



CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE

AGENDA

September 4, 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.

1. CALL TO ORDER AND DETERMINATION OF QUORUM:

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

2. CONSENT AGENDA: (items here may be moved to Agenda Item #3, on the request of any CACNR Representative)

- A. DRAFT MINUTES, August 7, 2024 – Alison Biggs, Secretary
- B. TREASURER'S REPORT, August 2024 – Andy Jones, Treasurer, Zach Gabehart, ACPAA Staff
- C. NOISE REPORT, July 2024- Zach Gabehart, ACPAA Staff
- D. CACNR ATTENDANCE RECORD – through August, 2024

3. ITEMS REMOVED FROM CONSENT AGENDA:

4. N.O.I.S.E. OVERVIEW AND FEDERAL UPDATE– EMILY TRANTER, N.O.I.S.E. EXECUTIVE DIRECTOR

5. CACNR STUDY GROUP COMMITTEE: Brad Pierce, Chris Eubanks, Mike Fronapfel

- A. Quarter 2 2024 Update Report – Brad Pierce

6. PART 150 STUDY UPDATE/PROGRESS:

- A. Meeting Schedules for CACNR; Study Advisory Committee
- B. Noised Contours
- C. Modeling, Evaluation, Refinement
- D. Advance Notices for Brainstorming
- E. Other Items for Consideration/Interest

7. EXECUTIVE COMMITTEE:

- A. ACPAA Meeting Recap, August 8, 2024 – Pam Thompson

8. REPRESENTATIVES' COMMENTS:

9. OTHER REGULAR REPORTS:

- A. AIRPORT DIRECTOR – Mike Fronapfel
 - 1. Practice Area Noise Analysis – Zach Gabehart
 - 2. Flight School Activity
 - 3. Part 150 Study Update
 - 4. Aviation Fuel – How Much Sold/What Kind
 - 5. Community Related Activity

- 6. Other Airport Activity
- 7. Legislative
- 8. Status of Follow Up Items

10. **OLD BUSINESS:**

- A. 2024-2025 CACNR Attendance Record

11. **NEW BUSINESS:**

- A. 2025 Budget Discussion - Zach Gabehart / Mike Fronapfel
- B. Voluntary Noise Abatement Guidelines - Zach Gabehart / Mike Fronapfel

12. **PUBLIC COMMENT:** (3 minutes per person time limit):

Public Comment Procedures <https://drive.google.com/file/d/1ujlCvjLpaQ4EY1DTZSslv6Mb5Urps4NE/view?usp=sharing>

- A. RECEIVED BY CACNR
- B. MEETING ATTENDEES /VIRTUAL ATTENDEES

13. **REPRESENTATIVES' COMMENTS:**

14. **NEXT MEETINGS:**

- | | | | |
|------------------------------|--------------------|-------------------|---|
| A. CACNR – | October 2, 2024 | 6:30 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| | November 6, 2024 | 6:30 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| | December 4, 2024 | NO MEETING | |
| B. ACPAA – | September 12, 2024 | 3:00 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| | October 10, 2024 | 3:00 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| | November 14, 2024 | 3:00 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| | December 12, 2024 | 3:00 p.m. | 7565 South Peoria Street, Englewood, CO 80112 |
| C. PART 150 MEETING – | | | |

15. **ADJOURN:**



CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE
MINUTES
August 7 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: Chris Eubanks **Vice Chair:** Pam Thompson **Treasurer:** Andy Jones **Secretary:** Alison Biggs

1. **CALL TO ORDER, ROLL CALL, and QUORUM:** The meeting was called to order at 6:35 p.m. by Chair Chris Eubanks. The following were in attendance, and a quorum was present:

Arapahoe County:	Leslie Summey	Foxfield:	Pam Thompson
Douglas County:	Dan Avery	Greenwood Village:	Donna Johnston
Douglas County:	Alison Biggs	Lone Tree:	Mike Anderson
Aurora:	Brad Pierce	ACPAA:	Michael Fronapfel
Castle Pines:	Chris Eubanks	AOPA:	John Hirshman
Centennial:	Don Sheehan	CABA:	Don Kuskie

Others in attendance were Ron Cole, Alternate Representative from Castle Pines; Amy Tharp, Alternate Representative from Centennial; and ACPAA staff Matt Frenette, Zach Gabehart, and Lauren Wiarda. There were 6 members of the public in attendance and 3 online.

Those absent were: Arapahoe County: Vacant/Vacant Parker: Ashley Chasez/Bryce Matthews
Castle Rock: Laura Cavey/Sandy Vossler CDOT Aeronautics Div: Todd Green/Vacant
Cherry Hills Village: Robert Eber/Randy Weil Wings Over the Rockies: Bill Wasmund

2. **CONSENT AGENDA:** The Consent Agenda included the Draft CACNR Minutes from June 5, 2024; a Treasurer's Report from August 2, 2024, showing a balance of \$24,782.88; and the Noise Reports from May and June 2024. Request was made to ask a question about something on the Noise Reports without moving it to Agenda Item #3. Request granted. It was noted that the complaints received during the nighttime hours had increased – 22 in January, 58 in February, 116 in March, 45 in April, 142 in May, and 375 in June. What was happening to cause the increase? Was it because there were more complaints from further east? Response was there are more flights during the morning hours as it gets lighter earlier, thus more opportunity for complaints. Question was asked how staff dealt with the 375 complaints in June. Response was they had been investigated and about 25 had required some communication due to pilots flying outside the recommended flight path. Staff was thanked for that information. On the motion of Mike Anderson, duly seconded, the Consent Agenda was approved.

The May 2024 Noise Report included the following information:

May Local Operations:	15,701	May Total Operations:	29,567
Year to Date Local Operations:	75,603	Year to Date Total Operations:	140,922

29,567 Total Operations in May resulted in 1,410 complaints from 96 households.

May Noise Events:

<u>May Total:</u>	<u>May 60 – 69 db:</u>	<u>May 70 – 79 db:</u>	<u>May 80 – 89 db:</u>
Golf Course 12,914	Golf Course 7,875	Golf Course 4,655	Golf Course 373
Meridian 9,040	Meridian 7,160	Meridian 1,803	Airport East 426
State Park 2,795	Parker 2,184	State Park 896	Meridian 72
Airport East 2,661	Portable Station 2,162	Airport East 696	State Park 40
Portable Station 2,555	State Park 1,859	Portable Station 377	Portable Station 15
Parker 2,404	Grandview Estates 1,544	Parker 214	Castle Rock 14
Grandview Estates 1,724	Airport East 1,491	Grandview Estates 175	Greenwood Village 09
Greenwood Village 1,309	Greenwood Village 1,180	Greenwood Village 120	Hunters Hill 08
Castle Rock 1,055	Lone Tree 932	Hunters Hill 69	Parker 06
Lone Tree 1,001	Castle Rock 909	Lone Tree 66	Grandview Estates 04
Hunters Hill 743	Hunters Hill 666	Castle Rock 65	Lone Tree 03
Castle Pines 270	Castle Pines 250	Sagebrush Park 21	Castle Pines 00
Sagebrush Park 177	Sagebrush Park 156	Castle Pines 20	Sagebrush Park 00

May Noise events in the 90+ decibel range: Castle Rock – 67 Airport East – 48 Golf Course – 11 Meridian – 05 Grandview Estates – 01
Portable Station – 01

May Noise Complaints	and	Numbers of Households:	YTD Complaints	and	Number of Households:
(1,410)		(95)	(5,208)		(173)
Unincorporated Arapahoe County	606 (43%)	UAC 42 (44%)	UAC 2,390		UAC 59
Greenwood Village	351 (25%)	GV 26 (27%)	GV 1,658		GV 50
Other	183 (13%)	Other 09 (09%)	Centennial 445		Other 21
Centennial	145 (10%)	UDC 08 (85%)	Other 260		UDC 11
UDC	63 (04%)	Aurora 02 (02%)	UDC 196		Centennial 06
Denver	39	Centennial 02	Denver 151		Lone Tree 06
Aurora	08	Lone Tree 02	Castle Rock 45		Parker 05
Castle Rock	07	Parker 02	Parker 24		Aurora 04
Lone Tree	04	Castle Rock 01	Aurora 19		Castle Rock 04
Parker	04	Denver 01	Lone Tree 12		Highlands R 03
Castle Pines	00	Castle Pines 00	Highlands R 05		Castle Pines 02
Cherry Hills Vill age	00	CHV 00	Castle Pines 03		Denver 02
Highlands Ranch	00	Parker 00	CHV 00		CHV 00

Year to Date, the top five households complaining were:

Household #1 847	Unincorporated Arapahoe County	Household #4 353	Unincorporated Arapahoe County
Household #2 684	Greenwood Village	Household #5 344	Greenwood Village
Household #3 494	Centennial		

In May, 130 responses were requested from 1,410 noise complaints, with 112 of those requests made by email (86%), and 18 made by telephone (14%).

In May, 1,268 complaints were made about **daytime flights** (7:00 a.m. – 9:59 p.m.) – 90%.
142 complaints were made about **nighttime flights** (10:00 p.m. – 6:59 a.m.) – 10%.

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

In May, training was responsible for 68% of the complaints, **departures** were responsible for 21% of the complaints, and **arrivals** were responsible for 11% of the complaints.

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

The June 2024 Noise Report included the following information:

June Local Operations:	14,810	June Total Operations:	29,644
Year to Date Local Operations:	90,413	Year to Date Total Operations:	170,566

29,644 Total Operations in June resulted in 1,639 complaints from 114 households.

June Noise Events:

June Total:		June 60 – 69 db:		June 70 – 79 db:		June 80 – 89 db:	
Golf Course	11,737	Golf Course	7,220	Golf Course	4,050	Airport East	539
Meridian	8,480	Meridian	6,655	Meridian	1,763	Golf Course	288
Airport East	3,171	Parker	2,016	Airport East	913	Meridian	59
State Park	2,642	State Park	1,782	State Park	851	Portable Station	16
Parker	2,241	Portable Station	1,670	Portable Station	397	Hunters Hill	10
Portable Station	2,085	Airport East	1,668	Parker	218	Castle Rock	09
Grandview Estates	1,555	Grandview Estates	1,395	Grandview Estates	154	State Park	08
Greenwood Village	989	Greenwood Village	913	Greenwood Village	71	Parker	07
Castle Rock	937	Castle Rock	859	Hunters Hill	59	Grandview Estates	06
LoneTree	787	Lone Tree	741	Castle Rock	49	Greenwood Village	05
Hunters Hill	578	Hunters Hill	509	Lone Tree	42	Lone Tree	04
Castle Pines	267	Castle Pines	248	Castle Pines	19	Castle Pines	00
Sagebrush Park	151	Sagebrush Park	140	Sagebrush Park	11	Sagebrush Park	00

June Noise events in the 90+ decibel range: Golf Course – 179 Airport East – 51 Castle Rock – 20 Meridian – 03
Portable Station – 02 State Park - 01

June Noise Complaints	and	Numbers of Households:	YTD Complaints	and	Number of Households:
(1,639)		(114)	(6,847)		(217)
Unincorporated Arapahoe County	754 (46%)	UAC 51 (48%)	UAC 3,144		UAC 78
Greenwood Village	381 (23%)	GV 28 (25%)	GV 2,039		GV 62
Other	245 (15%)	UDC 10 (09%)	Centennial 591		Other 23
Centennial	146 (10%)	Other 09 (08%)	Other 505		UDC 14
UDC	57 (04%)	Lone Tree 04 (03%)	UDC 253		Lone Tree 09
Denver	34	Centennial 03	Denver 185		Centennial 07
Lone Tree	07	Aurora 02	Castle Rock 51		Parker 06
Castle Rock	06	Denver 02	Parker 25		Aurora 05
Aurora	05	Highlands R 01	Aurora 24		Castle Rock 04
Highlands Ranch	02	Castle Pines 01	Lone Tree 19		Highlands R 04
Castle Pines	01	Castle Rock 01	Highlands R 07		Denver 03
Parker	01	Parker 01	Castle Pines 04		Castle Pines 03
Cherry Hills Village	00	CHV 00	CHV 00		CHV 00

Year to Date, the top five households complaining were:

Household #1	927	Unincorporated Arapahoe County	Household #4	448	Other (Elizabeth)
Household #2	622	Centennial	Household #5	378	Greenwood Village
Household #3	567	Unincorporated Arapahoe County			

In June, 156 responses were requested from 1,639 noise complaints, with 141 of those requests made by email (90%), and 15 made by telephone (10%).

In June, 1,264 complaints were made about **daytime flights** (7:00 a.m. – 9:59 p.m.) – 77%.
375 complaints were made about **nighttime flights** (10:00 p.m. – 6:59 a.m.) – 23%.

In June, props accounted for **88% of the complaints by aircraft type**; **jets** accounted for **11% of the complaints**, and **helicopters** caused **1%**.

In June, training was responsible for 71% of the complaints, **departures** were responsible for 20% of the complaints, and **arrivals** were responsible for 9% of the complaints.

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

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

4. **CACNR STUDY GROUP COMMITTEE:** Brad Pierce, Study Group Committee Chair reported the group was gathering data on flights in and out of the practice boxes. In addition, data was being gathered on the effect of the changes which have been made since the formation of this group. There will be monthly comparisons with similar information from the prior year. The second quarterly report would be coming out, but no precise date had been set for that.

Reference was made to the April 6, 2023 letter from Grady Stone, and a draft response which would be discussed later in the agenda.

5. **PART 150 STUDY UPDATE/PROGRESS:** Representatives from Mead and Hunt were present to provide an update on the Part 150 study, and to continue CACNR's Noise 101 educational session by bringing answers to questions which had been raised at the prior Noise 101 session.

Material presented during the Part 150 (Centennial Airport Noise Compatibility Study) update report had been presented to the Study Group Committee earlier in the day and would be provided on the website. www.apa150noisestudy.com There were two components to the first presentation – aircraft noise and land use. There were also two phases – noise exposure maps (existing and forecast conditions) and noise compatibility programs (measures to address incompatible land use).

Following the first part of the presentation, question was asked if the presentation materials and data could be available sooner than waiting for the next quarterly report from the Study Group. Response was the data was revised after every meeting, so it was difficult to provide anything sooner. Question was asked if the baseline for the Part 150 study could be something sooner than 2023, as an earlier date might show quite different results. Explanation was given as to why 2023 had to be used. There was discussion of the use of fleet mix numbers from various years, and the numerous components involved with looking at current land use, and forecasting that involved with already planned community development.

There was a request for future presentation materials to be provided to CACNR in enough time for Representatives to study them before the meeting, as getting so much data and information during the meeting prevented any kind of intelligent consideration and development of questions. Questions were encouraged, and could be asked at any time using the website address provided above.

The continuation of the Noise 101 component provided information about the main Federal legislation which governs anything related to the air industry and its related components, including noise. What is allowed and by whom was covered, including many of the things that would positively effect the noise problems for residents around Centennial Airport, but which are not 654 allowed by the FAA. What noise mitigation measures that are available were discussed, and how to be eligible for Federal assistance with mitigation measures.

A member of the public from the Franktown area who could not stay longer at the meeting provided input on behalf of herself and her older relatives. They shared many concerns, including the constant flights over their homes, and the safety factor of those who cut their engines while over residential areas. There are grinding sounds over the houses in the area, and many tall trees over which the planes fly too closely, and which provide no logical place to land if an airplane does develop a problem or cannot restart an engine. It appeared the flight schools were making money while hurting residents in the area. The constant flights – as many as 15 flights in just 20 minutes. They cannot enjoy their five acres outside because of the planes over and over and over. It does not seem right to continue the noise and the safety issues. Could not things be moved to a more sensible location?

Question was asked if the noise metric might be changed to something beside the 65 dnl. It was being looked at by the FAA, and when it asked, the FAA received over 4,000 responses which are currently being sorted through. A timeline for completion of the Part 150 study was provided.

6. **EXECUTIVE COMMITTEE:**

A. ACPAA Meeting – A copy of Pam Thompson's report to the June ACPAA meeting had been provided. She indicated ACPAA seemed to be noticing the number of complaints coming from the Franktown area, and also noted that the number of flights over any one area could be tracked. These had not been discussed during recent ACPAA meetings.

B. Retreat Priorities – A copy of these had been provided and would specifically be looked at again at the next meeting.

7. **REPRESENTATIVES' COMMENTS:**

A. Provide Food for CACNR Meetings – Following discussion and clarification that airport staff was being taken care of before CACNR meetings, there was general agreement that food did not otherwise need to be provided for CACNR.

Brad Pierce noted that Emily Tranter, N.O.I.S.E. Executive Director, would be presenting at the September meeting.

Dan Avery noted the noise report seems to show the extensive use of the training box over the Franktown area. A considerable amount of time had been spent to develop additional training boxes which were not being used by the flight schools. They can be shown to go to the closest box in Franktown. Questions were asked if the noise exposure map could be expanded to show the Franktown area. This was possible. There needed to be some attention given to this during meetings with the flight schools.

Chris Eubanks noted the Castle Pines mayor had been getting numerous noise complaints. Staff indicated it could do a comparison of the number of flights over the area from last year to this, and could possibly also do a comparison of the number of complaints between the years.

8. **OTHER REGULAR REPORTS:**

A. DIRECTOR'S REPORT – Mike Fronapfel reported the Perfect Landing restaurant had reopened following a fire which had disclosed the need to update some functional aspects of the space.

He also reported July operations were down 5% from July of last year, and year-to-date operations were up 0.2% from last year.

The state legislature had passed legislation which will require Centennial Airport to update its Noise Abatement Guidelines in order to be eligible for any state funding. This will now have to occur earlier than anticipated in relation to the Part 150 study, and ideas will be coming to a future meeting.

The hotel on airport property will be reopening in the next couple months. Upgrading fencing and the parking lot were occurring, and Sky Harbor has begun construction of 10 new hangars. The taxiway is being rehabbed, but should not effect noise concerns.

Numerous events were coming up, including the BMW PGA golf tournament. Fronapfel had been told this event frequently results in a 10-15% increase in jet traffic, so might have some effect on the area's noise. There were also numerous charity events scheduled at various areas of the airport, so all were encouraged to see if any related to their interests and to participate accordingly.

B. CHART SUPPLEMENT UPDATE – The Southwest U.S. Chart Supplement is a pilot's manual that contains data on various airports in the area, weather data sources, communications, etc. Effort had been made to add a Special Notice to it to better describe the voluntary Noise Abatement Procedures at Centennial Airport. In June, Bill Wasmund had been designated to work with staff on behalf of CACNR, and CACNR was listed as having worked in conjunction with airport staff to develop the notice. The old as well as new language was provided, as was a proposed section special graphic notice that the airport planned to have published in the Chart Supplement as well. The proposed changes had already been approved by the FAA Airports District Office and had been submitted for publication in the September 2, 2024 edition of the SW US Chart Supplement.

9. **OLD BUSINESS:** The 2024-2025 CACNR Attendance Record was briefly considered. There was general agreement to review the record on a quarterly basis, and to place it in the Consent Agenda category.

10. **NEW BUSINESS:**

A. Response Letter to FAA Administrator Stone – Grady Stone, Regional Administrator, Northwest Mountain Region, FAA, US Department of Transportation, had written a letter to CACNR on April 6, 2023 which referenced questions resulting from a CACNR meeting on February 1, 2023. Several FAA representatives had attended that meeting, and his letter purported to answer the 31 resulting questions which had been submitted by CACNR and the public for the FAA's responses.

A draft response to the Grady letter, to be sent on behalf of CACNR, was provided for review and approval. It primarily focused on achieving clarification of seemingly vague or contradictory statements related to sequencing aircraft in the pattern and the staggered use of runways. Following discussion, including the nature of the answers to several other questions, it was agreed to add an indication that CACNR might be submitting additional questions related to the Grady letter in the future.

On the motion of Brad Pierce, duly seconded, the response letter to Grady Stone was approved as amended.

11. **PUBLIC COMMENT:** At this point, the Chair indicated the meeting would be 30 minutes to allow those who had signed up to speak to be able to do so.

A. RECEIVED BY CACNR – Bette Todd provided a letter she had been given, with the request it be provided to CACNR and read into CACNR's record:

Thank you for providing a platform that feedback can be heard and viewed.

This upcoming Monday, August 12, 2024, school starts for Cherry Creek School District. It is a time in which we need to act upon providing an education in a safe, healthy environment for our children.

Unfortunately, low flying training planes are continually flying training planes are continually fly (sic) over High Plains Elementary School. It is almost as if the pilots use the school and playground as a landmark to make a turn.

The noise from the airplanes can be heard loudly on the playground and still audible in the classrooms. There is an outdoor space created that teachers can use for educational purposes, though it has not been used partly because of the distraction of airplane noise.

Moreover, the leaded fuel of the training planes sprays the playground equipment, playground, grass, benches and walkways with lead.

Lead is extremely harmful to everyone, especially children. As a former art teacher in the district, I had to be diligent to order materials that had NO traces lead (sic), even pencils, because of the health risk.

I understand that you are working hard to solve many issues concerning the low flying training planes. However, this needs attention. As adults, we must be responsible citizens and take care of the innocent children in our community, they cannot wait. Thank you again for your effort,

B. ATTENDEES/VIRTUAL/TELEPHONE – Greenwood Village, Unincorporated Douglas County, Unincorporated Arapaho County, Elizabeth, and Louviers were represented. Comments included more about schools opening with the planes flying so closely overhead. Appreciation was expressed to Dan Avery for trying to help with the noise problem in the Franktown area caused by the flight schools.

From three miles northwest of the airport, concern was expressed about Navy aircraft which had taken off with full burner and full power, doing a left turn directly over a neighborhood at approximately 3,000 feet. Why did the tower allow this? As the tower is controlled by the FAA, that question would have to be directed there. Incursion into the airspace of DIA and Buckley must be avoided by planes flying out of or into Centennial Airport. Suggestion was made that flights take off over Cherry Hills Reservoir where there are no residents. It was noted that such a recommendation had been made to the FAA during the last Part 150 study, and the FAA had turned it down. However, that concept may be revisited during the current Part 150 study, as changes in technology may make it more appealing to the FAA this time.

An Elizabeth resident who lives under a training box commented on the constant flights under 500 feet directly over her home. Some seem to turn off their engines, which raises serious safety concerns. It seems the planes' and pilots' rights cannot be limited, but what about the people on the ground whose rights are being violated by the actions of the planes and pilots? Question was asked what can be done to get them under control? A foot must be put down with the flight schools, as their behavior could almost be considered harassment. The apprehensions multiply with the increased development coming into the area and its corresponding increase in the number of schools.

It was noted there would be a meeting with the flight schools next week, and the concerns expressed throughout this meeting would be shared at that meeting. There should also be clarification from the FAA as to the appropriateness of turning off engines over neighborhoods, and clarification from the schools as to what they think can be done about the concerns.

Concerns from the Louviers area indicated there had been multiple flights lower than 1,000 feet, although there were not as many directly over Louviers. The number of flights had also decreased since the Quarry Fire. Request was made better show Louviers on the radar track density map.

Another Elizabeth resident indicated flights were non-stop over her house. The maps do not seem to show what flight school planes were actually doing and the number of people hurt by their actions. Although new practice area boxes had been opened, they were apparently not being used. It seems pilots do whatever they want, whenever they want and wherever they want.

Question was asked if staff could look at what has been happening with the utilization of the training boxes. Response was yes. Mike Fronapfel also indicated what schools have used which boxes could also be shown.

12. NEXT MEETINGS:

- | | | |
|---------------------------|---|---|
| A. CACNR – | September 4, 2024 | 6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112 |
| | October 2, 2024 | 6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112 |
| | November 6, 2024 | 6:30 p.m. 7565 South Peoria Street, Englewood, CO 80112 |
| | December 4, 2024 | NO MEETING |
| B. ACPAA – | August 8, 2024 | 3:00 p.m. 7565 South Peoria Street, Englewood, CO 80112 |
| | September 12, 2024 | 3:00 p.m. 7565 South Peoria Street, Englewood, CO 80112 |
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| C. PART 150 MEETING DATES | When and What Meetings, When Available from APA Staff | |

13. ADJOURNMENT: The meeting was adjourned at 8:59 p.m.

Alison Biggs, Secretary

CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE		2024 BUDGET - Approved November 1, 2023; Updated as of 08/30/2024		
		BUDGET	ACTUAL	
INCOME:			as of 08/30/24	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 Monthly Noise Report



July 2024

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2. 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.

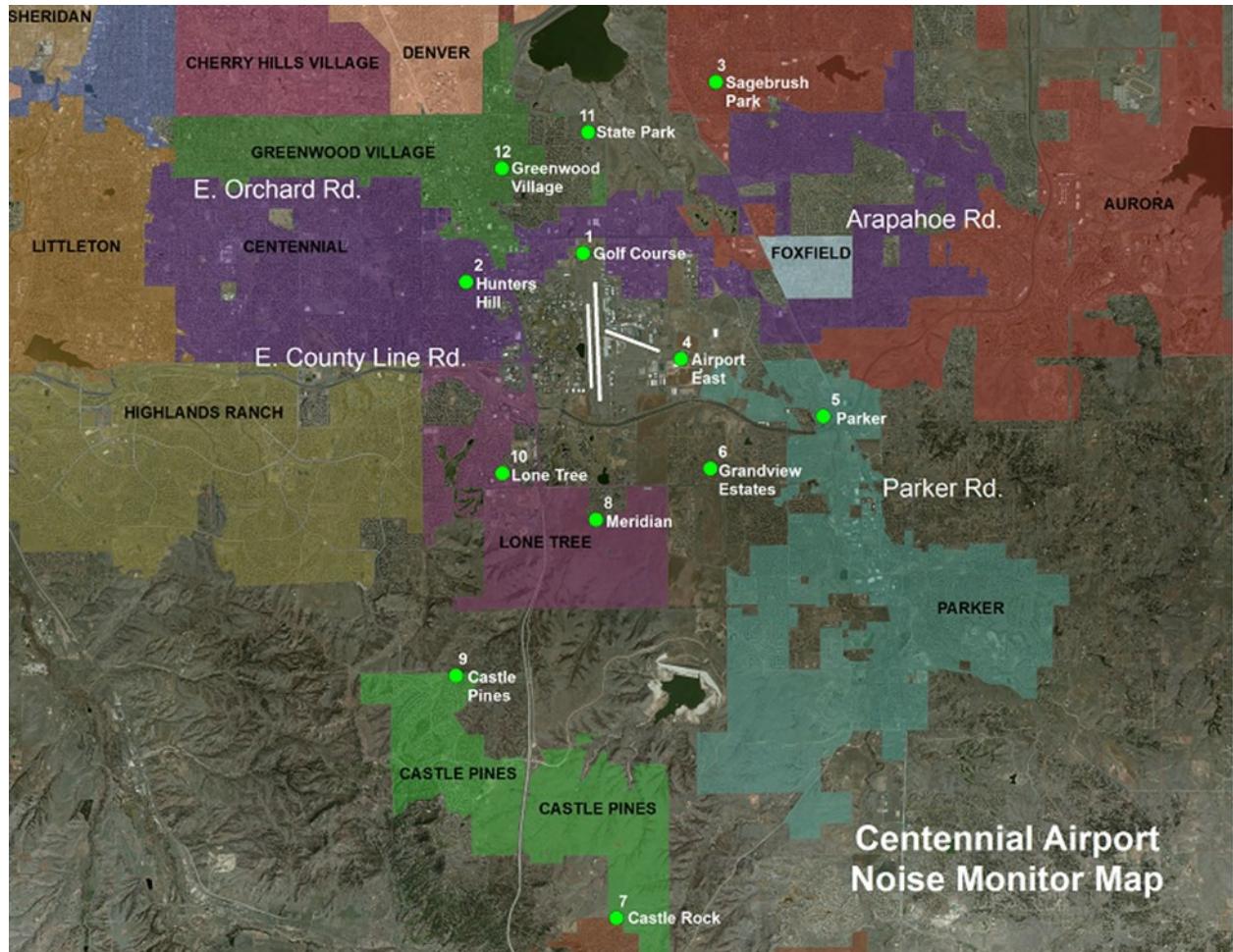
Overflight – Aircraft flight originating and terminating outside the area that transits the airspace without landing.

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.

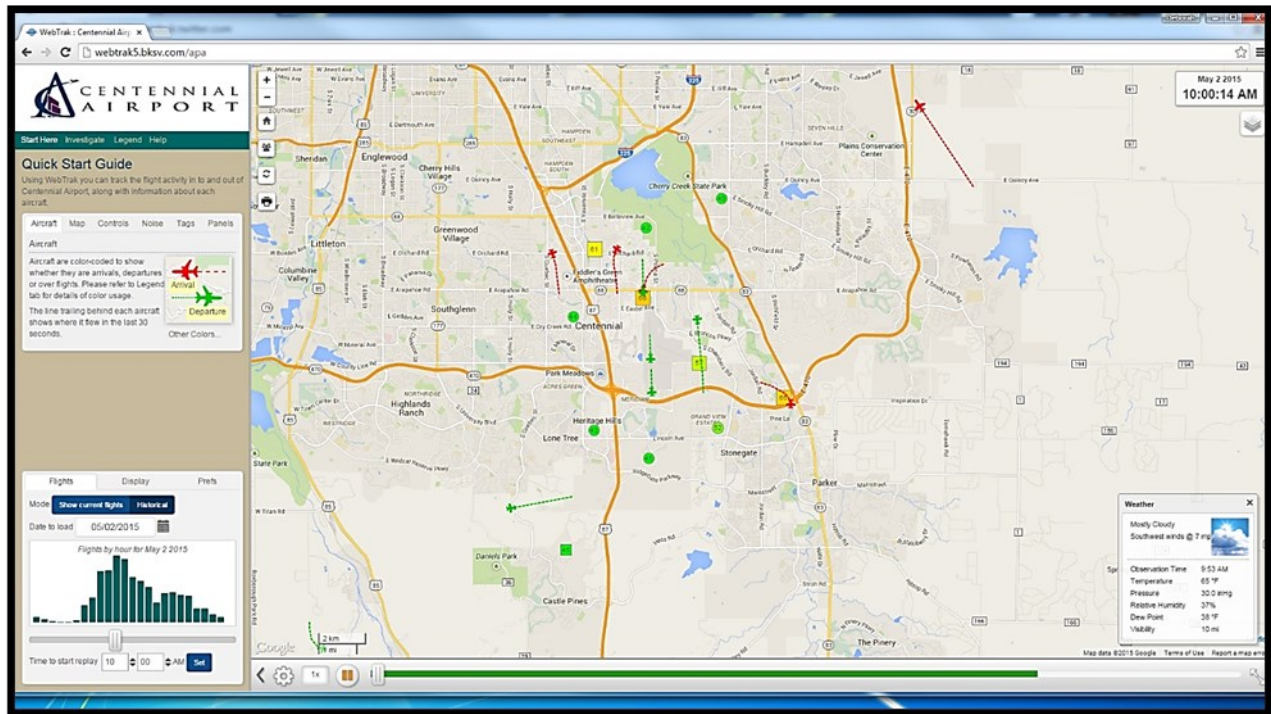
3. ABOUT APA’S NOISE MONITORING PROGRAM

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?](https://webtrak.emsbk.com/apa?fbclid=IwAR1xnXwQ2sVwisSZ_szUAIHFtyYBNIZTACOI1PF7ZSH8PPbBxORnnaidUUE)

[fbclid=IwAR1xnXwQ2sVwisSZ_szUAIHFtyYBNIZTACOI1PF7ZSH8PPbBxORnnaidUUE](https://webtrak.emsbk.com/apa?fbclid=IwAR1xnXwQ2sVwisSZ_szUAIHFtyYBNIZTACOI1PF7ZSH8PPbBxORnnaidUUE)

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	2,247	2,606	140	4,993	1,592	5,580	105	7,277	15,502	29	15,531
May	2,659	2,833	164	5,656	1,933	6,068	112	8,113	15,677	24	15,701
June	2,743	2,961	190	5,894	2,145	6,599	97	8,841	14,805	5	14,810
July	2,618	3,056	230	5,904	2,301	7,138	140	9,579	17,631	10	17,641
August				0				0			0
September				0				0			0
October				0				0			0
November				0				0			0
December				0				0			0
Y-T-D Totals	17,651	19,569	1,190	38,410	13,234	42,664	758	56,656	107,969	85	108,054

	IFR OVERFLIGHTS				VFR OVERFLIGHTS					TOTAL OPERATIONS
	AIR TAXI	G.A.	MILITARY	TOTAL INTINERANT	AIR TAXI	G.A.	MILITARY	TOTAL		
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	27,902
May	8	7	0	15	16	60	6	82	May	29,567
June	4	5	1	10	21	61	7	89	June	29,644
July	3	12	5	20	14	91	4	109	July	33,253
August				0				0	August	
September				0				0	September	
October				0				0	October	
November				0				0	November	
December				0				0	December	
Y-T-D Totals	25	51	15	91	177	387	44	608	Y-T-D Totals	203,819

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:

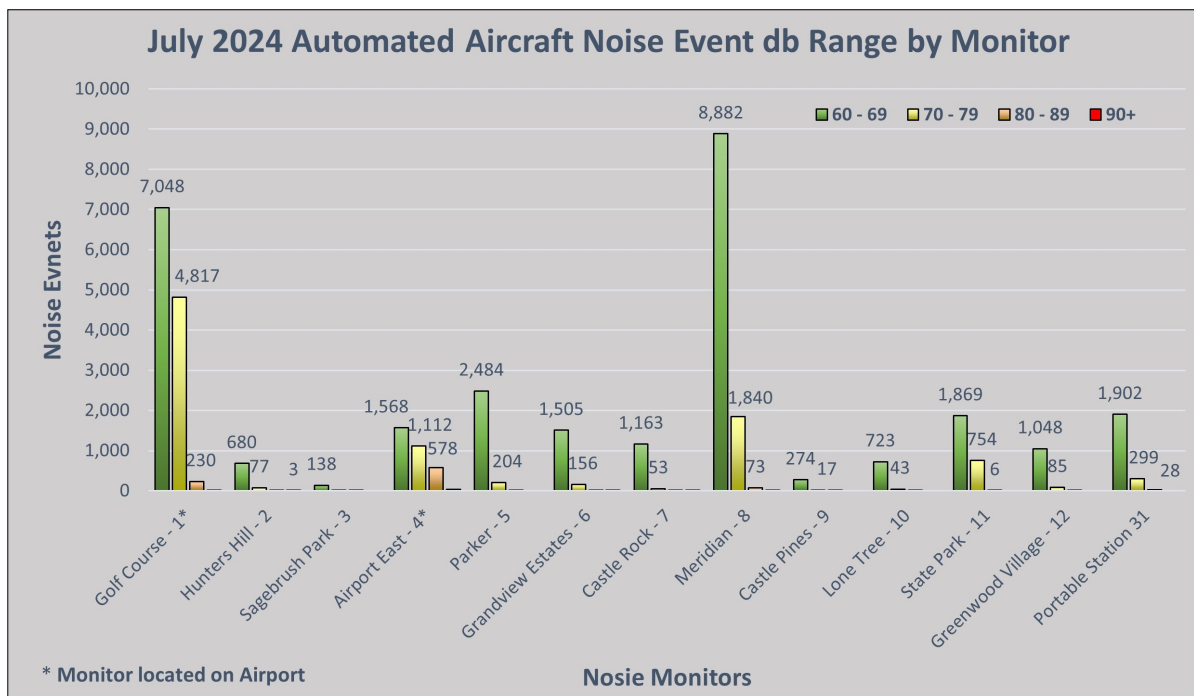
First, the noise event must exceed the ambient noise level. This number varies at every monitor, but is generally greater than 50-55db. Secondly, the noise event must last longer than 5 seconds. Lastly, using radar data, the system must correlate an aircraft with the noise event. This ensures that the 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*	7,048	4,817	230	10	12,105
Hunters Hill- 2	680	77	12	3	772
Sagebrush Park- 3	138	10	3	0	151
Airport East- 4*	1,568	1,112	578	33	3,291
Parker- 5	2,484	204	6	0	2,694
Grandview Estates- 6	1,505	156	15	1	1,677
Castle Rock- 7	1,163	53	2	1	1,219
Meridian- 8	8,882	1,840	73	5	10,800
Castle Pines- 9	274	17	1	0	292
Lone Tree- 10	723	43	7	0	773
State Park- 11	1,869	754	6	0	2,629
Greenwood Village- 12	1,048	85	7	0	1,140
Portable Station 31	1,902	299	28	0	2,229
Totals	29,284	9,467	968	53	39,772

*Monitor located on Airport



7. JULY 2024 NOISE COMPLAINT STATISTICS

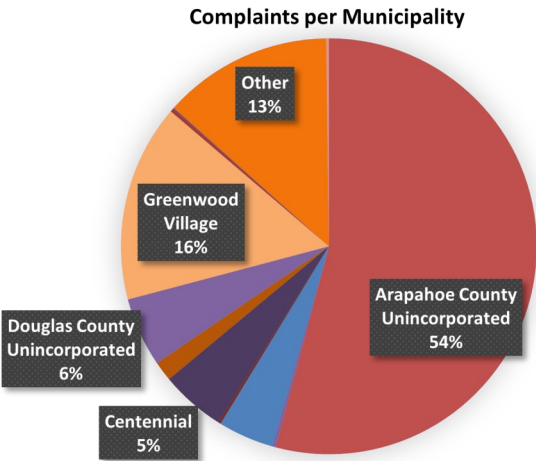
In July, Centennial Airport received 1,432 complaints from 90 households

July Noise Complaints			YTD		Population
Municipality	Complaints	Households	Complaints	Households	
Arapahoe County Unincorporated	775	34	3,918	90	98,066
Aurora	4	1	28	5	399,913
Castle Pines	62	1	66	2	14,000
Castle Rock	3	3	54	5	86,000
Centennial	72	4	663	9	108,422
Cherry Hills Village	0	0	0	0	6,442
Denver	22	1	207	3	715,522
Douglas County Unincorporated	77	9	330	15	276,493*
Greenwood Village	220	18	2,260	63	15,691
Highlands Ranch	4	4	11	7	103,444
Lone Tree	1	1	20	10	14,253
Parker	3	3	28	7	68,000
Other	189	11	694	27	UNK
Total	1,432	90	8,279	243	1,906,246

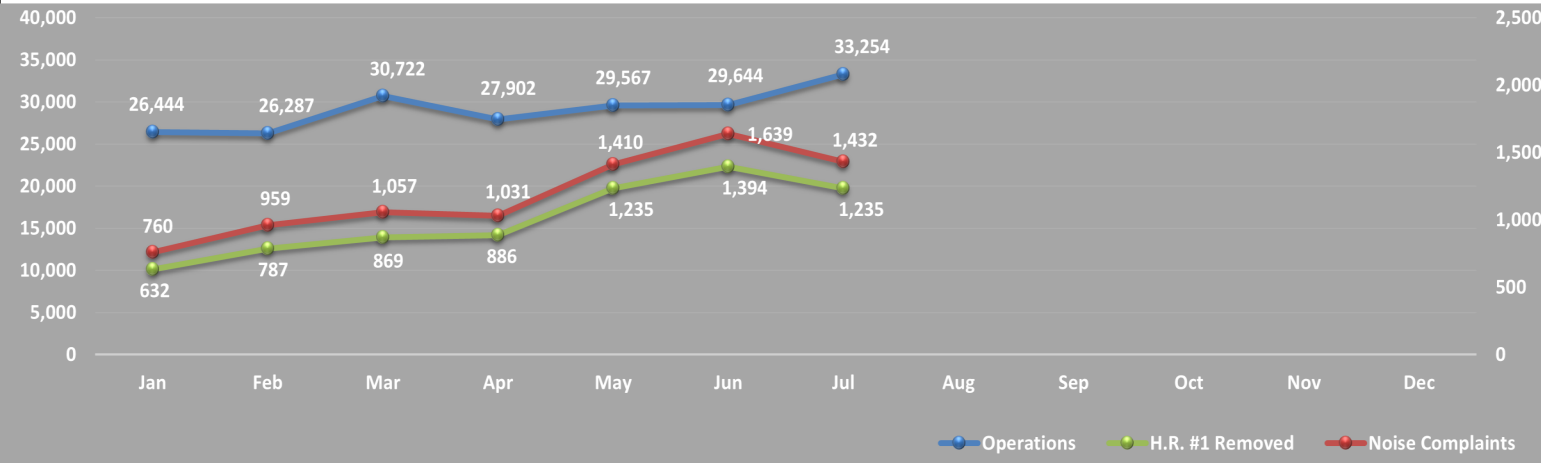
*Douglas County Unincorporated Population with Highlands Ranch Removed

July 2024 Noise Complaint Responses Completed	
Email	133
Phone	14
Total	147

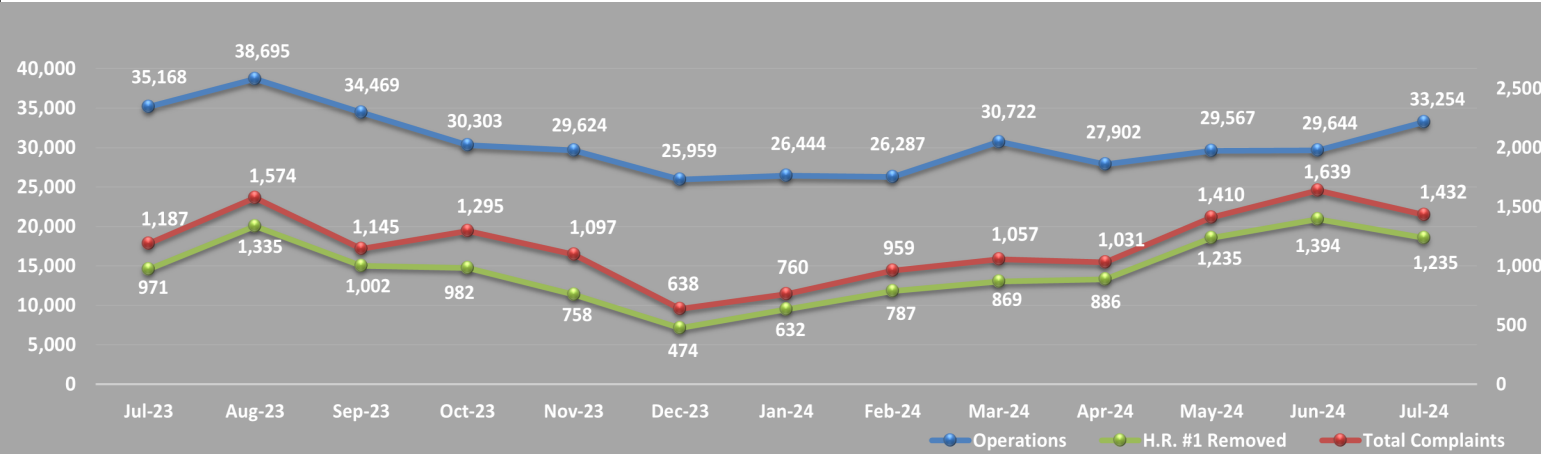
Time Complaint Received	July
Day Hours (7:00 am - 9:59pm)	1,161
Night Hours (10:00 pm - 6:59 am)	271
TOTAL	1,432



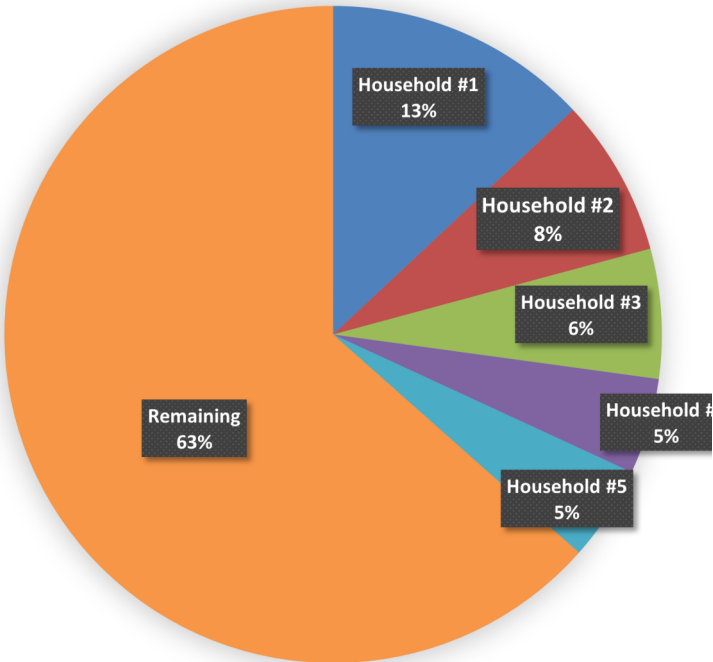
Current 12 Month Trend



Previous Year 13 Month Trend



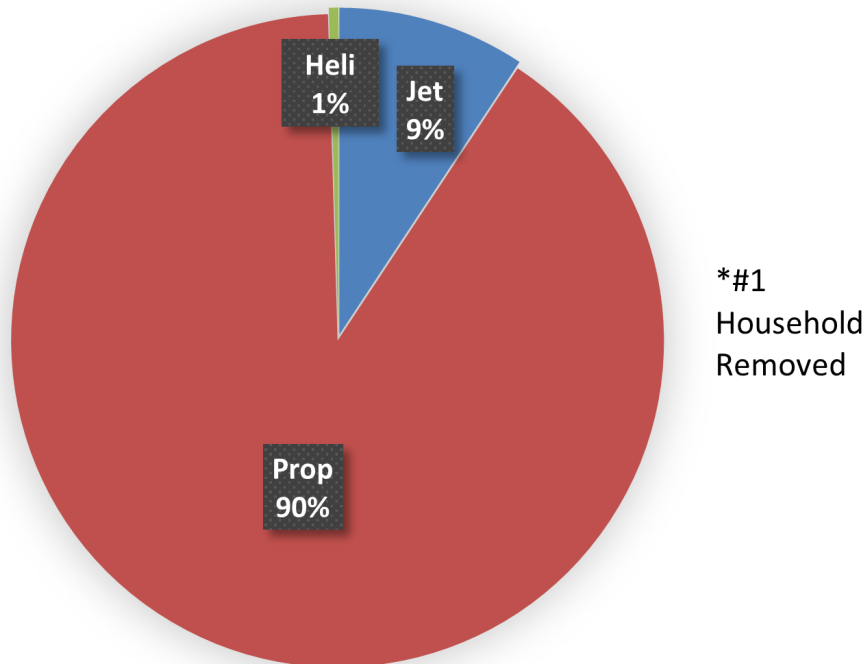
Top 5 Household Complaints YTD



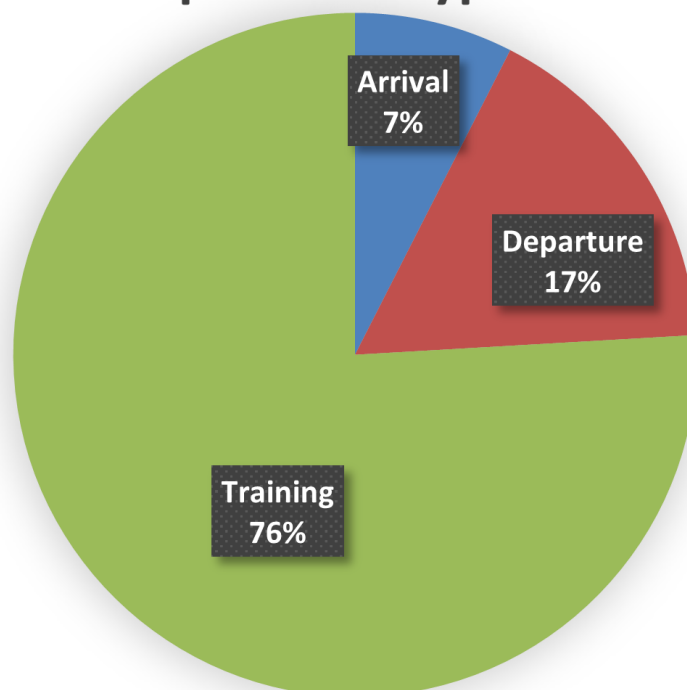
Top 5 Household Complaints YTD

Household	Complaints	Resides In
Household #1	1,079	Arapahoe County
Household #2	644	Centennial
Household #3	528	Other (Elizabeth)
Household #4	391	Greenwood Village
Household #5	387	Arapahoe County
Remaining	5,250	
Total	8,279	

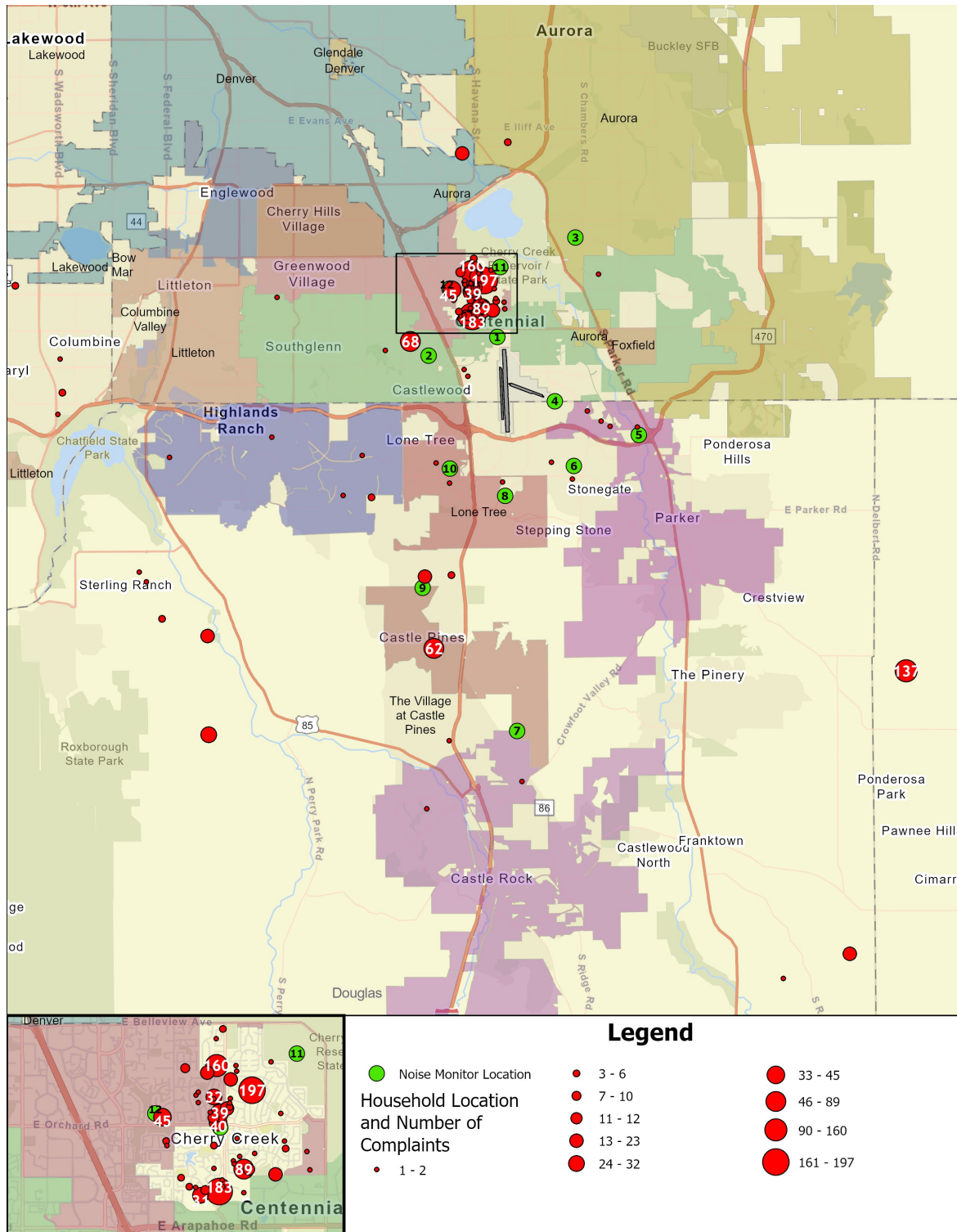
Complaints by Aircraft Type



Complaints by Operation Type



8. CENTENNIAL AIRPORT COMPLAINT MAP



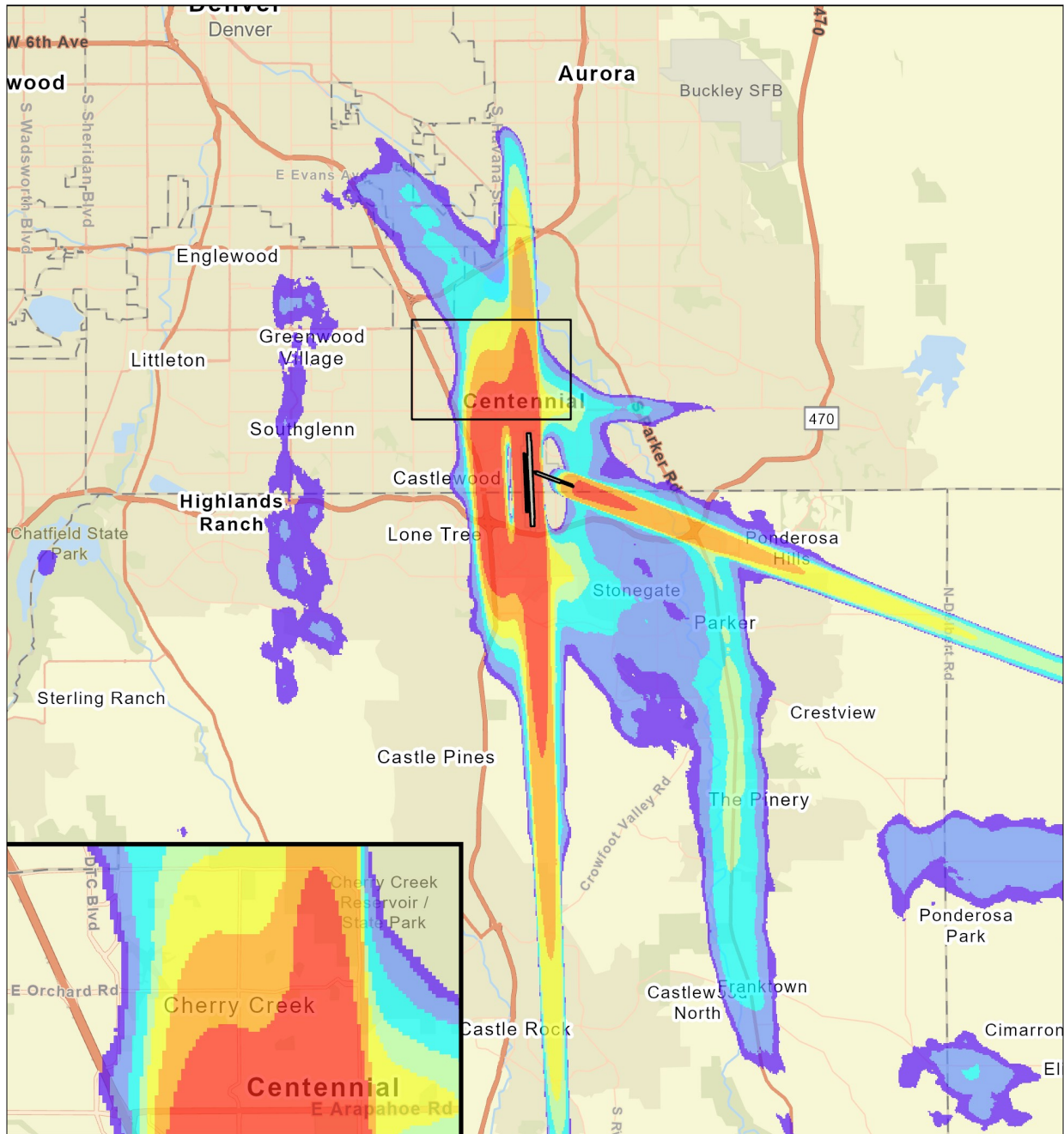
**Larger dots equate to more complaints for that household.

**3 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.

July 2024 Flight Tracks associated with Centennial Airport



Lower Density Traffic

Higher Density

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**.



Noise Hotline: 303-790-4709

www.centennialairport.com



Our Vision

Quieter Skies for Our Communities

Mission Statement

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.

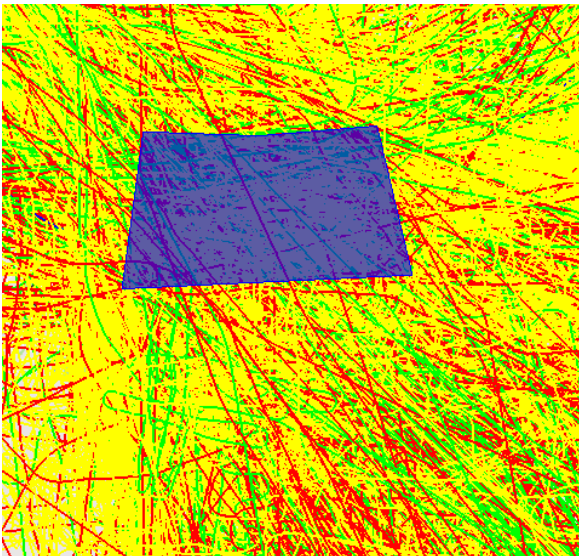
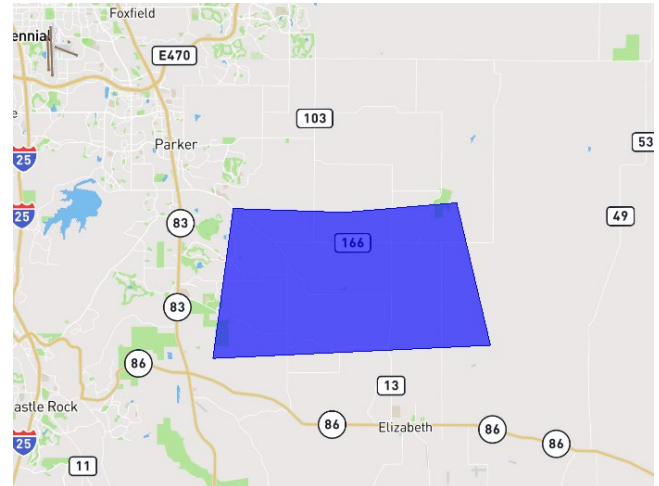
CENTENNIAL AIRPORT COMMUNITY NOISE ROUNDTABLE

August 7th, 2024 MEETING

- PART 150 Study Update/Progress: Mead and Hunt
 - Centennial Airport Noise and Compatibility Study Update
 - Aviation Noise 102 – Response to Roundtable Questions
- Response Letter to FAA Administrator Stone – Chris Eubanks
- Public Comment Received
 - Franktown, Greenwood Village, Douglas County, Arapahoe County, Elizabeth and Louviers

3 Towers Practice Box Flight Track Analysis July 2023 v. July 2024

The selection zone on the right encompasses the 3 Towers practice box. The zone extends from the surface to the bottom of the Denver Class B Airspace. All KAPA flight tracks that passed through that zone were captured and presented below. Complaint data for both are provided as well. July was selected as that tends to be one of the busiest months annually.



July 2023

Arrivals – 649

Departures – 490

Training – 1,376

Total Aircraf Overflights within 3 Towers Box – 2,515

Total Noise Complaints in 3 Towers Practice Box in July 2023 –
1 Complaint from 1 Households

July 2024

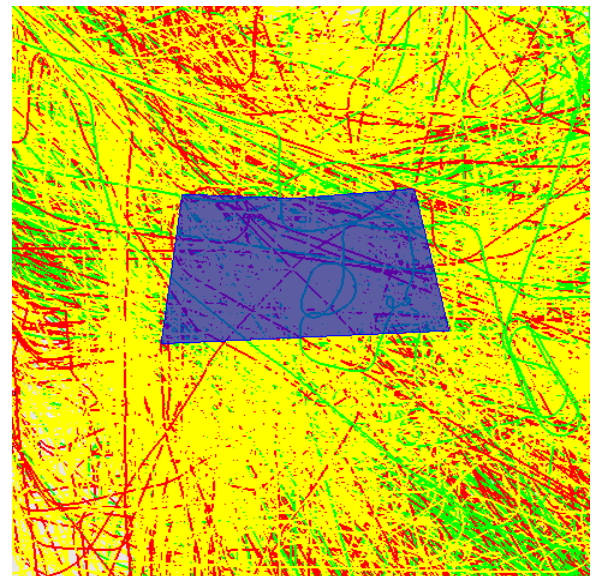
Arrivals – 961

Departures – 703

Training – 1,967

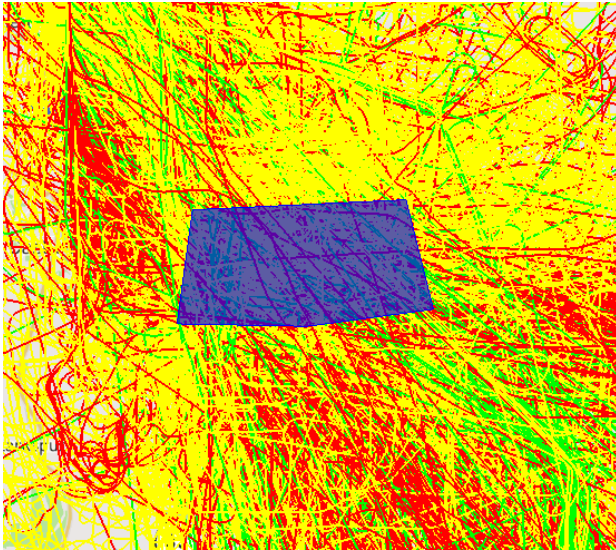
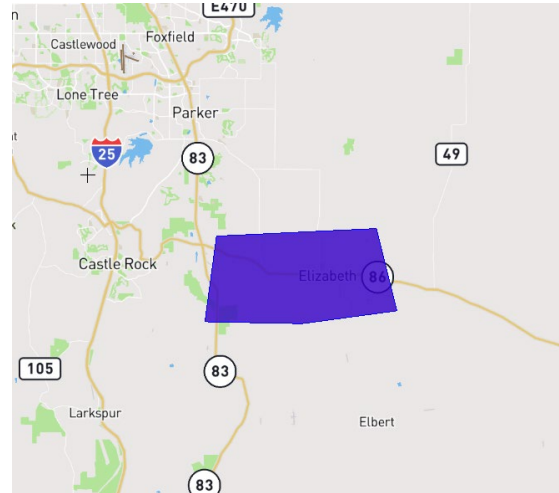
Total Aircraf Overflights within 3 Towers Box – 3,631

Total Noise Complaints in 3 Towers Practice Box In July 2024 –
137 Complaints from 1 Household



Elizabeth Practice Box Flight Track Analysis July 2023 v. July 2024

The selection zone on the right encompasses the Elizabeth practice box. The zone extends from the surface to the bottom of the Denver Class B Airspace. All KAPA flight tracks that passed through that zone were captured and presented below. Complaint data for both are provided as well. July was selected as that tends to be one of the busiest months annually.



July 2023

Arrivals – 748

Departures – 417

Training – 1,395

Total Aircraf Overflights within Elizabeth Box – 2,560

Total Noise Complaints in Elizabeth Practice Box in July 2023 –
2 Complaints from 1 Households

July 2024

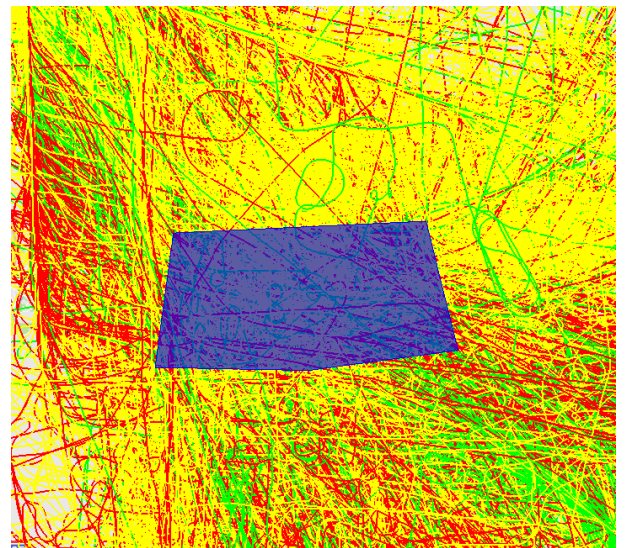
Arrivals – 858

Departures – 492

Training – 1,609

Total Aircraf Overflights within Elizabeth Box – 2,959

Total Noise Complaints in Elizabeth Practice Box In July 2024 –
25 Complaints from 2 Households





NOISE ABATEMENT GUIDELINES

VOLUNTARY NOISE ABATEMENT GUIDELINES

IN ALL CASES SAFETY AND ATC INSTRUCTIONS TAKE PRECEDENCE! The following guidelines are recommended voluntary practices to minimize sound levels in the vicinity of Centennial Airport.

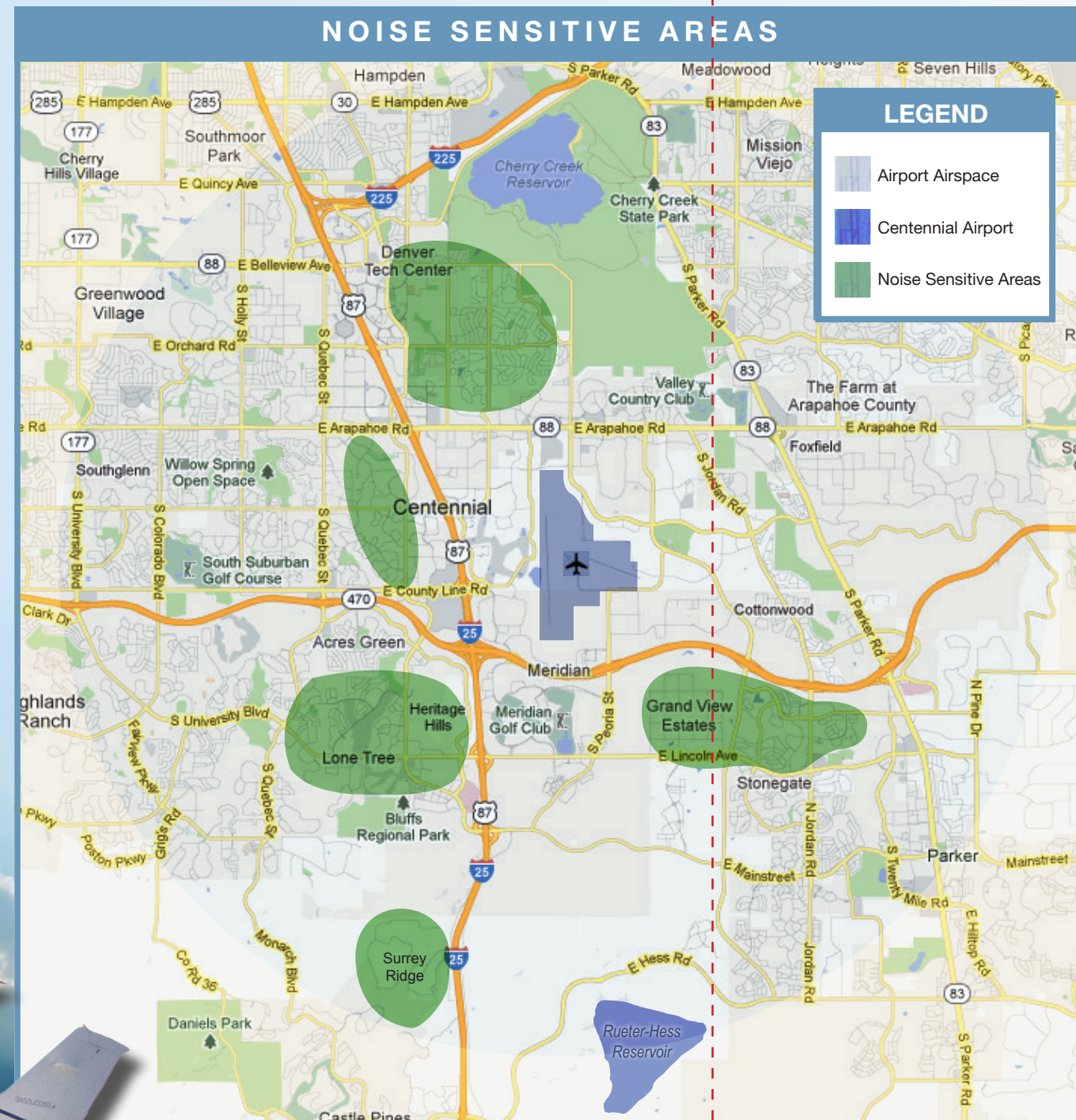
General Guidelines:

Traffic pattern altitude 6,885 ft. MSL (1,000 ft. AGL).

If possible, avoid noise sensitive areas as shown in green on the Noise Sensitive Areas map.

Terrain rises significantly to the south, southwest and west of Centennial Airport. Please adjust altitude accordingly.

For additional information regarding aircraft noise abatement, please call the Centennial Airport Noise Office at 303-790-0598.



All Aircraft:

Avoid flight training and ILS training operations between 10:00pm and 7:00am.

Make power setting changes slowly.

Observe noise abatement signs at runway departure ends.

Avoid noise sensitive areas when able.

Jet Aircraft:

Follow NBAA noise abatement guidelines.

Minimize use of reverse thrust.

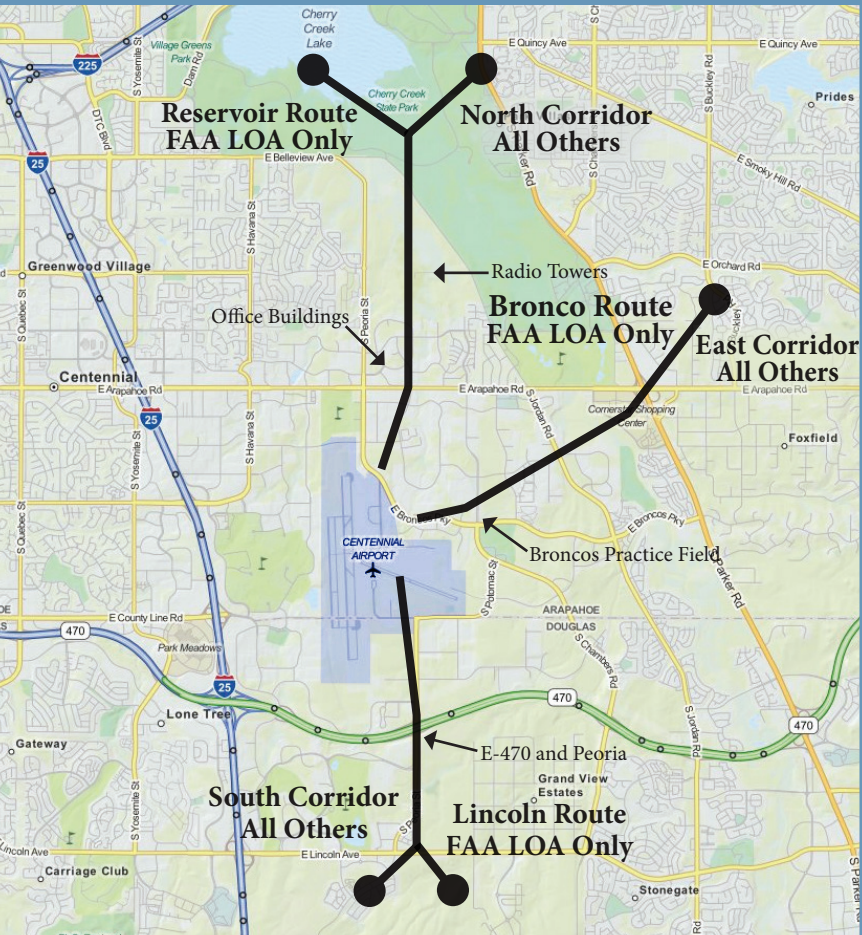
Use thrust reduction techniques.

This document has been developed and approved by the Centennial Airport Community Noise Roundtable.





VOLUNTARY HELICOPTER ROUTES



Helicopters:

Helicopter operators please contact tower for preferred noise abatement routes.

Avoid noise sensitive areas when able.

VOLUNTARY TOUCH & GO GUIDELINES



IN ALL CASES SAFETY AND ATC INSTRUCTIONS TAKE PRECEDENCE!

Propeller Aircraft:

Wind permitting, request runway 10-28 for arrival and departure.

Take off and climb at best angle of climb (V_x) to 500 ft. then best rate (V_y).

Reduce prop RPM as soon as possible and do not increase RPM until on short final for landing.

Avoid intersection take offs.

When cleared for landing or take off, remain South of Arapahoe Rd if possible.

Avoid noise sensitive areas when able.

If traffic pattern volume becomes saturated causing extended pattern length beyond the suggested Arapahoe Road and Lincoln Avenue boundaries then consider returning at less busy time to remain within the depicted traffic pattern.

APA Pilot Information

Coordinates

N39°34.21' W104°50.96'

Field Elevation

5883'

Airport Frequencies

DEN App/Dep	132.75	
ATIS	120.3	303-799-6722
CLNC DEL	128.6	
FSS	122.2	800-428-7652
ILS/DME	111.3	
Ground	121.8	
Tower	118.9	
	123.7	
	124.6	
	127.25	
Denver Jet Center (FBO)	130.58	303-790-4321
Signature (FBO)	129.73	303-799-8388
TAC Air (FBO)	130.08	303-790-2575
The Heliplex (Helicopter FBO)	130.275	303-799-8877
X-Jet (FBO)	129.625	877-649-9538

Instrument and Visual Approaches

RY 17L	PAPI/RNAV GPS
RY 17R	PAPI/REIL
RY 35L	PAPI/REIL/ILS sidestep approach
RY 35R	ILS or LOC/DME RNAV GPS/MALS/PAPI
RY 28	RNAV GPS PAPI/REIL

Runway Dimensions

RY 17L/35R	10,001' x 100'
RY 17R/35L	7,001' x 77'
RY 10/28	4,800' x 75'

Runway Design Weight

75,000 lbs MGTOW Stage III;
weights exceeding 75,000 lbs require permission from the Airport Authority.

FAA Departure Procedures

All departures advise Ground Control when run up is complete. Remain on Ground Control Frequency until advised.

Websites

www.centennialairport.com
www.centennialnoiseroundtable.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 and Fall Passage
 - November Election Impacts on Budget and Policy
 - Infrastructure Investment and Jobs Act of 2021 (IIJA) Programs
- GA / Unleaded Fuel Provisions Overview
- FAA Reauthorization
 - Timeline of passage
 - Notable Noise provisions and Administration Regulatory Process
Moving forward
- FAA and Community Advocacy

**Centennial Airport Community Noise Roundtable
Study Group Committee**

Quarter 2 2024 Update Report

September 4th, 2024

Report #4

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EXECUTIVE SUMMARY

This is the fourth progress report of the Centennial Airport Community Noise Roundtable (CACNR) Study Group Committee (Study Group) and covers the work done in Q2 of 2024 over the course of six 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. The 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 third report focused on data analysis specifically comparing Q1 of 2023 and 2024. The content from the first three 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

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. 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. 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 28th 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 completed and submitted updated Chart Supplement information to the FAA for publication. Updates will appear in the September 5th edition of the Southwest US Chart Supplement. Updated language as well as a graphical depiction of noise abatement information was added. This information includes several aspects of the airport's Voluntary Noise Abatement Guidelines including the preferred pattern area and a graphical depiction of noise sensitive areas.

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 second meeting of 2024 is scheduled for August 15th. Air Traffic Personnel to discuss several operational and safety factors at the airport. Airport staff will discuss Noise Abatement Guidelines, practice area usage, and look at current noise data. The last meeting of 2024 is expected to take place in Q4 of 2024.

ACPAA Operations Strategies

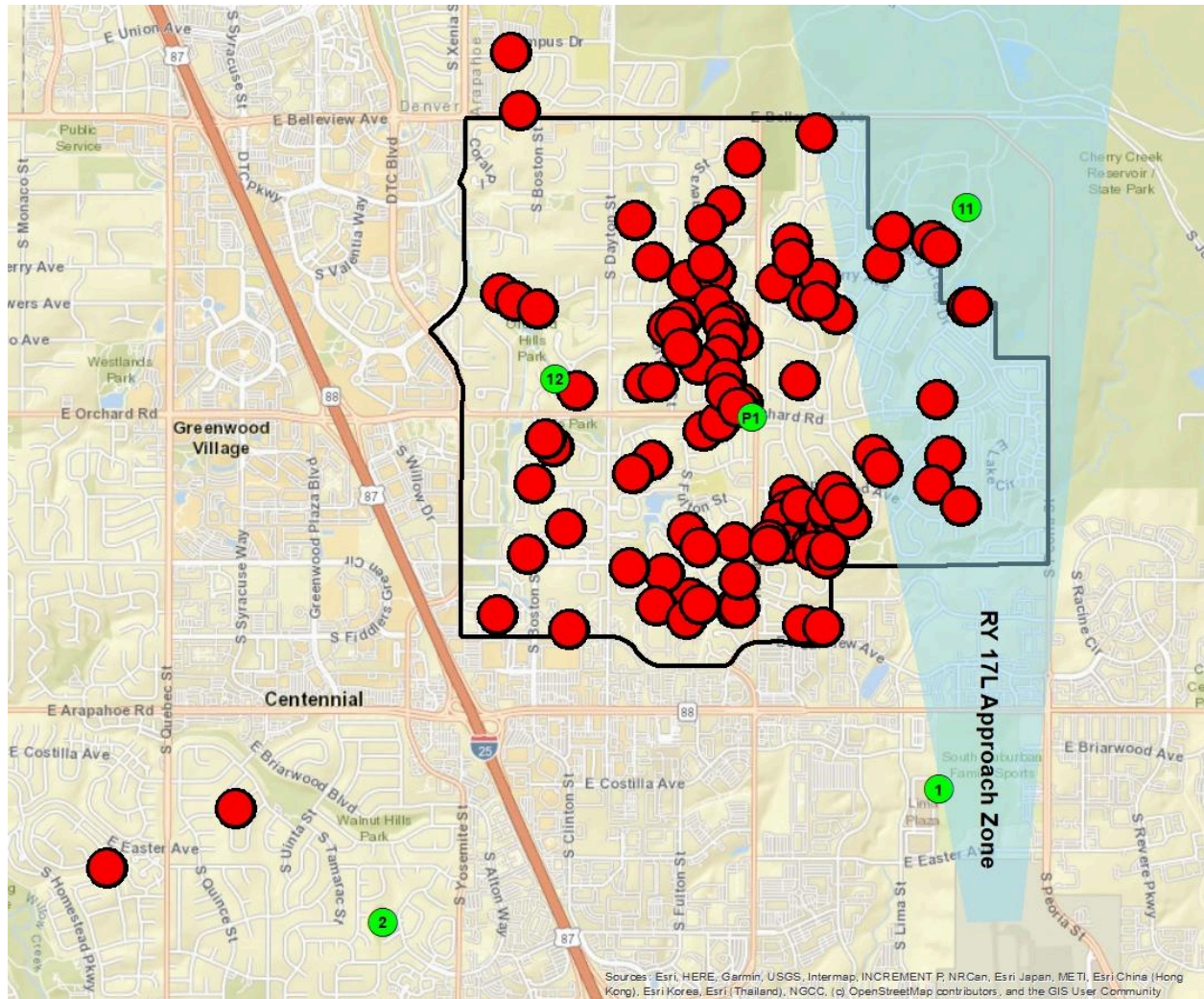
To provide methods to proactively identify and measure improvements in community noise exposure and the effectiveness of the implemented mitigation strategies.

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 Q2 2024 the operators of six 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 turn¹ 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 Landing²:** 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 Aircraft⁴:** 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 final⁵ and enhances safety with positive control⁶, 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.

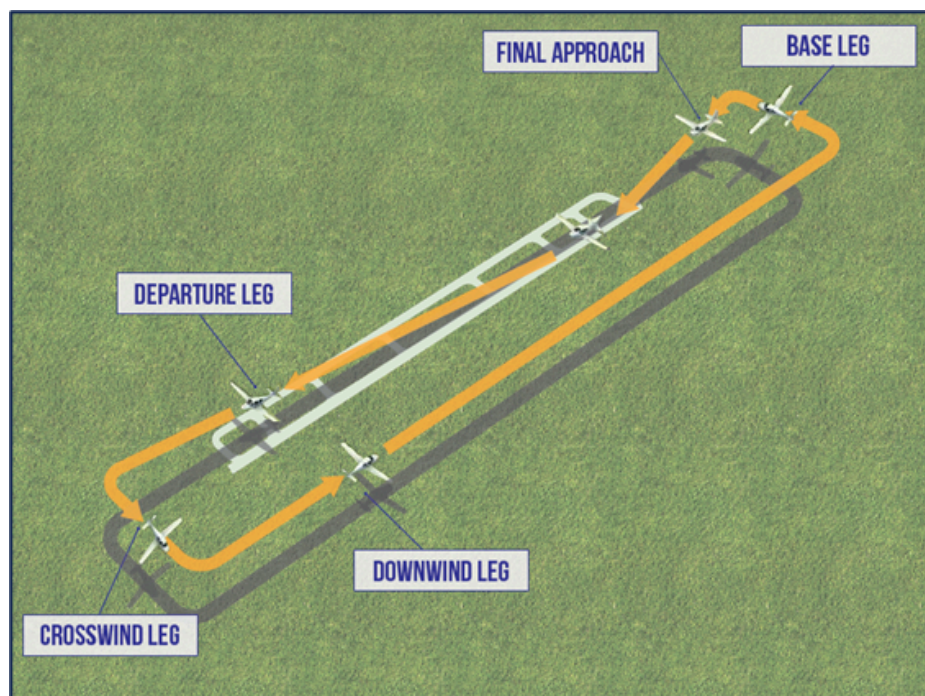
- **Traffic Flow Management:** Coordinating base turns allows air traffic controllers to manage the flow of traffic into the airport, preventing congestion and ensuring that aircraft are spaced out to avoid conflicts.
- **Conflict Resolution:** In busy airspace, it's crucial to have a clear plan for 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.



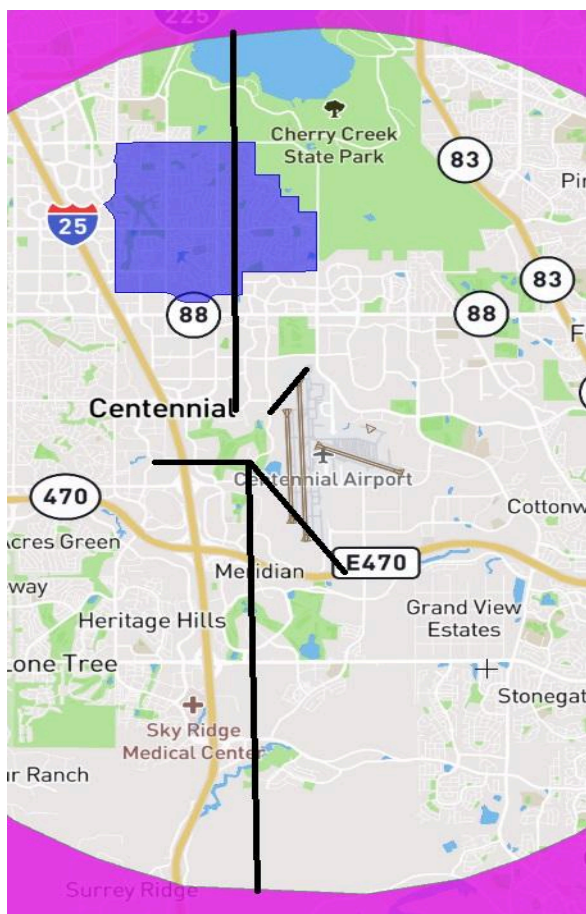
STUDY AREA DATA ANALYSIS

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 second quarter of 2023 to the second 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.

Q2 2023 v. Q2 2024 ANALYSIS

SUMMARY

The total number of touch-and-go aircraft decreased in Q2 2024 versus Q2 2023. The total number of aircraft entering the study area decreased in Q2 2024 compared to Q2 2023. Said another way, there was a reduction in the *number* of overflights over the study area between Q2 of 2024 versus 2023. However, there was a slight increase in *percentage* of touch-and-go aircraft entering the study area (showing the relative percentage of flights normalized for overall operations). Discussions with Air Traffic Control and ACPAA indicated that some of the factors that could have played into this were airport flow configuration (north versus south), runway closures for maintenance and challenging weather days (less visibility, hotter temperatures, etc.).

As the study group continues to analyze the flight track data and prepare the quarterly reports, data may be presented in new ways to further enhance the understanding of the touch-and-go aircrafts' impact on the study area. This and previous quarterly reports capture a snapshot in time and it is practical and reasonable to look at the overall trend of aircraft entering versus not entering the study area. While several of the study group's mitigations have been implemented, it is important to note that external factors such as weather and total number of flight operations out of Centennial Airport are not within the study group's control. It is necessary to gather and analyze an adequate dataset since the study group's mitigations have been implemented to show their effectiveness.

****Disclaimer:*** *The Study Group recognizes that data integrity is of the utmost importance when publishing these reports. Since the 2024 Q1 report, new data collection methods have been implemented furthering the accuracy of the data presented.*

FIGURE 1

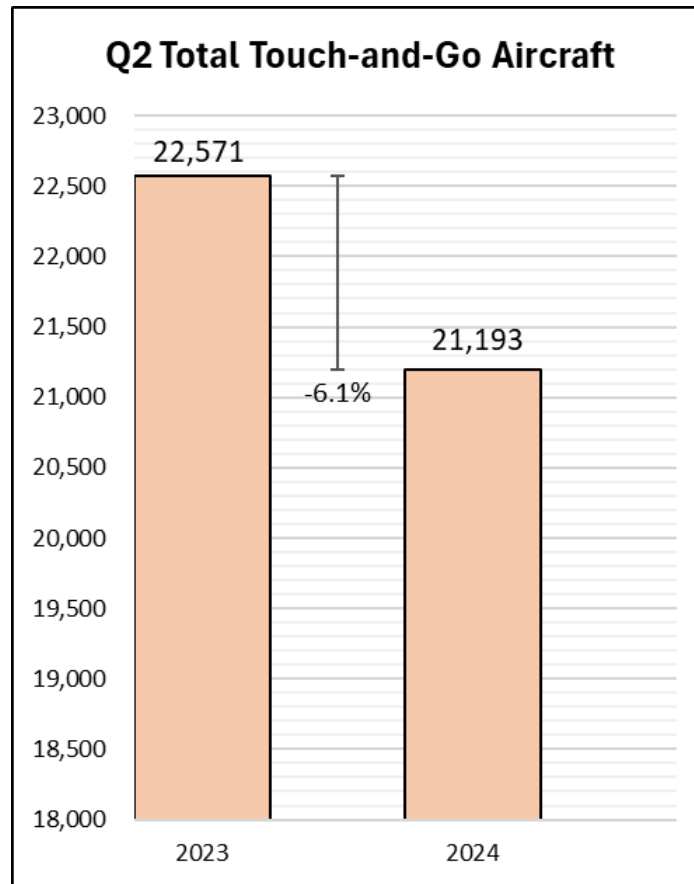


Figure 1 shows a comparison of Q2 2023 v. Q2 2024 and the total number of touch-and-go aircraft. In Q2 2023 there were 22,571 touch-and-go aircraft, while in Q2 2024 there were 21,193 touch-and-go aircraft. From Q2 2023 to Q2 2024 there was a 6.1% decrease in touch-and-go aircraft.

Takeaways:

- Total touch-and-go aircraft were down 6.1% in Q2 2024 compared to Q2 2023.

FIGURE 2

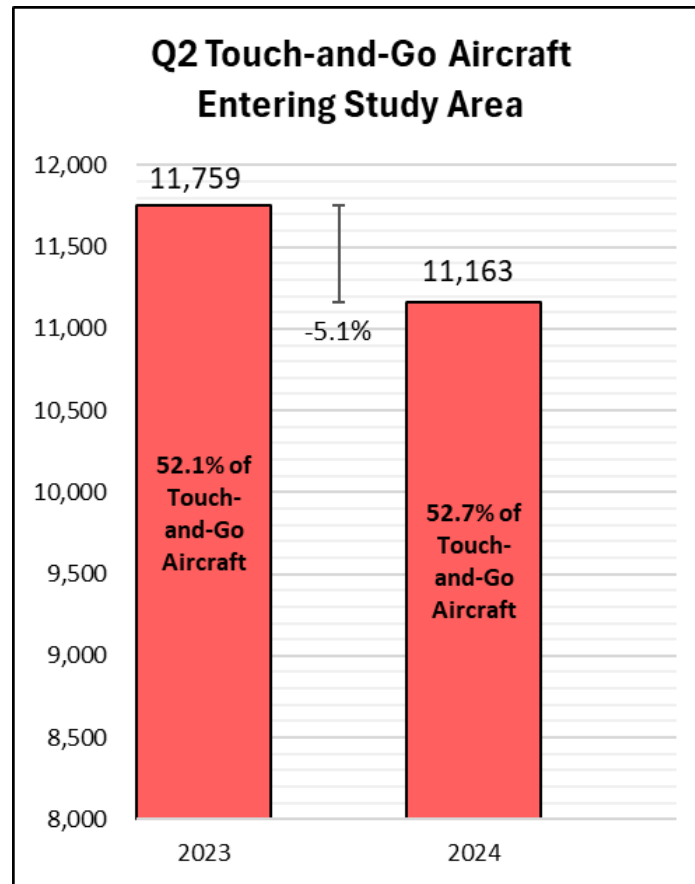


Figure 2 shows the number of touch-and-go aircraft that entered the study area (i.e. aircraft that went North of Peakview Ave.). In Q2 2023 11,759 aircraft and in Q2 2024 11,163 aircraft entered the study area. In Q2 2023 52.1% and Q2 2024 52.7% entered the study area relative to the total number of touch-and-go aircraft (Figure 1). From Q2 2023 to Q2 2024 there was a 5.1% decrease in touch-and-go aircraft that entered the study area.

Takeaways:

- 11,163 aircraft flew North of Peakview Ave. and overflowed the communities to the North in Q2 2024.
- There was a 5.1 % decrease in Q2 2024 compared to Q2 2023 of aircraft entering the study area.
- 0.6% more of total touch-and-go aircraft (difference in percentages within green bars) entered the study area in Q2 2024 compared to Q2 2023.

FIGURE 3

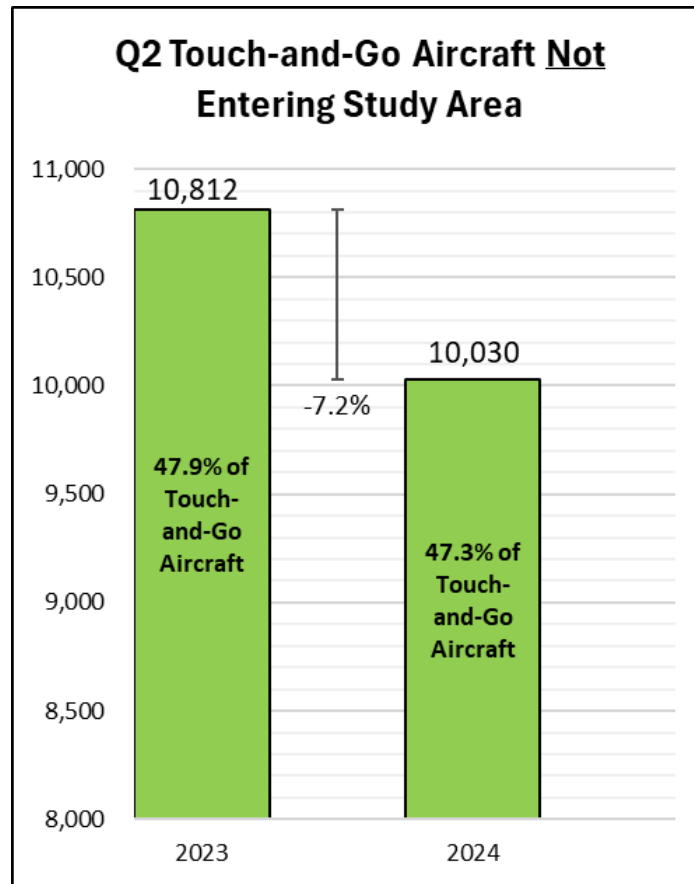


Figure 3 shows the number of aircraft that remained outside the study area (i.e. did not go North of Peakview Ave.). In Q2 2023 10,812 aircraft and in Q2 2024 10,030 aircraft remained outside the study area. In Q2 2023 47.9% and Q2 2024 47.3% did not enter the study area relative to the total number of touch-and-go aircraft (Figure 1). From Q2 2023 to Q2 2024 there was a 7.2% decrease in touch-and-go aircraft that remained outside the study area.

Takeaways:

- 10,030 aircraft remained South of Peakview Ave. and did not overfly the communities to the North in Q2 2024.
- There was a 7.2 % decrease in Q2 2024 compared to Q2 2023 of aircraft not entering the study area.
- 0.6% less of total touch-and-go aircraft (difference in percentages within green bars) did not enter the study area in Q2 2024 compared to Q2 2023.

FIGURE 4

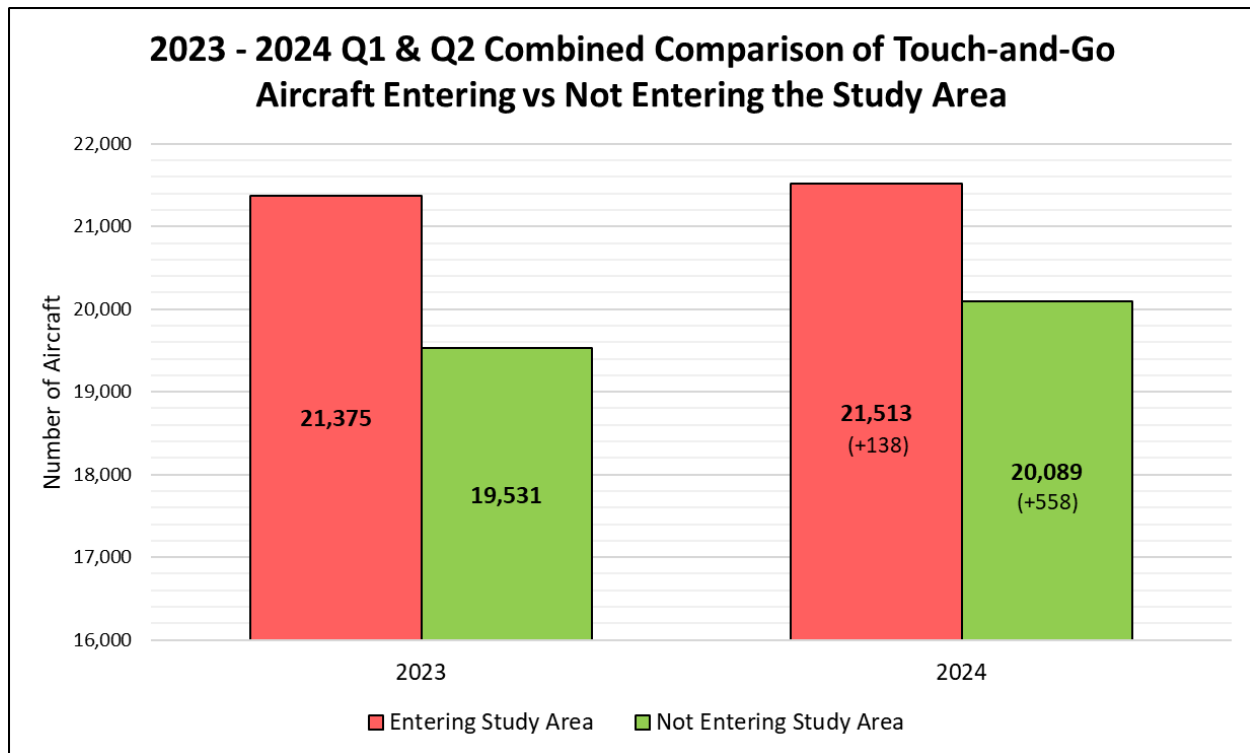


Figure 4 shows Q1 and Q2 combined to compare 2023 and 2024 of the number of aircraft entering versus not entering the study area. 2024 had 138 more aircraft entering the study area and 558 more aircraft not entering the study area compared to 2023. The first two quarters of 2024 showed an increase in overall touch-and-go aircraft compared to 2023; however, within the overall touch-and-go aircraft increase, there was a larger amount of aircraft not entering the study area compared to entering the study area.

Takeaways:

- The first two quarters of 2024 compared to 2023 saw an increase of 696 total touch-and-go aircraft--558 of which did not enter the study area and 138 did enter the study area.

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](#).