

**HMMH**  
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Burlington, Massachusetts 01803  
781.229.0707  
www.hmmh.com

April 17, 2019

John Inserra  
Noise Program Manager, Westchester County Airport

Subject: Aircraft Noise Program Assistance to Westchester County Airport  
Reference: HMMH Proposal Number P19-20022

Dear Mr. Inserra:

After our discussion with County staff Friday, April 12, 2019, HMMH has prepared the following scope of work to begin addressing your needs for assistance with your noise program at Westchester County Airport (HPN). In essence our proposed approach is to first acquire data and other inventory information to: (1) assess HPN aircraft noise exposure, (2) review your aircraft noise complaint management program and (3) assess the location and effectiveness of your fixed noise monitoring locations and (4) recommend potential next steps to improve your overall noise program and address community concerns.

After this first phase of assistance, HMMH will provide additional scope of work based on our recommendations that will begin to address your community concerns. The next phase of work will likely include, but not limited to, the preparation of educational/informational materials and public/stakeholder meetings.

The HMMH scope of work for the first phase contains the following tasks:

1. Collect data
2. Prepare base map
3. Model aircraft noise
4. Review noise complaint management program
5. Assess locations of fixed noise monitoring sites
6. Recommend next steps

The remainder of this letter contains the detailed descriptions of each scope of work task, the estimated schedule to complete each task and the cost to complete the scope of work for this first phase of assistance related to your noise program at HPN. While it is not assumed the County will elect to conduct federal studies, such as Airport Noise Compatibility Planning<sup>1</sup> or Notice and Approval of Airport Noise and Access Restrictions<sup>2</sup>, we will proceed to develop work products meeting requirements within pertinent federal regulations so that they can be applied to such studies if and when needed.

## Scope of Work

### Task 1: Collect data

Upon your approval, HMMH will contact your noise and operations monitoring system (NOMS) provider, EMS Bruel & Kjaer (B&K), to obtain system login credentials. Using these B&K-provided credentials, HMMH will download a full three years of flight track and aircraft identification data, specifically calendar years 2013, 2016 and 2018. HMMH will also work with the County to obtain recent land use data for communities adjacent to the Airport and out to the complete area covering flight track distances of 30,000 feet as required for conducting aircraft noise and land use compatibility under Title 14 of the Code of Federal Regulations Part 150 (Part 150).

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<sup>1</sup> Title 14 of the Code of Federal Regulations Part 150.

<sup>2</sup> Title 14 of the Code of Federal Regulations Part 161.

## Task 2: Prepare Base Map

Using the land use data collected in Task 1, HMMH will prepare a base map for County review and approval. The base map will include land use categories and all other requirements under Part 150 throughout the study area. HMMH will seek County approval of the study area extent as well as the content, "look and feel" of the base map.

## Task 3: Model Aircraft Noise

HMMH will: (1) process three years of flight track and aircraft identification data obtained in Task 1, (2) conduct quality control of the acquired data, (3) augment any missing data with other sources, such as PASSUR and publicly available look-up tables, and (4) input the data and other information into the Federal Aviation Administration's (FAA) Aviation Environmental Design Tool (AEDT).

Prior to running the three runs, 2013, 2016 and 2018, HMMH will provide the County with a noise modeling input memorandum for review and approval. The memo will provide a complete description for each of the AEDT inputs. Using our RC for AEDT process, HMMH will setup the AEDT to model each year based on the actual radar data for that year. Upon County approval of the noise model input, HMMH will run AEDT to produce the following contours and grid point graphics (one each per model year or three graphics per type) overlaid the land-use base map prepared in Task 2:



1. Flight track density plots representing each of the two predominant Airport flow configurations
2. Day-Night Average Sound Level (DNL) contours for each calendar year modeled, including the 45, 50, 55, 60, 65, 70 and 75 dB contours
3. DNL at equally spaced, color coded grids throughout the study area
4. Maximum sound level (Lmax) at equally spaced, color-coded, grids throughout the study area
5. Number of events above 70 dB at equally spaced, color-coded grids throughout the study area

HMMH will prepare a report providing the noise modeling methodology, input and results for the intended use of sharing with the interested stakeholders including the public. HMMH will provide: one draft report in electronic (MS Word) format for County review, one final report in electronic (MS Word) format for County approval and one final report in printable and web posting (PDF) format for County use and dissemination.

## Task 4: Review Noise Complaint Management Program

With the B&K-provided login credentials, HMMH will review County-received HPN noise complaints for calendar years 2013 through 2018. Our review may include, but not limited to preparation of ANOMS<sup>3</sup> reports, downloading of noise complaint data for evaluations using HMMH tools, and preparing HMMH reports and graphics to convey the results of our review.

HMMH will interview County staff to fully understand the noise complaint management program from the receipt of the complaint to the completion of the complaint in the system. We will also seek to understand how the County closes out complaints, reports complaints and attempts to address overarching community concerns with HPN aircraft operations.

HMMH will prepare a technical memorandum for County review that provides the results of our review of the HPN noise complaint management program. It is essential HMMH has a complete understanding of the program in order to recommend possible changes and alternatives for County consideration in Task 6.

## Task 5: Assess Locations of Fixed Noise Monitoring Sites

Utilizing the results from the tasks above, HMMH will assess the locations of the existing fixed noise monitoring sites provided with the HPN NOMS. Our location evaluation will concentrate on: (1) proximity to major flight corridors, (2) aircraft DNL, (3) single-event aircraft noise levels, (3) proximity to residential communities, and (4) community noise levels. HMMH will also review ANOMS aircraft noise detection parameters, using our B&K-provided login credentials and other information to assess the ability of each noise monitoring site to

<sup>3</sup> ANOMS™ is the NOMS currently in use at the County for HPN as provided and maintained by EMS Bruel & Kjaer.

adequately measure aircraft noise. One outcome of our assessment will be a recommendation for the noise detection parameters to best measure aircraft noise at each location. This assessment will also include the review of one-second noise data obtained from each monitor, if available. This data, while available on most noise monitoring equipment, may not be available on the HPN NOMS.

This task includes one trip where two HMMH staff will visit each site to log the location and conditions at each site.

HMMH will prepare a technical memorandum detailing the assessment approach, results and recommended changes, if applicable, to the noise detection parameters in ANOMS.

### Task 6: Recommend Next Steps

Upon completion of Tasks 1 through 5, two HMMH consultants will prepare for and attend a half-day meeting at HPN offices to discuss the results of Phase 1 and possible next steps for Phase 2. Phase 1 is essentially the inventory and assessment of current aircraft flight paths, noise exposure, complaints and measurements. Phase 2 is intended to be the dissemination of this information to the interested stakeholders/public, recommendations for changes to the number and location of the fixed noise monitors, and how best to proceed with HPN noise management.



HMMH will prepare a memorandum summarizing the agreed upon next steps at the on-site meeting with County staff.

### Schedule

To begin, the critical element to schedule is for HMMH to obtain login credentials to ANOMS and/or obtain the flight track and aircraft identification data from B&K. We estimate that data collection, preparation of the base map and the noise modeling input memorandum will be completed within one month. Upon County approval of the noise modeling input memorandum, HMMH will complete the aircraft noise modeling within one month and produce the noise modeling report within one month of the completion of the noise modeling efforts. Therefore, the first draft noise modeling report, including the graphics will be provided to the County within three months of notice to proceed.

The less critical elements, review of fixed noise monitors and the complaint management system, will likely be completed simultaneous with the noise modeling efforts. However, the results of these elements will be provided after the noise modeling report. The complete Phase 1 effort will likely be completed within six months, including the on-site meeting to begin focusing the efforts on Phase 2 and the next steps.

### Cost Estimate

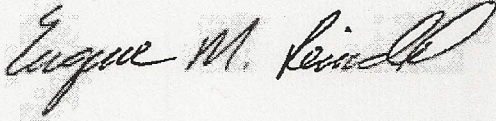
HMMH proposes to complete Phase 1 in accordance with our standard terms and conditions and on a time-and-materials basis not to exceed \$200,000 without written County permission. The table below provides the breakdown of costs by task, hours and other direct expenses.

Task	Hours	Labor Cost	Other Direct Costs	Total
1-Data Collection	116	\$19,340		\$15,880
2-Base Map	40	\$7,420		\$7,420
3-Noise Modeling	478	\$82,640	\$8,000	\$88,280
4-Noise Complaints	94	\$17,700		\$15,100
5-Noise Monitors	156	\$29,380	\$2,500	\$30,200
6-Next Steps	123	\$30,390	\$2,500	\$15,460
<b>Totals:</b>	<b>1,007</b>	<b>\$186,870</b>	<b>\$13,000</b>	<b>\$199,870</b>

We look forward to working with the County of this important project.

Sincerely yours,

Harris Miller Miller & Hanson Inc.



Eugene M. Reindel, HMMH Vice President and Principal in Charge

cc: Robert C. Mentzer, Jr. HMMH Project Manager

enclosures: (1) Example graphics for the noise modeling task and (2) HMMH Standards Terms and Conditions

This Agreement sets forth the entire agreement between the parties and supersedes any oral or other understanding between them with respect to this project. This Agreement is comprised of the Proposal and its Attachments.



IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their respective duly authorized officers as of the Effective Date.

[Westchester County]

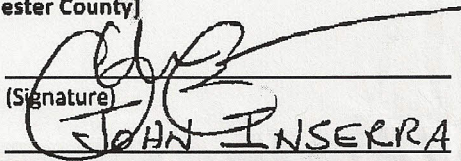
By:

(Signature)

Name:

Title:

Date:

  
JOHN INSERRA  
ENVIRONMENTAL MANAGER  
5/7/2019

Harris Miller Miller & Hanson Inc.

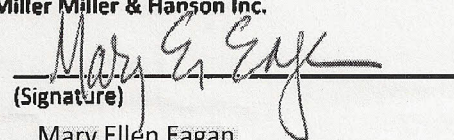
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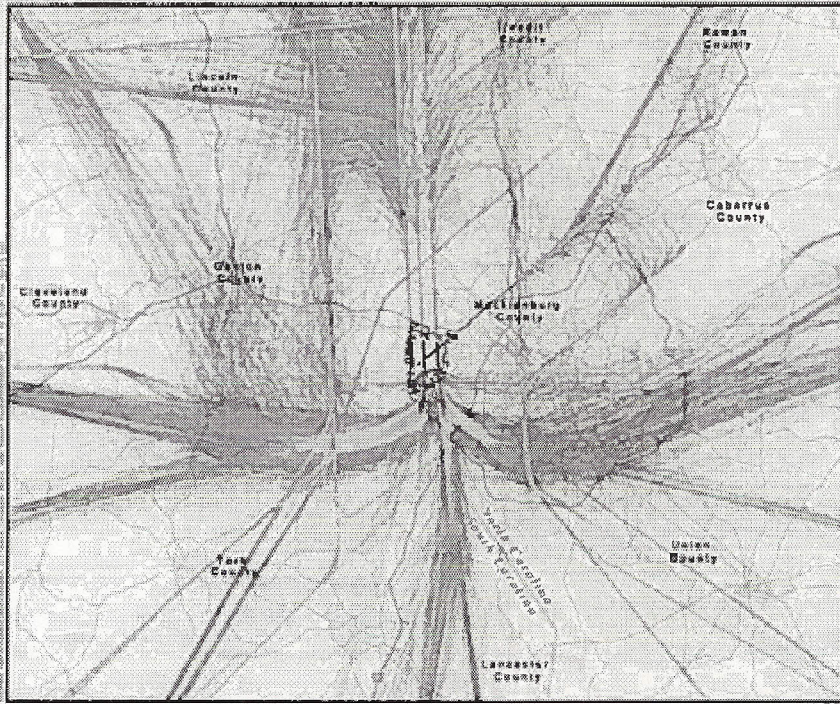
Title:

Date:

  
Mary Ellen Eagan  
President and CEO  
May 8, 2019

Sample Graphics from Charlotte-Douglas International Airport (CLT)

Flight Track Density Plot - CLT 2017 in South Flow



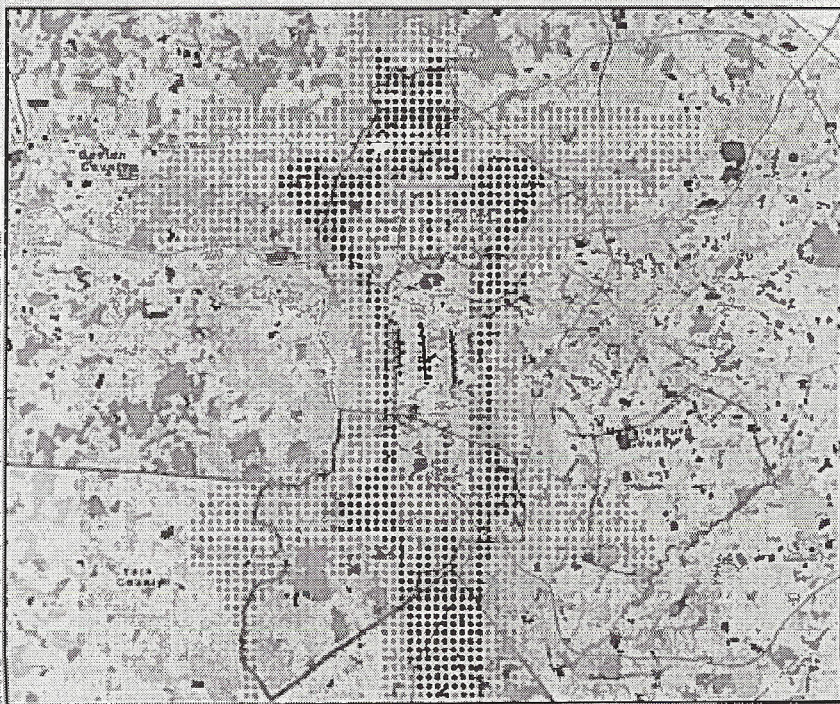
Post-Metropolis  
 All South Flow (Departures and Arrivals)  
 June 2017 - May 2018

--- Runway  
 [ ] Actual Boundary / Approximate  
 --- State Boundary      --- County Boundary  
 --- Highway              --- Other Road  
 --- Major Road          --- Airport  
 [ ] Park / Open Space      [ ] Water

Scale: 1:250,000  
 North Arrow  
 UTM Zone 18N  
 WGS 1984



DNL Grid - CLT 2018

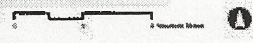


DNL Grid Analysis  
 January 1, 2018 through December 31, 2018  
 CLT Baseline Operations

--- Runway  
 [ ] Actual Boundary / Approximate  
 --- State Boundary      --- County Boundary  
 --- Highway              --- Other Road  
 --- Major Road          --- Railroad  
 [ ] Non-Compatible Land Use      [ ] Public Land  
 [ ] Compatible Land Use          [ ] Open Space  
 [ ] Water

**DNL Grid**  
 10-45.0  
 45.0-50.0  
 50.0-55.0  
 55.0-60.0  
 60.0-65.0  
 65.0-70.0  
 70.0-75.0  
 75.0-80.0

**Landmark Landings**  
 1. Small (Hawkeye) Flight  
 2. Southwest (Delta) Stream  
 3. Olympic (Delta) High Speed  
 4. Class-III (Delta) Local  
 5. North Peak High  
 6. North Peak High  
 7. UNCL



**Maximum Sound Level – CLT 2018**



**CLT**  
 CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT

**Lmax Grid Analysis**  
 January 1, 2018 through December 31, 2018  
 CLT Baseline Operations

**Outline**  
 Airport Boundary - Approximate

**Lmax Grid**

- 75 - 80 dB
- 80 - 85 dB
- 85 - 90 dB
- 90 - 95 dB
- 95 - 100 dB
- 100 - 105 dB
- 105 - 110 dB
- 110 - 115 dB
- 115 - 120 dB
- 120 - 125 dB

**Citywide Features**

- State Boundary
- County Boundary
- Highway
- Main Road
- State Route
- Interchange
- Public Use
- Other Land Use
- Other Street

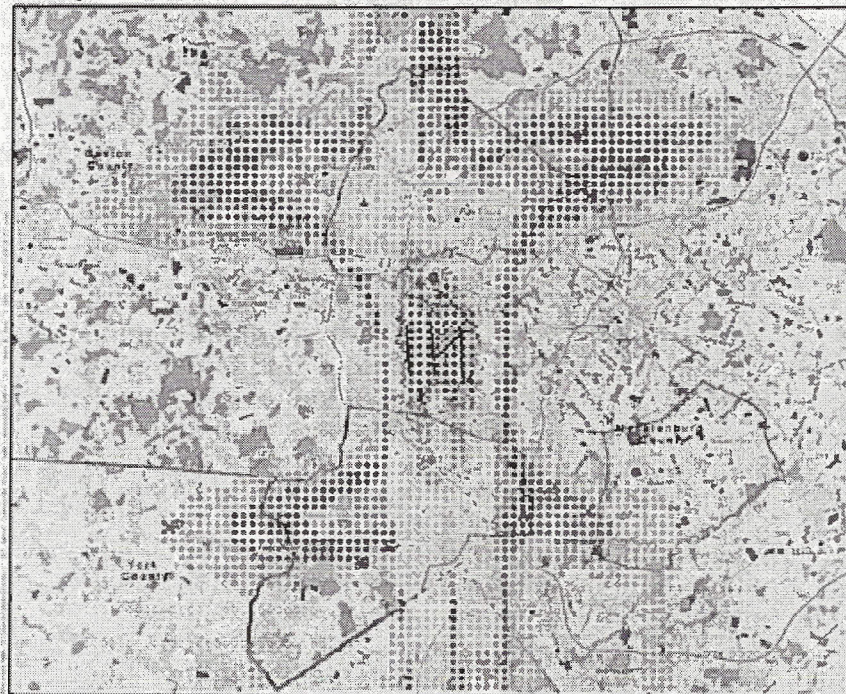
**Landmark Locations**

1. South Montessori High
2. Southside Middle School
3. Charlotte Community High School
4. Charlotte-Mecklenburg College
5. South Park Mall
6. Southside Mall
7. UNCC

Scale: 1 inch = 1 mile



**Number of Events Above 70 dB – CLT 2018**



**CLT**  
 CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT

**Number Above Lmax 70 Grid Analysis**  
 January 1, 2018 through December 31, 2018  
 CLT Baseline Operations

**Outline**  
 Airport Boundary - Approximate

**Number Above Lmax 70 Grid**

- < 25
- 25 - 50
- 51 - 75
- 76 - 100
- 101 - 125
- 126 - 150
- 151 - 175
- 176 - 200
- 201 - 225
- 226 - 250
- > 250

**Citywide Features**

- State Boundary
- County Boundary
- Highway
- Main Road
- State Route
- Interchange
- Public Use
- Other Land Use
- Other Street

**Landmark Locations**

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