Centennial Airport
Monthly Noise Report

17. May 2023

1 TABLE OF CONTENTS

A-weighted Sound Level – A measure of sound level with weighted frequency characteristics that correspond to human subjective response to noise.

Arrival – The act of an aircraft approaching and landing at an airport.

Ambient Noise Level – The level of noise that is all-encompassing within a given environment for which a single source cannot be determined. It is usually a composite of sounds from many and varied sources near to and far from the noise monitor.

Community Noise Event Level (CNEL) – The average sound level over a 24-hour period, with a penalty of 10dB for nighttime hours between 10:00 PM and 7:00 AM.

Day Night Average Sound Level (DNL) – A measure of the average noise level over a 24-hour day. It is the 24-hour, logarithmic (or energy) average, A-weighted sound pressure level with a 10-decibel penalty applied to the nighttime event levels that occur between 10:00 PM and 7:00 AM.

Decibel (dB) – A logarithmic quantity reflecting the ratio of the sound pressure of the source to a reference pressure. This results in a sound pressure level of about 0 dB for the quietest sounds that we can detect and sound pressure levels of about 120 dB for the loudest sounds that can be heard without pain.

Departure – The act of an aircraft taking flight and leaving the airport.

Energy-Averaged Sound Pressure Level (Leq) – The value or level of a steady, non-fluctuating sound that represents the same sound energy as the actual time-varying sound evaluated over the same time period.

Flight Track – The path along the ground followed by an aircraft in flight.

Instrument Flight Rules (IFR) Rules and regulations established by the FAA to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to instruments, and navigation is accomplished by reference to electronic signals. It is also a term used by pilots and controllers to indicate the type of flight plan an aircraft is flying, such as an IFR or VFR flight plan.

Local Operations – Operations in the local traffic pattern or within sight of the airport; flight in local practice areas within a 20 mile radius; execute simulated instrument approaches or low airport passes.

Maximum Noise Level (L_{max}) – The peak noise level for a single noise event.

Noise Exposure – The cumulative sound energy affecting a person over a specified period of time.

Overflight – Aircraft flight originating and terminating outside the area that transits the airspace without landing.

Visual Flight Rules (VFR) – A set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. A flight plan is not required when the pilot is operating under Visual Flight Rules.

Sound Exposure Level (SEL) – The total energy in the A-weighted sound level measured during a transient noise event. SEL accounts for both the duration and the loudness of a noise event.

Overview

3 ABOUT APA'S NOISE MONITORING PROGRAM

Centennial Airport's (KAPA) Noise and Operations Monitoring System (ANOMS) is a new state of the art system that enables the Arapahoe County Public Airport Authority to monitor and better understand aircraft noise in the vicinity of Centennial Airport. This system is comprised of 12 fixed noise monitoring terminals in the community, as well as 2 portable monitors that are available for short term monitoring anywhere in the community.
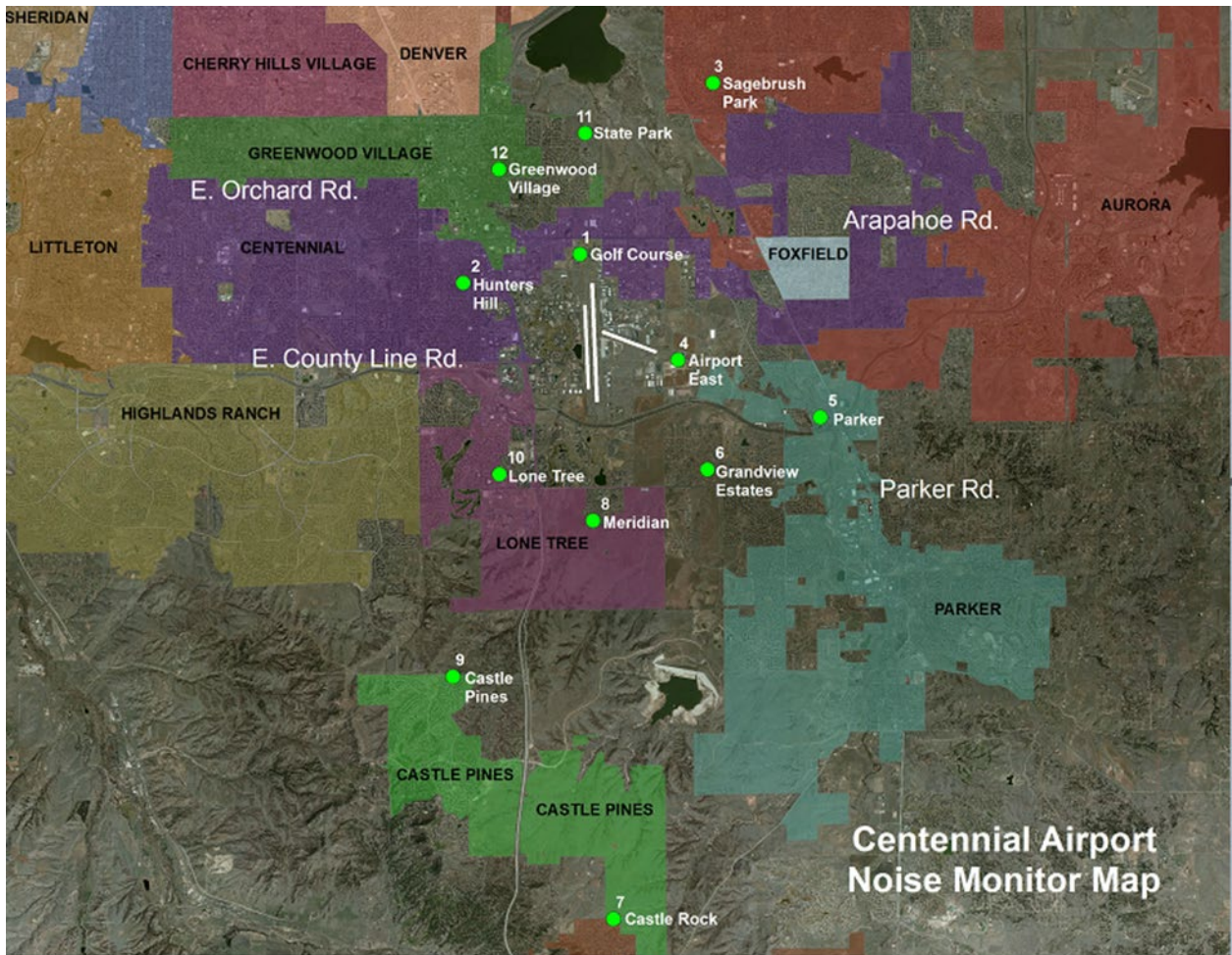
4   ABOUT WEBTRAK™

As part of an ongoing program, Centennial Airport now offers an online tracking system for the movement of flights and air traffic patterns within the Denver Metro area. **WebTrak** Flight Tracking and Noise Information System allows concerned individuals to research data about flights to and from Centennial Airport, Denver International Airport, Rocky Mountain Metropolitan Airport, Front Range Airport and Buckley Air Force Base, as well as any transitional air traffic through the region.
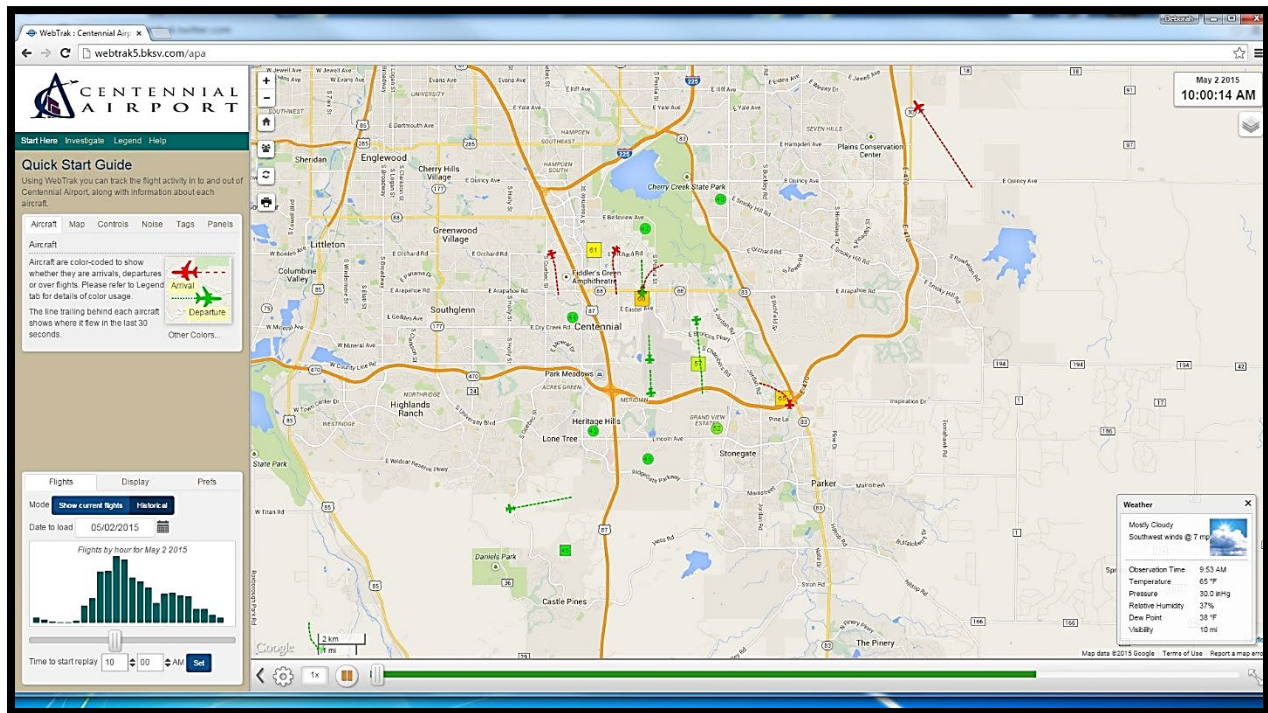
How to participate

The general public may use **WebTrak** to investigate a noise or flight that occurred near their location. The system also simplifies the process of filing a noise complaint, offering an easy, online option for residents to register concerns regarding noise levels at the following web addresses:

APA WebTrak:

https://webtrak.emsbk.com/apa?fbclid=IwAR1xnXwQ2sVwisSZ_szUAlHFtyYBNIZTACOI1PF7ZSH8PPbBxORnnaidUUE

Centennial Airport Website: http://www.centennialairport.com

In addition, noise complaints can also be submitted on our noise hotline:

APA Noise Hotline:
303-790-4709

5 OPERATIONS STATISTICS

	IFR ITINERANT				VFR ININERANT				LOCAL		
	AIR TAXI	G.A.	MILITARY	TOTAL INTINERANT	AIR TAXI	G.A.	MILITARY	TOTAL	G.A.	MILITARY	TOTAL LOCAL
January	2,304	3,055	99	5,458	896	5,213	69	6,178	11,936	25	11,961
February	2,180	2,883	123	5,186	1,046	5,388	85	6,519	12,426	20	12,446
March	2,512	3,260	187	5,959	1,555	5,523	100	7,178	14,989	20	15,009
April	2,152	2,693	144	4,989	1,616	6,550	137	8,303	16,940	40	16,980
May	2,556	3,026	175	5,757	1,542	5,734	116	7,392	17,833	21	17,854
June				0				0			0
July				0				0			0
August				0				0			0
September				0				0			0
October				0				0			0
November				0				0			0
December				0				0			0
Y-T-D Totals	11,704	14,917	728	27,349	6,655	28,408	507	35,570	74,124	126	74,250

	IFR OVERFLIGHTS				VFR OVERFLIGHTS						TOTAL OPERATIONS
	AIR TAXI	G.A.	MILITARY	TOTAL INTINERANT	AIR TAXI	G.A.	MILITARY	TOTAL			
January	2	4	4	10	43	73	11	127		January	23,734
February	6	4	2	12	31	80	1	112		February	24,275
March	0	0	3	3	24	90	4	118		March	28,267
April	3	5	2	10	37	79	13	129		April	30,411
May	1	5	0	6	32	120	8	160		May	31,169
June				0				0		June	
July				0				0		July	
August				0				0		August	
September				0				0		September	
October				0				0		October	
November				0				0		November	
December				0				0		December	
Y-T-D Totals	12	18	11	41	167	442	37	646		Y-T-D Totals	137,856

Definitions

Air Taxi – A company that operates aircraft that carry cargo or mail, or passengers on an on demand or charter basis.

General Aviation (G.A.) – All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.

Local – Operations are performed by aircraft which operate in the local traffic pattern or within sight of the airport; flight in local practice areas located within a 20-mile radius of the airport; execute simulated instrument approaches or low passes at the airport.

IFR Itinerant – Operations other than local operations conducted under Instrument Flight Rules.

VFR Itinerant – Operations other than local operations conducted under Visual Flight Rules.

Overflight – Operation performed by aircraft that transit the area and did not originate or did not terminate within the airspace.

6 NOISE MONITOR REPORTS

The following data displays the amount and associated decibel level of aircraft noise events at a given monitor. An aircraft noise event must contain the following characteristics:

First, the noise event must exceed the ambient noise level. This number varies at every monitor, but is generally greater than 50-55db. Secondly, the noise event must last longer than 5 seconds. Lastly, using radar data, the system must correlate an aircraft with the noise event. This ensures that the sound is not associated with a 'community noise event' such as a lawn mowers or emergency sirens.

The information below reflects only aircraft noise events as described above.

May 2023 Aircraft Noise Event Decibel Range By Monitor					
Monitor	60-69	70-79	80-89	90+	Totals
Golf Course- 1*	5440	4060	303	14	9817
Hunters Hill- 2	555	67	1	0	623
Sagebrush Park- 3	119	7	0	0	126
Airport East- 4*	2369	1464	652	129	4614
Parker- 5	1784	212	2	1	1999
Grandview Estates- 6	1521	172	5	1	1699
Castle Rock- 7	1138	54	7	**76	1199
Meridian- 8	6053	1807	48	6	7914
Castle Pines- 9	201	22	0	0	223
Lone Tree- 10	787	343	60	9	1199
State Park- 11	1570	735	5	2	2312
Greenwood Village- 12	1109	169	13	0	1291
Totals	22646	9112	1096	162	33016

**Monitor located on Airport*

May 2023 Aircraft Noise Event dB Range by Monitor
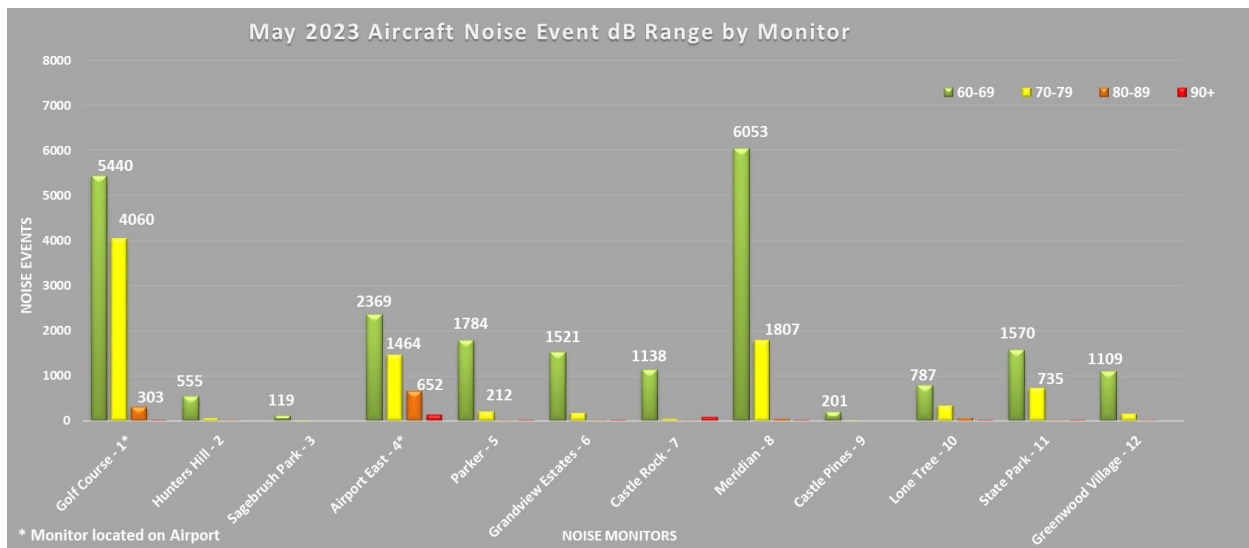
**Observed bird nesting/excessive chirping at Castle Rock noise monitor location that resulted in several 90+ dB noise events

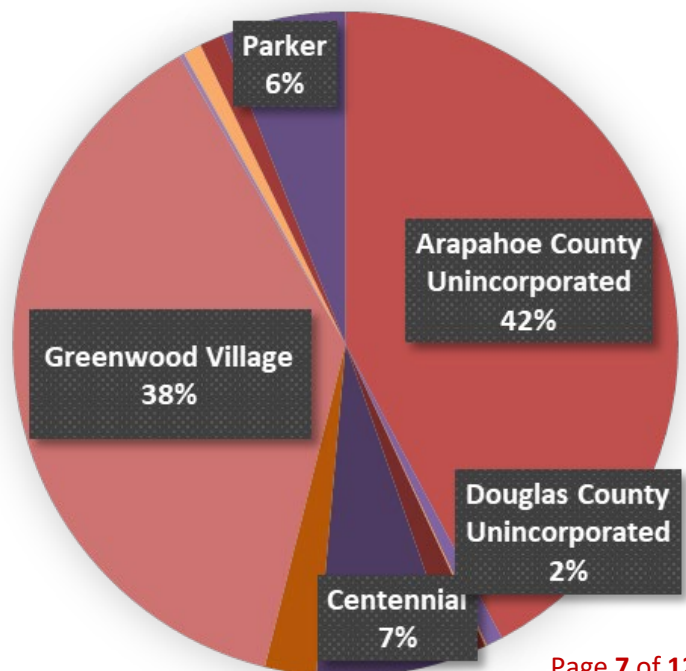**In May, Centennial Airport received _1,239_ complaints from _121_ households.**

May Noise Complaints			YTD		Population
Municipality	**Complaints**	**Households**	**Complaints**	**Households**	**Census 2020**
Arapahoe County Unincorporated	523	53	1,716	95	98,066
Aurora	10	4	25	5	386,261
Castle Pines	1	1	3	2	11,036
Castle Rock	19	4	81	5	73,158
Centennial	84	4	325	7	108,418
Cherry Hills Village	0	0	0	0	6,442
Denver	0	0	0	0	715,522
Douglas County Unincorporated	31	8	127	10	276,493*
Greenwood Village	468	31	1,297	52	15,691
Highlands Ranch	3	2	10	3	103,444
Lone Tree	11	3	17	5	14,253
Parker	75	2	113	6	58,512
Other	14	9	59	18	UNK
Total	**1,239**	**121**	**3,773**	**208**	**1,867,296**

*Douglas County Unincorporated Population with Highlands Ranch Removed

May 2023 Noise Complaint Responses Completed	
Email	56
Phone	23
Total	79

Time Complaint Received	May
Day Hours (7:00 am - 9:59pm)	1,168
Night Hours (10:00 pm - 6:59 am)	71
TOTAL	1,239

Complaints per Municipality

Parker 6%
Arapahoe County Unincorporated 42%
Greenwood Village 38%
Douglas County Unincorporated 2%
Centennial 7%

Current 12 Month Trend

Operations | H.R. #1 Removed | Noise Complaints

Data points visible:
- Operations: Jan 23,734; Feb 24,275; Mar 28,267; Apr 30,411; May 31,169
- Noise Complaints: Jan 774; Feb 451; Mar 633; Apr 680; May 1,239
- H.R. #1 Removed: Jan 500; Feb 346; Mar 491; Apr 547; May 975

Previous Year 13 Month Trend

Operations | H.R. #1 Removed | Total Complaints

Data points visible:
- Operations: May 22 26,499; Jun 22 25,800; Jul 22 31,089; Aug 22 30,455; Sep 22 18,809; Oct 22 29,926; Nov 22 22,169; Dec 22 24,123; Jan 23 23,734; Feb 23 24,275; Mar 23 28,267; Apr 23 30,411; May 23 31,169
- Total Complaints: May 22 512; Jun 22 502; Jul 22 641; Aug 22 618; Sep 22 396; Oct 22 440; Nov 22 505; Dec 22 590; Jan 23 774; Feb 23 451; Mar 23 633; Apr 23 680; May 23 1,239
- H.R. #1 Removed: May 22 380; Jun 22 389; Jul 22 504; Aug 22 503; Sep 22 244; Oct 22 334; Nov 22 345; Dec 22 365; Jan 23 500; Feb 23 346; Mar 23 491; Apr 23 547; May 23 975

Top 5 Household Complaints YTD

Household #1 21%
Household #2 14%
Household #3 8%
Household #4 5%
Household #5 3%
Remaining 49%

Top 5 Household Complaints		
Household	**Complaints**	**Households**
Household #1	802	Greenwood Village
Household #2	515	Arapahoe County
Household #3	316	Centennial
Household #4	190	Arapahoe County
Household #5	111	Arapahoe County
Remaining	1,839	
Total	**3,773**	

Complaints by Aircraft Type

Heli 2%

Jet 11%

Prop 87%
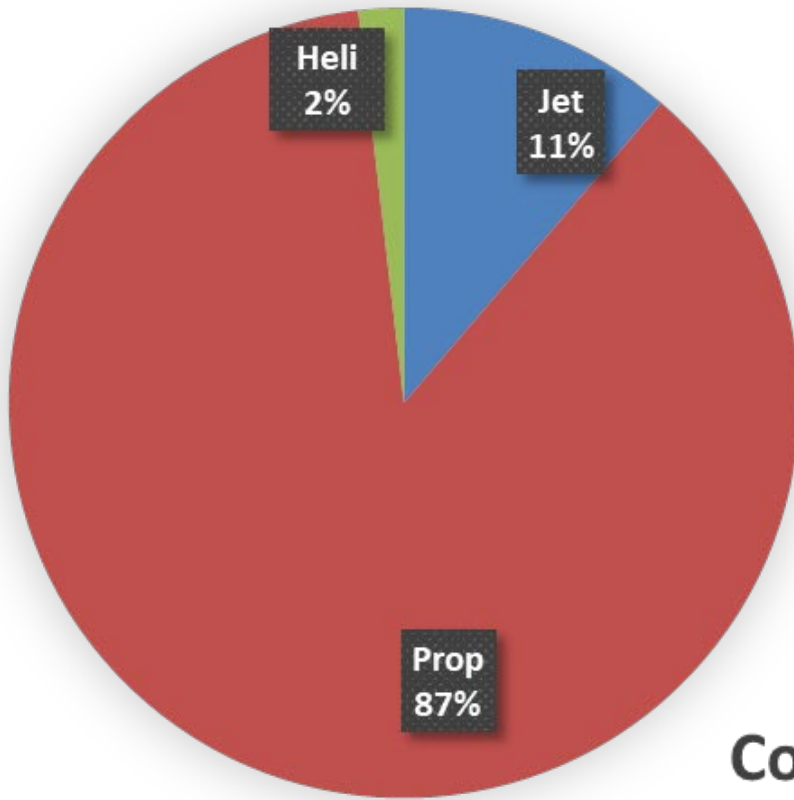
*#1 Household Removed

Complaints by Operation Type

Arrival 14%

Departure 29%

Training 57%
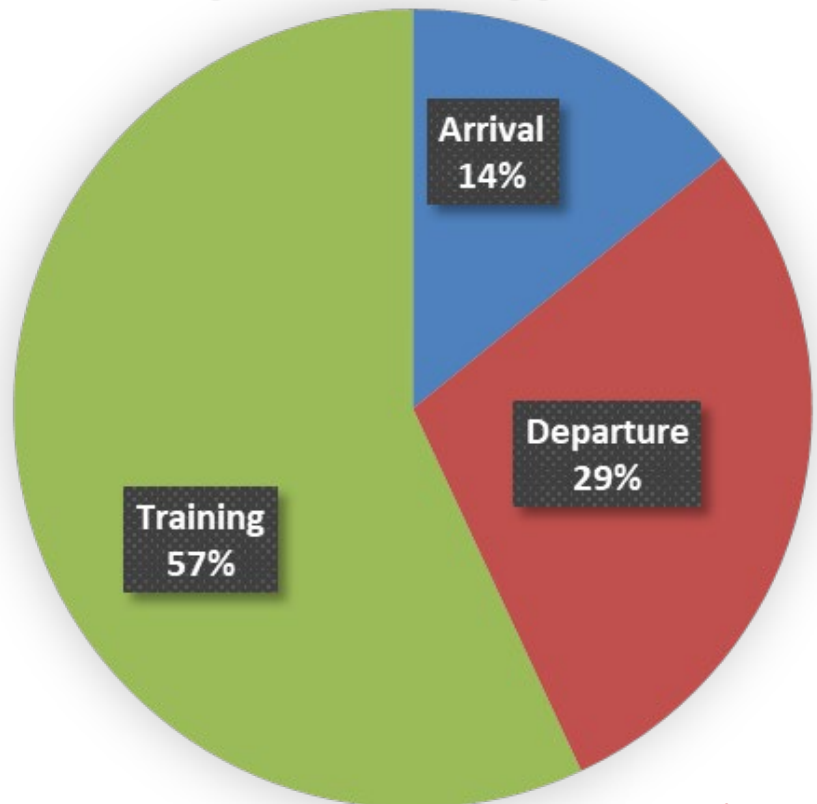
8 CENTENNIAL AIRPORT COMPLAINT MAP

May 2023 Complaints

Legend:
- 🟢 Noise Monitor Location
- **Household Complaint Location and Number**
  - 1.0
  - 1.1 - 3.0
- 3.1 - 6.0
- 6.1 - 10.0
- 10.1 - 13.0
- 13.1 - 20.0
- 20.1 - 33.0
- 33.1 - 43.0
- 43.1 - 73.0
- 73.1 - 133.0
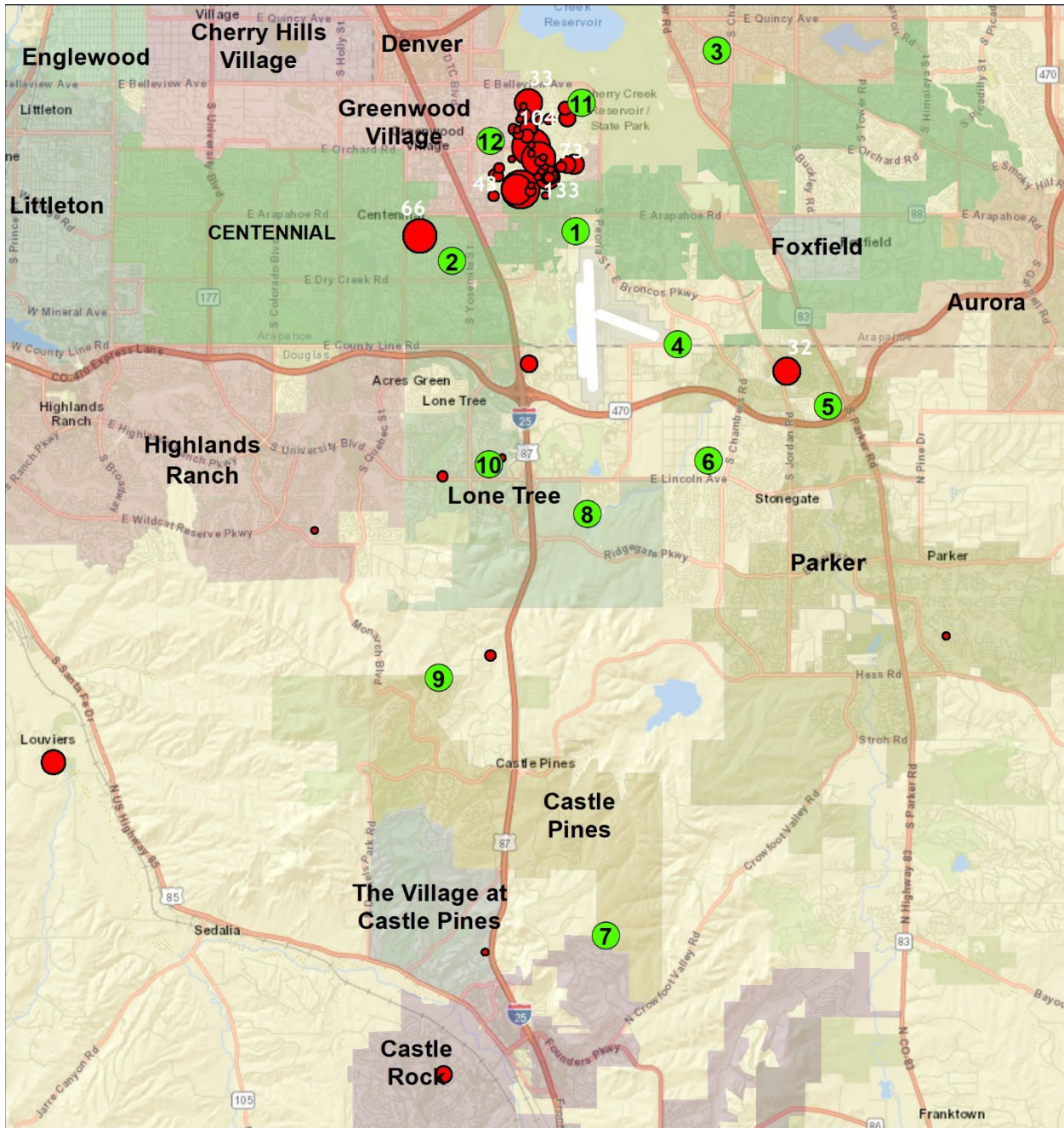
**Larger dots equate to more complaints for that particular households

9 CENTENNIAL AIRPORT RADAR TRACK DENSITY MAP

The following maps take all of the flight track data for the given time period and create a line density plot. This enables everyone to have a better understanding of where the flight tracks are at, while allowing for historical comparisons. Dark red in the middle of the picture shows the highest density of flight tracks over the runways. The colors gradually move out to blue as the least dense.

May 2023 Flight Tracks associated with Centennial Airport
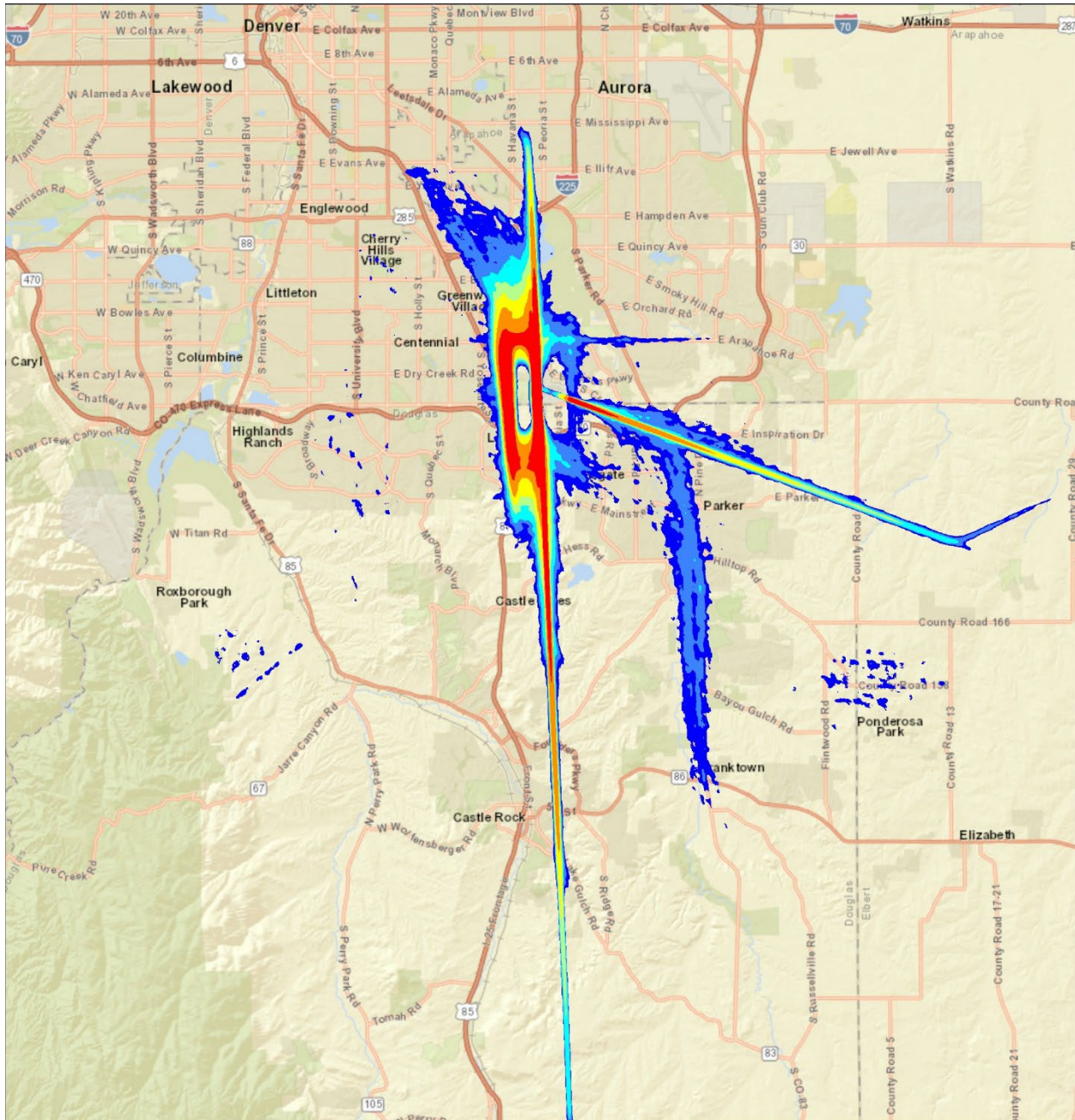
Lower Density Traffic   Higher Density Traffic

10 NOTES AND DISCLAIMER

This report is for informational use only. Every effort has been made to ensure the accuracy of this data; however, the material may be altered as new information is added or updated in the system.

Centennial Airport disclaims any responsibility or liability for any direct or indirect damages resulting from the use of this data. We hope this information provides you with a valuable tool in which to review noise data and characteristics in your area. If you have questions or concerns, please contact the Centennial Airport Noise office at **303-790-0598.**

CENTENNIAL AIRPORT

Noise Hotline: 303-790-4709

www.centennialairport.com