

**SUBJECT: DISCUSSION/DIRECTION – ROCKY MOUNTAIN
METROPOLITAN AIRPORT NOISE MITIGATION CONTRACT
EXTENSION AND FUTURE PLANNING**

DATE: DECEMBER 3, 2019

**PRESENTED BY: EMILY HOGAN, ASSISTANT CITY MANAGER FOR
COMMUNICATIONS & SPECIAL PROJECTS
MEGAN DAVIS, DEPUTY CITY MANAGER**

SUMMARY:

The City of Louisville has partnered with the Town of Superior in a noise mitigation project for the Rocky Mountain Metropolitan Airport (RMMA). Following a number of complaints from residents about noise from RMMA, the City and Town hired aviation consultant ABCx2, which has specialized experience in working with communities and airports to address noise issues. The following work has been completed to-date by the consultants:

- Task 1 - Baseline Assessment
 - The baseline assessment helped to understand current conditions and identify opportunities for improvement. The consultants looked at airport facilities and airfield layout, airspace and flight procedures, annual operations, traffic levels and fleet mix, the existing noise abatement program, land uses and zoning around the airport and reviewed complaint data and community concerns.
- Task 2 - Community Engagement
 - The City conducted an online survey that asked residents to provide input on airport noise and its impact on their quality of life. 649 individuals visited the site and 167 participated in the survey. Superior conducted a similar survey and had 987 responses.
 - City staff with the consultants held a public workshop on July 24th to provide an update on the project, answer questions and gather additional input related to the draft mitigation strategies. Over 75 people attended the meeting, held jointly by the City and Town.
 - Lastly, the City and Town hosted a joint public meeting of its City Council and Board of Trustees on September 30th in which the consultants presented their recommended strategies.
- Task 3 - Industry Engagement
 - The consultants held multiple meetings with RMMA and FAA traffic control tower personnel. A flight training forum was also held in February. The event was intended to engage industry stakeholders and encourage

participation in the process. A number of initiatives and strategies were identified to reduce noise impacts. An industry advisory group was established to keep this effort moving forward.

- RMMA is implementing voluntary quiet hours, and currently developing new educational materials to encourage awareness of the noise program and to support voluntary compliance by industry partners. The City will share this information with residents when it's available.
- Task 4 - Strategy Development
 - The consultants worked with partner stakeholders to develop a list of short, medium and long-term strategies intended to reduce noise impacts on the community. These strategies are organized by five focus areas: flight operations/procedures/policies, community outreach/engagement, industry outreach/engagement, land use planning/zoning/development and regional collaboration.

The consultants and staff also implemented extensive public outreach efforts by providing project information on the City's website at <http://www.louisvilleco.gov/residents/rocky-mountain-metropolitan-airport>, and through the City's online engagement platform, Engage Louisville, at <https://www.engagelouisvilleco.org/airport-noise-mitigation>. The webpage also includes a link for residents to share noise complaints with the airport, a link to ask questions about the noise mitigation project and Frequently Asked Questions about RMMA and its operations.

NEXT STEPS:

The consultants have completed the work outlined in the initial scope for the project and provided recommended strategies to reduce community impacts. In order to continue these efforts and implement some of the recommended strategies, staff proposes that the City move forward with Phase II of the project. Tasks for the next phase could include:

- Prioritize changes to flight operations and procedures/practices that would provide the greatest noise reduction impacts within the City and Town with a focus on flight school operations.
- Continue to work in cooperation with airport stakeholders to implement realistic noise abatement solutions (i.e. voluntary/regulatory changes, scoping/outlining steps to fully implement solutions, working with RMMA to develop an implementation plan for solutions, including policy changes, roles, marketing, education, outreach, etc., developing metrics/measures to monitor effectiveness of solutions).
- Work with the City and Town, RMMA, FAA, and other stakeholder governments to establish a Community Roundtable (i.e. advise City and Town on actions

needed to establish roundtable, provide guidance regarding potential roles/bylaws for roundtable, provide input to roundtable on noise mitigation strategies under implementation).

Prior to the joint meeting on September 30th, the regional FAA office hosted a meeting with RMMA and asked local jurisdictions to join. Based on the feedback received at the meeting, the FAA recommended that the parties consider forming a community roundtable to address noise concerns. It was suggested that all neighboring communities must be involved in order to ensure that all communities have a voice and agree to proposed changes.

City and Town staff met with RMMA on November 8th to discuss how a potential roundtable might work and the resources needed to establish and manage a roundtable. RMMA has scheduled a meeting with the Centennial Airport, which participates in an airport noise roundtable with neighboring communities, to gather additional information. City staff have begun outreach with neighboring communities to gauge interest in participation.

Lastly on a separate but related note, the FAA recently proposed the Denver Metroplex project, which could adjust flight patterns in an effort to allow for more direct and efficient routing of aircraft into and out of Denver. The FAA released the final Environmental Assessment for the proposal and a 32-day comment period starting November 18th through December 20th is available. The FAA will review and consider comments before making a decision whether to implement the project. The City sent a letter to the FAA on September 24th regarding this matter and expressing support for two recommendations. Additional information on this project can be found at www.metroplexenvironmental.com/denver_metroplex/denver_introduction.html.

PROGRAM/SUB-PROGRAM IMPACT:

One of the objectives of the Public Information & Involvement Sub-Program is giving residents the opportunity to get involved and influence decision-making. The noise mitigation project incorporates resident input and develops solutions to address concerns. It also incorporates a collaborative approach with a regional partner to address an issue of mutual interest, which is a Critical Success Factor from the City's Strategic Plan.

FISCAL IMPACT:

Based on the previous work completed by ABCx2, staff estimates that an investment of \$40,000 over the next year will advance the implementation of Phase II of the noise mitigation project. The City has agreed to split the cost of the project with the Town of Superior (\$20,000 each). Funding for this item will be included in a future budget amendment in 2020. This funding does not include additional resources that may be needed to establish and manage a community roundtable.

SUBJECT: PHASE II OF AIRPORT NOISE MITIGATION PROJECT**DATE: DECEMBER 3, 2019****PAGE 4 OF 4****RECOMMENDATION:**

Staff is seeking feedback from City Council on the scope of work for Phase II of the noise mitigation project and direction on whether the City should proceed with implementation of airport noise mitigation efforts with ABCx2.

ATTACHMENT(S):

1. Baseline Assessment
2. Draft Scope of Work for Phase II
3. Airport Noise Survey Results
4. ABCx2 Final Presentation
5. Implementation Strategy Recommendations
6. Joint Louisville/Superior Meeting Summary
7. City Letter on Metroplex Project
8. Letter from FAA Dated 11/19/19

STRATEGIC PLAN IMPACT:

☐	 Financial Stewardship & Asset Management	☐	 Reliable Core Services
☐	 Vibrant Economic Climate	☐	 Quality Programs & Amenities
☒	 Engaged Community	☐	 Healthy Workforce
☐	 Supportive Technology	☒	 Collaborative Regional Partner

RMMA Baseline Assessment *Summary Report*

May 2019



Executive Summary

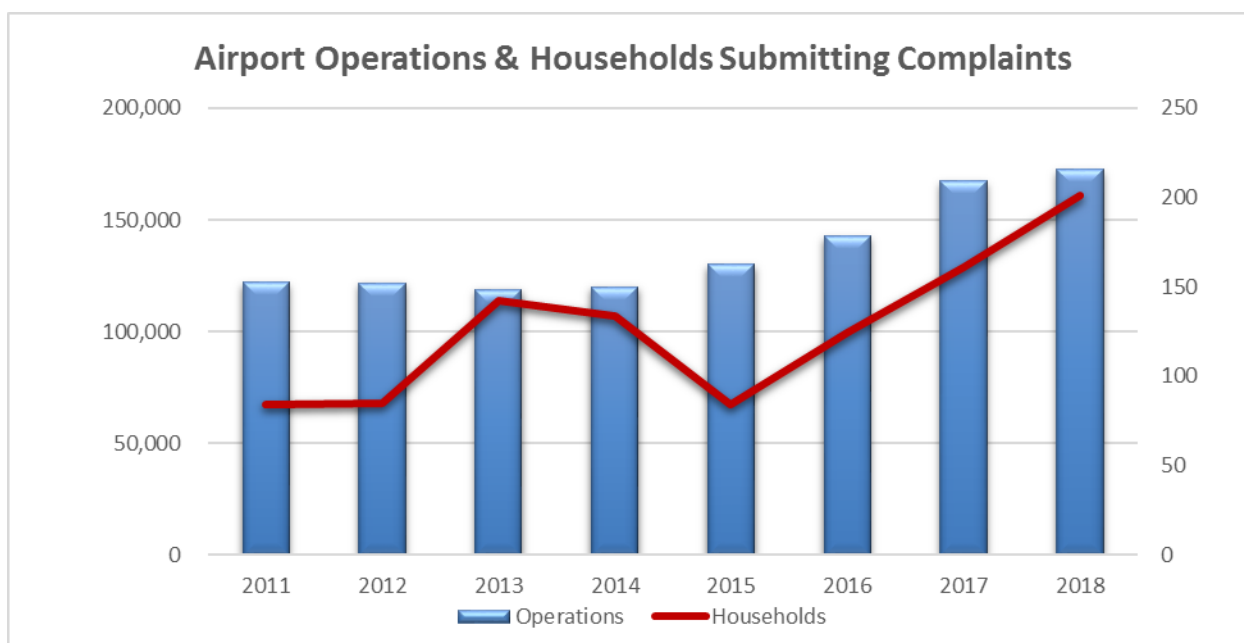
This report provides a summary of the key findings and conclusions of the baseline assessment conducted to by ABCx2 in an effort to identify solutions to address the increasing overflights and noise impacts affecting communities surrounding the Rocky Mountain Metropolitan Airport (RMMA).

The baseline assessment was one of the first tasks in a work plan developed by the consulting team. The assessment was conducted to help understand the existing conditions at the airport and impacted communities. The operational analyses included a look at annual operations and trends, types of operations (i.e. itinerant versus local), operator types, aircraft types, airspace, flight patterns and procedures, and a focused look at the sources of aircraft activity directly impacting the Town of Superior and the City of Louisville. The analysis also included a review of land-uses and zoning around the airport.

Results of the baseline assessment indicate that operations at RMMA have been steadily trending upward, and both airport and Federal Aviation Administration (FAA) forecasts suggest this growth will continue. The long-term plans for the airport include both aeronautical and non-aeronautical development, which will facilitate additional flight activity and potentially increased overflights and noise impacts for close-in communities.

A historical analysis of land-use and zoning around the airport revealed efforts by the Airport and Jefferson County to encourage zoning and development around the airport that would be compatible with the anticipated overflight activity and subsequent aircraft noise exposure. In many cases, residential development close to the airport and within critical zones (where the final approach and initial climb phases of flight occur), was discouraged. An Airport Influence Area (AIA) was established and published by Jefferson County to further encourage transparency and to discourage non-compatible development in areas that would be exposed to the greatest impacts.

Aviation easements were encouraged as a prerequisite for residential development within the AIA. However, growth of the airport has exceeded early (community) expectations, resulting in increased community concerns and noise complaints. The figure below shows the number of airport operations (take-offs and landings) and the number of households submitting complaints by year. The data clearly shows an increase in operations since 2014, along with an increase in the number of households submitting complaints.



The work conducted during the baseline assessment included collection and review of community input, collaboration with the airport, FAA air traffic control, and representatives from Superior and Louisville. An initial list of strategies to address noise impacts has been developed. This list includes operational procedures, policies and practices, in addition to community and industry outreach and engagement. This list will be refined and expanded as the work progresses. Ultimately, strategies will be categorized by implementation schedule (i.e. immediate, medium-term, and long-range) and prioritized. The ABCx2 team will work with the appropriate community and industry stakeholders on planning and implementation.

Table of Contents

Executive Summary	1
Table of Contents	3
Introduction	5
Background / History	5
Airport Roles: Local, Regional, National	6
Governance	7
Airport Facilities	8
Navigational Aids	9
Key Airport Tenants and Businesses	9
Flight Training	9
Fixed Base Operators (FBOs)	10
Air Charter Services	11
Other Airport Businesses	11
Airspace	11
Annual Operations	12
Total (Annual) Operations	12
Based Aircraft	16
Sample Aircraft Types	16
Flight Patterns and Procedures	17
Runway Selection	17
Local Operations	18
Itinerant Operations	19
Standard Instrument Departures (SIDs)	20
Standard Terminal Arrival Routes (STARs)	21
Instrument Approach Procedures	22
Overflights of Superior and Louisville	22
Superior	22
Louisville	23

Land-Use / Zoning	23
Rock Creek Development, Superior.....	27
Community Feedback	28
Total Complaints	28
Complaints by Location	29
Complaints by Aircraft Category	30
Airport Noise Program (Existing).....	31
Overview	31
Regional Economic and Social Impacts	32
Disclaimer	35
Appendices.....	36
Appendix 1	36
Letter from Airport to Town of Superior regarding Final Development Plan for Rock Creek dated (December 11, 1986)	36
Appendix 2	36
Letter from Airport to Town of Superior regarding proposed residential development in proximity to airport and flight corridors. (April 25, 1989)	36
Appendix 3	36
Letter from Airport to Town of Superior regarding proposed residential development in proximity to airport and flight corridors. (January 21, 1997)	36
Appendix 4	36
Newspaper article: “ <i>Superior expansion near airport is risky, Jeffco officials warn.</i> ”	36

Introduction

The Rocky Mountain Metropolitan Airport (RMMA) in Broomfield, CO, is bounded by rising terrain to the west and a mix of land-uses to the north, east, and south. The area around the airport includes non-compatible development including residential areas and schools. The airport is becoming increasingly busy, with significant growth in operations over the last 5 years. Forecasts suggest growth at RMMA will continue.

As operations increase, noise and other impacts associated with aircraft overflights is also increasing, raising concerns of nearby residents. The Town of Superior and the City of Louisville have hired ABCx2, LLC (consultants) to help identify strategies to address this growing issue.

The consultants were tasked with strengthening collaboration between the Airport, Jefferson County (owner/operator the Airport), and Superior and Louisville. The increased collaboration will help to identify and implement strategies aimed at reducing impacts attributed to the growth of RMMA.

The approach proposed by ABCx2 started with an assessment of existing conditions including an analysis of annual operations, flight procedures and airspace, land-uses and zoning, and the existing noise abatement program at the airport. The result of this work is summarized in this Baseline Assessment Summary Report. The report will provide a starting point for exploring new policies, practices, and procedures, aimed at reducing the community impacts associated RMMA. Results of this work are also intended to encourage airport growth be sustainable, helping maintain the quality of life for residents living in proximity to RMMA.

Background / History

The Rocky Mountain Metropolitan Airport (RMMA) is located along the northern boundary of Jefferson County. It is surrounded by residential development with the Town of Superior to the northwest, Louisville to the north, Broomfield on the east and west, and Westminster to the south.

The airport which was opened in 1960 is owned and operated by Jefferson County. Originally named Jefferson County Airport, the name was changed to Rocky Mountain Metropolitan Airport in 2006, reflecting its growth and changing role in the region.

Airport Roles: Local, Regional, National

The Federal Aviation Administration (FAA) is tasked with maintaining a plan for developing and operating a system of public-use airports in the United States. This plan is referred to as the National Plan of Integrated Airports (NPIAS) and is intended to meet the nation's needs for civil aeronautics and national defense. In support of this mandate, the FAA provides technical and/or financial support to airports, however, the FAA does not regulate who may use the airport (i.e. which airlines or general aviation aircraft operators. Rather, the FAA is responsible for working with airport operators, state and local governments, and other stakeholders to “ensure effective planning of a safe and efficient system of airports to support the needs of the civil aviation industry” (FAA National Plan of Integrated Airport Systems, 2019-2023). Airports within the NPIAS are eligible for federal funding under the Airport Improvement Program (AIP).

Airports within the NPIAS fall into one of four categories:

- Commercial Service-Primary
- Commercial Service-Nonprimary
- Reliever Airport
- General Aviation Airport

Airports serving general aviation primarily (including RMMA) are also categorized based on activity level. The five roles include:

- National
- Regional
- Local
- Basic, and
- Unclassified

RMMA is classified as a Reliever Airport with a National role. National airports are those located in metropolitan areas near major business centers. This is the largest category of general aviation facility and considered critical to the regional and national economy, while providing access to the National Airspace System (NAS).

The “Reliever Airport” category indicates the airport relieves congestion at a commercial service airport and provides local and regional access to the NAS. In the context of RMMA, the airport is a reliever to Denver International Airport. Front Range Airport in Aurora and Centennial Airport in Centennial are also classified as reliever airports for Denver International.

Governance

RMMA is owned and operated by Jefferson County. Jefferson County is governed by a Board of County Commissioners which provides strategic direction to the airport. An Airport Advisory Board provides input to the Commission and airport management. The official role of the Airport Advisory Board is to;

“Advise the Board of County Commissioners regarding airport matters including serving as a feedback mechanism regarding the Airport, build awareness of the Airport and its role in the economic health of the region, develop Airport advocacy, educate users/tenants/neighbors about operating guidelines, create opportunities to engage the public, and ensure good neighbor practices by the Airport.”

The Airport Advisory Board is made up of seven members plus an alternate. Members include: two neighboring business owners, two Jefferson County residents, one neighboring property owner, one neighboring jurisdiction, and one airport tenant. Day-to-day management and operation of the airport is overseen by an Airport Manager and staff.

Aviation is highly regulated and RMMA is subject to regulatory and operational requirements imposed by the FAA, State of Colorado (Department of Transportation) and Jefferson County. Aircraft and flight operations are regulated primarily by the FAA.

Airport Facilities

RMMA is made up of three runways. The “primary” runway, 12L-30R, is 9000 feet in length and 100 feet wide. The “parallel” runway, 12R-30L is 7000 long and 75 feet wide. The “crosswind” runway, 3-21, is 3,600 feet long and 75 feet wide. Runway designations are based on their magnetic heading rounded to the nearest 10° with the last number dropped. A runway oriented with a 300° compass heading is designated 30. A runway oriented with a 30° heading would be designated as Runway 3.

A letter-designation is used when there are multiple runways with the same heading. For example, if an aircraft is landing on Runway 30, they will fly a heading of 300 degrees and since there are two parallel runways, the “R” is used to designate the runway on the right side. The runway on the left side is designated with an “L”, Runway 30L.

The airfield also includes a set of taxiways, which provide access between the runways and the ramps (or terminal), aircraft parking, and other airport facilities and services.

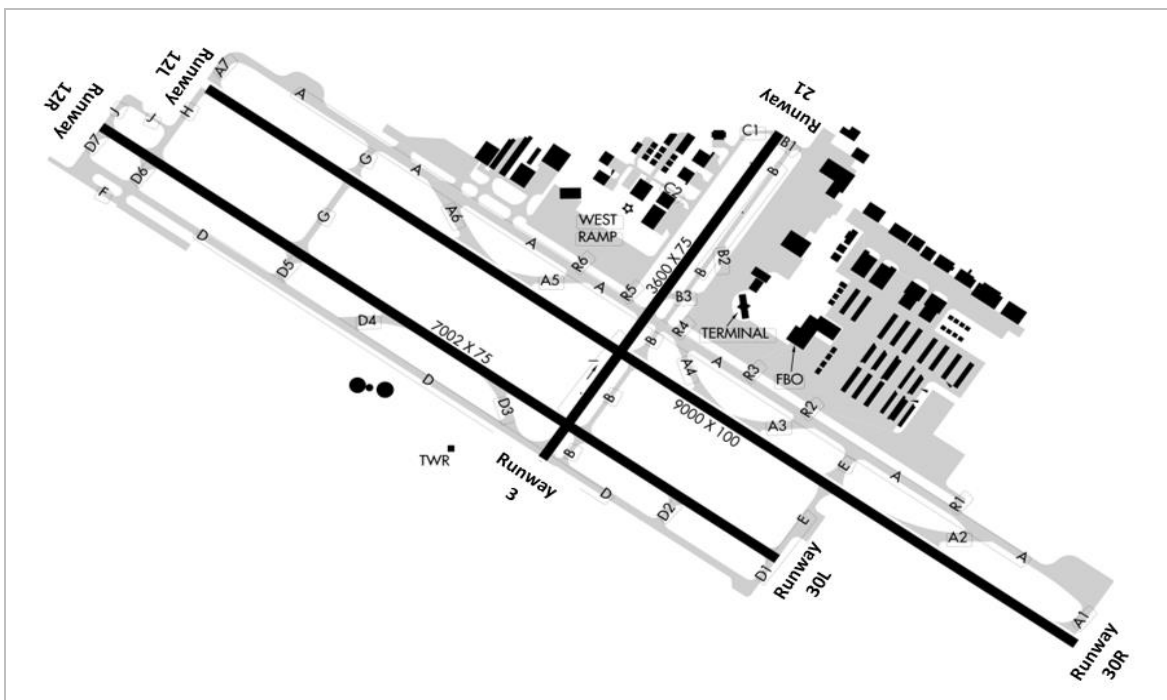


Figure 1. RMMA Airport Layout. (Adapted from RMMA Airport Diagram, Federal Aviation Administration)

Navigational Aids

Navigational aids on the airfield help guide pilots to the airport and during approach and landing. All runways at RMMA are equipped with Precision Approach Path Indicators (PAPI) systems, which provide visual guidance to pilots during approach and landing. The PAPI consists of four lights adjacent to the runway at the approach end. The system provides the pilot with information about the aircraft position relative to the intended approach path (i.e. aircraft is above or below the approach path).

An Instrument Landing System (ILS) is installed on Runway 30R. An ILS provides highly accurate course, distance, and glidepath information. An ILS is especially important during poor weather conditions where visibility is limited. There is also a VOR/DME approach procedure to Runways 30L and 30R and RNAV (GPS) approaches available to Runways 30L, 30R, and 12L.

Key Airport Tenants and Businesses

Flight Training

Airport operations can be classified in a number of ways. Local versus itinerant operations refer to the origin or destination of the flight. Flights that remain in the “local” area, that is, in proximity to the airport are classified as “local” operations. “Itinerant” operations are those that originate from outside the local airport (i.e. at another airport) or departures that leave the local area.

Local operations are common with flight training operations. These include touch-and-goes, low approaches, and airport pattern operations. General aviation activity makes up the majority of operations at RMMA and flight training represents the bulk of those operations. For 2018, local operations (i.e. touch-and-goes) made up 56% of total operations. Figure 2 shows that the majority of operations at RMMA in 2018 were “local operations”, likely primarily touch-and-goes which is consistent with the concerns and complaints from the community.

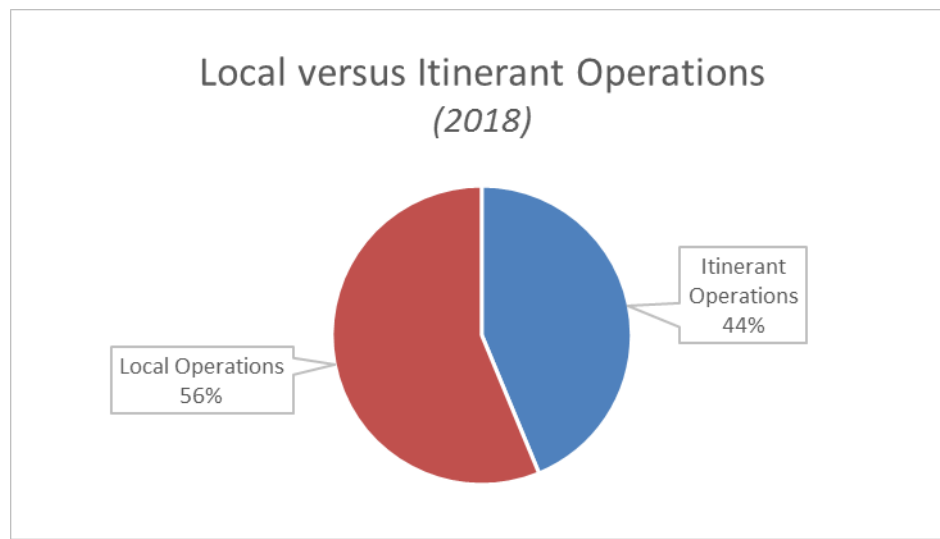


Figure 2. Local versus Itinerant Operations (2018)

Currently there are five flight schools on the airport. These include both fixed-wing (airplane) and helicopter training facilities:

- McAir Aviation
- Teebird Enterprises
- Western Air Flight Academy
- Rocky Mountain Flight School
- Colorado Heli-Ops

Fixed Base Operators (FBOs)

Fixed base operators (FBOs) provide a variety of aircraft services. Typical services include aircraft fuel, maintenance, aircraft rental, flight charters, flight instruction, aircraft parking, and hangar space. RMMA currently hosts two FBOs:

- Signature Flight Support
- Sheltair

Air Charter Services

RMMA is also home to a number of air charter services. These companies provide passenger services to airports across the United States and internationally. Flight charter operators based at RMMA include:

- Mountain Aviation
- Denver Air Connection

Other Airport Businesses

In addition to the companies mentioned, there are many additional businesses providing aviation-related services, support businesses, as well as non-aviation organizations. According to the Airport's website, there are close to 70 businesses and tenants located on the airport.

Airspace

RMMA is located approximately 20 miles west of Denver International Airport (DEN) just outside the boundary of DEN's Class B airspace. Figure 3 (below) highlights the airspace around RMMA, Denver Airport to the east, and significant terrain to the west of RMMA. The terrain to the west has a significant impact on flight operations in and out of the airport and limits the flexibility air traffic controllers have in managing the airspace around the airport.



Figure 3: Regional Airspace. (Source: www.vfrmap.com)

RMMA operates within Class D airspace when the air traffic control tower is open (6AM-10PM daily). When the control tower is closed, the airspace reverts to Class G at which time, air traffic services are limited.

“Ground control” and “Tower” air traffic services are provided by the FAA at the air traffic control tower based on the airport. These services are for aircraft on the airport surface or within the airport’s airspace. “Approach” and “Departure” control services are provided by DEN TRACON (air traffic facility located at DEN). These pertain to aircraft further out but heading to or from RMMA. Air traffic facilities at both RMMA and Denver International work together to manage aircraft operations in the area. Flight paths for aircraft flying to and from RMMA may be impacted by DEN air traffic. Arrival and departure procedures associated with DEN bring aircraft to and from Denver in the airspace above RMMA. This activity can also impact operations at RMMA.

Annual Operations

Total (Annual) Operations

An “airport operation” can be a landing or a take-off. Training operations such as “touch-and-goes” represent both a landing and a take-off, therefore a touch-and-go represents two airport operations. Operations at RMMA have grown over the last five years (2013-2018) and FAA forecasts suggests this growth will continue. A nine-year review of the annual operations at RMMA is included in the table.

	<u>Itinerant</u>					<u>Local</u>			
<u>Calendar Year</u>	<u>Air Carrier</u>	<u>Air Taxi</u>	<u>General Aviation</u>	<u>Military</u>	<u>Total</u>	<u>Civil</u>	<u>Military</u>	<u>Total</u>	<u>Total Operations</u>
2010	9	3,766	56,422	624	60,821	58,441	1,101	59,542	120,363
2011	5	4,601	55,145	538	60,289	58,583	481	59,064	119,353
2012	43	5,819	52,792	690	59,344	58,674	947	59,621	118,965
2013	26	5,279	51,573	868	57,746	55,637	1,234	56,871	114,617
2014	82	5,136	53,268	1,293	59,779	53,032	2,681	55,713	115,492
2015	8	5,524	54,464	1,183	61,179	62,272	2,018	64,290	125,469
2016	108	6,093	64,889	1,270	72,360	67,619	1,737	69,356	141,716
2017	11	5,973	66,042	1,087	73,113	90,411	2,243	92,654	165,767
2018	429	5,987	66,981	1,136	74,533	93,125	2,682	95,807	170,340

Table 1: RMMA Operations Data. Source: Federal Aviation Administration Ops-Net.

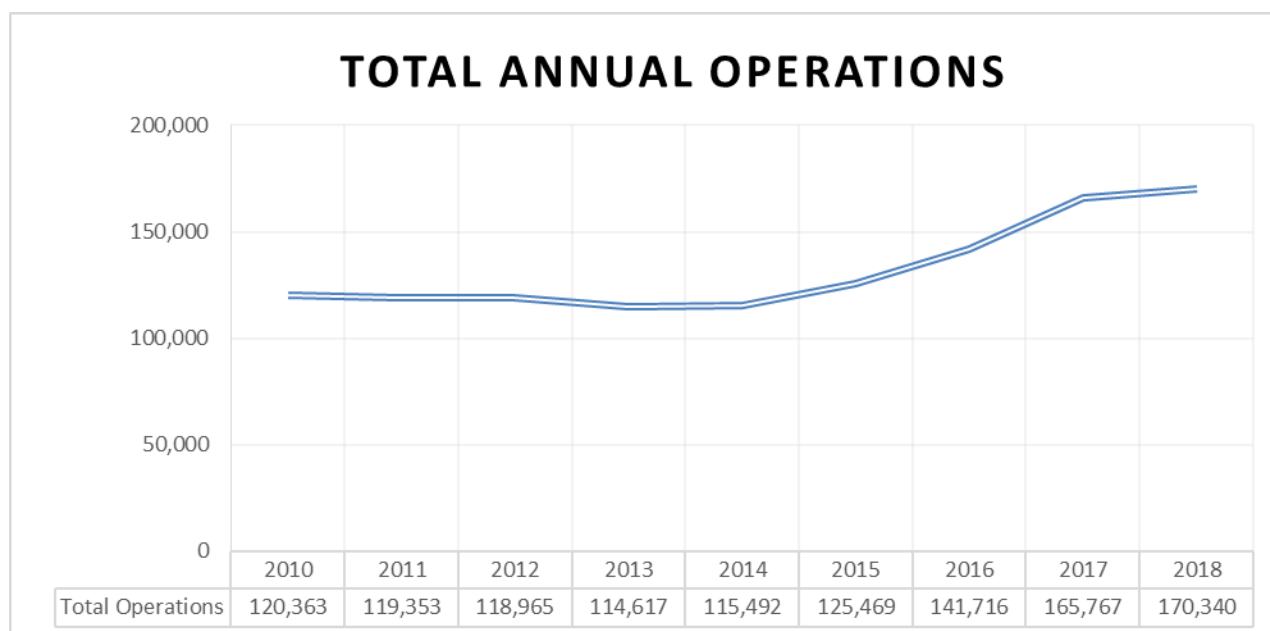


Figure 4. Total Annual Operations, 2010-2018

Itinerant versus Local Operations

The FAA quantifies airport operations as either “itinerant” or “local.” Itinerant operations include arrivals originating at other airports or outside the local airport traffic pattern and departures by aircraft leaving the local airport traffic pattern (i.e. flying to another airport). Local operations are those conducted within the airport traffic pattern (i.e. touch-and-goes, practice approaches, and low approaches). Local operations are a common component of flight training and a dominant percentage of the operations at RMMA. A review of annual operations at RMMA shows slow but consistent growth in itinerant operations and faster growth in local operations. This training (and practice) is required by Federal Aviation Regulations for both new pilots as well as those getting advanced training and for maintaining their pilot certifications. Practice landings and taking-offs must also be conducted during nighttime conditions (between sunset and sunrise).

FAA categorizes itinerant operations by operator category including air carrier (scheduled passenger service), air taxi (unscheduled/charter), general aviation, and military. Local operations are classified as civil or military.

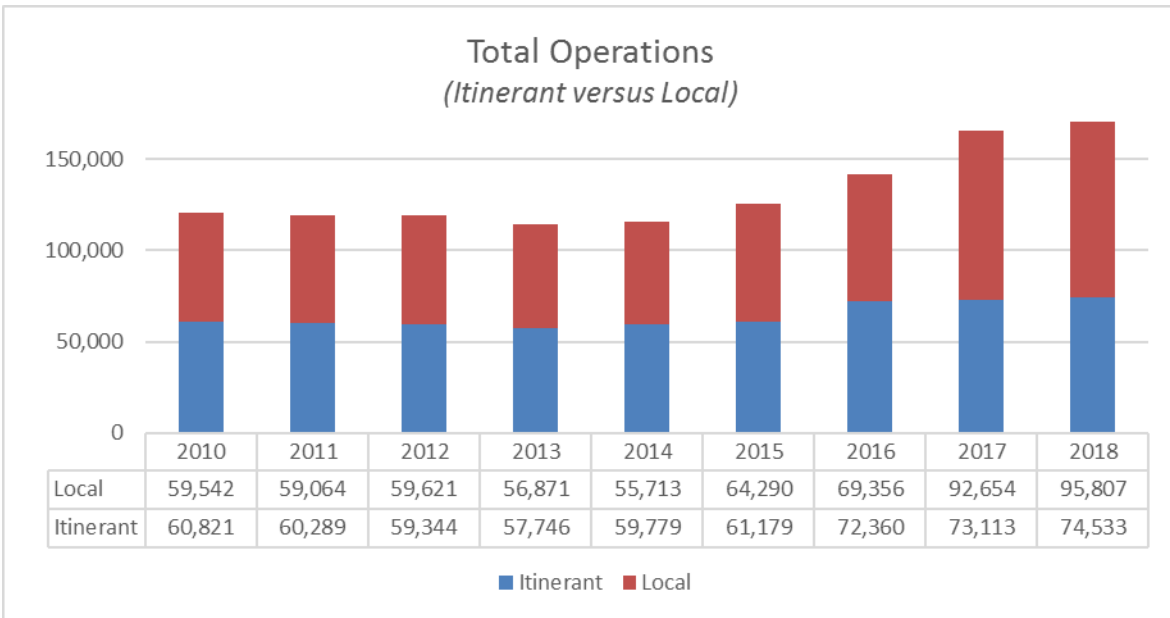


Figure 5: Total Operations – Local versus Itinerant

Total operations are trending upward with local operations growing at a faster rate than itinerant operations. Itinerant operations by each operator type are shown in Figure 6. The graph shows the majority of itinerant operations at RMMA are conducted by general aviation.

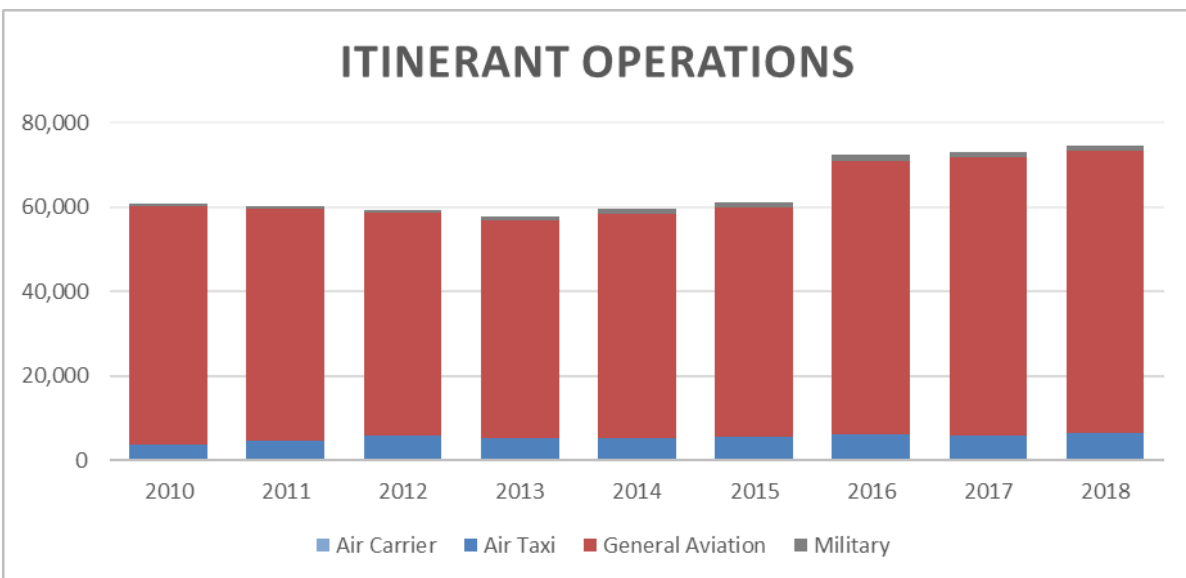


Figure 6. Itinerant operations by aircraft category. (Source, FAA Ops-Net data)

Local operations are also growing as shown in Figure 7 below. General aviation operations make up the majority of local operations and while the number of military operations seems to be growing, it remains a small percentage compared to civil operations.

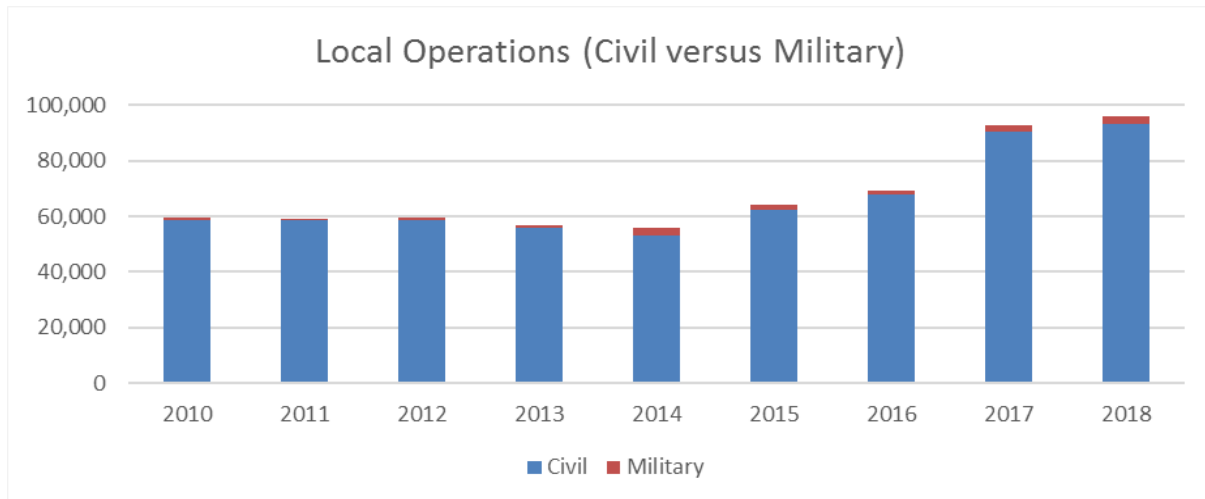


Figure 7. Local operations, civil versus military. (Source, FAA Ops-Net data).

Most of the military operations occurring at RMMA are “local” operations.

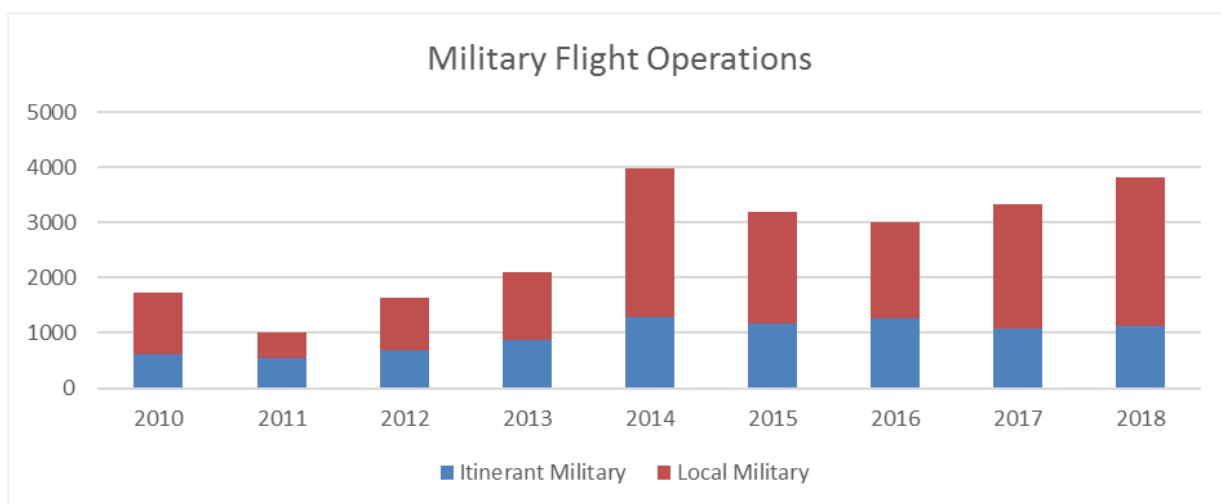


Figure 8. Military flight operations. (Source, FAA Ops-Net data)

Based Aircraft

Over 70% of aircraft based at RMMA are small, single-engine, general aviation aircraft. These are common with flight training and consistent with the high level of flight training activity at the airport. Multi engine aircraft and jet aircraft make up 25% of the fixed-wing aircraft, and helicopters make up the remaining 5%.

Aircraft Type	Based Aircraft	Percentage
Single Engine	300	70%
Multi Engine	55	13%
Jet	50	12%
Helicopter	20	5%
Total	425	100%

Table 2. RMMA based aircraft. Source: FAA, RMMA Airport 5010 (2017 data)

For illustrative purposes, samples of each fixed-wing aircraft category are depicted below.

Sample Aircraft Types

<u>Single Engine</u>	
	
<u>Multi-Engine</u>	
	
<u>Jet</u>	
	

Figure 9. Sample aircraft types by category. Source: Cessna Aircraft.

Flight Patterns and Procedures

Runway Selection

Runway 30R-12L is designated as the “primary” runway, meaning when conditions allow, this is the main runway to be used. At 9,000 feet in length, Runway 30R-12L is the longest runway at RMMA and the runway used most often by aircraft landing or departing the airport. Training and “local” operations are typically conducted on the shorter parallel runway, 30L-12R.

Runway selection is based primarily on wind conditions. Aircraft typically take-off and land into the wind. Small aircraft and those conducting touch-and-go activities will often use the shorter parallel runway (30L-12R). This enables safe and efficient use of the airport and airspace with training and practice operations on the parallel and arriving and departing aircraft (itinerant) using the Primary runway. While these are typical conditions, training activity (i.e. touch-and-goes) may be conducted on the primary runway. Similarly, based on conditions, air traffic control may have arrivals and departures use the parallel runway. In most cases, larger and faster aircraft such as turboprop and jet aircraft will use the primary runway due to its extra length.

As noted, air traffic controllers determine the runway to be used based primarily on wind speed and direction. When wind speeds are 5 knots (5.8 miles per hour) or above and wind direction is between 210 degrees and 30 degrees, Runways 30L and 30R will typically be used. When wind speed is 5 knots or above and wind direction is between 30 degrees and 210 degrees, Runway 12L and 12R will typically be used. It should be noted that these are generalities and other factors can play a role in runway selection. For example, if the winds are variable (changing), air traffic control may not change the runways in use. Runway use is usually based on sustained conditions.

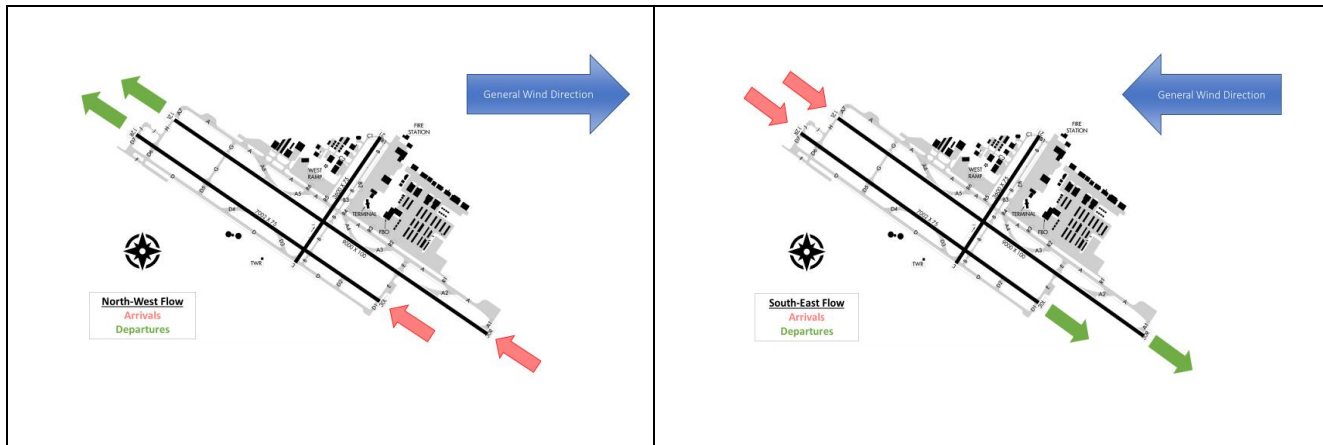


Figure 10. Operational flows are based (primarily) on wind conditions (speed and direction).

The crosswind runway, 3-21, is often used by helicopters. This allows access into and out from the airport with minimal impacts to the fixed-wing flight patterns. Fixed-wing use of the crosswind runway is less common and dictated primarily by higher wind conditions.

Local Operations

“Local” operations are those conducted within the airport traffic pattern (i.e. touch-and-goes, practice approaches, and low approaches). Local operations are a common component of flight training and represent the majority of operations at RMMA. A review of annual operations at RMMA shows slow but consistent growth in itinerant operations and faster growth in local operations. This training (and practice) is required by Federal Aviation Regulations for both new pilots as well as those getting advanced training and for maintaining their pilot certifications. Landing and taking-off must also be conducted during nighttime conditions (between sunset and sunrise) as required by Federal Aviation Regulations.

The flight patterns associated with local operations can vary based on a wide number of factors and conditions. Factors include the aircraft type and weight, pilot technique, weather and wind conditions, and the number and mix of aircraft types in the pattern. More aircraft in the pattern will generally result in a larger pattern to ensure appropriate spacing among aircraft.

Figure 11 (below) is intended to illustrate the general concept of a local (airport) traffic pattern. Airport traffic patterns are typically rectangular running parallel to the runway being used. When conducting touch-and-goes, as an example, the aircraft takes off, turns to fly parallel to the runway, then turns again to line up for landing. The examples are not to scale and for illustrative purposes only. As noted, the actual pattern(s) flown will depend on a number of factors and will vary. The figure below illustrates local traffic patterns for Runways 12R and 30L.



Figure 11. Generalized examples of “closed-traffic patterns. Actual conditions will vary.

Itinerant Operations

As is the case with local operations, the flight patterns associated with itinerant operations have commonalities and differences. When taking off, all fixed-wing aircraft depart maintaining runway heading during the initial climb. The altitude and/or distance from the runway at which the aircraft turns depends on many factors. Typically, aircraft will climb to between 400-500’ above ground level (AGL) before turning. This can vary based on a number of variables and conditions. Aircraft type and weight dictate aircraft performance which impacts how quickly aircraft climb. Weather also plays a role. Higher outside temperatures reduce performance, as can wind speed and direction. Pilot technique and air traffic instructions may also play a role. These variables result in variations in flight patterns for aircraft arrivals and departures. However, the initial take-off and climb and the final approach portion of landings are generally consistent. The distance from the runway that the aircraft makes it’s turn depends on how quickly it can ascend.

Slower, heavier aircraft may maintain runway heading for longer before turning, than will lighter, faster aircraft.

Standard Instrument Departures (SIDs)

Due to terrain west of the airport, departures using Runways 12L and 12R (southeast) are typically assigned a heading by air traffic control between 350° clockwise to 150°. Departures using 30L and 30R are typically assigned a heading between 350° clockwise to 113

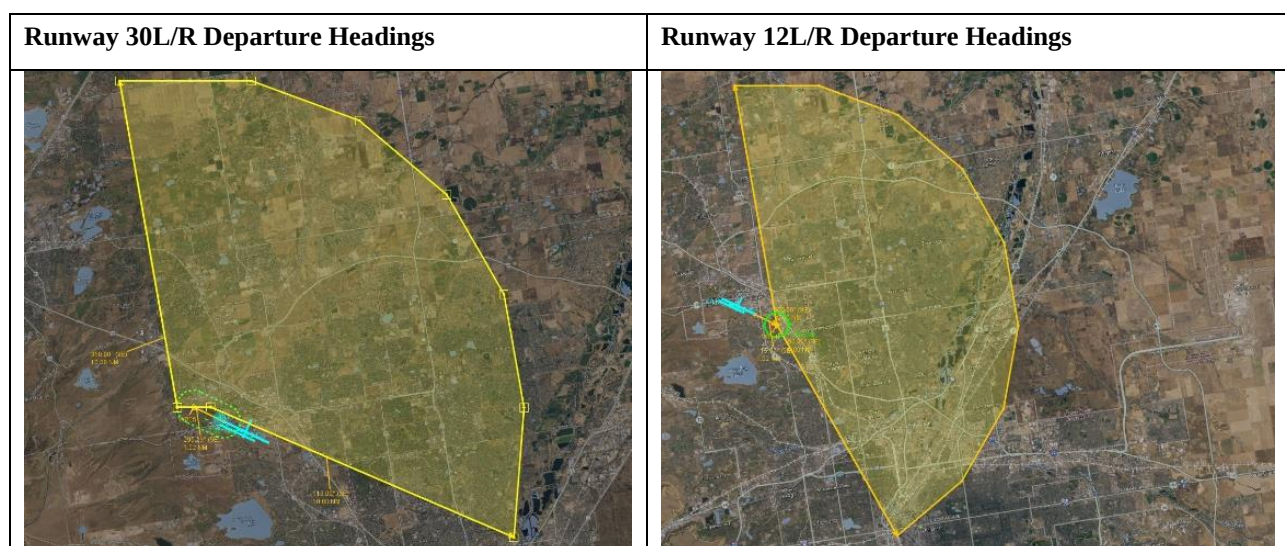


Figure 12. Departure headings will typically be within the range of yellow depicted based upon the runway used.

Figure 13 is an example of a flight procedure used by pilots. The COORZ departure is used by departures heading west. However, the graphic circled above indicates departures off of Runways 30L and 30R (northwest) make an immediate turn to the east. Departures off of 12L and 12R (southeast) following runway heading until assigned a heading by air traffic control. All of the published departure procedures for RMMA utilize the same general pattern initially. Factors that can influence the heading assigned by air traffic include intended destination, wind and weather conditions, and other air traffic in the area. With terrain to the west and DEN airspace to the east, managing operations in and out of RMMA can be a complex task.

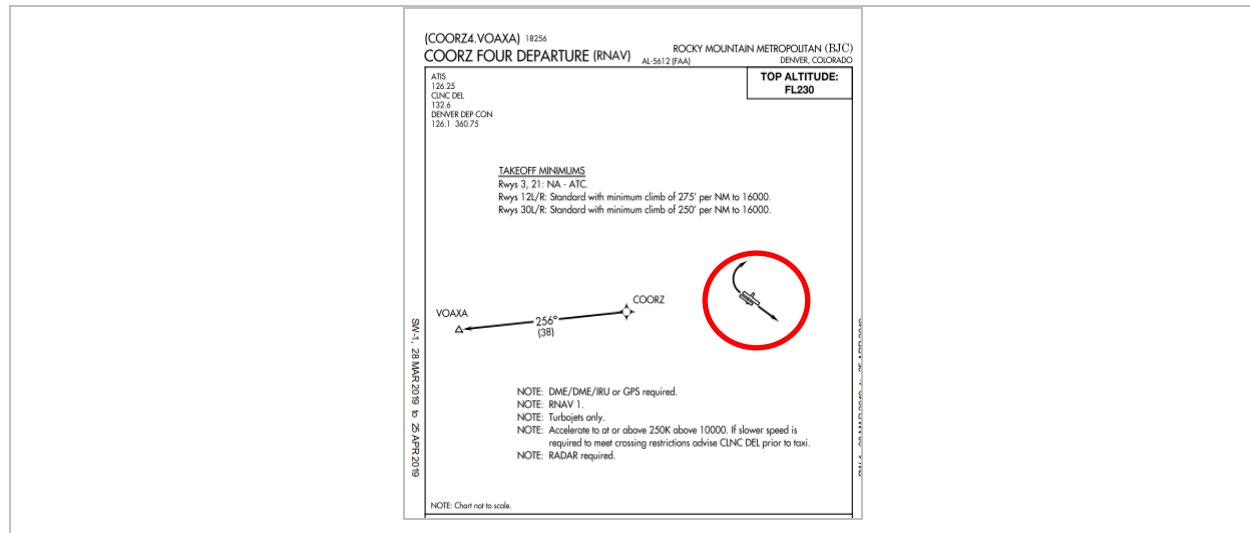


Figure 13. Excerpt - sample published flight procedure. (Source, FAA)

The graphics below are intended to illustrate how the flight procedures apply to RMMA.

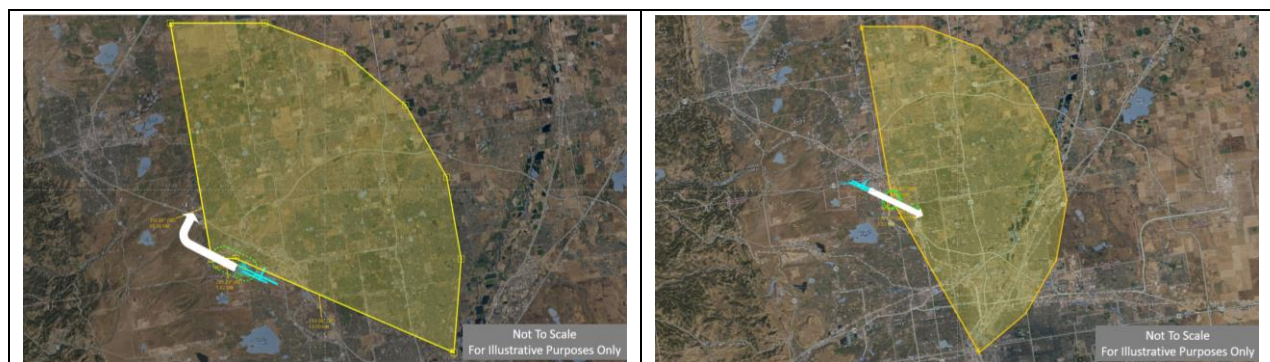


Figure 14. Departure heading range with published procedure overlaid.

Standard Terminal Arrival Routes (STARs)

Arrival procedures transition aircraft from cruise altitude down to the approach into the airport. There are several arrival procedures serving DEN which are shared with other general aviation airports in the area. Typically, these terminate around 9,000 feet and miles from the airport. Due to the altitude, aircraft on these procedures have minimal noise impact on the communities surrounding RMMA. However, aircraft on these arrival procedures can impact air traffic instructions to aircraft at lower altitudes and closer to RMMA.

Instrument Approach Procedures

Airport approach procedures take aircraft from the arrival phase of flight through to landing. For RMMA this is typically from around 9,000 down to the runway. Most of the instrument approach procedures into RMMA include a final approach path of approximately six miles. Final approach is where the aircraft lines up with the runway. This gives pilot ample time to prepare the aircraft for a safe landing. Instrument approach procedures are typically used by itinerant aircraft flying to RMMA from another airport. Aircraft performing touch-and-goes and other “local operations” may use a shorter final approach. As is the case with other phases of flight, the length of the final approach, flight path, altitude, and speed, may vary based on a multitude of factors including aircraft type, windspeed and direction, pilot technique, type of approach, and other air traffic.

Overflights of Superior and Louisville

Of particular interest are the conditions leading to overflights of Superior and Louisville. An analysis was done to provide general information about the operations and conditions most likely to result in overflights of Superior and Louisville. The information provided is not intended to be all-inclusive or to describe every scenario in which an aircraft will overfly Superior or Louisville. Instead, it is intended to provide general information about the typical conditions under which overflights may be expected.

Superior

The Rock Creek Community is located along the extended centerline of Runway 30L and 30R (and 12R and 12L). Due to the community’s proximity to the airport overflights are common.

Closed traffic operations (i.e. touch-and-goes) often result in overflight of Rock Creek. Based on the standard airport traffic pattern, aircraft in the closed-traffic pattern will normally fly in proximity to Rock Creek when Runway 30L and 30R or 12L and 12R are in use. Conditions such as the number of aircraft in the pattern increase the likelihood of overflying Rock Creek because the pattern will be larger when accommodating more aircraft. When smaller numbers of

aircraft are in the pattern (i.e. 1-3) it is possible for Rock Creek to be avoided in certain conditions (i.e. cold weather, strong headwind, higher performing aircraft, etc.).

Aircraft departing under Instrument Flight Rules (IFR) using Runway 30L and 30R frequency overfly Superior. Typically, aircraft maintain runway heading until reaching 400-500 feet before turning north and departing the area. IFR aircraft landing on Runway 12L and 12R will also typically overfly Superior. Aircraft are typically either flying a visual approach or a GPS approach which curves in from the northwest. This results in overflights of Superior to a final approach within 2 miles of the runway end.

Louisville

Louisville is approximately 3 miles north of the airport and not aligned with the runways. Aircraft using on visual approaches to Runway 12L or 12R may overfly Louisville. Aircraft departures using Runway 30L or 30R are likely to overfly Louisville resulting in noise impacts. An analysis of flight procedures and flight operation suggests jet departures are a common source of overflights for Louisville.

Because Louisville is not below the extended centerline for the runways at RMMA, typical approaches (straight-in visual approaches and instrument approaches) do not overfly Louisville. There is one RNAV (GPS) approach procedure to the airport (Runway 12L). Use of that procedure will bring aircraft in over Louisville, but this procedure is less common than visual approaches in good weather (clear skies and good visibility).

Land-Use / Zoning

The airport is located in the City of Broomfield and surrounded by multiple cities, towns, and counties, each with their own land-use and zoning authority. The RMMA Airport Master Plan update, completed in 2008, cites the efforts by the Airport and Jefferson County to encourage land-use planning within the region that would be compatible with the airport and airport operations.

The document also notes that as far back as 2008, zoning and land-use development surrounding the airport were a concern. This is because much of the proposed, or expected development, included residential development, even in areas with exposure to aircraft noise and overflight activity, both of which was expected to increase.

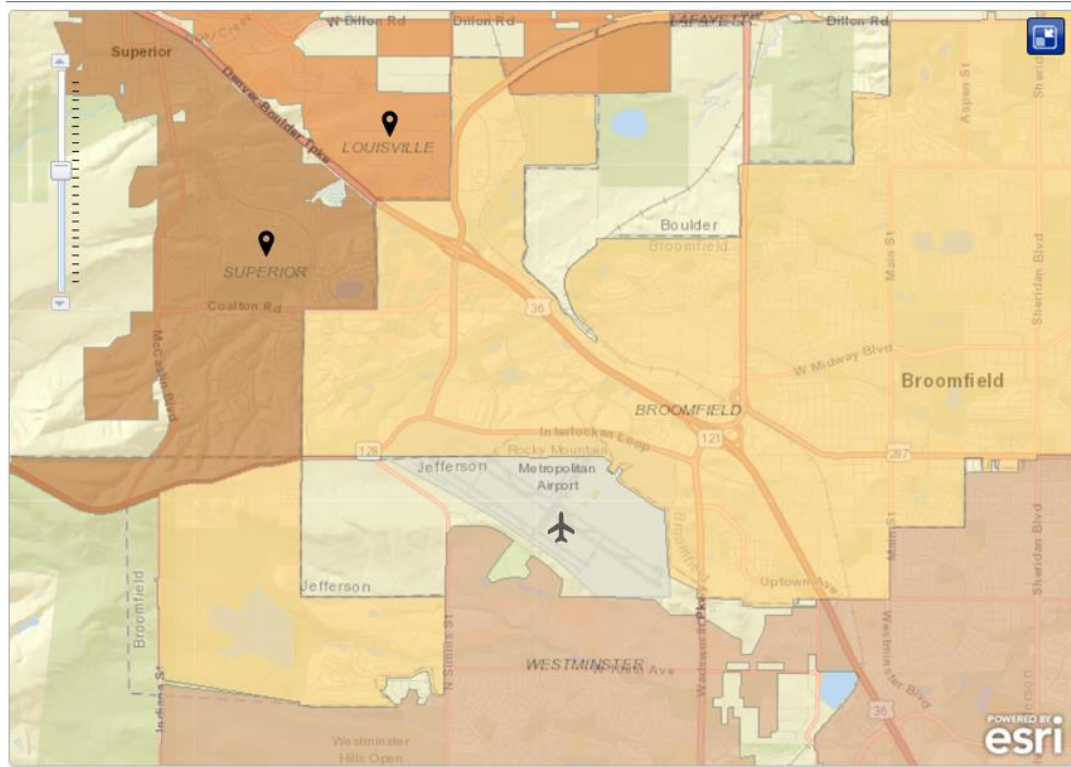


Figure 15. Regional map with RMMA and locations of Superior and Louisville

In 1984, Jefferson County published a Land-Use plan identifying areas adjacent to the airport that would be exposed to high levels of overflight activity and aircraft noise. This area is defined as the Airport Influence Area (AIA). The purpose of designating an AIA is to inform local land-use jurisdictions of the likelihood of overflight activity and aircraft noise, and to encourage compatible development in these areas. The following is an excerpt from the land-use plan:

“Ensure that land use in the Airport Influence Area is compatible with the general aviation function of the Jefferson County Airport and does not expose people or property to harm or damage from aircraft accidents or high noise levels”.

Jefferson County appears to have recognized the potential for residential encroachment and the impacts associated with non-compatible development close to the airport and flight corridors. This was reinforced in the 2011 master plan update, which included publication of the Airport Influence Area and Critical Zones. See map in Figure 16.

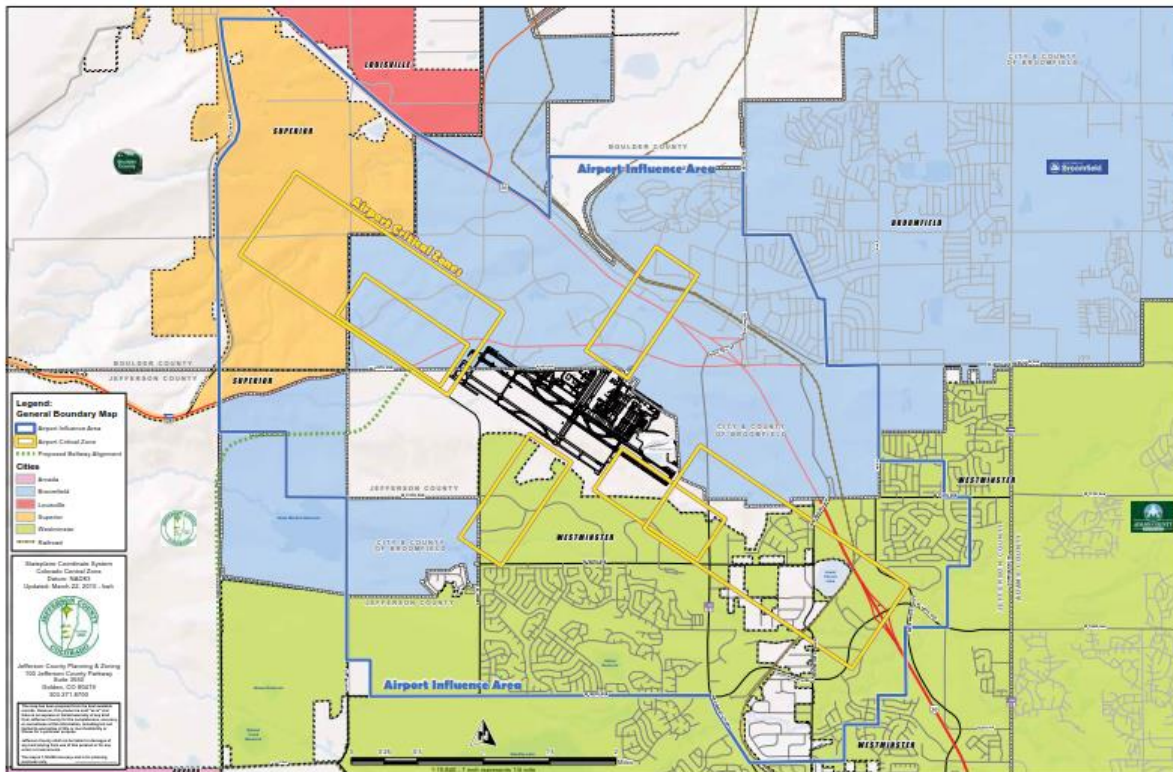


Figure 16. Land-Use / zoning in proximity to RMMA. (Source: RMMA 2011 Master Plan Update)

The RMMA Airport Influence Area (AIA) encompasses the land around the airport where aircraft overflights, noise, and other potential impacts associated with aircraft operations are likely. Officially, Jefferson County defines the Airport Influence Area as:

“a planning boundary around an airport which includes property within the environs of the Airport, where particular land uses either are influenced by or will influence the operation of the airport, in either a positive or negative manner. The boundary considers factors such as noise contours, traffic pattern areas, approach zones, and runway protections zones.”

Airport Influence Areas are common in land-use planning around the United States. The terminology can vary but the definition and application are generally the same. The intent is usually to encourage and in some cases mandate, land-use planning and development that is compatible with aircraft overflight activity, noise, and other potential impacts associated with aircraft operations. Often, noise-sensitive development (i.e. residential development) is discouraged or prohibited in these areas. When residential development is permitted, it often requires aviation noise and impact disclosures, avigation easements, or other forms of mitigation as a requirement for permit approval and/or home purchase. In such cases, the intent is to ensure prospective home-buyers are aware of the potential for aircraft overflight, noise, and associated impacts.

Jefferson County requires home builders within the AIA (and within the county) to grant an avigation easement prior to development approval. The easements become attached to the deed and are included in title documentation and is intended to ensure homebuyers are aware of the exposure to aircraft overflights and noise. Jefferson County's authority is limited to development within the, so outside their jurisdiction they may only make recommendations.

Portions of the Town of Superior are located within the RMMA Airport Influence Area, including all of Rock Creek. The Town of Superior mandated granting of an avigation easement to Jefferson County as a condition of residential development in the area which is now the Rock Creek community. In addition to Rock Creek, there are large portions of Broomfield and Westminster within these areas. Louisville is not inside the RMMA AIA or critical zones.

Overflight activity and noise exposure is especially prominent along the extended centerlines for airport runways. These can extend as far as ten miles from the runway end and are the areas where final approach and landing as well as initial take-off and climb out occur. Operations are typically concentrated in these areas.

Rock Creek Development, Superior

A large portion of the Town of Superior is located within the RMMA AIA. The Rock Creek community is the portion of Superior that receives the most overflight activity. As noted, this is due to the close proximity to the airport and in particular, it's location along the extended centerline of the runway. The Rock Creek Community is located below the approach paths to Runways 12L and 12R and departure paths for Runways 30L and 30R. Rock Creek is also overflown by aircraft in the traffic pattern.

The Rock Creek community is also situated within the Airport Critical Zones, which is the area along the ends of the runway where aircraft overflights and noise impacts are likely to be highest.

Both the Airport and Jefferson County appear to have made an effort to collaborate with local land-use jurisdictions to encourage compatible land-uses around the airport, especially in locations expected to experience the greatest impacts from aircraft overflights and noise.

Designation of the RMMA Airport Influence Area and Airport Critical Zones are intended to inform land-use authorities, developers, and prospective home-buyers of the potential impacts associated with the airport. According to Airport records including the Airport Master Plan updates, the Airport and Jefferson County work collaboratively with neighboring towns and counties regarding land-use and zoning.

Avigation easements are required for residential development in many of the areas surrounding the Airport. While there are legal implications associated with avigation easements, the greatest value is often seen as the opportunity to disclose, and ensure an understanding of the potential impacts by developers and prospective home-buyers when considering building or purchasing a home in locations known to be susceptible to aircraft noise and other impacts. Examples of notifications and media coverage related to the proposed development of the Rock Creek community is included in the appendices.

Community Feedback

Total Complaints

Both airport operations and noise complaints have been steadily increasing over the last 8 years (2011-2018).

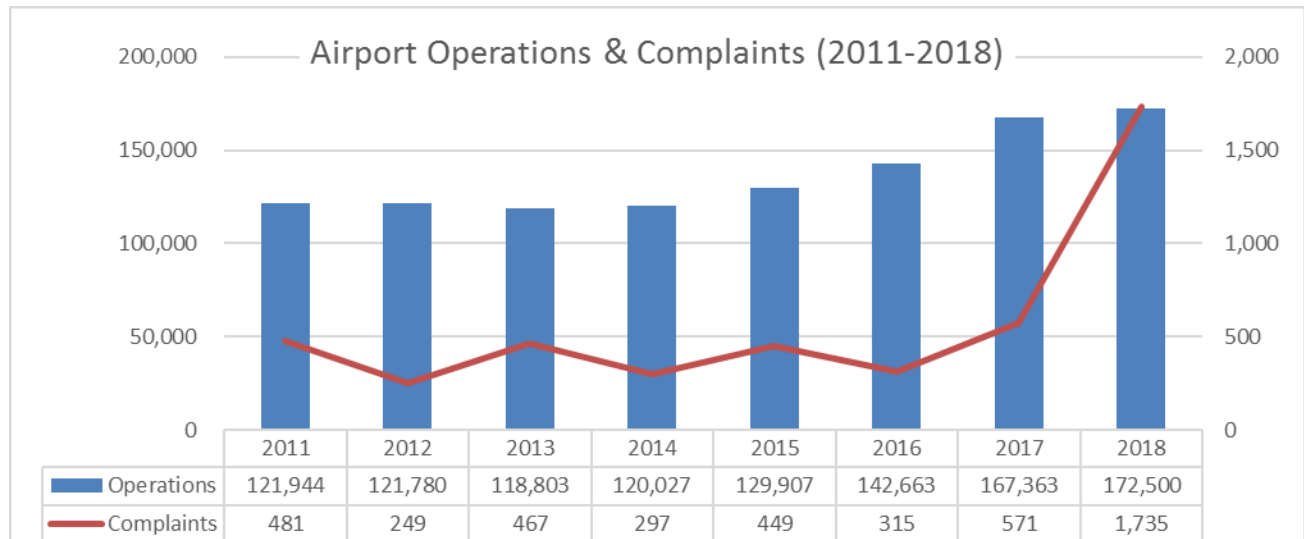


Figure 17. Annual operations and annual complaints. (Source, RMMA).

The rise in complaints from 2017 to 2018 raised questions regarding the cause of the growth in complaints. A deeper look into the complaint data revealed that in 2017, a single household was responsible for nearly 50% of the annual noise complaints. Of the 1,735 submissions in 2018, 865 came from a single household in Superior.

Figure 19 shows the number of complaint submissions and the number of households submitting those complaints.

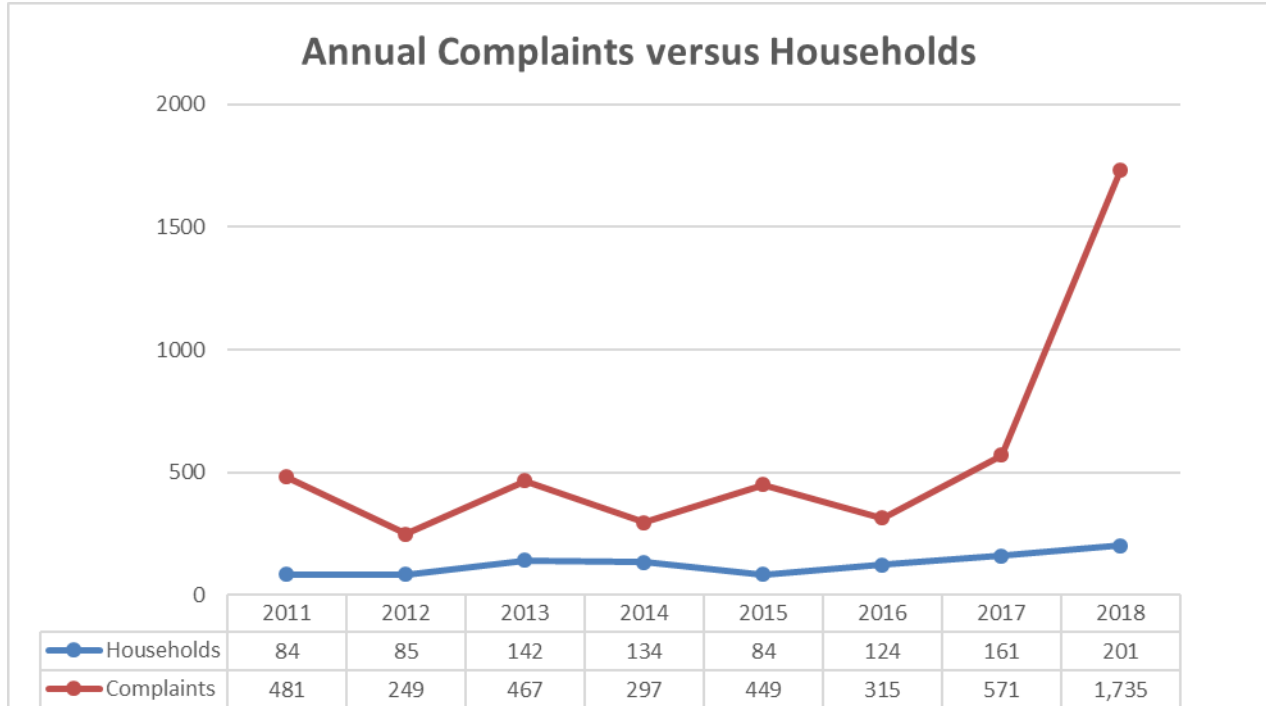


Figure 18. Annual complaints and number of households submitting complaints. (Source, RMMA).

Complaints by Town / City

The level and volume of complaints typically correlates, to some degree, to the level of noise exposure and/or overflight activity in a specific area. Complaints are usually higher in areas closest to the airport, where aircraft are typically low(er) and the frequency of overflights is higher. These factors combined typically result in higher noise exposure and therefore more complaints.

On the other hand, residents that are informed about the airport and expected overflight activity levels and who choose to live close to an airport are often those who are less sensitive to overflights and noise. Sensitivity to aircraft noise varies greatly among individuals and often, residents within a community may be highly annoyed while others in the same area experience no annoyance at all. Because of this, noise complaints should be viewed as a source of information but not a direct indication of exposure or impact.

Over the study period, noise complaint volumes were relatively flat until 2018. Average monthly submissions ranged from 3 to 316. Superior had the highest average with 316. That included 1,734 complaints in 2018, up from 571 submissions the prior year, with 50% coming from a single household. Louisville accounted for the second highest volume of complaints with an average of 103 per month over the 8-year study period.

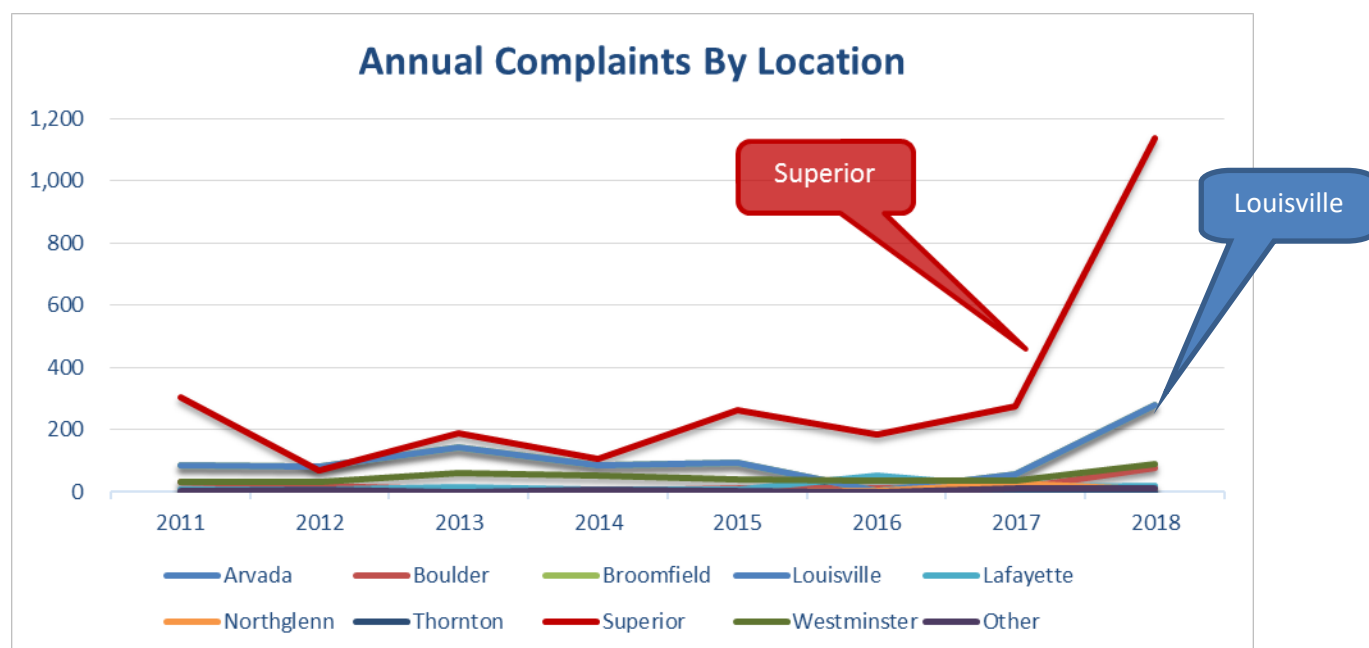


Figure 19. Complaints by location. (Source: RMMA)

Complaints by Aircraft Category

The airport provides complaint data on their website going back to 2011. The data includes complaint by aircraft type, broken down by quarter. A review of the reports (2011-2018) revealed that in some quarters, jet operations caused the majority of complaints, but most of the time, propeller aircraft were the major issue for residents.

A more detailed review of complaint data for 2016-2018 revealed the majority of complaints each year were associated with propeller aircraft operations. Figure 21 (below) shows the complaints by aircraft type. The values are based on percentage of total complaints.

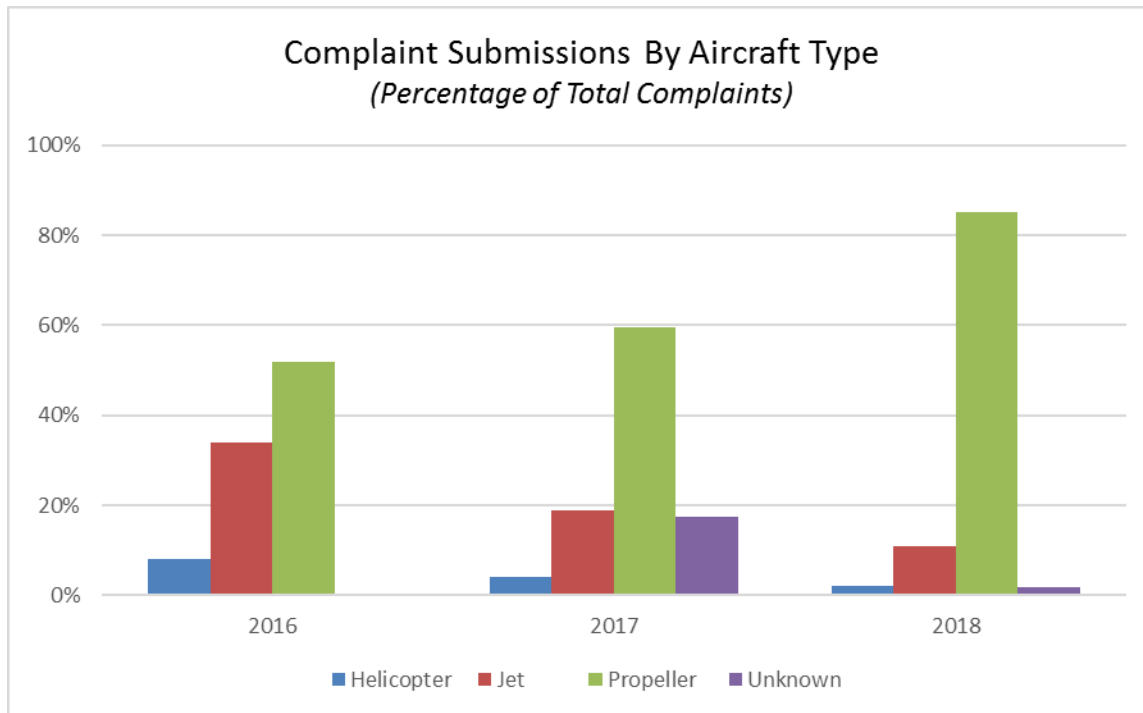


Figure 20. Complaint submissions by aircraft type

It should be noted, 2018 data includes the 865 complaints submitted by a single household, all of which were attributed to propeller aircraft.

Airport Noise Program (Existing)

Overview

The Airport's existing noise program (RMMA Fly Quiet) is intended to, "balance the needs of our community" and to "minimize noise from aircraft operations and reduce any negative effects on the surrounding areas." (Source: Jefferson County website, <https://www.jeffco.us/1694/Fly-Quiet-Program>).

Airports do not have the authority to regulate flight operations, however they may recommend procedures and practices intended to reduce community noise impacts. The RMMA Fly Quiet program includes the following recommendations to pilots:

- Avoid flying over noise-sensitive areas when practical.
- Fly high and tight patterns, not low approaches.
- Follow the PAPI.
- Maintain pattern altitude of 6,500 feet for singles and 7,000 feet for twins, jets, and helicopters.
- No intersection takeoffs.
- Runway 30R is designated the “calm wind runway” under the recommended noise abatement procedures.
- Engine maintenance run-ups are not allowed between 10 p.m. and 6 a.m., except in an emergency. (Note: engine run-ups may be regulated by the airport).

While not mandatory (except for the restrictions on engine run-ups), these recommendations can be effective in reducing noise impacts. In support of encouraging awareness and participation in the Fly Quiet program, the airport staff visit flight schools and other tenants advising them of the noise program elements and the importance of minimizing noise impacts to the extent possible.

Airport noise program information is also disseminated via the Airport’s website which includes program elements as well as a map noting “noise sensitive areas” which should be avoided when possible. Reference to the airport’s noise abatement program and a contact phone number for noise program information is also referenced in the Airport Facility Directory which provides airport information to pilots. (See Figure 21).

Regional Economic and Social Impacts

The core focus of this analysis was on the negative impacts of RMMA and the associated aircraft operations with the ultimate goal of identifying strategies to reduce those impacts on the community. However, it is important to recognize the positive impacts, both economic and social, for the state, region, and local area.

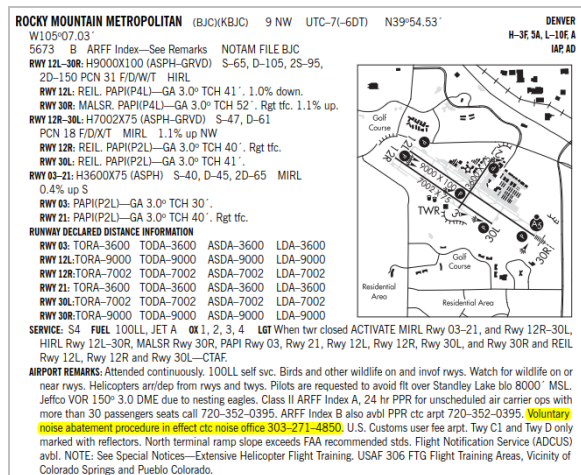


Figure 21. Excerpt from Airport Facility Directory

Some of the greatest positive local and regional impacts of an airport are economic in nature. Airports can act as a regional economic engine promoting both economic and job growth.

According to a study sponsored by the Colorado Department of Transportation, RMMA is directly responsible for more than 800 jobs. Those are jobs attributed to the airport itself (airport management and staff) and airport tenants (flight schools, Federal Aviation Administration, restaurants, etc.). That's over 800 individual jobs contributing millions of payroll dollars to local residents and ultimately the local economy.

Access to convenient air service is often a consideration for corporate relocation. Corporate aviation facilities for Ball Corporation, Level 3 Communications, Leprino Foods and Pilatus are based at RMMA.

In addition to economic impacts, airports provide facilities that support public safety agencies including law enforcement and the military. RMMA is home to a U.S. Forest Service Tanker Base which supports the Forest Service's role fighting wildfires.

The economic benefits associated with tourism is another benefit of a local airport. According to the Colorado Department of Transportation, 141,000 visitors arrive in Colorado via RMMA.



These visitors spend money in the local area on food, lodging, transportation, and in retail stores strengthening the local economy. In addition to money spent on local businesses, RMMA operations are linked to the generation of close to \$13 million in state and local tax revenues annually.



Disclaimer

The contents of this material reflect the views of the authors and/or ABCx2, LLC. Neither the Town of Superior nor the City of Louisville make any warranty or guarantee, or promise, expressed or implied, concerning the content or accuracy of the views expressed herein. Copyright 2019 ABCx2, LLC. All Rights Reserved. Approved for Public Release - 190425. Distribution is at the discretion of the Town of Superior and/or the City of Louisville.

Appendices

Appendix 1

Letter from Airport to Town of Superior regarding Final Development Plan for Rock Creek dated (December 11, 1986)

Appendix 2

Letter from Airport to Town of Superior regarding proposed residential development in proximity to airport and flight corridors. (April 25, 1989)

Appendix 3

Letter from Airport to Town of Superior regarding proposed residential development in proximity to airport and flight corridors. (January 21, 1997)

Appendix 4

Newspaper article: “*Superior expansion near airport is risky, Jeffco officials warn.*”

Appendix 1

DENVER'S
CORPORATE
RELIEVER



December 11, 1986

Ms. Laura Belsten
Manager
Town of Superior
206 West Coal Creek Drive
Louisville, Colorado 80027

Dear Ms. Belsten:

We have received a copy of the Final Development Plan for the proposed Rock Creek Ranch Planned Unit Development. We would like to thank the Town of Superior for this opportunity to express our comments and concerns regarding this matter.

I have enclosed with this letter a copy of our land use map that has been developed as part of our current Airport Master Plan update. This plan has been proposed by our Airport Consultants and accepted by the Jefferson County Airport Authority. The land use plan has not yet been formally approved by the FAA as of this date since this will not occur until the entire master plan update is complete. Our comments regarding the Rock Creek Development are based on this enclosed plan.

The Rock Creek Development site lies totally within the Airport Influence Area, and therefore, we would ask that the Town of Superior require the developer to grant an Avigation Easement (copy enclosed) to the Airport over all of the property. This easement will better inform future dwelling owners of the noise, vibration levels, nuisance and safety hazards that they can expect during the day and night from the overflight of aircraft. This will also help to protect the Town of Superior as well as the Airport from complaints regarding the same. The Cities of Broomfield and Westminster, and Boulder and Jefferson County routinely require a grant of the easement as a part of their platting process of ground in our Influence Area.

We recommend that no residential development be allowed to take place within the Airport's Critical Zones, as designated on the land use map. Also within these areas, no public buildings such as schools, day care centers, churches, etc. should be permitted.

The map furnished us by the developer detailing the proposed development has four school sites shown on it. We have concerns about these school locations, particularly the school site shown in Area 17. This site is located in line with the extended centerline of our future runway. The school's location should be offset as far as possible from this extended centerline. The remaining schools all appear to be very near the Instrument Runway Critical Zone for our primary

Ms. Laura Belsten
Town of Superior
December 11, 1986
Page 2

runway. We would recommend that these schools be kept as far from this Zone as possible. Again, it should be noted that any buildings, including these schools, will be impacted by the noise and vibration levels associated with the aircraft flight patterns over this site. Also, any future aircraft accidents are more likely to occur in and near this area than most other locations surrounding the Airport.

We would concur with the recommendations outlined in the Rock Creek PUD proposal regarding restricting heights of objects in accordance with Federal Aviation Regulation Part 77.

We would further recommend, in accordance with our land use plan, that a 200' x 2000' "clear strip" be established off of the end of our future runway clear zone. Within this area no buildings of any kind should be permitted. This area should be reserved for such uses as parking lots, streets, open space, retention ponds, drainage areas, etc. The purpose of this strip is to provide an obstruction-free area to accommodate potential off-airport crashes. This provides a greater margin of safety for both the pilot and passengers as well as to persons on the ground. Actual locations of crashes over the Airport's history shows that this area of concern has a true basis.

In conclusion, we feel that careful consideration with regard to the impacts that Jeffco Airport will have on this property should be given. We feel that this is the appropriate time to evaluate this development to ensure that the rights of future home owners are protected as well as preserving compatible and safe land use controls that can be enjoyed by all parties concerned.

We appreciate this opportunity to review this development plan, and we will be available to answer any questions or concerns you may have regarding these comments.

Sincerely,

JEFFERSON COUNTY AIRPORT AUTHORITY



David C. Gordon, A.A.E.
Airport Manager

DCG:sh

cc: Ted Asti, Mayor
Richard Scheidenhelm, Attorney, with Avigation Easement
George Graber, Airport Attorney

Appendix 2

April 25, 1989

DENVER'S
CORPORATE
RELIEVER



Mr. Frederick G. Fox, AICP
Planning Consultant for the Town of Superior
101 Park Place
Superior, CO 80027

Dear Mr. Fox:

On behalf of the Jefferson County Airport Authority, I would like to offer the following comments regarding the Town of Superior Comprehensive Plan Final Draft.

To begin with I would like to mention that the plan appears to be very complete and well written. It is obvious that considerable time and effort has gone into the preparation of this plan. Although the Plan makes reference and given consideration to the Airport in several different sections, we feel that more information both specific and general regarding the airport needs to be included in the plan which I will discuss in this letter.

Because of the Airport's close proximity to both the Superior Corporate and Planning area Boundaries, we feel that it is very important that off airport impacts to these areas be clearly defined to better ensure compatible land use will develop in the future. As such we would ask that the following recommendations be added and made a part of the final Comprehensive Plan:

1. On page six, paragraph two, reference should also be included to indicate the location of Superior in relationship to the Jefferson County Airport.
2. On pages 13 and 14, reference to the Airport is made regarding the various areas and zones off of the end of runways and surrounding the Airport. This information is accurately stated and we appreciate this being included in the Plan. We would ask that this section go even a step further by stressing the importance of ensuring that Superior planners follow and adopt these Airport land use recommendations. It is not clear if in fact these recommendations will actually be utilized.

This section also makes a statement that all lands within the Airport Influence Zone will have aviation easements. How exactly will this be accomplished? It should also be noted that according to the Rock Creek PUD plan the Master Developer agrees to grant an Aviation Easement over the entire Rock Creek Ranch development within 14 months after recordation of the Final Development Plan. To our knowledge this has not yet been done. Also, it might be appropriate to include a Sample Aviation Easement somewhere in the Plan, possibly as an attachment or appendix. This would better help the reader of the document to better understand the actual purpose of the easement. (A sample Aviation Easement is attached for your reference).

3. Of primary interest to the Airport regarding the Comprehensive Plan involves the actual Land Use Plan. The Overall Schematic Land Use Plan Map 4-1 should have the Airports Influence Area, Critical Zones and Clear Zones shown since these areas are of extreme importance when making any land use decisions.

Also, the proposed land uses which fall within the above described zones and areas concern us. The majority of this area has proposed land uses which include primarily "mixed use". According to your plan mixed use areas are comprised of residential, commercial or light industrial. Based upon the Airport Land Use Plan, any residential uses within these areas are considered to be an incompatible for reasons of noise and safety, and therefore should not be included as an approved use. There also is a portion of land that lies within the northern corner of the Airport's Critical Zone that is proposed to be solely residential. Again, this is an inappropriate and incompatible in terms of land use for this area.

We would strongly urge the Town to reconsider their proposed land uses within these areas and propose a type of land use which will better serve both the Airport and the Town of Superior. The most compatible uses would include open space, commercial and industrial. It should be noted that in addition to the obvious noise impacts that will likely be experienced within these areas as a result of aircraft overflight, past Airport records have substantiated the fact that a high percentage of off airport accidents involving aircraft have occurred in this location.

In conclusion, the Jefferson County Airport looks forward to working and growing in a compatible manner with the Town of Superior.

We feel that the recommendations we have offered in this letter are consistent with and accurately represent the goals and objections of the Town's proposed Comprehensive Plan and will result in a more complete and useful document. We sincerely appreciate all of the considerations that the Superior Plan has given to the Airport with regard to land use, however due to the potential growth that Superior can expect over the next twenty years, it is very important that all parties involved with the planning process have as complete and total understanding of the impacts that the Airport may have on the Town in the future.

I have no further comments at this time. I would however, like to thank the Town for allowing us this opportunity to review the proposed Plan. Furthermore, I will be available to discuss this matter with you in more detail at your convenience should you desire.

Sincerely,

JEFFERSON COUNTY AIRPORT AUTHORITY



Robert T. Lehne

Assistant Airport Manager

RTL:tl

Enclosure



JEFFCO AIRPORT
Denver's Corporate Choice

Appendix 3

January 21, 1997

Town of Superior
c/o Mr. Fred Fox
Foxfire Community Planning and Development
13743 E. Mississippi Avenue, No. 102
Aurora, Colorado 80012

RE: Rock Creek PUD Amend. Nos. 14 -18

Dear Mr. Fox:

We have reviewed the proposed PUD amendments that were referred to us earlier. PUD Amendments 15 and 17 are of major concern to this airport. We notice that high-density residential development is proposed to be added within these areas.

Amendments 15 and 17 are located within the airport's "Critical Zone." As you know, the greatest concentration of air traffic occurs within these zones and noise associated with the overflight of aircraft will take place during all hours of the day and night. In addition, the potential for accidents are greatest within these areas. Within this specific area, residential development of any kind is not recommended or supported by us and is, in fact, considered highly incompatible. We therefore strongly urge the Town to reconsider making any changes to the Comprehensive Plan which would allow for the residential use which is being proposed.

The majority of the noise complaints that are received by our office are generated from the Town of Superior. The addition of high-density residential use will only result in even more unhappy citizens who would live in property that is within a defined high noise impact area of the Jeffco Airport. The Jeffco Airport has seen considerable amount of development take place over the last few years and this is likely to continue well into the future.

And finally, we ask that the PUD disclose the airport's presence and impact it will have on the future property owners of Rock Creek. A

Airport Management

David C. Gordon, A.A.E.
Airport Manager

Robert T. Lohne, A.A.E.
Assistant Airport Manager

Airport Authority Commissioners

Dr. David D. Callender
Edward N. Haase
Roy Halladay
Michael R. McGinnis
Jim Thyfault

Alternate

Robert A. Hartwig, Jr.

11755 Airport Way
Terminal Building
Broomfield, Colorado 80021

Phone: (303) 466-2314
Fax: (303) 438-2017

FAA Control Tower • ILS on 29R
Surface Runways: 29R-11L (9,000')
29L-11R (7,000') 02-20 (3,600')

Page Two, Town of Superior

requirement to properly notify the public of this should also be a condition of approval.

Thank you for allowing us this opportunity to review and comment on this proposed rezoning issue.

Sincerely,

JEFFERSON COUNTY AIRPORT AUTHORITY

A handwritten signature in black ink, appearing to read "David C. Gordon".

David C. Gordon, A.A.E.
Airport Manager

cc:

Jefferson County Airport Authority
Jefferson County Commissioners
Boulder County Commissioners
Governor, State of Colorado
Boulder Daily Camera
Louisville Times
Lafayette News

Superior expansion near airport is risky, Jeffco officials warn

By SALLY McGRATH
Camera Staff Writer

SUPERIOR — Jefferson County Airport officials once again are warning of dangers to Superior residents if the town approves more housing close to the Broomfield airport.

Airport officials' latest warnings come in response to a request by Rock Creek Ranch developer Richmond Homes that the town amend its Comprehensive Plan to allow construction of as many as 421 multifamily housing units, including condominiums, on five parcels of land now zoned for commercial development. Two of the parcels at Coalton Road and Rock Creek Parkway are in the airport's "critical zone," an area off the end of the runways.

The airport occupies 1,800 acres southeast of Superior and the Rock Creek Ranch subdivision.

"The greatest concentration of air traffic occurs within these zones, and noises associated with aircraft will take place during all hours of the day and night," warned airport manager Dave Gordon. "And the potential for accidents is greatest within these areas."

Superior Town Manager Bruce Williams said Tuesday the Town Board will consider Jeffco's concerns, along with everyone else's, as it reviews Richmond's rezoning proposal. He refused to comment further. A public hearing on the request tentatively has been set for March 4. The meeting will be at Town Hall, 124 E. Coal Creek Drive. This is the latest round in an ongoing battle between airport officials and the town, which in the last 18 months has approved more than 300 houses south

"The greatest concentration of air traffic occurs within these zones, and noises associated with aircraft will take place during all hours of the day and night . . . the potential for accidents is greatest within these areas."

— Dave Gordon, airport manager

of Coalton Road within a mile of the airport's main runway. Some of the houses will be under airspace where planes often turn to gain altitude after taking off, airport officials say.

Safety and noise issues also arose last year and prompted the town to investigate the safety of allowing housing in the airport's critical zone. After reviewing Federal Aviation Administration records, Town Board members concluded safety was not a great enough concern to stop development.

Gordon said the new housing will prompt more noise complaints from Superior residents, who already file more against the regional airport than any other area. Of 419 noise complaints registered against Jeffco last year, 156 were from Superior residents, Gordon said.

At minimum, Gordon said, Richmond should notify homebuyers they are moving into homes subject to airport noise.

Daily Camera 2-5-97

Task 1: Prioritization of noise abatement recommendations

Discussion with the Town/City should be conducted to prepare prioritization. Review of the strategies described in the recommendations.

Propose a workshop with representatives from the Town/City. Briefing by ABCx2 including review of the strategies proposed, discussion of benefits, challenges, implementation plan, timeframes, organizational roles, and costs.

Estimated Hours: Workshop – 2-3 hours
 Preparation and documentation – 15-20 hours

Deliverables

- Workshop
- Summary Report
- Briefing materials for Flight Training Task Group

Delivery Dates: January/February pending participant availability

Task 2: Participation on RMMA Noise Task Force

ABCx2 to continue participation on RMMA Noise Task Force providing technical and subject-matter expertise, advocating for the noise-impacted communities within Superior and Louisville, encouraging industry awareness and focus on aircraft noise impacts and implementation of policies, practices, and procedures to reduce impacts.

ABCx2 participation will include on-site or dial-in, depending on meeting content and client pre-approval will be required for on-site participation.

A meeting with the Task Force will follow the prioritization workshop with Superior and Louisville. The priorities established will be included in a briefing to the Task Force with the intent that it be incorporated into the work-planning and prioritization of the task force's efforts. This initial meeting will be on-site and scheduled for the day following the Strategy Prioritization Workshop.

Estimated Hours

- Prep for Prioritization Briefing – 5-10 hours (Applies only to the Prioritization Meeting)
- Prep for other meetings – 1-5 hours (will vary) (Per Meeting)
- Task Force Meetings – 1-3 hours (meeting length) (Per Meeting)
- Summary Reports – 2-4 hours (Per Meeting)

Note: *Bullet 1 above (Prep for Prioritization Briefing) applies to an initial briefing of the task force focusing on prioritization of program elements moving forward. This will include input provided by the Town/City collected during the prioritization workshop described in Task 1.*

Deliverables

- Summary reports following each meeting
- Advocacy and support at meetings
- Other deliverables to be determined

Delivery Dates: Summary reports within 10 business days following each meeting

Task 3: Develop roadmap for development of aircraft noise roundtable

ABCx2 will provide a written report including a roadmap describing the critical steps in establishing an aircraft noise roundtable. The report will focus on the development of a roundtable and particularly the interests of Superior and Louisville as the clients. Content of the roadmap (document) will be based on the specific needs of the clients, but may include:

- Potential roles, goals, and mission
- Strategy to encourage engagement from other local, county, state, and federal, governments
- Briefing materials (PowerPoint) for potential participants
- Identification of strategies for incentivizing participation and shared funding

ABCx2 recommends that development of a charter to include a roundtable mission, meeting frequency, meeting location(s), establishment of working groups, funding and budgeting, etc., should be conducted after the roundtable is established. This will encourage support by participants and buy-in.

Estimated Hours: Report - 20-30 hours
Presentation / Briefing (*optional*) 20-30 (plus travel)

Deliverables

- Draft written report including roadmap with steps for initial establishment of roundtable
- Final report (following client input/feedback)
- Presentation/briefing (*optional*)

Delivery Dates: Draft Report - 30 days from approval to proceed
Final Report – 7 days after client comments received
Presentation/briefing (*optional*) - 30 days from approval to proceed

Task 4: Review Denver Metroplex Environmental Assessment (EA) and identify implications for Superior, Louisville, and other communities surrounding Rocky Mountain Metropolitan Airport (RMMA).

The Federal Aviation Administration has indicated that changes associated with the Denver Metroplex project will result in changes in airspace and/or flight procedures at Denver International, Rocky Mountain Metropolitan Airport, and a number of other airports in the Denver metropolitan area. The changes associated with the Metroplex project may affect the airspace and flight operations at and around RMMA.

In an effort to identify potential impacts, ABCx2 will complete the following steps:

- Review draft environmental documents to determine potential implications to RMMA and surrounding communities.
- Identify changes in overflights and aircraft noise associated with changes in arrival and departure procedures for Denver International Airport
- Identify changes in overflights and aircraft noise associated with changes in arrival and departure procedures for Rocky Mountain Metropolitan Airport
- Identify changes in flight procedures or airspace that may limit or otherwise affect implementation of strategies proposed to reduce community noise impacts for communities surrounding RMMA

Estimated Hours: Draft Report 20-30 hours
Presentation / Briefing (*optional*) 20-30 (plus travel)

Deliverables

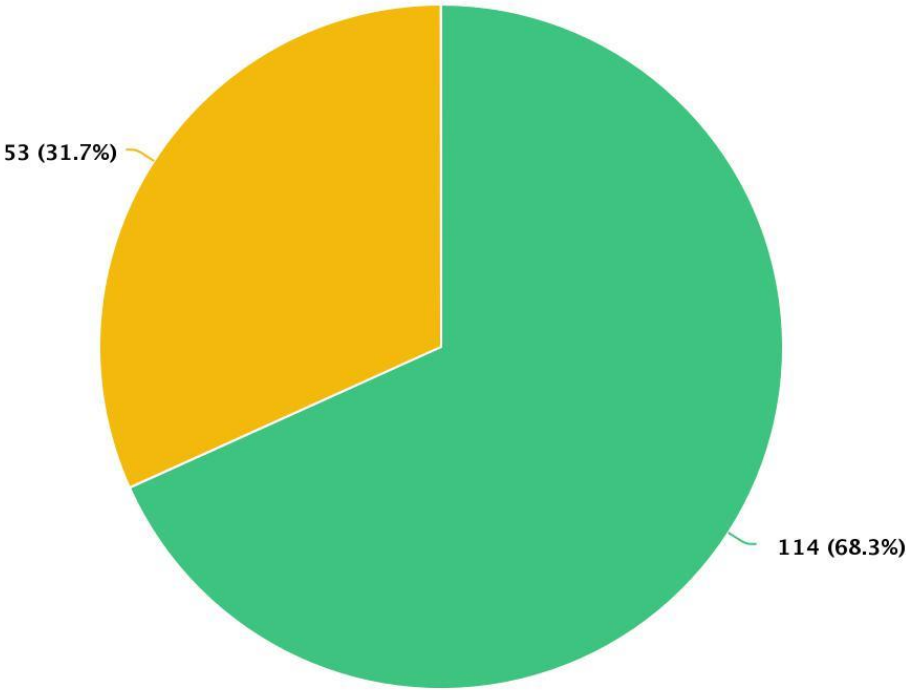
- Draft Report
- Final Report
- Presentation / Briefing (*optional*)

Delivery Dates: Draft Report - 45 days from approval to proceed
Final Report - 15 days after client comments received
Presentation / Briefing (*optional*) - 45 days from approval to proceed

Regarding travel, “Presentations” or “Briefings” include providing a walk-through of deliverables and technical reports developed by ABCx2. These can be conducted via telecon/webinar or on-site. Staff hours for development of the material will be the same whether it is delivered remotely (webinar) or on-site, but additional cost will be incurred for on-site which may include additional time and travel expenses.

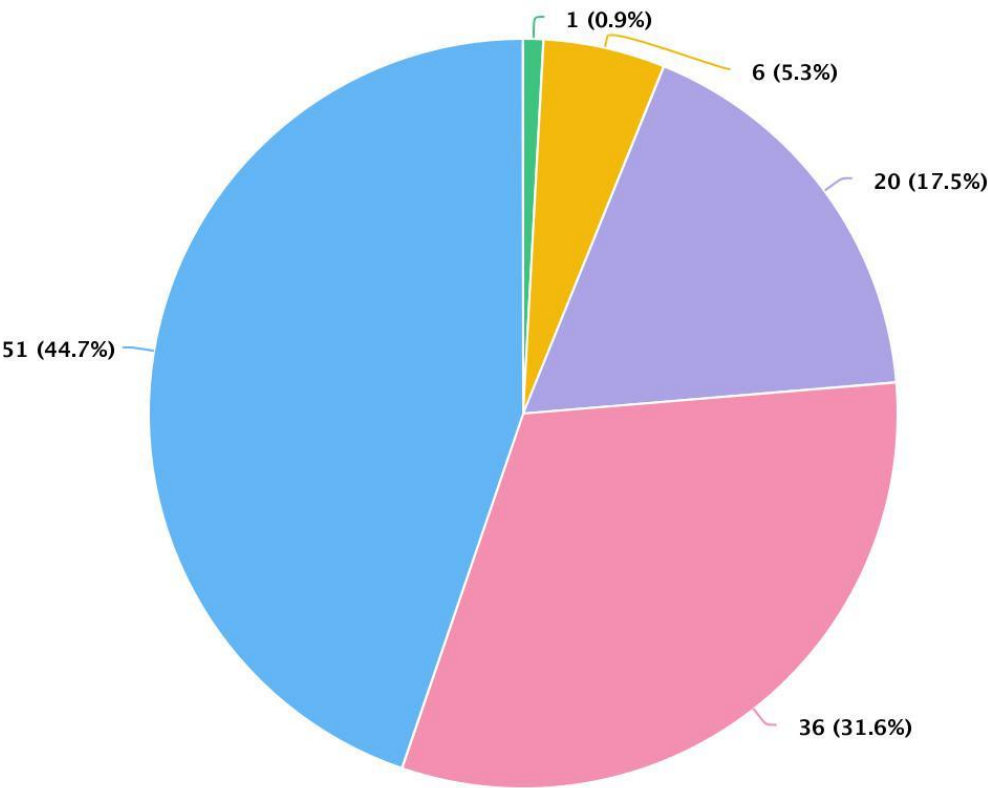
Whenever possible, ABCx2 will try to maximize value of each visit by combining meetings/events while we are on-site. As an example, we will try to schedule task force meetings or other community/industry meetings and events during the same trip. All travel and meeting/events will be subject to pre-approval by the client(s).

Is aircraft noise a concern for you?



Question options
(Click items to hide)
Yes No

If you answered "Yes" to question 1, how would you rate the level of concern/impact on your quality...

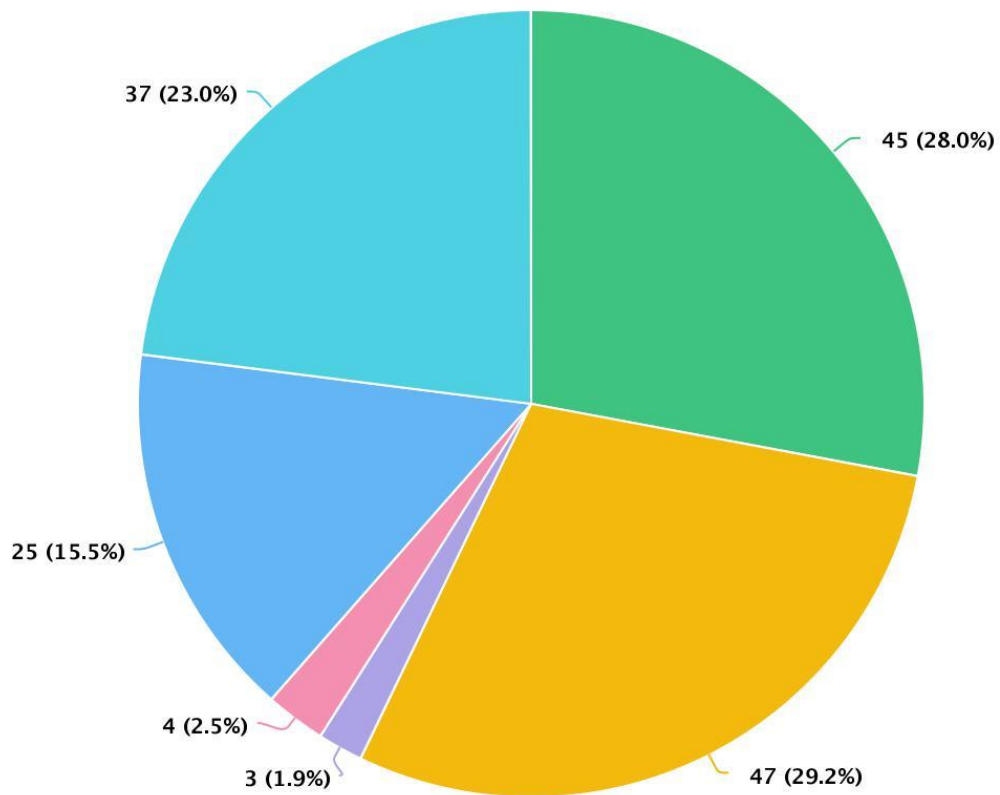


Question options

(Click items to hide)

- 1 2 3 4 5

What aircraft types are the most bothersome?

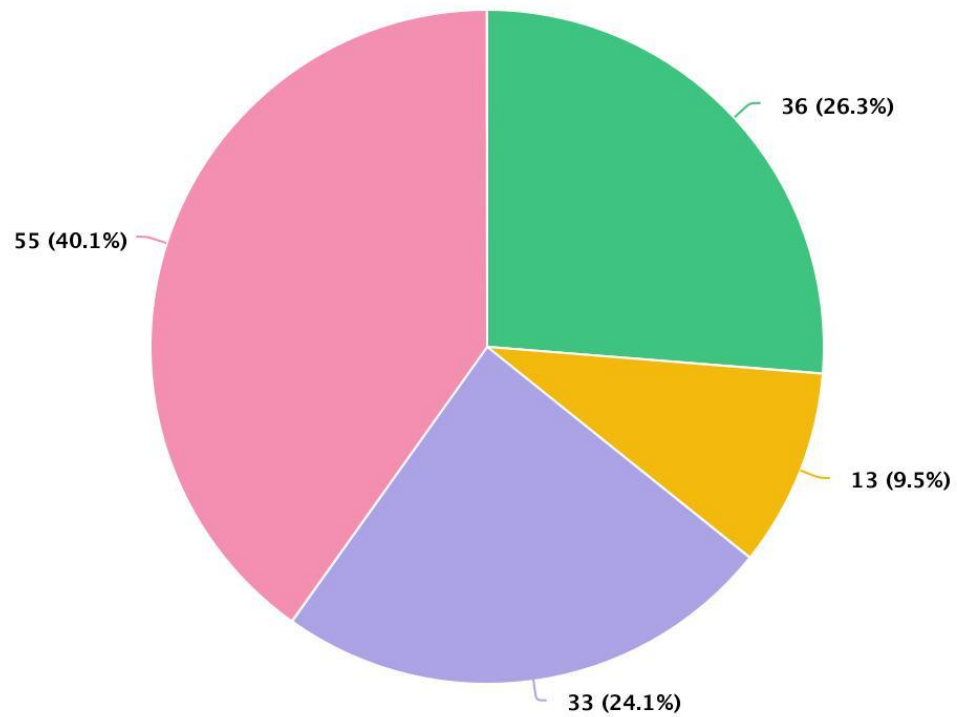


Question options

(Click items to hide)

- Jet aircraft
- Propeller aircraft
- Helicopters
- Military aircraft (airplane and/or helicopter)
- Unknown
- Other

During what time of the day are aircraft overflights/noise the greatest issue?

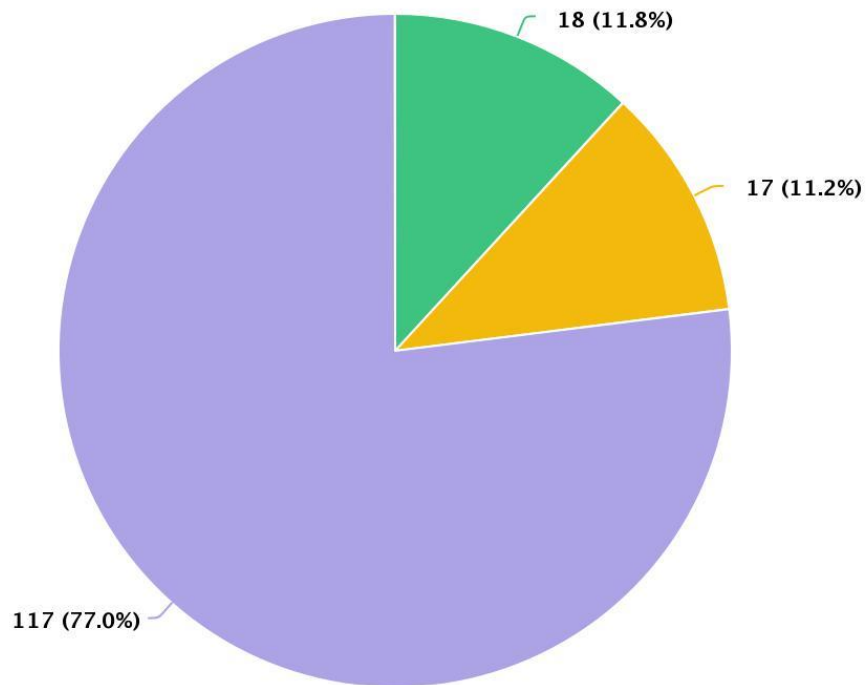


Question options

(Click items to hide)

- Morning/daytime (7 am-5 pm)
- Evening/nighttime (5-11 pm)
- Late night/early morning (11 pm-7 am)
- All day

Are the aircraft/aviation impacts worse during certain days of the week?

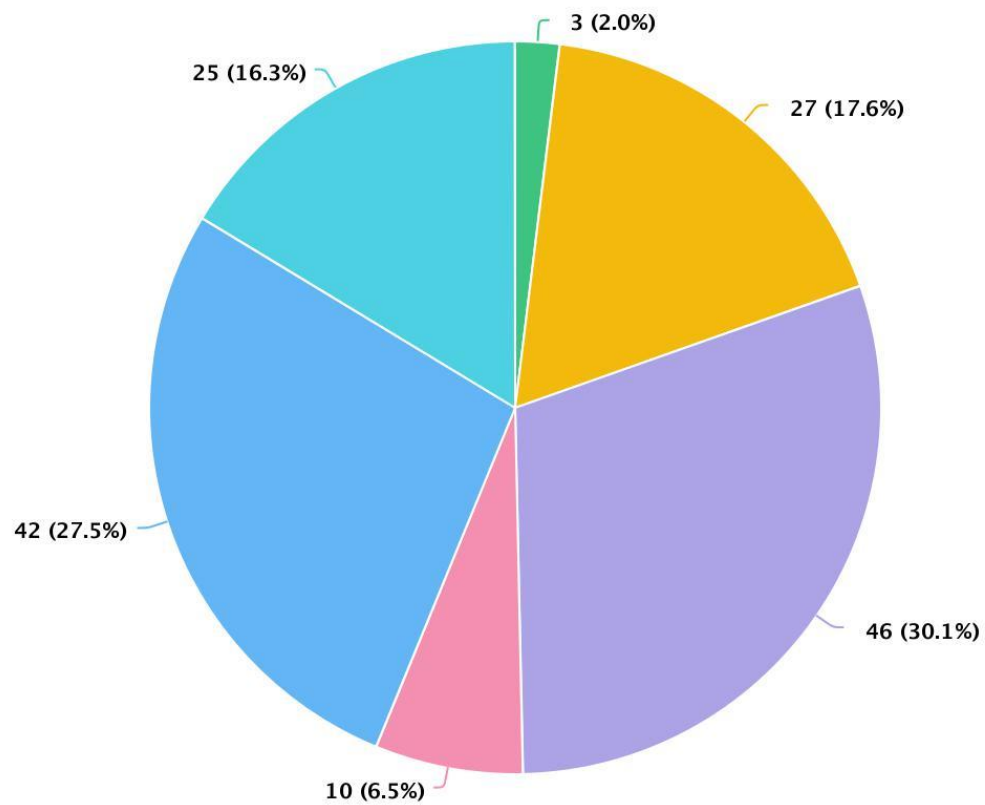


Question options

(Click items to hide)

- Weekdays are the worst
- Weekends are the worst
- I don't notice a difference – weekdays versus weekends

What type of operations have the most impact?

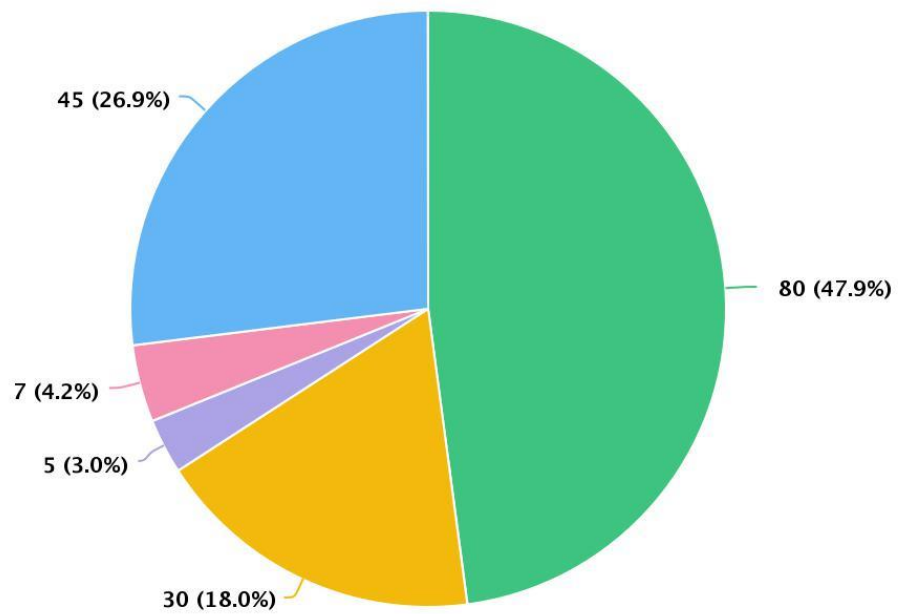


Question options

(Click items to hide)

- Arrivals (flights toward the airport)
- Departures (flights from the airport)
- Both arrivals and departures
- Touch-and-goes
- Not sure
- Other

How often are you disturbed by aircraft noise?

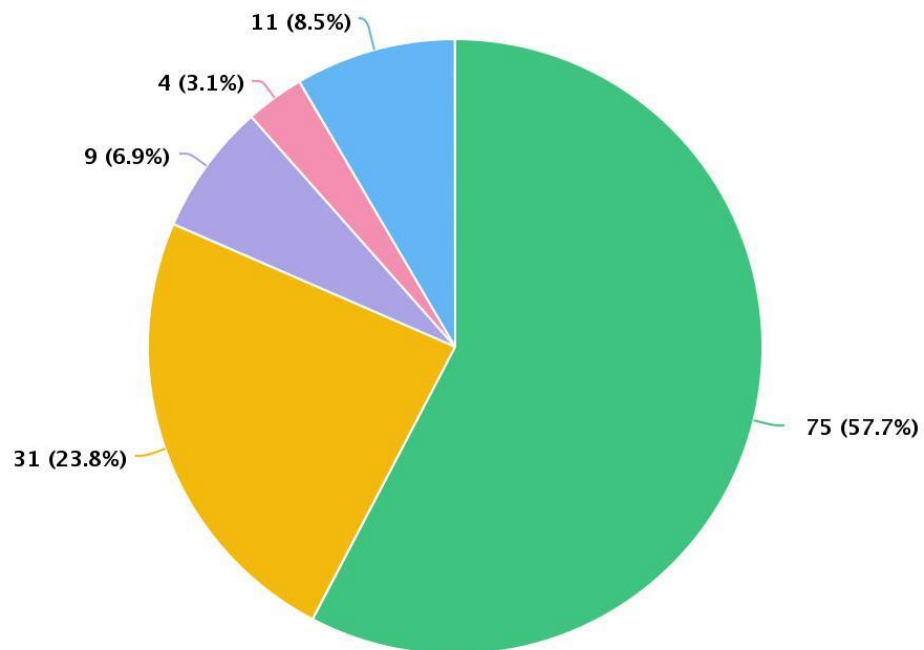


Question options

(Click items to hide)

- Every day
- A couple of times per week
- A few times per month
- A few times per year
- Never

What is your primary concern?

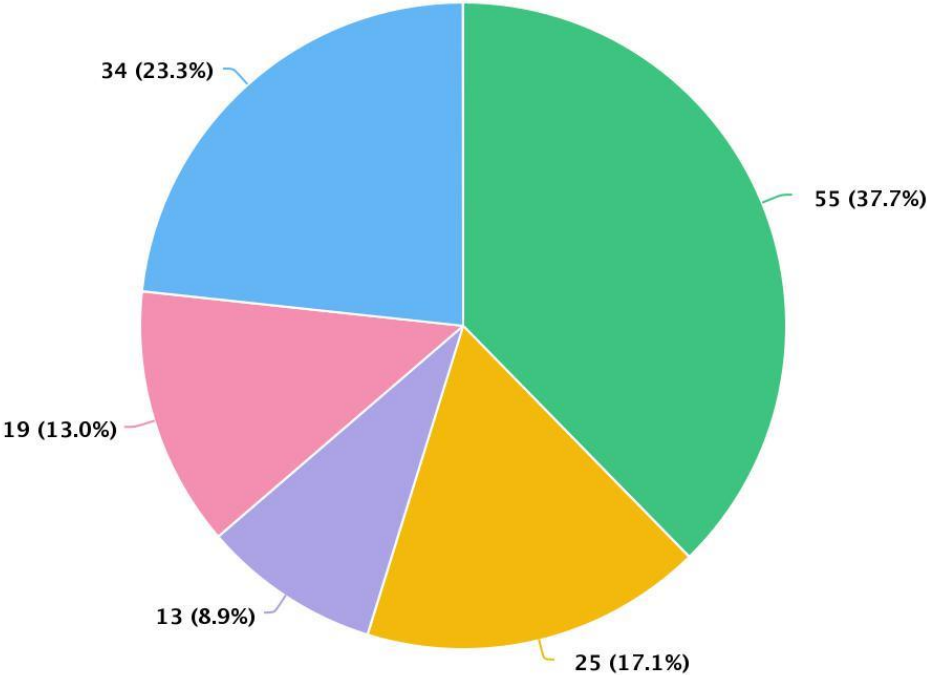


Question options

(Click items to hide)

- ☒ The aircraft are too loud
- ☒ The overflights are too frequent
- ☒ The airplanes are too low
- ☒ I have concerns about safety/fear of crashes
- ☒ I have environmental concerns (i.e. air pollution, climate impacts, etc.)

What is the nature of the impact?

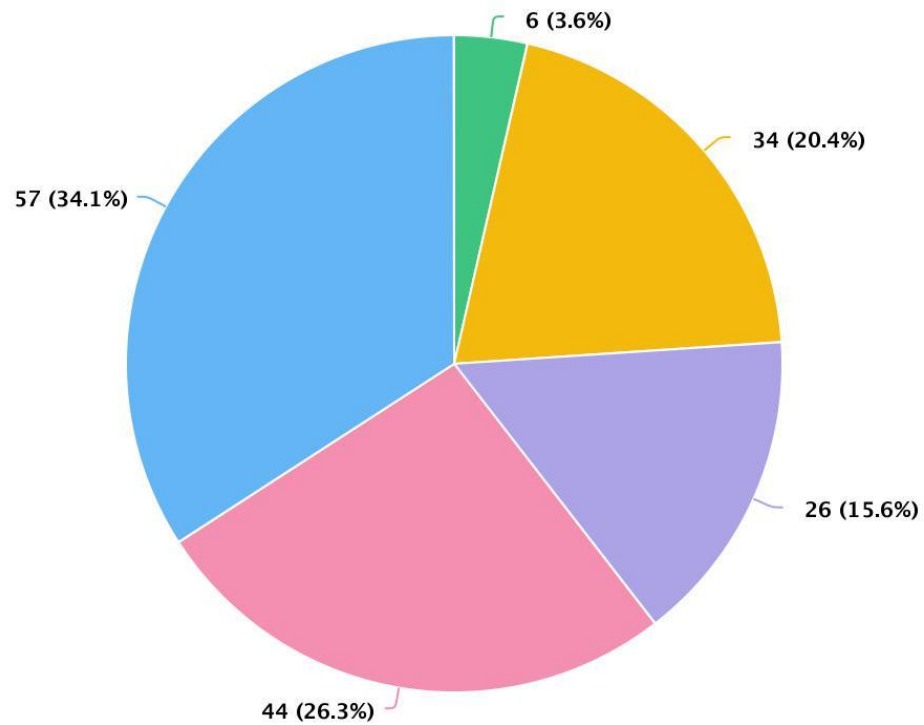


Question options

(Click items to hide)

- Distracting/annoying
- Disrupts sleep
- Disrupts indoor activity (i.e. conversation, television, etc.)
- Disrupts outdoor activity
- Other

How long have you lived in the neighborhood?

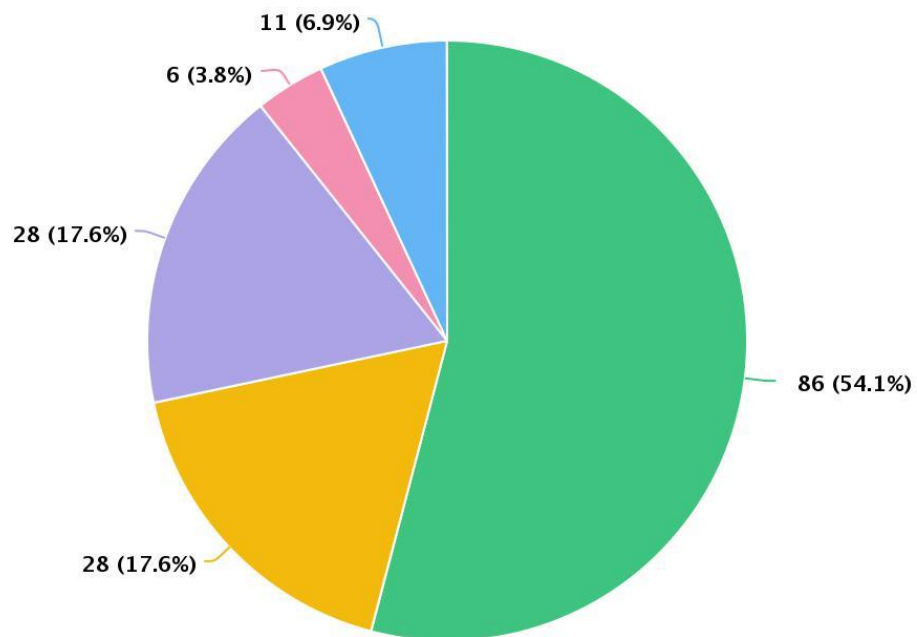


Question options

(Click items to hide)

☒ Less than 1 year ☒ 1-5 years ☒ 5-10 years ☒ 10-20 years ☒ 20+ years

Have the aircraft noise issues/impacts changed?

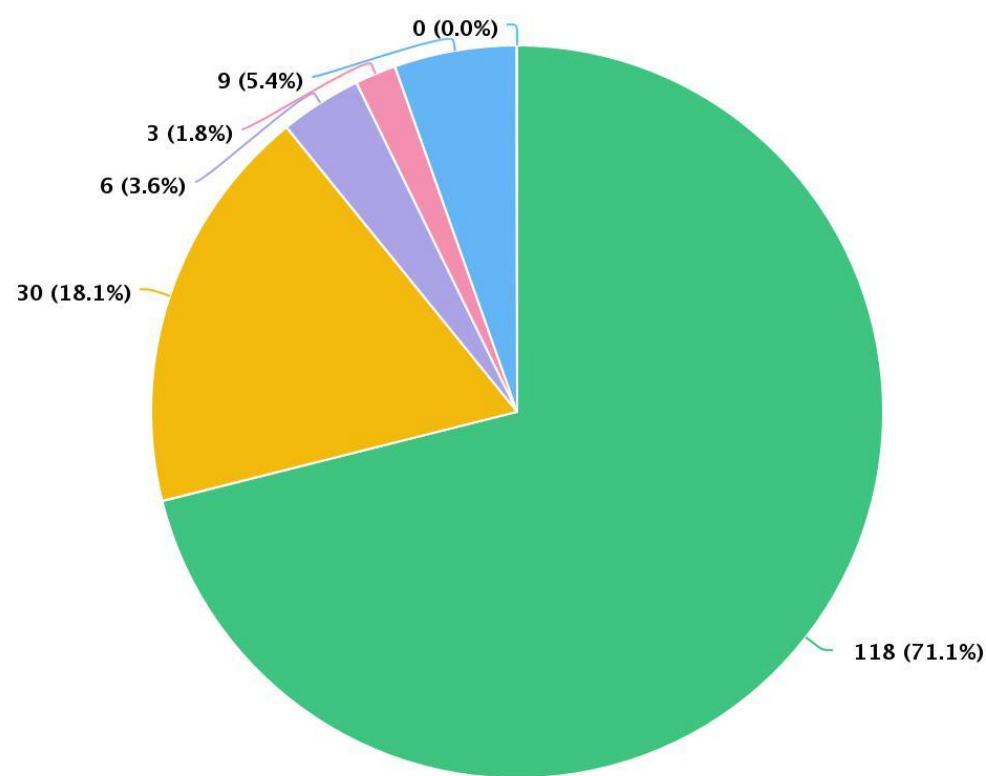


Question options

(Click items to hide)

- They are much worse
- They are a little worse
- They have not changed
- There has been slight improvement
- There has been significant improvement

What city do you live in?

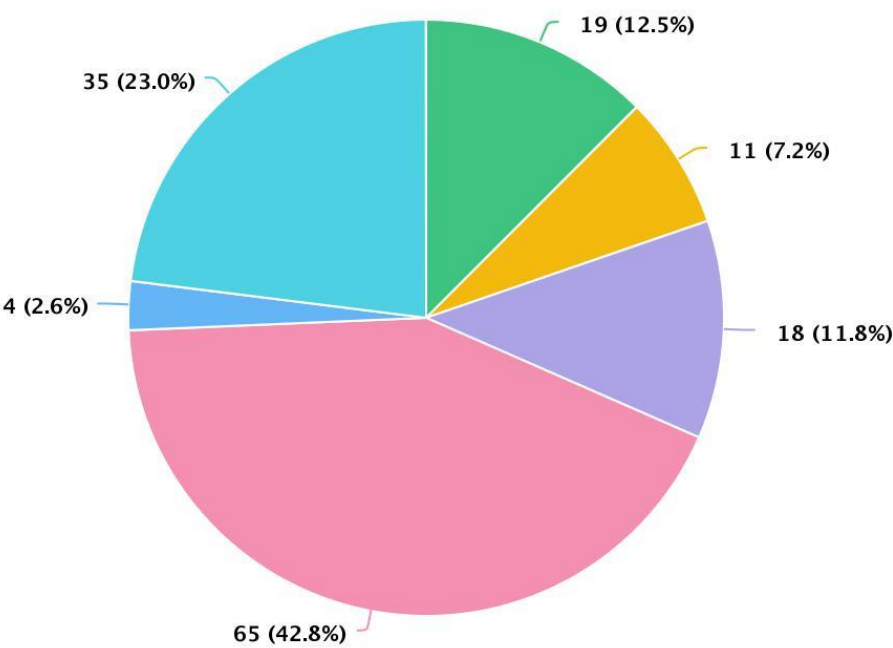


Question options

(Click items to hide)

- Louisville ● Superior ● Broomfield ● Westminster ● Other ● Boulder

What strategies would be the most beneficial for your neighborhood?

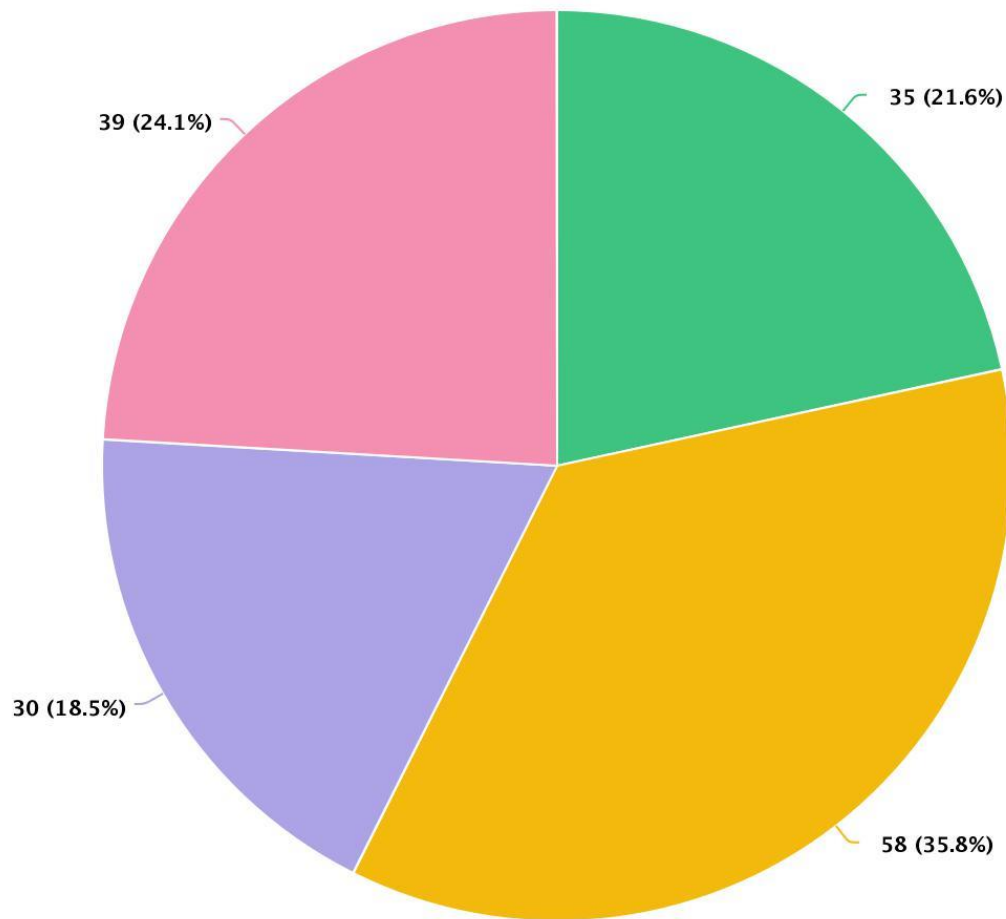


Question options

(Click items to hide)

- Increase altitudes
- Reduce/discourage nighttime operations
- Use other runways
- Reduce number of overflights
- Increase airport/community engagement
- Other

How can the city/town improve community engagement related to airport and aircraft issues?

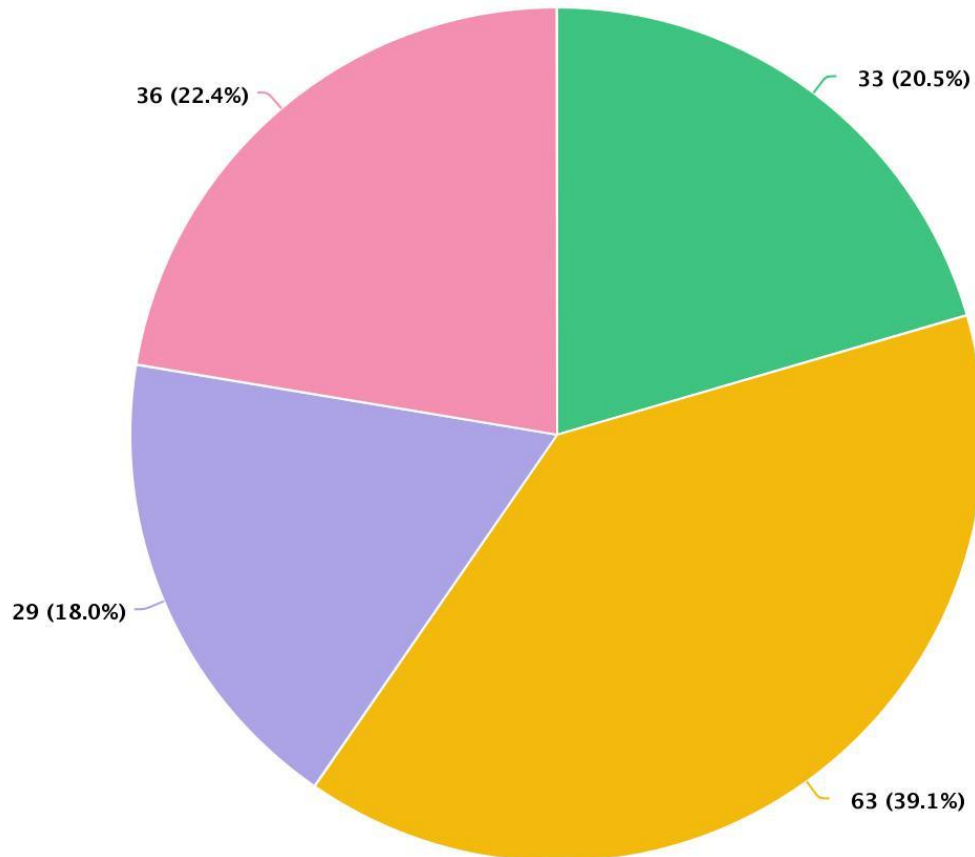


Question options

(Click items to hide)

- More effort should be made to provide information to the communities
- There should be more opportunities for the community to provide input
- The current engagement opportunities are adequate
- I have no opinion on this matter

How can the airport improve community engagement related to airport and aircraft issues?



Question options

(Click items to hide)

- ☒ More effort should be made to provide information to the communities
- ☒ There should be more opportunities for the community to provide input
- ☒ The current engagement opportunities are adequate
- ☒ I have no opinion on this matter



AGENDA

JOINT STUDY SESSION CITY OF LOUISVILLE CITY COUNCIL AND TOWN OF SUPERIOR BOARD OF TRUSTEES

**Monday, September 30th
7:00 – 9:00pm**

Louisville Recreation and Senior Center
Brooks/Crown Room
900 Via Appia Way, Louisville, CO 80027

Discussion Item: Rocky Mountain Metro Airport Noise Mitigation Study Findings

- 1) Introductions - Mayor Robert Muckle and Mayor Clint Folsom
- 2) Presentation of Final Recommendations – ABCx2, James Allerdice and Jason Schwartz
 - a. Council and Board – Questions and comments
- 3) Next steps and closing - Mayor Robert Muckle and Mayor Clint Folsom

ATTACHMENTS

FINAL REPORT PRESENTATION

FINAL REPORT – STRATEGY RECOMMENDATIONS

RESULTS FROM ENGAGE LOUISVILLE SURVEY

Welcome!

Joint Study Session

RMMA Noise Mitigation Study Findings



Agenda

- Project Objectives
- Process
- Stakeholders
- Recommendations
- Current Status and Next Steps
- Discussion / Q&A

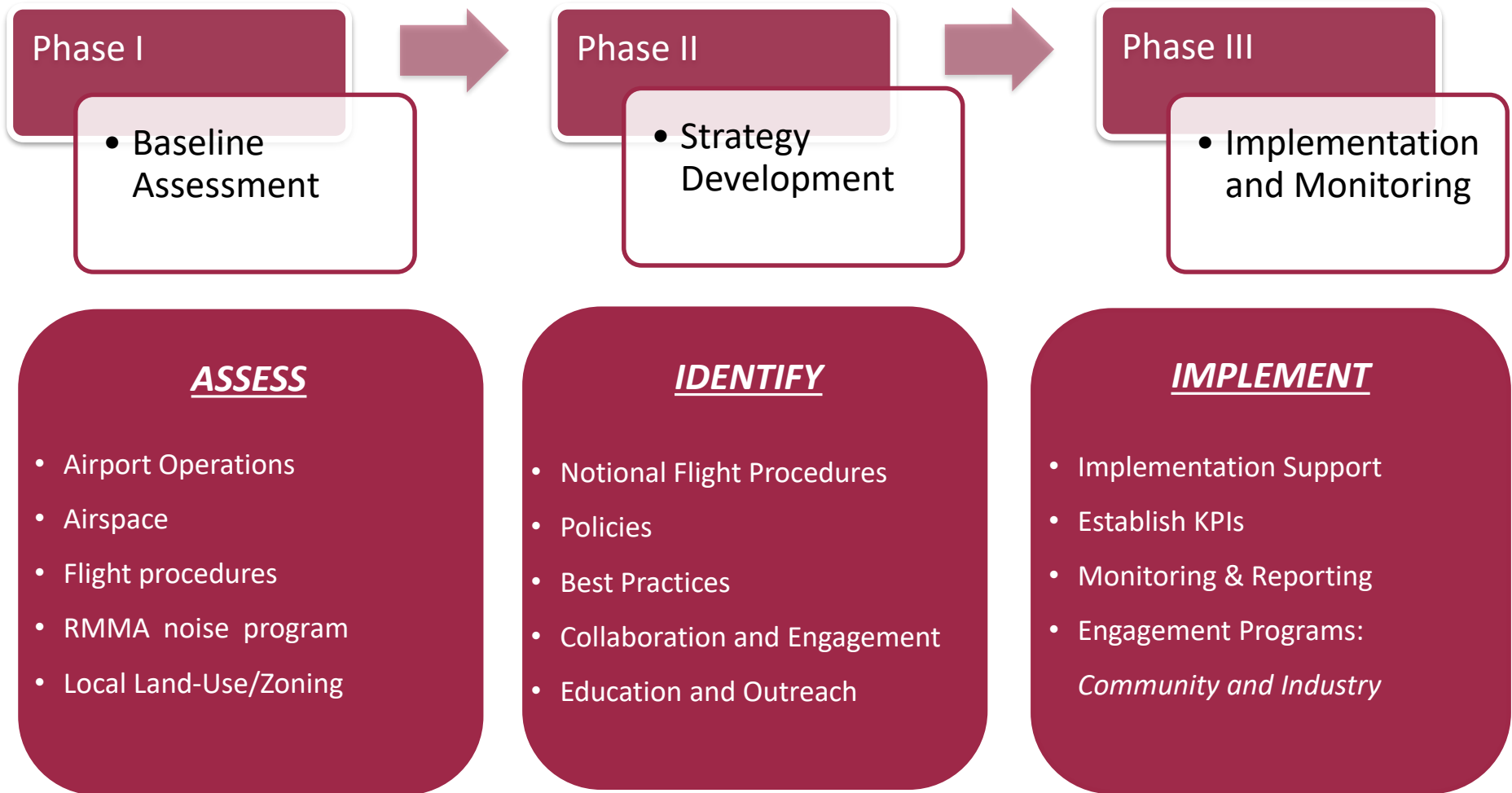
Objectives

Strategies to Reduce
Community Impacts

Community
Engagement Support

Aviation Industry
Engagement Support

Our Process



Stakeholders



Federal Aviation Administration's Role



Vision

We strive to reach the next level of **safety, efficiency, environmental responsibility** and global leadership. We are accountable to the American public and our stakeholders.

Mission

Our continuing mission is to provide the **safest, most efficient aerospace system** in the world.

Recommendations by Focus Area

- Flight Operations / Procedures / Practices
- Community Outreach and Engagement
- Industry Outreach and Engagement
- Land-Use Planning, Zoning and Development
- Regional Collaboration

Flight Operations / Procedures / Practices

Single-Engine Piston



Multi-Engine / Turboprops



Jets



Helicopters

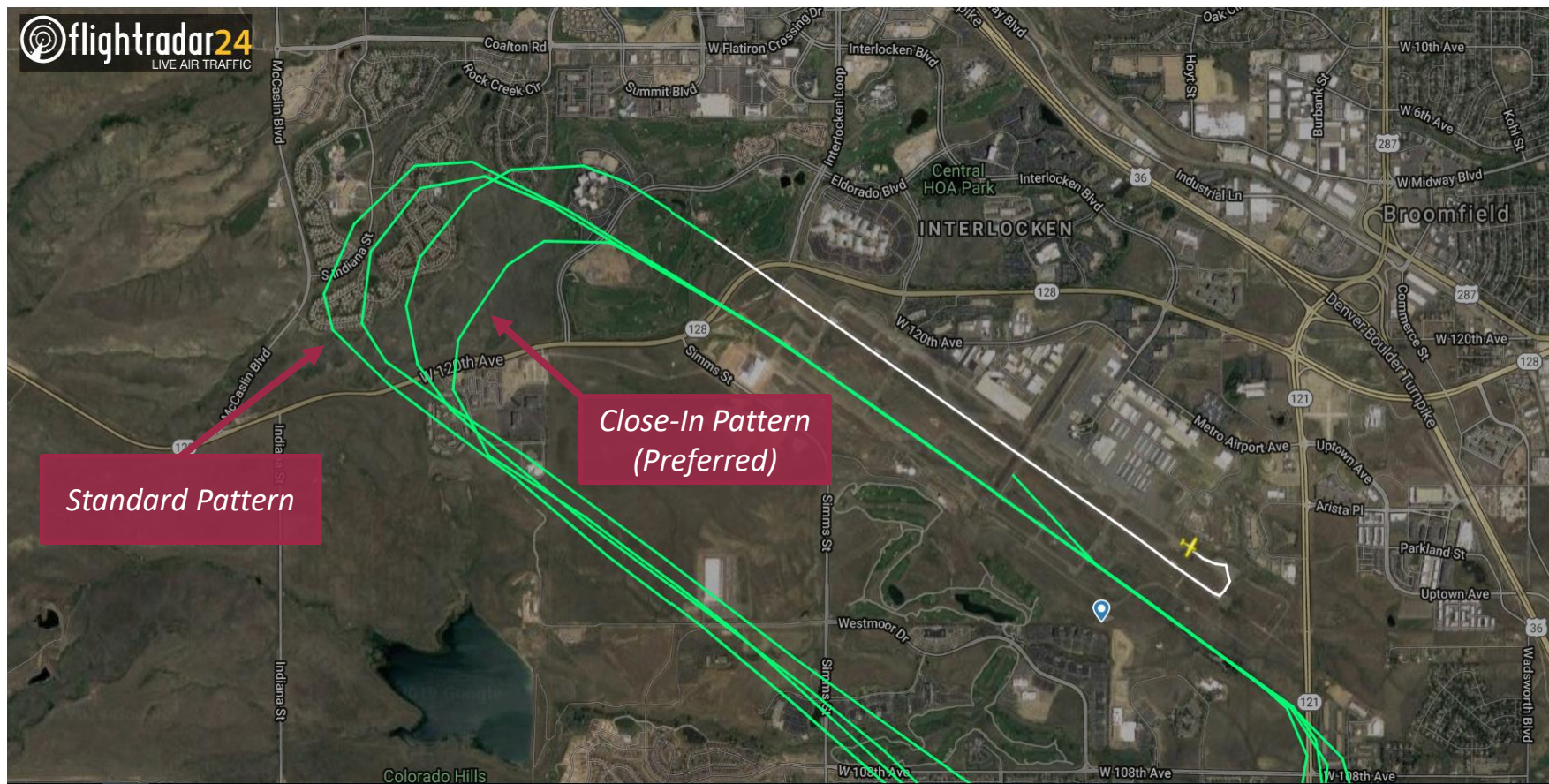


Flight Operations / Procedures / Practices

- Reduce noise at the source
 - Encourage the use of quieter operating procedures (lower RPM, prop pitch settings, aircraft manufacturer recommendations)
- Route aircraft away from dense residential areas
 - Community-friendly flight routes
 - Development of instrument flight rules (IFR) approach and departure procedures
 - Development of visual flight rules (VFR) approach and departure procedures
 - Specialized routes to/from flight training areas to the north
 - Use of reporting points for VFR traffic
 - Early turns/close-in patterns (i.e. touch-and-goes, departures, approaches)
- Increase aircraft altitudes when near/over residential areas
 - Increase airport traffic pattern altitude
 - Increase departures ascent rate
 - Increase altitude on approach
- Reduce nighttime operations
 - Discourage operations during late-night/early morning hours
 - Discourage touch-and-goes during late-night/early morning hours

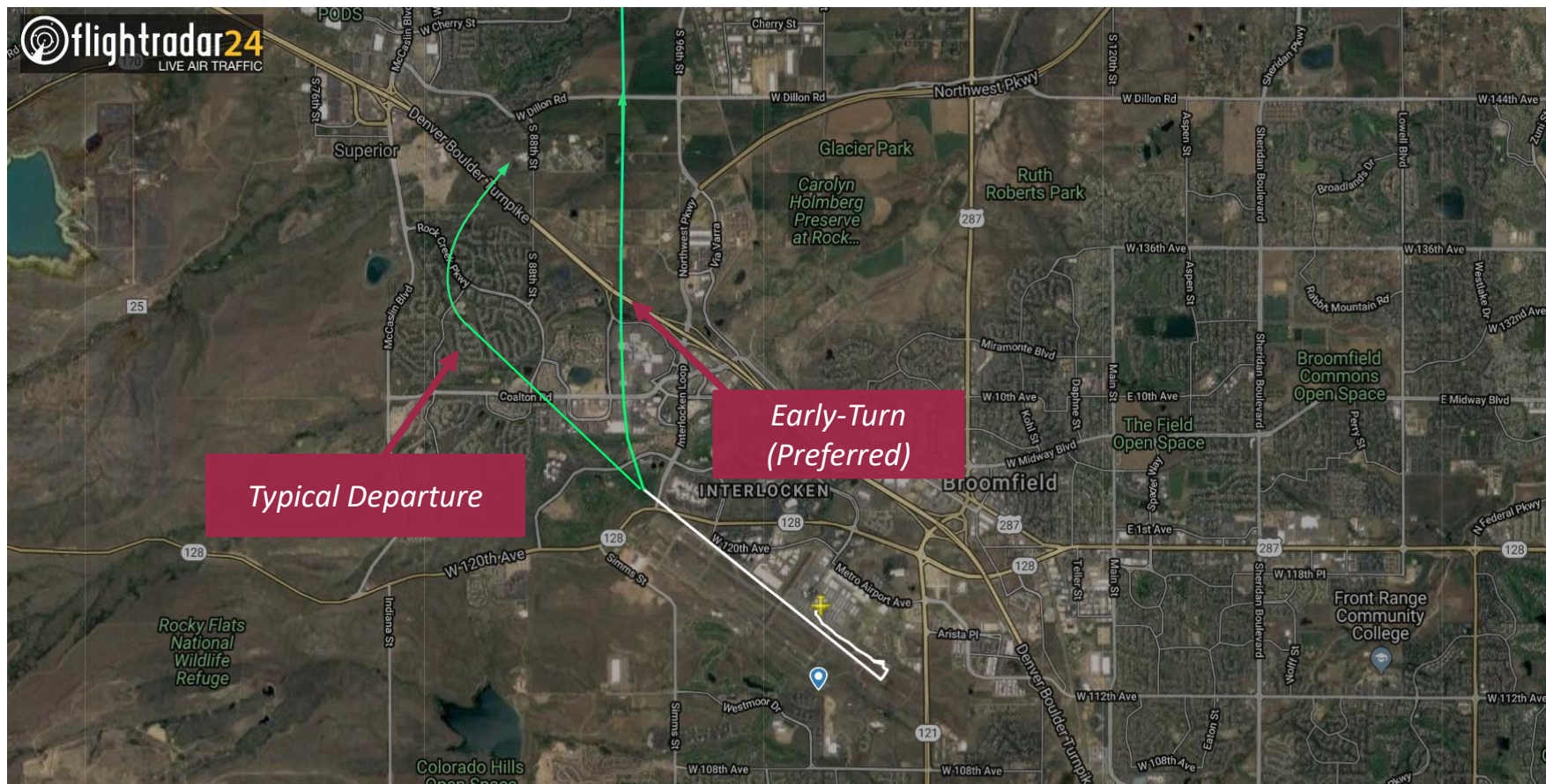
Flight Operations / Procedures / Practices

Encourage close-in (tight) patterns for touch-and-go operations



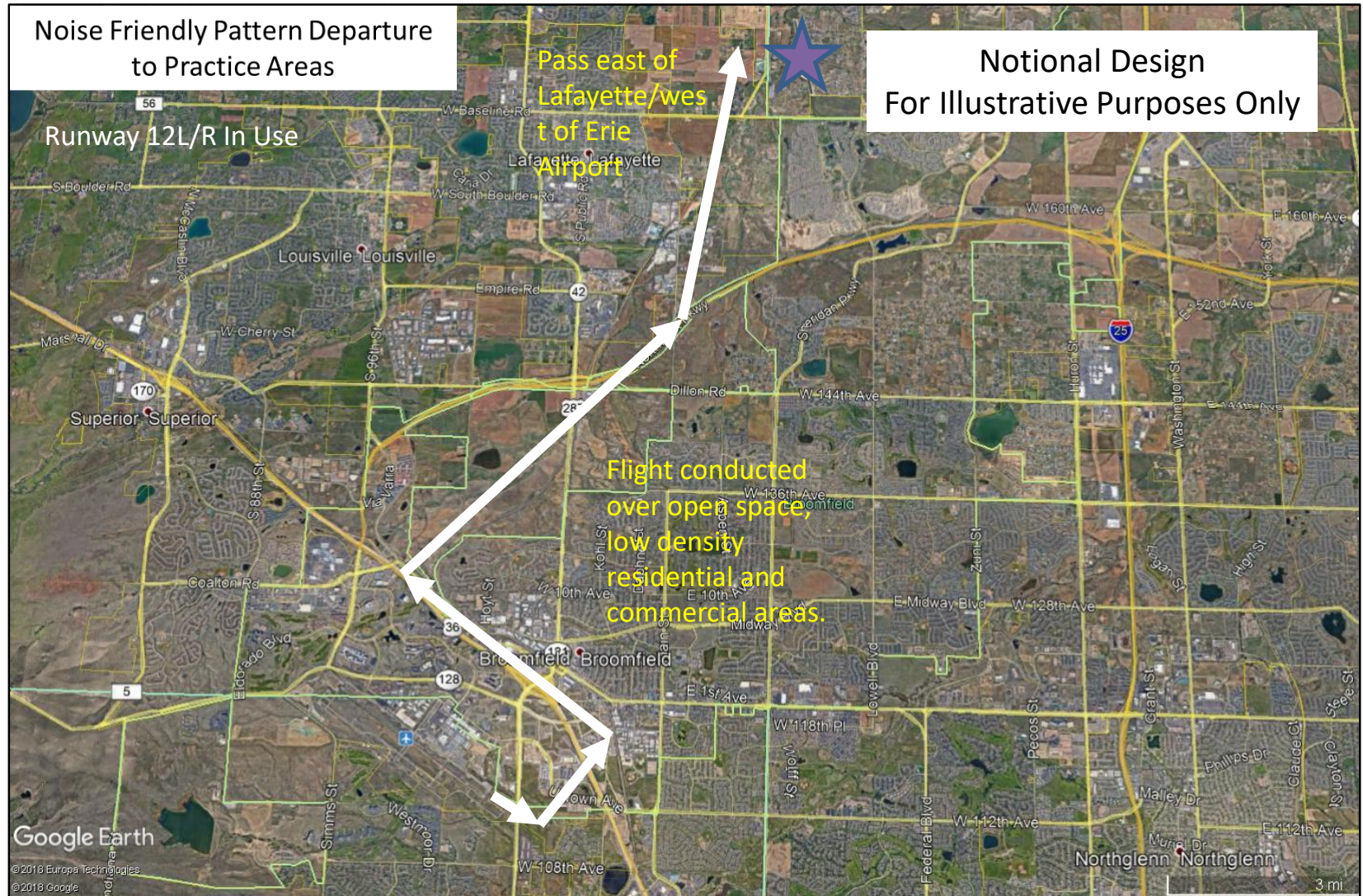
Flight Operations / Procedures / Practices

Departures – Early turns to avoid noise-sensitive areas



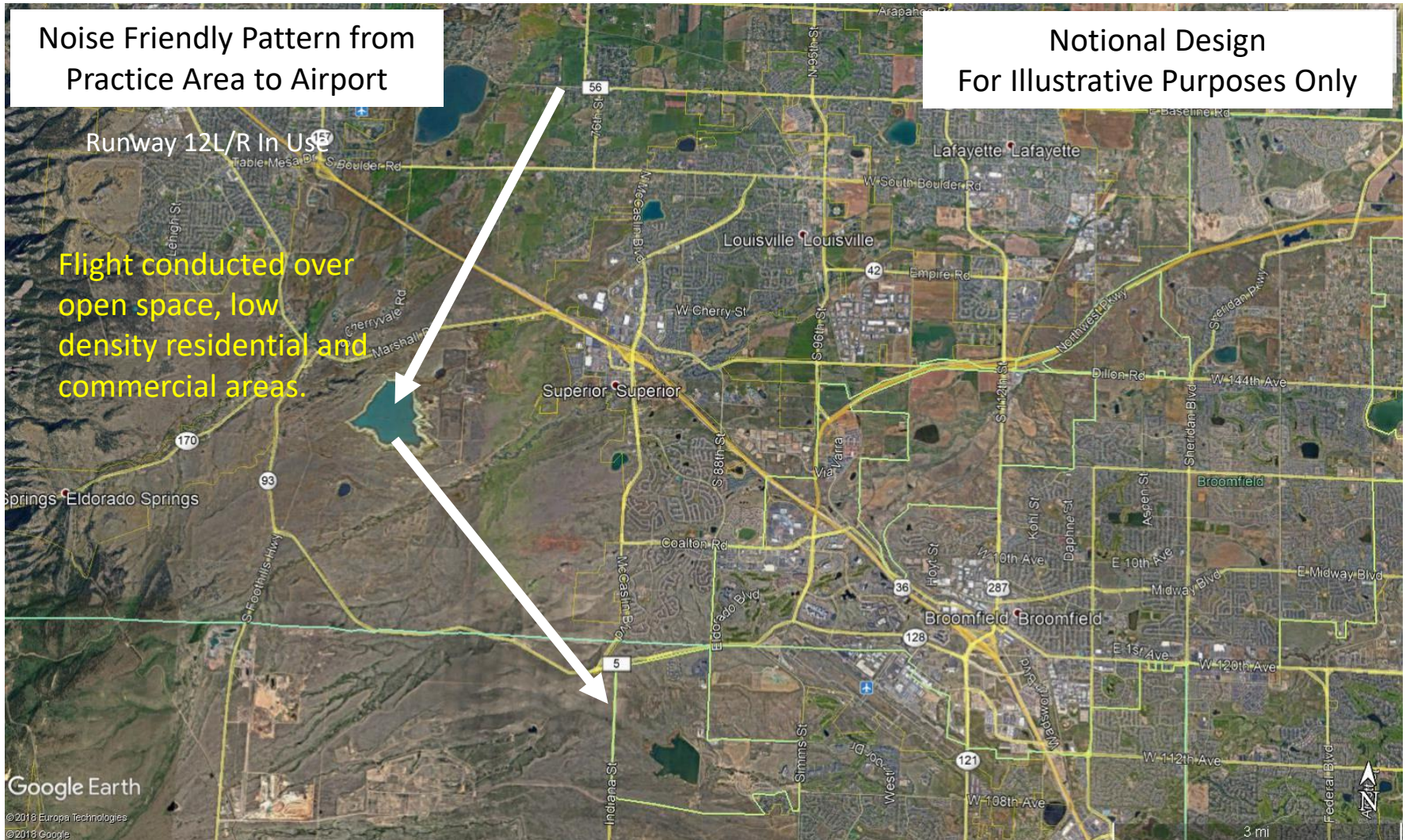
Flight Operations / Procedures / Practices

Departures – Noise Friendly Departure Route to Practice Area



Flight Operations / Procedures / Practices

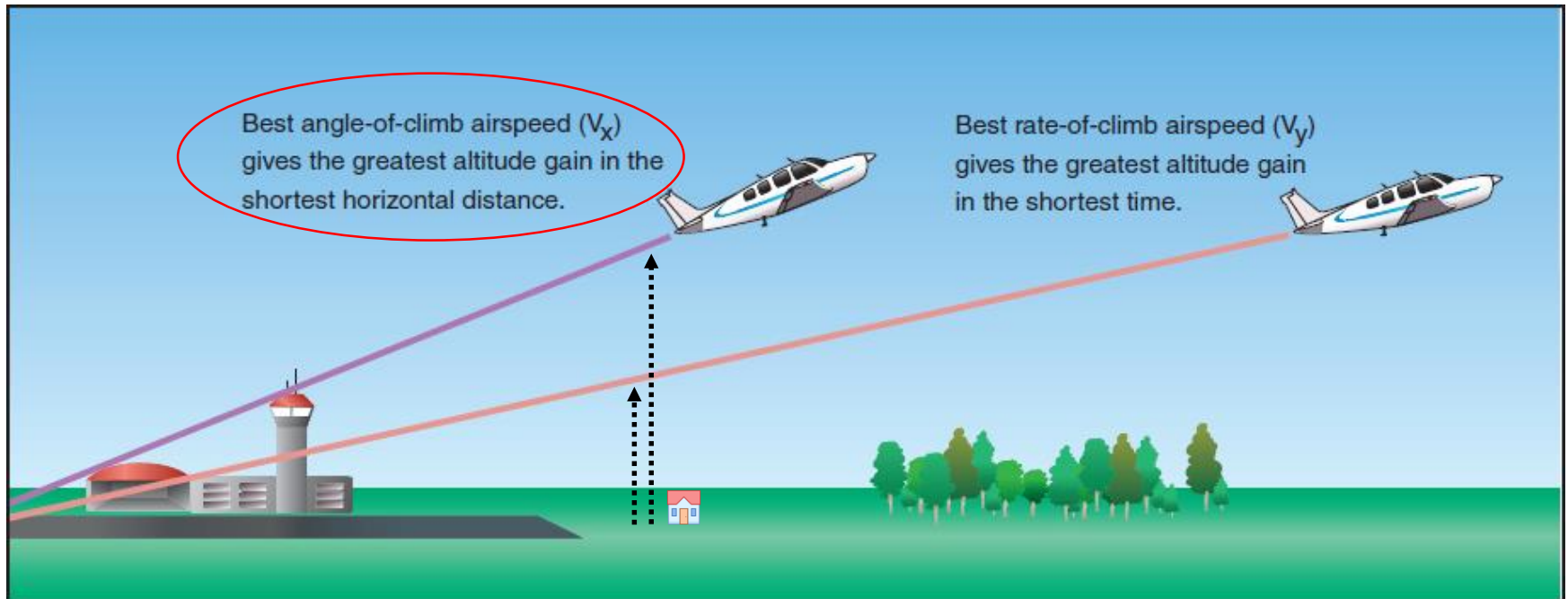
Departures – Noise Friendly Departure Route to Practice Area



Flight Operations / Procedures / Practices

Optimized Departure Profile - Best Angle of Climb

- Climb as quickly as possible to maximize altitude before reaching noise-sensitive areas.
- On approach, maintain maximum practicable altitude and remain on (or above) glide path.



Flight Operations / Procedures / Practices

Discourage late-night/early-morning operations

Voluntary Restraint from Flying

- Permitted under federal aviation regulations if voluntary
- All Operations (11PM-7AM)*
- Training / Touch-and-Go Operations (10PM-8AM)*



**Time periods selected for illustrative purposes only.*

Community Outreach and Engagement

- Expand Superior and Louisville web content about the airport, aircraft noise, impact mitigation project (ongoing), and contact information for Town/City and airport
- Expand Airport's website to include a "Community" section addressing noise issues and providing noise program information.
- Establish a community noise working group, committee, etc. to be hosted by Airport, Town/City/County, or combination

Industry Engagement and Collaboration

- Include noise abatement in flight training curriculum
- Flight Instructor briefings
- Noise program brochures (electronic and paper distribution).
- Pilot forums and briefings
- Expand information on airport website regarding clarity on noise-sensitive areas around RMMA and the practices and procedures for reducing noise impacts
- On-airport signage
- Air traffic controller briefings
- Technical working group to review/collaborate on program elements

Land-Use Planning and Zoning

- Consider existing and future noise exposure/flight patterns when addressing zoning and land-use planning
- Enact zoning/code requirements for non-compatible development in Airport Influence Area and/or Airport Critical Zones
- Review and comment on planned airport development
- Coordinate local zoning/development changes with Airport to understand potential impacts
- Update website to include Airport Influence Area and flight paths and patterns

Regional Collaboration and Planning

- Establish planning meetings with Superior, Louisville, Boulder and Jefferson Counties and the Airport to discuss development plans, community concerns, etc.
- Coordinate review of airport and local (off-airport) land-use planning encouraging compatibility
- Establish a Regional Planning Forum to coordinate airport and local land-use planning
- Collaboration with Congressional delegation

Current Status

- Airport has established and Industry Task Force for ongoing identification, evaluation, and implementation of strategies to reduce aircraft noise impacts.
- ABCx2 supporting the development of new arrival and departure procedures
- Expanded pilot education and outreach efforts are in development
- Airport will host quarterly meetings with flight schools, air traffic control, and industry task force to discuss/address noise issues
- Voluntary nighttime curfew is under consideration

Next Steps

- Prioritization of measures (by Town of Superior and City of Louisville)
- Development of implementation plan

DISCUSSION / Q&A



Thank You!





Phase II – Strategy Recommendations

Summary Report

September 2019



Executive Summary

In late 2018, ABCx2 was engaged by the Town of Superior to help identify solutions to the growing impact of aircraft noise attributed to operations at the Rocky Mountain Metropolitan Airport (RMMA). ABCx2 initiated work in November of 2018 and the City of Louisville joined the effort in early 2019.

The consulting team's approach was broken into three phases. Phase I focused on assessing existing conditions including airspace, flight procedures, airport fleet mix, operation levels, etc. This also involved researching community issues and concerns, complaint records, and community input provided to the Airport, Superior, and Louisville. The baseline assessment also included direct community and industry engagement efforts.

Phase II of this effort involved developing a portfolio of strategy recommendations to be implemented by the key stakeholders. These include the Town of Superior, City of Louisville, Jefferson County, Boulder County, the Airport, Airport Tenants, and the Federal Aviation Administration (FAA). While these recommendations will not silence the aircraft operating in and out of RMMA, nor are they expected to eliminate 100% of the community concerns over aircraft operations, they are intended to help both the airport and the surrounding communities co-exist, and to help maintain the quality of life within the region. At the same time, these efforts are intended to help the airport operate in a sustainable and community-friendly way.

The strategic recommendations are broken down into five individual, but interdependent functional areas:

- Flight Procedures, Practices, and Policies
- Community Outreach and Engagement
- Industry Outreach and Engagement
- Land-Use Planning and Development
- Regional Collaboration

Each functional area is described in detail in the report, as are the specific recommendations identified by the consulting team. The multifaceted and comprehensive strategies contained in this document should not be construed to be all encompassing. Rather, this document should be viewed as a starting point for discussions among local and regional stakeholders representing both aviation and community stakeholders as they will be ultimately responsible for acceptance and implementation of the strategies selected and approved. Additionally, this report is intended to be considered a “living” document allowing for new strategies and concepts as well as modifications to those presented, as conditions change, and new technologies and other opportunities arise.

Noise abatement takes dedication, patience, the desire to collaborate and a willingness to compromise in an effort to find solutions to very complex issues. These initial steps and the willingness of so many stakeholders and stakeholder groups to support the effort can serve as a catalyst for future progress toward a more positive quality of life for the citizens of Superior and Louisville.

Table of Contents

Executive Summary	1
Table of Contents	3
Introduction	5
Project Overview and Process	7
What We Heard – Community and Industry Engagement	9
Community Engagement	9
Industry Engagement.....	10
Overview of Strategic Areas	10
Flight Operations and Procedures	11
Strategies – General.....	12
Single Engine Piston.....	13
Multi-Engine / Turboprops / Jets.....	14
Helicopters.....	14
Community Outreach and Engagement.....	14
Goals.....	15
Strategies	15
Industry Outreach and Engagement	17
Goals.....	17
Strategies	18
Local Land-Use Planning and Development.....	19
Goals.....	19
Strategies	19
Regional Collaboration and Planning.....	20
Goals.....	20
Strategies	20
Appendices	23
Appendix I - Aircraft Owners and Pilots Association - Noise Awareness Steps.....	24
Appendix II - National Aviation Business Association – Noise Abatement Program	25
Appendix III - Helicopter Association International – Fly Neighborly Program	31
Appendix IV - Notional Engagement Model	32

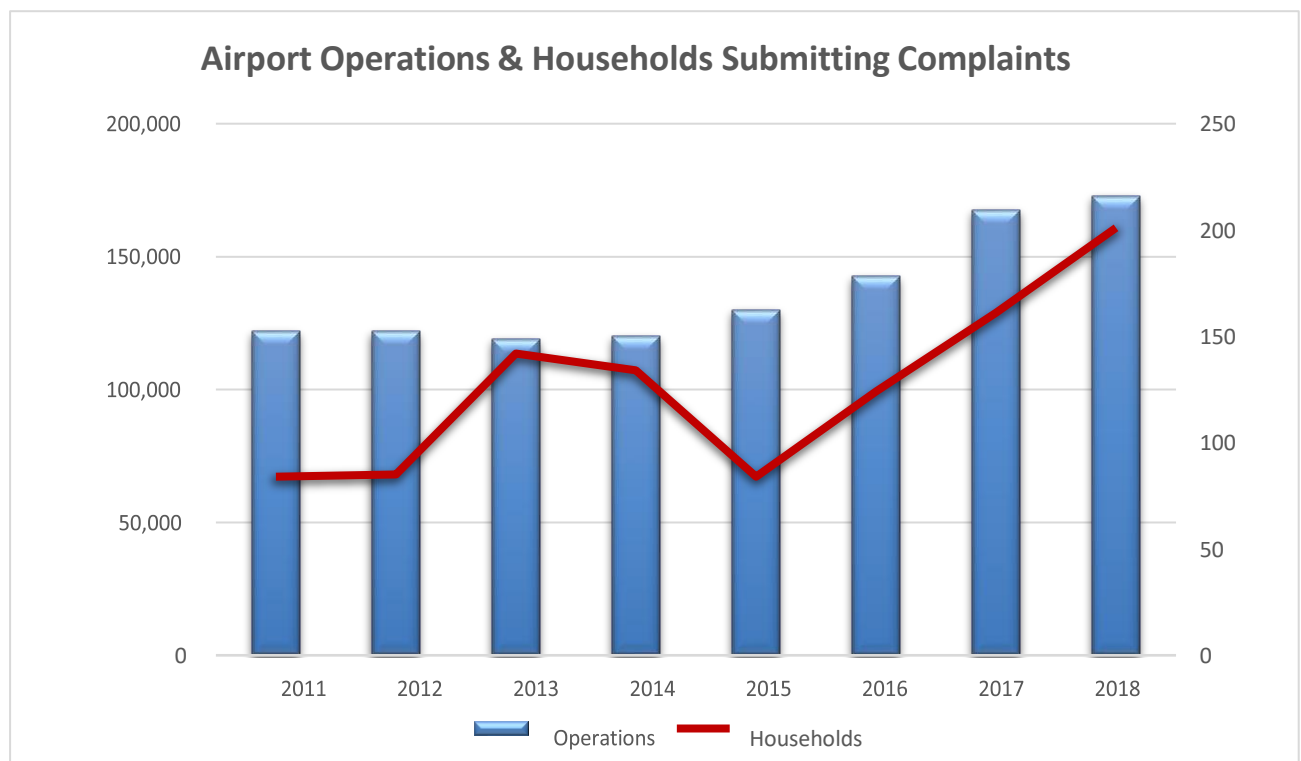
Appendix V - *FAA Guide to Low Flying Aircraft* 33

Introduction

The Rocky Mountain Metropolitan Airport (RMMA) has been experiencing significant growth in operations over the last several years. Federal Aviation Administration (FAA) and industry forecasts suggest this growth will continue both locally and nationwide.

RMMA serves as a reliever airport to Denver International Airport (DEN), hosting much of the general aviation within the region. DEN is simply too busy with large, commercial traffic to efficiently accommodate all the general aviation activity in the area. RMMA is one of several airports in the area serving general aviation activity including business aviation, transient military, flight training, etc.

As operations at RMMA increase, so too are residents' concerns resulting in a growing number of complaints. The Town of Superior reached out to the consulting firm ABCx2, to help address these issues.



This project kicked-off in November of 2018 with three initial objectives:

- Identify ways to reduce the aircraft noise impacts associated with Rocky Mountain Metropolitan Airport
- Help the Town establish collaborative relations with the Airport
- Help the Town more effectively engage the community regarding aviation operations and aircraft noise

The process was broken down into three phases. Phase I (Baseline Assessment) involved assessing the historical and existing conditions to gain a better understanding of the operational conditions, community impacts, and community concerns. Phase II (Strategy Development) consisted of the development of recommendations to help reduce community impacts. Finally, Phase III (Implementation) involves the implementation of recommendations by the responsible stakeholder or organization (i.e. Town of Superior, City of Superior, Jefferson County, Boulder County, the Airport, the Airport Authority (Jefferson County), and the FAA.

Both Phase I and Phase II involved extensive collaboration among the community and industry stakeholders. Activity details are provided within this report. The information collected was essential in the development of recommendations that are feasible (have a high likelihood of implementation) and effective (will address the communities' concerns).

The step in this effort requires selection and prioritization of the recommendations presented. Many of the recommendations can be deployed within the short-term (1-6 months) or medium term (6-12 months). A small number of the recommendations will require much more time and significant funding. As an example, this would include the development of instrument approach or departure procedures to be flown by business aviation aircraft. While these strategies may be effective, the project team suggests an initial focus on the short- and medium-term recommendations which can be implemented more quickly and at a significantly lower cost.

Project Overview and Process

The consulting team proposed a 3-phased approach for addressing the needs of Superior and Louisville. See Figure 1 below. Phase I focused on assessing the current and historical conditions to help the team understand the community impacts and priorities, and to understand the operational conditions and constraints. This included a review of community input and public comments, review of flight operations (aircraft types, flight patterns, local and regional airspace, flight procedures, etc.), and a review of land-use and zoning both on and off the airport. Phase I helped identify focus areas for strategy development in Phase II.

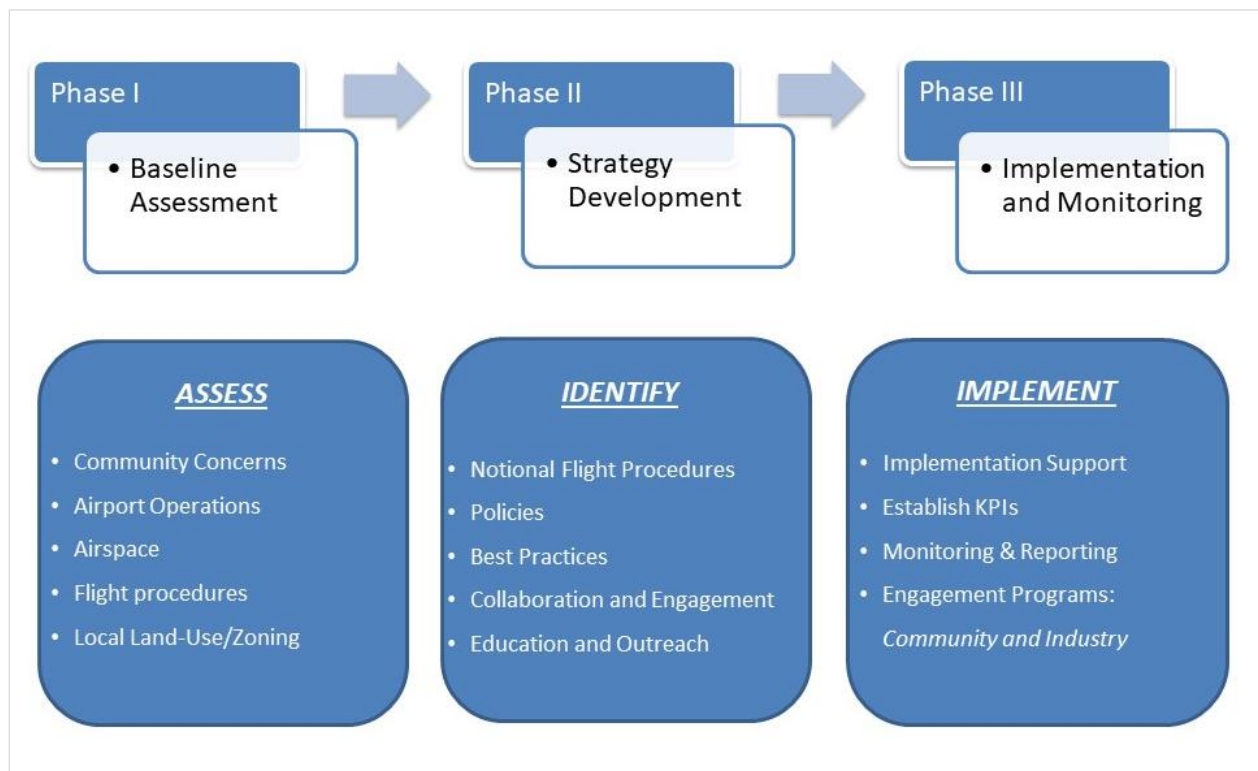


Figure 1 - Project Approach (Three-Phases)

Phase II – Strategy Development focused on identifying specific policies, practices, and procedures intended to reduce the community impacts associated with flight operations

at RMMA. A portfolio of strategies was developed and broken down into five strategic areas. The strategies identified, evaluated, and recommended, are based on the current conditions (i.e. existing community concerns, flight operations, land-uses, etc.).

- Flight Operations and Procedures
- Community Outreach and Engagement
- Industry Outreach and Engagement
- Local Land-Use Planning and Development
- Regional Collaboration and Planning

Identification of strategy recommendations was conducted using a multistep process. Initial brainstorming was led by the ABCx2 team based on input from Superior staff and the Board of Trustees, community input, and the findings in the baseline assessment. Phase I included the facilitation of a Flight Training Workshop which included representation from RMMA management, the RMMA Air Traffic Control Tower, RMMA flight schools, flying clubs, and other airport businesses, and the Aircraft Owners and Pilots Association (AOPA). The workshop included a brainstorming session which resulted in a number of strategies included in this report. Many of the strategies were developed including new and revised operational procedures, recommended practices and policies, and enhanced pilot education and outreach. Strategies identified through the initial brainstorming sessions were then compiled in a list for further analysis and consideration.

The final step in the compilation of strategies was based on a global inventory of airport noise programs and noise abatement best practices. This included a review of noise programs focusing primarily on general aviation airports (similar to RMMA) but did include larger, commercial service airports as well. Noise programs at more than 75 airports were reviewed for this analysis. Program elements with potential benefits and applicability to RMMA were added to the list of potential strategies for further review.

Primary recommendations from each focus area are discussed below. It is understood that conditions change over time. FAA forecasts suggest continued growth in operations nationwide and ABCx2, expects this to apply to RMMA. Changes in total operations, fleet mix, operation types (i.e. flight training, charter operations, etc.), and land-uses and development on and around the airport, may lead to new opportunities to further expand or enhance the strategies employed to improve compatibility between the airport and surrounding communities.

What We Heard – Community and Industry Engagement

Community Engagement

- **There are too many operations and too much noise.**
 - Aircraft are too low.
 - The aircraft are too loud.
 - There are too many flights.
 - The number of operations is rapidly growing.
 - There are too many training flights.
 - There should be limits on operations (i.e. when aircraft fly (curfews), where aircraft fly, total operations, aircraft types and sizes, limits on growth, etc.).
 - There are concerns about the safety of aircraft flying low over homes.
- **Not enough is being done to reduce airport noise impacts.**
 - Most of the flights are over “my” neighborhood. They avoid overflights of Jefferson County.
 - The airport is not doing anything to reduce community noise impacts.
 - The town/city/county needs to do more.
 - There needs to be more community involvement.
 - Nothing is done with complaints to the airport/town/city/county.
 - The flight schools/pilots aren’t even aware of the noise program.
 - No one told us there would be airplanes flying over our home.

Industry Engagement

“Industry” engagement focused on key groups within the aviation industry. Represented groups included: Airport management and staff, RMMA Airport Advisory Board, RMMA Air Traffic Control Tower, airport-based businesses including flight schools, fixed-based operators, aircraft maintenance and service providers, and local pilots.

The purpose of the industry engagement included these objectives:

- 1) To better understand the history and future of RMMA with a focus on operations and community impacts.
- 2) Discuss community impacts and resident concerns attributed to aircraft operations.
- 3) Identify the existing noise abatement program measures; both operational and outreach elements.
- 4) Initiate identification of new/expanded strategies for reducing aircraft noise impacts based on existing and future conditions.
- 5) Encourage collaboration among industry stakeholders.

Engagement with industry continued throughout the process and remained positive and productive. The Airport, Airport Advisory Board, and the FAA Air Traffic Control Tower were particularly supportive. The Airport has since developed a Technical Advisory Group including most participants from the Flight Training Forum. This group has already initiated work toward development and implementation of operational procedures and practices which will reduce noise impacts for nearby residents.

Overview of Strategic Areas

The mitigation strategies identified were organized into five strategic areas: Flight Operations and Procedures, Community Outreach and Engagement, Industry Outreach and Engagement, Local Land-Use Planning and Development, and Regional Planning and Collaboration. While flight operations and procedural changes are the most direct approach to reducing noise exposure, long-term resolution of the issues identified will require a more holistic and comprehensive approach. The recommendations contained

herein represent those remaining after multiple rounds of screening. Screening criteria included regulatory review (is this consistent with current federal, state, and local regulations), will it negatively impact safety, effectiveness, and cost (is it cost-effective?). Recommendations from each strategic area are described in detail in the following sections. Screening of the recommendations included input from the appropriate stakeholder groups to ensure acceptability to those ultimately responsible for implementation. As an example, flight procedures under consideration were reviewed with FAA air traffic control (ATC). Acceptance by ATC would be required as ATC is ultimately responsible for directing aircraft in flight and the overall management of the airspace. Recommendations that conflicted with ATC's mandate would ultimately not be used, therefore, these were rejected from the final recommendations.

Flight Operations and Procedures

Flight procedures and operational practices make up the majority of the recommendations identified by the project team. A specific focus was placed on training operations as this class of operation was identified as a primary source of community noise impacts and subsequent concerns. The ultimate goal of the operational procedures is to reduce noise-exposure for airport-adjacent and nearby communities. In general, these strategies focus on:

- Routing aircraft away from residential areas when possible
- Increasing altitudes when overflying noise-sensitive/residential areas
- Reducing nighttime operations

Operations, regulatory requirements, and noise impacts vary by aircraft category. General recommendations were developed as well as recommendations based on specific aircraft categories (single-engine piston, multi-engine and turboprops, jets, and helicopters). Most operations and community concerns were attributed to flight-training operations, most of which involve single-engine piston aircraft.



Figure 2. Aircraft Categories. (Source of Photos: Wikipedia)

Strategies – General

- Noise-abatement arrival and departure routes (lateral paths)
- Noise-abatement profiles for approaches and departures (vertical paths)
- Design and implement noise-optimized arrival and departure procedures
- Design and implement noise-optimized profiles for approaches and departures
- Preferential runway use (daytime / nighttime)
- Discourage nighttime operations
- Early turns to avoid residential areas
- Design and implement “local” procedures for operations to and from the primary training areas, north of RMMA
- Design and implement “local” procedures for operations to the east, west, and south
- Design and implement preferential ingress/egress routes for RMMA (piston & turboprops)
- Establish “reporting points” for arrivals not utilizing “local” procedures

- Voluntary restraint from flying during late-night and early morning hours
- Avoid overflight of noise sensitive areas when possible (consistent with ATC instructions and safety)
- Approaches: Intercept approach path (i.e. PAPI or ILS) at highest altitude practicable
- Approaches: Remain at or above runway approach path (i.e. PAPI or ILS)
- Assess effectiveness of changes to preferential/calm wind runway use program

Single Engine Piston

- Encourage close-in (tight) patterns for touch-and-go operations
- Implement optimized “departure” profiles: Best angle of climb – climb to 400’-500’ then initiate crosswind turn
- Expedite crosswind turn when operating within airport traffic pattern
- On takeoff, climb at best angle of climb until you cross the airport threshold, then switch to best-rate climb
- Depart from the runway end, rather than intersections, to give you the greatest altitude when leaving the airport threshold and flying over surrounding communities
- When possible, use low-energy, high profile descents. (AOPA recommendation - Low Power / Low Drag)
- Encourage close-in (tight) patterns for touch-and-go operations
- Encourage awareness and application of Aircraft Owners and Pilots Association’s (AOPA) Noise Awareness Steps which can reduce community noise impacts (See Appendix I)

Multi-Engine / Turboprops / Jets

- Follow Fly Quiet procedures provided by aircraft manufacturer
- When aircraft-specific procedures are unavailable, utilize **NBAA Noise Abatement Recommendations**. (See Appendix II)
- Use minimum reverse thrust consistent with safety for runway conditions and available length

Helicopters

- Minimize overflight of residential areas when possible
- When overflying residential areas, maintain as much altitude as possible
- Utilize existing preferential routes for helicopters
- Avoid low-altitude overflight of residential areas to the extent practicable (consistent with ATC instructions and safety)
- Follow Fly Neighborly Guidelines established by HAI and endorsed by FAA and FAA Safety Team (See Appendix III)

Community Outreach and Engagement

Working more effectively with the community and concerned residents was one of the initial goals of the project. While effective engagement does not reduce aircraft noise exposure, understanding the residents' concerns is critical to effectively addressing them. Effective community outreach and engagement requires bi-directional communication. There must be opportunities for residents to express concerns and to get information about the efforts to address their concerns. It is also important to provide general information about aviation operations, regulations, stakeholder roles and authority, etc., in order to establish realistic expectations about what can and cannot be done to address concerns.

RMMA maintains a website with information geared toward the general public and local residents in particular. While there is some information available, the depth and scope of the information provided (for the community) is limited. Recommendations may be

presented to the Airport about opportunities to expand information available on their website focused on community interests. In addition to expanding the Airport's website, the Town of Superior and City of Louisville can also leverage their websites, social media, and other online resources to provide more information of interest to residents.

Goals

- Provide additional and more meaningful opportunities for residents to express concerns and to get information.
- Increase public understanding of airport operations, regulations, stakeholder roles, and what can and cannot be done and why. What is being done to reduce noise impacts?
- Seek input from the community regarding which strategies which are working, and which are not, and recommendations on how to improve.

Strategies

- Expand Superior and Louisville web content concerning:
 - The airport
 - Aviation stakeholder responsibilities and authority
 - Aircraft noise impact mitigation project (ongoing)
 - Contact information for Town/City and airport
 - Content should include Frequently Asked Questions (FAQ) to address common topics

- In addition to expanding the content on Superior and Louisville's websites, expand the Airport's website to include more community-focused information including information about the noise program, information about the Airport Influence Area and Airport Critical Zones, basic flight information, aviation stakeholder roles and responsibilities, and complaint process information. Airport flight patterns (closed-traffic) and typical arrival and departure corridors should be clearly depicted. This should include contact information for the appropriate agencies for concerns related to aircraft noise, aviation safety, etc.
- Superior or Louisville should train and dedicate staff (or outside contract support) to provide timely, accurate, information to residents with questions and concerns about aircraft and airport noise issues. Individuals tasked with this should have at least a basic knowledge of aviation and airport noise and an ongoing relationship with the airport staff to enable coordination and information sharing.
- Establish a community noise working group, committee, roundtable, etc., to be hosted by the Airport, Town/City/County, or combination. Such a working group should provide a formal channel for reviewing and addressing community concerns. Make up of the roundtable should include representation from the community, local governments, the Airport, Jefferson County (Airport Authority) and airport tenants/users.
- Community forums or informational sessions could be hosted by the airport or the Town/City. Ideally, this would be a collaborative effort involving both the Town/City and the Airport. Public meetings scheduled on a quarterly basis provides the community with the opportunity to express concerns and access to accurate information dispelling myths and addressing misunderstandings which often exacerbate airport/community conflicts. Roundtable meetings are typically more formal and focused on roundtable business with some time for public comment. Forums would be more informal information sharing where the community can express concerns and ask questions, and the Town/City/Airport can provide information.

- The Airport should establish a “Noise Alerts” system to notify the community about conditions or events expected to change operations or noise impacts. Similar programs are deployed at airports across the country as a way to provide advance notice to residents of special conditions or events that may temporarily increase noise impacts.
- Information about the complaint management process should be provided online, describing for residents how complaints are processed and what is done with the information. Confirmation of complaint receipt and follow-up with an explanation of findings is highly recommended.
- Newsletters / Noise Updates would provide another opportunity to inform the community of progress concerning the noise program expansion efforts. Newsletters can be published by the airport electronically with minimal cost. These could also be distributed through the Superior or Louisville websites and other outreach channels (i.e. mailing lists, social media, etc.) to ensure residents are aware of the efforts and progress. Additionally, content could be curated for specific homeowner associations’ newsletters and websites reaching residents with information of interest to their community.

Industry Outreach and Engagement

Goals

- Inform flight schools, pilots (local and visiting) air traffic control, etc., about the community impacts associated with aircraft operations and noise.
- Expand awareness of practices and procedures to reduce noise impacts.
- Expand awareness of the airport Fly Quiet Program and encourage participation.
- Involve industry in expansion and improvement of the airport noise program.

Strategies

- Develop/enhance flight training curriculum to include noise abatement and Fly Quiet Program awareness to encourage compliance. Include RMMA-specific information as well as noise abatement information in general.
- Develop training curriculum for flight instructors (i.e. train the trainer) and provide training on at least a quarterly basis. Training should be developed for new flight instructors in addition to refresher training.
- Develop noise abatement awareness training curriculum for air traffic controllers. Training should be developed for new controllers in addition to refresher training - provided annually at a minimum.
- Host pilot forums to promote awareness of the RMMA noise abatement program. Pilot forums should be promoted to encourage both local/RMMA-based pilots as well as regional pilots who frequently visit RMMA. Forums may be hosted by the Airport or airport tenants. Forums could also be paired with FAA Safety Team (FAAST) Workshops.
- Expand information on airport website regarding clarity on noise-sensitive areas around RMMA and the practices and procedures for reducing noise impacts.
- Develop a technical working group to include air traffic control, airport staff, Airport Advisory Board, flight schools, other airport businesses. The technical advisory group will focus on technical review of new and refined noise program measures.

Local Land-Use Planning and Development

Goals

- Enable informed decision-making in local land-use planning, zoning, and development, to encourage development that is compatible with the airport and flight operations.
- Encourage compatible land-use planning, zoning, and development in proximity to the airport and areas exposed to high noise exposure and overflights (i.e. Airport Influence Area and Critical Zones).
- Encourage transparency and informed decision-making for developers, real estate brokers, and homebuyers.

Strategies

- Consider existing and future noise exposure/flight patterns when addressing zoning and land-use planning.
- Review and comment on planned airport development to encourage compatibility between long-term development plans of airport and local communities.
- Coordinate local zoning/development changes with Airport to understand potential impacts.
- Update website to include Airport Influence Area and flight paths and patterns. Include content for prospective homebuyers about the airport, flight patterns, etc., to encourage transparency and informed decision-making.
- Ensure long-term local land-use development is compatible with long-term development plans of airport.
- Revise development and building codes to prohibit or discourage noise-sensitive development within the Airport Critical Zones.

- Revise zoning ordinances to require noise disclosure for home sales within Airport Influence Area.

Regional Collaboration and Planning

Goals

- Encourage a collaborative approach to regional land-use planning to leverage benefits of the airport while minimizing community impacts.
- Encourage collaboration among municipal and county governments, land-use authorities, and the airport.
- Pursue win-win approaches to local land-use and zoning, and airport development that supports economic development within the region and improves the quality of life regionally and locally.

Strategies

- Establish (quarterly) meetings with Superior, Louisville, Boulder and Jefferson Counties and the Airport to discuss development plans, community concerns, etc.
- Coordinate review of airport and local (off-airport) land-use planning to encourage compatibility.
- Establish a Regional Planning Forum to coordinate airport and local land-use planning.
- Elected Officials Working Sessions. These would focus on collaborating on development of high-level strategic direction/vision for local communities and the airport. Representation should include Superior, Louisville, Jefferson County (County administration and Airport Authority), Boulder County, etc. The focus would be on establishing long-term policy, direction, prioritization, etc., and direction to staff. These would be held on a scheduled basis (i.e. quarterly or semi-annually).

- Compatibility Roundtable / Working Group. This group would have a tactical focus, executing or implementing the direction/vision established through the Elected Officials Working Sessions. Representation would be made up of City Managers, Planners, Economic Development, Community Relations, etc., from Superior, Louisville, Jefferson County, Boulder County, and the airport. Meetings should be scheduled on a bi-monthly or quarterly basis. Focuses for this group would be implementing strategies to address the vision established by the Elected Officials through the working sessions. Specific areas may include long and short-term land use planning and development (on and off airport), airport noise program, airport master planning, regional planning and development. Working together will encourage development that encourages compatibility between the airport and airport users and surrounding communities.
- Technical Advisory Committee (Noise Task Force). The Technical Advisory Committee (Noise Task Force) grew out of the Flight Training Forum held at the Airport as part of the baseline assessment. The proposed make-up of this group includes airport staff, air traffic control, flight schools, FBOs, flying clubs, and subject-matter experts (SMEs) advocating on behalf of the community (i.e. ABCx2). The focus of this group would be to develop specific procedures, policies, and other operational noise mitigation program measures. Recommended meeting frequency is monthly or bi-monthly.
- Airport Community Roundtables (Advisory Committees, etc.) are common across the US. Community Roundtables provide a formal platform for community members to address concerns and to get information about airport operations, noise, etc. Community roundtables are typically made up of a mix of community and industry representatives. Community representatives may be elected officials, city/town staff, residents, or a combination. Industry representatives typically include the airport, air traffic control, and airport tenants. Roundtables work closely with the community to understand resident concerns and to help identify solutions.

Logistics

Collaboration among key stakeholders including those representing the industry and the local communities are critical in encouraging compatible development, successful and sustainable growth of the airport, and sustainable growth and development and quality of life for the community. Recognizing the importance of collaboration, many airports across the US and abroad have working groups, committees, roundtables, etc., to facilitate the exchange of information among stakeholder groups. Often there are multiple groups fulfilling distinct roles and leveraging the available resources. One such model is depicted in Appendix IV. This presents a graphical representation of working groups and roundtables that could address the existing local and regional needs based on the input received and observations made during this process.

Though this is one of virtually unlimited options and models, the proposal seeks to leverage stakeholder and individual roles, authority, and interests, while providing the opportunity for synergistic thinking and representation of a broad range of interests. Communication would flow among the groups to inform decision-making at all levels. While this may not be the path taken, it is intended to provide a starting point for discussion with local and regional stakeholders in an effort to find a model that best serves those involved.

Appendices

- Appendix I - Aircraft Owners and Pilots Association - Noise Awareness Steps
- Appendix II - National Aviation Business Association – Noise Abatement Program
- Appendix III - Helicopter Association International – Fly Neighborly Program
- Appendix IV – Community Survey and Workshop Comments & Responses
- Appendix V – FAA Guide to Low Flying Aircraft

Appendix I

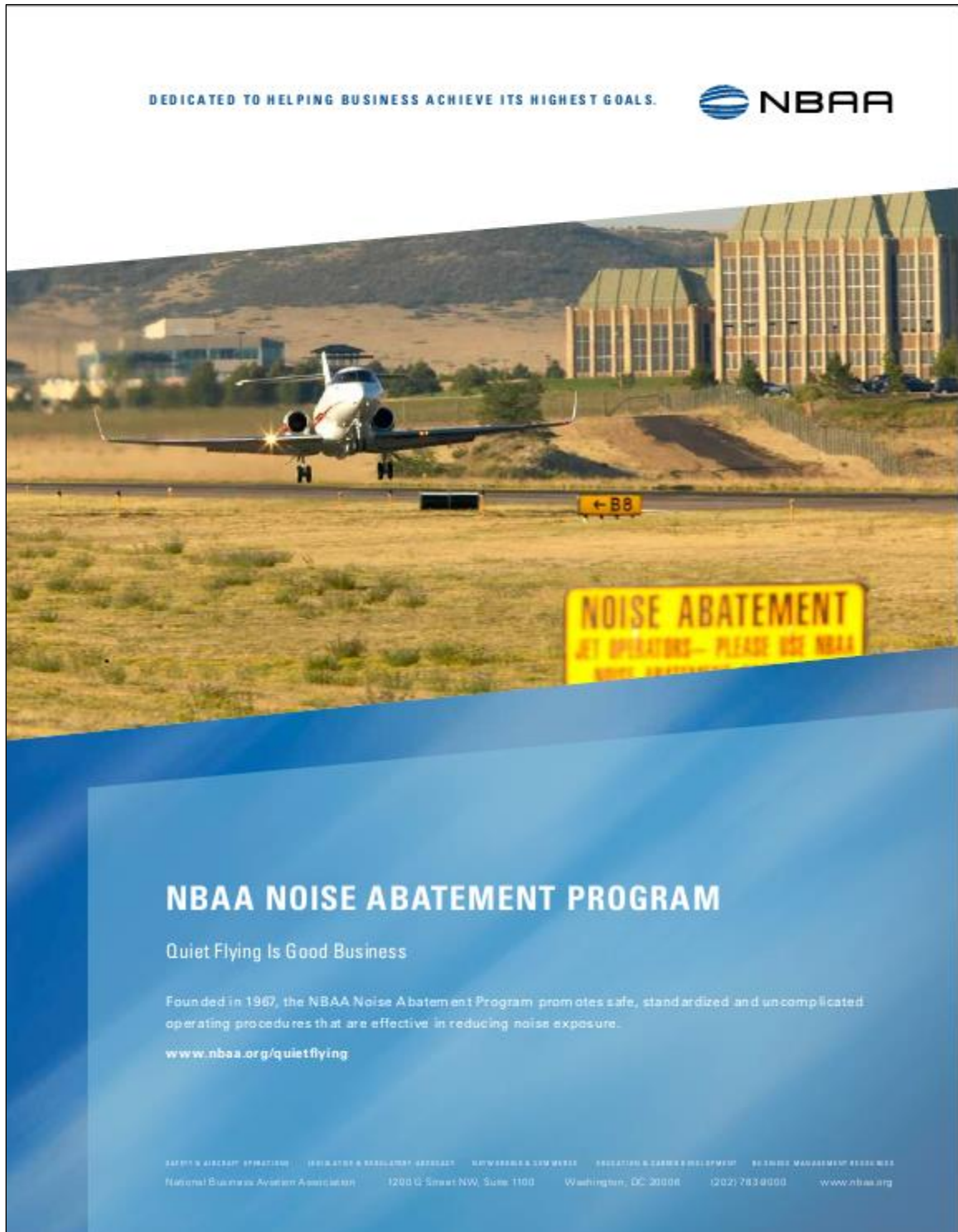
Aircraft Owners and Pilots Association - Noise Awareness Steps

- If practical, avoid noise-sensitive areas. Make every effort to fly at or above 2,000 feet over such areas when overflight cannot be avoided.
- Consider using a reduced power setting if flight must be low because of cloud cover, overlying controlled airspace or when approaching the airport of destination. Propellers generate more noise than engines; flying with the lowest practical RPM setting will reduce aircraft noise substantially.
- Perform stalls, spins, and other practice maneuvers over uninhabited terrain.
- Familiarize yourself and comply with airport noise abatement procedures.
- On takeoff, gain altitude as quickly as possible without compromising safety. Begin takeoffs at the start of a runway, not at an intersection.
- Use the Precision Approach Path Indicator (PAPI). This will indicate a safe glide path and allow a smooth, quiet descent.
- Retract the landing gear either as soon as a landing straight ahead on the runway can no longer be accomplished or as soon as the aircraft achieves a positive rate of climb. If practical, maintain best-angle-of-climb airspeed until reaching 50 feet or an altitude that provides clearance from terrain or obstacles. Then accelerate to best-rate-of-climb airspeed. If consistent with safety, make the first power reduction at 500 feet.
- Fly a tight landing pattern to keep noise as close to the airport as possible. Practice descent to the runway at low power settings and with as few power changes as possible.
- If possible, do not adjust the propeller control for flat pitch on the downwind leg; instead, wait until short final. This practice not only provides a quieter approach, but also reduces stress on the engine and propeller governor.
- Avoid low-level, high-powered approaches, which not only create high noise impacts, but also limit options in the event of engine failure.
- Flying between 10 p.m. and 6 a.m. should be avoided whenever possible.

Note: *These are general recommendations; some may not be advisable for every aircraft in every situation. No noise reduction procedure should be allowed to compromise flight safety.*

Appendix II

National Aviation Business Association – Noise Abatement Program



DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS. 

NBAA NOISE ABATEMENT PROGRAM

Quiet Flying Is Good Business

Founded in 1967, the NBAA Noise Abatement Program promotes safe, standardized and uncomplicated operating procedures that are effective in reducing noise exposure.

www.nbaa.org/quietflying

SAFETY & AIRCRAFT OPERATIONS | REGULATORY & COMPLIANCE | AIRCRAFT & EQUIPMENT | AIRCRAFT & EQUIPMENT | EDUCATION & CAREER DEVELOPMENT | BUSINESS MANAGEMENT RESOURCES

National Business Aviation Association | 1200 G Street NW, Suite 1100 | Washington, DC 20006 | (202) 783-9000 | www.nbaa.org

NBAA NOISE ABATEMENT PROGRAM

Quiet Flying Is Good Business

NBAA has long believed that quiet flying is good business. NBAA's Noise Abatement Program has been in existence since 1967, establishing objectives and operating procedures that have served the business aviation community well and have proven to be effective in reducing aircraft noise impacts and subsequently, community opposition to business aviation.

NBAA's updated Noise Abatement Program was developed with modern aircraft performance and air traffic control (ATC) requirements in mind. With this revision, NBAA continues to provide operators with guidance to reduce noise impacts that is suited to the current operating environment, as well as new tools for aircraft operators and airports to address the noise concerns of adjacent communities.

The updated program includes:

- Noise abatement best practices for flight crews.
- Updates to NBAA's "close-in" noise abatement departure procedure and approach and landing procedures.
- Noise abatement guidance for other aviation stakeholders, including airports and air traffic control facilities.

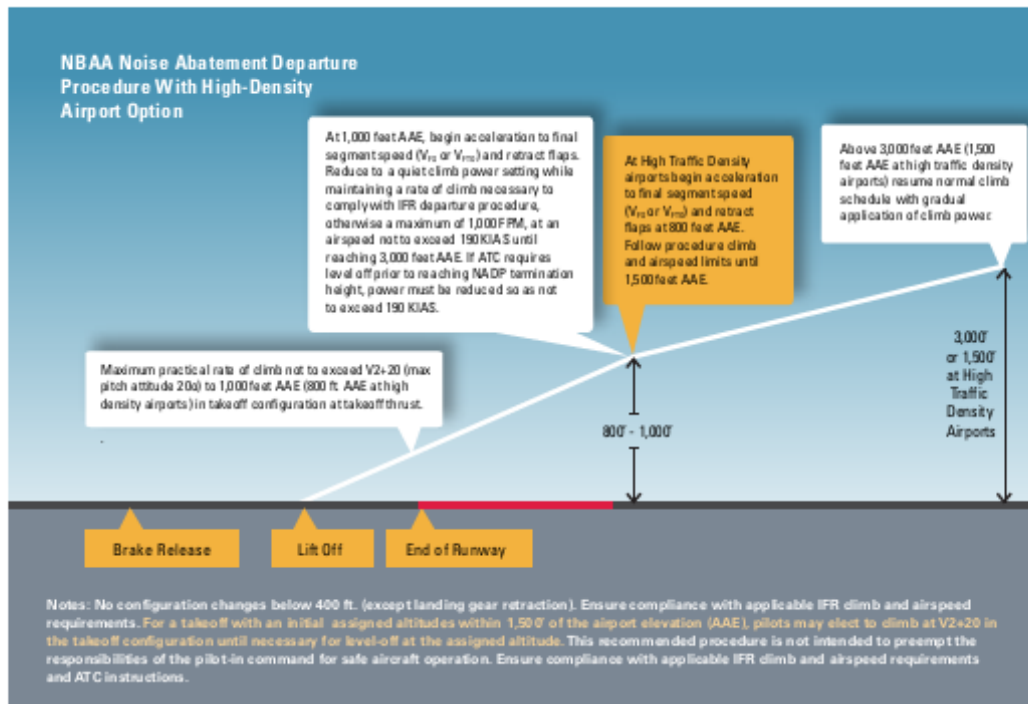
NOISE ABATEMENT BEST PRACTICES FOR FLIGHT CREWS

Pilots should always be mindful of noise impacts at airports. Even the "quietest" modern aircraft may disturb those that live near the airport. Care should be taken to minimize the aircraft's noise profile whenever possible by utilizing noise abatement best practices at *all* airports, especially during night-time and early-morning hours when aircraft operations may be especially disturbing.

- During the flight-planning process, flight crews should familiarize themselves with the airport's noise abatement policies and any applicable noise abatement procedures (NAPs) for the airport they will be using. These may include:
 - Preferential runway use
 - Preferential approach and departure paths
 - Preferred terminal arrival and departure procedures for noise abatement
 - Other noise-related policies (maximum noise limits, curfews, usage of reverse thrust, engine run-up policies, etc.)
- Contact the airport's Noise Management or Operations department for more information on local noise policies and procedures.
- When available, pilots should utilize their company's recommended departure/arrival NAPs or those recommended by the aircraft manufacturer for their specific aircraft.
- Flight safety and ATC instructions and procedures always have priority over any NAP. NAPs should be executed in the safest manner possible and within all FAA-mandated operating requirements.
- Proper pre-departure and pre-arrival crew briefings are essential to ensuring the safe and effective execution of NAPs.
- When airport or aircraft-specific procedures are unavailable, NBAA provides recommended noise abatement procedures suitable for any aircraft type and airport operating environment (see below).

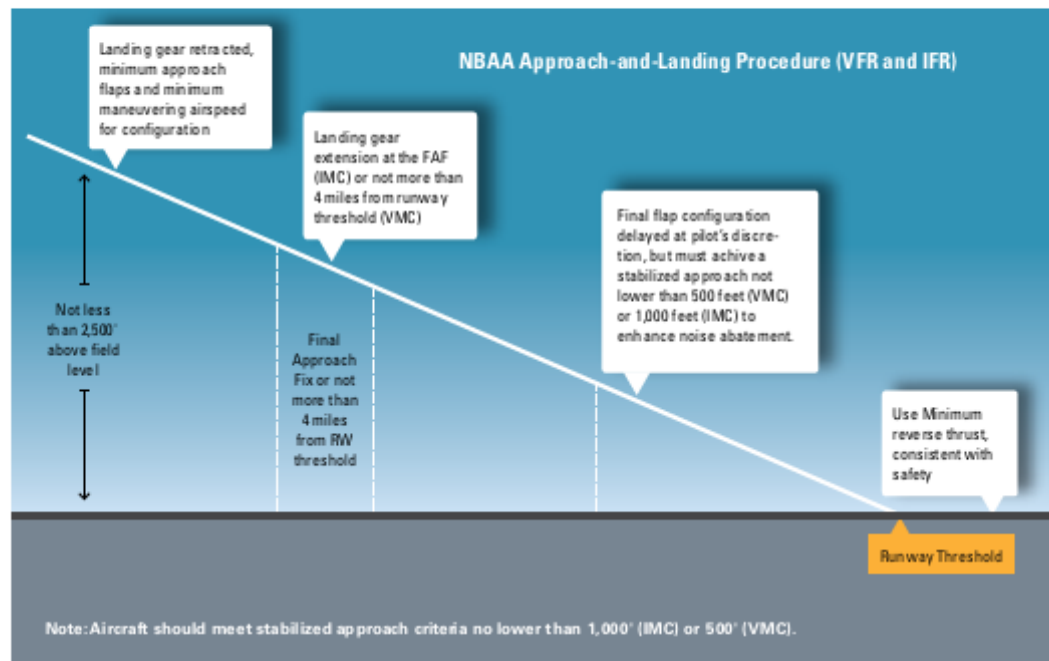
NBAA-RECOMMENDED NOISE ABATEMENT DEPARTURE PROCEDURE WITH HIGH-DENSITY AIRPORT OPTION

1. Climb at maximum practical rate not to exceed V_2+20 KIAS (maximum pitch, attitude 20 degrees) to 1,000 feet AAE (800 ft. AAE at high-density-traffic airports) in takeoff configuration at takeoff thrust.
2. Between 800 and 1,000 feet AAE, begin acceleration to final segment speed (V_{FS} or V_{FTO}) and retract flaps. Reduce to a quiet climb power setting while maintaining a rate of climb necessary to comply with IFR departure procedure, otherwise a maximum of 1,000 FPM at an airspeed not to exceed 190 KIAS, until reaching 3,000 feet AAE or 1,500 feet AAE at high-density-traffic airports. If ATC requires level off prior to reaching NADP termination height, power must be reduced so as not to exceed 190 KIAS.
3. Above 3,000 feet AAE (1,500 feet at high-density airports) resume normal climb schedule with gradual application of climb power.
4. Ensure compliance with applicable IFR climb and airspeed requirements at all times.



NBAA-RECOMMENDED APPROACH AND LANDING PROCEDURE (VFR AND IFR)

1. Inbound flight path should not require more than a 25 degree bank angle to follow noise abatement track.
2. Observe all airspeed limitations and ATC instructions.
3. Initial inbound altitude for noise abatement areas will be a descending path from 2,500 feet AGL or higher. Maintain minimum maneuvering airspeed with gear retracted and minimum approach flap setting.
4. During IMC, extend landing gear at the final approach fix (FAF), or during VMC no more than 4 miles from runway threshold.
5. Final landing flap configuration should be delayed at the pilot's discretion; however, the pilot must achieve a stabilized approach not lower than 500 feet during VMC or 1,000 feet during IMC. The aircraft should be in full landing configuration and at final approach speed by 500 feet AGL to ensure a stable approach.
6. During landing, use minimum reverse thrust consistent with safety for runway conditions and available length.



COLLABORATION, EDUCATION AND OUTREACH

Effective aircraft noise management requires a collaborative effort between aircraft operators, ATC and airport operators. Minimizing noise impacts is in the best interest of all stakeholders.

Aircraft Operators

- The noise abatement best practices recommended by NBAA are suggested as a national standard for business aircraft operators. They are intended for use at any airport and for any aircraft. They should be used when airport-specific or aircraft-specific procedures are unavailable.
- NBAA members should engage their local airport, particularly with regard to noise issues. Where necessary, support should be provided to assist airport management in adopting procedures which meet the objectives of the NBAA Noise Abatement Program as they relate to operational safety and usability. Every effort should be made to tailor procedures to the specifics of each airport in order to provide the maximum noise reduction consistent with safe and efficient operations.
- When applicable, pilots are encouraged to provide feedback on local NAPs to ATC, the airport operator and local pilot groups.
- Pilot training for business aircraft should include the importance of noise abatement and noise abatement procedures in all types of ratings and ATR flight checks.

Airports

- Specific information should be developed by airport management and made available to pilots and controllers through publication of easily attainable flight manuals, NOTAMS, AIMS, letters to airmen, ATIS messages, charts and explanatory pamphlets. This information should include:
 - Approach and departure paths over least noise-sensitive areas
 - Preferential runway usages, if applicable
 - Use of NBAA's noise abatement best practices
 - General map showing surrounding area and marking places of specific sensitivity, such as residential areas, schools and hospitals
- Airports should provide communities with data to demonstrate current and historic airport noise levels and highlight continued efforts by the airport and aviation industry to minimize noise impacts.
- Airport approach and takeoff paths should be designated on all official zoning maps. This should be done for all airports, existing or proposed, in order that land-use zoning, development and real estate activity are conducted with full awareness of the confines of such areas. Additionally, the land use permitted in these areas should be specified in zoning regulations and building codes in order to protect inhabitants.
- Airport management should investigate the optimal use of visual and electronic approach aids, which can aid noise abatement procedures at an airport. Improvements in both approach aids and runway facilities encourage aircraft to approach over the least noise-sensitive areas.
- Jet aircraft run-up areas should be developed for least noise disturbances to airport tenants and local communities. Blast fences, ground run-up enclosures, etc., should be provided and used where necessary.

- Airport management should evaluate the airport's natural terrain and consider ways in which improvements to landscaping might improve noise conditions around the airport.
- Airport management should post signs in pilot information centers, as well as at conspicuous places along airfield entry points (e.g., walk-through and drive-through gates), the taxiways or runway areas, giving the pilots a last reminder that they are in a noise-sensitive area calling for use of noise abatement procedures.
- Airport management should develop education programs to inform pilots and air traffic controllers as to the need for and procedures associated with noise abatement and good community relations. A more thorough understanding by the pilots and the controllers as to what the procedures are, as well as the reasons behind them, is the key to success.
- Preferential runway use systems that are safe and do not unnecessarily restrict the flow of air traffic should be established at all airports having a need for them.

Air Traffic Control

- The airport and ATC management should conduct a procedures review to recommend and implement new airport noise awareness programs. The recommendations should add a statement such as "use noise abatement procedures" to all ATC clearances issued by control tower operators.
- Control tower operators should be permitted to give any needed special attention to jet aircraft that may, for purposes of noise abatement, be required to land or takeoff using a different runway than the one in use by smaller aircraft.
- Control tower operators should develop procedures that will separate high-performance aircraft from low-performance aircraft as much as possible.
- The air traffic control procedures should keep aircraft more than 3,000 feet AGL over noise-sensitive areas to the extent that this can be accomplished without excessive derogation of air traffic flow.
- It is recommended that high-performance aircraft within reasonable operating limits and consistent with noise abatement policies remain at the highest possible altitude as long as possible when arriving and climb to the requested altitude filed by the pilot as soon as possible after departing.
- SIDs should include references to the use of noise abatement procedures.

About NBAA

Founded in 1947 and based in Washington, DC, the National Business Aviation Association (NBAA) is the leading organization for companies that rely on general aviation aircraft to help make their businesses more efficient, productive and successful. Contact NBAA at (800) FYI-NBAA or info@nbaa.org. Not a Member? Join today by visiting www.nbaa.org/join.

Released in 2015, this updated NBAA Noise Abatement Program was developed in conjunction with industry experts on NBAA's Access Committee. Learn more about the NBAA Access Committee at www.nbaa.org/committees/access.

Appendix III

Helicopter Association International – Fly Neighborly Program

Fly Neighborly

Helicopter Noise Abatement Recommendations

Level Flight:

-  Accelerations are quieter than decelerations
-  Straight flight is quieter than turning flight

Turning Flight:

-  Turning away from the advancing blade (especially when decelerating) is quieter than turning into the advancing blade
-  Level turns are quieter than descending turns

Descending Flight:

-  Straight-in flight is quieter than turning flight
-  Steeper approaches are quieter than shallow approaches

Decelerations:

-  Level flight decelerations are quieter than descending or turning flight decelerations

Maneuvering:

-  Smooth and gentle control inputs are quieter than rapid control inputs

These recommendations are flight tested and scientifically vetted by the U.S. Department of Transportation and NASA to support Fly Neighborly Goals.

Take the Fly Neighborly training at: <https://go.usa.gov/xQPCW>

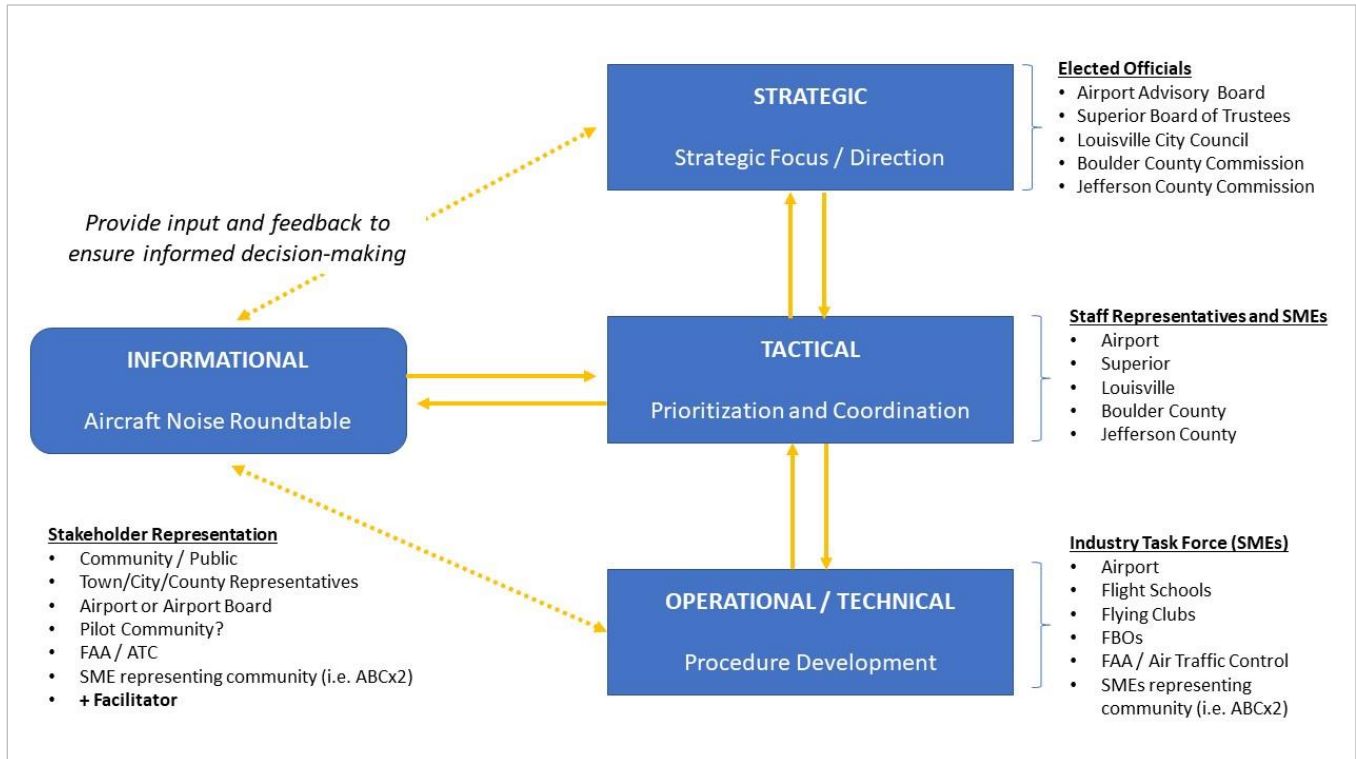


Fly Neighborly procedures/recommendations should be executed in the safest manner possible and followed only to the extent that safety is not compromised.



Appendix IV

Notional Engagement Model



Appendix V

FAA Guide to Low Flying Aircraft

The Federal Aviation Administration (FAA) is the government agency responsible for aviation safety. We welcome information from citizens that will enable us to take corrective measures including legal enforcement action against individuals violating Federal Aviation Regulations (CFR). It is FAA policy to investigate citizen complaints of low-flying aircraft operated in violation of the CFR that might endanger persons or property.

Remember that the FAA is a safety organization with legal enforcement responsibilities. We will need facts before we conduct an investigation. To save time, please have this information ready if you witness another low-flying aircraft. Please keep your notes: we may request a written statement. Here is the type of information we need:

- Identification – Can you identify the aircraft? Was it military or civil? Was it a high or low wing aircraft? What was the color? Did you record the registration number which appears on the fuselage or tail? (On U.S. registered aircraft, that number will be preceded with a capital "N".)
- Time and Place – Exactly when did the incident(s) occur? Where did this happen? What direction was the aircraft flying?
- Altitude – How high or low was the aircraft flying? On what do you base your estimate? Was the aircraft level with or below the elevation of a prominent object such as a tower or building?

Once we have the appropriate facts, personnel from the Flight Standards District Office (FSDO) will attempt to identify the offending aircraft operator. We can do this in several ways. For example, we can check aircraft flight records with our air traffic control information and/or sightings from other observers, such as local law enforcement officers. We may need to trace and contact the registered aircraft owner, since the owner and operator may be two different people.

Following is Title 14 of the Code of Federal Regulations, Section 91.119 of the General Operating and Flight Rules, which specifically prohibits low flying aircraft.

91.119 Minimum safe altitudes; general

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

- (a) Anywhere – An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
- (b) Over congested areas – Over any congested area of a city, town, or settlement, or over any open-air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
- (c) Over other than congested areas – An altitude of 500 feet above the surface except over open water or sparsely populated areas. In that case, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.
- (d) Helicopters – Helicopters may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with routes or altitudes specifically prescribed for helicopters by the Administrator.

Helicopter operations may be conducted below the minimum altitudes set for fixed-wing aircraft. The reason: they have unique operating characteristics, the most important of which is their ability to execute pinpoint emergency landings during power-out emergencies. Furthermore, the helicopter's increased use by law enforcement and emergency medical service agencies requires added flexibility.

For more information, or to report a low-flying aircraft, please contact your local FSDO. For a list of FSDO's pertaining to your area, visit:

https://www.faa.gov/about/office_org/field_offices/fsdo/

ABCx2 Responses to Survey and Workshop Comments

Executive Summary

A Bang the Table Online Survey was conducted by The City of Louisville between June 13, 2019 and July 14, 2019. The survey was open to the public. The intent of the survey was to ascertain the impact of airport noise on the communities of Louisville and Superior and to gather recommendations for noise mitigation from community members.

We received a total of 211 responses from the online survey that included comments or recommendations.

In addition to the online survey, a Community Workshop was held on July 24, 2019 at City Hall in Louisville. The meeting was conducted utilizing a Power Point Presentation that explained the current project underway at Louisville and Superior to address the concerns of the communities regarding airport noise. The Power Point also addressed high level strategies that have been considered by the consulting team to mitigate airport noise.

At the end of the presentation by the consultants, a question and answer session was held where attendees were able to ask questions, make comments, and/or recommendations.

Upon reviewing the comments from both the survey and the workshop, the consultants have noted several concerns as well as several recommendations concerning mitigating airport noise. To adequately address all the comments, we have broken down our responses into several sections:

The following sections were comments (S-1 through S-114) concerning the question:
Q16 Do you have any other recommendations or suggestions for how we can reduce the impacts of Rocky Mountain Metropolitan Airport operations on our community?

Section A. - Rocky Mountain Metropolitan Airport – RMMA Comments

Section B. - Superior Comments

Section C - Louisville Comments

Section D. – Other Communities or Community Not Identified - Comments

Section E. – General Comments

The following sections were comments (S-115 through S-211) concerning the question:
Q17 Please provide any additional comments, suggestions, questions, feedback.

Section F. - Rocky Mountain Metropolitan Airport – RMMA Comments

Section G. - Superior Comments

Section H - Louisville Comments

Section I. – Other Communities or Community Not Identified - Comments

Section J. – General Comments

The following section was comments (W-1 through W-52) that were gathered from the Community Workshop held at the Louisville City Hall on July 24, 2019.

Section K: Workshop Comments

Process

First, all comments were de-identified and separated into sections as outlined above.

Then, we parsed through the comments to separate general comments from recommendations. Comments and recommendations were then separated into the individual communities from where they were made, if such community could be identified. If no community could be identified, the comments were grouped together in the “Other Community: Section. We then addressed comments/recommendations made by several individuals that had to do directly with the airport itself or its operations. Finally, we addressed general comments. In this manner, we covered all of the comments that were received from the people who responded to the survey or attended the community workshop.

The consultants then moved on to responses to individual comments and/or topics. Several comments received had multiple recommendations. To address all the recommendations received, a single response may cover several comments with similar subject matter. Each recommendation received a response, however, there were numerous comments that contained no recommendation and no response was given. Responses are numbered and cross referenced with comments/recommendations.

Addressing airport noise impacts to the communities is necessary to come to a common understanding of the existing rules, regulations and procedures and how to mitigate the impact of airport noise upon the community. The consultants have been tasked to provide strategies to address the noise impacts and propose realistic and implementable mitigations to those impacts. Therefore, it is most definitely our responsibility to evaluate the responses received through these two venues to ensure the broadest possible set of solutions

is being considered and to parse them down into meaningful and measurable mitigations that can reasonably and safely be implemented. Mitigations should address the projected traffic demands and not impact the safety or efficiency at RMMA but must address any adverse impact to the surrounding communities.

Numerous comments received were related to concerns over recent increases in noise from aircraft flying Touch & Go patterns. This type of noise typically impacts the residents of Rock Creek the most and is of great concern to those residents. Superior residents also expressed concerns about the safety of aircraft flying low over their houses on arrival and departure.

Another large block of comments concerns aircraft transitioning to and from the Practice Areas to the north. These transitions can account for hundreds of flights per day and can cause a persistent annoyance for residents that underlie the flight path.

Other concerns were expressed about helicopter and jet aircraft overflights. But these comments were noticeably fewer than those concerning aircraft conducting touch & go's and low flying propeller aircraft.

There were also numerous comments received in support of the airport and its operations, citing both the positive economic impact of the airport and the enjoyment that many respondents get from watching the aircraft and having an airport close by.

The following responses to the comments received will address, at a high level, several of the strategies that the consulting team will be proposing to mitigate the concerns of the respective communities. Some of these strategies are already being discussed by the Noise Task Force recently convened by the airport to consider several recommendations already proposed by the consulting team.

Survey Comments & Recommendations

Section A. - Rocky Mountain Metropolitan Airport – RMMA Comments with Responses

(S-1) We need to actually get pilots to respect the noise sensitive areas A map of daily flights shows no respect or understanding of this map We cannot allow the airport to upgrade to passenger traffic – (R-1)(R-2)

(S-2) I was surprised at the amount of anger there was in a class I was in last Friday. Someone was saying that one of the local airports was building more runways. So, there will be more noise. - (R-3)

(S-3) Reduce night flights. Stop low-flying helicopters that are not emergency. – (R-4)(R-5)

(S-6) The Airfield Operations currently has a fly quiet pattern that can and should be used, (Short crosswind turn, over the open space and not the residential area.) when its necessary to use the West Traffic Pattern. The bulk of the training traffic should be using the East Traffic. Also, no early morning, (before 6 am, which there are training flights often by 0500h) or late-night training flights. They can go to nearby, less populated airfields for the touch and go pattern work. This is how training is conducted at many airports. – (R-4)(R-6)(R-7)

(S-8) Do not allow flights before 8am on weekdays and 9am on the weekends. Reroute flights over less populated areas AND/OR reduce the amount of air traffic to another airport that is more remote. Reduce number of flights, period! Either require flights to be at higher altitudes when they fly over local communities or simply reroute them elsewhere. Do not allow noisy types of planes to use this airport. Our communities have chosen the live here for the quality of life, and we pay a premium to do so. The noise from these aircrafts is crazy and has become a HUGE, NOISY and CONSISTENT PROBLEM. – (R-1)(R-4)(R-8)(R-9)

(S-12) Quieter engines, less fly overs especially prop planes, fly higher, stagger the days when they fly over(maybe every fifth day). Vary flight paths, even a three-block space makes a huge difference in noise It seems like they circle around community park - (R-1)

(S-13) I do not think that airport noise requires mitigation at this time. The airport and the economic impact it has is an asset in our community. The impact of the airport in our northern Denver suburban community is overwhelmingly positive. – (NR)

(S-14) Don't have training flights early in the morning. – (R-4)

(S-15) Flight path should go over Jefferson County, including Rocky Flats and surrounding undeveloped area. The tower is visible from all of the areas near the airport so flight training does not need to go over populated areas. It seems particularly dangerous for beginning pilots to be allowed to fly over homes, schools and hospitals. There is adequate undeveloped areas such as Rocky Flats for new pilots to practice over. – (R-1)(R-10)

(S-16) The goals of the airport community to continue to expand their operations are incompatible with the concerns of the local residents for a safe, peaceful, and healthy place to call home. As a homeowner who would prefer to stay here, I recommend we make every effort to close the airport down. – (R-11)

(S-17) Use shorter runway and have the airplanes fly over highway 36 and the open space in Broomfield and Jefferson Counties where the airport resides. – (R-1)(R-7)

(S-18) Please reduce number of flights, require increased altitudes, and have they use different runways and flight paths. It's getting much worse and ruining outdoor activity and waking us up at night. – (R-1)(R-7)(R-8)(R-9)

(S-20) Decrease the number of flights, change the flight pattern to go over less densely populated areas. Move the airport to less populated area. It really seems unfair that the pleasure of a few individuals that enjoy flying impact so many residence. – (R-1)(R-8)

(S-27) RMMA needs to get serious about their Fly Quiet "Program". They don't promote it to the airport tenants. Flight school aircraft should bypass Louisville and Lafayette on their way to and from their training areas between Erie and Greeley. As at Centennial Airport, an Airport Community Noise Roundtable should be established with RMMA that will meet monthly. Also as at Centennial, microphones and a web tracking system of noise generation by aircraft should be installed around RMMA. – (R-1)(R-12)(R-14)

(S-29) Regulate/tax ban loud aircraft. Only allow modern, less noisy, less polluting aircraft at this airport. – (R-15)

(S-31) Re-route aircraft to fly over nonresidential areas; if this airport is owned/operated in Jefferson County, then flight patterns should be inconveniencing their residents instead of those in Boulder County – (R-1)

(S-33) Airport growth should be stopped below current levels. Flights should focus on flying in Jeffco airspace – (R-8)

(S-38) Limit the size of the aircraft to propellers and small executive jets and use the OTHER runways, please!!! – (R-7)(R-8)

(S-39) I've recently noticed that the flight path has changed to come almost directly over our house. Look at what they do at John Wayne airport...limiting takeoff/departures to a shorter day. – (R-4)

(S-42) This survey only allows single answers when many questions could have multiple responses. Work directly with the faa on the growth of this airport. It has quietly increased run way capacity and flight volume over the years with seemingly little input from the communities it impacts. – (R-8)

(S-43) Get Flight school to change its routes. Sell airport property to developers. – (R-1)(R-16)

(S-44) Limit early morning and evening arrivals/departures for jets, involve the community more, actually implement some community suggestions when possible.(R-4)(R-13)

(S-45) Require flight schools to have come to a complete stop. Frequently it's the same 1 or 2 aircraft 10-15 times in a hour that is causing the noise. – (R-17)

(S-54) More information on how flight path decisions are made by the pilots/airport – (R-1)(R-7)(R-13)

(S-55) change flight path? – (R-1)

(S-57) - Don't allow planes that produce noise and pollution to use this airport. Usually older and larger Jets - Don't allow larger planes to land at this airport. - No to commercial airplanes – (R-2)(R-8)

(S-62) Eliminate flights after 11 p.m. and before 6 a.m. Limit number of total flights during the day. Require flying at higher altitude. – (R-4)(R-8)(R-9)(R-18)

(S-64) The airport is in a different city in a different county that don't care about Louisville and Superior. The FAA needs to be engaged in the process since they route the air traffic and make a concerted effort to route air traffic over open space, not neighborhoods. The expansion efforts of the airport should have to be approved by those affected. increasing 737s should not be allowed -- this was supposed to be a regional airport for small planes. – (R-1)(R-2)(R-7)

(S-65) keep flights on high altitude over residential area – (R-9)

(S-66) Less operation before 6am Restrictions on the number of departures/touch and gos – (R-4)(R-8)

(S-68) Quieter planes. No military fighter jets. – (R-8)

(S-71) Maybe changing flight patterns? Touch and go's seem to occur over and over again in the same exact flight pattern right over our house. Doesn't bother me right away but some days it just doesn't stop! – (R-7)

(S-73) Small prop planes are usually ok, it's the Jets taking off and landing that are loud, so not implementing their plan of increasing jet traffic would be helpful. – (R-2)

(S-75) No jets and limit the operations from 7am-6pm on weekdays; 8am-6pm on weekends. – (R-2)(R-4)

(S-81) Rocky Mountain should redirect flight patterns over their own county. They also should complete a noise mitigation plan for all older aircraft. We need a timeline as in a five year plan. Otherwise we will be having this same discussion in 20 years. – (R-7)(R-19)

(S-94) Partner with aviation groups to expose the community to general aviation – (R20)

(S-98) Such high volumes of aircraft should not fly over residential neighborhoods and schools. Many are too low, including propeller ones. Maybe flight paths should be created to fly over Rocky Flats. – (R-1)(R-9)

(S-99) The public needs to be further educated on airport operations and that airports are vital to public safety. – (R-21)

(S-105) RMMA needs to embrace a model similar to that employed by Centennial Airport. Right now we are just getting lip service. – (R-13)(R-22)

(S-109) Take best practices from many other metro areas such as Santa Monica, CA. Shorten runways back to agreed upon easements. Restrict touch & go flights that are less necessary than A- B flights. Instruct flight schools not to fly over populous neighborhoods and avoid flying in evening or on weekends. – (R-1)(R-4)(R-8)(R-23)

(S-111) At least half of all departures and arrivals should be to or from the south. – (R-7)(R-24)

(S-112) Reduce number of flights, increase altitude and discourage night time flights. Implement noise ordinance and quiet hours, for example 10pm - 8am. Can air traffic be directed more over open space or commercial zones around the airport instead over residential areas? – (R-1)(R-4)(R-8)(R-9)(R-18)

(S-113) Reduce night operations – (R-4)

Section B. - Superior Comments with Responses

(S-7) It's frustrating that the questions above only provide the option to give one answer. Planes should fly higher and less frequently. It often seems like the same planes just buzz back and forth across our town and the open spaces for pleasure, or perhaps for training, but they're not actually going anywhere. The benefit that this may provide to the small number of people in the plane does not justify the impact on the thousands of people below. (R-1)(R-8)(R-9)(R-18)

(S-22) I experience periods when aircraft fly low near enough for the noise to bother and the aircraft are spaced a few minutes apart for hours. I need to sleep during the day and can hear these planes despite wearing very good ear plugs. Some planes are so low and loud I fear they will hit my home. Quieter engines help. More time between planes helps. (R-8)(R-9)(R-19)

(S-24) The flight school planes should not be allowed to fly over the rock creek neighborhood. They need to take off and turn prior to the neighborhood and Boulder County boundary. The planes should be assessed for noise output. Some are not very loud and do not cause concern while others should definitely be muffled or updated at the very least to reduce noise impacts. (R-1)(R-6)(R-19)

(S-114) Change the flight paths so that there are fewer planes flying over my home every day. (R-1)(R-6)

(S-41) Change flight patterns to go further South and west on takeoffs and landings so aircraft is at higher elevation when going over the city. This would help the low-flying problem and the noise problem. (R-1)(R-6)(R-18)

(S-46) Have the planes stay over Rte 36 / Sports Stable / Open space going westbound on takeoff, not over our neighborhood which is more to the northwest. (R-1)(R-6)

(S-97) The flight schools (my guess) are causing the problem...constantly circling Superior. The Cessna 172 type planes aren't that loud (usually) but there is one yellow ex-military trainer who circles the neighborhood on weekends. Very loud plane and did it for three solid hours last weekend. There's another guy with a very loud white and blue Bonanza who does the same. This morning, someone has been doing touch and go circles since before 6:30 and has been circling constantly. These pilots can go somewhere else and circle. (R-4)(R-19)

(S-107) Aircraft should take off in the opposite direction so as not to fly over my house. Limit the number of departures and arrivals. Limit any expansion of the airport. (R-2)(R-7)(R-8)

(S-108) It seems that the flight school planes take the same route over Rock Creek. Can they at least consider different flight plans so that one area of the neighborhood doesn't have an inordinate

amount of flights overhead? The constant drone of these planes is very irritating. Especially if you like to enjoy your outside deck and all you hear for hours is planes overhead! (R-1)(R-6)

Section C - Louisville Comments with Responses

(S-9) The number of flights had increased from no issue to everyday being woken up due to jet and propeller aircraft over the 35 years I have been in Louisville. This needs to be quieter to preserve our community. (NR)

(S-23) Flights go primarily over Superior and Louisville. Why can't they fly over Broomfield and Jefferson counties instead. (R-1)

(S-50) Stop flying directly over Louisville-go west or east between cities. (R-1)

(S-51) I rarely heard aircraft fly over my house until the last year or so. Now there are planes all day long and many of them are very low over my home and the noise has increased. They rarely flew over Louisville in the past, why change now? When homeowners buy homes things like airport noise is considered. Life has been peaceful and quiet for over 20 years for us and now the noise is irritating. (R-1)

(S-56) I live in Coal Creek Ranch in Louisville and we love seeing the planes fly overhead, especially the military ones! There has never been noise that bothered us so much that we would complain. (NR)

(S-59) The number of flights has increased dramatically over the last 5 years. The noise causes disruption inside & outside our Louisville home, all hours of the day & evenings. (NR)

(S-60) Rocky mountain airport has increased the number of flights dramatically in recent years. We are not even close to the airport and the noise is out of hand. I can't even read books outloud to my kids because its so loud they can't hear me over the airplane noise and sometimes they pass directly overhead once every 10 minutes. It's extreme. The Airport should not be allowed to hold the entire community's quiet enjoyment of their homes hostage for rich jet owners and airport operators. We do not need all these flights. It's highly disturbing and I live FAR from the airport in Louisville, but it seems like flights literally fly directly over my house dozens of times a day. (R-1)

(S-72) Surely there should be mitigation on the amount of flights over any area. I count flights passing by my house every 1-3 minutes. This is a joke! I'll lived in Louisville for over 6 years and it makes me want to leave the community. When you don't even have to set your alarm in the morning because of the nonstop air noise there's a problem and the city needs to step up to fix it!!! (R-1)

(S-74) I have no concerns about aircraft volume or noise over Louisville. (NR)

Section D. – Other Communities or Community Not Identified - Comments with Responses

(S-21) I would like to see communities pushing for more restrictions on flight operations to minimize noise, something closer to what is required of planes operating out of Boulder Municipal Airport. However, enforcement of RMMA's existing voluntary noise abatement rules might go a long way in reducing noise in my neighborhood. My neighborhood is pretty far from the airport but sees many low flying planes. (R-25)

(S-28) Stop the single engine planes from circling and repetitive passes along the east side of Davidson Mesa. You can hear the same plane making multiple passes along the east side of Mesa crossing the neighborhoods along Coyote Run open space. (R-1)

(S-32) I live on the Davidson Mesa and the planes fly very low directly over my house at all hours of day and night. I can't hold conversations because of the noise. They fly continuously at least 1 every 10 minutes. (R-1)

(S-70) I live in Lafayette. I have no issues with the airport. I was instructed to do this survey by a friend just to quiet her busy body nonsense. Continue business as usual, folks. Have a nice day. (NR)

(S-85) I live in Arvada on the east side of the airport (NR)

(S-103) The number of airplanes traveling over my home seems to be increasing quite significantly. They are loud, low and frequent. Furthermore, there seems to many larger planes in this flight pattern. We moved here for the open space and natural setting and we are hindered by the amount of aircraft overhead to actually be outside and enjoy the area. I am also very concerned about the air quality impacts from all of these airplanes, especially on my children. I did not move to this affluent area to face negative air quality impacts and noise from increased air traffic directly overhead. This is destroying the high quality of life of this neighborhood. (NR)

(S-106) Less flights and perhaps detour departures over less populated areas. (R-1)(R-8)

(S-110) The airplane noise is really annoying. It wakes us up. It is having an impact on our quality of life. We don't have peace in our own home. Enough meetings and talking. Please do something. (R-22)

Section E. – General Comments

(S-4) Ideas to brainstorm: Pass noise regulation legislation and enforce. Move the airport away from population centers or use routes that fly planes away from our homes. Pilots could endeavor to fly less and switch to carbon neutral transportation. Private jet owners could have more conference calls/reduce flying to attend meetings. Move closer to where you work so pollute our skies less. Fly higher and faster with new gen aircraft that has noise mitigating and lower carbon emissions technologies. Reduce use and cancel any and all expansion plans until operations are quiet and carbon neutral. (R-1)(R-8)(R-11)(R-15)(R-25)

(S-5) Restrictions similar to California airports like John Wayne and Santa Monica. Quiet hours where flights are not allowed unless it's an emergency Prescribed flight patterns that don't overfly residential areas Restrictions on the type of aircraft - decibel levels and commercial flights. (R-4)

(S-10) Set minimum altitudes and noise abatement corridors with vigorous penalties that are regularly and uniformly enforced. (R-1)(R-9)

(S-11) Put mufflers on the propeller planes. Have silent hours, for example before 9:00 a.m. and after 10:00 p.m. Close the flight schools. Do not allow expansion to more commercial traffic and large 737 jets. (R-2)(R-4)(R-19)

(S-19) We have lived here for 18 years and have never been worried about airport noise or train noise or music noise. This is a neighborhood dogs bark, kids scream, trains blow their whistle and music plays from downtown in the summer. (NR)

(S-25) Force flights into pathways that are NOT above residential areas. Fine pilots, aircraft owners, and the airport authority when they stray from required pathways. (R-1)(R-25)

(S-26) Reduce number of flight school flights. Require noise reduction on every plane. (R-8)(R-19)

(S30) Love the sound. (NR)

(S-34) There are no obvious impacts. (NR)

(S-35) I don't have a problem with aircraft, noise, or overflights. (NR)

(S-36) I really feel the flight schools need to be held accountable. Leasing 25 year old planes that are old, probably dangerous to fly, extremely loud should not be allowed to invade our neighborhoods beginning before 6AM lasting into the evening. (R-4)

(S-37) Fly over uninhabited areas (R-1)

(S-40) Not sure what govt can do.. If they own the land and are zoned for the anticipated increase, this outreach will have no real effect, except to waste time, money and precious resources. It was a small airport with X number of flights and we knew that when we moved into our home. I never expected to have regular flights and helicopters... Soon, if their plans to expand are approved, we will have more and bigger planes constantly overhead. What will that do to our " small town community" and the value of our homes? (R-2)

(S-47) Explain to people complaining that the airport was here long before they were. It was in existence and operating when they moved here. They chose to live by the airport, not the other way around. (NR)

(S-48) Leave the airport alone. It provides a public service. The complainers are a (vocal) minority and should not drive policy. (NR)

(S-49) I understand that air operations are FAA managed and thus local effects are not paramount. It is unfortunate that the airport is in Jeffco but the FAA routes take-offs over Boulder County/Louisville. (R-7)(R-24)

(S-52) I am not bothered at all by the airport impact. It has been there and operating for the 35 years I have lived here and I do not have concerns. I am directly under the northbound flight path and am not bothered by aircraft. This is part of the urban environment and people need to learn to deal. (NR)

(S-53) The fundamental problem is that while Jefferson County enjoys all the benefits of the economic development of the airport, Boulder County and to a lesser extent Broomfield county resident bare all the costs in terms of noise pollution and danger. Jeffco simply has no incentive to do anything because the residents they represent aren't impacted. This is exacerbated by federal law limiting local control of flights. A law Congress passed in the middle of the night in the 90's after massive lobbying by airplane manufactures which took local control away from airports. Ultimately, the only thing that will have an impact is a committed number of community members involved in a massive lawsuit - which should be supported if not spearheaded by Superior and Louisville. It would take years but a number of communities across the country have had success engaging in this process. As long as Jeffco gets no complaints from its residents - which it never will - either by luck or design, they have no incentive to do anything. Aggressive legal action is the only option (R-26)

(S-58) Yes, there is no evidence that touch-and-gos actually improve pilot performance. We should encourage flight schools to train over open space - including Rocky Flats. (R-1)(R-10)

(S-61) Remind citizens that the airport was here first. Remind pilots to observe FARs and be courteous when overflying communities while taking off and landing. (R-12)

(S-63) We are very lucky to have such a high-quality business airport nearby. The airport has been in operation much longer than most of the houses in Louisville and Superior have been around, and there is NO major problem with noise. Honestly, the road noise from US36, South Boulder Road, McCaslin Blvd, etc is much more noticeable and constant than the airport noise. And trains through town are VERY noisy and disruptive at all hours of the day and night...much worse than any aircraft. The airport is JUST FINE. (NR)

(S-67) I hear airplanes overhead but since we've lived here for over 35 years it has never been an issue. (NR)

(S-69) Totally a biased questionnaire. Many questions do not allow for an answer that equates to no issue with the airport or its speculated noise. Most questions assume there is a problem... Do you really know how to put together a statistically relevant and unbiased survey. How can you get paid to put together something that skews just about all answers towards there being a problem. Are you really going to roll this up into a PowerPoint and present to the city indicating it represents the opinions of the surveyed... With s clear conscience? Go back to school and learn how to do a survey correctly! (NR)

(S-76) The impact we've noticed recently is increased helicopter flight at low altitude. Apparent training flights on cloudy days have been run that produce noise loud enough to damage hearing if it lasted longer. Sound waves can be felt as strong percussion on ears. (R-5)

(S-77) Do not allow aircraft to have full throttle while over neighborhoods. Take offs with full throttle are extremely loud. (R-28)

(S-78) Being respectful of community airspace, working to keep the quiet peaceful atmosphere of our town, and making informed, thoughtful decisions based in community spirit, respect for people's living space and peace as well as thoughtful to a healthful environment (which includes clean air, freedom from constant noise pollution and wildlife care). Please work to have the least negative impact and be respectful of communities well beings (not just profit and convenience). Thank you. (-22)

(S-79) Stop trying... it's a great facility, and people should have thought more fully on their decision to move near an airport in the first place, and should consider moving away if it really bothers them. Heck... maybe someone wants to get away so badly that they'll make me a good deal on their place. (NR)

(S-80) I would like to see the amount of planes flying over reduced and sent another direction. Its constant. There was a plane that flew over our house with a banner 2 days in a row (4 flyovers each day) advertising a contractor for hail damage. We can't have a conversation because its so loud. I've lived here for 30 years and its only been a problem the last few years. (R-1)(R-8)

(S-82) Homes were built long after the airport. I do not notice any issues and the times I do hear the noise its fun to look and see what is overhead. (NR)

(S-83) I'm not worried about the noise from the airport. It's only noticeable on Saturday mornings during nice weather. It was here long before us and we knew about it when we bought our home. We need to spend our time on more pressing issues such as better traffic flow, bike paths, and what the effect of opening up the entire Rocky Flats area to development. (NR)

(S-84) There airport has long been there and has grown with the community. The sound of planes is the sound of our community's success and should be savored. If individuals have an issue with airplane noise in their homes, perhaps their city can help them pay for further sound deadening in their homes. The airport is not the problem. The problem is people who bought homes near an airport and are unhappy about their decision. (NR)

(S-86) The airport is a vital piece of our economy and citizens should educate themselves about the benefits of such a great airport. (NR)

(S-87) Don't move to an area close to an airport if noise is a concern to you. (NR)

(S-88) I LOVE living so close to the airport. I wish there were more military aircraft at RMMA. (NR)

(S-89) the noise from the airport is not an issue. The airport has been here a lot longer, and you don't need to start changing things just because some people don't like the noise of airplanes. (NR)

(S-90) No need. I am frequently near the airport even tho I live in Colorado springs. The noise level is perfectly reasonable and requires no improvement. The airport is a tremendous community asset, generates significant revenue, and should not be getting attached by a tremendously biased survey. You should be ashamed of yourselves. (NR)

(S-91) Communicate to potential home buyers that the property is near the airport BEFORE they buy (R-16)(R-21)

(S-92) Yes, if a person does not like the noise, they should move away. The airport is vital to our area, and people that have issues with it should move to Loveland. (NR)

(S-93) yes if you do not like the sounds of airplanes or the airport why did you move close to one the air port has been there for many years do not cry over the sounds if you can not stand the sounds move (NR)

(S-95) The airport is fine, I have no problems with it. Barking dogs and inconsiderate neighbors are a bigger concern of mine then overflying aircraft. (NR)

(S-96) They don't bother me. I used to enjoy the Air Force training flyovers. Glad we can be helpful during forest fires. (NR)

(S-100) It doesn't bother me at all. (NR)

(S-101) County could buy up homes or condem houses in the route of aircraft (NR)

(S-102) Realize where our homes are located prior to purchasing them. We moved into the airports area, treat our elders with respect! (NR)

(S-104) I think RMM Airport is great and has done wonderful things for our community and economic well-being. (NR)

Section F. - Rocky Mountain Metropolitan Airport – RMMA Comments with Responses

(S-124) I do not think that airport noise requires mitigation at this time. The airport and the economic impact it has is an asset in our community. The impact of the airport in our northern Denver suburban community is overwhelmingly positive. (NR)

(S-136) While I understand the use of this airport for transportation or business, small-plane pleasure flying is not appropriate in this area. It benefits a very few people and has detrimental effect on a great many people who spend time outside. (R-8)

(S-142) Airport should be significantly scaled back. It is now surrounded by more valuable urban development. This is a very serious problem that must be addressed by reducing impact of airport. Airport is of limited value. (R-29)

(S-146) Yearly airshows are great. (NR)

(S-151) During air show, low flying military jets cause percussion that knocks pictures off my walls. Limit size of airplanes that can fly in or else change direction of runways away from residential areas. Change routes to fly over open space. (R-1)(R-7)(R-8)(R-24)

(S-168) Engagement is not the issue because the airport doesn't seem to care how they negatively impact the neighborhoods. They need to be fined, or we need to find ways to legally keep them from degrading our community more. (R-22)

(S-176) Any previous attempts that I've seen with the community voicing complaints to the airport and/or pilots have been met with rudeness and arrogance. That does not help the situation at all. (R-13)(R-22)

(S-181) NO JETS! and limit the operations from 7am-6pm on weekdays; 8am-6pm on weekends. (R-4)(R-8)

(S-182) The airport cannot be allowed to continue to expand and add larger aircraft with more and more flights. There has to be a limit and they must be good neighbors. There seems to be an attitude of "tough, you live next to an airport"! I've lived in Louisville 25 years, and for years the airport/noise was tolerable... Allowing the airport to continue increasing flights, larger aircraft and noise is not being good neighbors. (R-2)(R-29)

(S-188) The airport has been operational now since the late 50's. Aviation and the airport are growing. I new it was here over 20 years ago when purchased our home. I think the airport is great and I don't mind any of the noise! (NR)

(S-189) This is a very one-sided survey clearly angry at airports and noise from them. It is a resident's choice on where to live, and almost every airport was in place before the housing. (NR)

(S-190) I love living across from RMMA. I love seeing all the planes and jets, and wish there were more military aircraft there. My 3 yr old LOVES airplanes too and we always look up when we hear one coming/going. (NR)

(S-192) See above. Lay off the airport, it represents freedom small business and entrepreneurial spirit. (NR)

(S-194) As an aviation enthusiast, I love seeing and hearing aircraft overhead. RMMA has been here far longer than most of us have and it brings tons of benefits to the area. I wish this study wasn't so biased (NR)

(S-205) I do not have any issues with the aircraft types, noises, or overflights of our areas. This airport is the lifeblood of your community and provides many more economic benefits than most people realize; look at the Colorado Division of Aeronautics impact studies if you doubt what I'm saying. Aviation is important and should be supported, not ridiculed or vilified. Also, this is the most biased survey I've ever seen! You should be ashamed of your lack of fairness to all parties! (NR)

(S-208) Regulate flight school traffic. Volumes have increased to intolerable levels, especially with the Pilatus mfg and repair facility installation. Fly over open spaces, not houses, and perhaps respect noise ordinances (evening quiet hours). I respect commercial travel traffic, but not constant, circling prop planes buzzing along that create continuous noise. One should add up the cumulative of 14 prop planes circling for 2 hrs with no break vs a jet engine that passes by in under 1 minute. (R-1)(R-4)(R-8)

Section G. - Superior Comments with Responses

(S-116) I moved to my home in Superior BECAUSE of the airport and it's location. I find it very interesting that the towns are spending our taxpayer dollars by hiring a consultant because of noise complaints about an airport that has existed for decades -- far longer than any resident of the town has lived in the area. In addition, I attended the community outreach meeting at the airport about this issue, where it was explained that in actuality aircraft operations are LESS than they were previously (though they've increased in the past few years. (NR)

(S127) The airport has broken at least two out of the five aviation easement agreements and the HOA for Rock Creek has every right to sue the airport for such egregious behavior. Louisville and Superior need to be included in all discussions pertaining to future airport construction and flight plans. (R-13)

(S-132) The planes start at 6:45 am and are so loud it wakes us up even with windows shut. We cannot enjoy time in our beautiful yard, the planes repeatedly pass over in groups of up to 3 every few minutes. If the planes were updated to be less loud that would help. If the planes turned out earlier and were not flying over the houses that would also help. The planes flying over the houses are many times much too low. My kids get scared that one might crash into the house. We are collecting data on frequency, time, altitude and noise along with videos because we know this is not safe and also likely not legal. A business operating out of JeffCo should not have such a huge negative impact on Boulder County residents who in no way benefit from tax revenue of these operations. They should be taking off and flying over Jefferson County. (R-1)(R-4)(R-6)(R-9)(R-19)(R-26)

(S-170) Please stop wasting taxpayer dollars on this. See comments above. There are many other sources of much more disruption and noise than the very nice local airport. Let's not become like Boulder, where residents complain that jet noise from planes 15,000-feet up and higher is somehow "reverberating" through their neighborhoods and should be re-routed elsewhere (NIMBY), which would of course increase greenhouse gas emissions by using less-than-efficient routing for planes. If you need to spend our dollars on something for our town, please look at how to attract businesses into the many vacant buildings we have available so we have a sustainable tax base well into the future. (NR)

(S-204) As the Town of Superior continues to grow in popularity and development, regularly increasing aircraft noise and disruption is not conducive to the quality of life this town is striving to provide to residents. Please remove jet aircraft from consideration for this RMMA. Growing an airport in a growing affluent suburban area is not the right direction at this time. (R-8)(R-29)

Section H - Louisville Comments with Responses

(S-122) Louisville and southern Boulder County are suffering the constant noise but not receiving any of the economic benefit of the increased flight operations at RMMA. (R-26)

(S-128) I'm a little shocked that the city of Louisville is spending time on this, it just shows how the demographic is changing. My children and I have run out of the house many times to spot the fighter jet or cool helicopter. Louisville needs to spend time supporting its local businesses and protecting those who have lived here for a long time from the super wealthy and super sensitive new comers who want to change this lovely community into a gated one. Keep small homeowners safe from developers who only care about profit and not about the neighborhood. (NR)

(S135) The impact of these flights on citizens is all encompassing - not merely a single choice: the noise is distracting, is irritating, disrupts sleep, forces conversations both indoors AND outdoors to stop until the noise ceases and we can hear each other again. AND the environmental impacts of all that fuel/combustion emissions being released is very severe to our homes. Louisville will no longer be a desirable place to live, home sales/values will drop resulting in less of a tax base, and city coffers will be vastly reduced if we do not control/eliminate this hazard before it becomes worse.. (R-4)(R-11)(R-29)

(S-140) Daily from 6 am to 8pm departing and arriving propeller planes are loud and annoying, mostly flying directly over our neighborhood at Mesa Point. (R-1)(R-4)

(S-144) Too many of these questions are written from the point of view of "How does the airport annoy you." The airport does NOT annoy me. If it did, I would not have purchased where I did. Aircraft traffic has not changed substantially since 1993 when I moved to Louisville. (NR)

(S-145) The flight schools cross cross in all directions. Sometimes I have as many as 5 coming and going in all directions. Not ok. Start having these planes head south out of RMMA. Louisville should not be held hostage to a flight school company. This is our home for almost 40 years, and it's sad and distressing to watch this unfolding over us. Sounds like a lawnmower over our neighborhood all day long. Not to mention the environmental issues. What happens when one crashes into our home? (R-1)

(S-153) The route the planes fly must have changed over the past few years. They fly directly over us now and they didn't before. We live near the top of McCaslin and south boulder road, on Sagebrush Drive. It would be nice if the plane routes moved somewhere else (R-1)

(S-156) Most of the time it sounds like a pilot is gunning the engine to gain altitude, but they never climb sharp, they cruise out and let the boulder valley floor drop from under them which means they stay lower over Louisville / Avista hospital. Shakes our house every time they fly our way, very disruptive. (R-28)

(S-157) This seems to mainly be a Superior issue, why after all these years is Louisville engaging on the subject? It would seem like there are issues that are much closer to home that Louisville should be addressing. (NR)

(S-162) This survey is poorly constructed. In each question I answered other, I did so because multiple answers are equally valid. There should have been an option to provide multiple answers. For example, the question In regard to impact - the answer is all of the above. There are days I simply can't be outside, I am unable to sleep with my windows open, etc. My concerns run the gamut from noise, to altitudes, to a military jet crashing in a densely populated suburban development. This survey isn't accurately capture the data you are looking for, This survey has not been adequately promoted. I found out about it by accident. Given Louisville's involvement, this should have Ben promoted via email for those that receive utility bill notifications that way. Notice should have been mailed to every community member, and it should have been mentioned in the community newsletter. It also should have been posted via social media via the 2 very active Facebook groups - The Original 80027 and Oh Oh Anything Goes (R-21)

(S-166) Please do not make this Jeffco airport into something bigger. This is a heavy residential area & we did not move to Louisville to live under an airflight pattern. The planes used to be small prop planes, busy on Saturdays only. Now it is a huge air traffic, large jets, incredible noise in our neighborhood. (R-29)

(S-171) I was part of a small group of community leaders -- Mayor Sisk, Malcolm Fleming, Councilmen -- who went out to the airport 10+ years ago (?) to meet with the airport manager to ask that the flights over Louisville be reduced and that pilots be told not to fly over the neighborhoods. We were told to call the complaint line. I did it daily for 3 months with no results, as did many other people. Please do not tell us to do that again. The FAA doesn't get those complaints and they're the ones in control. (R-13)(R-22)

(S-180) Louisville is becoming extremely noisy from flights! It's hard to sleep or have conversations outside! Just in the time I've done this survey I've clocked at least 1 plane a minute! What are these flights even for??? We can't possibly need to have that many planes flying that frequently. (R-4)(R-8)

(S-210) Flight schools and training should take place in Jefferson County since it is a Jeff Co airport. It appears 90% of flights are routed over Louisville, which is way disproportionate. Do not allow all flights to route directly over downtown Louisville. To be fair out of 360 compass degrees it should only be 1 of every 360 flights routed over downtown Louisville. (R-1)

Section I. – Other Communities or Community Not Identified - Comments with Responses

(S-129) The constant drone of airplane noise is really annoying! It seems like I can never get rid of it; I hear while talking walks, working in my yard, while reading inside my closed up house, laying in bed trying to go to sleep at night. (R-1)

(S-130) I am frustrated by the density of air traffic in this area. It is exceptionally dense and exceptionally loud. I have never been in another area where so many small airports crowd the sky with frequent, noisy flights. I would like to see a regional reduction in air traffic. Please buy land in eastern Colorado somewhere and move all this traffic away from the dense population center.

(S-131) I am frustrated by the density of air traffic in this area. It is exceptionally dense and exceptionally loud. I have never been in another area where so many small airports crowd the sky with frequent, noisy flights. I would like to see a regional reduction in air traffic. Please buy land in eastern Colorado somewhere and move all this traffic away from the dense population center. (R-29)

(S-133) An aircraft passes over my home every 5-7 minutes (I timed it)! That is unacceptable. The noise has made it difficult to enjoy time in my backyard and can be heard throughout my home. These planes are low and extremely distracting to enjoying quality of life in my neighborhood. (R-9)

(S-158) City: Lafayette (NR)

(S-159) I don't understand the amount of complaints about this. We spend a lot of time and with windows open, we hardly notice anything. (NR)

(S-167) This used to be a small airport with some airshows. Now it's getting more jets and more traffic. Its loud and disruptive. Airplane noise can be as early as 7am and as late as 10:30pm. Noise can be heard in the house. Planes tend to circle back over our house after takeoff or circle back for landing approaches. (R-3)(R-29)

(S-169) Our family lives directly under one of the primary Rocky Mountain flight paths on the edge of Davidson Mesa. We accept the aircraft traffic, and find it to be unobtrusive almost always. We also recognize that the airport was here long before our subdivision and our house. It is astounding to see the tempest in a teapot that surrounds the air traffic. It is simply not that big of a deal. Further, this survey is horrible - beyond the first question, all answers are negatively biased. It is very disappointing to see this quality of survey come out of our city. (NR)

(S-178) This morning I was woken up at 6:37 due to a low flying prop plane that was circling, maybe touch and goes? Either way, it was very loud and continuous right over our house. (R-4)

(S-179) I've never minded the propellor plane traffic, and always felt that people who complained about the airport traffic were too sensitive. But lately the jet traffic has been terribly disruptive. (NR)

(S-183) Too many over flights and planes in the air has a direct correlation with decreased health and well being due to noise and air pollution, disruption of daily life and mental health, and can be a constant and inescapable irritant. Please be respectful and contentious in regards to communities and all living creatures. Thank you. (NR)

(S-184) I suggest all the complainers spend a Saturday morning at the terminal watching the planes come and go. Or have a weekday lunch at the Blue Sky Bistro in the terminal. Great food, and nice friendly folks. I regularly go to the airport for exactly these reasons. In fact, my office is on the south edge of the airport and I regularly find excuses to go outside just so I can see what's flying around the airport on a given day. Also, although I currently live in Lafayette, I am very close to Erie airport. I am woken up every morning by the sound of planes flying over and I absolutely love it. I often step outside just to see what type of plane it is. (R20)

(S-199) Although I purchased my home less than a year ago, when I was complaining to a neighbor about the frequent low flyovers and resulting noise, she informed me that she has lived here 25 years and shared with me her similar concerns. She said, "It used to be much quieter here." (NR)

(S-200) More information should be provided to the public about airport operations so that they can be educated on the facts of living or moving near an airport. This airport has been in operation since 1960 and provides jobs, services and public safety operations to a large portion of Colorado. Some examples include aerial firefighting operations, medevac and flight for life maintenance and refueling. Citizens looking to buy homes in areas that are near airports need to understand before they purchase that airports have aircraft and that they may occasionally make noise. The city needs to be proactive in educating citizens about the benefits off and services provided by the aviation industry to help mitigate the conflicts that arise from that lack of education. I have lived in boulder and Westminster and currently work in Louisville and at no time has aircraft overflight been an issue. If anyone who has ever flown on a plane, needed fast medical attention, ordered packages off of Amazon or wanted a massive forest fire put out, they need to realize those operations take place here locally and those pilots are trained here in our state. (R-21)

(S-203) Noise is not an issues. A handful of people is blowing the issue out of control The airport and related aircraft noise has been the center of the Broomfield area for many years. Homeowners/buyers are responsible for researching the area in which they plan to reside, and planning for things such as airports, train stations, etc. We as the more recent neighbors to the area are in no right to alter the operations at hand. (NR)

(S-207) We have noticed a big increase in air traffic since 2013. Not sure what changes the airport made but if we would have known what was coming we never would have spent thousands of dollars investing in a beautiful back deck which we now cannot enjoy. (R-21)

(S-209) We can not sleep well with all this noise. I'm getting sick (literally) because of this noise. (R-4)

Section J. – General Comments

(S-115) This survey forces you to choose one option in several questions when actually all points apply. All types of planes have become bothersome. I am worried about all the impacts on the list. All activities on the list of my daily life have been disrupted (NR)

(S-117) Enlist FAA, federal, state and local reps to support non-private jet owning public who are flying less and striving to reduce their carbon footprints and change tax laws to those designed to reduce rather than favor private plane ownership. Citizens continue to voice complaints to RMMA and officials listed above. (R-27)

(S-118) The airfield operations need to be responsible for the negative externalities. The flights are low and slow, and they are using the Altitude (Density Altitude) and temperatures as an excuse to fly low and slow over the heavily populated residential area. The noise is completely unbearable and often at a frequency of 1 training plane overflight every 30 seconds. The other huge concern is the fact that these aircraft are in a very vulnerable state of flight, over the houses and if any kind of power failure is experienced, it will land in the homes. (I am a former Military and Corporate Pilot) Aircraft are climbing out to the North, at a very slow, low profile and could NOT maintain a glide to clear the homes. (R-9)(R-28)

(S-119) I selected “other” a few times because I wasn’t given the option to select more than one answer. The noise disrupts indoor *and* outdoor activities. The planes should fly higher *and* less frequently. The flights are too low, too loud *and* too frequent. The options for other questions were equally frustrating. I selected “every day” because the next option was just 2 of every 7 days, which was too small. As for what should be done, I do have “an opinion on the matter,” but it’s not about how information should be shared: it’s that actions should be taken. Explaining to the community why there’s noise, no matter how that’s done, doesn’t reduce the noise. (R-22)

(S-120) This survey was annoying in that it limited my responses to one per question. The noise is a BIG problem from the aircraft. And it starts BEFORE 7am. I often hear it before 6, and frequently before 7. The aircraft are too loud, too frequent, and very often too low. This is all kinds of aircraft (I guess taking off as I see them mostly flying north.) They wake me up, even with the windows closed. The problem has gotten much worse in the last 2-3 years. (R-1)(R-4)(R-8)(R-9)

(S-121) It’s taken a long time to act on this, it’s been an issue for more than 2 years (NR)

(S-123) It’s only getting worse. We experience planes starting at 6:00 am and they fly over continuously until around 9:00. Then it backs off to about 4/hr. And continue until 10:45 pm. You can’t talk on the phone, sleep in, even hear the tv. We have a swamp cooler, so to survive the heat, have to windows open. (R-4)

(S-125) Many of both takeoff and landing flights go over or very near Avista Hospital at low altitudes. The flight paths for both landings and takeoffs should be directed over areas without homes, schools or hospitals because the altitude for both is low and is dangerous and very noisy. (R-1)

(S-126) I'm concerned with both propeller and jet aircraft. Arrivals, departures and touched goes are all bothersome. The aircraft are too loud, too low and too frequent. Given the inexperience of many of the pilots and the age of many of the aircraft, safety and pollution issues are also of concern. The noise is particularly disruptive if we're outside or have the windows open. I'm also concerned about the effect on property values. Not long ago, while attending an open house on my block, I overheard a young couple - prospective buyers - comment on the noise before deciding to look for a quieter location. I doubt that "more information" is the answer to the problem. My neighbors and I are well aware of the increase in air traffic and the members of the airport community are well aware of our concerns. But as I learned during a recent Airport Advisory meeting, they just don't care. The consensus clearly was that people should have known better than to build houses near an airport and that, as there was nothing we could do about it, they had no reason to change their behavior. They treated the issue of our concerns – particularly the letters of complaint and the airport manager's recent appearance before the Superior Trustees - as a joke. Unfortunately, it seems the two sides are simply at odds. The area has outgrown its ability to accommodate an airport in its midst. There are now so many people (voters) and so many properties that are negatively affected by the noisy toys of the relative few that we should move to shut the airport down. (R-8)(R-9)(R-11)(R-19)(R-22)

(S-134) Type of bothersome aircraft: jet, propeller and helicopter. Nature of impact: distracting/annoying, disrupts indoor activity and disrupts outside activity. Strategies to be beneficial to neighborhood: increase altitudes, decrease number of overflights, discourage nighttime operations. I have noticed that from the 1990's to now, the flights do seem to have increased in altitude and thus the noise is lessened, but still is disruptive. I have great concern about the Broomfield airport's plans to allow larger, commercial jets and to run 24 hour operations. (R-2)(R-4)(R-8)(R-9)(R-18)

(S-137) The consultants should poll companies and businesses in Superior, Louisville, and Lafayette for their use of RMMA for company flights. I volunteer to be a member of an Airport Community Noise Roundtable. (R-13)

(S-138) Jet noise is increasing. 9 AM Monday there are continuous take offs. (NR)

(S-139) I love hearing the airport noise. It has not bothered my family or dogs. The airport was here longer than lots of these people. They knew that it was here and if they didn't want it then they shouldn't have bought homes here or they should move. (NR)

(S-141) Reduce the nber of flights, fly at a higher altitude, get rid of helicopters. (R-8)(R-9)(R-18)

(S-143) Almost every question assumes the respondent has a problem with aircraft noise. Is this survey simply to provide biased data to back up pre-determined conclusions? (NR)

(S-147) Seems like the older jet & propeller planes are the loudest... some newer jets are obviously quieter. Helicopters are not as frequent and of short duration. Busiest times seem to be Friday-Monday as corporate jets fly in/out and I assume for sports events at CU too. How about providing a plane identifier chart so that we can at least tell what kind of planes are going over... more as a game of interest/curiosity (R-19)(R-30)

(S-148) 1. There are meetings for community input, but at them we keep hearing there is nothing that can be changed! And we should get used to the noise because it's only going to get worse as airport operations increase. It doesn't seem like the airport operations will change at all. Are the meetings just to pacify us? More meetings won't help if we keep getting the same answers. 2. We are bothered by both jet and propeller noise. Choosing both was not an option on the above question. 3. We have lived in our house since 1979 and the airport noise has never been a problem until the last few years. The flight paths go right over our house now! 4. I'm just curious about the flight paths of a Jefferson County airport affecting mostly people in Boulder County! There are never any Jeffco county people at the meetings I've attended. Since Jeffco gets the tax dollars, how about moving flight patterns over that County! (R-1)(R-26)

(S-149) Some of the noise is being generated by DIA flight paths that are also low and frequent. I can count the number of Southwest and other similar flights that cross my yard from DIA daily. They are so low I can see details of the planes. It's so frequent that I can no longer work from my deck. The jets taking off in the evening from rm are so frequent I have to close windows in the summer after 10:30 p.m. especially on Sundays. This effort will require more than community input and may require congressional assistance to work with the faa to balance the rights of airports with the rights of citizens to maintain a certain level of noise mitigation. (R-4)(R-27)

(S-150) I would have selected multiple options on some of the questions, in terms of the ways this impacts our lives. All of these apply: The aircraft are too loud The overflights are too frequent The airplanes are too low And all of these apply: Distracting/annoying Disrupts sleep Disrupts indoor activity (i.e. conversation, television, etc.) Disrupts outdoor activity We already know the problem is almost entirely the flight schools. It is a nonstop parade of lowflying, rumbling, clunker prop plans over my house, one after another. Morning to night. I can be inside my house with the windows closed and sometimes I cannot hear someone speaking to me in the same room. It is terrible. I log onto a flight tracking app on my phone and I see it is the same routes going right over my house every day. They come in or take off, go north and do a bunch of practice maneuvers and come back. It's a parade of them all day, making indoor life and especially enjoying our deck or backyard, nearby nature resources, totally miserable. (R-1)(R-22)

(S-152) During air show, low flying military jets cause percussion that knocks pictures off my walls. Limit size of airplanes that can fly in or else change direction of runways away from residential areas. Change routes to fly over open space. anything about air zone restrictions, but on the map, it seems they could fly even just 5 or so miles further west and avoid the neighborhoods, and increase altitude. That won't eliminate the noise completely, but would surely make it more tolerable. Or fly aircraft with better noise suppression. (R-1)(R-7)(R-8)(R-9)(R-24)

(S-154) I've noticed more noise in the past year mainly from the jets across all hours. (NR)

(S-155) Flight schools and the airport needs to be better neighbors. (R-22)

(S-160) Since I started this survey, several I have heard several planes. It's now 4:15 pm. Plane crashes into our homes are quiet a worry. Very rarely do we hear a large jet fly over, they are very high in the sky and not continuous. And the number of those flights has not seemed to increase significantly over the past 25 years. Therefore not irritating. (NR)

(S-161) I am really disturbed that our tax dollars are going to be wasted on this due to people who chose to live here after the airport has been operational. Ridiculous. It's even more ridiculous that the cities and towns surrounding the airport are caving in and wasting tax dollars on this. Please stop. Further, any restrictions placed on the airport or the companies operating out of there will, in general, make them less competitive to other airports in the area. That will hurt all of these communities. (NR)

(S-163) Regular flights at sleep times have been the most bothersome. These flights should be addressed separately. For example, there used to be a 4a flight every weekday that would walk me up. Through some research, I found it was a privately-hired flight for work commuting to Montana. Eventually the company lost that contract or it would still be operating. It never should have been approved. (R-4)

(S-164) I enjoy the aircraft, but sometimes they do seem to be flying very low. (R-9)

(S-165) It seems like people just want to complain about things in today's world. I am sure there are valid complaints, but airport noise is a non-issue for my family (and for my neighbors). (NR)

(S-172) have only noticed a marginal increase in air traffic (and honestly, I don't think I actually have noticed), but a massive increase in online / social media complains :-). Good luck. (NR)

(S-173) I'm a voice over actor and record audiobooks. For my last book I had to record from 10pm-4am to get long chunks of time without airplane noise. (When that happens I have to stop recording which, as you can imagine, ruins both the flow and the sound) (R-4)

(S-174) The survey should have allowed more than one answer, or ranked concerns. (NR)

(S-175) People need to understand that the airport has been in the same location for a long time, we don't live in a bubble. As a side note we also hear the trains as we are 1/2 mile from the tracks and are not bothered by that either. (NR)

(S-177) The majority of the people who complain about the airport settled here after the airport was put in place. Growth at RMMA has been slower than most metro airports in the US. Statistically... 99% of the complaints come from 1% of the households... and that somehow justifies putting all this time and resources into a survey. How stupid can we be? All of Rock Creek buyers acknowledged in their closing that the airport existed and they signed... now somehow they think they can bitch until things go their way? Accept what you signed up for.... Or move. (NR)

(S-185) At the very least, I think there should be a cap put on the decibel level planes are allowed. I read where a lot of the planes are older and a lot noisier. I also read where they want to expand the airport. Please don't let them. I can only hope you guys will take some action. (R-19)(R-29)

(S-186) I was just in Saratoga, Wy and the planes coming and going are much quieter. The flight schools, transportation companies, etc. need to invest in quieter planes. In the last 20 years they have shown zero interest in maintaining a reasonable quality of life. Assuming the former Storage Tek site might have a "corporate campus" the use of Rocky Mountain Airport will likely increase. (R-19)

(S-187) Find a diplomatic way to tell the complainers to chill. (NR)

(S-191) Please stop making very one-sided surveys. There is no way to respond to the survey in a way that shows you don't think airport noise is an issue. This is a very unfair survey. There is no problem with airport noise currently. (NR)

(S-193) This survey is poorly constructed in that nearly all the questions assume that everyone is negatively impacted by aircraft noise: there are no options that apply to those of us who do not find airplanes a nuisance. (NR)

(S-195) The airport has been in this location for a very long time— longer than most of the people that live in close proximity to the airport. The city needs to stop allowing construction that infringes upon airport operations. Also, this survey is ridiculous. The survey should allow for open and honest feedback. Instead, this survey is skewed to arrive at predetermined conclusions, and the people that authorized these questions should have a little integrity and just come out and say that they don't like the airport. This survey is a waste of financial resources for the city. If you need help crafting a survey that will generate honest, unbiased feedback, please email me and I will provide my services. (S-196) Aircraft noise brings me life (R-16)

(S-197) The survey is poorly conducted and unscientific. It provides leading questions that steer answers towards answers that support an anti-airport bias. (NR)

(S-198) Offer a free round trip on a private jet to any of the airports in US they can reach. (R-20)

(S-201) The airplane noise doesn't bother me at all and many of these questions had no option for this. (NR)

(S-202) Noise is not an issue. A handful of people is blowing the issue out of control (NR)

(S-206) Jefferson County seems indifferent to the concerns of adjacent counties. (NR)

(S-211) What aircraft types are the most bothersome? Both Propeller and Jets are bothersome when they are loud. Especially when there is one after another landing, taking off, sometimes it feels like highway over us. What type of operations have the most impact? Arrivals (flights toward the airport) Departures (flights from the airport) Both arrivals and departures Touch-and-goes - All of the above, plus flights in training repeatedly circling above houses. What is your primary concern? The aircraft are too loud The overflights are too frequent The airplanes are too low I have concerns about safety/fear of crashes I have environmental concerns (i.e. air pollution, climate impacts, etc.) - All of the above. What is the nature of the impact? Distracting/annoying Disrupts sleep Disrupts indoor activity (i.e. conversation, television, etc.) Disrupts outdoor activity - All of the above. (NR)

Workshop Comments

- W-1 There is a sentiment that the airport doesn't care (R-22)
- W-2 Larger and larger planes 727/737 are coming in (R-2)
- W-3 Safety in general (NR)
- W-4 Operations projections and Impact on Safety are a concern (R-29)
- W-5 The change over the last 3 years specifically (R-29)
- W-6 Violating FAA rules of low altitude — what are the take off and landing heights? (R-9)
- W-7 Quality of Life is being diminished (NR)
- W-8 Controlling growth (R-29)
- W-9 Flight pattern changes because of change of runway length has affected community negatively (R-1)(R-6)
- W-10 More DIA flights (NR)
- W-11 Flights are coming north into Boulder County more often rather than south (R-1)(R-7)(R-24)
- W-12 Ways to make tighter turns? (R-6)
- W-13 Why do planes have the right to fly over homes? - Airspace does not belong to homeowners (R-1)(R-6)(R-7)(R-24)
- W-14 How do residents get a fair hearing? — Consultant are taking complaints and they say they care (R-13)
- W-15 Who licenses and who is making money off of flight schools? Target the influencers and money makers (NR)
- W-16 Property taxes and home values are impacted (NR)
- W-17 Where are the pressure points? — Please follow the money — Who are the influencers? Jefferson County Commissioners? How do we get a hearing from them? (R-31)
- W-18 Avigation Easements in Rock Creek? Through Town's attorney, this is being looked at
- W-19 Noise suppression on aircrafts? (R-19)
- W-20 How will we know if the strategies will be successful? Measurement and monitoring -- Resident complaints going down
- W-21 Systems to monitor could be installed but are expensive - Flight Quiet Programs are worth looking into? (R-12)(R-14)
- W-22 Runway patterns - Rotation? Preferential runway use, flipping them? (R-7)(R-24)
- W-23 Nighttime – What is considered nighttime? (R-4)
- W-24 How can we strengthen language? Rules are there. Congress would be the one to change the rules. (R-27)

- W-25 Are we trying to reduce operations? No. We are focused on reducing impacts (R-29)
- W-26 Master Plan from Airport – How can we be a part of it? Speak into it? (R-13)(R-32)
- W-27 Noise information needs to be more prominently displayed on RMMA website (R-21)
- W-28 Financial Incentive to help noise for flight schools? — Yes, they would consider it (R-33)
- W-29 How do we influence elections in neighboring counties? (NR)
- W-30 What about taking flight schools out of the airport? (R-34)
- W-31 What about Grant assurances? How can we alter, change these incentives to keep flying, airport growing? (R-29)
- W-32 What can the cities do? Can they build towers, other buildings to help? (NR)
- W-33 What about noise levels? Can we tackle this with noise data? What about instantaneous noise rather than long-term? Noise levels set by FAA based on direction from Congress issue. (R-14)
- W-34 Can we encourage flight simulators? (R-35)
- W-35 Is the Sport Stable bringing in extra air traffic with hockey teams? (NR)
- W-36 Lead concentrations (from gasoline or other sources) concerns in and around the airport? (NR)
- W-37 When will we notice impact change? 6 months for low hanging fruit — Trustees will determine priorities of strategies
- W-38 What other impact realities can we be looking at? environmental, impact to wildlife, etc? (NR)
- W-39 How do we engage more with Jefferson County? (R-31)
- W-40 450 million dollar impact economically to region from airport (NR)
- W-41 “Thank you for doing this for us” - to consultant from resident (NR)
- W-42 “Thank you. You did a great job” - to consultant from resident (NR)
- W-43 “I do appreciate your help” - to consultant from resident (NR)
- W-44 “I feel a debt of gratitude to our elected officials” resident (NR)
- W-45 Who would you approach at a national level? (R-27)
- W-46 Look into Polis amendment to FAA to restore local control (R-27)
- W-47 Check with state general assembly (R-27)
- W-48 Chronic impact of noise over time? Bring in that data as a health factor — useful with policy (R-35)
- W-49 EPA office? (NR)
- W-50 Global climate chaos and continuous burning of fossil fuels is another issue (NR)
- W-51 Demand for pilots is high (NR)

- W-52 What is the effect on ozone levels? (NR)
- W-53 We have been working on this for a year. Nothing seems to be done. (R-22)
- W-54 How was the environmental study done and what are the guidelines? (NR)
- W-55 Why does the airport have to grow for growth sake? (R-29)
- W-56 What is a reliever airport? (R-36)
- W-57 There is a \$450m economic impact (NR)
- W-58 Where has this worked? (R-37)
- a. When the consultant goes away does it stick or does it slide back to what it was like? (R-13)(R-22)
- W-59 It is interesting that the RMMA did not do this on their own (R-22)
- W-60 Jeffco Manager and Airport Manager made it clear they don't care (R-22)
- W-61 Concerned with larger and larger planes are coming in (R-2)(R-8)
- W-62 What are operations projections? What is projected growth? (R-38)
- W-63 The issue is not the aircrafts alone but the change in traffic (NR)
- W-64 Quality of life is diminished (NR)
- W-65 The change in volume but also the change in pattern (R-1)(R-6)
- W-66 Interaction about DIA and RMMA and Jeffco and DIA has increased (NR)
- W-67 Possible low hanging fruit is to change the route (R-1)
- W-68 Look at training area from 2002 - 2017; there were no problems. Now it is a huge problem (NR)
- W-69 Use both runways, make tighter turns and go from 6:00 am - 10:00 pm (R-4)(R-6)(R-7)(R-24)
- W-70 What gives planes the right to fly over my house? (R-39)
- W-71 Planes are flying under the minimum altitudes. Why? (R-9)
- W-72 We've been fighting noise pollution for 2 decades. In 2000 the County put together a board. BCCAN learned there is a lot of finger pointing. (NR)
- W-73 Follow up on Commissioners work from 2000 and understand if the outputs are being enforced (R-35)
- W-74 What is driving the expansion is someone is making money. What about stakeholders here? Who licenses them and who make money off the schools?
- W-75 Homeowner property values are impacted (NR)
- W-76 How can we measure the flights (R-14)
- W-77 Why can't the aircraft the takeoff pattern so that one area is not so heavily impacted? (R-7)(R-24)

- W-78 What is the strategy to reduce night time operations? (R-4)
- W-79 What is meant by night time? (R-4)
- W-80 Can we make a time line? (NR)
- W-81 FAA regulation has night time from dusk to dawn. (NR)
- W-82 Using words like "preferred" rather than "reinforcements" and "laws" and "rules" (NR)
- W-83 A lot of the discussion is about mitigate what there is. Will the airport have to get approval for expansion? (R-29)
- W-84 Currently the only attempt to curb noise at the airport is the noise abatement program, but there is not link or clear posting of it on their site. (R-21)
- W-85 Talk is cheap; let's see results (R-22)
- W-86 There are multiple hanger clubs. Are you going to meet with them? (R-22)
- W-87 There was one flight that flew hundreds of miles of Superior one day. Is there any way to get bad actors down? (NR)
- W-88 A lot of us have complaints but don't submit them. We don't have facts about the flightpaths and the decibel levels we are hearing. (R-14)
- W-89 All the growth is taking away from what makes Colorado special (NR)
- W-90 Polis amendment for aviation would have restored local control to regulate the airports (NR)
- W-91 FAA operates from a perspective that they have to grow to meet demand (NR)
- W-92 There is extreme demand for more pilots (NR)
- W-93 Are curfews possible?
- a. No, they are not allowed (R-8)
- W-94 Who is the approving body for the flight schools, airport expansion, etc.?
- a. JeffCo (NR)
- W-95 Navigation easement at Rock Creek – have you looked at this and do you have recommendations on this?
- a. Yes – not attorney. The growth of the airport is not consistent with the easement, however there is nothing that he believes can actually restrict the airport growth. His opinion is that there may not be legal recourse for the residents, but he cannot speak legally. (NR)
- W-96 Is there noise mitigation for the actual airplanes?
- a. They have not found muffling for aircraft but are looking at what might be done to incentivize quieter fleets. (R-19)
- W-97 Centennial airport has a voluntary program that has been successful at mitigating

- noise. Can we do the same?
- a. We can – the RM airport has to agree to the voluntary program.
- W-98 Strategies to address jets taking off as well as the small propeller jets? A. Yes
- W-99 If one or more of these solutions are adopted, how do you know if they are effective/successful? How are the strategies measured and who measures them?
- a. There are programs that can be put in place to measure the success of programs.
- W-100 How can we reduce nighttime operations? (R-4)
- a. Education of flight schools for better times to practice night flying.
 - b. Provide preferential routes for nighttime flights.
- W-101 Can we request the airport rotate the launching pad so that the impacts are split between areas? (R-7)(R-24)
- a. Yes, can flip the runway, runway rotation
- W-102 What makes you think that they are going to do any of these actions? (R-22)
- a. Pilots are human, they are our neighbors, etc. they want to reduce community complaints as well.
- W-103 What about the flight schools – are they doing more flight schools to bump up the numbers so that it looks like it's a busier airport.
- a. Flight training is a detractor to the corporate clients. They actually want more corporate clients. Can't discriminate against any businesses that want to come into the airport. (R-34)
- W-104 Has Superior considered incentives for the flight schools to get rid of noisy planes?
- a. They would be willing to provide some funding to help contribute to addressing the noise issues.
- W-105 Are you educating the cities about restoring local control through ANCA – airport noise control act. The grant agreements make the airports powerless. (R-21)
- W-106 What about safety measures? (NR)
- W-107 Safety is not the best strategy to get at noise impacts. There is little correlation between the two. Websites of the airport and flight schools – the info doesn't appear to be on there at this point. Is that a part of the strategy?
- a. Yes, there will a strategy to get uniform info on web pages, etc.
- W-108 Is there a way to move the flight school flights elsewhere, as they are low-value flights? (R-34)
- W-109 What can we do to prevent them from flying within our limits? High towers? (R-39)
- W-110 Is there data about instantaneous noise available, and noise levels? (R-14)

- W-111 Can we encourage flight simulators instead of actual flight time for training?
- a. Possibly, not sure what the requirements of actual vs. simulated flight time is. (R-35)
- W-112 When are there opportunities in various planning processes to provide input on these issues? (R-32)
- a. For any project with federal funding, which would likely be any capital improvement at the airport, NEPA is required which includes noise impacts.
- b. Also during master planning, if there is a new terminal, etc. there would be public input.
- W-113 What questions should we be asking our congress people? What state and federal organizations can help? (R-27)
- a. Noise – national org helping address air noise
- b. Congressional members
- c. State level advocates
- d. They will include these contacts in their report to the communities.

Responses

All comments are cross referenced with the responses to which they correspond. A single response may address several different comments/recommendations. Some comments have no recommendations and stand on their own or are not within the scope of this project. Therefore, there is no response required and these comments will be annotated with (NR).

(R-1) Consultants have recommended new ingress/egress routes to/from the airport that avoid flying over high density residential areas and concentrate traffic flowing to/from the practice areas along routes that contain low density residential, commercial or industrial land use.

(R-2) There are currently no specific plans for commercial air carrier service at the airport. However, the Airport Master Plan acknowledges the possibility that some time in the future an air carrier may want to provide services at RMMA. The consultants have found no evidence to indicate that the airport is actively seeking commercial air carrier service. (R-3) Currently, there are no plans to build additional runways at RMMA.

(R-4) The Consultants are currently working with the RMMA Noise Task Force to introduce language into the RMMA Fly Quiet Program encouraging pilots to avoid operations at the airport between the hours of 10:00pm and 6:00am. This would be a voluntary compliance initiative as Federal Aviation Regulations severely limit implementation of mandatory “access restrictions” such as curfews at public airports.

(R-5) Under Federal Aviation Regulations, fixed-wing aircraft must remain at least 1,000 feet above congested areas (i.e. flying over a city or town), and 500 feet over other areas. Helicopters are not subject to these requirements. Also, worth noting, these requirements do not apply to fixed-wing aircraft during take-off or landing phases of flight. See Appendix VI.

(R-6) The Consultants are currently working with the RMMA Noise Task Force to introduce language into the RMMA Fly Quiet Program encouraging pilots to turn crosswind as soon as possible to avoid overflying residential areas. This is not always possible due to several factors including, aircraft performance, density altitude, and other traffic and safety considerations.

(R-7) The general runway use system at RMMA is to assign the longest runway (12L/30R) to itinerant traffic and the shorter runway (12R/30L) to local traffic. Tough & Go traffic may be assigned 12L/30R during periods of light traffic, but this is not the norm. Most airports with similar runway configurations operate in a similar fashion. This tends to segregate traffic into like types of aircraft thereby reducing the risk of aircraft conflicts.

(R-8) Operators of public-use airports (such as RMMA) may not impose limits on the types of aircraft or number of operations conducted at the airport for the purpose of noise abatement. Nighttime curfews, limitations on touch-and-go or flight training operations, or limitations based on the size or type of aircraft is prohibited unless imposed for the purposes of safety.

(R-9) When citing FAR 91.119, it is common to overlook the first sentence. “Except when necessary for takeoff and landing...” Most low flying aircraft in the vicinity of RMMA are in the process of takeoff or landing and therefore are exempt from the minimum altitudes in the FAR. For all other instances of low flying aircraft, see – FAA Guide to Low Flying Aircraft – Appendix VI

(R-10) Most aircraft performing practice maneuvers such as steep turns, turns about a point and stall maneuvers utilize practice areas north of RMMA in the vicinity of Longmont. Maneuvers such as the ones listed above are considered acrobatic flight and are not authorized within Class D Airspace (the area within 5 miles of RMMA) or over congested areas.

(R-11) Closing down the airport is outside the control of both Louisville and Superior. Jefferson County is the owner/operator of the airport and our goal is to work collaboratively with Jefferson County leadership and Airport staff to encourage compatibility among airport operations and surrounding communities.

(R-12) RMMA has established a Noise Task Force to evaluate the recommendations evolving out of the Superior/Louisville noise initiative. As part of the implementation of Fly Quiet recommendations approved by the Noise Task Force, briefings and periodic training of tenants and flight schools, as well as getting the word out to surrounding airports whose tenants and flight schools also use RMMA, is a high priority.

(R-13) Establishment of a Noise Roundtable is one of the strategies that the Consultants will recommend in their final report to Superior/Louisville.

(R-14) An airport flight tracking system is normally deployed at larger commercial airports that operate mostly jet aircraft. A system such as this may be cost prohibitive at RMMA, however, there are other more cost-effective alternatives that could be employed at the airport and/or by the municipalities to track aircraft and help to assess noise impact to their respective communities.

(R-15) The Federal Aviation Administration has sole authority over certifying aircraft operated in the United States. This includes consideration and certification of allowable noise levels. Federal regulations prohibit assessing charges (including taxes) or limits in airport access based on noise level.

(R-16) The Consultants recommendations include collaborative land-use development which will encourage compatibility between the airport and surrounding communities. Jefferson County as the owner/operator of the airport controls the land on-which the airport sits. As a public-use airport, federal approval would be required in order to close it.

(R-17) Utilizing stop and go landings instead of touch and go landings is a possible strategy that could be implemented to reduce the overall number of flights per hour in the airspace. Ultimately, this is an air traffic control call and it would be up to the FAA to implement. The current mode of thinking in the FAA today is capacity enhancement, not restricting capacity. Therefore, we believe the likelihood of this strategy being implemented at RMMA to be very low.

(R-18) There was a recommendation put forth to the Noise Task Force to raise the altitude of the traffic pattern use by single engine propeller aircraft to 1000 feet above the ground from the current 800 feet above the ground. However, due to the cascading effect of larger aircraft having to move their pattern altitudes higher, it would ultimately infringe on Denver International's airspace. Therefore, any request to raise the pattern altitude must be approved by the Denver Metroplex team. This coordination is currently underway, but we do not anticipate a favorable outcome.

(R-19) Recommendations on community-friendly routes are included in the recommendations to be presented by the Consultants. Regarding the use of older aircraft, the Federal Aviation Administration has sole authority over the certification of aircraft operated in the United States. This includes the noise levels permitted for each aircraft category. Once approved by the FAA, use of such aircraft may not be restricted by airport operators or local government.

(R-20) There is a recommendation to conduct an open house to allow residents to come to the airport and learn about aviation and possibly even get a ride in an airplane to show residents what pilots have to think about while conducting flights to/from RMMA. This recommendation was briefly discussed at the first meeting the airport had with the consultants and received a warm reception. The Consultants will ensure that this recommendation is carried forward in the proposed strategies in the final report to Superior/Louisville and relayed to the airport.

(R-21) One of the strategies the Consultants will be recommending concerns outreach and public education through social media and other means. This would apply to both the airport and the municipalities.

(R-22) When the Consultants first met with RMMA officials, we presented several strategies and recommendations to the airport and discussed the potential to address several issues considered "low hanging fruit" which could potentially be implemented in the short term. In response to these recommendations, the airport manager, on his own initiative, established a Noise Task Force, comprised of flight schools and other industry technical experts, to address those issues. The Noise Task Force will meet on a quarterly basis to review recommendations and plan for implementation of those recommendations approved by the Noise Task Force. We view this as a very positive step and are encouraged by what we have seen so far.

(R-23) The Consultants are compiling a list of Best Practices that will be included in our Strategy Recommendations.

(R-24) The Consultants addressed take-off direction in the first Noise Task Force meeting held on July 24, 2019 at RMMA. The designated Calm Wind Runway at RMMA is 30L/R. This is due to the prevailing winds at the airport being from the northwest. We asked about implementing an alternating runway use plan. This met with resistance due to the added amount of runway changes that would be required. The feedback from the FAA was that runway changes increase risk. Keeping runway changes to a minimum reduces risk. Since the prevailing wind is from the northwest, utilizing runways 30L/R as the calm wind runway reduces the likelihood of having to change runways when the wind increases above a calm wind.

(R-25) Federal Regulations limit airport and airport operators' authority with respect to restricting flight operations or airport access. Airport noise programs often called, "Fly Quiet" program are voluntary per federal regulation. The Consultants report will include strategies to expand and enhance the RMMA Fly Quiet Program and to incentivize pilot participation. (S-21)(S-25)

(R-26) The State of Colorado conducted an assessment of the economic impact of it's airports. The report notes that RMMA is responsible for over 750 local jobs (within the region), over \$28 million in payroll, and over \$77 million in economic impact to the region. The economic impacts are not limited to Jefferson County. The state's report can be found here: https://www.codot.gov/programs/aeronautics/PDF_Files/2013_EconImpact/2013-cdot-eis-rocky-mountain-metropolitan-airport.pdf

(R-27) The Town and City are working with our Federal Delegation to seek support for our efforts to reduce the community impacts of aircraft operations.

(R-28) RMMA has established a Noise Task Force to evaluate the recommendations evolving out of the Superior/Louisville noise initiative. One of the recommendations being discussed is various noise friendly climb profiles.

(R-29) Airport growth is driven primarily by demand and the goal of the airport is to meet the local demand for air travel and general aviation services.

(R-30) There are several commercially available aircraft recognition guides.

(R-31) There are currently efforts underway to engage Jefferson County, Boulder County and several municipalities in a joint effort to address airport impacts (positive & negative).

(R-32) Airport Master Plans require public input and/or environmental studies that require public input.

(R-33) There have been discussions around providing financial incentives for noise reduction/noise impact measures. These discussions will continue as part of this effort.

(R-34) Flight Schools are an important tenant at the Airport and neither the Airport nor Jefferson County (the Airport Operator/Authority) have expressed the desire to remove the flight schools.

(R-35) Recommendation carried forward to final report (See Notes Below)

(R-36) A Reliever Airport is defined as an airport intended to relieve the (high) demand on a primary commercial airport by providing additional capacity to an area. In the case of RMMA, it is a reliever to Denver International Airport where capacity is limited for general aviation operations such as flight training and business aviation.

(R-37) The approach the consultants are taking has worked at airports around the US. The goal of the consultants is to help build collaborative relationships between the Airport and surrounding communities including Jefferson County, Boulder County, the Town of Superior and City of Louisville. They are also developing a list of operational recommendations and programs to

expand community outreach and industry engagement. There may be ongoing technical support needed by the consultants and if so, we will ensure that is available.

(R-38) The projected growth in operations at RMMA is expected to continue. This was addressed in the Baseline Report developed by the Consultants and is available upon request.

(R-39) The FAA is responsible for all the airspace within the United States. The airspace at RMMA is designated Class D Airspace within 5 nautical miles of RMMA from the surface up to but not including 8,000 feet MSL. Flight within all types of airspace are governed by the FARs.

Note – Use both R-7 & R-24 responses as appropriate

Note – We should acknowledge the very many positive comments about the airport.

Note- We should address the opinion of Survey Bias expressed several times in our report.

Note – Workshop Comment - Chronic impact of noise over time? Bring in that data as a health factor — useful with policy

Note - Encourage more use of flight simulators than actual flying – We will add this to our recommended strategies.

Note - Follow up on Commissioners work from 2000 and understand if the outputs are being enforced

**Summary
Joint Study Session
City of Louisville City council and
Town of Superior Board of Trustees**

**Monday, September 30, 2019
7:00 – 9:00 pm**

**Louisville Recreation and Senior Center
Brooks/Crown Room
900 Via Appia Way
Louisville, CO 80027**

Mayor Muckle and Mayor Folsom called the meeting to order at 7:00 pm

Louisville City Council Present: Mayor Bob Muckle
Council member Jay Keany
Council member Chris Leh
Council member Susan Loo
Council member Dennis Maloney
Council member Ashley Stolzmann

Superior Trustees Present: Mayor Clint Folsom
Mayor Pro Tem Mark Lacis
Trustee Sandie Hammerly
Trustee Ken Lish
Trustee Kevin Ryan
Trustee Neal Shah
Trustee Laura Skladzinski

Discussion Item: Rocky Mountain Metro Airport Noise Mitigation Study Findings

Mayor Folsom and Mayor Muckle said the Town of Superior and City of Louisville have been working together since 2019 to understand the airport noise issue and identify opportunities to mitigate impacts to the communities. ABCx2, a consultant, has been hired and tonight, ABCx2 will present their report and an analysis and recommendations.

Extensive community outreach has been conducted and hundreds of emails have been received by Council and Trustees. Council and Trustees understand the problem. The goal tonight is to hear the report and for Council/Trustees to ask questions of the consultant.

Mayor Folsom introduced James Allerdice and Jason Schwartz of ABCx2

Allerdice and Schwartz said a baseline study was commissioned more than a year ago to identify problems and create strategies to improve quality of life. They reviewed the presentation/slides attached to this summary.

Council and Trustee – Questions and comments

Mayor Folsom - What transpired today at a meeting with the FAA?

FAA regional office offered to have conversation with Rocky Mountain Metro Airport (RMMA) and asked local jurisdictions to join. The takeaway is that the FAA is sensitive to any change that moves noise to another community. They want community consensus. All communities must have a voice and agree to change. They recommend a roundtable. They have a process and communities sign on. The conversation was difficult at times; the FAA speaks in another language – aviation speak. They look at statutes and laws and look to see if actions fall within the parameters of statute/per law based on scientific measure. This is different than how residents look at noise issues. The FAA does not typically come to smaller airports but the fact that they came means they recognize there is an issue.

Council member Maloney – The work is based on what we know right now. We will have to make some priority decisions – decisions that make the greatest impact on our communities. What about the future of the airport?

Historical data shows trends that traffic will grow. The question will be, how can the airport manage growth and minimize impact on community. Growth is likely.

Trustee Lish –Residents need relief. Recommendations are by focus area but community outreach, planning outreach aren't going to give relief. Operations – what can be implemented that will be timely?

Night time operations, early turnout and ingress/egress, climb rates – these are low hanging fruit. And easily implementable. We are close to consensus on evening hours. Not as close on early hours. Longer term items – ingress/egress are being discussed but will likely be thrown to roundtable as it will impact other communities. Corporate traffic – we have recommendations we can make for flight operations.

Trustee Skladzinski – Change management is important but not as important as flight operations. That is her priority. Voluntary nighttime flight hours – how can we get them to comply? We want more than strategies, how do we get airport and their clients to comply?

The bottom line is education. Flight schools need to understand impacts. We need to get to the implementation piece. We need to ensure these items are part of curriculum. Encourage flight schools to comply.

Council member Stolzmann - Early turn – is this low hanging fruit? And looking ahead to expansion; what is the review process? Is there no review for expansion but a two year review to change it?

Yes, early turns are low hanging fruit. If a grant is issued there is a federal action which triggers environmental action. Talk to airport, review master plan – there will be a public process. Reviews are triggered by deferral action. Whether federal outreach is required depends on what the expansion is.

Trustee Ryan –We were cautioned by the FAA. FAA was invited today but declined to attend this meeting, they declined to attend a future Superior meeting. Roundtables cost money. Superior and Louisville do not have money to run roundtables. FAA will not contribute, saying it is a conflict, and said they are federally prohibited to participate financially. He encourages everyone to continue to call airport to report noise. The FAA is dismissive. The task force member was dismissive. He encourages residents to contact congressional representatives, Neguse and Perlmutter. The FAA is not engaging in a neighborly way. It is discouraging. Get congressional reps involved. Every complaint needs to be logged by airport complaint line. FAA receives those reports. Call the complaint line.

Council member Leh – Congressman Neguse’s staff had fairly promising steps to be taken. Was there any interchange from the Congressman’s office and any suggestion of those steps?

(Response from Kim Redd, Neguse staff member) She is logging complaints to the congressman. He will figure out what to do at the federal level. He is part of quiet skies caucus. She is pulling together info for Congressman Neguse.

Mayor Pro Tem Lacis - Safety of arrival of planes is key. He is looking for actionable steps. 1000 ft is stated safe elevation? Who should we be calling?

Call airport noise complaint line, they will relay to FAA. What constitutes low flying airplane? Except as required for takeoff and landing the altitude should be 1000 ft. The takeoff instrument flight rules are climbing out at that rate, they are operating within law. Valid point is, if someone is in practice area at 500 ft. that is not how they are intended to fly. Arrival or departure, doing minimum climb are legal. Flying around at 500 ft is not legal.

Mayor Pro Tem Lacis - According to the data pulled, most traffic is attributable to flight schools. There were two, now there are four. Is one school an offender? Can we reach out to newer flight schools and hit some of the low hanging fruit. Is this an opportunity?

We have seen significant growth, and the pattern gets longer and wider. We’d like to see the tower limit flights and keep wider pattern to keep flights separated. Flight schools –Part of the outreach would be to communicate to them they are impacting the community. Is there data showing one flight school is over representative of the problems? No, but we can outreach to all schools. What we are tasked to do – is do what we can within the law. We do not want to set your expectations that we can do something that we cannot do. All these programs are voluntary. Education is key to mitigate impact.

Mayor Muckle – Are there things the airports cannot do without the FAA taking action?

There is discrepancy as to what the flying altitude is between airport and FAA. Roundtable will provide connectivity.

Trustee Skladzinski - She supports collaboration. The increase in flights mean wider pattern. Less planes means less revenue for schools; do you think education will help with no incentive? They have real dollars on the table.

Implementation would mean tighter patterns during touch and gos. When able, tighten the pattern with less planes.

Trustee Ryan - There is a charge every time a plane takes off and lands, do these airports charge for touch and gos? Pilots are better trained with more touch and gos. What if the airport adopted a charge for touch and gos?

To his knowledge, airports don't charge for touch and gos.

Council member Loo – One of our neighbors to the east is suing DIA for noise. Have municipalities been successful in lawsuits or is that a foolish route to go down?

Phoenix airport altered the flight paths which resulted in more aircraft closer to a historic district. Court determined FAA did not follow their own procedures and ordered them to go back to what they were doing before. Since that ruling, the FAA has completely revamped how they get community input. Lawsuits against FAA are very difficult to win. They are diligent in following their own rules. If you go toward litigation, it is hard to win against FAA. We understand asking for voluntary compliance is not satisfying, but it is the way to go.

Trustee Hammerly - If we told you to go forth immediately with education, how soon till we would see relief? 3 to 6 months?

We would work with them to amend curriculum, and if we got funding, it is boots on the ground.

Trustee Hammerly - Are there people at RMMA that will assist or just consultants?

Their staff has committed time to these issues. Consultants cannot speak for airport. RMMA has started the outreach, tower briefings. We're encouraged by the internal task force they have established.

Mayor Muckle – Does the tower control touch and go? How much power does tower have?

Tower has say as to what happens in airspace. We can encourage them to do it.

Council member Loo - Consultants sound positive about establishing a relationship with RMMA, is that correct?

We have established a positive working relationship with RMMA.

Council member Loo – encourages a continued positive working relationship.

Next Steps and closing –

Mayor Robert Muckle and Mayor Clint Folsom said they would like feedback from the community related to the report. They will have conversations with their staff about next steps.

Meeting adjourned at 8:57 pm

Submitted by Dawn Burgess

Administrator Steve Dickson
Federal Aviation Administration
800 Independence Avenue, SW
Washington DC, 20591

RE: City of Louisville, Colorado – Requests to modify aircraft routes

September 24, 2019

Dear Administrator Dickson,

On behalf of the Louisville City Council and residents, we are reaching out in regard to the air flight noise pollution problem over Louisville, Colorado and other parts of Boulder County. The current noise levels negatively affect the public health and environment of those living in the impacted areas. While we are aware there have been opportunities to provide feedback through the EA process, and that the Federal Aviation Administration (FAA) has submitted its proposal as to how to address these issues, we do not believe the FAA proposal adequately solves the noise problem.

As such, we are writing to advocate that the following two recommendations be adopted and implemented:

1. Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) approximately 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of the RALFI) approximately 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees.
2. Shift the ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR and BAYLR flight paths 1.3 miles south.

It is our belief, and those of the experts with whom we have consulted, that these small changes would make a significant difference in alleviating the jet noise problem over the City of Louisville and other parts of Boulder County.

Sincerely,



Robert P. Muckle
Mayor



U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Office of the Regional Administrator

2200 S. 216th Street
Des Moines, WA 98198

NOV 19 2019

The Honorable Robert Muckle
Mayor of Louisville
749 Main Street
Louisville, CO 80027

Dear Mayor Muckle:

Thank you for your letter dated September 24, 2019, advocating two recommendations for flight paths in the proximity of Boulder, Louisville, and Nederland, Colorado.

The Federal Aviation Administration (FAA) appreciates constructive input from elected officials and the public. In addition to your recommendations, we also received many thoughtful comments on the Denver Metroplex Draft Environmental Assessment (EA). After the conclusion of the public comment period for the Draft EA, the FAA reviewed all comments from the public, and feedback from airports, agencies, and elected representatives related to proposed procedure designs. Comments were correlated with the applicable proposed procedures, and analysis was conducted to determine whether community concerns could be addressed through design modifications while still meeting the purpose and need of the Denver Metroplex Project. Comments received during the comment period reflected your recommendations and were considered in our analysis.

Recommendation 1: Shift the RALFI waypoint (east of Boulder on the ZIMMR flight path) approximately 0.7 nautical miles south; and shift the IPALE waypoint (on the COORZ flight path south of RALFI) approximately 0.7 nautical miles south. This is made possible by reducing the departure angle between COORZ and CONNR from 17 degrees to 15 degrees.

FAA Response: The FAA completed a comprehensive analysis of the proposal to amend the flight procedure design of the proposed ZIMMR Standard Instrument Departure (SID). The FAA modified the proposed ZIMMR SID by moving the location of the RALFI waypoint 0.7 nautical miles to the south and east from the original location on the proposed ZIMMR SID. The new location of the RALFI waypoint creates a lateral shift of approximately 2.0 nautical miles south of the location of the existing flight path of the published FOOOT SID.

Regarding moving the IPALE waypoint, the FAA reviewed the proposal while also considering the effects of weather and winds in the area. Rapidly changing atmospheric conditions and convective activity over the Front Range requires air traffic control to build in a greater margin of safety than the minimum separation standards for aircraft. The FAA determined the proposal would reduce the built-in margin of safety, thus limiting the procedures for air traffic control to efficiently manage air traffic on the proposed COORZ SID and CONNR SID; therefore, we did not move the waypoint.

Recommendation 2: Shift ZIMMR another 1.3 miles south (for a total southward shift of 2 miles for ZIMMR). This would then involve shifting the COORZ, CONNR, and BAYLR flight paths 1.3 miles south.

FAA Response: As stated in the response to Recommendation 1, the effects of weather and winds, in addition to rapidly changing atmospheric conditions and convective activity over the Front Range, requires air traffic control to build in a greater margin of safety than the minimum separation standards for aircraft. The FAA determined the proposed COORZ SID, CONNR SID, and BAYLR SID procedures, as designed, provide greater compatibility with airspace sector designs and existing and proposed air traffic routes. Moreover, the FAA designed the proposed BAYLR SID to avoid overflying the noise sensitive areas in downtown Denver, including the City Park and the Denver Zoo. Any further action taken would be a new federal action subject to its own environmental review in accordance with the National Environmental Policy Act, other special purpose laws, regulations, and FAA Orders.

The Final EA is available to the public at: <http://www.metroplexenvironmental.com/>.

Thank you for this opportunity to review and respond to your concerns.

Sincerely,



David C. Suomi
Regional Administrator
Northwest Mountain Region