Airport, in Section 2.01, Airport Setting, and Section 3.02, Socioeconomic Indicators.

## NOISE

A range of aircraft, from single-engine propeller aircraft to small business jets, utilizes the Cuyahoga County Airport. Aircraft generated noise is the most common environmental impact at airports. These impacts are strongly affected by the volume and type of aircraft traffic at the facility.

The FAA has developed a single method for assessing and illustrating aircraft noise exposure at airports throughout the country. The FAA requires that noise analyses use the Integrated Noise Model (INM), a computer program that calculates and produces a graphical depiction of the degree of aircraft noise experienced in the vicinity of an airport.

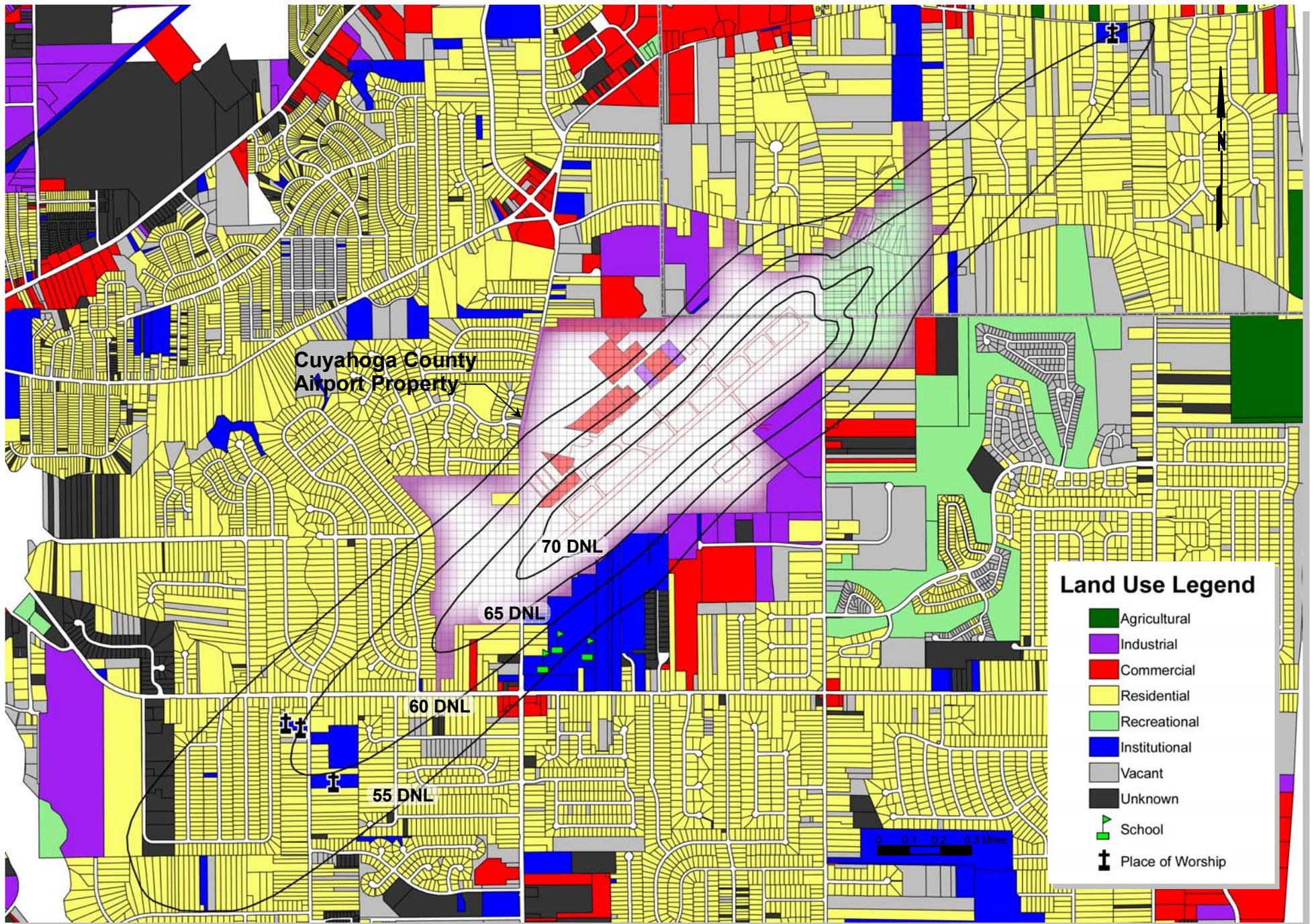
In order to establish current aircraft noise exposure levels, a noise study for Cuyahoga County Airport, conducted by Charles M. Salter Associates, Inc., began in the fall of 2004. A careful assessment of the aircraft activity that occurs on an average annual day laid the groundwork for developing noise exposure contours for the YR2003 Baseline at Cuyahoga County Airport. These contours represent more than a thousand lines of input for the volume of daytime and nighttime operations of 26 aircraft types on 42 flight tracks averaged for the year.



The model produced noise contours using the Day-Night Average Sound Level (DNL) for levels from DNL 50 dB to DNL 85 dB. Residential and other noise sensitive uses are considered incompatible in areas of DNL 65 dB and higher.

Assumptions utilized to determine existing noise exposure contours include fleet mix, numbers of operations by time of day for an average day, current and predicted flight tracks, and percent distribution of runway use. The noise level descriptor is the day-night average sound level (DNL), which is the average sound level in A-weighted decibels (frequency-weighted sound levels that correlate with human hearing) for an average day.

Per FAA guidance, the following three ranges of noise exposure levels were selected for the analysis: DNL 65-70, DNL 70-75, and greater than DNL 75. The low end of each range is considered a threshold for determining effects of aircraft noise exposure. DNL values are indications of the effect that aircraft noise at these levels has on people living and working in these areas, and are intended as guidelines for land use decisions by local authorities. **Figure 2-17** presents the noise contours for existing conditions (2003 operations) at the Airport. The DNL 70 contour and above are entirely on airport property. The 65 DNL contour extends off airport property to the southwest of the airfield and touches parts of nine residential parcels. The figure also depicts the 60 and 55 DNL noise contours within which all land uses are considered compatible.



Sources: Noise contours for YR2003 Baseline, Charles M. Salter Associates, Inc., November 2005  
 Aerial photography, Columbus Engineering Consultants, Inc., October 2003  
 Tax parcel data, Cuyahoga County Planning Commission, January 2005  
 Tax parcel data, Lake County GIS, April 2000

**Cuyahoga County Airport  
 Airport Master Plan Update**  
**Existing Airport Noise Exposure**  
 Figure 2-17



The USEPA Council of Environmental Quality established standards for noise at airports across the country. FAA guidance acknowledges that noise is the impact usually associated with land use compatibility in areas affected by airport development. These sound levels, while generally indicative of acceptable levels in the areas described, are not meant to supersede local acceptability judgments. Land uses or community activities that may be particularly noise-sensitive may require alternative standards or utilization of seasonal or peak, rather than average, traffic levels.

Mitigation measures that have been typically undertaken to address land use incompatibility associated with noise include:

- Public awareness programs;
- Property acquisition;
- Residential sound insulation; and
- Comprehensive plans, zoning, and subdivision regulation.

#### COMPATIBLE LAND USE

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to that airport. Land use compatibility standards have been developed through surveys of residents living near airports worldwide. The normal standards associated with the Day-Night Average Sound Level Methodology are shown on **Table 2-7**. These standards are incorporated from Federal Aviation Regulation (FAR) Part 150 and are intended as guidelines for development recommendations in noise exposure areas. All land uses are considered compatible below the DNL 65 level. As shown on Figure 2-17, there are approximately nine residential parcels that fall within the DNL 65 contour. All are southwest of the Airport in Richmond Heights.

Some land uses in the vicinity of the Airport are generally compatible with airport activities and are consistent with the zoning laws in the area. However, there are significant areas in the adjacent communities that are planned for residential uses despite the Airport's long existence in the area. For example, some formerly vacant or undeveloped properties within the Airport's approach/departure paths (northeast and southwest of the Airport) are being developed for single family residential uses. In order to comply with federal standards, the County must monitor uses of land located near the end of the runway, to ensure that land is not used for activities that are potentially incompatible with the needs of aircraft landing and taking off. A 20-acre parcel, locally known as the Mayfair property, was acquired by the County in 2005. The property, located on Highland Road directly adjacent to the Airport's existing property, was at risk to be sold and developed for new housing or other types of activities not suited for a site within less than half a mile from the end of the runway. The FAA directs airport owners, such as the County, to acquire these types of areas, whenever possible and affordable, and ensure that no development take



place. The County will be securing this property, demolishing the existing vacant structures located there, and keeping the area clear of future development.

## SOCIAL IMPACTS

The FAA requires specific analysis of social impacts associated with relocations of residential properties or commercial properties, or other community disruption that may be caused by any airport action. The categories of disruptions to be considered are:

- Alteration of surface transportation patterns;
- Division or disruption of neighborhoods;
- Disruption of orderly planned development; and
- Appreciable change in employment patterns.

Table 2-7, showing FAR Part 150 Airport Noise Compatibility Planning standards for land use compatibility, provides a preliminary basis for the determination of social impacts. Potential impacts include those that would require residential or commercial property relocation and be evaluated as part of an environmental assessment procedure. There is no anticipated development that would require significant relocation. Currently, any proposed projects would not significantly alter surface transportation patterns, divide or disrupt established communities, or create an appreciable change in employment. Thus, there should be no significant impact.



**TABLE 2-7  
LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS**

Land Use	Below					
	65	65-70	70-75	75-80	80-85	85
<b>RESIDENTIAL</b>						
Residential, other than Mobile Homes and Transient Lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>PUBLIC USE</b>						
Schools, Hospitals and Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums and Concert Halls	Y	25	30	N	N	N
Government Services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>COMMERCIAL USE</b>						
Offices, Business and Professional	Y	Y	25	30	N	N
Wholesale and Retail-Building Materials, Hardware and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade-General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>MANUFACTURING AND PRODUCTION</b>						
Manufacturing-General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (except Livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resource Production and Extraction	Y	Y	Y	Y	Y	Y
<b>RECREATIONAL</b>						
Outdoor Sports Arenas and Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusement Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N



**TABLE 2-7  
(Continued)**

**LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS**

**KEY:**

Y (Yes)	Land use related structures compatible without restrictions.
N (No)	Land use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into design and construction of structure.

**NOTES:**

- (1) Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide an NLR of 20 dB. Thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received; office areas, noise sensitive areas or where the normal noise level is low.
- (3) Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received; office areas, noise sensitive areas or where the normal level is low.
- (4) Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received; office areas, noise sensitive areas or where the normal noise level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings not permitted.

Source: FAR Part 150 Airport Noise Compatibility Planning, Appendix A, U.S. Department of Transportation, Federal Aviation Administration (January 1985)





## INDUCED SOCIOECONOMIC IMPACTS

Induced socioeconomic impacts refer to the stimulation of residential housing construction or the institution of business or other activities which may result from the increases in use fostered by airport development. These impacts are normally site-specific. For example, increased air passenger traffic could prompt the development of such business as auto rental agencies, restaurants, or transient lodging.

An economic and fiscal impacts analysis was prepared by Robert Simons & Associates, Inc., for Cuyahoga County Airport in 2004. The study evaluated the direct and indirect economic impacts of current business activity at and in the vicinity of the Airport. The study points up the fact that the County Airport is a major employment center in the three municipalities in which the airport property is located: Richmond Heights and Highland Heights in Cuyahoga County, and Willoughby Hills in Lake. The report, included as **Appendix B**, documents tax implications, fiscal impacts on the surrounding communities, and employment.

## DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f)

Section 4(f) of the DOT Act stipulates that the Secretary of Transportation shall not approve any project that requires using publicly owned land from a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance. Likewise, the Secretary of Transportation shall not approve any project requiring use of an historic site of national, state, or local significance, as determined by the officials having jurisdiction thereof. Such projects may be approved only if there is no feasible alternative to the use of such lands, and if it is demonstrated that the project includes all possible planning to minimize impacts.

Correspondence dated December 10, 2003, from Irene R. Porter, Manager of the FAA's Detroit Airports District Office, states that the golf course northeast of the Airport is eligible under the regulations pertaining to Section 4(f) because it meets the criteria as a recreational use. Any proposed actions and reasonable alternatives considered in the master plan update will include the determination of publicly-owned parkland, recreation areas, or wildlife or waterfowl refuges and will be evaluated under a Section 4(f) study scope in an appropriate NEPA document.



## HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

The Archeological and Historic Preservation Act of 1974 provides for the survey, recovery, and preservation of significant scientific, prehistoric, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a Federal, federally-licensed, or federally-funded project.

Correspondence from the Ohio Historical Society dated December 19, 2003, provided a list of eligible sites located at or near the Airport. These buildings are noted below:

Ohio Historic Inventory #	Name	Location
CUY211522	Curtiss-Wright Hangar	447 Richmond Road
LAK004202	Augustus White House	29320 White Road

The National Historic Preservation Act of 1966 requires that an initial review be made to determine if any properties that are in or eligible for inclusion in the National Register of Historic Places are within the area of a proposed action’s potential environmental impact. The locations of these properties are mapped on Figure 2-16. During preparation of an environmental assessment for any proposed development projects at the Airport, these structures will be identified and photos provided for comment.

## FARMLAND

If a proposed project involves the acquisition of farmland that will be converted to nonagricultural use, it must be determined whether any of that land is protected by the Farmland Protection Policy Act (FPPA). The FPPA provides guidelines for identifying the effects of federal programs on the conversion of farmland to non-agricultural uses.

There are no agricultural districts or agricultural land uses on airport property or in the communities immediately surrounding the Airport. Any proposed action and reasonable alternatives will not require acquisition of land presently used for farming. Therefore, conversion of farmland or impacts to prime and unique farmlands will not result from any activity or development at the Airport.

## ENERGY SUPPLY AND NATURAL RESOURCES

Potential impacts to energy requirements usually fall into two categories: those which relate to changed demands for stationary facilities (e.g., airfield lighting) and those which involve the movement of air and ground vehicles. No development of the Airport is expected to significantly change aircraft or ground vehicle use, which would increase fuel consumption, or change the use of any natural resources in short supply.



## LIGHT EMISSIONS

FAA guidance requires consideration of the extent to which any lighting associated with an airport action will create an annoyance among people in the vicinity of the installation. According to Cuyahoga County Airport staff, no concerns or complaints have been brought to the attention of the airport management by airport neighbors as a result of the facility's lighting. However, proposed airport development alternatives may require adding lighting at the Airport. Appropriate design of airport lighting aids along with visual barriers between any residential properties and the lights can mitigate impacts of any future projects on residents.

## SOLID WASTE AND HAZARDOUS MATERIALS IMPACTS

Any proposed action at the Airport may increase the quantity of solid waste generated by the Airport or affect the manner in which the Airport's solid waste is collected or disposed.

Areas previously used for solid waste or hazardous materials disposal could be encountered during construction of facilities or while grading existing areas, creating borrow pits or disposing excavated soils. Environmental migration of chemicals via groundwater, surface water, or air can result in exposure to these chemicals at a location remote from the solid or hazardous waste disposal site.

The Airport's Storm Water Pollution Prevention Plan (SWPPP), adopted in 2004, provides measures to be followed to mitigate impacts and notify appropriate agencies in the event of an inadvertent fuel spill or chemical spill at the facility. This plan includes measures to protect workers, the public, and the environment from potential construction-related exposure to chemicals that may be present in the soil or water. In the event of a release of a hazardous substance in an amount greater than the reportable quantity of the substance, as established by the EPA, a responsible party shall contact the National Response Center to provide details of the incident and measures shall be taken to reduce the effects of the release. The Airport is subject to the Ohio Environmental Protection Agency (OEPA) Phase 1 storm water regulations.

The SWPPP will be reviewed on a regular basis and amended whenever there is a change in the design, construction, operation, or maintenance which has a significant effect on the potential discharge of pollutants.



## CONSTRUCTION IMPACTS

Limited short-term effects resulting from construction operations may occur due to proposed development. Specific effects could include noise of construction equipment on the site, noise and dust from the delivery of materials, air pollution, and water pollution from erosion.

For future development at the Airport, potential impacts would be controlled and limited by requiring the contractor to comply with all contract provisions for environmental protection. These short-term construction impacts would not persist beyond the construction period, and no significant long-term construction impacts are expected as a result of development at the airport. All construction activities would take place in accordance with FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*.

## ENVIRONMENTAL JUSTICE

Executive Order 12898 (February 11, 1994) was issued to address Environmental Justice in Minority Populations and Low-Income Populations. The intent of this Order is to ensure that each federal agency conduct its programs, policies, and activities that substantially affect human health or the environment in a manner that does not exclude persons or populations from participation, does not deny benefits, and does not subject to discrimination because of race, color, or national origin. Ensuring greater public participation and access to information by minority and low-income populations is part of the environmental justice strategy.

No discrimination based on minority status or low income will result with implementation of any proposed project and opportunities will be offered for receiving public comments as part of an environmental assessment. Any proposed action as a result of this master plan update is not expected to have a significant adverse impact in this category.

## PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH RISKS AND SAFETY RISKS

Executive Order 13045 requires federal agencies to ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks and safety risks. Federal agencies must identify and assess potential environmental health risks to children. Potential environmental health risks are defined to mean risks to health that are attributable to products or substances that the child is likely to come in contact with or ingest, such as air, food, water, soil, and products.

No concerns have been raised to date concerning potential environmental health risks to children in the area of Cuyahoga County Airport. Disproportionate risks or impact



by the Airport on schools, playgrounds, and any other areas where children may frequent are not likely. Please refer to air, noise and water quality sections for additional information.

## CUMULATIVE IMPACTS

In order to determine the environmental impact, it is necessary to consider the overall cumulative impact of the proposed action and the consequences of subsequent related actions. A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (*Policies and Procedures for Considering Environmental Impacts*, 12/95, Order 1050.1D). FAA Order 5050.4A, *Airport Environmental Handbook* states that, “In the context of the CEQ Regulations, the total proposal includes the proposed action and all other actions reasonably related to it in time and probability.”

Determining the threshold beyond which cumulative effects significantly degrade a resource or ecosystem should take into account any other proposed development. Should threshold values, as specified in FAA Order 5050.4A, *Airport Environmental Handbook*, paragraph 47e, regarding airport-related development be exceeded, then cumulative effects should be addressed more substantially within the appropriate NEPA document.

### 2.06.3 Environmental Overview Summary

This section has provided an overview of existing environmental conditions at Cuyahoga County Airport. The inventory indicates that development at the Airport has the potential for impacts within the following environmental categories, either directly or indirectly:

- Noise
- Air Quality
- Compatible Land Use
- Induced Socioeconomic Impacts
- Public Recreation Area: DOT Act Section 4(f)
- Water Quality
- Wetlands
- Construction Impacts



The potential environmental effects by proposed facility improvements are identified and gauged against the baseline conditions. When and if a threshold of significance as defined in FAA Order 5050.4A, *Airport Environmental Handbook* has been exceeded, further analysis may be required in subsequent NEPA documents.

In the evaluation of development alternatives, an assessment will be made as to the potential impact in these categories. The evaluation of alternatives is based on a number of factors. Environmental considerations are weighed as completely and fairly as non-environmental considerations. The objective in developing the Airport Layout Plan is to enhance environmental quality or minimize environmental impacts while fulfilling the FAA's principal mission to provide for the safety of aircraft operations.

Compliance under NEPA requires potential impacts to be mitigated regardless of level of significance. Additionally, should threshold values, as specified in FAA Order 5050.4A, *Airport Environmental Handbook*, paragraph 47e regarding airport-related development be exceeded, then cumulative effects should be addressed more substantially within the appropriate NEPA document.

## 2.07 Summary

At the start of the master plan update study, the Airport management and the consultants identified a number of key issues at the Airport that included both concerns and opportunities. Surveys were sent to local business representatives and Airport users whose responses provided their unique perspectives. Focus groups representing seven key interest areas were formed and met to share and discuss their concerns and expectations for the study and the future of the Airport. Finally, at the initial project kickoff meeting and at project progress update meetings, Advisory Committee members identified key issues that the study should address. The background provided in this chapter, along with key issues identified by those individuals and groups, will be considered and addressed in the following chapters.