

# **Noise Monitoring and Data Transparency Options**

East Hampton Airport (JPX)

Research Summary for WCAC Action Plan Implementation

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## Executive Summary

This document evaluates options for improving noise data collection and public transparency at East Hampton Airport. The Town currently relies primarily on community complaints to measure airport noise impact—an inherently imprecise indicator that reflects willingness to complain rather than actual noise exposure. Moving toward objective, measurable data would strengthen both community understanding and voluntary compliance programs.

The options fall into three categories:

- 1. Flight tracking dashboards** — visualize aircraft movements, identify operators, track patterns (no noise measurement)
- 2. Flight tracking with modeled noise** — estimate noise exposure based on aircraft type, altitude, and distance
- 3. Integrated noise monitoring** — actual decibel measurements from physical monitors, correlated with flight tracks

**Key finding:** The Town already subscribes to AirNav Radar for flight tracking. Publishing regular reports from this existing resource would be a low-cost, immediate first step. For actual noise measurement—which provides defensible, objective data—the Town would need to add noise monitoring terminals (NMTs), either as permanent installations or portable units for targeted studies.

## Current State: What JPX Already Has

East Hampton Airport currently subscribes to AirNav Radar for flight tracking and uses Flight Talker for complaint management. Key capabilities and gaps:

Current Capabilities	Current Gaps
Real-time flight tracking (ADS-B data)	No public-facing portal for community access
Aircraft identification (registration, type, operator)	No integration between flight data and complaints
Historical data (up to 365 days)	No helicopter vs. fixed-wing breakdown in reports
Complaint tracking via Flight Talker	No actual noise level measurements

## Part I: Understanding the Options

Airport noise transparency solutions fall into three tiers, each with different capabilities, costs, and data quality:

Tier	What It Provides	What It Doesn't Provide	Cost Range
<b>Flight Tracking Only</b>	Aircraft positions, types, altitudes, flight paths, and operator identification	Actual noise measurements; only estimates based on models	\$0–\$10K/year (existing subscriptions; commercial APIs)
<b>Flight Tracking + Modeled Noise</b>	Estimated noise exposure based on aircraft type, distance, and altitude	Ground-truth measurements; doesn't account for local conditions	\$25K–\$75K/year (WebTrak subscription; cloud NOMS lite)
<b>Integrated NOMS with Monitors</b>	Actual decibel readings correlated to specific aircraft; defensible data	N/A — full capability	\$100K–\$500K+ initial; \$30K–\$100K/year ongoing

The central question for JPX: What level of data quality does the Town need? If the goal is community transparency and voluntary compliance tracking, flight tracking with modeled noise may suffice. But if the town ever wishes to use the data for regulatory purposes, measuring actual noise is essential.

## Part II: Flight Tracking & Dashboard Options

Flight tracking systems visualize aircraft movements using ADS-B transponder data, radar feeds, and FAA data sources. They answer: How many flights? What times? Which aircraft types? Which operators?

### Option 1: Expand Existing AirNav Radar Subscription

**Complexity:** Low | **Cost:** Low | **Timeline:** 1–2 months

Since JPX already has an AirNav Radar subscription, the simplest path is to expand its use:

1. Upgrade to Business tier if not already subscribed (includes API access, airport view, 365-day history)
2. Request regular data exports showing monthly operations by aircraft type
3. Publish summary reports (Scottsdale Airport's quarterly reports are a model)
4. Contact AirNav about community portal options—they list “noise monitoring” as a Business Intelligence use case

**Limitations:** AirNav doesn't offer a simple embeddable public widget. Creating a truly interactive public dashboard would require custom development using their API.

## Option 2: FlightAware Integration

**Complexity:** Medium | **Cost:** Medium | **Timeline:** 2–4 months

FlightAware is the largest flight tracking platform and offers several integration options:

AeroAPI for on-demand flight data (pay-per-query)

Integrated Mapping Solutions for custom web/mobile applications

Historical data back to 2011 (better than AirNav for long-term analysis)

**Best for:** Organizations wanting to build custom dashboards with developer resources.

## Option 3: DIY Dashboard Using Public APIs

**Complexity:** Medium | **Cost:** Low–Medium | **Timeline:** 2–4 months

A lower-cost approach would be to build a simple public dashboard using the AirNav or FlightAware API with open-source visualization tools (Grafana, Apache Superset).

**What a DIY dashboard could show:** Daily/weekly/monthly operations counts; helicopter vs. fixed-wing breakdown; peak hours and days; year-over-year trends; voluntary curfew compliance rates (if tracked).

**What a DIY dashboard cannot easily show:** Actual noise levels (requires physical monitors); complaint correlation with specific flights.

## Part III: Community Portal Solutions (Modeled Noise)

Some systems combine flight tracking with noise modeling to estimate noise exposure without physical monitors. These provide “virtual noise monitoring”—calculated expected noise levels based on aircraft type, altitude, distance, and certified noise profiles.

## Option 4: EnviroSuite WebTrak

**Complexity:** High | **Cost:** Medium–High | **Timeline:** 6–12 months

WebTrak is a community-facing portal developed by EnviroSuite that allows residents to view flight tracks and, optionally, modeled or measured noise data. Used by Reagan National (DCA), Oakland, Heathrow, Toronto Pearson, and recently Tweed-New Haven.

**Key features:** Real-time and historical flight display; complaint submission portal; estimated noise at the user’s address; correlates complaints to specific flights; multilingual support.

**Pricing:** Subscription service. For a GA airport like JPX, estimated \$25,000–\$50,000/year for basic WebTrak without physical noise monitors.

US examples: [webtrak.emsbk.com/dca](http://webtrak.emsbk.com/dca) (Reagan National), [webtrak.emsbk.com/oak3](http://webtrak.emsbk.com/oak3) (Oakland)

Contact: [envirosuite.com/platforms/aviation/webtrak](http://envirosuite.com/platforms/aviation/webtrak)

## Option 5: Casper Noise Lab

**Complexity:** High | **Cost:** High | **Timeline:** 6–12 months

Casper Noise Lab is the gold standard for airport community engagement portals, used by Copenhagen, Edinburgh, Gatwick, Schiphol, Tampa, and Leeds-Bradford.

**Key features:** Real-time and historical flight tracking; integrated noise measurement data (with physical monitors); complaint submission and tracking; interactive maps showing flight density; automatic reports and statistics; runway usage data; content management for airport communications.

**Cost estimate:** Enterprise pricing not published; likely \$50K–\$200K+ for full implementation with noise monitors.

Examples: cph.flight-analyzer.casper.aero (Copenhagen), edi.noiselab.casper.aero (Edinburgh)

Contact: sales@casper.aero

## Part IV: Noise Monitoring Hardware

For actual noise measurement—defensible, objective data that goes beyond models and estimates—the Town would need noise monitoring terminals (NMTs). These are precision acoustic instruments designed for unattended outdoor operation.

### Why Noise Monitoring Matters

Community complaints measure frustration, not noise. They reflect who is willing to call, not how loud it is at their home. Actual measurement data:

Provides objective, defensible documentation of noise exposure

Enables correlation of specific aircraft to specific noise events

Supports the enforcement of voluntary compliance programs

May be required for regulatory proceedings (Part 150, SEQRA)

## Noise Monitoring Terminal Options

Hardware Type	Use Case	Typical Cost	Examples
<b>Permanent NMT</b>	Fixed installation on poles/rooftops; continuous 24/7 monitoring	\$15,000–\$40,000 per unit (hardware + installation)	EnviroSuite NMT, Casper Airport NMT, Brüel & Kjaer Type 3639
<b>Portable/Mobile NMT</b>	Temporary deployment; targeted studies; rotates between locations	\$10,000–\$25,000 per unit; rental options available	Larson Davis NMS044/045, Svantek SV 307, Casper mobile units
<b>Low-Cost NMT</b>	Community monitoring: less precision but lower cost	\$3,000–\$10,000 per unit	Cirrus Quantum Outdoor, NoiseMeters EM2030, Svantek SV 307 (MEMS)

Recent advances in MEMS (Micro-Electro-Mechanical Systems) microphone technology have significantly reduced hardware costs while maintaining IEC 61672 Class 1 accuracy.

## Full NOMS Cost Considerations

A full Noise and Operations Monitoring System (NOMS) deployment involves multiple cost components. Based on ACRP Research Report 237 (2022):

Cost Component	Small GA Airport (3–5 NMTs)	Larger GA Airport (6–12 NMTs)
NOMS software license (annual)	\$30,000–\$60,000	\$50,000–\$100,000
NMT hardware	\$60,000–\$150,000	\$120,000–\$400,000
Installation (site prep, mounting, network)	\$20,000–\$50,000	\$50,000–\$150,000
Annual maintenance/calibration	\$15,000–\$30,000	\$30,000–\$75,000
<b>Total Initial Investment</b>	<b>\$100,000–\$250,000</b>	<b>\$220,000–\$650,000</b>

**Alternative: NoiseOffice Subscription Model.** EnviroSuite offers NoiseOffice, a subscription service that provides NOMS functionality without large capital outlay. The vendor hosts software, maintains hardware, reducing ongoing technical complexity.

## Part V: Options Comparison Summary

Option	Cost	Timeline	Noise Data?	Best For
AirNav Radar reports	\$	1–2 months	No	Quick wins; immediate transparency
FlightAware API	\$\$	2–4 months	No	Historical analysis; custom dashboards
DIY Dashboard	\$\$	2–4 months	No	Tech-savvy implementation
WebTrak (EnviroSuite)	\$\$\$	6–12 months	Modeled	Community self-service; complaint correlation
Casper Noise Lab	\$\$\$\$	6–12 months	Modeled; can add NMTs	Comprehensive portal; integrated platform
Portable NMTs only	\$\$	2–4 months	Yes — measured	Targeted studies; lower cost; flexible
Full permanent NOMS	\$\$\$\$	12–18 months	Yes — 24/7	Comprehensive documentation; regulatory

## Part VI: Recommended Approach for JPX

Given JPX's situation—significant community concern, ongoing litigation, and limited Town resources dedicated to noise management—WCAC recommends a phased approach:

### Phase 1: Quick Wins (Immediate, \$0–\$5,000)

**Publish monthly reports from existing AirNav Radar data.** The Town already pays for this subscription. Publishing regular summaries would require only staff time to generate and post reports.

**Recommended metrics:** Total operations by month; fixed-wing vs. helicopter breakdown; jet vs. piston/turboprop; day-of-week and time-of-day distribution; year-over-year comparison; top 10 operators by volume.

### Phase 2: Enhanced Transparency (6–12 months, \$25,000–\$75,000)

**Deploy a public flight tracking portal (WebTrak or equivalent).** This enables residents to conduct their own investigations, correlate complaints with specific flights, and understand traffic patterns in their area.

**Integrate complaint management.** A formal complaint system linked to flight data allows the Town to track complaints by location, time, operator, and aircraft type.

### Phase 3: Noise Measurement (12–24 months, \$50,000–\$150,000+)

**Deploy portable NMTs for targeted monitoring.** Rather than committing to a full permanent NOMS network, the Town could acquire 2–3 portable noise monitors and rotate them through community locations. This provides ground-truth data at lower cost and greater flexibility.

**Integrate with HMMH analysis.** HMMH is already engaged by the Town for noise-related work. Noise measurement data could validate community concerns with objective data.

**Evaluate full NOMS.** Based on Phase 2–3 experience, assess whether a permanent NOMS network is warranted.

## **Recommended Immediate Actions**

- 1. Clarify current subscription:** Ask the Town what data they currently receive from AirNav Radar and whether they have API access.
- 2. Request HMMH input:** Include public data transparency tools in the expanded HMMH analysis scope.
- 3. Explore AirNav options:** Contact AirNav about community portal add-ons or regular data exports for the Town website posting.
- 4. Get quotes:** Request pricing from EnviroSuite (WebTrak) and Casper (Noise Lab) for a JPX-specific community portal.
- 5. Review peer airports:** Identify what Westchester County and other regional airports publish for community transparency.

## **Conclusion**

Community complaints measure frustration, not noise. Moving toward objective data—starting with flight-tracking transparency and potentially adding noise measurement—gives the Town tools to understand the actual impact, track voluntary compliance, and document the problem in a defensible manner.

WCAC recommends starting with what the Town already has (AirNav Radar) and building toward more sophisticated capabilities as needs and resources permit. The phased approach manages cost and risk while demonstrating commitment to transparency.

We further recommend that WCAC be provided the opportunity to give input on the scope of HMMH's expanded analysis, to ensure the metrics collected align with the data needed for effective compliance tracking and public reporting.

## Appendix: Visual Examples

The following screenshots (with links) illustrate different approaches to public airport noise dashboards, ranging from simple PDF reports to interactive web portals.

### 1. Casper Noise Lab – Copenhagen Airport (Full Portal)

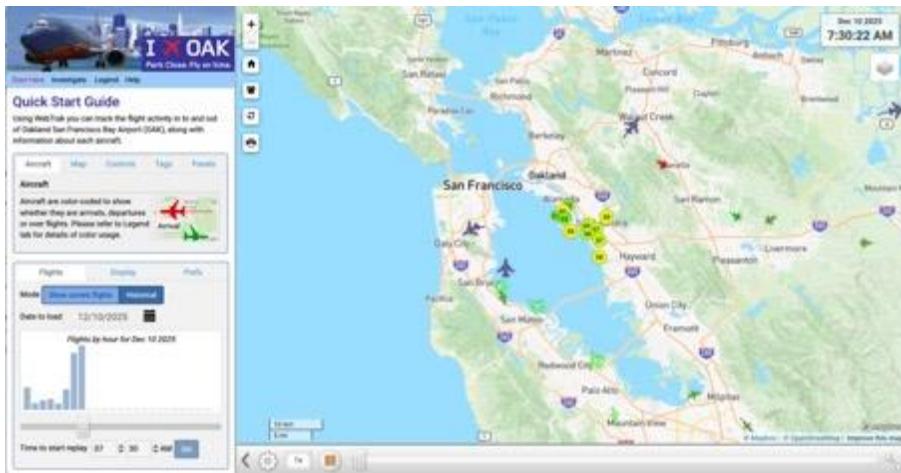


**CPH Flight Analyzer**

Welcome to CPH's web portal CPH Flight Analyzer. CPH Flight Analyzer brings together all our data on noise from airport activities in one place. CPH has two platforms for disseminating flight and noise data. **CPH Flight Tracker** shows you the flight and noise data as it is "here and now" and **CPH Flight Analyzer** goes more in-depth, where you can see data from a whole year back. See more under "Info" on this page.

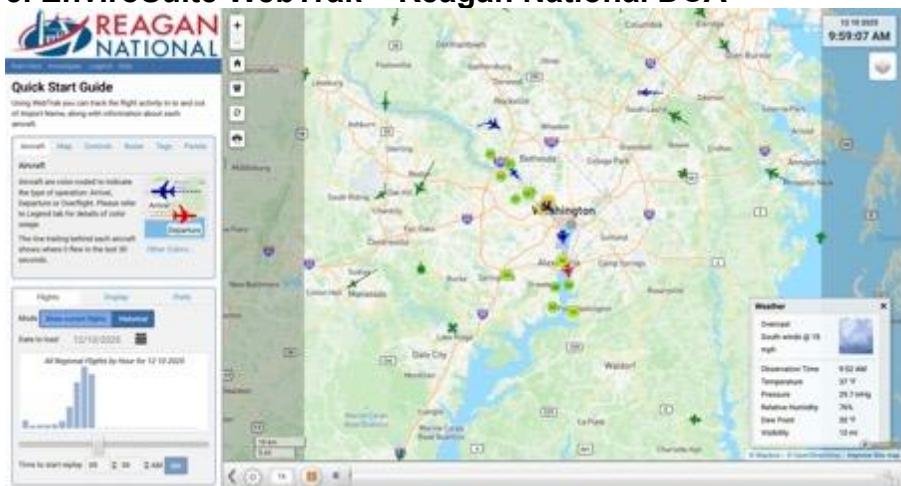
<https://cph.flight-analyzer.casper.aero/> – Full site shows flight tracker, noise monitors, runway usage dashboard, news, and other info

## 2. EnviroSuite WebTrak – Oakland Airport (US Example)



<https://us.webtrak.aero/oak3> – Shows real-time flight tracks with noise monitor integration

## 3. EnviroSuite WebTrak – Reagan National DCA



<https://us.webtrak.aero/dca> – Shows complaint submission integration with flight tracking

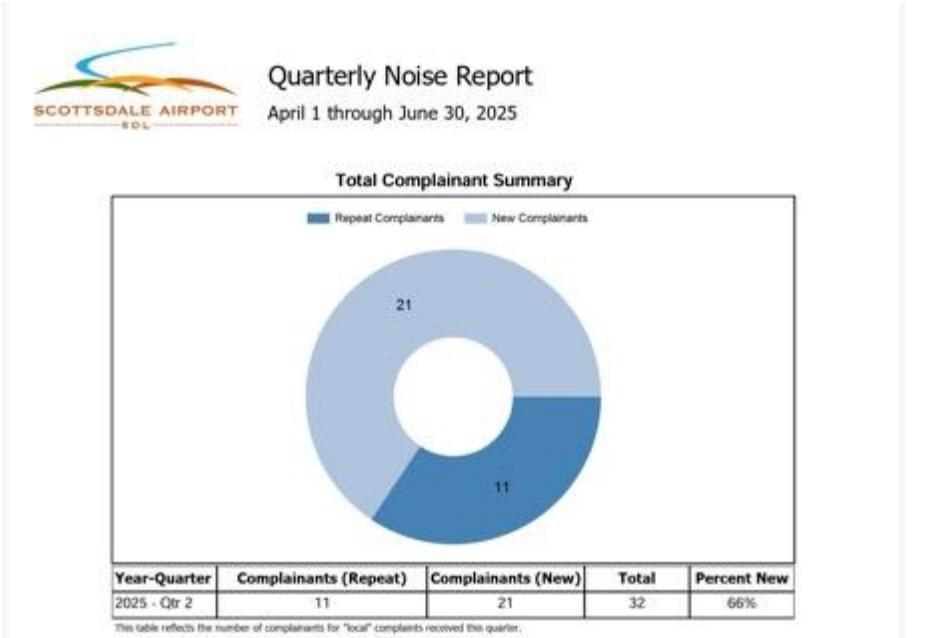
## 4. Casper Noise Lab – Edinburgh Airport

The screenshot shows the homepage of the Casper Noise Lab website for Edinburgh Airport. At the top, there's a navigation bar with links to HOME, NOISE EXPLAINED, NOISE MONITORS, LIVE FLIGHT TRACKER, HISTORY, TRAFFIC, PUBLICATIONS, INSULATION AND VORTEX, FAQS, and ENQUIRIES. Below the navigation is a header bar with the date (10 December, 2023), temperature (9°C), and a small map icon. The main content area includes:

- A map of Edinburgh showing flight paths.
- A "Weather conditions" section displaying 9°C, a wind icon, and a 13m/s gust.
- A "Today's airport notice" section stating there are no news items for the selected day.
- A calendar for December 2023.
- A "Data from yesterday" section with two charts:
  - A bar chart titled "Flights per hour" showing activity levels throughout the day.
  - A donut chart titled "Departures per hour" showing the distribution of departures across the hours.
- A "Frequently asked questions" section with expandable answers to questions like "Who are the noise monitors placed where they are?", "How is aircraft noise measured?", etc.
- A "From this site" section featuring a thumbnail image of an airport runway and the text "In 2017 Edinburgh Airport set up Edinburgh Airport Noise Advisors Board (EANAB).".

<https://edi.noiselab.casper.aero/> – Shows noise monitor dashboard with complaint statistics

## 5. Scottsdale Airport Quarterly Report (PDF Approach)



<https://www.scottsdaleaz.gov/scottsdale-airport/airport-noise/noise-reports> – Shows low-cost quarterly PDF report format with complaint