

Vero Beach Municipal Airport FAR Part 150 Airport Noise Study



What is a Portable Noise Monitor and Why Do We Perform Noise Monitoring?

FAR Part 150 does not require airport operators to conduct portable noise monitoring or to conduct onsite noise measurements of any kind. However, measurements provide important information critical to the understanding of the noise environment. Noise measurements provide important insight to understand the existing noise environment, both aircraft and non-aircraft. The City of Vero Beach recognizes the importance of noise measurements and included a five-week portable noise measurement program as part of this study effort.

What benefits will the portable noise measurement program offer?

1. Increased public confidence in the project team's understanding of noise sources considered in database development.
2. Identification and quantification of noise issues of concern, particularly single event related, including such considerations as maximum level, noise event duration, rise and fall time, etc., which can assist in characterizing the true intrusiveness of a specific activity.
3. Information on the effectiveness of existing noise abatement measures, such as pattern altitudes, turn locations, etc.
4. Quantification of non-aircraft noise sources to assist in putting aircraft levels in perspective.
5. Determination of "background" or "ambient" noise levels, for comparison to aircraft levels, to assist in determining land use compatibility.
6. Information on the variation in cumulative noise exposure throughout the day and night, and from day-to-day, to understand variation from the annual average day conditions.
7. The observers at each site will provide the added benefit of documenting specific flight paths, traffic pattern dimensions, aircraft altitudes, runway use, and other operational inputs required for noise modeling purposes.

What were the noise measurement programs two principle objectives?

1. To obtain short-term samples of cumulative noise levels at a variety of noise-sensitive locations, for comparison with modeled noise exposure contours. Cumulative exposure is important for land use planning purposes, for evaluating noise exposure trends in the long term, and for evaluating procedures that affect the distribution of noise levels over large areas.
2. To obtain representative information on aircraft and non-aircraft single event noise levels at a broad range of sites, primarily in residential areas. Single event levels are important for responding to citizen concerns about specific operations, evaluating noise abatement flight tracks and comparing the relative noisiness of different aircraft types.



Vero Beach Municipal Airport FAR Part 150 Airport Noise Study



What is a Portable Noise Monitor and Why Do We Perform Noise Monitoring?

What is a portable noise monitor?

Noise measurements were conducted with HMMH-owned Larson-Davis Model 870 noise monitors and MEA leased Larson-Davis Model 820 noise monitors. These instruments are portable devices capable of long-term unattended operation, that meet American National Standards Institute standards for a Type I “precision” sound level meters, which meet or exceed accuracy requirements outlined in FAR Part 150. HMMH/MEA staff calibrated the equipment in the field before and after each of the measurements. Each of the noise monitors were time-synchronized to facilitate the correlation of individual aircraft noise events measured at multiple sites.

The noise monitors were programmed to record integrated levels, such as L_{eq} and DNL, and maximum single event levels, L_{max} . All measurements were A-weighted. The units operated on a 24-hour basis during the measurement session, with breaks for relocation and other basic maintenance requirements. To the extent feasible, the staff spent time at the portable monitoring locations to observe and log aircraft and non-aircraft noise-producing events, weather data, and other relevant information.

How were the sites selected?

- Portable monitoring locations were selected based on Vero Beach Municipal Airport staff feedback to MEA and HMMH staff, but overall, the group of sites was selected to provide representative data on the broadest range of aircraft operations and geographic areas surrounding the airport. Site selection criteria included the following major factors:
 - A majority of the sites were near major flight corridors, to maximize the number of operations monitored.
 - Sites were selected away from major flight corridors, where there was a desire to address special noise issues.
 - Equipment security and isolation was a practical matter. Specific sites were selected to isolate the monitors from non-aircraft levels, such as high levels of traffic noise, barking dogs, etc. Where it was felt security of the equipment could not be maintained over a continuous 24-hour measuring period, equipment was setup for observing and then disassembled at the end of the observation period.

