ENVIRONMENTAL EVALUATION (Written Re-Evaluation) for AIRPORT DEVELOPMENT PROJECTS

FEDERAL AVIATION ADMINISTRATION
MEMPHIS AIRPORTS DISTRICT OFFICE-SOUTHERN REGION
AIRPORTS DIVISION

Airport: Piedmont Triad International Airport (GSO)
Airport Location: Guilford County, NC
Proposed Project: FedEx Mid-Atlantic Hub
Date: August 6, 2018
Previous FAA Decision: EIS/ROD approved December 31, 2001

Order 1050.1F, Chapter 9

9-2. Written Re-evaluations. A written re-evaluation is a document used to determine whether the contents of a previously prepared environmental document (i.e., a draft or final EA or EIS) remain valid or a new or supplemental environmental document is required. There is no specified format for a written re-evaluation. A written re-evaluation should be concise and the level of analysis should be commensurate with the potential for environmental impacts of a nature or extent not evaluated in the EA or EIS.

a. Written Re-evaluation Required. Unless a decision has been made to prepare a new or supplemental EA or EIS, the responsible FAA official must prepare a written re-evaluation:

   (1) If required under Paragraph 8-2.b or 9-1 of this Order; or

   (2) Before further FAA approval may be granted for an action if, after the FAA has approved an EA or EIS for the action:

      (a) There are changes to the action, or new circumstances or information, that could trigger the need for a supplemental EA or EIS (see Paragraphs 9-2.c and 9-3); or

      (b) All or part of the action is postponed beyond the time period analyzed in the EA or EIS.

b. Other Circumstances. The responsible FAA official may also prepare a written re-evaluation in other circumstances, including, for example, where there is a lack of clear and convincing evidence that major steps toward implementation of the proposed action have commenced.

c. Supplemental EA or EIS Not Required. A new or supplemental EA or EIS need not be prepared if a written re-evaluation indicates that:

   (1) The proposed action conforms to plans or projects for which a prior EA and FONSI have been issued or a prior EIS has been filed and there are no substantial changes in the action that are relevant to environmental concerns;

   (2) Data and analyses contained in the previous EA and FONSI or EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and

   (3) Pertinent conditions and requirements of the prior approval have been, or will be, met in the current action.

d. Process. The responsible FAA official must sign the written re-evaluation. Written re-evaluations should be reviewed internally and may be made public at the discretion of the responsible FAA official.

e. Decision Document. There may be instances where it would be appropriate for the responsible FAA official to issue a separate formal decision document in connection with a written re-evaluation (i.e., a "WR/ROD"). A WR/ROD might be appropriate, for example, where there is substantial controversy regarding the need for a supplemental EA or EIS. A WR/ROD may also be appropriate when the written re-evaluation involves an action covered in an EA where any of the factors listed in Paragraphs 6-4.a.(1)-(4) apply. When there is doubt whether a WR/ROD is appropriate, the responsible FAA official should consult with AGC-600 or Regional Counsel.

1. Project Location:

Airport Name: Piedmont Triad International Airport, GSO
Airport Address: 1000-A Ted Johnson Parkway
City: Greensboro County: Guilford State: North Carolina

2. Airport Sponsor Information:

Name: Mr. Kevin J. Baker, P.E.; Executive Director
Organization: Piedmont Triad Airport Authority
Address: 1000-A Ted Johnson Parkway City: Greensboro State: NC Zip: 27409
Telephone: 336.665.5600 Fax: 336.665.5694
E-mail: bakerk@gsoair.org

3. Evaluation Form Preparer Information:

Name: Mr. Kevin J. Baker, P.E.; Executive Director
Organization: Piedmont Triad Airport Authority
Address: 1000-A Ted Johnson Parkway City: Greensboro State: NC Zip: 27409
Telephone: 336.665.5600 Fax: 336.665.5694
E-mail: bakerk@gsoair.org

4. Proposed Development Action: Unchanged.

5. Purpose of and Need for the Project: Unchanged.

6. Alternatives to the Project: Unchanged.

7. Affected Environment of the Project: Unchanged except the area within the 65 DNL contour will be smaller.

8. Enviromental Consequences: Unchanged except that noise impacts will be significantly less.

PURPOSE OF THE RE-EVALUATION

The purpose of this Re-evaluation is to support changes to the GSO ATC Standard Operating Procedure to allow FedEx nighttime hub operations to be conducted in a head-to-head manner in accordance with the EIS and ROD prepared therefor, and as described below:

SUMMARY AND BACKGROUND

In 1998, FedEx announced plans to develop its Mid-Atlantic Hub at the Piedmont Triad International Airport. The project was designed to support the FedEx Hub and bring over $600 Million in new assets to the airport, including the construction of a new parallel runway, associated taxiways and Navigational Aids, and the Hub facility itself.

The ability of FedEx to conduct efficient head to head operations was identified by the EIS as being part of the Purpose and Need for the project. Section Four of the ROD, "Project Purpose

and Need" states that *"FedEx stated that PTIA was its choice because PTIA outranked the other airports in what was most important to FedEx: airport operations (e.g., potential for parallel runway airfield configuration with head-to-head operational capability, lack of competitive air carrier traffic during peak runway use periods)…." As a result, one of the explicit elements of the purpose and need for the project was to "Provide the Ability to Conduct Dual Simultaneous Independent Operations and Efficient Head-to-Head Operations to Meet Operational Requirements in Instrument Flight Rules (IFR) or Instrument Meteorological Conditions (IMC)."*

Prior to the start of construction, the FAA conducted an Environmental Impact Statement (EIS). The EIS analysis of noise and other impacts was predicated on certain operational assumptions and criteria:

1.) An ultimate total of 63 FedEx aircraft arriving and departing each operational night. In general, those flights would arrive between 10pm and 1am, the packages would then be offloaded, sorted and reloaded onto the aircraft, which would then depart between 3am and 4am.

2.) When wind direction and speed permit, FedEx aircraft would arrive from the southwest, landing on Runway 5L or 5R, and after the completion of the sort, the departing aircraft would depart back to the southwest, using Runways 23L and 23R. This pattern was referred to as "Head to Head" in the EIS and in this Written Re-Evaluation. The ability of FedEx to conduct efficient head-to-head operations was identified by the EIS as part of the Purpose and Need for the project.

3.) A wind analysis conducted as part of the EIS effort concluded that with FedEx's agreement to accept a 10 knot tailwind component, operations could be conducted as described above 95% of the time.

4.) The noise analysis and related Section 4(f) of the Department of Transportation Act, Section 106 of the National Historic Preservation Act, and compatible land use analyses all assumed the use of head-to-head operations for 95% of FedEx operations.

The effort concluded with a Record of Decision (ROD) on December 31, 2001.

The ROD includes the implementation of new air traffic control measures, airspace management, flight procedures and other necessary actions for the efficient use and management of the navigable airspace. This included "approval to provide air traffic controller training and updated position responsibilities for new simultaneous approach/departure procedures and head-to-head operations."

The EIS and ROD also provided for mitigation measures tied to the noise contours for the project, based on the head-to-head operations. These measures included land acquisition and sound insulation programs.

Subsequent to the ROD, the airport secured Section 401 and 404 permits required by the ROD, the US Army Corps of Engineers and the North Carolina Department of Environmental and Natural Resources. Design commenced in 2003 and the first construction project commenced in the fall of 2004. The project included multiple bid packages and was constructed over the next five years. All construction was reliant on and in accordance with the EIS/ROD.

The project included: the construction of parallel Runway 5L/23R; its associated taxiway system and Navigational Aids; Relocation of Bryan Boulevard; 160 acres of site grading; and finally construction of more than 500,000 sf. of FedEx Facilities.

PART 150

As a requirement of the ROD, PTAA conducted a Part 150 Study and developed a Noise Compatibility Program. The program was completed at the end of 2007. The Part 150 analysis was based on the same operating scenario as the EIS. The Part 150 Study confirmed the important role that the head-to-head operations would have in minimizing the exposure of sensitive land uses to noise levels greater than DNL 65.

In accordance with the findings of both the EIS and the Part 150, PTAA has undertaken mitigation in the areas (primarily southwest) of the Airport based on the contours with the proposed head-to-head operation, including land acquisition and a sound insulation program. To date, the airport's on-going program has acquired 42 properties that were located within the head-to-head DNL 70 contour from the EIS and has mitigated 95 homes though its sound insulation programs.

OPENING/OPERATIONS

FedEx opened its facility at the Airport in June of 2009, at the low point of the "Great Recession". The generally poor economy and other factors led to a slow start for the hub. It functioned as an enlarged "spoke" in their system as opposed to a hub. The nighttime pattern was not necessary at first, and was never implemented by Air Traffic Control (ATC).

FedEx has recently informed PTAA that it intends to begin operating the hub and associated flights in accordance with the original plan. Its air operations will now operate in a true, nighttime hub fashion, necessitating the implementation of the head-to-head flight patterns required by the ROD for such an operation. However, for the foreseeable future, FedEx will only operate 10 or 11 aircraft in this pattern as compared to the 63 flights that were permitted by the ROD. Operations will commence on September 4 of this year.

UPDATE

The data and analysis from the EIS are still valid for each of the impact categories with the exception that the noise impacts will be less than contemplated in the EIS.

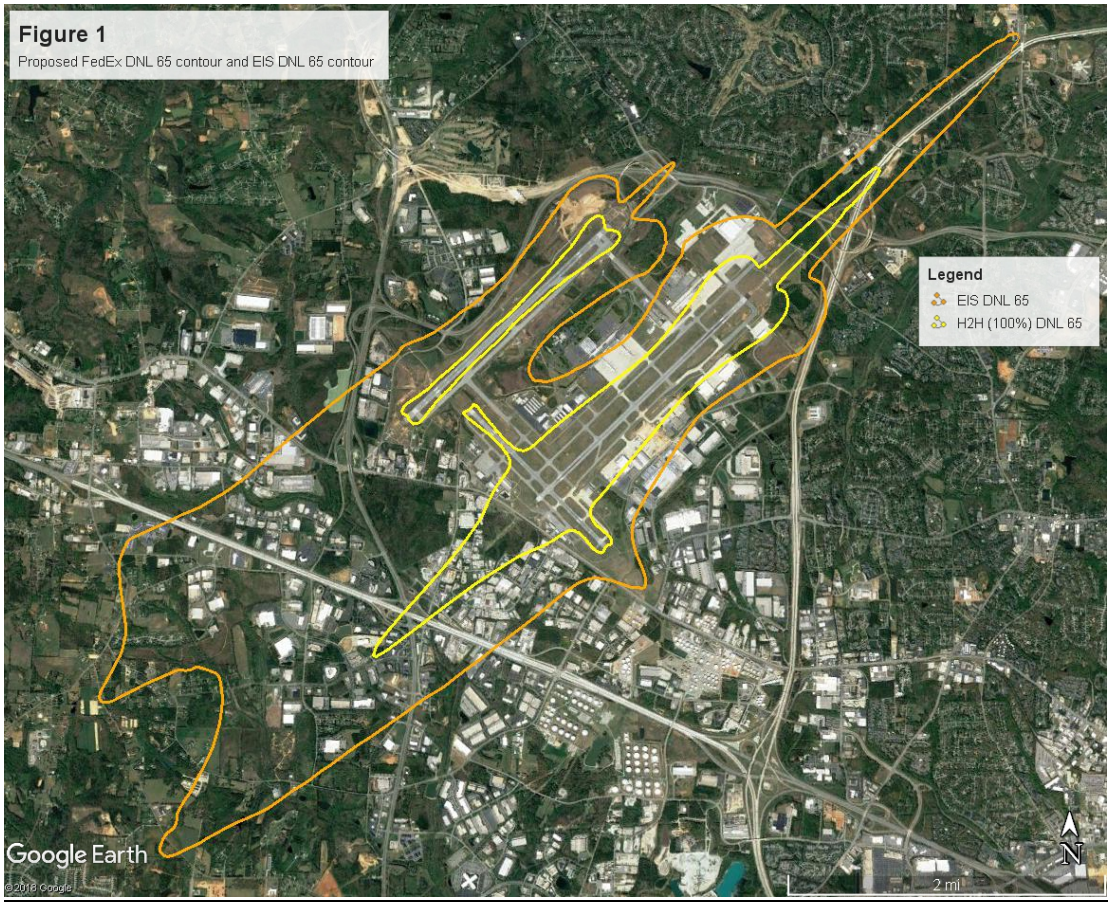
Noise

The airport has developed noise contours that add the anticipated FedEx operations to current operations and fleet mix at the Airport for comparison against the noise contours developed for the EIS. Details regarding the development of the noise contour are found in the technical memorandum included as Attachment A.

As previously discussed, the original EIS contemplated a total of 63 aircraft operating in the proposed pattern, as opposed to the 10 or 11 aircraft FedEx plans to operate at this time. Furthermore approximately 30-40% of those flights were expected to be operated by older and significantly louder B727 aircraft. Those planes have all been retired.

The current plan contemplates using much more modern and quieter aircraft (e.g., 757s, A300s and DHC8s), which in and of itself would reduce noise impacts. FedEx also contemplates only 10-11 flights (two of which are the DHC-8 turboprop feeders).

As a result, the DNL 65 contour that includes the planned FedEx operations is significantly smaller and falls well within the boundary of the EIS DNL 65 contour. This is illustrated on Figure 1 below.



Land Use

Land Use in the study area (covering the area in the EIS noise contours) has remained relatively unchanged, largely because the zoning agencies of adjacent communities have limited growth in the areas with higher expected aircraft noise identified by the EIS.

Attached as Figure 2 and 3 are aerial photographs of the Runway 5R approach captured from Google Earth from March of 2002 (immediately following ROD) and also the most recent Google Earth image, which is from 2017. No change has occurred in the area within the currently proposed FedEx DNL 65 contour, and the area is made up completely of compatible commercial/industrial uses. Therefore, there are no changes to the EIS conclusions regarding compatible land use.

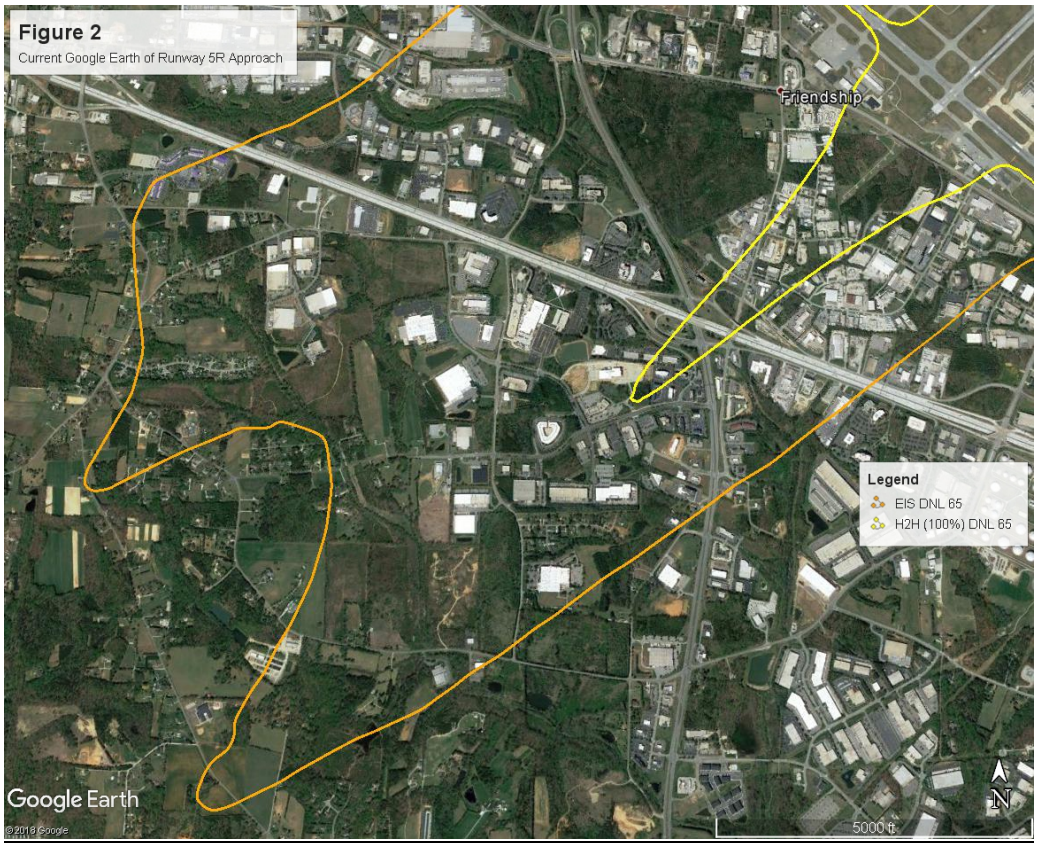


Figure 2
Current Google Earth of Runway 5R Approach
Friendship
Legend
EIS DNL 65
H2H (100%) DNL 65
Google Earth
©2018 Google
5000 ft
N

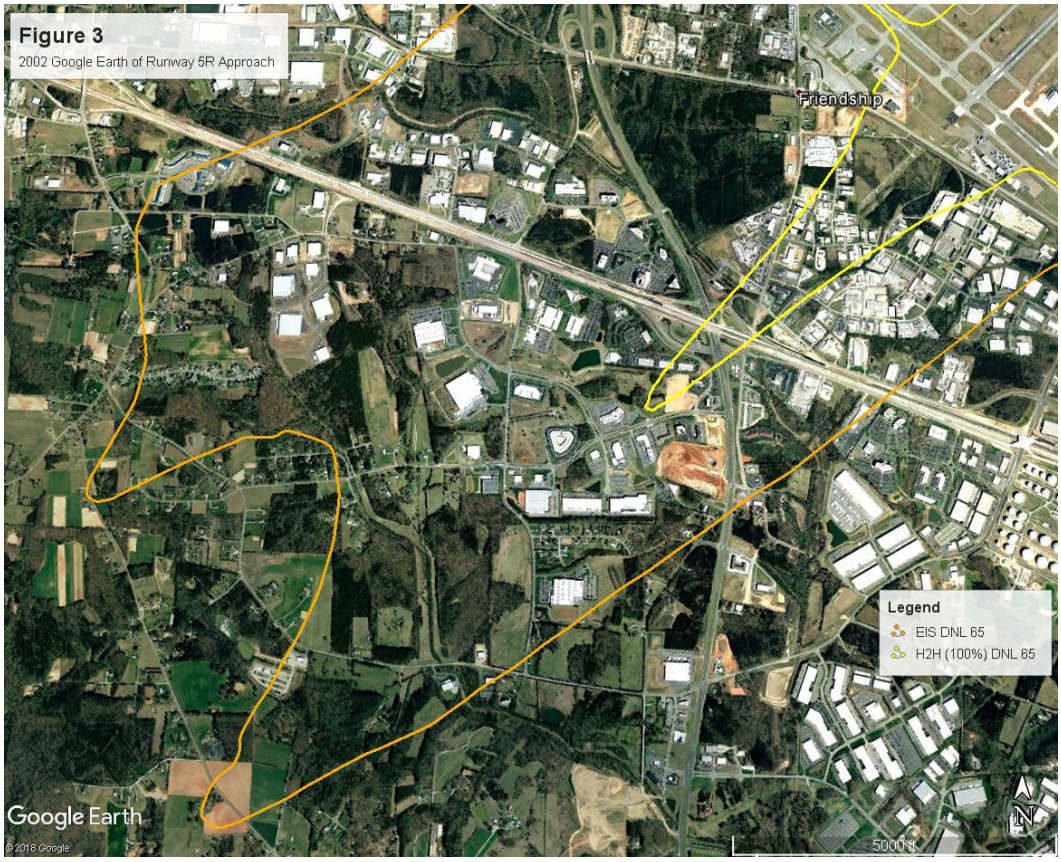


Figure 3
2002 Google Earth of Runway 5R Approach
Friendship
Legend
EIS DNL 65
H2H (100%) DNL 65
Google Earth
©2018 Google
5000 ft
N

Section 106 of the National Historic Preservation Act

There are no Section 106 properties in the 65 DNL contour with the head-to-head operations. Further, there have been no changes to any historic resources in the area covered by the EIS DNL 65 contour since the completion of the EIS. The only such property identified in the EIS was the Campbell-Gray House and Barn. That property was and is already exposed to aircraft noise. GSO has contacted the owner about making sound insulation improvements to the house, but the owner declined at the time.

This property is outside of the DNL 65 contour with the head-to-head operations. Therefore, there are no changes to the EIS conclusions regarding Section 106.

Section 4(f) of the Department of Transportation Act

There are no Section 4(f) properties in the 65 DNL Contour with the head-to-head operations. Further, there have been no changes to any 4(f) in the area covered by the EIS DNL 65 contour since the completion of the EIS. The ability of FedEx to conduct efficient head to head operations was identified by the EIS as being part of the Purpose and Need for the project. Therefore, there are no changes to the EIS conclusions regarding Section 4(f).

9. PREPARER CERTIFICATION:

I certify that the information I have provided above is, to the best of my knowedge, correct.

Signature: _____ Date: 8/21/18

Name: Mr. Kevin J. Baker, P.E.; Executive Director

Organization: Piedmont Triad Airport Authority

10. AIRPORT SPONSOR CERTIFICATION:

I certify that the information I have provided above is, to the best of my knowedge, correct. I also recognize and agree that no construction activity, including but not limited to site preparation, demolition, or land disturbance, shall proceed for the above proposed project(s) until the FAA issues a final environmental decision for the proposed project(s), and until compliance with all other applicable FAA approval actions (e.g. ALP approval, airspace approval, grant approval) has occurred.

Signature: _____ Date: 8/21/18

Name: Mr. Kevin J. Baker, P.E.; Executive Director

Organization: Piedmont Triad Airport Authority

ATTACHMENT A

HMMH
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TECHNICAL MEMORANDUM

To:	John Putnam, KKR Kevin Baker, PTAA
From:	Robert Mentzer Jr.
Date:	August 7, 2018
Subject:	Piedmont Triad International Airport Federal Express Head-2-Head Evaluation
Reference:	HMMH Project Number 310040

Background

At the request of Piedmont Triad Airport Authority (PTAA), HMMH prepared an evaluation of Federal Express (FedEx) hub operations expected to begin in the fall of 2018 at Piedmont Triad International Airport (GSO). The Federal Aviation Administration (FAA) developed an Environmental Impact Statement (EIS) for GSO approved in 2001, which included the construction of parallel Runway 5L/23R and other related improvements to support FedEx hub operations. The current analysis demonstrates that the addition of FedEx hub operations operating in a Head-2-Head fashion (consistent with the EIS) results in a DNL[1] 65 dB contour well within the original EIS DNL 65 dB contour.

Methodology

The DNL contours were developed using the latest version of the Federal Aviation Administration (FAA) Integrated Noise Model (INM) Version 7d that is consistent with the EIS model INM Version 5.2a. A data pre-processor called RealContours™ converts every useable radar track into inputs for the INM noise model ensuring that the modeling includes runway closures, deviations from flight patterns, changes in flight schedules and deviations from average runway use. This process resulted in the modeling of over 68,000 flight tracks to develop the DNL contours.

The pre-processor takes maximum possible advantage of the available data from the Airport's Noise and Operations Integration, Analysis and Reporting System (NOIARS) and INM's capabilities. It automates the process of preparing the INM inputs directly from recorded flight operations and models the full range of aircraft activity as precisely as possible. RealContours™ improves the precision of modeling by using operations monitoring results in the following areas:

- Directly converts the flight track recorded by the NOIARS for every identified aircraft operation to an INM track, rather than assigning all operations to a limited number of prototypical tracks
- Models each ground track as it was flown during the modeling period, including deviations (due to weather, safety or other reasons) from the typical flight patterns
- Models each operation on the specific runway that was actually used, rather than applying a generalized distribution to broad ranges of aircraft types to an average of runway use
- Models each operation in the time period (i.e. day = 0700 to 2159 and night = 2200 to 0659) in which that operation occurred
- Selects the specific airframe and engine combination to model, on an operation-by-operation basis, by using the registration data or the aircraft type designator associated with the flight plan

Airfield Layout and Runway Geometry

As shown in Figure 1, the airfield consists of two parallel 150-foot wide runways running along a northeast/southwest axis. The eastern runway, Runway 5R/23L is 10,001 feet long and intersects the

[1] Day-Night Average Sound Level (DNL)

crosswind Runway 14/32, which is 6,380 feet long. The terminal and most cargo and general aviation facilities are located along Runway 5R/23L or the crosswind runway. The western runway, Runway 5L/23R is 9,000 feet long. The radar data included helicopter flight tracks to and from the airport. The airport does not have a designated helipad, however the noise model needs a location defined to use in the modeling. For modeling purposes, a helipad was located at the end of each runway.

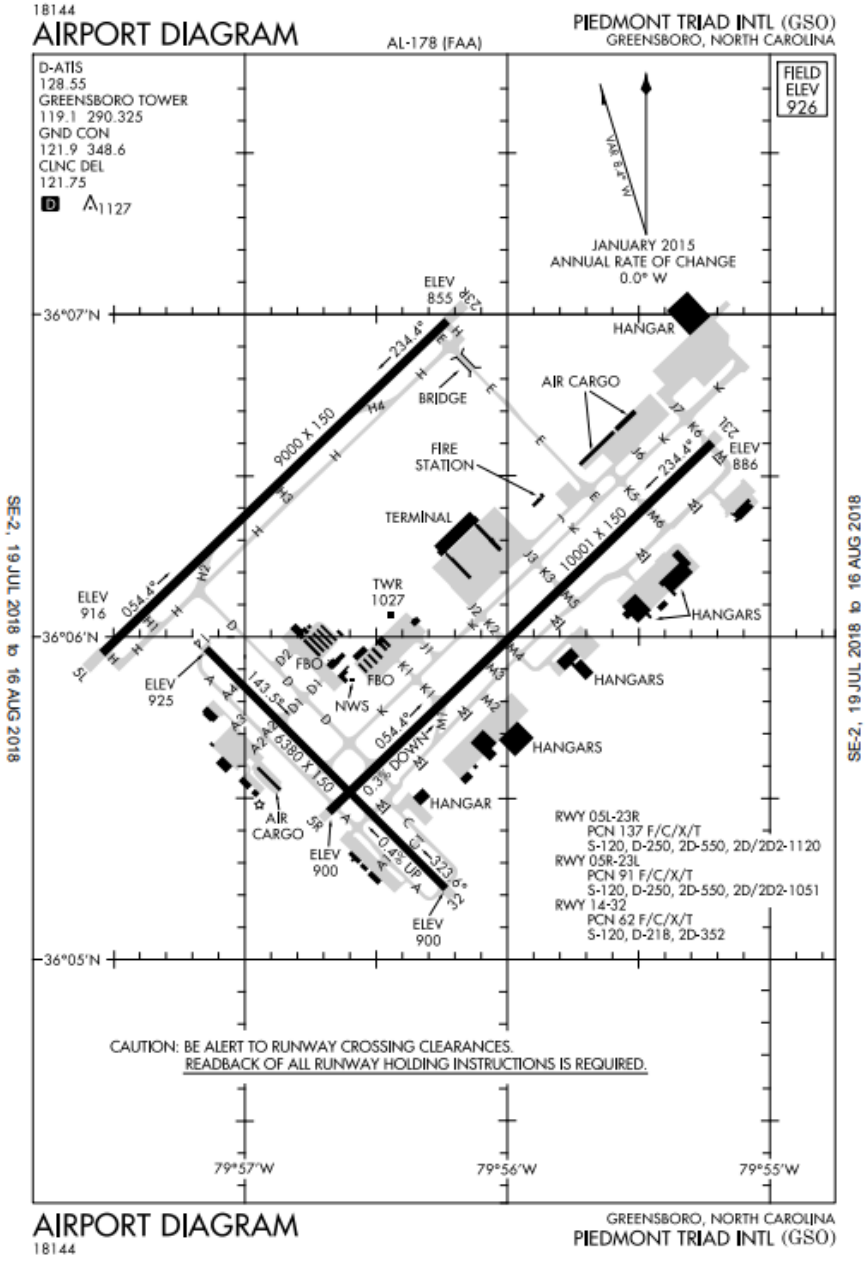

Figure 1- GSO Airport Diagram

Operations Data

The DNL noise contours reflect operations during an entire 12-month period. The NOIARS provided an annual sample of data from 4/1/2017 to 3/31/2018[2] for the noise modeling. This set of data resulted in 68,619 tracks useable for modeling. Operations totals were obtained from the FAA, Operations Network (OPSNET) (otherwise known as the tower counts) and are compared to radar data counts in Table 1. Differences between the two sources are expected as the modeling process excludes tracks for various reasons such as not enough track points, missing aircraft types and missing runway assignments. The operations data was scaled to match the FAA OPSNET data for the 12-month period.

Table 1 - Operation Data Counts for 4/1/2017 to 3/31/2018

Data Source	Total Operations	Annual Average Day Operations
FAA OPSNET	83,615	229.08
NOAIRS Data	68,619	190.08

Table 2 provides the number of operations per day and the percentage of nighttime operations.

Table 2 - Annual Average Day Operations

Daily	Day	Night	Total
Operations	197.69	31.39	229.08
Percent	86.3%	13.7%	100.0%

Table 3 provides the modeled daily operations split by INM aircraft type for day and night periods.

Table 3 - Daily Operations by INM Aircraft Type

[2] The latest 12-month period before a Runway reconstruction project, which began in April 2018.

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INM Type	Day	Night	Total
Jet			
717200	5.061	1.078	6.139
737300	0.040	0.017	0.057
737400	0.477	0.140	0.618
737700	0.127	0.043	0.170
737800	0.838	0.053	0.891
747400	0.007	0.007	0.013
767300	0.073	0.017	0.090
727EM2	0.007	0.007	0.013
7373B2	0.040	0.010	0.050
757PW	0.063	0.618	0.681
757RR	0.154	1.375	1.529
767CF6	0.010	0.020	0.030
767JT9	1.065	2.707	3.772
A300-622R	2.100	3.682	5.782
A310-304	0.043	0.077	0.120
A319-131	1.786	0.050	1.836
A320-211	0.805	0.083	0.888
A320-232	0.598	0.130	0.728
A321-232	0.184	0.117	0.300
A330-301	0.007	0.000	0.007
CIT3	1.559	0.167	1.726
CL600	2.056	0.134	2.190
CL601	20.779	1.375	22.154
CNA500	0.467	0.017	0.484
CNA510	0.825	0.010	0.835
CNA525C	3.712	0.197	3.909
CNA55B	7.411	0.127	7.538
CNA560E	1.599	0.053	1.653
CNA560U	0.381	0.027	0.407
CNA560XL	4.734	0.247	4.981
CNA680	1.953	0.110	2.063
CNA750	1.235	0.037	1.272
CRJ9-ER	20.218	2.911	23.129
CRJ9-LR	0.397	0.027	0.424
DC1010	0.204	0.194	0.397
DC1030	0.057	0.037	0.093
DC870	0.361	0.017	0.377
DC93LW	0.027	0.013	0.040
DO328	0.020	0.003	0.023
ECLIPSE500	0.591	0.037	0.628
EMB145	6.797	1.449	8.246
EMB14L	16.465	2.294	18.759
EMB170	1.866	0.441	2.307
EMB175	2.253	1.616	3.869
F10062	2.130	0.147	2.277
FAL20	0.013	0.003	0.017
GIIB	0.007	0.000	0.007
GIV	0.327	0.027	0.354
GV	0.494	0.010	0.504
HS748A	0.033	0.000	0.033
IA1125	0.164	0.000	0.164
KC135R	0.003	0.000	0.003
LEAR35	2.297	0.150	2.447
MD82	0.013	0.000	0.013
MD83	6.844	1.629	8.473
MD9025	0.047	0.023	0.070
MD9028	0.030	0.000	0.030
MU3001	1.589	0.093	1.683
Turboprop/Piston			
1900D	0.007	0.003	0.010
BEC58P	9.641	2.667	12.309
CNA172	14.669	0.351	15.020
CNA182	3.135	0.073	3.208
CNA206	3.939	0.050	3.989
CNA208	6.306	2.744	9.051
CNA20T	0.230	0.000	0.230
CNA441	3.021	0.214	3.235

INM Type	Day	Night	Total
COMSEP	0.574	0.007	0.581
DC3	0.010	0.000	0.010
DHC-2FLT	0.003	0.000	0.003
DHC6	0.020	0.007	0.027
DHC8	3.068	0.040	3.108
DHC830	2.687	0.030	2.718
DO228	2.404	0.067	2.470
EMB120	0.013	0.007	0.020
GASEPF	0.878	0.017	0.895
GASEPV	18.819	1.088	19.907
PA28	3.919	0.120	4.040
PA30	0.103	0.010	0.114
PA31	0.424	0.027	0.451
PA42	0.007	0.000	0.007
SD330	0.050	0.007	0.057
SF340	0.017	0.000	0.017
T-38A	0.013	0.000	0.013
Helicopter			
A109	0.007	0.000	0.007
B206B3	0.020	0.000	0.020
B206L	0.013	0.000	0.013
B212	0.013	0.000	0.013
B407	0.043	0.000	0.043
B427	0.017	0.000	0.017
B429	0.010	0.000	0.010
CH47D	0.007	0.003	0.010
EC130	0.007	0.003	0.010
H500D	0.007	0.000	0.007
R44	0.067	0.000	0.067
S70	0.010	0.000	0.010
S76	0.023	0.000	0.023
SA330J	0.030	0.000	0.030
SA355F	0.013	0.000	0.013
SC300C	0.003	0.000	0.003
Grand Total	**197.694**	**31.388**	**229.082**

Table 4 provides the annual average runway use developed from the NOAIRS.

Table 4 - GSO Modeled Runway Use

GSO Arrivals			
Runway	**Day**	**Night**	**Total**
14	0.6%	0.3%	0.5%
32	4.9%	2.6%	4.5%
05L	4.7%	0.9%	4.2%
05R	26.3%	35.0%	27.5%
23L	52.8%	59.7%	53.8%
23R	10.8%	1.5%	9.4%
Total	**100.0%**	**100.0%**	**100.0%**
GSO Departures			
Runway	**Day**	**Night**	**Total**
14	2.3%	0.9%	2.1%
32	4.1%	1.1%	3.7%
05L	4.2%	0.9%	3.7%

05R	26.7%	27.3%	26.8%
23L	52.5%	67.3%	54.6%
23R	10.3%	2.6%	9.2%
Total	**100.0%**	**100.0%**	**100.0%**

GSO Patterns			
Runway	**Day**	**Night**	**Total**
14	0.5%	0.0%	0.5%
32	1.7%	2.9%	1.7%
05L	24.8%	18.4%	24.6%
05R	4.6%	6.8%	4.7%
23L	11.8%	24.3%	12.1%
23R	56.7%	47.6%	56.4%
Total	**100.0%**	**100.0%**	**100.0%**

FedEx Hub Operations

In order to compare the current noise environment to the EIS, the proposed FedEx Hub operations were added to the annual analysis. These operations consist of eight Boeing 757 with Pratt & Whitney engines, one Airbus A300-600 and two ATR-72 aircraft resulting in 11 additional arrivals and 11 additional departures four nights out of the week.

The radar data sample from the NOAIRS was used to develop average model departure and arrival tracks for the proposed FedEx Hub operations. The modeled operations were assigned to the track matching the origin or destination (city pair) of the flight. The city pair was also used to develop the stage length (the INM stage length is a surrogate for weight) for the flight. The flight schedule, city pair and aircraft types were provided by FedEx.

This evaluation assumed Head-2-Head (H2H) operations will occur 100 percent of the time which results in arrivals from the south to Runway 5L/R and departures to the south from Runway 23L/R. FedEx arrivals will occur between 11:00PM and 1:00AM with departures occurring between 3:00AM and 5:00AM. During the arrival period between 11:00PM and 1:00AM the airport configuration will be in north flow so all arrivals (including all other commercial and GA operations) will need to land on Runway 5L or 5R. The airport has five regularly scheduled arrivals (no departures) during this time. As a conservative measure, these five commercial arrivals were included in the H2H condition modeling to land on Runway 5L or 5R since they would be arriving during this period.

Table 5 provides the additional FedEx operations and the five commercial arrivals modeled for the H2H condition for four out of seven days of the week. Table 6 provides the modeled runway use for the H2H operations.

Table 5 - H2H Modeled Operations

INM Type	Arrivals	Departures	Total
757PW	4.57	4.57	9.14
A300-622R	0.57	0.57	1.14
CL600[1]	0.57	0.00	0.57
DHC830	1.14	1.14	2.29
EMB145[1]	0.57	0.00	0.57
EMB175[1]	0.57	0.00	0.57
MD81[1]	1.14	0.00	1.14

Grand Total	**9.14**	**6.29**	**15.43**
1 – Commercial arrivals			

Table 6 - H2H Modeled Runway Use

Runway	Arrivals	Departures	Total
05L	0.57	0.00	0.57
05R	8.40	0.00	8.40
14	0.00	0.06	0.06
23L	0.00	5.60	5.60
23R	0.00	0.57	0.57
32	0.17	0.06	0.23
Grand Total	**9.14**	**6.29**	**15.43**

The majority of operations are expected to arrive on Runway 5R and depart Runway 23L since this runway is the closest to the terminal and sorting facility.

Meteorological Conditions

INM has several settings that affect aircraft performance profiles and sound propagation based on meteorological data at the airport. Meteorological settings include average temperature, barometric pressure, relative humidity, and headwind speed. Data from the National Climatic Data Center (NCDC) was collected and reviewed to develop a ten-year average. Based on analysis of the NCDC data, the average conditions used in INM for GSO noise modeling include:

- Temperature: 59.7° Fahrenheit
- Sea level pressure: 30.00 inches of Mercury (in-Hg)
- Relative humidity: 64.8 percent.
- Average headwind speed: INM default of 8.0 knots.

Terrain

Terrain data describe the elevation of the ground surrounding the airport and on airport property. INM uses terrain data to adjust the ground level under the flight paths. The terrain data do not affect the aircraft's performance or emitted noise levels, but do affect the vertical distance between the aircraft and a "receiver" on the ground. This in turn affects the noise levels received at a particular point on the ground. The terrain data were obtained from the United States Geological Survey (USGS) National Map Viewer.

Analysis/Findings

Figure 1 provides the comparison between the EIS DNL 65 dB contour and the current conditions contour with FedEx H2H operations.

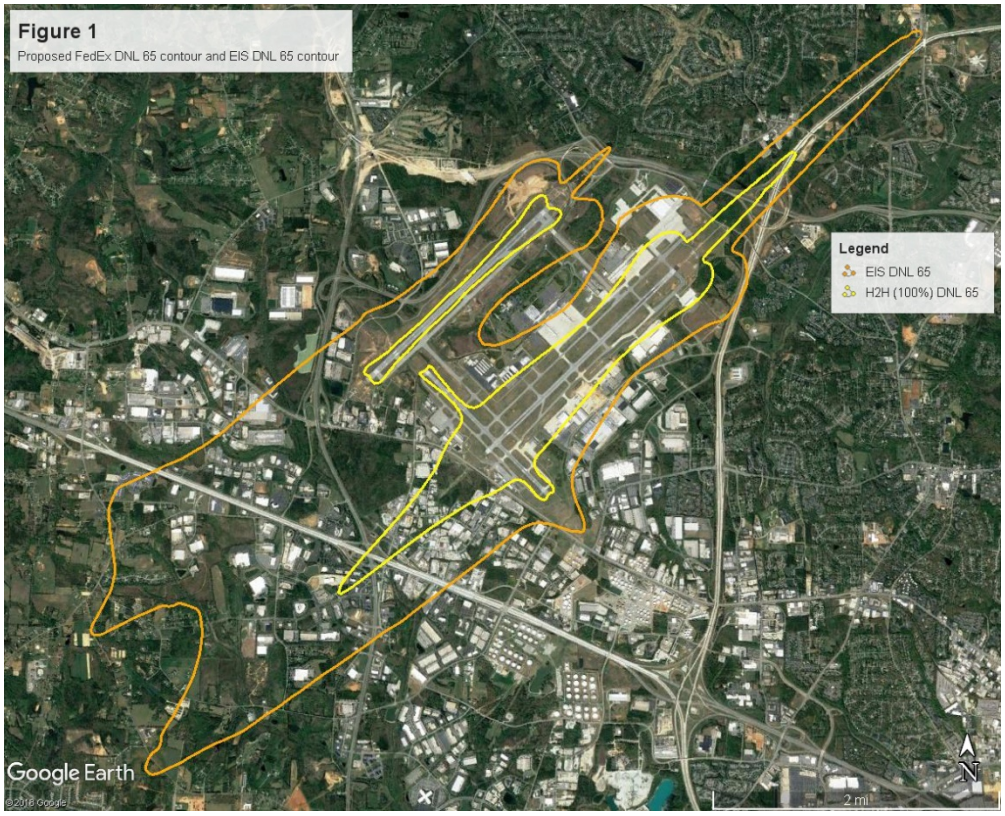
Figure 1
Proposed FedEx DNL 65 contour and EIS DNL 65 contour
Legend
EIS DNL 65
H2H (100%) DNL 65
Google Earth
2 mi
N