Appendix I:
Aircraft Noise Assessment

NOISE ANALYSIS METHODOLOGY

ST. LOUIS LAMBERT INTERNATIONAL AIRPORT
CONSOLIDATED TERMINAL PROGRAM

ST. LOUIS, ST. LOUIS COUNTY, MISSOURI
MAY 2024

PREPARED FOR:

FEDERAL AVIATION ADMINISTRATION

PREPARED BY:

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CMT

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INTRODUCTION

The National Environmental Policy Act (NEPA) mandates the disclosure of potential impacts caused by a Sponsor's Proposed Action for federally funded programs. In the context of airport improvements, the Federal Aviation Administration (FAA) has developed two key guidance documents--FAA Order 1050.1F – Environmental Impacts: Policies and Procedures and FAA Order 5050.4B – NEPA Implementing Instructions for Airport Actions. These documents provide clear direction and robust methodologies for evaluating aircraft noise. The noise analysis for this project is necessitated by the potential changes in runway utilization, which could lead to shifts in the noise contours and potentially introduce new non-compatible land use within the 65 DNL contour.

The noise analysis presented in this appendix used the FAA's Aviation Environmental Design Tool (AEDT) Version 3f. The FAA requires using AEDT to allow for a consistent review of NEPA-required noise assessments. Numerous input parameters are needed to execute the AEDT model, including the configuration of an airport's runways, the number of operations by aircraft type and time of day, and meteorological data. As noted on the AEDT website:

> "*AEDT is a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences. AEDT is a comprehensive tool that provides information to FAA stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review activities required under NEPA by consolidating the modeling of these environmental impacts in a single tool.*"[1]

The following sections describe the metrics used to evaluate aircraft noise, the guidelines by which a noise impact would be identified, and the results of the aircraft noise assessment.

NOISE METRICS

Sound is energy transferred through the air that our ears detect as small changes in air pressure—the more sound energy, the louder the sound. Noise, in its simplest definition, is unwanted sound. Because noise is subjective, some sounds, like a distant train whistle, can be pleasant for some, while others may be annoyed and consider it noise. The time at which the sound occurs also contributes to its relative annoyance. For instance, a person who likes train whistles may be annoyed by this same sound if it happens in the middle of the night while trying to sleep. Even sounds that are pleasant at one volume can become noise as they get louder. Noise has an objective, physical, and subjective non-physical component that considers a person's perception or reaction to a sound.

The human ear hears sound pressures over a wide range. Decibels (dB), measured on a logarithmic scale, correspond to how our ears interpret sound pressure levels. The human ear also responds to different pitches or frequencies of sound differently. We are less able to hear

[1] FAA, 2023, Aviation Environmental Design Tool: https://aedt.faa.gov/

low frequencies like the rumble of thunder but more readily able to hear high frequencies like a baby's cry. The A-weighted measurement scale is used to better account for differences in how people respond to sound. This scale most closely approximates the relative loudness of sounds in the air as perceived by the human ear. It provides a more effective way to evaluate the effect of noise exposure on humans by focusing on those parts of the frequency spectrum where we hear most.

A day-night average sound level (DNL) reflects a person's cumulative exposure to sound over 24 hours, expressed as the noise level for an average day of a year. DNL provides a mechanism to measure environmental noise simply and uniformly. DNLs consider the amount of noise from each aircraft operation and the total number of operations throughout the day. The FAA and other federal agencies use DNL as the primary measure of aircraft noise impact because DNLs correlate well with the results of attitudinal surveys regarding noise. DNLs also account for the increased sensitivity to noise at night by artificially increasing each noise event that occurs during nighttime hours (i.e., 10:00 pm to 6:59 am) by 10 dBA.

To illustrate the extent of aircraft noise surrounding an airport, DNL contour lines of 65, 70, and 75 dBA are overlaid on maps. Like topographical maps showing terrain elevation in an area, the noise "contours" help compare changes to aircraft noise exposure in communities adjacent to an airport. The shape of the noise contours depends on many factors, including the number and type of aircraft arriving and departing over an area, the time of day that the aircraft operations occur, and the use of each of an airport's runways.

FAA NOISE COMPATIBLE LAND USE GUIDELINES

The FAA's guidelines establish the compatibility of various land uses with differing levels of aircraft noise. These guidelines are defined in Appendix A to Title 14, Part 150 of the Code of Federal Regulations (14 CFR 150). The FAA's land use compatibility table is provided in Table 1. These guidelines show the compatibility parameters for land uses such as residences, schools, churches, nursing homes, hospitals, and libraries. Notably, all land uses exposed to aircraft noise levels below DNL 65 dBA are considered compatible with aircraft noise.

TABLE 1: FAA LAND USE COMPATIBILITY GUIDELINES

Land Use	Average Daily DNL (Expressed in dBA)					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
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
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and Nursing Homes	Y	25	30	N	N	N

Land Use	Average Daily DNL (Expressed in dBA)					
	Below 65	65-70	70-75	75-80	80-85	Over 85
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
Commercial Use						
Offices, Businesses 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
Communications	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agricultural (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
Recreational						
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
Amusements, Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often stated as 5, 10 or 15 dBA 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 25 dBA 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 30 dBA 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.
(4) Measures to achieve NLR 35 dBA 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.
(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.

Notes:
1. The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part

150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
2. SLUCM=Standard Land Use Coding Manual.
3. Y (Yes)=Land Use and related structures compatible without restrictions.
4. N (No)=Land Use and related structures are not compatible and should be prohibited.
5. NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
6. 25 or 30=Land use and related structures generally compatible; measures to achieve Noise Level Reduction of 25 or 30 dBA (i.e., a weighted sound level) must be incorporated into design and construction of structure. Noise Level Reduction is the amount of noise reduction in decibels achieved through incorporation of building sound insulation treatments (between outdoor and indoor levels) in the design and construction of a structure (14 CFR § 150.7). Building sound insulation treatments typically consist of acoustical replacement windows and doors.

Sources: 14 C.F.R. § 150 Airport Noise Compatibility Planning, Appendix A, Table 1.

NOISE MODELING AND ANALYSIS

This section provides the STL-specific flight operations data input into AEDT and presents the AEDT-derived aircraft noise contours. The data and contours are provided for existing (Year 2022) conditions and future (Years 2032 and 2037) forecast conditions with a Proposed Action and without the Proposed Action (i.e., the No Action alternative). The year 2032 reflects the first full year of activity after the completion of the planned consolidated terminal, and 2037 reflects a typical five-year future point in time. The Proposed Action, a consolidated terminal that is identified in the master plan for STL, would not cause any change in airport activity levels but would likely shift some aircraft operations to STL's Runway 11-29 and rebalance departures from Runway 30L and Runway 29 when the FAA operates STL in northwest flow. With the Proposed Action, arrivals under both the northwest and southeast flows would presumably also change as follows:

- Northwest flow – Aircraft using west gates at STL would arrive on Runway 29, and aircraft using east gates would arrive on Runway 30R.
- Southeast flow – Aircraft using west gates would arrive on Runway 11, and aircraft using east gates would arrive on Runway 12L.
- When possible, outside of peak traffic periods, the FAA will emphasize the use of Runway 12L/30R for arrivals.

EXISTING (2022) CONDITIONS

AEDT Input Data

STL has four runways, three northwest/southeast parallel runways (11/29, 12L/30R, and 12R/30L), and Runway 6/24, a northeast/southwest crosswind runway. Runway 12R/30L is the longest runway on the airfield at 11,020 feet. Table 2 and Figure 1 list and illustrate the runways' dimensions and locations.

TABLE 2: AIRFIELD RUNWAY DIMENSIONS – EXISTING (2022) CONDITION

Runway	Runway Length (Ft)	Runway Width (Ft)
11/29	9,000	150
12R/30L	11,019	200
12L/30R	9,002	150

Runway	Runway Length (Ft)	Runway Width (Ft)
6/24	7,606	150

Note: Runway 12R/30L is currently being reduced in width from 200 to 150 feet. This change did not affect the noise analysis or the resulting noise contours.

Source: AEDT3f.

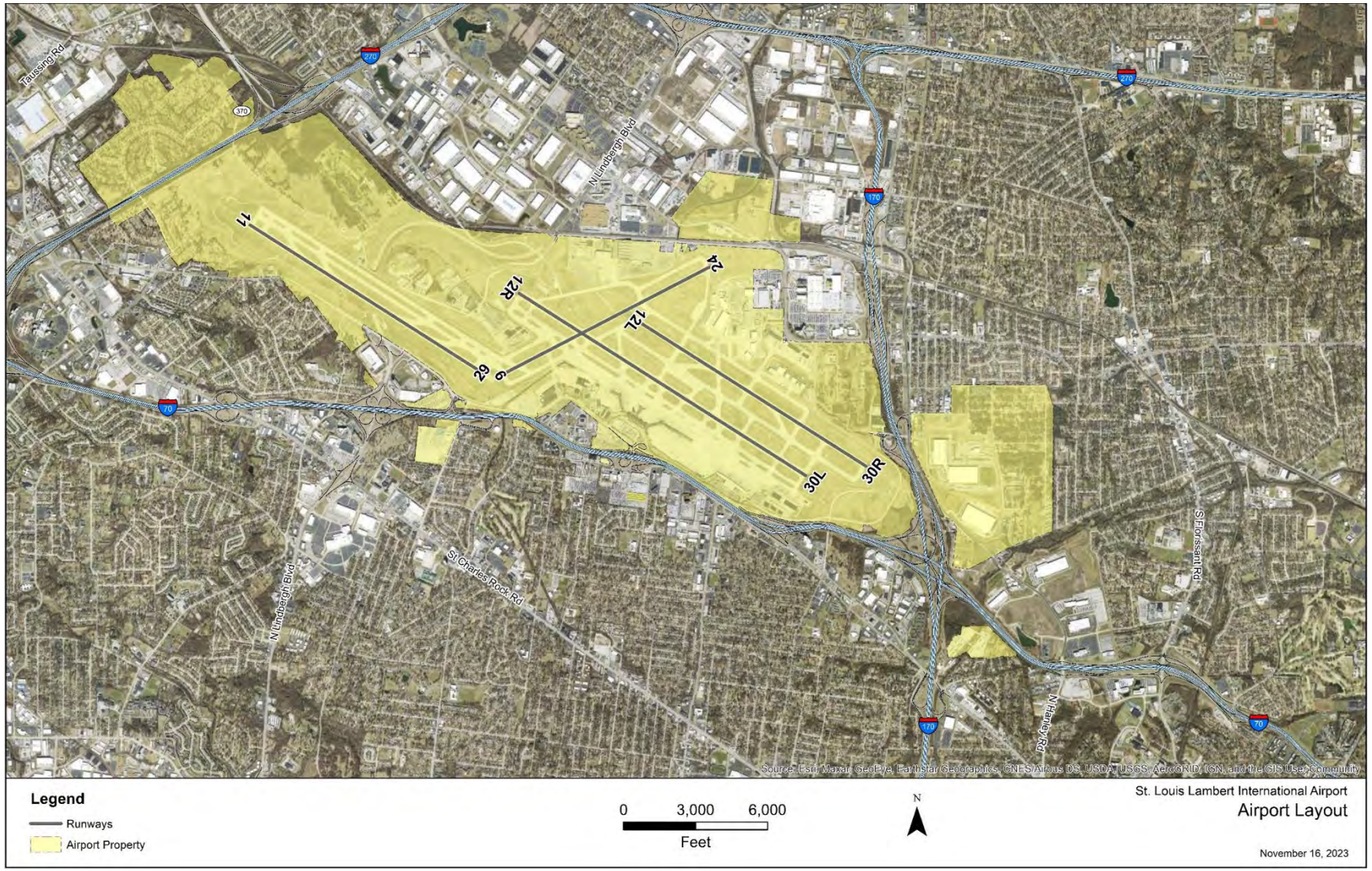
Information concerning aircraft operations was collected from the Airport's Noise and Operations Monitoring System (NOMS), Boeing, STLAA, and STL Air Traffic Control Tower (ATCT) staff. The average number of day/night operations, aircraft fleet mix, and departure stage length percentages were extracted from the NOMS from August 1, 2021, through July 31, 2022. These data are provided in Tables 2, 3, and 4. To consider the changes in runway operational philosophies by different ATCT managers and to exclude runway construction-related closures, composite runway use data was extracted from the NOMS from January 1, 2016, through July 31, 2022. These data are presented in Tables 5 and 6.

The AEDT uses airport-specific ground tracks and vertical flight profiles to compute three-dimensional flight paths for each modeled aircraft operation. The "default" AEDT vertical profiles, which consist of altitude, speed, and thrust settings, are compiled from data provided by aircraft manufacturers. The aircraft track usage for AEDT, obtained from STL's NOMS for the period January 1, 2019, through December 31, 2019, is presented in Table 7. The modeled departure, arrival, and Runway 12L/30R touch-and-go flight tracks, also representative of January 1 through December 31, 2019, are depicted in Figures 2, 3, and 4, respectively.

99.9% of local flight operations at STL are associated with flight testing activity of newly manufactured fighter jet aircraft from the Boeing plant. Local military flight operations data for the noise analysis was derived from The Boeing Company's Environmental Assessment for Site Development for Aircraft Assembly and Flight Testing, published by Jacobs in September 2023.[2] Since military flight track data is not available in the NOMS system, STLAA and STL ATCT staff were consulted to develop an accurate representation of the touch-and-go pattern used by Boeing fighter jets. These touch-and-go operations are limited to the northernmost parallel runway 12L/30R in an effort to confine the flight path to compatible land uses, including Boeing property.

[2] The Boeing Company, 2023, Draft Environmental Assessment for Site Development for Aircraft Assembly and Flight Testing, 3.11 Noise and Noise-Compatible Land Use.

FIGURE 1: AIRPORT LAYOUT



Source: STL Airport Layout Plan, dated May 11, 2023.

TABLE 3: PERCENT OPERATIONS BY TIME OF DAY: AUGUST 1, 2021 – JULY 31, 2022

Aircraft Category	Day (7:00 a.m.- 9:59p.m.)	Night (10:00 p.m.- 6:59 a.m.)	Total
Departures			
Passenger Carrier (Commercial Jets)	85%	15%	100%
Passenger Carrier (C402, C208, P212)	92%	8%	100%
Cargo	8%	92%	100%
Air Taxi/General Aviation	90%	10%	100%
Military (Local)	98%	2%	100%
Military (Itinerant)	98%	2%	100%
All Departures	**85%**	**15%**	**100%**
Arrivals			
Passenger Carrier (Commercial Jets)	86%	14%	100%
Passenger Carrier (C402, C208, P212)	98%	2%	100%
Cargo	27%	73%	100%
Air Taxi/General Aviation	93%	7%	100%
Military (Local)	92%	8%	100%
Military (Itinerant)	92%	8%	100%
All Arrivals	**87%**	**13%**	**100%**

Note: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff. Local military operations are performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and operate to or from the airport. A designated practice is within a 20-mile radius of the tower. Itinerant military operations are operations performed by an aircraft, either instrument flight rules (IFR), special visual flight rules (SVFR), or visual flight rules (VFR), that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

Sources: St. Louis Lambert International Airport Noise and Operation Management System, August 1, 2021 – July 31, 2022; CMT, Inc., 2024.

TABLE 4: FLEET MIX AND OPERATIONS: AUGUST 1, 2021 – JULY 31, 2022

Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
Passenger Carrier / Cargo	178	Boeing 737-700	737700	36,472	99.92
	6585	Boeing 737-800/900	737800	30,548	83.69
	2546	Bombardier CRJ-700/900	CRJ9-ER	22,704	62.20
	3071	Embraer E175L/S	EMB175	10,225	28.01
	967	Airbus A319	A319-131	9,713	26.61
	997	Airbus A320/A320neo	A320-211	6,045	16.56
	6532	Tecnam P2012	BEC58P	4,870	13.34

Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
	4129	Boeing 737 MAX 8	7378MAX	4,004	10.97
	2117	Cessna 402	BEC58P	3,457	9.47
	2456	Airbus A321/A321neo	A321-232	3,027	8.29
	2106	Cessna 208 Caravan	CNA208	2,321	6.36
	4089	Boeing 757-200	757PW	1,918	5.25
	457	Boeing 767-300/ER	7673ER	1,916	5.25
	2560	Embraer ERJ 170	EMB170	1,718	4.71
	5301	Airbus A220-100	737700	1,247	3.42
	154	Boeing 737-400	737400	1,292	3.54
	1746	Embraer 145	EMB145	802	2.20
	88	Boeing 717-200	717200	724	1.98
	3049	Bombardier CRJ-200	CL600	555	1.52
	704	Airbus A300-600	A300-622R	437	1.20
	6092	Embraer 135	EMB145	255	0.70
	6633	Airbus A220-300	737700	130	0.36
	1095	Airbus A330-300	A330-343	53	0.15
Air Taxi / General Aviation	6070	Cessna 560 Citation XLS	CNA560XL	2,029	5.56
	3047	Cessna Citation Sovereign/Latitude/Longitude	CNA680	1,875	5.14
	1239	Bombardier Challenger 300/600	CL600	1,756	4.81
	6552	Embraer Legacy, Phenom 100/300	CNA510	1,711	4.69
	2028	Learjet 35/45/55/60/75, Hawker 800	LEAR35	1,256	3.44
	1976	Gulfstream 200/280	IA1125	855	2.34
	1489	Pilatus PC-12	CNA208	722	1.98
	1292	Citation II/Bravo, Beechjet 400	CNA55B	626	1.72
	1927	Gulfstream V/G500	GV	419	1.15
	6067	Cessna Citation CJ1/CJ3	CNA525C	285	0.78
	1603	Raytheon King Air, Super King Air	DHC6	273	0.75
	5189	Gulfstream IV/G400	GIV	269	0.74
	4804	Dassault Falcon 2000	CNA750	242	0.66
	1309	Cessna 750 Citation X, Dassault Falcon	CNA750	228	0.62
	1323	Dassault Falcon 50/900, Falcon 7X	FAL900EX	221	0.61
	4215	Gulfstream G650	G650ER	193	0.53
	1265	Cessna 172/177	CNA172	188	0.52
	6071	Honda HA-420 Hondajet	CNA510	141	0.39
	26	Bell 206 Jet Ranger	B206L	59	0.16
Military	1807	Boeing F-15E, F-15EX	F15A	1,150	3.15
	4236	Boeing F/A-18E/F Super Hornet	F-18	931	2.55

Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
	1791	McDonnell Douglas A-4 Skyhawk	A4C	340	0.93
	1862	Boeing T-7A Red Hawk	T-38A	219	0.60
	1532	Raytheon T-6A Texan II	CNA208	43	0.12
	1403	Boeing C-17 Globemaster	C17	11	0.03
	3170	Lockheed C-130 Hercules	C130E	11	0.03
			Total:	**160,486**	**439.69**

Notes: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff. AEDT = Aviation Environmental Design Tool and ANP = Aircraft Noise and Performance.

Sources: St. Louis Lambert International Airport Noise and Operation Management System, August 1, 2021 – July 31, 2022; The Boeing Company; CMT, Inc., 2024.

TABLE 5: DEPARTURE STAGE LENGTH PERCENTAGES: AUGUST 1, 2021 – JULY 31, 2022

Aircraft Type(s)	AEDT ANP ID	Stage 1	Stage 2	Stage 3	Total
		<500nm	501-1,000 NM	1,001-1,500 NM	
Boeing 737-700	737700	47%	42%	11%	100%
Boeing 737-800/900	737800	33%	34%	33%	100%
Bombardier CRJ-700/900	CRJ9-ER	50%	50%	--	100%
Embraer ERJ135/145	EMB14L	35%	65%	--	100%
Cessna 402	BEC58P	100%	--	--	100%
Embraer ERJ 175	EMB175	--	77%	23%	100%
Bombardier CRJ-200	CL600	100%	--	--	100%
Airbus A319-100	A319-131	60%	--	40%	100%
Cessna 208 Caravan	CNA208	100%	--	--	100%
Airbus A321-200	A321-232	50%	--	50%	100%
Airbus A320-200	A320-211	50%	--	50%	100%
Boeing 717-200	717200	100%	--	--	100%
Embraer ERJ 170	EMB170	50%	50%	--	100%
Boeing 767-300	767300	82%	--	18%	100%
Boeing 737-400	737400	100%	--	--	100%
Boeing 757-200	757PW	100%	--	--	100%
Airbus A300-600	A300-622R	100%	--	--	100%
Boeing 737 MAX 8	737MAX8	50%	--	50%	100%
MD-11	MD11PW	100%	--	--	100%
DC-10	DC1010	100%	--	--	100%
A220	--	100%	--	--	100%
Tecnam P212	--	100%	--	--	100%

Source: St. Louis Lambert International Airport Noise and Operation Management System, August 1, 2021 – July 31, 2022; CMT, Inc., 2024.

TABLE 6: RUNWAY USE PERCENTAGES – DEPARTURES: JANUARY 1, 2016 - JULY 31, 2022

Aircraft Category	Runway								Total
	12L	30R	12R	30L	11	29	6	24	
Daytime (7:00 am-9:59 pm)									
Passenger Carrier (Commercial Jets)	20%	1%	25%	41%	0%	13%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	16%	2%	27%	50%	0%	4%	1%	0%	100%
Cargo	35%	6%	8%	47%	0%	4%	0%	0%	100%
Air Taxi/General Aviation	27%	17%	13%	18%	0%	24%	0%	1%	100%
Military (Local)	7%	8%	36%	39%	0%	0%	0%	10%	100%
Military (Itinerant)	33%	13%	10%	30%	0%	4%	1%	9%	100%
All Daytime	**22%**	**4%**	**23%**	**38%**	**0%**	**13%**	**0%**	**0%**	**100%**
Nighttime (10:00 pm-6:59 am)									
Passenger Carrier (Commercial Jets)	22%	2%	25%	41%	0%	10%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	25%	17%	19%	35%	0%	3%	1%	0%	100%
Cargo	42%	6%	6%	45%	0%	1%	0%	0%	100%
Air Taxi/General Aviation	29%	11%	17%	20%	0%	23%	0%	0%	100%
Military (Local)	7%	8%	36%	39%	0%	0%	0%	10%	100%
Military (Itinerant)	49%	15%	16%	14%	0%	3%	0%	3%	100%
All Nighttime	**25%**	**5%**	**21%**	**37%**	**0%**	**11%**	**0%**	1%	**100%**

Note: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff.

Source: St. Louis Lambert International Airport Noise and Operation Management System, January 1, 2016 – July 31, 2022; CMT, Inc., 2024.

TABLE 7: RUNWAY USE PERCENTAGES – ARRIVALS: JANUARY 1, 2016 - JULY 31, 2022

Aircraft Category	Runway								Total
	12L	30R	12R	30L	11	29	6	24	
Daytime (7:00 am-9:59 pm)									
Passenger Carrier (Commercial Jets)	16%	46%	18%	5%	12%	2%	0%	1%	100%
Passenger Carrier (C402, C208, and P212)	12%	24%	22%	15%	11%	7%	0%	9%	100%
Cargo	33%	52%	9%	3%	2%	0%	0%	1%	100%
Air Taxi/General Aviation	17%	45%	12%	6%	15%	3%	0%	2%	100%
Military (Local)	48%	52%	0%	0%	0%	0%	0%	0%	100%
Military (Itinerant)	33%	48%	9%	8%	1%	0%	0%	1%	100%
All Daytime	**15%**	**44%**	**17%**	**6%**	**13%**	**3%**	**0%**	**2%**	**100%**
Nighttime (10:00 pm-6:59 am)									
Passenger Carrier (Commercial Jets)	13%	37%	27%	12%	10%	1%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	10%	23%	29%	22%	5%	2%	0%	9%	100%
Cargo	31%	47%	10%	11%	1%	0%	0%	0%	100%
Air Taxi/General Aviation	16%	39%	16%	10%	15%	2%	0%	2%	100%
Military (Local)	48%	52%	0%	0%	0%	0%	0%	0%	100%
Military (Itinerant)	39%	27%	24%	7%	3%	0%	0%	0%	100%
All Nighttime	**15%**	**38%**	**23%**	**12%**	**10%**	**1%**	**0%**	**1%**	**100%**

Note: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff.

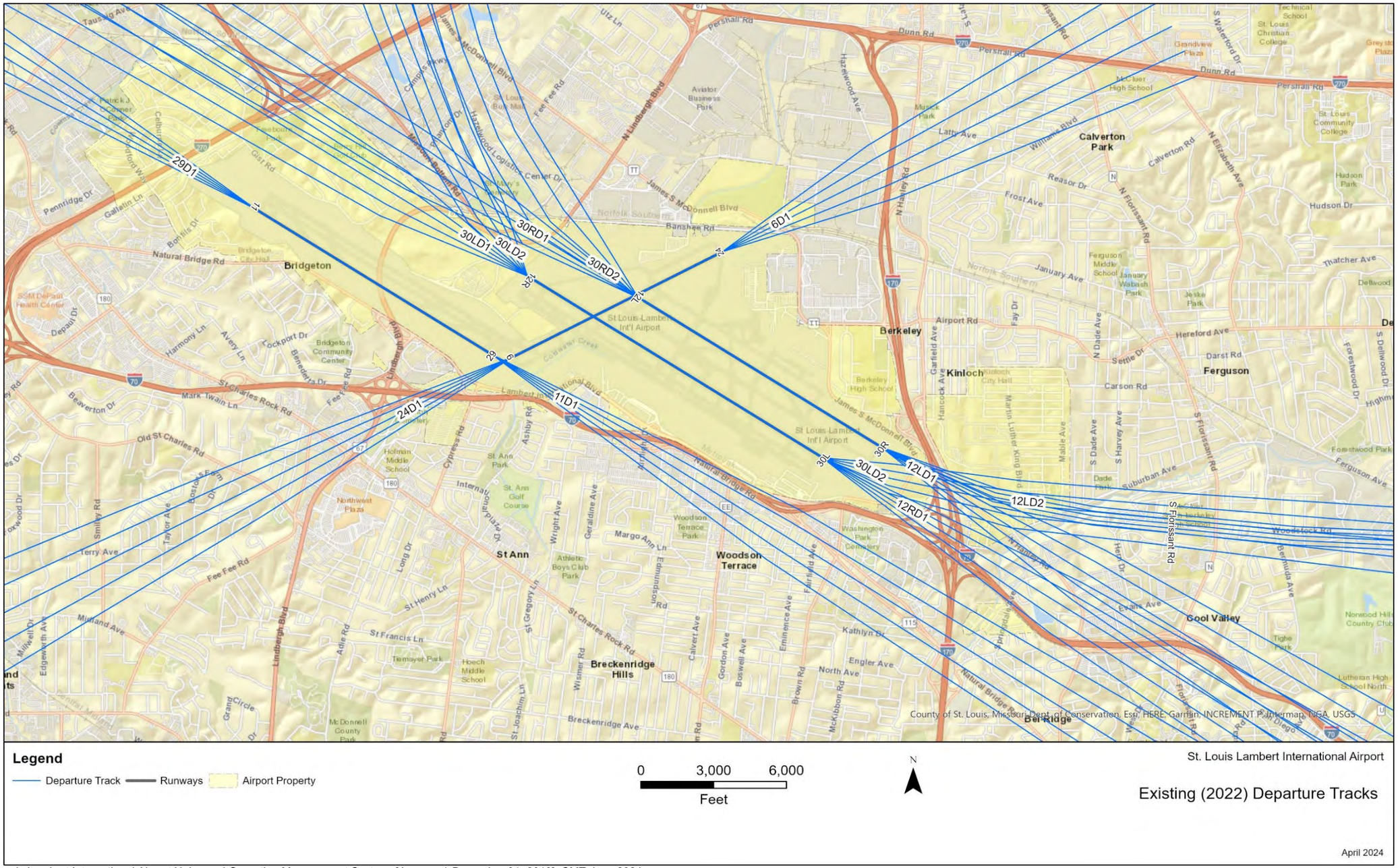
Source: St. Louis Lambert International Airport Noise and Operation Management System, January 1, 2016 – July 31, 2022; CMT, Inc., 2024.

TABLE 8: AIRCRAFT FLIGHT TRACK USE PERCENTAGES

RWY	Track																						
	11A1	11D1	12LA1	12LD1	12LD2	12RA1	12RD1	12RD2	24A1	24D1	29A1	29D1	30LA1	30LD1	30LD2	30RA1	30RD1	30RD2	6A1	6D1	12LDT	12LAT	30RDT	30RAT
Arrivals																								
12L			100%																					
30R																100%								
12R						100%																		
30L													100%											
11	100%																							
29											100%													
6																			100%					
24									100%															
Departures																								
12L				45%	55%																			
30R																	68%	32%						
12R							50%	50%																
30L														65%	35%									
11		100%																						
29												100%												
6																				100%				
24										100%														
Touch and go (arrivals)																								
12L																						100%		
30R																								100%
Touch and go (Departures)																								
12L																					100%			
30R																							100%	

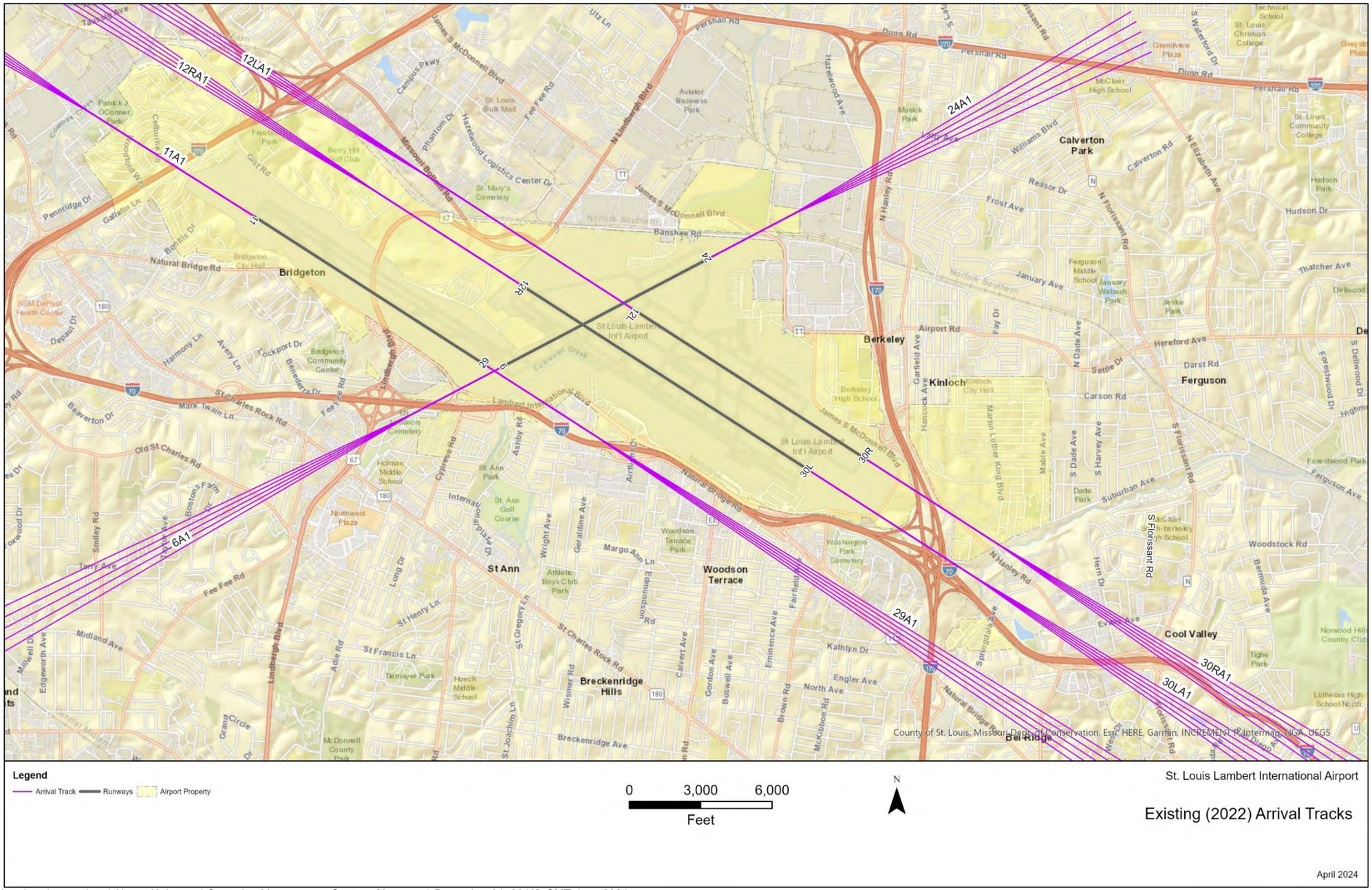
Sources: St. Louis Lambert International Airport Noise and Operation Management System, January 1, 2019 – December 31, 2019; CMT, Inc., 2024.

FIGURE 2: EXISTING (2022) DEPARTURE TRACKS



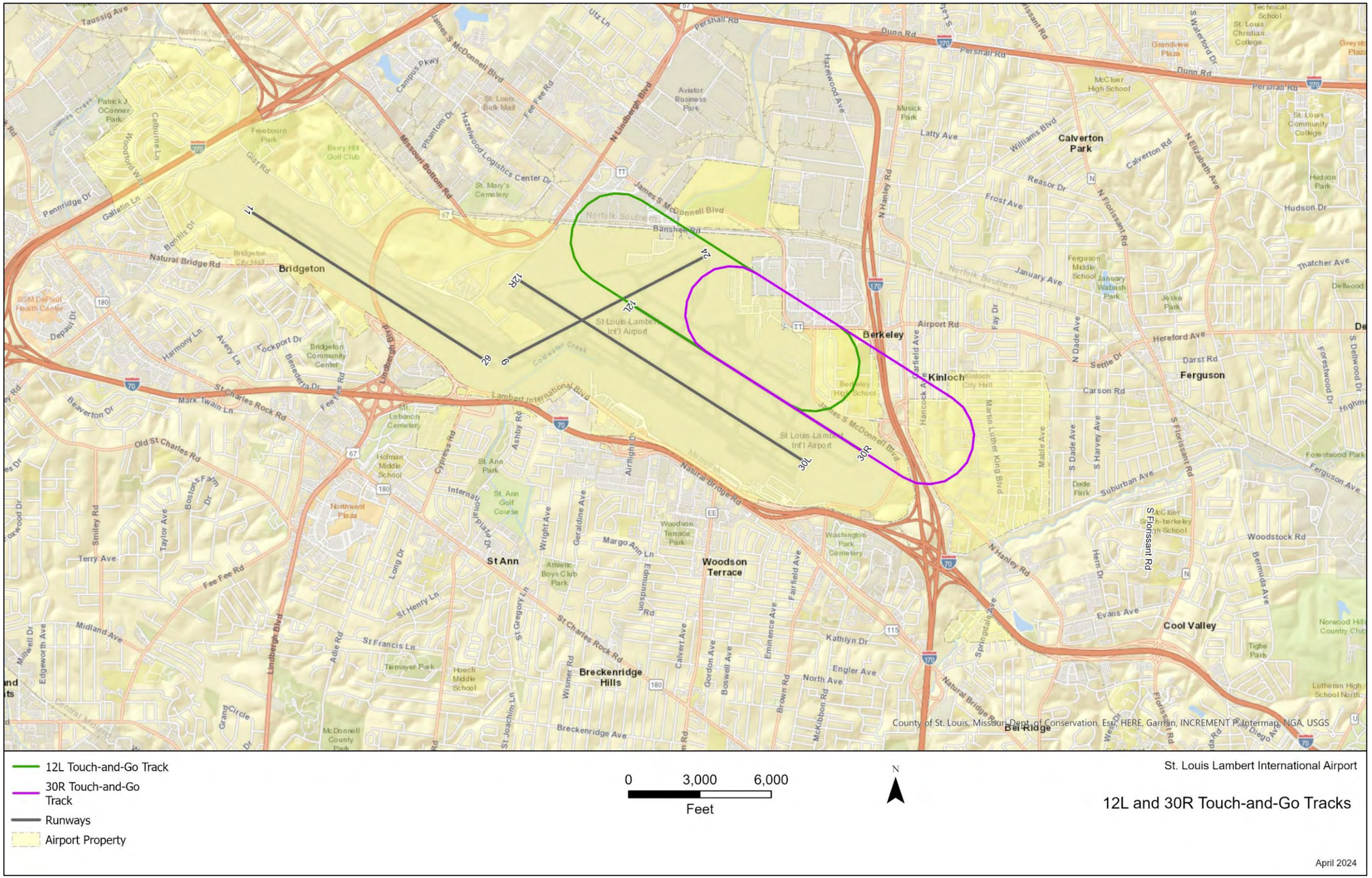
Sources: St. Louis Lambert International Airport Noise and Operation Management System, [January 1-December 31, 2019]; CMT, Inc., 2024.

FIGURE 3: EXISTING (2022) ARRIVAL TRACKS



Sources: St. Louis Lambert International Airport Noise and Operation Management System, [January 1-December 31, 2019]; CMT, Inc., 2024.

FIGURE 4: 12L AND 30R TOUCH-AND-GO TRACKS



Sources: St. Louis Lambert International Airport Noise and Operation Management System, [January 1-December 31, 2019]; CMT, Inc., 2024

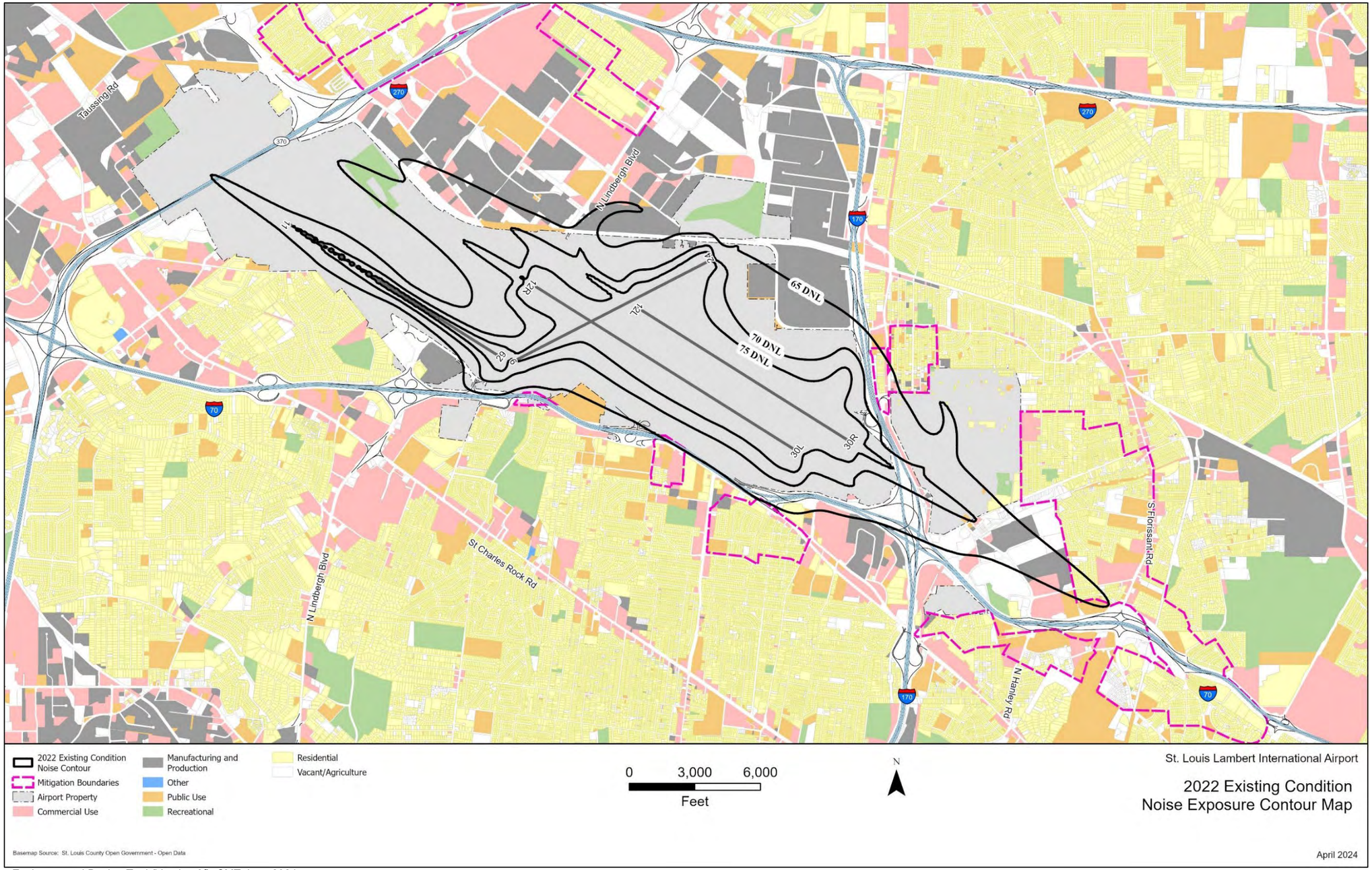
Noise Contours

Figure 5 depicts the existing (Year 2022) DNL 65, 70, and 75 dBA contours. The DNL 65 dBA contour encompasses 1,139 acres of airport property and 692 acres of non-airport property.

As illustrated, most of the DNL 65 dBA contour lies within the existing airport property boundary. The recreational area northwest of Runway end 12R on airport property is a golf course within the DNL 65 dBA to 70 dBA contours. It is considered compatible with aircraft noise per FAA's land use compatibility table (see Table 1). The public use area southeast of Runway end 30R on airport property is a church within the DNL 70 dBA and 75 dBA contours and is also considered compatible with aircraft noise.

Where the contour extends beyond the airport boundary, the land uses are either considered to be compatible with aircraft noise or in areas for which aircraft noise has previously been mitigated through acoustical treatment of eligible properties or purchased by the airport, and residents relocated. Commercial and manufacturing land uses are within the DNL 65 dBA northwest of Runway end 12L and are considered compatible with aircraft noise. The public use area southeast of Runway end 29, which is within the DNL 65 dBA contour, is used for government services and is considered compatible with aircraft noise. Furthermore, all residential areas within the DNL 65 dBA have been mitigated for aircraft noise.

FIGURE 5: EXISTING (2022) DNL 65-75 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

FUTURE (2032) NO ACTION ALTERNATIVE

AEDT Input Data

For the evaluation of future (2032) conditions without the Proposed Action (i.e., the No Action alternative), per the master plan, there would be no changes to STL's runways (length, width, or location) nor changes to the percent operations by time of day, runway or track utilization, or number/location of tracks when compared to the existing (2022) condition. The forecast aircraft operations and fleet mix for the future (2032) No Action alternative and departure stage lengths are presented in Tables 9 and Table 10. These data were derived using an FAA Approved Forecast developed as part of the STL master plan.

TABLE 9: FUTURE (2032) NO ACTION AND PROPOSED ACTION FLEET MIX AND OPERATIONS

General Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
Passenger Carry/ Cargo	5301	Airbus A220-100	737700	2,590	7.10
	967	Airbus A319	A319-131	3,457	9.47
	6400	Airbus A319neo	A319-131	5,099	13.97
	997	Airbus A320S	A320-211	347	0.95
	6398	Airbus A320neo	A320-270N	1,041	2.85
	2456	Airbus A321S	A321-232	2,219	6.08
	5976	Airbus A321neo	A321-232	2,219	6.08
	704	Airbus A300-600	A300-622R	834	2.28
	1095	Airbus A330-300	A330-343	520	1.42
	178	Boeing 737-700W	737700	15,757	43.17
	6585	Boeing 737-800	737800	7,289	19.97
	2412	Boeing 737-900ER	737800	360	0.99
	6662	Boeing 737 MAX 7	7378MAX	47,277	129.53
	6472	Boeing 737 MAX 8	7378MAX	30,302	83.02
	6406	Boeing 737 MAX 9	7378MAX	1,604	4.39
	457	Boeing 767-300/ER	7673ER	2,132	5.84
	3049	Bombardier CRJ-200	CL600	374	1.02
	2546	Bombardier CRJ-700	CRJ9-ER	828	2.27
	3998	Bombardier CRJ-900	CRJ9-ER	7,562	20.72
	2106	Cessna 208 Caravan	CNA208	11,089	30.38
	6532	Tecnam P2012	BEC58P	6,427	17.61
	2560	Embraer 170	EMB170	485	1.33
	3815	Embraer 175	EMB175	27,411	75.10
Air Taxi/ General Aviation	1239	Bombardier Challenger 300/600	CL600	3,082	8.44
	6070	Cessna 560 Citation XLS	CNA560XL	2,870	7.86
	3047	Cessna Citation Sovereign/ Latitude/Longitude	CNA680	2,262	6.20

General Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
	6552	Embraer Legacy, Phenom 100/300	CNA510	1,913	5.24
	2028	Learjet 35/45/55/60/75, Hawker 800	LEAR35	1,485	4.07
	1927	Gulfstream V/500	GV	1,347	3.69
	1292	Citation II/Bravo, Beechjet 400	CNA55B	1,344	3.68
	1976	Gulfstream 200/280	IA1125	1,313	3.60
	1309	Cessna 750 Citation X, Dassault Falcon 2000	CNA750	784	2.15
	1603	Raytheon King Air, Super King Air	DHC6	585	1.60
	5189	Gulfstream IV/G400	GIV	551	1.51
	1489	PC-12	CNA208	421	1.15
	1323	Dassault Falcon 50/900, Falcon 7X	FAL900EX	355	0.97
	31	Beechcraft 1900	1900D	318	0.87
	1776	Bombardier Global Express/5000	BD-700-1A10	303	0.83
	1196	Baron 58, Seminole, Cessna 310/ 414/421	BEC58P	184	0.50
	6286	Beech Bonanza, Diamond 40, Piper Malibu	GASEPV	173	0.47
	1265	Cessna 172/177	CNA172	107	0.29
	1324	Cirrus SR20/22	COMSEP	78	0.21
Future Military Aircraft	1807	Boeing F-15E, F-15EX	F15A	1,369	3.75
	4236	Boeing F/A-18E/F Super Hornet	F-18	931	2.55
	1862	Boeing T-7A Red Hawk	T-38A	219	0.60
	1532	Raytheon T-6A Texan II	JPATS	85	0.23
	1403	Boeing C-17 Globemaster	C17	11	0.03
	3170	Lockheed C-130 Hercules	C119L	11	0.03
			Total:	**199,324**	**546.09**

Note: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff.
AEDT = Aviation Environmental Design Tool and ANP = Aircraft Noise and Performance.
Sources: STL Master Plan and City of St. Louis staff, 2024.

TABLE 10: DEPARTURE STAGE LENGTH PERCENTAGES: 2032/2037

Aircraft Type(s)	AEDT ANP ID	Stage 1	Stage 2	Stage 3	Stage 6	Total
		<500nm	501-1,000nm	1,001-1,500nm	3,500-4,500nm	
Boeing 737-700	737700	47%	42%	11%	--	100%
Boeing 737-800/900	737800	33%	34%	33%	--	100%
Boeing 787-9	7879	--	--	--	100%	100%
Bombardier CRJ-700/900	CRJ9-ER	45%	55%	--	--	100%
Tecnam P2012	BEC58P	100%	--	--	--	100%
Embraer ERJ 175	EMB175	--	77%	23%	--	100%
Airbus A319-100	A319-131	60%	--	40%	--	100%
Cessna 208 Caravan	CNA208	100%	--	--	--	100%
Airbus A321-200	A321-232	50%	--	50%	--	100%
Airbus A320-200	A320-211	50%	--	50%	--	100%
Airbus A330-300	A330-343	--	--	--	100%	100%
Airbus 220-100/300	737700	100%	--	--	--	100%
Embraer ERJ 170	EMB170	50%	50%	--	--	100%
Boeing 767-300	767300	82%	--	18%	--	100%
Airbus A300-600	A300-622R	100%	--	--	--	100%
Boeing 737 MAX 8	737MAX8	50%	--	50%	--	100%
Airbus A320neo	A320-271N	--	100%	--	--	100%
Boeing 757F	757RR	100%	--	--	--	100%
Boeing 738F	737800	100%	--	--	--	100%

Source: STLAA staff and CMT, Inc.

Noise Contours

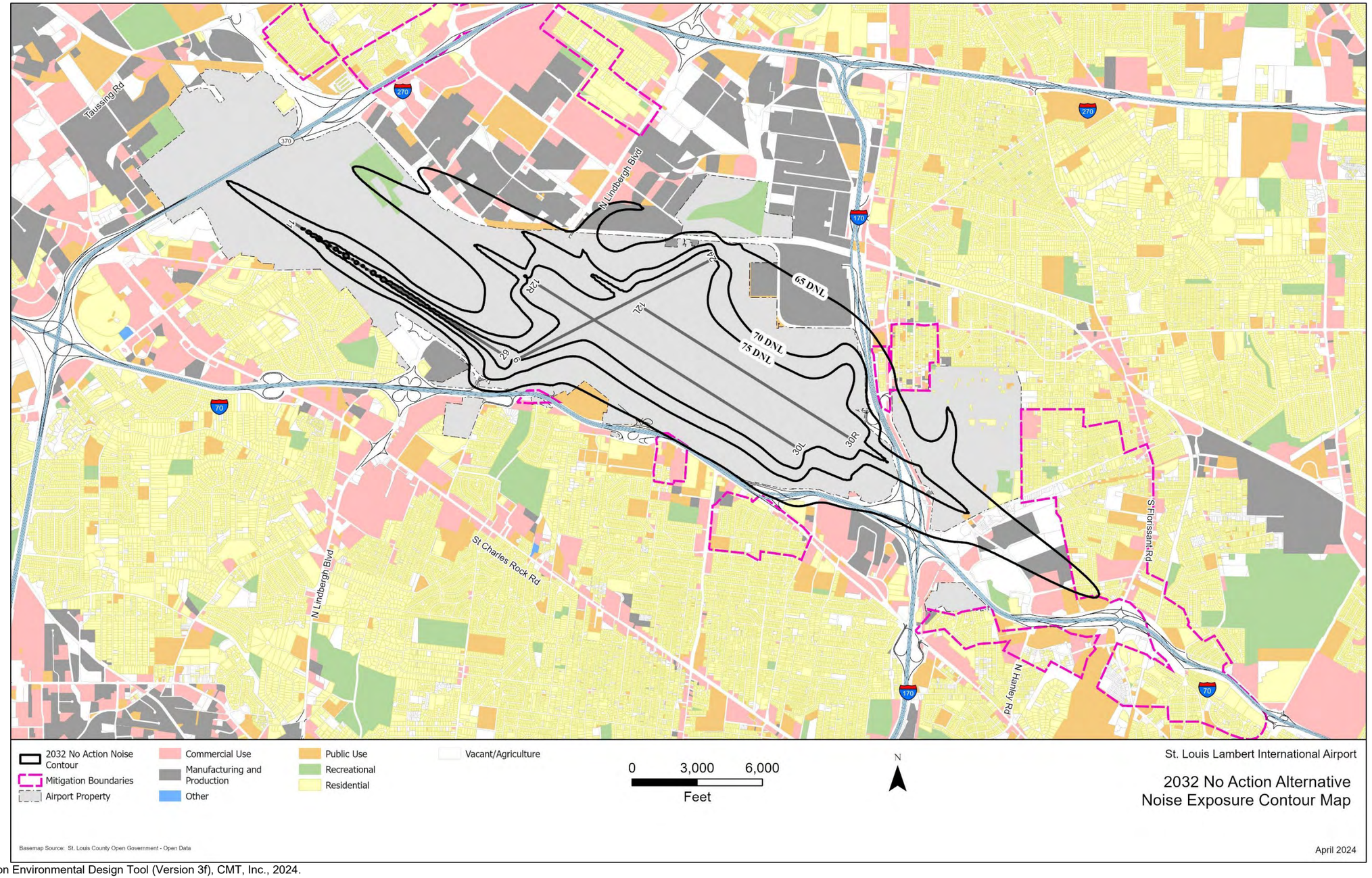
Figure 6 depicts the Future (2032) No Action alternative DNL 65, 70, and 75 dBA aircraft contours. The DNL 65 dBA contour encompasses 1,051 acres of airport property and 601 acres of non-airport property.

As illustrated, most of the DNL 65 dBA contour lies within the existing airport property boundary. The recreational area northwest of Runway end 12R on airport property is a golf course within the DNL 65 dBA to 70 dBA contours. It is considered compatible with aircraft noise per FAA's land use compatibility table (see Table 1). The public use area southeast of Runway end 30R on airport property is a church within the DNL 65 dBA and 70 dBA contours and is also considered compatible with aircraft noise.

Where the contour extends beyond the airport boundary, the land uses are either considered to be compatible with aircraft noise or in areas for which aircraft noise has previously been mitigated through acoustical treatment of eligible properties or purchased by the airport, and residents relocated. Commercial and manufacturing land uses within the DNL 65 dBA northwest of Runway end 12L and north of Runway 12L/30R are considered compatible with aircraft noise. The public use area southeast of Runway end 29, which is within the DNL 65 dBA contour, is used for

government services and is considered compatible with aircraft noise. Furthermore, all residential areas within the DNL 65 dBA have been mitigated for aircraft noise.

FIGURE 6: FUTURE (2032) NO ACTION DNL 65-75 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

FUTURE (2032) PROPOSED ACTION ALTERNATIVE

AEDT Input Data

For the evaluation of future (year 2032) conditions with the Proposed Action, there were no changes to STL's runways, modeled flight tracks, or flight track usage compared to the future 2032 No Action condition.

The number of annual operations by aircraft type for the future (2032) Proposed Action alternative was the same as the future (2032) No Action alternative, as well as the departure stage lengths (previously presented in Tables 9 and 10). Tables 11 through 13 provide the forecast percent of day and night operations and runway uses for the future (2032) Proposed Action alternative. This data was obtained from the FAA Approved Forecast developed as part of the STL master plan.

When compared to the (2032) No Action alternative, there was a general shift of aircraft operations toward Runways 11/29 and 12L/30R.

TABLE 11: PERCENT OPERATIONS BY TIME OF DAY: PROPOSED ACTION

Aircraft Category	Day (7:00 a.m.- 9:59 p.m.)	Night (10:00 p.m.- 6:59 a.m.)	Total
Departures			
Passenger Carrier (Commercial Jets)	86%	14%	100%
Passenger Carrier (C402, C208, and P212)	100%	0%	100%
Cargo	10%	90%	100%
Air Taxi/General Aviation	93%	7%	100%
Military(L)	98%	2%	100%
Military(I)	98%	2%	100%
All Departures	**86%**	**14%**	**100%**
Arrivals			
Passenger Carrier (Commercial Jets)	86%	14%	100%
Passenger Carrier (C402, C208, and P212)	100%	0%	100%
Cargo	22%	78%	100%
Air Taxi/General Aviation	94%	6%	100%
Military(L)	94%	6%	100%
Military(I)	94%	6%	100%
All Arrivals	**86%**	**14%**	**100%**
Touch-and-Go			
Military(L)	98%	2%	100%

Source: STLAA staff and CMT, Inc.

TABLE 12: RUNWAY USE PERCENTAGES – DEPARTURES: PROPOSED ACTION

Aircraft Category	Runway								Total
	12L	30R	12R	30L	11	29	6	24	
Daytime (7:00 a.m. - 9:59 p.m.)									
Passenger Carrier (Commercial Jets)	4%	1%	39%	30%	0%	26%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	4%	2%	39%	34%	0%	20%	0%	1%	100%
Cargo	41%	22%	5%	31%	0%	1%	0%	0%	100%
Air Taxi/General Aviation	34%	40%	10%	15%	0%	0%	0%	1%	100%
Military (Local)	7%	8%	36%	39%	0%	0%	0%	10%	100%
Military (Itinerant)	32%	10%	13%	41%	0%	4%	0%	0%	100%
Nighttime (10:00 p.m. -6:59 a.m.)									
Passenger Carrier (Commercial Jets)	8%	8%	33%	31%	0%	20%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cargo	42%	23%	4%	31%	0%	0%	0%	0%	100%
Air Taxi/General Aviation	26%	45%	10%	9%	0%	10%	0%	0%	100%
Military (Local)	7%	8%	36%	39%	0%	0%	0%	10%	100%
Military (Itinerant)	49%	15%	16%	14%	0%	3%	0%	3%	100%

Source: City of St. Louis staff and CMT, Inc.

TABLE 13: RUNWAY USE PERCENTAGES – ARRIVALS: PROPOSED ACTION

Aircraft Category	Runway								Total
	12L	30R	12R	30L	11	29	6	24	
Daytime (7:00 a.m. - 9:59 p.m.)									
Passenger Carrier (Commercial Jets)	20%	38%	2%	4%	20%	16%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	15%	22%	14%	15%	16%	15%	0%	3%	100%
Cargo	41%	53%	2%	2%	2%	0%	0%	0%	100%
Air Taxi/General Aviation	38%	55%	3%	3%	0%	0%	0%	1%	100%
Military (Local)	48%	52%	0%	0%	0%	0%	0%	0%	100%
Military (Itinerant)	38%	52%	10%	0%	0%	0%	0%	0%	100%
Nighttime (10:00 p.m. - 6:59 a.m.)									
Passenger Carrier (Commercial Jets)	17%	36%	13%	9%	15%	10%	0%	0%	100%
Passenger Carrier (C402, C208, and P212)	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cargo	38%	52%	5%	5%	0%	0%	0%	0%	100%
Air Taxi/General Aviation	35%	44%	4%	9%	6%	2%	0%	0%	100%

Aircraft Category	Runway								Total
	12L	30R	12R	30L	11	29	6	24	
Military (Local)	48%	52%	0%	0%	0%	0%	0%	0%	100%
Military (Itinerant)	39%	27%	24%	7%	3%	0%	0%	0%	100%
Military (Local)	48%	52%	0%	0%	0%	0%	0%	0%	100%

Source: STLAA staff and CMT, Inc. 2024.

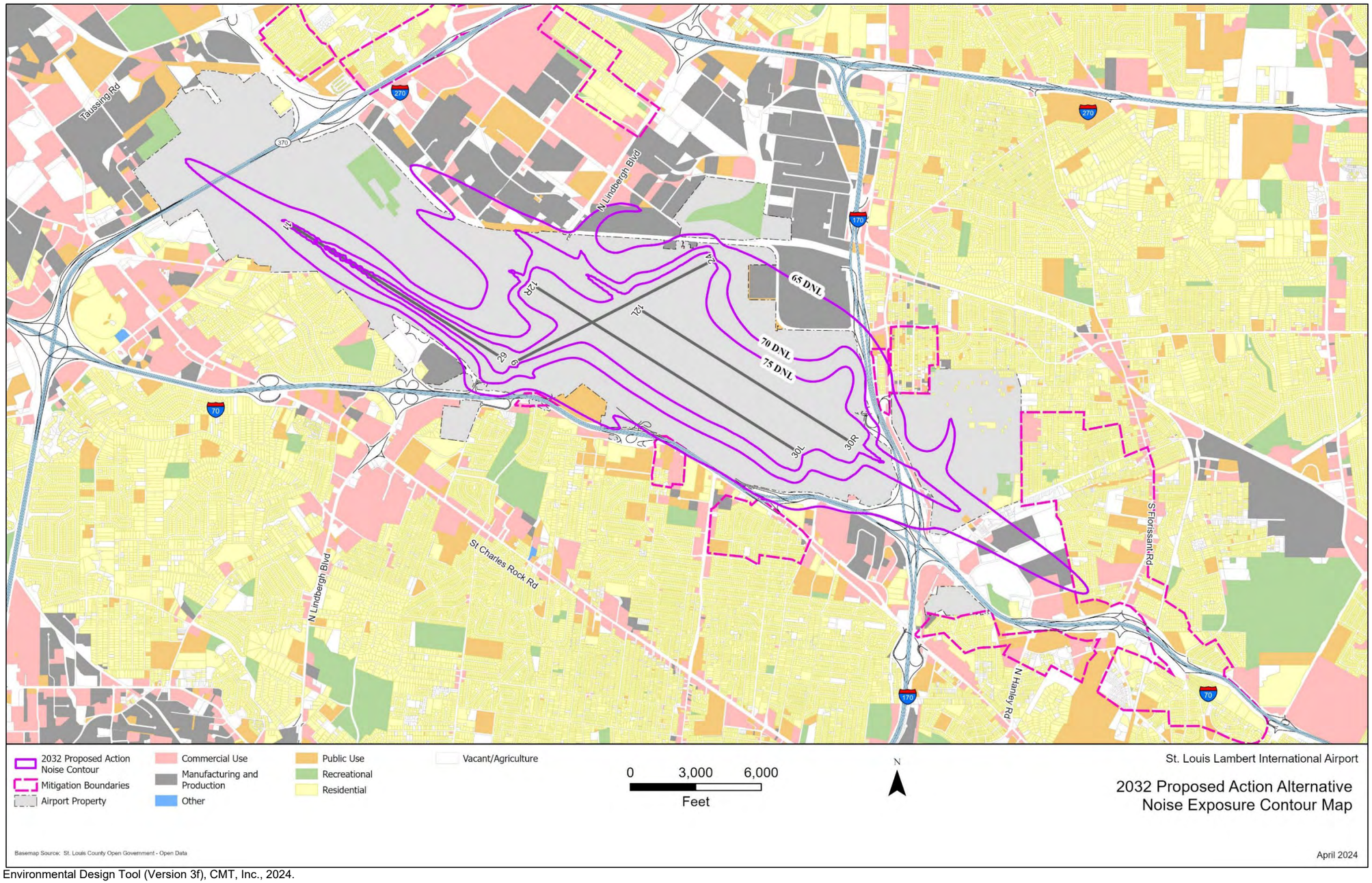
Noise Contours

Figure 7 depicts the future (2032) Proposed Action alternative DNL 65, 70, and 75 dBA contours. The DNL 65 dBA contour encompasses 1,064 acres of airport property and 590 acres of non-airport property.

As illustrated, most of the DNL 65 dBA contour lies within the existing airport property boundary. The recreational area northwest of Runway end 12R on airport property is a golf course not within the DNL 65 dBA contour. The public use area southeast of Runway end 30R on airport property is a church within the DNL 65 dBA contour. It is considered compatible with aircraft noise per FAA's land use compatibility table (see Table 1).

Where the contour extends beyond the airport boundary, the land uses are either considered to be compatible with aircraft noise or in areas for which aircraft noise has previously been mitigated through acoustical treatment of eligible properties or purchased by the airport, and residents relocated. Commercial and manufacturing land uses within the DNL 65 dBA northwest of Runway end 12L and north of Runway 12L/30R are considered compatible with aircraft noise. The public use area southeast of Runway end 29, which is within the DNL 65 dBA contour, is used for government services and is considered compatible with aircraft noise. Furthermore, all residential areas within the DNL 65 dBA have been mitigated for aircraft noise.

FIGURE 7: FUTURE (2032) PROPOSED ACTION DNL 65-75 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

FUTURE (2037) NO ACTION ALTERNATIVE

AEDT Input Data

For the evaluation of future (2037) conditions No Action alternative, there were no changes to STL's runways nor changes to the percent operations by time of day, runway or track utilization, departure stage length, or number/location of tracks when compared to the future 2032 No Action alternative. The forecast aircraft operations and fleet mix for the future (2037) No Action alternative are presented in Table 14.

TABLE 14: FUTURE (2037) FLEET MIX AND OPERATIONS

General Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
Passenger Carrie/ Cargo	5301	Airbus A220-100	737700	2,832	7.76
	967	Airbus A319	A319-131	3,777	10.35
	6400	Airbus A319neo	A319-131	5,572	15.27
	997	Airbus A320S	A320-211	376	1.03
	6398	Airbus A320neo	A320-270N	1,128	3.09
	2456	Airbus A321S	A321-232	2,404	6.59
	5976	Airbus A321neo	A321-232	2,404	6.59
	704	Airbus A300-600	A300-622R	819	2.24
	1095	Airbus A330-300	A330-343	520	1.42
	6662	Boeing 737 MAX 7	7378MAX	64,123	175.68
	6472	Boeing 737 MAX 8	7378MAX	45,907	125.77
	6406	Boeing 737 MAX 9	7378MAX	2,338	6.41
	457	Boeing 767-300/ER	7673ER	2,194	6.01
	3998	Bombardier CRJ-900	CRJ9-ER	8,161	22.36
	2106	Cessna 208 Caravan	CNA208	11,642	31.90
	6532	Tecnam P2012	BEC58P	6,798	18.62
	2560	Embraer 170	EMB170	530	1.45
	3815	Embraer 175	EMB175	31,068	85.12
	6440	Boeing 787-9	7879	208	0.57
Air Taxi / General Aviation	1239	Bombardier Challenger 300/600	CL600	3,253	8.91
	6070	Cessna 560 Citation XLS	CNA560XL	3,029	8.30
	3047	Cessna Citation Sovereign/ Latitude/Longitude	CNA680	2,387	6.54
	6552	Embraer Legacy, Phenom 100/300	CNA510	2,019	5.53
	2028	Learjet 35/45/55/60/75, Hawker 800	LEAR35	1,567	4.29
	1927	Gulfstream V/500	GV	1,422	3.90
	1292	Citation II/Bravo, Beechjet 400	CNA55B	1,418	3.88
	1976	Gulfstream 200/280	IA1125	1,385	3.79

General Category	AEDT Equipment ID	Aircraft Type(s)	AEDT ANP ID	Operations	
				Annual	Average Day
	1309	Cessna 750 Citation X, Dassault Falcon 2000	CNA750	828	2.27
	1603	Raytheon King Air, Super King Air	DHC6	617	1.69
	5189	Gulfstream IV/G400	GIV	582	1.59
	1489	PC-12	CNA208	442	1.21
	1323	Dassault Falcon 50/900, Falcon 7X	FAL900EX	374	1.02
	31	Beechcraft 1900	1900D	336	0.92
	1776	Bombardier Global Express/5000	BD-700-1A10	320	0.88
	1196	Baron 58, Seminole, Cessna 310/ 414/421	BEC58P	194	0.53
	6286	Beech Bonanza, Diamond 40, Piper Malibu	GASEPV	182	0.50
	1265	Cessna 172/177	CNA172	113	0.31
	1324	Cirrus SR20/22	COMSEP	82	0.22
Future Military Aircraft	1807	Boeing F-15E, F-15EX	F15A	1,369	3.75
	1862	Boeing T-7A Red Hawk	T-38A	876	2.40
	1532	Raytheon T-6A Texan II	CNA208	85	0.23
	1403	Boeing C-17 Globemaster	C17	11	0.03
	3170	Lockheed C-130 Hercules	C130E	11	0.03
			Total:	**215,703**	**590.97**

Note: Military operations were derived from data provided by The Boeing Company, STLAA, and STL ATCT staff.
AEDT = Aviation Environmental Design Tool and ANP = Aircraft Noise and Performance.
Source: STLAA staff and CMT, Inc, 2024.

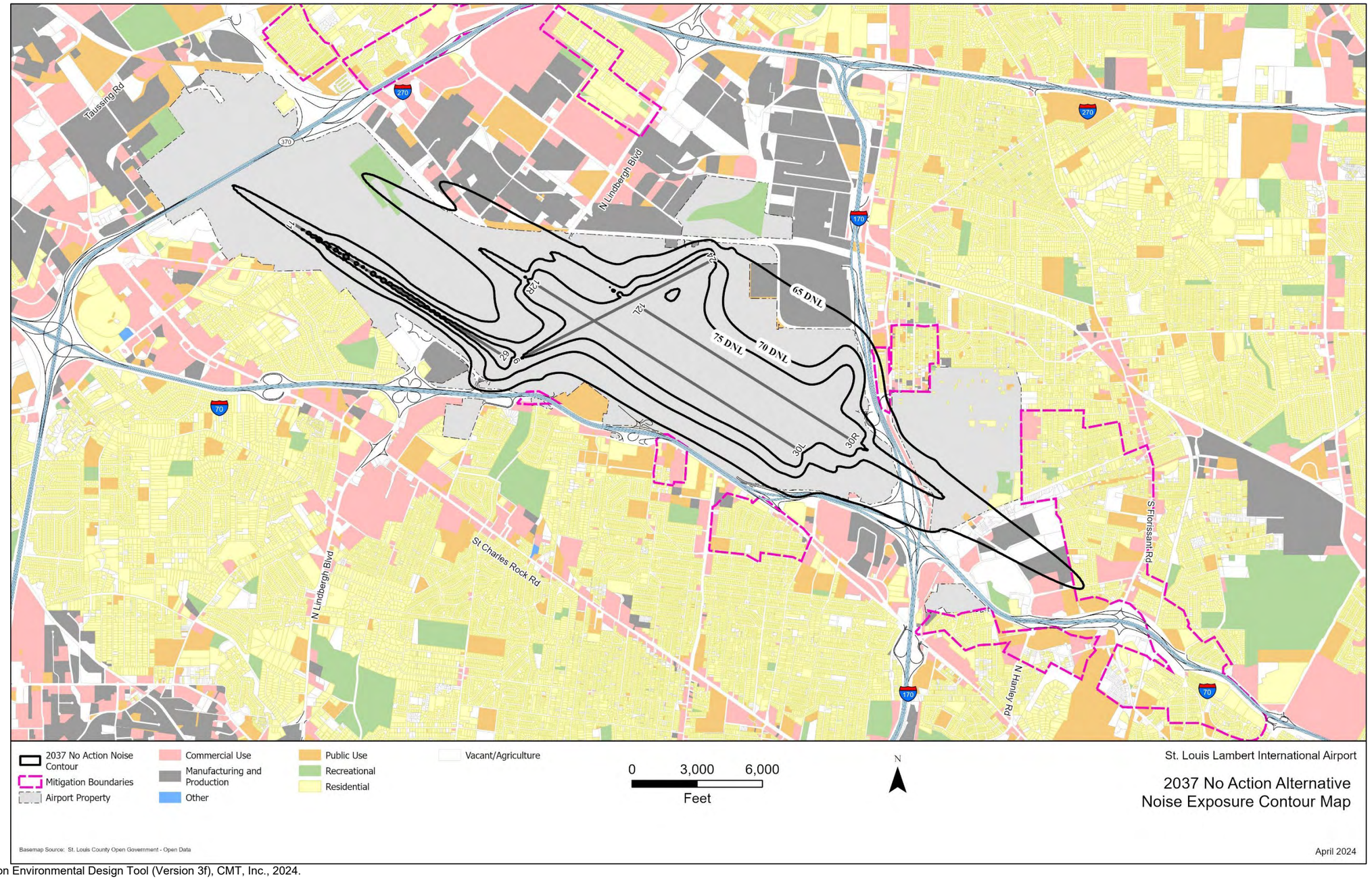
Noise Contours

Figure 8 depicts the future (2037) DNL 65, 70, and 75 dBA contours with the No Action alternative. The DNL 65 dBA contour encompasses 990 acres of airport property and 404 acres of non-airport property.

As illustrated, most of the DNL 65 dBA contour lies within the existing airport property boundary. The recreational area northwest of Runway end 12R on airport property is a golf course within the DNL 65 dBA to 70 dBA contours. It is considered compatible with aircraft noise per FAA's land use compatibility table (see Table 1). The public use area southeast of Runway end 30R on airport property is a church within the DNL 65 dBA and 70 dBA contours and is also considered compatible with aircraft noise.

Where the contour extends beyond the airport boundary, the land uses are either considered to be compatible with aircraft noise or in areas for which aircraft noise has previously been mitigated through acoustical treatment of eligible properties or purchased by the airport, and residents relocated. Commercial and manufacturing land uses within the DNL 65 dBA northwest of Runway end 12L and north of Runway 12L/30R are considered compatible with aircraft noise. All residential areas within the DNL 65 dBA have been mitigated for aircraft noise.

FIGURE 8: FUTURE (2037) NO ACTION DNL 65-75 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

FUTURE (2037) PROPOSED ACTION ALTERNATIVE

AEDT Input Data

For the evaluation of future year (2037) conditions with the Proposed Action, there were no changes to STL's runways when compared to the future (2037) No Action alternative. The modeled flight tracks and flight track utilization percentages were the same as the future (2037) No Action alternative.

The departure stage length, percent day/night operations, and runway use were the same as the future (2032) Proposed Action alternative (previously presented in Tables 10 and 12 through 14) and the number of annual operations by aircraft type were the same as the future (2037) No Action alternative (previously presented in Table 14).

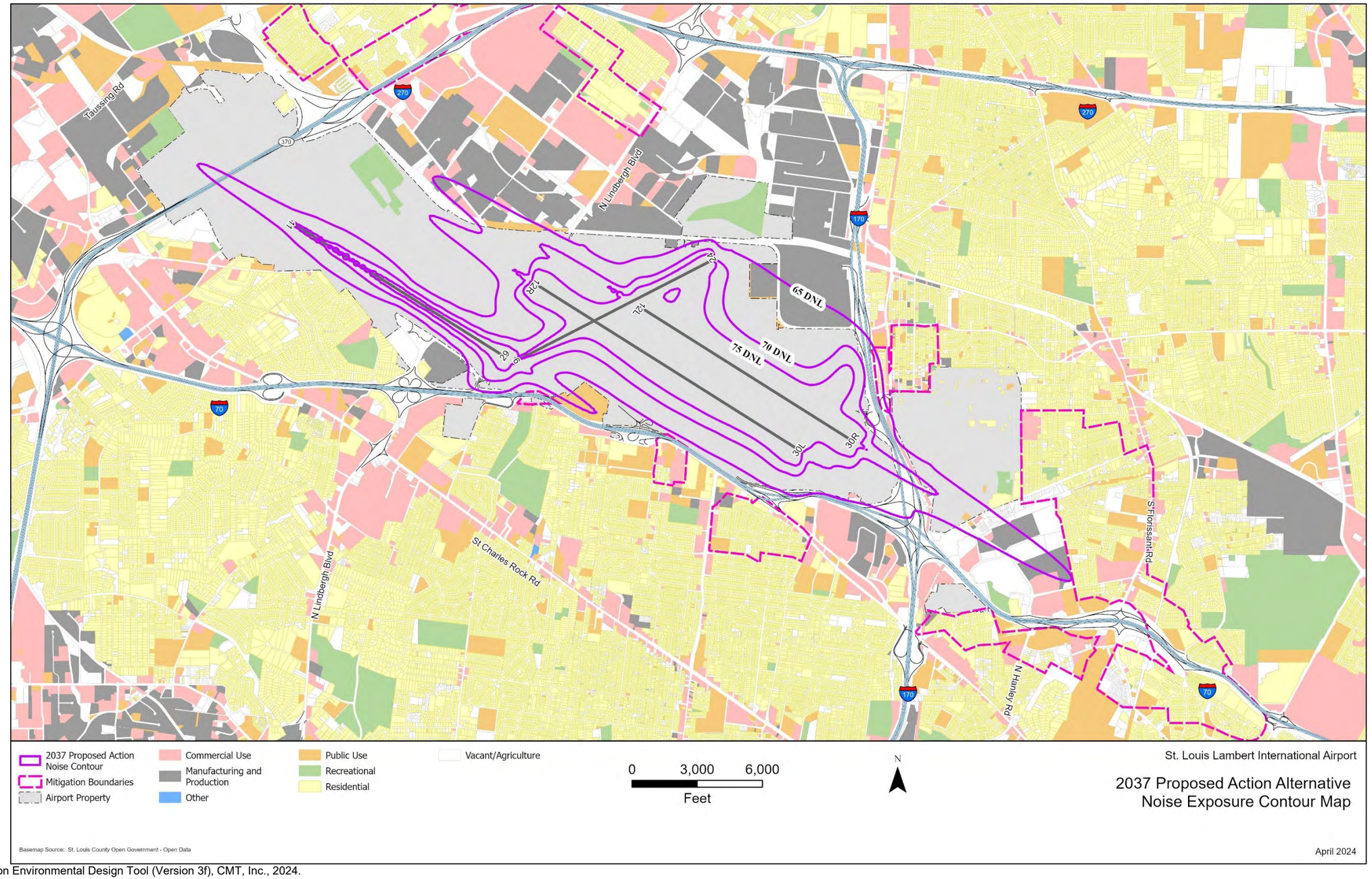
Noise Contours

Figure 9 depicts the future (2037) Proposed Action DNL 65, 70, and 75 dBA contours. The DNL 65 dBA contour encompasses 989 acres of airport property and 371 acres of non-airport property.

As illustrated, most of the DNL 65 dBA contour lies within the existing airport property boundary. The recreational area northwest of Runway end 12R on airport property is a golf course not within the DNL 65 dBA contour. The public use area southeast of Runway end 30R on airport property is a church within the DNL 65 dBA contour. It is considered compatible with aircraft noise per FAA's land use compatibility table (see Table 1).

Where the contour extends beyond the airport boundary, the land uses are either considered to be compatible with aircraft noise or in areas for which aircraft noise has previously been mitigated through acoustical treatment of eligible properties or purchased by the airport, and residents relocated. Commercial and manufacturing land uses within the DNL 65 dBA northwest of Runway end 12L and north of Runway 12L/30R are considered compatible with aircraft noise. The public use area southeast of Runway end 29, within the DNL 65 dBA contour, is used for government services and is considered compatible with aircraft noise. Furthermore, all residential areas within the DNL 65 dBA have been mitigated for aircraft noise.

FIGURE 9: FUTURE (2037) PROPOSED ACTION DNL 65-75 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

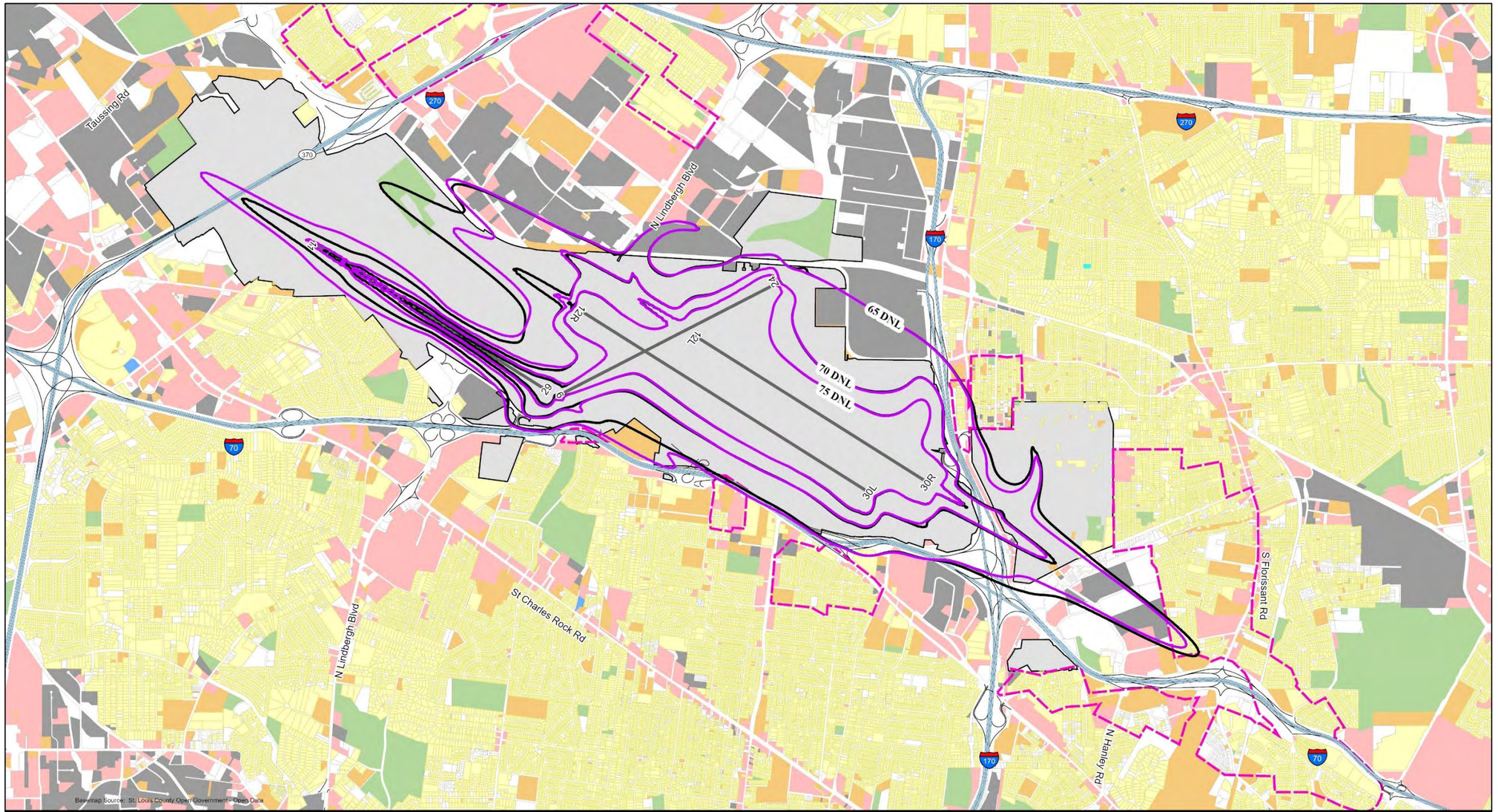
SIGNIFICANCE THRESHOLD

FAA guidance stipulates that a noise impact is considered significant when a proposed action results in noncompatible land use(s) being newly exposed to DNL 65 dBA or there is an increase of DNL 1.5 dBA or more at a noise-sensitive land use that without the action would be exposed to DNL 65 dBA. Figures 10 and 11 illustrate the changes to STL's aircraft noise contours in the future (2032 and 2037) with the Proposed Action.

In 2032, the DNL 65 dBA contour with the Proposed Action is outside of STL property in four areas (north of the Runway 12R end, north of Runway 12L/30R, south-southeast of the Runways 30L and 30R ends, and south-southeast of the Runway 6 end). The land uses north of Runway 12R end, and Runway 12L/30R is compatible with aircraft noise (i.e., in commercial/industrial uses and mitigated residential). South-southeast of STL, the No Action contour extends beyond the Proposed Action contour due to the anticipated changes in runway use with the Proposed Action. The fourth area, located south-southeast of Runway 6 end, is also considered to be compatible with aircraft noise (i.e., the property is categorized as public use). On airport property, there is a noise reduction for the recreational area northwest of Runway end 12R (golf course), and the public use area southeast of Runway end 30R (church) is considered compatible with aircraft noise. There is also a reduction in aircraft noise. As shown in Figure 10, in 2032, with the Proposed Action, the DNL 65 dBA contour would not encompass any noncompatible land uses.

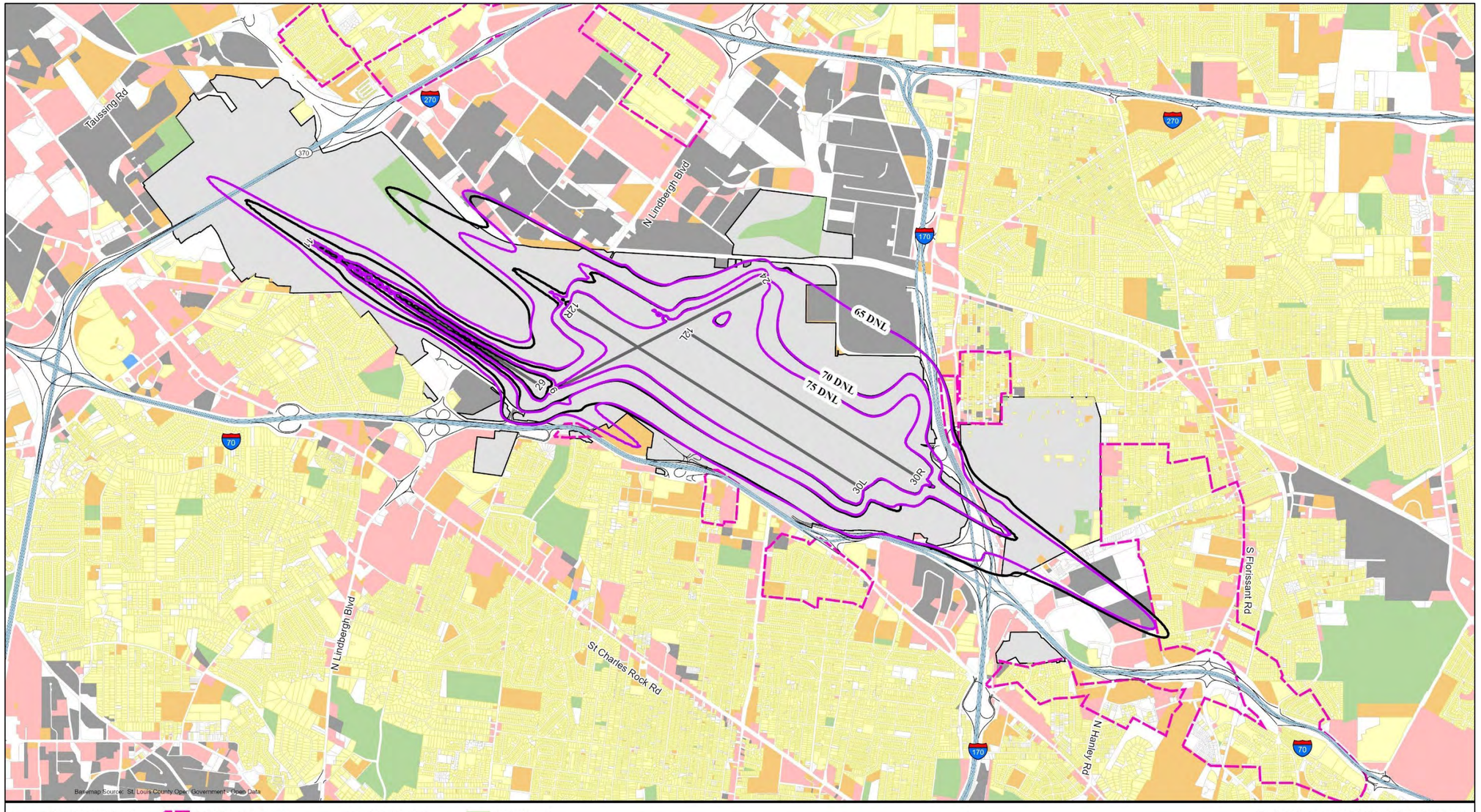
In 2037, the DNL 65 dBA contour with the Proposed Action is also outside STL property in four areas. The area northwest of STL that has compatible land uses, the area north-northeast of Runway 12L/30R that has compatible land uses, the area south-southeast of the Runways 30L and 30R ends where the No Action contour extends beyond the Proposed Action contour and the area south-southeast of the Runway 6 end that also has a compatible land use. Similar to 2032, aircraft noise decreases at the golf course northwest of Runway end 12R and southeast of Runway end 30R at the church. Furthermore, all residential areas within the DNL 65 dBA have been mitigated for aircraft noise. As shown in Figure 11, in 2037, with the Proposed Action, the DNL 65 dBA contour would not encompass any non-compatible land uses.

FIGURE 10: 2032 PROPOSED ACTION AND NO ACTION DNL 65 DBA CONTOURS



Sources: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.

FIGURE 11: 2037 PROPOSED ACTION AND NO ACTION DNL 65 DBA CONTOURS



Source: Aviation Environmental Design Tool (Version 3f), CMT, Inc., 2024.