



Frequently Asked Questions

STS is committed to being a collaborative community member and recognizes there are community concerns over aircraft noise. While there is no silver bullet for addressing aircraft noise, it is helpful to understand how noise is evaluated, what is considered to be non-compatible from a land use perspective, and what an airport can, and cannot do relative to aircraft noise.

This is a list of some of these Frequently Asked Questions that give some of this national background, as well as what the Charles M. Schulz - Sonoma County Airport (STS) has invested in to study and mitigate noise in the community.

Q How is aircraft noise evaluated?

A In 1981, the FAA formally adopted the Day Night Average Sound Level (DNL) as the primary measure for determining exposure of individuals to airport noise. The DNL is the annual, 24-hour average sound level, in decibels, obtained from the accumulation of all noise events, with the addition of 10 decibels to weighed sound levels from 10:00 p.m. to 7:00 a.m. The weighing of nighttime events accounts for the fact that noise events at night are more intrusive when ambient levels are lower, and people are trying to sleep. The 24-hour DNL is annualized to reflect noise generated by aircraft operations for an entire year and is identified by "noise contours" showing equal levels of aircraft noise.

DNL is the most widely accepted descriptor for aviation noise because of the following characteristics: DNL is a measurable quantity; DNL can be used by airport planners and the general public who are not familiar with acoustics or acoustical theory; DNL provides a simple method to compare the effectiveness of alternative airport scenarios; and DNL is based on a substantial body of scientific survey data regarding the reactions people have to noise.

DNL is the primary metric FAA uses to determine noise impacts. However, for California, the FAA accepts the Community Noise Equivalent Level (CNEL). FAA accepts the CNEL when a state requires that metric to assess noise effects, which is the case for California. Like the DNL, CNEL adds a 10 dB penalty to each aircraft operation between 10:00 p.m. and 7:00 a.m.; but is different in that it also adds a 5 dB penalty for each aircraft operation during evening hours (7:00 p.m. to 10:00 p.m.). This evening noise penalty accounts for people's sensitivity to noise during evening hours when they may be outside and fewer noise producing activities occur.

CNEL is the metric STS uses to identify aircraft noise. Many people often confuse the CNEL metric with a single event metric, such as an individual aircraft flyover. Individual aircraft flyovers are what people normally react to and measure with noise monitoring equipment or applications on a cell phone. Due to the loudness of a single event, residences can, and normally do, reach higher single events (usually identified as Lmax or the maximum noise level) measurements than the CNEL threshold (which accounts for an annual average noise level for 24-hours).



What can an airport control with regards to noise?



In 1990, the Airport Noise and Capacity Act (ANCA), was enacted and it effectively prevents a local unit of government from enacting aircraft noise and access restrictions. Said another way, an airport cannot limit operations at the airport for noise purposes or impose any restrictions based on noise levels. Additionally, once an aircraft leaves the ground, it is entirely under the jurisdiction of the FAA. Voluntary studies and potential mitigation measures are discussed more below.

As stated above, STS cannot regulate aircraft numbers, directly control flight tracks, time of day or type of aircraft that operate at the airport. As a public use airport that has accepted public funds (FAA grants) it cannot discriminate between users and has to accommodate all aircraft users. The ability to implement aircraft noise restrictions has basically been denied through congressional action. All such restrictions implemented prior to the passage of ANCA have been identified as legacy restrictions and can remain in place. Therefore, voluntary measures to encourage operators to fly in a friendly manner, fly quieter aircraft or operate during certain hours are what airports are concentrating on, especially as communities are experiencing significant noise intrusion beyond the 65 CNEL noise contour. These programs are generally referred to as Fly Quiet Programs and are designed to inform, educate and provide some type of incentive for operators to be aware of community concerns surrounding aircraft noise intrusion and to reduce the effects of aircraft noise. FAA does not participate in any noise mitigation or abatement programs for noise sensitive uses beyond the 65 CNEL contour.



What are Noise Contours and how are they used?



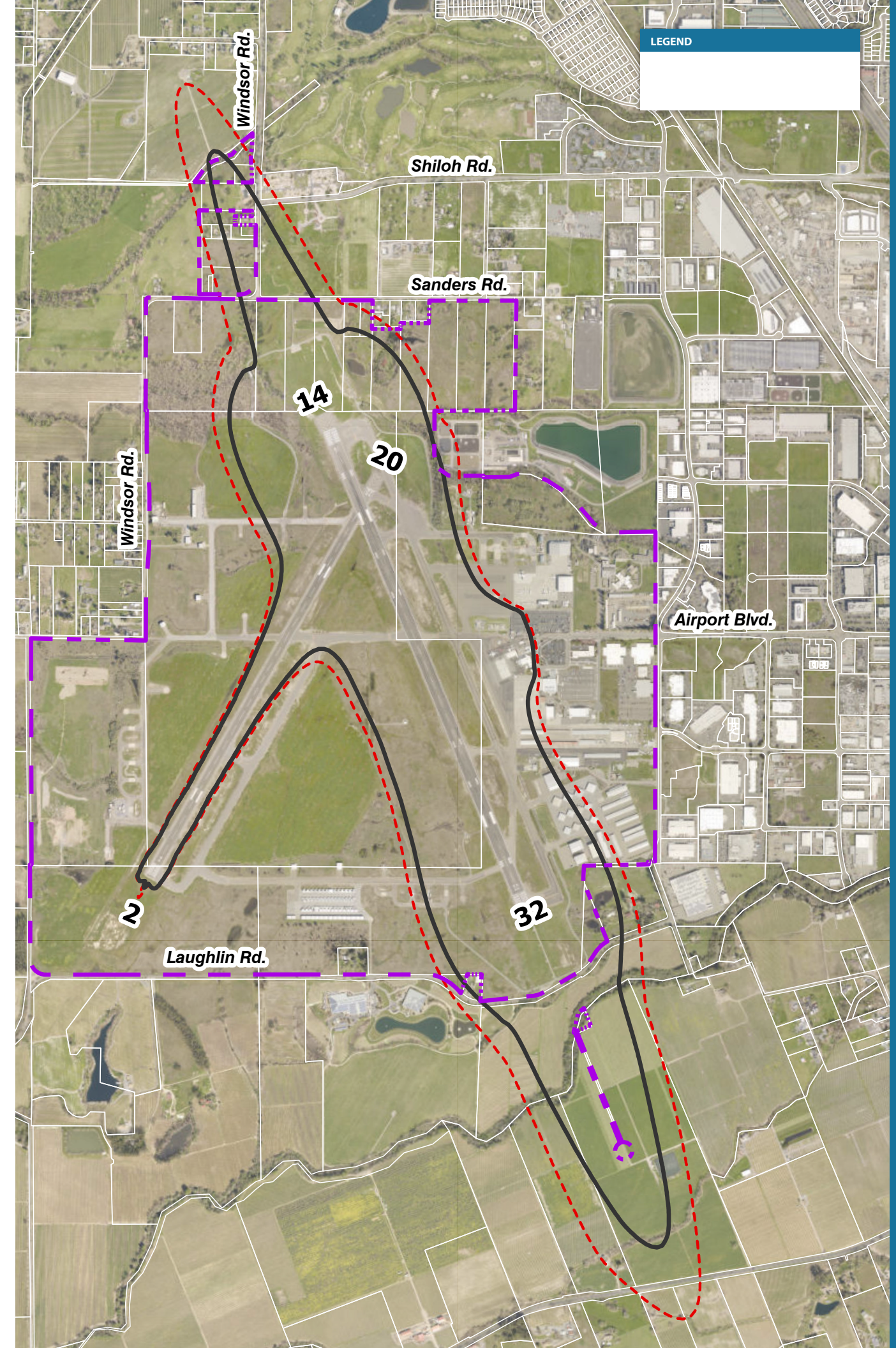
Noise contours are computer generated lines that are modeled to reflect both current noise conditions near airports as well as to predict what the future (called 2038 in the Airport Layout Plan [ALP]) noise conditions will be. Technically, a noise contour represents the average annual noise levels (CNEL) summarized by lines connecting points of equal noise exposure. The Aviation Environmental Design Tool (AEDT) is the model developed by the FAA for evaluating aircraft noise in communities surrounding airports. The AEDT uses inputs such as number of operations, aircraft fleet mix (aircraft types), aircraft flight tracks, flight profiles, time of day of operations, and terrain to evaluate aircraft noise. AEDT is the model required by the FAA to create noise contours.

The FAA considers the 65 CNEL contour to represent the threshold for determining non-compatible land uses. Any noise sensitive uses (such as residences, schools, churches, etc.) within the 65 CNEL and greater contour are considered to be non-compatible with aircraft noise.

A variety of information is gathered to create an accurate noise contour including: the number of flights, flight paths, type of aircraft, type of aircraft engines, time of day, weather conditions, and runway use. This data is used to generate noise contours that are overlaid on base maps to create a noise contour, which is used to identify where specific levels of aircraft noise occur. Noise contours can be used in several ways, but generally are used to define areas of roughly equal noise in the communities surrounding the Airport.

The noise contours for STS were developed as part of the ALP update competed in 2022. The STS ALP update included an Aviation Forecast Validation which documented current operations and projected future operations and fleet mix. The Forecasts were approved by the FAA. The CNEL noise contours derived from these Forecasts represent aviation activity on an average day in the Base Year (2018) and the Future Year (2038). These operations include the full profile of aircraft fleet using STS over the course of a year: piston, turboprop, corporate jets, helicopters, scheduled commercial, and emergency response aircraft.

In many planning studies, airports look at the existing and future noise contours for planning purposes, to prevent non-compatible land uses, and protect areas around the airport from encroachment of non-compatible land uses. There are approximately six non-compatible land uses within the Base Year (2018) 65 CNEL contour and approximately eight non-compatible land uses within the Future Year (2038) 65 CNEL.





What has STS done to date regarding noise?



- STS has both existing and future noise contours, as seen above, along with the land use analysis to determine the number of non-compatible land uses within the 65 CNEL. Additionally, they have committed to mitigating those homes within the 65 CNEL through voluntary purchase, using local funds.
- In 1988 STS established the Airport's current Noise Abatement Program, and it was updated over the years. In 2021, STS launched the Good Neighbor website to increase the visibility and accessibility of the Noise Abatement Program. This website offers monthly noise reports, frequently asked questions, a portal for the public to submit noise complaints, and will provide updates on the approach and departure feasibility study.
- STS is working with the Sonoma County Aviation Commission to rewrite the Airport's Noise Abatement Guide and associated procedures. These updates will incorporate changes based on the approach and departure feasibility study. The updated Noise Abatement Guide will be a collaborative effort between Airport staff and community advisors.
- STS collaborated with the Sonoma County Airport Land Use Commission (ALUC) to develop an Airport Land Use Compatibility Plan (ALUCP) for STS in accordance with the California State Aeronautics Act. The ALUCP establishes airport compatibility zones and land use restrictions aimed at discouraging non-compatible development within the airport influence area. The ALUCP is used by the ALUC, local agencies, and property owners to evaluate the compatibility of land use proposals within the airport influence area.
- The Airport is currently kicking off a voluntary Flight Procedures Study to examine potential flight procedure changes to assist noise concerns outside the 65 CNEL.



What is a Part 150 Study and its purpose?



Part 150 establishes a voluntary, Federal Aviation Administration (FAA) administered program that includes procedures to be followed by airports to assess aircraft noise and land use compatibility, with a focus on those non-compatible land uses – i.e. those uses located within the existing or future 65 CNEL noise contour. The Study includes two parts, the existing and future noise contours (Noise Exposure Maps) and a Noise Compatibility Program (NCP). The recommended measures in the NCP must be submitted to the FAA for approval or disapproval, and the Part 150 regulation focuses only on those measures which reduce non-compatible land uses within the 65 CNEL. Measures outside the 65 CNEL are typically not covered under the Part 150 process and are not eligible for federal funding for noise mitigation.



Would a Part 150 Study help at STS?



As stated above, only measures addressing non-compatible land uses within the 65 CNEL contour would be eligible for federal funding for noise mitigation. Measures outside the 65 CNEL are typically not covered under the Part 150 process and are not eligible for federal funding for noise mitigation. Meaning if all land uses within the 65 CNEL have been addressed, a Part 150 Study would have limited applicability to future land use planning. Additionally, because the State of California has a statute requiring the establishment of an Airport Land Use Commission (ALUC) in each county, the Sonoma County ALUC provides the necessary oversight to guide compatible land use development around STS and addresses much of the same land use planning considerations that are often completed in a Part 150 Study. Therefore, STS believes that a Part 150 Study has limited applicability to its community at this time and has decided to focus its efforts on those areas outside the 65 CNEL, where most of its noise complaints originate.



What is a Part 161 Study and could it help STS?



To understand the Part 161 regulation, it is first important to understand the Airport Noise and Capacity Act of 1990. Also known as ANCA or the Noise Act, this act established two broad directives for the FAA:

1. Establish a method to review aircraft noise, and airport use or access restriction, imposed by airport proprietors
2. Institute a program to phase-out Stage 2 aircraft over 75,000 pounds by December 31, 1999 [Stage 2 aircraft are older, noisier aircraft (B-737-200, B-727 and DC-9)], which has since occurred.

On the use restrictions side, CFR Part 161 was adopted to institute a highly stringent review and approval process for implementing use or access restrictions by airport proprietors. Part 161 sets out the requirements and procedures for implementing new airport use and access restrictions by airports. They must use the DNL metric to measure noise effects, and the Part 150 land use guideline table, including 65 DNL as the threshold contour to determine compatibility. While some use restrictions are grandfathered in, ANCA applies to all local noise restrictions that are proposed after October 1990, and to amendments to existing restrictions proposed after October 1990. In the last 20 years, no Part 161 Studies have been approved. Since there are few properties within the 65 CNEL (which is the basis for non-compatibility threshold in both Part 150 and Part 161), and there is no recent term precedent for Part 161 approval, a Part 161 would not be prudent.



What can be done to study noise outside the 65 CNEL? What can STS do to address noise outside the 65 CNEL?



As stated above, airports cannot control aircraft once they leave the ground, and they cannot limit aircraft from operating at an airport. Additionally, a Part 150 Study really focuses on noise mitigation for those areas within the 65 CNEL contour and land use planning considerations. STS only has eight non-compatible land uses within the Future Year (2038) 65 CNEL noise contour. The Airport has noise mitigation strategies in place that may include: purchase assurance, acoustical treatment, purchase of easements, sales related assistance, and operational mitigations.

While STS is already addressing their non-compatible land uses within the 65 CNEL, it is recognized that they, along with many communities with airports nationwide have noise complaints well outside those contours. Noise, and the perception of noise varies widely beyond the threshold for non-compatibility set by the FAA and it is not uncommon for residents beyond the 65 CNEL contour to be affected or annoyed.

Because many of the noise complaints from STS originate from well outside the 65 CNEL, the Airport has voluntarily initiated a Flight Procedures Study to examine procedures and airspace considerations to determine if new procedures including NextGen (procedures involving satellite-based navigation), that may help alleviate some noise for areas outside the 65 CNEL. NextGen procedures may allow for more precise procedures and arrival/departure routes to be flown into and out of STS, potentially enhancing an aircraft's ability to avoid overflying noise-sensitive land uses. The Study may make recommendations on flight track changes, however, it is important to note that only the FAA can accept whether or not to implement these based on a number of factors, including safety.

The purpose of the Flight Procedures Study is to develop, evaluate, and potentially implement new procedures for arrivals and departures. The Airport is working with Cignus Consulting to evaluate the approach and departure procedures with the goal of abating noise and emissions. At the completion of this evaluation, new instrument approach and departure guidelines may be published with the visual approach and departure paths. This process is expected to be completed in 2025. Following evaluation of current procedures, creation of the report will include findings and recommendations, FAA review, and publication for use.

This Flight Procedure Study is underway and will include public and stakeholder involvement.