When a Vertiport Requires Local Approval: An Evaluation Framework for City Councils

Darlene Yaplee | ANE Symposium 2026

President and Co-Founder, Aviation-Impacted Communities Alliance

AICA | AVIATION-IMPACTED COMMUNITIES ALLIANCE

Vertiports: Two Distinct Environmental Review Pathways

Site Type	Primary Jurisdiction	Environmental Review Lead	Key Authority and Implications
FAA-Funded Airports (NPIAS or Other Federally Obligated Airports)	FAA (with Airport Sponsor)	Airport Sponsor prepares analysis. FAA is lead agency for NEPA review under Order 1050.1G	• FAA determines level of NEPA review and issues final determination (CATEX, FONSI, FONSI/ROD, or ROD) • Subject to FAA policies and airport sponsor grant assurances and funding conditions • FAA significance criteria apply if an EA or EIS is prepared and govern how impacts are assessed • ANCA restricts local aircraft operational limits without FAA approval
Locally Funded Sites (Non- Federally Obligated, e.g., rooftop or local vertiports)	State and/or local authority	Local and/or state review, if required, under applicable land use and environmental laws	• **Local and/or state authorities determine scope and requirements of environmental review and issue approval consistent with state law** • Not subject to FAA NEPA review unless a separate federal action is triggered • Local discretion to define environmental impact criteria and community engagement as permitted under State law • At initial approval, local or proprietor authorities may establish site operating conditions, including hours, use cases, phased or capped activity levels, monitoring and reporting requirements, and renewal provisions; later modifications require applicable local approval

Facility operating conditions address land use and site operations, not aircraft operations or navigable airspace, which remain under federal jurisdiction.
NPIAS = National Plan of Integrated Airport Systems
Source: AICA interpretation of public information, informed by "Future-Ready Cities: Preparing for AAM," ANE Symposium 2025.

LOCAL AUTHORITY FOR VERTIPORTS WITHOUT FAA FUNDING

What Local Governments Can Do	What Local Governments Cannot Do
LAND USE AUTHORITY **Ensure vertiports are subject to discretionary land use approval** • Set land use and zoning • Approve or deny local sites • Define permitted use cases and vehicle types • Require early community engagement before discretionary review begins	**LAND USE AUTHORITY – CANNOT** • Regulate navigable airspace • Set or modify aircraft routes, altitudes, or corridors • Prohibit aircraft from navigable airspace
FACILITY OPERATING AUTHORITY • Set facility operating hours • Cap or phase total facility operations, including per-day or per-hour throughput limits at the vertiport • Require monitoring, reporting, and renewal review	**FACILITY OPERATING AUTHORITY – CANNOT** • Regulate aircraft once airborne • Impose aircraft curfews or flight restrictions in navigable airspace • Control aircraft spacing, sequencing, separation standards, or air traffic control timing once in navigable airspace • Authorize or deny operators as federally approved aviation services • Issue or deny FAA certifications or federal vertiport design approvals
ANALYTICAL AUTHORITY **NOISE EXPOSURE & IMPACT EVALUATION (LOCAL)** • Define and apply a local evaluation framework • Require evaluation of total aviation exposure, combining existing and proposed aircraft types, facilities, routes/corridors, operators, and operational phases • Require analysis of event counts, single-event loudness, and applicable time-of-day adjustments • Ensure evaluation reflects community lived experience, distribution across communities, including disproportionate concentration, and relevant community, safety, and health implications • Select locally applied noise metrics and thresholds for project decisions • Coordinate with airports and regional agencies on land use compatibility	**ANALYTICAL AUTHORITY – CANNOT** • Substitute local noise metrics or impact conclusions for FAA determinations in federal environmental reviews • Redefine federal land use compatibility standards • Require FAA to adopt local analytical thresholds

Source: AICA interpretation of public information, informed by session *Future-Ready Cities: Preparing for AAM* at Aviation Noise & Emissions Symposium (2025)

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Evaluation determines what gets considered and what gets decided.

Source: AICA interpretation of public information, informed by session *Future-Ready Cities: Preparing for AAM* at Aviation Noise & Emissions Symposium (2025)

Defining the Evaluation Framework
Local Analytical Authority

- How will lived experience guide the evaluation?
- What metrics will be used to reflect noise exposure?
- What criteria will determine a significant impact?

Noise Metrics: DNL vs. N-Above / Lmax

DNL Energy-Based Metric	N-Above / Lmax Event-Based Metrics
Cumulative 24-hour sound energy	Number of noise events over a selected sound level
Does not report event counts	Reports event counts
Includes +10 dB nighttime adjustment	No built-in nighttime adjustment

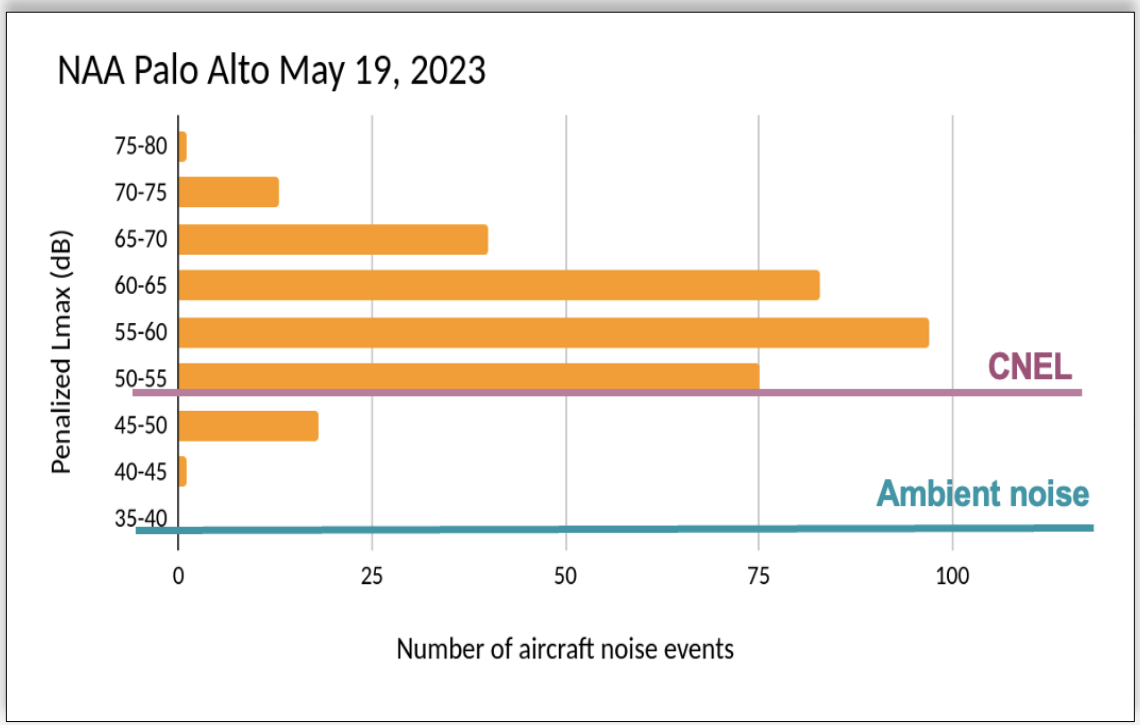
Same Operations, Different Metrics

N-Above (Event-Based View)

- Reports 328 events at or above 50 dB Lmax
- Distribution across sound levels (50–55, 55–60, etc.)
- Shows how often residents heard flights above ambient noise levels

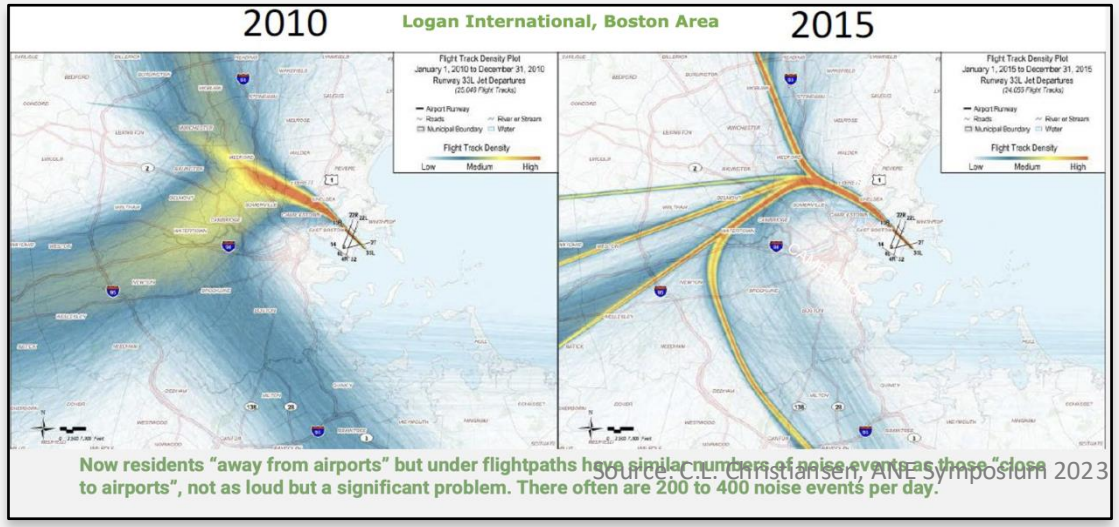
CNEL (Energy-Based View)

- 50 dB CNEL (cumulative daily average)
- Reports a single energy-based value
- Does not report event counts



Penalized Lmax reflects California CNEL time-of-day adjustments, including +10 dB for events between 10 pm and 7 am and +5 dB for 7 pm to 10 pm
Source: M.-J. Fremont, ANE Symposium 2024, using SFO data

Lessons From NextGen



Small DNL changes masked large increases in flights overhead.

U.S. General Accountability Office (GAO), 2021 report

What Local Governments Should Evaluate

- Count the number of aircraft **events** people will hear and how loud they are, including relative to existing **ambient conditions**, and apply appropriate **time-of-day adjustments** for consistency across metrics
- Evaluate when they occur (timing), **clustering** (sequencing), and **distribution across communities**
- Evaluate new vertiport operations in the context of existing **total aviation exposure**
- Consider **persistence over time** (weeks, months, etc.)
- Consider implications for community **disruption, safety, and health**

Community Lived Experience: Event-Based Exposure Framework

Event-Based Dimension	What Is Counted or Reported
Discrete Overflight Events	Event counts by 5 dB sound level bands (e.g., 45–80 dB) using N-Above and peak noise level. Aircraft certification reduces per-event loudness, not total noise exposure from high and increasing event counts
Timing and Cadence of Events	Count of events by time of occurrence (day, evening, night) as well as temporal spacing and clustering of events (e.g., time between successive events)
Concentration of Operations	Repeated use of narrow flight paths or corridors resulting in high event counts over the same neighborhoods or areas
Persistence Over Time	Recurring exposure defined by event counts repeated across days, weeks, and months
Ambient Context	Baseline quiet or ambient conditions in contrast to noise intrusions using L90 (noise level exceeding 90% of the time)
Total Aviation Exposure	Total event counts across all aircraft types, operators, routes, facilities, and operational profiles, including airports, heliports, vertiports, drone hubs, and military activity
Stationary and Ground-Based Noise	Count and, where relevant, duration of hovering, takeoff, landing, charging, staging, and other high-intensity ground-noise events or operations
Community, Health, and Quality of Life Outcomes	Event-driven disruptions, including sleep disturbance, stress, visual and privacy intrusion, safety concerns, and related health outcomes

Full framework in Appendix (Source: AICA)

Event-Level Loudness Comparability

En Route Drone Noise

Upper-Bound Assumption

- 78.4 dB SEL per overflight (Draft PEA)
- Est. Lmax: mid-60s to low-70s dBA
- Within existing loudness ranges

Lower-Bound Assumption

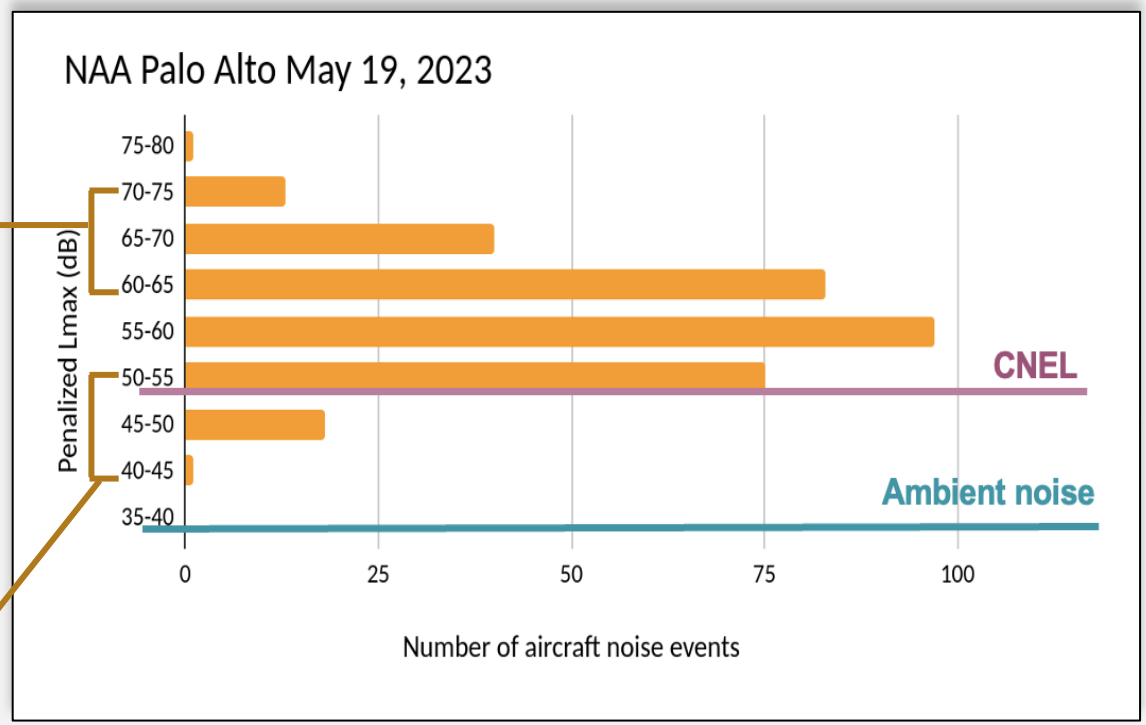
- 58.5 dB SEL per overflight (Draft PEA)
- Est. Lmax: mid-40s to low-50s dBA
- Within existing loudness ranges

Notes:

- Lmax values interpreted from FAA's Draft Programmatic Environmental Assessment (PEA) for Drone Package Delivery Operations.
- Noise ranges derived from Draft PEA-reported SEL values using standard acoustical relationships and assumed event durations.
- PEA Lmax values are reported as single-event levels without time-of-day adjustments.

Source: ESA. AICA

Measured Aircraft Noise

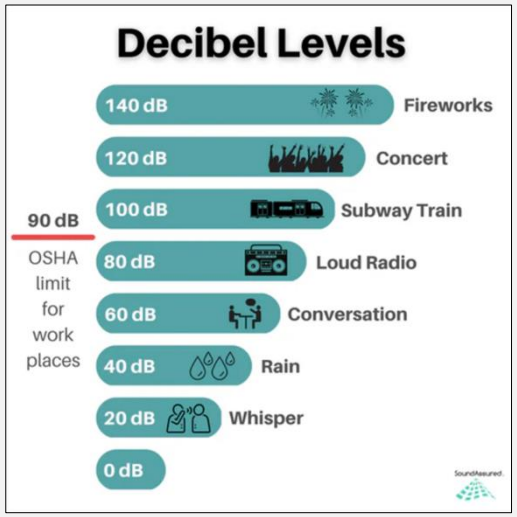


Notes:

- Comparison shown for illustrative purposes using measured noise data from Palo Alto.
- Penalized Lmax reflects CNEL time-of-day adjustments used in California, including +10 dB for events between 10 pm and 7 am and +5 dB for 7 pm to 10 pm.

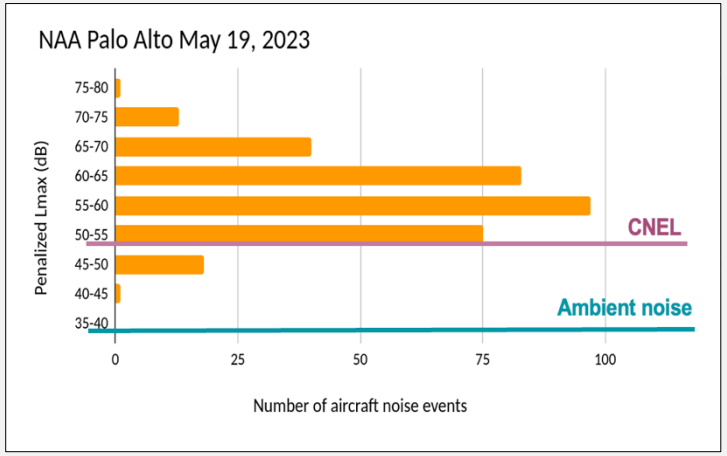
Source: M.-J. Fremont, Representing Aircraft Noise Impacts – A Community Perspective, ANE 2024 using SFO data

Sound Levels Are Not Exposure Metrics



Source: SoundAssured

Sound Level (dB)



Exposure Metric

A decibel level is not a substitute for an exposure metric.

Evaluating Exposure in Context

- Evaluate new operations within total existing aviation exposure across aircraft types, origins & destinations, facilities, and operational phases
- Identify disproportionate concentration
- Examine persistence over days, weeks, and months
- Compare aircraft events to existing ambient conditions (L90)
- Consider implications for community disruption, safety, and health

New operations must be evaluated as additions to total existing aviation exposure.

Permitted Use Cases Determine Operational Activity

Passenger Transport

- Air taxis
- Regional / local connections
- Scheduled commuter service

Tourism & Recreation Flights

- Sightseeing / tour operations

Government & Specialized Uses

- Law enforcement
- Military
- Industrial inspection

Public Service & Emergency

- Medical transport / Medevac
- Disaster response
- Firefighting

Source: U.S. DOT, *Advanced Air Mobility National Strategy,* 2025

Permitted use cases determine community aviation exposure and impact.

When a Vertiport Requires Local Approval

Local Decisions Define Community Outcomes

- As AAM evolves, evaluation is essential
- Local approval is your leverage, require a rigorous evaluation
- You determine what is in the best interests of your community

Source: DOT AAM National Strategy, December 2025

Appendix

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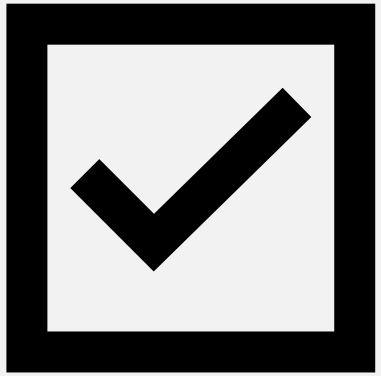
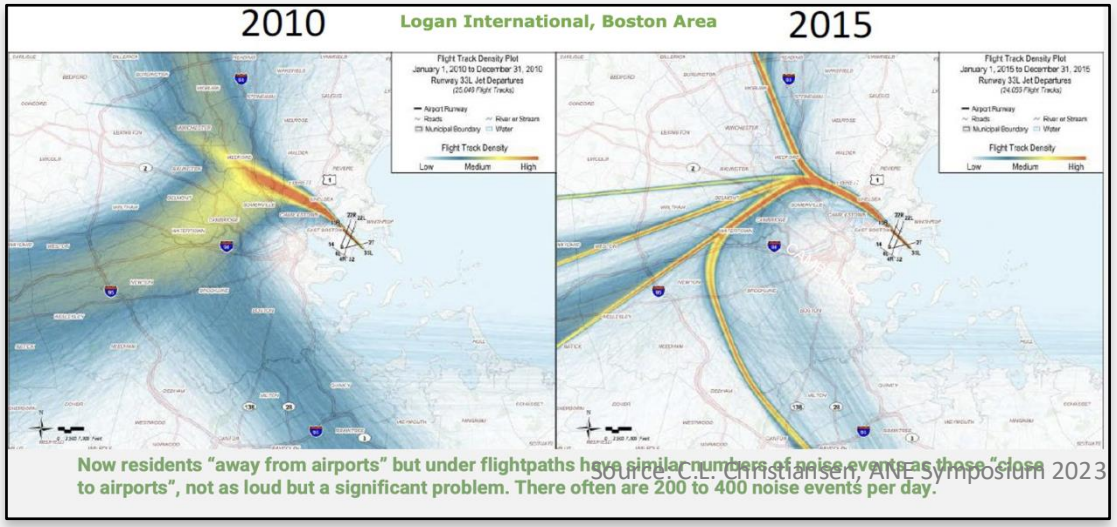
Ensure Discretionary Local Land-Use Review



- **Ensure vertiports require discretionary land-use approval**
- Ministerial approvals limit impact review and public input
- Existing heliport provisions may not address AAM operations
- Update local ordinances before proposals are filed

Lessons from NextGen

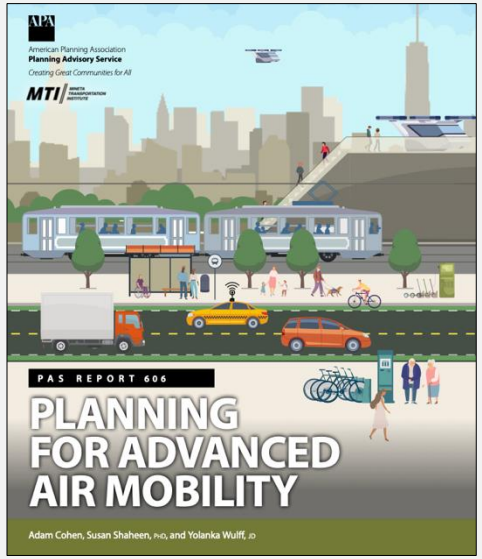


Small DNL changes masked large increases in flights overhead.

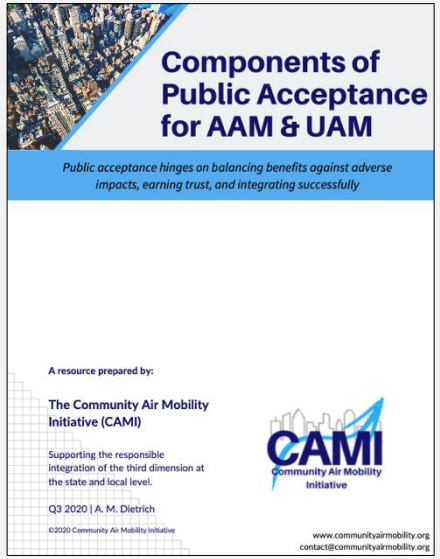
U.S. General Accountability Office (GAO), 2021 report

- Precision navigation reduced dispersion and concentrated aircraft over much narrower corridors
- Some neighborhoods, especially outside traditional **DNL 65 contours**, experienced substantial increases in aircraft event counts
- Small changes in **DNL** masked substantial changes in the number of aircraft events
- Evaluation frameworks used by the FAA did not reflect the lived experience of communities outside the DNL 65 contour

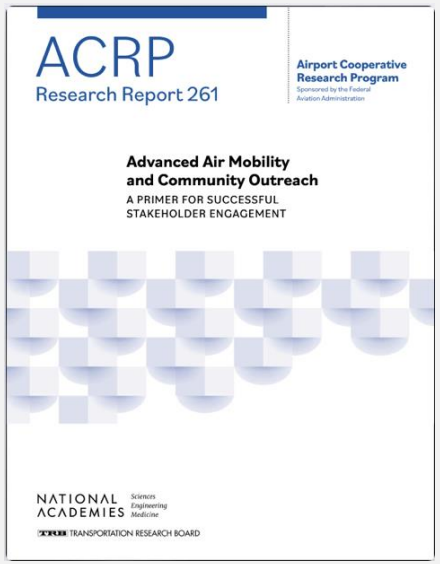
Community Trust Depends on the Evaluation Framework



APA, Planning for AAM (2024)



CAMI, Public Acceptance for AAM & UAM (2020)



ACRP 261, FAA (2023)

NASA, AAM Community Integration Playbook (2023)

Key Governance Implications

- Engage at the pre-application stage
- Use evaluation criteria that reflect lived experience
- Clearly communicate impacts, assumptions, and decision-making authority

Ambient Masking: Key Considerations

Masking assumptions should be examined carefully. They often rely on:

- **Median ambient values (L50)**
  - L50 reflects typical daytime conditions
  - L90 reflects the quieter baseline
- **Daytime ambient levels only**
  - Nighttime conditions are often substantially lower
- **Assumptions of steady background noise**
  - Aircraft noise is intermittent, not continuous
  - Audibility depends on the difference between event and background levels
- **Limited attention to repetition and clustering**
  - When events are audible, frequency and concentration influence community response

Measured L90 Ambient (dBA) vs. Modeling Assumptions

Measured L90 Ambient (dBA)

- Palo Alto: 34 dBA
- Portola Valley: 31 dBA
- Foster City: 42 dBA
- San Mateo: 43 dBA
- San Francisco: 47 dBA

Source: SFO Noise Monitoring reports (L90), August 2023 to December 2024

Typical Ambient Values Used in Modeling

- Rural: 45 dB
- Suburban: 55 dB
- Urban: 65 dB

Source: FAA, NOISE-CON (2024)

Measured L90 ambient levels are 10–20+ dB lower than commonly used rural, suburban, and urban assumptions.

1, 10, 100, 1,000 Flights: The Same DNL 65

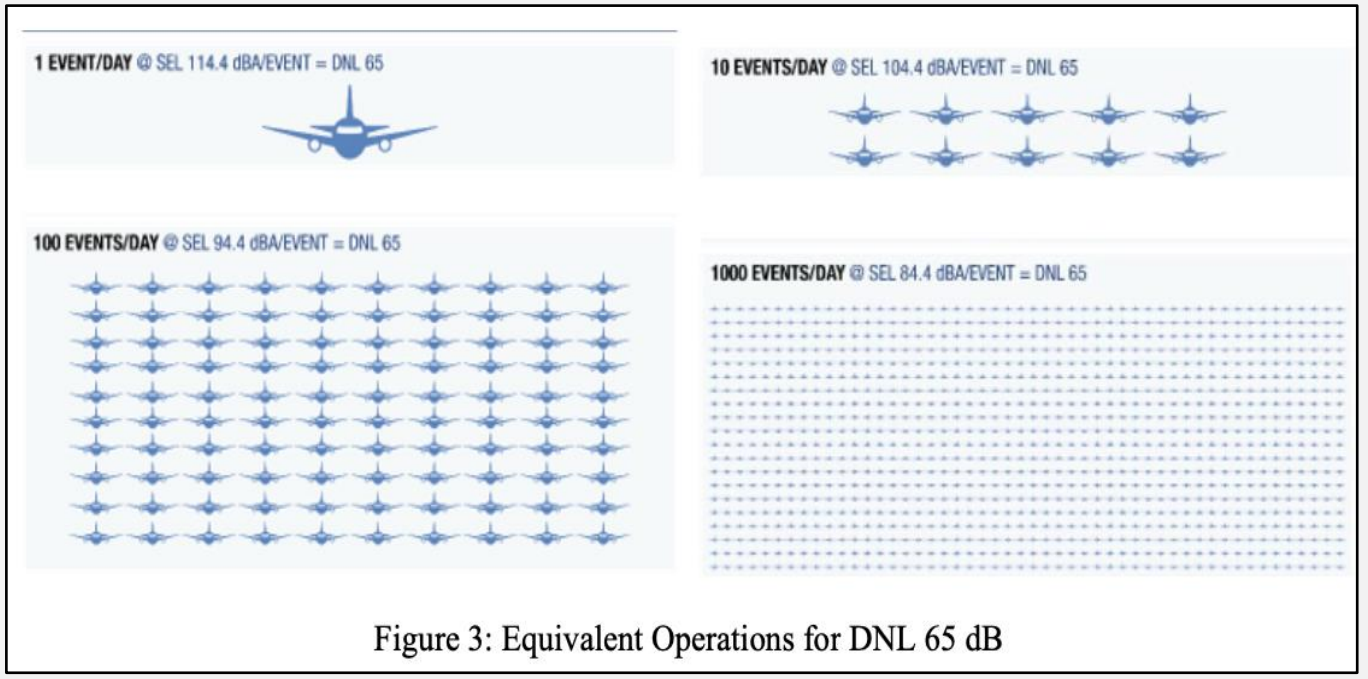


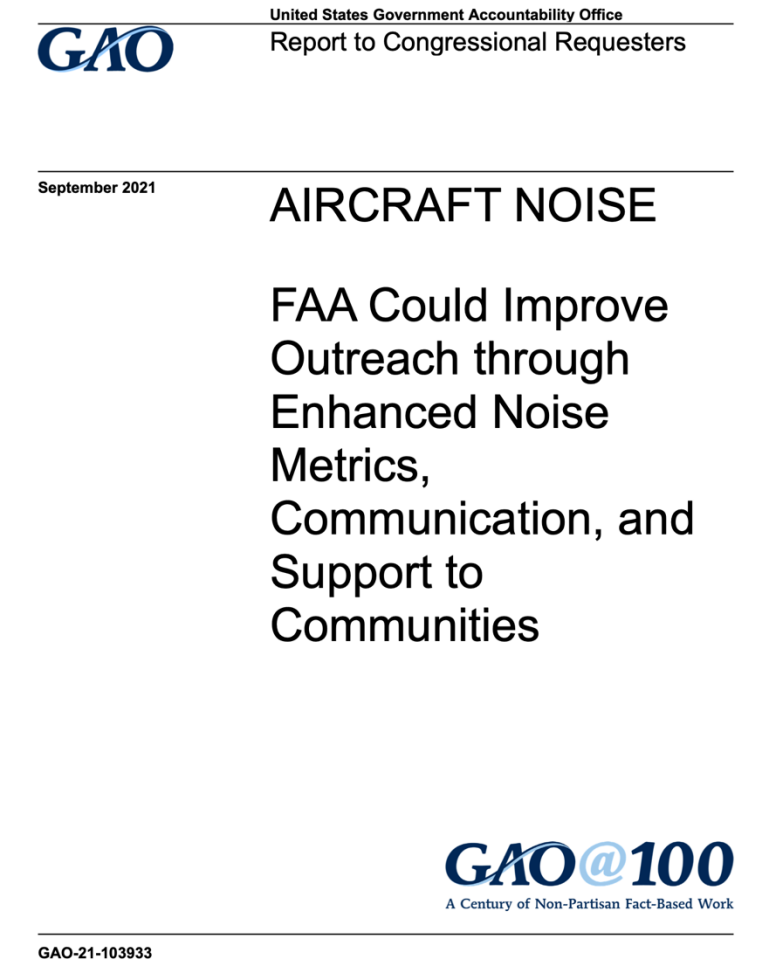
Figure 3: Equivalent Operations for DNL 65 dB

Source: FAA

Large increases in aircraft events can produce little change in DNL.

DNL does not provide a clear picture of flight activity at a location

- GAO found that small DNL changes can obscure substantial increases in aircraft events
- Averaged metrics do not clearly convey flight activity at a location
- GAO recommended reporting aircraft event counts



Source: U.S. Government Accountability Office (GAO-21-103933), 2021