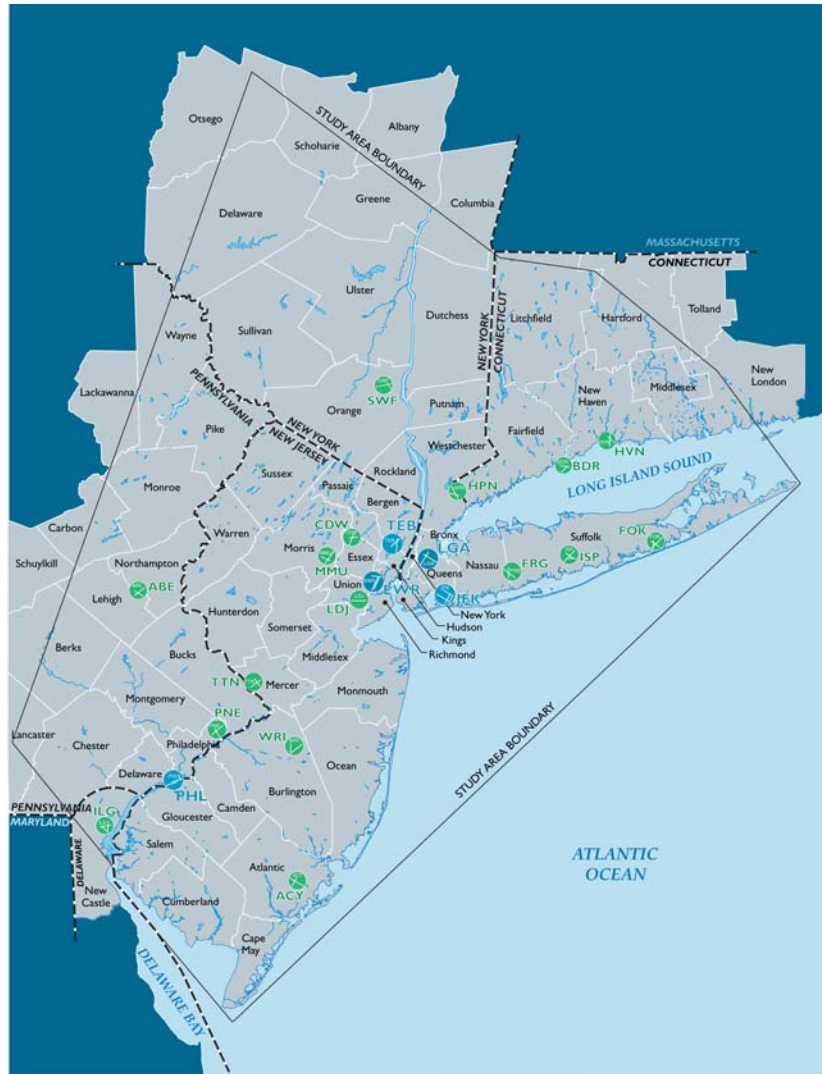




FINAL ENVIRONMENTAL IMPACT STATEMENT



NEW YORK/NEW JERSEY/PHILADELPHIA METROPOLITAN AREA AIRSPACE REDESIGN



Executive Summary

July 2007

Prepared by:

**United States Department of Transportation
Federal Aviation Administration**

EXECUTIVE SUMMARY

The Federal Aviation Act of 1958 delegates various responsibilities to the Federal Aviation Administration (FAA) including controlling the use of the navigable airspace and regulating civil and military operations in that airspace in the interest of maintaining the safety and efficiency of both of these operations. In its effort to continually maintain safety and increase efficiency of the airspace, the FAA is proposing to redesign the airspace in the NY/NJ/PHL Metropolitan Area.

This redesign was conceived as a system for more efficiently directing Instrument Flight Rule (IFR) aircraft to and from major airports in the NY/NJ/PHL Metropolitan Area, including John F. Kennedy International Airport (JFK) and LaGuardia Airport (LGA) in New York, Newark Liberty International Airport (EWR) and Teterboro Airport (TEB) in New Jersey, and Philadelphia International Airport (PHL) in Pennsylvania.

The purpose of this Environmental Impact Statement (EIS) is to evaluate the environmental effects of the NY/NJ/PHL Metropolitan Area Airspace Redesign (Airspace Redesign) in accordance with the National Environmental Policy Act of 1969 (NEPA).¹ This EIS was officially initiated when the FAA issued a Notice of Intent (NOI) to prepare an EIS on January 22, 2001. The format and subject matter in this environmental study conform to the requirements and standards of the Council on Environmental Quality (CEQ) regulations² and the FAA as set forth in

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*.

ES.1 PURPOSE AND NEED

The basic air traffic environment for the NY/NJ/PHL Metropolitan Area airspace was designed and implemented in the 1960s. Since that time, the volume of air traffic and the type of aircraft that use the air traffic control (ATC) system have changed significantly. However, the basic structure of the NY/NJ/PHL airspace has essentially remained the same and has not been adequately modified to address changes in the aviation industry, including increasing traffic levels and the use of new aircraft types. Therefore, the Airspace Redesign is needed to accommodate growth while maintaining safety and mitigating delays, and to accommodate changes in the types of aircraft using the system (e.g., smaller aircraft, more jet aircraft). The purpose of the Airspace Redesign is to increase the efficiency and reliability of the airspace structure and ATC system.

ES.2 PROPOSED ACTION

The Proposed Action for this EIS is to redesign the airspace in the NY/NJ/PHL Metropolitan Area. This involves developing new routes and procedures to take advantage of improved aircraft performance and emerging ATC technologies.

The Proposed Action does not include any physical changes or development of facilities, nor does it require local or state actions. Therefore, no physical alteration to any environmental resource would occur and no permits/licenses would be required. Additionally, the Airspace Redesign would

¹ P.L. 91-190, 32 USC Section 3321 et. seq.

² 40 CFR Part 1500

not require changes to any Airport Layout Plan and infrastructure funding is not expected to be necessary.

Since the Airspace Redesign involves modifications to airspace configuration and air traffic management procedures, the project requires direct FAA action in order to be implemented. This consists of the design, development, implementation, and use of new or modified ATC procedures and reconfigured airspace.

ES.3 ALTERNATIVES

The examination of alternatives is of critical importance to the environmental review process. Those alternatives that meet the Purpose and Need are included for detailed environmental analysis for the study years of 2006 and 2011.

The range of alternatives considered in EIS include those within the following categories: (1) alternative modes of transportation and communication, (2) changes in airport use, (3) congestion management programs, (4) improved air traffic control technology, and (5) airspace redesign. Of the five categories of potential alternatives considered, alternatives one through four are not carried forward for detailed analysis because they do not meet the Purpose and Need. Airspace Redesign is the only category that offers the potential to meet the Purpose and Need because the airspace redesign can result in an air traffic system with enhanced safety, reduced delays, and the ability to accommodate growth.

This EIS considers four airspace redesign alternatives including:

- **Future No Action Alternative**, which assumes no changes to the existing airspace;

- **Modifications to Existing Airspace Alternative**, which includes modifications to current routes and procedures to improve efficiency in the current airspace system;
- **Ocean Routing Airspace Alternative**, proposed by the NJ Citizens for Environmental Research (NJCER), which moves all flights departing from Newark International Airport over the Atlantic Ocean before turning in the direction of their final destinations; and
- **Integrated Airspace Alternative**, integrates the New York Terminal Radar Approach Control's (New York TRACON's) airspace with portions of surrounding Air Route Traffic Control Centers' airspace to operate more seamlessly.

These alternatives are described in the subsections that follow. Descriptions of each alternative are followed by a summary of the Purpose and Need evaluation. The alternatives are evaluated based on Purpose and Need, operational viability, and operational efficiency criteria. Operational viability refers to whether a particular airspace redesign is workable and thus, safe. Operational viability criteria include reduced airspace complexity and reduced voice communications. Operational efficiency refers to how well a particular design works. Operational efficiency criteria include: reduced delay; balanced controller workload; meeting system demands; improved user access to the system; expedited arrivals and departures; increased flexibility in routing; and maintaining airport throughput.

ES.3.1 Future No Action Airspace Alternative

Although it does not meet the Purpose and Need of the Proposed Airspace Redesign Project, the Future No Action Airspace Alternative is analyzed as required by NEPA and CEQ regulations. Note that under the Future No Action Airspace Alternative, the airspace will operate as it did during existing or baseline conditions (2000), with the exception of two procedural changes (i.e., the Dual Modena and the Robinsville-Yarley Flip-Flop) that have been implemented and have independent utility with regards to the Airspace Redesign. As these changes have been implemented, they are included as part of the Future No Action Airspace Alternative. The only major difference between this alternative and present day operations will be in the type and quantity of aircraft operations otherwise known as the flight schedule.

ES.3.2 Modifications to Existing Airspace Alternative

This alternative takes the current routes and procedures and modifies them to improve efficiency in the current airspace system. The differences between this alternative and the Future No Action Airspace Alternative include additional departure headings as well as shifting of the NY Metropolitan Area airports' South departure gate and the PHL East departure gate.

New departure headings for LGA, EWR, and PHL would be implemented as part of this alternative. For example, a more direct LGA Ocean departure procedure would be added.

In this alternative, the South departure gate is shifted 10 miles to the west. Departures to the south originating from JFK, LGA, TEB, and EWR, would be shifted to the new

South departure gate. In addition, the PHL East departure gate would be shifted to the east; PHL departures to the east would have to continue farther east before turning to the northeast.

Arrivals in the Modifications to Existing Airspace Alternative would not be changed from today's configuration.

The Modifications to Existing Airspace Alternative enhances safety by reducing complexity. This alternative improves efficiency by increasing flexibility, maintaining airport throughput, and expediting departures. Therefore, this is a reasonable alternative for meeting the Purpose and Need of the Airspace Redesign and is carried forward for a detailed environmental analysis.

ES.3.3 Ocean Routing Alternative

The Ocean Routing Airspace Alternative is a proposal that was originally developed by the NJ Citizens for Environmental Research, Inc. (NJCER) at the request of the NJ Coalition Against Aircraft Noise (NJCAAN).³

The Ocean Routing Airspace Alternative proposes to move EWR departures out over the Atlantic Ocean prior to turning them west to their final destinations. This alternative proposes significant changes to EWR and JFK departures. It also creates a new JFK arrival post which is located approximately 10 miles east of Mantoloking Shores, NJ. In addition, LGA departures flying to the North gate remain east of the Hudson River for a longer distance prior to

³"Development of Air Traffic Routings for the Mitigation of Aircraft Noise in New Jersey," submitted to New Jersey Citizens for Environmental Research, Inc.; June 1993; Section 1.0 – Executive Summary, p. 1.

turning toward the North gate than in the Future No Action Airspace Alternative.

The purpose of the Ocean Routing Airspace Alternative is to reduce noise impacts on the citizens of New Jersey. The purpose of the Proposed Action is to increase the efficiency and reliability of the entire NY/NJ/PHL Metropolitan Airspace. Therefore, because the Ocean Routing Airspace Alternative is focused on reducing noise in one specific area and not on increasing the efficiency and reliability of the entire NY/NJ/PHL Metropolitan Airspace, it was apparent that from its inception this alternative did not meet the Airspace Redesign Purpose and Need. The evaluation of the Purpose and Need Criteria supported this finding. The Ocean Routing Airspace Alternative would not: reduce delay, balance controller workload, meet system demand, improve user access, expedite arrivals and departures, increase flexibility, nor maintain airport throughput.

Although it was apparent that the Ocean Routing Airspace Alternative would not meet the Purpose and Need, the FAA elected to include this alternative for a detailed environmental analysis due to the long standing concerns of the NJCAAN.

ES.3.4 Integrated Airspace Alternative

The Integrated Airspace Alternative integrates the NY TRACON airspace with portions of surrounding Center's airspace to operate more seamlessly in either a standalone (existing facilities) or consolidated manner. The Integrated Airspace Alternative could be accomplished either with standalone or consolidated facilities because the key component is a

common automation platform.⁴ The consolidated facility is called the Integrated Control Complex (ICC).

The Integrated Airspace concept would expand the airspace in which terminal separation rules could be used. Where en route airspace separation rules of five nautical miles are typically used today, this concept would allow for the use of three nautical mile terminal airspace separation rules. This would permit less restrictive separations to be used over a larger geographical area and at higher altitudes.

The initial phase of the Integrated Airspace Alternative involves modifications to a departure gate, as well as to close-in departure procedures. This phase is called the Integrated Airspace Alternative Variation without ICC. The final phase will have two variations. The first variation maintains the same changes that were implemented in phase one, supporting future traffic growth. This, again, is called the Integrated Airspace Alternative Variation without ICC because the airspace structure does not change from phase one. The second variation of phase two involves full airspace consolidation as previously described, as well as modifications to multiple departure gates, additional arrival posts, and additional close-in departure procedures. The second variation is known as the Integrated Airspace Alternative Variation with ICC. Each variation of the Integrated Airspace Alternative is presented below and each is evaluated separately for the potential to meet the Purpose and Need of the Proposed Airspace Redesign Project.

⁴ A common automation platform includes shared displays on screens, radar, data processing and presentation, and communications.

**ES.3.4.1 The Integrated Airspace
Alternative Variation without
ICC**

The major changes associated with this variation versus the Future No Action Airspace Alternative involve departures to the West gate from EWR, TEB, and LGA flights, and departure headings at EWR, LGA, and PHL. The West gate has been extended. The departure headings changes are the same as those in the Modifications to Existing Airspace Alternative, but how the aircraft transition to the expanded West departure gate will vary due to the movement of the gate. In addition, a new turboprop arrival route to TEB would be established as part of this alternative. No major changes would be made to JFK arrival or departure routings as a result of this design.

The Integrated Airspace Alternative Variation without ICC enhances safety by reducing complexity and voice communications. It improves efficiency by reducing delay, balancing controller workload, meeting system demands, improving user access to the system, expediting departures, increasing flexibility in the West gate area, and maintaining airport throughput primarily at EWR.

Therefore, this is a reasonable alternative for meeting the Purpose and Need of the Proposed Airspace Redesign Project and is carried forward for environmental analysis.

**ES.3.4.2 The Integrated Airspace
Alternative Variation with ICC**

The second variation of the Integrated Airspace Alternative involves full airspace consolidation, as well as modifications to multiple departure gates, additional arrival posts, and additional departure headings.

The second variation is called the Integrated Airspace Alternative Variation with ICC.

This variation represents a full airspace consolidation and is a new approach to the redesign of airspace from NY to Philadelphia. Where current en route airspace separation rules of five nautical miles are typically used, this airspace redesign alternative would use three nautical mile terminal airspace separation rules over a larger geographical area and up to 23,000 feet MSL in some areas (as opposed to 19,000 feet MSL with current airspace structure).⁵ The airspace would be comprised of the majority of current NY TRACON and NY Center airspace, in addition to several sectors from Washington Center and Boston Center.

This variation would lead to reduced complexity, reduced voice communications, reduced delays, more balanced controller workload, increased ability to meet system demand, improved user access to the system, expedited arrivals and departures, greater flexibility in routing, and the ability to maintain greater airport throughput. Therefore, this is a reasonable alternative for meeting the Purpose and Need of the Proposed Airspace Redesign Project and is carried forward for a detailed environmental analysis.

**ES.3.5 Comparison of the Airspace
Redesign Alternatives**

The Future No Action Airspace Alternative was carried forward as required by CEQ Regulations to provide a benchmark, enabling decision makers to compare the

⁵Many air traffic control altitudes are given in flight levels representing altitude above mean sea level (MSL) in increments of 100 feet (i.e., flight level 230 equates to 23,000 feet above MSL).

magnitude of environmental effects of the other alternatives. Two airspace redesign alternatives meet the Purpose and Need for the Airspace Redesign: Modifications to Existing Airspace Alternative and Integrated Airspace Alternative Variations with and without ICC. These alternatives were carried forward for detailed environmental analysis. Although the Ocean Routing Airspace Alternative did not meet the Purpose and Need, it was carried forward for environmental analysis to address long standing public concerns.

Each Airspace Redesign Alternative is qualitatively and quantitatively evaluated and compared based on the Purpose and Need Evaluation Criteria. The results of this analysis will be used by the decision makers as a means of comparing the alternatives to assist in selecting a preferred alternative.

The qualitative analysis is based on the expected results of a particular change relative to the existing airspace structure. For example, when a departure gate is added

it is expected that the ability of that alternative to meet system demands will improve. The existing airspace structure is equivalent to that of the Future No Action Airspace Alternative; therefore, all qualitative discussions relate changes to an alternatives' airspace design to the Future No Action Airspace.

The quantitative analysis is based on operational metrics obtained through the use of computer modeling of the Alternatives. Flight paths for each alternative are modeled using the Total Airspace and Airport Modeler (TAAM) fast-time simulation tool, which is used to calculate metrics. These metrics provide a basis for comparison of the Alternatives.

A summary of the quantitative evaluation of the Airspace Redesign Alternatives in terms of the Purpose and Need Criteria is presented in **Table ES.1**. The following paragraphs summarize the qualitative discussions of each of the Proposed Action Alternatives.

Table ES.1
Operational Comparison of Alternatives
 (The most advantageous operational metric has been shaded and boldfaced)

Purpose & Need Evaluation Criteria	How Measured	Alternative				
		Future No Action	Modifications to Existing Airspace	Ocean Routing Airspace	Integrated Airspace	
					without ICC	with ICC
Reduce Complexity	Jet route Delays + time below 18,000 feet (minutes)	12	12	12	11	10
	Arrival Distance below 18,000 feet (nautical miles)	96	95	99	96	102
Reduce Voice Communications	Maximum Inter-facility handoffs per hour	525	525	521	529	382

Table ES.1 (continued)
Operational Comparison of Alternatives
 (The most advantageous operational metric has been shaded and boldfaced)

Purpose & Need Evaluation Criteria	How Measured	Alternative				
		Future No Action	Modifications to Existing Airspace	Ocean Routing Airspace	Integrated Airspace	
					without ICC	with ICC
Reduce Delay	Traffic weighted arrival delay 2011 (minutes)	22.9	22.6	23.6	22.8	19.9
	Traffic weighted departure delay 2011 (minutes)	23.3	20.9	29.5	20.8	19.2
Balance Controller Workload	Equity of West gate fix traffic counts	0.37	0.37	0.37	0.34	0.30
Meet System Demands & Improve User Access to System	End of day's last arrival push (time)	23:54	23:54	23:54	23:54	23:00
Expedite Arrivals and Departures	Time below 18,000 ft (minutes)	18.5	18.2	18.8	18.2	18.6
	Change in route length per flight (nautical miles) ⁽¹⁾	0.0	0.0	4.5	-1.2	3.7
	Change in block time (minutes per flight) ⁽¹⁾	0.0	-0.9	3.9	-1.0	-1.4
Flexibility in Routing	Delay saved per flight per day (minutes)	0	0	0	0	12.6
Maintain Airport Throughput	Arrival Maximum Sustainable Throughputs	223	223	223	223	238
	Departure Maximum Sustainable Throughputs	238	239	221	240	245

Notes:

(1) A negative value indicates a net decrease in the category.

Source: Operational Analysis of NY/NJ/PHL Metropolitan Area Airspace Redesign Alternatives (MITRE Technical Report - MTR 05W0000025, March 2005, Table ES-1. Summary of Operational Impacts, p. ix.).

The Modifications to Existing Airspace Alternative increases departure efficiency to the west by fanning headings and by splitting the major westbound airway (J80) into two independent airways. This alternative has small benefits.

The Ocean Routing Airspace Alternative will increase route distance and flying time for EWR, LGA, and JFK. Departure efficiency at EWR is greatly reduced. JFK arrivals and departures share one part of the airspace, thereby increasing complexity. The reroute of departures from EWR and JFK increases airspace complexity above PHL which is already a bottleneck in the en route system. These drawbacks are not offset by operational benefits.

Like the Modifications to Existing Airspace Alternative, the Integrated Airspace Alternative Variation without ICC increases departure efficiency to the west by fanned headings and by splitting the major westbound airway (J80) into two independent airways. In addition, this variation reduces congestion on the South departure gate. This variation shows a slight increase in required interfacility voice communications.

The Integrated Airspace Alternative Variation with ICC provides the most substantial operational benefit of any of the designs. It is a wholesale restructuring of arrival and departure routes. Efficiency is increased by more use of available runways and departure headings. Airspace delays are reduced and route flexibility is enhanced. Flying distances are increased for many flights, but the delay reductions are large enough to make this a net benefit to traffic.

ES.4 STUDY AREA

The Study Area is defined as the geographic area potentially environmentally impacted

by the proposed action. The Proposed Airspace Redesign Project Study Area encompasses the entire state of New Jersey and portions of four other states: Connecticut, Delaware, New York, and Pennsylvania (See **Figure ES.1**). The Study Area is comprised of approximately 31,180 square miles and encompasses all or portions of 64 counties, 490 independent cities, as well as other municipal areas.

Criterion from FAA Order 1050.1E was used to determine the Study Area for the Proposed Airspace Redesign. According to FAA Order 1050.1E, the altitude ceiling for environmental considerations regarding airspace studies is 10,000 feet above ground level AGL. The highest point in the Study Area is 4,000 feet MSL at Hunter Mountain, New York, making the overall altitude ceiling of the Study Area 14,000 feet MSL (resulting in 10,000 feet AGL). Thus, using input from the Airspace Redesign Team, the Study Area was created to encompass the geographic areas where proposed changes to aircraft routes occurred below 14,000 MSL. This Study Area is then the basis for the analysis of the alternatives and their potential impacts associated with alternative routings for aircraft flying IFR at altitudes up to 14,000 feet MSL.

ES.5 STUDY AREA AIRPORTS

Because there are many public and private airports in the Study Area, the air traffic flows to and from these airports are highly interrelated. The NY/NJ/PHL Metropolitan Area Airspace Redesign focuses on five major airports and 16 satellite airports in the Study Area. The five major airports are as follows:

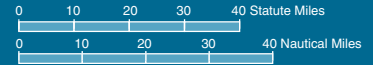
- John F. Kennedy International (JFK),
- LaGuardia (LGA),



Airports within the Study Area

Figure ES.1
ES.1

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- Newark Liberty International (EWR),
- Teterboro (TEB), and
- Philadelphia International (PHL).

The 16 satellite airports are as follows:

- Allentown/Lehigh Valley International (ABE),
- Atlantic City International (ACY),
- Bridgeport/Igor I. Sikorsky Memorial (BDR),
- Caldwell/Essex County (CDW),
- Westhampton Beach/ The Francis S. Gabreski (FOK),
- Islip Long Island MacArthur (ISP),
- Linden (LDJ),
- Morristown Municipal (MMU),
- Newburgh/Stewart International (SWF),
- New Haven/Tweed-New Haven (HVN),
- Northeast Philadelphia (PNE),
- Republic (FRG),
- Trenton/Mercer County (TTN),
- White Plains/Westchester County (HPN),
- Wilmington/New Castle County (ILG), and
- McGuire Air Force Base (WRI).

The five major airports and 16 satellite airports in the Study Area are depicted in Figure ES.1.

While there are many satellite airports physically located within the Study Area, they were not included in the operational modeling or noise analysis. The decision to include or exclude airports was based on the fact that the Airspace Redesign applies to IFR operations. Airports without a significant amount of IFR traffic were not modeled because there will be little or no change to their operations as a result of the Proposed Action. Additionally, aircraft (including helicopters) operating under visual flight rules (VFR) are not part of the airspace redesign because they are unaffected by the proposed alternatives. Further, VFR aircraft operating outside controlled airspace are not required to be in contact with air traffic control (ATC). Since these aircraft operate at the discretion of the pilot on the “see and be seen” principal and are not required to file flight plans, FAA has very limited information for these operations. The resulting list of airports to be modeled was reviewed and found to be consistent with the airports that may be impacted based on the Proposed Action.

ES.6 ENVIRONMENTAL CONSEQUENCES

The Proposed Airspace Redesign Project does not include construction of any infrastructure, and as such is not expected to cause adverse environmental impacts to most resource categories relating to the physical environment. Thus, the following resource categories would not be affected by the Proposed Airspace Redesign Project:

- Coastal Resources,
- Construction Impacts,

- Farmlands,
- Floodplains,
- Hazardous Materials, Pollution Prevention, and Solid Waste,
- Water Quality,
- Wetlands, and
- Wild and Scenic Rivers.

The following resource categories were also evaluated for potential impacts, but further analysis was not deemed necessary for the reasons stated:

- Air Quality - Since the issuance of the DEIS, the FAA was advised by the EPA that it should not use the Preamble to the final rule for Determining Conformity of General Federal Actions to State and Federal Implementation Plans to determine de minimis actions for “air traffic control activities and adopting approach, departure, and en route procedures for air operations.” In the past, the EPA has agreed that airspace redesign produced de minimis emission changes. Recently, the FAA has determined that it can not rely on the preamble and on February 12, 2007 issued a Draft Federal Notice Presumed to Conform Actions Under General Conformity [Federal Register⁶: February 12, 2007 (Volume 72, Number 28)] which formally defines these types

⁶ The US National Archives’ website describes the Federal Register as follows; “Published every Federal working day, the Federal Register is the official gazette of the United States Government. It provides legal notice of administrative rules and notices and Presidential documents in a comprehensive uniform manner.” See <http://www.archives.gov/federal-register/the-federal-register/>.

of actions above 1,500 feet above ground level (AGL) as de minimis. FAA received comments on the notice for 45 days and is in the process of developing the Final Notice. It is expected that air traffic operations will be included in the Final Notice. To reinforce the FAA presumption that the Proposed Action would be de minimis a fuel burn analysis was completed for the FAA’s Preferred Alternative with and without mitigation, both versions of the Preferred Alternative reduced fuel burn when compared to the Future No Action Alternative. Additionally, the Airspace Redesign will not increase traffic over the Future No Action. Lastly the project will not cause a new violation, worsen an existing violation, or delay meeting the National Ambient Air Quality Standards.

- Light Emissions and Visual Impacts – Radar data indicates that areas where lower altitude airspace changes would take place are likely already exposed to aircraft lights and aircraft flights; therefore, no light emissions or visual impacts would be expected in these areas. In addition, because of the unique cultural qualities of Tribal Lands, additional analysis of potential visual impacts on Native American Tribes located in the Study Area was completed. It was determined that Tribal Lands were either subject to minor changes in aircraft routes or were already exposed to regular overflights. Therefore, the implementation of any of the Airspace Redesign alternatives would not result in significant visual impacts to Tribal lands within the Study Area.
- Natural Resources and Energy Supply – The proposed changes in air traffic procedures are intended to improve air

traffic flow and enhance the safe operation of aircraft within the airspace structure. With the exception of the Ocean Routing Airspace Alternative, the Proposed Action Airspace Redesign alternatives propose changes in air traffic procedures that would result in more direct routing and less delay. When compared to the Future No Action Airspace Alternative, these alternatives would result in reduced fuel consumption; therefore, significant impacts to natural resources and energy supply are not expected.

Resource categories that would potentially be impacted by the Proposed Airspace Redesign Project are discussed in the following subsections.

ES.6.1 Noise/Compatible Land Use

Noise increases resulting from implementation of the Proposed Action may affect the quality of the human environment and are analyzed in this EIS. Noise impacts are analyzed by modeling the community exposure to aircraft noise attributable to each of the Proposed Action Airspace Redesign alternatives. The analysis focuses on the change in aircraft noise associated with each Proposed Action Airspace Redesign alternative as compared to the Future No Action Airspace Alternative conditions. The change in aircraft noise is compared to the noise impact criteria to determine the level of potential noise impacts. The results of the noise analysis are also used to determine whether the existing and planned land use is compatible with the change in noise exposure.

The analysis includes determination of aircraft noise exposure in the Study Area as forecast for the years 2006 and 2011. The analysis focuses on the noise conditions for specific locations at the population centroids

(i.e., centers of census blocks) using the Day/Night Average Sound Level (DNL). The number of people exposed to various noise levels is estimated based on the number of people residing in the census block corresponding to the centroid being evaluated. The noise exposure results are presented in terms of noise level and change criteria set forth by the FAA in Order 1050.1E.

The FAA has established 65 DNL as the threshold above which aircraft noise is considered to be incompatible with residential areas. In addition, the FAA has determined that a significant impact occurs if a proposed action would result in an increase of 1.5 DNL or more on any noise-sensitive area within the 65 DNL exposure level.⁷

Three categories of impacts are examined in this analysis, based on FAA Order 1050.1E:

- Significant Impacts: 1.5 DNL minimum increase resulting in 65+ DNL noise exposure, or 1.5 DNL minimum increase where noise exposure already exceeds 65 DNL
- Slight to Moderate: 3 DNL minimum increase resulting in noise exposure between 60 and 65 DNL, or 3.0 DNL minimum increase where noise exposure is already between 60 and 65 DNL
- Slight to Moderate: 5 DNL minimum increase resulting in noise exposure between 45 and 60 DNL, or 5 DNL minimum increase where noise exposure is already between 45 and 60 DNL

⁷ FAA Order 1050.1E; 14 CFR Part 150 Section 150.21(a)(2)(d); FICON 1992, Pp. 3-5.

Tables ES.2 and ES.3 present a summary of the affected population projected in 2006 and 2011 for each alternative in terms of the FAA threshold criteria. The table is color coded based on the centroid mapping scheme presented in **Figures ES.2 through ES.5**. The analysis indicates that each of the alternatives would result in some changes where noise exposure is increased to within one of the FAA criterion thresholds.

In terms of significant noise impact changes (+1.5 DNL in 65 DNL) the noise analysis indicates that with the exception of the Ocean Routing Airspace Alternative, each airspace alternative is expected to generate significant noise impacts in the future. This is largely due to the fact that the Modifications to Existing Airspace and the Integrated Airspace Alternatives include departure heading changes at the major airports while the Ocean Routing Airspace Alternative uses the current headings. The Modifications to Existing Airspace Alternative tends to create the fewest significant impacts and has the best aggregate significant impact totals. The Integrated Airspace Alternative Variations both generated similar levels of significant impacts in the future.

Therefore, it may be concluded that the implementation of the Modifications to Existing Airspace or the Integrated Airspace Alternatives would result in significant noise impacts. These significant noise impacts to noise sensitive areas would also be considered a significant impact in terms of land-use compatibility. Mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate were considered for the Preferred Alternative. See Section ES.7 and Chapter Five, *Preferred Alternative and Mitigation*, of the FEIS.

ES.6.2 Socioeconomic Impacts and Environmental Justice

According to FAA Order 1050.1E, the proposed changes in air traffic procedures should be evaluated for their potential to result in the relocation of residences and businesses; alter surface transportation patterns; divide established communities; disrupt orderly; planned development; or to create an appreciable change in employment.

The proposed alternatives would not result in the construction of facilities. Therefore, the alternatives considered would not result in a direct impact causing the relocation of residences or businesses; alteration of surface transportation patterns; division of established communities; disruption of orderly; planned development; or creation of an appreciable change in employment.

Although direct socioeconomic impacts would not be expected, there is the potential for indirect impacts because all of the Proposed Action Airspace Redesign alternatives except the Ocean Routing Airspace Alternative would potentially result in significant noise impacts. All of the significantly impacted census blocks are located in the vicinity of LGA, EWR, and PHL. With mitigation applied to the Preferred Alternative all significant noise impacts are eliminated by 2011. Therefore, socioeconomic impacts are not likely as a result of the mitigated Preferred Alternative.

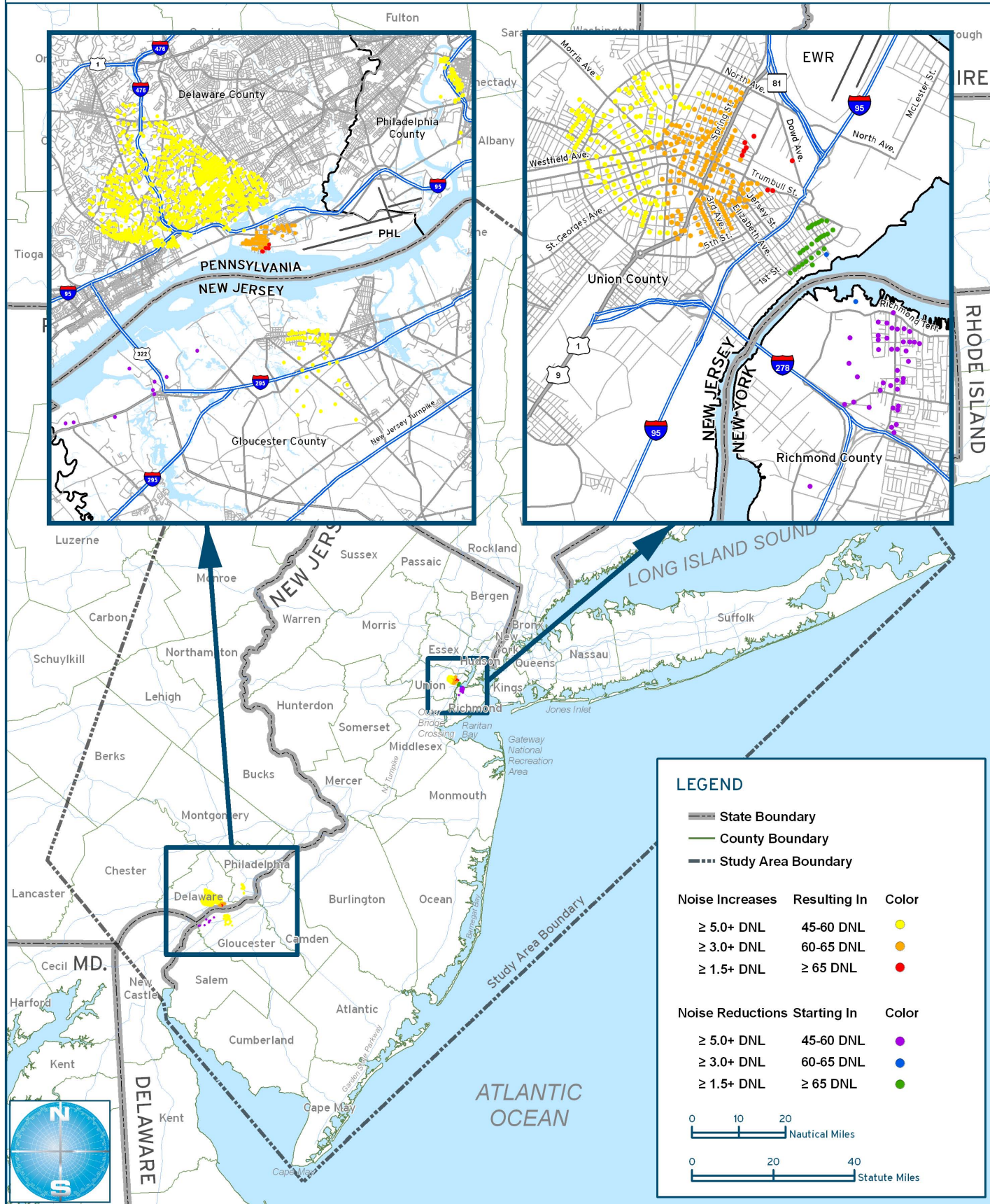
Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, and the accompanying Presidential Memorandum and Order DOT 5610.2, *Environmental Justice in Minority and Low-Income Populations*, require the FAA to identify and address disproportionately high



2011 Modifications To Existing Airspace Alternative Change In Noise Exposure

Figure
ES.2

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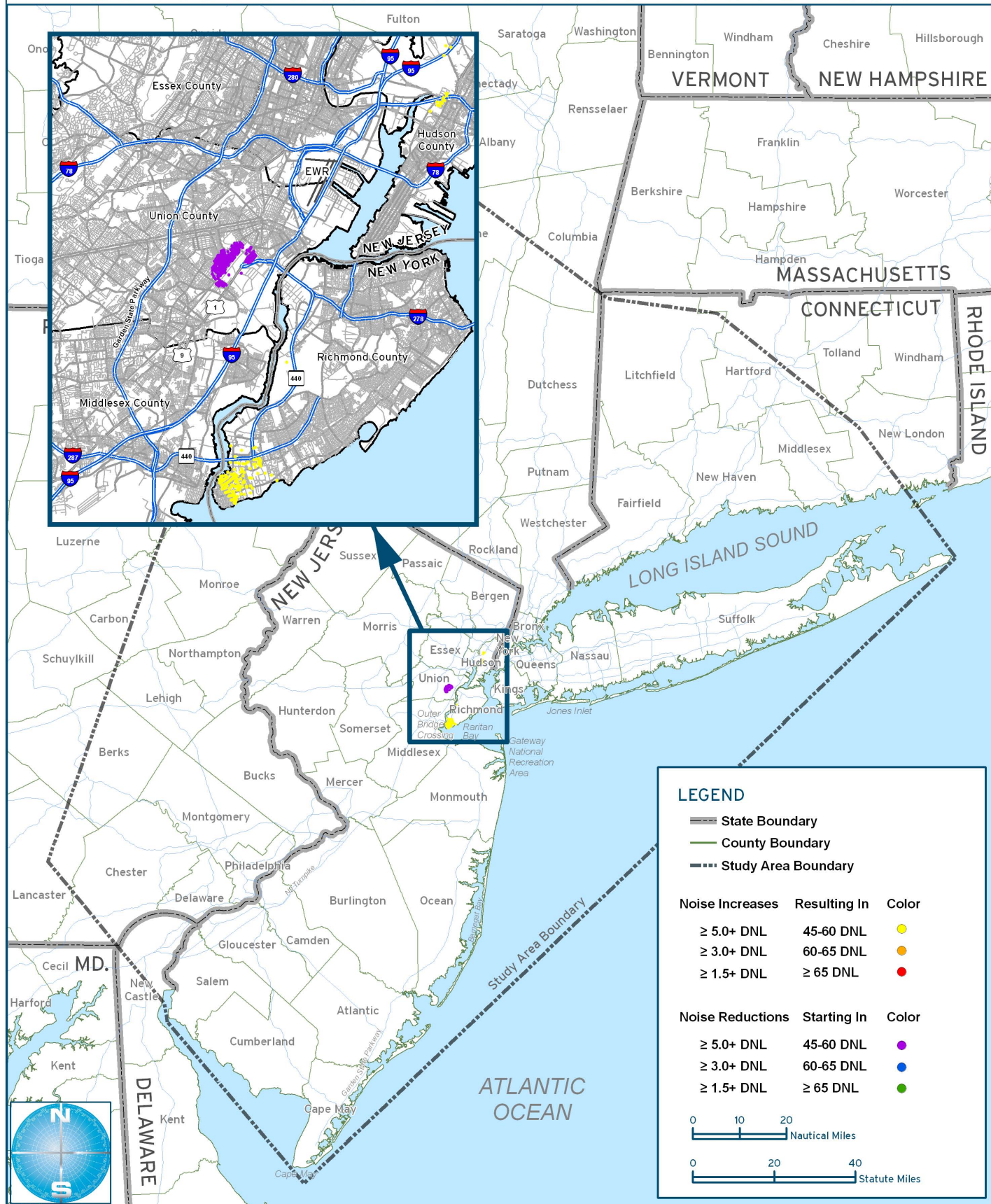




2011 Ocean Routing Airspace Alternative Change In Noise Exposure

Figure
ES.3

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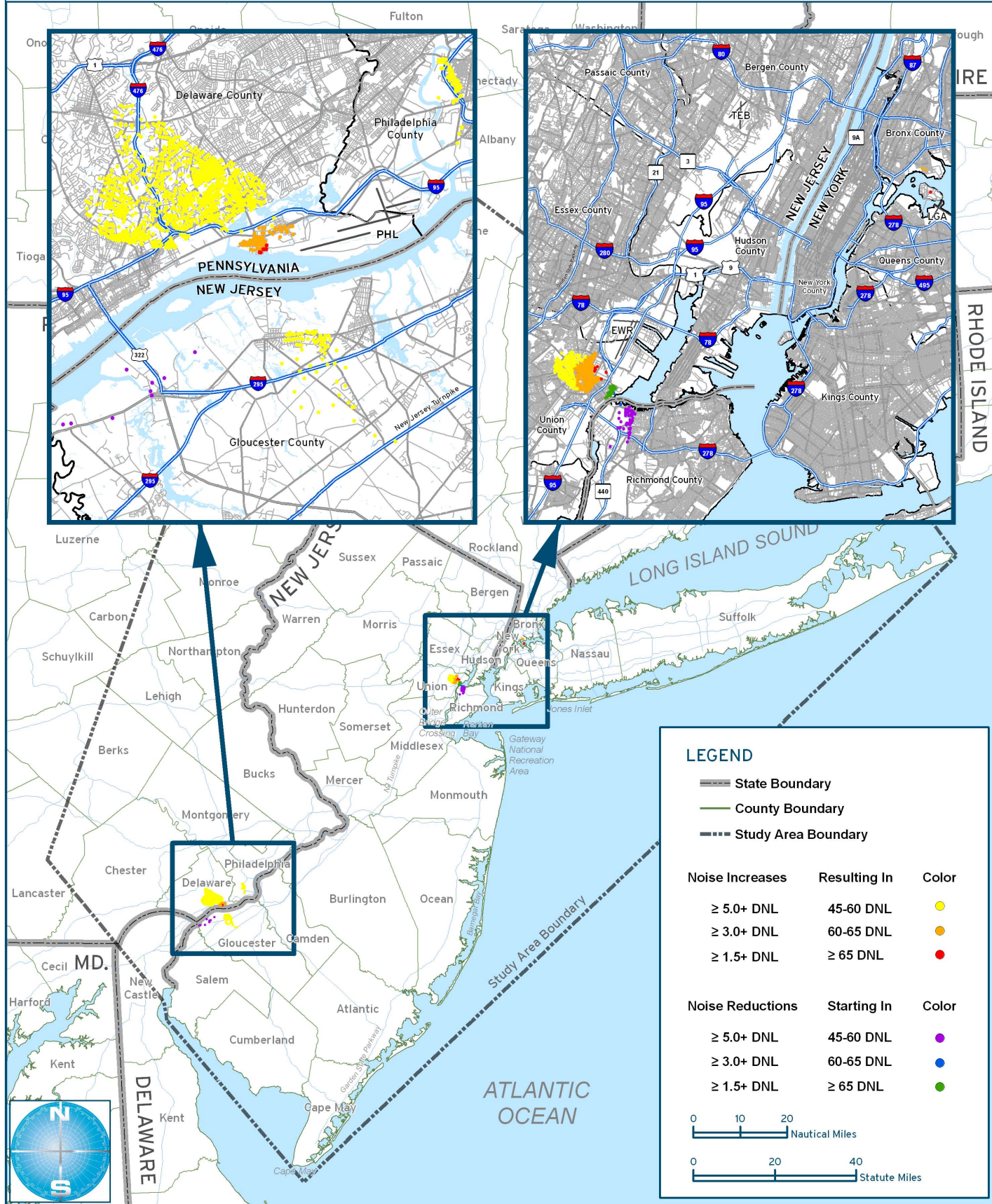




2011 Integrated Airspace Alternative Variation Without ICC Change In Noise Exposure

Figure ES.4

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2011 Integrated Airspace Alternative Variation With ICC Change In Noise Exposure

Figure ES.5

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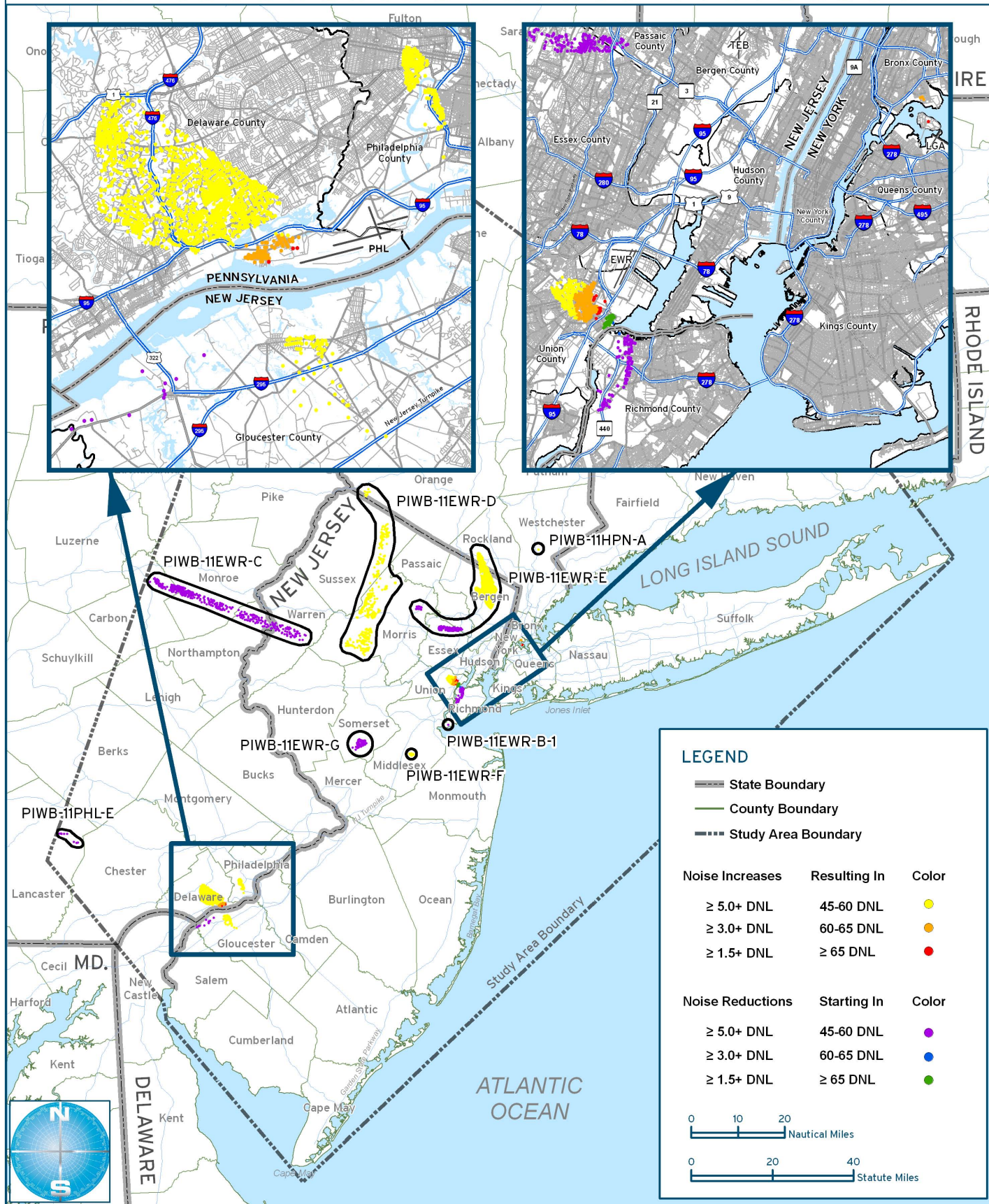


Table ES.2

Project Alternative Comparison – 2006 Population Impact Change Analysis Summary

	DNL Noise Exposure With Proposed Action		
	65 DNL or higher	60 to 65 DNL	45 to 60 DNL
Minimum Change in DNL With Alternative	1.5 DNL	3.0 DNL	5.0 DNL
Level of Impact	Significant	Slight to Moderate	Slight to Moderate
Noise Increases			
Modifications to Existing Airspace	8,755	37,627	146,056
Ocean Routing Airspace	0	0	26,498
Integrated Airspace Variation without ICC	21,399*	37,558	142,517
Noise Decreases			
Modifications to Existing Airspace	5,970	1	39,426
Ocean Routing Airspace	0	675	51,108
Integrated Airspace Variation without ICC	5,970	1	39,400

*Note that 12,834 persons of this total are transient population passing through the jail on Rikers Island.
Source: NIRS Analysis, Landrum & Brown/Metron Aviation Inc. 2007.

Table ES.3

Project Alternative Comparison – 2011 Population Impact Change Analysis Summary

	DNL Noise Exposure With Proposed Action		
	65 dB or higher	60 to 65 dB	45 to 60 dB
Minimum Change in DNL With Alternative	1.5 dB	3.0 dB	5.0 dB
Level of Impact	Significant	Slight to Moderate	Slight to Moderate
Noise Increases			
Modifications to Existing Airspace	1,010	34,279	110,720
Ocean Routing	0	0	18,748
Integrated without ICC	13,856*	34,140	111,413
Integrated with ICC	15,,826*	34,824	290,758
Noise Decreases			
Modifications to Existing Airspace	5,094	22	8,588
Ocean Routing	0	0	15,525
Integrated without ICC	5,094	22	9,895
Integrated with ICC	6,984	22	62,537

*Note that 12,846 persons of these totals are transient population passing through the jail on Rikers Island.
Source: NIRS Analysis, Landrum & Brown/Metron Aviation Inc. 2007.

and adverse human health or environmental impacts on low-income and minority populations in the communities potentially impacted by the Proposed Action. In order to comply with Order DOT 5610.2, the FAA must conduct meaningful public involvement with minority and low-income populations and analyze the potential for disproportionate adverse impacts to these communities.

Public involvement included informal pre-scoping meetings and formal scoping meetings. Pre-Scoping meetings were held from September 1999 to May 2000. Scoping meetings were held between January and June 2001. FAA presentations at these meetings included project information such as the Purpose and Need for the Proposed Action and the potential alternatives to accomplish the Proposed Action. During the pre-scoping and scoping meetings, the public was encouraged to comment on issues regarding the EIS.

All these meetings were designed with sensitivity to low-income and minority populations. To conduct meaningful public involvement, the FAA considered the special needs of the low-income and minority communities. Special needs were accommodated by holding meetings in locations accessible by public transit, providing translators, advertising meetings in specialized local foreign language media, and contacting community and church leaders.

After the publication of the DEIS, the FAA conducted DEIS public information meetings. These meetings allowed the public to ask questions of the FAA and submit comments regarding the content of the DEIS. As with the Pre-Scoping and Scoping meeting, the DEIS information meetings were designed with sensitivity to low-income and minority populations.

The FAA continued to conduct meaningful public involvement by again holding public information meetings after the publication of the *Noise Mitigation Report*. The FAA conducted seven public information meetings to discuss the Preferred Alternative and the proposed mitigation measures. Prior to the meetings the FAA undertook an extensive “grass roots” public announcement effort. In terms of environmental justice, it is important to note that the meeting held in Newark, NJ was near the community subject to significant environmental justice impacts as disclosed in the DEIS.

The environmental justice analysis in the DEIS examined the areas significantly impacted by noise for disproportionate adverse impacts to low income and minority communities. Areas near LGA and EWR were found to be significantly impacted by noise resulting from the Airspace Redesign alternatives.

Mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate for these significant impacts were considered for the Preferred Alternative. With mitigation applied to the Preferred Alternative all significant noise impacts are eliminated by 2011. Therefore, environmental justice impacts are not likely as a result of the mitigated Preferred Alternative.

ES.6.3 Secondary or Induced Impacts

Major development proposals have the potential to produce induced or secondary impacts on surrounding communities. Induced impacts could include shifts in population and growth, increased (or decreased) demand for public services, and changes in business and economic activity within the confines of the Study Area.

Significant induced impacts would normally result from significant impacts to other impact categories especially noise, compatible land use and social impacts. Therefore, potential secondary impacts were considered based on analysis of noise, land use, and social impacts. There is potential for significant noise impacts with all of the proposed alternatives with the exception of the Ocean Routing Alternative, however, with mitigation applied to the Preferred Alternative all significant noise impacts are eliminated by 2011. Therefore, it is not expected that the Preferred Alternative would result in shifts in population and growth; increased demand for public services; or changes in business and economic activity.

ES.6.4 Historical, Architectural, Archaeological, and Cultural Resources

Historical, architectural, archaeological, and cultural resources that will be affected by federally funded and licensed undertakings come under the protection of the National Historic Preservation Act of 1966 (16 U.S.C. 470), as amended. This act, in Section 106, requires Federal agencies to consider the effects of such undertakings on properties listed, or eligible for listing, in the National Register of Historic Places (NRHP). Regulations related to this process are described in 36 CFR Part 800, Protection of Historic Properties.

Ten historic and potentially historic sites were identified in the APE: the Inwood Country Club near JFK; the Unification Chapel, the residences at 34 E. Fourth Street, and 406 Marshall Street, the John Marshall School, the Bronx Powder Company and the Jenkins Rubber Company buildings, and the Singer Factory District all located just south of EWR; and the Lazaretto, the Printzhof, and the

Westinghouse Industrial Complex all located just to the east of PHL. The increase in noise associated with the Airspace Alternatives would not alter the historic characteristics which made these sites eligible for listing in the National Register therefore, is no adverse effect.

ES.6.5 Department of Transportation Act: Section 4(f)

Section 303(c), Title 49 USC, commonly referred to as Section 4(f) of the DOT Act,⁸ states that the "...Secretary of Transportation will not approve a project that requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land...and [unless] the project includes all possible planning to minimize harm resulting from the use."⁹

In regard to 4(f) properties the term use encompasses both physical use of the property as well as constructive uses. Indirect adverse impacts, such as noise, that prevent the use of Section 4(f) properties for their intended purpose are considered as constituting a constructive use. In determining whether there is a constructive use, the FAA must determine if the impacts would substantially impair the property. A Section 4(f) property is determined to be substantially impaired when the activities, features, or attributes of the site that contribute to its significance or enjoyment are substantially diminished. According to

⁸ Department of Transportation Act of 1966, § 4(f) [recodified at 49 USC 303 (c)].

⁹ FAA Order 1050.1E, Appendix A, page A-19.

FAA Order 1050.1E, the Part 150 land use compatibility guidelines may be used to determine if there is a constructive use of a Section 4(f) property, if the guidelines are relevant to the value, significance, and enjoyment of that particular property.

The Airspace Redesign alternatives do not require land acquisition or facility construction. Therefore, the Airspace Redesign alternatives do not result in a physical use of any Section 4(f) property. However, because the Proposed Action Airspace Redesign alternatives would potentially result in significant changes in noise, constructive use of Section 4(f) properties is also addressed.

Two methods were initially used to evaluate noise impacts to the Section 4(f) properties. The first method was to input location data (latitudes and longitudes) for Section 4(f) properties within these census blocks into the noise model and calculate noise values at the specific Section 4(f) locations. The results of this analysis may be found in Appendix J, *Section 4(f) and 6(f) Properties*. The second method was to determine which Section 4(f) properties were located within the significantly impacted census blocks by using the ESRI Geographic Names Information System database.

Based on these analyses it was determined that the noise level would potentially increase significantly at ten 4(f) sites: the Inwood Country Club near JFK; the Unification Chapel, the residences at 34 E. Fourth Street, and 406 Marshall Street, the John Marshall School, the Bronx Powder Company and the Jenkins Rubber Company buildings, and the Singer Factory District all located just south of EWR; and the Lazaretto, the Printzhof, and the Westinghouse Industrial Complex all located just to the east of PHL.

When Part 150 land use compatibility guidelines are used to determine if there is a constructive use of a Section 4(f) property, the noise impacts associated with the Airspace Redesign Alternatives do not substantially impair any Section 4(f) sites. However, based on further consultation with the National Park Service and other interested parties, there are 4(f) properties within the Study Area where the noise is very low and where Part 150 guidelines may not adequately address the expectations and purposes of people visiting areas within these parks and wildlife refuges. These 4(f) properties include the national parks and national wildlife refuges in the Study Area, Catskill State Park, Minnewaska State Park, and the Shawangunk Ridge State Forest. Additional analysis of these 4(f) properties is included in Chapter 5, *Preferred Alternative and Mitigation*. In consultation with the U.S. DOI, the FAA is conducting further evaluation of the potential noise increases in several areas to determine whether they result in a constructive use. The FAA will include the results of this evaluation, and any necessary additional 4(f) analysis and determination, in the Record of Decision.

Many Section 4(f) lands are also subject to the Land and Water Conservation Fund (LWCF) Act Section 6(f). Section 6(f) states that no public outdoor recreation areas acquired or developed with any LWCF assistance can be converted to non-recreation uses without the approval of the Secretary of the Interior. No 6(f) properties were determined to be significantly impacted by noise associated with the Proposed Action Airspace Redesign alternatives.

**ES.6.6 Fish, Wildlife, and Plants:
Specifically, Migratory Birds**

Potential impacts to fish, wildlife, and plants were evaluated in accordance with FAA Order 1050.1E. Since the Proposed Action includes changes in aircraft routes, the analysis of potential impact was focused on the potential for the Proposed Action to result in additional bird strikes. Based on bird strike statistics and FAA guidance, refined Bird Study Areas were developed. The potential impacts to avian species within these Bird Study Areas were considered. The Proposed Action Airspace Alternatives would include redesign of arrivals/departures within the bounds of the Bird Study Areas at the following airports: HPN, ISP, JFK, LGA, EWR, and PHL. To consider the potential impacts to avian species within the Bird Study Areas a qualitative analysis was conducted. For each of the subject airports, the Proposed Action Airspace Alternatives flight tracks were overlaid on the applicable Bird Study Areas. The resulting figures were developed for two purposes: to show the location of the changed tracks relative to the avian resources within the Bird Study Areas and to consider the changed flight tracks in relationship to the Future No Action Airspace tracks. Through this analysis it was determined that either the changed flight tracks were above 3,000 feet AGL and therefore above the altitude where most bird strikes occur or there were no discernable changes in the relationships of the flight tracks to resources within the bird study areas.

Based on this analysis it was concluded that impacts to various bird categories would be expected to continue, but not necessarily increase as a result of the Proposed Airspace Redesign. Therefore, no significant impacts to bird species would be expected to result

from any of the Airspace Redesign Alternatives.

ES.6.7 Cumulative Impacts

Consideration of cumulative impacts applies to the impacts resulting from the implementation of the Proposed Action as well as other actions. The concept of cumulative impacts addresses the potential for individually minor, but collectively significant, impacts to occur over time. Council on Environmental Quality Regulations, Section 1508.7, defines “Cumulative Impact” as the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the agency, Federal or non-Federal, undertaking such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

Projects within the vicinity of the Study Airports were reviewed to evaluate the potential for cumulative impacts. Airport improvement projects and other construction projects were considered and potential for cumulative impact is not anticipated.

Other airspace redesign projects were also considered during the evaluation of potential cumulative impacts. EISs for the Chicago Terminal Airspace Project (CTAP) and the Potomac Consolidated TRACON Airspace Redesign have been completed and the FAA issued Records of Decisions for both projects. Neither of the Study Areas for these projects overlaps the NY/NJ/PHL Metropolitan Area Airspace Redesign Project’s Study Area and the projects themselves do not induce growth or increase capacity; therefore, significant cumulative impacts are not anticipated. The FAA is in the process of completing an EA for the Midwest Airspace Enhancement Airspace

Redesign in the Cleveland/Detroit Metropolitan Areas. The environmental study area for this project does not overlap the Study Area for the NY/NJ/PHL Metropolitan Airspace Redesign and the project itself does not induce growth or increase capacity; therefore, significant cumulative impacts are not anticipated. Therefore, no cumulative impacts from the implementation of the NY/NJ/PHL Metropolitan Airspace Redesign and other airspace redesign projects are anticipated.

Summary of Environmental Impacts

As determined in the DEIS, the potential for significant impacts associated with each alternative is summarized in **Table ES.4**. Potential significant impacts were determined for Noise/Compatible Land Use and Socioeconomic Impacts/Environmental Justice. There was no potential for significant impacts associated with the Ocean Routing Airspace Alternative.

Table ES.4
Summary of Potential for Significant Environmental Impacts

Environmental Impact Category	Alternative							
	Modifications to Existing Airspace		Ocean Routing Airspace		Integrated Airspace			
					without ICC		with ICC	
	2006	2011	2006	2011	2006	2011	2006	2011
Noise / Compatible Land Use	Yes	Yes	No	No	Yes	Yes	N/A	Yes
Socioeconomic Impacts / Environmental Justice	Yes	Yes	No	No	Yes	Yes	N/A	Yes
Secondary or Induced Impacts	No	No	No	No	No	No	N/A	No
Department of Transportation Act: Sections 4(f) and 6(f)	No	No	No	No	No	No	N/A	No
Historical, Architectural, Archaeological and Cultural Resources	No	No	No	No	No	No	N/A	No
Wild and Scenic Rivers	No	No	No	No	No	No	N/A	No
Fish, Wildlife, and Plants	No	No	No	No	No	No	N/A	No
Light Emissions and Visual Impacts	No	No	No	No	No	No	N/A	No
Air Quality	No	No	No	No	No	No	N/A	No
Natural Resources and Energy Supply	No	No	No	No	No	No	N/A	No
Construction Impacts	No	No	No	No	No	No	N/A	No
Farmlands	No	No	No	No	No	No	N/A	No
Coastal Resources	No	No	No	No	No	No	N/A	No
Water Quality	No	No	No	No	No	No	N/A	No
Wetlands	No	No	No	No	No	No	N/A	No
Floodplains and Floodways	No	No	No	No	No	No	N/A	No
Hazardous Materials and Solid Waste	No	No	No	No	No	No	N/A	No

Source: Landrum & Brown, Metron and HNTB analysis, 2005.

ES.7 PREFERRED ALTERNATIVE AND MITIGATION

The following sections identify the FAA's Preferred Alternative, the mitigation applied to the alternative, and the results of mitigation for noise reduction.

ES.7.1 Preferred Alternative

On March 23, 2007, after extensive analysis and public hearings in five states — New York, New Jersey, Pennsylvania, Delaware and Connecticut — the Integrated Airspace Alternative Variation with ICC was identified as the Preferred Alternative for the NY/NJ/PHL Metropolitan Area Airspace Redesign Project. Among the alternatives studied, the Integrated Airspace Alternative Variation with ICC best meets the purpose and need of the project, which is to improve the efficiency and reliability of the airspace structure and air traffic control system from southern Connecticut to eastern Delaware.

ES.7.2 Mitigation

Each of the Airspace Alternatives described in ES.3, *Alternatives*, was analyzed to determine its operational effects. The Integrated Airspace Alternative Variation with ICC would result in the following benefits:

- A reduction in the complexity of the current air traffic system operation in New York and Philadelphia;
- A reduction in delays, and the expeditious arrival and departure of aircraft;
- Improved flexibility in routing aircraft;
- A more balanced controller workload; and

- An increase in the FAA's ability to meet system demands.

Throughout the course of the public meetings and the comment period, the FAA committed to the development of a noise mitigation package to alleviate, to the extent possible, the impacts associated with the preferred alternative. Upon identification of the Preferred Alternative, the FAA proceeded with the design of the noise mitigation package.

Mitigation measures are those designed to avoid, minimize, rectify, reduce, eliminate, or compensate for significant impacts. Since the Preferred Alternative would result in significant noise and noise associated impacts (environmental justice), mitigation measures were developed to reduce the significant noise impacts where possible.

After the public comment period closed for the DEIS in July of 2006, all comments received were organized and categorized for response in the FEIS document. As part of this process, any comment that discussed a potential noise mitigation measure was flagged. There were over 450 such comments considered. At the same time, the FAA identified potential mitigation measures by reviewing not only the threshold-based noise impacts presented in the DEIS but also the noise changes throughout the Study Area. Many of the public mitigation comments focused on similar issues and techniques and some of these were similar to the ideas that were generated separately by the FAA.

Initial screening as to whether each measure was operationally viable or presented a safety concern was conducted. While some mitigation measures were eliminated immediately because of readily apparent operational or safety problems, detailed operational analysis was required for others.

Through the qualitative and quantitative analysis it was determined whether a measure was operationally viable. The quantitative operational analysis also revealed key findings related to developing mitigation measures that would not impact operational efficiency. These findings are summarized as follows:

- EWR - Three departure headings are necessary to maintain operational efficiency.
- EWR – The use of the three headings could be varied throughout the day to minimize noise impact.
- EWR – A modified ocean routing could be used for some late-night departures.
- EWR - Some of the arrival routes could be raised to reduce noise.
- EWR – Continuous Descent Approach (CDA) procedures could be used for some arrival routes during the nighttime hours.
- PHL – A minimum of three departure headings are necessary to maintain operational efficiency.
- PHL – The current single heading departure procedure could be used during the nighttime hours given the forecast traffic levels.
- PHL – The river approach to Runway 9L could be used more to reduce noise.
- PHL – CDA procedures could be used for some arrival routes during the nighttime hours given the forecast traffic levels.

- LGA – The use of the new departure headings could be varied throughout the day to minimize noise impact.
- LGA – The LDA approach procedure to Runway 22 could be used more often.
- HPN – Departures to the northwest could be routed more like the No Action Airspace Alternative to reduce noise impacts.

These factors provided a general framework in which the specific mitigation measures could be developed for noise reduction.

Table ES.5 presents a list of the mitigation measures that withstood the operational screening and were ultimately included in the final mitigation package for the Preferred Alternative.

ES.7.3 Mitigation Results

The mitigation designed for the 2011 Preferred Alternative reduced the noise levels below the threshold of significance. **Table ES.6** summarizes the estimated change in population exposed to aircraft noise levels that meet the FAA criteria resulting from the mitigated Preferred Alternative airspace design. The cells in the table are color-coded similar to the scheme used on the figures so that specific numbers of persons can be related to the maps illustrating the noise change.

Based on the NIRS analysis it is estimated that only 545 persons would be exposed to a significant (+1.5 DNL at 65 DNL or higher) change in noise in 2006 resulting from the mitigated Preferred Alternative. This number would decrease in 2011 to zero persons. The alternative would, at the same time, provide noise reduction of 1.5 DNL or more in other areas exposed to 65 DNL or

Table ES.5

Mitigation Measures to be Included in the Final Mitigation Package

Airport/ Runway/ Procedure	Mitigation Measure
EWR 22 Departures	Use 3 departure headings based on demand during daytime hours. - Light Demand use single 190 heading like current conditions - Moderate Demand use 2 departure headings of 215 and 239 - Heavy Demand use 3 departure headings of 215, 239, and 263 At night (10:30 pm – 6:00 am)use 190 heading only and Modified Ocean Routing
EWR 4 and 22 Arrivals	Raise all arrival altitudes as much as possible.
EWR Arrivals	Use Continuous Descent Approach procedures at night for arrivals from the Northwest and Southwest
HPN Departures	Move departure routes to be more like No Action routes NW of the airfield
LGA 31 Departures	Adjust the usage of the new headings dependant on departure demand during the day.
LGA 22 Arrivals	Increase arrivals using the LDA.
PHL 9R/27R Arrivals	Develop CDA routes from three primary arrival fixes.
PHL 9R Arrivals	Increase use of the visual approach to Runway 9R (the River Approach).
PHL 27L/R Departures	Use 3 departure headings of 230, 245, and 268 during daytime hours. At night use 1 departure heading of 255 like current conditions.
PHL 9L/R Departures	Use 4 departure headings of 081, 096, 112, and 127 during daytime hours. At night use 1 departure heading of 085 like current conditions.

Table ES.6

**Estimated Population Impact
Change Analysis Summary – Mitigated Preferred Alternative**

	DNL Noise Exposure With Proposed Action		
	65+ DNL	60 to 65 DNL	45 to 60 DNL
Minimum Change in DNL With Alternative>	1.5 DNL	3.0 DNL	5.0 DNL
Level of Impact>	Significant	Slight to Moderate	Slight to Moderate
Noise Increases			
2006 – Mitigated Preferred Alternative	545	21,626	15,509
2011 – Mitigated Preferred Alternative	0	16,803	50,392
Noise Decreases			
2006 – Mitigated Preferred Alternative	310	1	35,684
2011 – Mitigated Preferred Alternative	3,201	1	207,629

Source: NIRS Analysis, Landrum & Brown/Metron Aviation, Inc. 2007.

greater in the Future No Action Airspace Alternative. In 2006, this level of reduction would be experienced by 310 persons and would increase in 2011 to just over 3,000 persons.

Slight to moderate impacts are also evident at lower noise levels resulting from the mitigated Preferred Alternative. In the 60 to 65 DNL range, it is expected that 21,626 persons would experience an increase in noise levels of greater than or equal to 3.0 DNL or more in 2006. This number is expected to decrease slightly to 16,803 persons by 2011. There would essentially be no decreases of greater than or equal to 3.0 DNL at noise levels of 60 to 65 DNL expected as a result of the mitigated Preferred Alternative in either 2006 or 2011. At the lowest analyzed noise levels (45 to 60 DNL), where slight to moderate (± 5.0 DNL) impacts were identified, the mitigated Preferred Alternative is expected to result in potential noise increases of greater than or equal to 5.0 DNL for 15,509 persons in 2006. This potential impact is expected to increase in 2011 to some 50,392 persons. Conversely, a reduction in noise exposure at these lower noise levels is also expected from the implementation of the mitigated Preferred Alternative. In 2006, 35,684 persons exposed to between 45 and 60 DNL would experience a noise level reduction of greater than or equal to 5.0 DNL. By 2011, the noise relief at these same levels is expected to be experienced by some 207,629 persons. The table is color coded based on the centroid mapping scheme presented in **Figure ES.6**.

ES.8 PUBLIC AND AGENCY INVOLVEMENT

In accordance with NEPA guidelines, the FAA has involved the public and other agencies in the impact assessment process. During the informal pre-scoping and formal

scoping period for the EIS, the public and agencies were given the opportunity to assist in determining the scope of issues to be addressed in this EIS. After the scoping meetings, the FAA held a number of agency meetings, distributed newsletters, and created a website to educate, inform, and receive feedback from concerned citizens and organizations.

The pre-scoping process included a series of airspace redesign workshops. Thirty-one workshops were held throughout the Study Area between September 22, 1999, and February 3, 2000. A total of 1,174 people attended the workshops and 712 comments were received.

The formal scoping period was January 22, 2001 through June 29, 2001. The scoping process consisted of 28 public meetings and three agency meetings held in various locations throughout the Study Area. A total of 1,031 people attended the scoping meetings and 901 comments were received.

In addition to formal scoping meetings, the FAA met with agencies with jurisdiction or special knowledge relative to the Airspace Redesign project on an as needed basis. Typically, each meeting consisted of introductions, a slide show presentation, and a video on the NY/NJ/PHL Metropolitan Airspace Redesign project. The agencies were encouraged to share their concerns or comments regarding the Airspace Redesign. The agency comments and concerns were used by the FAA in assembling the materials needed for the Draft EIS.

Throughout the development of the EIS, the FAA consulted with interested agencies and organizations. **Table ES.7** provides a sampling of the agencies and organizations consulted. (See Appendices L and M for additional information regarding agency consultation.) Periodic briefings were also



2011 Mitigated Preferred Alternative Change In Noise Exposure

Figure
ES.6

ENVIRONMENTAL IMPACT STATEMENT

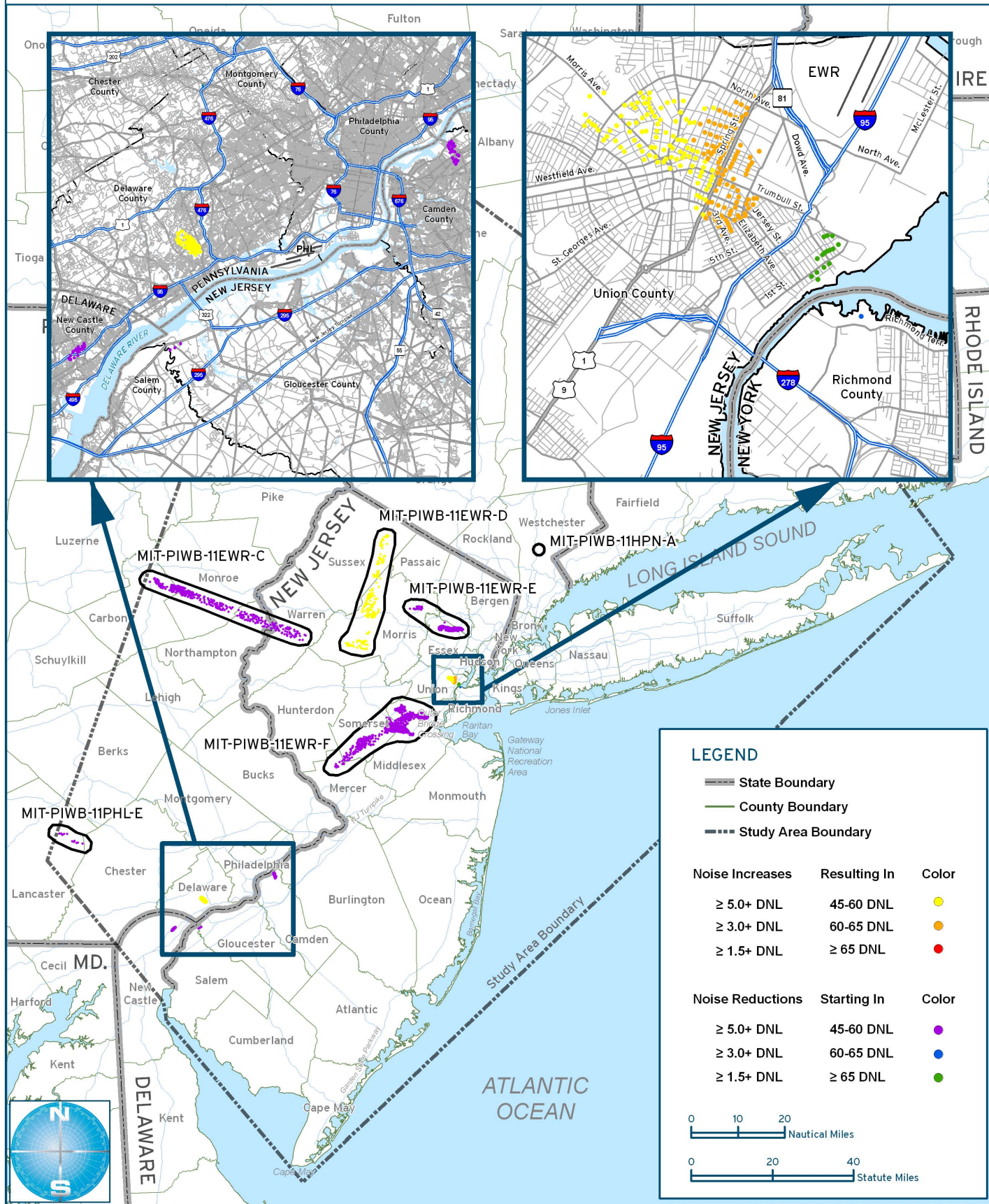


Table ES.7

Sampling of Agencies and Organizations Consulted

Airline Pilots Association
Brandywine Hundred, Delaware
Connecticut State Department of Transportation
Connecticut State Historic Preservation Officer
Delaware Department of Natural Resources and Environmental Control
Delaware State Historic Preservation Officer
Delaware Valley Regional Planning Commission
Eastern Region Helicopter Council
Environmental Protection Agency Regions 1, 2, and 3
Manhattan Borough President, Manhattan Borough President's Helicopter Task Force
Metropolitan New York Aircraft Noise Mitigation Committee (Governor's Group of Nine)
Mid-Atlantic Federal Partners for the Environment
NBAA Users Forum
New England Airspace/Range Council
New Jersey Coalition Against Aircraft Noise
New Jersey Department of Environmental Protection
New Jersey Department of Transportation
New Jersey State Commerce Department
New Jersey State Historic Preservation Officer
New York Department of Transportation
New York State Department of Environmental Conservation
New York State Historic Preservation Officer
Newark International Airport Aircraft Advisory Committee
New Jersey Acting Governor and Director of Aeronautics
Pennsylvania Department of Environmental Protection
Pennsylvania Department of Transportation
Pennsylvania State Historic Preservation Officer
Philadelphia Airport Authority
Port Authority of New York/New Jersey
Queens Borough President's Aviation Advisory Committee
State Aviation Directors
Town and Village Aviation Safety/Noise Abatement Committee
Transportation Research Board
US Department of Homeland Security
US Department of Interior, National Park Service and Fish and Wildlife Service

given to members of Congress, the New Jersey and Delaware Congressional delegations, and various Governors' offices.

The Draft EIS was distributed to interested federal, state, and local agencies, and citizens for review and comment. (See Chapter Nine for a comprehensive list.) Public information meetings were held for the DEIS from February 2006 through May 2006. On February 16, 2006 emails were sent to over 580 residents listing the specific

meeting locations and on February 24, 2006 postcards were sent to over 3,200 residents with specific meeting locations. Each meeting was publicized through multiple local newspapers and radio stations. The public meeting process consisted of 30 meetings held in various locations throughout the Study Area. A total of 1,166 people attended the public meetings, and a total of 321 written and oral comments were received. The FAA reviewed and responded

to all comments received during the comment period.

On April 6, 2007, the FAA published its Noise Mitigation Report, providing detailed information on mitigation measures for its Preferred Alternative. FAA informed the public of its availability through the FAA website and provided copies of the report to 71 libraries within the Study Area. FAA conducted seven public information meetings to discuss the Preferred Alternative and the proposed mitigation measures. The FAA accepted comments on the Noise Mitigation Report through May 11, 2007. Comments were also accepted at the Mitigation public information meetings held in June. Over 2,200 people attended the meetings, and approximately 1,700 written and oral comments were received.

The FAA engaged in several other initiatives to educate and involve the public in the Airspace Redesign Project. One of the primary initiatives was the project website. The project website was established in 2002 and provided both important project related information and the opportunity to submit comments to the FAA.