CHAPTER 1
INTRODUCTION

The Ohio State University, through its College of Engineering and Department of Aviation, the owner and operator of Ohio State University Airport (OSUA or Airport), is undertaking a Federal Aviation Regulation (FAR) Part 150 Study (14 CFR Part 150 Study, or Study) for the Airport. This Study provides the opportunity for aviation interests, state and local government officials, and the public to address noise and land use compatibility issues related to the Airport. There are two phases of the Study: the first is the Noise Exposure Map (NEM) and the second is the Noise Compatibility Program (NCP). The NEM phase of the study documents the aircraft noise exposure from the existing and future (five-year) operational environment for the Airport. The NCP phase evaluates potential future operational noise abatement measures as well as future land use mitigation opportunities to improve the compatibility of the Airport with the surrounding communities.

1.1 STUDY PROCESS OVERVIEW

The preparation of a 14 CFR Part 150 Study involves a series of steps that represent two distinct phases. Phase I represents the Noise Exposure Map (NEM) portion of the Study whereas Phase II represents the Noise Compatibility Program (NCP) portion of the Study. **Figures 1-1** and **1-2** depict these distinct phases for the 14 CFR Part 150 Study for the Airport. At the outset of the Study, key issues were identified. These issues were documented through initial input from officials from the University, representatives from local political jurisdictions and affected governmental agencies, individual citizens, and community interests. To accomplish this, input was received at meetings of the Airport's Part 150 Noise Study Advisory Committee (Part 150 Committee), meetings with the Technical Subcommittee of the Part 150 Committee, meetings with Airport personnel, and at general public meetings.

Initial efforts on the Study included the inventory of existing 2007 operational activity. This involved data collection of the number of aircraft operating at the Airport on an annual basis, the fleet mix (types of aircraft), the time of day in which the aircraft operate (day 7:00:00 a.m. to 9:59:59 p.m. or night 10:00:00 p.m. to 6:59:59 a.m.), and existing aircraft operational procedures (i.e., runway use, flight tracks, departure and arrival corridors). In addition to operational data, land use data were collected and reviewed. These data included zoning regulations, subdivision requirements, existing land use maps, future land use plans, and population distribution.

After collecting these data, a noise prediction model, the Federal Aviation Administration (FAA) Integrated Noise Model (INM) Version 7.0 was used to produce 2007 noise contours (areas of equal noise exposure around the Airport). The FAA requires that these noise contours be prepared for the current year (in this case 2007 when the Study began) and a projected condition for a future year at the discretion of the Study sponsor. For the Study at OSUA, the future year of 2012 was chosen to represent five years into the future from the date of submittal. In addition to the 2012 future noise contours, future noise contours were also developed for the year 2027. The forecasts of aircraft operations used in the model for the 2012 and 2027 conditions were derived from the most recent version of the Terminal Area Forecast (TAF) from the FAA. In this case, the most recent version was the 2007 TAF. The future fleet mix was determined based on several factors, including: current and projected fleet mix for OSUA, national trends in fleet mix change, airplane orders from manufacturers, and overall perception on what the private aircraft industry will look like

FIGURE 1-1
PART 150 STUDY PROCESS – PHASE I

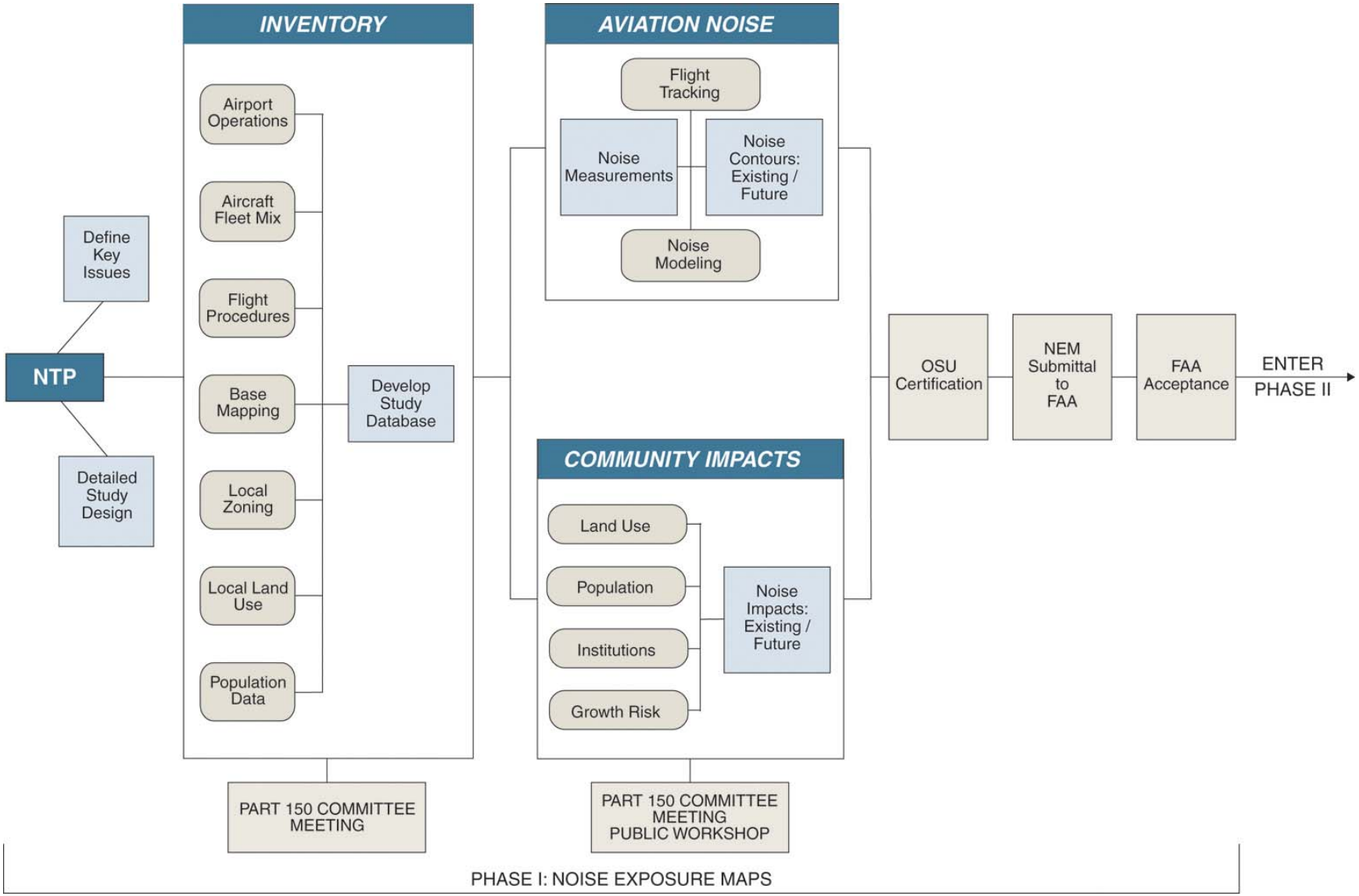
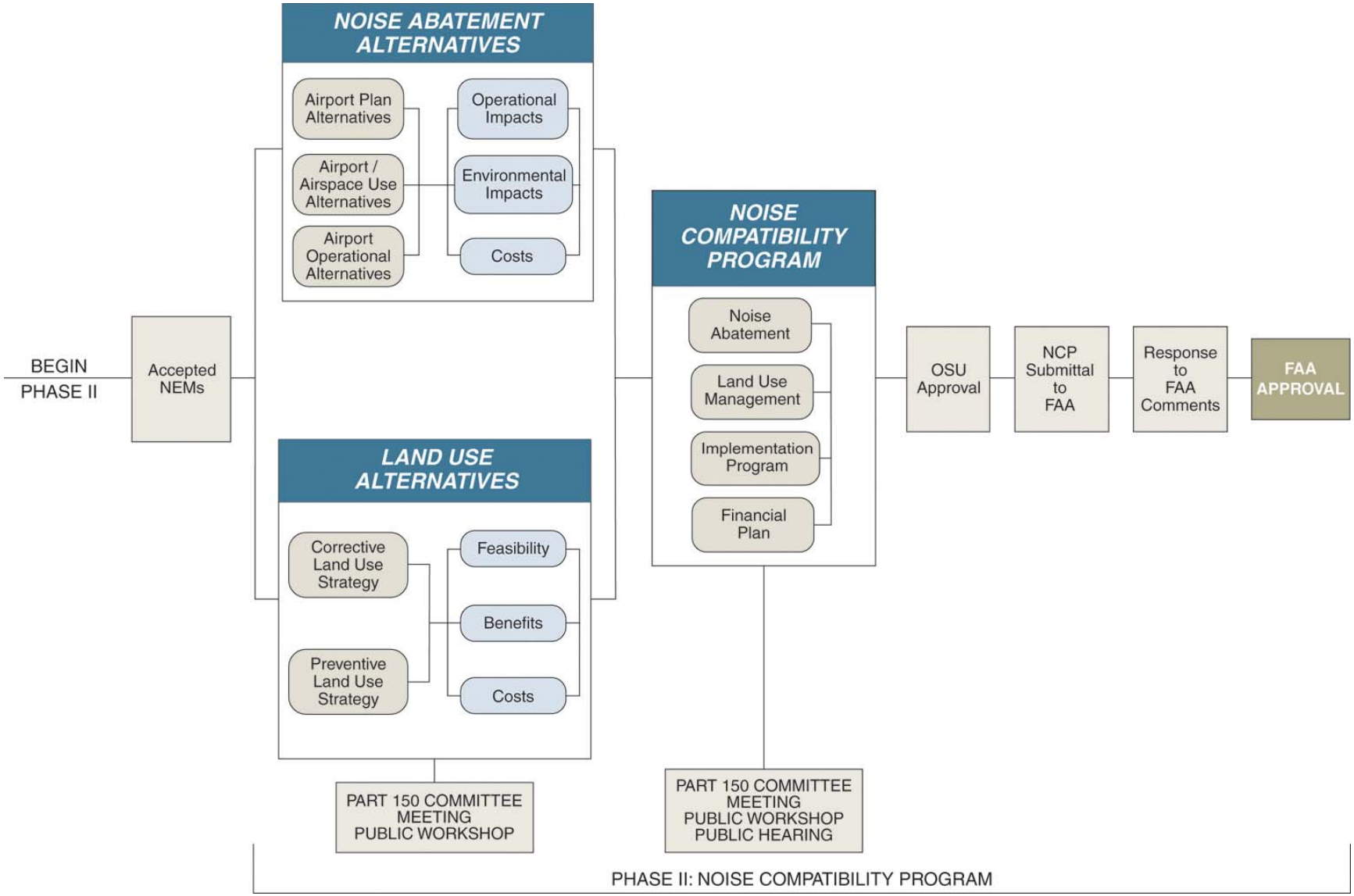


FIGURE 1-2
PART 150 STUDY PROCESS – PHASE II



in the future. The existing and future operational data and assumptions were input into the INM to generate the 2007, 2012, and 2027 Day-Night Average Sound Level (DNL) contours. The operating assumptions for 2012 and 2027 were different than those used in 2007 due to: a planned runway extension, an increase in the number of operations, and a slight change in fleet mix that is expected to occur.

The existing and future noise contours are collectively known as the Airport's NEMs. The NEMs serve as a basis for analyzing and comparing operational noise abatement procedure alternatives and evaluating land use-related noise mitigation measures. The NEMs are overlaid on existing land use maps and future land use plans (if available) to identify land uses that are compatible (or incompatible) with aircraft noise under current conditions and those planned for the future. The results of these analyses are documented in this NEM report.

The next phase of the Study will evaluate measures to improve noise compatibility around the Airport through possible modifications to aircraft operational procedures and possible changes to future land use planning and zoning requirements. The results of the alternatives analyses will be incorporated into the NCP, which will document the alternatives considered and present recommended changes.

The combined NEM and NCP will be submitted under 14 CFR Part 150 to the FAA for their approval. Certain recommendations that are approved could then become eligible for Federal noise abatement funding and for implementation of noise abatement flight procedures.

1.2 AIRPORT LOCATION AND SETTING

As shown on **Figure 1-3**, OSUA is located in Franklin County and within the Columbus Metropolitan area; approximately eight miles northwest of the downtown of the city of Columbus.

As identified on **Figure 1-4,** the Airport occupies approximately 792 acres within the 1,377-acre parcel of land owned by the University. The primary access to the Airport is from the south via West Case Road.

As can be seen on **Figures 1-3** and **1-4**, the Airport property is surrounded primarily by residential areas to the east, west, and south. The area immediately to the north of the Airport encompasses mixed commercial and residential uses. Within the property boundary, the University uses the majority of the land for aviation and the remainder for agriculture.

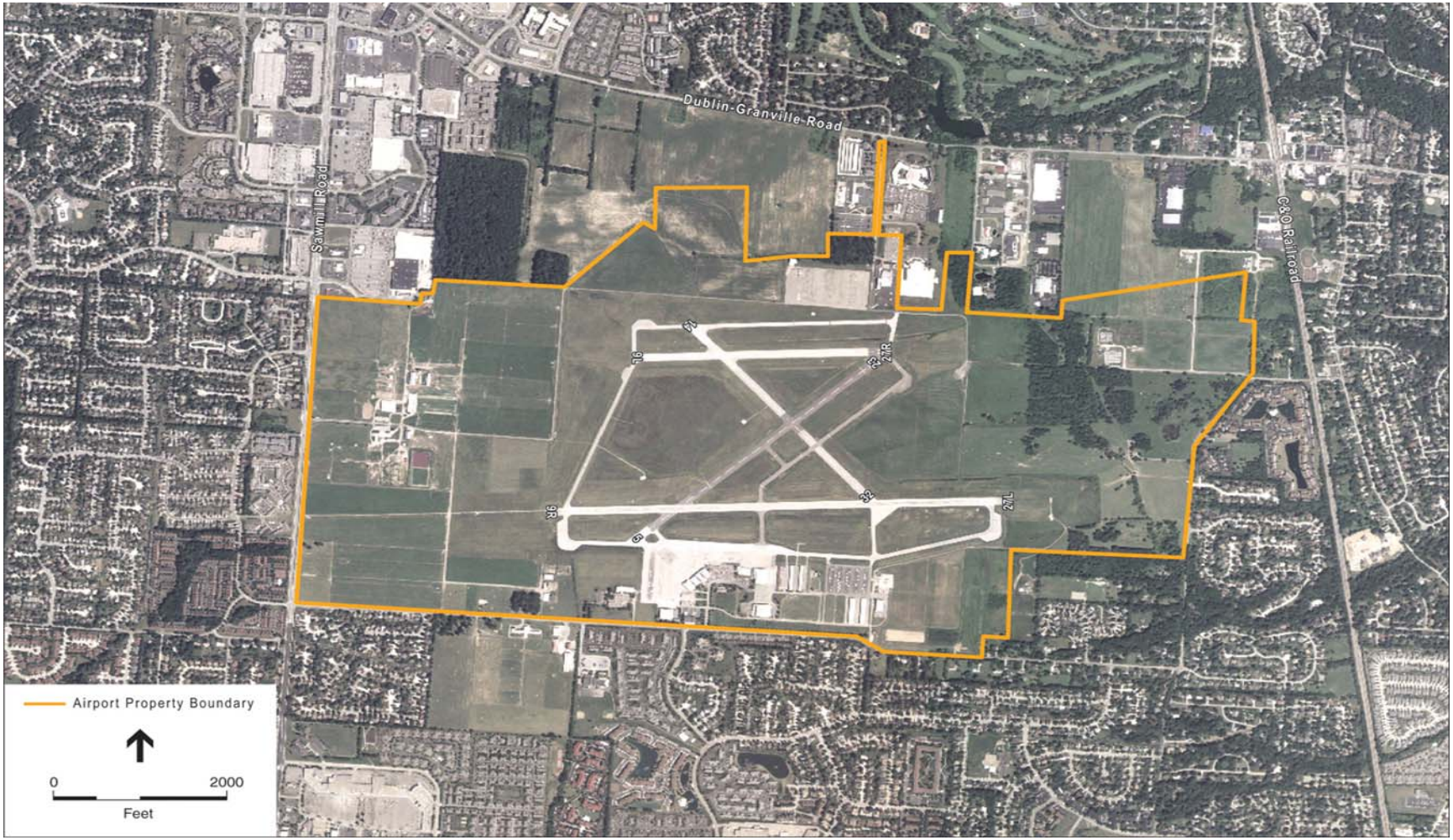
1.3 HISTORY OF AIRPORT DEVELOPMENT

The Ohio State University purchased the property for the Airport in 1942. At that time, the School of Aviation used the site first with a grass runway and then with paved runways after the completion of two 2,200-foot runways in 1944. The Airport was also used during World War II for the Civilian Pilot Training Program. In 1959, the Airport became a public use airport after the approval of the first Airport Master Plan. Upon approval of this plan, the Airport was qualified for federal grant-in-aid assistance. In 1962 the Airport extended one of the runways to 5,000 feet through grant funding. Additional airport improvement projects occurred in the 1980s including the development of corporate hangars, T-hangars, fire station, runway extensions, fuel facility, maintenance facility, and snow removal facility. An Airport Development Advisory Committee was formed in 1983 to assist in future planning and the incorporation of community needs as the Airport grew.

FIGURE 1-3
AIRPORT LOCATION

Source: ESA Airports

FIGURE 1-4
AIRPORT PROPERTY BOUNDARY



As noted above, the Airport's first Master Plan was approved in 1959. The most recent update, prior to current efforts, was the 2004 Draft Master Plan Update conducted by Wilbur Smith Associates. The 2004 Draft Master Plan Update included the analysis of the following projects:

- A runway extension for Runway 9L/27R
- Upgrade approaches to runways
- Taxiway connection improvements
- Infill/redevelopment of southern building area
- Development of northern building area when appropriate

Today, OSUA serves as a general aviation reliever airport to Port Columbus International Airport providing facilities and services to business jet, law enforcement, life flight, and student training activity. OSUA has no commercial airline passenger service.

1.4 EXISTING AIRPORT FACILITIES

1.4.1 Airfield and Landside Support Facilities

As shown in **Figure 1-4**, the Airport currently consists of four runways. Runway 9R/27L is the primary runway and is 5,002 feet long and 100 feet wide. Runway 9L/27R is parallel to the primary runway and is 2,994 feet long and 100 feet wide. The runways both have 50-foot-wide parallel taxiways. There are two crosswind runways: Runway 5/23 is 3,555 feet long and 100 feet wide. Runway 14/32 is 3,438 feet long and 100 feet wide. The Air Traffic Control Tower (ATCT) is located on the south side of the airfield and is operational from 7:00 a.m. to 11:00 p.m.

Most landside facilities are located on the south side of the airfield. Landside facilities include the passenger terminal, administration building, maintenance building, fixed base operator (FBO), aircraft storage facilities and a fuel farm. Landside facilities to the north of the airfield include hangars for MedFlight and the Ohio Division of Aviation and a fuel farm. There are currently:

- Four T-hangar buildings
- Seven conventional hangars
- Three aprons (approximately 58,883 square feet)
- 190 paved tie-down areas

1.4.2 Navigational Aids

OSUA has a variety of Navigation Aids (NAVAIDs) to assist pilots in poor visibility conditions or instrument operations. NAVAIDs include:

- ILS - Instrument Landing System
- HIRL - High Intensity Runway Edge Lights
- DME - Distance Measuring Equipment
- NDB – Non Directional Beacon
- LOC- Localizer
- MALSR – Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
- VASI-4 - Four Box Visual Approach Slope Indicators
- VASI-2 – Two Box Visual Approach Slope Indicators

Runway 9R is equipped with an ILS Category I approach. This allows approaches to a decision height down to 200 feet and horizontal visibility down to 1,800 feet.

1.4.3 Airspace/Air Traffic Control

The FAA is responsible for the safe and efficient use of the national air space. This airspace is divided into three specific types: enroute, terminal, and tower. When an aircraft departs an airport it is located in the airspace being handled by air traffic controllers working in an air traffic control tower. The ATCT personnel handle aircraft operations within five nautical miles of the control tower. Aircraft operating beyond five nautical miles are handled by controllers working in the Terminal Radar Approach Control Facility (TRACON). However, aircraft departing under Instrument Flight Rules (IFR) flight plans may be handed off to the TRACON within two to three nautical miles of OSUA. TRACON controllers are responsible for the airspace extending out 30 to 35 nautical miles from the airport in all directions. The aircraft then enters the third type of airspace and becomes the responsibility of enroute controllers working in an Air Route Traffic Control Center (ARTCC). The enroute controllers retain control until the aircraft nears its intended destination. The air traffic control process is then reversed for landings. The controllers responsible for aircraft operating in the OSUA airspace are located on the airport property in the Air Traffic Control Tower.

OSUA has an ATCT that operates from 7 a.m. to 11 p.m. Due to the close proximity of Port Columbus International Airport, the airspace surrounding OSUA is more complex than typical airports. The airspace surrounding OSUA is split between two classifications based on the altitude of the aircraft. All airspace from ground level up to 2,500 feet above ground level (AGL) and within a four nautical mile radius of OSUA falls within Class D airspace. To the east and southeast of OSUA, aircraft beyond these parameters fall within Class C airspace associated with Port Columbus; aircraft to the west and southwest of OSUA remain within Class D airspace up to 3,000 feet AGL and five nautical miles from the OSUA. Aircraft that operate within Class D Airspace must be in contact, at all times, with the tower controllers, especially to receive approval for take-offs and landings.

When the OSUA ATCT is not operational, portions of the airspace revert to Class G airspace, which is defined as uncontrolled airspace. All airspace up to 2,500 feet AGL and within a radius of four nautical miles, remains within Class G airspace. Those aircraft to the east and southeast of OSUA, above 2,500 feet AGL, fall within the Class C airspace of Port Columbus. Aircraft to the west and southwest of OSUA remain within Class G airspace till reaching a radius of five nautical miles from OSUA, at which point the airspace becomes Class E airspace.

1.5 NOISE ABATEMENT

To address the noise concerns of the local citizens, OSUA has established a noise abatement program. Several programs are in place to address the noise concerns. These programs include a “Please Fly Neighborly” program for pilots, traffic pattern altitudes, engine maintenance run-up procedures, and voluntary curfews on Stage 2 jets, auxiliary power unit usage, touch and go operations, and low practice approaches. It is important to know that the primary goal of the Airport is to maintain airport safety standards and uphold the FAR Rules and Regulations for a safe environment for aviation activities. It is important to note that aircraft in use for emergency services, such as police, ambulance, and military functions are excluded from the noise abatement programs. The OSUA Noise Abatement Guidelines are presented below.

General Operations

- Observe NBAA Noise Abatement Program
- PLEASE FLY NEIGHBORLY. When possible, avoid flying at low altitudes over noise sensitive areas. Maintain traffic pattern altitude except on departure or arrival. Use best climb speed and climb angle upon departure.
- Traffic Pattern Altitude for helicopters: 1,500 MSL
- Traffic Pattern Altitude for small aircraft: 1,900 MSL
- Traffic Pattern Altitude for jets: 2,400 MSL
- Use reduced thrust and/or quiet climb procedures when operationally and safely practicable.
- Use minimum thrust reversing on landing when feasible.
- On approach, fly standard 3-degree glide slope or use VASI lights.
- Arrival-departure pairs should use the same runway heading.
- Engine maintenance run ups prohibited from 10 p.m. to 7 a.m.
- Voluntary curfew of Stage 2 jets encouraged between 10 p.m. and 7 a.m.
- Avoid Auxiliary Power Unit usage between 10 p.m. and 7 a.m. and more than 1 hour before flight.

Training Operations

- Touch and go operations prohibited between 11 p.m. and 7 a.m.
- Low practice approaches prohibited between 11 p.m. and 7 a.m.
- Jet training prohibited.

1.6 NOISE COMPLAINTS

In recent years, community concerns related to the aircraft operations at the Airport have increased. In 2004, residents began logging their own complaints related to these aircraft operations in two separate databases, the Worthington Complaint Database and the We Oppose Ohio State Airport Expansion (WOOSE) Complaint Database.

In order to respond to community concerns regarding aircraft noise in the vicinity of the Airport, OSUA installed an aircraft noise and operations monitoring system, AirScene, in 2006. This system was installed to better understand the type of aircraft operations which were causing the greatest concern for communities. In order to gain understanding of these concerns, the system assists the Airport in analyzing the complaints and matching those complaints to specific airport activity. Complaints received by Airport Staff are logged into the AirScene system for analysis. Complaints are researched and information pertaining to the complaint is provided to the person making the

complaint. To gain a better understanding of the response to complaints process, a separate review was conducted of that process. That report has been included in **Appendix A**.

1.6.1 AirScene Complaint Database

The AirScene system tracks all flights within a 50-mile radius and provides information about each flight including altitude, aircraft type, date, time, and departure or arrival information. Noise complaints received by the Airport are also logged into the AirScene system. If the complaint time is specific enough, Airport staff can correlate that complaint to the aircraft which caused the noise event. Complaints are received by Airport staff in various ways. Complaints can be called into a hotline, emailed to a specific email address, and also logged directly into the system's web portal, WebScene.

Using data provided through these complaints and information within AirScene, Airport staff research the type of aircraft and view the flight track to determine the altitude, speed and the aircraft's proximity to the point of disturbance. Airport staff also gathers pertinent weather and air traffic control information relating to complaints. When requested by the person making the complaint, Airport staff will contact the person making the complaint to discuss their concerns and provide information regarding a specific aircraft flight.

The complaints within the AirScene database from August 11, 2006 to September 13, 2007 were analyzed to provide details on the time of day of the aircraft event, where complaints are being logged from, individual number of complaint locations for each city, the primary complaint type, and finally the type of aircraft correlated to complaints[1].

In reviewing all the complaints, the data showed that 82% of the complaints pertained to aircraft operations that occurred during the daytime hours (7:00:00 a.m. – 9:59:59 p.m.) and 18% of the complaints pertained to aircraft operations that occurred during the nighttime hours (10:00:00 p.m. – 6:59:59 a.m.). A review of the complaints by city, as shown in **Table 1-1**, Worthington showed by far the greatest number of complaints with 88% of all complaints. Dublin and Riverlea were the next highest complaint locations with 6% and 3%, respectively. **Figure 1-5** presents a plot of the location of the complaints from the AirScene data by zip code showing the geographic dispersion of the complaints. A graphic representation of the breakdown of complaints by city is provided in **Figure 1-6**.

TABLE 1-1
AIRSCENE COMPLAINTS BY CITY

City / Town	Total	Percentage by City
Worthington	3,708	88%
Dublin	268	6%
Riverlea	123	3%
Columbus	108	3%
Powell	3	<1%
Hilliard	1	<1%
Westerville	1	<1%
Unknown	1	<1%
Grand Total	**4,213**	

Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports

[1] For those complaints which have specific enough time reported to correlate to an aircraft within the AirScene system.

FIGURE 1-5
AIRSCENE COMPLAINTS DISTRIBUTION BY ZIP CODE

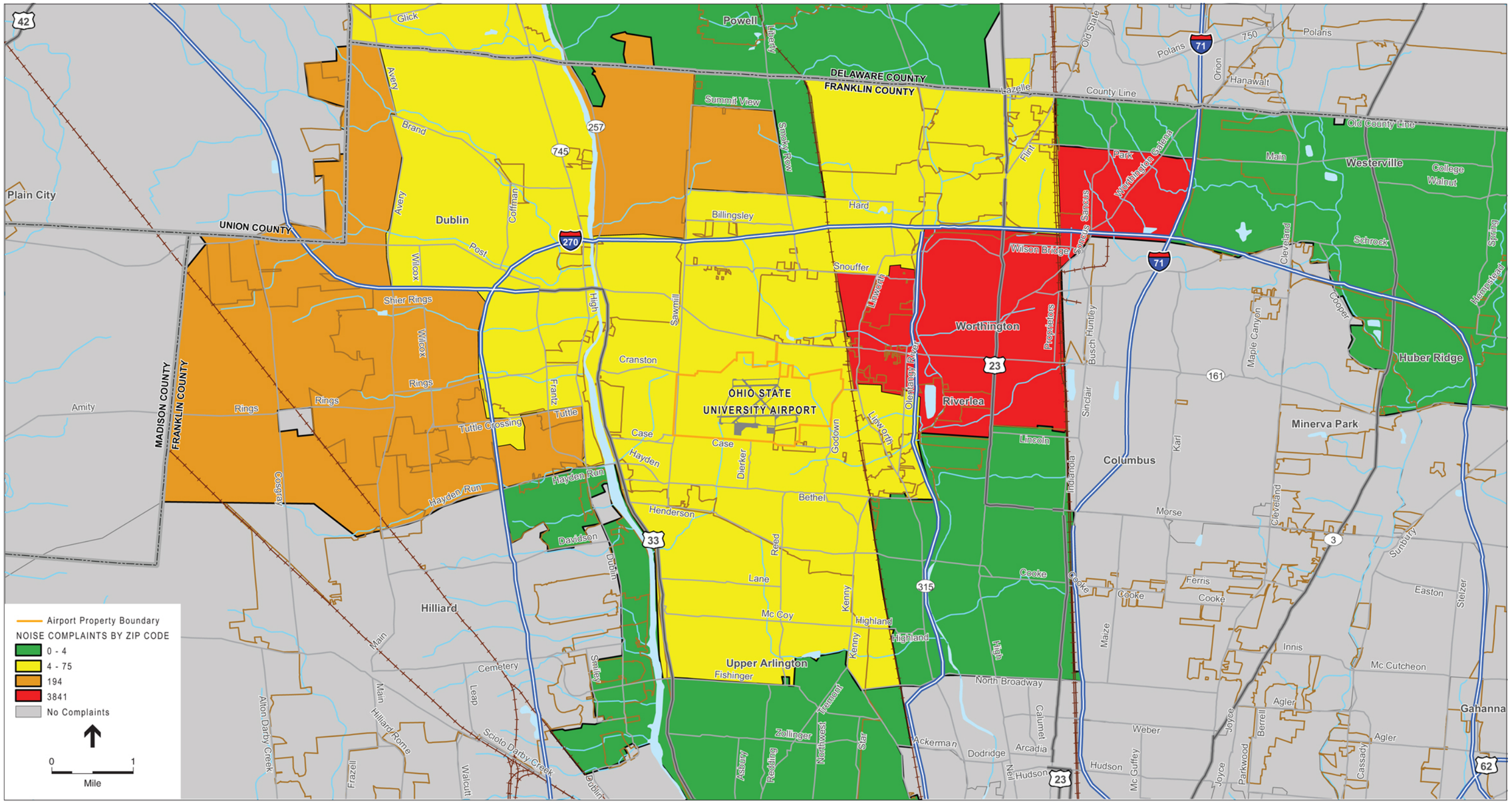
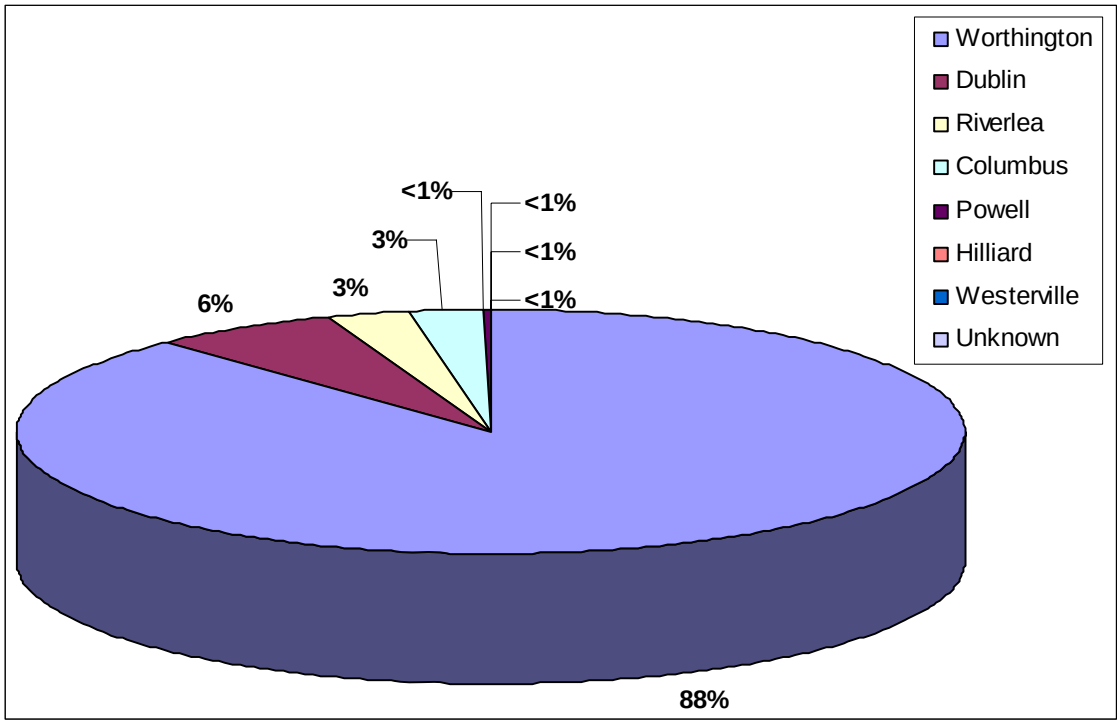


FIGURE 1-6
AIRSCENE COMPLAINTS BY CITY



Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports

In reviewing the complaints by city, it was determined that a comparison of individual addresses also should be conducted to determine the number of locations providing complaints to the Airport. As shown in **Table 1-2**, within each City/Town there were a small number of individual complaint locations that file the majority of the complaints. As an example, in Worthington there were six locations that were responsible for 68% of all the complaints from that City. In Dublin, there was one location that was responsible for 69% of all complaints filed from that City. This indicates the majority of complaints received at the Airport (67%) came from a small group of residents (11 locations).

TABLE 1-2
AIRSCENE COMPLAINTS AND LOCATIONS BY CITY

City / Town	Total	Complaint Locations	Locations with Highest Complaints	Percentage of Complaints
Worthington	3,708	112	6	68%
Dublin	268	28	1	69%
Riverlea	123	13	4	81%
Columbus	108	48	3	31%
Powell	3	2	1	100%
Hilliard	1	1	1	100%
Westerville	1	1	1	100%
Unknown	1	1	1	100%
Grand Total	**4,213**	**206**		

Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports

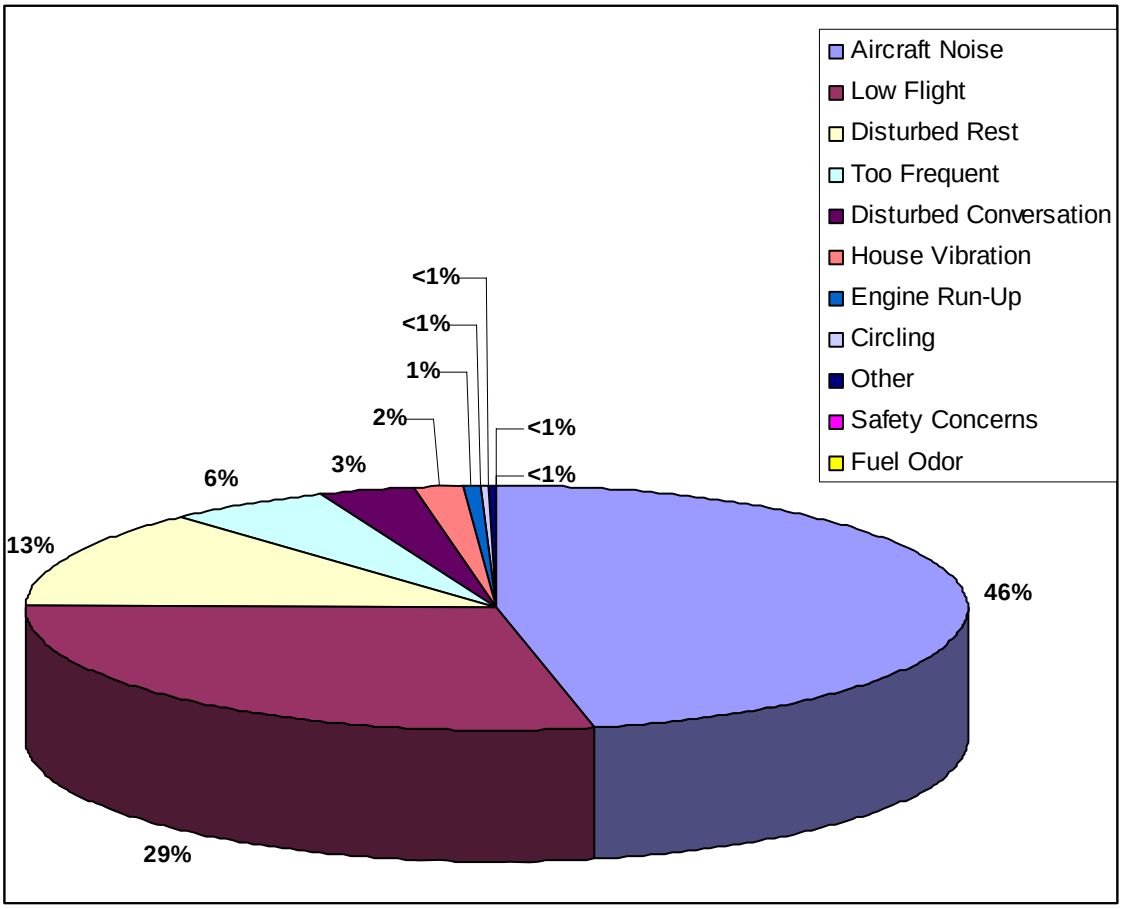
The type of complaint is also very important in understanding why aircraft overflights create community concerns. At OSUA, persons making a complaint could identify more than one complaint type. As shown in **Table 1-3**, Aircraft Noise was the greatest complaint with 47% of the total complaints. Low Flight was the second greatest concern with 29% of total complaints. Disturbed Rest was the third greatest concern of the complaints analyzed with 13%. A graphic representation of the breakdown of complaints by type is provided in **Figure 1-7**.

TABLE 1-3
AIRSCENE COMPLAINTS BY TYPE

Primary Complaint	Total	Percentage
Aircraft Noise	1,961	46%
Low Flight	1,213	29%
Disturbed Rest	545	13%
Too Frequent	237	6%
Disturbed Conversation	136	3%
House Vibration	71	2%
Engine Run-Up	24	1%
Circling	15	<1%
Other	6	<1%
Safety Concerns	3	<1%
Fuel Odor	2	<1%
Grand Total	**4,213**	

Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports

FIGURE 1-7
AIRSCENE COMPLAINTS BY TYPE



Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports

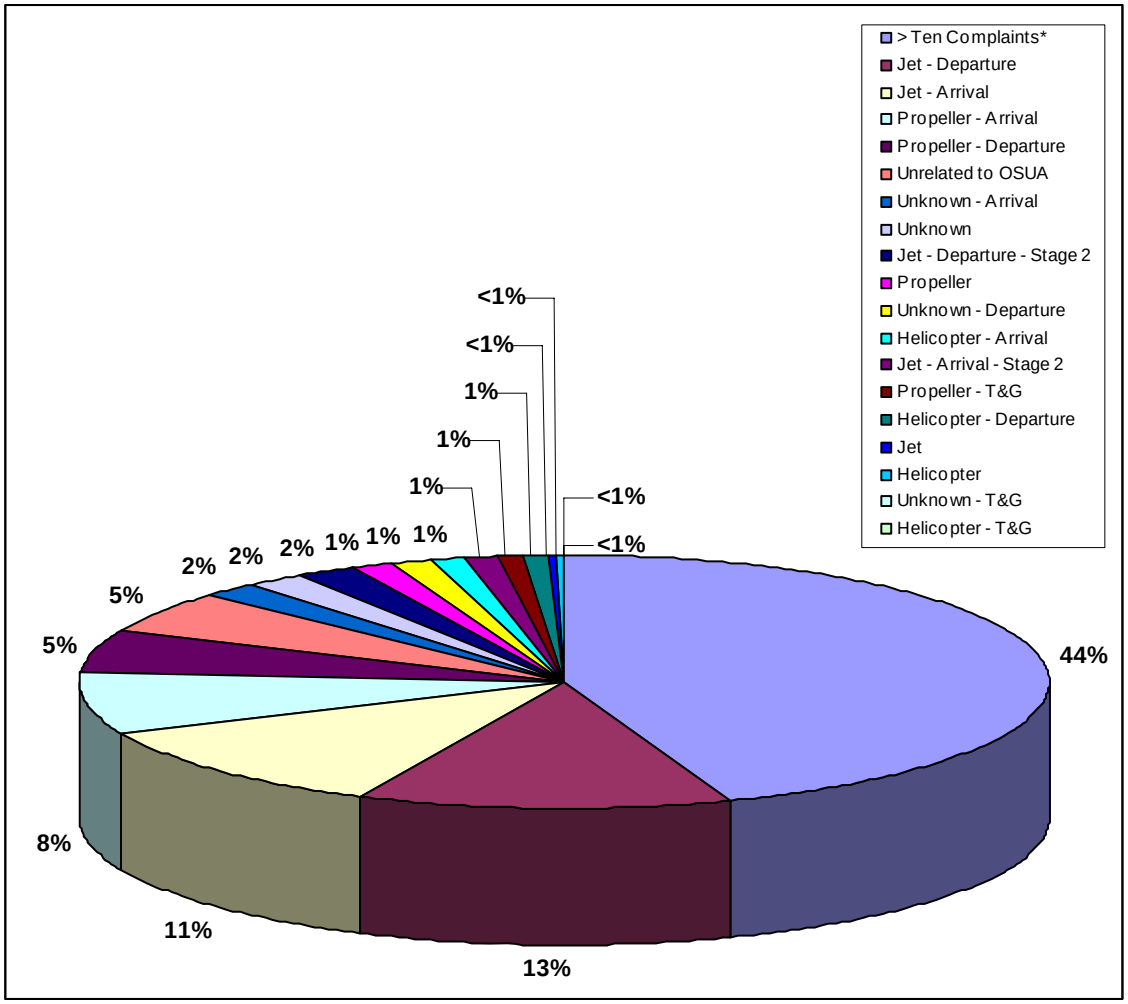
Having the aircraft operations available from the AirScene system, Airport staff can correlate complaints with actual aircraft operations. This allows Airport staff to review complaints by not only the aircraft type, but also by the type of operation. As shown in **Table 1-4**, approximately 44% of the total complaints were from locations that had placed more than 10 complaints in a single month. Complaints exceeding 10 per location each month are not researched or correlated by OSUA staff. Of the complaints that could be correlated, jet departures proved to be the most common with 13% of total complaints. Jet arrivals followed with 11% of total complaints. A graphic representation of the breakdown of complaint reconciliation is provided in **Figure 1-8**.

TABLE 1-4
AIRSCENE COMPLAINT RECONCILIATION

Complaint Reconciliation	Total	Percentage
Greater Than Ten Complaints*	1,869	44%
Jet - Departure	534	13%
Jet - Arrival	473	11%
Propeller - Arrival	332	8%
Propeller - Departure	227	5%
Unrelated to OSUA	223	5%
Unknown - Arrival	87	2%
Unknown	82	2%
Jet - Departure - Stage 2	78	2%
Propeller	58	1%
Unknown - Departure	57	1%
Helicopter - Arrival	48	1%
Jet - Arrival - Stage 2	48	1%
Propeller - T&G	36	1%
Helicopter - Departure	33	1%
Jet	14	<1%
Helicopter	10	<1%
Unknown - T&G	3	<1%
Helicopter - T&G	1	<1%
Grand Total	**4,213**	

Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports
* Up to ten complaints are researched each month per location.
Those exceeding ten complaints a month are not researched.

FIGURE 1-8
AIRSCENE COMPLAINT RECONCILIATION



Source: OSUA AirScene (8/11/06 – 9/13/07); ESA Airports
* Up to ten complaints are researched each month per location. Those exceeding ten complaints a month are not researched.

1.6.2 WOOSE Complaint Database

In addition to the AirScene database, the database kept by WOOSE was also reviewed to compare trends with the AirScene database. This database included complaints from November 12, 2004 through March 13, 2006. This information was analyzed, as provided by WOOSE, to provide additional details on complaints surrounding the airport. This information was not correlated to actual aircraft flight tracks and therefore any relation to aircraft types is based on the observation by the person making the complaint.

In reviewing all the WOOSE database complaints, the data showed that 81% of the complaints pertained to aircraft operations that occurred during the daytime hours (7:00:00 a.m. – 9:59:59 p.m.) and 19% of the complaints pertained to aircraft operations that occurred during the nighttime hours (10:00:00 p.m. – 6:59:59 a.m.). In reviewing the complaints by city, as shown in **Table 1-5**, Worthington also proved to have the greatest number of complaints with 86% of all complaints coming from that city. Dublin and Columbus were the next highest complaint locations with 11% and 3% respectively. This assessment proves general agreement between the WOOSE and

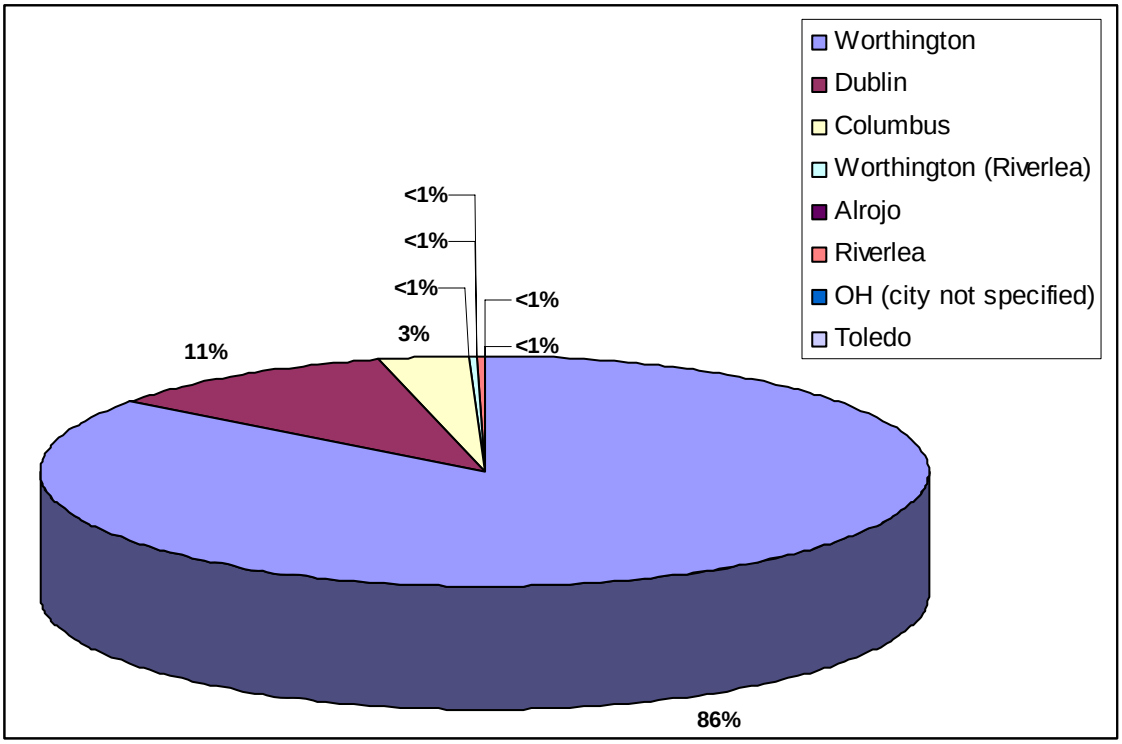
AirScene databases regarding the location of complaints by city. A graphic representation of the breakdown of complaints by city is provided in **Figure 1-9**.

TABLE 1-5
WOOSE COMPLAINTS BY CITY

City	Number of Complaints	Percentage
Worthington	9,988	86%
Dublin	1,263	11%
Columbus	373	3%
Worthington (Riverlea)	41	<1%
Alrojo	18	<1%
Riverlea	12	<1%
OH (city not specified)	4	<1%
Toledo	1	<1%
Grand Total	**11,700**	**100%**

Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

FIGURE 1-9
WOOSE COMPLAINTS BY CITY



Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

A comparison of individual addresses was also conducted to determine the number of locations providing complaints about airport operations. As shown in **Table 1-6**, Worthington still showed the greatest number of complaint locations (69%), but with a lower percentage than that shown by looking only at complaints (85%). Columbus had more individual complaint locations (16%) than Dublin (9%) as contrasted with the percentage of complaints for each city. This assessment proves general agreement between the WOOSE and AirScene databases. A graphic representation of the

breakdown of complaints and locations by city is provided in **Figure 1-10**. As observed with the AirScene data, within each City/Town there were a small number of individual complaint locations that file the majority of the complaints.

TABLE 1-6
WOOSE COMPLAINTS AND LOCATIONS BY CITY

City	Number of Complaints	Complaint Locations	Locations with Highest Complaints	Percentage of Complaints
Worthington	9,988	168	10	65%
Dublin	1,263	23	2	84%
Columbus	373	38	4	83%
Worthington (Riverlea)	41	2	1	98%
Alrojo	18	1	1	100%
Riverlea	12	9	3	58%
OH (City not specified)	4	2	1	75%
Toledo	1	1	1	100%
Grand Total	**11,700**	**244**		

Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

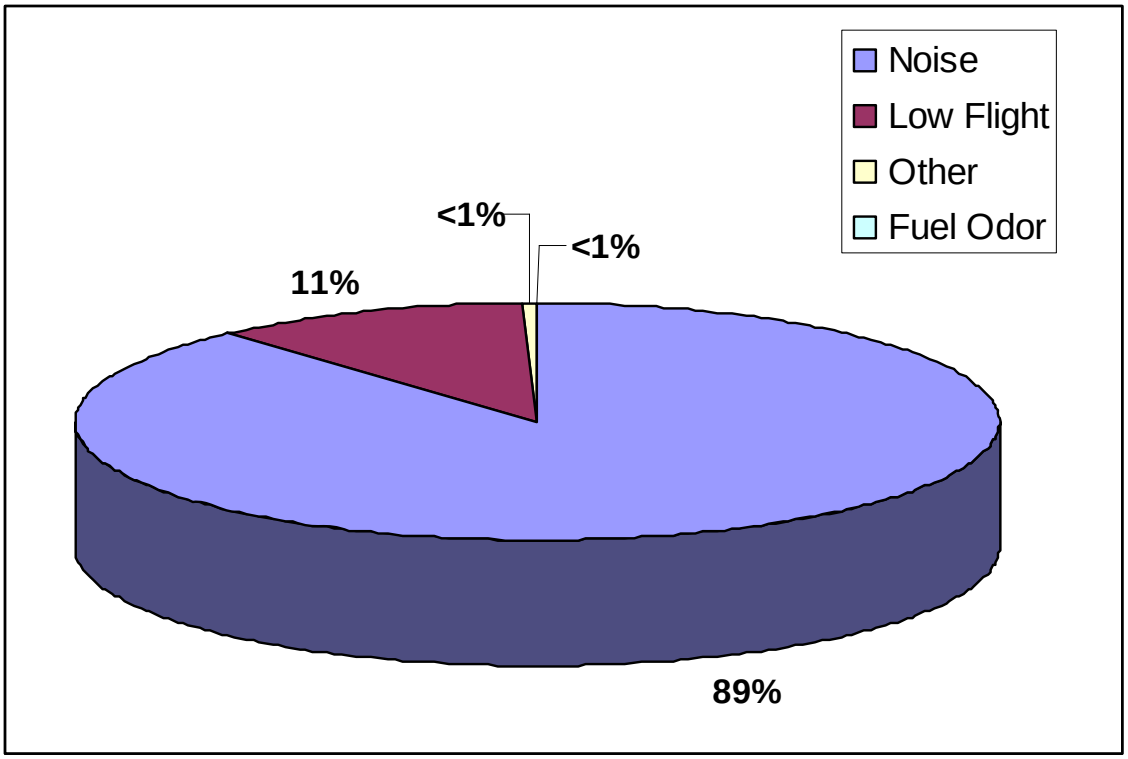
An assessment of the type of complaint also was prepared to compare with the AirScene database. As shown in **Table 1-7**, Aircraft Noise was the greatest complaint with 88% of the total complaints. Low Flight was the second greatest concern with 11% of total complaints. This assessment indicates general agreement between the WOOSE and AirScene databases, though the AirScene system seemed to give a greater variety of concerns as options when filing a complaint. A graphic representation of the breakdown of complaints by type is provided in **Figure 1-10**.

TABLE 1-7
WOOSE COMPLAINTS BY TYPE

Complaint Type	Complaints	Percentage
Noise	10,329	89%
Low Flight	1,317	11%
Other	49	<1%
Fuel Odor	5	<1%
Grand Total	**11,700**	

Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

FIGURE 1-10
WOOSE COMPLAINTS BY TYPE



Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

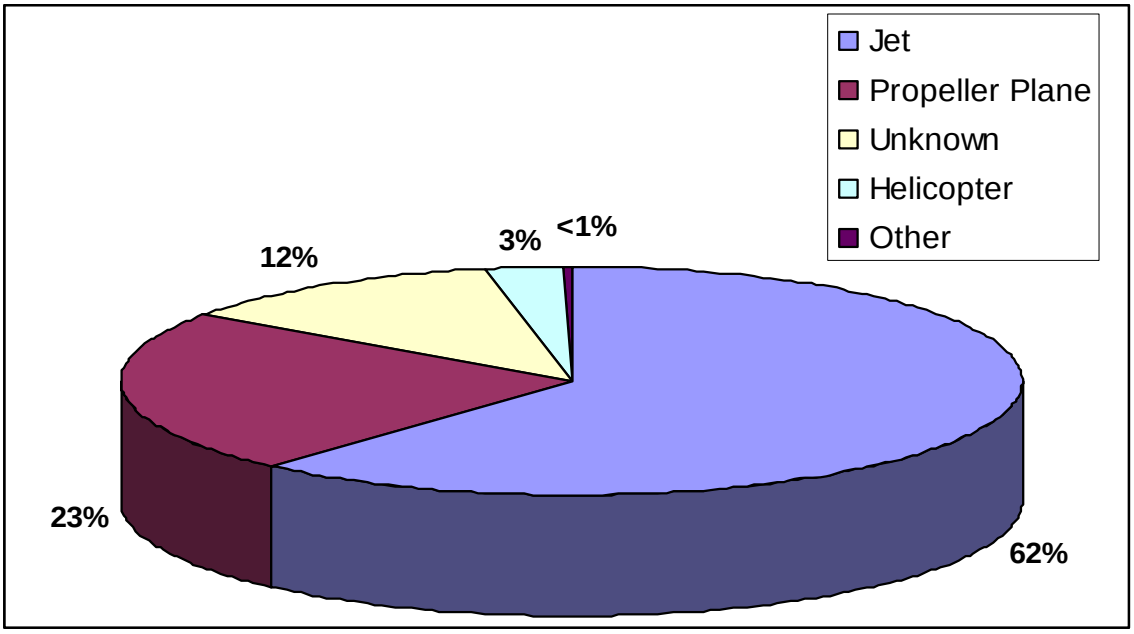
The WOOSE database logs complaints with the aircraft type as identified by the person making the complaint. As shown in **Table 1-8**, 62% of the total complaints were identified as being associated with jet aircraft. This was followed by propeller driven aircraft with 23% of total complaints. A graphic representation of the breakdown of complaints is provided in **Figure 1-11**.

TABLE 1-8
WOOSE COMPLAINTS BY AIRCRAFT TYPE

Aircraft	Total	Percentage
Jet	7,223	62%
Propeller Plane	2,686	23%
Unknown	1,431	12%
Helicopter	343	3%
Other	17	<1%
Grand Total	**11,700**	

Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

FIGURE 1-11
WOOSE COMPLAINTS BY AIRCRAFT TYPE



Source: WOOSE (11/12/04 – 3/13/06); ESA Airports

1.6.3 Worthington Complaint Database

An assessment of the Worthington Complaint Database also was reviewed for comparison with AirScene's Complaint Database. The Worthington database included complaints from September 18, 2003 through November 17, 2004.

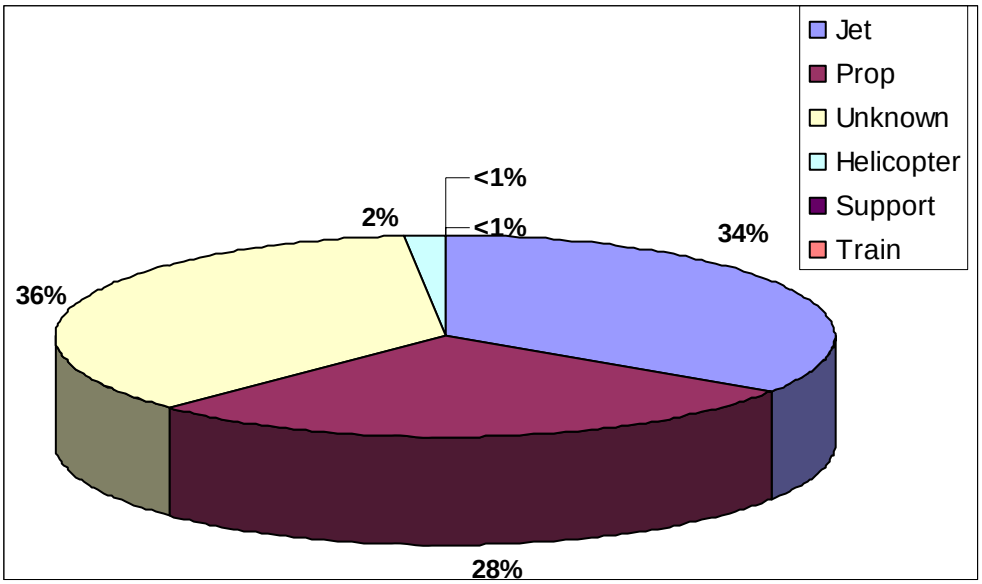
Due to the way complaints were identified in the Worthington database, only minimal trend comparisons can be made with the AirScene database. The Worthington Complaint Database also logs complaints with the aircraft type as identified by the complainer. As shown in **Table 1-9**, 34% of the total complaints were identified as being associated with jet aircraft. This was followed by propeller driven aircraft with 28% of total complaints. A graphic representation of the breakdown of complaints is provided in **Figure 1-12**.

TABLE 1-9
WORTHINGTON COMPLAINTS BY AIRCRAFT TYPE

Aircraft Type	Total	Percentage
Unknown	3,563	36%
Jet	3,393	34%
Prop	2,812	28%
Helicopter	169	2%
Support	4	<1%
Train	1	<1%
Grand Total	**9,942**	

Source: City of Worthington (9/18/03 – 11/17/04); ESA Airports

FIGURE 1-12
WORTHINGTON COMPLAINTS BY AIRCRAFT TYPE



Source: City of Worthington (9/18/03 – 11/17/04); ESA Airports

1.6.4 Aircraft Noise Complaints Around the United States

It is important to understand the overall context of aircraft operations around the United States when looking at complaints. There are several phases of maturity for aircraft noise programs at airports. They are the Initiation phase, the Creation phase, and the Maintenance phase.

The Initiation phase of an airport noise program typically lasts between one and three years. During this time, a program is beginning to be established to respond to community complaints and concerns. At this time, noise complaints are typically at their highest level as compared with other phases. During this phase, various noise abatement measures are being explored and beginning to be implemented.

During the Creation phase of aircraft noise programs, noise abatement procedures tailored to the airport have been established and greater use of noise analysis tools are being used by the Airport to respond to community concerns. This phase usually begins at about three years after initiation to six years. During this time, aircraft noise complaints begin to stabilize.

The Maintenance phase of an aircraft noise program is categorized by the use of sophisticated noise analysis tools, having published noise abatement procedures, and having extensive community outreach tools. This phase typically begins at about six years after program initiation. During this time, airport staff has extensive information about adherence to noise abatement procedures and has mechanisms in place to continue outreach to aircraft operators. Aircraft noise complaints tend to begin to diminish as noise abatement programs are firmly established.

Chicago O'Hare International Airport's noise abatement program is a prime example of this evolution in the maturity of noise programs. When the City of Chicago installed their Aircraft Noise and Operations Monitoring System, the system logged over 25,000 noise complaints in their first

year. Over time, with the evolution of the noise program and greater adherence to the program, they have reduced to approximately 1,362 in 2007.

Sacramento Mather Airport is another example of a high number of complaints during the Initiation phase of the airport's noise abatement program. In previous years, complaints were far greater and have begun to stabilize.

Other airports have a great number of noise complaints over a much longer period of time. One example of this is Minneapolis's Metro Airport Commission. In the later half of the year, they received more than 39,000 complaints. **Table 1-10** presents a summary of total complaints for several airports around the country, including large air carrier airports as well as smaller general aviation airports similar to OSUA.

TABLE 1-10
2007 NOISE COMPLAINTS BY AIRPORT

Facility	Total 2007 Complaints
Ohio State University Airport	4,739
Chicago O'Hare[2]	1,362
Los Angeles	4,480
Minneapolis[3]	39,986
Boston	1,730
Sacramento Mather Airport	4,722
Livermore Airport	1,388
Scottsdale	5,989

Source: ESA Airports

[2] Complaints logged in 1998 were 25,733.
[3] Only denotes complaints from May 2007 through December 2007.