

MEMORANDUM

To: Town of East Hampton
East Hampton, NY

From: Rhea Hanrahan, Principal Consultant
Sarah Yenson, Senior Consultant

Date: April 14, 2022

Subject: Data Methodology for SEQRA DGEIS to Evaluate Proposed East Hampton Airport
Prior Permission Required 2022 Analysis

Reference: HMMH Project Number 312040.000.003

Harris Miller Miller & Hanson Inc. (HMMH) is assisting AKRF with the New York State Environmental Quality Review Act (SEQRA) evaluation for the implementation of prior permission required (PPR) limitations proposed at the New Airport. HMMH has been requested to specify the data needed to complete the modeling work for the evaluation of potential effects from the New Airport's PPRs at three nearby airports. While each airport has slightly different data available, there are two main categories for each, Airport Layout and Aircraft Operational Data. We also intend to provide an analysis of operations and complaints at each airport to the extent that such data are available.

Airports to be modeled:

- East Hampton Airport (HTO)/the New Airport¹,
- Montauk Airport (MTP),
- Francis S Gabreski Airport (FOK), and
- Southampton Heliport (87N)

The next three sections address the noise and air quality modeling input data for the Federal Aviation Administration (FAA)'s Aviation Environmental Design Tool (AEDT). FAA guidance on use of the AEDT specifies using the most recent version of the model that is available at the time the project commences. In this case, it is AEDT Version 3d.² All AEDT modeling conducted for this study adheres to "Guidance on Using the AEDT to Conduct Environmental modeling for FAA Actions Subject to NEPA".³

Most aircraft noise studies focus on DNL, the metric adopted by the FAA and the Environmental Protection Agency (EPA), as the most appropriate long-term measure of airport noise exposure. DNL is determined by adding up the noise energy from all modeled aircraft activity at every individual point of a large array of grid points around an airport. In the DNL calculation, a 10-decibel weighting is applied to nighttime⁴ operations.

AEDT modeling also requires aircraft noise and performance data – fortunately, AEDT includes a database of noise and performance data for a broad range of representative aircraft types. Noise data cover a range of distances (from 200 feet to 25,000 feet) for specific thrust levels. Performance data include thrust, speed, and altitude profiles for takeoff and landing operations. The AEDT database contains standard noise and performance data for more than 250 different aircraft types. The program automatically accesses the applicable noise and performance data for departure and approach

¹ East Hampton Airport (HTO) refers to the airport located in the Town of East Hampton prior to May 2022. The New Airport refers to the same airport after its reopening as a privately owned, private access airport in May 2022.

² Released March 29, 2021. https://aedt.faa.gov/3d_information.aspx

³ Published September 12, 2016.

⁴ Nighttime is defined as 10 pm to 7 am.

operations by those aircraft. For aircraft not included in the database, the FAA maintains a list of acceptable “substitutes”.

1. Physical Airport Layout

Airfield elevation and average temperature have an effect on aircraft performance; these are accounted for in AEDT. For example, aircraft departing from a high-altitude airport and/or at high temperatures must use more thrust than at lower elevations and temperatures. The performance data used by AEDT define the length of the takeoff roll (based on aircraft takeoff weight), the climb rate, and speeds for each flight segment.

HMMH will obtain the following airfield layout data for use in the AEDT modeling:

- Runway Orientations *
- Runway Lengths *
- Runway End Elevations
- Start-of-takeoff-roll points on each runway *
- Landing touchdown points on each runway *
- Runway threshold crossing heights
- Runway approach slopes
- Annual average temperature, pressure, relative humidity, and runway-specific headwinds

** not necessary for Southampton Heliport 87N*

2. Aircraft Operational Data

Historical aircraft operations will be collected and reported in the DGEIS. For modeling purposes to evaluate changes to the noise environments, aircraft operational data is needed for two cases – a baseline period (ex: summer season) representative of “normal historic” operations, with the East Hampton Airport open and operational as usual, and the trial case, which will analyze the 2022 summer season data of where aircraft otherwise headed to the New Airport could be diverted as a result of the PPR. The trial case (New Airport access restrictions in place temporarily) requires the same operational data categories as the standard, existing case, including number of operations, fleet mix, day-night split, and runway utilization.

HMMH plans to obtain this information by requesting flight data from the FAA’s National Offload Program (NOP). This request will come from the Airport Sponsor to the Airport District Office and will request flight data for the four airports listed above. NOP is a record of historical radar track and flight plan data that are commonly used by airports in a planning or environmental study that require accurate operational flight data. This repository of information contains flight track data from FAA air surveillance systems for aircraft flying under Instrument Flight Rules (IFR). Availability of flight track data for aircraft operating under Visual Flight Rules (e.g., general aviation operations) is often limited in the NOP data but generally provides enough information to make modeling determinations. Sensitive flight data, such as military operations or aircraft that have submitted a Blocked Aircraft Registration request (BARR), are filtered out of the NOP data, so military operations and fleet mix will be determined by discussion with Airport owners. HMMH can lead these discussions but assumes that the Town or other stakeholders will schedule and coordinate these meetings with the relevant personnel.

As operations data are provided from the other three airports, we will incorporate those data into our analysis for the baseline and for 2022. For consistency, for each airport, HMMH will compare annual operations acquired from NOP to the FAA's Terminal Area Forecast and will scale the operations accordingly to provide a consistent basis for the data.

HMMH will obtain the following aircraft operational inputs for use in AEDT modeling:

- Number of aircraft operations, such as the FAA's Terminal Area Forecast
- Aircraft Fleet Mix
- Day-Night Split of operations
- Runway utilization *
- Flight track geometry and utilization (wherever possible)

* *not necessary for Southampton Heliport 87N*

3. Air Quality

For this study, air quality results will be informed by the AEDT inputs which will be generated based on the data needs of the aircraft noise materials listed in the sections above. Aircraft emissions are a function of the number of aircraft operations expressed as landing and takeoff (LTO) cycles, the aircraft fleet mix (types of aircraft used), and the length of time aircraft spend in each of the modes of operation defined in AEDT. For this analysis, estimates for emissions will come from the following aircraft modes:⁵

- Startup
- Taxiing
- Takeoff ground roll
- Climb to mixing height and descent from mixing height and
- Landing ground roll

Pollutant emissions for aircraft operations using the above assumptions will be estimated using AEDT for the LTO modes and touch and go (e.g., circuit model) operations below the mixing height, including idle, taxi, climb, and descent. These emissions are listed below. Per standard, HMMH will assume a default mixing height of 3,000 feet above ground level.

The U.S. Environmental Protection Agency (EPA) enforces the Clean Air Act (CAA), established in 1970 and last amended in 1990, which requires the review of seven criteria pollutants in analysis of air quality according to the National Ambient Air Quality Standards (NAAQS). Lead emissions are associated with leaded aviation fuel used in GA piston engine aircraft. AEDT does not estimate lead emissions directly. Therefore, HMMH will calculate these emissions separately based on fuel consumption and lead fuel content consistent with FAA/EPA methodology described in the FAA Air Quality Handbook.⁶

1. Carbon monoxide (CO)
2. Nitrogen dioxide (NO₂); calculated and expressed as NO_x
3. Particulate matter (PM₁₀)
4. Particulate matter (PM_{2.5})

⁵ In the AEDT output, these modes are all represented in the "ClimbBelowMixingHeight" and "DescendBelowMixingHeight" source grouping.

⁶ FAA. Equation A1-3 (Lead Emission Calculation) found on page 4 of Appendix A, page 119 of the full document. *Aviation Emissions and Air Quality Handbook*.

https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Air_Quality_Handbook_Appendices.pdf

5. Sulfur dioxide (SO₂)
6. Lead (Pb)
7. Ozone (O₃)

HMMH will also provide fuel burn associated with greenhouse gases and hazardous air pollutants as calculated by AEDT for inclusion in the DGEIS report beyond the seven criteria pollutants listed above.

4. Complaint Data

HMMH will obtain complaint data for the New Airport from the New Airport's Vector Noise and Operations Management System (VNOMS). The Town will reach out to the study airports to request any historic or existing complaint data records they maintain. The Town will also request complaints received during the trial PPR to be catalogued for inclusion in the DGEIS for informational purposes.

HMMH will obtain complaint data from the following two data sources, as well as others if needed to obtain complaint data for all four airports:

- **PlaneNoise:** HMMH will obtain complaint data from the PlaneNoise complaint management system for the New Airport and any of the other airports using this system. Included in this data will also be complaints from the AirNoise.io complaint system submitted to PlaneNoise. HMMH will coordinate with the PlaneNoise vendor directly to download the data.
- **Air Noise Report:** HMMH will supplement complaint data from the PlaneNoise complaint management system with complaint data from the Air Noise Report website for the New Airport and the other airports, if they use the system. Air Noise Report is a web-based complaint system privately owned and maintained by Mr. Dan Aronoff. HMMH has included complaint data from Air Noise Report in our analyses for HTO since it became available in 2016, and we recommend continuing to include this data for this analysis. HMMH will coordinate with Mr. Aronoff directly to download the data.

Please do not hesitate to reach out with any questions or if you need clarifying information on the requests listed in this memorandum.

Regards,

