



Existing Noise Impacts to the City South Lake Tahoe & El Dorado County

Aviation Noise Metrics

The aircraft noise analysis was last prepared for the 2018 adopted Lake Tahoe Airport Land Use Compatibility Update (ALUCP) to project aircraft noise impacts around the airport in future year 2038. The aircraft noise analysis prepared for the 2018 ALUCP used the FAA-approved Aviation Environmental Design Tool (AEDT), Version 2d. AEDT 2d is the FAA's required tool for modeling noise, fuel burn, and emissions generated by FAA actions. This version of AEDT was released in September 2017 and represents the state of the art in noise modeling for airport and airspace actions. The model is recognized by the State of California as the appropriate tool for aircraft noise assessments. The AEDT and its predecessor Integrated Noise Model (INM) tool is a legally permissible tool for aircraft noise assessments and has been defended numerous times in the California judicial system.

Existing noise impacts are based on a 2015 baseline noise modeling assessment created for the 2017 adopted Lake Tahoe Airport Master Plan Update. The existing noise contours used FAA-approved Integrated Noise Modeling (INM) version 7.0D 2d. IMM 7.0D was the predecessor the AEDT used in 2018.

Aviation noise in California uses the Community Noise Equivalent Level (CNEL) metric as the state standard to assess aviation noise impacts on affected communities. The CNEL metric is used to describe noise exposure cumulatively for an annual-average day of aircraft operations. The annual-average day represents all aircraft operations for every day in a year divided by 365, the number of days in a year. This is intended to represent a typical day of operations within a study year. The CNEL for this annual-average day is calculated by mathematically combining the number of single noise events that occur during this period (24 hours) with how loud the events were and what time of day they occurred. The CNEL metric addresses the fact that noise events occurring after 7:00 p.m. and before 7:00 a.m. are considered more intrusive by adding noise penalties. The penalized time period is further subdivided into evening (7:00 p.m. through 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.). CNEL treats every evening operation as though it were three operations and every nighttime operation as though it were ten operations.

This "weighting" adds a 4.77 Decibel A-Weighted (dBA) penalty during the evening hours and a 10 dB penalty during the nighttime hours. Noise contours presented on Page 5 depict noise exposure in terms of CNEL for 2038 future projections. Page 4 provides the noise impacts in CNEL for 2015 conditions. The noise model results are displayed as noise contours. Noise contours representing area exposed to aircraft noise levels of CNEL 50, 55, 60, 65, 70, and 75 dBA were calculated. Each contour represents areas exposed to equivalent noise within a 5-dBA CNEL band (e.g., CNEL 50-55 dBA).



Aviation Noise Impacts at Lake Tahoe Airport

The State of California Office of Noise Control, in Guidelines for the Preparation and Content of Noise Elements of the General Plan (February 1976), provided guidance for the acceptability of Designated land uses within specific CNEL contours. Residential uses are normally unacceptable in areas exceeding 70 dBA CNEL and conditionally acceptable within 60–70 dBA CNEL. Commercial/professional office buildings and businesses are normally acceptable in areas up to 70 dBA CNEL and normally unacceptable in areas exceeding 75 dBA CNEL. Between 67 and 77 dBA CNEL, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise-reduction requirements. However, the state stresses that these guidelines can be modified to reflect communities' sensitivities to noise. In South Lake Tahoe those standards are promulgated in the Lake Tahoe Airport Land Use Compatibility Plan which resides with City Development Services Department.

In airport noise assessments, it is “generally not significant” if no new noise-sensitive sites are located in the airport influence area. “Generally not significant” also applies if increases in community noise levels with the implementation of an aviation related project are expected to be 3 dBA or less at noise-sensitive locations and the proposed project would not result in violations of local ordinances. Noise-sensitive sites include residences, motels, hotels, public meeting rooms, auditoriums, schools, churches, libraries, hospitals, amphitheatres, parks, and other areas where quiet is essential.

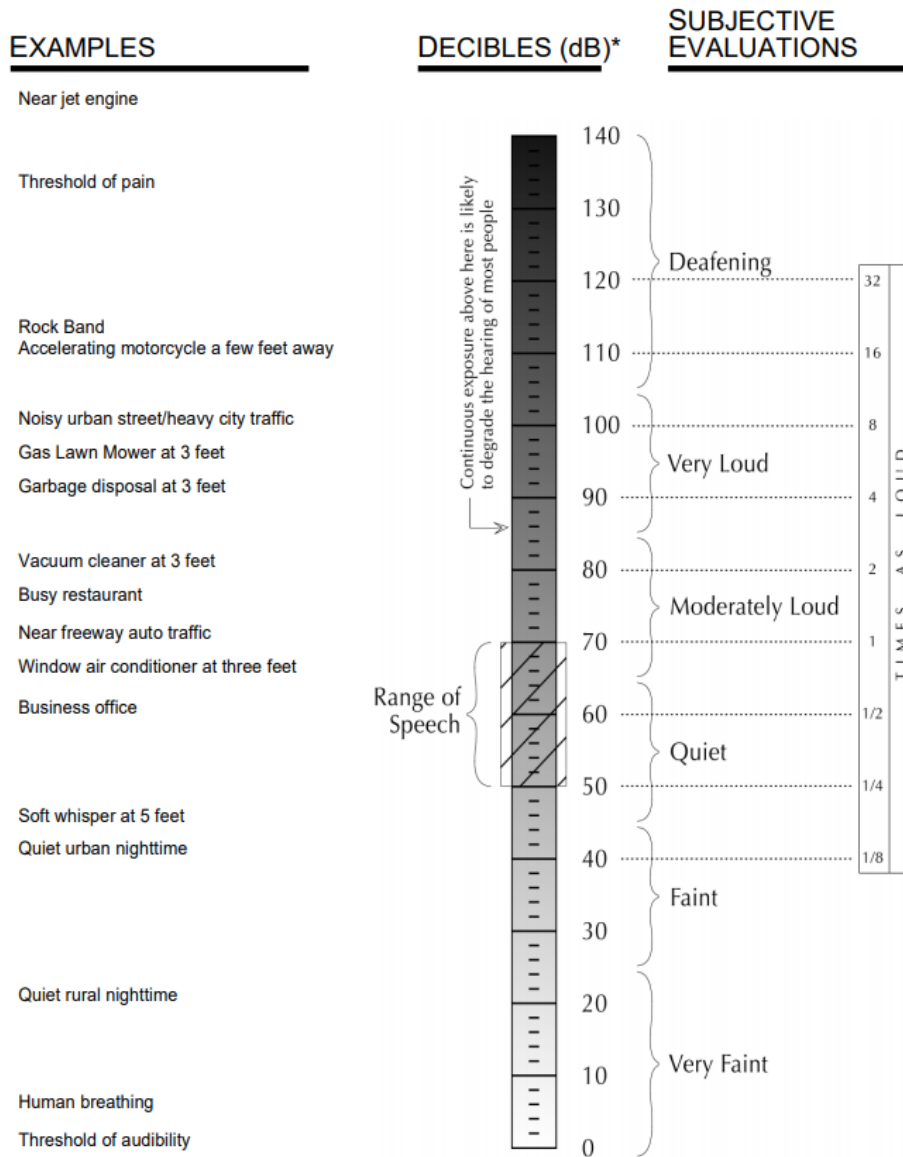
If the increase in noise exposure level is greater than 3 dBA, the significance of the impact will depend on the ambient noise level and the presence of noise-sensitive sites. Noise impacts are “possibly significant” if increases in noise exposure levels are expected to be greater than 5 dBA with implementation of the aviation related project. Noise impacts are “generally significant” if the proposed project would cause noise standards or ordinances to be exceeded, or increases in the community noise levels by 6–10 dBA in built-up areas, or increases by 10 dBA or more in rural areas.

CNEL values are indications of the effect that aircraft noise at these levels has on people living and working in these areas, and are not intended but can be used as guidelines for land use decisions by local authorities. All land uses within areas below CNEL 65 are considered compatible with airport operations (California Airport Noise Standards (Cal. Code Reg., tit. 21, § 5000 et seq.)). The CNEL 65 noise contour does not extend off the airport property under the existing conditions into areas (residential land uses) that could generate land use compatibility impacts as identified by 14 CFR Part 150 guidelines as well as the California Airport Land Use Planning Handbook (Cal. Code Reg., tit. 21 § 65302.3). The airport noise contours are updated periodically based on any anticipated changes to the number of aircraft operations, aircraft fleet mix, or changes to runway use. These are typically done due to a spike in complaints/political consideration, during a F.A.R. Part 150 Noise Compatibility Study, an Airport Master Plan Update or an Airport Land Use Compatibility Plan Update.



LAKE TAHOE airport

The compatibility of existing and planned land uses in the vicinity of an airport is typically associated with the extent of noise impacts related to that airport. Airport compatible land uses encompass those uses that can coexist with a nearby airport without either constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards. Existing land use restrictions are established under the Lake Tahoe Airport Comprehensive Land Use Plan. The latest revision of the plan occurred in 2018. Any future development will need to be in compliance with the revised ALUCP in effect at the time of planned development/re-development.



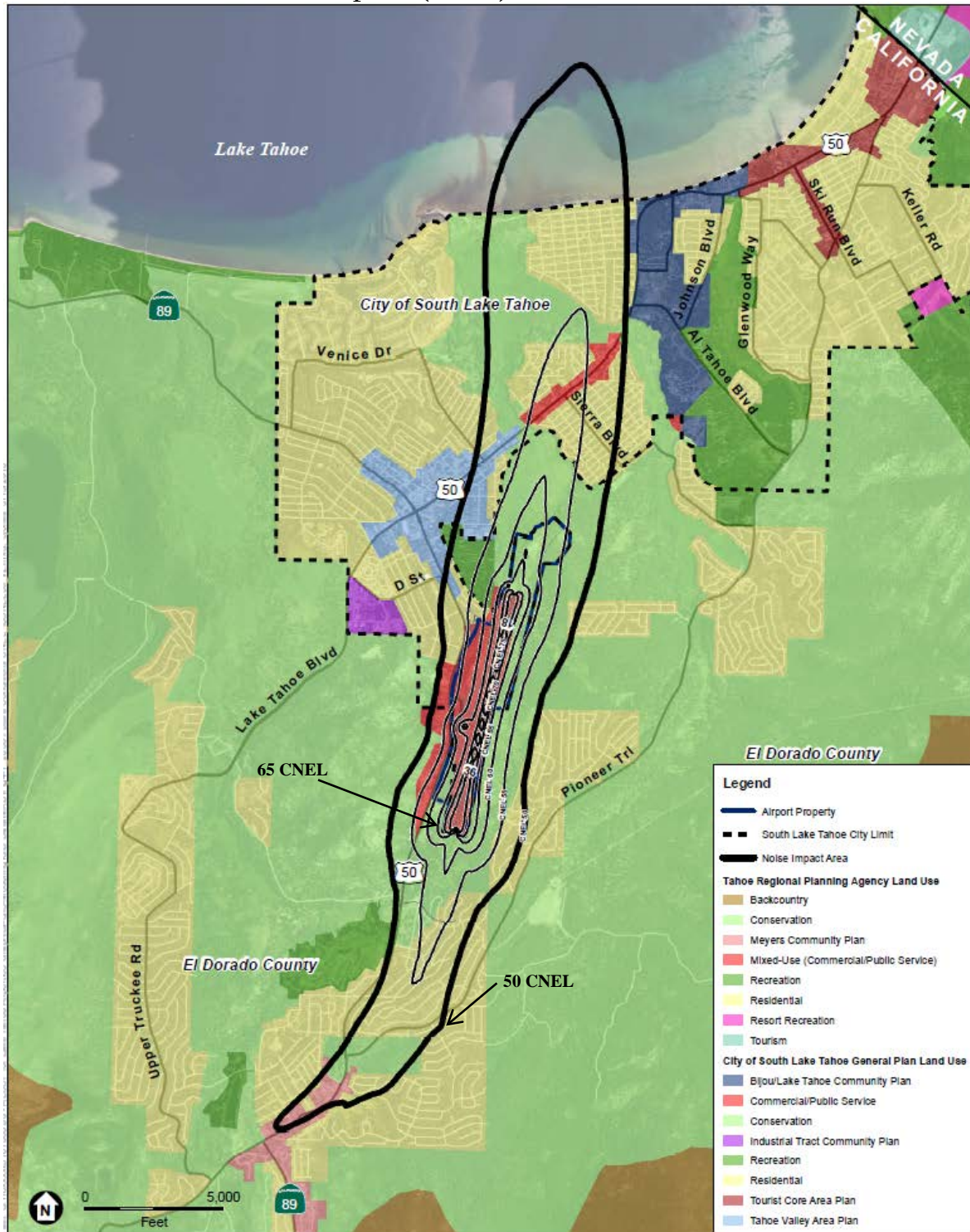
* dB are average values as measured on the A-scale of a sound-level meter.
 From Concepts in Architectural Acoustics: M. David Egan, McGraw Hill, 1972 and U.S. Department of Housing and Urban Development, Office of Community Planning and Development | The Noise Guidebook.

Source: EDAW 2003



LAKE TAHOE airport

2038 Modeled Future Noise Impacts (CNEL)



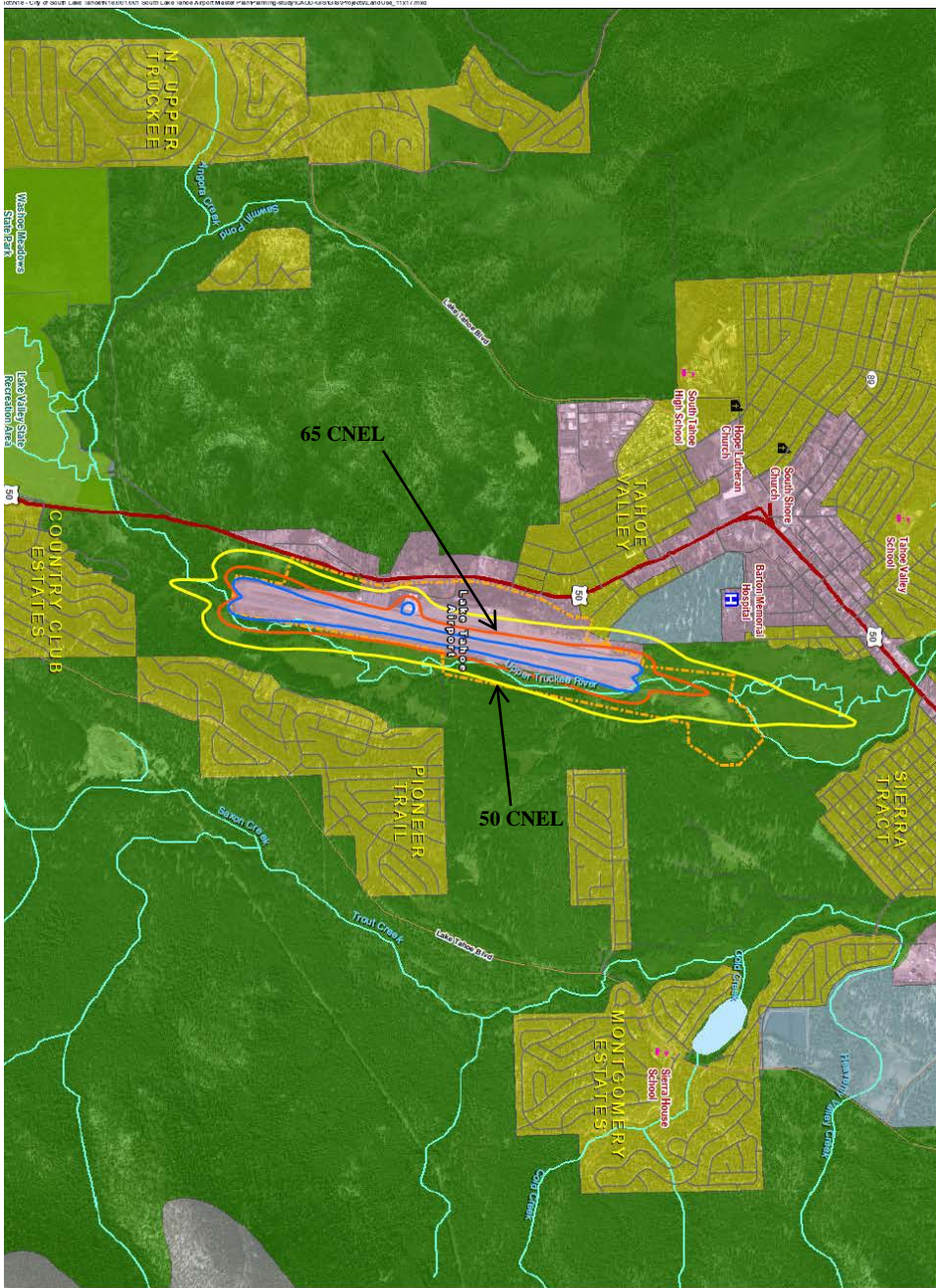
SOURCE: AEDT 2d; ESRI, 2017; CoSLT, 2017; TRPA, 1987; USDA (Aerial); ESA, 2017

ALUCP for Lake Tahoe Airport.161008



LAKE TAHOE airport

2015 Modeled Existing Noise Impacts (CNEL)



Legend

- Church
- School
- Hospital
- Freeway
- Highway
- Major Road
- Rivers
- Airport Property Line
- Lake/Pond
- Swamp/Marsh

Land Use

- Conservation
- Mixed-Use
- Recreation
- Residential
- Backcountry

Noise Contours

- 50 CNEL
- 65 CNEL
- 70 CNEL

1 inch = 2,000 Feet
(Meter printed on "11x17" paper)

0 2,000 4,000 Feet

0 2000 4000 Feet

10/31/2014

Lake Tahoe Airport
Noise Contours

