FAA Eastern Service Center, Air Traffic Division
Categorical Exclusion/Record of Decision-Short Form

Description of Federal Action: The Federal Aviation Administration (FAA) will implement the following change(s):

Utilize LAZIR ONE (RNAV) Standard Instrument Departure Procedure for Rwy 1, Rwy 33 and Rwy 4 at Ronald Reagan Washington National Airport (DCA).

Utilize HAMMI ONE (RNAV) Standard Instrument Departure Procedure for Rwy 19, Rwy 22, and Rwy 15 at Ronald Reagan Washington National Airport (DCA).

Environmental Review: An environmental review was conducted to ensure that the Federal action is in compliance with the National Environmental Policy Act and its implementing regulations. A preliminary environmental review checklist (PERC) was prepared. A project may be categorically excluded, provided it does not trigger any extraordinary circumstances as defined in FAA Order 1050.1E, Paragraphs 303 and 307 thru 312. Examples of extraordinary circumstances that would require further environmental analysis include: significant impacts on noise levels of noise-sensitive areas; adverse impacts on historic properties; activities highly controversial on environmental grounds; significant impacts on endangered/threatened species, wetlands, ecological systems; violations of Federal air quality standards or other environmental laws. The procedure was reviewed in consideration of the extraordinary circumstances and it was determined that the implementation of this action will not trigger any environmental circumstances.

Declaration of Exclusion: The above action has been determined to be categorically excluded from further environmental documentation according to FAA Order 1050.1E, Environmental Impacts: Policies and and Procedures. The categorical exclusion that applies is:

§311p: Establishment of new procedures that routinely route aircraft over non-noise sensitive areas.

Concurrence:

Lee Kyker Date: 11/26/11

Lee Kyker
Operations Support Group, Environmental Specialist

FAA Approval and Order

I have carefully considered the FAA's goals and objectives in reviewing the various aeronautical and environmental aspects of the proposed air traffic action(s) described above. Under the authority delegated to me by the Administrator of the FAA, I find the project(s) reasonably supported and approved. I direct that action be taken to carry out the agency project(s) discussed in this Record of Decision (ROD). In directing that this action be taken, I am acting pursuant to the FAA's responsibility to control the navigable airspace and ensure safety as described in 49 U.S.C. §40101(d) and 49 U.S.C. §40103(b). Finally, I certify, as prescribed by 49 U.S.C. §44502 (b), that implementation of the proposed projects is reasonably necessary for use in air commerce.

RIGHT OF APPEAL

This decision constitutes the Federal approval for the actions identified above. Today's action is taken pursuant to 49 U.S.C. §§ 40101 et seq., and constitutes a final order of the Administrator which is subject to review by the Courts of Appeals of the United States in accordance with the provisions of 49 U.S.C. §46110.

Approved by:

_____ Date: 8/5/11

Don Simons
District Manager, Washington District

TARGETS
INM Noise Plug-in

For

Ronald Reagan Washington National Airport
KDCA
Washington, D.C.

Prepared by:

AJR-37, RNAV/RNP Group

September 30, 2010

Ronald Reagan Washington National Airport (DCA) TARGETS Noise Analysis Process

1. Purpose

The purpose of this attachment is to document the process used to analyze the noise of a proposed air traffic action at Ronald Reagan Washington National Airport (KDCA). This report shows the analysis of two RNAV Standard Instrument Departures (SID) from six runways (figures 1-1 thru 1-2) using the Terminal Area Route Generation, Evaluation, and Traffic Simulation (TARGETS) Noise Plug-In Tool.

2. Methodology

Fifteen days of radar track data totaling 10,302 tracks were selected for the DCA analysis representing a range of temperature and wind conditions beginning after April 09, 2009. The dates selected for this project were: April 09–15, 2009; July 12-18, 2009; and Jan. 08, 2010.

Historical Radar Track Data (figures 2-2 and 2-3) is used to create a Baseline Noise Exposure which provides lateral path definition, aircraft fleet mix, departure/arrival stream proportions for each runway, and day/night traffic ratios. A legend (Table 2-1) shows by color, the altitudes of the Track Data. The track data is then separated by aircraft category and the total counts of the track data are represented in Table 2-2. Table 2-3 shows the track data separated by aircraft category, runway, and day versus night operation.

The Baseline Track Data is then separated by RNP or RNAV capability and assigned to the corresponding proposed procedures based on the historical traffic flows and the relevant runways to create the Alternative Noise Exposure. MITRE Corporation has built an ever increasing database of RNP capable aircraft based on various criteria. MITRE uses equipment suffix, aircraft type, and other variables to identify RNP capable aircraft. RNAV capable aircraft are derived from the equipment suffix. Table 2-4 shows the number of tracks identified as RNP or RNAV capable separated by aircraft category, runway, and day versus night operation.

Once the Baseline and Alternative Scenarios are built, the TARGETS Noise Plug-in Tool generates output files for both the Baseline and Alternative Noise Exposures in the form of a series of equally spaced grid points; each assigned a day-night average noise level (DNL) value. This file is then loaded back into TARGETS which then generates three outputs: Baseline Noise Exposure, Alternative Noise Exposure, and Noise Impact. The Noise Impact is a comparison between the Baseline and the Alternative Noise Exposures that depicts any noise increase/decrease levels at all affected locations. The noise increases **(if any)** are then depicted on an aerial photograph using Google Earth as well as on a Sectional Chart.

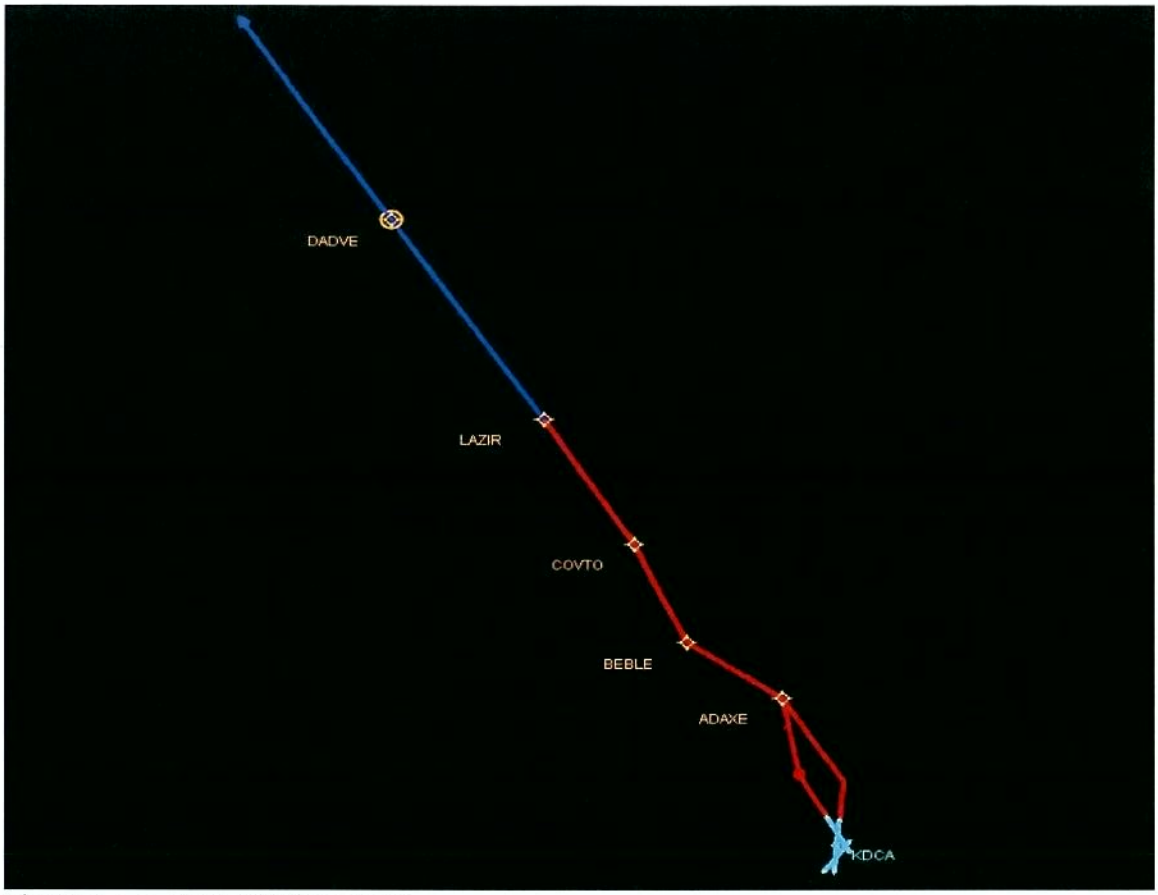

Figure 1-1, LAZIR SID from DCA.

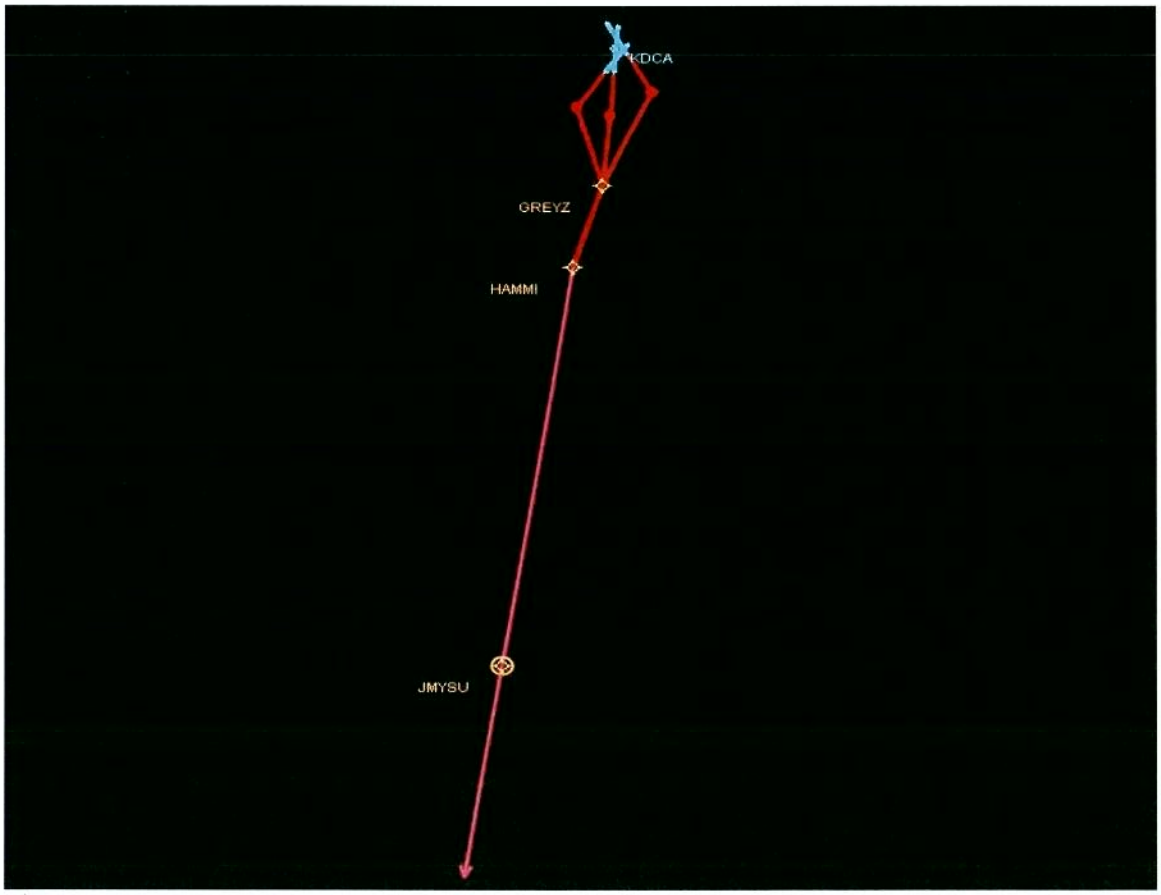

Figure 1-2, HAMMI SID from DCA.

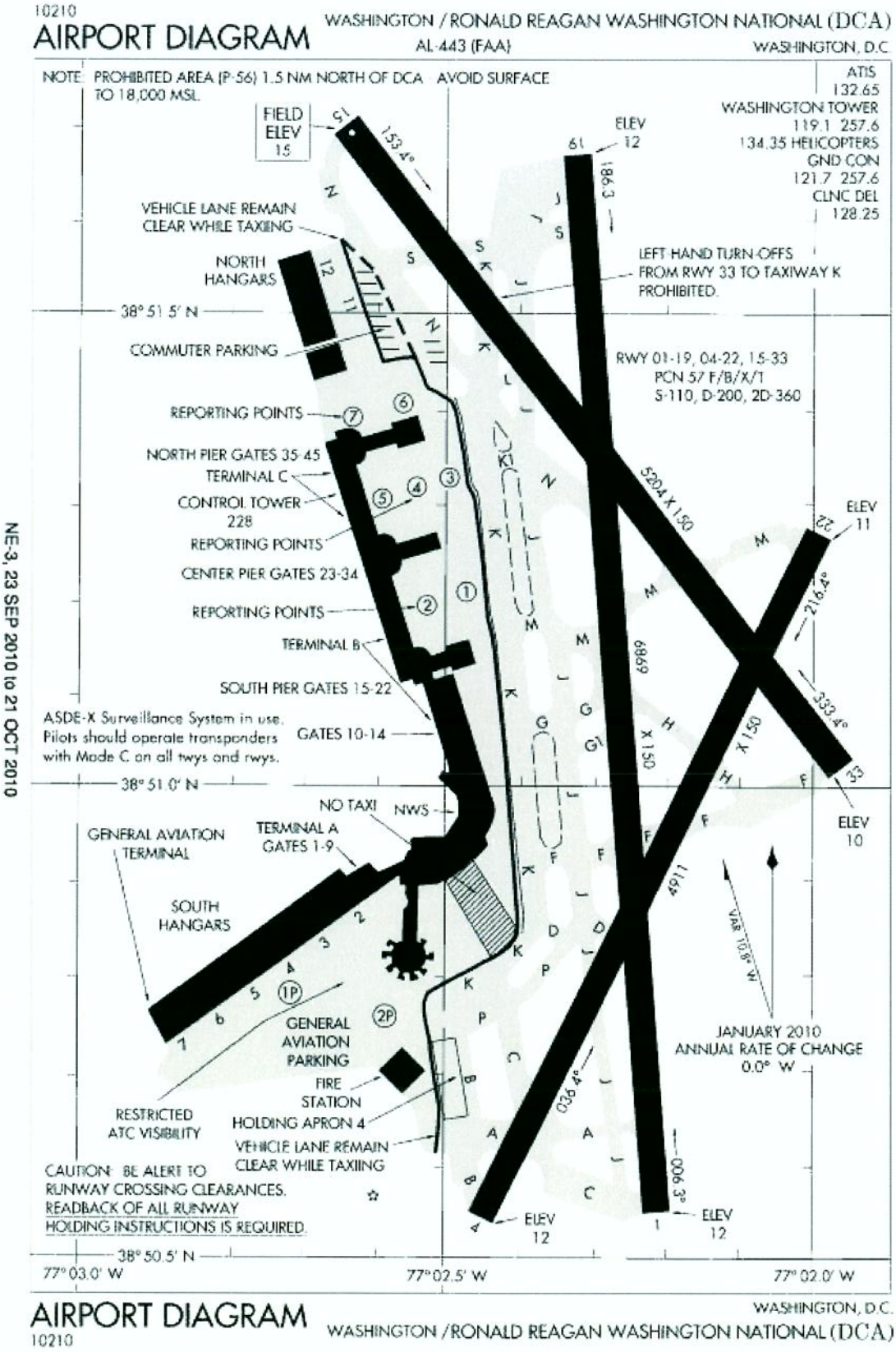

Figure 2-1, Airport Layout

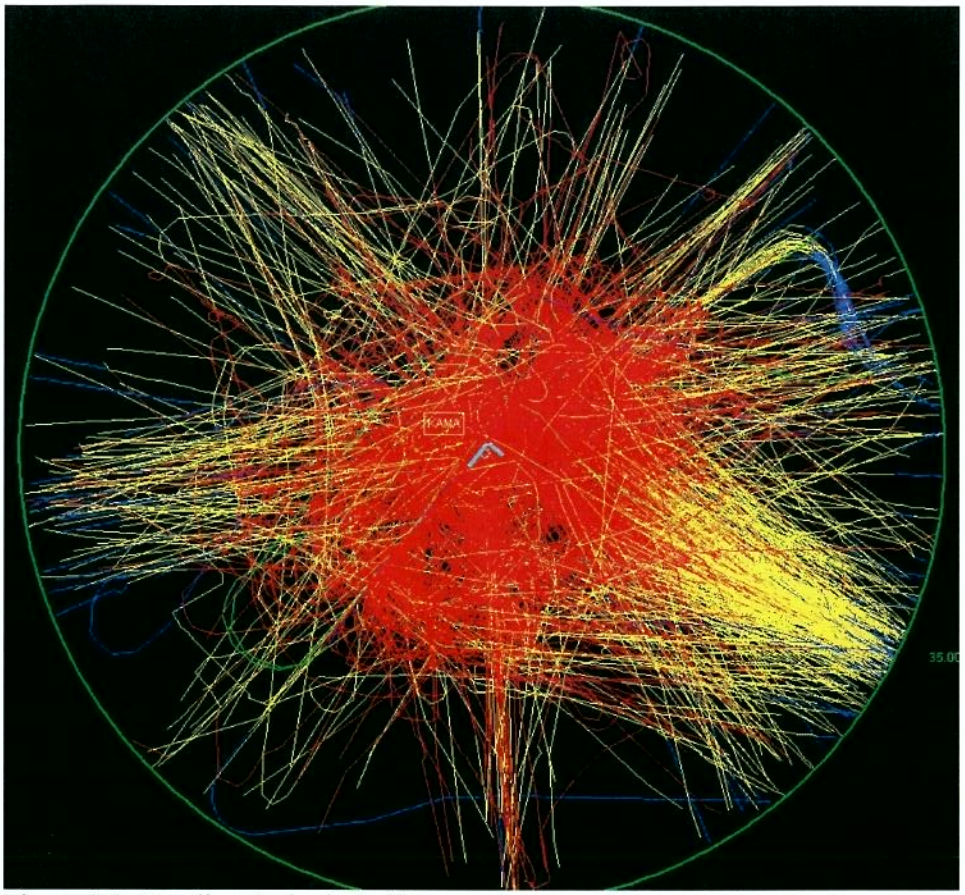

Figure 2-2, Baseline Arrival Traffic

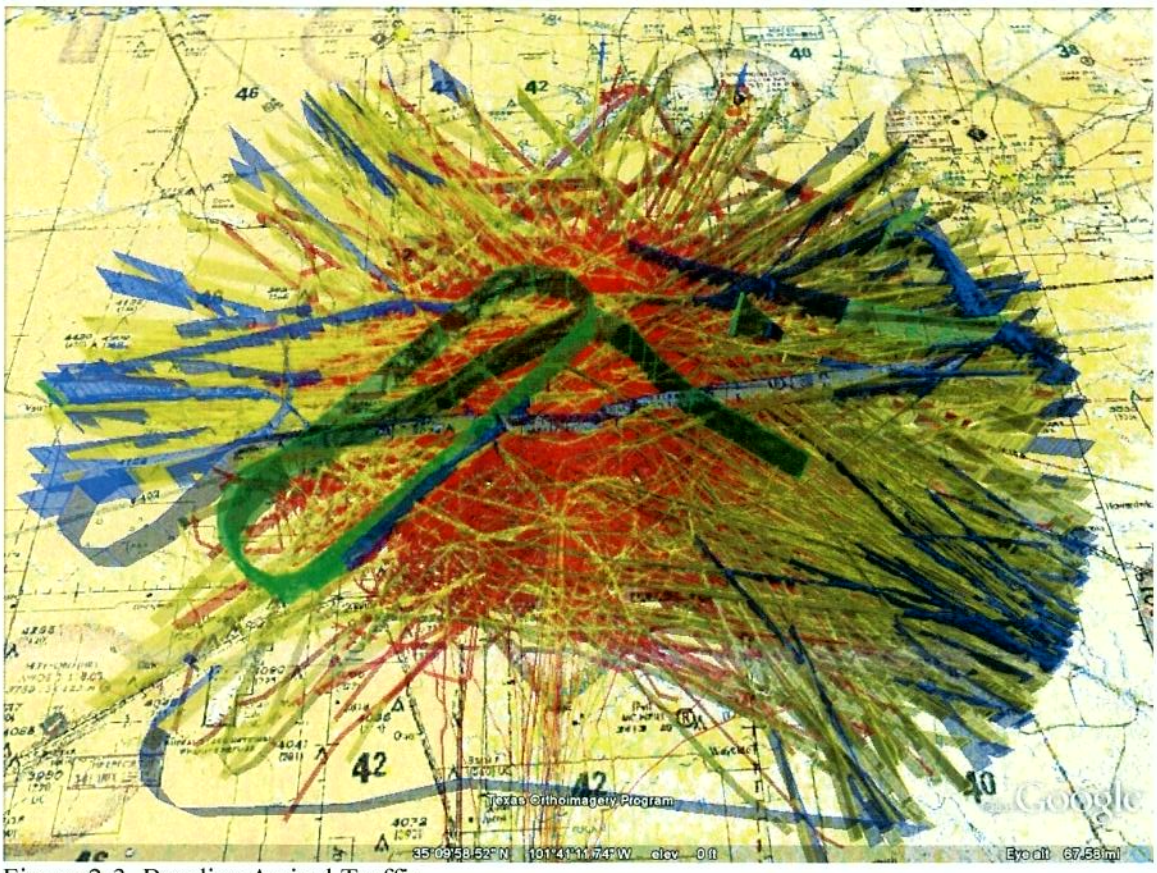

Figure 2-3, Baseline Arrival Traffic

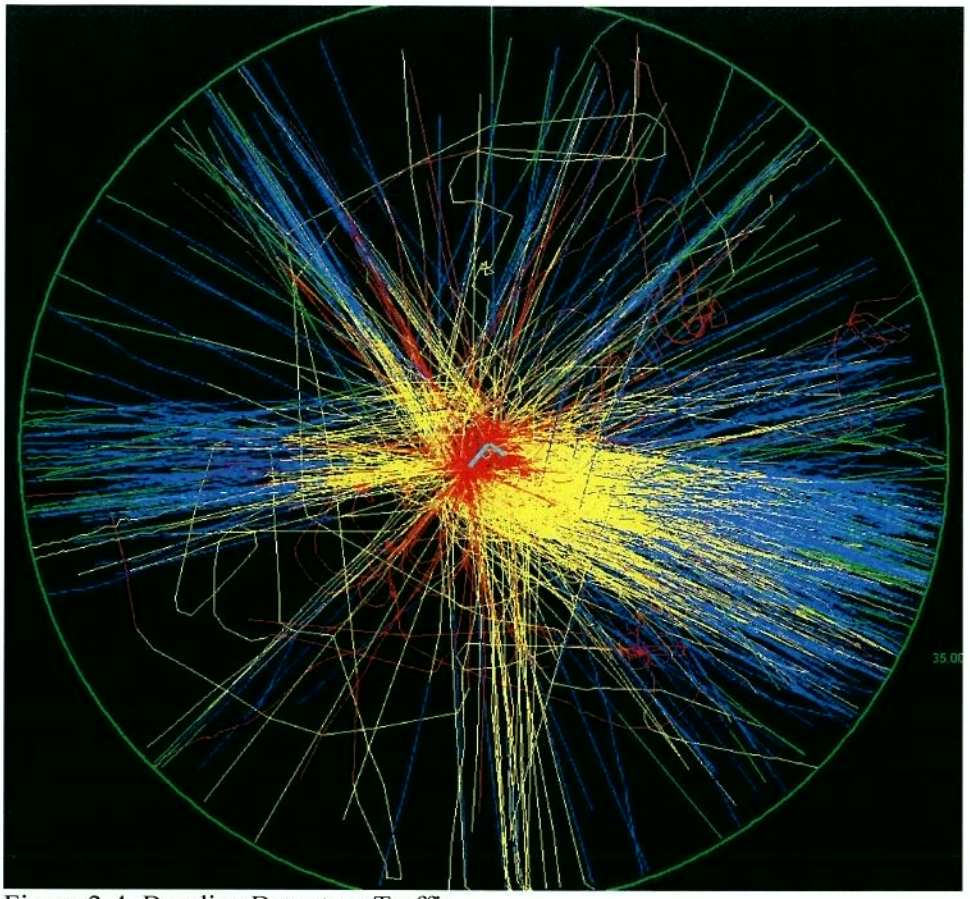

Figure 2-4, Baseline Departure Traffic

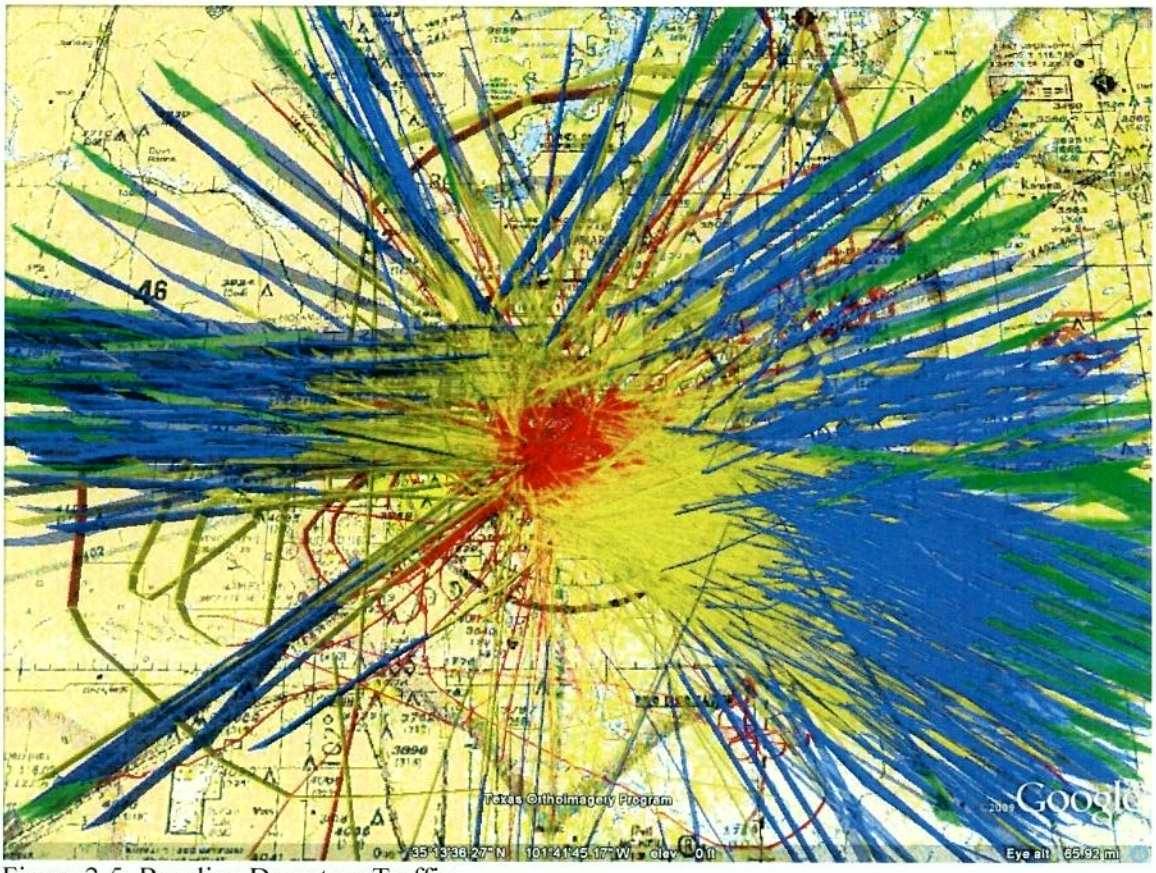

Figure 2-5, Baseline Departure Traffic

Table 2-1, Legend for Baseline Arrival and Departure Traffic

Track Data Legend with Field Elevation

Airport: DCA

Field Elevation : 15

AGL Altitudes	MSL Altitudes
1000	1015
2000	2015
3000	3015
4000	4015
5000	5015
6000	6015
7000	7015
8000	8015
9000	9015
10000	10015
11000	11015
12000	12015
13000	13015
14000	14015
15000	15015
16000	16015
17000	17015
18000	18015
Above	

Legend Colors

Table 2-2, Total Modeled Track Data Separated by Category

	Heavy Jet	Large Jet	Small Jet	Turbo-Prop	Military	Pistons	Total
ARRIVALS	0	5462	17	99	0	0	5578
DEPARTURES	0	5523	20	105	1	0	5649

Table 2-3, Total Modeled Track Data Separated By Runway and Day/Night

	RWY01		RWY04		RWY15		RWY19		RWY33	
ARRIVALS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Heavy Jet	0	0	0	0	0	0	0	0	0	0
Large Jet	2862	324	0	0	90	1	1537	178	416	54
Small Jet	9	1	0	0	0	0	5	0	2	0
Turbo-Prop	22	0	0	0	24	0	9	0	40	4
Military	0	0	0	0	0	0	0	0	0	0
Pistons	0	0	0	0	0	0	0	0	0	0

DEPARTURES	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Heavy Jet	0	0	0	0	0	0	0	0	0	0
Large Jet	3252	267	3	2	99	5	1554	118	185	38
Small Jet	8	2	1	0	1	0	4	0	4	0
Turbo-Prop	5	0	34	1	23	0	17	0	25	0
Military	0	0	0	0	1	0	0	0	0	0
Pistons	0	0	0	0	0	0	0	0	0	0

Table 2-4, Total Modeled Track Data Separated By Runway of RNP Capable Aircraft

	RWY01		RWY04		RWY15		RWY19		RWY33	
ARRIVALS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Heavy Jet	0	0	0	0	0	0	0	0	0	0
Large Jet	2451	276	0	0	83	1	1497	166	395	54
Small Jet	7	1	0	0	0	0	4	0	2	0
Turbo-Prop	5	0	0	0	9	0	7	0	19	0
Military	0	0	0	0	0	0	0	0	0	0
Pistons	0	0	0	0	0	0	0	0	0	0

DEPARTURES										
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Heavy Jet	0	0	0	0	0	0	0	0	0	0
Large Jet	2862	234	3	1	85	5	1508	113	141	29
Small Jet	5	1	0	0	1	0	4	0	4	0
Turbo-Prop	0	0	3	0	4	0	3	0	0	0
Military	0	0	0	0	0	0	0	0	0	0
Pistons	0	2	0	0	0	0	0	0	0	0

3. Baseline Scenario

The Baseline Noise Exposure is shown in Figure 3-1 which depicts the levels and locations of the noise produced by the historical Radar Track Data for arrivals and departures. Table 3-1 is the Legend for both the Baseline and Alternative Noise Exposure figures.

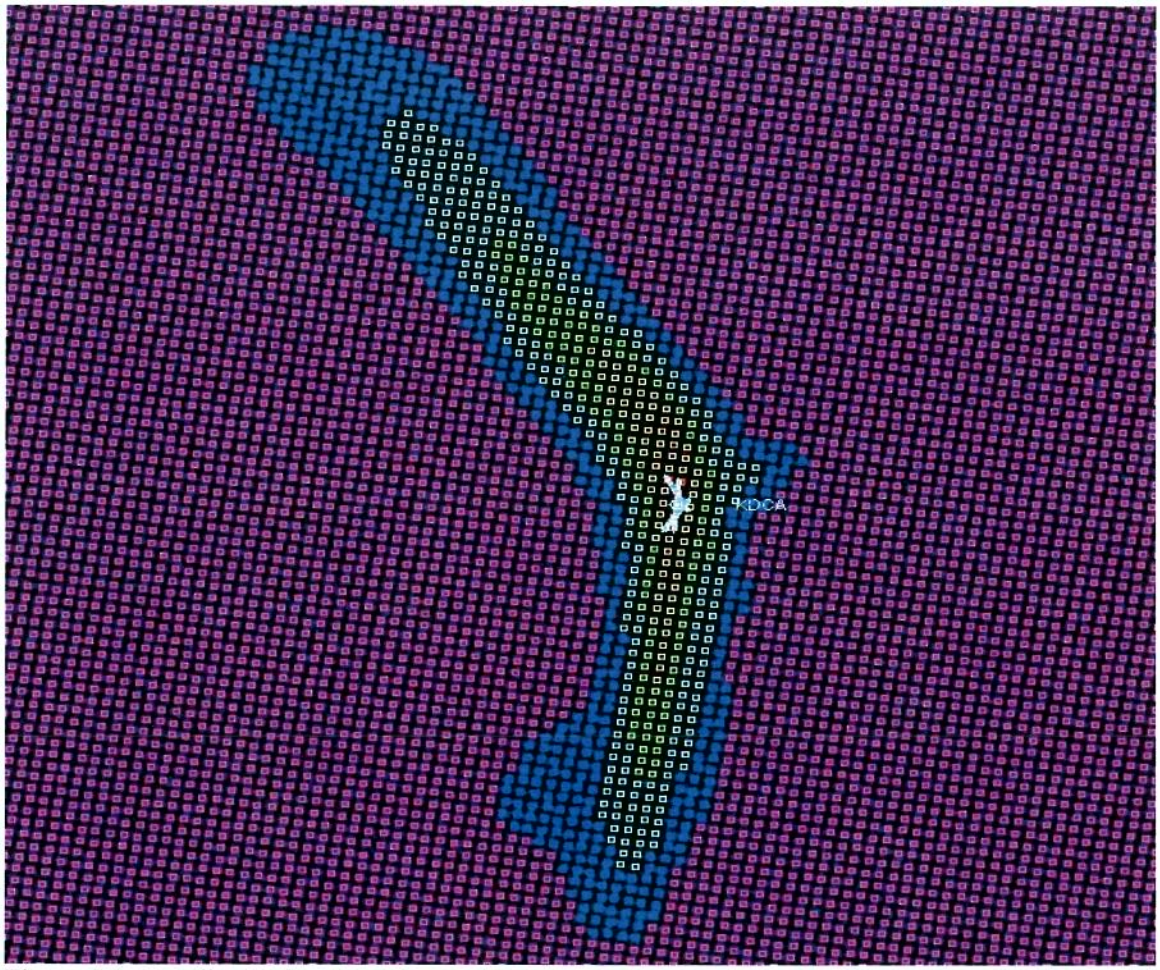

Figure 3-1, Baseline Noise Exposure

Table 3-1, Legend for Noise Exposure

GEOMETRIC SHAPE	COLOR	DNL VALUE
SQUARE	PURPLE	45 DB OR LESS
SQUARE	BLUE	45–50 DB
SQUARE	LIGHT BLUE	50–55 DB
SQUARE	GREEN	55–60 DB
SQUARE	YELLOW	60–65 DB
SQUARE	ORANGE	65–70 DB
SQUARE	PINK	70–75 DB
SQUARE	RED	75 DB OR MORE

4. Reassignment of Tracks to Proposed Procedures

Figures 4-1 thru 4-8 show **all** the Departure Radar Tracks that were assigned to each of the corresponding proposed procedures.

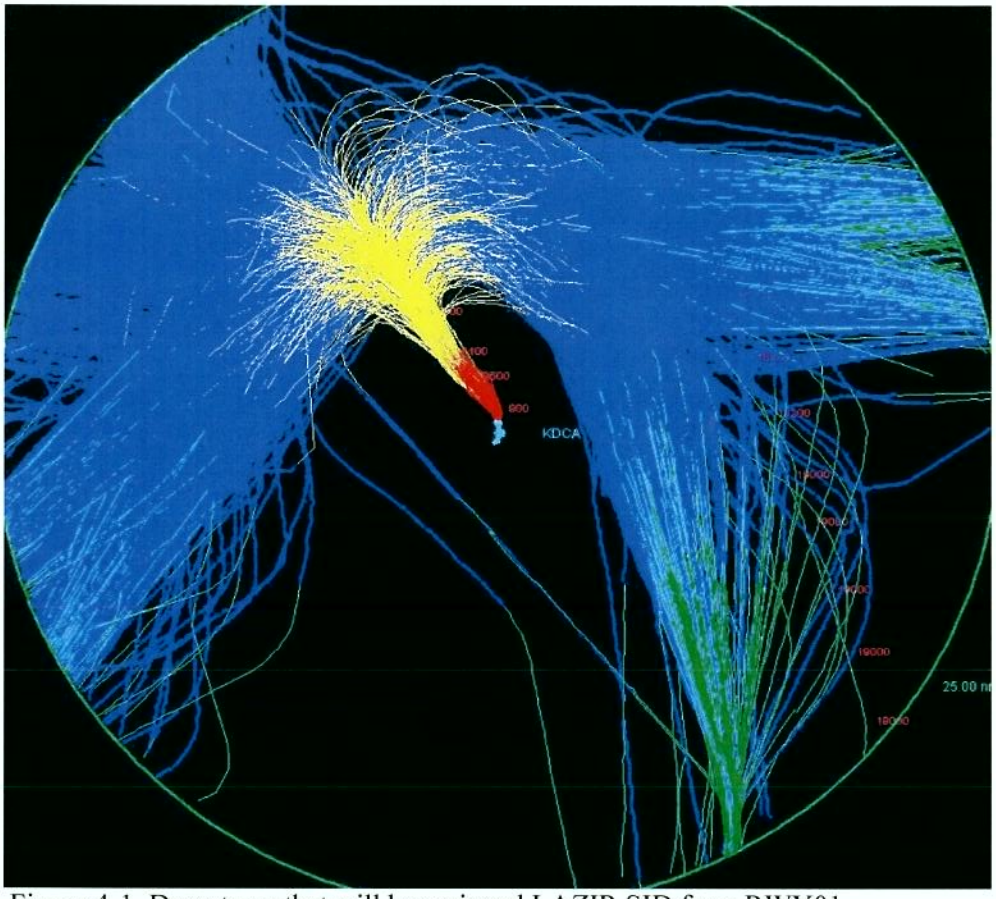

Figure 4-1, Departures that will be assigned LAZIR SID from RWY01.

Figure 4-2, Departures that will be assigned the LAZIR SID from RWY01.

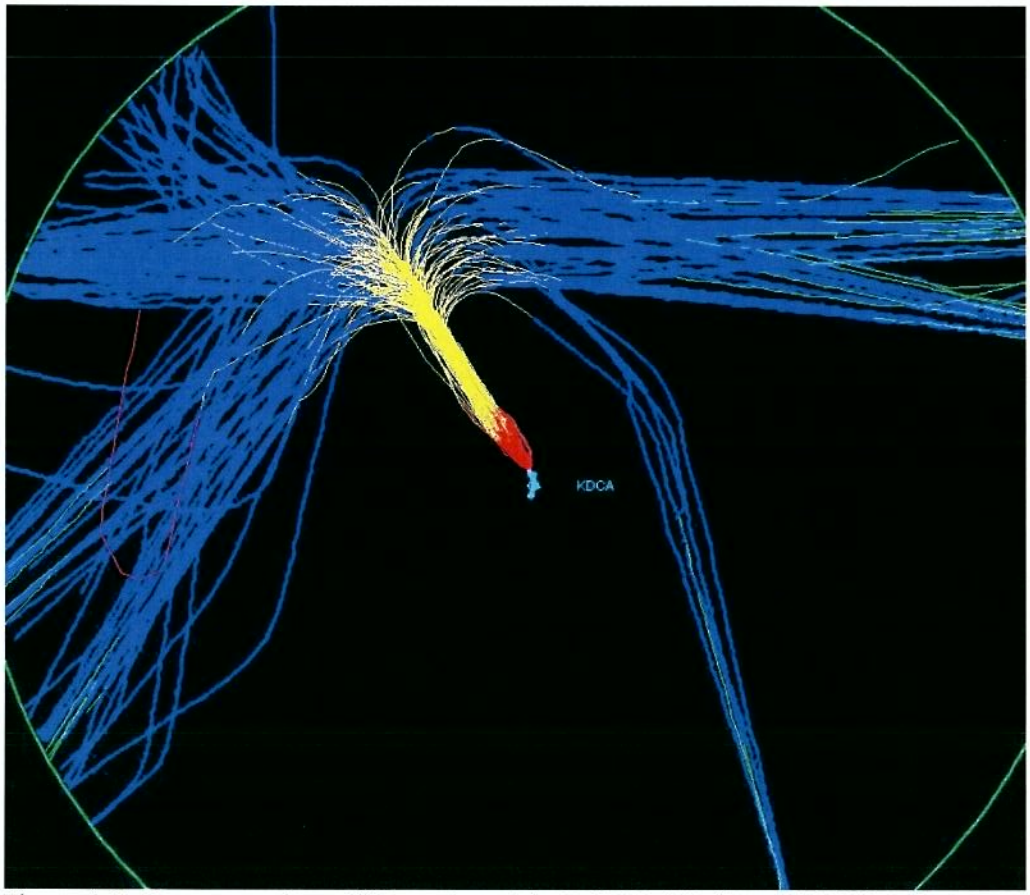

Figure 4-3, Departures that will be assigned the LAZIR SID from RWY33.

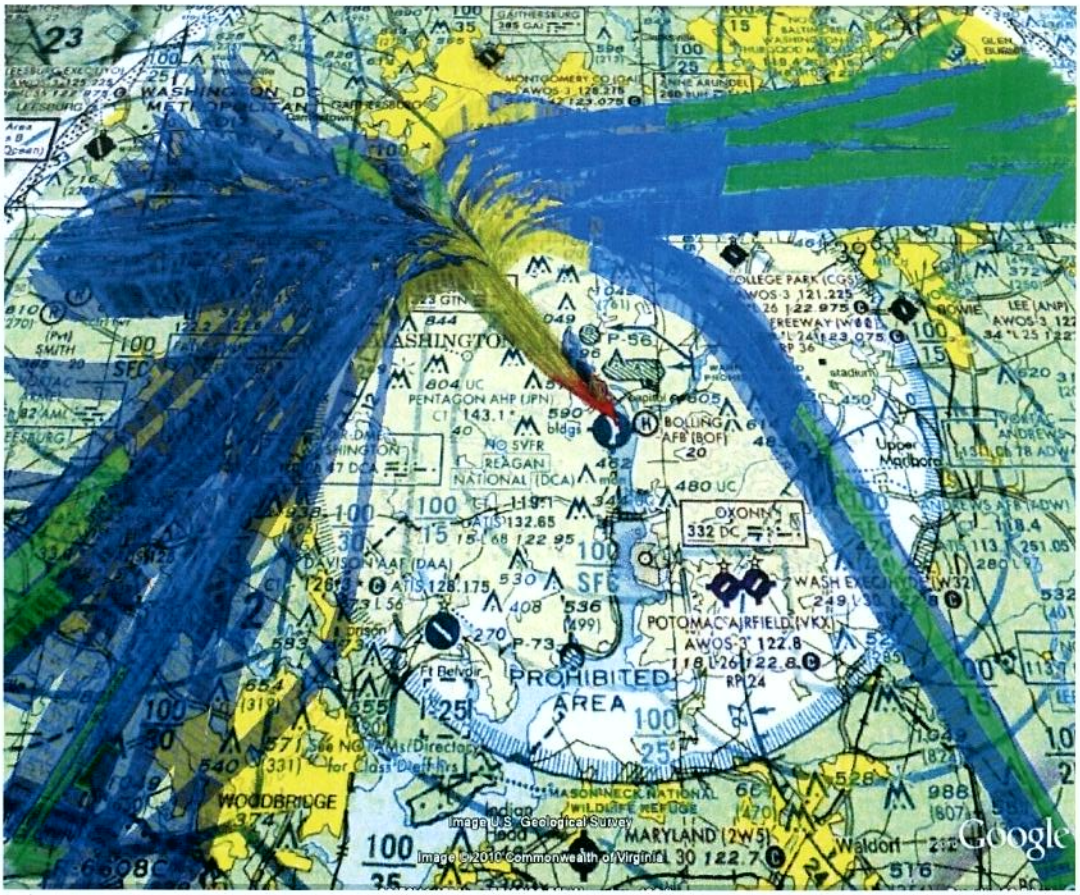

Figure 4-4, Departures that will be assigned the LAZIR SID from RWY04.

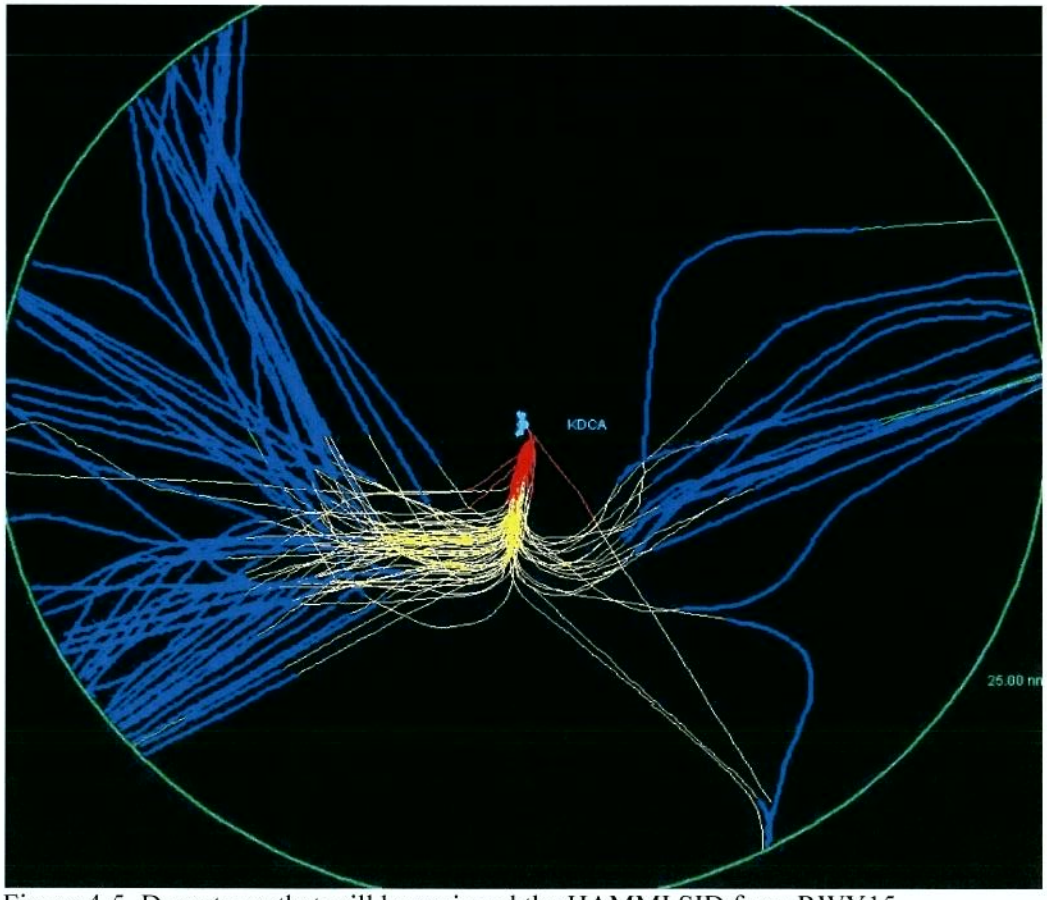

Figure 4-5, Departures that will be assigned the HAMMI SID from RWY15.

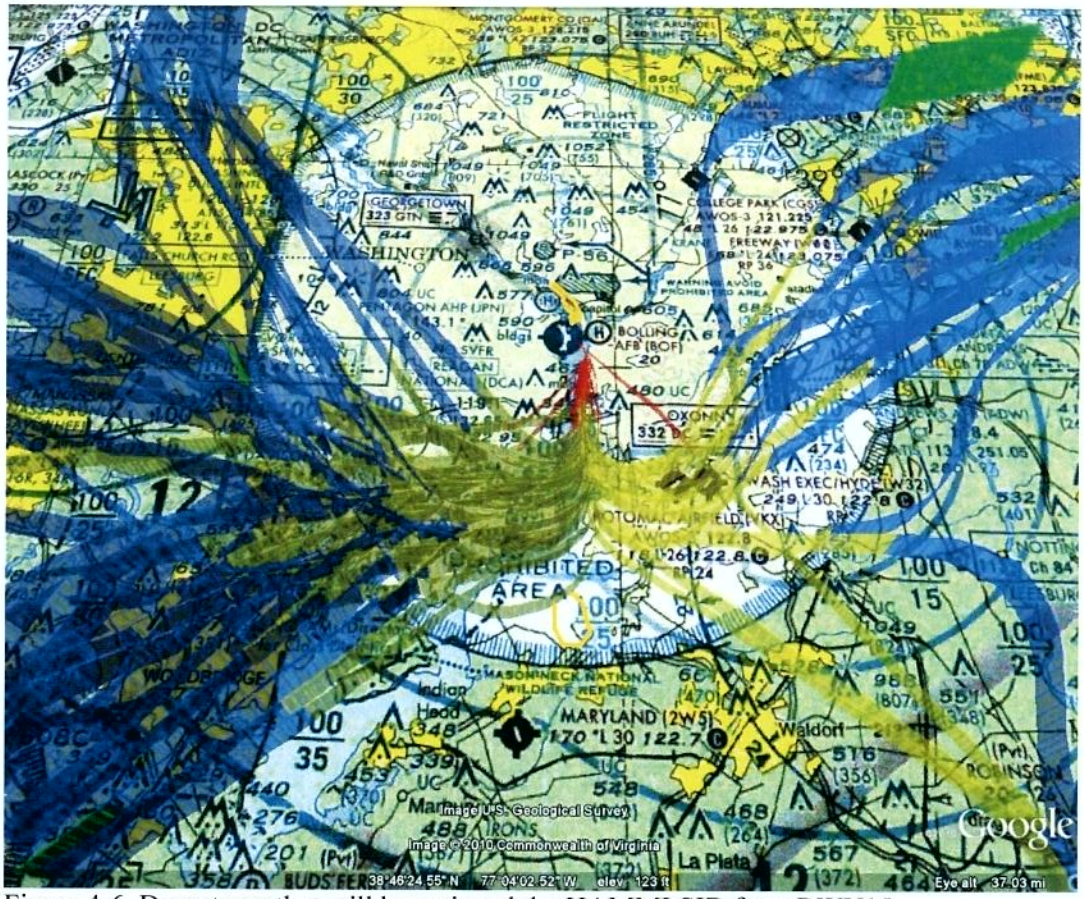

Figure 4-6, Departures that will be assigned the HAMMI SID from RWY15.

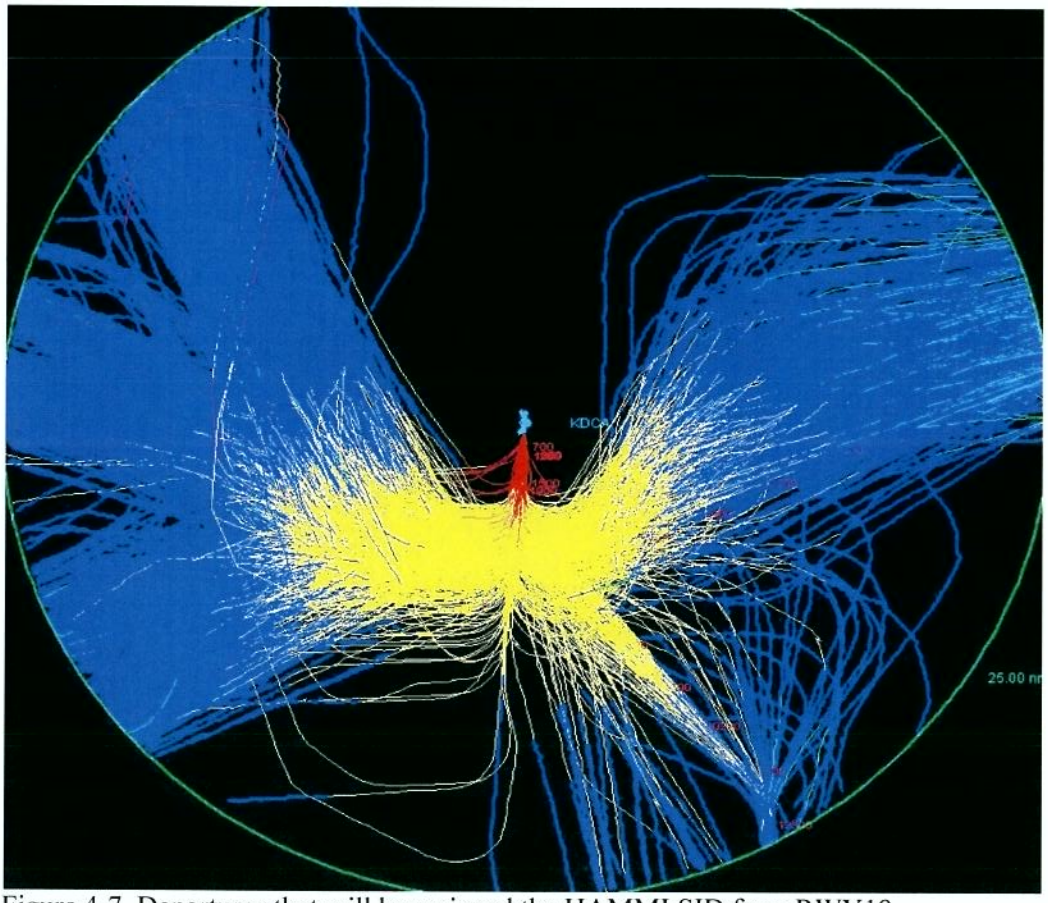

Figure 4-7, Departures that will be assigned the HAMMI SID from RWY19.

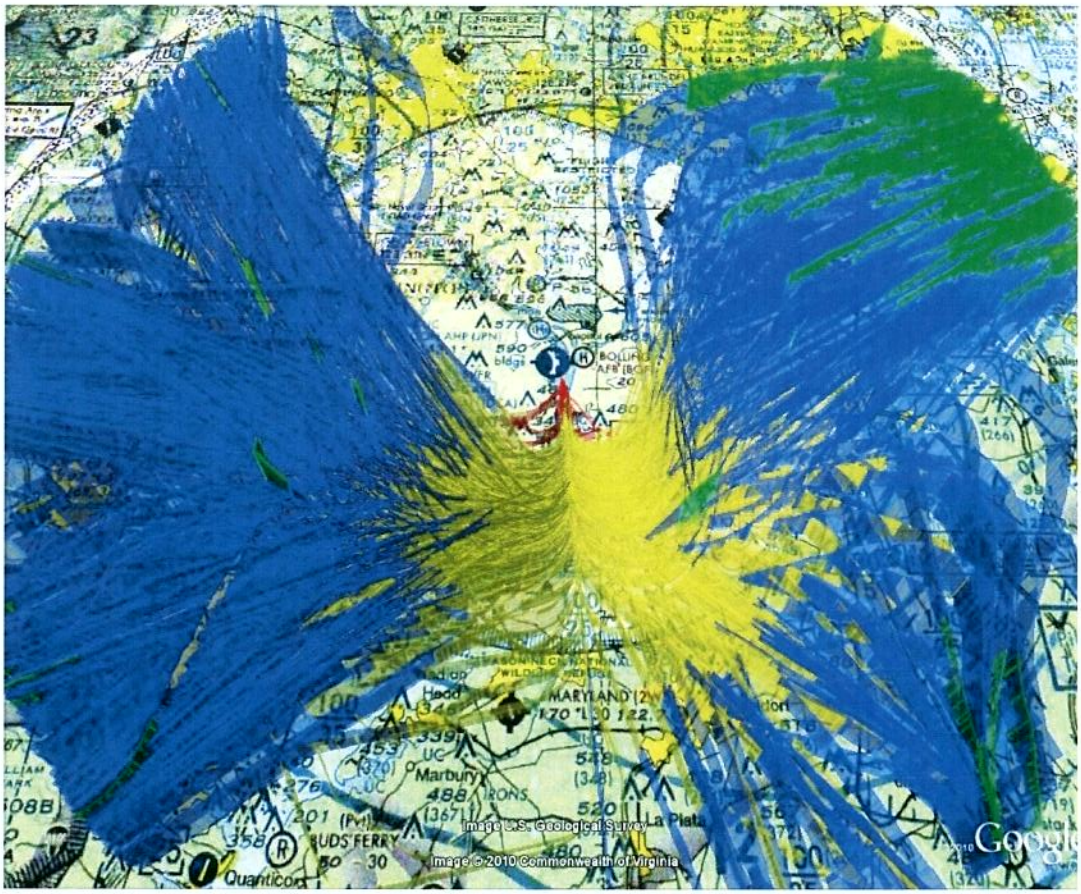

Figure 4-8, Departures that will be assigned the HAMMI SID from RWY19.

Arrival Tracks have not been reassigned because their procedures remain **unchanged**. They are included in the INM process because the final comparison will show the difference of the **Total Noise** between the Baseline Scenario and the Alternative Scenario.

5. Alternative Noise Exposure

The Alternative Noise Exposure is shown in Figure 5-1 which depicts the levels and locations of the noise using the proposed procedures for arrivals and the historical Radar Track Data for departures. See Table 3-1 for the Legend.

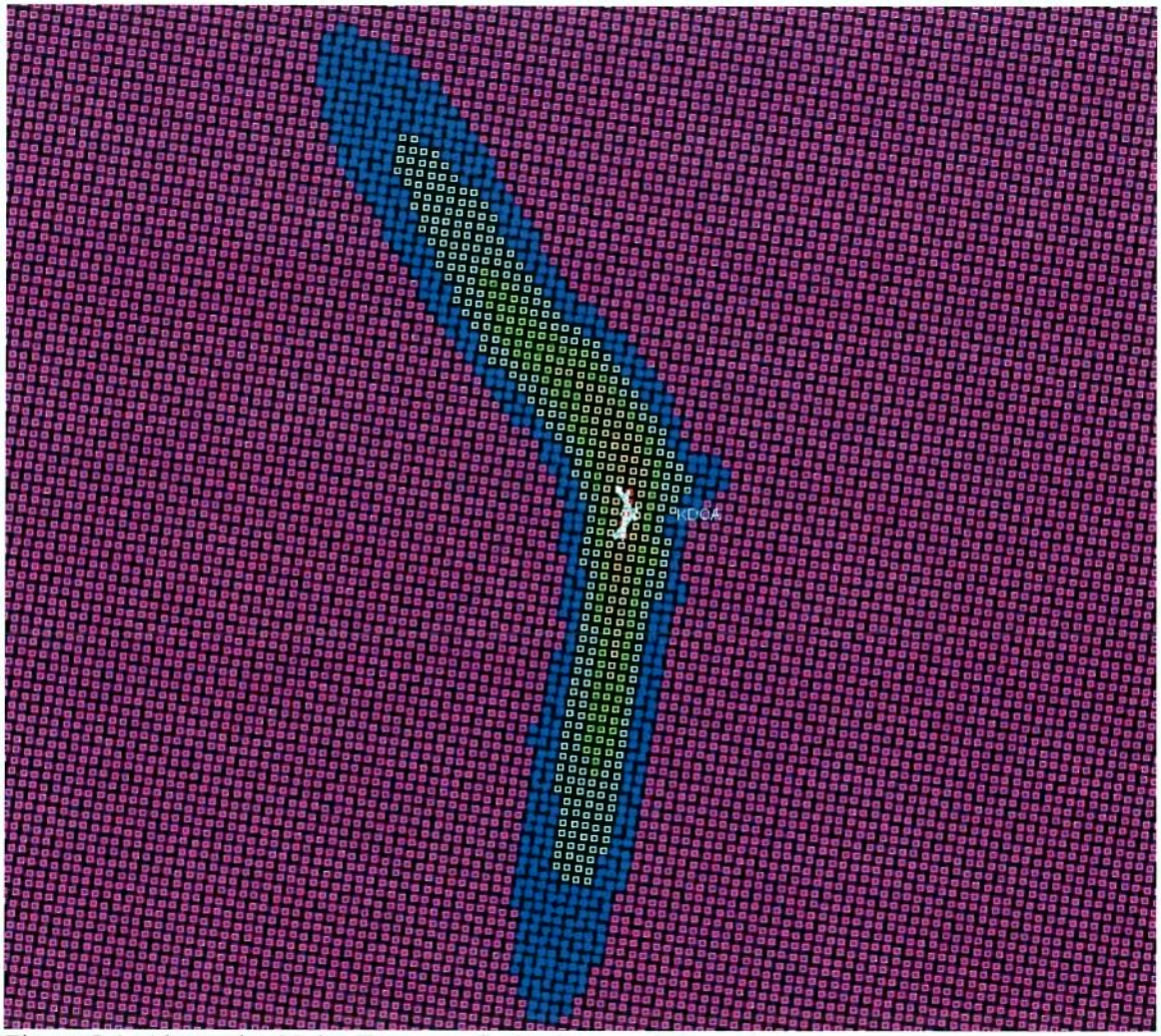

Figure 5-1, Alternative Noise Exposure for the Proposed Procedures

6. Comparison of Baseline Scenario and Alternative Scenario

The Noise Impact is shown in Figure 6-1 which depicts the comparison between the Baseline and Alternative Scenarios showing any increase/decrease in noise levels and the subsequent locations. Table 6-1 is the Legend for the Noise Impact graphic.

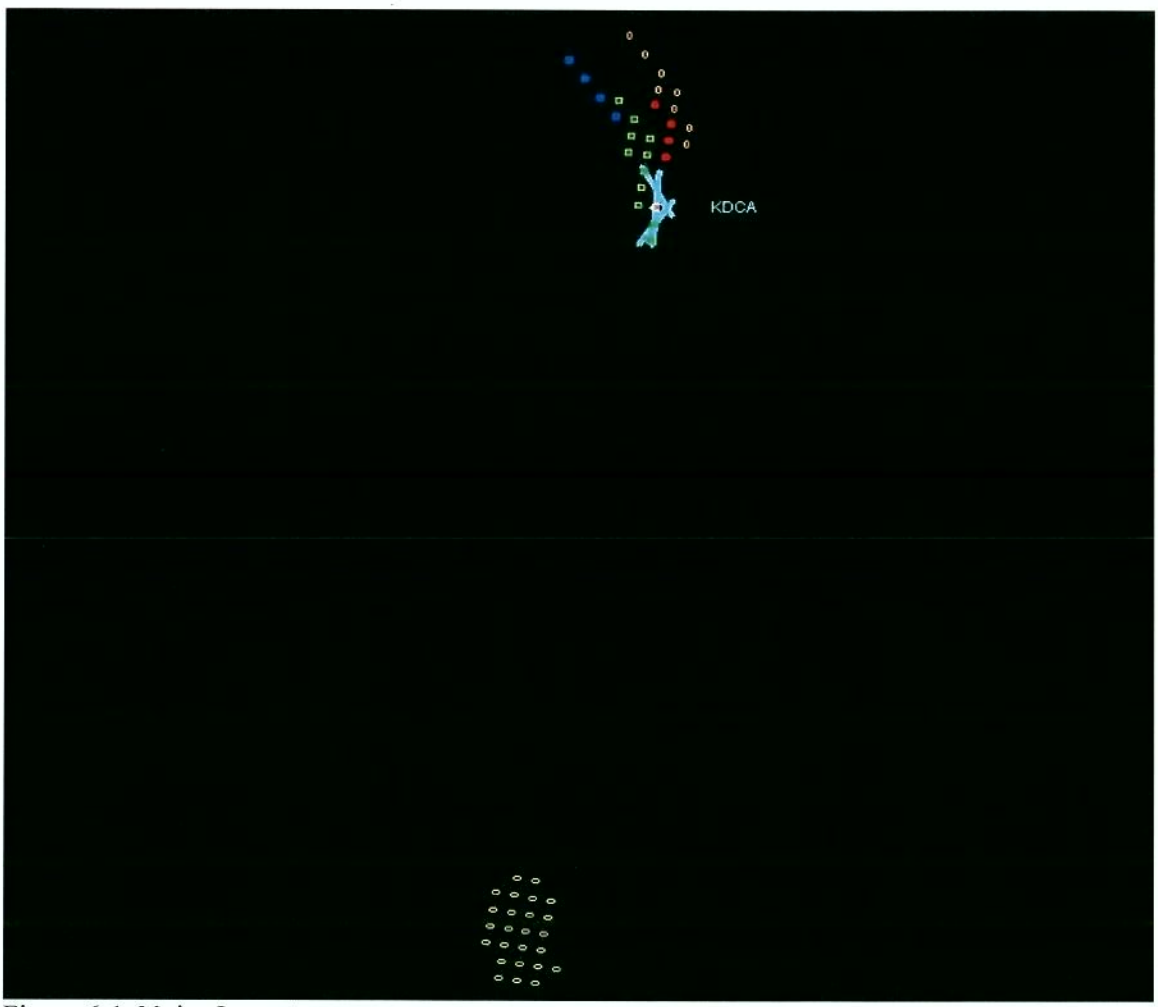

Figure 6-1, Noise Impact

Table 6-1, Legend for Noise Impact

GEOMETRIC SHAPE	COLOR	DNL DIFFERENCE
SQUARE	PURPLE	60 DB OR LESS WITH A DECREASE OF 5.0 DB OR GREATER
SQUARE	BLUE	60-65 DB WITH A DECREASE OF 3.0 DB OR GREATER
SQUARE	GREEN	65 DB OR GREATER WITH A DECREASE OF 1.5 DB OR GREATER
OVAL	RED	65 DB OR GREATER WITH AN INCREASE OF 1.5 DB OR GREATER
OVAL	ORANGE	60-65 DB WITH AN INCREASE OF 3.0 DB OR GRTEATER
OVAL	YELLOW	60 DB OR LESS WITH AN INCREASE OF 5.0 DB OR GREATER

7. TARGETS INM Plug-In Tool Comparative Results

The TARGETS INM Plug-In Tool output reveals **Three Areas** of noise increase. The areas of noise increase depicted as yellow ovals are defined as being 60DB or less with an increase of 5.0 DB or greater. The area of noise increase depicted as red ovals are defined as being 65DB or greater with an increase of 1.5 DB or greater.

The blue airport symbol in figure 6-1 represents the Airport Reference Point (ARP). Figures 7-1 thru 7-5 show the outlined area of noise increase and then show this same outline as an overlay on a Google Earth and on the Sectional Chart.

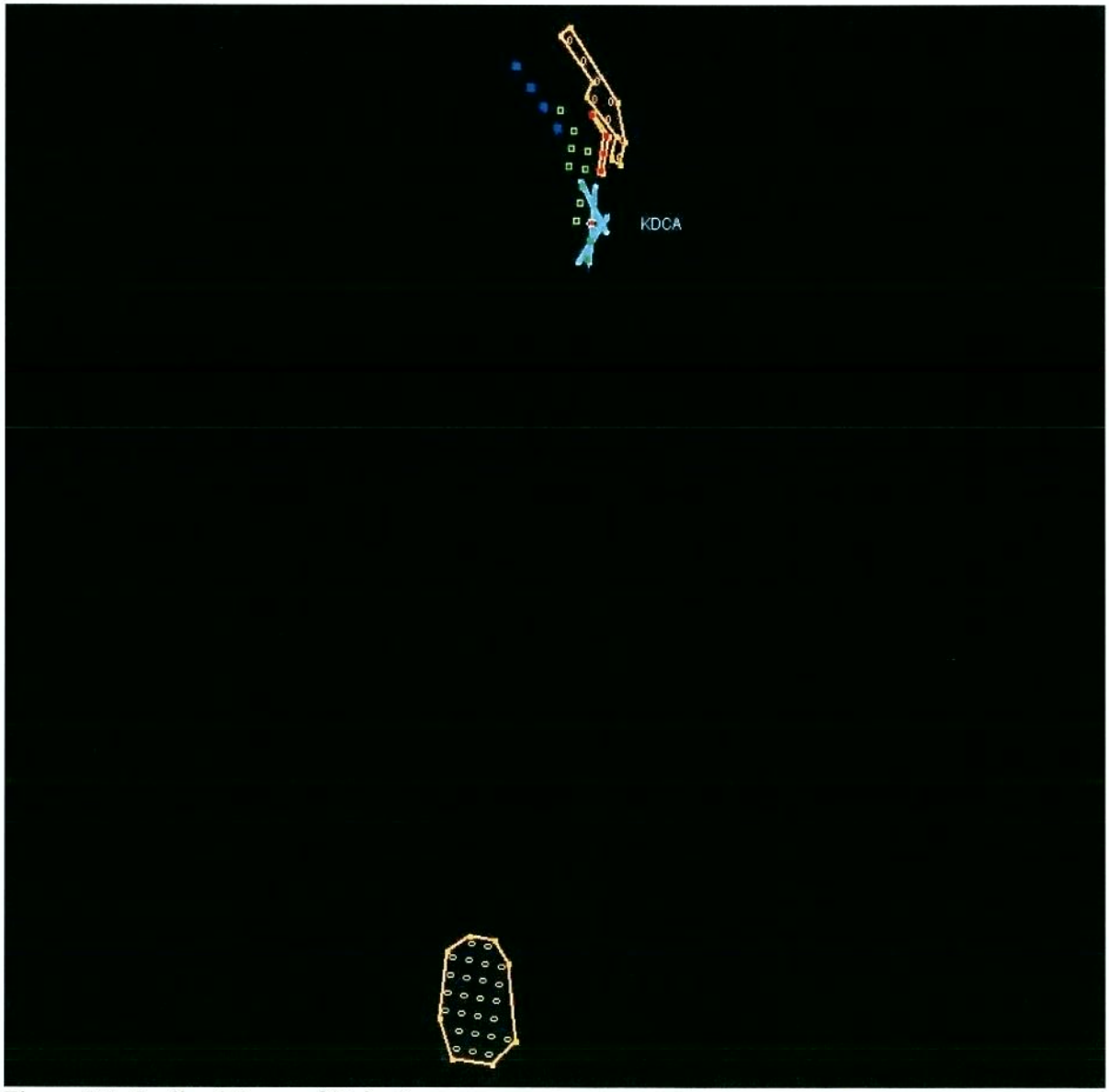

Figure 7-1, Outlined Areas of Noise Increase.

Figure 7-2, Google Earth View of Noise Increase Area A.

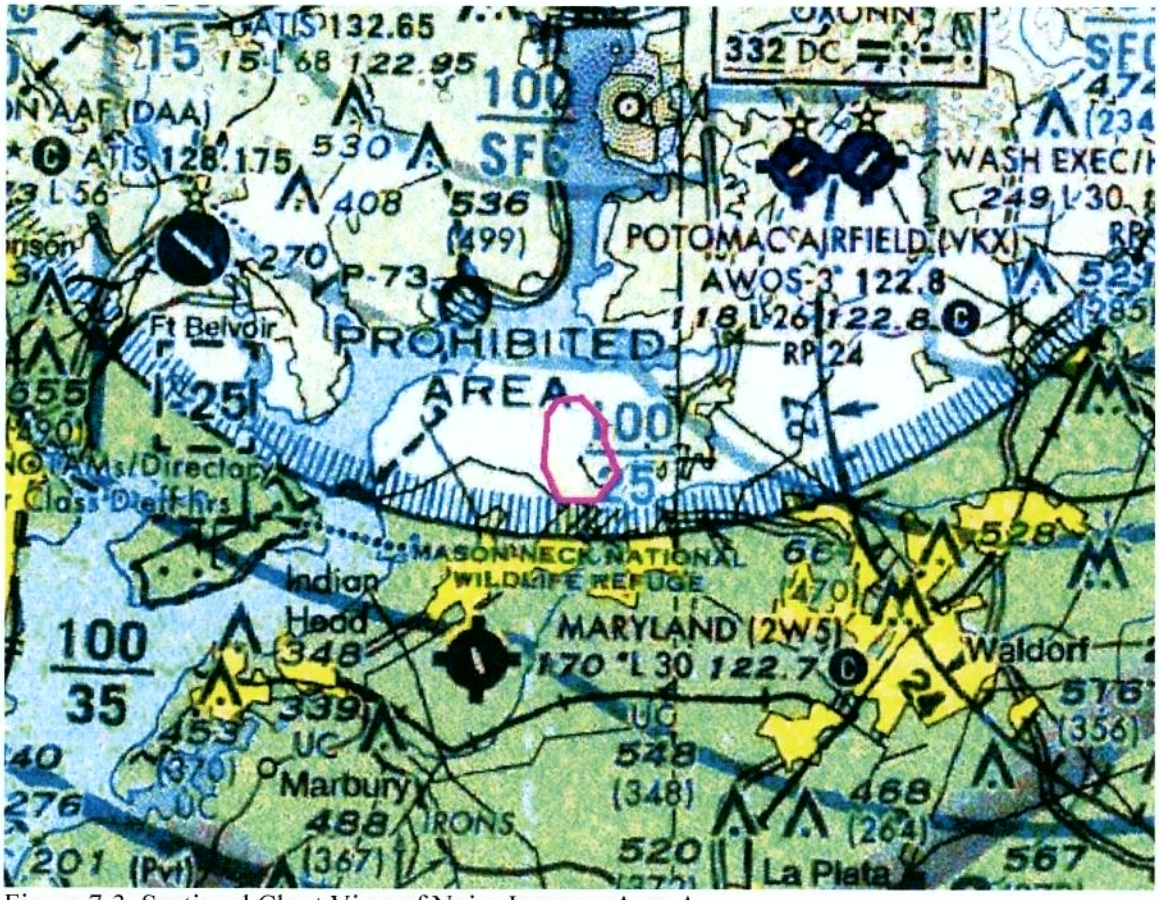

Figure 7-3, Sectional Chart View of Noise Increase Area A.

Figure 7-4, Google Earth View of Noise Increase Areas B and C.

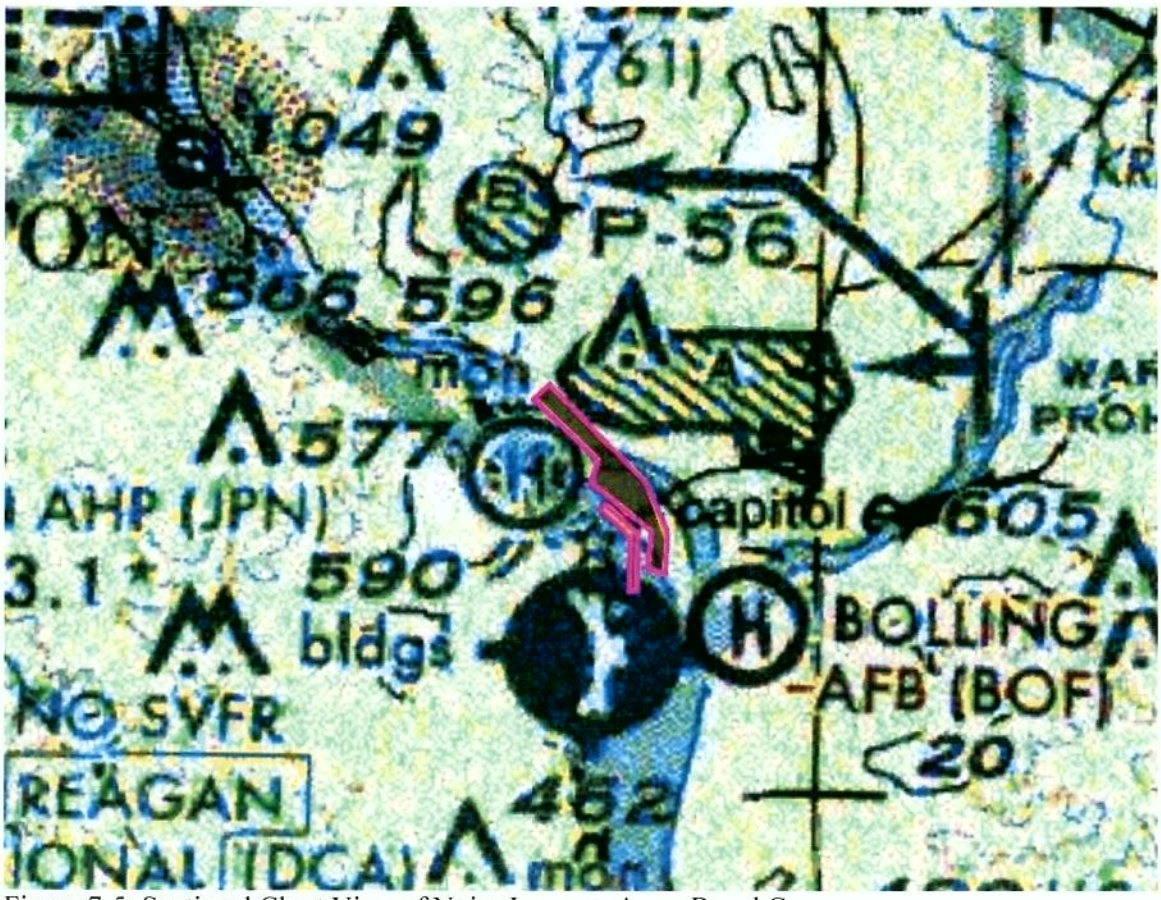

Figure 7-5, Sectional Chart View of Noise Increase Areas B and C.