CENTENNIAL AIRPORT

Community Noise Roundtable Study Group Committee

First Quarter 2026
Update Report
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Report #11

CENTENNIAL AIRPORT

CACNR
Centennial Airport
Community Noise Roundtable

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EXECUTIVE SUMMARY

The first quarter (Q1) 2026 report of the Centennial Airport Community Noise Roundtable (CACNR) Study Group Committee (Study Group) provides the progress on the mitigation efforts and possible results from those efforts to address the use of the extended traffic pattern by training aircraft at Centennial Airport (APA).

Touch-and-go activity in the Study Area declined from Q1 2025 to Q1 2026. In Q1 2026, 6,499 aircraft entered the Study Area, down from 7,408 in Q1 2025, reducing the entry rate from 44.0% to 37.1%.

This is the eleventh progress report from the Study Group. The first report focused on the establishment of the Study Group and six mitigation strategies the Study Group identified as viable that could be implemented in the near term or before the summer of 2024. The second report focused on mitigation strategies adopted in the fourth quarter of 2023 as well as mitigation strategies the Study Group has considered but not adopted. The third report focused on data analysis specifically comparing the first quarters of 2023 and 2024. The fourth reports onward focus on data analysis of their respective quarters. This report is focused on data analysis specifically comparing the fourth quarters of 2024 and 2025. Notable updates (all updates to previous information indicated in blue) reported in this Q1 2026 report include:

1. Proactive Outreach & Education to Flight Schools – report page 13
2. Proactive Checking of Extended Traffic During Nighttime Hours – report page 14

Suggestions and potential mitigations from the Roundtable and/or the public can be submitted to the Study Group for consideration using the Google Form provided in this document. For more information on previously submitted suggestions please refer to the **Feedback and Considerations for the Study Group** section on page 30 of this report.

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, preparing and publishing these progress reports on a quarterly basis is a Study Group goal. There may be delays in providing these quarterly reports, like the Q1 2024 Report. Our community's continued patience and understanding is appreciated as we work diligently to solve this complex problem of aircraft using the extended downwind traffic pattern for training purposes.

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 Back - 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

Minimum Standards – prescribe regulations for the conduct of commercial aeronautical activity as Centennial Airport and specific certain clauses which will be included in lease agreements permitting the conduct of such activities.

NATCA - National Air Traffic Controllers Association

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

Operation – Takeoff, landing, low-approach or missed approach. A touch-and-go consists of 1 take-off and 1 landing (2 total operations).

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 racetrack 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 to the north and west of Centennial Airport began reporting an increase in flights on the extended aircraft traffic pattern over their communities, resulting in them reporting a degradation in their quality of life.

About the Study Group

Community, Centennial Airport Community Noise Roundtable (CACNR), Arapahoe County Public Airport Authority (ACPAA) Board, and Airport 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 effectively proceed 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 Airport 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 and address the community annoyance created by the extended traffic pattern. This group was solely tasked with addressing annoyance directly related to noise exposure from aircraft on the extended traffic pattern 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 & Hunt and HMMH 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, as presented in the table below, 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

Member	Position	Affiliation(s)
Brad Pierce	Chair	CACNR member, N.O.I.S.E. President, former Aurora City Council member
Chris Eubanks	Member	CACNR Chair, Pilot, Castle Pines City Council member
Jessica Campbell	Member	ACPAA Board member, Arapahoe County Commissioner (Dist. 2)
Mike Fronapfel	Member	ACPAA Executive Director, CACNR ex-officio member
	Member(s)	Flight school representatives as available
	Member	FAA Management
	Member	Airport Traffic Control
	Member	National Air Traffic Controllers Association
Kate Andrus	Advisor	Part 150 Consultant to APA – PM
Gene Reindel	Advisor	Part 150 Consultant to APA – Noise
Airport Staff	Technical Advisors	APA Noise Office

History of Study Group

The first Study Group 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. Beginning with the fourth meeting, the Study Group focused on identifying mitigation strategies, data and information needed, feedback from members and technical experts on the viability of potential strategies, and results of implementation measures through data analysis by the Airport staff.

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.

During the third quarter of 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 from the angle of the overflights it seeks to reduce, 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 potential effect on 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:	Completed 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:	Noise Abatement Information updates are now fully published in the SW US Chart Supplement. Airport Staff completed and submitted updated Chart Supplement information to the FAA for publication. 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 eighth meeting took place on January 21st. 15 flight school representatives attended. Air Traffic Personnel discussed safety, best practices and staffing levels. BridgeNet International discussed Flight School Flight Quiet Dashboard scoring methodology. Airport staff discussed Noise Abatement Guidelines, practice area usage, and presented Q4 2025 Study Group Report. The second meeting of 2026 is April 15th.

Flight School Fly Quiet Dashboard	
Adopted Mitigation Strategy:	Develop and implement a Flight School Fly Quiet (FSFQ) Dashboard to measure how flight schools are adhering to Centennial Airport's Noise Abatement Guidelines through operational and training and outreach performance metrics.
Problem Mitigation Addresses:	Historically, there has not been a consistent or transparent method for flight schools to monitor their own adherence to Centennial Airport's voluntary Noise Abatement Guidelines. This measure addresses the need for ongoing performance feedback, accountability, and awareness.
Reduction of Noise Exposure:	The dashboard is intended to encourage operational improvements that influence community noise, by providing regular feedback. Over time, increased adherence to Noise Abatement Guidelines may help reduce community noise exposure.
Safety:	Maintained
Noise:	Potential reductions
Authority to Approve:	ACPAA
Responsible for Implementation:	ACPAA, Study Group
Implementation Date:	January 1, 2026
Explanation:	The ACPAA and Study Group worked with an aviation consulting team experienced in developing Fly Quiet programs at airports across the country to create the FSFQ Dashboard. The dashboard evaluates flight schools using a combination of flight-operation and ground-based performance measures. Examples of metrics include adherence to noise abatement guidelines and the incorporation of written noise abatement documentation into Standard Operating Procedures (SOPs) and other training materials. The purpose of the dashboard is to give flight schools regular, objective feedback so they can proactively improve performance.
Measurable Impact:	Q4 of 2025 served as a testing and calibration period for the dashboard. Feedback from flight schools, the Study Group, and the consulting team was incorporated prior to launch. Performance trends will be reviewed quarterly beginning in 2026 to evaluate participation levels, operational improvements, and potential long-term noise benefits.
Updates:	The FSFQ Dashboard went live on January 1, 2026. Individual scores and program observations will be reviewed with flight schools during the Quarterly Flight School Safety and Noise Abatement Meetings.

Flight School Fly Quiet Dashboard

Quarter 1 2026

Jan-26 - Mar-26 **Centennial Airport Flight School Fly Quiet Program**

Overall Scores

Flight School	Total Movements	OPERATIONAL (70 pts)	TRAINING AND OUTREACH (30 pts)	BONUS (10 pts Max)	TOTAL SCORE
School G	29	69.3	20.0	6.0	95.3
School E	1,168	58.1	20.0	9.0	87.1
School H	350	63.3	15.0	6.0	84.3
School C	6,310	56.8	20.0	5.4	82.1
School B	14,285	54.8	22.0	5.0	81.8
School A	10,810	53.2	20.0	4.0	77.2
School D	5,085	49.3	10.0	2.5	61.8
School F	926	57.4	-5.0	5.0	57.4

Flight School names are de-identified to encourage collaboration and continuous improvement rather than public ranking or competition. Presenting the data anonymously helps focus discussion on overall flight school trends, shared best practices, and program effectiveness instead of singling out individual flight schools. This approach also supports open participation by allowing flight schools to engage constructively with the program and use the results internally to improve performance.

ACPAA Operations Strategies

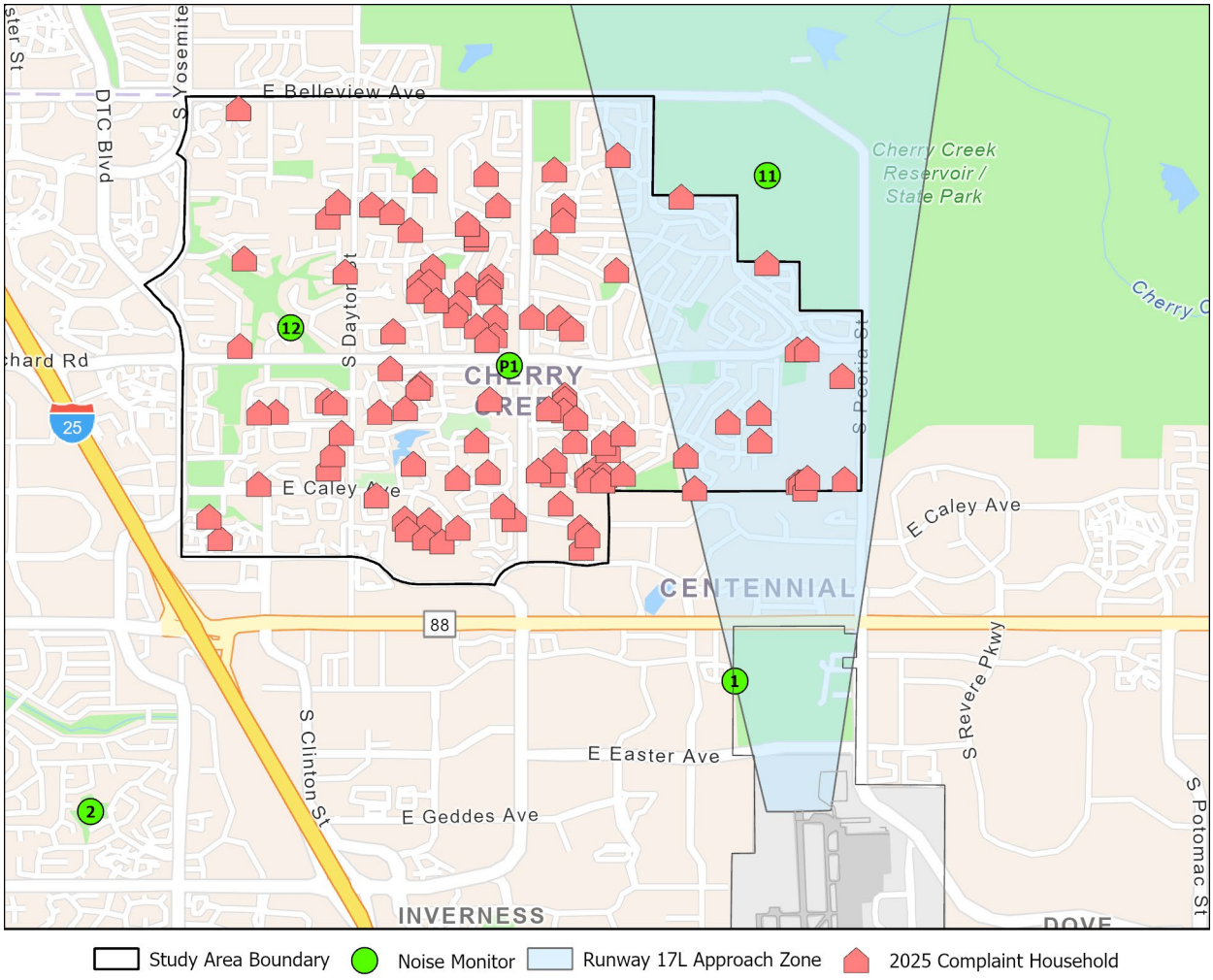
To provide methods to proactively identify and measure improvements in community noise exposure and the effectiveness of the implemented mitigation strategies.

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 Senior Noise Analyst in conjunction with the Senior Noise & Environmental Planner regularly look at nighttime outliers. In Q1 2026 **2 nighttime outlier aircraft** were identified and contacted by the Senior Noise & Environmental Planner 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:	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 polygons indicate households that filed complaints with the Airport in 2025. The black line represents the boundary of the Study Area. In this graphic, unlike those presented in monthly noise reports, polygons are not scaled based on the number of complaints. Complaints in the RY 17L Approach Zone are less in number. That area experiences a different pattern of traffic and is related but distinct from the areas to the west of the RY 17L Approach Zone.

MITIGATION STRATEGIES CONSIDERED BUT NOT ADOPTED

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

FAA-ATC STRATEGIES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The data above shows improved safety due to the mitigations that were compared to the years prior to the midair collision. The FAA's goal is to always improve safety, not reduce it. Air Traffic Controllers call base turns for aircraft for safety reasons and the FAA has seen an improvement in safety into APA because of the mitigation. Calling 17R base turns to "stagger" with traffic on 17L helps ensure safe and efficient operations for the following reasons:

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

has adequate space to complete their approach and landing.

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

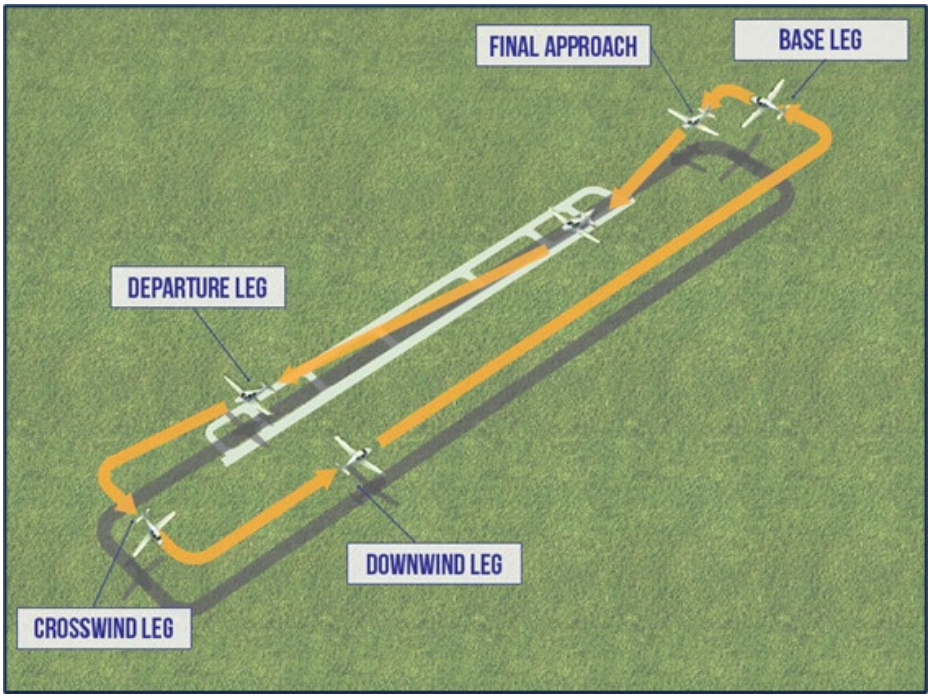
- **Conflict Resolution**: In busy airspace, it's crucial to have a clear plan for each aircraft descent and approach. Base turns help resolve any potential conflicts between arriving and departing aircraft, making the airspace safer and more organized.

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

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

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

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


FINAL APPROACH
BASE LEG
DEPARTURE LEG
DOWNWIND LEG
CROSSWIND LEG

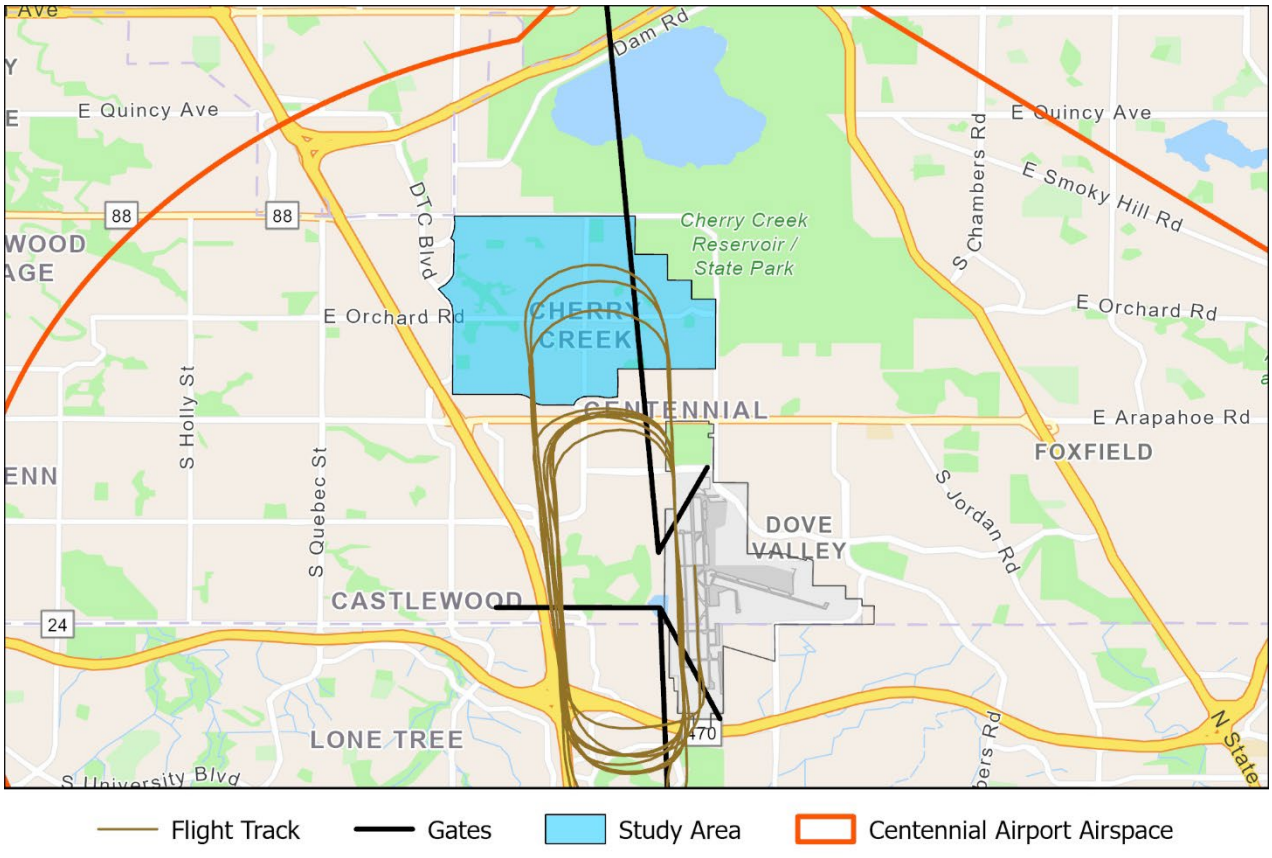
STUDY AREA DATA ANALYSIS

PURPOSE

The purpose of this data analysis is to quantify the number of touch-and-go aircraft operating within the Study Area, defined as the region located north of Peakview Avenue, south of Belleview Avenue, east of DTC Boulevard, and west of S. Peoria Street. This analysis compares the first quarters of 2024 - 2026.

DATA PROCESS/METHODOLOGY

Using Centennial Airport's Noise and Operations Monitoring System (ANOMS™), aircraft tracks were filtered to include only those passing through defined gates along the Runway 17R/35L traffic pattern. A gate serves as a "window in the sky," established in the ANOMS™ system, through which an aircraft track must pass to be considered part of the traffic pattern. All associated gates (shown below) must be traversed for an aircraft to be classified as established in the Runway 17R/35L traffic pattern. Various data processing methods were tested to identify the most effective approach for detecting community overflight activity. Additionally, Airport staff collaborated with the ANOMS™ vendor to verify data integrity and ensure that the processing methods used provide an accurate representation of aircraft activity. Examples of touch-and-go flight tracks captured from this process are shown below.



Q1 2024 - 2026

ANALYSIS SUMMARY

During the first quarters of 2024 through 2026, the number of touch-and-go aircraft entering the Study Area has steadily declined. In Q1 2024, there were 10,348 such operations, decreasing to 7,408 in Q1 2025 and further to 6,499 in Q1 2026.

At the same time, the proportion of touch-and-go aircraft entering the Study Area relative to total touch-and-go aircraft has also decreased year-over-year, from 50.7% in Q1 2024 to 44.0% in Q1 2025 and 37.1% in Q1 2026. Despite this long-term decline, Q1 2026 shows a notable intra-quarter increase in the share of touch-and-go aircraft. This suggests that while overall traffic volumes were lower, touch-and-go activity made up a larger portion of operations during certain periods. This pattern is consistent with seasonal trends observed in previous years, but the steeper increase in Q1 2026 is likely driven by unseasonably favorable flying conditions—particularly in March, which is typically Denver's snowiest month. Improved air traffic control staffing levels may have also contributed by allowing more frequent use of the traffic pattern.

It is important to note that this increase reflects a higher proportion of touch-and-go operations rather than an increase in total volume. The analysis is designed to normalize fluctuations in overall traffic and emphasize relative changes in activity.

Of the 6,499 touch-and-go aircraft entering the Study Area in Q1 2026, the majority—71.4%—made their base or crosswind turn between Peakview and Orchard. Compared to previous reports, the share of touch-and-go aircraft initiating their base/crosswind turn between Orchard and Belleview and North of Belleview have declined. This indicates that the traffic pattern condensed, or didn't extend as far north, this quarter.

Disclaimer: *The Study Group emphasizes the importance of data integrity in these reports. Since the Q1 2024 report, we have adopted new data collection methods to enhance the accuracy of the information presented.*

FIGURE 1

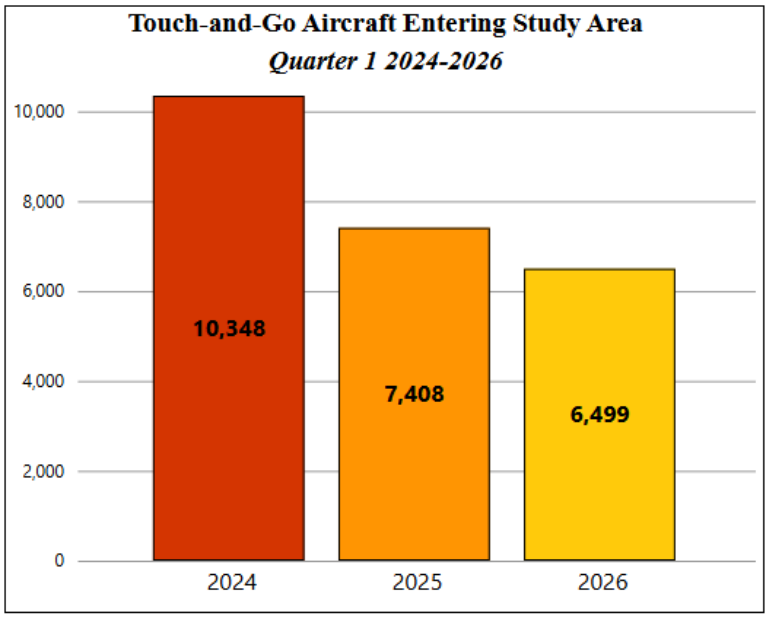


Figure 1.1

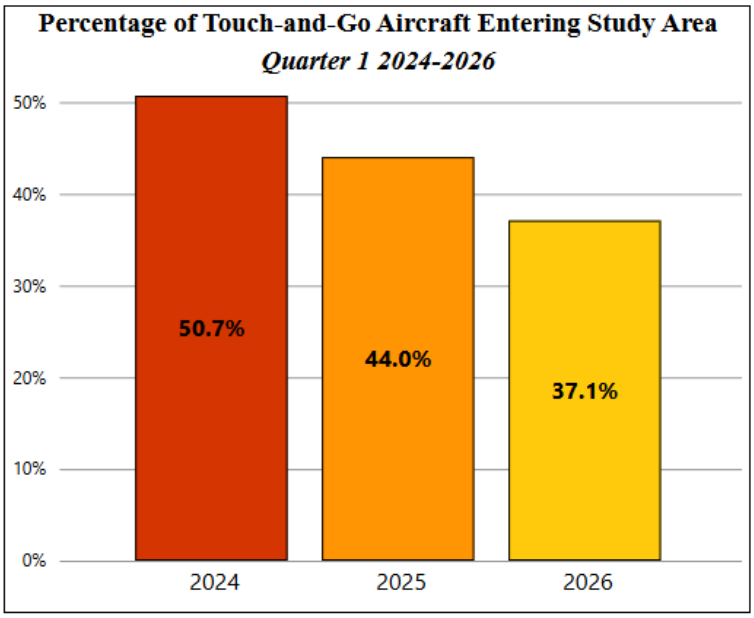


Figure 1.2

Figure 1.1 illustrates the number of touch-and-go aircraft entering the Study Area during the first quarters of 2024 - 2026. In Q1 year-over-year, there has been a reduction of touch-and-go aircraft entering the Study Area with 10,348 in Q1 2024, 7,408 in Q1 2025 and 6,499 in Q1 2026.

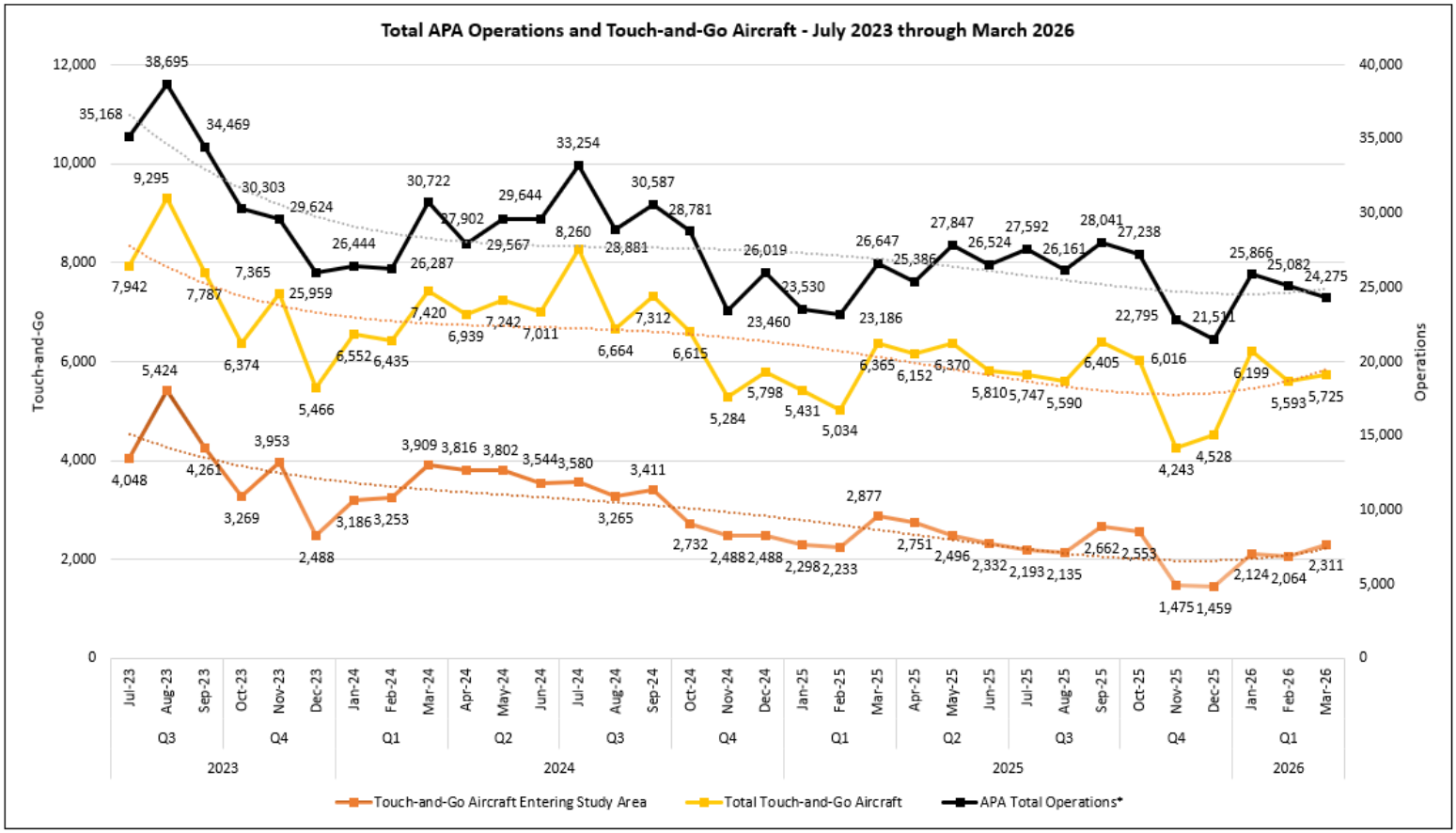
Figure 1.2 depicts the percentage of touch-and-go aircraft entering the Study Area over the same period. In Q1 2024, 50.7% of touch-and-go aircraft entered the Study Area, 44.0% in Q1 2025 and 37.1% in Q1 2026.

Takeaways:

- **Clear decrease:** There was a definitive decrease in the number of touch-and-go aircraft entering the Study Area Q1 year-over-year.

- **Contributing Factors:** Weather, ATC Staffing, Effective Study Group Mitigations (FAA, ACPAA, and Flight School Safety and Noise Abatement Meetings).

FIGURE 2



**see glossary for Operations.*

Figure 2 illustrates the number of **Touch-and-Go Aircraft Entering the Study Area**, **Total Touch-and-Go Aircraft**, and **Total APA Operations**. Trend lines (dashed) capture seasonal peaks and dips while showing overall patterns in monthly operations and touch-and-go activity. This visualization highlights the correlation between these key metrics: as the total number of touch-and-go aircraft increases, total APA operations increase. Generally, as the total number of touch-and-go aircraft rises, so does the number of touch-and-go aircraft entering the Study Area.

Q1 2026 shows a decline in total APA operations, while touch-and-go activity increased, with a corresponding rise in touch-and-go aircraft entering the Study Area. This indicates that touch-and-go operations accounted for a larger share of overall activity during these months. The trend is likely driven by unseasonably favorable weather conditions. Additionally, improved ATC staffing levels have allowed the traffic pattern to be utilized more frequently.

Takeaways:

- **External Factors:** The start of 2026 experienced very few bad weather days compared to what is typical. Also, there was an improvement in ATC staffing levels.

FIGURE 3

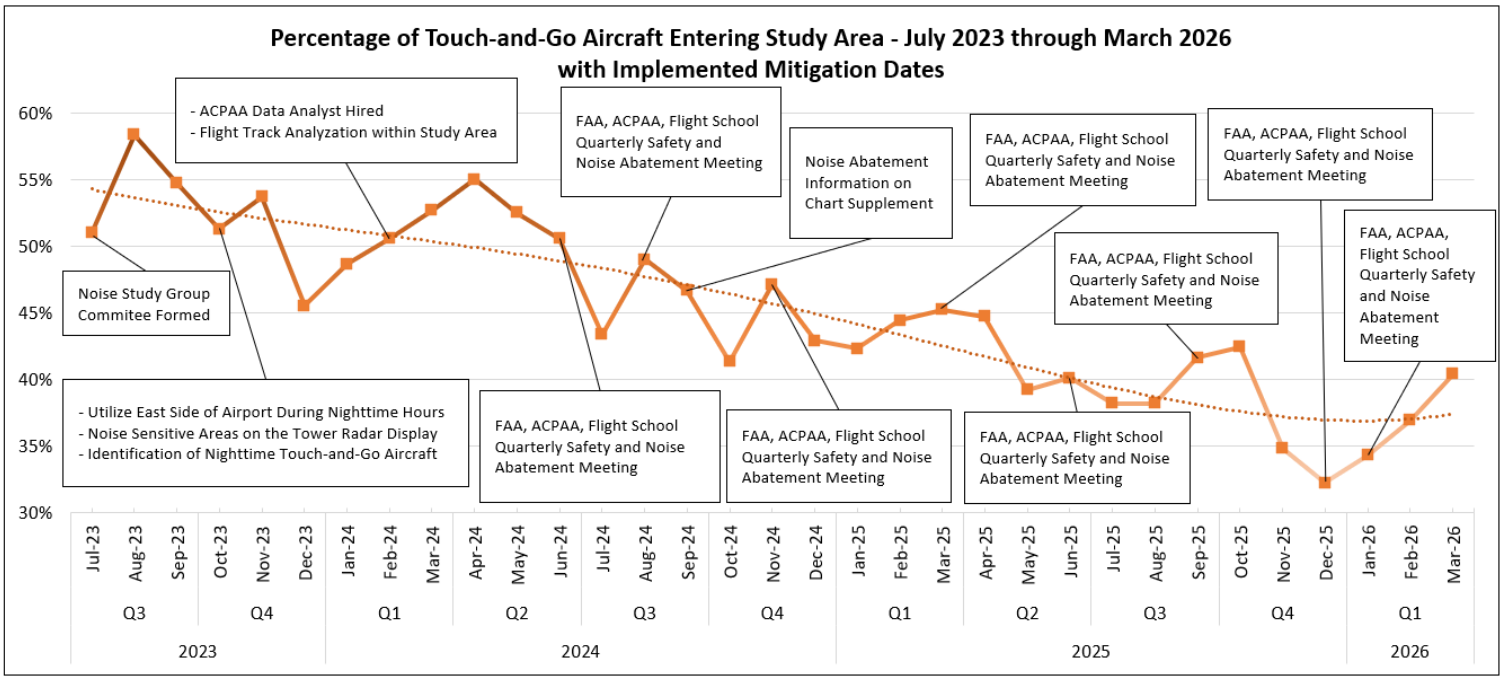


Figure 3 illustrates the trend in touch-and-go aircraft entering the Study Area from Q3 2023 through Q1 2026. The orange line shows the percentage of entries. A trend line (dashed orange line) captures seasonal peaks and dips while showing overall patterns in monthly operations and touch-and-go activity.

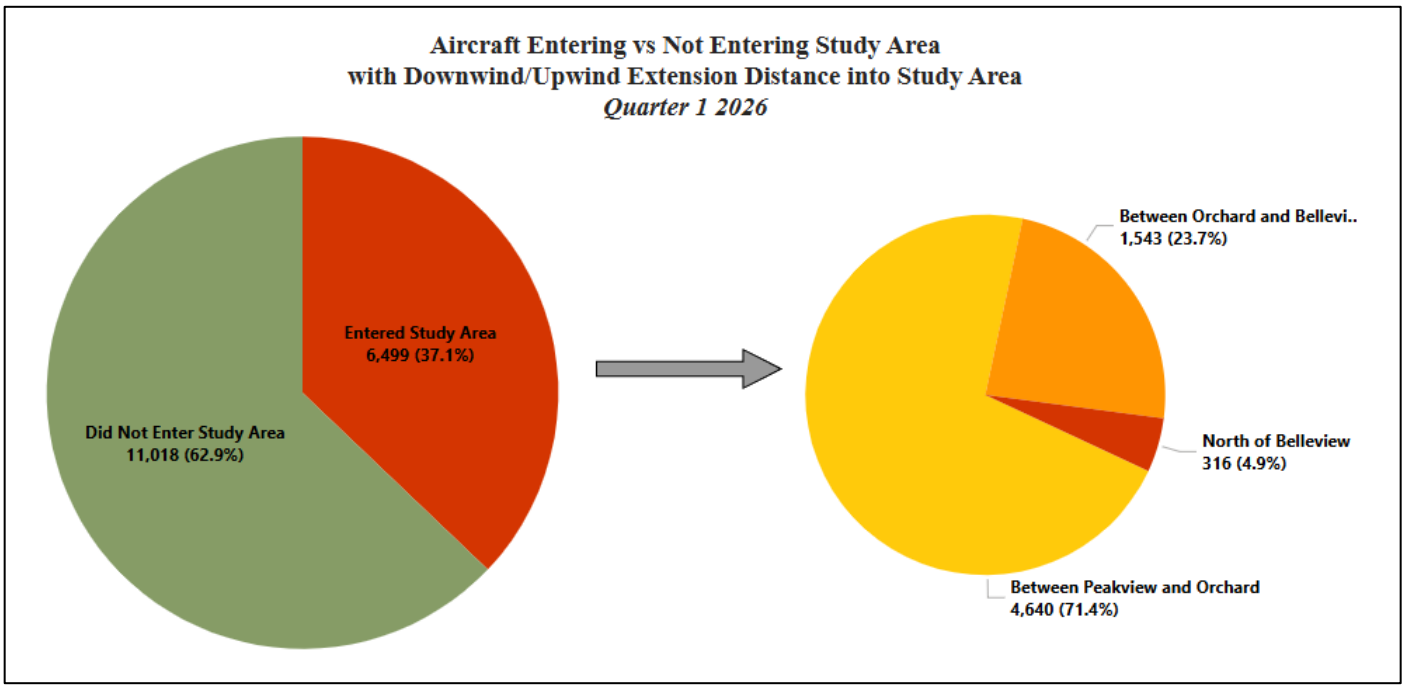
Q1 2026 shows an increase in the percentage of touch-and-go aircraft entering the Study Area. Similar seasonal patterns were observed in Q1 2024 and Q1 2025. The steeper trend in Q1 2026 is likely attributable to unseasonably favorable flying conditions, as March is typically the snowiest month in Denver.

Importantly, this increase reflects a higher proportion, not necessarily a higher total number, of touch-and-go operations entering the Study Area. The chart is intended to normalize for overall traffic levels and highlight relative changes rather than absolute volume.

Takeaway:

- **Seasonal Trend:** Q1 2026 months held a consistent trend by showing an increase from the previous Q4 months.

FIGURE 4



The left side of Figure 4 compares the number and percentage of touch-and-go aircraft that entered and did not enter the Study Area. In Q1 2026, 6,499 aircraft entered the Study Area.

The right side breaks down these 6,499 aircraft by how far each aircraft extended its downwind or upwind leg. These categories are cumulative: for example, if you live between Peakview and Orchard, you experienced overflights from all aircraft flying in that segment and all segments north, totaling 6,499. If you live between Orchard and Belleview, your overflight total includes aircraft in that segment and north of Belleview—a total of 1,859.

Most aircraft entering the Study Area (71.4%) made their base or crosswind turn between Peakview and Orchard.

Takeaways:

- **Majority of Aircraft Do Not Enter the Study Area**: In Q1 2026, most touch-and-go aircraft did not enter the Study Area (11,018).

- **Upwind/Downwind Extension**: Compared to previous reports, the between Peakview and Orchard segment is growing, which shows that touch-and-go aircraft are not extending as far into the Study Area.

FEEDBACK AND CONSIDERATIONS FOR THE Study Group

In Q1 2026, the Study Group did not receive any comments or suggestions via the online submission form.

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, data, data analysis or results, 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.