

# CHAPTER 7

---

## Noise Monitoring

### A. Introduction

During the community participation process, there was a strong desire from the public for noise monitoring to be conducted in communities located near the Airport. The purpose of the monitoring was to give an indication of the magnitude of noise exposure at various locations. In support of the community request, Airport management authorized that three days of monitoring be conducted.

### B. Monitoring Process

In order to maximize the number of aircraft flyovers during the monitoring period, it was determined that the monitoring should be conducted during the week of the Verizon Heritage PGA Tour Golf tournament. This is typically the busiest week of the year for aircraft flights into and out of HXD.

In order to determine where the monitoring should take place, the Community Relations Committee (CRC) was requested to make recommendations. At a meeting with the CRC, a number of guidelines related to selection of sites were discussed that were key to successful monitoring results. These guidelines indicated that a site should:

- Preferably be on public property
- Have low background noise levels
- Be away from tree canopies
- Be away from reflective surfaces
- Be away from construction sites, air conditioners and other noise sources

In addition, it was noted that noise monitoring cannot be conducted in the rain or sustained winds greater than 10 knots.

At the March 13 CRC meeting, four (4) locations were identified that met the monitoring criteria. The four locations chosen were:

- Site 1 - St. James Baptist Church,
- Site 2 - Sunningdale Park/Pool in Indigo Run,
- Site 3 - Oyster Reef Golf Club (Hilton Head Plantation), and
- Site 4 - Ben White Drive and Union Cemetery Road Area

During the monitoring, it was requested that an additional monitoring site in Port Royal be included. The site was located at North Port Royal Drive and Ft. Walker Drive (Site 5).

The five (5) monitoring sites are shown on **Figure 7-1**.

During the monitoring, representatives from the CRC and other interested parties were invited to be at the monitoring sites during the monitoring period. Representatives of the CRC were also instrumental in providing access to the sites.

A noise measurement data sheet was prepared for each site and noise levels recorded. Prior to monitoring at each site the noise meter (Larson Davis 720 SLM) was calibrated (using a Larson Davis CAL 150B), the slow response setting was used as was the A-weighted scale (standard settings for monitoring of this type).

During the monitoring, aircraft and other noise sources were observed and peak noise levels recorded for each event. The air traffic control/pilot discussions were monitored (using a field radio) to help locate and identify aircraft types.

### C. Monitoring Results

Noise monitoring was conducted from April 11- April 13, 2006 during the week of the Verizon Heritage Golf Tournament. The monitoring data sheets for each monitoring site are provided in **Appendix F**. Both aircraft noise sources and other noise sources were recorded. The following summarizes the results at each monitoring site.

#### Site 1- St James Baptist Church

Monitored Aircraft Events		Other Monitored Events	
Level	Aircraft Type	Level	Noise Source
75.1	(Cessna 172)	46-48	Background no traffic
77.8	(Type unknown)	64-67	Typical automobile traffic
78.7	(Cessna 172)	73.4	Water delivery truck
78.0	(Dash 8)	74.7	Motorcycle
78.6	(Dash 8)	75.4	Dump truck
80.1	(Dash 8)	75.5	Sport tuned muffler
80.4	(Astra)	75.9	Bus
82.5	(Bonanza)	76.2	Express package delivery truck
82.6	(Bonanza)	76.8	Pickup truck
83.8	(Trinidad)	77.7	Van
84.6	(Bonanza)	79.0	Truck
85.0	(Cirrus)	85.3	Sports car
85.1	(Citation)		
85.5	(Citation)		
87.0	(Citation)		
88.2	(Saratoga)		



## Site 2 - Sunningdale Park/Pool in Indigo Run

Monitored Aircraft Events		Other Monitored Events	
Level	Aircraft Type	Level	Noise Source
50.2	(Jet departure)	42-44	Background
51.0	(Prop arrival)	48-49	Traffic southeast
53.0	(Prop arrival)	53-54	Trucks on highway southeast
54.5	(Twin Cessna arrival)	47-50	Tennis players
55.8	(King Air departure)	50-52	Trimmer (distance)
57.0	(Twin Prop overflight)	68	Delivery truck
59.2	(Conquest arrival)	73.9	Delivery truck brake
60.4	(Prop overflight)		
62.5	(King Air arrival)		
63.0	(Bonanza arrival)		
66.1	(Military overflight)		
67.4	(Twin arrival)		
68.1	(Dash 8 arrival)		
71.7	(Jet overflight)		
72.7	(Falcon arrival)		
80.0	(Dash 8 arrival)		

## Site 3 - Oyster Reef Golf Club

Monitored Aircraft Events		Other Monitored Events	
Level	Aircraft Type	Level	Noise Source
46.0	(Archer)	40-42	Background
47.0	(Cessna 172 departure)	44-50	Birds
48.3	(Twin prop departure)	47.8	Golf cart
49.8	(King air arrival)	53.3	Drink cart
50.1	(Reverse thrust Beechjet)	57.0	Golf tee off
50.3	(Fivestar departure)	57.5	Bird
50.7	(Twin prop departure)		
51.6	(King air departure)		
51.8	(Fivestar departure)		
52.1	(Warrior)		
54.3	(Cessna 172 departure)		
56.0	(King air departure)		
56.0	(Jet departure)		
59.1	(Bonanza departure)		
65.2	(Military overflight)		
68.1	(Military overflight)		
69.6	(Bonanza departure/left turn overhead)		
73.5	(Military overflight)		

**Site 4 - Ben White Drive****Monitored Aircraft Events**

dBA Noise

<u>Level</u>	<u>Aircraft Type/Runway</u>
47-49	(Helicopter arrival/taxi 21)
50.8	(Twin prop departure 3)
51.1	(King air departure 21)
52.0	(King air arrival 21)
52.0	(Prop arrival 21)
52.7	(Dash 8 departure 3)
53.4	(Prop arrival 21)
54.0	(Turboprop arrival 21)
56.1	(Dash 8 arrival 21)
56.8	(Citation arrival 21)
59.0	(Beechjet arrival 21)
59.0	(Hawker departure 21)
60.1	(Dash 8 arrival 21)
62.0	(Jet departure 21)
62.6	(Twin prop departure 21)
62.9	(Military overflight)
63.0	(Jet departure 21)
63.1	(Jet departure 21)
64.0	(Military overflight)
65.3	(Jet departure 21)
69.5	(Military overflight)
70.6	(Beechjet overflight)

**Other Monitored Events**

dBA Noise

<u>Level</u>	<u>Noise Source</u>
43-47	Background with birds
54-57	Birds
55	Truck Union Cemetery Road
62	Truck Union Cemetery Road
64-77	Various cars / Ben White Drive

**Site 5 - N. Port Royal Dr. & Fort Walker Dr Port Royal****Monitored Aircraft Events**

dBA Noise

<u>Level</u>	<u>Aircraft Type/Runway</u>
44.9	(Jet arrival 21)
48.4	(Prop departure 21)
49.0	(Military distance)
50.4	(Twin Cessna departure 21)
57.9	(Dash 8 arrival 21)
60.1	(Military helicopter overhead)
60.3	(Military distance)
64.1	(Bonanza departure 3)
76.5	(Military overflight)

**Other Monitored Events**

dBA Noise

<u>Level</u>	<u>Noise Source</u>
37-38	Background quiet
42-46	Background general
55-63	Cars
50	Construction distance
51	Mower distance
58	Mower
61-65	Trucks
66	Golf cart (gas)

Of the sites monitored, Site 1 - St. James Baptist Church - received the greatest noise exposure from both aircraft and other sources. Site 1, being located close to the runway 21 threshold measured aircraft noise levels from the mid 70's dBA to the upper 80's dBA range. The majority of aircraft events monitored were between 80 and 85 dBA. Other noise sources were predominately in the 70's dBA range while the background conditions without aircraft, traffic, or other noise sources was in the 46-48 dBA range. Automobile traffic was the primary source of sound at this location due to the frequency of vehicles at the intersection of Beach City Road and Dillon Road. The sound levels from typical vehicles (cars and vans) generally ranged from 64-67 dBA. Larger vehicle (vans, trucks, and busses) sound levels were generally between 75 and 80 dBA.

At Site 2 - Indigo Run, the aircraft noise levels were considerably less than at Site 1 with the noise levels ranging from 50-73 dBA with one event at the 80 dBA level. The 80 dBA event was a late arriving Dash 8 that was directly overhead. However the background noise levels were also less ranging from 42-44 dBA. Noise from other sources was also lower due to the distance from well traveled roadways. Sound levels from truck traffic on Marshland Road generally ranged from 53-54 dBA. Other events included a delivery truck approximately 50 feet west of the monitor at 68 dBA with its air brake generating 73.9 dBA.

Site 3 - Hilton Head Plantation was similar to Site 2 with slightly less background noise 40-42 dBA and slightly lower monitored aircraft noise and other noise events. Aircraft noise levels were generally in the 50's dBA range however three military aircraft overflights generated noise levels of 65, 68 and 74 dBA respectively. Other events included a drink cart (golf cart) on the cart path adjacent to the monitor registering 53.3 dBA and a golfer teeing off at 57.0 dBA.

At Site 4 - Ben White Dr. and Union Cemetery Rd., aircraft noise levels were predominately in the 50's and 60's dBA with background conditions in the mid 40's dBA. Other events included traffic on Union Cemetery Road that ranged from 55-62 dBA and vehicles on Ben White Drive that ranged from 64 -77 dBA.

At Site 5 - Port Royal, sound levels from aircraft operating at HXD generally ranged from the upper 40's to low 60's dBA. Other events included cars on Port Royal Drive that ranged from 55-63 dBA, trucks on Port Royal Drive at 61-65 dBA , and a gas powered golf cart at 66 dBA.

Overall the noise monitoring identified that at all of the sites background noise levels are very low. This is attributable to few heavily traveled roads near the sites monitored and the extensive amount of forest cover throughout the Island. With the exception of Site 1, all of the other sites monitored showed very similar noise levels from aircraft overflights (mostly in the 50's and 60's dBA). Site 1, due to its proximity to arrivals from the north and departures to the north at HXD was, as would be expected, considerably noisier than the other sites.

It should be noted that the noise levels identified result from a very short period of monitoring (three days). Noise levels in any community are affected by the direction of flow at the Airport, wind direction, humidity, aircraft fleet mix into and out of HXD, military overflights and other factors. Although the aircraft noise levels monitored are representative of the magnitude of noise exposure, it is recognized that there will be variances in noise exposure from day to day.

Finally, the FAA will not allow monitored data to be used to modify noise contours established through the use of FAA's Integrated Noise Model (INM). Thus, the monitoring was used to indicate the relative amount of aircraft noise exposure in communities around the airport as requested by the public, but no change to the noise contours as a result of the monitoring program were made.