CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE
AGENDA
June 5, 2024
6:30 p.m. – 8:30 p.m.
Centennial Airport, 7565 S. Peoria Street, Unit D9, Englewood, CO 80112
Chair: Chris Eubanks **Vice Chair:** Pam Thompson **Treasurer:** Andy Jones **Secretary:** Alison Biggs

Members' Representatives and Alternate Representatives are requested to attend all meetings in person. Members of the public may attend meetings in person, or virtually.

CACNR Mission:
CACNR will bring together airport, community, FAA, and aviation industry representatives to collaboratively identify and discuss noise issues at Centennial Airport and recommend courses of action that could reduce noise over affected communities.

A. **CALL TO ORDER AND DETERMINATION OF QUORUM**:

Arapahoe County:	Leslie Summey/Sreenivasan Alakappan Vacant/Vacant	*Greenwood Village*:	Donna Johnston/Libby Barnacle
		Highlands Ranch Metro Dist.	Andy Jones/Renee Anderson
Douglas County:	Abe Laydon/Dan Avery Alison Biggs/Mark Adams	*Lone Tree:*	Mike Anderson/Chuck Darnell
		Parker:	Ashley Chasez/Bryce Matthews
Aurora:	Brad Pierce/Mindy Parnes	*ACPAA:*	Michael Fronapfel/Vacant
Castle Pines:	Chris Eubanks/Ron Cole	*AOPA:*	John Hirshman/Brad Schuster
Castle Rock:	Laura Cavey/Sandy Vossler	*CABA:*	Don Kuskie/Mike Straka
Centennial:	Don Sheehan/Amy Tharp	*CDOT Aeronautics Div:*	Todd Green/Vacant
Cherry Hills Village	Robert Eber/Randy Weil	*Wings Over the Rockies:*	Bill Wasmund/Jordan Ashley
Foxfield:	Pam Thompson/Frank Lawrence		

B. **CONSENT AGENDA**: (items here may be moved to Agenda Item #3, on the request of any CACNR Representative)
   A. DRAFT MINUTES, May 1, 2024 – Pam Thompson
   B. TREASURER'S REPORT, May 2024 - Zachary Gabehart, ACPAA Staff, Andy Jones, Treasurer
   C. NOISE REPORT, April 2024- Zachary Gabehart, ACPAA Staff

3. **ITEMS REMOVED FROM CONSENT AGENDA**:

4. **CACNR ORIENTATION:**
   A. N.O.I.S.E. Overview and Federal Update - Emily Tranter, Executive Director and National Coordinator for N.O.I.S.E,
      a. Overview
      b. General Federal Update
      c. FAA Reauthorization
      d. FAA and Community Advocacy

5. **CACNR STUDY GROUP COMMITTEE:** Chris Eubanks, Brad Pierce, Mike Fronapfel
   A. Quarter 1 2024 Update Report

6. **PART 150 STUDY UPDATE/PROGRESS:**
   A. Meeting Schedules for CACNR; Study Advisory Committee
   B. Noise Contours
   C. Modeling, Evaluation, Refinement
   D. Advance Notices for Brainstorming
   E. Other Items for Consideration/Interest

7. **EXECUTIVE COMMITTEE:**
   A. ATTENDANCE AT ACPAA MEETINGS – Pam Thompson to represent CACNR at June 13th Board Meeting
   B. RETREAT PRIORITIES

8. **REPRESENTATIVES' COMMENTS:**

9. **OTHER REGULAR REPORTS**:
   A. AIRPORT DIRECTOR – KAPA Staff
      1. Flight School Activity

2. Aviation Fuel – How Much Sold/What Kind
3. Community Related Activity
4. Other Airport Activity
5. Legislative
6. Status of Follow Up Items

9. **OLD BUSINESS**:
   A. 2023-2024 CACNR Attendance Record (Postponed)

10. **NEW BUSINESS**:

11. **PUBLIC COMMENT**: (3 minutes per person time limit):
   A. RECEIVED BY CACNR
   B. MEETING ATTENDEES /VIRTUAL ATTENDEES

12. **NEXT MEETINGS**:
   A. **CACNR** –

July 3, 2024	No Meeting
August 7, 2024	6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112
September 2, 2024	6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112

   B. **ACPAA**

June 13, 2024	3:00 p.m. 7565 South Peoria Street, Englewood, CO 80112
July11, 2024	NO MEETING
August 8, 2024	3:00 p.m. 7565 South Peoria Street, Englewood, CO 80112

   C. **PART 150 MEETING DATES** TBD

13. **ADJOURN:**

CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE
MINUTES
May 1, 2024
DRAFT

VISION – QUIETER SKIES FOR OUR COMMUNITIES
MISSION – CACNR WILL BRING TOGETHER AIRPORT, COMMUNITY, FAA, AND AVIATION INDUSTRY REPRESENTATIVES TO COLLABORATIVELY IDENTIFY AND DISCUSS NOISE ISSUES AT CENTENNIAL AIRPORT AND RECOMMEND COURSES OF ACTION THAT COULD REDUCE NOISE OVER AFFECTED COMMUNITIES.

Chair: Brad Pierce **Vice Chair:** Vacant **Treasurer:** Andy Jones **Secretary:** Alison Biggs

1. **CALL TO ORDER, ROLL CALL, and QUORUM:** The meeting was called to order at 6:30 p.m. by Chair Chris Eubanks. The following were in attendance, and a quorum was present:

Arapahoe County:	Sreenivasan Alakappan (virtual)	Foxfield:	Pam Thompson
Douglas County:	Dan Avery	Greenwood Village:	Donna Johnston
Douglas County:	Alison Biggs	Highlands Ranch:	Andy Jones (7:00 p.m.)
Aurora:	Brad Pierce	Lone Tree:	Mike Anderson
Castle Pines:	Chris Eubanks	ACPAA:	Mike Fronapfel
Centennial:	Don Sheehan	AOPA:	John Hirshman
Cherry Hills Village:	Robert Eber (7:45 p.m.)	Wings Over the Rockies:	Bill Wasmund

Others in attendance were Amy Tharp, Alternate Representative from Centennial; and ACPAA staff Lauren Wiarda, Matt Frenette, and Zach Gabehart. There were 6 members of the public in attendance.

Those absent were: Arapahoe County:	vacant/vacant	CABA	Don Kuskie
Castle Rock:	Laura Cavey/Sandy Vossler	CDOT Aeronautics Div:	Todd Green/Vacant
Parker:	Ashley Chasez/Bryce Matthews		

2. **CONSENT AGENDA:** The Consent Agenda included the Draft CACNR Minutes from April 3, 2024; a Treasurer's Report from April 26, 2024, showing a balance of $25,782.88; and the Noise Report from March 2024. On the motion of John Hirshman, duly seconded, the Consent Agenda was approved.

The March 2024 Noise Report included the following information:

March Local Operations:	**16,689**	**March Total Operations:**	**30,722**
Year to Date Local Operations:	**44,371**	**Year to Date Total Operations:**	**83,453**

30,722 Total Operations in March resulted in 1,057 complaints from 71 households.

March Noise Events:

March Total:		**March 60 – 69 db:**		**March 70 – 79 db:**		March 8**0 – 89 db:**	
Golf Course	12,879	Golf Course	8,283	Golf Course	4,307	Airport East	496
Meridian	7,336	Meridian	5,818	Meridian	1,464	Golf Course	286
Airport East	3,026	State Park	1,839	Airport East	926	Meridian	51
State Park	2,585	Portable Station	1,797	State Park	729	Portable Station	18
Portable Station	2,214	Parker	1,695	Portable Station	398	State Park	15
Parker	1,915	Airport East	1,551	Parker	220	Greenwood Village	03
Grandview Estates	1,563	Grandview Estates	1,413	Grandview Estates	149	Hunters Hill	02
Greenwood Village	1,042	Greenwood Village	941	Greenwood Village	98	Castle Rock	01
Castle Rock	1,000	Castle Rock	937	Castle Rock	62	Grandview Estates	01
Lone Tree	677	Lone Tree	630	Lone Tree	46	Lone Tree	01
Hunters Hill	530	Hunters Hill	499	Hunters Hill	29	Castle Pines	00
Castle Pines	199	Castle Pines	183	Castle Pines	16	Parker	00
Sagebrush Park	89	Sagebrush Park	83	Sagebrush Park	6	Sagebrush Park	00

March Noise events in the 90+ decibel range: Airport East – 53 Golf Course – 03 Meridian – 03 State Park – 02 Portable Station – 01

March Noise Complaints and		**Numbers of Households:**		**YTD Complaints and**		**Number of Households:**	
(1,057)		(71)		(2,767)		(109)	
Unincorporated Arapahoe County	584 (55%)	UAC	27 (39%)	UAC	1,266	UAC	32
Greenwood Village	267 (25%)	GV	15 (21%)	GV	1,010	GV	30
Centennial	108 (10%)	Other	07 (10%)	Centennial	180	Other	15
Denver	35 (04%)	Centennial	05 (07%)	UDC	101	UDC	07
UDC	23 (02%)	UDC	05 (07%)	Denver	82	Centennial	05

Other`	20	Aurora	02	Other	60	Lone Tree	04
Castle Rock	07	Castle Pines	02	Castle Rock	26	Parker	04
Aurora	05	Castle Rock	02	Parker	20	Castle Pines	03
Lone Tree	03	Lone Tree	02	Aurora	10	Castle Rock	03
Castle Pines	02	Parker	02	Lone Tree	05	Highlands R	03
Parker	02	Denver	01	Castle Pines	04	Aurora	02
Highlands Ranch	01	Highlands Ranch	01	Highlands R.	03	Denver	01
Cherry Hills Village	00	Cherry Hills Village	00	CHV	00	CHV	00

Year to Date, the **top five households complaining were:**

Household #1 486 Unincorporated Arapahoe County
Household #2 345 Greenwood Village
Household #3 288 Greenwood Village
Household #4 191 Greenwood Village
Household #5 178 Unincorporated Arapahoe County

In March, 35 responses were requested from 1,057 noise complaints, with 33 of those requests made by email (94%), and 2 made by telephone (6%).

In March, 941 **complaints** were made about **daytime flights** (7:00 a.m. – 9:59 p.m.) – 89%.
116 complaints were made about **nighttime flights** (10:00 p.m. – 6:59 a.m.) – 11%.

In March, props accounted for **89% of the complaints by aircraft type; jets** accounted for **10% of the complaints,** and **helicopters caused 1%.**

In March, training was responsible for 48% of the complaints**, departures** were responsible for 32% of the complaints, and **arrivals** were responsible for 20% of the complaints.

The March Complaint Map and a March Radar Track Density Map were provided.

3. **ITEMS REMOVED FROM THE CONSENT AGENDA:** None

4. **CACNR ORIENTATION:**

A. Noise 101 Virtual/Video – Mead & Hunt This presentation was recorded and is available. Discussion which followed Included a notation that information to come would provide more specifics related to Centennial Airport. The Chair requested Members to indicate what they would like next, also referencing the April minutes. Topics requested included Classes of Airspace; Metroplex Effect on Centennial Airport; Next Gen relationship to Centennial Airport; and the Policies Pre-ANCA and Post-ANCA.

Question was asked how or what CACNR can learn from other roundtables. Some of this information may come through the Part 150 study. It was noted public comment to the FAA has shown at least 40% believe the 65 Dnl should be lowered, and more than one event should be used. Question as asked what CACNR was doing in this regard to measure noise more appropriately here, even if the FAA will not do so. Response was the Study Advisory Committee was looking at this topic.

The next in person presentation would be in August, related to progress on the Part 150 Study.

5. **CACNR STUDY GROUP COMMITTEE**: The Committee is working to show results of its mitigations, and reference was made to the airport's Minimum Standards as they relate to flight schools, Request was made for CACNR to be informed about the airport's Minimum Standards overall, and how they are used to approve various activity at the airport.

6. **PART 150 STUDY UPDATE/PROGRESS:** There was nothing new to report.

7. **EXECUTIVE COMMTTEE:**

A. ATTTENDANCE AT ACPAA MEETINGS – Pam Thompson had graciously agreed to represent CACNR at the May 9, 2024 ACPAA meeting.

B. RETREAT PRIORITIES – Nothing new.

8. **REPRESENTATIVES' COMMENTS**:

A. GENERAL DISCUSSION – Suggestion was made to use some of the CANR budget to provide a meal for ACPAA staff who have to stay to attend CACNR meetings. Mike Fronapfel indicated the airport already does provide for the staff. Request was made for the topic to be put on the agenda for the next meeting, for CACNR.

B. Brad Pierce reminded that Emily Tranter from N.O.I.S.E. had previously provided an update from Washington, D.C, for CACNR. There was general agreement to see if see if she would be able to attend the June CACNR meeting; It was noted there was May 10, 2024 deadline for The FAA Reauthorization Act.

C. Regarding the Noisy Skies podcast, it was felt things were perhaps a bit too glossed over, considering the problems that still exist for the public. There was concern CACNR was not being supportive of the community and should disband, as it is turning into an educational body rather than an action body. Observation was made that CACNR covers a wide area with differing perspectives. Mike Fronapfel noted that the Part 150 Study would require and benefit from more involvement from the community, rather than less, even though it would take a long time.

9. **OTHER REGULAR REPORTS:**

A. AIRPORT DIRECTOR'S REPORT – The following report was provided by Mike Fronapfel:

On May 3rd 2023 Centennial Airport became the first airport in Colorado to offer Swift Fuels UL94 unleaded avgas (UL94). To date the Airport has reimbursed the cost for 103 aircraft to get their Supplemental Type Certificates (STCs) and jetCenters of Colorado (jCoC) has sold 138,522 gallons of UL94 which accounts for over 20% of the total avgas sales over the last eleven months. In 2024, jCoC sold 37,047 gallons of UL94 which accounts for over 23% (23.6%) of avgas sales. So far, Centennial Airport has spent $207,101 on our transition to unleaded avgas including the reimbursement of STCs for aircraft and the subsidy of the unleaded avgas. Of interest, please see the attached white paper from the National Air Transportation Association on Factors Affecting the Commercial Sale of Emerging Unleaded Aviation Fuels.

Assuming Representative Brown's proposed bill (HB-24-1235) is passed, Centennial Airport will be able to submit a request for a state grant to cover 90% of the costs this year for our unleaded avgas transition program. The State may even award us a grant before the passage of the bill in order to get the ball rolling on their incentive program.

The Study Group has had 23 meetings and is working on an update report for Q1 2024 which should be completed by the May 1st Roundtable Meeting. This report will focus on our methods for reporting the number of overflights of the community which will show if our mitigations have reduced the overflights and noise exposure in the community.

Arapahoe County, Greenwood Village and the Airport have agreed to extend the Normandy Group contract through the end of July. This will enable us to have a joint meeting with the Environmental Protection Agency, coordination of an in-person meeting at Centennial Airport with the Regional FAA Administrator, Grady Stone, continued communication on the progress of the Study Group that will include Update Reports to our elected officials at both the State and National levels, and finally to coordinate an in person meeting in DC with FAA Administrator Whitaker on our efforts to mitigate lead and noise impacts on the community.

We've completed two staff and Board retreats for the Strategic Plan. The vision statement we've selected is "To be a global leader in sustainable general aviation through innovation and strategic partnerships". We plan to have some follow up staff level meetings to discuss implementation of the plan elements and then Corona Insights will complete a final Strategic Plan Report. Thank you to the staff and Airport Commissioners that were able to participate in the process!

Phase one of the new security fencing is nearing completion and expansion of the Snow Removal Equipment Building is complete. Pending Board approval, Phase two of the Security fencing will begin this summer. The two pieces of Multifunction Snow Removal Equipment that have been on order are now expected to be delivered sometime in April.

The Four Points at Sheraton hotel is nearing completion; however, they've now been delayed while they work through some permitting issues with Arapahoe County and South Metro Fire Rescue. Hopefully, they will be able to open the hotel to the public soon.

We've had several staff promotions over the last three months starting with Matt Frenette, promoted from Senior Operations Specialist to a new position of Planner Noise Analyst & IT Assistant, Samantha Blymyer, promoted from Senior Planner-Noise & Environmental to Manager of Communications/Public Information Officer, Zach Gabehart, promoted from Operations Specialist to Planner-Noise & Environmental Specialist, Matt Smith, promoted from Maintenance Supervisor to Director of Maintenance, and Justin Kunz promoted from Operations/Planning Intern to Operations Specialist.

The 5K Runway Run on June 1st is officially sold out and we are excited to welcome over 1,000 runners for this event. We've also had a great response from our airport tenants that are sponsoring the event, which should raise a significant amount of money for the Centennial Airport Foundation.

10. **OLD BUSINESS**: None

11. **NEW BUSINESS**: None

12. **PUBLIC COMMENT**:

A. RECEIVED BY CACNR – none

B. MEETING ATTENDEES – Public comment came from Elizabeth, Louviers, and near High Plains Elementary School. It was noted one attendee lived 16 miles from the airport, yet her home was still on overload with flight school patterns over her home up to seven times a day. Strong suggestion was made for such flights to go east over County Road 21 – move the box currently being used. Another concern related to High Plains Elementary School and the seeming incessant training flights over the school. Suggestion was made that flights turning at Arapahoe Road would greatly help to solve the problem.

From Louviers, question was asked how far would the Part 150 Study reach in all directions from the airport? It now seemed that the training areas have again moved into the Louviers area, rather than having moved away.

Another comment from north of Arapahoe and near High Plains Elementary School indicated the issue was not with the airport, but rather with the flight schools. It was reported things had gotten much worse since 2007. It was felt that 5 – 6 flights in the air should not be allowed to disrupt up to thousands on the ground, and the schools were not being good citizens. There was also concern about safety for those on the ground. Even though the FAA says it has a major concern about safety, it does not demonstrate that when activity is allowed to go on as it does here.

13. **NEXT MEETINGS:**

A. **CACNR** – June 5, 2024 6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112
July 2024 NO MEETING

B. **ACPAA** – June 13, 2024 3:00 p.m. 7565 South Peoria Street, Englewood, CO 80112
July 2024 NO MEETING

C. **PART 150 MEETING DATES** When and What Meetings, When Available from APA Staff

14. **ADJOURNMENT:** The meeting was adjourned at 8:24 p.m.

Alison Biggs, Secretary

CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE		2024 BUDGET - Approved November 1, 2023; Updated as of 05/31/2024	
	BUDGET	ACTUAL	
INCOME:		as of 05/31/24	NOTES
CARRY OVER FROM PRIOR YEAR	$ 20,000.00	$20,317.55	Carry over from 2023
ACPAA	$ 10,000.00	$10,000.00	
CACNR REGULAR MEMBERS	$ -		Members not invoiced for 2024 due to amount of carry over available
TOTAL INCOME:	$ 30,000.00	$30,317.55	
EXPENDITURES:			
WORK PROGRAM:			
COMMUNITY OUTREACH	$ 2,000		Website Updating and Maintenance
	$ 5,000		Media Outreach Project
FLY QUIET	$ 1,000		Placeholder for Projects tbd
NOISE MONITOR	$ 1,000		Exploration of desired data and software for 2024
EXECUTIVE/WORK PLAN	$ 500		Orientation Manual, Annual Report
EDUCATION			
2 Reps to UC Davis Symposium	$ 4,000	$4,534.67	Symposium to be at UC Davis; estimate based on prior symposiums
2 Reps to 2 N.O.I.S.E. Conferences	$ 4,000		based on prior years on-site conferences
CONSULTATION/ TASK SUPPORT	$ 4,000		Projects with Jason Schwartz
MEMBERSHIP DUES	$ 1,000	$1,000.00	N.O.I.S.E.
ADMINISTRATIVE	$ 1,000		Part time secretarial assistance
	$ -		Legal
RESERVE	$ 2,500.00		for presently unidentified and unanticipated expenses and/or work CACNR activities consistent with the approved Work Plan.
TOTAL EXPENDITURES:	$ 26,000.00		
CARRY OVER TO 2025	$ 4,000.00	$24,782.88	Actual to be determined at the end of 2024

** Usually includes registration, travel, ground transportation, lodging, meals.

FRAME OF REFERENCE: The MOU Funding Structure adopted 12/13/2018 called for an initial two-year funding mechanism. "Thereafter, CACNR will provide ACPAA and each Regular Member with a report on the previous year's expenditures, and an annual invoice accompanied by a proposed budget indicating how the requested funds would be utilized, so that funds could be appropriated for the coming year."

CENTENNIAL AIRPORT

Centennial Airport

Monthly Noise Report

April 2024

1 TABLE OF CONTENTS

1 Definitions

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.

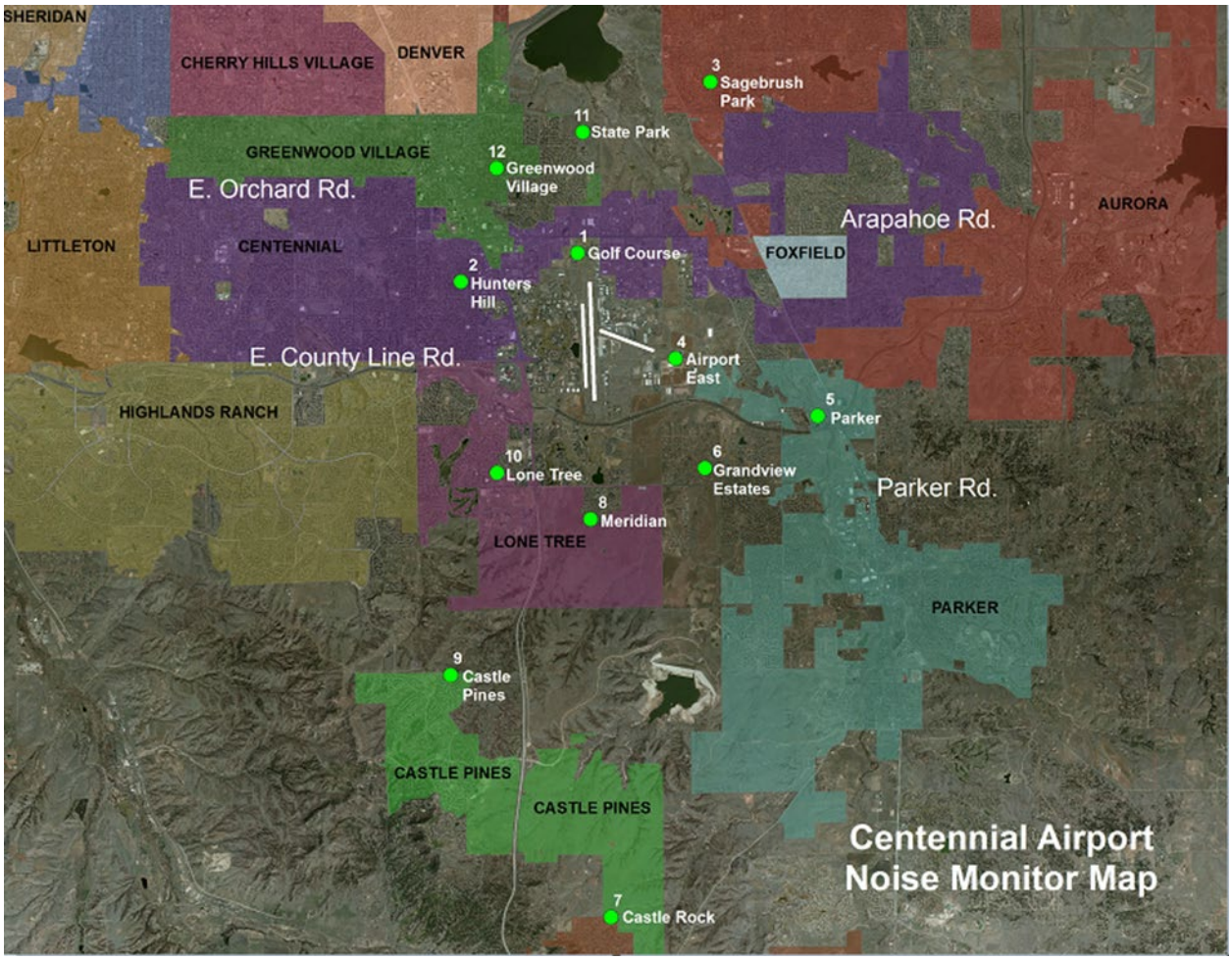
Visual Flight Rules (VFR) – A set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. A flight plan is not required when the pilot is operating under Visual Flight Rules.

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

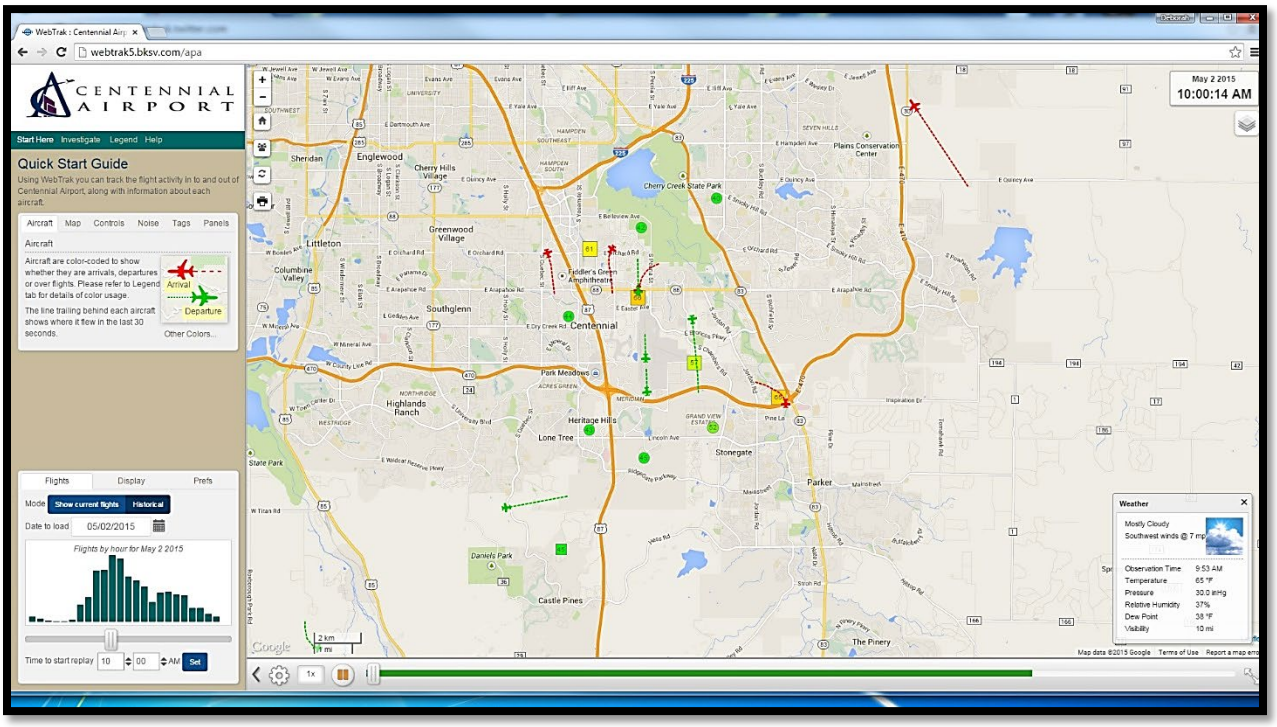
3 About APA's Noise Monitoring Program

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 ITINERANT				LOCAL		
	AIR TAXI	G.A.	MILITARY	TOTAL ITINERANT	AIR TAXI	G.A.	MILITARY	TOTAL	G.A.	MILITARY	TOTAL LOCAL
January	2,483	2,640	172	5,295	1,607	5,408	132	7,147	13,881	2	13,883
February	2,374	2,702	161	5,237	1,709	5,384	83	7,176	13,797	2	13,799
March	2,527	2,771	133	5,431	1,947	6,487	89	8,523	16,676	13	16,689
April	2,246	2,606	140	4,992	1,591	5,580	105	7,276	15,502	29	15,531
May				0				0			0
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	**9,630**	**10,719**	**606**	**20,955**	**6,854**	**22,859**	**409**	**30,122**	**59,856**	**46**	**59,902**

	IFR OVERFLIGHTS				VFR OVERFLIGHTS					TOTAL
	AIR TAXI	G.A.	MILITARY	TOTAL INTINERANT	AIR TAXI	G.A.	MILITARY	TOTAL		OPERATIONS
January	3	4	4	11	35	61	12	108	January	26,444
February	4	8	1	13	21	36	5	62	February	26,287
March	0	10	1	11	31	31	6	68	March	30,722
April	3	5	3	11	39	47	4	90	April	27,900
May				0				0	May	
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	**10**	**27**	**9**	**46**	**126**	**175**	**27**	**328**	**Y-T-D Totals**	**111,353**

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:

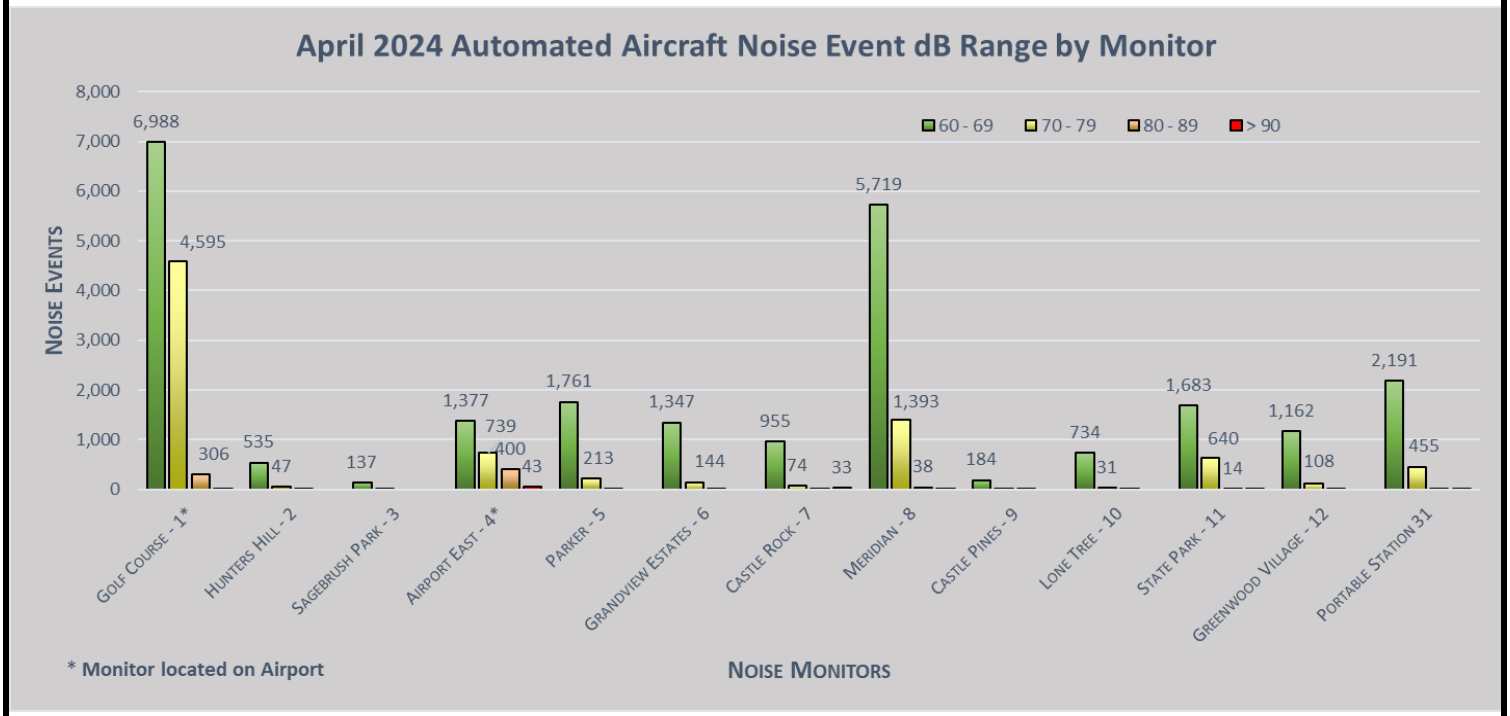
First, the noise event must exceed the ambient noise level. This number varies at every monitor, but is generally greater than 50-55db. Secondly, the noise event must last longer than 5 seconds. Lastly, using radar data, the system must correlate an aircraft with the noise event. This ensures that the 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.

Automated Aircraft Noise Event Decibel Range By Monitor

Monitor	60-69	70-79	80-89	90+	Totals
Golf Course- 1*	6,988	4,595	306	6	11,895
Hunters Hill- 2	535	47	2	0	584
Sagebrush Park- 3	137	9	0	0	146
Airport East- 4*	1,377	739	400	43	2,559
Parker- 5	1,761	213	8	0	1,982
Grandview Estates- 6	1,347	144	4	0	1,495
Castle Rock- 7	955	74	9	33	1,071
Meridian- 8	5,719	1,393	38	3	7,153
Castle Pines- 9	184	14	1	0	199
Lone Tree- 10	734	31	1	0	766
State Park- 11	1,683	640	14	2	2,339
Greenwood Village- 12	1,162	108	4	0	1,274
Portable Station 31	2,191	455	12	1	2,659
Totals	24,773	8,462	799	88	34,122

***Monitor located on Airport**



7 APRIL 2024 NOISE COMPLAINT STATISTICS

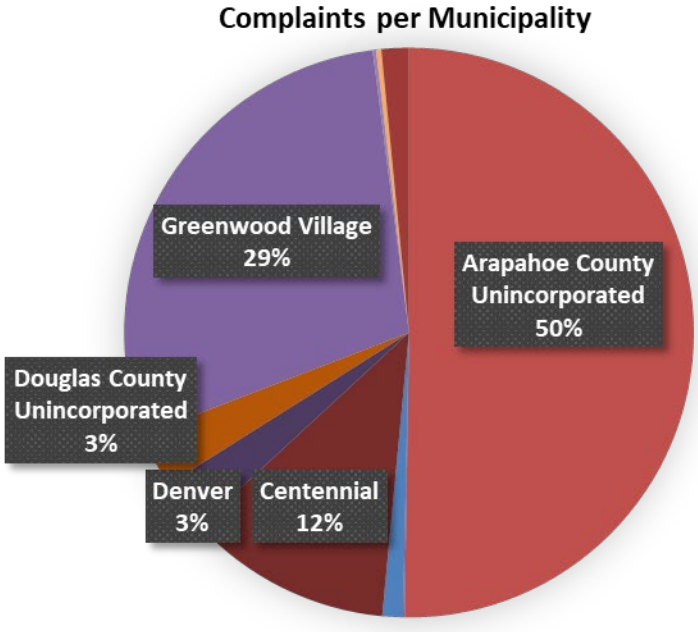
In April, Centennial Airport received 1,031 complaints from 78 households.

April Noise Complaints			YTD		Population
Municipality	**Complaints**	**Households**	**Complaints**	**Households**	
Arapahoe County Unincorporated	518	31	1,784	44	98,066
Aurora	1	1	11	4	399,913
Castle Pines	0	0	3	2	14,000
Castle Rock	12	3	38	4	86,000
Centennial	120	3	300	6	108,422
Cherry Hills Village	0	0	0	0	6,442
Denver	30	2	112	2	715,522
Douglas County Unincorporated	32	4	133	8	276,493*
Greenwood Village	297	25	1,307	43	15,691
Highlands Ranch	2	1	5	3	103,444
Lone Tree	3	3	8	6	14,253
Parker	0	0	20	4	68,000
Other	16	5	77	17	UNK
Total	**1,031**	**78**	**3,798**	**143**	**1,906,246**

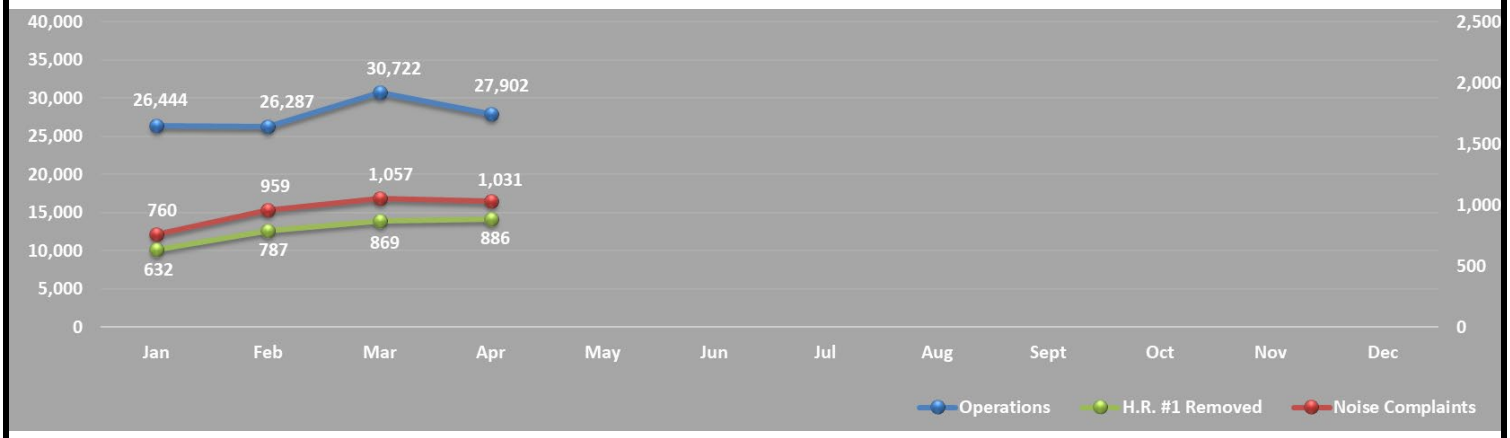
*Douglas County Unincorporated Population with Highlands Ranch Removed

April 2024 Noise Complaint Responses Completed	
Email	46
Phone	13
Total	59

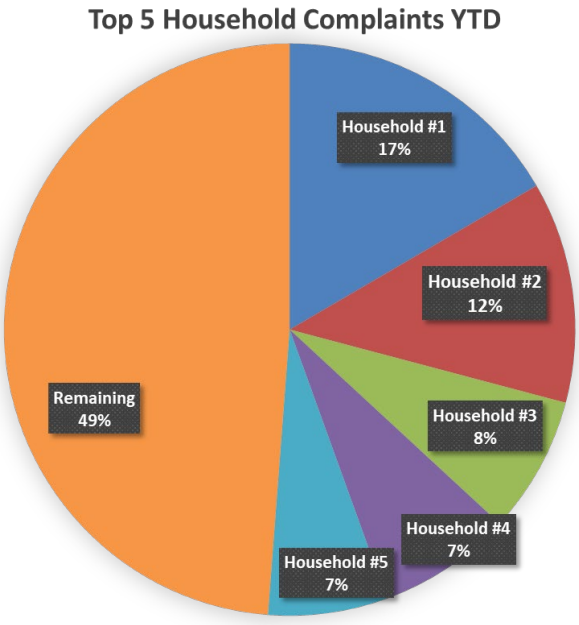
Time Complaint Received	Apr
Day Hours (7:00 am - 9:59pm)	986
Night Hours (10:00 pm - 6:59 am)	45
TOTAL	1,031



Current 12 Month Trend

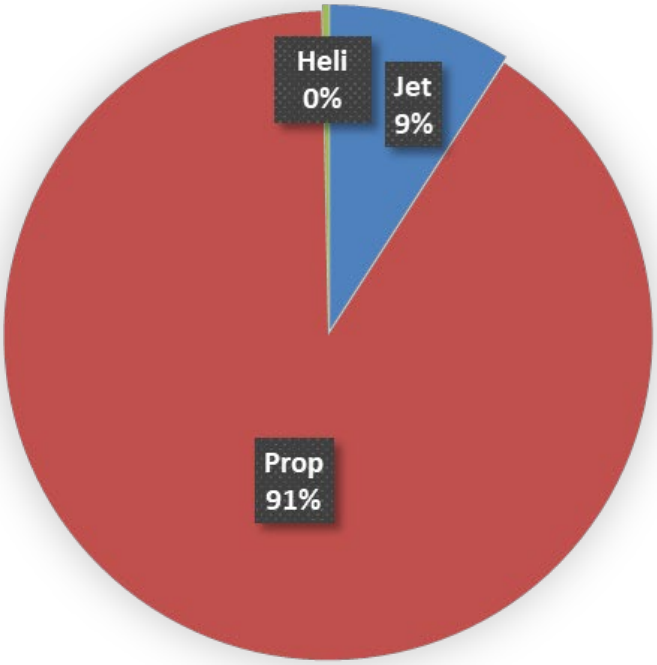


Previous Year 13 Month Trend



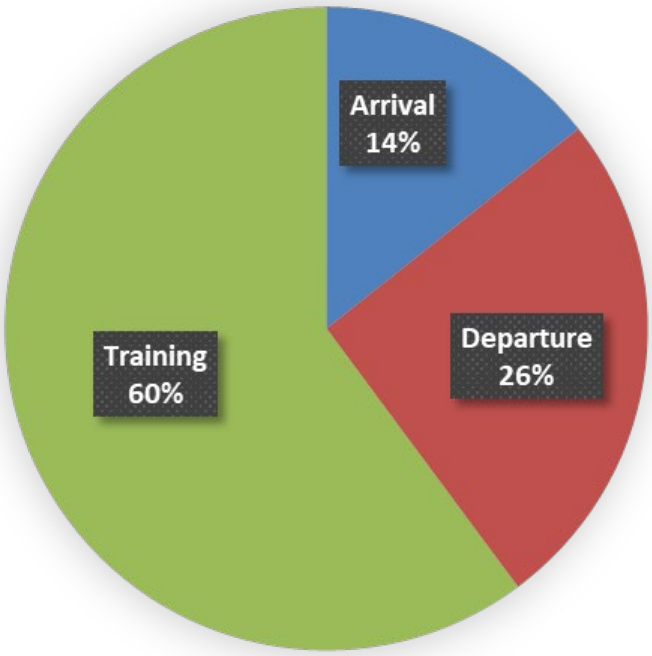
Top 5 Household Complaints YTD		
Household	**Complaints**	**Resides In**
Household #1	631	Arapahoe County
Household #2	475	Greenwood Village
Household #3	294	Greenwood Village
Household #4	289	Centennial
Household #5	256	Arapahoe County
Remaining	1,853	
Total	**3,798**	

Complaints by Aircraft Type

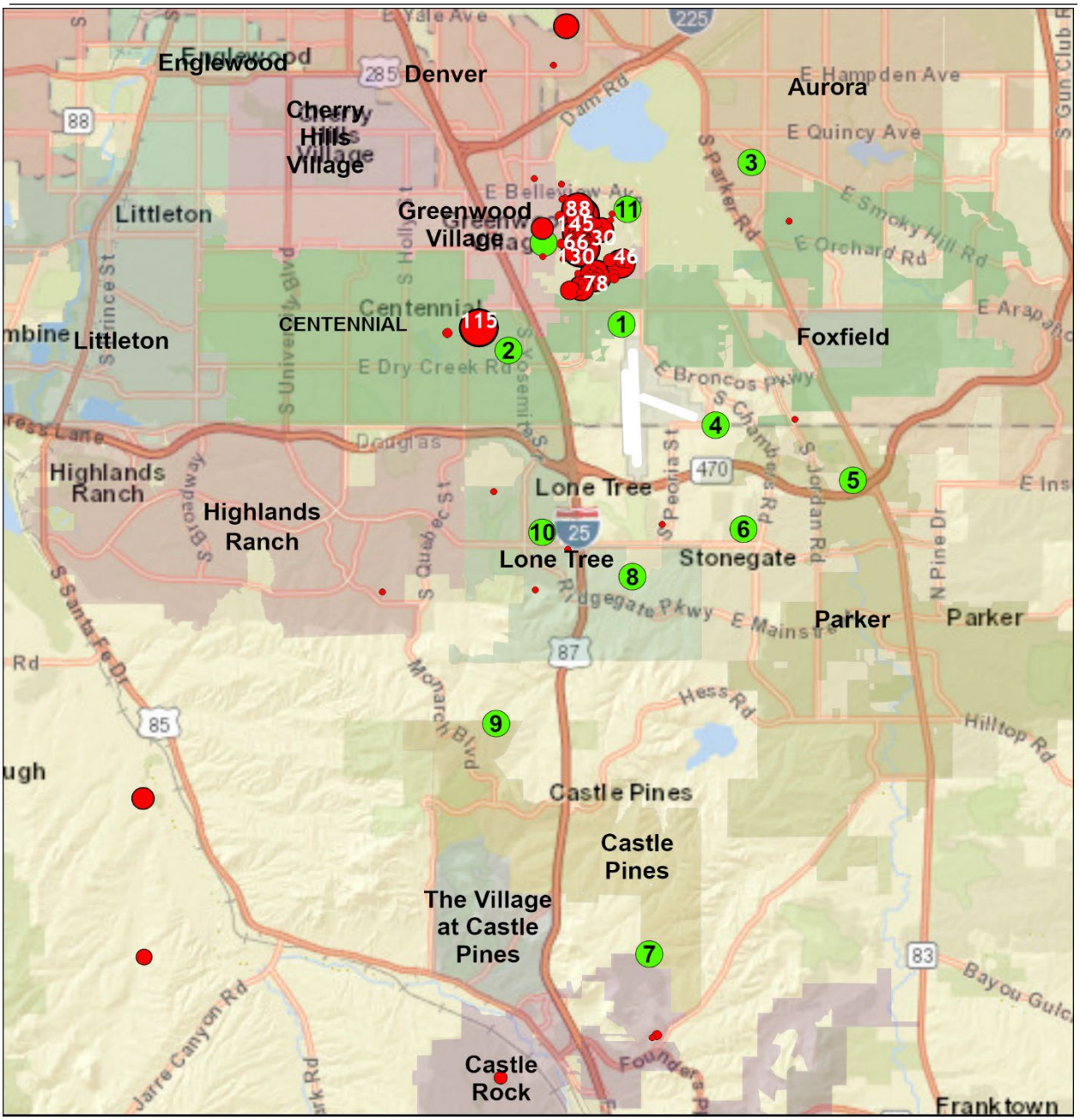


*#1
Household
Removed

Complaints by Operation Type



8 CENTENNIAL AIRPORT COMPLAINT MAP



April 2024 Complaints

Noise Monitor Location

Household Complaint Location and Number

- 1 - 2
- 3 - 5
- 6 - 8
- 9 - 12
- 13 - 18
- 19 - 22
- 23 - 30
- 31 - 46
- 47 - 88
- 89 - 145

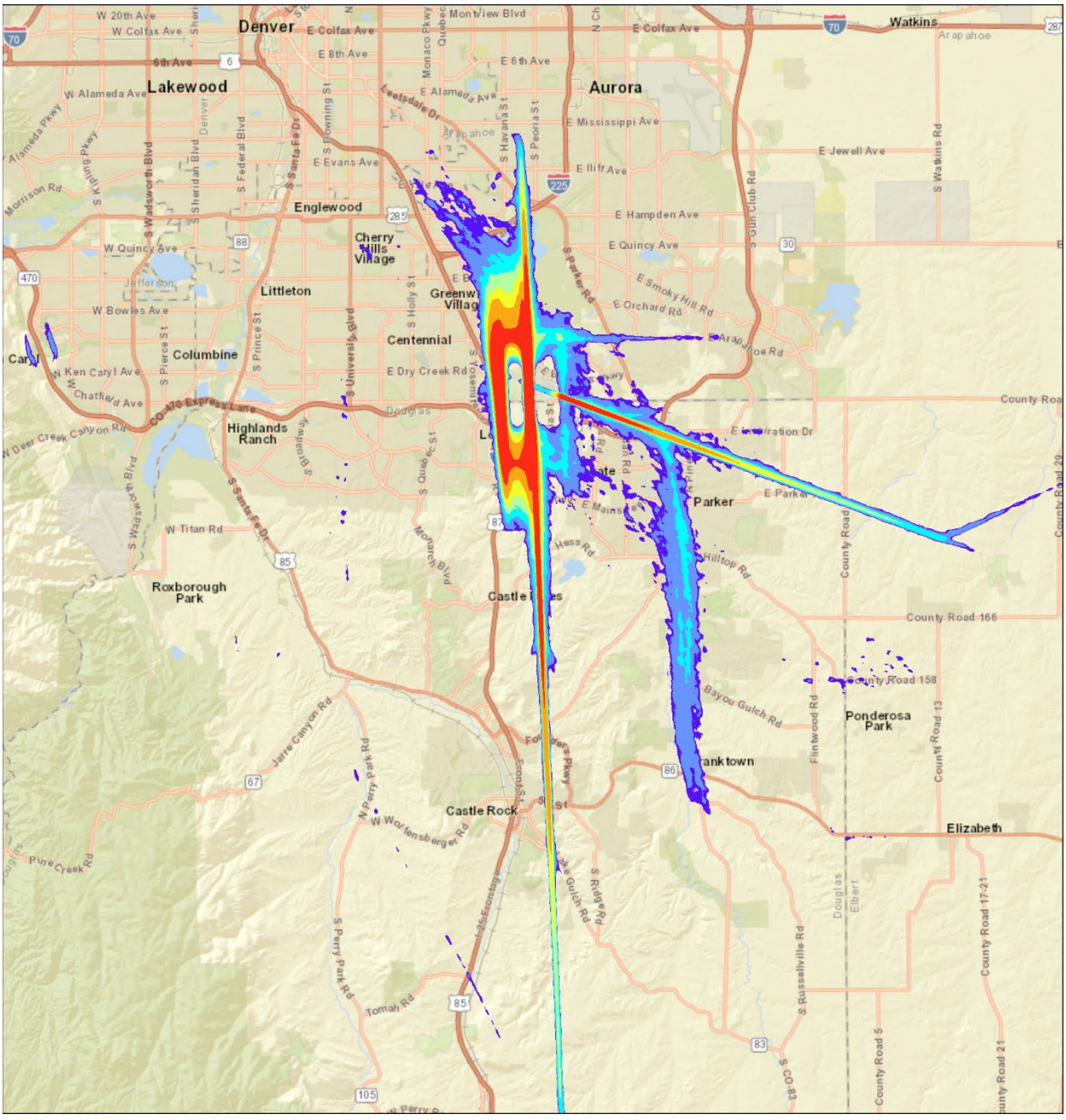
**Larger dots equate to more complaints for that household.

**7 households not visible in map view.

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.

April 2024 Flight Tracks associated with Centennial Airport



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

N.O.I.S.E. Overview and Federal Update

Emily Tranter, Executive Director-Washington, D.C.

- National Organization to Insure a Sound-controlled Environment
  - Overview & Board
  - History of Advocacy
  - Membership
- General Federal update
  - Fiscal Year 2025 Budget Outlook
  - Infrastructure Investment and Jobs Act of 2021 (IIJA) Programs
- FAA Reauthorization
  - Timeline of passage
  - Notable Noise provisions
- FAA and Community Advocacy

Centennial Airport Community Noise Roundtable Study Group Committee

Quarter 1 2024 Update Report

June, 5th 2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This is the third progress report of the Centennial Airport Community Noise Roundtable (CACNR) Study Group Committee (Study Group) and covers the work done in Q1 of 2024 over the course of eleven meetings. The Study Group has embraced an iterative learning process and the reports are intended to build off one another.

The first report focused on the establishment of the group and six mitigation strategies the Study Group identified as viable and that could be implemented immediately or before the summer of 2024. This second report focused on mitigation strategies adopted in Q4 of 2023 as well as mitigation strategies the Study Group has considered but not adopted. The content from the first and second reports are included herein with edits and updates. Notable updates (all updates to previous information indicated in blue) include:

1. Update on Noise Abatement Information in Chart Supplement Page 12
2. Update on Proactive Outreach & Education to Flight Schools Page 13
3. Update on Proactive Checking of Extended Traffic During Nighttime Hours Page 14
4. Addition of **Study Area Data Analysis Section** (not indicated in blue) Page 24

The purpose of this third report is to begin to publish data that measures the amount of overflights over the community North of the Airport, looking specifically at the defined study area. The data presented in this report compares Quarter 1 of 2023 (pre-mitigation implementation) to Quarter 1 of 2024 (post-initial mitigation implementation). The goal of the data is to examine how the number of overflights is changing over the communities, and whether or not the data reflects that any mitigation strategies are lessening the impact. The process and methodology of data analysis and reporting is included in the **Study Area Data Analysis** section which is located on Page 24.

Suggestions and potential mitigations can be submitted to the Study Group for consideration using the Google Form provided in this document. For more information on this please refer to the **Feedback and Considerations for the Study Group** section located on page 29.

The Study Group continues to meet to assess the viability of additional mitigations, measure and determine the success, if any, of adopted mitigation strategies, and consider modifications to strategies. The 2024 Q1 progress report is scheduled for publication in time for the June CACNR meeting. As a reminder, quarterly progress reports are a Study Group goal, like the 2024 Q1 report, there may be delays. Our community's patience and understanding is appreciated as we work diligently to solve this complex problem.

GLOSSARY of TERMS

ACPAA - Arapahoe County Public Airport Authority

ADO - FAA Airports District Office

ANCA - Airport Noise and Capacity Act

ANOMS™ - Airport Noise and Operations Monitoring System

APA - Centennial Air Traffic Control Tower

ATC - FAA Air Traffic Control

ATO - Air Traffic Organization

CACNR - Centennial Airport Community Noise Roundtable

CDOT - Colorado Department of Transportation

Centennial Airport Voluntary Noise Abatement Procedures - The creation of the voluntary noise abatement procedures was one of the recommendations from the previous Part 150 Study that concluded in 2008. Several stakeholders were involved in the creation of these procedures including the FAA, CACNR, ACPAA and based pilots and flight schools.

FAA - Federal Aviation Administration

Full Stop Taxi Backs - aircraft lands on runway, comes to a full stop, taxis off runway and takes taxiway back to runway threshold before taking off and entering into the pattern traffic.

FTE - Full Time Employee, in this instance refers to the full time noise analyst hired by ACPAA after a recommendation of the CACNR/Study Group.

Itinerant - aircraft that are based at other airports

NATCA - National Air Traffic Controllers Association

N.O.I.S.E. - National Organization to Insure a Sound-Controlled Environment

Preferred Traffic Pattern Area - Traffic pattern that is south of Arapahoe Road, North of Lincoln Avenue and East of Interstate 25.

Stop & Go's - aircraft lands on runway, comes to a full stop, then takes off again from the same runway and enters into the pattern traffic.

Study Group - Centennial Airport Community Noise Roundtable Study Group Committee

Touch & Go's - aircraft lands on the runway then takes off again and enters into the pattern traffic.

Traffic pattern - the typically race track shaped pattern aircraft fly in preparation for landing. Traffic patterns typically consist of an upwind, crosswind, downwind, base and final.

TPA - Traffic Pattern Altitude

BACKGROUND

In the fall of 2022, residents began reporting an increase in flights due to an extended pattern of traffic over the communities to the north and west of the airport, resulting in them reporting a degradation in their quality of life. As of the spring of 2024, despite efforts to identify and implement solutions, overflights continue.

ABOUT THE Study Group

Community, CACNR, Airport Authority Board, and staff generated several potential solutions. Upon examination and realization that those solutions would not be easy to implement, and acknowledging a need for both flight schools and the FAA at the table, the need for a working group became apparent to work through the legal and technical challenges and constraints.

Formation of Study Group

The formation of this Study Group came after a significant amount of feedback and support from the community, CACNR, ACPAA Board and staff, elected officials including Senators Bennet and Hickenlooper, Congressman Crow, Governor Polis, Hon. State Representative Dickson, the Arapahoe County Commissioners, Greenwood Village Mayor and City Council, Cherry Creek School District, and the Normandy Group.

Creation of this Study Group was officially approved by CACNR on March 1, 2023 (see minutes of March 1, 2023 CACNR Meeting). In a preliminary meeting on July 6, 2023 with the FAA Regional Office, the FAA agreed to provide technical support to the Study Group provided confidentiality could be provided for the FAA representatives. In the initial meetings with the FAA Regional Office, it was acknowledged that (1) the group would need to get started as quickly as possible and that there would be no specific end date to the group's work and (2) some mitigations would hopefully be able to be implemented quickly while others could take much longer to research, test, and implement.

Function of Study Group

The Study Group was formed to work collaboratively to address the noise exposure created by the extended traffic pattern. This group was solely tasked with addressing noise exposure to the community and not other environmental concerns such as lead emissions from aircraft. Although lead emissions are not the focus of this Study Group, implemented mitigations could have the side benefit of reducing lead emissions.

The group is designed to propose, test and/or implement, and measure the effectiveness of noise mitigation strategies to reduce - to the greatest practical extent - exposure to aircraft noise for the communities north and west of the airport without moving the noise to another community.

Working on an “as quickly as possible” basis, the group meets weekly or biweekly to generate ideas of potential strategies.These strategies are assigned to members of the Study Group to explore their viability with technical and/or legal experts and conclusions are brought back for the next possible meeting. Viable strategies are then recommended for implementation by responsible parties and implemented where possible. For strategies whose viability is still being determined, next steps are identified and pursued. Decisions on which strategies are moved forward or not are made unanimously by the Study Group members, aside from Mead and Hunt and HMMH participants whose participation is a supplement to the Part 150 Study Centennial Airport.

Composition of the Study Group

Based on the collaborative, working nature of the Study Group, the complexities of the issue, the speed of work, and the frequency of meetings, a small but representative group was identified and approved by CACNR. The Study Group participants were selected to represent a broad range of stakeholders that would bring varying degrees of technical expertise and experience to the group. This included participants with a direct link to the affected community and CACNR, experience with national and local noise issues, legal, pilot and air traffic background and technical expertise, and pilots and airport tenants that would or could be directly affected by any mitigations proposed or recommended by the Study Group. The Study Group also includes and meets with additional experts as needed to provide additional legal and technical input on the proposed mitigation strategies.

The CACNR Study Group Committee consists of:

Brad Pierce – Member CACNR, President of N.O.I.S.E., member of the FAA NextGen Advisory Committee and former Aurora City Council Member

Chris Eubanks – Chair of CACNR, Pilot, and Castle Pines City Council Member

Jessica Campbell – ACPAA Board Member, Arapahoe County Commissioner Dist. 2 *representing the affected community*, attorney

Mike Fronapfel – ACPAA Executive Director, ex-officio member of CACNR

Flight School Representatives – ongoing participation from engaged flight schools that are based at Centennial Airport

FAA Representatives – ongoing participation from members of FAA management, ATC and NATCA with participation from other technical and legal experts from appropriate divisions of the FAA as needed.

Kate Andrus and Hardy Bullock, Mead & Hunt and Gene Reindel, HMMH: Part 150 Study team members

History of Work

The first meeting was held on July 21, 2023. There were a total of sixteen Study Group meetings in 2023. So far in 2024 11 meetings have been held. The first through third meetings covered the rules and guidelines of the Study Group including the confidentiality of the FAA and Flight School participants, procedure for updates and communication to the public and elected officials, identifying and defining the problem and the drivers that are the cause of the problem. The fourth through 27th meetings focused on identifying mitigation strategies, data and information needed, and feedback from members and technical experts on the viability of potential strategies.

ABOUT THE PROBLEM

Challenges and Limitations

There are several challenges with finding viable mitigations to the problem. Those challenges include, but are not limited to the following: maintaining safety, physical constraints, airspace limitations, variation in the mix of aircraft type, aircraft performance limitations, legal limitations (Interstate commerce law, Airport Noise and Capacity Act (ANCA), grant assurances, unreasonable access restrictions, unjust discrimination prohibitions, contractual limitations) controller and pilot workload, the ability of the FAA and Airport to reasonably manage and implement mitigations.

Drivers and Variables

The Study Group identified several drivers for the extended pattern including the May 2021 midair accident that occurred north of the airport, the resulting changes in how the FAA managed the aircraft in the pattern, increases in aircraft traffic/operations, itinerant traffic, variation of aircraft type, inconsistency among flight schools, specific training operations like stop and goes and taxi backs.

Variables the Study Group identified include aircraft arrivals, aircraft type (speed), operation type, weather, pilot comfort/ability and non-scheduled operations.

MITIGATION STRATEGIES

Mitigation strategies are any implementable program, measure, or action aimed to reduce the number of flights and noise north and west of the airport.

APPROACH TO MITIGATION STRATEGIES

The Study Group structures its work from a list of mitigation strategy ideas. These mitigation ideas come from community members, Study Group members, and examples from other airports. The list is not fixed. As ideas are brought forward, they are added to the list for assessment. The Study Group will assess every idea that is brought forward and analyze appropriately.

In Q3 2023, the Study Group did an initial review of all mitigation ideas on the list at the time and ranked them from easiest (cheapest, most clearly legal, few administrative steps, fastest) to the hardest (most expensive, no clear legal authority, many steps to implement, would take years to implement). As new ideas come in, they are evaluated and ranked. Given that the Study Group is designed to implement potential fixes sooner rather than later, it has started with the “easiest to implement” mitigation ideas.

The Study Group assesses each idea for the angle or element of the overflights it seeks to cure, its direct connection to overflights or noise, which entity has the authority to approve the mitigation strategy, which entity is responsible for implementation, whether an entity has the legal authority to implement it, its impact on the FAA’s ability to maintain safety, whether it will reduce overflights, whether it is technically possible to implement, and whether it is practically feasible to implement. When appropriate, the Study Group refers ideas to relevant experts.

Because the goal is to implement strategies as quickly as possible, decisions made by the Study Group are unanimous. Mitigation strategies that are adopted are then referred by the group to the relevant entity (CACNR, ACPAA, FAA-ATC, etc.) to implement.

Strategies that are considered but not adopted by the Study Group fall into one or more of five categories: (1) there is not legal authority to implement the strategy, (2) the strategy would decrease safety, (3) it will not reduce overflights or noise, (4) it is not technically possible to implement, (5) it is practically unfeasible to implement. Strategies that fall into categories (4) and (5) may be pushed to the bottom of the list for further evaluation rather than be permanently ruled out.

The following two sections ***Adopted Mitigation Strategies*** and ***Mitigation Strategies Considered but not Adopted*** lay out mitigation strategies in three categories, first in a

table and then with further explanation as appropriate. These categories are FAA - ATC strategies, Pilot Education/Awareness strategies, and ACPAA Operations strategies.

ADOPTED MITIGATION STRATEGIES

FAA-ATC STRATEGIES

Maintain and enhance operational safety, increase air traffic controller awareness of noise sensitive areas, reduce aircraft overflights of the community.

Utilize East Side of Airport During Nighttime Hours	
Adopted Mitigation Strategy:	During the late evening and early morning hours when FAA - ATC determines it's possible, utilize Main Runway (17L/35R) so that pattern work is conducted east of the Airport over commercial areas.
Problem Mitigation Addresses:	Pattern traffic over the community during late evening and early morning hours
Reduction of Noise Exposure:	Reduce the amount of late evening and early morning pattern traffic over the community.
Safety:	Maintained
Noise:	Reduced during nighttime hours
Authority to Approve:	FAA-ATO
Responsible for Implementation:	FAA-ATO
Implementation Date:	October 2023
Explanation:	In effort to be a good neighbor to our communities, it has been added to our facility's Standard Operating Procedures for controllers to utilize the east side of the airport for the traffic pattern when volume permits during late night and early mornings. This will place aircraft primarily over businesses and industrial parks instead of neighborhoods.
Measurable Impact:	Data on the number of flights directed away from neighborhoods during nighttime hours will be included in future reports
Updates:	All current and future air traffic controllers have or will receive(d) briefings/training regarding this adopted mitigation.

Noise Sensitive Areas on the Tower Radar Display	
Adopted Mitigation Strategy:	Noise sensitive areas added to radar display in the tower.
Problem Mitigation Addresses:	ATC awareness of noise sensitive areas in relation to aircraft in the traffic pattern.
Reduction of Noise Exposure:	By assisting ATC in identifying noise sensitive areas more easily, ATC be more aware of when overflights of the community are occurring.
Safety:	Maintained
Noise:	Potential reductions
Authority to Approve:	FAA-ATO
Responsible for Implementation:	FAA-ATO
Implementation Date:	October 2023
Explanation:	These maps will provide Air Traffic Controllers with awareness of the surrounding communities. While sequencing aircraft into 17R and 17L, controllers have to make the decision to extend the 17R traffic to follow traffic inbound to 17L or have the 17R aircraft complete a short approach. The maps aid the controllers in seeing the community and knowing the impact of extending to the North.
Measurable Impact:	ATC will collect data from controllers on their use of the maps.
Updates:	All current and future air traffic controllers have or will receive(d) briefings/training regarding this adopted mitigation.

Limit Number of Aircraft in the Pattern	
Adopted Mitigation Strategy:	Limit number of aircraft in traffic pattern
Problem Mitigation Addresses:	Extended pattern traffic and increased noise exposure to the community
Reduction of Noise Exposure:	Fewer aircraft could result in the traffic pattern being extended less frequently
Safety:	Maintained
Noise:	Potential reduction
Authority to Approve:	FAA-ATO
Responsible for Implementation:	FAA-ATO
Implementation Date:	Ongoing
Explanation:	Air traffic will limit the number of aircraft in the traffic pattern to ensure controller workload is manageable and maintain a safe, orderly and efficient flow of traffic. Restricting the number of aircraft in the pattern for safety and to manage controller workload also results in a flight path closer to the runway's final approach course, which benefits the community by reducing noise levels.
Measurable Impact:	Data is forthcoming
Updates:	Ongoing

Pilot Education & Awareness Strategies

To increase pilot education and awareness of community noise concerns, and to share mitigation strategies they can implement to reduce the communities' noise exposure.

Adopted Mitigation Strategy:	Noise Abatement Information on Chart Supplement
Problem Mitigation Addresses:	Centennial Airport receives flights from all over the US. Transient pilots are thus not always aware of the noise sensitive areas or preferred traffic pattern
Reduction of Noise Exposure:	A Chart Supplement is information provided about a local airport environment. Pilots are expected to review a chart and its supplements before taking flight. Enhanced awareness will drive a reduction in overflights of noise sensitive areas when pilots have discretion
Safety:	Maintained
Noise:	Potential reduction
Authority to Approve:	ACPAA & FAA
Responsible for Implementation:	ACPAA, FAA, & CDOT
Implementation Date:	Originally, 10/1/2023. Update, Summer 2024. Next Update, Fall 2024
Explanation:	ACPAA is working to update the current chart supplement. There are several updates and/or enhancements to the chart supplement that can be made to improve its efficacy as a communication and education tool.
Measurable Impact:	Once implemented, ACPAA will work to amplify. True impact may not be measurable, but will likely contribute to an overall reduction in noise.
Updates:	Airport Staff is working on draft language to better align with the FAA proposed guidance on Noise Abatement Information in the Chart Supplement. The new language will clearly define the traffic pattern area, identify noise sensitive areas, and potentially provide a graphical depiction for pilots. The goal is to provide an easy to understand guide to Noise Abatement not only for local pilots, but to greatly assist in transient pilot understanding of the Noise Abatement Procedures at Centennial. Once new language is finalized it will be provided to CDOT for publication in future editions of the Chart Supplement.

Proactive Outreach & Education to Flight Schools	
Adopted Mitigation Strategy:	Develop and implement proactive outreach and education program to flight schools to increase pilot awareness of voluntary fly quiet procedures and preferred pattern area
Problem Mitigation Addresses:	Due to rapid turnover, flight school instructors and students are often unaware of noise issues, voluntary noise abatement procedures, or preferred traffic pattern area.
Reduction of Noise Exposure:	By developing & implementing a proactive outreach and education program, will keep flight instructors up to date on noise abatement efforts.
Safety:	Potential enhancement
Noise:	Potential reductions
Authority to Approve:	ACPAA, FAA-ATO
Responsible for Implementation:	ACPAA, FAA -ATO
Implementation Date:	In progress
Explanation:	There is a significant amount of flight instructor and student pilot turnover at flight schools based at Centennial Airport. Airport staff and local FAA representatives have committed to meeting quarterly with each flight school to discuss ways to make their operations safer, convey community concerns about noise and lead exposure, discuss recommendations on how they can help mitigate the noise exposure to the surrounding communities and to provide progress updates on how our voluntary noise abatement and mitigation procedures are working, and to explore ways to improve on them.
Measurable Impact:	The initial focus will be on outreach and establishing regular meetings
Updates:	The first meeting was held on May 23, 2024. The FAA Air Traffic Personnel discussed airport specific safety issues and considerations, while Airport Authority Staff discussed noise issues including, mitigations recommended by the Study Group, Voluntary Noise Abatement Guidelines, and current noise reports. The meeting was attended by over 30 local flight school personnel. The meetings are to be held quarterly with the next one scheduled for August of 2024.

ACPAA Operations Strategies

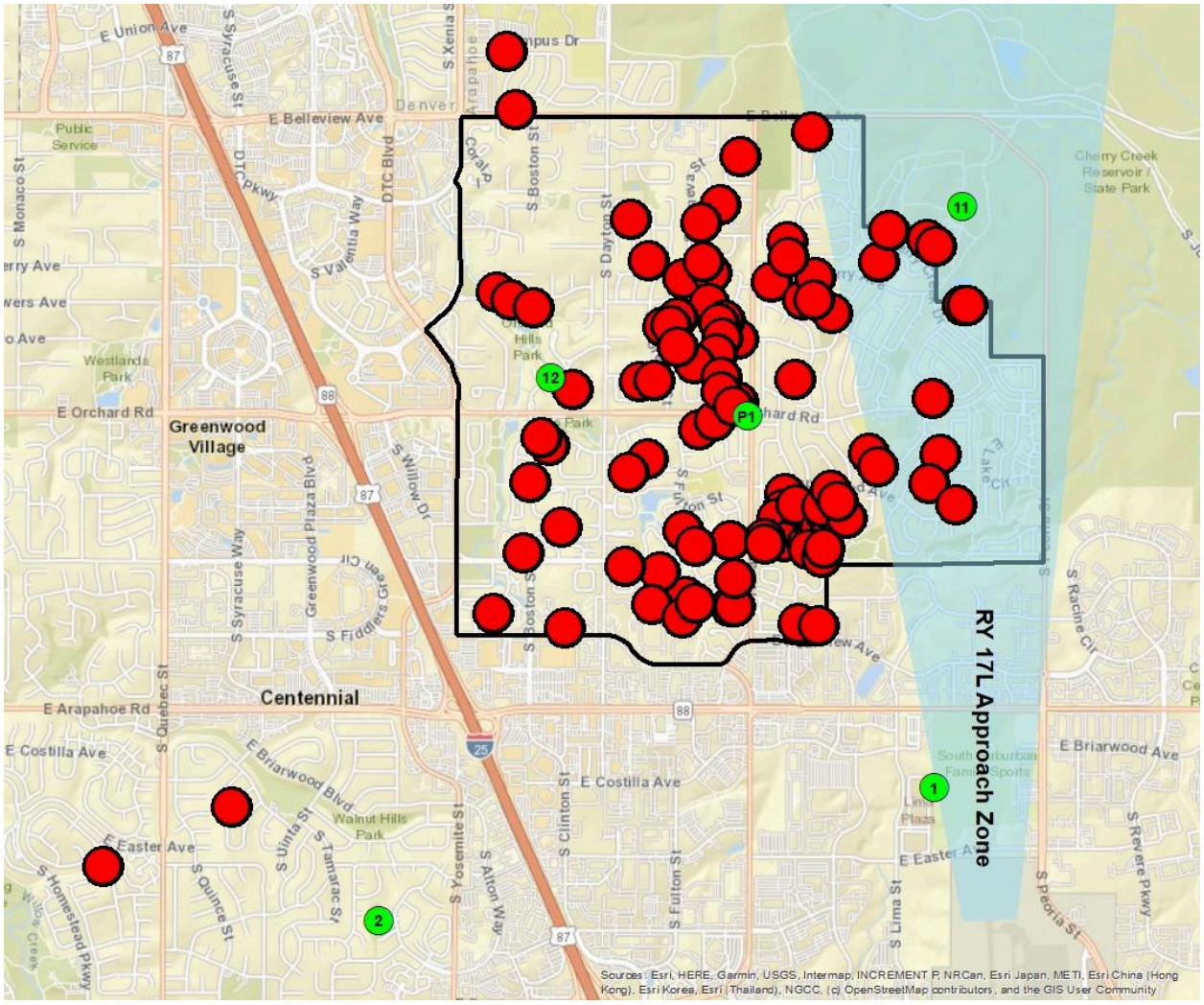
To provide methods to proactively identify and measure improvements in community noise exposure and the effectiveness of the implemented mitigation strategies.

Proactive Checking of Extended Traffic During Nighttime Hours	
Adopted Mitigation Strategy:	Airport staff will check for extended pattern traffic during nighttime hours (10 pm - 7 am) daily.
Problem Mitigation Addresses:	The occurrence of extended pattern traffic during nighttime hours (10 pm - 7 am).
Reduction of Noise Exposure:	By having Airport staff monitor outlier nighttime extended pattern traffic on a daily basis, the airport can quickly respond to outliers, and when able, determine causes and work to prevent the instances from occurring in a more proactive manner.
Safety:	Maintained
Noise:	Potential reduction
Authority to Approve:	ACPAA
Responsible for Implementation:	ACPAA
Implementation Date:	October 2023
Explanation:	Starting in October 2023 Airport staff began to actively track aircraft flying an extended pattern during night-time hours (10 pm - 7 am). If an aircraft is observed conducting an extended training pattern during night-time hours and there is no other aircraft in the pattern or on approach to a parallel runway airport staff will identify and contact the flight school and/or pilot and remind them to follow the voluntary noise abatement guidelines that specify keeping the pattern traffic south of Arapahoe Road, east of I-25 and north of Lincoln Avenue.
Measurable Impact:	Data is forthcoming. A handful of outliers have been identified since fall of '23. With the hire of an Airport data analyst, data will be more reliable.Reduction will be in the prevention of recurrence and ideally contribute to the overall reduction in overflights.
Updates:	The Noise Analyst in conjunction with the Noise and Environmental Specialist have been regularly looking at nighttime outliers and analyzing data. In Q1 2024 the operators of seven nighttime outlier aircraft have been contacted by the Noise and Environmental Specialist and reminded of the Voluntary Noise Abatement Guidelines. Outreach continues when nighttime outliers are identified.

Airport Add Full-Time Employee for Data Analysis	
Adopted Mitigation Strategy:	Airport hire a full-time employee dedicated to data analysis
Problem Mitigation Addresses:	Improve airport staff's ability to provide investigation, analysis and reporting of data from Airport Noise and Operations Monitoring System (ANOMS)
Reduction of Noise Exposure:	Uniform data on overflights is needed to measure the extent of overflights, noise exposure, and the results of mitigation strategies.
Safety:	An enhanced understanding of flight data will help the Airport better work with the FAA to identify mitigation strategies that will maintain or enhance safety while addressing overflights.
Noise:	A full understanding of flight data is essential to addressing the overflights.
Authority to Approve:	ACPAA
Responsible for Implementation:	ACPAA
Implementation Date:	Hired February of 2024
Explanation:	In February 2024, Centennial Airport created a new full-time position to support our Noise and IT Departments. This new employee will in-part focus on analyzing historical and ongoing flight data to evaluate within the defined study areas the effectiveness of the Study Group's implemented mitigation strategies. Updates on effectiveness of the implemented mitigations will be included in future reports.
Measurable Impact:	Indirect. This position enables us to measure the impact of mitigation strategies.
Updates:	On a lobbying trip to DC, members of the Study Group requested data analysis support from the FAA for the Study Group's work. The FAA indicated support for that request. That is being followed up on and confirmed. The full-time employee continues to do various data analysis tasks for the Study Group to evaluate the overflights and as well as examining the effectiveness of implemented mitigation strategies. This report includes data prepared by the Noise Analyst.

Analyze Flight Track Data within the Defined Study Area	
Adopted Mitigation Strategy:	Analyze flight track data within the defined study area north and west of the airport.
Problem Mitigation Addresses:	Understanding the history of flights and current flights in the study area is essential to addressing the overflights and measuring the impact of mitigation strategies.
Reduction of Noise Exposure:	Ultimately this analysis will lead to mitigation strategies that reduce noise exposure.
Safety:	Indirect positive impact as the Study Group and Airport work with the FAA.
Noise:	Potential Reduction
Authority to Approve:	ACPAA
Responsible for Implementation:	ACPAA
Implementation Date:	February 2024
Explanation:	In consultation with the community, the Airport noise program staff, and informed by historical data, the Study Group has identified the below boxed area in the map to focus its data analysis. The area of analysis will encompass the residential areas bordered generally by DTC Blvd to the west, E Belleview Ave to the north, S. Peoria St to the east and E. Peakview Ave to the south. The flight tracks will be filtered to include only local training pattern traffic. This will also allow us to separate out the aircraft that are arriving and departing the main runway versus aircraft that are likely flying in the training traffic pattern. This area map includes the general location of homes that filed noise complaints with the airport in 2023 as well as the locations of the permanent and portable noise monitor locations. Please see the proposed study area maps below.
Measurable Impact:	Indirect.
Updates:	Data Analysis Ongoing. See page 24 for update on data analysis and mitigations.

Defined Study Area Map



Note: The red dots indicate households that filed complaints with the Airport in 2023. The black line represents the boundary of the study area. In this graphic, unlike those presented in monthly noise reports, dots are not scaled based on the number of complaints. Complaints in the RY 17L Approach Zone are less in number. That area experiences a different pattern of traffic and is related but distinct from the areas to the west of the RY 17L Approach Zone.

MITIGATION STRATEGIES CONSIDERED BUT NOT ADOPTED

The Study Group identified a number of possible actions that **were not accepted** because they (1) decreased safety or (2) did not negatively impact safety but did not reduce noise.

FAA-ATC STRATEGIES

Maintain and enhance operational safety, increase air traffic controller awareness of noise sensitive areas, reduce aircraft overflights of the community.

Go Back to Previous Air Traffic Management	
Rejected Mitigation Strategy:	Go back to previous air traffic management: less positive control, parallel landings
Problem Mitigation Addresses:	Extended pattern traffic and increased noise exposure to the community.
Reduction of Noise Exposure:	Less aircraft overflights.
Safety:	Safety decreased
Noise:	Potential reduction
Authority to Approve:	FAA- ATO
Responsible for Implementation:	FAA- ATO
Reason Strategy Not Adopted:	The FAA's primary responsibility is managing air traffic in the safest and most efficient way possible. Positive control and staggering of landings increase safety. Air Traffic Controllers call base turns for aircraft for safety reasons and ATC has seen an improvement in safety at Centennial Airport because of the safety mitigation. Calling 17R base turns to “stagger” with traffic on 17L helps ensure safe and efficient operations. See below for further explanation.

On May 12, 2021, there was a midair collision between a Cirrus aircraft and a Metroliner while the aircraft were inbound to Centennial Airport. The Cirrus was on a right base turn[1] for runway 17R and the Metroliner was straight in for runway 17L. The Metroliner continued and landed on Runway 17L and the Cirrus landed in Cherry Creek State Park utilizing the pilot’s airframe parachute.

[1] Base turn is a phase during the aircraft’s traffic pattern for landing. It involves making a 90-degree turn from the downwind leg toward the final approach.

The FAA's continuing mission is to provide the safest, most efficient aerospace system in the world. While the collision did not result in injuries or fatalities, the Centennial Air Traffic Control Tower (APA) conducted an evaluation of safety into and out of the Centennial Airport.

At this time, the common practice was for aircraft to fly the 17R traffic pattern (west of APA) independently of the traffic on 17L.

APA identified the following data for activity between June 24, 2019 and June 24, 2021 (including the time frame in which the collision occurred):

- **Wrong Surface Landing**[2]: APA had 5 wrong surface landings and 4 reports of aircraft lined up for the wrong runway and corrected by ATC.

- **Pilot Initiated Go Around due to Collision Avoidance Resolution Advisory** (TCAS RA)[3]: APA had 37 go arounds due to aircraft responding to a TCAS RA for traffic on the parallel runway.

- **Suspected Surface Loss Involving Two Aircraft**[4]: APA had 14 reports of suspected loss of surface separation between two aircraft.

After evaluating these events, APA determined that air traffic controllers would stagger the arrivals into 17R and 17L. This procedure protects for aircraft that fly through their final[5] and enhances safety with positive control[6], rather than depending on pilots to see each other, using Visual Flight Rules (VFR). As a result, Air Traffic Controllers actively separate aircraft inbound to the parallel runways, which has proven to further enhance safety at the Centennial Airport.

APA identified the following data for activity between June 24, 2021 and August 15, 2023:

- **Wrong Surface Landings**: APA had only 1 wrong surface landing and 12 reports of aircraft lined up for the wrong runway and corrected by ATC. The increased

[2] A wrong surface landing occurs "when an aircraft lands or departs, or tries to land or depart, on the wrong runway or on a taxiway. It also occurs when an aircraft lands or tries to land at the wrong airport."
[3] A Pilot Initiated go around occurs when the pilot determines they will not be at a safe altitude or heading to complete a landing in a safe manner and they abandon the approach. Air Traffic control will sequence them for the airport to attempt another landing.
[4] A "surface loss" occurs when aircraft on surface movement areas (taxiway or runway) do not meet minimum separation requirements
[5] The final approach course is the last segment of an aircraft's approach to landing. It is a straight flight path aligned with the extended centerline of the runway. During the final approach, the aircraft descends and aligns itself with the runway for a smooth landing. Pilots aim to maintain a stabilized approach during this phase.
[6] Positive Control for air traffic controllers means having continuous contact with an aircraft and providing specific instructions and clearances to ensure safe and orderly air traffic. This involves actively managing the aircraft's movements, ensuring proper separation from other aircraft, and maintaining situational awareness for controlled and secure airspace.

number of aircraft being identified lining up for the incorrect runway proves an increased scan and awareness for aircraft on the final approach course.

- **Pilot Initiated Go Around due to Collision Avoidance Resolution Advisory** (TCAS RA): APA had 15 go arounds due to aircraft responding to a TCAS RA for traffic on the parallel runway. By sequencing arrivals, fewer aircraft operated in conditions that required go arounds for safety.

- **Suspected Surface Loss Involving Two Aircraft**: APA had 7 reports of suspected loss of surface separation between two aircraft. This has improved due to enhanced tower teamwork and visual scanning throughout the airport environment. Controllers are fully aware of what the other controllers are doing and are able to see unsafe situations developing and make corrections in a timely manner.

APA Safety Data on Air Traffic Procedures		
Type of Safety Event	**June 24, 2019- June 24, 2021**	**June 25, 2021- August 15, 2023**
Wrong Surface Landing	**5** Wrong surface landings, **4** Lined up for wrong runway and corrected.	**1** Wrong surface landings **12** Lined up for wrong runway and corrected
TCAS RA Go Around (Pilot Initiated)	**37**	**15**
Surface Loss of Separation	**14**	**7**

The data above shows improved safety due to the mitigations that were compared to the years prior to the midair collision. The FAA's goal is to always improve safety, not reduce it. Air Traffic Controllers call base turns for aircraft for safety reasons and the

FAA has seen an improvement in safety into APA because of the mitigation. Calling 17R base turns to "stagger" with traffic on 17L helps ensure safe and efficient operations for the following reasons:

- **Sequence and Separation**: By instructing aircraft to make a base turn, air traffic control can sequence incoming flights and maintain safe separation between them. This reduces the risk of mid-air collisions and ensures that each aircraft

has adequate space to complete their approach and landing.

- **Traffic Flow Management**: Coordinating base turns allows air traffic controllers to manage the flow of traffic into the airport, preventing congestion and ensuring that aircraft are spaced out to avoid conflicts.

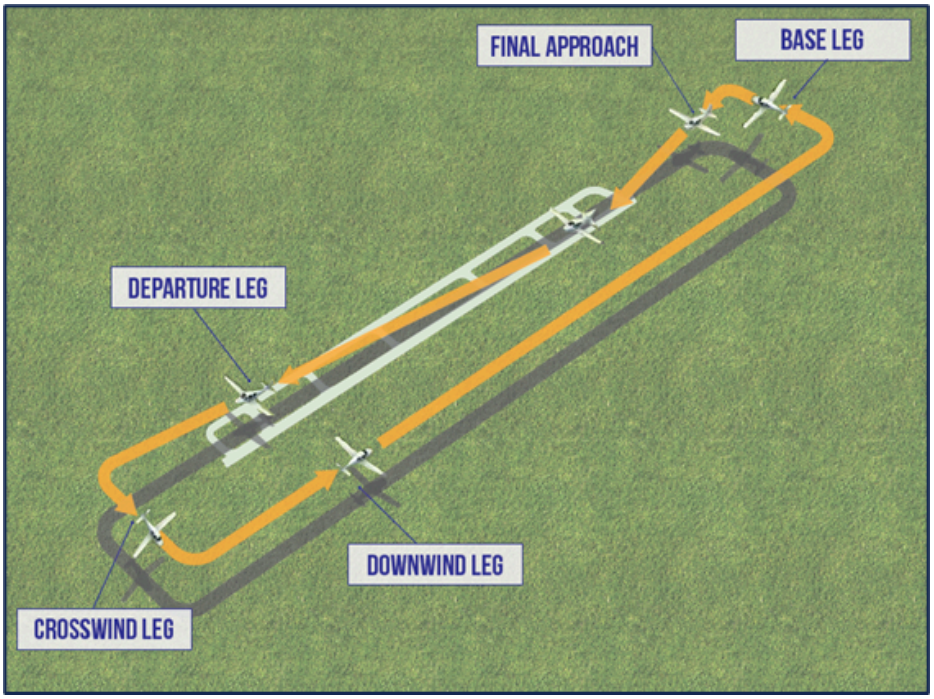
- **Conflict Resolution**: In busy airspace, it's crucial to have a clear plan for each aircraft descent and approach. Base turns help resolve any potential conflicts between arriving and departing aircraft, making the airspace safer and more organized.

Require Increased Pattern Altitude	
Rejected Mitigation Strategy:	Require an increased pattern altitude
Problem Mitigation Addresses:	Noise exposure to the community
Reduction of Noise Exposure:	Increased distance from noise source
Safety:	Maintained
Noise:	No noticeable reduction
Authority to Approve:	FAA-ATO
Responsible for Implementation:	FAA-ATO
Reason Strategy Not Adopted:	Requiring an increased altitude will increase the number of flights north and west of the airport (contradicting the purpose of this Study Group) while providing no decipherable reduction in noise.

The traffic pattern altitude (TPA) is the mean sea level altitude at which an aircraft will enter or remain in the pattern as shown in the graphic below – the TPA being the altitude outside of the departure leg and final approach. The potential kinetic energy of the aircraft is a balance of altitude and speed. Each aircraft has a specified approach speed, denoted by (Vref); “V“ being velocity, and “ref“ being reference for the aircraft weight, configuration, and the runway and atmospheric conditions at the time of flight. Vref is fixed by the aircraft manufacturer. This only leaves altitude as the adjustable variable.

If the altitude is increased, the aircraft extends its distance on the downwind leg prior to turning on the base leg to maintain a relatively fixed glide path angle or rate of descent on final approach, which is stabilized and safe. Therefore, if the TPA is increased, the distance on the downwind leg must be extended for the aircraft to safely reduce its energy and land on the runway. In the case of APA, this would result in aircraft extending the downwind leg further north of Arapahoe Road when landing to the south and would go against one of the goals of this Study Committee, which is to reduce the length of the downwind leg to not extend beyond Arapahoe Road.

The TPA is not an effective method for reducing aircraft overflight noise. The current TPA would have to be doubled, to 2000-3000 feet above ground level to result in a decrease of 6 dB. The perceptible limit of sound change starts at 3 dB, so unless the TPA is raised significantly, the reduction of noise would be barely detectable, and ANY change to the TPA would result in a longer downwind leg, which is contrary to goals voiced by the committee to limit the overflights north of Arapahoe Road.


FINAL APPROACH
BASE LEG
DEPARTURE LEG
DOWNWIND LEG
CROSSWIND LEG

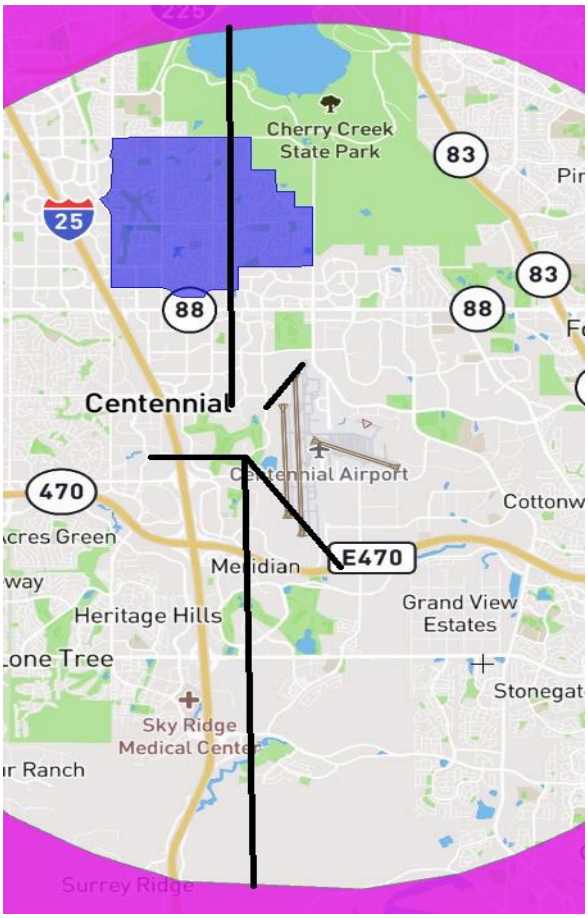
STUDY AREA DATA ANALYSIS

PURPOSE

The purpose of this data analysis is to quantify the number of touch-and-go aircraft extending into the study area (seen in blue below) located North of Peakview Ave, South of Belleview Ave, East of DTC Blvd., and West of S. Peoria St.. The data analysis compares the first Quarter of 2023 to the first Quarter of 2024. This data period examines pre and post implementation of mitigation strategies.

PROCESS/METHODOLOGY

Using Centennial Airport's Noise and Operations Monitoring System (ANOMS™), all aircraft tracks were filtered to only include those that pass through defined gates along the Runway 17R/35L traffic pattern. A gate is essentially a window in the sky, created using the ANOMS™ system, that an aircraft track passes through. The aircraft track must pass through all associated gates (shown below) to be considered established in the traffic pattern. Many methods of data processing were tested to establish the best method of identifying community overflight activity. Airport Staff worked with the ANOMS™ vendor to determine data fidelity and ensure the data process used is an accurate representation.



- The study area is represented by the blue polygon.
- Gates are indicated by the black lines.
- Gates capture both North and South flow configurations.
- The Centennial Airspace is represented by the magenta ring along edge of figure. This is shown to demonstrate "gates" go to the airspace edge to ensure all touch-and-go aircraft tracks are captured and counted.

Q1 2023 v. Q1 2024 ANALYSIS

SUMMARY

Compared to overall touch-and-go operations percentage wise, there was a 1.7% decrease in total aircraft entering the study area in Q1 2024 compared to Q1 2023. The number of touch-and-go aircraft increased by 9.8% from Q1 2023 to Q1 2024, and the number of aircraft entering the study area increased 6.1%. There was a 13.8% increase in Q1 2024 as compared to Q1 2023 of the number of aircraft remaining outside the study area. While the positive trends cannot be definitively tied only to Study Group mitigations, the implemented measures likely contributed to a higher percentage of aircraft remaining outside the study area. This type of data will be used by the Study Group to examine effectiveness of implemented mitigations as well as looking at all future mitigations.

FIGURE 1

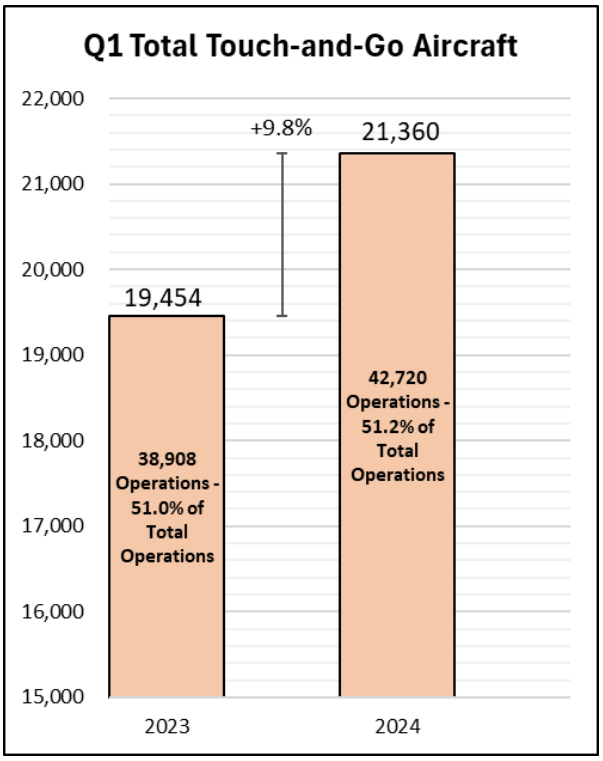


Figure 1 shows a comparison of Q1 2023 v. Q1 2024 and the total number of touch-and-go aircraft. In Q1 2023 there were 19,454 touch-and-go aircraft, while in Q1 2024 there were 21,360 touch-and-go aircraft. These numbers represent how many aircraft entered the study area. In Q1 2023 the touch-and-go aircraft accounted for 38,908 operations which was 51% of total APA operations. In Q1 2024 the touch-and-go aircraft accounted for 42,720 operations which was 51.2% of total APA operations. A touch-and-go is counted as one takeoff operation and one landing operation, which is double the aircraft count. From Q1 2023 to Q1 2024 there was a 9.8% increase in touch-and-go aircraft.

Takeaways:

- Total touch-and-go aircraft were up 9.8% in Q1 2024.
- Overall percentage of touch-and-go aircraft relative to total APA operations has remained constant.

FIGURE 2

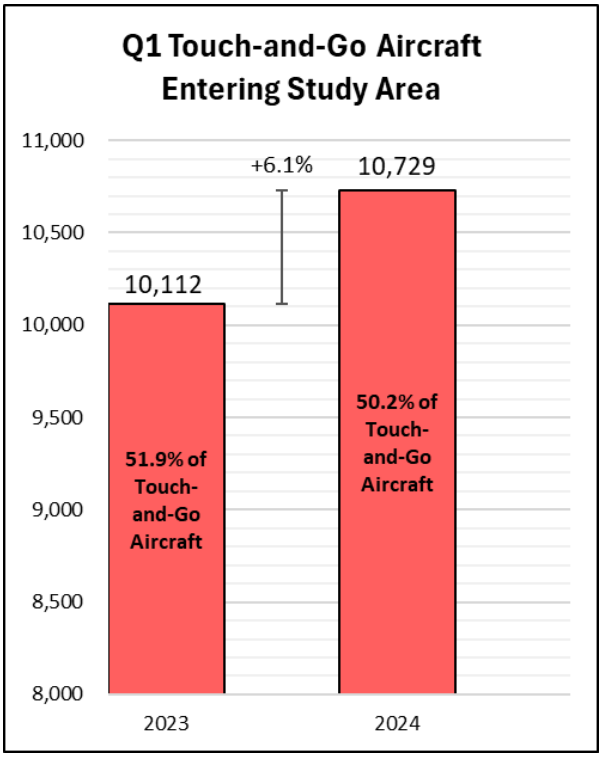


Figure 2 shows the number of touch-and-go aircraft that entered the study area (i.e. aircraft that went North of Peakview Ave.). Data from Figure 2 is derived from the total number of touch-and-go aircraft in Figure 1. In Q1 2023 there were 10,112 touch-and-go aircraft that entered the study area, while in Q1 2024 there were 10,729 touch-and-go aircraft that entered the study area. In Q1 2023 out of all touch-and-go aircraft 51.9% of aircraft entered the study area. In Q1 2024 out of all touch-and-go aircraft 50.2% of aircraft entered the study area. From Q1 2023 to Q1 2024 there was a 6.1% increase in touch-and-go aircraft that entered the study area.

Takeaways:

- While Figure 1 showed an increase of 9.8% in touch-and-go aircraft there was a 6.1% increase of aircraft entering the box.
- 1.7% less of total touch-and go-aircraft entered the study area in Q1 2024 than in Q1 2023 (Difference in percentages within red bars).

FIGURE 3

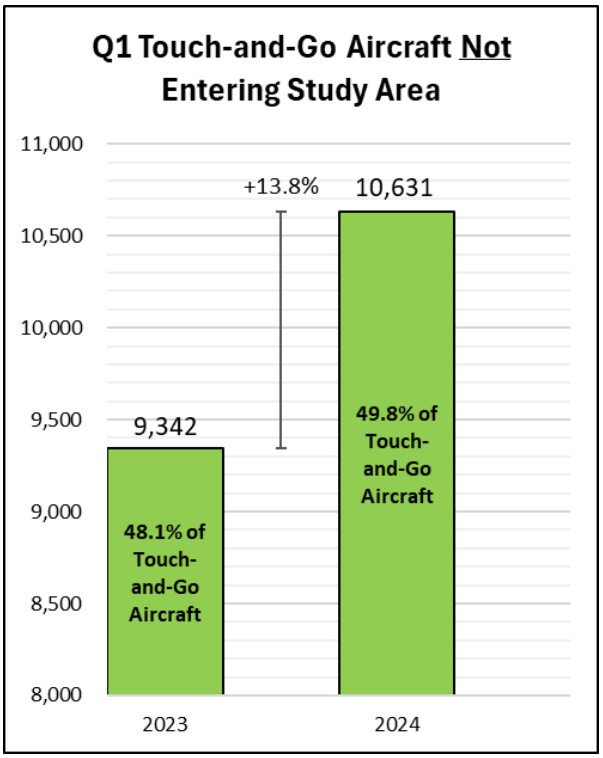


Figure 3 shows the number of aircraft that remained outside the study area (i.e. did not go North of Peakview Ave.). Data from Figure 3 is derived from the total number of touch-and-go aircraft in Figure 1. In Q1 2023 there were 9,342 touch-and-go aircraft that remained outside the study area, while in Q1 2024 there were 10,631 touch-and-go aircraft that remained outside the study area. In Q1 2023 out of all touch-and-go aircraft 48.1% of aircraft remained outside the study area. In Q1 2024 out of all touch-and-go aircraft 49.8% of aircraft remained outside the study area. From Q1 2023 to Q1 2024 there was a 13.8% increase in touch-and-go aircraft that remained outside the study area.

Takeaways:

- There was a 13.8% increase in Q1 of 2024 of aircraft not entering the study area.
- 1.7% more of total touch-and-go aircraft (difference in percentages within green bars) remained outside the study area in Q1 2024 compared to Q1 2023, even while the total number of touch-and-go aircraft increased.
- 10,631 aircraft remained South of Peakview Ave. and did not overfly the communities to the North.

FEEDBACK AND CONSIDERATIONS FOR THE Study Group

In Q1 2024, the Study Group received three comments with several suggestions on the online submission form. Each comment and suggestion is considered and suggested mitigations are explored. The Airport Authority Board also received a letter from the City of Greenwood Village with suggested mitigations that will also be taken into consideration by the Study Group.

We encourage aviation professionals, legal experts, and community members to examine the reasoning behind our conclusions. Should you disagree and have evidence to consider or a differing interpretation of the law, please fill out the google form HERE. Additionally, as it has been our commitment from the outset to consider all potential solutions, we invite you to submit potential solutions through the form as well.

A few notes about the form and how the Study Group will respond to submissions:

- All submissions will be read and considered based on their relevance to the work of this group, which is overflight and noise abatement for the area north and west of the airport.

- Because the work of this group is in addition to the duties of the members, do not expect a response. The default will be no response. However, where more information or context would be helpful or is needed, a response may be sent.

- Group members respectfully request constructive responses only. This form is an experiment and if abused, there will be consideration of deleting the form.

URL for the feedback form: https://forms.gle/uxDUFgkkkvDBG31s8
Current and past reports may be found HERE.