



TRUCKEE TAHOE AIRPORT DISTRICT

NOISE & ANNOYANCE MITIGATION HANDBOOK



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I. Overview

This Noise & Annoyance Mitigation Handbook (Handbook) outlines approved methods District staff use to mitigate annoyance at the Airport.

Truckee Tahoe Airport District is a general aviation Airport established in 1958, and has prioritized noise and annoyance mitigation for the surrounding community in a number of ways. This Handbook covers a broad range of topics related to Airport noise and annoyance.

As part of the national aviation system, not unlike railroads and highways, the Airport must operate in compliance with federal transportation regulations.

This Handbook outlines some of the national and local trends in aviation as they pertain to noise and annoyance, while also offering information from studies commissioned by the Airport on what influence the District can or cannot have over those trends.

As seen in the budget section of the plan, the District devotes a sizable amount of its annual budget to addressing noise and annoyance.

Our Mission

The Truckee Tahoe Airport is a community airport that provides high quality aviation facilities and service to meet local needs, and strives for low impact on our neighbors while enhancing the benefit to the community at large.

Finally, the Appendix includes pertinent documents for more detailed information.

Current Noise & Annoyance Programs

Community Response

Striving for responsiveness and transparency, the District has developed a robust noise and annoyance comment program. Staff is dedicating time to not only taking comments, questions and

complaints about noise and annoyance from members of the public, but also to researching the cause of the annoyance and following up with both the pilot and the community members as the situation requires.

Fly Quiet

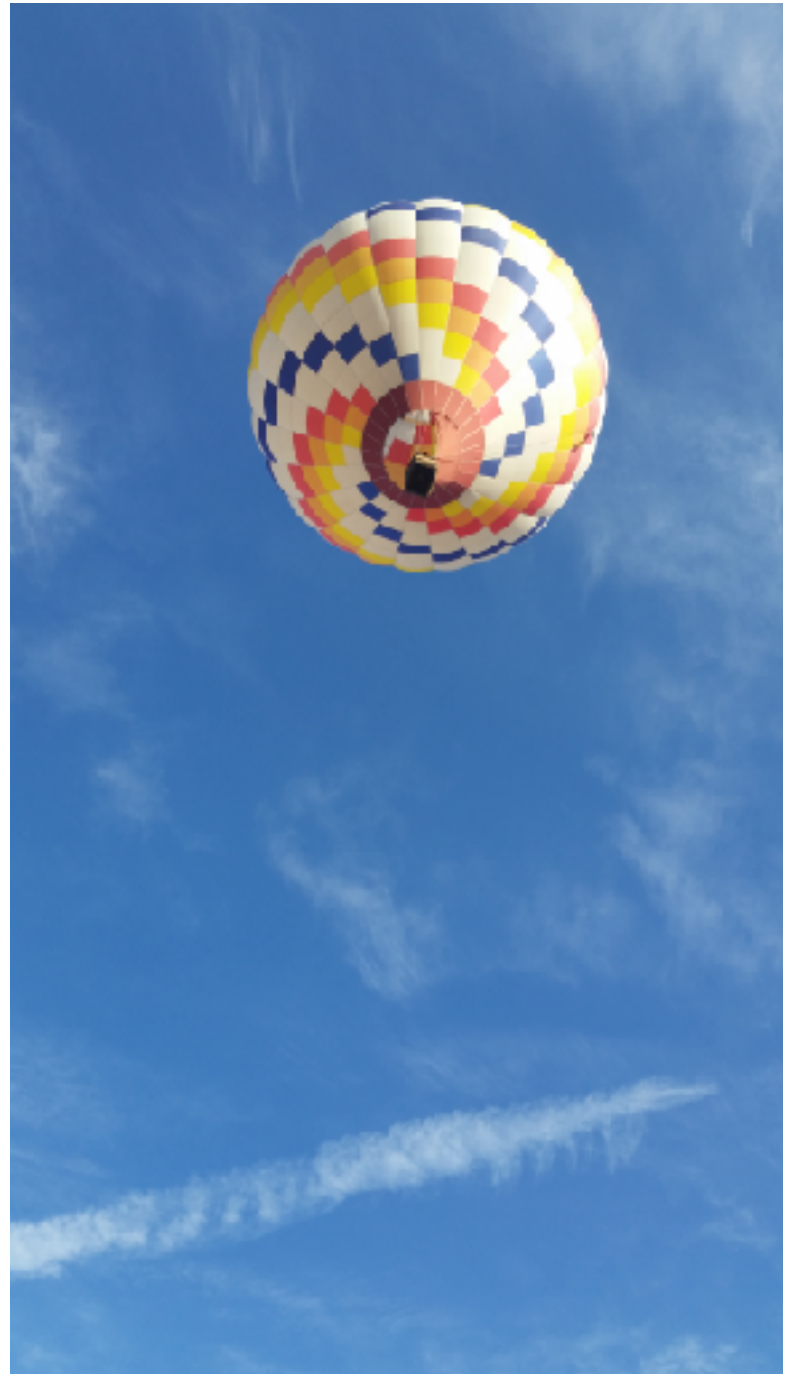
While the Airport District does not currently have any control over the flight paths used by aircraft taking off and landing at the Airport, the District has developed voluntary procedures designed to minimize noise and annoyance. The District also has an outreach campaign to educate pilots, aircraft owners and passengers on those voluntary routes.

Outreach & Education

An extensive education and outreach campaign to both the aviation community and the local community is a key element of the District's work to address noise and annoyance.

Future Plans

The District is also exploring ways to have greater influence over flights into and out of the Airport to minimize noise and annoyance. Strategies include trying to introduce certain procedures into the National Airspace System and by implementing a temporary seasonal air traffic control tower.



II. Background

A. Overview & History

The Truckee Tahoe Airport is a Federal Aviation Administration (FAA) designated public Regional General Aviation Airport. It is a bi-county California Special District, and was established in 1958 by a vote of the people.

The District, which covers 485 square miles in Nevada and Placer counties, includes more than 30,000 full-time residents.

The Truckee Tahoe Airport District is a federally regulated transportation facility, much like Interstate 80 or the Union Pacific Railroad. As part of a national system of airports under Federal Aviation Administration regulation, addressing noise and annoyance is a complex issue.

B. History of Noise & Annoyance

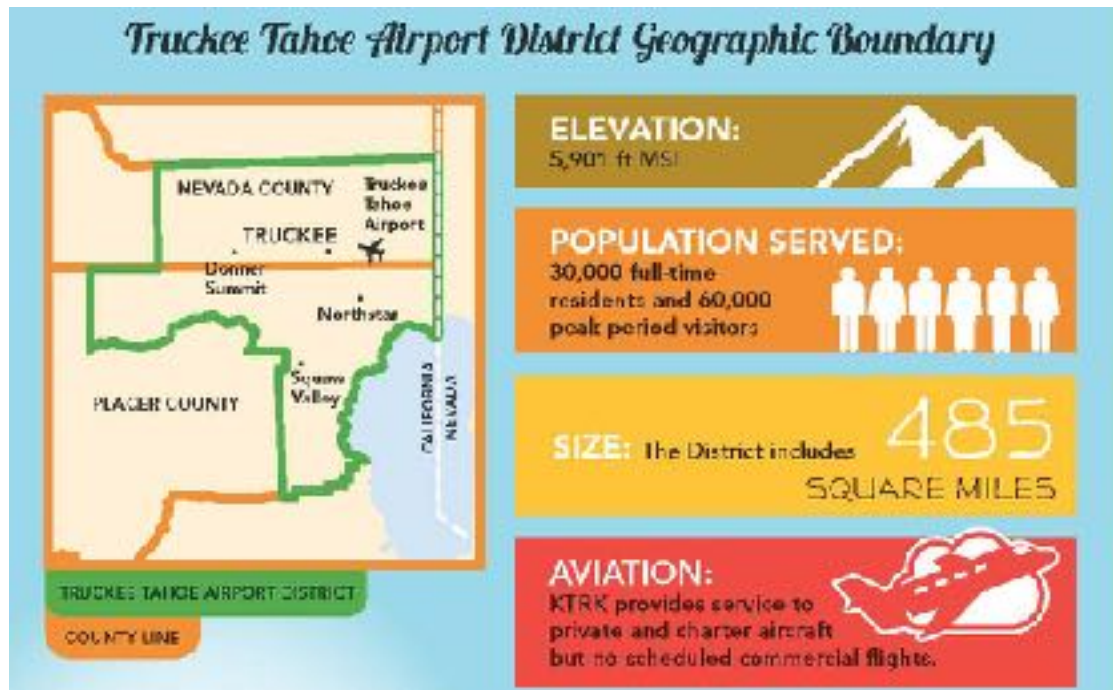
Noise became a community concern in the 1990's at the Truckee Tahoe Airport, mostly due to small single

engine piston aircraft. At the time, no real measures were in place to address noise and annoyance.

The fleet mix - or the type and character of the aircraft using the Airport - has changed significantly over the past five years.

Operations by small single engine piston aircraft have remained fairly static, while the Airport has seen increases in turboprop aircraft and jet aircraft.

An additional change at the Airport is the industry's focus on shared use, or fractional business aircraft for use in personal travel. Both extensive study by the Truckee Tahoe Airport District and national trends show airport traffic is directly tied to the economy. As the economy improves, especially in regions Truckee/Tahoe is



strongly tied to - such as the Bay Area - air traffic increases.

C. Role of ACAT

In 2001, the Airport Noise Advisory Committee (ANAC) was formed to explore ways to address noise and annoyance and to make recommendations to the Board of Directors. ANAC evolved into the Airport Community Advisory Team (ACAT).

Today, ACAT works to provide recommendations and to develop noise mitigation programs. ACAT programs include:

- Noise Abatement Procedures for pilots
- Aircraft modification grants for local users like the glider tow planes and rental aircraft
- Recommendations for voluntary nighttime curfews
- Incentives for pilots who reduce impact upon the surrounding community

ACAT also spearheaded the installation of a Flight Tracking system called Vector in 2010. Vector allows the Airport to track aircraft location and altitude, which is vital in understanding

flight behavior as it relates to noise and annoyance.

ACAT consists of 6 team members: 3 pilot members and 3 community members. ACAT members are appointed by the TTAD Board of Directors and serve as volunteers for two years.

See “A Brief History of ACAT” (Appendix) including a list of actions undertaken by the team.

D. Other Past Noise Mitigation Efforts Explored by the District

Part 150

The District investigated the Federal Aviation Administration Part 150 Airport Noise Compatibility Planning process in 2007. Part 150 is the FAA's only legal method to explore ways to curtail operations to reduce noise and annoyance. The study concluded that it was untenable. More information can be found in the Legislation and Regulation Section.

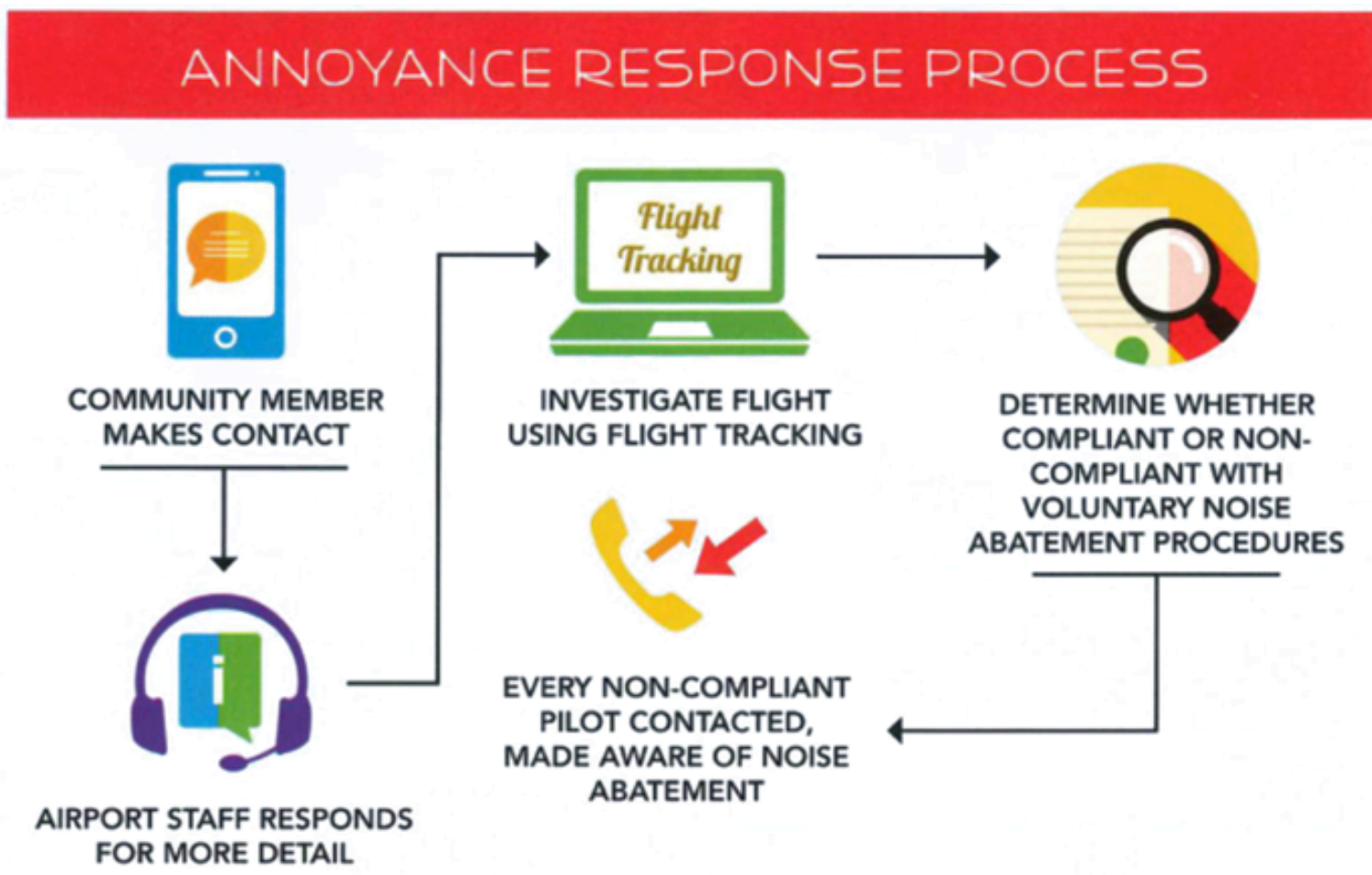
III. Noise and Annoyance Comments: Procedure, Response & Action

A. Noise Reporting Research & Response Procedure

A critical part of addressing the noise and annoyance comments is maintaining consistent communications with community members and pilots. One way the Airport encourages open communications is to make it easy and accessible for community members to report annoyance.

Three ways to report annoyance (see visual and below):

1. Online at TruckeeTahoeAirport.com (This time stamps the event.)
2. Over the phone with a District staff person
3. In person at the Airport



Annoyance Response Process Steps

Step 1: A resident or visitor emails, calls, or contacts the Airport through TruckeeTahoeAirport.com if an aircraft operation bothers them or causes concern.

Step 2: Airport staff responds via phone or email to find out more about the disturbance, which officially begins an investigation into the flight.

Step 3: Airport staff researches aircraft activity that matches the location and time of the call or email, using flight tracking and camera imagery data, to identify the aircraft.

Step 4: Staff determines whether or not that flight was in compliance with the Airport's Noise Abatement Procedures.

Step 5: If the aircraft was not in compliance with voluntary Fly Quiet procedures, the pilot or operator is contacted by Airport staff to learn more about the flight and to alert him or her of those procedures.

Step 6: Staff follows up with the commenter.

Occasionally pilots are unable to use the prescribed Fly Quiet procedures due to safety or weather issues, but they are generally responsive to requests to use Fly Quiet recommendations in the future.

In 2015, the Airport received 463 noise and annoyance comments from 76 households. There were 27,585 aircraft operations (takeoff, landing or touch-and-go) in the same time period.

B. Staff Guidelines Regarding Noise Comments

In every interaction with a member of the public, Airport staff members are expected to conduct themselves in the following way:



Listen. Actively listen to the comment, question or complaint.



Honor the comment. Respect the person's comment and take meaningful action based on that comment.



Investigate. Find out more about the issue, incident or flight, using data that leverages factual metrics on aircraft location, altitude, and course, to make an informed response.



Respond. Follow up with the original commenter on the results of the investigation and actions taken, i.e. pilot contacted and educated IF the aircrew was unable to follow the prescribed Fly Quiet procedures.



Take a deep breath. If communications with a community member is ongoing and not productive, staff should enlist supervising staff who can take further action. This may include a site visit at the commenters home to experience annoyance first-hand.

To ensure civil discourse with members of the community, understanding that noise and annoyance can be an emotional issue, staff is strongly encouraged to:



Discuss comments through a process of mutual respect.



Never argue or be defensive with the commenter.



Do not use email when communications are challenging or critical.



Contact a supervisor if the tone of a comment is concerning or your the stress level is high.

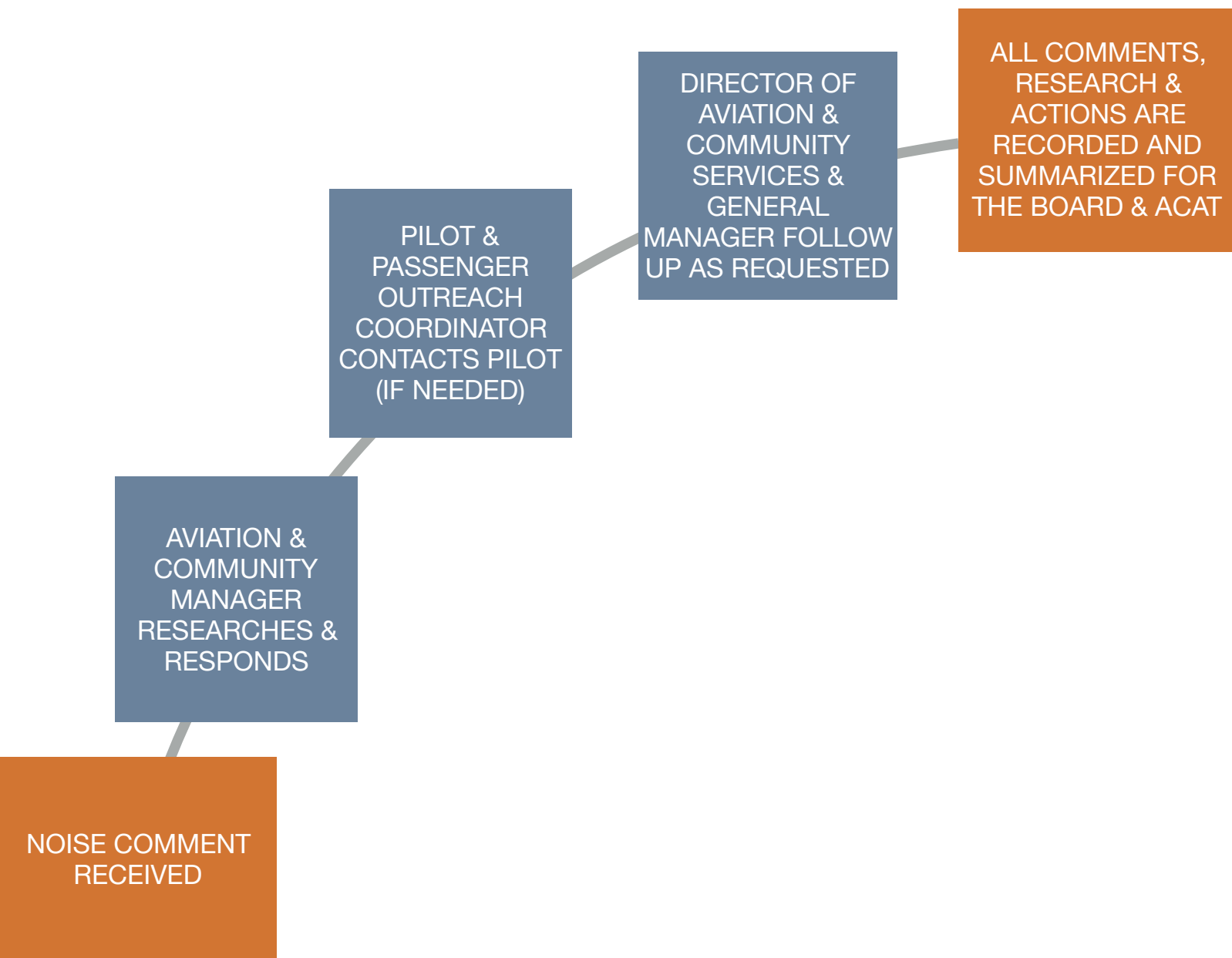


Get a second opinion from a coworker or supervisor on a comment if in doubt.

C. Next Steps After a Noise Comment

The District tracks comments and reports them to the Board of Directors monthly, quarterly, and annually.

From there, the Board of Directors discusses each report and may recommend action based on information presented. Similarly, ACAT tracks this information and makes recommendations to the board on new potential strategies to improve noise and annoyance from the community perspective.



IV. Flight Procedures as Mitigation

The Truckee Tahoe Airport District is constantly exploring different ways to address noise and annoyance with voluntary flight procedures. Currently the District has voluntary Noise Abatement Procedures, but cannot mandate flight paths. The District is exploring ways to establish community friendly flight paths within the National Airspace System as well as ways to better control aircraft operations around TTAD that will minimize noise and annoyance.A. Noise Abatement Procedures & Fly Quiet Campaign

Truckee Tahoe Airport does not have control or authority over aircraft in flight, taking off or landing on its runways. Therefore the Airport cannot dictate when, where, or how any aircraft fly over the surrounding community, per the FAA. See the Legislation and Regulatory section later in this Handbook.

While The Airport District cannot mandate flight paths, it has created a set of voluntary Noise Abatement Procedures with industry expert input and GIS data.

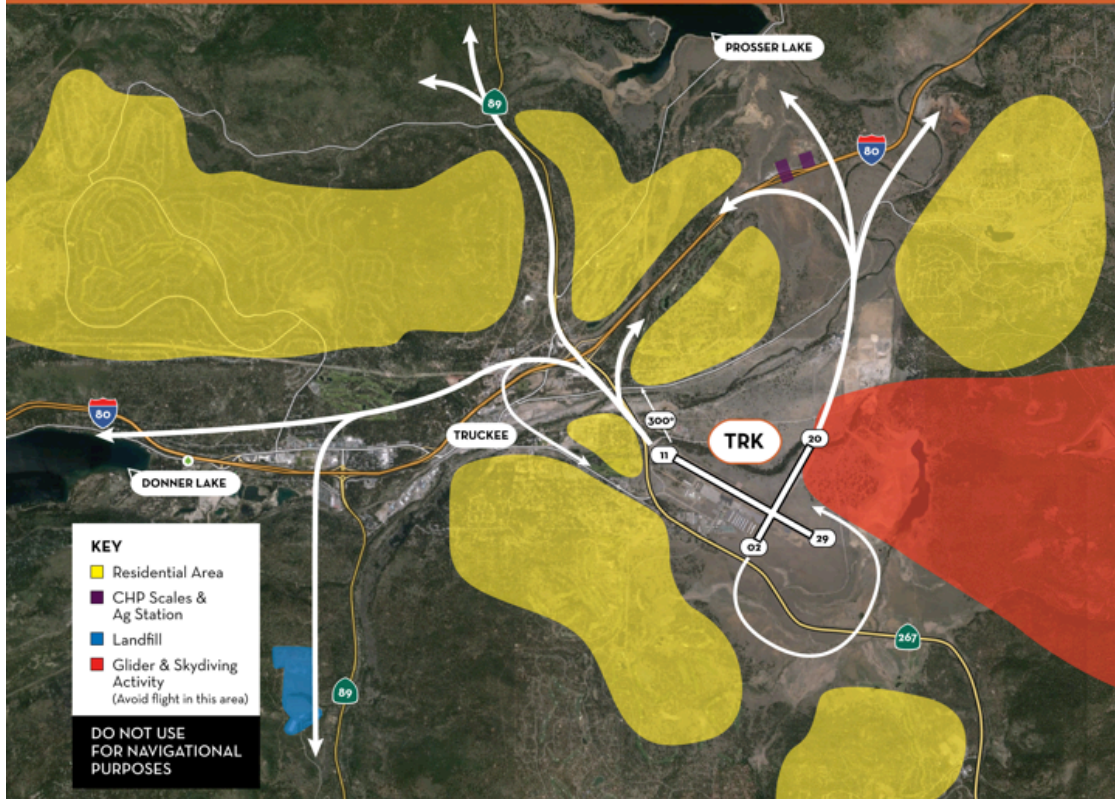
What does compliance mean?

Compliance and non-compliance with voluntary Noise Abatement Procedures are just that – voluntary. If a flight is non-compliant with the procedures, that doesn't mean the pilot is doing something wrong or against the law. The pilot may not be aware of the procedure, it may not be the safest option given other air traffic, weather or other factors – he or she may choose to fly different routes for any number of reasons.

These procedures were developed by the District to avoid areas of residential development and target areas of existing noise such as Interstate 80.

Because these measures are entirely voluntary, the Airport District relies on education and outreach to inform as many pilots of these procedures as possible.

PILOTS & PASSENGERS IMPORTANT FLIGHT INFORMATION



- The Truckee area is NOISE SENSITIVE at all times
- AVOID flying over residential areas
 - Fly over roadways
- Noise abatement rules in effect
- Voluntary curfew in effect 10 PM – 7AM
- Check NOTAMS & website for important flight safety information
- UNICOM: 122.8 AWOS: 118.0
- Preferred calm wind runway is 02
- Special hazard: High terrain. Expect wind shear
- Left Traffic for all runways
 - EXCEPT Right Traffic for 20
- Glider and skydivers in the area
- Glider area located NE of airport
- Call for up to the minute data **530-587-4119 ext 100**
- Webcam: www.truckeetahoeairport.com



Field Elevation: 5901

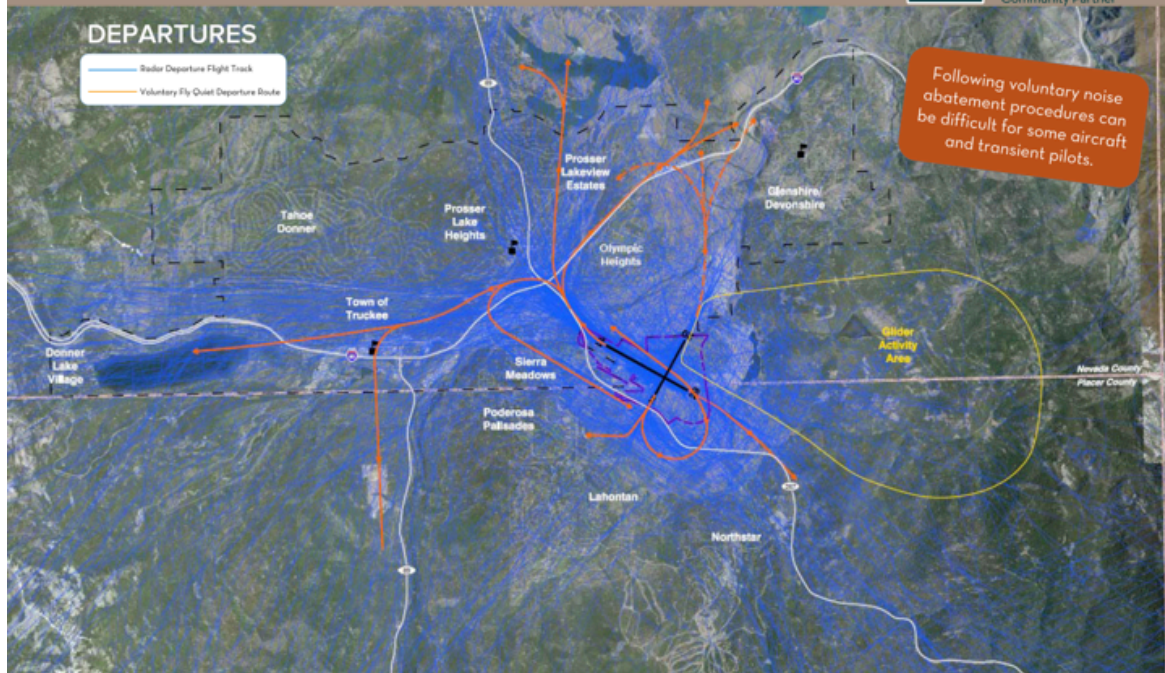
530-587-4119

truckeetahoeairport.com

Even if a pilot is aware of the Noise Abatement Procedures, the pilot may deviate from that route at any given time due to overriding safety concerns, generally in the form of weather factors or other air traffic in the area.

Safety is always the number one priority for Truckee Tahoe Airport and pilots!

AIRCRAFT DEPARTURE ROUTES



Map of existing departure routes (red) and actual flight tracks (blue) at KTRK.

Beyond these voluntary flight routes, Truckee Tahoe Airport District is taking steps to further improve flight routes, establish them in the national system, and minimize aviation impacts to the region.

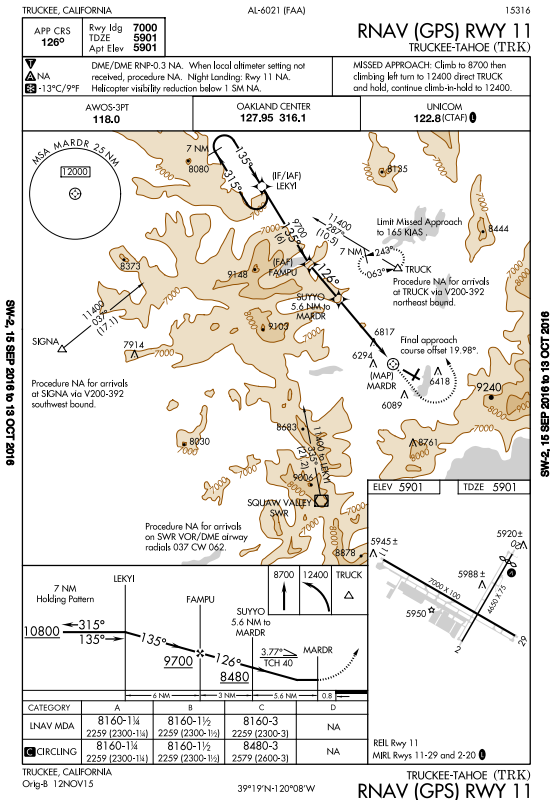
B. Existing Surveillance

The Truckee Tahoe Airport employs a suite of technologies to track aircraft operating nearby, including cameras and transponder-based flight tracking systems. Eleven solar-powered camera stations positioned in key locations on the airfield capture aircraft movement around the clock, and are used to determine aircraft registration, make and model.

When combined with flight tracking data, surveillance information can be used to follow up on noise comments from the public, for statistical tracking and reporting to the Board. The data can also be used for the FAA to review compliance of a flight.

Cameras were installed in 2008 and upgraded in 2010, and ultimately replaced in 2014. Flight tracking software was installed in 2011. These systems are well above and beyond typical general aviation airports as part of the District's commitment to addressing noise and annoyance.

Examples of existing IFR Routes



C. Current Instrument Flight Regulation (IFR) Routes

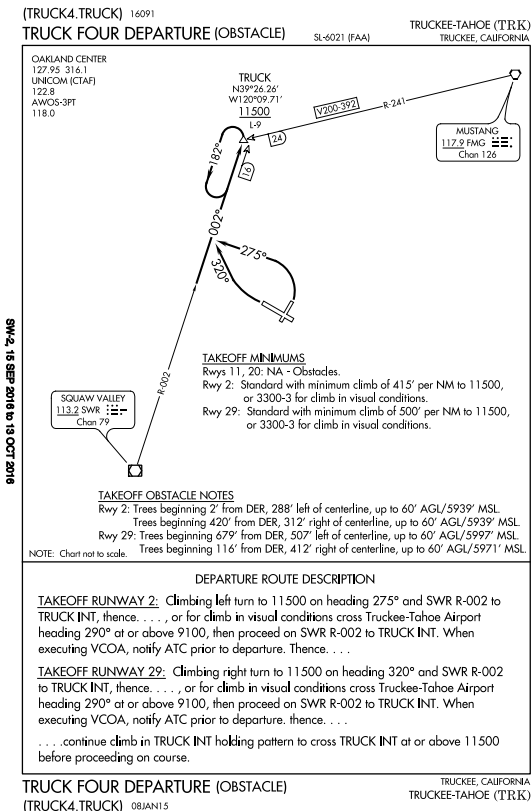
IFR Routes for Truckee Tahoe Airport were created by the FAA and are the routes most readily accessible to pilots across the nation. These routes are different from the voluntary Noise Abatement Procedures as designed by the Airport.

Typically, airports are not involved in the creation of these routes – which prioritize safety and efficiency within the national system – not taking noise and annoyance into consideration.

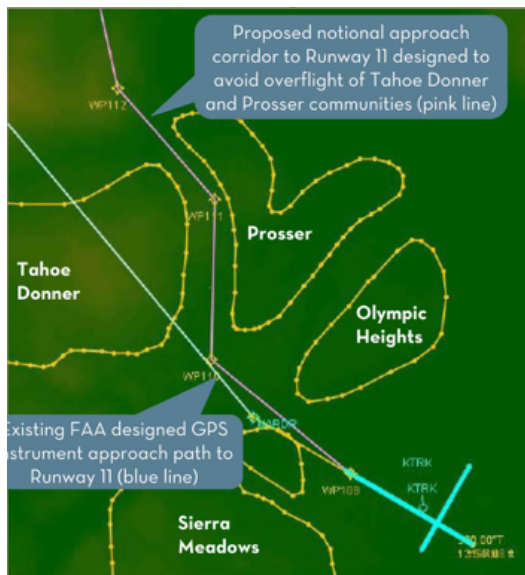
The Truckee Tahoe Airport District, however, has taken proactive steps to redefine these routes to reduce noise and annoyance.

D. Future Flight Route Planning

In 2016, the Truckee Tahoe Airport hired BridgeNet International to evaluate the Airport's airspace – its obstructions, restrictions, radio coverage, and surveillance. The goal in inventorying the airspace was to enhance the efficiency and safety of the Airport, particularly in the face of a diversifying fleet mix with a wide range of aeronautical uses.



Examples of visual routes being explored by the District



The Airspace Study uses NextGen, a set of programs designed to improve technology, infrastructure, policies, procedures and training. It is aimed at reducing delays, saving fuel, lowering user costs, reducing noise, reducing emissions and enhancing safety. The study found that the mountainous terrain around the Airport is the most

challenging constraint in the airspace. Existing residential and commercial development also limit potential flight routes.

See the Airspace Study in the Appendix

Airspace Working Group

From the Airspace Study, the Airport District formed an Airspace Working Group comprised of Airport staff, BridgeNet International (hired to perform the Airspace Study), FAA Northern California Center Approach Control Facility, SurfAir, NetJets, ACAT and Navaid Technical Services.

This group has put forward plans for new notional departure (takeoff) routes in hopes of getting them adopted by the FAA as official IFR routes for the Airport.

D. Visual Flight Procedures

Another type of flight procedure typically used at airports is a visual flight procedure. This is the only flight procedure that could be enforceable by the FAA while fully adopted and supported by the Truckee Tahoe Airport, giving the Airport additional control over when and where aircraft fly over.

A visual flight procedure requires three things:

1. Air Traffic Control Tower
2. Official FAA Certified Surveillance called Automated Dependent Surveillance Broadcast (ADS-B)
3. A Visual Flight Procedure which depicts an approximate aircraft flight path.

This is a large undertaking that is typically only seen at large airports such as Reno Tahoe International and San Francisco International.

Temporary Seasonal Air Traffic Control Tower

The first step in this plan is to place a temporary seasonal air traffic control tower at the Truckee Tahoe Airport during the peak season (summer) of 2017. The Airport District will assess the success and viability of the tower from both an annoyance perspective and a safety enhancement perspective.

The tower, a temporary structure under 40 feet high, will control airspace in a 5-mile radius up to 2,500 feet above the airfield. It is estimated to cost between \$400,000 and \$500,000 a year.

Without official surveillance the tower does not give the Airport

Economic Status & Flight Routes

Truckee Tahoe Airport District has received comments and questions regarding the impact of a neighborhood's affluence on flight routes (i.e. do wealthy neighborhoods get preferential treatment for noise and annoyance).

The Airport District does not use household income, property value or any similar demographic data to design any flight procedures.

control over visual flight procedures. The tower will be able to issue a prescribed runway for takeoff or landing, weather permitting, can recommend aircraft altitude over the ground, and can assign existing IFR departures that the District deems more community friendly.

Official Surveillance

Official Surveillance, like radar or ADS-B (Automatic Dependent

Surveillance-Broadcast), allows FAA air traffic controllers and other aircraft in the National Airspace System to see traffic inbound and outbound from Truckee Tahoe Airport. To get certified, the surveillance system requires FAA approval. Currently, the district's goal is to have this in place by 2020. Staff is working with Congressman Tom McClintock's office to achieve this.

With an active control tower and certified surveillance in place, the Truckee Tahoe Airport District could have Charted Visual Flight Procedures, which will give the Airport more influence over air traffic that impacts the community.

E. Air Traffic Theory: Dispersion vs. Concentration

The Truckee Tahoe Airport has explored two different models for air traffic as it pertains to noise and annoyance: concentration, where aircraft are directed into specific corridors or dispersion, where aircraft traffic scatters more broadly.

In theory, concentration (currently used by the Airport and accepted by the FAA as a best management practice) directs aircraft into areas of lowest impact. In practice, lowest impact

means the bulk of flights are over areas with low populations.

In contrast, dispersion spreads out flight routes over a wider area rather than concentrating the impact in specific areas.

Due to the mountain terrain and weather conditions, concentration rather than dispersion is the practical approach at the Airport.

F. Measuring Success

Measuring the success of current voluntary Noise Abatement Procedures is challenging, largely because of their discretionary nature. The following are the methods staff currently use to measure the success of the Noise Abatement Procedures and Programs:

1. **Flight Tracking:** Staff can track how many flights followed the voluntary procedures and can consider this a measurement of successfully educating pilots. However, there are a number of variables beyond airport information that will affect a pilot's choice to fly or not fly preferred routes.
2. **Views on Noise Abatement Page of Website:** The district tracks the number of views on the noise abatement procedure page of the District's website to see how many people are reading about the voluntary procedures.
3. **Number of Comments:** Another measure of success is the number of comments received from the community on noise. The District measures the total number of comments and the number of comments per household.
4. **Follow-up:** Staff reached out to 220 previous commenters to find out if they still feel impacted by Airport noise, if they are still making comments, and why or why not.

National Trends: Today, most airports dealing with noise and annoyance issues (the majority of airports in the country) focus on proactively pursuing ways to reduce noise and annoyance rather than quantifying success.

Looking Ahead: This is a topic that will need to be further discussed by Airport District staff and the Board of Directors, and will be redefined as new tools like the Temporary Seasonal Air Traffic Control Tower are introduced.

2014 Call-Back Results

- 53 responded
- 23 were aware of noise mitigation efforts
- 21 think annoyance has decreased
- 32 said it had increased or stayed the same
- 26 don't comment anymore as of 2013

V. Airport Operations

Airport operations such as services offered, hangar availability, and other day-to-day aspects of operating an airport can affect pilot behavior and in turn affect noise and annoyance.

In the late 1990s and early 2000s, the Truckee Tahoe Airport was open 24 hours a day. However, members of the Board of Directors saw an opportunity to curtail flight activity - particularly late at night and early in the morning - by modifying hours of operation.

Airports have a defined set of operational changes it can and can not make. To learn more, see the FAA Grant Assurances section under Legislation and Regulation section later in this Handbook.

Overall, the Truckee Tahoe Airport District has done nothing in the last 25 years to expand capacity. In the 1997 Airport Master Plan, there were provisions for an additional runway and other infrastructure, but those were removed in the 2014 Master Plan update (Master Plan 2025) as a result of community input.

A Demand Driver Study commissioned by the District in 2015 concluded that the main reasons for aviation activity at the Airport are out of the District's

control. Those factors include proximity to users' secondary or primary residence, proximity to Lake Tahoe and proximity to local mountain resorts – not operational elements listed above or other elements under control of the District.



Today, the Airport uses a variety of operational policies designed to influence pilot behavior and reduce community annoyance. These operational policies include:



Limited Fueling Hours:

Hours are limited from 7 a.m. to 7 p.m., coinciding with the Airport's voluntary curfew period.



Limited Services:

Airport staff are only on duty from 7 a.m. to 9 p.m. Restricting operating hours limits resources such as flight planning, access to the lounge and access to the tarmac with personal vehicles (via the gate that allows vehicle access to aircraft). Additionally, the tractor used to move aircraft, the lavatory and a ground power unit used to power aircraft systems while on the ground are only available from 7 a.m. to 7 p.m.



Proprietary Control:

Unlike the majority of airports, the Truckee Tahoe Airport maintains exclusive ownership and management of all hangars rather than contracting out to a third party.



Pricing:

In 2017, the Airport is considering pricing based on the size of aircraft and increasing prices during peak periods of air traffic and out of curfew. Future plans include for pilots and aircraft operators to pay a higher premium from Memorial Day to Labor Day, and from December 15 to January 15.

See the "Demand Driver Study" in the Appendix to learn more about what drives aviation traffic at The Truckee Tahoe Airport.

VI. Education and Outreach

Because the Truckee Tahoe Airport District cannot currently control aircraft taking off or landing, and because it cannot unfairly restrict or discriminate against any aviation user, much of the District's efforts are focused on educating pilots, businesses, aircraft owners and passengers.

Along with outreach to pilots and operators, the Airport has a robust outreach program to reach community members in the District. The goal of these efforts is to solicit public input to better inform decisions made by the Board of Directors.

The following is a brief summary of education and outreach tools currently used by the Airport District, using the following symbols:

Aviation Outreach = 

Community Outreach = 

Pilot & Passenger Outreach Coordinator 

In 2016, the Truckee Tahoe Airport created the role of Pilot & Passenger Outreach Coordinator. This staff person's goal is to reach out to as many pilots and passengers as possible educate them on noise abatement

procedures. This includes approaching pilots on the runway, contacting pilot organizations, and more.

Airfield Signage

Signs placed throughout the Airport show preferred runway information, Noise Abatement Procedures, and list voluntary curfew times for the Airport.

Airport Facility Directory and National Flight Data Center

The Airport Facility Directory and the National Flight Data Center are clearinghouses for information. The Airport continually updates information about the Truckee Tahoe Airport in those databases – particularly detailing issues of noise and annoyance.

Advertising

The Airport places advertising on noise and annoyance and other topics in aviation industry publications, local and regional news publications, and area homeowner association publications. The Tranquility Campaign recently targeted both pilots and passengers to better understand the importance of the Airport's Noise Abatement Procedures.

Conference Attendance and Presentations



Airport staff regularly attends a variety of trade shows, conferences and other events to share information about Truckee Tahoe Airport with a variety of aviation professionals, pilots and operators. Staff also attends to learn about best practices in the industry.

E-Blasts



The Airport regularly sends emails to a subscriber list of over 5,500 recipients. The email list is segmented into general members of the public, those who have contacted the Airport regarding noise and annoyance, pilots, agency officials and more.

Pilot News



Pilot News is a quarterly publication that is distributed to all hangar tenants of the Airport as well as around Airport facilities. This publication covers a variety of topics including noise, aviation, safety and operations.

Video



The Airport has a series of pilot education videos that demonstrate flights following TTAD Noise Abatement Procedures.

Podcast



The Airport District sponsors select aviation podcasts in target markets in exchange for the distribution of noise and annoyance information to its listeners. These podcasts reach 30,000 to 60,000 Bay Area pilots – the major demographic for the Truckee Tahoe Airport.

Dispatch Outreach



The Pilot & Passenger Outreach Coordinator works to contact dispatchers around the country to educate them on Noise Abatement Procedures at the Airport.

Connected | Community Newsletter



Connected is an annual publication that is sent out to 20,000+ residents within the Airport District. This publication covers a variety of topics including noise and annoyance, operations, community benefits, Airport events and more.

Annual Report



The Airport produces an annual report that is distributed to each household in the District. The report details annual noise and annoyance impacts, numbers of operations, Airport revenue and expenditure, Airport contributions

to the community, and other pertinent information.

Website

www.TruckeeTahoeAirport.com



The Airport's highly visited website is a clearinghouse for pilot and community related information, public documents and records, news, and operations for the District. The public can also report noise via the website and view monthly, quarterly, and annual noise reports.

Social Media



The Airport participates in various social media channels to disseminate information to both pilots and the broader community. As a public district, the Airport follows specific rules as to how it participates in social media in the interest of transparency.

Radio



The Airport sponsors local radio station 101.5 KTKE's weather segment in exchange for regular information updates in broadcast, and then turns around and donates its airtime to nonprofits.

Other Outreach Activities



- Ensuring emergency services based on community feedback: Careflight and other medical services, firefighting aircraft, US Forest Service and law enforcement aircraft.
- STEAM education programs at the Boys and Girls Club.
- Free community meeting space: The Airport offers free meeting space to local nonprofit service groups (402 meetings held at Airport in 2016)
- Numerous community events including Airshow & Family Festival, Santa Fly In, Run the Runway, Speaker Events, Tree Plantings, etc. (More than 30 in 2016)
- Nonprofit donations and sponsorship (nearly \$40,000 in 2016).

VII. Airport Legislation and Regulation

The Federal Aviation Administration (FAA) regulates general aviation and general aviation airports like the Truckee Tahoe Airport.

The Airport Noise and Capacity Act of 1990 states that limiting or restricting aircraft operations is limiting interstate commerce, and is therefore not legal – analogous to a state putting a wall across a train track at its border. Some airports demanded a process for limiting operations specifically to address noise and annoyance. To address these demands, the FAA created the Part 150 process, mentioned on Page 7. To date, two airports have successfully undergone the Part 150 process to restrict air traffic in order to reduce noise and annoyance: Los Angeles International Airport and Burbank’s Bob Hope Airport. This process took 10 years and cost tens of millions of dollars.

ACAT considered conducting a Part 150 study in 2006, and again in 2014. Aside from the high study cost (about \$400,000) and lengthy regulatory process, the District has been directed by legal counsel that it would very likely not be able to meet the minimum requirements as established by FAA to enact flight restrictions or federally funded noise mitigation.

Additionally, TTAD would have to forfeit all of its federal aviation grants. See “Budget” section later in this Handbook for further details.

A. FAA Grant Assurances

According to the FAA: “When airport owners or sponsors, planning agencies, or other organizations accept funds from FAA-administered airport financial assistance programs, they must agree to certain obligations (or assurances). These obligations require the recipients to maintain and operate their facilities safely and efficiently and in accordance with specified conditions. The assurances may be attached to the application or the grant for Federal assistance and become part of the final grant offer or in restrictive covenants to property deeds. The duration of these obligations depends on the type of recipient, the useful life of the facility being developed, and other conditions stipulated in the assurances.”

See the complete list of TTAD/FAA Grant Assurances in the Appendix.

Of those assurances, key points relevant to noise and annoyance at Truckee Tahoe Airport include:

“The airport and all facilities which are necessary to serve the aeronautical users of the airport,

other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal, state and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes."

"It will make the airport available as an airport for the public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport."

B. Truckee Tahoe Airport as Part of a National Aviation System

Another aspect that makes Airport planning complex is the fact that the Truckee Tahoe Airport is part of the National Airspace System and the National Plan of Integrated Airports System.

The National Airspace System includes the airspace, navigation facilities, and the airports of the



United States, along with their associated information, services, rules, regulations, policies, procedures, personnel, and equipment.

The National Plan of Integrated Airport Systems is a FAA plan that is updated every two years. This plan identifies nearly 3,400 existing and proposed airports that are significant to national air transportation and are eligible to receive federal grants under the Airport Improvement Program.

This means that any change to routes and procedures at Truckee's Airport will have a ripple effect throughout the country. As an example, in Truckee when considering new routes and procedures, flights to and from Reno International, South Lake Tahoe and other area airports in the shared airspace must be taken into consideration.

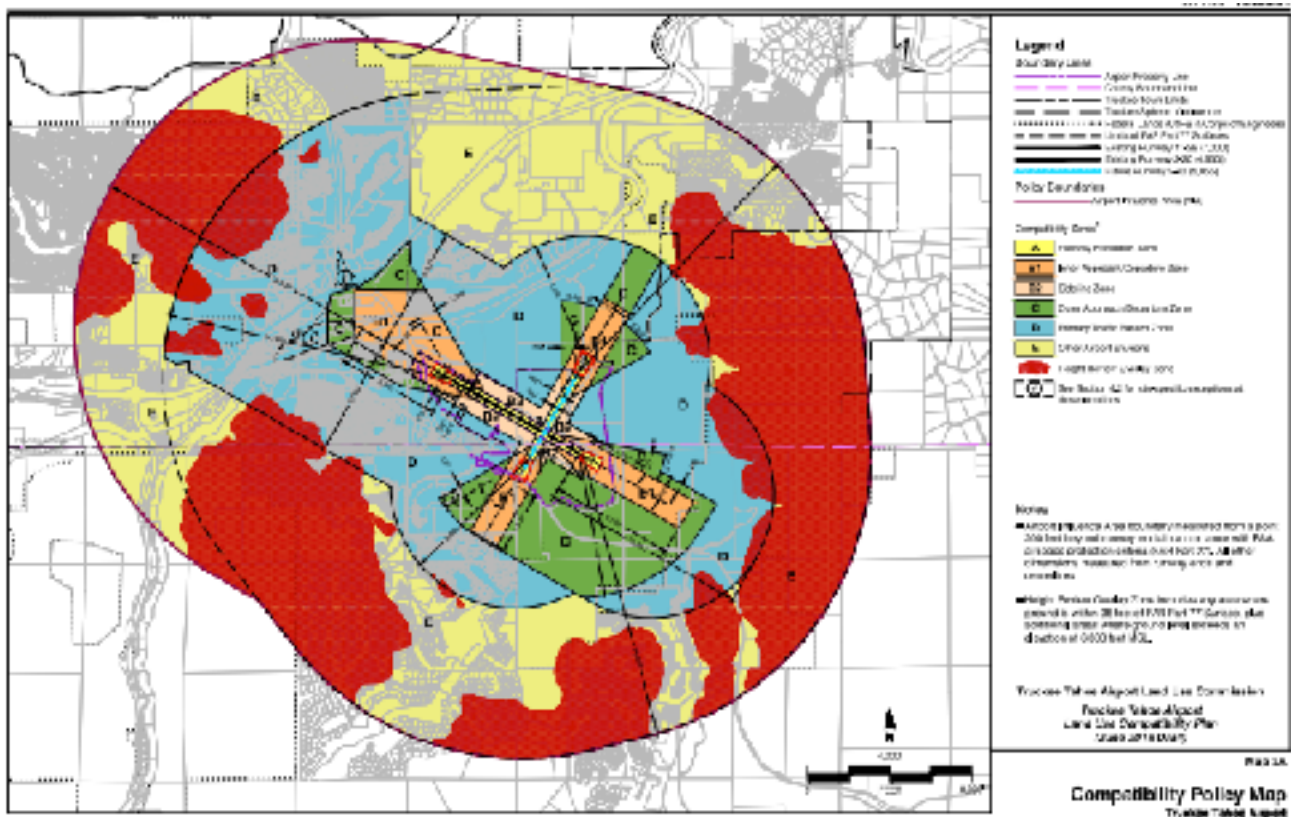
C. Truckee Tahoe Airport as Part of Regional Land Use Planning

As a bi-county District, the Airport affects land use planning – zoning and development – for both Nevada and Placer counties.

The Airport Land Use Compatibility Plan (ALUCP) outlines how the Airport relates to land use around it and how it affects the ability to develop that land. Zoning around the Airport must appropriately consider the impact of aviation activity on safety.

To learn more about the ALUCP, please visit the Nevada County Transportation Commission at www.nctc.gov.

Beyond zoning, the Airport takes an active role in commenting on zone changes and proposed development that may cause additional air traffic impacts.

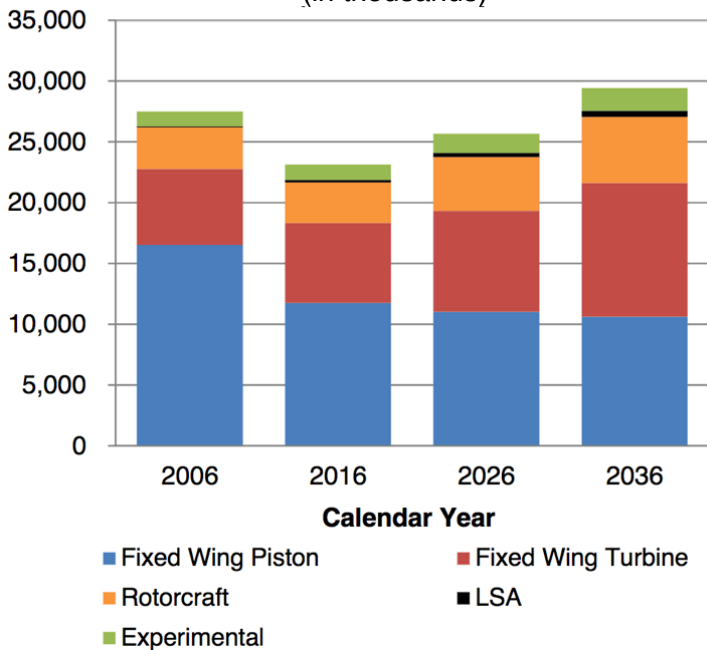


VIII. National Aviation Trends

As the Airport considers noise and annoyance, it must consider trends in aviation, both nation-wide and regionally. As aviation activity grows, so does noise and annoyance.

A. National Trends

KTRK General Aviation Hours Flown
(in thousands)



The FAA, National Air Transportation Association, and Argus International all project trends in aviation. Currently all foresee increases in air traffic as air services become more popular

The FAA Aerospace Forecast for Fiscal Years 2016-2036 states: “Fundamentally, over the medium and long term, demand for aviation is driven by economic activity ... The long term outlook for general aviation is favorable, led by gains in turbine aircraft activity. The active general aviation fleet is forecast to increase by 0.2 percent a year between 2015 and 2036, equating to an absolute increase in the fleet of about 7,000 units. While steady growth in both GDP (Gross Domestic Product) and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet – fixed wing piston aircraft continues to shrink over the forecast. Although fleet growth is minimal, the number of general aviation hours flown is projected to increase an average of 1.2 percent per year through 2036, as growth in turbine, rotorcraft, and experimental hours more than offset a decline in fixed wing piston hours.”

and more affordable, particularly in the segments that the Truckee Tahoe Airport serves as a general aviation airport.

The improving economy is also a direct driver of aviation usage. For the Airport District, primary markets in the San Francisco Bay Area are doing particularly well

economically which drives aviation locally.

In the FAA Aerospace Forecast, the FAA estimates 204,408 aircraft in the general aviation fleet as of 2014, with 233 million hours flown nationally.

B. Truckee Tahoe Airport Trends

The Truckee Tahoe Airport has seen similar trends, though the accuracy of data pre-2014 was lower than it is today, so trend analysis must take this into account.

Truckee Tahoe Airport Trends

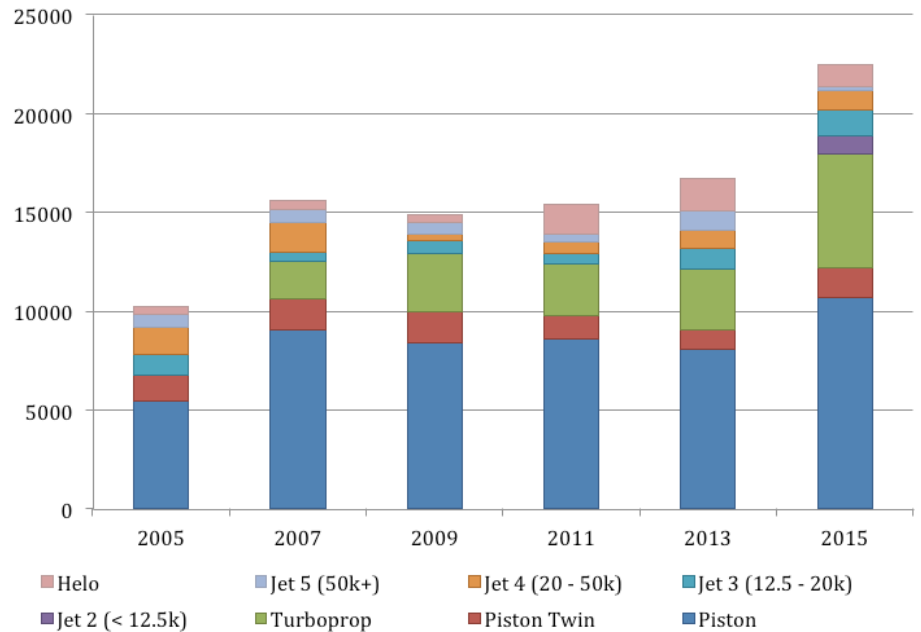


Table 2-26 Forecast Summary

	2012 (Actual)	2015	2020	2025
BASED AIRCRAFT:				
Single-Engine Piston	156	157	158	160
Multi-Engine Piston	12	12	12	12
Turbo-Prop	27	29	34	41
Turbo-Jet	16	18	24	32
Helicopter	6	6	7	8
TOTAL¹	217	222	236	253
OPERATIONS:				
Itinerant	14,902	15,687	17,087	18,612
Local	11,568	11,777	12,142	12,527
TOTAL	26,470	27,464	29,229	31,139
PEAK CONDITIONS:				
Peak Month (July)	4,922	5,034	5,244	5,467
(% annual)	(18.60%)	(18.29%)	(17.83%)	(17.36%)
Average Day/ Peak Month	164	168	175	182
Peak Hour (15%)	25	25	26	27

1. Based aircraft numbers include executive hangar waitlist to reflect actual demand.



At the Truckee Tahoe Airport in 2015, 12,200 piston driven propeller operations, 5,728 turbo prop operations, 3,411 jet operations, 1,097 helicopter operations, 2,554 glider operations, and 2,595 tow plane operations took place, totaling 27,585 operations. Looking forward in the Truckee Tahoe Airport Master Plan, Airport traffic was projected through 2025 in the corresponding table.

C. Future Trends

The Truckee Tahoe Airport District commissioned a Demand Driver study in 2015 to better understand what potential aviation and non-aviation variables correlate to changes in aviation activity at the Airport. The Report analyzed factors under the control of the Airport District, influenced by the District and those outside the District's control or influence (such

as external aviation, economy and other trends).

The Study concluded that primary demand drivers - the main reasons for aviation activity at the Airport - are out of the District's control. These demand drivers include proximity to users' secondary or primary residence, proximity to Lake Tahoe and proximity to local mountain resorts.

See the "Demand Driver Study" in the Appendix to learn more about what drives aviation traffic at The Truckee Tahoe Airport.

In short, the Airport isn't causing aviation traffic, it's responding to it.

IX. Noise Monitoring: Concept Under Consideration

The Truckee Tahoe Airport Board of Directors and Airport Community Advisory Team are also considering noise monitors to measure operation annoyance impacts.

The proposed noise monitors would be installed around the airfield and in impacted neighborhoods to measure noise decibels. Monitors could measure

both single event levels (a single over flight) as well as Day Night Equivalency Levels (noise averaged over 24 hours) to make quality of life determinations.

The challenges in using noise monitors are the subjective impacts of different decibel levels on different people and in the Day-Night Equivalency Levels which do not isolate aircraft noise from other ambient noise (freeway, railroad, etc.).



X. District Budget

The Airport District's revenue comes from a combination of property tax revenue and aviation revenue, along with less predictable but still critical federal grants.

The Airport District's revenue comes from a combination of property taxes (about \$5 million a year), aviation revenue (a little more than \$4 million a year) and federal grants, which are less predictable but still critical (recently been between \$1 million and \$2 million) bringing total revenue to roughly \$10 million per year.

As mentioned in the previous section on Federal Grant Assurances, the Airport District must operate according to FAA rules to receive those grants. Without those grants, the expenses of the Airport become more dependent on both aviation and property tax revenue.

Aviation revenue consists of \$2 million from servicing aircraft (fuel, landing fees, etc.), a little more than \$1 million from hangar rentals, and between \$600,000 and \$700,000 from other commercial rentals on Airport property.

Tax revenue comes from residents of the special district, who pay \$28

per \$100,000 in assessed value in Nevada and Placer Counties. Nevada County pays roughly \$1.7 million in taxes to the Airport District annually, while Placer County pays about \$3.7 million.

The Aviation and Community Services Department, which is the primary department addressing noise and annoyance, has a budget of \$2.8 million for fiscal year 2016/17. This includes 25 percent of the Airport's staff, noise abatement programs, studies referenced in this handbook, aircraft tracking and community programs.

See the most recent fiscal year budget for complete details in the Appendix.

APPENDIX

- A. ACAT History
- B. FAA Grant Assurances
- C. FAQ's
- D. Recent Fiscal Year Budget
- E. Airspace Analysis Report
- F. Airspace Study Report
- G. Demand Drivers Study
- H. Glossary