

APPENDIX H

2023 NOISE EXPOSURE (NEM) / NOISE COMPATIBILITY PROGRAM (NCP)

This appendix sets forth the detailed input data that was used to prepare noise exposure contours for 2023 Baseline conditions.

H.1 DATA SOURCES AND ASSUMPTIONS

Several types of operational information are required to produce baseline noise exposure contours for the airport. These include estimates of the numbers of actual operations by specific aircraft types at different periods of the day, flight path locations, runway and flight path utilization, and aircraft operating characteristics.

H.1.1 RUNWAY DEFINITION

There are two east/west parallel runways (10L/28R and 10R/28L) spaced approximately 2,800 feet apart. Runway 10R/28L is the longest runway on the airfield at 10,125 feet. The Federal Aviation Administration (FAA) is currently conducting an Environmental Impact Statement (EIS) to assess the impacts of relocating the south runway (Runway 10R/20L) 702 feet farther south. If approved, construction would likely be completed by 2012 therefore the Future (2023) Baseline includes this 702 foot relocated runway to the south of the existing Runway 10R/28L. For discussion purposes in this document the proposed relocated runway will be referred to as Runway 10X/28X. The runway layout that was modeled for the Future (2023) Baseline is shown below:

<u>Runway</u>	<u>Length (feet)</u>
10L/28R	8,000
10X/28X	10,113

H.1.2 NUMBER OF OPERATIONS

The 2023 operations are based on a forecast prepared for the Part 150 Study and the ongoing EIS being conducted by the FAA. The forecast was approved on January 9, 2007 and is included in Appendix J. The forecast is based upon aviation industry trends and specific airline activity at CMH. The Future (2023) Baseline includes 291,580 annual operations or 800 daily operations, an increase of 21.9 percent from the forecasted operations for the Future (2012) Baseline. The forecast shows a projected increase in the percentage of commuter jet aircraft as airlines are expected to continue the trend of replacing large jets with commuter jets. Also very few commuter props are expected to be in operation by 2023. A summary of the average annual day operations by aircraft category and time of day is presented in **Table H-1**.

Table H-2 shows the average daily number of arrivals and departures by the individual aircraft types. Embraer 145s, Embraer 170s and Canadair Regional Jets are expected to continue to be the most common aircraft at Port Columbus International Airport (CMH).

**Table H-1
AVERAGE DAY OPERATIONS
FUTURE (2023) BASELINE CONDITIONS
Port Columbus International Airport**

Aircraft Category	Arrivals		Departures		Total		Total	Percent of Total
	Day	Night	Day	Night	Day	Night		
Large Jet	62	16	64	14	126	30	156	20.1%
Commuter Jet	193	38	192	39	385	77	462	59.4%
Commuter Prop	2	0	2	0	4	0	4	0.5%
General Aviation Jet	35	6	37	4	72	10	82	10.5%
General Aviation Prop	<u>32</u>	<u>5</u>	<u>33</u>	<u>4</u>	<u>65</u>	<u>9</u>	74	9.5%
Total	324	65	328	61	652	126	778	100.0%

Day: 7:00 a.m. to 9:59 p.m.

Night: 10:00 p.m. to 6:59 a.m.

Source: Landing Fee Reports, ATCT records, Landrum & Brown, 2007.

Table H-2
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE –
FUTURE (2023) BASELINE
 Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
Large Jet							
Boeing 737-300	737300	19	7	22	4	41	11
Boeing 737-500	737500	2	1	2	1	4	2
Boeing 737-700	737700	26	3	21	8	47	11
Boeing 737-800	737800	7	1	8	0	15	1
Boeing 757-300	757300	1	0	1	0	2	0
Boeing 737-300	7373B2	4	1	5	0	9	1
Boeing 757-300	757PW	2	1	3	0	5	1
Airbus 320	A320	0	1	1	0	1	1
Military Tanker	KC135R	1	0	1	0	2	0
McDonnell-Douglas MD-83	MD83	0	1	0	1	0	2
Subtotal		62	16	64	14	126	30
Commuter Jet							
Business Jet	CIT3	3	1	4	0	7	1
Dessault Falcon 2000	CL600	5	3	5	3	10	6
Dessault Falcon 2000	CL600	4	1	4	1	8	2
Canadair Regional Jet / Embraer ERJ-170 / 190	CL601	81	8	79	10	160	18
Embraer 135 / 145	EMB145	7	2	7	2	14	4
Embraer 145	EMB14L	57	14	55	16	112	30
Commuter Jet	GIV	4	1	2	3	6	4
Commuter Jet	LEAR25	5	2	7	0	12	2
Cessna Citation / BAE125 Hawker	LEAR35	13	1	13	1	26	2
Business Jet	MU3001	14	5	16	3	30	8
Subtotal		193	38	192	39	385	77
Commuter Prop							
Commuter Turbo Prop	HS748A	2	0	2	0	4	0
Subtotal		2	0	2	0	4	0
General Aviation Jet							
Business Jet	CNA500	1	1	2	0	3	1
Business Jet	FAL20	2	0	2	0	4	0
Business Jet	GIIB	2	0	2	0	4	0
Business Jet	GIV	3	1	3	1	6	2
Business Jet	LEAR25	11	0	10	1	21	1
Business Jet	LEAR35	7	4	9	2	16	6
Business Jet	MU3001	9	0	9	0	18	0
Subtotal		35	6	37	4	72	10

Table H-2, Continued
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE –
FUTURE (2023) BASELINE
Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
General Aviation Prop							
Twin-Engine Prop	BEC58P	8	2	8	2	16	4
Twin-Engine Turbo Prop	CNA441	3	0	3	0	6	0
Beech 1900D	DHC6	3	1	3	1	6	2
Single-Engine Prop	GASEPF	10	2	11	1	21	3
Single-Engine Prop	GASEPV	5	0	5	0	10	0
Single-Engine Prop	PA28	2	0	2	0	4	0
Twin-Engine Prop	PA31	1	0	1	0	2	0
Subtotal		32	5	33	4	65	9
Grand Total		324	65	328	61	652	126

Source: FAA Tower Counts, Official Airline Guide (OAG), and Landing Fee Reports, Landrum & Brown, 2007.

H.1.3 RUNWAY UTILIZATION

Average annual runway end utilization was derived from analysis of ANOMS data from 2005 through 2007, with modifications to account for changes due to the implementation of the measures recommended by this NCP and for the anticipated affects of the construction of the proposed runway and terminal addition. Runway use was modified for the Future (2023) Baseline to reflect changes due to the anticipated implementation of Measure NA-R (Renew efforts to maximize east flow during calm winds) as recommended by this NCP. Runway Use was also modified to reflect additional usage of the south Runway since that runway would be more accessible by aircraft operating from the proposed new terminal. **Table H-3** summarizes the percentage of use by each aircraft category on the various runways at CMH during both the daytime (7:00 a.m. – 9:59 p.m.) and nighttime (10:00 p.m. – 6:59 a.m.) that was modeled for the Future (2023) Baseline with the proposed relocated runway.

**Table H-3
RUNWAY END UTILIZATION
FUTURE (2023) BASELINE CONDITIONS
Port Columbus International Airport**

Daytime Arrivals				
Aircraft Category	10L	10X	28X	28R
Large Jet	4.6%	29.6%	54.4%	11.4%
Commuter Jet	14.8%	19.2%	30.1%	35.9%
Commuter Prop	10.6%	23.8%	37.8%	27.8%
General Aviation Jet	6.7%	23.3%	51.3%	18.7%
General Aviation Prop	7.3%	22.7%	49.6%	20.4%
Nighttime Arrivals				
Aircraft Category	10L	10X	28X	28R
Large Jet	1.0%	50.0%	48.0%	1.0%
Commuter Jet	18.0%	19.3%	29.9%	32.8%
Commuter Prop	7.3%	37.7%	42.9%	12.1%
General Aviation Jet	6.2%	25.6%	49.2%	19.0%
General Aviation Prop	12.0%	37.1%	31.9%	19.0%
Daytime Departures				
Aircraft Category	10L	10X	28X	28R
Large Jet	2.7%	32.1%	57.2%	8.0%
Commuter Jet	12.8%	21.2%	35.3%	30.7%
Commuter Prop	10.0%	24.1%	41.0%	24.9%
General Aviation Jet	6.2%	23.8%	52.5%	17.5%
General Aviation Prop	7.5%	22.5%	49.9%	20.1%
Nighttime Departures				
Aircraft Category	10L	10X	28X	28R
Large Jet	2.8%	32.0%	56.8%	8.4%
Commuter Jet	9.5%	26.1%	28.5%	35.9%
Commuter Prop	2.5%	34.2%	50.0%	13.3%
General Aviation Jet	5.4%	24.6%	53.2%	16.8%
General Aviation Prop	4.7%	25.3%	44.5%	25.5%

Daytime: 7:00 a.m. – 9:59 p.m.

Nighttime: 10:00 p.m. – 6:59 a.m.

Note: 10X/28X denotes relocated Runway 10R/28L

Source: 2005, 2006 ANOMS data, Landrum & Brown, 2007.

H.1.4 FLIGHT TRACK LOCATIONS AND USE

A flight track is the path over the ground as aircraft flies to or from the airport. To determine flight track locations, ANOMS radar data was gathered for the period from May 2005 through April 2006 and analyzed to verify the location, density, and width of existing flight corridors. Consolidated flight tracks were developed from this radar data and used in the INM to model the flight corridors present around the airport. Flight tracks were modified for the Future (2023) Baseline Noise Compatibility Program (NCP) to reflect changes due to the anticipated implementation of the following measures recommended by this NCP:

- NA-E** Implement a 15-degree divergent turn off of Runway 28R, after crossing the runway end to a 295-degree heading, only during peak operating periods when traffic warrants.

Alternative NA-E recommends a 15-degree divergent turn for departures off of Runway 28R. For this procedure, new departure tracks were modeled that followed this course. It was assumed that this procedure would be used by large jets and regional jets during times when peak operational conditions necessitated. Analysis of projected hourly operations indicates that peak operating levels which would require the divergent turn would occur approximately 10 percent of the time.

There are two components to flight tracks used for noise modeling, definition and percentage of use. **Tables H-4** and **H-5** provide the proportion of operations assigned to each of the flight tracks that were modeled for the Future (2023) Baseline.

**Table H-4
ARRIVAL FLIGHT TRACK UTILIZATION BY AIRCRAFT CATEGORY -
FUTURE (2023) BASELINE
Port Columbus International Airport**

Runway	Track	Aircraft Category				
		Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
10L	AJW1	0.8%	0.0%	0.0%	0.0%	0.0%
10L	AJW2	1.7%	0.0%	0.0%	0.0%	0.0%
10L	AJW3	1.4%	0.0%	0.0%	0.0%	0.0%
10L	APW1	0.0%	0.0%	5.3%	0.0%	3.5%
10L	APW2	0.0%	0.0%	5.3%	0.0%	3.5%
10L	APW3	0.0%	0.0%	0.0%	0.0%	0.1%
10L	APW4	0.0%	0.0%	0.0%	0.0%	0.7%
10L	ARW1	0.0%	2.3%	0.0%	0.0%	0.0%
10L	ARW2	0.0%	10.6%	0.0%	6.0%	0.0%
10L	ARW3	0.0%	2.4%	0.0%	0.6%	0.0%
10X	AJS1	6.7%	0.0%	0.0%	0.0%	0.0%
10X	AJS2	16.0%	0.0%	0.0%	0.0%	0.0%
10X	AJS3	3.8%	0.0%	0.0%	0.0%	0.0%
10X	AJS4	7.2%	0.0%	0.0%	0.0%	0.0%
10X	APS1	0.0%	0.0%	11.9%	0.0%	0.0%
10X	APS2	0.0%	0.0%	0.0%	0.0%	16.1%
10X	APS3	0.0%	0.0%	11.9%	0.0%	5.7%
10X	APS4	0.0%	0.0%	0.0%	0.0%	2.5%
10X	ARS1	0.0%	3.5%	0.0%	0.6%	0.0%
10X	ARS2	0.0%	6.5%	0.0%	10.1%	0.0%
10X	ARS3	0.0%	3.2%	0.0%	2.0%	0.0%
10X	ARS4	0.0%	5.9%	0.0%	10.9%	0.0%
28R	AJZ1	1.7%	0.0%	0.0%	0.0%	0.0%
28R	AJZ2	1.5%	0.0%	0.0%	0.0%	0.0%
28R	AJZ3	4.1%	0.0%	0.0%	0.0%	0.0%
28R	AJZ4	2.1%	0.0%	0.0%	0.0%	0.0%
28R	APZ1	0.0%	0.0%	13.9%	0.0%	0.0%
28R	APZ2	0.0%	0.0%	13.9%	0.0%	5.1%
28R	APZ3	0.0%	0.0%	0.0%	0.0%	12.9%
28R	APZ4	0.0%	0.0%	0.0%	0.0%	2.3%
28R	ARZ1	0.0%	4.8%	0.0%	0.0%	0.0%
28R	ARZ2	0.0%	11.6%	0.0%	11.9%	0.0%
28R	ARZ3	0.0%	5.5%	0.0%	1.8%	0.0%
28R	ARZ4	0.0%	13.5%	0.0%	5.0%	0.0%

**Table H-4, Continued
ARRIVAL FLIGHT TRACK UTILIZATION BY AIRCRAFT CATEGORY -
FUTURE (2023) BASELINE
Port Columbus International Airport**

Runway	Track	Aircraft Category				
		Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
28X	AJT1	10.1%	0.0%	0.0%	0.0%	0.0%
28X	AJT1D	11.6%	0.0%	0.0%	0.0%	0.0%
28X	AJT2	7.0%	0.0%	0.0%	0.0%	0.0%
28X	AJT2D	24.4%	0.0%	0.0%	0.0%	0.0%
28X	AJT3	0.0%	0.0%	18.9%	0.0%	0.7%
28X	AJT3D	0.0%	0.0%	0.0%	0.0%	24.6%
28X	AJT4	0.0%	0.0%	18.9%	0.0%	9.3%
28X	APT1	0.0%	0.0%	0.0%	0.0%	4.8%
28X	APT2	0.0%	0.0%	0.0%	0.0%	8.3%
28X	APT3	0.0%	4.6%	0.0%	0.0%	0.0%
28X	APT4	0.0%	5.2%	0.0%	14.9%	0.0%
28X	APT5	0.0%	9.5%	0.0%	17.4%	0.0%
28X	ART1	0.0%	5.7%	0.0%	7.4%	0.0%
28X	ART1D	0.0%	5.1%	0.0%	11.3%	0.0%
Total		100.0%	100%	100%	100%	100%

Day: 7:00 a.m. to 9:59 p.m.

Night: 10:00 p.m. to 6:59 a.m.

Note: 10X/28X denotes relocated Runway 10R/28L

Source: ANOMS data, Landrum & Brown, 2007.

**Table H-5
DEPARTURE FLIGHT TRACK UTILIZATION BY AIRCRAFT CATEGORY -
FUTURE (2023) BASELINE
Port Columbus International Airport**

Runway	Track	Aircraft Category				
		Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
10L	DJW1	0.8%	0.0%	0.0%	0.0%	0.0%
10L	DJW2	0.2%	0.0%	0.0%	0.0%	0.0%
10L	DJW3	0.3%	0.0%	0.0%	0.0%	0.0%
10L	DJW4	0.9%	0.0%	0.0%	0.0%	0.0%
10L	DJW5	0.4%	0.0%	0.0%	0.0%	0.0%
10L	DPW1	0.0%	0.0%	5.0%	0.0%	0.1%
10L	DPW2	0.0%	0.0%	0.0%	0.0%	2.0%
10L	DPW3	0.0%	0.0%	5.0%	0.0%	3.2%
10L	DPW4	0.0%	0.0%	0.0%	0.0%	1.9%
10L	DRW1	0.0%	1.7%	0.0%	0.1%	0.0%
10L	DRW2	0.0%	2.1%	0.0%	1.9%	0.0%
10L	DRW3	0.0%	4.9%	0.0%	2.6%	0.0%
10L	DRW4	0.0%	2.2%	0.0%	1.3%	0.0%
10L	DRW5	0.0%	1.3%	0.0%	0.2%	0.0%
10X	DJS1	7.0%	0.0%	0.0%	0.0%	0.0%
10X	DJS2	0.4%	0.0%	0.0%	0.0%	0.0%
10X	DJS3	6.6%	0.0%	0.0%	0.0%	0.0%
10X	DJS4	8.4%	0.0%	0.0%	0.0%	0.0%
10X	DJS5	9.7%	0.0%	0.0%	0.0%	0.0%
10X	DPS1	0.0%	0.0%	0.0%	0.0%	6.9%
10X	DPS2	0.0%	0.0%	12.1%	0.0%	8.9%
10X	DPS3	0.0%	0.0%	0.0%	0.0%	4.3%
10X	DPS4	0.0%	0.0%	6.0%	0.0%	2.7%
10X	DPS5	0.0%	0.0%	6.0%	0.0%	0.0%
10X	DRS1	0.0%	3.1%	0.0%	0.3%	0.0%
10X	DRS2	0.0%	2.9%	0.0%	5.9%	0.0%
10X	DRS3	0.0%	4.5%	0.0%	3.8%	0.0%
10X	DRS4	0.0%	4.0%	0.0%	6.4%	0.0%
10X	DRS5	0.0%	6.1%	0.0%	5.5%	0.0%
10X	DRS6	0.0%	1.5%	0.0%	2.0%	0.0%
28R	DJZ1	0.1%	0.0%	0.0%	0.0%	0.0%
28R	DJZ1E	0.1%	0.0%	0.0%	0.0%	0.0%
28R	DJZ2	3.1%	0.0%	0.0%	0.0%	0.0%
28R	DJZ3	1.7%	0.0%	0.0%	0.0%	0.0%
28R	DJZ3E	0.1%	0.0%	0.0%	0.0%	0.0%
28R	DJZ4	0.9%	0.0%	0.0%	0.0%	0.0%
28R	DJZ5	0.7%	0.0%	0.0%	0.0%	0.0%

**Table H-5, Continued
DEPARTURE FLIGHT TRACK UTILIZATION BY AIRCRAFT CATEGORY -
FUTURE (2023) BASELINE
Port Columbus International Airport**

Runway	Track	Aircraft Category				
		Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
28R	DJZ6	0.7%	0.0%	0.0%	0.0%	0.0%
28R	DJZE	0.6%	0.0%	0.0%	0.0%	0.0%
28R	DPZ1	0.0%	0.0%	12.5%	0.0%	4.4%
28R	DPZ2	0.0%	0.0%	0.0%	0.0%	8.1%
28R	DPZ3	0.0%	0.0%	12.5%	0.0%	0.3%
28R	DPZ4	0.0%	0.0%	0.0%	0.0%	3.0%
28R	DPZ5	0.0%	0.0%	0.0%	0.0%	1.6%
28R	DPZ6	0.0%	0.0%	0.0%	0.0%	3.3%
28R	DRZ1	0.0%	3.5%	0.0%	1.5%	0.0%
28R	DRZ1E	0.0%	1.2%	0.0%	0.0%	0.0%
28R	DRZ2	0.0%	5.3%	0.0%	5.5%	0.0%
28R	DRZ3	0.0%	2.1%	0.0%	0.6%	0.0%
28R	DRZ3E	0.0%	0.7%	0.0%	0.0%	0.0%
28R	DRZ4	0.0%	1.7%	0.0%	0.6%	0.0%
28R	DRZ5	0.0%	7.8%	0.0%	6.2%	0.0%
28R	DRZ6	0.0%	2.3%	0.0%	0.0%	0.0%
28R	DRZ7	0.0%	5.8%	0.0%	3.0%	0.0%
28R	DRZE	0.0%	1.3%	0.0%	0.0%	0.0%
28X	DJT1	5.9%	0.0%	0.0%	0.0%	0.0%
28X	DJT2	0.7%	0.0%	0.0%	0.0%	0.0%
28X	DJT3	33.7%	0.0%	0.0%	0.0%	0.0%
28X	DJT4	10.3%	0.0%	0.0%	0.0%	0.0%
28X	DJT5	6.6%	0.0%	0.0%	0.0%	0.0%
28X	DPT1	0.0%	0.0%	20.5%	0.0%	18.8%
28X	DPT2	0.0%	0.0%	0.0%	0.0%	18.4%
28X	DPT3	0.0%	0.0%	20.5%	0.0%	0.7%
28X	DPT4	0.0%	0.0%	0.0%	0.0%	7.4%
28X	DPT5	0.0%	0.0%	0.0%	0.0%	4.0%
28X	DRT1	0.0%	9.3%	0.0%	12.8%	0.0%
28X	DRT2	0.0%	4.5%	0.0%	12.8%	0.0%
28X	DRT3	0.0%	5.4%	0.0%	2.6%	0.0%
28X	DRT4	0.0%	7.2%	0.0%	8.3%	0.0%
28X	DRT5	0.0%	7.8%	0.0%	16.0%	0.0%
Total		100.0%	100.0%	100.0%	100.0%	100.0%

Day: 7:00 a.m. to 9:59 p.m.

Night: 10:00 p.m. to 6:59 a.m.

Note: 10X/28X denotes relocated Runway 10R/28L

Source: ANOMS data, Landrum & Brown, 2007.

Table H-6
TOUCH-AND-GO FLIGHT TRACK UTILIZATION BY AIRCRAFT CATEGORY -
FUTURE (2023) BASELINE
 Port Columbus International Airport

Runway	Track	Aircraft Category				
		Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
10L	TG1	0.0%	0.0%	0.0%	0.0%	28.4%
28R	TG2	0.0%	0.0%	0.0%	0.0%	71.6%

H.1.5 AIRCRAFT WEIGHT AND TRIP LENGTH

Aircraft weight during departure is a factor in the dispersion of noise because it impacts the rate at which an aircraft is able to climb. Generally, heavier aircraft have a slower rate of climb and a wider dispersion of noise along their flight routes. Where specific aircraft weights are unknown, the INM uses the distance flown to the first stop as a surrogate for the weight, by assuming that the weight has a direct relationship with the fuel load necessary to reach the first destination. The Integrated Noise Model (INM) groups trip lengths into seven stage length categories, and assigns various aircraft weights associated with up to all seven categories. These categories are:

<u>Category</u>	<u>Stage Length</u>
1	0-500 nautical miles
2	500-1000 nautical miles
3	1000-1500 nautical miles
4	1500-2500 nautical miles
5	2500-3500 nautical miles
6	3500-4500 nautical miles
7	4500+ nautical miles

The trip lengths flown from CMH are based on scheduled operations for the baseline period. **Table H-7** indicates the proportion of the operations that fell within each of the seven trip length categories for Future (2023) Baseline noise contour. Results from the correlation of noise levels and altitude distances from the noise measurements (see Appendix B) found that in most cases the standard approach to assigning aircraft weights adequately represent the activity at CMH, however, during aircraft monitoring sessions it was noted that the Boeing 737-300, Airbus 320, and McDonnell Douglass MD-80 Series aircraft were consistently lower (and presumably heavier) than their distance-based stage length would define them to be. Therefore, a higher stage length was assigned when modeling these aircraft to more accurately reflect their measured noise levels and departure profiles. A complete discussion of the aircraft monitoring results is included in Appendix B.

Table H-7
DEPARTURE TRIP LENGTH DISTRIBUTION –
FUTURE (2023) BASELINE
 Port Columbus International Airport

Stage Length	Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
1	65.4%	87.9%	100.0%	100.0%	100.0%
2	16.7%	12.1%	0.0%	0.0%	0.0%
3	9.0%	0.0%	0.0%	0.0%	0.0%
4	9.0%	0.0%	0.0%	0.0%	0.0%
5	0.0%	0.0%	0.0%	0.0%	0.0%
6	0.0%	0.0%	0.0%	0.0%	0.0%
7	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Landrum & Brown, 2007

H.1.6 GROUND RUN-UP NOISE

Engine run-up locations and times were obtained and modeled in INM. Engine run-ups are primarily performed on regional jet and general aviation jet aircraft. These run-ups occur at three locations at CMH described below and shown on Exhibit C-13 in Appendix C, *Noise Methodology*. Nearly all engine run-ups occur during the nighttime (10:00 p.m. to 6:59 a.m.). **Table H-8** shows the number, types, and the duration of engine runups that were modeled for the Future (2023) Baseline.

- **Barrier A:** Located to the south of Concourse B, along the south edge of the terminal apron. Aircraft face either east or west, parallel to the wall, and are positioned on the north side of the barrier.
- **Barrier B:** Located just north of the southeast end of Taxiway G. Aircraft face east (preferred) or west between the two sound barrier walls. The majority of run-ups occur here due to the proximity to the American Eagle maintenance hangar.
- **Executive Jet Ramp:** Located on the north airfield, north of Runway 10L/28R. Aircraft face either east or west, parallel to the wall, and are positioned on the south side of the barrier.

Table H-8
GROUND RUN-UP OPERATIONS
FUTURE (2023) BASELINE CONDITIONS
 Port Columbus International Airport

INM Aircraft Type	Average Daily Run-up Operations	Average Duration in Seconds	Power (Thrust) Settings
CL600	2.1	420	6000 lbs.

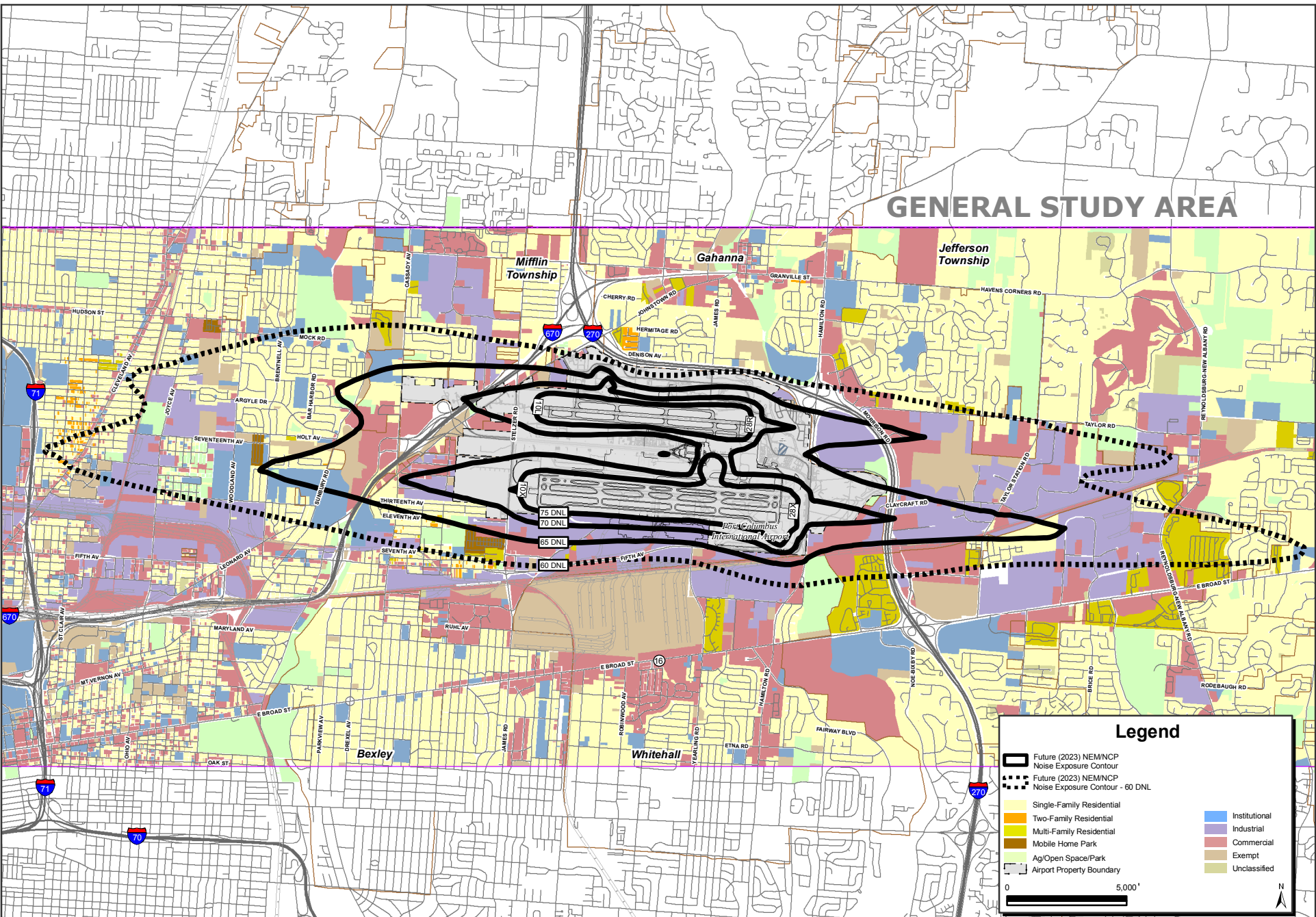
Source: Landrum & Brown, 2007.

H.2 NOISE EXPOSURE CONTOUR

The number of operations, runway use, flight track, and trip length data presented are used as input to the INM computer model for the calculation of noise exposure in the airport environs. **Exhibit H-1** reflects the average annual noise exposure pattern present at the airport during the current baseline period (2023) and **Table H-9** summarizes the area within each noise contour level. The noise contour does not represent the noise levels present on any specific day, but, rather, represents the energy-average of all 365 days of operation during the year. The noise contour pattern extends from the airport along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of the contour from the airport along each route is a function of the frequency of use of each runway end for total arrivals and departures, as well as its use at night, and the type of aircraft assigned to it.

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GENERAL STUDY AREA



Legend

- Future (2023) NEM/NCP Noise Exposure Contour
- Future (2023) NEM/NCP Noise Exposure Contour - 60 DNL
- Single-Family Residential
- Two-Family Residential
- Multi-Family Residential
- Mobile Home Park
- Ag/Open Space/Park
- Airport Property Boundary
- Institutional
- Industrial
- Commercial
- Exempt
- Unclassified

0 5,000'

N

**Table H-9
AREAS WITHIN EXISTING NOISE EXPOSURE CONTOUR (IN SQUARE MILES)
Port Columbus International Airport**

CONTOUR RANGE	FUTURE (2023) BASELINE
60-65 DNL	6.5
65-70 DNL	3.3
70-75 DNL	1.2
75 + DNL	1.1
65 + DNL	5.6

Contour: 2023_NCP_rev2

Source: Landrum & Brown, 2007.

The shape of the noise contour is primarily a function of the combination of flight tracks and runway use at CMH. Analysis indicates that with the implementation of the NCP, the airport could operate in west flow (Runways 10L/10R) approximately 65 percent of the time and in east flow (Runways 28L/28R) approximately 35 percent of the time. As a result the noise contour is longer and wider to the west of the airport than it is to the east.

West of the airport, the noise contour primarily reflects usage by aircraft departing to the west and to a lesser degree aircraft arriving from the west. The 65 DNL noise contour extends approximately 2.2 miles beyond the west end of Runway 10R/28L and extends approximately 1.7 miles beyond the west end of Runway 10L/28R. This area is comprised of a mix of medium-density residential, commercial and industrial uses located in the City of Columbus and Mifflin Township. The 60 DNL noise contour extends approximately 3.9 miles beyond the west end of Runway 10R/28L and extends approximately 3.3 miles beyond the west end of Runway 10L/28R. The area between the 60 and 65 DNL is comprised of a mix of medium to high-density residential, commercial, and industrial uses located in the City of Columbus.

To the east of the airport, the noise contour primarily reflects usage by aircraft arriving from the east and to a lesser degree aircraft departing to the east. The 65 DNL noise contour extends approximately 2.3 miles east from the end of Runway 10R/28L and extends approximately 1.5 miles east from the end of Runway 10L/28R. The area east of the airport within the 65 DNL is comprised of commercial and industrial land uses and undeveloped land within the cities of Columbus and Gahanna. The 60 DNL noise contour extends approximately 4.2 miles beyond the east end of Runway 10R/28L and extends approximately 3.4 miles beyond Runway 10L/28R. The area between the 60 and 65 DNL is comprised of a mix of low to medium-density residential, commercial and industrial land uses and undeveloped property located in the cities of Columbus and Gahanna and Jefferson Township.

To the west the 70 DNL extends approximately 0.7 miles from the end of Runway 10L/28R and extends approximately 1.1 miles from the end of Runway 10R/28L. This area comprises commercial and industrial land uses. The 70 DNL extends approximately 0.4 miles to the east of Runway 10L/28R over airport property. The 70 DNL extends approximately 0.9 miles east of Runway 10R/28L over commercial and industrial land uses. This area comprises commercial and industrial land uses. The 75 DNL contour remains entirely over airport property and the Columbus International Air Center.

H.3 BASELINE NOISE CONTOUR INCOMPATIBILITIES

Summaries of the residential population, housing units, and noise-sensitive facilities affected by noise levels exceeding 60 DNL for the 2023 Baseline noise contours are provided in **Table H-10**. Approximately 736 homes and an estimated 1,818 residents will be located within the 65 DNL of the Future (2023) Baseline noise contour. Of those 736 housing units 679 are within the City of Columbus and 56 are within Mifflin Township. A total of 275 have received sound insulation (239 in Columbus and 36 in Mifflin Township) and the airport has obtained an avigation easement on one home. Of the remaining 460 unmitigated housing units, 99 are eligible for sound insulation but have not yet participated in the sound insulation program and 361 are newly impacted.

There are two churches, but no schools, libraries, hospitals or nursing homes located within the 65 DNL of the Future (2023) Baseline noise contour. There will be 5,966 housing units; an estimated 14,736 residents; 32 churches; and seven schools located within the 60-65 DNL of the Future (2023) Baseline noise contour.

Table H-10
2023 BASELINE HOUSING, POPULATION, AND
NOISE-SENSITIVE FACILITY INCOMPATIBILITIES
Port Columbus International Airport

	60-65 DNL	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	5,759	679	0	0	679
Mitigated	1,134	240	0	0	240
Sound Insulated	413	239	0	0	239
Easement	721	1	0	0	1
Unmitigated	4,625	439	0	0	439
Eligible for Sound Insulation but not Insulated	89	79	0	0	79
Not Previously Mitigated	4,536	360	0	0	360
Mifflin Township	12	56	0	0	56
Mitigated	0	36	0	0	36
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated	12	20	0	0	20
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	11	1	0	0	1
Gahanna	82	1	0	0	1
Mitigated	3	0	0	0	0
Sound Insulated	3	0	0	0	0
Easement	0	0	0	0	0
Unmitigated	79	1	0	0	1
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	79	0	0	0	0
Jefferson Township	113	0	0	0	0
Mitigated	72	0	0	0	0
Sound Insulated	0	0	0	0	0
Easement	72	0	0	0	0
Unmitigated	41	0	0	0	0
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	41	0	0	0	0
Total Housing Units	5,966	736	0	0	736
Population					
Total Population	14,736	1,818	0	0	1,818
Noise-Sensitive Facilities					
Churches	32	2	0	0	0
Schools	7	0	0	0	0
Libraries	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

- * FAA Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL.
- Noise contours were generated using the Integrated FAA's Noise Model, Version 6.2 computer model.
- Housing counts are based on field verification.
- Population numbers are approximate based on the housing counts multiplied an estimated average number of persons per household based upon 2000 census housing to population ratios.

Source: Landrum & Brown, 2006.

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